



**NOTICE OF
CITY COUNCIL REGULAR MEETING
CELINA COUNCIL CHAMBERS 112 N. COLORADO ST., CELINA, TX 75009
Tuesday, January 8, 2019 AT 5:00 PM**

AGENDA

I. CALL TO ORDER AND ANNOUNCE A QUORUM PRESENT:

II. PLEDGE OF ALLEGIANCE/INVOCATION:

III. PROCLAMATIONS/PRESENTATIONS/OATHS OF OFFICE:

IV. OPEN FORUM:

Open Forum is for information only. If you wish to speak, please sign the "Speaker List" with the City Secretary. Speakers are limited to three (3) minutes. The Council can take no action. No charges and/or complaints will be heard against any elected official or employee of the city.

Please note Anyone wishing to furnish the City Council with copies/handouts regarding their item of interest must provide 9 copies and present them to the City Secretary for distribution to the City Council.

V. WORKSESSION/COMMITTEE REPORTS/STAFF REPORTS:

- A. Introduction of new employees. (Toutouchian)
- B. Discussion regarding brand standards and positioning/messaging strategy development. (Eisenberg and Associates)
- C. Discussion regarding any and/or all agenda items.

VI. EXECUTIVE SESSION:

The Celina City Council will convene into Executive Session pursuant to Texas Government Code 551.072, Deliberations Regarding Real Property, to deliberate the purchase, exchange, lease or value of real property.

- A. Discussion regarding a resolution authorizing the purchase of certain real property in the downtown area (403 W. Walnut) utilizing CIP funds dedicated for such purposes.

Reconvene Into Open Session

- B. Consider and act upon any items discussed in executive session.

VII. CONSENT AGENDA: Items are considered self-explanatory and will be enacted with one motion. No separate discussion of these items will occur unless so requested by at least one member of the City Council.

A. Minutes Approval:

1. City Council - Regular Meeting - Dec 11, 2018 5:00 PM
2. City Council - Special Meeting - Dec 20, 2018 5:00 PM

- B. **2019-1R** - Consider and act upon a resolution of the City Council of the City of Celina, Texas, approving rules for the electronic receipt of bids or proposals. (Berry)
- C. **2019-2R** - Consider and act upon a resolution of the City Council of the City of Celina, Texas, delegating authority to the City's Purchasing Manager to determine the best method of procurement for the purchase of goods and services. (Berry)
- D. **2019-3R** - Consider and act upon a resolution of the City Council of the City of Celina, Texas, adopting the U.S. Department of Labor's wage rates for Collin County, Texas, for all City Public Works contracts. (Berry)
- E. Consider and act to authorize the City Manager to execute a contract between the City of Celina and McKee Utility Contractors in the amount of \$3,950,633.00 for the construction of a 36-inch water line and appurtenances (Brawner)
- F. Consider and act upon a Master Services Agreement (MSA) contract by and between the City of Celina and Kimley-Horn and Associates, Inc. for Engineering and Surveying Services. (Brawner)
- G. **2019-4R** - Consider and act upon a resolution accepting a petition from the City of Celina for the voluntary annexation of an approximately 4.00 acre tract of land situated in Lot 1, Block A of the Water Tower Addition at Light Farms, Collin County, Texas and setting two public hearing dates for February 12, 2019 at 5:00 p.m. and March 12, 2019 at 5:00 p.m. at the CISD Administration Building Board Room located at 205 S. Colorado Street, Celina, Texas. The property is generally located on the north side of Light Farms Way and approximately 350 feet east of the Dallas North Tollway. (Fire Station No. 2 and Water Tower Annexation Resolution) (McAfee)

VIII. PUBLIC HEARING/ACTION:

- A. **2019 - 1** - The Celina City Council will conduct a public hearing to consider testimony, and act upon an ordinance adopting the Celina Downtown Master Plan. (Celina Downtown Master Plan) (Jackson)
- B. The Celina City Council will conduct a public hearing to consider testimony and act upon the approval of development standards for a single-family residential development on an approximately 35.049 acre tract of land situated in the W. J. Stapp Survey, Abstract No. 834 and the Robert Scaggs Survey, Abstract No. 801, Collin County, Texas. The property is generally located on the west side of CR 133, south of CR 128, and north of FM 455. (Celina Estates Development Standards) (McAfee)

- C. The Celina City Council will conduct the first of two public hearings on the proposed voluntary annexation of approximately 7.426 acre tract of land situated in the Collin County School Land Survey #14, Abstract No. 167, Collin County, Texas, and generally located on the north side of Frontier Parkway and approximately 900 feet east of Prairie Crossing. (All Storage Annexation Resolution) (McAfee)
- D. The Celina City Council will conduct a public hearing to consider testimony and act upon a Pre-annexation Development Agreement by and between the City of Celina, Texas and G&N Estates, LLC. The property is an approximately 40.279 acre tract of land situated in the Coleman Watson Survey, Abstract No. 495, Collin County, Texas, and generally located on the north side of Choate Parkway, approximately 1,600 feet west of Custer Road, and is located within the City of Celina's ETJ. (Celina 40) (McAfee)

IX. ACTION ITEM:

- A. Consider and act to authorize the City Manager to execute a contract by and between the City of Celina and Hayden and Associates in the amount of \$530,060.00 for the design of North Colorado Drive from West Walnut Street to North of Maple Street, West Beech Street from North Colorado Drive to Railroad tracks, North Ohio Drive from West Pecan Street to West Beech Street, and West Pecan Street from North Colorado Drive to North Arizona Drive. (Brawner)
- B. **2019-5R** - Consider and act upon a resolution of the City Council of the City of Celina, Texas, ordering and calling a General Election for the purpose of electing a council member for Place 1, and a council member for Place 6 for three (3) year terms each; authorizing a joint election with the Collin County Elections Administrator, Denton County Elections Administrator and the political subdivisions located entirely or partially inside the boundaries of Denton County and Celina Independent School District Board of Trustees to be held on May 4, 2019. (Faulkner)

X. ADJOURNMENT:

City Council Chambers is wheelchair accessible. Persons with disabilities who plan to attend this meeting and who may need auxiliary aids or services such as interpreters for persons who are deaf, or hearing impaired, or readers of large print, are requested to contact the City Secretary's Office at 972-382-2682, or fax 972-382-3736 at least two (2) working days prior to the meeting so that appropriate arrangements can be made.

The City Council reserves the right to adjourn into executive session at any time during the course of this meeting to discuss any of the matters listed above, as authorized by the Texas Government Code, Chapter 551. "I, the undersigned authority do hereby certify that the Notice of Meeting was posted on the bulletin board at City Hall of the City of Celina, Texas, a place convenient and readily accessible to the general public at all times and said Notice was posted on the following date and time: _____ at ____ p.m. and remained so posted continuously for at least 72 hours prior to the scheduled time of said meeting."

Vicki Faulkner, TRMC
City Secretary, City of Celina, TX

Date Notice Removed



**NOTICE OF
CITY COUNCIL REGULAR MEETING
CELINA COUNCIL CHAMBERS 112 N. COLORADO ST., CELINA, TX 75009
Tuesday, December 11, 2018 AT 5:00 PM**

MINUTES

I. CALL TO ORDER AND ANNOUNCE A QUORUM PRESENT:

Attendee Name	Organization	Title	Status	Arrived	Departed
Bill Webber	City of Celina	Place 1	Present		
Wayne Nabors	City of Celina	Place 2	Present	5:03 PM	
Andy Hopkins	City of Celina	Place 3	Present		
Carmen Roberts	City of Celina	Place 4	Present		6:49 PM
Mindy Koehne	City of Celina	Place 5	Present		6:30 PM
Chad Anderson	City of Celina	Place 6	Present		
Sean Terry	City of Celina	Mayor	Present		

Mayor Sean Terry called the meeting to order at 5:03 p.m.

II. PLEDGE OF ALLEGIANCE/INVOCATION:

Mayor Terry led the pledges of allegiance. Pastor Baldwin with the First United Methodist Church gave the invocation.

III. PROCLAMATIONS/PRESENTATIONS/OATHS OF OFFICE:

IV. OPEN FORUM:

No public comment was received.

V. WORKSESSION/COMMITTEE REPORTS/STAFF REPORTS:

A. New employee introductions. (Metdker, McAfee)

Fire Chief Mark Metdker introduced the following new firemen: Terry Anderson, Caleb Barker, Cameron Brewer, Dan deCiutiis, Klint Ervin, Javier Gil, Rob Hale, Alex Jenkins, Michael Lang, Alex Mann, Chris O'Neal, Juan Ortiz, Brandon Raidy, John Rand, Jacob Roach, Brent Sullivan, Jacob Sullivan, E. J. Vest. Director of Development Services Dusty McAfee introduced new Code Enforcement Officer Bruce Koliba. At this time Mayor Terry announced that the Council will take some items out of order. The Council approved the Consent Agenda and then took the Public Hearing/Actions items in order.

B. Downtown Plan update. (Jackson)

The City Council came back to item B after taking the Public Hearing items. Economic Development Director Alexis Jackson and Abra Nusser with Ideation Planning presented the proposed Downtown Plan.

Minutes Acceptance: Minutes of Dec 11, 2018 5:00 PM (Minutes Approval)

Councilwoman Roberts left the meeting at this time, 6:49 p.m.

C. Parvin Road proposed alignment and scope of work. (Brawner)

Assistant Director of Engineering Andy Glasgow presented the proposed project.

D. Discussion regarding any and/or all agenda items.

No other items were discussed.

VI. EXECUTIVE SESSION:

The Celina City Council adjourned into Executive Session at 6:55 p.m. with City Manager Jason Laumer and City Attorney Lance Vanzant.

The Celina City Council will convene into Executive Session pursuant to Texas Government Code 551.071, Consultation with Attorney, 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.

A. Discussion regarding an agreement related to Celina Parkway in the Old Celina MMD.

Reconvene Into Open Session

B. Consider and act upon any items discussed in executive session.

The City Council reconvened into Open Session at 7:19 p.m. No action was taken out of Executive Session.

VII. CONSENT AGENDA:

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Andy Hopkins, Place 3
SECONDER:	Chad Anderson, Place 6
AYES:	Webber, Nabors, Hopkins, Roberts, Koehne, Anderson

A. Minutes Approval:

1. City Council - Regular Meeting - Nov 13, 2018 5:00 PM
2. City Council - Special Meeting - Nov 20, 2018 5:00 PM

B. Consider and act upon a resolution of the City Council of the City of Celina, Texas, accepting the 2018 Certified Tax Roll for the City of Celina. (Toutouchian)

C. Consider and act upon a resolution accepting a petition from All Storage Celina, LLC for the voluntary annexation of an approximately 7.426 acre tract of land situated in the Collin County School Land Survey #14, Abstract No. 167, Collin County, Texas and setting two public hearing dates for January 8, 2019 at 5:00 p.m. and February 12, 2019 at 5:00 p.m. at 112 N. Colorado Street, Celina, Texas. The property is generally located on the north side of Frontier Parkway and approximately 900 feet east of Prairie Crossing. (All Storage Annexation Resolution) (McAfee)

Minutes Acceptance: Minutes of Dec 11, 2018 5:00 PM (Minutes Approval)

- D. Consider and act upon a contract by and between the City of Celina and D&S Engineering Labs in the amount of \$58,312.00 for Engineering and Material Testing Services for the Wastewater Treatment Plant. (Brawner)
- E. Consider and act upon a modification to the Master Services Agreement (MSA) by and between the City of Celina and EST for Engineering and Surveying Services. (Brawner)
- F. Consider and act to authorize the City Manager to execute an agreement by and among the City of Celina and G Bar 7, Ltd. and 7G Management, LLC for a 0.124 acre wastewater transmission pipeline easement. (Laumer)
- G. Consider and act to authorize the City Manager to execute an agreement by and among the City of Celina and G Bar 7, Ltd. and 7G Management, LLC for a 0.663 acre water transmission pipeline easement. (Laumer)
- H. Consider and act to authorize the City Manager to execute an agreement by and among the City of Celina and G Bar 7, Ltd. and 7G Management, LLC for a 0.009 acre wastewater transmission pipeline easement. (Laumer)

VIII. PUBLIC HEARING/ACTION:

- A. The Celina City Council will conduct a public hearing to consider testimony and act upon an ordinance amending Ordinance No. 2006-57, as heretofore amended, the same being the Comprehensive Zoning Ordinance, and amending the official zoning map of the City by amending an approximately 12.854 acre tract of land zoned Planned Development No. 34, which has an underlying zoning designation of C-1, Retail, and is situated in the Jonathan Westover Survey, Abstract No. 1030, Collin County, Texas, by adding a new land use to the allowed uses. The property is generally located on the northwest corner of Frontier Parkway and Coit Road, within the City of Celina. (Brazos Electric) (McAfee)

Councilman Nabors moved to approve with the addition of one foot on the wall and engineering studies on the drainage.

Mayor Terry opened the hearing at 5:07 p.m. Those present and speaking were:

Michael Moore, 3036 Falcon Road - concerns were flooding, a higher buffer wall and property values.

David Cauble, 3150 Falcon Road - concerns were property values, noise, health, aesthetics, road expansion, EMFs. He requested a 9 foot wall and a bar ditch between the property owners and the commercial space.

Shea and Jeffrey with Kimley Horn representing the applicant most equipment will be screened by the 8 foot wall and the good amount of trees, scrubs will provide more screening.

Michael Halleman, 3200 Falcon Road - concern was health issues and why this location. He requested a 9 foot wall and the placement of the trail on the east side of the property.

The hearing was closed at 5:25 p.m.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Wayne Nabors, Place 2
SECONDER:	Andy Hopkins, Place 3
AYES:	Webber, Nabors, Hopkins, Roberts, Koehne, Anderson

- B. The Celina City Council will conduct a public hearing to consider testimony and act upon an ordinance amending Ordinance No. 2006-57, as heretofore amended, the same being the Comprehensive Zoning Ordinance, and amending the official zoning map of the City by amending an approximately 6.268 acre tract of land zoned C-2, General Commercial, situated in the Collin County School Land Survey #14, Abstract No. 167, Collin County, Texas, to grant a Conditional Use Permit (CUP) allowing a self-storage land use. The property is generally located on the north side of Frontier Parkway, approximately 750 feet west of Preston Road, and east of BNSF Railroad, within the City of Celina. (Celina 15 Self-Storage) (McAfee)

Mayor Terry opened the hearing at 5:25 p.m. No public comment was received. The hearing was closed at 5:29 p.m.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Bill Webber, Place 1
SECONDER:	Chad Anderson, Place 6
AYES:	Webber, Nabors, Hopkins, Roberts, Koehne, Anderson

- C. The Celina City Council will conduct a public hearing to consider testimony and act upon a Pre-annexation Development Agreement by and between the City of Celina, Texas and G&N Estates, LLC. The property is an approximately 40.279 acre tract of land situated in the Coleman Watson Survey, Abstract No. 495, Collin County, Texas, and generally located on the north side of Choate Parkway, approximately 1,600 feet west of Custer Road, and is located within the City of Celina's ETJ. (Celina 40) (McAfee)

Councilman Nabors moved to table the action and continue the hearing to January 8th.

Mayor Terry opened the hearing at 5:30 p.m. No public comment was received. The hearing is continued.

RESULT:	TABLED [UNANIMOUS]	Next: 1/8/2019 5:00 PM
MOVER:	Wayne Nabors, Place 2	
SECONDER:	Carmen Roberts, Place 4	
AYES:	Webber, Nabors, Hopkins, Roberts, Koehne, Anderson	

- D. The Celina City Council will conduct a public hearing to consider testimony and act upon a Pre-Annexation Development Agreement by and between the City of Celina, Texas and Trico Development and Land Company. The property is an approximately 50.363 acre tract of land situated within the Ousley and Ford Survey, Abstract No. 490, Collin County, Texas, and is located within the extraterritorial jurisdiction of the City of Celina, generally west of N. Louisiana Street and south of CR 994. (The Cottages) (McAfee)

Councilman Nabors moved to table the item either until the Council can agree on a special meeting date or to the January 8th meeting.

Mayor Terry opened the hearing at 5:31 p.m. Adam James, 1604 Snapdragon Court, with Trico Development presented the project to the City Council.

Those present and speaking were:

Councilman Nabors and Webber were in favor of tabling the matter in order to better understand the project.

Director of Economic Development Alexis Jackson spoke about the 8 month process for this project and mentioned that the developer has complied with all city concerns for the project and it is well designed. Emily Jo Momary, CR 994 - concerns were the location of the main entrance on CR 994, traffic and drainage. She asked that the developer explore the J Fred Smith Parkway to provide easier access. Kristen Bullard, 11555 Preston Estates Drive - her request was to have a less densely populated development. Alan Walvoord, 11664 CR 994 - concerns were the size of lots, shared driveways and parking. Hunter Dunn, 4061 Preston Lakes Circle - concerns were the safety for people who live here, shared driveways, parking, density and street widths. Brian Southwell, 1822 N. Louisiana - concerns were traffic, size of lots, density and matching surrounding (large property) lots. Craig James with Trico Development and Land Company spoke about the property being designed for teachers, fire and police personnel and empty nesters. He said the south road was not doable today, the O'Brien Road may be. They are eager to move forward and get to phase I. He asked the council for trust in the staff. The hearing was closed at 6:24 p.m.

RESULT:	TABLED [5 TO 1]
MOVER:	Wayne Nabors, Place 2
SECONDER:	Bill Webber, Place 1
AYES:	Webber, Nabors, Hopkins, Koehne, Anderson
NAYS:	Roberts

- E. The Celina City Council will conduct a public hearing to consider testimony and act upon a Pre-annexation Development Agreement by and between the City of Celina, Texas and Trico Development and Land Company. The property is an approximately 25.436 acre tract of land situated in the Hugh C. Routh Survey, Abstract No. 765, the J.K. Rice Survey, Abstract No. 767, and the Collin County Land Survey, Abstract No. 170, Collin County, Texas, located within the extraterritorial jurisdiction of the City of Celina, and generally located on the north side of FM 455, approximately 2,600 feet east of Preston Road. (Crosswood Creek) (McAfee)

Mayor Terry opened the hearing at 6:25 p.m. No public comment was received. The hearing was closed at 6:29 p.m.

Councilwoman Koehne left the meeting at this time, 6:30 p.m.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Bill Webber, Place 1
SECONDER:	Carmen Roberts, Place 4
AYES:	Webber, Nabors, Hopkins, Roberts, Koehne, Anderson

IX. ACTION ITEM:

X. ADJOURNMENT:

There being no further comment Mayor Terry adjourned the meeting at 7:19 p.m.

Sean Terry, Mayor

Vicki Faulkner, TRMC
City Secretary, City of Celina, Texas

Date Minutes Approved

Minutes Acceptance: Minutes of Dec 11, 2018 5:00 PM (Minutes Approval)



**NOTICE OF
CITY COUNCIL SPECIAL MEETING
CELINA COUNCIL CHAMBERS 112 N. COLORADO ST., CELINA, TX 75009
Thursday, December 20, 2018 AT 5:00 PM**

MINUTES

I. CALL TO ORDER:

Attendee Name	Organization	Title	Status	Arrived
Bill Webber	City of Celina	Place 1	Present	
Wayne Nabors	City of Celina	Place 2	Present	
Andy Hopkins	City of Celina	Place 3	Absent	
Carmen Roberts	City of Celina	Place 4	Present	
Mindy Koehne	City of Celina	Place 5	Absent	
Chad Anderson	City of Celina	Place 6	Present	
Sean Terry	City of Celina	Mayor	Present	

Mayor Terry called the meeting to order at 5:12 p.m.

II. ACTION:

- A. Consider and act upon a Pre-Annexation Development Agreement by and between the City of Celina, Texas and Trico Development and Land Company. The property is an approximately 50.363 acre tract of land situated within the Ousley and Ford Survey, Abstract No. 490, Collin County, Texas, and is located within the extraterritorial jurisdiction of the City of Celina, generally west of N. Louisiana Street and south of CR 994. (The Cottages) (McAfee)

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Carmen Roberts, Place 4
SECONDER:	Wayne Nabors, Place 2
AYES:	Webber, Nabors, Roberts, Anderson
ABSENT:	Hopkins, Koehne

III. EXECUTIVE SESSION:

The City Council adjourned into Executive Session at 5:02 p.m.

The Celina City Council will convene into Executive Session pursuant to Texas Government Code 551.072, Deliberations Regarding Real Property, to deliberate the purchase, exchange, lease or value of real property.

- A. Discussion regarding property generally located west of SH 289, north of CR 55, east of FM 428, and south of CR 994.

Minutes Acceptance: Minutes of Dec 20, 2018 5:00 PM (Minutes Approval)

Reconvene into Open Session

The City Council reconvened into Open Session at 5:12 p.m.

B. Consider and act upon any items discussed in Executive Session

No action was taken out of Executive Session.

IV. ADJOURN:

There being no further comment Mayor Terry adjourned the meeting at 5:12 p.m.

Sean Terry, Mayor

Vicki Faulkner, TRMC
City Secretary, City of Celina, Texas

Date Minutes Approved

Minutes Acceptance: Minutes of Dec 20, 2018 5:00 PM (Minutes Approval)



Finance Department
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
From: Dawn Berry, Purchasing Manager
CC: Jason Laumer, City Manager
Date: January 8, 2019
Re: Resolution
Exhibit A: Electronic Bid Rules

Action Requested:

Consider and act upon a resolution of the City Council of the City of Celina, Texas, approving rules for the electronic receipt of bids or proposals. (Berry)

Background Information:

Chapter 252, Section 252.0415 of the Texas Local Government Code provides authority for cities to receive bids or proposals through electronic transmission. If the governing body of the municipality adopts rules to ensure the identification, security, and confidentiality of electronic bids or proposals and to ensure that the electronic bids or proposals remain effectively unopened until the proper date and time.

Board Review/Citizen Input:

N/A

Alternatives:

Continue receiving paper bids.

Financial Considerations:

There are no financial impacts to consider.

Legal Review:

This item has been sent to the City Attorney for review.

Supporting Documents:

Resolution
Rules

Staff Recommendation:

Staff recommends approval of the proposed resolution

RESOLUTION NO.**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS, APPROVING RULES FOR THE ELECTRONIC RECEIPT OF BIDS OR PROPOSALS; PROVIDING FOR A SEVERABILITY CLAUSE; AND PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, Section 252.0415 (a) of the Texas Local Government Code provides authority for a municipality to receive bids or proposals through electronic transmission; and

WHEREAS, prior to receiving bids or proposals through electronic transmission, the Local Government Code requires that the governing body of the municipality adopt rules ensuring the identification, security, and confidentiality of electronic bids or proposals; and

WHEREAS, said rules must further ensure that the electronic bids or proposals remain effectively unopened until the proper date and time.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS:

SECTION 1: The City Council of the City of Celina, Texas, in accordance with Texas Local Government Code Section 252.0415, hereby approves the "Rules for the Electronic Receipt of Bids or Proposals" (the "Rules"), attached hereto as Exhibit "A," to ensure the identification, security, and confidentiality of electronic bids or proposals and to further ensure that the electronic bids or proposals will remain effectively unopened until the proper time.

SECTION 2: If any section, article, paragraph, sentence, clause, phrase or word in this Resolution or the Rules is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of this Resolution or the Rules; and the City Council hereby declares it would have passed such remaining portions of the Resolution or Rules despite such invalidity, which remaining portions shall remain in full force and effect.

SECTION 3: This Resolution shall take effect immediately upon its passage.

PASSED AND APPROVED this the 8th day of January, 2019.

ATTEST:

APPROVED:

Vicki Faulkner, City Secretary

Sean Terry, Mayor

APPROVED AS TO FORM:

Lance Vanzant, City Attorney

Attachment: Electronic Receipt of Bids Resolution (2019-1R : Electronic Bid Rules)

Exhibit A

CITY OF CELINA
RULES FOR THE
ELECTRONIC RECEIPT OF BIDS OR PROPOSALS

Pursuant to Texas Local Government Code Section 252.0415, "Procedures for Electronic Bids or Proposals," the City of Celina adopts the following rules to ensure the identification, security, and confidentiality of electronic bids or proposals and to ensure that the electronic bids or proposals remain effectively unopened until the proper date and time.

1. Authorized Uusers of the system software shall be assigned a unique user name and password.
2. User access is logged and tracked in order to record use by both internal and external users. The City's Purchasing Manager or designee, with an authorized password, can open the electronic bids or proposals. The software shall provide an audit trail of the vendor submittal and who unsealed (opened) the proposals with a corresponding date/time stamp.
2. ~~Access to the system by authorized users shall be logged and tracked in order to record when any user has accessed the system, and what data the user has accessed.~~
3. Transmittal of all data within the system shall be encrypted.
4. Data shall be encrypted using a time-sensitive mechanism that allows the data to be decrypted only after the due date and time.
5. The system shall be synchronized to an atomic clock (U.S. Nuclear Time) to ensure exact recording of the due date and time, and the receipt of date and time, of each submission.
6. The contents of supplier response submissions are not available during the bidding process with the exception of the vendor name. ~~The City's Purchasing Manager or designee, with an authorized password, can open the electronic bids or proposals. The system shall provide an audit trail of the vendor submittal and who unsealed the proposals with a corresponding date/time stamp.~~
7. The City will determine when and what information is released to the public pursuant to Texas Law.

The Purchasing Manager is responsible for ensuring that any system software used for the electronic receipt of bids or proposals, which bids or proposals have an estimated value of more than \$50,000, or as defined by current State law, ~~and~~ shall comply with the aforementioned rules.

Commented [DH1]: Previous section indicates when submission data is not available. Due date can change for a variety of reasons including options to close early. Need to keep options to close early.

Commented [DH2]: We recommend ending sentence at "encrypted". Naming a specific technology limits the City and the provider's ability to enhance the system.

Commented [DH3]: Currently, we subscribe to Microsoft's atomic clock functionality. It may not sync 2 clocks.

Commented [DH4]: Vendor identities are kept private. Pasted what others have used.

Commented [DH5]: Previous section indicates when submission data is not available. Due date can change for a variety of reasons including options to close early. Need to keep options to close early.

Attachment: Electronic Receipt of Bids Rules - Final (2019-1R : Electronic Bid Rules)



Finance Department
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
From: Dawn Berry, Purchasing Manager
CC: Jason Laumer, City Manager
Date: January 8, 2019
Re: Resolution

Action Requested:

Consider and act upon a resolution of the City Council of the City of Celina, Texas, delegating authority to the City's Purchasing Manager to determine the best method of procurement for the purchase of goods and services. (Berry)

Background Information:

Chapter 252, Section 252.021(c) of the Texas Local Government Code provides that the governing body of a municipality considering using a method other than competitive sealed bidding must determine the method before notice is given.

Chapter 252.043(b) further provides that when using the sealed proposal method, criteria must be determined prior to using best value methodology.

Chapter 2269.053 of the Texas Government Code requires the entity to determine the best method of construction procurement.

All chapters require the governing body to determine the method and criteria or delegate the authority.

Board Review/Citizen Input:

N/A

Alternatives:

Council to maintain control and determine the best value criteria for each bid as well as the alternative type of bidding. This will add up to four weeks per project of additional time prior to bid issuance.

Financial Considerations:

There are no financial impacts to consider.

Legal Review:

This item has been sent to the City Attorney for review.

Supporting Documents:

Resolution

Staff Recommendation:

Staff recommends delegating authority to the City's Purchasing Manager and to direct the Purchasing Manager to determine the best method of procurement of goods and services for the City.

RESOLUTION NO.**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS, DELEGATING AUTHORITY TO THE CITY'S PURCHASING MANAGER TO DETERMINE THE BEST METHOD OF PROCUREMENT FOR THE PURCHASE OF GOODS AND SERVICES; AND PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, the City of Celina is a home-rule municipal corporation duly organized under the laws of the State of Texas, and;

WHEREAS, Section 252.021(c) of the Texas Local Government Code, as amended, provides, in part that "the governing body of a municipality that is considering using a method other than competitive sealed bidding must determine before notice is given the method of purchase that provides the best value for the municipality" and "may delegate, as appropriate, its authority under this subsection to a designated representative," and

WHEREAS, that same section of the Texas Local Government Code further provides that "if the competitive sealed proposal requirement applies to the contract, the municipality shall consider criteria described by Section 252.043(b) and the discussions conducted under Section 252.042 to determine best value for the municipality," and

WHEREAS, Section 2269.053 of the Texas Government Code, as amended, provides that "the governing body of a governmental entity may delegate its authority under this chapter regarding an action authorized or required by this chapter to a designated representative," and

WHEREAS, it is the desire of the City Council to delegate such authority to the City's Purchasing Manager and to direct the Purchasing Manager to determine the best method of procurement of goods and service for the City, which delegation will expedite the procurement of goods and services.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS:

SECTION 1: All of the above premises are found to be true and correct legislative findings and determinations and are hereby incorporated into the body of this Resolution as if copied in their entirety.

SECTION 2: The City Council hereby delegates to and authorizes the City's Purchasing Manager to determine the best method of procurement of goods and services for the City.

SECTION 3: This Resolution shall take effect immediately and be in full force and effect upon adoption.

PASSED AND APPROVED this 8th day of January, 2019.

ATTEST:

APPROVED:

Vicki Faulkner, City Secretary

Sean Terry, Mayor

APPROVED AS TO FORM:

Lance Vanzant, City Attorney

Attachment: Best Method of Procurement - Resolution (2019-2R : Best Method of Procurement)



Finance Department
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
 From: Dawn Berry, Purchasing Manager
 CC: Jason Laumer, City Manager
 Date: January 8, 2019
 Re: Resolution

Action Requested:

Consider and act upon a resolution of the City Council of the City of Celina, Texas, adopting the U.S. Department of Labor's wage rates for Collin County, Texas, for all City Public Works contracts. (Berry)

Background Information:

Chapter 2258 of the Texas Government Code establishes guidelines for construction of a public work contract. A public work includes a building, highway, road, excavation, and repair work or other project development or improvement, paid for in whole or in part from public funds regardless of who supervises the work (2258.002).

Section 2258.022 requires that the governmental entity determine prior to contracting either by conducting a survey or by using a survey which meets the Davis-Bacon Act requirements.

The US Department of Labor has created an online search engine that simplifies the wage rate search and allows staff to drill down to the county level. The most current determination will be used for Collin, Texas.

The chapter requires the governing body to determine the wage rates prior to issuance of the bid.

Board Review/Citizen Input:

N/A

Alternatives:

N/A

Financial Considerations:

There are no financial impacts to consider.

Legal Review:

This item has been sent to the City Attorney for review.

Supporting Documents:

Resolution

Staff Recommendation:

Staff recommends adopting the US Department of Labor's online service for Denton, County, Texas, as the source for determining wage rates.

RESOLUTION NO.**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS, ADOPTING THE U.S. DEPARTMENT OF LABOR'S WAGE RATES FOR COLLIN COUNTY, TEXAS, FOR ALL CITY PUBLIC WORKS CONTRACTS; AND PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, the City of Celina, Texas ("City"), is a home-rule municipal corporation duly organized under the laws of the State of Texas; and

WHEREAS, Section 2258.002 of the Texas Government Code, as amended, defines the applicability of prevailing wage rates to a public works contract; and

WHEREAS, Section 2258.022(a) states, in pertinent part: "For a contract for a public work awarded by a political subdivision of the state, the public body shall determine the general prevailing rate of per diem wages in the locality in which the public work is to be performed for each craft or type of worker needed to execute the contract and the prevailing rate for legal holiday and overtime work by either conducting a survey or by using the prevailing wage rate as determined by the United States Department of Labor in accordance with the Davis Bacon Act"; and

WHEREAS, it is the desire of the City Council of the City of Celina, Texas, to adopt the United States Department of Labor online service for Collin County, Texas as the source for determining prevailing wage rates for all City public works contracts.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS, THAT:

SECTION 1: All of the above premises are found to be true and correct legislative findings and determinations and are hereby incorporated into the body of this Resolution as if copied in their entirety.

SECTION 2: The City Council hereby adopts the United States Department of Labor online service (wagedeterminationsonline.gov) for Collin, County, Texas, to determine prevailing wage rates applicable to City public works contracts in accordance with Chapter 2258 of the Texas Government Code.

SECTION 3: This Resolution shall take effect immediately and be in full force and effect upon adoption.

PASSED AND APPROVED this 8th day of January, 2019.

ATTEST:

APPROVED:

Vicki Faulkner, City Secretary

Sean Terry, Mayor

APPROVED AS TO FORM:

Lance Vanzant, City Attorney

Attachment: Wage Rates - Resolution (2019-3R : Wage Rates)



Engineering
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
 From: Catherine Oduro, Engineer
 CC: Kim Brawner, Director of Engineering
 Date: January 8, 2019
 Re: Water Transmission Line- Project A

Action Requested:

Consider and act to authorize the City Manager to execute a contract between the City of Celina and McKee Utility Contractors in the amount of \$3,950,633.00 for the construction of a 36-inch water line and appurtenances (Brawner)

Background Information:

The ongoing water modeling project (Work Order #2) documented an immediate need for upsizing the main transmission pipeline from the Celina Road Pump Station (CRPS) to the Downtown Pump Station (DTPS), as well as a discharge line from the DTPS to E. Sunset Boulevard. These expansions are needed to provide the projected capacity due to planned development. The improvements include approximately 25,700 linear feet of 24 inch to 36 inch water transmission lines and appurtenances. This project has been divided into three phases with the project A being the first phase. The Project A includes approximately 11,800 feet of 36 inch water lines and appurtenances.

Board Review/Citizen Input:

N/A

Alternatives:

N/A

Financial Considerations:

Funds are available within the 2018 bond funds.

Legal Review:

Standard contract documents are being utilized which the City Attorney has previously reviewed and approved.

Supporting Documents:

Location Map; Standard Form of Agreement; Bid Tabulations

Staff Recommendation:

Approve the proposed contract.



3010 Gaylord Parkway
Suite 190
Frisco, TX 75034

TEL 972.377.7480
FAX 972.377.8380

www.GarverUSA.com

1/02/2019

Mrs. Catherine Oduro
City of Celina
142 N. Ohio Drive
Celina, TX 75009

Re: Celina Water Transmission Improvements Project - A
Recommendation of Award

Dear Mrs. Oduro:

Bids were received for the Water Transmission Improvements Project - A at City Hall at 3:00 PM on December 27th, 2018. The bids have been checked for accuracy and for compliance with the contract documents. A tabulation of the bids received is enclosed with this letter.

A total of 12 bids were received for the project. McKee Utility Contractors, Inc. submitted the low base bid for the project in the amount of **\$3,950,633.00**.

We believe the bid submitted by McKee Utility Contractors, Inc. represents a responsive and responsible bid. We recommend the construction contract for Water Transmission Improvements – “Project A” be awarded to McKee Utility Contractors, Inc.

Please call me if you have any questions.

Sincerely,

GARVER, LLC

Paul Bansbach, P.E.
Project Manager

Attachments: Bid Tabulation

Attachment: Recommendation of Award (Water Transmission Line)

Item No.	Item	Quantity	Unit	McKee Utility Contractors		Mountain Cascade		North Texas Contracting		Quality Excavation	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
1	36" AWWA C900-16 PVC DR21 Waterline	6,332	LF	\$ 186.00	\$ 1,177,752.00	\$ 194.00	\$ 1,228,408.00	\$ 245.00	\$ 1,551,340.00	\$ 205.00	\$ 1,298,060.00
2	36" CL 150 Restrained Joint Ductile Iron Pipe with Polywrap	4,421	LF	\$ 271.00	\$ 1,198,091.00	\$ 250.00	\$ 1,105,250.00	\$ 280.00	\$ 1,237,880.00	\$ 280.00	\$ 1,237,880.00
3	36" CL 150 Flanged Joint Ductile Iron Pipe with Polywrap	18	LF	\$ 500.00	\$ 9,000.00	\$ 1,200.00	\$ 21,600.00	\$ 1,600.00	\$ 28,800.00	\$ 1,300.00	\$ 23,400.00
4	18" CL 150 Flanged Joint Ductile Iron Pipe with Polywrap	30	LF	\$ 250.00	\$ 7,500.00	\$ 225.00	\$ 6,750.00	\$ 150.00	\$ 4,500.00	\$ 400.00	\$ 12,000.00
5	36" Butterfly Valve	13	EA	\$ 25,000.00	\$ 325,000.00	\$ 21,000.00	\$ 273,000.00	\$ 20,000.00	\$ 260,000.00	\$ 25,000.00	\$ 325,000.00
6	24" Butterfly Valve	1	EA	\$ 11,000.00	\$ 11,000.00	\$ 11,000.00	\$ 11,000.00	\$ 13,000.00	\$ 13,000.00	\$ 15,000.00	\$ 15,000.00
7	18" Buttefly Valve	2	EA	\$ 5,000.00	\$ 10,000.00	\$ 9,000.00	\$ 18,000.00	\$ 8,000.00	\$ 16,000.00	\$ 8,600.00	\$ 17,200.00
8	Ductile Iron Fittings	15	TN	\$ 25,000.00	\$ 375,000.00	\$ 26,000.00	\$ 390,000.00	\$ 4,000.00	\$ 60,000.00	\$ 22,000.00	\$ 330,000.00
9	4" Air Release/Vacuum Valve and Vault	6	EA	\$ 19,000.00	\$ 114,000.00	\$ 14,000.00	\$ 84,000.00	\$ 11,000.00	\$ 66,000.00	\$ 9,000.00	\$ 54,000.00
10	6" Blowoff Valve	6	EA	\$ 12,000.00	\$ 72,000.00	\$ 8,000.00	\$ 48,000.00	\$ 5,000.00	\$ 30,000.00	\$ 5,000.00	\$ 30,000.00
11	48" Steel Casing Pipe	780	LF	\$ 350.00	\$ 273,000.00	\$ 522.00	\$ 407,160.00	\$ 450.00	\$ 351,000.00	\$ 600.00	\$ 468,000.00
12	Concrete Encasement - Direct Bury	155	LF	\$ 170.00	\$ 26,350.00	\$ 160.00	\$ 24,800.00	\$ 75.00	\$ 11,625.00	\$ 155.00	\$ 24,025.00
13	Hydromulch Seeding	9	AC	\$ 3,000.00	\$ 27,000.00	\$ 2,500.00	\$ 22,500.00	\$ 2,000.00	\$ 18,000.00	\$ 6,225.00	\$ 56,025.00
14	Project Sign	1	EA	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 900.00	\$ 900.00
15	Clearing and Grubbing	1	LS	\$ 10,000.00	\$ 10,000.00	\$ 27,000.00	\$ 27,000.00	\$ 81,500.00	\$ 81,500.00	\$ 2,000.00	\$ 2,000.00
16	Storm Water Pollution Prevention Plan	1	LS	\$ 10,000.00	\$ 10,000.00	\$ 30,000.00	\$ 30,000.00	\$ 50,000.00	\$ 50,000.00	\$ 1,500.00	\$ 1,500.00
17	Traffic Control Plan	1	LS	\$ 1,000.00	\$ 1,000.00	\$ 8,000.00	\$ 8,000.00	\$ 2,500.00	\$ 2,500.00	\$ 3,500.00	\$ 3,500.00
18	Trench Safety System	1	LS	\$ 1,000.00	\$ 1,000.00	\$ 800.00	\$ 800.00	\$ 10,000.00	\$ 10,000.00	\$ 15,000.00	\$ 15,000.00
19	Mobilization, Demobilization, Bonds and Insurance	1	LS	\$ 50,000.00	\$ 50,000.00	\$ 137,400.00	\$ 137,400.00	\$ 85,000.00	\$ 85,000.00	\$ 50,000.00	\$ 50,000.00
20	Contingency Allowance	1	LS	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00
21	Sodding	1860	SY	\$ 4.00	\$ 7,440.00	\$ 4.00	\$ 7,440.00	\$ 5.00	\$ 9,300.00	\$ 5.70	\$ 10,602.00
22	Remove Exsting Cap and Connect to Existing 36" Water Line	1	EA	\$ 15,000.00	\$ 15,000.00	\$ 7,000.00	\$ 7,000.00	\$ 3,500.00	\$ 3,500.00	\$ 14,500.00	\$ 14,500.00
23	Install Cut-In 18" by 18" Tee and Connect to Existing 18" Water Line	2	EA	\$ 15,000.00	\$ 30,000.00	\$ 7,000.00	\$ 14,000.00	\$ 3,500.00	\$ 7,000.00	\$ 4,000.00	\$ 8,000.00
	Total Bid Price			\$ 3,950,633.00		\$ 4,072,608.00		\$ 4,097,445.00		\$ 4,196,592.00	

Bid Alternates

Item No.	Item	Quantity	Unit	McKee Utility Contractors		Mountain Cascade		North Texas Contracting		Quality Excavation	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
1	Alternate A.1: Replace Bid Item No. 1 - 36" AWWA C900-16 PVC DR21 Waterline for 36" CL 150 DIP	6,332	LF	\$ 169.00	\$ 1,070,108.00	\$ 188.00	\$ 1,190,416.00	\$ 235.00	\$ 1,488,020.00	\$ 300.00	\$ 1,899,600.00
2	Alternate A.2: Provide and Install Cathodic Protection for 36" CL 150 DIP at Existing Gas Line Crossings	1	LS	\$ 5,000.00	\$ 5,000.00	\$ 15,000.00	\$ 15,000.00	\$ 5,000.00	\$ 5,000.00	\$ 18,000.00	\$ 18,000.00
	Total Alternate Bid Price			\$ 1,075,108.00		\$ 1,205,416.00		\$ 1,493,020.00		\$ 1,917,600.00	

Item No.	Item	Quantity	Unit	McKee Utility Contractors		Mountain Cascade		North Texas Contracting		Quality Excavation	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
	Total Bid Price with Alternates			\$ 3,847,989.00		\$ 4,049,616.00		\$ 4,039,125.00		\$ 4,816,132.00	

Attachment: Recommendation of Award (Water Transmission Line)

Item No.	Item	Quantity	Unit	Belt Construction		Wild Stone Construction		S.J. Louis Construction		Condie Construction	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
1	36" AWWA C900-16 PVC DR21 Waterline	6,332	LF	\$ 184.00	\$ 1,165,088.00	\$ 158.00	\$ 1,000,456.00	\$ 262.00	\$ 1,658,984.00	\$ 199.00	\$ 1,260,068.00
2	36" CL 150 Restrained Joint Ductile Iron Pipe with Polywrap	4,421	LF	\$ 259.00	\$ 1,145,039.00	\$ 244.00	\$ 1,078,724.00	\$ 312.00	\$ 1,379,352.00	\$ 257.00	\$ 1,136,197.00
3	36" CL 150 Flanged Joint Ductile Iron Pipe with Polywrap	18	LF	\$ 3,154.00	\$ 56,772.00	\$ 1,000.00	\$ 18,000.00	\$ 1,287.00	\$ 23,166.00	\$ 5,545.00	\$ 99,810.00
4	18" CL 150 Flanged Joint Ductile Iron Pipe with Polywrap	30	LF	\$ 581.00	\$ 17,430.00	\$ 155.00	\$ 4,650.00	\$ 277.00	\$ 8,310.00	\$ 251.00	\$ 7,530.00
5	36" Butterfly Valve	13	EA	\$ 23,811.00	\$ 309,543.00	\$ 24,990.00	\$ 324,870.00	\$ 23,300.00	\$ 302,900.00	\$ 24,800.00	\$ 322,400.00
6	24" Butterfly Valve	1	EA	\$ 12,678.00	\$ 12,678.00	\$ 13,675.00	\$ 13,675.00	\$ 14,400.00	\$ 14,400.00	\$ 14,200.00	\$ 14,200.00
7	18" Buttefly Valve	2	EA	\$ 10,542.00	\$ 21,084.00	\$ 9,115.00	\$ 18,230.00	\$ 10,100.00	\$ 20,200.00	\$ 9,700.00	\$ 19,400.00
8	Ductile Iron Fittings	15	TN	\$ 19,313.00	\$ 289,695.00	\$ 42,980.00	\$ 644,700.00	\$ 1.00	\$ 15.00	\$ 24,800.00	\$ 372,000.00
9	4" Air Release/Vacuum Valve and Vault	6	EA	\$ 33,495.00	\$ 200,970.00	\$ 10,610.00	\$ 63,660.00	\$ 10,400.00	\$ 62,400.00	\$ 18,100.00	\$ 108,600.00
10	6" Blowoff Valve	6	EA	\$ 18,934.00	\$ 113,604.00	\$ 6,128.00	\$ 36,768.00	\$ 5,700.00	\$ 34,200.00	\$ 12,800.00	\$ 76,800.00
11	48" Steel Casing Pipe	780	LF	\$ 446.00	\$ 347,880.00	\$ 442.00	\$ 344,760.00	\$ 435.00	\$ 339,300.00	\$ 426.00	\$ 332,280.00
12	Concrete Encasement - Direct Bury	155	LF	\$ 219.00	\$ 33,945.00	\$ 85.00	\$ 13,175.00	\$ 105.00	\$ 16,275.00	\$ 122.00	\$ 18,910.00
13	Hydromulch Seeding	9	AC	\$ 4,340.00	\$ 39,060.00	\$ 5,940.00	\$ 53,460.00	\$ 1,200.00	\$ 10,800.00	\$ 4,085.00	\$ 36,765.00
14	Project Sign	1	EA	\$ 3,255.00	\$ 3,255.00	\$ 1,100.00	\$ 1,100.00	\$ 500.00	\$ 500.00	\$ 650.00	\$ 650.00
15	Clearing and Grubbing	1	LS	\$ 37,975.00	\$ 37,975.00	\$ 52,973.00	\$ 52,973.00	\$ 7,500.00	\$ 7,500.00	\$ 55,000.00	\$ 55,000.00
16	Storm Water Pollution Prevention Plan	1	LS	\$ 54,250.00	\$ 54,250.00	\$ 49,800.00	\$ 49,800.00	\$ 15,000.00	\$ 15,000.00	\$ 33,000.00	\$ 33,000.00
17	Traffic Control Plan	1	LS	\$ 27,125.00	\$ 27,125.00	\$ 7,700.00	\$ 7,700.00	\$ 1,500.00	\$ 1,500.00	\$ 8,800.00	\$ 8,800.00
18	Trench Safety System	1	LS	\$ 48,825.00	\$ 48,825.00	\$ 11,472.00	\$ 11,472.00	\$ 2,500.00	\$ 2,500.00	\$ 6,400.00	\$ 6,400.00
19	Mobilization, Demobilization, Bonds and Insurance	1	LS	\$ 43,400.00	\$ 43,400.00	\$ 250,000.00	\$ 250,000.00	\$ 150,000.00	\$ 150,000.00	\$ 160,000.00	\$ 160,000.00
20	Contingency Allowance	1	LS	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00
21	Sodding	1860	SY	\$ 7.00	\$ 13,020.00	\$ 4.50	\$ 8,370.00	\$ 3.50	\$ 6,510.00	\$ 6.00	\$ 11,160.00
22	Remove Exsting Cap and Connect to Existing 36" Water Line	1	EA	\$ 25,498.00	\$ 25,498.00	\$ 26,702.00	\$ 26,702.00	\$ 12,700.00	\$ 12,700.00	\$ 12,800.00	\$ 12,800.00
23	Install Cut-In 18" by 18" Tee and Connect to Existing 18" Water Line	2	EA	\$ 20,073.00	\$ 40,146.00	\$ 12,164.00	\$ 24,328.00	\$ 6,900.00	\$ 13,800.00	\$ 11,800.00	\$ 23,600.00
	Total Bid Price			\$ 4,246,282.00		\$ 4,247,573.00		\$ 4,280,312.00		\$ 4,316,370.00	

Bid Alternates

Item No.	Item	Quantity	Unit	Belt Construction		Wild Stone Construction		S.J. Louis Construction		Condie Construction	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
1	Alternate A.1: Replace Bid Item No. 1 - 36" AWWA C900-16 PVC DR21 Waterline for 36" CL 150 DIP	6,332	LF	\$ 172.00	\$ 1,089,104.00	\$ 170.00	\$ 1,076,440.00	\$ 259.00	\$ 1,639,988.00	\$ 185.00	\$ 1,171,420.00
2	Alternate A.2: Provide and Install Cathodic Protection for 36" CL 150 DIP at Existing Gas Line Crossings	1	LS	\$ 56,963.00	\$ 56,963.00	\$ 110,000.00	\$ 110,000.00	\$ 5,000.00	\$ 5,000.00	\$ 7,800.00	\$ 7,800.00
	Total Alternate Bid Price			\$ 1,146,067.00		\$ 1,186,440.00		\$ 1,644,988.00		\$ 1,179,220.00	

Item No.	Item	Quantity	Unit	Belt Construction		Wild Stone Construction		S.J. Louis Construction		Condie Construction	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
	Total Bid Price with Alternates			\$ 4,227,261.00		\$ 4,433,557.00		\$ 4,266,316.00		\$ 4,235,522.00	

Attachment: Recommendation of Award (Water Transmission Line)

Item No.	Item	Quantity	Unit	Venus Construction		RKM Utility Services		Dickerson Construction		RoeschCo Construction	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
1	36" AWWA C900-16 PVC DR21 Waterline	6,332	LF	\$ 185.00	\$ 1,171,420.00	\$ 185.00	\$ 1,171,420.00	\$ 235.00	\$ 1,488,020.00	\$ 233.00	\$ 1,475,356.00
2	36" CL 150 Restrained Joint Ductile Iron Pipe with Polywrap	4,421	LF	\$ 245.00	\$ 1,083,145.00	\$ 300.00	\$ 1,326,300.00	\$ 290.00	\$ 1,282,090.00	\$ 340.00	\$ 1,503,140.00
3	36" CL 150 Flanged Joint Ductile Iron Pipe with Polywrap	18	LF	\$ 700.00	\$ 12,600.00	\$ 1,300.00	\$ 23,400.00	\$ 1,450.00	\$ 26,100.00	\$ 5,060.00	\$ 91,080.00
4	18" CL 150 Flanged Joint Ductile Iron Pipe with Polywrap	30	LF	\$ 235.00	\$ 7,050.00	\$ 250.00	\$ 7,500.00	\$ 350.00	\$ 10,500.00	\$ 350.00	\$ 10,500.00
5	36" Butterfly Valve	13	EA	\$ 30,000.00	\$ 390,000.00	\$ 27,500.00	\$ 357,500.00	\$ 26,000.00	\$ 338,000.00	\$ 31,562.00	\$ 410,306.00
6	24" Butterfly Valve	1	EA	\$ 15,000.00	\$ 15,000.00	\$ 16,000.00	\$ 16,000.00	\$ 16,000.00	\$ 16,000.00	\$ 15,400.00	\$ 15,400.00
7	18" Buttefly Valve	2	EA	\$ 10,000.00	\$ 20,000.00	\$ 13,000.00	\$ 26,000.00	\$ 11,000.00	\$ 22,000.00	\$ 12,240.00	\$ 24,480.00
8	Ductile Iron Fittings	15	TN	\$ 30,000.00	\$ 450,000.00	\$ 30,500.00	\$ 457,500.00	\$ 26,500.00	\$ 397,500.00	\$ 34,917.00	\$ 523,755.00
9	4" Air Release/Vacuum Valve and Vault	6	EA	\$ 27,000.00	\$ 162,000.00	\$ 35,000.00	\$ 210,000.00	\$ 12,500.00	\$ 75,000.00	\$ 24,370.00	\$ 146,220.00
10	6" Blowoff Valve	6	EA	\$ 13,000.00	\$ 78,000.00	\$ 19,000.00	\$ 114,000.00	\$ 15,000.00	\$ 90,000.00	\$ 15,230.00	\$ 91,380.00
11	48" Steel Casing Pipe	780	LF	\$ 500.00	\$ 390,000.00	\$ 610.00	\$ 475,800.00	\$ 550.00	\$ 429,000.00	\$ 393.00	\$ 306,540.00
12	Concrete Encasement - Direct Bury	155	LF	\$ 230.00	\$ 35,650.00	\$ 50.00	\$ 7,750.00	\$ 100.00	\$ 15,500.00	\$ 250.00	\$ 38,750.00
13	Hydromulch Seeding	9	AC	\$ 3,200.00	\$ 28,800.00	\$ 3,500.00	\$ 31,500.00	\$ 3,200.00	\$ 28,800.00	\$ 7,260.00	\$ 65,340.00
14	Project Sign	1	EA	\$ 750.00	\$ 750.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 800.00	\$ 800.00
15	Clearing and Grubbing	1	LS	\$ 60,000.00	\$ 60,000.00	\$ 6,500.00	\$ 6,500.00	\$ 10,000.00	\$ 10,000.00	\$ 150,000.00	\$ 150,000.00
16	Storm Water Pollution Prevention Plan	1	LS	\$ 40,000.00	\$ 40,000.00	\$ 3,000.00	\$ 3,000.00	\$ 35,000.00	\$ 35,000.00	\$ 31,500.00	\$ 31,500.00
17	Traffic Control Plan	1	LS	\$ 10,000.00	\$ 10,000.00	\$ 20,000.00	\$ 20,000.00	\$ 5,000.00	\$ 5,000.00	\$ 15,000.00	\$ 15,000.00
18	Trench Safety System	1	LS	\$ 3,500.00	\$ 3,500.00	\$ 1,500.00	\$ 1,500.00	\$ 35,000.00	\$ 35,000.00	\$ 20,000.00	\$ 20,000.00
19	Mobilization, Demobilization, Bonds and Insurance	1	LS	\$ 117,007.22	\$ 117,007.22	\$ 100,000.00	\$ 100,000.00	\$ 225,000.00	\$ 225,000.00	\$ 250,000.00	\$ 250,000.00
20	Contingency Allowance	1	LS	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00	\$ 200,000.00
21	Sodding	1860	SY	\$ 5.00	\$ 9,300.00	\$ 6.00	\$ 11,160.00	\$ 7.00	\$ 13,020.00	\$ 6.00	\$ 11,160.00
22	Remove Exsting Cap and Connect to Existing 36" Water Line	1	EA	\$ 13,000.00	\$ 13,000.00	\$ 15,000.00	\$ 15,000.00	\$ 17,000.00	\$ 17,000.00	\$ 10,000.00	\$ 10,000.00
23	Install Cut-In 18" by 18" Tee and Connect to Existing 18" Water Line	2	EA	\$ 25,000.00	\$ 50,000.00	\$ 10,000.00	\$ 20,000.00	\$ 15,000.00	\$ 30,000.00	\$ 6,000.00	\$ 12,000.00
	Total Bid Price			\$ 4,347,222.22		\$ 4,602,830.00		\$ 4,789,530.00		\$ 5,402,707.00	

Bid Alternates

Item No.	Item	Quantity	Unit	Venus Construction		RKM Utility Services		Dickerson Construction		RoeschCo Construction	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
1	Alternate A.1: Replace Bid Item No. 1 - 36" AWWA C900-16 PVC DR21 Waterline for 36" CL 150 DIP	6,332	LF	\$ 185.00	\$ 1,171,420.00	\$ 190.00	\$ 1,203,080.00	\$ 230.00	\$ 1,456,360.00	\$ 252.00	\$ 1,595,664.00
2	Alternate A.2: Provide and Install Cathodic Protection for 36" CL 150 DIP at Existing Gas Line Crossings	1	LS	\$ 500.00	\$ 500.00	\$ 5,000.00	\$ 5,000.00	\$ 17,500.00	\$ 17,500.00	\$ 30,000.00	\$ 30,000.00
	Total Alternate Bid Price			\$ 1,171,920.00		\$ 1,208,080.00		\$ 1,473,860.00		\$ 1,625,664.00	

Item No.	Item	Quantity	Unit	Venus Construction		RKM Utility Services		Dickerson Construction		RoeschCo Construction	
				Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost	Unit Cost	Item Cost
	Total Bid Price with Alternates			\$ 4,347,722.22		\$ 4,639,490.00		\$ 4,775,370.00		\$ 5,553,015.00	

Attachment: Recommendation of Award (Water Transmission Line)

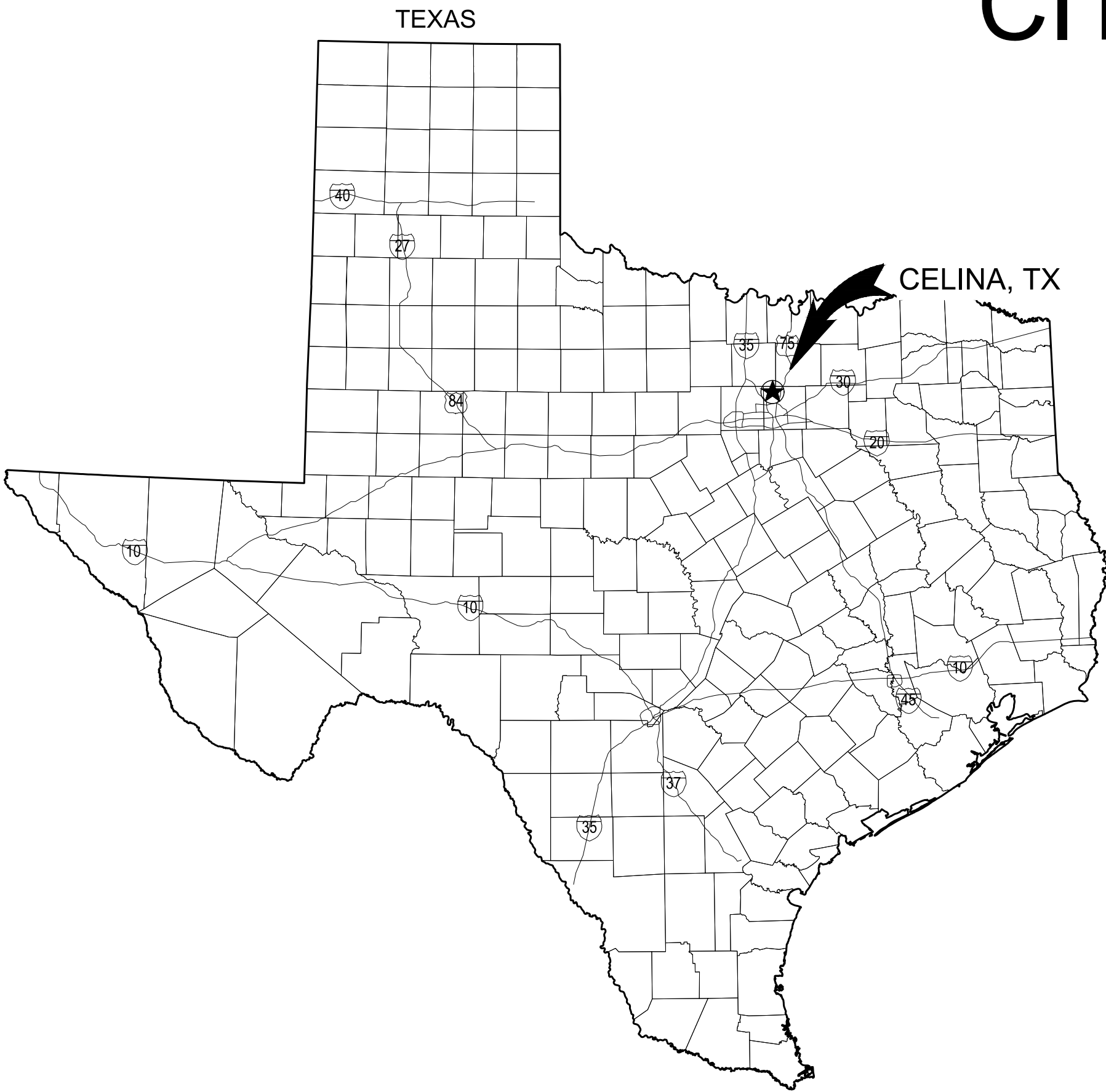
CELINA

WATER TRANSMISSION IMPROVEMENTS

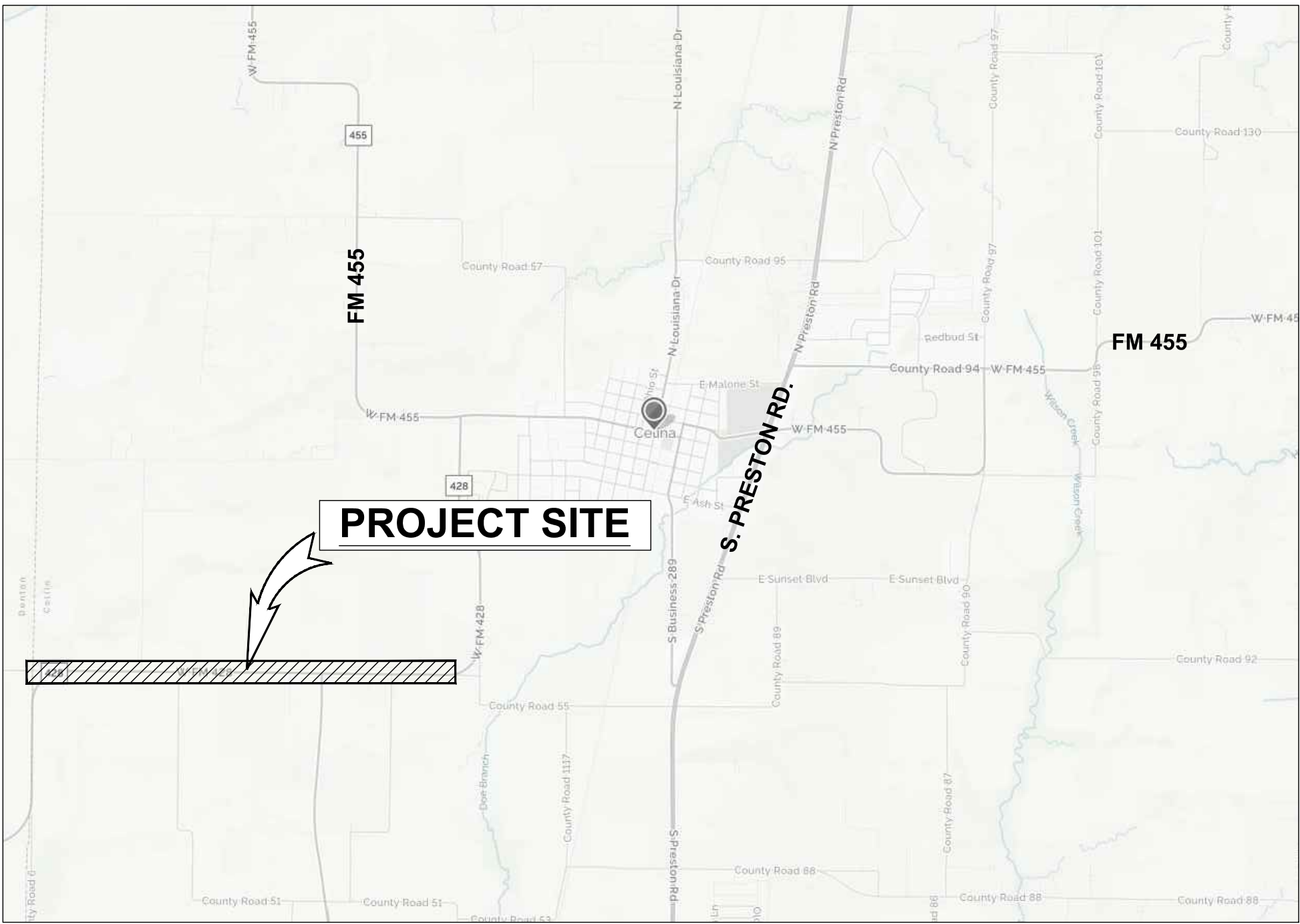
PROJECT-A

CITY OF CELINA

CELINA, TEXAS



LOCATION MAP



VICINITY MAP

NO SCALE

100% SUBMITTAL
GARVER PROJECT NO. 18088205
NOVEMBER 2018



3010 Gaylord Parkway
Suite 190
Frisco, TX 75034
(972) 377-7480



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REV.	DATE	DESCRIPTION	BY

CITY OF CELINA
CELINA, TEXAS


CELINA WATER TRANSMISSION
IMPROVEMENTS
PROJECT-A

COVER SHEET

JOB NO.: 18088205
DATE: Nov-18
DESIGNED BY: JGM
DRAWN BY: JFM

BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
G001

SHEET
NUMBER 01

SPECIFICATIONS AND CONTRACT DOCUMENTS



For the Construction of
**CELINA WATER TRANSMISSION IMPROVEMENTS
PROJECT A**

CELINA, TEXAS

Volume 1 of 2
Bidding and Contract Documents
Technical Specifications
Divisions 1 - 40

Garver Project No. 18088205

THIS DOCUMENT IS RELEASED FOR THE PURPOSE
OF BIDDING UNDER THE AUTHORITY OF JOHN G.
MALONE, P.E. 132008 ON 12/07/2018.

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

Prepared For:

City of Celina

December 2018



CERTIFICATIONS

**CELINA WATER TRANSMISSION IMPROVEMENTS – PROJECT A
GARVER PROJECT NO. 18088205
CITY OF CELINA PROJECT NO. 18-5827**

I hereby certify that the applicable portions of this project plans and specifications were prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of TX.

SEAL AND SIGNATURE**APPLICABLE DIVISION OR
PROJECT RESPONSIBILITY**

John Malone, P.E.



Digitally Signed: December 7, 2018

Division 00
Division 01
Division 02
Division 03
Division 13
Division 31
Division 32
Division 33
Division 40

GARVER, LLC CERTIFICATE OF AUTHORIZATION:

TX ENGINEERING FIRM REGISTRATION NO. F-5713

Expiration Date: 1/31/2019

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CELINA WATER TRANSMISSION IMPROVEMENTS – PROJECT A

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PART 1 BIDDING REQUIREMENTS



**CITY OF CELINA
CELINA, TX
CELINA WATER TRANSMISSION IMPROVEMENTS – PROJECT A
Client Project No. 18-5827**

ADVERTISEMENT FOR BIDS

Sealed bids from prequalified bidders for **CELINA WATER TRANSMISSION IMPROVEMENTS – PROJECT A**, to be constructed for the **CITY OF CELINA** will be received at the Celina City Hall and addressed to **City of Celina Engineering Department, Celina City Hall, 142 N. Ohio Dr., Celina, TX 75009**, until **3 pm on Thursday, December 27th, 2018**, at which time the bids shall be publicly opened and read aloud. No bids will be accepted after 3:00 pm on December 27th, 2018. Bids received after this time will be returned unopened. Address Bids to Dawn Berry. Contract Documents may be examined free of charge at the following address:

Owner
City of Celina
142 N. Ohio Street
Celina, TX 75009
Dawn Berry

A **mandatory** Pre-Bid Meeting will be held at **3:00 pm on Tuesday, December 18th, 2018** at the Celina City Hall located at 142 N. Ohio Dr., Celina, Texas. Pre-Bid Meeting attendance is mandatory for bidders on this project. Each bidder shall be limited to three personnel per organization. Bids shall not be accepted from bidders that do not attend the Pre-Bid Meeting.

In general, the complete Work will provide the Owner with approximately 10,750 linear feet of 36-inch waterline originating at the Celina Road Pump Station, and following FM 428 East to the intersection of FM 428 and CR 55.

Bids shall be on a lump sum and unit price basis, with alternate bid items as indicated in the Bid Form.

Digital copies of the bid documents are available at <http://civcastusa.com> for free. These documents may be downloaded by entering CivCast Project Number **18088205-A** on the “Browse Projects” page. For assistance, contact CivCast at 281.376.4577 or support@civcast.com. **Addendums to the bid package will be issued through the online CivCast Plan Holders List; therefore, all prime bidders shall be responsible for downloading the bid documents from the CivCast online plan room in order to be included in the Plan Holders List. Prime bidders should be registered on the CivCast Plan Holders List in order to submit a bid on the project. Bidders must enter the addenda numbers in Article 3.01 of the Bid Form to verify receipt.**

All bidders have been required to complete Document 00 45 13, Qualification Statement. Qualification of Bidders is required. Due to the critical nature of the construction, the experience and qualifications of Bidders will be evaluated by the Owner upon the opening of Bids. Bids will be graded based on criteria indicated in Section 00 45 13 – Contractor’s Qualification Package, which will be used to demonstrate Bidder’s qualifications to perform the Work. The qualifications of Bidder’s will be at the discretion of the Owner.

Bids shall be accompanied by a cashier’s or certified check upon a national or state bank in an amount of five percent (5%) of the total maximum bid price payable without recourse to the Owner, or a bid bond in

the same amount from a reliable surety company, as a guarantee that the Bidder will enter into a contract and execute performance and payment bonds within fifteen (15) days after notice of award of Contract to him. Such bid guarantee shall be made payable to **CITY OF CELINA**.

The successful Bidder must furnish performance and payment bonds each in the amount of 100 percent (100%) of the contract price from an approved Surety Company holding a permit from the State of Texas, to act as Surety and be acceptable according to the latest list of companies holding certificates of authority from the Secretary of Treasury of the United States, or other Surety or Sureties acceptable to the Owner.

Bids must remain in effect for **90** days after the bid opening date. Within **90** days from the bid date, the Owner may award the contract to the lowest responsive, responsible bidder or reject any or all bids for the project.

Bidders are expected to inspect the site of the work and to inform themselves regarding local conditions and conditions under which the work is to be done. Attention is called to the provisions of the Acts of the 43rd Legislature of the State of Texas and subsequent amendments concerning the wage scale and payment of prevailing wages specified. Prevailing wage rates will be as established by the City of Celina for this project.

The **CITY OF CELINA** reserves the right to reject any or all bids, to waive irregularities in the bids and bidding deemed to be in the best interests of the **CITY OF CELINA**, and to reject nonconforming, nonresponsive, or conditional bids. In case of ambiguity or lack of clearness in stating the price in the bids, the Owner reserves the right to consider the most advantageous construction thereof, or to reject the bid. Unreasonable or unbalanced unit prices will be considered sufficient cause of rejection of any bid or bids.

All project related questions shall be directed to the Project Manager at the following contact information:

Project Manager
Beatriz Dongell, P.E.
3010 Gaylord Pkwy #190, Frisco, TX 75034
MBDongell@GarverUSA.com
(972) 377-7480

Published Dates: **December 7, 2018 and December 14, 2018**

END OF ADVERTISEMENT FOR BIDS

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. *Bidder* – Any individual, partnership, corporation, joint venture, or other combination thereof who submits a Bid to Owner for the Work contemplated, acting directly or through an authorized representative. As used in the Contract Documents, masculine pronouns refer to both masculine and feminine genders.
 - B. *Successful Bidder* – The lowest responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.
 - C. *Issuing Office* – The office from which the Bidding Documents are to be issued.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit written evidence establishing its qualifications such as financial data, previous experience, and present commitments, as detailed in Section 00 45 13 Qualifications Statement.
- 3.02 The criteria which will be used to determine the lowest responsive and responsible Bidder are as follows:
- A. Responsive Bidder: Means a Bidder who has submitted a Bid which conforms in all material respects to the Bidding Documents.
 - B. Responsible Bidder: Means a Bidder who has the capacity and capability in all respects to perform fully the contract requirements and who has the integrity and reliability to assure good faith performance. Among factors to be considered in determining whether the Bidder meets these standards, are:
 - 1. Financial, material, equipment, facility, and personnel resources and expertise necessary to meet contractual requirements;
 - 2. A record of integrity;
 - 3. A record of Successful Completion defined as: completion of a project within a reasonable time and budget;
 - 4. Qualified legally to contract with the Owner, and;
 - 5. Has not failed to supply any necessary information in connection with the inquiry concerning responsibility.
- 3.03 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.04 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

- 3.05 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

- a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
- b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
- d. Technical Data contained in such reports and drawings.

2. Owner will make pdf digital copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct Site visit(s) by appointment, during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing of Site conditions.

- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

- A. Site visits and work at the Site will be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. Examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. Visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. Become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. Carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. Consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. Agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

- G. Become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. Agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 6 – PRE-BID CONFERENCE

- 6.01 A mandatory pre-Bid conference will be held at the date and time identified in the Advertisement for Bids and Addenda as appropriate. Representatives of Owner and Engineer will be present to discuss the Project. Pre-Qualified Bidders are required to attend and participate in the conference. Engineer will transmit to all prospective Bidders, who have been previously pre-qualified by the Owner, of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than forty-eight (48) hours prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents. The final addenda shall be issued at a minimum of twenty-four (24) hours prior to the opening of bids' date and time.
- 7.03 In the event of a conflict between the plans and specifications, the specifications shall govern.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5 percent** of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a cashier's or certified check, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, milestones are to be achieved and the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract. All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 The apparent Successful Bidder, and any other Bidder so requested, shall within 30 minutes after Bid opening, submit Section 00 41 19, List of Proposed Subcontractors, for prior approval of the Owner.
- If requested by Owner, before executing any subcontract, and within three (3) days after bid opening, the apparent Successful Bidder, and any other Bidder so requested, shall submit an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award. Declining to make requested substitutions will **not** constitute grounds for forfeiture of the Bid security of any Bidder.
- 12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.
- 12.03 The quantities of work or material stated in unit price items of the Bid are supplied only to give an indication of the general scope of the Work; the Owner does not expressly or by implication agree that the actual amount of work or material will correspond therewith.

- 12.04 With this bid, the CONTRACTOR acknowledges and agrees the requirements of Paragraph 11.02 to the Instructions to Bidders.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed either in ink or type and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
 - C. A conditional bid will not be considered.
- 13.02 A Bid by a corporation or partnership shall be executed in the corporate or partnership name by an officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate or partnership address and state of incorporation shall be shown. The corporate seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder’s name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.09 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

- 14.01 Base Bid with Alternates
- A. Bidders shall submit a Bid on a lump sum basis for the Base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount replacing the base Bid if Owner selects the alternate. The lowest responsive Bid shall be a responsible Bid based upon the total of the Base Bid and any combination of alternatives as selected by the Owner.
 - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.
 - C. The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 13.02 of the General Conditions.
 - D. Discrepancies between words and figures will be resolved in favor of the figures.

14.02 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the figures.

14.03 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 The Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title and number(s) (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." The Bidders name and return address shall be plainly marked on the package. Mailed Bid shall be addressed to Dawn Berry, Purchasing Agent c/o **City of Celina, Texas, Celina City Hall, 142 N. Ohio Dr., Celina, TX 75009.**
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- 19.03 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.
- 19.06 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.07 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Owner.
- 19.08 Unless otherwise indicated, a single award will not be made for less than all the Bid Items of an individual Bid Schedule. In the event the Work is contained in more than one Bid Schedule, the Owner may award schedules individually or in combination. In the case of two or more Bid Schedules which are alternative to each other, only one of such alternative schedules will be awarded.

ARTICLE 20 – BONDS AND INSURANCE

- 20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance, payment, and maintenance bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within 10 days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – SALES AND USE TAXES

- 22.01 The project Owner is exempt from Texas state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes **shall not** be included in the Bid. Refer to Paragraph SC-7.09 of the Supplementary Conditions for additional information.

ARTICLE 23 – RETAINAGE

- 23.01 Provisions concerning CONTRACTOR's rights to deposit securities in lieu of retainage are set forth in the Agreement.

ARTICLE 24 – CONTRACTS TO BE ASSIGNED

- 24.01 Not Used

ARTICLE 25 – BUY AMERICAN

- 25.01 In accordance with the Buy American provision in Public Law 95-117 (section 215 of Public Law 92-500 as amended) the Contractor agrees that preference will be given to domestic material, by the contractor, subcontractors, materialmen, and suppliers and Owner in the performance of this contract.

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END OF INSTRUCTIONS TO BIDDERS

BIDDER'S CHECKLIST OF REQUIRED ITEMS

This Bidder's Checklist is provided to ensure all required forms are completed and returned as part of the bid submission. All forms must be included as indicated for a bid to be considered a complete, responsive bid. Appropriate signatures and date are required on each document. If an item is missing, the bid may be declared unresponsive and therefore rejected. **This sheet will serve as the cover sheet for the bid submission.**

Completed* Spec. Section

Attended Pre-Bid	☒	00 11 00
Acknowledgement of All Addenda	☒	<i>TM</i>
Bid contains the following forms:	☐	
1. Bid Form/Proposal	☒	00 41 13
2. List of Proposed Subcontractors	☒	00 41 19
3. Bid Bond	☒	00 43 13
4. Davis Bacon Wage Rates	☒	00 43 43
5. Qualification Statement	☒	00 45 13
*Check when filled out, signed, and included with submission of bid packet.		

Within three (3) days after Bid Opening:

Bidder acknowledges to provide within three (3) days after Bid Opening (Low Bidder Only):

1. Bidder's Qualifications of Subcontractor (if requested)
2. Bid breakdown shall be provided to form the basis for the making of Progress Partial Payments (if applicable)

Within seven (7) days after Notice of Award:

Bidder acknowledges that within seven (7) days after Notice of Award, Successful Contractor is required to complete the following before execution and award of the contract:

1. Section 00 52 00, Agreement (all pages and supporting documents)
2. Section 00 61 13, Performance Bond
3. Section 00 61 16, Payment Bond
4. Section 00 61 19, Maintenance Bond
5. Completed Certificates of Insurance

Prior to Construction:

Awarded Contractor required to submit Construction Schedule before construction begins.

Seal (if incorporated)

Bidder Name: McKee Utility Contractors, Inc.Address: 2319 W. Main StCity, State, Zip Code: Prague, OK 74864Contractor Number: 405 667-3666

Contact Name: Shane McKeeTitle: PresidentContact Number: 405-867-3666Contact Email: shane@mckeeutility.comSignature of Authorized Agent for Bidder: Shane McKeeDate: 12/27/18

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**City of Celina
142 N. Ohio St.
Celina, TX 75009**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **90** days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 2.02 In submitting this Bid, Bidder acknowledges and accepts Contractor's representations as more fully set forth in the Agreement Form.
- 2.03 In submitting this Bid, Bidder certifies Bidder is qualified to do business in the State of TX as required by laws, rules and regulations or, if allowed by statute, covenants to obtain such qualification prior to contract award.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
1	12/14/2018
2	12/20/2018

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information,

observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.
- K. By submitting a bid/proposal under this solicitation, the Bidder understands that the bid/proposal is subjected to the Davis/Bacon Act including prevailing wage rates and the Contract Work hours and Safety Standards Act.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Contingency Allowances: Bidder agrees that the following contingency efforts, products (materials and equipment) as further described in Sections 01 29 00, PAYMENT PROCEDURES, and 01 50 00, TEMPORARY FACILITIES AND CONTROLS, will be furnished and paid for on a cash allowance basis and that the amount shown is an estimated amount to be included in the Total Base Bid. Bidder further acknowledges that final payment will be based on actual costs as determined in conformance with the Bidding Documents and as authorized by Change Order. Bidder agrees that the following contingency allowances are for the sole use of the Owner to cover unanticipated costs and have been computed in accordance with Paragraph 13.02 of the General Conditions.

ITEM	DESCRIPTION	CONTINGENCY ALLOWANCE
1.	Work Change Directives	\$ 200,000.00 (Add #2)
Lump Sum for Contingency Allowances		\$ 200,000.00 (Add #2)

- 5.02 Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

- 5.03 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Base Bid Item No.	Bid Qty	Description (Bidder to write Bid Price in words)	Unit Price	Bid Price
1	6,332 LF (Add #2)	Provide and install 36-inch AWWA C900-16 PVC DR21 Waterline, for the unit price of: <u>One Hundred Eighty-Six Dollars no/cents</u>	\$ 186.00	\$ 1,177,752.00
2	4,421 LF (Add #2)	Provide and install 36-inch CL 150 Restrained Joint Ductile Iron Pipe with Polywrap, for the unit price of: (Add #1) <u>Two Hundred Seventy-One Dollars no/cents</u>	\$ 271.00	\$ 1,198,091.00
3	18 LF (Add #2)	Provide and install 36-inch Flanged Joint Ductile Iron Pipe with Polywrap, for the unit price of: <u>Five Hundred Dollars no/cents</u>	\$ 500.00	\$ 9,000.00
4	30 LF	Provide and install 18-inch Restrained Joint Ductile Iron Pipe with Polywrap, for the unit price of: <u>Two Hundred Dollars no/cents</u>	\$ 250.00	\$ 7,500.00

Base Bid Item No.	Bid Qty	Description (Bidder to write Bid Price in words)	Unit Price	Bid Price
5	13 EA	Provide and install 36-inch Butterfly Valve (Direct Bury), for the unit price of: <u>Twenty-Five Thousand Dollars no/cents</u>	\$ 25,000.00	\$ 325,000.00
6	1 EA	Provide and install 24-inch Butterfly Valve (Direct Bury), for the unit price of: <u>Eleven Thousand Dollars no/cents</u>	\$ 11,000.00	\$ 11,000.00
7	2 EA	Provide and install 18-inch Butterfly Valve (Direct Bury), for the unit price of: <u>Five Thousand Dollars no/cents</u>	\$ 5,000.00	\$ 10,000.00
8	15 TN	Provide and install Ductile Iron Fittings, for the unit price of: <u>Twenty-Five Thousand Dollars no/cents</u>	\$ 25,000.00	\$ 375,000.00
9	6 EA (Add #1)	Provide and install 4-inch Air Release/Vacuum Valve and Vault, for the unit price of: <u>Nineteen Thousand Dollars no/cents</u>	\$ 19,000.00	\$ 114,000.00
10	6 EA	Provide and install 6-inch Blowoff Valve, for the unit price of: <u>Twelve Thousand Dollars no/cents</u>	\$ 12,000.00	\$ 72,000.00
11	780 LF	Provide and install 48-inch Steel Casing Pipe – Direct Bury, for the unit price of: <u>Three Hundred Fifty Dollars no/cents</u>	\$ 350.00	\$ 273,000.00
12	155 LF	Provide and install Concrete Encasement – Direct Bury, for the unit price of: <u>One Hundred Seventy Dollars no/cents</u>	\$ 170.00	\$ 26,350.00
13	9.0 AC	Provide and install Hydromulch Seeding, for the unit price of: <u>Three Thousand Dollars no/cents</u>	\$ 3,000.00	\$ 27,000.00

Base Bid Item No.	Bid Qty	Description (Bidder to write Bid Price in words)	Unit Price	Bid Price
14	1 EA	Provide and install Project Sign, for the unit price of: <u>Five Hundred Dollars no/cents</u>	\$ 500.00	\$ 500.00
15	1 LS	Perform Clearing and Grubbing, for the lump sum price of: <u>Ten Thousand Dollars no/cents</u>	N/A (Add #1)	\$ 10,000.00
16	1 LS	Design and implement Storm Water Pollution Prevention Plan (SWPPP), for the lump sum price of: <u>Ten Thousand Dollars no/cents</u>	N/A (Add #1)	\$ 10,000.00
17	1 LS	Design and implement Traffic Control Plan, for the lump sum price of: <u>One Thousand Dollars no/cents</u>	N/A (Add #1)	\$ 1,000.00
18	1 LS	Trench Safety System development, design, and implementation as required by the Occupational Safety and Health Administration and the assumption of responsibility for system, complete and in place, for the lump sum of: <u>One Thousand Dollars no/cents</u>	N/A (Add #1)	\$ 1,000.00
19	1 LS	Mobilization, Demobilization, Bonds and Insurance, a maximum of 5% of the Total Contract Amount, for the lump sum of: <u>Fifty Thousand Dollars no/cents</u>	N/A (Add #1)	\$ 50,000.00
20	1 LS	Contingency Allowance 1 for Work Change Directives (miscellaneous work on a change authorization basis) required during completion of the Project to be used solely at the discretion of the Owner and Engineer, for the lump sum of: (Add #1)	N/A (Add #1)	\$200,000.00 (Add #2)

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

Base Bid Item No.	Bid Qty	Description (Bidder to write Bid Price in words)	Unit Price	Bid Price
21	1,860 SY	Provide and install Sodding, for the unit price of: (Add #2) <u>Four Dollars no/cents</u>	\$ 4.00	\$ 7,440.00
22	1 EA	Remove Existing Cap and Connect to Existing 36-inch Water Line, for the unit price of: (Add #2) <u>Fifteen Thousand Dollars no/cents</u>	\$ 15,000.00	\$ 15,000.00
23	2 EA	Install Cut-In 18-inch x18-inch Tee and Connect to Existing 18-inch Water Line for the unit price of: (Add #2) <u>Fifteen Thousand Dollars no/cents</u>	\$ 15,000.00	\$ 30,000.00
Total Base Bid Price			\$	

Total of Lump Sum and Unit Price Bids = Total Base Bid Price
(Bidder to write price in figures and words)

\$ 3,950,633.00

Three Million Nine hundred Fifty Thousand Six hundred
thirty-Three Dollars no/cents

5.04 BID ALTERNATES

- A. The undersigned bidder offers to make, at the bid alternate prices (Bid Alternates) following, the changes in the work covered in the Total Base Bid Price that are specified in the bid alternates priced below:
- B. It is understood that:
 1. All bid alternate prices shall be filled in. The work detailed by the bid alternate(s) is an extension of the nature of the work for the Total Base Bid Price's project. This proposal requires that the undersigned Bidder propose on all work detailed by the Total Base Bid Price's project and the decrease in work as detailed by each and all of the bid alternates. Failure to comply with this requirement of submitting a price for each and all of the bid alternates may render the Bid non-responsive and may cause its rejection.
 2. The acceptance or rejection of any or all of these bid alternates is at the option of the Owner.
 3. Acceptance or rejection of bid alternates will not necessarily be made on the basis of price alone.
 4. The acceptance or rejection of one or more bid alternates will not affect the Total Base Bid Project bid, nor other conditions of this bid, nor the price of other accepted bid alternates.
 5. Reference Section 00 21 00, Article 19 for Method of Award.

6. The undersigned has carefully examined the plans and other contractual documents and has coordinated the scopes between the Total Base Bid Documents and the Bid Alternate Documents. Through submittal of a bid, the undersigned agrees and understands that the documents have been prepared with the highest level of care in the effort to coordinate the scopes of the Total Base Bid Project documents and the Bid Alternate documents. The undersigned agrees and accepts the responsibilities to coordinate and construct all required interconnections and coordination facilities between the Total Base Bid Project and any of, any combination of, and/or a total combination of the Bid Alternates to develop complete and operational facilities that meet the regulatory requirements for the facilities and the requirements set forth by these contract documents.

Bid Qty	Bid Alternates (Bidder to write price in words)	Unit Price	Bid Price
6,332 LF (Add #2)	Alternate A.1: Replace Bid Item No. 1 – 6,624 LF (Unrestrained Runs) of 36" AWWA C900-16 PVC DR21 Waterline for 36" CL 150 Push-On Joint Ductile Iron Pipe with Polywrap, for the unit price of: (Add #1) <u>One Hundred Sixty-Nine Dollars no/cents</u>	\$ 169.00	\$ 1,070,108.00
1 LS	Alternate A.2: Provide and Install Cathodic Protection for 36" CL 150 Push-On Joint Ductile Iron Pipe at Existing Gas Line Crossing, for the lump sum price of: (Add #1) <u>Five Thousand Dollars no/cents</u>	N/A	\$ 5,000.00

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete within 160 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 180 calendar days after the date when the Contract Times commence to run.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- Required Bid security in the form of a certified or bank check, or a Bid Bond, issued by a surety meeting the requirements of the General Conditions.
 - Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - Required Bidder Qualifications Statement (Section 00 45 13) with supporting data;
 - List of Proposed Subcontractors (Section 00 41 19); and
 - Davis/Bacon wage rates and State of Texas Department of Labor wage rates

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

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BID FORM**TABLE OF CONTENTS**

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ARTICLE 9 – BID SUBMITTAL

BIDDER: [Indicate correct name of bidding entity]

McKee Utility Contractors, Inc.

By:

[Signature]

Shane McKee

[Printed name]

Shane McKee - President

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature]

Tyler McKee

[Printed name]

Tyler McKee

Title:

Vice President

Submittal Date:

12/27/18

Address for giving notices:

McKee Utility Contractors, Inc.2319 W. Main StTroque, OK 74064

Telephone Number:

405-567-3666

Fax Number:

844-245-8432

Contact Name and e-mail address:

Shane McKeeshane@mckeeutility.com

Bidder's License No.:

N/A

(where applicable)



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SUB-CONTRACTORS / SUPPLIERS



McKee Utility Contractors, Inc.
2319 West Main Street
Prague, OK 74864
405-567-3666 phone
405-567-4968 fax

Subcontractors and Suppliers

[illegible]



North American Specialty Insurance Company
Washington International Insurance Company
Westport Insurance Corporation
1450 American Lane, Suite 1100
Schaumburg, IL 60173

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we McKee Utility Contractors, Inc., 2319 W. Main Street, Prague, OK 74864
(full name and address or legal title of Principal)

as Principal, hereinafter called the Principal, and North American Specialty Insurance Company
(select Surety)

a corporation duly organized under the laws of the state of New Hampshire as Surety, hereafter called the Surety, are
(select state)

City of Celina, Texas
held and firmly bound unto City of Celina Engineering Department, 142 N Ohio, Celina, TX 75000
(full name and address or legal title of Obligor)

as Obligor, hereinafter called the Obligor, in the sum of Five Percent of Bid Amount Dollars (\$ 5% of Bid Amount)

for the payment of which the Principal and the Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted to the Obligor a bid for City of Celina Water Transmission Improvements-Project A
Project No. 18-5827
(full name, address and description of project)

NOW, THEREFORE, the condition of this obligation is such that if the Obligor shall accept the bid of the Principal, and the Principal either 1) shall enter into a contract with the Obligor in accordance with the terms of such bid and gives such bond or bonds as may be specified in the bidding or contract documents with good and sufficient surety, or 2) shall pay to the Obligor the difference, not to exceed the amount of this bond, between the amount specified in said bid and such larger amount for which Obligor may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void; otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Obligor and Principal to extend the time in which the Obligor may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Obligor and Principal shall obtain the Surety's consent for an extension beyond sixty (60) days.

When this bond has been furnished to comply with a statutory or other legal requirement in the location of the project, any provision in this bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirements shall be deemed incorporated herein. When so furnished, the intent is that this bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 27th day of December 2018

BY [Signature]
(Witness)

BY [Signature]
Jamie Burris (Witness)

McKee Utility Contractors, Inc.

(Principal)

By:

Name/Title:

North American Specialty Insurance Company

By:

Name: Cathy Combs,

(Surety)

(Attorney-in-Fact)

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

NAS SURETY GROUP

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Manchester, New Hampshire, and Washington International Insurance Company, a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Schaumburg, Illinois, each does hereby make, constitute and appoint:

JOHN K. DEER, VAUGHN P. GRAHAM, VAUGHN P. GRAHAM, JR., STEPHEN M. POLEMAN, SUSANNE CUSIMANO
IKAVIS E. BROWN, DEBORAH L. RAPEK, JAMIE BURKIS, SHELLY R. SAMSEL, ROBBIE LOYD, MARK D. NOWELL, and CATHY COMBS

JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

FIFTY MILLION (\$50,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of both North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on the 9th of May, 2012:

"RESOLVED, that any two of the Presidents, any Managing Director, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."



By

Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company



By

Michael A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company

IN WITNESS WHEREOF, North American Specialty Insurance Company and Washington International Insurance Company have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 30th day of June, 2015.

North American Specialty Insurance Company
Washington International Insurance Company

State of Illinois
County of Cook ss:

On this 30th day of June, 2015, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Michael A. Ito, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.



M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Assistant Secretary of North American Specialty Insurance Company and Washington International Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company and Washington International Insurance Company, which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 27th day of December, 2018.

Jeffrey Goldberg, Vice President & Assistant Secretary of
Washington International Insurance Company & North American Specialty Insurance Company

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**City of Celina
142 N. Ohio St.
Celina, TX 75009**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **90** days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 2.02 In submitting this Bid, Bidder acknowledges and accepts Contractor's representations as more fully set forth in the Agreement Form.
- 2.03 In submitting this Bid, Bidder certifies Bidder is qualified to do business in the State of TX as required by laws, rules and regulations or, if allowed by statute, covenants to obtain such qualification prior to contract award.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
1	12/14/2018
2	12/20/2018

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information,

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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DAVIS BACON WAGE RATES



McKee Utility Contractors, Inc.
2319 West Main Street
Prague, OK 74864
405-567-3666 phone
405-567-4968 fax

General Decision Number: TX180028 01/05/2018 TX28

Superseded General Decision Number: TX20170028

State: Texas

Construction Type: Heavy

Counties: Collin, Dallas, Denton, Ellis, Kaufman and Rockwall
Counties in Texas.

Water and Sewer Lines/Utilities (Including Related Tunneling
Where the Tunnel is 48" or Less in Diameter)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

* PLUM0100-002 11/01/2017

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 30.84	11.51

SUTX1991-004 09/23/1991		

	Rates	Fringes
Laborers:		
Common.....	\$ 7.25	
Utility.....	\$ 7.467	
Pipelayer.....	\$ 7.828	
Power equipment operators:		
Backhoe.....	\$ 10.804	
Crane.....	\$ 10.942	
Front End Loader.....	\$ 9.163	
Tunneling Machine (48" or less).....	\$ 9.163	

TRUCK DRIVER.....\$ 8.528

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example:

PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations.

Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).
Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board).
Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

**SECTION 00 45 13 QUALIFICATION STATEMENT
(CONTRACTOR QUALIFICATION PACKAGE)**

The proposed work is generally described as follows:

Keeping the current water transmission main on-line during construction and minimizing the number of shutdowns is critical. The completed Work will provide Owner with approximately 10,750 linear feet of 36-inch waterline originating at the Celina Road Pump Station, and following FM 428 East to the intersection of FM 428 and CR 55. More specifically, the Project includes, but is not limited to, construction of the following:

- 36-inch transmission main, including control valves;
- 24-inch stub out from 36-inch main for future improvements;
- Multiple 18-inch connections to existing 18-inch waterline,
- Steel casing under existing roadways and future anticipated highway; and
- Restoring disturbed roadways and homeowner's property.

For further information, contact Beatriz Dongell, Garver Project Manager,
e-mail MBDongell@GarverUSA.com

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

INSTRUCTIONS TO CONTRACTORS

SUBMITTAL INFORMATION

Complete and submit Qualification Statement along with complete sealed bid no later than **3 pm on Thursday, December 27th, 2018.**

PURPOSE

The purpose of the Qualification Procedure described in this Document is to provide OWNER and ENGINEER with a mechanism to evaluate and determine whether Prospective Bidders are qualified to participate in the construction of the project.

Prospective Bidders, i.e. Prospective General Contractors, are required to comply with these Requirements for Qualification. Only contractors the OWNER deems to be qualified and capable of completing the Project on schedule in conformance with the Contract Documents will be qualified. Only those bids from firms that are deemed qualified by the Owner will be considered for the project.

The evaluation is solely for the purpose of determining which Bidders are deemed qualified for successful performance of the type of work included in this project in a timely manner. The contract will be awarded the Bidder deemed most qualified and submitting a responsive Bid for this work. A committee consisting of members of OWNER's staff, ENGINEER and other consultants selected by OWNER will evaluate the completed Questionnaires and make recommendations to OWNER. OWNER will determine and identify the qualified Bidders.

GRADING SYSTEM

Statement of Qualifications will be graded in accordance with the following system: Each statement will be reviewed and scored based on the criteria and numerical values shown below, and at the discretion of the Owner.

- A. General (5%)
 - 1. Statement Clarity
 - 2. Statement Completeness
- B. Experience/Performance (35%)
 - 1. Past Project Experience
 - 2. Past Project Performance
 - 3. Timely Completion of Work
 - 4. History of Change Orders
 - 5. Uncompleted Projects
 - a. Bond Status
 - b. Scheduled Completion
 - 6. Promptness of Warranty Service
 - 7. Overall Successful Completion
 - a. Time
 - b. Money
- C. Project Team/Management Plans (30%)
 - 1. Key Personnel Experience/Qualifications/Availability
 - 2. Safety Management Plans
 - 3. Quality Control Plans
- D. Financial Statement (30%)
 - 1. Value of Current Work
 - 2. Bonding Capacity
 - 3. Pending Claims/Disputes
 - 4. Liquidated Damages Withheld

TENTATIVE PROJECT TIMETABLE

The following is a tentative timetable of advertisement and opening of Bids:

Invitation for Bids	December 7, 2018
Pre-Bid Conference	December 18, 2018
Bid Opening	December 27, 2018
Notice of Award	January 9, 2019
Preconstruction Meeting	January 16, 2019
Notice to Proceed	January 16, 2019
Mobilization/Begin Construction	January 16, 2019
Substantial Completion	June 25, 2019

PROJECT BIDDING INFORMATION

The criteria which will be used to determine Bidder Qualifications are as follows:

- A. Responsive Bidder – A Bidder who has submitted a Bid, which conforms in all material respects to the Bidding Documents.
- B. Responsible Bidder – A Bidder who has the capacity and capability in all respects to perform fully the contract requirements and who has the integrity and reliability to assure good faith performance. Among factors to be considered in determining whether the Bidder meets these standards, are:
 - 1. Financial, material, equipment, facility, personnel resources, and expertise necessary to meet contractual requirements;
 - 2. A record of integrity;
 - 3. A record of Successful Completion defined as: completion of a project within a reasonable time frame and budget including history of change orders;
 - 4. Qualified legally to contract with the OWNER; and
 - 5. Has not failed to supply any necessary information in connection with the inquiry concerning responsibility.

NOTIFICATIONS

The OWNER reserves the right to reject any or all responses to qualification questionnaires and any or all Bids and to waive any irregularities in any response of Bids received.

Contractors desiring to be qualified are hereby informed that they will be subject to and must fully comply with all of the requirements of the Bidding Documents, including the provision of a 100 percent payment bond and 100 percent performance bond, 100 percent maintenance bond, and all Affirmative Action Requirements and prevailing wage laws.

All information submitted for qualification evaluation will be considered official information acquired in confidence and the OWNER and ENGINEER will maintain its confidentiality to the extents permitted by law.

QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS

1. SUBMITTED BY:

Official Name of Firm: McKee Utility Contractors, Inc
 Address: 2319 W Main Street
Prague, OK 74864

2. SUBMITTED TO:

City of Celina, Texas

3. SUBMITTED FOR:

Celina Water Transmission Improvements - Project A

Owner: City of Celina, TX

Project Name: Celina Water Transmission Improvements

Project A 18-5827

Garver Project No. 18088205

TYPE OF WORK:

Installation of 10,750 LF of 36-Inch Waterline

4. CONTRACTOR'S CONTACT INFORMATION

Contact Person: Shane McKee

Title: President

Phone: 405-567-3666

Email: shane@mckeeutility.com

5. AFFILIATED COMPANIES:

Name: McKee Equipment, LLC

Address: 2319 W Main Street

Prague, OK 74864

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

6. TYPE OF ORGANIZATION:

☐ SOLE PROPRIETORSHIP

Name of Owner: _____

Doing Business As: _____

Date of Organization: _____

☐ PARTNERSHIP

Date of Organization: _____

Type of Partnership: _____

Name of General Partner(s): _____

☒ CORPORATION

State of Organization: _____

Oklahoma

Date of Organization: _____

2/17/1994

Executive Officers:

- President:

Shane McKee

- Vice President(s):

Tyler McKee

- Treasurer:

Shane McKee

- Secretary:

Tyler McKee

☐ LIMITED LIABILITY COMPANY

State of Organization: _____

Date of Organization: _____

Members: _____

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

☐ JOINT VENTURE

State of Organization: _____

Date of Organization: _____

Form of Organization: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

_____**7. LICENSING**Jurisdiction: City of Oklahoma CityType of License: PQ Water ContractorLicense Number: PQ-23834Jurisdiction: City of Oklahoma CityType of License: PQ Sanitary Sewer ContractorLicense Number: PQ-23832

Has firm listed in Section 1 ever been fined or suspended by a Contractor's licensing board?

☐ YES ☒ NO

If YES, attach as an Attachment details including where and why.

8. CERTIFICATIONS

CERTIFIED BY:

Disadvantage Business Enterprise: n/a

Minority Business Enterprise: n/a

Woman Owned Enterprise: n/a

Small Business Enterprise: n/a

Other (): n/a

9. BONDING INFORMATION

Bonding Company: North America Specialty Insurance Company

Address: 1450 American Lane, Suite 1100
Schaumburg, IL 60173

Bonding Agent: Rich and Cartmill

Address: 2738 E 51st Street , Suite 400
Tulsa, OK 74105

Contact Name: Kelly Deer

Phone: 918-293-7162

Aggregate Bonding Capacity: \$80,000,000.00

Available Bonding Capacity as of date of this submittal: \$49,959,934.26

10. FINANCIAL INFORMATION

Financial Institution: BancFirst

Address: 902 E. Main Street
Prague, OK 74864

Account Manager: Harvey Robinson - President

Phone: 405-567-2241

Credit available: \$ 3,000,000.00

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

11. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

☐ YES ☒ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

☐ YES ☒ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

☐ YES ☒ NO

If YES, attach as an Attachment details including Project Owner's contact information.

12. SAFETY PROGRAM:

Name of Contractor's Safety Officer: Keith Carter

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 300 - Log & Summary of Occupational Injuries & Illnesses for the past 5 years. (Add #1)

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE. - none

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE. - none

Provide the following for the firm listed in Section V (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	<u>2018</u>	EMR	<u>.85</u>
YEAR	<u>2017</u>	EMR	<u>1.06</u>
YEAR	<u>2016</u>	EMR	<u>1.37</u>
YEAR	<u>2015</u>	EMR	<u>1.47</u>
YEAR	<u>2014</u>	EMR	<u>1.20</u>

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	<u>2018</u>	TRFR	<u>2.74</u>
YEAR	<u>2017</u>	TRFR	<u>0.00</u>
YEAR	<u>2016</u>	TRFR	<u>3.79</u>
YEAR	<u>2015</u>	TRFR	<u>0.00</u>
YEAR	<u>2014</u>	TRFR	<u>4.59</u>

Total number of man-hours worked for the last 5 Years:

YEAR	<u>2018</u>	TOTAL NUMBER OF MAN-HOURS	<u>145,995.69</u>
YEAR	<u>2017</u>	TOTAL NUMBER OF MAN-HOURS	<u>66,534.33</u>
YEAR	<u>2016</u>	TOTAL NUMBER OF MAN-HOURS	<u>52,815.36</u>
YEAR	<u>2015</u>	TOTAL NUMBER OF MAN-HOURS	<u>47,234.78</u>
YEAR	<u>2014</u>	TOTAL NUMBER OF MAN-HOURS	<u>43,578.15</u>

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	<u>2018</u>	DART	<u>5</u>
YEAR	<u>2017</u>	DART	<u>0</u>
YEAR	<u>2016</u>	DART	<u>1</u>
YEAR	<u>2015</u>	DART	<u>0</u>
YEAR	<u>2014</u>	DART	<u>1</u>

13. EQUIPMENT:

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HERewith, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: McKee Utility Contractors, Inc

BY: Shan McKee

TITLE: President

DATED: December 27th 2018

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS 27th DAY OF December, 2018

NOTARY PUBLIC - STATE OF OKLAHOMA

MY COMMISSION EXPIRES 12/31/22

REQUIRED ATTACHMENTS

1. ✓ Schedule A (Current Experience).
2. ✓ Schedule B (Previous Experience).
3. ✓ Schedule C (Major Equipment).
4. ✓ Evidence of authority for individuals listed in Section 6 to bind organization to an agreement.
5. ✓ Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
6. ✓ Required safety program submittals listed in Section 12.
7. ✓ Conflict of Interest Questionnaire
8. ✓ Certificate of Interested Parties

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Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CONTRACTS UNDER CONSTRUCTION



McKee Utility Contractors, Inc.
2319 West Main Street
Prague, OK 74864
405-567-3666 phone
405-567-4968 fax

SCHEDULE A

CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
WC-0851	Name: Ken Giannone Address: OCWUT Telephone: 405-297-2422	Name: Robbie Williams Company: Triad Design Group Telephone: 405-752-1122	5/28/18	10,694 LF of DIP 36" Waterline	87%	\$4,329,390.97
WC-0829	Name: Brent Ward Address: OCWUT Telephone: 405-297-2422	Name: Marc Long Company: SRB Engineering Telephone: 405-840-7094	4/11/18	15,567 LF of DIP 36" Waterline	86%	\$6,342,686.00
WC-0861	Name: Ken Giannone Address: OCWUT Telephone: 405-297-2422	Name: Brian Cales Company: Olsson Associates Telephone: 405-242-6600	9/27/18	12,675 LF of DIP 42" Waterline	45%	\$8,073,445.00
WC-0862	Name: Ken Giannone Address: OCWUT Telephone: 405-297-2422	Name: Tim Malteburger Company: JAC, Inc. Telephone: 405-641-2174	9/27/18	12,750 LF of DIP 42" Waterline	6%	\$8,573,626.00
SC-0951	Name: Dan Ethington Address: OCWUT Telephone: 405-297-2422	Name: Richard Grotte Company: Poe & Associates Telephone: 405-949-1962	3/15/18	8193 LF of CCFRPM 66", 48", 42" Sanitary Sewer	96%	\$4,176,263.50
Rowlett Creek Parallel Trunk Sewer	Name: Roshan Thapa Address: NTMWD Telephone: 469-626-4739	Name: Nash Reddy Company: Jacobs Engineering Telephone: 214-920-8166	11/6/18	9,382 LF of CCFRPM 42", 36" Sanitary Sewer	0%	\$3,695,000.00
Amarillo NW Interceptor	Name: Trey Kepley Address: City of Amarillo, TX Telephone: 806-378-6240	Name: Jeff James Company: Kimley Horn Telephone: 806-686-1089	EST 1/15/18	29,523 LF of CCFRPM 42", 30", 24" Sanitary Sewer	0%	\$10,650,000.00

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

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COMPLETED PROJECTS



McKee Utility Contractors, Inc.
2319 West Main Street
Prague, OK 74864
405-567-3666 phone
405-567-4968 fax

SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
9 Mile Creek Sewerline	Name: M. Azim Address: City of Lawton Telephone: 580-581-3385	Name: Jose Perez Company: Dewberry Telephone: 918-587-7283	6/1/17	37,560 LF of PVC 54" - 36" Sanitary Sewer	Comp 10/13/18	\$11,007,444.21
Berry Road Phase II	Name: Mark Daniels Address: NUA Telephone: 405-366-5452	Name: Richard Grotte Company: Poe & Associates Telephone: 405-949-1962	10/4/15	10,880 LF of PVC 16" Waterline	Comp 3/15/16	\$2,759,099.27
Lindsey Street Waterline	Name: Mark Daniels Address: NUA Telephone: 405-366-5452	Name: Richard Grotte Company: Poe & Associates Telephone: 405-949-1962	3/23/15	5,500 LF of PVC 24" Waterline	Comp 8/30/15	\$3,109,190.00
Robinson Street Waterline	Name: Chris Mattingley Address: NUA Telephone: 405-366-5452	Name: Alan Swartz Company: APAI Telephone: 405-440-2725	6/15/16	3,461 LF of PVC 30" Waterline	Comp 3/15/17	\$3,364,056.86
SC-0866	Name: Rachel Pierce Address: OCWUT Telephone: 405-297-3843	Name: John Stovall Company: MacArthur Associates Telephone: 405-848-2471	12/30/15	10,475 LF of PVC 48" Sanitary Sewer	Comp 1/8/16	\$3,258,833.86
SC-0919	Name: Rachel Pierce Address: OCWUT Telephone: 405-297-3843	Name: John Stovall Company: MacArthur Associates Telephone: 405-848-2471	2/1/16	14,234 LF of PVC 48", 42", 36" Sanitary Sewer	Comp 12/29/16	\$4,534,362.79
Elk City Water System Improvements	Name: City of Elk City Address: Elk City, OK Telephone: 580-225-3230	Name: Bill Myers Company: Myers Engineering Telephone: 405-755-5325	7/1/2010	137,280 LF of DIP 24" , 20" Waterline	Comp 12/27/10	\$7,387,415.25

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

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SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
SC-0958	Name: Ken Giannone Address: OCWUT Telephone: 405-297-2422	Name: Ryan Bellatti Company: Guy Engineering Telephone: 405-608-4217	10/2/17	7,572 LF of CCFRPM 42", 24" Sanitary Sewer	Comp 6/23/18	\$2,816,435.26
WC-0690	Name: Hossain Shaini Address: OCWUT Telephone: 405-297-2422	Name: Austin Burton Company: CEC Engineering Telephone: 405-753-4643	7/1/14	7,300 LF of DIP 30" Waterline	Comp 2/28/15	\$3,615,867.72
WC-0743	Name: Chris Ferguson Address: OCWUT Telephone: 405-297-2422	Name: Jonathan Heusel Company: Tetra Tech Telephone: 405-606-8600	7/31/14	7,581 LF of DIP 30" Waterline	Comp 3/2/15	\$2,220,696.32
WC-0649	Name: Chisom Obegolu Address: OCWUT Telephone: 405-297-2422	Name: Scott Darr Company: Huitt Zollars Telephone: 405-842-0363	4/25/14	10,113 LF of DIP 30" Waterline	Comp 12/11/14	\$2,612,665.33
17WC04	Name: Eric Fladie Address: City of Stillwater Telephone: 405-714-4546	Name: Erika Cooper Company: CH2M Hill Telephone: 214-920-8166	10/30/17	12,350 LF of PVC 18" Waterline	Comp 11/30/18	\$4,364,910.00
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

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REFERENCES & CONTACTS



McKee Utility Contractors, Inc.
2319 West Main Street
Prague, OK 74864
405-567-3666 phone
405-567-4968 fax



REFERENCE LETTER

RE: Reference Letter for

Tyler McKee

Vice President

McKee Utility Contractors, Inc.

To whom it may concern,

Our company has had the pleasure of working with McKee Utility Contractors, Inc. on multiple large-diameter water main and sewer main projects in the City of Oklahoma City over the last decade. MUCI has an excellent reputation in Oklahoma, and we consider ourselves fortunate when McKee wins a project that we've designed because we know that they will get it built right.

My personal experience with McKee Utility Contractors, Inc. was on OKC Project. No. WC-0690 which consisted of 1.3 miles of 30" water main, including 1,600 LF of boring under Interstate 1-40 & the Kilpatrick Turnpike. A majority of the alignment cut through commercially developed areas.

MUCI was organized, professional, and courteous throughout the entire project. They presented concerns ahead of time to avoid delays, and they maintained the 270-day project schedule excellently. The project (awarded at \$3.5M) came in within 2% of the bid amount.

I would recommend you consider McKee Utility Contractors, Inc. for your next large-diameter water main project.

Sincerely,
CEC Corporation

CEC Corporation

Austin C. Burton, P.E., CFM

www.connectcec.com • 4555 W. Memorial Rd • Oklahoma City, OK 73142-2013

PHONE 405.753.4200 • FAX 405.260.9504

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)



The City of NORMAN

201 West Gray Bldg. C • P.O. Box 370
Norman, Oklahoma • 73069 • 73070

UTILITIES ENGINEERING

Phone: 405-356-5441

Fax: 405-356-5441

7.E.c

To whom it may concern:

Over the past few years McKee Utility Contractors, Inc. has performed installation of several large diameter water lines for the Norman Utilities Authority. During the duration of the projects mentioned below, McKee Utility Contractors, Inc showed the ability to manage traffic control, project management, invoicing and working with the citizens needs and complete the projects on time. McKee Utility Contractors, Inc. is in good standing with the Norman Utilities Authority and we would welcome their bids on all future projects.

McKee Utility Contractors, Inc. completed projects for Norman Utilities Authority:

- 2015 Lindsey Street Waterline — Total Contract \$ 3, 109,190.00
- 2016 Berry Road Waterline Phase II — Total Contract \$ 2,759,099.27
- 2016 Bishop Creek Bore - Total Contract \$ 209,336.80
- 2017 Robinson Street Waterline — Total Contract \$ 3,364,056.86

Sincerely,

Chris Mattingly, P.E.
Capital Projects Engineer
CITY OF NORMAN

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

Building an Inclusive Community



MCKEE UTILITY CONTRACTORS INC REFERENCES & LICENSES

CONTACT	PHONE NUMBER	ORGANIZATION	CONTACT TYPE
KRYSTAL KOWALIK	405-297-3548	CITY OF OKLAHOMA CITY	MUNICIPALITY
KEN GIANNONE	405-297-2422	CITY OF OKLAHOMA CITY	MUNICIPALITY
BRENT WARD	405-297-2422	CITY OF OKLAHOMA CITY	MUNICIPALITY
RACHEAL PIERCE	405-297-2422	CITY OF OKLAHOMA CITY	MUNICIPALITY
KEN KOMISKE	405-366-5494	NORMAN UTILITIES AUTHORITY	MUNICIPALITY
MARK DANIELS	405-366-5377	NORMAN UTILITIES AUTHORITY	MUNICIPALITY
GEORGE HENNESEY	580-581-3385	CITY OF LAWTON	MUNICIPALITY
ROB PRECURE	405-260-0823	PRIMARY STRUCTURE	SUPPLIER
BLAINE CARR	405-495-5500	OKC WINWATER WORKS	SUPPLIER
JEFF PETERSON	405-821-3428	US PIPE AND FOUNDRY	SUPPLIER
PAT WHITE	405-946-4887	ICM OF OKLAHOMA	SUPPLIER
RYAN BEBEE	405-394-6707	KIRBY-SMITH MACHINERY - KOMATSU	EQUIPMENT REP
DUSTIN WELKER	918-633-5315	WARREN CAT	EQUIPMENT REP
HARVEY ROBINSON	405-567-2241	BANCFIRST	BANKING
TOM PERRAULT	918-743-8811	RICH AND CARTMILL	BONDING/INSURANCE
ERIKA COOPER	972-663-2257	JACOBS	ENGINEER
AUSTIN BURTON	405-753-4643	CEC CORPORATION	ENGINEER
JOHN STOVALL	405-848-2471	MACARTHUR ASSOCIATED CONSULTANTS	ENGINEER
ALAN SWARTZ	405-896-4322	ALAN PLUMMER ASSOCIATES, INC.	ENGINEER
ERIC FLADIE	405-714-4546	GARVER ENGINEERING	ENGINEER
SHARRI HILLER	405-613-0888	TRIAD DESIGN GROUP	ENGINEER
SHAWN FULKERSON	405-691-4949	FULKERSON & FULKERSON LAW FIRM	LEGAL
OKC PAVING LICENSE	PQ-23831		
OKC SANITARY SEWER LICENSE	PQ-23832		
OKC STORM WATER LICENSE	PQ-23833		
OKC WATER LICENSE	PQ-23834		

EQUIPMENT LIST



McKee Utility Contractors, Inc.
2319 West Main Street
Prague, OK 74864
405-567-3666 phone
405-567-4968 fax

SCHEDULE C - LIST OF MAJOR EQUIPMENT AVAILABLE

ITEM	PURCHASE DATE	CONDITION	ACQUIRED VALUE
CATERPILLAR 730 ARTICULATED TRUCK	12/31/17	USED	\$195,000.00
PETERBILT DUMP TRUCK	12/31/17	NEW	\$153,000.00
CATERPILLAR D6KLGP BULLDOZER	12/31/17	NEW	\$173,000.00
PETERBILT HAUL TRUCK	10/15/2008	NEW	\$115,000.00
XL SPECIALIZED 1200 HDG HAUL TRAILER	5/31/17	NEW	\$125,000.00
CATERPILLAR 950 WHEEL LOADER	4/31/17	NEW	\$252,000.00
CATERPILLAR 299D XPH SKID STEER	12/31/17	NEW	\$78,000.00
CATERPILLAR 390DL EXCAVATOR	4/11/17	USED	\$425,000.00
KOMATSU PC490 EXCAVATOR	1/31/17	NEW	\$396,000.00
FULL EQUIPMENT LIST ATTACHED WITH PROPOSAL			

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

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MCKEE UTILITY EQUIPMENT LIST

Farm Tractor	Owned	Active	JD	6105D	1P06105DPDM050780	New
Haul Truck	Owned	Active	PETE	388	1XPWDBEX38D758109	New
Loader	Owned	Active	JD	544J	DW544J2611319	New
Work Truck	Owned	Active	CHEVY	3500 HD	1GB4KYC85FF571148	New
Work Truck	Owned	Active	FORD	F250	1FT7W2BT9FED65966	New
Work Truck	Owned	Active	FORD	F350	1FD8W3HT4FED73762	New
Work Truck	Owned	Active	FORD	F350	1FT8W3DT9BEC35221	New
Trackhoe	Owned	Active	CAT	308E	CAT0308EAFJX03405	New
Loader	Owned	Active	KOMATSU	WA320	KMTWA121PGA081005	New
Trackhoe	Owned	Active	KOMATSU	PC228	51406	New
Trackhoe	Owned	Active	KOMATSU	PC138	77296	New
Dump Truck	Owned	Active	KW	T800	1NKDLV0X8YJ838598	Used
Light Plant	Owned	Active	TEREX	Light Plant	AL411-846	Used
Misc	Owned	Active	BRILL	Seeder/Planter	ASG1401352	Used
Misc	Owned	Active	BRILL	Seeder/Planter	ASM1301040	Used
Trackhoe	Owned	Active	KOMATSU	PC400	A88530	New
Trackhoe	Owned	Active	KOMATSU	PC308	KMTPC160V02030187	New
Backhoe	Owned	Active	CASE	580 Super M	NEC706613	New
Broom/Sweeper	Owned	Active	BROCE	350	RJT350409002	Used
Packer/Roller	Owned	Active	INGRSOL	SD45 Sheeps Foot	175834	Used
Light Plant	Owned	Active	INGRSOL	Light Plant	4FVLS8DA1BV418555	Used
Air Compressor	Owned	Active	ATLAS	385	4500B131XBR072039	Used
Generator	Owned	Active	CAT	20KW Generator	C11-10-05190	New
Welder	Owned	Active	RANGER	305G Welder	U1140610061	New
Welder	Owned	Active	RANGER	305G Welder	U1150605541	New
Auger Boring Equipmer	Owned	Active	BARBCO	48-950	48950121579	New
Generator	Owned	Active	MAGNUM	35KW Generator	1204179	Used
Generator	Owned	Active	MAGNUM	35KW Generator	1111956	Used
Generator	Owned	Active	MAGNUM	35KW Generator	1305247	Used
Generator	Owned	Active	MAGNUM	35KW Generator	1204173	Used
Work Truck	Owned	Active	FORD	F250	1FTSW21R08EC84731	New

Bull Dozer	Owned	Active	JD	850J	T0850JX116141	Used
Trackhoe	Owned	Active	KOMATSU	PC360	KMTPC242P54A33741	New
Grinder/Multcher	Owned	Active	BANDIT	3680 Beast	1702	Used
Motor Grader	Owned	Active	JD	770H	DW770CH563917	Used
Misc	Owned	Active	RHINO	Bush Hog	10024	New
Work Truck	Owned	Active	FORD	F350	1FT8W3BT7EEA59034	New
Welder	Owned	Active	MILLER	185 Welder	U1150203397	New
Loader	Owned	Active	JD	544J	DW544JZ597237	New
Work Truck	Owned	Active	FORD	F350	1FD8W3HT0GEC89374	New
Work Truck	Owned	Active	FORD	F550	1FD0W5HT0FEA75458	New
Welder	Owned	Active	MILLER	185 Welder	L607500	New
Water Truck	Owned	Active	STERLING	LT7500	2FZHATDC97AY34100	Used
Test Truck	Owned	Active	INTERN	T5500	1HSMKADN14H666886	Used
Air Compressor	Owned	Active	INGR50L	185	334870VBN221	New
Trackhoe	Owned	Active	CAT	390	CAT0390DKWBT00195	Used
Trackhoe	Owned	Active	CAT	345	CAT8345DTEEH81844	Used
Loader	Owned	Active	CAT	950M	OEMB00887	New
Trackhoe	Owned	Active	CAT	385	EDA00552	Used
Bull Dozer	Owned	Active	CAT	D6T	DTD01112	Used
Slick Bore Equipment	Owned	Active	INTNATL	230 Slick Bore	1565	Used
Bull Dozer	Owned	Active	CAT	D5M	5E500764	New
Farm Tractor	Owned	Active	JD	2555	CD4239T824358	Used
Trackhoe	Owned	Active	KOMATSU	PC228	KMTPC057LO2030914	New
Jack Hammer	Owned	Active	NPK	GH 10	NP05142	New
Trackhoe	Owned	Active	KOMATSU	PC88	KMTPC205T01005170	New
Lawn Mower	Owned	Active	BADBOY	Pro 35	BBA7235CA12121009	New
All Terrain Vehicle	Owned	Active	POLARIS	Ranger	4XATH7EAXE2553919	New
Trailer	Owned	Active	TRLKING	Detatch	1TK5051391M084500	Used
Work Truck	Owned	Active	FORD	F350	1FTWW3DR1AEB31770	New
Dump Truck	Owned	Active	PETE	379	1XP5DB9X6WD443145	Used
Haul Truck	Owned	Active	PETE	379	1XP5DB9X92N585817	Used
Trailer	Owned	Active	CT5	Construction Trailer	5TU242823CS000168	New
Trailer	Owned	Active	CT5	Construction Trailer	5TU242823CS000167	New
Work Truck	Owned	Active	CHEVY	3500 HD	1GCHK83669F184947	New

Work Truck	Owned	Active	FORD	F350	1FD8W3HT1FED73766	New
Trailer	Owned	Active	FONT	Float	13N1482C461536561	Used
Trailer	Owned	Active	TRANS	Float	1TTF4820032010079	Used
Trailer	Owned	Active	TRAILM	Float	L60520	Used
Pipe Bursting Equipment	Owned	Active	HMRHEAD	HB100	HB10020005	Used
Forklift/Skytrack	Owned	Active	YALE	GLP050	A875B33081C	Used
Mechanic Truck	Owned	Active	KW	T270	2NKHMM6X6HM160128	New
Work Truck	Owned	Active	DODGE	5500	3C7ERNFL9FG705904	New
Trailer	Owned	Active	MAXEY	Wash Trailer	5R8U81626FM034351	New
Pipe Bursting Equipment	Owned	Active	MCELROY	A186980	C57980	New
Misc	Owned	Active	CLEMCO	Sand Blaster	32477	New
Trailer	Owned	Active	TRLKING	Belly Dump	1TKS0402XVM037938	New
Trailer	Owned	Active	LAMAR	Gooseneck	5RVGN3026CM009792	New
Grinder/Mulcher	Owned	Active	RAYCO	Wood Chipper	10F38590	New
Loader	Owned	Active	CAT	950M	OEMB03519	New

SCHEDULE C - LIST OF MAJOR EQUIPMENT AVAILABLE

[illegible]

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

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CONFLICT OF INTEREST

Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that persons, or their agents, who seek to contract for the sale or purchase of property, goods, or services with the City, shall file a completed conflict of interest questionnaire with the Engineering Department not later than the seventh (7th) business day after the date that the person: (1) begins contract discussions or negotiations with the City; or (2) submits to the City an application, response to a request for bid or proposal, correspondence, or another writing related to a potential agreement with the City. The Conflict of Interest questionnaire **form is available on the reverse side of this notice** or from the Texas Ethics Commission at www.ethics.state.tx.us.

The full text of the Local Government Code related to Conflict of Interest is available at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.171.htm>. Detailed information related to vendors is found in Section § 176.006 "DISCLOSURE REQUIREMENTS FOR VENDORS AND OTHER PERSONS; QUESTIONNAIRE".

SEE NEXT PAGE

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CONFLICT OF INTEREST QUESTIONNAIRE**FORM CIQ****For vendor or other person doing business with local governmental entity**

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of person who has a business relationship with local governmental entity.*NONE***2**
☐ Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 Name of local government officer with whom filer has employment or business relationship.

NONE
Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

☐ Yes ☐ No *N/A*

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No *N/A*

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an OWNERSHIP of 10 percent or more?

☐ Yes ☐ No *N/A*

D. Describe each employment or business relationship with the local government officer named in this section.

*NONE***4**

Signature of person doing business with the governmental entity

Date

12/27/18

Adopted 06/29/2007

Company Represented

McKee Utility Contractors, Inc.

CONFLICT OF INTEREST QUESTIONNAIRE**FORM CIQ****For vendor or other person doing business with local governmental entity**

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of person who has a business relationship with local governmental entity.

2 ☐ Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 Name of local government officer with whom filer has employment or business relationship.

Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

☐ Yes ☐ No

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an OWNERSHIP of 10 percent or more?

☐ Yes ☐ No

D. Describe each employment or business relationship with the local government officer named in this section.

4

Signature of person doing business with the governmental entity

Date

Adopted 06/29/2007

Company Represented _____

CERTIFICATE OF INTERESTED PARTIES**FORM 1295**

Complete Nos. 1 - 4 and 6 if there are interested parties.
 Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the goods or services to be provided under the contract.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is NO Interested Party. ☐

6 AFFIDAVIT

I swear, or affirm, under penalty of perjury, that the above disclosure is true and correct.

 Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day
 of _____, 20_____, to certify which, witness my hand and seal of office.

 Signature of officer administering oath

 Printed name of officer administering oath

 Title of officer administering oath

ADD ADDITIONAL PAGES AS NECESSARY

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

PART 2 CONTRACT FORMS

NOTICE OF AWARD

Date of Issuance:

Owner: **CITY OF CELINA**

Owner's Contract No.: 18-5827

Engineer: **GARVER**

Engineer's Project No.: 18088205

Project: Celina Water Transmission Improvements – Project A

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for: Constructing approximately 10,750 linear feet of 36-inch waterline originating at the Celina Road Pump Station, and following FM 428 East to the intersection of FM 428 and CR 55. The project includes demolition and restoration of existing property to previous, or improved quality.

The Contract Price of the awarded Contract is: \$ []

4 unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner 4 counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security [e.g., performance and payment bonds] and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

After you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner:

Authorized Signature

By:

Title:

Copy: Engineer

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between CITY OF CELINA ("Owner") and
____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – THE PROJECT

2.01 *The Project, of which the Work under the Contract Documents is a part, is generally described as follows:*

The Project consists of constructing approximately 10,750 linear feet of 36-inch waterline originating at the Celina Road Pump Station, and following FM 428 East to the intersection of FM 428 and CR 55. The project includes demolition and restoration of existing property to previous, or improved quality.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by **Garver, LLC**.

3.02 The Owner has retained **Garver, LLC** ("Engineer") to act as Owner's representative, and to have the rights, responsibilities, duties, and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially completed within the following number of days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within the following number of days after the date when the Contract Times commence to run.

Description	Substantial Completion	Final Completion
Celina Water Transmission Improvements – Project A	160 calendar days	180 calendar days

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of

requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner **\$1,500** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$2,000** for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently. However, if the achieved substantial completion date falls after the specified final completion date, liquidated damages as specified in Completion of Remaining Work will immediately begin accruing from the date of substantial completion until final completion is achieved.

4.04 Special Damages

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment. If the achieved substantial completion date falls after the specified final completion date, these costs will begin accruing immediately from the date of achieved substantial completion.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A:

- A. For all Work a Lump Sum of:

_____	\$	_____
(in words)		(in figures)

All specific cash allowances, unit price work totals, and bid alternatives are included in the above price in accordance with Article 13 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

- 6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner may elect to make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. The Owner holds the right to withhold any payment in accordance with Paragraph 15.01 of the General Conditions. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 95 percent of Work completed (with the balance being retainage); and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 125 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06, minus any damages as described in Paragraphs 4.03 and 4.04.

ARTICLE 7 – INTEREST

7.01 Not applicable.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.
- K. The Contractor hereby represents and warrants to and for the benefit of the Owner that:
 - 1. The Contractor has reviewed and understands the prevailing wage rate requirements and will provide any further verified information, certification or assurance of compliance as may be required by the Owner.
 - 2. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner to recover as damages against the Contractor any loss, expense or cost (including without limitation attorney's fees) incurred by the Owner resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Owner). While the Contractor has no direct contractual privity with the State, as a lender to the Owner for the funding of its project, the Owner and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. Executed Agreement
 - 2. Addenda (if any)
 - 3. Advertisement for Bids
 - 4. Contractor Qualification Package
 - 5. Instructions to Bidders
 - 6. Bid Form/Proposal
 - 7. COI Forms
 - 8. List of Proposed Subcontractors

9. General Conditions
10. Supplementary Conditions
11. Approved Materials List
12. Division 01 General Requirements
13. Any other funding agency documentation required
14. Technical Specifications as listed in the Table of Contents
15. Drawings
16. Performance Bond
17. Payment Bond
18. Maintenance Bond
19. Certificates of Insurance
20. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid
21. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 Other Provisions

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____
(where applicable)

This document is a MODIFIED version of EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price). Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies and is based in part on excerpts from EJCDC documents. Those portions of the text that originated in published EJCDC documents remain subject to copyright.

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

NOTICE TO PROCEEDOwner: **CITY OF CELINA**

Owner's Contract No.: 18-5827

Contractor:

Contractor's Project No.:

Engineer: **GARVER**

Engineer's Project No.: 18088205

Project: CELINA WATER TRANSMISSION
IMPROVEMENTS – PROJECT A

Effective Date of Contract:

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. [see Paragraph 4.01 of the General Conditions]

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner:

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____
_____ this _____ day of _____, 20 ____.

BY

TITLE

EJCDC® C-550, Notice to Proceed. Prepared and published 2013 by the Engineers Joint Contract Documents Committee.

PERFORMANCE BONDCONTRACTOR *(name and address)*:SURETY *(name and address of principal place of business)*:OWNER *(name and address)*:**CITY OF CELINA****CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location)*:**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL**SURETY**

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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PAYMENT BONDCONTRACTOR *(name and address)*:SURETY *(name and address of principal place of business)*:OWNER *(name and address)*:**CITY OF CELINA****CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location)*:**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL**SURETY**_____
(seal)

Contractor's Name and Corporate Seal

By: _____

Signature

Print Name_____
Title

Attest: _____

Signature

Title_____
(seal)

Surety's Name and Corporate Seal

By: _____

Signature *(attach power of attorney)*_____
Print Name_____
Title

Attest: _____

Signature

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety

shall promptly and at the Surety's expense take the following actions:

- 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
- 7.2 Pay or arrange for payment of any undisputed amounts.
- 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to

sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction

Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

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MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal, and _____, a Corporation organized under the laws of the State of Texas and authorized to transact business in the State of Texas, as Surety, are held and firmly bound unto the **CITY OF CELINA**, (hereinafter called "OWNER"), in the penal sum of _____ Dollars (\$ _____), lawful money of the United States of America, said sum being equal to one hundred percent (100%) of the contract price, for the payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors and assigns, jointly and severally, firmly by these presents.

Dated _____, day of _____, 20 ____.

The condition of this obligation is such that:

WHEREAS, said Principal entered into a Contract for the construction of

CELINA WATER TRANSMISSION IMPROVEMENTS – PROJECT A

all in compliance with the plans and specifications therefore, made a part of said Contract and on file in the office of the Owner.

NOW, THEREFORE, if the said Principal shall pay or cause to be paid to Owner all damage, loss, and expense which may result by reason of defective materials and/or workmanship in connection with said work, occurring within a period of two (2) years from and after final acceptance of said project by Owner and if Principal shall pay or cause to be paid all labor and materials, including the prime contractor and all subcontractors; and if Principal shall save and hold the Owner harmless from all damages, loss, and expense occasioned by or resulting from any failure whatsoever of said Principal, then this obligation shall be null and void; otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

PRINCIPAL:

(SEAL)

BY: _____
TITLE: _____

ATTEST:

BY: _____
TITLE: _____

SURETY:

(SEAL)

BY: _____

Address for giving notices:

Phone No. _____

License No. _____

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	CITY OF CELINA	Owner's Contract No.:	18-5827
Contractor:		Contractor's Project No.:	
Engineer:	Garver	Engineer's Project No.:	18088205
Project:	Celina Water Transmission Improvements – Project A		

This **[preliminary]** **[final]** Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: **[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]**

Amendments to Owner's responsibilities: ☐ None
☐ As follows

Amendments to Contractor's responsibilities: ☐ None
☐ As follows:

The following documents are attached to and made a part of this Certificate: **[punch list; others]**

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:		RECEIVED:	RECEIVED:
By: _____	By: _____	By: _____	
(Authorized signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)	
Title: _____	Title: _____	Title: _____	
Date: _____	Date: _____	Date: _____	

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Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SAMPLE CERTIFICATE OF INSURANCE

Owner: **CITY OF CELINA**
 Contractor:
 Engineer: **Garver**
 Project: **Celina Water Transmission Improvements – Project A**

Owner's Contract No.: 18-5827
 Contractor's Project No.:
 Engineer's Project No.: 18088205



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

(must be dated)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Agency Name Agency Address www.stephens.com	CONTACT NAME: Agency contact PHONE (A/C, No, Ext): Agency ph# FAX (A/C, No): E-MAIL ADDRESS: Agency contact email address INSURER(S) AFFORDING COVERAGE INSURER A: Carrier Name (AM Best Rating) INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:	NAIC #
INSURED Named Insured on the policies		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY	X	X	XXXXXXXXXX			EACH OCCURRENCE \$ 5,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 5,000,000 PRODUCTS - COM/OP AGG \$ 5,000,000
	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PROJECT ☐ LOC						
	AUTOMOBILE LIABILITY	X	X	XXXXXXXXXX			COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	☒ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☒ HIRED AUTOS ☒ NON-OWNED AUTOS						
	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☐ RETENTION \$ XXXXX	X	X	XXXXXXXXXX			EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A	X	XXXXXXXXXX			☒ WC STATU-TORY LIMITS ☐ OTH-ER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
				XXXXXXXXXX			

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Owner & Garver, LLC shall be included as an Additional Insured by endorsement #CG2010(11/85) on the General Liability and #CA2048 on the Automobile and Umbrella or substitute endorsement providing equivalent coverage. Coverage shall be Primary and non-contributory with respect to any other insurance or self-insurance programs afforded to the Owner and Garver LLC. Waiver of Subrogation applies in favor of the Owner and Garver LLC on all policies. 60 day notice will be provided to the Owner and Garver LLC in the event of cancellation, non-renewal and/or impairment of the Contractor's policies.

CERTIFICATE HOLDER Owner and Garver LLC	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE (must be signed by the Contractor's Insurance Agent)
--	---

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CERT NO.: 15475674 Kathy Jones 2/11/2013 10:58:41 AM Page 1 of 1

INSURANCE POLICIES IN FORCE

INSURANCE AFFORDED ONLY FOR HAZARDS INDICATED BY (X)

Type of Policy	X	Limits of Liability	Policy Number	Policy Term
(a) Standard Workmen's Compensation & Employer's and Occupational Disease Liability		Statutory W. C. Each Occurrence \$ _____ Aggregate Disease \$ _____		From: To: From: To:
(b) Longshoremen's & Harbor Workers Compensation		Statutory		From: To:
(c) General Liability <u>Bodily Injury</u> Premises – Operation Contractor's Protective Products & Completed Operations Contractual <u>Property Damage</u> Contractual Explosion, Collapse & Underground Damage (X.C.U.)		Each Person \$ _____ Each Occurrence \$ _____ Aggregate Products \$ _____ & Completed Operations Each Occurrence \$ _____ Aggregate Prem. Oper. \$ _____ Aggregate Protective \$ _____ Aggregate Products & \$ _____ Completed Operations Aggregate Contractual \$ _____ Aggregate X.C.U. \$ _____		From: To:
(d) Automobile Liability <u>Bodily Injury</u> Owned Automobiles Hired Automobiles Non-Owned Automobiles <u>Property Damage</u> Owned Automobiles Hired Automobiles Non-Owned Automobiles		Each Person \$ _____ Each Occurrence \$ _____ Each Occurrence \$ _____		From: To:
(e) <u>Other Insurance</u>				

CONTRACTUAL LIABILITY

Subject to policy terms, conditions and exclusions, specific Contractual Liability coverage is provided as follows:

- ☐ For liability assumed by the Insured under its Contract with _____ (Owner) for the operations described herein.
- ☐ All Contracts between the Insured and _____ (Owner).

Insurance Company

By: _____
Authorized Representative

Address

Date: _____

EQUAL EMPLOYMENT OPPORTUNITY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The Contractor shall implement affirmative action steps at least as extensive as described herein.

1.2 WORKING ENVIRONMENT

- A. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two (2) or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

1.3 ON-THE-JOB TRAINING

- A. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs.

1.4 REVIEW

- A. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

1.5 DISSEMINATION

- A. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

1.6 RECRUITMENT

- A. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one (1) month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

1.7 INVENTORY

- A. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

1.8 MONITORING

- A. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

1.9 FACILITIES

- A. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

1.10 RECORDS

- A. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

1.11 ADHERENCE

- A. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

PART 3

CONDITIONS OF THE CONTRACT

General Conditions

The General Conditions, Section 00 72 00, have not been modified or amended in any way from the original publication of the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). Any modifications to these General Conditions have been made in the Supplementary Conditions, Section 00 73 00.

Supplementary Conditions

The Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition), Section 00 72 00. All provisions that are not so amended or supplemented remain in full force and effect.

The address system used in the Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.
 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and

Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*:
 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day*:
 1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*:
 1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or

- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
- c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide:*

- 1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor's Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner's Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and
 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. **Contractor's Verification of Figures and Field Measurements:** Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. abnormal weather conditions;
 - 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility

for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
 - D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
2. is of such a nature as to require a change in the Drawings or Specifications; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments:*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. **Contractor's Responsibilities:** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. **Notice by Contractor:** If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. **Engineer's Review:** Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground

Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Possible Price and Times Adjustments:*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
2. Technical Data contained in such reports and drawings.

- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2)

was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 Contractor's Insurance

- A. **Workers' Compensation:** Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible

amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
6. extend to cover damage or loss to insured property while in transit.
7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
8. allow for the waiver of the insurer's subrogation rights, as set forth below.
9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
10. not include a co-insurance clause.
11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
12. include performance/hot testing and start-up.
13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

- B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.

- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. **Contractor's Expense:** Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. **Engineer's Evaluation and Determination:** Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be

evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the

replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention,

design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during

construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 Hazard Communication Programs

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 Emergencies

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 Shop Drawings, Samples, and Other Submittals

A. Shop Drawing and Sample Submittal Requirements:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. Shop Drawings:

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. Samples:

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as

Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.
- E. *Resubmittal Procedures:*
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
 2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform

any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to

Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the

progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
 - 3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes

cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. **Contractor's Fee:** When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
 - 1. a mutually acceptable fixed fee; or
 - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
 - 1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 - 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 - 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal

and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns

from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers,

architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

- A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects*: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 Acceptance of Defective Work

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the

Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of 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, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
 - 3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 - 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 - 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 - 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. *Payment Becomes Due:*
- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.
- E. *Reductions in Payment by Owner:*
- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from

workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider

the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in

writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 1. correct the defective repairs to the Site or such other adjacent areas;
 2. correct such defective Work;
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may

thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.

- B. *Final Resolution of Disputes*: For any dispute subject to resolution under this Article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 Headings

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition), Section 00 72 00. All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01.A Delete paragraph 1.01.A.5 and insert the following in lieu thereof:

5. Bidder - Any individual, partnership, corporation, joint venture, or other combination thereof who submits a Bid to Owner for the Work contemplated, acting directly or through an authorized representative. As used in the Contract Documents, masculine pronouns refer to both masculine and feminine genders.

Delete paragraph 1.01.A.16 and insert the following in lieu thereof:

1. Contractor – Person or entity identified as such in the Agreement and the Contractor's authorized representative who is referred to throughout the Contract Documents as if singular in number.

Delete paragraph 1.01.A.20 and insert the following in lieu thereof:

20. Engineer – Person or entity identified as such in the Agreement and the Engineer's authorized representative who is referred to throughout the Contract Documents as if singular in number.

Delete paragraph 1.01.A.28 and insert the following in lieu thereof:

28. Owner – The individual, entity, public body or authority identified as such in the Agreement and the Owner's authorized representatives who are referred to throughout the Contract Documents as if singular in number.

Add the following statements to paragraph 1.01.A.40:

Substantial completion shall still require the Contractor to complete the punch list items unless waived by Owner.

Add the following subparagraphs immediately after subparagraph 1.01.A.48:

49. *Award* – The formal acceptance of the Bid by Owner.
50. *Bid Guarantee (Bid Bond)* – The security furnished with a Bid to guarantee that the Bidder will enter into the contract if Bidder's Bid is accepted by Owner.
51. *Design Engineer* – Garver, LLC.
52. *Equipment (Construction)* – All machinery and equipment, together with the necessary supplies for upkeep and maintenance, including tools and apparatus necessary for the proper construction and acceptable completion of the Work contemplated. (Installation) – All material or articles used in equipping a facility or apparatus required to fulfill a functional design.

53. *Execution* – Field or site performance, workmanship, installation, erection, application, field fabrication, quality control, and protection of installed products on the site.
54. *Materials* – All materials incorporated into the Project, including equipment and all other materials consumed or to be consumed in the performance of the Work contemplated.
55. *Product Data* – Type of Shop Drawing comprised of standard illustrations, schedules, performance charts, instructions, brochures, diagrams, catalog cuts, and other information assembled by or for the Contractor and submitted by the Contractor to illustrate materials or equipment for some portion of the Work.
56. *Products* – Materials, equipment, systems, shop fabrications, mixtures, and source controls.
57. *Utility* – Any public or private fixed works for the transportation of fluids, gases, electricity, signals, or communications.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.03.A Before starting construction: Add the following to paragraph 2.03.A:

4. A preliminary schedule of payments showing projected cash flow.

SC-2.04.A Delete paragraph 2.04.A and insert the following in lieu thereof:

- A. Before the Contract Times start to run, but after Notice to Proceed is given, a conference attended by Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.03.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

SC-2.05.A Add the following subparagraph to paragraph 2.05.A.

4. Contractor's schedule of payments will be acceptable if it provides a reasonable projection of payments in relationship to the progress schedule and schedule of values.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01.A Add the following sentence and subparagraphs to paragraph 3.01.A:

The Contract Document higher in precedence shall control and supersede the Contract Documents lower in precedence in accordance with the following listing arranged from the highest to the lowest in precedence:

1. Addenda, if any; Supplemental Agreements; and Change Order(s); the one dated later having precedence over another dated earlier.
2. Agreement.
3. General Requirements (DIVISION 01).
4. Other Specifications (DIVISION 02 and other DIVISIONS following it).
5. Drawings.
6. Standard Details.
7. Supplementary Conditions.
8. General Conditions.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.02 *Add the following paragraph 4.02.B:*

- B. All Site visits and all work at the Site shall be governed by the Owner's safety program if applicable. The Contractor shall be required to obtain a copy of the Owner's safety program. The Contractor's efforts shall be consistent with and achieve the requirements of the Owner's safety program throughout the project. This does not alleviate the Contractor from the responsibility to develop and implement their own safety program.

SC-4.04.A *Add the following subparagraph to paragraph 4.04.A:*

1. If, in the opinion of Engineer, Contractor falls behind the accepted Construction Schedule due to actions or neglect of Contractor or Contractor's agents, servants, employees, officers, subcontractors, directors, or any party contracting to perform part or all of the Work or to supply any equipment or materials, Contractor shall take steps, including, but not limited to, increasing the number of personnel, shifts, and/or overtime operations, days of work, and/or amount of construction equipment until such time as the Work is back on schedule. Contractor shall also submit for review not later than the time of submittal of the next request for partial payment, such supplementary schedule or schedules as may be necessary to demonstrate the manner in which the acceptable rate of progress will be regained, all without additional cost to Owner.

SC-SC-4.05 *Add the following paragraph as paragraph 4.05.H:*

- H. The time allowed for the completion of the work will be as specified in the contract as Fixed Completion Date or Calendar Day. It is understood and agreed by and between the Owner and the Contractor that the time of completion herein set out is a reasonable time. The Contractor shall perform fully, entirely, and in an acceptable manner, the work contracted for within the contract time stated in the Contract.
 1. FIXED COMPLETION DATE: When the contract time is specified as a fixed date, it will be the date on which all work on the project shall be substantially complete without exception.
 2. CALENDAR DAY: Calendar day contract time includes delays for all holidays, weekends including Saturday and Sunday, and normal weather-related events, such as rain, snow, and freezing temperatures that may affect the progress of the construction on a per-month basis as hereinafter set out. Only weather-related delays in excess of these amounts will be considered for time extensions if requested by the Contractor. Time extensions due to weather delays will only be considered if the work was impeded by those conditions. Days Included in Contract Times for Normal Weather-Related Events and holidays are:

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

Month	Normal Weather-Related Events	Holidays
January	11	2
February	10	1
March	6	0
April	7	0
May	7	1
June	4	0
July	4	1
August	2	0
September	3	1
October	4	1
November	4	3
December	7	2

Saturdays and holidays which may be declared in writing by the Owner for certain special or unusual circumstances will be optional to the Contractor as working days and time will not be assessed unless work is performed that requires observation. Sunday work shall not be permitted.

Holidays that shall be observed are the following: New Year's Day (January 1); Dr. Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Columbus Day (2nd Monday in October); Veterans Day (November 11); Thanksgiving Day (4th Thursday in November); Day after Thanksgiving (Friday following Thanksgiving); Christmas Eve (December 24); and Christmas Day (December 25). If a holiday falls on a Saturday or Sunday, the observed day shall be the Friday preceding the Saturday or the Monday following the Sunday.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.01 Add the following paragraph 5.01.D immediately following paragraph 5.01.C:

- D. Any Work performed in public rights-of-way, in addition to conforming to the Contract Documents, shall be done in accordance with the requirements of the permit issued by the public agency in whose right-of-way the Work is located.

SC-5.03.A.1 Delete paragraph SC-5.03.A.1 and insert the following in lieu thereof:

- The following report(s) of exploration and tests of subsurface conditions at or contiguous to the site used by Design Engineer in preparing the Contract Documents. are available upon 48 hours' notice to Owner. Samples taken from bore holes are available for inspection at EST, Inc., 3522 Sam Rayburn Hwy, Melissa, TX 75454, phone no. 469-907-5500.

- a. Report dated October 30, 2018, prepared by EST, Inc. entitled "Geotechnical Engineering Services Report, Celina Water Transmission Line Improvements, Celina, Texas, EST Project No.: 6008617".

SC-5.03.B In paragraph 5.03.B, delete the words "Technical Data expressly identified in the Supplementary Conditions" and insert "Technical data is limited to data provided in the reports and drawings listed in paragraph SC-5.03.A" in lieu thereof. Add the following subparagraph to 5.03.B:

4. Contractor's interpretation of the character and condition of the materials between test hole locations.

SC-5.05.A Add the following subparagraphs to paragraph 5.05.A:

1. Generally, service connections are not indicated on the Drawings. Contractor shall be responsible for discovery of existing underground installations, in advance of excavating or trenching, by contacting all local utilities and by prospecting through hydro-excavation or potholing.
2. All information relative to Underground Facilities shall be recorded and incorporated into the record documents required by paragraph 7.11.
3. Contractor will be held responsible for any unauthorized interruption in the operation of Underground Facilities as a result of Contractor's operations. Unless the owner of the damaged facility elects to perform the repair and restoration work, Contractor shall repair and fully restore any damaged Underground Facility to a condition at least equal to that which existed just prior to the time of damage. All repair and restoration work shall be done to the satisfaction of the facility owner and Engineer.
4. Contractor shall arrange for any inspection of repaired or reconditioned Utility facilities required by authorities having jurisdiction. All inspection fees shall be paid by Contractor. If the facility owner elects to perform the repair and restoration work, Contractor shall render all assistance required. Contractor shall be responsible for all just and reasonable expenses incurred by the facility owners for such work.

SC-5.06.A Delete paragraph 5.06.A and insert the following in lieu thereof:

A. Reports and Drawings:

1. No reports of exploration and tests of hazardous environmental conditions at or contiguous to the site have been used by Design Engineer in preparing the Contract Documents.
2. No drawings of hazardous environmental conditions at or contiguous to the site have been used by Design Engineer in preparing the Contract Documents.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.02.B Delete the last sentence of paragraph 6.02.B and insert the following sentence in lieu thereof:

Contractor shall maintain at all times during the life of this contract policies of insurance from an insurance company that has a rating of or equivalent to A-VIII by A.M. Best & Company.

SC-6.02 Add the following paragraph immediately after paragraph 6.02.J:

- K. Deliver all certificates of insurance required by the Contract Documents to Owner with executed Agreement.

SC-6.03 Add the following paragraphs immediately after paragraph 6.03.J:

- K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory (or \$500,000 minimum)</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory (or \$500,000 minimum)</u>

Employer's Liability:

Bodily injury, each accident	\$ <u>1,000,000</u>
Bodily injury by disease, each employee	\$ <u>1,000,000</u>
Bodily injury/disease aggregate	\$ <u>2,000,000</u>

If Contractor leases its employees, the alternate employer endorsement (WC 00 03 01 A) shall be attached showing Owner in the schedule as the alternate employer.

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	\$ <u>5,000,000</u>
Products - Completed Operations Aggregate	\$ <u>5,000,000</u>
Personal and Advertising Injury	\$ <u>5,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	\$ <u>5,000,000</u>

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ <u>1,000,000</u>
Each accident	\$ <u>2,000,000</u>

Property Damage:

Each accident	\$ <u>1,000,000</u>
---------------	---------------------

[or]

Combined Single Limit of	\$ <u>5,000,000</u>
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4. Excess or Umbrella Liability (if needed):

Per Occurrence	\$ <u>5,000,000</u>
General Aggregate	\$ <u>5,000,000</u>

5. Contractor's Pollution Liability:

Each Occurrence	\$	<u>N/A</u>
General Aggregate	\$	<u>N/A</u>

- ☒ If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Contractor's Professional Liability:

Each Claim	\$	<u>N/A</u>
Annual Aggregate	\$	<u>N/A</u>

7. Railroad Protective Liability:

Per Occurrence	\$	<u>N/A</u>
General Aggregate	\$	<u>N/A</u>

SC-6.03.G Add the following subparagraph immediately after subparagraph 6.03.G:

9. Owner and Garver, LLC shall be included as an additional insured under the CGL, (using ISO Additional Insured Endorsement CG 20 10 11 85 or a substitute providing equivalent coverage), and under the commercial automobile liability (using ISO Additional Insured Endorsement CA 2048 or a substitute providing equivalent coverage), and commercial umbrella, if any. This insurance, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.

SC-6.03.I Add the following subparagraphs to paragraph 6.03.I:

6. Contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance; and
7. With respect to workers' compensation and employer's liability, comprehensive automobile liability, commercial general liability, and umbrella liability insurance, Contractor shall require Contractor's insurance carriers to waive all rights of subrogation against Owner, Engineer, Engineer's Consultants, and their respective officers, directors, partners, employees, and agents.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02.B Add the following subparagraphs immediately after paragraph 7.02.B:

1. No Work shall be done between 6:00 p.m. and 7:00 a.m. without permission of Owner. However, emergency work may be done without prior permission.
2. Night Work may be undertaken as a regular procedure with the permission of Owner; such permission, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for the proper prosecution and control of the Work at night.

SC-7.03 *Add the following paragraphs immediately after paragraph 7.03.C:*

- D. Interfaces to Equipment, Instruments, and Other Components:
 - 1. The drawings, specifications, and overall design are based on preliminary information furnished by various equipment manufacturers which identify a minimum scope of supply from the manufacturers. This information pertains to, but is not limited to, instruments, control devices, electrical equipment, packaged mechanical systems, and control equipment provided with mechanical systems.
 - 2. Provide all material and labor needed to install the actual equipment furnished, and include all costs to add any additional conduit, wiring, terminals, or other electrical hardwired to the work, which may be necessary to make a complete, functional installation based on the actual equipment furnished:
 - a. Make all changes necessary to meet the manufacturer's wiring requirements.
 - 3. Submit all such changes and additions to the Engineer for acceptance in accordance with the General Conditions.
 - 4. Review the complete set of drawings and specifications in order to ensure that all items related to the electrical power and control systems are completely accounted for. Include any such items that appear on drawings or in specifications from another discipline in the scope of Work.
- E. Until Substantial Completion of the Work is acknowledged by Owner, Contractor shall have the responsible charge and care of the Work and of materials to be used herein, including materials for which Contractor has received partial payment or materials which have been furnished by Owner, and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the Work.
- F. Contractor shall rebuild, repair, restore, and make good all injuries, losses, or damages to any portion of the Work or the materials occasioned by any cause before the Work's completion and acceptance and shall bear the expense thereof. Where necessary to protect the Work or materials from damage, Contractor shall, at Contractor's own expense, provide suitable drainage and erect such temporary structures or rent such structures as are necessary to protect the Work or materials from damage. The suspension of the Work or the granting of an extension of time from any cause whatever shall not relieve Contractor or Contractor's responsibility for the Work and materials as specified herein.
- G. When the quality of a material, process, or article is not specifically set forth in the Contract Documents, the best available quality of the material, process, or article shall be provided.
- H. Delivery and Inspection:
 - 1. Deliver products in undamaged condition, in manufacturer's original container or packaging with identifying labels intact and legible. Include date of manufacture on label.

SC-7.04.A *Delete paragraph 7.04.A and insert the following in lieu thereof:*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. If the specification or description contains the words, "or equal" or "or equal allowed", or "or equal item is permitted", Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below. Unless these words are specifically written in the description of such item, no substitution is allowed per this Contract. If the item's description is followed by words reading that "no like", "no equivalent", or "no or equal" item is permitted, then no substitution of like items or like manufacturers is allowed as part of this Contract.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

SC-7.05.A Delete paragraph 7.05.A and insert the following in lieu thereof:

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that, "or equal" or "or equal allowed", or "or equal item is permitted", then no substitution of like items is permitted. If the item's description includes the words "no substitution is permitted", "no like", "no equivalent", or "no or equal" item is permitted, then no substitution of like items or like manufacturers is allowed as part of this Contract. If the words, "or equal is permitted", "or equal", or "like items are permitted", Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:

- 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
- c. will identify:
- 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

SC-7.06.D Delete paragraph 7.06.D and insert the following in lieu thereof, and add subparagraph 7.06.D.1:

- B. Contractor shall submit to the Owner a list of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner as stipulated in the Bidding Documents. Owner's acceptance (either in writing or by failing to make written objection thereto within two weeks of submittal of the list) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation.
1. Subcontracting: Contractor shall perform with Contractor's own organization work amounting to not less than 51 percent of the combined value of all items of the Work covered by the Contract.

SC-7.06.F Delete paragraph 7.06.F and insert the following in lieu thereof:

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall not be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement.

SC-7.08.A Delete paragraph 7.08.A. and insert the following in lieu thereof:

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work, with the exception of the following, which will be the Contractor's responsibility:
1. All permits shall be the Contractor's responsibility.

SC-7.08 Add the following paragraph immediately after paragraph 7.08.A:

- B. Owner will provide the following permits:
1. No permits have been agreed to being provided by Owner.

SC-7.09.A *Delete the word "use."*

SC-7.09 *Add the following paragraph immediately after paragraph 7.09.A:*

- B. Owner is exempt from payment of sales taxes of the State of Texas and of cities and counties thereof on all materials to be incorporated into the Work. The CONTRACTOR'S attention is directed to Texas House Bill 11 (72nd legislature, 1st C.S.) which amended the Texas Tax Code Section 151.311. This amendment provides that by the CONTRACTOR entering into a separate contract, the CONTRACTOR will become a seller of materials purchased for the project, which will obviate paying taxes on materials incorporated into the project.

As a seller, the CONTRACTOR purchases materials and issues a resale certificate in lieu of paying the sales tax at the time of purchase. The OWNER, as an exempt entity, will provide the CONTRACTOR with an exemption certificate at the time of the "sale" of the materials to the OWNER, thereby precluding the OWNER and the CONTRACTOR, from paying the sales tax on the materials. A copy of a sample of the OWNER'S Texas Sales Tax Exemption Certificate can be provided to the CONTRACTOR.

Services are not tax exempt. The CONTRACTOR will be required to pay all appropriate taxes for all services as set forth herein.

For purposes of these Contract Documents, the following definitions are provided for Materials and Services:

Materials: Materials are those items which are tax exempt and are physically incorporated into the facility constructed for the OWNER. Materials include, but are not limited to, purchased items such as embedment, concrete, grout, asphalt, roadbase and subbase, etc.

Services: Services are those items that are not tax exempt and are items used by the CONTRACTOR but which are not physically incorporated into the OWNER'S facility and/or are items which are consumed by construction. Services include, but are not limited to, items such as supplies, tools, concrete forms, sheeting and shoring, temporary storage buildings, the purchase or rental or lease of equipment, skill and labor, etc.

For further information concerning taxes as they relate to materials and services, the CONTRACTOR shall refer to House Bill 11 and/or contact the Texas Comptroller of Public Accounts, Austin, Texas.

SC-7.10 *Delete paragraph 7.10.A and insert the following paragraph 7.10.A in lieu thereof, and add the following paragraphs:*

- A. Contractor shall give all notices required by and comply with all Laws and Regulations applicable to furnishing and performance of the Work and shall cause all Contractor's agents, employees, Subcontractors, and Suppliers to observe and comply with all such laws, ordinances, and regulations.
- D. Employment Requirements: Contractor shall comply with employment requirements stipulated in the attached exhibits.

SC-7.11 *Add the following paragraph 7.11.B immediately following paragraph 7.11.A:*

- B. Prior to submitting each request for progress payment, request Engineer's review and approval of current status of record documents. Failure to properly maintain, update, and submit record documents may result in a deferral by Engineer to recommend whole or any part of Contractor's Application for Payment, either partial or final.

SC-7.12 *Add the following paragraphs immediately after paragraph 7.12.G.*

- H. Contractor shall prepare, implement, and maintain a safety and health program or plan in accordance with Section 01 32 90 of the General Requirements.

- I. Contractor shall make reasonable efforts to detect and abate any violations of safety standards of which Contractor is aware and to which Contractor's employees are exposed, despite the fact that Contractor did not commit the violation.
- J. Trench and Excavation Safety System:
 - 1. This section covers trench and excavation safety system required for constructing improvements that necessitate open excavations on the project. All work under this item shall be in accordance with the current edition of the "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart P.
 - 2. The Contractor, prior to beginning any excavation, shall notify the State Department of Labor (Safety Division) that work is commencing on a project with excavations greater than five feet.
 - 3. The Contractor shall notify all Utility Companies and Owners in accordance with OSHA Administration 29 CFR 1926.651(b) (2) for the purpose of locating utilities and underground installations.
 - 4. Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities, or other installation, the Contractor shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structure or utility.
 - 5. The Contractor may elect to remove and replace or relocate such structures or utilities with the written approval of the Owner of the structure or utility and the Project Owner.
 - 6. The work required by this item will be paid for at the price bid for "Trench and Excavation Safety Systems". After award of the Contract, the Contractor shall submit to the Engineer a breakdown of cost for work involved in the price bid for "Trench and Excavation Safety Systems" and shall, with each periodic payment request, submit a certification by the Contractor's "competent person" as defined in Subpart "P" 1926.650(b) that the Contractor has complied with the provisions of "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System" 29 CFR 1926 Subpart P for work for which payment is requested.

SC-7.16.A *Add the following subparagraphs immediately after paragraph 7.16.A.3:*

- 4. The Contractor shall prepare and submit information in accordance with Specification section 01 33 00, Submittal Procedures, as required by the individual Specification sections sufficiently in advance of the related work to allow an appropriate review time by the Engineer. The types of submittals are indicated in the individual Specification sections.

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 *Delete paragraphs 8.02.A and 8.02.B and insert the following paragraphs in lieu thereof:*

- A. Owner intends to contract with others for the performance of other work on the Project at the Site. Contractor shall coordinate the Contract and separate contracts with the following duties, responsibilities, and limitations of authority:
 - 1. Coordinating Contractor shall coordinate the scheduling of work between this Contract and other concurrent contracts so that interference with operations and conflicts with interfacing work will be minimized. Particular attention shall be paid to maintaining suitable traffic patterns and adequate access to the existing facilities. Whenever construction activities conflict with operations, Owner shall decide which activity shall be given priority.
 - 2. Coordinating Contractor shall be responsible for coordinating work by Coordinating Contractor's own forces, by other contractors, by all subcontractors, and work by Owner's staff. Coordinating Contractor shall exert full control over the actions of all

employees and other persons with respect to the use and preservation of property and existing facilities, except such control as may be specifically reserved to Owner or others. Coordinating Contractor has the right to exclude from the site all persons who have no purpose related to the Work or the Work's inspection, and may require all persons on the site (except Owner's employees) to observe the same regulations as Coordinating Contractor requires of Coordinating Contractor's own employees.

SC-8.03.A *Delete the first sentence in paragraph A. and replace with the following:*

If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction then Contractor *may* be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

SC-9.02.A *Delete the following text in the first sentence of paragraph 9.02.A: "provided Contractor makes no reasonable objection to the replacement Engineer."*

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 *Add the following new paragraph immediately after paragraph 10.03.A:*

- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

SC-10.08 *Add the following paragraphs immediately after paragraph 10.08.E:*

- F. Observers and Resident Project Representatives shall have no authority to permit any deviation from the plans and specifications except on written order from the Engineer.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.05 *Add the following paragraphs 11.05.C and 11.05.D:*

- C. Use of Float:
 - 1. A claim for an adjustment of Contract Times (or Milestones), otherwise allowable under the Contract Documents, shall be granted only when the time lost or gained exceeds the float for the activity at the time of the event giving rise to the claim. Float, the amount of time between the early start date and the late start date, or the early finish date and the late finish date, is jointly owned by both Owner and Contractor whether expressly disclosed or implied in any manner.
 - 2. Contractor shall not use float suppression techniques (including, but not limited to, preferential sequencing caused by late starts of follow-up trades, unreasonably small crews, extended durations, or imposed dates) in information provided to Engineer.
- D. The Contract Time includes weather day allowances as calculated by SC-4.05. Extension of Contract Time will be allowed for each month's days that are in excess of each month's anticipated weather days as identified in SC-4.05.

ARTICLE 12 – CLAIMS

No modifications.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01.B.5.c Insert the following after paragraph 13.01.B.5.c:

- 1) Rental rates will be determined as follows:
 - a) The base rates shall be those established in the cost guide, entitled “Rental Rate Blue Book,” and revisions thereto.
 - b) Attachments (e.g. tractor with ripper and dozer or tractor with loader and backhoe) will be included in the hourly rental rate only when deemed essential to the Work as determined by Engineer.
 - c) The total established rental rate per hour shall be rounded to the nearest \$0.10.
 - d) Rental rates shall not be adjusted for regional differences.
 - e) No compensation shall be allowed for shop tools having a daily rental rate less than \$10.00 as set forth in the cost guide.
- 2) If deemed necessary by Engineer to use equipment not listed in the aforementioned publications, a suitable rental rate for such equipment will be mutually established by Contractor and Engineer. Contractor may furnish any cost data that might establish a suitable rental rate for such equipment. Rental payment will be made for the actual time that such equipment is in operation on the Work and for 20 percent of the actual standby time on the Work.

SC-13.02.A Delete “allowances so named in the Contract Documents” in the first sentence of 13.02.A and insert “allowances so named in Section 01 29 00 of the General Requirements” in lieu thereof.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.02.B Insert “Contractor” in lieu of “Owner” in paragraph 14.02.B to designate the payor of independent testing laboratory services. Insert “including but not limited to the following” in lieu of “except that”.

SC-14.03 Add the following paragraph immediately following paragraph 14.03.F:

G. System Startup:

1. Replace or modify equipment, software, and materials that do not achieve design requirements after installation in order to attain compliance with the design requirements:
 - a. Following replacement or modification, retest the system and perform additional testing to place the complete system in satisfactory operation and obtain compliance acceptance from the Engineer.

SC-14.05.C In the first sentence of subparagraph 14.05.C.2, delete the word “shall” and replace with the word “may”.

ARTICLE 15 – PAYMENTS TO CONTRACTOR AND COMPLETION

SC-15.01.B Delete “At least twenty days before the date established for each progress payment (but not more than once a month)” in the first sentence of paragraph 15.01.B and insert “On the last

day of each calendar month" in lieu thereof and add the following subparagraphs at the end of 15.01.B:

4. **Stored Materials and Equipment:** Payments for stored materials and equipment shall be based only upon the actual cost of the materials and equipment to Contractor and shall not include any overhead or profit to Contractor. Partial payments will not be made for undelivered materials or equipment, except for payments associated with procurement contracts initiated by Owner and assigned to Contractor.
5. **Schedules and Data:** During the progress of the Work, each Application for Payment shall be accompanied by Contractor's updated schedule of operations, or progress report, with such shop drawings schedules, procurement schedules, value of material on hand included in application, and other data specified in Section 01 33 00 of the specifications or reasonably required by Engineer.
6. **Payment for material delivered to the work site or stored under Owner's control** will be based on the vendors' paid invoices or the bill of lading showing date of delivery and the work site where the delivery took place, a copy of which shall be furnished by Contractor to Engineer with each request for progress payment. Only those materials which have been incorporated into the Project or are stored under Owner's control may be included in the progress payment as material stored.
7. In addition to the amounts which Owner may retain as provided elsewhere in the Contract Documents, Owner may withhold a sufficient amount or amounts from any payment otherwise due Contractor as in Owner's judgment may be necessary to cover:
 - a. Payments which may be due and payable for properly filed claims against Contractor or any Subcontractor for labor or materials furnished in or about the performance of the Contract.
 - b. Estimated or actual costs for correcting defective work not remedied.
 - c. Amounts claimed by Owner as forfeiture due to delays or other offsets. Owner may apply such withheld amount or amounts to the payment of such claim at Owner's discretion. In doing so, Owner shall be deemed the agent of Contractor and any payments so made by Owner shall be considered as a payment made under the Contract by Owner to Contractor, and Owner shall not be liable to Contractor for such payment made in good faith. Such payments may be made without prior judicial determination of the claim or claims. Owner shall render to Contractor a proper account of any such funds disbursed in or on behalf of Contractor.
8. Contractor shall disburse money paid to him, including any interest Contractor receives, to Subcontractors and Suppliers within 15 days after Contractor receives the money, in direct proportion to the Subcontractors' and Suppliers' basis in the total Contract between Contractor and Owner. Any money which is payable to a Subcontractor pursuant to this section accrues interest at the legal rate. Contractor may withhold 10 percent from the amount of any partial payment under a subcontract which is made before 50 percent of the Work has been completed under the subcontract. Thereafter Contractor shall pay any additional funds if, in the opinion of Contractor, satisfactory progress is being made in the work under the subcontract, and the payment must be equal to that paid by Owner to Contractor for the Work performed by the Subcontractor.
 - a. The Contractor may retain the amount withheld under the subcontract until the subcontract is satisfactorily completed.
 - b. The amount withheld under the subcontract is due within 15 days after the acceptance of the subcontract work by Contractor.
 - c. Whenever Contractor receives a payment of interest earned on the amount withheld from the Contract, Contractor shall within 15 days pay to each

Subcontractor that portion of the interest received from the state which is attributable to the amount of money withheld from the Subcontractor.

SC-15.01.D Delete paragraph 15.01.D.1 and insert the following paragraph in lieu thereof:

1. Sixty (60) days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended less amounts due to Owner and other amounts which are authorized to be reserved or retained by state law will (subject to the provisions of paragraph 15.01) become due and when due will be paid by Owner to Contractor.

SC-15.03.A Add the following subparagraphs immediately after paragraph 15.03.A:

1. A phase of the Work shall be Substantially Complete when the Work associated with that phase can treat wastewater to the quality and in the quantity in accordance with the Contract Documents. All process equipment, associated facilities, and controls associated with a phase of the work shall be installed and operational or temporary arrangements satisfactory to Owner shall have been made. Not all performance testing need be completed prior to the date of Substantial Completion.
2. For the work to be considered substantially complete, all portions of the work must be operational and ready for Owner's continuous use.

SC-15.06.D In the first sentence of paragraph 15.06.D, delete the word "Thirty" and replace with "Sixty".

SC-15.06.E Final Payments: Add the following subparagraphs immediately after paragraph 15.06.D:

- E. *Final Payments:* At the project's completion, the Contractor shall execute a Release and Lien Waiver to release all claims against the Owner arising under and by virtue of his Contract. The date of the Release shall be that agreed to for the final acceptance of the project with the Owner. The Release form and Contractor's Affidavit form are included at the end of these Supplementary Conditions.

SC-15.08.A Delete "Substantial Completion" and insert "final acceptance" in lieu thereof.

SC-15.08.B Delete "Substantial Completion" and insert "final acceptance" in lieu thereof.

SC-15.08 Add the following paragraphs immediately after paragraph 15.08.E:

- F. Contractor's obligation under this paragraph includes also providing a correction period from the substantial completion of any early completion items until the project's final completion and the beginning and completion of the 2-year completion's period as defined in paragraph 15.08.A.
- G. Remedying Defects: If, at any time before expiration of the correction period under 15.08.A, Owner determines that the goods are defective, Contractor shall either correct the defects or remove the goods and replace them with non-defective goods.
- H. Owner May Remedy: If Contractor fails to take action as required by Owner in accordance with paragraph 15.08.B, Owner may, after ten days' written notice to Contractor, remedy any such deficiency, instead of requiring removal or replacement. In an emergency where delay would cause serious risk of loss or damage, Owner may take such action without notice to or waiting for action by Contractor.
- I. Correction Period: Contractor's responsibility for remedying defects will extend for a period of two (2) years after date of final acceptance, or for such longer period of time as may be prescribed by law or by provisions of manufacturer's warranty or guarantee in conformance with the Contract Documents.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

SC-16.01 Delete paragraph 16.01.A and insert the following in lieu thereof:

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. At the discretion of the Owner, the Contractor may be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

SC-16.02 Delete paragraphs 16.02.A through 16.02.D and insert the following in lieu thereof:

- A. If Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure the completion of the Work within the Contract Times, or any extension thereof, or fails or refuses to complete such Work within such extension, or if Contractor should be adjudged bankrupt, or if Contractor should make assignment for the benefit of Contractor's creditors, or if Contractor files a petition to take advantage of any debtor's act, or if a receiver should be appointed on account of Contractor's insolvency, or if Contractor or any Subcontractor should violate any provision of the Contract, or if Contractor should persistently refuse or should fail to supply enough properly skilled workmen or proper materials to complete the Work in the time specified, or if Contractor should fail to make prompt payment to Subcontractors or for materials or labor, or if Contractor should disregard laws, ordinances, or instructions given by Owner, Engineer, or Owner's Operating Agent or disregard in any substantial way any provisions of the Contract Documents; Owner may without prejudice to any other right or remedy, serve written notice upon Contractor and Contractor's surety of Owner's intention to terminate the Contract. Such notice will contain the reasons for Owner's intention to terminate the Contract and unless such violations shall cease and satisfactory arrangements for the corrections thereof have been accepted by Owner in writing within 10 days after the service of such notice, the Contract shall upon the expiration of said 10 days cease and terminate. In the event of such termination, the Owner shall immediately serve written notice upon the Surety and Contractor, and Contractor shall be liable for all costs necessary to complete the Work.
- B. The Surety shall, after receipt of notification from Owner of termination of the Contract, take over and perform the Work, utilizing a contractor which qualified under the prequalification criteria and which is acceptable to Engineer. The Surety shall, within 10 days after receipt of the notice of termination, provide Owner with written notice of Surety's intent to take over and complete the Work in accordance with the Contract Documents, and shall commence the Work within 10 days thereafter.
- C. If the Surety does not reply to the notice of termination, or fails to perform the Work in compliance with the Contract Documents, or provides the Owner with written notice that Surety does not intend to take over and perform the Work to completion, Owner may without prejudice on the part of the Surety, take over the Work and prosecute the same to completion by any method Owner may deem advisable for the account at the expense of Contractor, and the Surety shall be liable to Owner for any excess cost or other damage occasioned Owner thereby. In such event Owner may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plant, and other property belonging to Contractor that may be on the work sites and be necessary therefor. Contractor shall turn over to Owner's Operating Agent all materials and equipment in Contractor's possession that is to be incorporated into the Project, and shall make arrangements with Owner to turn over any materials or equipment in which Owner has made payment or partial payment but is not in Owner's possession.
- D. Upon completion of the Work, if the unpaid balance of the Contract Price exceeds the direct and indirect cost of completing the Work, including, but not limited to, all costs incurred by Owner from professional services and attorneys' fees and all costs generated to insure or bond the Work of substituted contractors or subcontractors used to complete the Work,

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner within 30 days upon demand; on failure of Contractor to pay, the Surety shall promptly pay the difference to Owner upon written notice of Contractor's failure of payment. Such difference or any portion thereof not paid by the Contractor or the Surety within the 30 days following the date of mailing of the demand for payment, shall earn interest at the rate of 10 percent per annum or the maximum rate authorized by state law, whichever is lower.

SC-16.04 *Delete paragraph 16.04 in its entirety.*

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.02 *Add the following new paragraph immediately after Paragraph 17.01.*

SC-17.02 Arbitration

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of Construction Arbitration Rules & Mediation Procedures of the American Arbitration Association in effect as of the effective date of the Agreement, subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. The inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
 - 2. Such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

SC-17.03 *Add the following new paragraph immediately after Paragraph 17.02.*

SC-17.03 Attorneys' Fees: For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator,

arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18 – MISCELLANEOUS

No modifications.

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RELEASE

FROM: Contractor's Name _____

Address _____

TO: Owner's Name _____

Address _____

DATE OF CONTRACT:

Upon receipt of the final payment and in consideration of that amount, the undersigned does hereby release the Owner and its agents from any and all claims arising under or by virtue of this Contract or modification thereof occurring from the undersigned's performance in connection with the _____ project.

Contractor's Signature_____
Title

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission Expires:

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CONTRACTOR'S AFFIDAVIT

FROM: Contractor's Name _____

Address _____

TO: Owner's Name _____

Address _____

DATE OF CONTRACT: _____

I hereby certify that all claims for material, labor, and supplies entered into contingent and incident to the construction or used in the course of the performance of the work on the _____ project have been fully satisfied.

Contractor's Signature_____
Title

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission Expires:

The Surety Company consents to the release of the retained percentage on this project with the understanding that should any unforeseen contingencies arise having a right of action on the bond that the Surety Company will not waive liability through the consent to the release of the retained percentage.

Dated _____

Surety Company

By _____

Resident Agent, State of TX

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CITY OF CELINA SPECIAL PROVISIONS**APPENDIX A – DRUG-FREE JOBSITE ON CITY CONSTRUCTION PROJECTS****APPENDIX B – CONTRACTOR’S AFFIDAVIT OF FINAL PAYMENT****APPENDIX C – APPROVED MATERIALS LIST****Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)**

APPENDIX “A”
DRUG-FREE JOBSITE ON CITY CONSTRUCTION PROJECTS

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

DRUG-FREE JOBSITE ON CITY CONSTRUCTION PROJECTS

- I. In the interest of job safety and to protect the general public, other CONTRACTORS and the OWNER'S employees from the consequences of accidents that are caused by worker abuse of controlled substances on City construction projects, the bidder certifies by submission of its bid that it will make a good faith effort to maintain a drug-free jobsite, and also certifies that to further this objective it will:
- (a) Establish a controlled substance abuse program that will test for controlled substance use by:
 - (1) Employees utilized by the bidder on this project, as listed in the Prevailing Wage Rate for Municipal Construction, if performance by a person impaired by the effects of a controlled substance, would or could: (i) pose a serious risk of death or personal injury to the employee, fellow employees or other persons in the vicinity; or (ii) compromise the quality of construction in such manner as would impose a significant public safety risk in the use or operation of the City improvement in question;
 - (2) Employees when there is a reasonable suspicion that an employee is using a controlled substance on the jobsite, or off the jobsite in a manner that affects jobsite performance;
 - (3) Employees as part of a voluntary drug testing program; or
 - (4) Employees as part of or as a follow-up to counseling for or rehabilitation from abuse of a controlled substance;
 - (b) Establish a program that will test an employee utilized by the bidder on this project on any position listed in the Prevailing Wage Rate when there is a reasonable suspicion that the employee is impaired by the effects of alcohol on the jobsite;
 - (c) Publish a statement notifying employees that the unlawful manufacture, distribution, selling, dispensing, possession or use of a controlled substance is prohibited on the jobsite and specifying the actions that will be taken against employees for violations of such prohibitions;
 - (d) Establish a drug-free awareness program to inform employees about the dangers of drug abuse on the jobsite, about the bidder's policy regarding a drug-free jobsite, about available counseling and rehabilitation programs, and about the penalties that may be imposed upon employees for drug abuse violations occurring on the jobsite; and

(e) Provide a copy of the statement required by subsection (c) to all employees of the bidder who will be involved in performance of the Contract.

- II. Employees who test positive for controlled substance use in one of the tests conducted pursuant to paragraph I.(a), or who are impaired by the effects of alcohol on the jobsite pursuant to paragraph I.(b), shall be considered unfit for purposes of Item 108.4 (Employees) of the N.C.T.C.O.G. Standard Specifications for Public Works Construction, Latest Edition, as amended.
- III. For purposes of Section I. above, the term "controlled substance" means a drug, substance or immediate precursor listed in Schedules I through V of Subchapter A of the Texas Controlled Substances Act, Tex. Rev. Civ. Stat. Ann. Articles 481.032 - 481.036. These substances include, but are not limited to, marijuana, heroin, LSD, concentrated cannabis or cannabinoids, hashish or hash oil, morphine or its derivatives, mescaline, peyote, phencyclidine (PCP, Angel Dust), opium, opiates, methodone, cocaine, qualudes, amphetamines, "exotic/designer" drugs, benzodiazepines, seconal, codeine, barbiturates, phenobarbital, or valium.
- IV. The bidder shall be solely responsible for the maintenance and administration of the program required in Section I. above. Nothing in these provisions shall be construed on the OWNER'S part as authorizing, permitting or requiring the bidder to engage in conduct that is in violation of the United States or Texas constitutions, that is otherwise illegal or that otherwise constitutes an unreasonable or unlawful invasion of privacy under Texas or federal law.

APPENDIX "A" ATTACHMENT A

Drug-Free Workplace Program Certification

- A. By submission of its offer, the offeror certifies and agrees that, with respect to the offeror and all employees of the offeror to be utilized in the performance of any contract resulting from this solicitation, it will establish a drug-free workplace program that complies with the provisions of the clause of the General Provisions entitled "Drug-Free Workplace Program."
- B. Failure of the offeror to have the drug-free workplace program complying with this certification and the clause of the General Provisions entitled "Drug-Free Workplace Program available for City's review and approval as part of City's pre-award responsibility survey will be deemed a lack of responsibility rendering the offeror unqualified and ineligible for award.

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

APPENDIX "A" ATTACHMENT B
DRUG-FREE WORKPLACE PROGRAM

A. As used in this clause:

- (1) "Alcohol" means ethyl alcohol and any beverage containing ethyl alcohol.
- (2) "Controlled substance(s)" means a substance, including a drug and an immediate precursor listed in Schedules I through V of Subchapter A of the Texas Controlled Substances Act, Tex. Rev. Civ. Stat. Ann. Articles 481.032 - 481.036. These substances include, but are not limited to, marijuana, heroin, LSD, concentrated cannabis or cannabinoids, hashish or hash oil, morphine or its derivatives, mescaline, peyote, phencyclidine (PCP, Angel Dust), opium, opiates, methadone, cocaine, quaaludes, amphetamines, "exotic/designer" drugs, benzodiazepines, seconal, codeine, barbiturates, phenobarbital, or valium.
- (3) "Drug-free workplace" means a site for the performance of work done in connection with a City construction contract at which employees are prohibited from using alcohol or from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.
- (4) "Employee" means an employee of a CONTRACTOR or SUBCONTRACTOR who may be directly engaged in the performance of work under a City construction contract.
- (5) "Reasonable suspicion" means the presence or absence of specific criteria identified in the CONTRACTOR'S drug free workplace program (indicating the possibility that a person is under the influence of alcohol or a controlled substance) as observed by the CONTRACTOR'S supervisory personnel with reasonable training in the identification of such criteria.

B. The program may, at the CONTRACTOR'S discretion, include mandatory employee drug testing under the following circumstances:

- (1) As part of or as a follow-up to counseling or rehabilitation for controlled substance use; or
- (2) As part of a voluntary employee drug testing program.

C. A random testing procedure to detect the use of alcohol or a controlled substance by employees performing tasks on the project maybe required as part of the CONTRACTOR'S program for the purpose of preventing or deterring hazardous performance.

D. All testing by or on behalf of the CONTRACTOR because of a requirement in a City contract shall be conducted only for employees engaged (or to be engaged) in tasks on the project and only for use of alcohol or a controlled substance and shall be conducted in a manner and under written policies that minimize the intrusion on the employee's privacy and personal dignity. This provision shall not preclude the CONTRACTOR from adding its own additional testing requirements.

- E. The CONTRACTOR shall publish a statement notifying employees that the use of alcohol at the workplace or the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance by employees at any time is prohibited and specifying the actions that will be taken against employees for violations of such prohibition.
- F. The program must require each employee who will perform a task on the project, prior to working under a City contract to (i) acknowledge in writing the CONTRACTOR'S drug-free workplace program and (ii) give advance written consent to any drug testing that may be conducted under the CONTRACTOR'S program and the use of test results for decisions related to employment, disciplinary action, or continued employment. The CONTRACTOR will agree, in connection with the employee's consent, that the results of testing for alcohol and controlled substances will not be voluntarily referred to any law enforcement agency. If the CONTRACTOR is subject to a collective bargaining agreement (i) the procedure for obtaining the individual employees' acknowledgment and consent must be consistent with the CONTRACTOR'S obligations under the collective bargaining agreement, and (ii) employees shall have the right to be accompanied by a union representative when any specimen is obtained for testing.
- G. The CONTRACTOR will establish a drug-free awareness program to inform its employees about:
- (1) The dangers of drug abuse in the workplace;
 - (2) The CONTRACTOR'S policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees who refuse to submit to required testing and for other violations of the drug-free workplace program including, but not limited to, being unable to remain employed at the workplace until approval to return is obtained from City.
- H. The CONTRACTOR'S drug-free workplace program shall, at a minimum, include:
- (1) Policies and procedures for specimen collection, chain of custody for specimens, laboratory qualification standards laboratory analysis procedures, quality control requirements, and test result reporting procedures which substantially conform to the material requirements of the Mandatory Guidelines for Federal Workplace Drug testing Programs promulgated by the U.S. Department of Health and Human Services in effect on the date of award of the City construction contract.
- Procedures for the CONTRACTOR'S employees to report their use of prescription drugs used in the course of medical treatment or which have been prescribed and authorized for use by a licensed medical practitioner.
- (3) The criteria the CONTRACTOR will use for "reasonable suspicion" testing.

- (4) The levels of alcohol or controlled substances which will be used in conjunction with a determination that an employee is "under the influence" or is impaired by the effects of "alcohol or controlled substance(s)".
- I. The CONTRACTOR shall display a notice, prominently placed near each entrance to the workplace, stating that, by entering the premises, persons are consenting to an inspection of themselves and their property including, but not limited to, their clothing, vehicles, briefcases, lunch boxes, tool boxes, purses, and packages.
- J. The CONTRACTOR agrees to use its best efforts to establish and maintain a work environment free of use by employees of alcohol or controlled substances through implementation of subparagraphs "B" through "I" of this clause. The CONTRACTOR shall prepare and maintain records in sufficient detail to demonstrate compliance with the requirements of this clause including, but not limited to, certifications from SUBCONTRACTORS and records of drug or alcohol tests conducted during performance of the contract. Such records shall be subject to inspection and audit by City.
- K. A Drug-Free Workplace Program Clause identical to this clause (except for changes appropriate for designation of the parties), including this subparagraph "I", will be included in every subcontract entered into in connection with this contract.

APPENDIX “B”
CONTRACTOR’S AFFIDAVIT OF FINAL PAYMENT AND RELEASE

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

CONTRACTOR'S AFFIDAVIT OF FINAL PAYMENT AND RELEASE**FOR: CELINA WATER TRANSMISSION IMPROVEMENTS****W.O. NO. _____****THE STATE OF TEXAS §****COUNTY OF COLLIN §**

BEFORE ME, the undersigned authority, on this day personally appeared ("Affiant"), who, after being by duly sworn, deposes and says that he is _____ of a
 (corporation, partnership, trade name)

_____ of Collin County, State of Texas (the "CONTRACTOR"), which said CONTRACTOR was awarded the contract dated the day of , for the construction of , -

W.O.# _____ (The "Work") for a total consideration of \$ _____

_____ (_____) to be paid to the said CONTRACTOR (the "Contract"), and that Affiant has full power of authority to make this affidavit.

That THE CITY OF CELINA, TEXAS (the "OWNER") has approved the final estimate on said Work, and that the said CONTRACTOR has fully satisfied and paid any and all claims that may be covered by Chapter 53 of the State of Texas, or any other applicable statutes or charter provisions, and that all just bills for labor and materials have been paid and discharged by said CONTRACTOR insofar as they pertain to the Work in question.

That in addition to any funds which may have been previously paid by the OWNER, the CONTRACTOR hereby accepts the amount of \$ () as FULL AND FINAL PAYMENT under the aforementioned Contract, and hereby waives and releases any right Affiant and/or the CONTRACTOR may have to pursue claims of any nature against the OWNER arising out of or in any manner connected with the performance of the work and/or the Contract, including but not limited to claims of third parties that supplied material and/or labor for the Work for or through the CONTRACTOR ("SUBCONTRACTORS"), as well as claims for delay, additional compensation or for recovery of liquidated damages which may have been withheld by the OWNER. The CONTRACTOR shall defend, hold harmless and indemnify the OWNER from any such claims of such SUBCONTRACTORS. The CONTRACTOR further releases the OWNER from any claim or liability arising from any act or neglect of the OWNER related to or connected with the Contract. This affidavit is given pursuant to the final payment provisions of the Contract, and shall not be deemed to alter or modify the terms and provisions of said Contract.

CONTRACTOR'S AFFIDAVIT OF FINAL PAYMENT AND RELEASE

FOR: CELINA WATER TRANSMISSION
IMPROVEMENTS

C.I.P. # _____

By: _____
 (Affiant)

 (Printed Name)

SUBSCRIBED AND SWORN TO BEFORE ME, this the _____ day of
 _____, A.D., 20____.

 (Notary Public, in and for the
 State of Texas)

By: _____
 (Printed Name of Notary)

My Commission Expires _____

Attachment "1"**City of Celina**

Check List for Partial & Final Pay Estimates

Project Title: CELINA WATER TRANSMISSION IMPROVEMENTS

Project Work Order No: _____

CONTRACTOR Name: _____

CONTRACTOR's Representative: _____

Representative Contact Information: _____

Please check where applicable:

		Partial Pay Estimate No. _____
		Final Pay Estimate
		Updated Construction Schedule
		SWPPP Report (_____Not Applicable)
		As-built Drawing Update
		Proof of current certificate of insurance.
		Test Reports (Please Specify Below)
		Density and Moisture Tests (_____Not Applicable)
		Water Samples (_____Not Applicable)
		Pressure Tests (_____Not Applicable)
		Concrete Compressive Strength (_____Not Applicable)
		TV Inspection (_____Not Applicable)

Submitted by: _____

Date: _____

Reviewed by: _____

(City Inspector)

| Recommended for Processing

| Rejected as noted Above

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

Attachment 2

INSPECTION REPORT – Erosion Control

DATE: _____ PROJECT FILE NO.: _____

INSPECTOR: _____ TITLE: _____

REASON FOR INSPECTION: 14 day period/ ½” Rain
(Circle one) 7 day period

PROJECT NAME: _____

SITE CONDITIONS:

EROSION AND SEDIMENTATION CONTROLS	IN CONFORMANCE ?	EFFECTIVE ?
Construction Entrance and Exit	YES / NO / NA	YES / NO
Sediment Traps	YES / NO / NA	YES / NO
Rock Filter Dams	YES / NO / NA	YES / NO
Inlet Protection	YES / NO / NA	YES / NO
Stabilization	YES / NO / NA	YES / NO
Silt Fence	YES / NO / NA	YES / NO
Erosion Control Blankets	YES / NO / NA	YES / NO
Hay Bales	YES / NO / NA	YES / NO
Vegetative Buffer Strips	YES / NO / NA	YES / NO
Other	YES / NO / NA	YES / NO

VIOLATIONS NOTED:

RECOMMENDED REMEDIAL ACTIONS:

COMMENTS:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

INSPECTOR: _____ DATE: _____

Signature: _____

COPY: _____

ATTACHMENT "3"



TO: Project Engineer _____

FROM: Chief Engineering Inspector _____

DATE: _____

SUBJECT: Change Order Request # _____ Project # _____ Plan # _____

LOCATION: _____ STA: _____

PROJECT NAME: _____

PROJECT CONTRACTOR: _____

Please submit a Change Order for the Following Items:

Reason for Change Order: _____

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

Inspector: _____

Chief Engineering Inspector: _____

ATTACHMENT “4”



Project Title and W.O

Request for information Form (RFI)

Date: RFI No:		Project Name location:	
To:	Design Engineer (engineer of records) Project manager, Chief	Consulting firm or City	(Phone Number)
cc:	inspector, project inspector	City of Celina	(Phone Number)
From:	CONTRACTOR/Superintendent	CONTRACTOR	(Phone Number)

Requests for Information will be addressed within 24-48 hours and CONTRACTOR will be notified in writing of the decision made or progress underway.

INFORMATION REQUESTED

UTILITY AND LOCATION:

Example: Waterline D Sta 32 + 30

DRAWING/SPECIFICATION PAGE NO.:

Example: 23

EXISTING CONDITION:

Example: Gas line not shown on plans at south end of bore under road.

STATEMENT OF CONCERN:

Example: Gas line in the way

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

PROPOSED SOLUTION:

Example: Extend the bore 5' to the south

RESPONSE:

Example: Agree with solution. We will prepare a change order

By: _____

APPENDIX “C” **APPROVED MATERIALS LIST**

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

APPROVED MATERIALS LIST

- I. The CONTRACTOR shall refer to the City's approved materials list before making any material selections. For any conflicts between materials listed herein and materials that are identified in the contract drawings or specifications, the approved materials list should govern. Refer to the following attached document for the approved materials list.

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

**City of Celina Approved Materials List
March, 2016**

REVISED 02-13-17

DESIGN REFERENCE	AWWA OR ASTM	PRODUCT	DESCRIPTION	TYPE / STYLE / MODEL	SIZE	MANUFACTURER
WATER						
2.1.6.A	C900	PIPE MAIN	PVC WATER	DR14 BLUE	4" - 8"	DOMESTIC
2.1.6.A	C900	PIPE MAIN	PVC WATER	DR18 BLUE	10"-12"	DOMESTIC
2.1.6.A	C900-16	PIPE MAIN	PVC WATER	DR18 BLUE	16" AND LARGER	DOMESTIC
		TRACER WIRE	OPEN CUT	1430B - SF		COPPERHEAD
		TRACER WIRE	DIRECTIONAL DRILLING	1245B - EHS		COPPPERHEAD
		TRACER WIRE	PIPE BURST	PBX-50B		COPPERHEAD
		TRACER WIRE TEST STATION	SNAKEPIT	RB14BTP		COPPERHEAD
2.1.6.B	ANSI/AWWA C151 / A21.50	PIPE MAIN	DUCTILE	CL51 / ENGINEER APPROVAL	4"-64"	DOMESTIC
	PE4710	PIPE SERVICE	HDPE	SDR9 POLY	1" - 2"	DOMESTIC
	A-36 A-568 A-135 / AWWA C-210	PIPE CASING	STEEL ENCASEMENT	0.25 WALL W/RED OXIDE PRIMER	4" -24"	
	A-36 A-568 A-135 / AWWA C-210	PIPE CASING	STEEL ENCASEMENT	0.375 WALL W/ RED OXIDE PRIMER	27" - 42"	
	AWWA C105	POLY WRAP	POLYETHYLENE ENCASEMENT	8MILS		
		ADHESIVE TAPE		SCOTCHRAP NO.50	2" WIDE	POLYKEN
	ISO 9001:2000	CASING SPACER	HDPE	CASING SPACER	VARIOUS	RACI OR APPROVED EQUAL
2.1.6.C	ANSI/AWWA C153/A21.53 / NSF 61	FITTING WATER	MECHANICAL JOINT	C153 COMPACT	2" - 48"	DOMESTIC - TYLER UNION OR APPROVED EQUAL

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)



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**City of Celina Approved Materials List
March, 2016**

REVISED 02-13-17

DESIGN REFERENCE	AWWA OR ASTM	PRODUCT	DESCRIPTION	TYPE / STYLE / MODEL	SIZE	MANUFACTURER
WATER						
2.1.6.	ANSI/AWWA C153/A21.53	FITTING RESTRAINT	EBAA MEGALUG	PV1100 FOR DUCTILE IRON	2" - 48"	EBAA IRON
2.1.6.	ANSI/AWWA C153 UL/FM ISO 9001-2008	FITTING RESTRAINT	TYLER TUFF GRIP	SERIES 100 FOR DUCTILE IRON	2" - 48"	DOMESTIC - TYLER UNION
2.1.6.	ANSI/AWWA C153 UL/FM ISO 9001-2008	FITTING RESTRAINT	TYLER TUFF GRIP	SERIES 2000 FOR PVC	2" - 48"	DOMESTIC - TYLER UNION
2.1.7.	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	SADDLE	202B X CC THREAD	1" - 2" TAP	FORD
		METER SERVICE	SADDLE	BR2B X CC THREAD	1" - 2" TAP	MUELLER
2.1.7.	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	CORPORATION STOP	F10003GNL / F10004GNL / FB10006GNL / FB10007GNL	1" - 2"	FORD
2.1.7.	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	CORPORATION STOP	G15008/ B25008	1" - 2"	MUELLER
2.1.7.	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	SETTER	VBHH74-84W-41-44-G-NL	1"	FORD
		METER SERVICE	SETTER	G2577N-2A	1"	MUELLER
	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	SETTER	VBHH77-12W-41-77-GNL	2"	FORD
		METER SERVICE	SETTER	G2422N-6A	2"	MUELLER
	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	NIPPLE		1"X12" /2"/12"	DOMESTIC

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)



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**City of Celina Approved Materials List
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DESIGN REFERENCE	AWWA OR ASTM	PRODUCT	DESCRIPTION	TYPE / STYLE / MODEL	SIZE	MANUFACTURER
WATER						
2.1.7.	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	COUPLING	C44-44G NL / C44-66G NL / C44-77G NL	1" - 2"	FORD
		METER SERVICE	COUPLING	G15403	1" - 2"	MUELLER
2.1.7.	C800 ANSI/NSF 61 NO LEAD	METER SERVICE	INSERT / SS STIFFNER	52 / 54 / 55	1" - 2"	FORD
		METER SERVICE	INSERT / SS STIFFNER	528705 / 528706 / 528707	1" - 2"	MUELLER
		METER BOX	PLASTIC METER BOX	DFW37A-14-1SFDEEP CELINA	1" METER	DFW PLASTICS
		METER BOX	PLASTIC METER BOX	DFW65C-14- 1DSFDEEP CELINA	2" METER	DFW PLASTICS
		METER VAULT	LARGE METER	ENGINEER APPROVAL	3" AND LARGER	PARK, TURNER, OLDCASTLE, OR APPROVED EQUAL
2.1.8.	C-515	VALVE MAIN	GATE VALVE	RESILIENT WEDGE	2" - 18"	MUELLER OR APPROVED EQUAL
2.1.8.	C-515	VALVE MAIN	GATE VALVE	RESILIENT WEDGE WITH SPUR GEAR	20" AND LARGER	MUELLER OR APPROVED EQUAL
2.1.8.	C-504	VALVE MAIN	BUTTERFLY VALVE	150B FLANGED OR MECHANICAL JOINT	20" AND LARGER	PRATT, MUELLER, OR APPROVED EQUAL
2.1.8. B	MANUAL M51	VALVE AIR	AIR RELEASE VALVE	RBX	2" AND LARGER	VENT O MAT, VENT TECH
2.1.18.B	MANUAL M51	VALVE AIR	AIR RELEASE VALVE	SERIES WAR 02	2" AND LARGER	PRATT
	A-48 AASHTO	VALVE BOX	THREE PIECE VALVE BOX	6850 WITH LID	2" AND LARGER	DOMESTIC- TYLER UNION OR APPROVED EQUAL

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)



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**City of Celina Approved Materials List
March, 2016**

REVISED 02-13-17

DESIGN REFERENCE	AWWA OR ASTM	PRODUCT	DESCRIPTION	TYPE / STYLE / MODEL	SIZE	MANUFACTURER
WATER						
2.1.9.		FIRE HYDRANT	HYDRANT WITH INTEGRAL STORZ FITTING	MA423 SUPER CENTURION- CELINA	6" LEAD	MUELLER
		FIRE HYDRANT	HYDRANT WITH INTEGRAL STORZ FITTING	K-81-D GUARDIAN- CELINA	6" LEAD	KENNEDY
		FIRE HYDRANT	HYDRANT WITH INTEGRAL STORZ FITTING	MEDALLION- F2545-CELINA	6" LEAD	CLOW
		FIRE HYDRANT	HYDRANT WITH INTEGRAL STORZ FITTING	WATERMASTER 5CD250-CELINA	6" LEAD	EAST JORDON
		FIRE RISER	IN-BUILDING RISER	SERIES IBR WITH FLANGED END CONNECTION ON THE OUTLET		AMES FIRE AND WATER WORKS
2.1.10	C-207	TAP MAIN	TAPPING SLEEVE	665 316 ALL STAINLESS/ H304SS		SMITH BLAIR, MUELLER OR EQUAL
2.1.11.		VALVE FLUSHING	AUTO FLUSHING VALVE	9800	DEAD END MAIN	ECLIPSE
		VALVE FLUSHING	AUTO FLUSHING VALVE	HG4	DEAD END MAIN	MUELLER

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**City of Celina Approved Materials List
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DESIGN REFERENCE	AWWA OR ASTM	PRODUCT	DESCRIPTION	TYPE / STYLE / MODEL	SIZE	MANUFACTURER
SANITARY SEWER						
2.2.6.A	D3034	PIPE MAIN	PVC SEWER	SDR35	4" - 15"	
2.2.6.A	F679	PIPE MAIN	PVC SEWER	SDR26 HEAVY WALL	4" - 15"	
2.2.6.A	F679	PIPE MAIN	PVC SEWER	PS46 / PS115	18" AND LARGER	
2.2.6.A	D2241	PIPE FORCE MAIN	PVC SEWER	SDR26 CLASS 160	4" - 12"	
2.2.6.A	C900-16	PIPE FORCE MAIN	PVC SEWER	DR25 CLASS 165 GREEN	14" AND LARGER	
		TRACER WIRE(FORCE MAIN)	OPEN CUT	1430G - SF		COPPERHEAD
		TRACER WIRE (FORCE MAIN)	DIRECTIONAL DRILLING	1245G - EHS		COPPERHEAD
		TRACER WIRE	PIPE BURST	PBX-50G		COPPERHEAD
		TRACER WIRE TEST STATION	SNAKE PIT	RB14GTP		COPPERHEAD
	ISO 9001:2000	CASING SPACER	HDPE	CASING SPACER	VARIOUS	RACI OR APPROVED EQUAL
	A-36 A-568 A-135 / AWWA C-210	PIPE CASING	STEEL ENCASEMENT	0.25 WALL W/RED OXIDE PRIMER	4" -24"	
	A-36 A-568 A-135 / AWWA C-210	PIPE CASING	STEEL ENCASEMENT	0.375 WALL W/ RED OXIDE PRIMER	27" - 42"	
	ASTM D3212	GRAVITY FLOW PIPE ADAPTOR	SEWER TAP (REHAB)	INSERTA TEE		INSERTA FITTING CO.
2.2.6.C	D3034 / F679 / F170 / ISO 9000	FITTING SEWER	GASKETED	SDR35 / SDR26 TO MATCH MAIN	4" - 18"	
		VALVE AIR	AIR RELEASE VALVE	WWAR 01	2" AND LARGER	PRATT
2.2.8. D	C-478	MANHOLE SAN SEWER	MANHOLE WITH ANTIMICROBIA L ADDITIVE	CONSHIELD PRECAST	48" AND LARGER	HANSON (FORTERRA) AND TURNER

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SANITARY SEWER						
		MANHOLE SAN SEWER	MANHOLE WITH ANTIMICROBIAL ADDITIVE	CONSHIELD CAST IN PLACE	48" AND LARGER	REDI MIX
		PATCHING MATERIAL	MANHOLE	CONSHIELD JOINT SET		CONSHIELD
		MANHOLE SAN SEWER	MANHOLE	GATOR WRAP	6" WIDE	INFI-SHIELD
		MANHOLE SAN SEWER	MANHOLE	I & I BARRIER		STRIKE PRODUCTS
		MANHOLE SAN SEWER	HDPE	MANHOLE INSERT	30" OD	S.S.I SEALING SYSTEMS INC.
		MANHOLE SAN SEWER	GRADE RING	INFRA-RISER IC3340F	33" I.D x 40" O.D.	EAST JORDON
		MANHOLE SAN SEWER	MANHOLE RING COVER	1480 30" NEW CONSTRUCTION	30" CLEAR OPENING	BASS HAYES, EAST JORDAN IRON WORKS
		MANHOLE SAN SEWER	WATERTIGHT MANHOLE RING COVER	1432 30" NEW CONSTRUCTION WATERTIGHT	30" CLEAR OPENING	BASS HAYES, EAST JORDAN IRON WORKS
STREET SIGNS AND LIGHT						
		SIGN POLE	FLUTED	SP4X 12	4" OD	BRANDON INDUSTRIES OR APPROVED EQUAL
		POLE BASE	SLIP-OVER	SB94	4" OD	BRANDON INDUSTRIES OR APPROVED EQUAL
		POLE FINIAL		FIN- CS4	4" OD	BRANDON INDUSTRIES OR APPROVED EQUAL

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**City of Celina
Approved Materials List for Grass in Detention Ponds, Swales, Bio-retention Areas**

GRASS/TURF			
COMMON NAME	SCIENTIFIC NAME	ACCEPTABLE FORM	REMARKS
PRAIRIE CORDGRASS	<i>SPARTINA PECTINATA</i>	CONTAINER/ SEED	BOTTOM
BUSHY BLUESTEM	<i>ANDROPOGON GLOMERATUS</i>	CONTAINER/ SEED	BOTTOM
CROWFOOT CARIC SEDGE	<i>CAREX CRUS-CORVI</i>	CONTAINER/ SEED	BOTTOM
EASTERN GRAMAGRASS	<i>TRIPSACUM DACTYLOIDES</i>	CONTAINER/ SEED	BOTTOM
LOWLAND SWITCHGRASS	<i>PANICUM VIRGATUM L</i>	CONTAINER/ SEED	BOTTOM
ALAMO SWITCHGRASS	<i>PANICUM VIRGATUM 'ALAMO'</i>	CONTAINER/ SEED	BOTTOM
LOMETA INDIANGRASS	<i>SORGHASTRUM NUTANS 'LOMETA'</i>	CONTAINER/ SEED	SLOPE
EARL BIG BLUESTEM	<i>ANDROPOGON GERARDII 'EARL'</i>	CONTAINER/ SEED	SLOPE
LITTLE BLUESTEM	<i>SCHIZACHYRIUM SCOPARIUM</i>	CONTAINER/ SEED	SLOPE
CANADA WILDRYE	<i>ELYMUS CANADENSIS</i>	CONTAINER/ SEED	SLOPE
SPRING OBEDIENT PLANT	<i>PHYSOSTEGIA INTERMEDIA</i>	CONTAINER/ SEED	SLOPE
MAXIMILIAN SUNFLOWER	<i>HELIANTHUS MAXIMILIANA</i>	CONTAINER/ SEED	SLOPE
HALBERD-LEAF HIBISCUS	<i>HIBISCUS LAEVIS</i>	CONTAINER/ SEED	SLOPE
HASKELL SIDEOATS GRAMA	<i>BOUTELOUA CURTIPENDULA</i>	CONTAINER/ SEED	SLOPE
BUFFALOGRASS	<i>BOUTELOUA DACTYLOIDES</i>	SOD	NATIVE
BERMUDAGRASS	<i>CYNODON DACTYLON</i>	SOD OR HYDRO-MULCH	ADAPTED

Common Name	Scientific Name	Container Size to be Planted	Maximum Mature Size	Remarks
TREES (LARGE SHADE)				
OAK, CHINQUAPIN	<i>QUERCUS MUEHLENBERGII</i>	SEE PLANS	80' H 80' W	NATIVE
TREES (MEDIUM SHADE)				
BALD CYPRESS	<i>TAXODIUM DISTICHUM</i>	SEE PLANS	80' H 50' W	NATIVE
ELM, CEDAR	<i>ULMUS CRASSIFOLIA</i>	SEE PLANS	90' H 80' W	NATIVE
PISTACHIO, CHINESE	<i>PISTACIA CHINENSIS</i>	SEE PLANS	70' H 50' W	ADAPTED
TREES (LIVING SCREEN)				
HOLLY, FOSTER	<i>ILEX X ATTENUATA 'FOSTERI'</i>	SEE PLANS	20' H 10' W	ADAPTED
HOLLY, NELLIE R. STEVENS	<i>ILEX X 'NELLIE STEVENS'</i>	SEE PLANS	25' H 15' W	ADAPTED
SHRUBS				
DWARF CRAPE MYRTLE	<i>LAGERSTROEMIA INDICA</i>	SEE PLANS	3' H 3' W	DWARF
DWARF NANDINA	<i>NANDINA DOMESTICA</i>	SEE PLANS	3' H 3' W	DWARF

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SHRUBS				
DWARF YAUPON HOLLY	<i>ILEX VOMITORIA 'NANA'</i>	SEE PLANS	3' H 3' W	DWARF
HAWTHORN, INDIAN	<i>RHAPHIOLEPSIS INDICA</i>	SEE PLANS	3' H 4' W	ADAPTED
RED YUCCA	<i>HESPERALOE PARVIFLORA</i>	SEE PLANS	3' H 3' W	NATIVE
TEXAS SAGE, SILVERADO	<i>LEUCOPHYLLUM FRUTESCENS 'SILVERADO'</i>	SEE PLANS	3' H 3' W	NATIVE

Approved Materials List for Irrigation

BASIC PRODUCT CATEGORY	SUBCATEGORY	MANUFACTURER	MODEL, TYPE, OR STYLE APPROVED	SPECIFICATION	NOTES	NSF 61 CERTIFIED
ROTORS		HUNTER, RAINBIRD, TORO	HIGH EFFICIENCY			
SPRAY NOZZELS (TURF AREAS)		HUNTER, RAINBIRD, TORO	HIGH EFFICIENCY			
SHRUB NOZZLE ADAPTER (PLANT BED AREAS)		RAINBIRD				
SHRUB NOZZLES (PLANT BED AREAS)		RIGGS	SN8-24			
BRASS GATE VALVE, DOMESTIC MANUFACTURER		NIBCO	T-113			
DRIP IRRIGATION		NETAFIM	UNITECHLINE OR TECHLINE			
SOLENOID VALVE W/ DC LATCHING SOLENOID		RAIN BIRD	PEB-PRS-B SERIES			
QUICK COUPLING VALVES		RAIN BIRD	MODEL 44RC			
PVC BALL VALVES		SPEARS OR APPROVED EQUAL	COMPACT UNIT			
BACKFLOW PREVENTER		FEBCO	DOUBLE CHECK VALVE			
DOUBLE CHECK BOX			PLASTIC "JUMBO" DCA			

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DIVISION 1

GENERAL REQUIREMENTS

SECTION 01 11 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of:
 - 1. Work covered by Contract Documents.
 - 2. Activities of others within Project area.
 - 3. Coordination of Work required by Contractor.
 - 4. Provisions for future Work.
- B. Work covered by Contract Documents: The completed Work will provide Owner with water transmission improvements. More specifically, the Project includes, but is not limited to, construction of the following:
 - 1. The project includes furnishing the labor, materials, and equipment for installing approximately 10,760 linear feet of 36-inch diameter transmission main, complete with two connections to existing pipelines, retrained joints, valves, fittings and appurtenances. A portion of the pipe will be installed within a 48-inch steel casing with open-cut construction to account for future road development. Additional work will include dewatering, protection of existing utilities, construction surveying and staking, removal and replacement of existing unpaved roads and driveways, installation and removal of temporary construction fencing, testing and disinfection and flushing of the completed pipeline.
- C. Except as specifically noted otherwise, provide and pay for:
 - 1. Insurance and bonds.
 - 2. Labor, materials, and equipment.
 - 3. Tools, equipment, and machinery required for construction.
 - 4. Utilities required for construction.
 - 5. Temporary facilities including sheeting and shoring.
 - 6. Traffic control and dust control measures.
 - 7. Other facilities and services necessary for proper execution and completion of the Work.
- D. Secure and pay for all permits including all City of Celina permits, OSHA excavation permits, Department of Transportation permits, and any other government fees and licenses.
 - 1. It is the Contractor's responsibility to maintain the required controls and record keeping to comply with the SWPPP and associated stormwater permit.
- E. Comply with codes, ordinances, regulations, orders, and other legal requirements of public authorities having bearing on the performance of the Work.

1.2 ACTIVITIES BY OTHERS

- A. Owner, utilities, and others may perform activities within Project area while the Work is in progress.
 - 1. Schedule the Work with Owner, utilities, and others to minimize mutual interference.
- B. Cooperate with others to minimize interference and delays.
 - 1. When cooperation fails, submit recommendations and perform Work in coordination with work of others as directed.
- C. Other on-going and potential projects that parallel the schedule of this project:
 - 1. Celina Road Pump Station Improvements
 - 2. Celina Water Transmission Improvements – Project B

1.3 COORDINATION OF WORK

- A. Maintain overall coordination of the Work.
- B. Obtain construction schedules from each subcontractor, and require each subcontractor to maintain schedules and coordinate modifications.
- C. Alternates: Alternates, if included, are specified in detail in the Bid Form and only those alternates that were selected by the Owner, as evidenced in the Agreement, are made a part of this Contract.

1.4 PROVISIONS FOR FUTURE WORK

- A. Provisions for future construction are as shown as detailed on drawings and in the specifications.

1.5 LOCATION OF WORK

- A. The Project is located in the City of Celina, paralleling FM 428 from Celina Road Pump Station to the intersection of FM 428 and CR 55.

1.6 OWNER FURNISHED EQUIPMENT

- A. For this project's delivery, the Owner shall not be providing and/or delivering any associated equipment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 11 60 – PROJECT MANUAL LANGUAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes description and requirements of:
 - 1. Explanation of Project Manual arrangement.
 - 2. Explanation of Project Manual language.
 - 3. Reference standards.
 - 4. Method of resolving conflicts of referenced standards between Contract Documents.
- B. Related Documents and Sections:
 - 1. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.
 - 2. It is the CONTRACTOR's responsibility for scheduling and coordinating the Work of subcontractors, suppliers, and other individuals or entities performing or furnishing any of CONTRACTOR's Work.

1.2 REFERENCES

- A. Construction Specifications Institute (CSI):
 - 1. Manual of Practice - MasterFormat™.
 - 2. Manual of Practice - SectionFormat™.
 - 3. Manual of Practice - PageFormat™.

1.3 PROJECT MANUAL ARRANGEMENT

- A. Document and Section numbers used in Project Manual, and Project Manual arrangement are in accordance with CSI MasterFormat™, except where departures have been deemed necessary.
- B. Sections are written in accordance with CSI SectionFormat™, Three-Part Section Format, except where departures have been deemed necessary.
- C. Page format for Sections in the Project Manual is in accordance with CSI Page Format, except where departures have been deemed necessary.

1.4 PROJECT MANUAL LANGUAGE

- A. Specification Section Paragraphs entitled "Section Includes" summarizes briefly what is generally included in the section. Requirements of Contract Documents are not limited by "Section Includes" paragraphs. Specifications have been partially streamlined by intentionally omitting words and phrases, such as "the CONTRACTOR shall," "in conformity therewith," "shall be" following "as indicated," "a," "an," "the" and "all". Assume missing portions by inference.
- B. Phrase "by ENGINEER" modifies words such as "accepted," "directed," "selected," "inspected," and "permitted," when they are unmodified.
- C. Phrase "to ENGINEER" modifies words such as "submit," "report," and "satisfactory," when they are unmodified.
- D. Colons (:) are used to introduce a list of particulars, an appositive, an amplification, or an illustrative quotation:
 - 1. When used as an appositive after designation of product, colons are used in place of words "shall be."

- E. Word "provide" means to manufacture, fabricate, deliver, furnish, install, complete, assemble, erect in place, test, render ready for use or operation, including necessary related material, labor, appurtenances, services, and incidentals.
- F. Words "CONTRACTOR shall" are implied when direction is stated in imperative mood.
- G. Term "products" includes materials and equipment as specified in Section 01 60 00.

1.5 REFERENCE STANDARDS

- A. Use only applicable portions of referenced standards, ignoring payment stipulations and other provisions which change the duties of the ENGINEER or OWNER.
- B. Equate terms relating to designer to "ENGINEER."
- C. Notify ENGINEER when referenced standard, code, or specification conflicts with Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 14 00 – WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of:
 - 1. General constraints for sequencing and scheduling the Work.
 - 2. Work affected by existing site and facility.
 - 3. Work restrictions and coordination between construction operations and plant operations, including:
 - a. Access to site.
 - b. Use of site and premises.
 - c. Utilities.
 - d. Work by Others.
 - e. Work Sequence.
- B. Related sections:
 - 1. Section 01 11 00 - Summary of Work.
 - 2. Section 01 26 00 - Contract Modification Procedures.
 - 3. Section 01 50 00 - Temporary Facilities and Controls.

1.2 GENERAL CONSTRAINTS ON SEQUENCE AND SCHEDULING OF WORK

- A. Work Sequence and Constraints:
 - 1. Utilize description of critical events in work sequence in this Section as a guideline for scheduling and undertaking the Work.
 - 2. Work sequence and constraints presented do not include all items affecting completion of the Work, but are intended to describe critical events necessary to minimize disruption of the existing facilities and to ensure compliance to the water quality standards as mandated by the Texas Department of State Health.

1.3 OPERATIONS AND MAINTENANCE ACCESS

- A. Provide safe, continuous access to equipment for operations and maintenance personnel.

1.4 UTILITIES

- A. Provide advance notice to and utilize services of Texas811 for location and marking of underground utilities operated by utility agencies other than the OWNER. Contact information: Texas811, 11880 Greenville Ave., Suite 120, Dallas, TX 75243, phone number 800-344-8377, website: <https://www.texas811.org>.
- B. Maintain electrical, telephone, water, gas, sanitary facilities, and other utilities within existing facilities in service. Provide temporary utilities when necessary.

1.5 WORK BY OTHERS

- A. Where proper execution of the Work depends upon work by others, inspect and promptly report discrepancies and defects.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 22 00 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section stipulates the method of measurement and payment for items of Work for which Unit Prices and Lump Sum Prices are stated in the Bid Form.
- B. Payment for submittals shall be described in this section.
- C. Related sections:
 - 1. Section 00 41 00 – Bid Form.

1.2 SCOPE OF PAYMENT

- A. Units of measurement of items of Work for which Unit and/or Lump Sum Prices are stated will be as herein subsequently defined.
- B. The estimated quantities for items of Work for which Unit Prices are given in the Bid Form are subject to variation, and payment shall be based upon the final measurement of the items of work actually installed and approved by the Owner for payment.
- C. All work not specifically set forth as a pay item shall be considered as a subsidiary obligation of the Contractor, and costs of these items is included in the overall cost of the project.
- D. The unit price and lump sum prices shall include all costs in connection with the proper and successful completion of the Work, including:
 - 1. Furnishing all materials, equipment, supplies, and appurtenances
 - 2. Providing all construction, plant, and equipment, and tools
 - 3. Performing all necessary labor and supervision to complete the work

1.3 CONTRACTOR'S COSTS AND OVERHEADS

- A. Contractor shall include in the Work Offer, all costs and overheads, including home office overhead, for continuous, full time management of the Contract as described in the Contract Documents, covering a period of time not less than from Administrative Notice to Proceed through the entire duration of the project.

1.4 LUMP SUM OR UNIT PRICE ITEMS

- A. The total work offer price indicated by the sum of the unit price and lump sum items shall be payment for the complete Project as set forth in the Contract Documents
 - 1. A general description of the Work involved is given for each item
 - 2. Work items not specifically named or otherwise described in this schedule shall be considered appurtenant to the Project and the cost associated with such Work shall be considered in Contractor's work offer.
- B. The quantities shown for unit price items are estimated and are for the purpose of comparing work offers.
 - 1. Owner is not obligated to use the total quantities or any quantity of the unit price or lump sum items listed in the Work Offer Form

2. Owner may request deletion of all or any portion of the quantities estimated in the respective items and the Contractor shall not be entitled to payment for these items unless specifically authorized in writing
 3. Contractor agrees that the Contractor will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of Work actually performed and materials actually furnished and the estimated amounts thereof.
 4. Payments will be based on actual quantities furnished and installed, complete, in full conformance with these Contract Documents.
- C. Contractor agrees that the lump sum and Unit Prices represent a true measure of the labor and materials required to perform the Work, including all allowances for overhead and profit for each type and unit of Work called for in these Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PROVIDE AND INSTALL 36-INCH AWWA C900-16 PVC DR 21 WATERLINE (ITEM NO. 1)

A. Description and Measurement

1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install the 36-inch diameter PVC DR 21 Pipe. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the pipe, warning tape and tracer wire, and other incidental items as described in the specifications and shown on the plans. This item includes all testing and quality control as described in the specifications.
2. Measurement
 - a. Measurement will be made per linear foot of pipe installed. Footage will be from connection point with restrained joint pipe to connection point with restrained joint pipe. This will include all testing and quality control.
3. Payment
 - a. Payment will be based upon linear footage of pipe installed.

3.2 PROVIDE AND INSTALL 36-INCH CL 200 RESTRAINED JOINT DUCTILE IRON PIPE WITH POLYWRAP (ITEM NO. 2)

A. Description and Measurement

1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install the 36-inch diameter polywrapped restrained joint ductile iron pipe. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the pipe and polywrap material, installation of the pipe with the polywrap material, warning tape, and tracer wire, and other incidental items as described in the specifications and shown on the plans. This item includes all testing and quality control as described in the specifications.
2. Measurement
 - a. Measurement will be made per linear foot of pipe installed. Footage will be from connection point to non-restrained pipe to connection point of non-restrained pipe, including fittings and valves, or to centerline of fitting. This will include all testing and quality control.
3. Payment

- a. Payment will be based upon linear footage of pipe installed.

3.3 PROVIDE AND INSTALL 36-INCH CL 200 FLANGED JOINT DUCTILE IRON PIPE WITH POLYWRAP (ITEM NO. 3)

A. Description and Measurement

1. Description

- a. This item shall include all necessary labor, materials, and equipment to install the 36-inch diameter polywrapped flanged joint ductile iron pipe. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the pipe and polywrap material, installation of the pipe with the polywrap material, warning tape, and tracer wire, and other incidental items as described in the specifications and shown on the plans. This item includes all testing and quality control as described in the specifications.

2. Measurement

- a. Measurement will be made per linear foot of pipe installed. Footage will be from centerline of fitting or valve to centerline of fitting or valve. This will include all testing and quality control.

3. Payment

- a. Payment will be based upon linear footage of pipe installed.

3.4 PROVIDE AND INSTALL 18-INCH RESTRAINED JOINT DUCTILE IRON PIPE WITH POLYWRAP (ITEM NO. 4)

A. Description and Measurement

1. Description

- a. This item shall include all necessary labor, materials, and equipment to install the 18-inch diameter polywrapped restrained joint ductile iron pipe. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the pipe and polywrap material, installation of the pipe with the polywrap material, warning tape, and tracer wire, and other incidental items as described in the specifications and shown on the plans. This item includes all testing and quality control as described in the specifications.

2. Measurement

- a. Measurement will be made per linear foot of pipe installed. Footage will be from centerline of fitting or valve to centerline of fitting or valve. This will include all testing and quality control.

3. Payment

- a. Payment will be based upon linear footage of pipe installed.

3.5 PROVIDE AND INSTALL 36-INCH BUTTERFLY VALVE (DIRECT BURY) (ITEM NO. 5)

A. Description and Measurement

1. Description

- a. This item shall include acquisition, storage, delivery and installation of 36-inch butterfly valve (direct bury). Installation shall be per City of Celina standard details and shall include valve box and cover per details. This item includes quality control as described in the specifications.

2. Measurement

- a. Measurement will be made per each valve installed.

3. Payment

- a. Payment will be based upon each valve installed.

3.6 PROVIDE AND INSTALL 24-INCH BUTTERFLY VALVE (DIRECT BURY) (ITEM NO. 6)

A. Description and Measurement

1. Description
 - a. This item shall include acquisition, storage, delivery and installation of 24-inch butterfly valve (direct bury). Installation shall be per City of Celina standard details and shall include valve box and cover per details. This item includes quality control as described in the specifications.
2. Measurement
 - a. Measurement will be made per each valve installed.
3. Payment
 - a. Payment will be based upon each valve installed

3.7 PROVIDE AND INSTALL 18-INCH BUTTERFLY VALVE (DIRECT BURY) (ITEM NO. 7)

A. Description and Measurement

1. Description
 - a. This item shall include acquisition, storage, delivery and installation of 18-inch butterfly valve (direct bury). Installation shall be per City of Celina standard details and shall include valve box and cover per details. This item includes quality control as described in the specifications.
2. Measurement
 - a. Measurement will be made per each valve installed.
3. Payment
 - a. Payment will be based upon each valve installed

3.8 PROVIDE AND INSTALL DUCTILE IRON FITTINGS (ITEM NO. 8)

A. Description and Measurement

1. Description
 - a. This item shall include acquisition, storage, and delivery of ductile iron fittings. This item includes quality control as described in the specifications.
2. Measurement
 - a. Measurement will be made per ton of fittings installed.
3. Payment
 - a. Payment will be based upon tons of fittings installed.

3.9 PROVIDE AND INSTALL 4-INCH AIR RELEASE/VACUUM VALVE AND VAULT (ITEM NO. 9)

A. Description and Measurement

1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install the 4-inch air release/vacuum valve and vault per details. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery, and storage of the air release and gate valve, valve box and cover, vault, and other incidental items as described in the specifications and shown on the plans. This item includes installation of the air release/vacuum valve per detail including, but not limited to: 36-inch x 4-inch tee, 4-inch flanged ductile iron pipe with polywrap, 4-inch gate valve, vault, 4-inch air release/vacuum valve necessary to install the air release /vacuum valve per the details. This item includes all testing and quality control as described in the specifications.
2. Measurement

- a. Measurement will be made per each air release/vacuum valve installed.
- 3. Payment
 - a. Payment will be based upon each air release/vacuum valve installed.

3.10 PROVIDE AND INSTALL 6-INCH AIR BLOWOFF ASSEMBLY (ITEM NO. 10)

A. Description and Measurement

- 1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install the 6-inch blowoff assembly per plans, details and specifications. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the gate valve, valve box and cover. This item includes installation of the blowoff assembly including all items described in the plans and details, and other incidental items necessary for installation of the blowoff assembly. This item includes all testing and quality control as described in the specifications.
- 2. Measurement
 - a. Measurement will be made per each blowoff assembly installed.
- 3. Payment
 - a. Payment will be based upon each blowoff assembly installed.

3.11 PROVIDE AND INSTALL STEEL CASING PIPE (DIRECT BURY) (ITEM NO. 11)

A. Description and Measurement

- 1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install the 0.688 inch thick steel casing pipe per plans, details, and specifications. Excavation and backfill for the steel casing pipe shall be included in the unit price bid for the 36-inch diameter polywrapped restrained joint ductile iron pipe. This item shall include installation of the carrier pipe into the casing pipe, casing spacers, and end caps, and other items necessary for the installation of the casing pipe not currently defined herein. This item includes all testing and quality control as described in the specifications.
- 2. Measurement
 - a. Measurement will be made per linear foot of steel casing pipe.
- 3. Payment
 - a. Payment will be based upon linear footage of steel encasement pipe installed.

3.12 PROVIDE AND INSTALL CONCRETE ENCASEMENT (ITEM NO. 12)

A. Description and Measurement

- 1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install the concrete encasement per plans, details, and specifications. This includes, but not limited to, installation of the concrete encasement per City of Celina details, including encasement of the 6-inch blowoff line and the 36-inch waterline. This item includes all testing and quality control as described in the specifications.
- 2. Measurement
 - a. Measurement will be made per linear foot of concrete encasement.
- 3. Payment
 - a. Payment will be based upon linear footage of concrete encasement installed, regardless of whether for the 36-inch or the 36-inch with the 6-inch blowoff line.

3.13 PROVIDE AND INSTALL TEMPORARY CONSTRUCTION FENCING (ITEM NO.13)

A. Description and Measurement

1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install, maintain, and remove temporary fencing. Temporary fencing shall be per plans and specifications.
2. Measurement
 - a. Measurement will be made per linear foot of temporary fencing installed.
3. Payment
 - a. Payment will be based upon linear footage of temporary fencing installed and removed.

3.14 PROVIDE AND INSTALL HYDROMULCH SEEDING (ITEM NO.14)

A. Description and Measurement

1. Description
 - a. This item shall include the placement of Hydromulch Seeding per Specification Section 32 91 13 SODDING, SEEDING, FERTILIZING, AND MULCHING.
2. Measurement
 - a. Measurement will be made per acre of the hydromulch seeding completed.
3. Payment
 - a. Payment will be at the conclusion of the hydromulch seeding.

3.15 PROVIDE AND INSTALL PROJECT SIGN (ITEM NO.15)

A. Description and Measurement

1. Description
 - a. This item shall include all necessary labor, materials, and equipment to install, maintain, and remove Project Sign per requirement of City of Celina details and specifications. The Project Sign shall be maintained throughout the duration of the project. Placement of the Sign will be per direction of the Owner and Engineer.
2. Measurement
 - a. Measurement will be made per lump sum for Project Sign.
3. Payment
 - a. The overall cost of the Project Sign will be paid upon installation of the sign.

3.16 PERFORM CLEARING AND GRUBBING (ITEM NO.16)

A. Description and Measurement

1. Description
 - a. This item shall include the removal of existing materials necessary for the installation of the improvements identified on the plans as defined in Specification Section 31 11 00 SITE PREPARATION. This includes any demolition required as defined in Specification Section 02 41 00 DEMOLITION.
2. Measurement
 - a. Measurement will be made per lump sum for the design and implementation of the system for the duration of the project.
3. Payment
 - a. Payment will be based upon a percentage of 36-inch pipeline installed.

3.17 DESIGN AND IMPLEMENT STORMWATER POLLUTION PREVENTION PLAN (ITEM NO.17)

A. Description and Measurement

1. Description

- a. This item shall include all necessary labor, materials, and equipment to provide SWPPP for the duration of the project. This includes all fees associated with, but not limited to, preparation of the SWPPP, review and permitting fees, installation and maintenance of the SWPPP, fines, and other incidental items as described in the specifications. If project duration changes due to changes by the Owner, no additional payment will be made to the Contractor.

2. Measurement

- a. Measurement will be made per lump sum.

3. Payment

- a. Payment will be based upon a percentage of the 36" water pipe installation.

3.18 DESIGN AND IMPLEMENT TRAFFIC CONTROL PLAN (ITEM NO.18)

A. Description and Measurement

1. Description

- a. This item shall include all necessary labor, materials, and equipment to provide traffic control for the duration of the project. This includes all fees associated with, but not limited to, preparation of the traffic control plan, review and permitting fees, installation and maintenance of the traffic control devices, fines, and other incidental items as described in the specifications. If project duration changes due to changes by the Owner, no additional payment will be made to the Contractor.

2. Measurement

- a. Measurement will be made per lump sum.

3. Payment

- a. Payment will be based upon a percentage of the 36" water pipe installation.

3.19 TRENCH SAFETY SYSTEM DEVELOPMENT, DESIGN, AND IMPLEMENTATION AS REQUIRED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND THE ASSUMPTION OF RESPONSIBILITY FOR SYSTEM COMPLETE AND IN PLACE (ITEM NO.19)

A. Description and Measurement

1. Description

- a. This item shall include the development, design, and implementation as required by the Occupational Safety and Health Administration and the assumption of responsibility for the system.

2. Measurement

- a. Measurement will be made per lump sum for the design and implementation of the system for the duration of the project.

3. Payment

- a. Payment will be based upon a percentage of 36-inch pipeline installed.

3.20 MOBILIZATION, DEMOILIZATION, BONDS AND INSURANCE A MAXIMUM OF 5% OF TOTAL CONTRACT AMOUNT (ITEM NO. 20)

A. Description and Measurement

1. Description

- a. This item shall include the movement of personnel, equipment, and supplies to project site for the Contractor to begin work. This item also includes all costs associated with bonding and insurance.
- 2. Measurement
 - a. Measurement will be made per lump sum for Mobilization/Demobilization.
 - b. The maximum bid for this item shall be 5% of the total amount of the project.
- 3. Payment
 - a. When 1% of the adjusted contract amount for construction items is earned, 25% of the item lump sum will be paid.
 - b. When 50% of the adjusted contract amount for construction items is earned, 50% of the item lump sum will be paid. Previous payments under this Item will be deducted from this amount.
 - c. When 100% of the adjusted contract amount for construction items is earned, 100% of the item lump sum will be paid. Previous payments under this Item will be deducted from this amount.

3.21 BID ALTERNATE

- A. The following items are alternatives that may be used in lieu of ITEM NO. 1 - PROVIDE AND INSTALL 36-INCH AWWA C900-16 PVC DR 21 WATERLINE. The Contractor shall provide unit and total bid prices for Alternate A so the City can compare items.
- B. PROVIDE AND INSTALL 36-INCH CL 200 PUSH-ON JOINT DUCTILE IRON PIPE WITH POLYWRAP (ALTERNATE A.1)
 - 1. Description and Measurement
 - a. Description
 - 1) This item shall include all necessary labor, materials, and equipment to install the 36-inch diameter polywrapped push-on joint ductile iron pipe. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the pipe and polywrap material, installation of the pipe with the polywrap material, warning tape, and tracer wire, and other incidental items as described in the specifications and shown on the plans. This item also includes design and installation of cathodic protection at the existing gas line. This item includes all testing and quality control as described in the specifications.
 - b. Measurement
 - 1) Measurement will be made per linear foot of pipe installed. Footage will be from connection point with restrained joint pipe to connection point with restrained joint pipe. This will include all testing and quality control.
 - c. Payment
 - 1) Payment will be based upon linear footage of pipe installed.
- C. PROVIDE AND INSTALL CATHODIC PROTECTION FOR 36-INCH CL 200 PUSH-ON JOINT DUCTILE IRON PIPE AT EXISTING GAS LINE CROSSING (ALTERNATE A.2)
 - 1. Description and Measurement
 - a. Description
 - 1) This item shall include all necessary labor, materials, and equipment to design and install cathodic protection for the 36-inch diameter polywrapped push-on joint ductile iron pipe at the existing gas line. This includes, but not limited to, survey layout, excavation and backfill, bedding, surface repair, acquisition, delivery and storage of the materials, installation of the materials, and other

incidental items as described in the specifications and shown on the plans. This item includes all testing and quality control as described in the specifications.

- b. Measurement
 - 1) Measurement will be made per lump sum for the design and implementation of Cathodic Protection. This will include all testing and quality control.
- c. Payment
 - 1) The overall cost of the Cathodic Protection will be paid upon installation.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes description and requirements of:
 - 1. Proposal Requests.
 - 2. Claims.
 - 3. Change Orders and Written Amendments.
 - 4. Field Order Procedures.

1.2 PROPOSAL REQUEST

- A. Owner may, in anticipation of ordering an addition, deletion, or revision to the Work, request Contractor to prepare a detailed proposal of cost and times to perform contemplated change.
- B. Proposal request will include reference number for tracking purposes and detailed description of and reason for proposed change, and such additional information as appropriate and as may be required for Contractor to accurately estimate cost and time impact on the Project.
- C. Proposal request is for information only; Contractor is neither authorized to execute proposed change nor to stop Work in progress as result of such request.
- D. Contractor's written proposal shall be transmitted to Engineer promptly, but not later than 14 days after Contractor's receipt of Owner's written request. Proposal shall remain firm for a maximum period of 45 days after receipt by Engineer.
- E. Owner's request for proposal or Contractor's failure to submit such proposal within the required time period will not justify a claim for an adjustment in Contract Price or Contract Times (or Milestones).

1.3 CLAIMS

- A. Include, at a minimum:
 - 1. Specific references including:
 - a. Drawing numbers.
 - b. Specification section and article/paragraph number.
 - c. Submittal type, Submittal number, date reviewed, Engineer's comment, as applicable, with appropriate attachments.
 - 2. Stipulated facts and pertinent documents, including photographs and statements.
 - 3. Interpretations relied upon.
 - 4. Description of:
 - a. Nature and extent of claim.
 - b. Who or what caused the situation.
 - c. Impact to the Work and work of others.
 - d. Discussion of claimant's justification for requesting a change to price or times or both.
 - 5. Estimated adjustment in price claimant believes it is entitled to with documentation and justification.
 - 6. Requested Change in Contract Times: Include at least;
 - a. Progress schedule documentation showing logic diagram for request.
 - b. Documentation that float times available for Work have been used.
 - c. Revised activity logic with durations including sub-network logic revisions, duration changes, and other interrelated schedule impacts, as appropriate.

7. Documentation as may be necessary as set forth below for Work Change Directive, and as Engineer may otherwise require.

1.4 WORK CHANGE DIRECTIVES

A. Procedures:

1. Upon completion of Work covered by the Work Change Directive or when final Contract Times and Contract Price is determined, Contractor shall submit documentation for inclusion in a Change Order via **Email**.
2. Engineer will:
 - a. Initiate, including a description of the Work involved and any attachments.
 - b. Affix signature, demonstrating Engineer's recommendation.
 - c. Engineer will update Owner monthly on the status of the Work Change Directives.
3. Owner will:
 - a. Affix signature, demonstrating approval of the changes involved.
 - b. Return one electronic copy to Engineer. Engineer will retain one electronic copy, send one electronic copy to the Resident Project Representative or other field representative, and forward one electronic copy to Contractor.
4. Contractor's documentation shall include but not be limited to:
 - a. Appropriately detailed records of Work performed to enable determination of value of the Work.
 - b. Full information required to substantiate resulting change in Contract Times and Contract Price for Work. On request of Engineer, provide additional data necessary to support documentation.
 - c. Support data for Work performed on a unit price or Cost of the Work basis with additional information such as:
 - 1). Dates Work was performed, and by whom.
 - 2). Time records, wage rates paid, and equipment rental rates.
 - 3). Invoices and receipts for materials, equipment, and subcontracts, all similarly documented.
 - d. Claim for additional cost must be made within 10 days of the directive by the Engineer. Claims on work made after 10 days will not be considered.

- B. Effective Date of Work Change Directive: Date of signature by Owner, unless otherwise indicated thereon.

1.5 CHANGE ORDERS OR WRITTEN AMENDMENTS

A. Procedure:

1. Engineer will prepare the proposed Change Order or Written Amendment and transmit an electronic copy of such with Engineer's written recommendation (Change Order only) and request to Contractor for signature.
2. Contractor shall, upon receipt, either:
 - a. Promptly execute the document, retaining one electronic copy for its file, and return one electronic copy via **Email** to Engineer for Owner's signature, or
 - b. Return unsigned one electronic copy with written justification via **Email** for not executing Change Order or Written Amendment.
3. Engineer will, upon receipt of Contractor-executed copy, promptly forward Engineer's written recommendation and partially executed copy for Owner's signature, or if Contractor fails to execute the Change Order or Written Amendment, Engineer will promptly so notify Owner and transmit Contractor's justification to Owner.
4. Upon receipt of Contractor-executed Change Order or Written Amendment, Owner will promptly either:
 - a. Execute Change Order or Written Amendment, retaining one copy for its file and returning one electronic copy to Engineer, or

- b. Return to Engineer unsigned copy with written justification for not executing Change Order or Written Amendment.
- 5. Upon receipt of Owner-executed Change Order or Written Amendment, Engineer will transmit one electronic copy to Contractor, one copy to Resident Project Representative or other field representative, and retain one electronic copy, or if Owner fails to execute the Change Order or Written Amendment, Engineer will promptly so notify Contractor and transmit Owner's justification to Contractor.
- 6. Upon receipt of Owner-executed Change Order, Contractor shall:
 - a. Perform Work covered by Change Order or Written Amendment.
 - b. Revise Schedule of Values to adjust Contract Price and submit with next Application for Payment.
 - c. Revise progress schedule to reflect changes in Contract Times, if any, and to adjust times for other items of Work affected by change.
 - d. Enter changes in Project record documents after completion of change related Work.
- B. In signing a Change Order or Written Amendment, Owner and Contractor acknowledge and agree that:
 - 1. Stipulated compensation (Contract Price or Contract Times, or both) set forth includes payment for:
 - a. The Cost of the Work covered by the Change Order or Written Amendment.
 - b. Contractor's fee for overhead and profit.
 - c. Interruption of progress schedule.
 - d. Delay and impact, including cumulative impact, on other Work under the Contract Documents, and
 - e. Extended overheads.
 - 2. Change Order or Written Amendment constitutes full mutual accord and satisfaction for the change to the Work.
 - 3. Unless otherwise stated in the Change Order or Written Amendment, all requirements of the original Contract Documents apply to the Work covered by the Change Order or Written Amendment.

1.6 FIELD ORDER PROCEDURES

- A. Engineer will issue Field Orders, with one electronic copy to Contractor.
- B. Effective date of the Field Order shall be the date of signature by Engineer, unless otherwise indicated thereon.
- C. Contractor shall acknowledge receipt by signing and returning one electronic copy to Engineer.
- D. Field Orders will be incorporated into subsequent Change Orders, as a no-cost change to the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of:
 - 1. Submittals Related to Payment Procedures.
 - 2. Schedule of Values.
 - 3. Schedule of Estimated Progress Payments.
 - 4. Payment.
 - 5. Nonpayment for Rejected or Unused Products.
 - 6. Partial Payment for Stored Materials and Equipment.
 - 7. Partial Payment for Undelivered, Project Specific Manufactured or Fabrication Equipment.
- B. Related sections:
 - 1. Section 01 50 00 – Temporary Facilities and Controls.

1.2 SUBMITTALS

- A. Informational Submittals:
 - 1. Schedule of Values: Submit on Contractor's standard form.
 - 2. Schedule of Estimated Progress Payments:
 - a. Submit with initially acceptable Schedule of Values.
 - b. Submit adjustments thereto with Application for Payment.
 - 3. Application for Payment.
 - 4. Final Application for Payment.

1.3 CONTINGENCY ALLOWANCES

- A. Consult with Engineer in selection of products or services. Obtain proposals from Suppliers and installers and offer recommendations.
- B. Contingency allowances will be administered in accordance with the General Conditions and as specified herein.
- C. Expenditure of any portion of Contingency Allowances shall only be done with authorization by Owner and Engineer. Contingency Allowances are estimated amounts and final payment shall be based on actual costs as authorized by Change Order and the Contract Price shall be correspondingly adjusted. The Contingency Allowances are specifically for the purpose of the following items: Work Change Directives.
- D. Submit, with application for payment, invoice showing date of purchase, from which the purchase was made, the date of delivery of the product or service, and the price, including delivery to the Site and applicable taxes.

1.4 SCHEDULE OF VALUES

- A. Prepare a separate Schedule of Values for each schedule of the Work under the Agreement.
- B. Upon request of Engineer, provide support documentation to support the accuracy of the Schedule of Values.
- C. Unit Price Work: Reflect unit price quantity and price breakdown from conformed Bid Form.

- D. Lump Sum Work:
 - 1. Reflect Schedule of Values format included in conformed Bid Form, specified allowances, alternates, and equipment selected by Owner, as applicable.
 - 2. List bonds and insurance premiums, mobilization, demobilization, preliminary and detailed progress schedule preparation, facility startup, and contract closeout separately.
 - 3. Break down by Division 2 through 44 with appropriate subdivision of each Specification for each Project facility. The apparent "low bidder" is required to deliver a Bid breakdown by specification within 2 working days after Bid opening.
- E. An unbalanced or front-end loaded schedule will not be acceptable.
- F. Summation of the complete Schedule of Values representing all the Work shall equal the Contract Price.

- G. Submit Schedule of Values in a spreadsheet format compatible with latest version of Excel.

1.5 SCHEDULE OF ESTIMATED PROGRESS PAYMENTS

- A. Show estimated payment requests throughout Contract Times aggregating initial Contract Price.
- B. Base estimated progress payments on initially acceptable progress schedule. Adjust to reflect subsequent adjustments in progress schedule and Contract Price as reflected by modifications to the Contract Documents.

1.6 APPLICATION FOR PAYMENT

- A. Transmittal Summary Form: Attach one Summary Form with each detailed Application for Payment for each schedule and include Request for Payment of Materials and Equipment on Hand as applicable. Execute certification by authorized officer of Contractor.
- B. Use detailed Application for Payment Form suitable to Engineer.
- C. Provide separate form for each schedule as applicable.
- D. Include accepted Schedule of Values for each schedule or portion of Work, the unit price breakdown for the Work to be paid on unit price basis, a listing of Owner-selected equipment, if applicable, and allowances, as appropriate.
- E. Preparation:
 - 1. Round values to nearest dollar.
 - 2. List each Change Order executed prior to date of submission as separate line item. The totals will equal those shown on the Transmittal Summary Form for each schedule as applicable.
 - 3. Submit Application for Payment, including a Transmittal Summary Form and detailed Application for Payment Form(s) for each schedule as applicable, a listing of materials on hand for each schedule as applicable, and such supporting data as may be requested by Engineer.
 - 4. Prior to submitting each request for progress payment, request Engineer's review and approval of current status of record documents as required by SC-7.11.B. Failure to properly maintain, update, and submit record documents may result in a deferral by Engineer to recommend whole or any part of Contractor's Application for Payment, either partial or final.

1.7 PAYMENT

- A. General:
 1. Progress payments will be made monthly.
 2. The date for Contractor's submission of monthly Application for Payment shall be established at the Preconstruction Conference.
 3. Progress payment is contingent upon applications and Contractor progress, which is subject to withholdings by Owner.
- B. Payment for all the Work shown or specified in Contract Documents is included in the Contract Price. No measurement or payment will be made for individual items.
- C. Payment for Lump Sum Work covers all Work specified or shown in the Contract Documents.

1.8 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

- A. Payment will not be made for following:
 1. Loading, hauling, and disposing of rejected material.
 2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.
 3. Rejected loads of material, including material rejected after it has been placed by reason of failure of Contractor to conform to provisions of Contract Documents.
 4. Material not unloaded from transporting vehicle.
 5. Defective Work not accepted by Owner.
 6. Material remaining on hand after completion of Work.

1.9 PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT

- A. Partial Payment: No partial payments will be made for materials and equipment delivered or stored unless Shop Drawings and preliminary operation and maintenance manuals are accepted by Engineer. Thereafter, partial payment for materials and equipment delivered and stored, but not yet incorporated in work, shall not exceed 90% of the equipment or material value.
- B. Final Payment: Will be made only for products incorporated in Work and following approval of final operations and maintenance manuals; remaining products, for which partial payments have been made, shall revert to Contractor unless otherwise agreed, and partial payments made for those items will be deducted from final payment.

1.10 PARTIAL PAYMENT FOR UNDELIVERED, PROJECT-SPECIFIC MANUFACTURED OR FABRICATED EQUIPMENT

- A. Notwithstanding above provisions, partial payments for undelivered (not yet delivered to Site or not stored in the vicinity of Site) products specifically manufactured for this Project, excluding off the shelf or catalog items, will be made for products listed below when all following conditions exist:
 1. Partial payment request is supported by written acknowledgment from Suppliers that invoice requirements have been met.
 2. Equipment is adequately insured, maintained, stored, and protected by appropriate security measures.
 3. Each equipment item is clearly marked and segregated from other items to permit inventory and accountability.
 4. Authorization has been provided for access to storage Site for Engineer and Owner.
 5. Equipment meets applicable Specifications of these Contract Documents.

B. Applicable Items:

<u>Specification Section</u>	<u>Specific Product</u>
<u>Not Applicable</u>	<u>Not Applicable</u>

- C. Payment shall not exceed 15% of the equipment value, not including shipping and handling charges for undelivered, Project-specific manufactured equipment and will only be made following Shop Drawing approval.
- D. Failure of Contractor to continue compliance with above requirements shall give cause for Owner to withhold payments made for such equipment from future partial payments.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of:
 1. Submittals Related to Project Management and Coordination.
 2. Utility Notification and Coordination.
 3. Work Sequencing /Constraints.
 4. Facility Operations.
 5. Adjacent Facilities and Properties.
 6. Owner's Occupancy.
 7. Partial Utilization by the Owner.
 8. Physical Conditions.
 9. Construction Photographs.
 10. Audio-Video Recordings.
 11. Cutting, Fitting and Patching.
- B. Related sections:
 1. Section 01 32 00 – Construction Progress Documentation.

1.2 SUBMITTALS

- A. Informational:
 1. Statement of Qualification (SOQ) for land surveyor or civil engineer.
 2. Photographs and other records of examination.
 3. Video Recordings: Submit one copy, including updated copy of project video log, within 5 days of being taken.

1.3 UTILITY NOTIFICATION AND COORDINATION

- A. Coordinate the Work with various utilities within Project limits. Notify applicable utilities prior to commencing Work, if damage occurs, or if conflicts or emergencies arise during Work.
- B. Before excavation, contact Texas811 (800) 344-8377 to arrange for field location of known utilities.

1.4 WORK SEQUENCING/CONSTRAINTS

- A. Include the following work sequences in the Progress Schedule required under Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.
- B. This Section identifies several construction constraints that must be reflected in the Contractor project coordination. An overall outline is presented in this Section for the Construction coordination, demolition, and seasonal/process constraints that shall be considered during construction. The sequence of Work for this Project must reflect the constraints identified herein.
- C. Definitions:
 1. Dry weather periods shall, in general, be from June 15 through October 1. Actual dry weather periods shall be as determined by the Owner based on weather, flows entering plant, and plant operation requirements.
 2. Wet weather periods shall be any time period which is not within the defined dry weather periods.

3. Low flow period shall be from 2:00 a.m. to 6:00 a.m.
4. Shutdown: Any shutdown requiring the City to shut off service to any customers or to turn off any existing pipelines.

D. Incorporate the Following Construction Constraints into the Work:

1. Driveway access shall be maintained at all times. Temporary access may be required during construction. Contractor shall coordinate with homeowner to maintain access.

1.5 FACILITY OPERATIONS

- A. Continuous operation of Owner's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified, and to minimize the number of shutdowns of the existing facilities and pipelines.
- B. Perform Work continuously during critical connections and changeovers, as required, to prevent interruption of Owner's operations.
- C. Conduct Work outside regular working hours on prior written consent of Owner to meet Project schedule and avoid undesirable conditions.
- D. Shutdowns should be conducted at night within 4 hours. Minimize time required to complete connections to the existing facilities by verifying all pipe lengths and fittings are correct prior to cut-in.
- E. Be responsible for planning, designing, and providing various temporary services, utilities, connections, temporary piping, bypass facilities and temporary connections, and similar items to maintain continuous operations of Owner's facility. Sequences other than those specified will be considered upon written request to Owner and Engineer, provided they afford equivalent continuity of operations.
- F. Do not close lines, open or close valves, or take other action which would affect the operation of existing systems, except as specifically required by the Contract Documents and after authorization by Owner and Engineer. Such authorization will be considered within 48 hours after receipt of Contractor's written request.
- G. Any tanks or pipelines requiring drainage prior to construction will be drained by the Owner's staff to the maximum extent possible utilizing existing piping and drains where they exist. Contractor shall provide temporary pumping and effort to complete drainage of tank or pipeline as required. Provide minimum 7 days' notice to Engineer and Owner of need to drain a facility, unless otherwise specified.
- H. Power outages will be considered upon 48 hours written request to Owner and Engineer. Describe the reason, anticipated length of time, and areas affected by the outage in the written request. Provide temporary provisions for continuous power supply to critical existing facility components, is requested by Owner.
- I. Coordinate proposed work with Engineer and Owner before implementing unit shutdowns. Under no circumstances shall Work end if such actions may inadvertently cause a cessation of any facility operation. In such cases, remain onsite until necessary repairs are complete and facility is brought back online.
- J. Relocation of Existing Facilities:
 1. During construction, it is expected that minor relocations of Work will be necessary.

2. Provide complete relocation of existing structures and Underground Facilities, including piping, utilities, equipment and structures, electrical conduit wiring, electrical duct bank, and other necessary items.
3. Use only new materials for relocated facility. Match materials of existing facility, unless otherwise shown or specified.
4. Perform relocations to minimize downtime of existing facilities.
5. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by Engineer.

1.6 ADJACENT FACILITIES AND PROPERTIES

- A. Examination:
 1. After Effective Date of the Agreement and before Work at Site is started Contractor, Engineer, and affected property owners and utility owners shall make a thorough examination of pre-existing conditions including existing buildings, structures, and other improvements in vicinity of Work, as applicable, which could be damaged by construction operations.
 2. Periodic reexamination shall be jointly performed to include, but not limited to, cracks in structures, settlement, leakage, and similar conditions.
- B. Documentation:
 1. Record and submit documentation of observations made on examination inspections for signature of Engineer and Contractor and in accordance with paragraph Construction Photographs and Audio-Video Recordings.
 2. Upon receipt, Engineer will review, sign, and return one record copy of documentation to Contractor to be kept on file in field office. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Contractor's operations, and is for the protection of adjacent property owners, Contractor, and Owner.

1.7 OWNER'S OCCUPANCY

- A. Owner will occupy the premises during the period of construction for the conduct of its normal operations. Cooperate with Owner in all construction operations to minimize conflict and to facilitate Owner usage.

1.8 PARTIAL UTILIZATION BY THE OWNER

- A. Schedule operations for completion of portions of the Work, as designated under Work Sequence/Constraints, herein, for Owner's occupancy or separate operation prior to Substantial Completion of the entire Work.
- B. Unless agreed in writing prior to Owner's use, the following conditions shall apply:
 1. Contractor's Responsibilities:
 - a. Allow access for Owner's personnel.
 - b. Allow operation of ventilation and electrical systems.
 - c. All other responsibilities as specified in the General Conditions.
 2. Owner's Responsibilities:
 - a. Operate ventilating systems and pay cost of same.
 - b. Assume responsibility of power requirements.
 - c. Assume responsibility for security and fire protection in utilized areas, but not extending to Contractor's materials and equipment in utilized areas.
 - d. Assume responsibility for property insurance of utilized areas.
 3. Other Conditions of Owner's Use: The correction period for the occupied or separately operated portion of Work shall commence at the date of Substantial Completion for that separate part.

1.9 PHYSICAL CONDITIONS

- A. Exercise reasonable care to verify locations of existing subsurface facilities and utilities.
- B. Areas immediate and adjacent to planned excavations shall be thoroughly checked by means of visual examination and with electronic metal and pipe detection equipment for indications of underground utilities and facilities.
- C. Make exploratory excavation where existing underground facilities or utilities may potentially conflict with proposed excavations and facilities or where there is reasonable cause to verify the presence or absence of, or to obtain physical information regarding underground facilities or utilities. Conduct exploratory excavations as acceptable to and in the presence of Engineer prior to proceeding with major excavation in the area and sufficiently in advance of construction to avoid possible delays to Contractor's Work. Promptly take measurements, photographs, and obtain survey data.

1.10 CONSTRUCTION PHOTOGRAPHS

- A. Photographically document all phases of the project including preconstruction, construction progress, and post-construction.
- B. Engineer shall have the right to select the subject matter and vantage point from which photographs are to be taken.
- C. Photograph Format: Reference Section 01 34 00 for photograph requirements.
- D. Preconstruction and Post-Construction:
 - 1. After Effective Date of the Agreement and before Work at Site is started, and again upon issuance of Substantial Completion, take photographs of all areas of the Construction Site and property adjacent to perimeter of Construction Site.
 - 2. Particular emphasis shall be directed to structures both inside and outside the Site.
- E. Construction Progress Photos:
 - 1. Photographically demonstrate progress of construction, showing every aspect of Site and adjacent properties as well as interior and exterior of new or impacted structures.
 - 2. Take photos as frequent as required to document all major aspects of construction. Coordinate with Engineer.

1.11 AUDIO-VIDEO RECORDINGS

- A. Prior to beginning Work on Construction Site or of a particular area of the Work, and again within 10 days following date of Substantial Completion, video-graph Construction Site and property adjacent to Construction Site.
- B. In the case of preconstruction recording, no Work shall begin in the area prior to Engineer's review and approval of content and quality of video for that area.
- C. Particular emphasis shall be directed to physical condition of existing vegetation, structures, and pavements within Construction Site and areas adjacent to and within the right-of-way or easement, and on Contractor storage and staging areas.
- D. Engineer shall have right to select subject matter and vantage point from which videos are to be taken.
- E. Video Format and Quality:

1. Video:
 - a. Produce bright, sharp, and clear images with accurate colors, free of distortion and other forms of picture imperfections. Make sure sound is clear and free of distortion.
 - b. Electronically, and accurately display the month, day, year, and time of day of the recording.
2. Audio:
 - a. Audio documentation shall be done clearly, precisely, and at a moderate pace.
 - b. Indicate date, project name, and a brief description of the location of taping, including:
 - 1). Facility name.
 - 2). Street names or easements.
 - 3). Addresses of private property.
 - 4). Direction of coverage, including engineering stationing, if applicable.
3. Documentation:
 - a. Electronic File Name:
 - 1). Date of coverage in year-month-day-time format followed by a short description of video coverage.
4. Transmission of Files:
 - a. Transmit electronic files via Email, or;
 - b. Place electronic files on flash drive with enough storage size to hold all videos being transmitted and deliver to Engineer via acceptable method to Engineer.
5. Project Video Log: Maintain an ongoing log that incorporates above noted information for videos on Project.
6. Reference specification Section 01 34 00 for additional requirements.

1.12 REFERENCE POINTS AND SURVEYS

- A. Location and elevation of benchmarks are shown on Drawings.
- B. Dimensions for lines and elevations for grades of structures, appurtenances, and utilities are indicated on the Drawings, together with the other pertinent information required for laying out Work. If conditions vary from those indicated, immediately notify Engineer.
- C. Any existing survey points or other control markers destroyed without proper authorization will be replaced by Owner of the survey points or control markers at the Contractor's expense.
- D. Contractor's Responsibilities:
 1. Provide additional survey and layout required to layout the Work.
 2. Locate and protect reference points prior to stating site preparation.
 3. Check and establish exact location of existing facilities prior to construction of new facilities and any connections thereto.
 4. In event of discrepancy in data or staking provided by Owner, request clarification before proceeding with Work.
 5. Retain professional land surveyor or civil engineer registered in state of Project who shall perform or supervise engineering surveying necessary for additional construction staking and layout.
 6. Maintain complete accurate log of survey Work as it progresses as a Record Document.
 7. On request of Engineer, submit documentation.
 8. Provide competent employee(s), tools, stakes, and other equipment and materials as Engineer may require to:
 - a. Establish control points, lines, and easement boundaries.
 - b. Check layout, survey, and measurement Work performed by others.

1.13 GPS SURVEYING

- A. Contractor shall provide Owner GPS data at all water installation attributes including, but not limited to the following:
 - 1. Each bend and fitting. Payment incidental to Bid Item 8.
 - 2. Each mid-point of any span of straight run of pipe that exceeds 100 feet. Payment incidental to Bid Item 1, 2, 3, or 4.
 - 3. 25 feet before and after deflection points. Payment incidental to Bid Item 1 or 2.
 - 4. Each end of encasement pipes. Payment incidental to Bid Item 11 or 12.
 - 5. Each bell of the start of a series of pulled joints, at each pulled joint and at the end of the series of pulled joints. Payment incidental to Bid Item 1, 2, 3, 4, or 8.
 - 6. Each butterfly valve. Payment incidental to Bid Item 5, 6, or 7.
 - 7. Each air release valve. Payment incidental to Bid Item 9.
 - 8. Each blow off valve. Payment incidental to Bid Item 10.
- B. Horizontal and vertical data shall be based on survey control provided in the plans. Coordinates shall be NAD 83, North Central Zone (4204) grid coordinates, corrected using the scale factor provided in the plans. The coordinates shall be sub-foot accurate in the horizontal and no more than 3 times that accurate in the vertical. Each point collected must have a description field that includes a general description of that feature.
- C. All survey GPS shots shall be taken at the top and centerline of pipes and/or appurtenances and prior to backfilling the pipe and/or appurtenances.
- D. The GPS data collected shall be provided to Owner on a CD in Excel format and in an ESRI shape file or geodatabase format ready to be imported into ArcGIS. The GPS data shall be provided to the Owner at a minimum of a monthly basis.
- E. Payment for this work shall be considered incidental to payment of the bid item corresponding to the installation of the attribute. The Owner will need to review and approve the data before payment can be made on each item.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CUTTING, FITTING, AND PATCHING

- A. Cut, fit, adjust, or patch Work and work of others, including excavation and backfill as required, to make Work complete.
- B. Obtain prior written authorization of Engineer and Owner before commencing work to cut or otherwise alter:
 - 1. Structural or reinforcing steel, structural column or beam, elevated slab, trusses, or other structural member.
 - 2. Weather- or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Work of others.
- C. Refinish surfaces to provide an even finish.
 - 1. Refinish continuous surfaces to nearest intersection.
 - 2. Refinish entire assemblies.
 - 3. Finish restored surfaces to such planes, shapes, and textures that no transition between existing work and Work is evident in finished surfaces.

- D. Restore existing work, Underground Facilities, and surfaces that are to remain in completed Work including concrete-embedded piping, conduit, and other utilities as specified and as shown.
- E. Make restorations with new materials and appropriate methods as specified for new Work of similar nature; if not specified, use recommended practice of manufacturer or appropriate trade association.
- F. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces and fill voids.
- G. Remove specimens of installed Work for testing when requested by Engineer.

END OF SECTION

SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Preparation, submittal, and maintenance of computerized progress schedule and reports, contract time adjustments, and payment requests, including the following:
 - 1. Preliminary Schedule.
 - 2. Baseline Schedule.
 - 3. Summary Schedule.
 - 4. Weekly Schedule.
 - 5. Schedule Updates.
 - 6. Schedule Revisions.
 - 7. Time Impact Analyses.
 - 8. Final Schedule Submittal.
- B. Related sections:
 - 1. Section 01 29 00 – Payment Procedures.
 - 2. Section 01 31 00 – Project Management and Coordination
 - 3. Section 01 31 19 – Project Meetings.
 - 4. Section 01 33 00 – Submittal Procedures.

1.2 SUBMITTALS

- A. Informational Submittals:
 - 1. Preliminary Progress Schedule: Submit at least 7 days prior to preconstruction conference
 - 2. Detailed Progress Schedule:
 - a. Submit initial Detailed Progress Schedule within 45 days after Effective Date of the Agreement.
 - b. Submit an Updated Progress Schedule at each update, in accordance with Article Detailed Progress Schedule.
 - 3. Submit with Each Progress Schedule Submission:
 - a. Contractor's certification that Progress Schedule submission is actual schedule being utilized for execution of the Work.
 - b. Electronic files compatible with latest version of Microsoft Project.
 - c. Progress Schedule: Legible copies.
 - d. Narrative Progress Report: Same number of copies as specified for Progress Schedule.
 - 4. Prior to final payment, submit a final Updated Progress Schedule.

1.3 RESPONSIBLE PERSON

- A. Designate, in writing and within 5 calendar days after Notice of Award, person responsible for preparation, maintenance, updating and revision of all schedules.
- B. Qualifications of Responsible Person:
 - 1. Authority to act on behalf of Contractor.
 - 2. Five years verifiable experience in preparation of complex construction schedules for projects of similar value, size and complexity.
 - 3. Knowledge of CPM scheduling utilizing Microsoft Project software.
- C. References: Submit written reference of 3 project owners who have personal experience with this scheduler on previous projects. Identify name, address, telephone number, project name and cost.

- D. Scheduler shall be dedicated full time to this project, but does not need to be located on site. All scheduling software and hardware shall be located on site. Scheduler shall attend all project meetings called for under Section 01 31 19, PROJECT MEETINGS.
- E. Engineer reserves the right to disapprove scheduler when submitted by Contractor if not qualified. Engineer reserves the right to remove scheduler from the project if found to be incompetent.

1.4 SCHEDULING FORMAT AND SOFTWARE

- A. Schedule Format: Utilize critical path method (CPM) format.
- B. Prepare computerized schedule utilizing the most current version of Microsoft Project. The Contractor shall provide one licensed copy of the scheduling software to the Engineer, registered in the Engineer's name, for the duration of the project.

1.5 PRECONSTRUCTION SCHEDULING MEETING

- A. Engineer will conduct Preconstruction Scheduling Meeting with Contractor's Project Manager, General Superintendent and scheduler within 7 calendar days after Notice of Award. This meeting is separate from the Preconstruction Conference Meeting and is intended to cover schedule issues exclusively.
- B. At the meeting, scheduling requirements shall be reviewed with Contractor. These include schedule preparation, reporting requirements, manpower and equipment loading, updates, revisions, and schedule delay analysis. Contractor shall present their schedule methodology, planned sequence of operations, resource loading methodology and present their proposed activity coding structure.
- C. Coding Structure: Contractor shall submit proposed coding structure, identifying the code fields and the associated code values it intends to use in the project schedule. The coding structure shall, at a minimum, include code fields for Project Segment or Phase, Area of Work, Type of Work, Submittal/Procurement/Construction and Responsibility/ Subcontractor. Refer to paragraph 1.10H for listing of activity categories to be included in the schedule.

1.6 PREPARATION

- A. Preparation and submittal of Progress Schedule represents Contractor's intention to execute the Work within specified time and constraints. Failure to conform to requirement may result in termination for cause as defined in the General Conditions.
- B. Contractor's bid covers all costs associated with the execution of the Work in accordance with the Progress Schedule.
- C. During preparation of the preliminary Progress Schedule, Engineer will facilitate Contractor's efforts by being available to answer questions regarding sequencing issues, scheduling constraints, interface points, and dependency relationships.
- D. Prepare schedule utilizing Precedence Diagramming Method (PDM).
- E. Prepare schedule utilizing activity durations in terms of working days. Do not exceed 15 working day duration on activities except concrete curing, submittal review, and equipment fabrication and deliveries. Where duration of continuous work exceeds 15 working days, subdivide activities by location, stationing, or other sub-element of the Work. Contractor shall coordinate holidays to be observed with the Owner and incorporate them into the schedule as non-working days.

- F. Failure to include an activity required for execution of the Work does not excuse Contractor from completing the Work and portions thereof within specified times and at price specified in Agreement. Failure of Contractor to include required schedule constraints, sequences or milestones in schedule shall not relieve Contractor of obligation to conform to requirements of Contract. Acceptance of schedule shall not waive Contract requirements. In event of conflict between accepted schedule and Contract requirements, terms of Contract shall govern at all times, unless requirements are waived in writing by the Owner.
- G. Reference schedule to calendar days with beginning of Contract Time as Day "1".
- H. Baseline Schedule and Project Completion: Should Contractor submit a Baseline Schedule showing project completion more than 20 working days prior to Contract completion date, Owner may issue Change Order, at no cost to Owner, revising time of performance of Work and Contract completion date to match Contractor's schedule completion date. Contract milestone dates, if any, shall be adjusted accordingly.
- I. Contract float is for the mutual benefit of both Owner and Contractor. Changes to the project that can be accomplished within this available period of float may be made by Owner without extending the Contract time, by utilizing float. No time extensions shall be granted nor delay damages owed until Work extends beyond currently accepted Contract completion date. Likewise, Contractor may utilize float to offset delays other than delays caused by Owner. Mutual use of float shall continue until all available float shown by schedule has been utilized by either Owner or Contractor, or both. At that time, extensions of the Contract time will be granted by Owner for valid Owner-caused or third party-caused delays which affect the planned completion date and which have been properly documented and demonstrated by Contractor.
- J. Resource Loading and Leveling: Contractor shall input manpower and equipment data on each schedule activity. Manpower data shall consist of the man-hours estimated to perform each task, categorized by trade. Equipment data shall consist of equipment hours estimated to perform each task, categorized by piece of equipment. Contractor shall optimize and level manpower and equipment requirements. Resource leveling shall reflect a reasonable plan for accomplishing Work. Individual activities may be sequenced within limits of available float. Critical or near critical paths resulting from use of manpower or equipment restraints shall be kept to a minimum. Near critical path identified as path with 15 or less working days of float.
- K. Schedule Logic: Schedule shall be assembled to show order in which Contractor proposes to carry out Work, indicate restrictions of access, availability of Work areas, and availability and use of manpower, materials and equipment. The following criteria shall form basis for assembly of schedule logic:
 - 1. Which activities must be completed before subsequent activities can be started or performed?
 - 2. Which activities can be performed concurrently?
 - 3. Which activities must be started immediately following completed activities?
 - 4. What major facility, equipment or manpower restrictions are required for sequencing these activities?
- L. Non-sequestering of Float: Pursuant to float sharing requirements of Contract, use of float suppression techniques such as preferential sequencing or logic, special lead or lag logic restraints, extended activity durations or imposed dates shall be cause for rejection of any schedule submittal.
- M. Major Subcontractor, Parallel Prime Contractor Sign Off: Contractor shall provide written confirmation of concurrence from all major subcontractors and independent prime Contractors on site with all schedule submittals. Term "major subcontractor" as used in this Section means any subcontractor, at any tier, with a subcontract worth 5 percent or more of the total cost of the Work.

- N. Imposed Dates, Hidden Logic Prohibited: Contractor shall not use imposed dates or hidden logic in preparation of schedule.
- O. Interim Milestone Dates, Operational Constraints: In event there are interim milestone dates and/or operational constraints set forth in Contract, Contractor shall show them on schedule as specified in Contract. Contractor shall not use Zero Total Float constraint or Mandatory Finish Date on such Contract requirements.
- P. Schedule Windows for Owner-furnished, Contractor-installed Equipment or Materials: Immediately after Award of Contract, Contractor shall obtain from Engineer anticipated delivery dates of Owner furnished equipment or materials. These dates shall be shown on schedule in same manner indicated by Engineer.
- Q. Cost Loading: All schedules shall be cost loaded. Only on-site construction activities shall be cost loaded. The sum total of all cost loaded activities shall equal the current value of the Contract, including change orders, at all times. Upon acceptance by Owner, the Baseline Schedule shall also be the Schedule of Values required under Section 01 29 00, PAYMENT PROCEDURES. The monthly Schedule Updates shall be the monthly Payment Application required under Section 01 29 00, PAYMENT PROCEDURES. Submittal and acceptance of these schedules shall be a condition precedent to the making of any payments under this Contract.

1.7 SUBMITTAL OF PROGRESS SCHEDULES

- A. Submit preliminary and baseline schedule in accordance with the Conditions of the Contract as modified by this Section 01 32 00.
- B. Submit, on a monthly basis, updated schedules as specified. Submit final schedule update as specified.
- C. Submit revised schedules and time impact analyses as specified.
- D. Submit Schedules in the Media and Number of Copies as Follows:
 - 1. One electronic copy of the CPM network and/or barchart (as specified by the Owner) on D-size sheets. Color-coding to be specified by the Owner.
 - 2. One electronic copy of Tabular reports listing all activities sorted numerically identifying duration, early start, late start, early finish, late finish, total float, and all predecessor/successor information.
 - 3. Two sets of portable drives, with 500 GB storage capacity containing the computerized CPM Schedule data.
 - 4. One electronic copy of the Summary Schedule.

1.8 PRELIMINARY SCHEDULE

- A. Contractor shall submit Preliminary Schedule within 10 calendar days after Notice To Proceed. Preliminary Schedule shall contain detailed plan of operations for first 90 calendar days of Work after receipt of Notice to Proceed.
- B. In addition to basic requirements outlined in the General Conditions, show a detailed schedule, beginning with Notice to Proceed, for minimum duration of 90 days, and a summary of balance of Project through Final Completion.
- C. Show activities including, but not limited to the following:
 - 1. Notice to Proceed.
 - 2. Permits.

3. Submittals, with review time. Contractor may use Schedule of Submittals specified in Section 01 33 00, SUBMITTAL PROCEDURES.
 4. Early procurement activities for long lead equipment and materials.
 5. Initial Site work.
 6. Earthwork.
 7. Specified Work sequences and construction constraints.
 8. Contract Milestone and Completion Dates.
 9. Owner-furnished products delivery dates or ranges of dates.
 10. Major structural, mechanical, equipment, electrical, architectural, and instrumentation and control Work.
 11. System startup summary.
 12. Project close-out summary.
 13. Demobilization summary.
- D. Update Preliminary Progress Schedule monthly; as part of progress payment process. Failure to do so may result in the Owner withholding all or part of the monthly progress payment until the Preliminary Progress Schedule is updated in a manner acceptable to Engineer.
- E. Format: In accordance with Article Progress Schedule Critical Path Network.
- F. Update monthly to reflect actual progress and occurrences to date, including weather delays.
- G. Engineer and Contractor shall meet within 7 calendar days after receipt of Preliminary Schedule to review and make necessary adjustments. Contractor shall submit revised preliminary schedule within 5 calendar days after meeting.
- H. Contractor shall submit schedule of manpower and costs for all activities on revised Preliminary Schedule with revised Preliminary Schedule. Schedule of manpower and costs shall be realistic and level so as not to have unusual manpower requirements.
- I. Schedule of costs shall be Schedule of Values required under Section 01 29 00, PAYMENT PROCEDURES for first 90 calendar days of Work. Submittal and acceptance of Preliminary Schedule is condition precedent to making of progress payments under Section 01 29 00, PAYMENT PROCEDURES and payments for mobilization costs otherwise provided for in the Contract. No pay item Work shall commence until Preliminary Schedule and schedule of costs have been accepted by Owner.
- J. Accepted Preliminary Schedule shall be incorporated unchanged, as first 90 calendar days of activity in Contractor's Baseline Schedule.
- K. Preliminary Schedule shall be updated monthly during first 90 calendar days after Notice to Proceed. Updated Preliminary Schedule shall be the payment application required under Section 01 29 00, PAYMENT PROCEDURES.
- 1.9 BASELINE SCHEDULE
- A. General: Comprehensive computer-generated schedule using CPM, generally as outlined in Associated General Contractors of America (AGC) 580, "Construction Project Planning and Scheduling Guidelines." If a conflict occurs between the AGC publication and this Specification, this Specification shall govern. Adjust or confirm schedules in accordance with the General Conditions on a monthly basis and submit to Engineer.
- B. Contents:
1. Schedule shall begin with the date of Notice to Proceed and conclude with the date of Final Completion.

2. Identify Work calendar basis using days as a unit of measure.
3. Show complete interdependence and sequence of construction and Project-related activities reasonably required to complete the Work.
4. Identify the Work of separate stages and other logically grouped activities, and clearly identify critical path of activities.
5. Reflect sequences of the Work, restraints, delivery windows, review times, Contract Times and Project Milestones set forth in the Agreement and Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION.

- C. No more than 45 calendar days after Notice of Award, Contractor shall submit the Baseline Schedule for all Work of the project. Baseline Schedule shall show sequence and interdependence of all activities required for complete performance of all Work, beginning with date of Notice to Proceed and concluding with date of final completion of Contract.
- D. Baseline Schedule shall conform to requirements of the following Article, "Network Details and Graphical Output."
- E. Acceptance of the Baseline Schedule by the Owner is a condition precedent to making payments under Section 01 29 00, PAYMENT PROCEDURES after the first 90 calendar days after Notice to Proceed.

1.10 NETWORK DETAILS AND GRAPHICAL OUTPUT

- A. Produce a clear, legible, and accurate calendar based, time scaled, graphical network diagram. Group activities related to the same physical areas of the Work. Produce the network diagram based upon the early start of all activities.
- B. Include for each activity, the description, activity number, estimated duration in working days, total float and all activity relationship lines.
- C. Illustrate order and interdependence of activities and sequence in which Work is planned to be accomplished. Incorporate the basic concept of the precedence diagram network method to show how the start of one activity is dependent upon the start or completion of preceding activities and its completion restricts the start of following activities.
- D. Indicate the critical path for the project.
- E. Delineate the specified contract duration and identify the planned completion of the Work as a milestone. The time period between the planned and Contract completion dates, if any, shall be shown on the schedule as an activity identified as project float unless a Change Order is issued pursuant to paragraph 1.6.H.
- F. Identify system shutdown dates, system tie-in dates, specified interim completion or milestone dates and contract completion date as milestones. Include, in addition to Construction Activities:
 1. Submission dates and review periods for major equipment submittals, shoring submittals, and indicator pile program:
 - a. Shoring Reviews: Allow 4-week review period for each shoring submittal.
 - b. Pile Indicator Program: Allow 3-week review period for analysis of program.
 2. Any activity by the Owner or the Engineer that may affect progress or required completion dates.
 3. Equipment and long-lead material deliveries over 8 weeks.
 4. Approvals required by regulatory agencies or other third parties.
 5. No activity duration exclusive of those for Submittals review and product fabrication/delivery, shall be less than 1 day and not more than 14 days, unless otherwise approved.

6. Activity duration for Submittal review shall not be less than review time specified unless clearly identified and prior written acceptance has been obtained from Engineer.
 7. If Contractor provides an accepted schedule with an early completion date, Owner reserves the right to reduce Contract Times to match the early completion date by issuing a deductive Change Order at no change in Contract Price.
- G. Produce network diagram on 22 inch by 34 inch sheets with grid coordinate system on the border of all sheets utilizing alpha and numeric designations.
1. Title Block: Show name of Project, Owner, date submitted, revision or update number, and the name of the scheduler. Updated schedules shall indicate data date.
 2. Identify horizontally across top of schedule the time frame by year, month, and day.
 3. Identify each activity with a unique number and a brief description of the Work associated with that activity.
 4. Indicate the critical path.
 5. Show, at a minimum, the controlling relationships between activities.
 6. Plot activities on a time-scaled basis, with the length of each activity proportional to the current estimate of the duration.
 7. Plot activities on an early start basis unless otherwise requested by Engineer.
 8. Provide a legend to describe standard and special symbols used.
- H. Identify the Execution of the Following, Omitting Items Not Applicable to the Work:
1. Obtaining permits, submittals for early product procurement, and long lead time items.
 2. Mobilization and other preliminary activities.
 3. Initial Site work.
 4. Specified Work sequences, constraints, and Milestones.
 5. Substantial Completions date(s) of Subcontract Work.
 6. All required submittals and submittal review times showing 30 calendar day duration for such activities and equal amount of time for re-submittal reviews.
 7. Equipment and materials procurement/fabrication/delivery.
 8. Delivery dates for Owner-furnished products, as specified in Section 01 11 00, SUMMARY OF WORK.
 9. Excavation.
 10. Site work.
 11. Structural steel work.
 12. Architectural features work.
 13. Conveying systems work.
 14. Equipment work.
 15. Mechanical work.
 16. Electrical work.
 17. Instrumentation and control work.
 18. Interfaces with Owner-furnished equipment.
 19. Other important work for each major facility.
 20. Shoring design and submission of detailed shoring submittals. Identify submission as a milestone.
 21. Shoring review, shoring materials procurement, shoring installation and shoring removal.
 22. Piles.
 23. Backfill and compaction.
 24. Dewatering.
 25. Grading, subbase, base, paving, and curb and gutters.
 26. Fencing and landscaping.
 27. Concrete, including installation of forms and reinforcement, placement of concrete, curing, stripping, finishing and patching.
 28. Tests for leakage of concrete structures intended to hold water.
 29. Masonry.
 30. Metal fastenings, framing, structures, and fabrications.
 31. Wood structures, finish carpentry, architectural woodwork, and plastic fabrications.

32. Waterproofing and dampproofing, insulation, roofing and flashing, and sealants.
33. Doors and windows, including hardware and glazing.
34. Finishes including coating and painting, flooring, ceiling, and wall covering.
35. Building specialties including furnishings, laboratory equipment, and toilet and bath accessories.
36. Process equipment, including identification of ordering lead time, factory testing and installation.
37. Pumps and drives, including identification of ordering lead time, factory testing and installation.
38. Conveying equipment including hoists and cranes, conveyor systems, and materials handling equipment, including identification of ordering lead time and installation.
39. Other mechanical equipment including fans and heating, ventilating, and air conditioning equipment.
40. Trenching, pipe laying, and trench backfill and compaction.
41. Piping, fittings and appurtenances, including identification of ordering and fabrication lead time, layout, installation and testing.
42. Valves, gates and operators, including identification of order lead time, installation and testing.
43. Plumbing specialties.
44. Electric transmission, service, and distribution equipment, including identification of ordering lead time, and factory testing.
45. Other electrical work including lighting, heating and cooling, and special systems, including identification of ordering lead time.
46. Instrumentation and controls, including identification of ordering lead time.
47. Control Panel Readiness Testing as set forth in Section 26 90 00.
48. Preliminary testing of equipment, instrumentation and controls.
49. Site Acceptance Testing as set forth in Section 26 90 00.
50. Final testing, including preparation time.
51. Seven-day operational test.
52. Substantial Completion: Substantial completion activity shall meet all requirements set forth in Section 00 73 00, Supplementary Conditions.
53. Punch list work. Equipment and system startup and test activities.
54. Project closeout and cleanup.
55. Operation and maintenance training.

I. Schedule Report:

1. 8-1/2" x 11", unless otherwise approved.
2. List information for each activity in tabular format, including, at a minimum:
 - a. Activity Identification Number.
 - b. Activity Description.
 - c. Original Duration.
 - d. Remaining Duration.
 - e. Early Start Date (Actual start on Updated Progress Schedules).
 - f. Early Finish Date (Actual finish on Updated Progress Schedules).
 - g. Late Start Date.
 - h. Late Finish Date.
 - i. Total Float.
3. Sort reports, in ascending order, as listed below:
 - a. Activity number sequence with predecessor and successor activity.

J. Cost Loading:

1. Note the estimated cost to perform each Work activity, with the exception of Submittals or Submittal reviews, in the network in a tabular listing.
2. The sum of all activity costs shall equal the Contract Price. An unbalanced or front-end-loaded schedule will not be acceptable.

3. The accepted cost-loaded Progress Schedule shall constitute the Schedule of Values specified in Section 01 29 00, PAYMENT PROCEDURES.

1.11 SUMMARY SCHEDULE

- A. Provide Summary Schedule which consolidates groups of activities associated with Major Items of Work shown on Baseline Schedule. Summary Schedule is intended to give an overall indication of the project schedule without a large amount of detail.
- B. Summary Schedule shall be updated and submitted monthly and after each Schedule Update or Schedule Revision.

1.12 SCHEDULE OF SHOP DRAWING AND SAMPLE SUBMITTALS

- A. After Preliminary Schedule has been submitted and accepted by Owner, Contractor shall submit a list of all shop drawings and sample submittals anticipated in first 90 calendar days after Notice to Proceed using early start dates.
- B. Submittal of this preliminary list shall be a condition precedent to making of progress payments during the first 90 calendar days after Notice to Proceed.
- C. After Baseline Schedule has been submitted and accepted by Owner, Contractor shall submit a list of all shop drawings and sample submittals for all Work using early start dates. This listing will contain all submittals required for the entire Work including those listed above.
- D. Submittal of final list shall be a condition precedent to making of progress payments after the first 90 calendar days after Notice to Proceed.
- E. These schedules shall conform to the requirements of the General Conditions.

1.13 MANPOWER SCHEDULES

- A. After Baseline Schedule has been submitted and accepted by Owner, Contractor shall submit a schedule histogram depicting total craft manpower and craft manpower for Contractor's own labor forces and those of each subcontractor. This manpower schedule shall be submitted electronically in Excel format.
- B. Submittal of this manpower data shall be a condition precedent to making of progress payments after the first 90 calendar days after Notice to Proceed.

1.14 EQUIPMENT SCHEDULE

- A. After Baseline Schedule has been submitted and accepted by Owner, Contractor shall submit a tabular report listing each major piece of construction equipment to be used in performing the Work. This report will list major equipment for Contractor and each subcontractor. This tabular report of equipment shall be submitted electronically disk in Excel format.
- B. Submittal of this equipment data shall be a condition precedent to making of progress payments after the first 90 calendar days after Notice to Proceed.

1.15 WEATHER DAY ALLOWANCE

- A. Include as a separate identifiable activity on the critical path, an activity labeled "Weather Days Allowance." Insert this activity at the end of the schedule.

- B. Duration of Weather Days Allowance is specified in Conditions of the Contract.
- C. Insert an activity in critical path to reflect weather day occurrences when weather days are experienced and accepted by Engineer. Identify this activity as a weather delay.
- D. Reduce duration of Weather Days Allowance activity as weather delays are experienced and inserted into the Schedule. Remaining weather days in Weather Day Allowance at completion of project is considered float.

1.16 ALLOWANCE FOR OWNER CAUSED DELAY

- A. Include as a separate identifiable activity on the critical path, an activity labeled "Allowance for Owner-Caused Delay." Insert this activity at the end of the schedule, following the Project Completion Milestone.
- B. Duration of this activity is specified in Bid Form. The duration of this Owner-Caused Delay Allowance is in addition to the contractual time frame.
- C. Insert an activity in critical path to reflect Owner-caused delay occurrences when Owner-caused delay days are experienced and accepted by Engineer. Identify this activity as an Owner-caused delay.
- D. Reduce duration of Owner-Caused Delay Allowance activity as Owner-caused delays are experienced and inserted into the schedule. Remaining days in Owner-Caused Delay Allowance at completion of project is considered float.

1.17 REVIEW AND ACCEPTANCE OF SCHEDULES

- A. Engineer will review Baseline Schedules, Schedule Updates, Schedule Revisions and Time Impact Analyses to ascertain compliance with specified project constraints, compliance with milestone dates, reasonableness of durations and sequence, accurate inter-relationships and completeness.
- B. Engineer and Owner will issue written comments following completion of review of Baseline Schedule within 21 calendar days after receipt. Written comments on review of Schedule Updates and Schedule Revisions and Time Impact Analyses will be returned to Contractor within 14 calendar days after receipt by Engineer.
- C. Revise and resubmit schedule in accordance with Engineer's comments within 7 calendar days after receipt of such comments, or request joint meeting to resolve objections. If a meeting is requested the Contractor and all major subcontractors shall participate in the meeting with Engineer. Revise and resubmit schedule within 7 calendar days after meeting.
- D. When schedule reflects Owner's and Contractor's agreement of project approach and sequence, schedule will be accepted by Owner. Use accepted schedule for planning, organizing and directing the work and for reporting progress. Provide all items specified in Article 1.7, "Submittal of Project Schedules."
- E. Engineer's acceptance will demonstrate agreement that:
 - 1. Proposed schedule is accepted with respect to:
 - a. Contract Times, including Final Completion are within the specified times.
 - b. Specified Work sequences and constraints are shown as specified.
 - c. Access restrictions are accurately reflected.
 - d. Startup and testing times are as specified.
 - e. Submittal review times are as specified.

- f. Startup testing duration is as specified and timing is acceptable.
 - 2. In all other respects, Engineer's acceptance of Contractor's schedule indicates that in the Engineer's judgment, the schedule represents reasonable plan for constructing Project in accordance with the Contract Documents. Engineer's review will not make any change in Contract requirements. Lack of comment on any aspect of schedule that is not in accordance with the Contract Documents will not thereby indicate acceptance of that change, unless Contractor has explicitly called the nonconformance to Engineer's attention in submittal. Schedule remains Contractor's responsibility and Contractor retains responsibility for performing all activities, for activity durations, and for activity sequences required to construct Project in accordance with the Contract Documents.
- F. Unacceptable Preliminary Progress Schedule:
- 1. Make requested corrections; resubmit within 7 days.
 - 2. Until acceptable to Engineer as Baseline Progress Schedule, continue review and revision process, during which time Contractor shall update schedule on a monthly basis to reflect actual progress and occurrences to date.
- G. Unacceptable Detailed Progress Schedule:
- 1. Make requested corrections; resubmit within 7 days.
 - 2. Until acceptable to Engineer as Baseline Progress Schedule, continue review and revision process.
- H. Narrative Report: All changes to activity duration and sequences, including addition or deletion of activities subsequent to Engineer's acceptance of Baseline Progress Schedule shall be delineated in Narrative Report current with proposed Updated Progress Schedule.
- 1.18 UPDATING THE SCHEDULE AND PROGRESS OF THE WORK
- A. Updated Progress Schedule shall reflect:
- 1. Progress of Work to within 5 working days prior to submission.
 - 2. Approved changes in Work scope and activities modified since submission.
 - 3. Delays in Submittals or re-submittals, deliveries, or Work.
 - 4. Adjusted or modified sequences of Work.
 - 5. Other identifiable changes.
 - 6. Revised projections of progress and completion.
 - 7. Report of changed logic.
- B. Produce detailed sub schedules during Project, upon request of Owner or Engineer, to further define critical portions of the Work such as facility shutdowns.
- C. If Contractor fails to complete activity by its latest scheduled completion date and this Failure is anticipated to extend Contract Times (or Milestones), Contractor shall, within 7 days of such failure, submit a written statement as to how Contractor intends to correct nonperformance and return to acceptable current Progress Schedule. Actions by Contractor to complete the Work within Contract Times (or Milestones) will not be justification for adjustment to Contract Price or Contract Times.
- D. Owner may order Contractor to increase plant, equipment, labor force or working hours if Contractor fails to:
- 1. Complete an activity by its completion date.
 - 2. Satisfactorily execute Work as necessary to prevent delay to overall completion of Project, at no additional cost to Owner.

- E. Update the schedule prior to monthly progress meeting. Submit a written report of significant changes in progress meeting. A detailed written list of all changes to the previous schedule submittal contained in the Schedule Update shall be submitted at the monthly progress meeting.
 - F. Submit updated schedule and materials specified under Article 1.7 "Submittal of Progress Schedules," 5 calendar days before the progress meeting.
 - G. Since monthly Schedule Update is the application for progress payment required under Section 01 29 00, PAYMENT PROCEDURES, submittal and acceptance of the monthly Schedule Update is a condition precedent to the making of any progress payments.
 - H. Prepare update using most recent accepted version of schedule. Include:
 - 1. Actual start dates of activities that have been started.
 - 2. Actual finish dates of activities that have been completed.
 - 3. Percentage of completion of activities that have been started but not finished.
 - 4. Actual dates on which milestones were achieved.
 - 5. Activities shall not be updated by inputting percent complete figures only without also inputting actual dates.
 - 6. Retained logic shall be used in preparing Schedule Updates.
 - 7. When necessary, input remaining durations for activities whose finish dates cannot be calculated accurately with a percent complete figure only.
 - 8. Revisions to the schedule may be included that have been previously approved in under the following Article, "Revisions to Schedule."
 - I. Submit written narrative report in conjunction with each Schedule Update. Describe:
 - 1. Activities added to or deleted from schedule. Identify added activities in manner distinctly different from original activity designations.
 - 2. Changes in sequence or estimated duration of activities.
 - 3. Current or anticipated problems and delays affecting progress, impact of these problems and delays and measures taken to mitigate impact.
 - 4. Assumptions made and activities affected by incorporating change order work into the schedule.
 - 5. Cost and other resource loading requirements shall be adhered to concerning activities added to or deleted from the schedule.
 - J. Identify overall progress of each Major Item of Work in the Summary Schedule.
 - K. Should monthly Schedule Update show project completion earlier than current Contract completion date Contractor shall show early completion time as schedule activity, identified as "Project Float."
 - L. Should monthly Schedule Update show project completion later than current Contract completion date Contractor shall prepare and submit a Schedule Revision in accordance with the following Article, "Revisions to Schedule."
- 1.19 REVISIONS TO SCHEDULE
- A. Submit Revised Schedule within 5 Days:
 - 1. When delay in completion of any activity or group of activities indicates an overrun of the contract time or milestone dates by 20 working days or 5 percent of the remaining duration, whichever is less.
 - 2. When delays in submittals, deliveries, or work stoppages are encountered making necessary the replanning or rescheduling of activities.
 - 3. When the schedule does not represent the actual progress of activities.

4. When any change to the sequence of activities, the completion date for major portions of the work, or when changes occur which affect the critical path.
 5. When Contract modification necessitates schedule revision, submit schedule analysis of change order work with cost proposal.
- B. Submit revised schedule and materials as specified under Article "Submittals of Progress Schedules."
 - C. Make revisions on most recently accepted version of schedule.
 - D. Schedule Revisions shall not be prepared or submitted with Schedule Updates. They shall be separate submittals and shall be noted as Schedule Revisions.
 - E. Only upon acceptance of a revision by the Owner shall it be reflected in the next monthly Schedule Update.
 - F. Schedule Revisions submitted for the purpose of mitigating a Contractor-caused project delay (Recovery Schedule) shall not be implemented until the Owner reviews and accepts the Schedule Revision.

1.20 PAYMENT REQUESTS AND CASH FLOW

- A. After Baseline Schedule has been submitted and accepted by the Owner, the Contractor shall submit on a monthly basis, a tabular report showing anticipated earnings each month of the contract period. This tabulation will be based on the summation of the cost-loaded activities each month. Contractor shall submit an updated payment schedule each month showing actual earned amounts and anticipated remaining earnings.
- B. Utilize cost loaded monthly Schedule Updates as the applications for payment specified in Section 01 29 00, PAYMENT PROCEDURES. Payment application shall be a listing in Excel format of all schedule activities showing cost and percentage completion during the current month for which payment is sought. Submittal of the monthly Schedule Update shall be a condition precedent to the issuance of any payment under this Contract.

1.21 WEEKLY SCHEDULE

- A. Submit to Engineer, on the last working day of every week, a progress schedule showing the activities completed during the previous week and the Contractor's schedule of activities for the following 2 weeks.
- B. The Weekly Schedule may be a CPM schedule or a bar chart but shall utilize the logic and conform to the status of the current progress schedule. In the event that the Weekly Schedule no longer conforms to the current schedule, Contractor may be required to revise the schedule in accordance with Article 1.19, "Revisions to Schedule."
- C. The activity designations used in the Weekly Schedule shall be consistent with those used in the Baseline Schedule and the monthly Schedule Updates.
- D. The format of the Weekly Schedule shall be as agreed upon between the Contractor and the Engineer.

1.22 SCHEDULE OF VALUES

- A. Requirements for Schedule of Values are specified in Section 01 29 00, PAYMENT PROCEDURES, and Paragraph 1.6.Q, Cost Loading.

- B. Submit, in conjunction with the Progress Schedule, a Schedule of Values identifying costs of all on-site construction activities as generated by the cost loaded schedule. Equate the aggregate of these costs to the Lump Sum Contract Price.

1.23 ADJUSTMENT OF CONTRACT TIMES

- A. Contract time will be adjusted only for causes specified in Contract Documents. Adjustments in the Contract time shall be governed by the principles of this Article and shall be made in accordance with the provisions of the General Conditions.
 - 1. Non-excusable Delay: Actions or inactions of the Contractor, or events for which the Contractor has assumed contractual responsibility (including actions or inactions of subcontractors, suppliers or materialmen at any tier) which would independently delay the completion of the Work beyond the current Contract completion date shall be designated as non-excusable delay. The Contractor shall not receive any time extension for such delays.
 - 2. Excusable Delay: Events which are unforeseeable, outside the control of, and without the fault or negligence of either the Owner or the Contractor (or any party for whom either is responsible), which would independently delay the completion of the Work beyond the current Contract completion date shall be designated as excusable delay. The Contractor is entitled to a time extension only and shall not receive any other damages.
 - 3. Compensable Delay: Actions or inactions of the Owner, or events for which the Owner has assumed contractual responsibility, which would independently delay the completion of the Work beyond the current Contract completion date shall be designated as compensable delay. The Contractor is entitled to a time extension and delay damages.
 - 4. Concurrent Delay: Concurrent delay is any combination of the above three types of delay occurring on the same calendar date(s), except in cases where the combination consists of two or more instances of the same type of delay occurring on the same calendar date(s). When one cause of delay is Owner-caused or caused by an event which is beyond the control and without the fault or negligence of either the Owner or the Contractor and the other Contractor-caused, the Contractor is entitled only to a time extension and no delay damages.
- B. If the Contractor believes that the Owner has impacted its work, such that the project completion date will be delayed, the Contractor must submit proof demonstrating the delay to the critical path. This proof, in the form of a Time Impact Analysis, may entitle the Contractor to an adjustment of contract time.
- C. Time Impact Analysis:
 - 1. The Time Impact Analysis submitted by the Contractor shall utilize the accepted schedule update that is current relative to the time frame of the delay event (change order, third party delay, or other Owner-caused delay). The Contractor shall represent the delay event in the schedule by 1) inserting new activities associated with the delay event into the schedule, 2) revising activity logic, or 3) revising activity durations.
 - 2. If the project schedule's critical path and completion date are impacted as a result of adding this delay event to the schedule, a time extension equal to the magnitude of the impact may be warranted.
 - 3. The Time Impact Analysis submittal shall consist of 1) a fragment of the portion of the schedule affected by the delay event, 2) a narrative explanation of the delay issue and how it impacted the schedule, and 3) a compact disc containing the schedule file used to perform the Time Impact Analysis.
- D. When a delay to the project as a whole can be avoided by revising preferential sequencing or logic, and the Contractor chooses not to implement the revisions, the Contractor will be entitled to a time extension and no compensation for extended overhead.

- E. Indicate clearly that the Contractor has used, in full, all project float available for the work involved in the request, including any float that may exist between the Contractor's planned completion date and the Contract completion date. Utilize the latest version of the Schedule Update accepted at the time of the alleged delay, and all other relevant information, to determine the adjustment of the contract time.
- F. Float shall be for the mutual benefit of the Owner and the Contractor. Adjustment of the Contract Times will be granted only when the Contract Float has been fully utilized and only when the revised date of completion of the Work has been pushed beyond the contract completion date. Adjustment of the Contract Times will be made only for the number of days that the planned completion of the work has been extended.
 - 1. Float time is a Project resource available to both parties to meet contract Milestones and Contract Times.
 - 2. Use of float suppression techniques, such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times are prohibited. Use of float time disclosed or implied by use of alternate float-suppression techniques shall be shared to proportionate benefit of Owner and Contractor.
 - 3. Pursuant to above float-sharing requirement, no time extensions will be granted nor delay damages paid until a delay occurs, which:
 - 4. Impacts Project's critical path,
 - 5. Consumes all available float or contingency time, and
 - 6. Extends Work beyond contract completion date.
- G. Actual delays in activities which do not affect the critical path work or which do not move the Contractor's planned completion date beyond the Contract completion date will not be the basis for an adjustment to the contract time.
- H. The Contractor shall not be entitled to job-site or home office overhead beyond the Contractor's originally planned occupancy of the site if completion of the project occurs within the specified contract time.
- I. Notify Engineer of a request for contract time adjustment. Submit request in accordance with the General Conditions. In cases where the Contractor does not submit a request for contract time adjustment for a specific change order, delay, or Contractor request within the specified period of time, then it is mutually agreed that the particular change order, delay, or Contractor request has no time impact on the Contract completion date and no time extension is required.
- J. The Engineer will, within 30 calendar days after receipt of a contract time adjustment, request any supporting evidence, review the facts and advise the Contractor in writing.
- K. The new Progress Schedule data, if accepted by the Owner, shall be included in the next monthly Schedule Update.
- L. When the Owner has not yet made a final determination as to the adjustment of the contract time, and the parties are unable to agree as to the amount of the adjustment to be reflected in the Progress Schedule, reflect that amount of time adjustment in the Progress Schedule as the Engineer may accept as appropriate for such interim purpose. It is understood and agreed that any such interim acceptance by the Engineer shall not be binding and shall be made only for the purpose of continuing to schedule the Work, until such time as a final determination as to any adjustment of the contract time acceptable to the Engineer has been made. Revise the Progress Schedule prepared thereafter in accordance with the final decision.
- M. Claims Based on Contract Times:
 - 1. Where Engineer has not yet rendered formal decision on Contractor's Claim for adjustment of Contract Times, and parties are unable to agree as to amount of adjustment to be

reflected in Progress Schedule, Contractor shall reflect an interim adjustment in the Progress Schedule as acceptable to Engineer.

2. It is understood and agreed that such interim acceptance will not be binding on either Contractor or Owner, and will be made only for the purpose of continuing to schedule Work until such time as formal decision has been rendered as to an adjustment, if any, of the Contract Times.
3. Contractor shall revise Progress Schedule prepared thereafter in accordance with Engineer's formal decision.

1.24 FINAL SCHEDULE SUBMITTAL

- A. As a condition precedent to the release of retainage, the final Schedule Update shall be identified by the Contractor as the As-Built Schedule.
- B. The As-Built Schedule shall reflect the exact manner in which the project was constructed by reflecting actual start and completion dates for all activities accomplished on the project.
- C. The As-Built Schedule shall be signed and certified by the Contractor's Project Manager and scheduler as being an accurate record of the way in which the project was actually constructed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 32 90 – SAFETY PLAN

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Development and maintenance of a Construction Safety Plan.

1.2 REFERENCES

- A. OSHA.

1.3 CONSTRUCTION SAFETY PLAN

- A. Detail the Methods and Procedures to comply with Federal, and Local Health and Safety Laws, Rules and Requirements for the duration of the Contract Times. Include the following:
 1. Identification of the Certified or Licensed Safety Consultant, who will prepare, initiate, maintain and supervise safety programs, and procedures.
 2. Procedures for providing workers with an awareness of safety and health hazards expected to be encountered in the course of construction.
 3. Safety equipment appropriate to the safety and health hazards expected to be encountered during construction. Include warning devices, barricades, safety equipment in public right-of-way and protected areas, and safety equipment used in multi-level structures.
 4. Methods for minimizing employees' exposure to safety and health hazards expected during construction.
 5. Procedures for reporting safety or health hazards.
 6. Procedures to follow to correct a recognized safety and health hazard.
 7. Procedures for investigation of accidents, injuries, illnesses and unusual events that have occurred at the construction site.
 8. Periodic and scheduled inspections of general work areas and specific work stations.
 9. Training for employees and workers at the jobsite.
 10. Methods of communication of safe working conditions, work practices and required personal protection equipment.
- B. Assume responsibility for every aspect of Health and Safety on the jobsite, including the health and safety of subcontractors, suppliers, and other persons on the jobsite:
 1. Forward available information and reports to the Safety Consultant who shall make the necessary recommendations concerning worker health and safety at the jobsite.
 2. Employ additional health and safety measures specified by the Safety Consultant, as necessary, for workers in accordance with OSHA guidelines.
- C. Transmit to OWNER and ENGINEER copies of reports and other documents related to accidents or injuries encountered during construction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of:
 - 1. Submittals Related to Project Submittals as related to:
 - a. Action Submittals
 - b. Informational Submittals
- B. Related sections:
 - 1. 01 29 00 – Payment Procedures.
 - 2. 01 31 00 – Project Management and Coordination.
 - 3. 01 32 00 – Construction Progress Documentation.
 - 4. 01 77 00 – Closeout Procedures.
 - 5. 01 78 23 – Operation and Maintenance Data.
 - 6. 01 79 00 – Demonstration and Training.

1.2 DEFINITIONS

- A. Action Submittal: Written and graphic information submitted by Contractor that requires Engineer's approval.
- B. Informational Submittal: Information submitted by Contractor that does not require Engineer's approval.

1.3 PROCEDURES

- A. Direct Submittals to Engineer.
- B. Contractor will submit all submittals electronically using Email to facilitate the transfer of submittals and related files.
- C. Transmittal of Submittal:
 - 1. Contractor shall:
 - a. Review each submittal and check for compliance with Contract Documents.
 - b. Stamp each submittal with uniform approval stamp before submitting to Engineer.
 - 1). Stamp to include Project name, submittal number, Specification number, Contractor's reviewer name, date of Contractor's approval and statement certifying that submittal has been reviewed, checked, and approved for compliance with Contract Documents.
 - 2). Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
 - 2. Complete, sign, and transmit with each submittal package, one Transmittal of Contractor's Submittal form. A blank Transmittal of Contractor's Submittal form may be provided by Engineer.
 - 3. Identify Each Submittal with the Following:
 - a. Numbering and Tracking System:
 - 1) Submittal No. 8300-001, etc.
 - b. Sequentially number each submittal.
 - c. Resubmission of submittal shall have original number with sequential alphabetic suffix (ie: Resubmittal No. 8300-001-A).
 - 1). Specification section and paragraph to which submittal applies.
 - 2). Project title and Engineer's project number.

- 3). Date of transmittal.
 - 4). Names of Contractor, subcontractor or Supplier and Manufacturer as appropriate.
 4. Identify and describe each deviation or variation from Contract Documents.
 - D. Format:
 1. Do not base Shop Drawings on reproductions of Contract Documents.
 2. Package submittal information by individual Specification section. Do not combine different Specification sections together in submittal package, unless otherwise directed in Specification.
 3. Present in a clear and thorough manner and in sufficient detail to show kind, size, arrangement, and function of components, materials, and devices, and compliance with Contract Documents.
 4. Index with labeled tab dividers in orderly manner.
 - E. Timeliness: Schedule and submit in accordance Schedule of Submittals, and requirements of individual Specification sections.
 - F. Processing Time:
 1. Time for review shall commence on Engineer's receipt of submittal.
 2. Engineer will act upon Contractor's submittal and transmit response to Contractor not later than 30 days after receipt, unless otherwise specified.
 3. Re-submittals will be subject to same review time.
 4. No adjustment of Contract Times or Price will be allowed due to delays in progress of Work caused by rejection and subsequent re-submittals.
 - G. Re-submittals: Clearly identify each correction or change made.
 - H. Incomplete Submittals:
 1. Engineer will return entire submittal for Contractor's revision if preliminary review deems it incomplete.
 2. When any of the following are missing, submittal will be deemed incomplete:
 - a. Contractor's review stamp completed and signed.
 - b. Transmittal of Contractor's Submittal completed and signed.
 3. Submittals not required by Contract Documents will not be reviewed and will be returned stamped "Not Reviewed."
 4. Engineer will keep one electronic copy and return one electronic copy to Contractor.
 - I. Coordination with Project:
 1. It is the Contractor's responsibility to coordinate all equipment furnished with project elevations and dimensions. Approval of the submittal does not relieve the Contractor of the responsibility.
 2. Contractor shall be responsible for coordinating all project aspects and project changes with all submittals.
- 1.4 ACTION SUBMITTALS
- A. Prepare and submit Action Submittals required by individual Specification sections.
 - B. Contractor will submit all submittals electronically using Email to facilitate the transfer of submittals and related files.
 - C. Shop Drawings:
 1. Identify and Indicate:

- a. Applicable Contract Drawing and Detail number, products, units and assemblies, and system or equipment identification or tag numbers.
 - b. Equipment and Component Title: Identical to title shown on Drawings.
 - c. Critical field dimensions and relationships to other critical features of Work. Note dimensions established by field measurement.
 - d. Project-specific information drawn accurately to scale.
 - 2. Manufacturer's standard schematic drawings and diagrams as follows:
 - a. Modify to delete information that is not applicable to the Work.
 - b. Supplement standard information to provide information specifically applicable to the Work.
 - 3. Product Data: Provide as specified in individual Specifications.
 - 4. Foreign Manufacturers: When proposed, include following additional information:
 - a. Names and addresses of at least two companies that maintain technical service representatives close to Project.
 - b. Complete list of spare parts and accessories for each piece of equipment.
- D. Samples:
- 1. Copies: One, unless otherwise specified in individual Specifications.
 - 2. Preparation: Mount, display, or package Samples in manner specified to facilitate review of quality. Attach label on unexposed side that includes the following:
 - a. Manufacturer name.
 - b. Model number.
 - c. Material.
 - d. Sample source.
 - 3. Manufacturer's Color Chart: Units or sections of units showing full range of colors, textures, and patterns available.
 - 4. Full-size Samples:
 - a. Size as indicated in individual Specification section.
 - b. Prepared from same materials to be used for the Work.
 - c. Cured and finished in manner specified.
 - d. Physically identical with product proposed for use.
- E. Action Submittal Dispositions: Engineer will review, mark, and stamp as appropriate, and distribute marked-up copies as noted:
- 1. Furnish as Submitted:
 - a. Contractor may incorporate product(s) or implement Work covered by submittal.
 - b. Distribution
 - 1). One electronic copy furnished to Resident Project Representative.
 - 2). One electronic copy retained in Engineer's file.
 - 3). One electronic copy returned to Contractor appropriately annotated.
 - 2. Furnish as Corrected or Noted:
 - a. Contractor may incorporate product(s) or implement Work covered by submittal, in accordance with Engineer's notations.
 - b. Distribution:
 - 1). One electronic copy furnished to Resident Project Representative.
 - 2). One electronic copy retained in Engineer's file.
 - 3). One electronic copy to Contractor appropriately annotated.
 - 3. Revise and Resubmit:
 - a. Make corrections or obtain missing portions, and resubmit.
 - b. Except for portions indicated, Contractor may begin to incorporate product(s) or implement Work covered by submittal, in accordance with Engineer's notations.
 - c. Distribution:
 - 1). One electronic copy furnished to Resident Project Representative.
 - 2). One electronic copy retained in Engineer's file.
 - 3). One electronic copy to Contractor appropriately annotated.
 - 4. Rejected:

- a. Contractor may not incorporate product(s) or implement Work covered by submittal.
- b. Distribution:
 - 1). One electronic copy furnished to Resident Project Representative.
 - 2). One electronic copy retained in Engineer's file.
 - 3). One electronic copy returned to Contractor appropriately annotated.

1.5 INFORMATIONAL SUBMITTALS

A. General:

1. Contractor will submit all submittals electronically using Email to facilitate the transfer of submittals and related files.
2. Refer to individual Specification sections for specific submittal requirements.
3. Engineer will review each submittal. If submittal meets conditions of the Contract, Engineer will forward electronic copies to appropriate parties. If Engineer determines submittal does not meet conditions of the Contract and is therefore considered unacceptable, Engineer will retain one electronic copy and return one electronic copy with review comments to Contractor, and require that submittal be corrected and resubmitted.
4. Application for Payment: In accordance with Section 01 29 00, PAYMENT PROCEDURES.
5. Certificates:
 - a. General:
 - 1). Provide notarized statement that includes signature of entity responsible for preparing certification.
 - 2). Signed by officer or other individual authorized to sign documents on behalf of that entity.
6. Welding: In accordance with individual Specification sections.
7. Installer: Prepare written statements on Manufacturer's letterhead certifying that installer complies with requirements as specified in individual Specification sections.
8. Material Test: Prepared by qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
9. Certificates of Successful Testing or Inspection: Submit when testing or inspection is required by Laws and Regulations or governing agency or specified in individual Specification sections.
10. Manufacturer's Certificate of Compliance: In accordance with Section 01 79 00, DEMONSTRATION AND TRAINING.
11. Manufacturer's Certificate of Proper Installation: In accordance with Section 01 79 00, DEMONSTRATION AND TRAINING.

B. Construction Photographs and Video: In accordance with Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION, and as may otherwise be required in Contract Documents.

C. Contract Closeout Submittals: In accordance with Section 01 77 00, CLOSEOUT PROCEDURES.

D. Contractor-Design Data:

1. Written and graphic information.
2. List of assumptions.
3. List of performance and design criteria.
4. Summary of loads or load diagram, if applicable.
5. Calculations.
6. List of applicable codes and regulations.
7. Name and version of software.
8. Information requested in individual Specification section.

- E. Manufacturer's Instructions: Written or published information that documents Manufacturer's recommendations, guidelines, and procedures in accordance with individual Specification sections.
- F. Operation and Maintenance Data: As required in Section 01 78 23, OPERATION AND MAINTENANCE DATA.
- G. Schedules:
 - 1. Schedule of Submittals: Prepare separately or in combination with Progress Schedule as specified in Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.
 - a. Show for Each, at a Minimum, the Following:
 - 1). Specification section number.
 - 2). Identification by numbering and tracking system as specified under Paragraph "Transmittal of Submittal".
 - 3). Estimated date of submission to Engineer, including reviewing and processing time.
 - b. On a monthly basis, submit updated schedule to Engineer if changes have occurred or re-submittals are required.
 - 2. Schedule of Values: In accordance with Section 01 29 00, PAYMENT PROCEDURES.
 - 3. Schedule of Estimated Progress Payments: In accordance with Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.
 - 4. Progress Schedules: In accordance with Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.
- H. Special Guarantee: Supplier's written guarantee as required in individual Specification sections.
- I. Statement of Qualification: Evidence of qualification, certification, or registration as required in Contract Documents to verify qualifications of professional land surveyor, engineer, materials testing laboratory, specialty Subcontractor, trade, Specialist, consultant, installer, and other professionals.
- J. Submittals Required by Laws, Regulations, and Governing Agencies:
 - 1. Submit promptly notifications, reports, certifications, payrolls, and otherwise as may be required, directly to the applicable Federal, State, or local governing agency or their representative.
 - 2. Transmit to Engineer for Owner's records one electronic copy of correspondence and transmittals (to include enclosures and attachments) between Contractor and governing agency.
- K. Test and Inspection Reports:
 - 1. General: Shall contain signature of person responsible for test or report.
 - 2. Factory:
 - a. Identification of product and Specification section, type of inspection or test with referenced standard or code.
 - b. Date of test, Project title and number, and name and signature of authorized person.
 - c. Test results.
 - d. If test or inspection deems material or equipment not in compliance with Contract Documents, identify corrective action necessary to bring into compliance.
 - e. Provide interpretation of test results, when requested by Engineer.
 - f. Other items as identified in individual Specification sections.
 - 3. Field: As a minimum, include the following:
 - a. Project title and number.
 - b. Date and time.
 - c. Record of temperature and weather conditions.
 - d. Identification of product and Specification section.

- e. Type and location of test, Sample, or inspection, including referenced standard or code.
 - f. Date issued, testing laboratory name, address, and telephone number, and name and signature of laboratory inspector.
 - g. If test or inspection deems material or equipment not in compliance with Contract Documents, identify corrective action necessary to bring into compliance.
 - h. Provide interpretation of test results, when requested by Engineer.
 - i. Other items as identified in individual Specification sections.
- 4. Testing and Startup Data: In accordance with Section 01 79 00, DEMONSTRATION AND TRAINING.
 - 5. Training Data: In accordance with Section 01 79 00, DEMONSTRATION AND TRAINING.

1.6 FINAL SUBMITTALS

- A. Submit final copy of all submitted information to OWNER as component of Final Close Out. Prepare final data in electronic media format.
- B. Organizational Format:
 - 1. Identify electronic files with title "FINAL PROJECT SUBMITTALS" and list each submittal with the following information on each file's cover sheet:
 - a. Project title.
 - b. Designate applicable system, equipment, material, or finish.
 - c. Identity of separate structure as applicable.
 - d. Identity of general subject matter covered in manual.
 - e. Identity of equipment number and Specification section.
 - 2. Provide Title Page file with the following:
 - a. Contractor name, address, and telephone number.
 - b. Subcontractor, Supplier, installer, or maintenance contractor's name, address, and telephone number, as appropriate.
 - 1) Identify area of responsibility of each.
 - 2) Provide name and telephone number of local source of supply for parts and replacement.
 - 3. Provide electronic searchable Table of Contents for all files:
 - a. Arranged in systematic order with consecutive page numbers.
 - b. Identify each product by product name and other identifying numbers or symbols as set forth in Contract Documents.
 - 4. Text: Manufacturer's printed data, or neatly identified
 - 5. Material shall be suitable for reproduction, with quality equal to original.
 - 6. All drawings and oversized figures shall be presented electronically in 11x 17 format.
- C. Electronic Media Format:
 - 1. Portable Document Format (PDF):
 - a. After all preliminary data has been found to be acceptable to Engineer, submit Operation and Maintenance data in PDF format on CD.
 - b. Files to be exact duplicates of Engineer-accepted preliminary data. Arrange by specification number and name.
 - c. Files to be fully functional, fully viewable and fully searchable in most recent version of Adobe Acrobat.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 34 00 – PHOTOGRAPHIC AND VIDEOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes Requirements for:
 - 1. Pre-construction photographs.
 - 2. Pre-construction videos.
 - 3. Post-construction photographs.
 - 4. Post-construction videos.
- B. The purpose of the photographs and videos is to document the condition of the facilities prior to the CONTRACTOR beginning work at the Project site and after Substantial Completion of the Work.
- C. Areas to be photographed and videoed shall include the site of the Work and all existing facilities either on or adjoining the Project site, including the interior of existing structures, that could be damaged as a result of the CONTRACTOR's Work.
- D. The scope of the photographic and videographic documentation shall be the sole responsibility of the CONTRACTOR, but shall be acceptable to the ENGINEER.
- E. Related sections:
 - 1. Section 01 31 00 – Project Management and Coordination
 - 2. Section 01 31 19 – Project Meetings.
 - 3. Section 01 33 00 – Submittal Procedures.
 - 4. Section 01 77 00 – Closeout Procedures.

1.2 SUBMITTALS

- A. Key Plan: Submit key plan of Project site with notation of vantage points marked for location and direction of each photograph. Include the same label information as the corresponding set of photographs.
- B. Photographs:
 - 1. Digital Media:
 - a. Provide photos as individual, indexed JPG files with the following characteristics:
 - 1) Compression shall be set to preserve quality over file size.
 - 2) Highest resolution JPG images shall be submitted. Resizing to a smaller size when high resolution JPGs are available shall not be permitted.
 - 3) JPG image resolution shall be 4000 by 3000 or higher.
 - 4) Images shall have rectangular clean images. Artistic borders, beveling, drop shadows, etc. are not permitted.
- C. Videos:
 - 1. Submit 4 copies of each video within 7 days of recording.
 - 2. Videos shall be submitted in a digital color video format on a flashdrive.
 - 3. Identification: On each copy provide a label with the following information:
 - a. Name of project.
 - b. Date video was recorded.
- D. Pre-Construction Photographs and Videos: Submit prior to beginning work at the Project site or prior to the Preconstruction Conference specified in Section 01 31 19, whichever occurs earlier. Reference Section 01 31 00 for additional requirements.

- E. Post-Construction Photographs and Videos: Submit with project closeout documents as specified in Section 01 77 00. Reference Section 01 31 00 for additional requirements.

PART 2 - PRODUCTS

2.1 MEDIA

- A. Paper Media:
 - 1. Commercial grade, glossy surface, acid-free photographic paper.
- B. Digital Media:
 - 1. Flashdrive with capacity for all pictures and videos compatible with latest version of Microsoft Windows.
- C. Videos:
 - 1. Flashdrive.

PART 3 - EXECUTION

3.1 GENERAL

- A. Photographs (Paper and Digital Media):
 - 1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.
- B. Videos:
 - 1. Display continuous running time.
 - 2. At start of each video recording, record weather conditions from local newspaper or television and the actual temperature reading at Project Site.

END OF SECTION

SECTION 01 35 00 – SPECIAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Special procedures for locating and verifying concealed existing facilities.

1.2 CONCEALED EXISTING FACILITIES

- A. Verify locations of utilities and facilities which may exist by consulting with the OWNER, utility companies, and Texas811 (phone number 800-344-8377, website: www.texas811.org/) or other service available in area of Project (see dig/call information on the Drawings):
 - 1. Abide by easement and right-of-way restrictions.
- B. Notify the OWNER, owners of facilities when the Work will be in progress. Make arrangements for potential emergency repairs in accordance with requirements of owners of utility facilities, including individual or residential facilities.
- C. Assume responsibility for repair of facilities damaged by performance of the Work.
- D. Expose sanitary and storm sewers, water, gas, electric, telephone utility lines, and other underground facilities indicated to permit survey location prior to commencement of Work in affected area:
 - 1. Expose in ample time to permit relocation of interfering utilities with minimum delaying effect on contract time.
- E. Work required for raising, lowering, or relocating utilities not indicated will be performed by affected utility owners or as part of the Work at option of affected owners of utilities:
 - 1. When part of the Work, perform work in accordance with standards of affected utility owner, and adjustment to Contract Price and Contract Times will be made as stipulated in conditions of contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 41 00 – REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Regulatory requirements:
 1. Building code.
 2. Electrical code.
 3. Energy code.
 4. Fire code.
 5. Mechanical code.
 6. Plumbing code.

1.2 REFERENCES

- A. International Code Council (ICC):
 1. International Building Code (IBC), 2009.
 2. International Existing Building Code (IEBC), 2009.
 3. International Energy Conservation Code (IECC), 2009.
 4. International Fire Code (IFC), 2009.
 5. International Mechanical Code (IMC), 2009.
 6. International Plumbing Code (IPC), 2009.
- B. National Fire Protection Association (NFPA):
 1. NFPA 70: National Electrical Code, 2011.
- C. National Electric Code Council:
 1. National Electric Code (NEC), NFPA 70, 2011

1.3 SYSTEM DESCRIPTION

- A. Design Requirements:
 1. Building code:
 - a. International Building Code.
 2. Electrical code:
 - a. NFPA 70: National Electric Code.
 3. Energy conservation code:
 - a. International Energy Conservation Code.
 4. Fire code:
 - a. International Fire Prevention Code.
 5. Mechanical codes:
 - a. International Mechanical Code.
 6. Plumbing code:
 - a. International Plumbing Code.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES

- A. Reference to standards and specifications of technical societies and reporting and resolving discrepancies associated therewith shall be as provided in the General Conditions, and as may otherwise be required herein and in the individual Specification sections.
- B. Work specified by reference to published standard or specification of government agency, technical association or trade association, professional society or institute, testing agency, or other organization shall meet requirements or surpass minimum standards of quality for materials and workmanship established by designated standard or specification.
- C. Where so specified, products or workmanship shall also meet or exceed additional prescriptive or performance requirements included within Contract Documents to establish a higher or more stringent standard of quality than required by referenced standard.
- D. Where two or more standards are specified to establish quality, product and workmanship shall meet or exceed requirements of most stringent.
- E. Where both a standard and a brand name are specified for a product in Contract Documents, proprietary product named shall meet or exceed requirements of specified reference standard.
- F. Copies of Standards and Specifications of Technical Societies:
 - 1. Copies of applicable referenced standards have not been bound in these Contract Documents.
 - 2. Where copies of standards are needed by Contractor, obtain a copy or copies directly from publication source and maintain in an orderly manner at the Site as Work Site records, available to Contractor's personnel, Subcontractors, Owner, and Engineer.

1.2 ABBREVIATIONS

- A. Abbreviations for trade organizations and government agencies: Following is a list of construction industry organizations and government agencies to which references may be made in the Contract Documents, with abbreviations used.
 - 1. AA Aluminum Association
 - 2. AABC Associated Air Balance Council
 - 3. AAMA American Architectural Manufacturers Association
 - 4. AASHTO American Association of State Highway and Transportation Officials
 - 5. ABMA American Bearing Manufacturers' Association
 - 6. ACI American Concrete Institute
 - 7. AEIC Association of Edison Illuminating Companies
 - 8. AGA American Gas Association
 - 9. AGMA American Gear Manufacturers' Association
 - 10. AI Asphalt Institute
 - 11. AISC American Institute of Steel Construction
 - 12. AISI American Iron and Steel Institute
 - 13. AITC American Institute of Timber Construction
 - 14. ALS American Lumber Standards
 - 15. AMCA Air Movement and Control Association
 - 16. ANSI American National Standards Institute
 - 17. APA The Engineered Wood Association
 - 18. API American Petroleum Institute

19.	APWA	American Public Works Association
20.	ARI	Air-Conditioning and Refrigeration Institute
21.	ASAE	American Society of Agricultural Engineers
22.	ASCE	American Society of Civil Engineers
23.	ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
24.	ASME	American Society of Mechanical Engineers
25.	ASNT	American Society for Nondestructive Testing
26.	ASTM	ASTM International
27.	AWI	Architectural Woodwork Institute
28.	AWPA	American Wood Preservers' Association
29.	AWPI	American Wood Preservers' Institute
30.	AWS	American Welding Society
31.	AWWA	American Water Works Association
32.	BHMA	Builders Hardware Manufacturers' Association
33.	CBM	Certified Ballast Manufacturer
34.	CDA	Copper Development Association
35.	CGA	Compressed Gas Association
36.	CIS PI	Cast Iron Soil Pipe Institute
37.	CMAA	Crane Manufacturers' Association of America
38.	CRSI	Concrete Reinforcing Steel Institute
39.	CS	Commercial Standard
40.	CSA	Canadian Standards Association
41.	CSI	Construction Specifications Institute
42.	DIN	Deutsches Institute für Normung e.V.
43.	DIPRA	Ductile Iron Pipe Research Association
44.	EIA	Electronic Industries Alliance
45.	EJCDC	Engineers Joint Contract Documents' Committee
46.	ETL	Electrical Test Laboratories
47.	FAA	Federal Aviation Administration
48.	FCC	Federal Communications Commission
49.	FDA	Food and Drug Administration
50.	FEMA	Federal Emergency Management Agency
51.	FIPS	Federal Information Processing Standards
52.	PM	Factory Mutual
53.	Fed. Spec.	Federal Specifications (FAA Specifications)
54.	FS	Federal Specifications and Standards (Technical Specifications)
55.	GA	Gypsum Association
56.	GANA	Glass Association of North America
57.	ID	Hydraulic Institute
58.	HMI	Hoist Manufacturers' Institute
59.	IBC	International Building Code
60.	ICBO	International Conference of Building Officials
61.	ICC	International Code Council
62.	ICEA	Insulated Cable Engineers' Association
63.	IFC	International Fire Code
64.	IEEE	Institute of Electrical and Electronics Engineers, Inc.
65.	IESNA	Illuminating Engineering Society of North America
66.	IFI	Industrial Fasteners Institute
67.	IGMA	Insulating Glass Manufacturer's Alliance
68.	IMC	International Mechanical Code
69.	INDA	Association of the Non-woven Fabrics Industry
70.	IPC	International Plumbing Code
71.	ISA	Instrumentation, Systems, and Automation
72.	ISO	International Organization for Standardization
73.	ITL	Independent Testing Laboratory

74.	JIC	Joint Industry Conferences of Hydraulic Manufacturers
75.	MIA	Marble Institute of America
76.	Mil.	Military Specifications
77.	MMA	Monorail Manufacturers' Association
78.	NAAMM	National Association of Architectural Metal Manufacturers
79.	NACE	NACE International
80.	NEBB	National Environmental Balancing Bureau
81.	NEC	National Electrical Code
82.	NECA	National Electrical Contractors Association
83.	NEMA	National Electrical Manufacturers' Association
84.	NESC	National Electrical Safety Code
85.	NETA	International Electrical Testing Association
86.	NFPA	National Fire Protection Association
87.	NHLA	National Hardwood Lumber Association
88.	NICET	National Institute for Certification in Engineering Technologies
89.	NIST	National Institute of Standards and Technology
90.	NRCA	National Roofing Contractors Association
91.	NRTL	Nationally Recognized Testing Laboratories
92.	NSF	NSF International
93.	NSPE	National Society of Professional Engineers
94.	NTMA	National Terrazzo and Mosaic Association
95.	NWWDA	National Wood Window and Door Association
96.	OSHA	Occupational Safety and Health Act (both Federal and State)
97.	PCI	Pre-cast/Pre-stressed Concrete Institute
98.	PEI	Porcelain Enamel Institute
99.	PPI	Plastic Pipe Institute
100.	PS	Product Standards Section-U.S. Department of Commerce
101.	RMA	Rubber Manufacturers' Association
102.	RUS	Rural Utilities Service
103.	SAE	Society of Automotive Engineers
104.	SDI	Steel Deck Institute
105.	SDI	Steel Door Institute
106.	SJI	Steel Joist Institute
107.	SMACNA	Sheet Metal and Air Conditioning Contractors National Association
108.	SPI	Society of the Plastics Industry
109.	SSPC	The Society for Protective Coatings
110.	SWI	Steel Window Institute
111.	TEMA	Tubular Exchanger Manufacturers' Association
112.	TCA	Tile Council of North America
113.	TIA	Telecommunications Industry Association
114.	UBC	Uniform Building Code
115.	UFC	Uniform Fire Code
116.	UL	Underwriters Laboratories Inc.
117.	UMC	Uniform Mechanical Code
118.	USBR	U.S. Bureau of Reclamation
119.	WCLIB	West Coast Lumber Inspection Bureau
120.	WWPA	Western Wood Products Association

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 42 40 – ABBREVIATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Abbreviations and meanings.

1.2 INTERPRETATIONS

- A. Interpret abbreviations by context in which abbreviations are used.

1.3 ABBREVIATIONS

A. Abbreviations Used to Identify Reference Standards:

- | | | |
|-----|--------|--|
| 1. | AA | Aluminum Association |
| 2. | AAMA | Architectural Aluminum Manufacturers Association |
| 3. | AAN | American Association of Nurserymen |
| 4. | AASHTO | American Association of State Highway and Transportation Officials |
| 5. | ABC | Associated Air Balance Council |
| 6. | ABPA | Acoustical and Board Products Association |
| 7. | ACI | American Concrete Institute |
| 8. | ACIL | American Council of Independent Laboratories |
| 9. | ADC | Air Diffusion Council |
| 10. | ABMA | American Bearing Manufacturers' Association (formerly AFBMA, Anti-Friction Bearing Manufacturers' Association) |
| 11. | AGA | American Gas Association |
| 12. | AGC | Associated General Contractors |
| 13. | AGMA | American Gear Manufacturers' Association |
| 14. | AI | Asphalt Institute |
| 15. | AIA | American Institute of Architects |
| 16. | AIMA | Acoustical and Insulating Materials Association |
| 17. | AISC | American Institute of Steel Construction |
| 18. | AISI | American Iron and Steel Institute |
| 19. | AITC | American Institute of Timber Construction |
| 20. | AMCA | Air Moving and Conditioning Association |
| 21. | AMG | Arizona Masonry Guild |
| 22. | ANSI | American National Standards Institute |
| 23. | APA | American Plywood Association |
| 24. | API | American Petroleum Institute |
| 25. | ARI | Air Conditioning and Refrigeration Institute |
| 26. | ASAHC | American Society of Architectural Hardware Consultants |
| 27. | ASHRAE | American Society of Heating, Refrigeration and Air Conditioning Engineers |
| 28. | ASME | American Society of Mechanical Engineers |
| 29. | ASTM | ASTM International (Former name American Society for Testing and Materials. Still used in specifications.) |
| 30. | AWI | Architectural Woodwork Institute |
| 31. | AWPA | American Wood Preservers Association |
| 32. | AWPI | American Wood Preservers Institute |
| 33. | AWS | American Welding Society |
| 34. | AWSC | American Welding Society Code |
| 35. | AWWA | American Water Works Association |
| 36. | BHMA | Builders Hardware Manufacturers Association |
| 37. | BIA | Brick Institute of America |
| 38. | BSI | Building Stone Institute |

39.	CLFMI	Chain Link Fence Manufacturers Institute
40.	CPSC	U.S. Consumer Product Safety Commission
41.	CRA	California Redwood Association
42.	CRI	Carpet and Rug Institute
43.	CRSI	Concrete Reinforcing Steel Institute
44.	CS	Commercial Standards
45.	CSI	Construction Specifications Institute
46.	CTI	Ceramic Tile Institute
47.	DHI	Door and Hardware Institute
48.	EIFS	Exterior Insulation and Finish System
49.	EJCDC	Engineers Joint Contract Documents Committee
50.	FGMA	Flat Glass Marketing Association
51.	FIA	Factory Insurance Association
52.	FM	Factory Mutual
53.	FS	Federal Specifications
54.	FTI	Facing Tile Institute
55.	GA	Gypsum Association
56.	IAPMO	International Association of Plumbing and Mechanical Officials
57.	IBC	International Building Code
58.	ICBO	International Conference of Building Officials
59.	ICC	International Code Council
60.	IEEE	Institute of Electrical and Electronics Engineers
61.	MAG	Maricopa Association of Governments
62.	MIA	Marble Institute of America
63.	ML/SFA	Metal Lath/Steel Framing Association
64.	MS	Military Specifications
65.	NAAMM	National Association of Architectural Metal Manufacturers
66.	NAPA	National Asphalt Pavement Association
67.	NBHA	National Builders Hardware Association
68.	NCMA	National Concrete Masonry Association
69.	NEC	National Electrical Code
70.	NECA	National Electrical Contractors Association
71.	NETA	International Electrical Testing Association
72.	NEMA	National Electrical Manufacturers Association
73.	NFPA	National Fire Protection Association
74.	NFPA	National Forest Products Association
75.	NIST	National Institute of Standards and Technology
76.	NMWIA	National Mineral Wood Insulation Association
77.	NPCA	National Paint and Coatings Association
78.	NRCA	National Roofing Contractors Association
79.	NTMA	National Terrazzo and Mosaic Association
80.	NWMA	National Woodwork Manufacturer's Association
81.	PCA	Portland Cement Association
82.	PCI	Prestressed Concrete Institute
83.	PDCA	Paint and Decorating Contractors of America
84.	PDI	Plumbing and Drainage Institute
85.	PEI	Porcelain Enamel Institute
86.	PS	Product Standard
87.	RTI	Resilient Tile Institute
88.	SAE	Society of Automotive Engineers
89.	SCPA	Structural Clay Products Association
90.	SDI	Steel Door Institute
91.	SIGMA	Sealed Insulating Glass Manufacturers Association
92.	SJI	Steel Joist Institute
93.	SMACNA	Sheet Metal and Air Conditioning Contractors National Association
94.	SSPC	Society for Protective Coatings-Steel Structures Painting Council

95.	TCA	Tile Council of America
96.	UBC	Uniform Building Code (ICBO)
97.	UL	Underwriters Laboratories, Inc.
98.	UNS	Unified Numbering System
99.	USDA	United States Department of Agriculture
100.	VA	Vermiculite Association
101.	WCLA	West Coast Lumberman's Association
102.	WCLIB	West Coast Lumber Inspection Bureau
103.	WPA	Western Pine Association
104.	WPOA	Western Plumbing Officials Association
105.	WRC	Welding Research Council
106.	WSCPA	Western States Clay Products Association
107.	WWPA	Western Wood Products Association

B.	B.	Abbreviations Used in Specifications:
1.	a	year or years (metric unit)
2.	A	ampere or amperes
3.	am	ante meridian (before noon)
4.	ac	alternating current
5.	ac-ft	acre-foot or acre-feet
6.	atm	atmosphere
7.	AWG	American Wire Gauge
8.	bbl	barrel or barrels
9.	bd	board
10.	bhp	brake horsepower
11.	bil gal	billion gallons
12.	BOD	biochemical oxygen demand
13.	Btu	British thermal unit or units
14.	Btuh	British thermal units per hour
15.	bu	bushel or bushels
16.	C	degrees Celsius
17.	cal	calorie or calories
18.	cap	capita
19.	cd	candela or candelas
20.	cfm	cubic feet per minute
21.	Ci	curie or curies
22.	cm	centimeter or centimeters
23.	cmu	concrete masonry unit
24.	CO	carbon monoxide
25.	Co.	Company
26.	CO ₂	carbon dioxide
27.	COD	chemical oxygen demand
28.	Corp.	Corporation
29.	counts/min	counts per minute
30.	cu	cubic
31.	cu cm	cubic centimeter or centimeters
32.	cu ft	cubic foot or feet
33.	cu ft/day	cubic feet per day
34.	cu ft/hr	cubic feet per hour
35.	cu ft/min	cubic feet per minute
36.	cu ft/sec	cubic feet per second
37.	cu in	cubic inch or inches
38.	cu m	cubic meter or meters
39.	cu yd	cubic yard or yards
40.	d	day (metric units)
41.	day	day (English units)

42.	db	decibels
43.	DB	dry bulb (temperature)
44.	dc	direct current
45.	diam	diameter
46.	DO	dissolved oxygen
47.	DS	dissolved solids
48.	emf	electromotive force
49.	fpm	feet per minute
50.	F	degrees Fahrenheit
51.	ft	feet or foot
52.	fc	foot-candle or foot candles
53.	ft/day	feet per day
54.	ft/hr	feet per hour
55.	ft/min	feet per minute
56.	ft/sec	feet per second
57.	g	gram or grams
58.	G	gravitational force
59.	gal	gallon or gallons
60.	gal/day	gallons per day
61.	gal/min	gallons per minutes
62.	gal/sec	gallons per second
63.	gfd	gallons per square foot per day
64.	g/L	grams per liter
65.	gpd	gallons per day
66.	gpd/ac	gallons per day per acre
67.	gpd/cap	gallons per day per capita
68.	gpd/sq ft	gallons per day per square foot
69.	gph	gallons per hour
70.	gpm	gallons per minute
71.	gps	gallons per second
72.	h	hour or hours (metric units)
73.	ha	hectare or hectares
74.	hp	high point
75.	hp	horsepower
76.	hp-hr	horsepower-hour or horsepower-hours
77.	hr	hour or hours (English units)
78.	Hz	hertz
79.	ID	inside diameter
80.	ihp	indicated horsepower
81.	Inc.	Incorporated
82.	inch	inch
83.	inches	inches
84.	inches/sec	inches per second
85.	J	joule or joules
86.	JTU	Jackson turbidity unit or units
87.	k	kips
88.	K	kelvin
89.	K	thermal conductivity
90.	kcal	kilocalorie or kilocalories
91.	kcmil	thousand circular mils
92.	kg	kilogram or kilograms
93.	km	kilometer or kilometers
94.	kN	kilonewton or kilonewtons
95.	kPa	kilopascal or kilopascals
96.	ksi	kips per square inch
97.	kV	kilovolt or kilovolts

98.	kVA	kilovolt-ampere or kilovolt-amperes
99.	kW	kilowatt or kilowatts
100.	kWh	kilowatt hour
101.	L	liter or liters
102.	lb/1000 cu ft	pounds per thousand cubic foot
103.	lb/acre-ft	pounds per acre-foot
104.	lb/ac	pounds per acre
105.	lb/cu ft	pounds per cubic foot
106.	lb/day/cu ft	pounds per day per cubic foot
107.	lb/day/acre	pounds per day per acre
108.	lb/sq ft	pounds per square foot
109.	lin	linear, lineal
110.	lin ft	linear foot or feet
111.	lm	lumen or lumens
112.	log	logarithm (common)
113.	ln	logarithm (natural)
114.	lx	lux
115.	m	meter or meters
116.	M	molar (concentration)
117.	mA	milliampere or milliamperes
118.	max	maximum
119.	mCi	millicurie or millicuries
120.	meq	milliequivalent
121.	μF	microfarad or microfarads
122.	MFBM	thousand feet board measure
123.	mfr	manufacturer
124.	mg	milligram or milligrams
125.	mgd/ac	million gallons per day per acre
126.	mgd	million gallons per day
127.	mg/L	milligrams per liter
128.	μg/L	micrograms per liter
129.	μm	micrometer or micrometers
130.	mile	mile
131.	mil. gal	million gallons
132.	miles	miles
133.	min	minimum
134.	min	minute or minutes
135.	MLSS	mixed liquor suspended solids
136.	MLVSS	mixed liquor volatile suspended solids
137.	mm	millimeter or millimeters
138.	mol wt	molecular weight
139.	mol	mole
140.	Mpa	megapascal or megapascals
141.	mph	miles per hour
142.	MPN	most probable number
143.	mR	milliroentgen or milliroentgens
144.	Mrad	megarad or megarads
145.	mV	millivolt or millivolts
146.	MW	megawatt or megawatts
147.	N	newton or newtons
148.	N	normal (concentration)
149.	No.	number
150.	Nos	numbers
151.	NRC	noise reduction coefficient
152.	NTU or ntu	nephelometric turbidity unit
153.	oc	on center

154.	OD	outside diameter
155.	ORP	oxidation-reduction potential
156.	OT	ortho-tolidine
157.	OTA	ortha-tolidine-arsenite
158.	oz	ounce or ounces
159.	oz/sq ft	ounces per square foot
160.	Pa	pascal or pascals
161.	pl	plate or property line
162.	pm	post meridiem (afternoon)
163.	ppb	parts per billion
164.	ppm	parts per million
165.	ppt	parts per thousand
166.	pr	pair
167.	psf/hr	pounds per square foot per hour
168.	psf	pounds per square foot
169.	psi	pounds per square inch
170.	psia	pounds per square inch absolute
171.	psig	pounds per square inch gauge
172.	PVC	polyvinyl chloride
173.	qt	quart or quarts
174.	R	radius
175.	R	roentgen or roentgens
176.	rad	radiation absorbed dose
177.	RH	relative humidity
178.	rpm	revolutions per minute
179.	rps	revolutions per second
180.	S	second (metric units)
181.	S	Siemens (mho)
182.	SDI	sludge density index or silt density index
183.	sec	second (English units)
184.	SI	International System of Units
185.	sp	static pressure
186.	sp gr	specific gravity
187.	sp ht	specific heat
188.	sq	square
189.	cm ² or sq cm	square centimeter or centimeters
190.	sq ft	square feet or foot
191.	sq inch	square inch
192.	sq inches	square inches
193.	km ² or sq km	square kilometer or kilometers
194.	m ² or sq m	square meter or meters
195.	mm ² or sq mm	square millimeter or millimeters
196.	sq yd	square yard or yards
197.	SS	suspended solids
198.	STC	Sound Transmission Class
199.	SVI	sludge volume index
200.	TDS	total dissolved solids
201.	TKN	total Kjeldahl nitrogen
202.	TLM	median tolerance limit
203.	TOC	total organic carbon
204.	TOD	total oxygen demand
205.	TOW	top of weir
206.	TS	total solids
207.	TSS	total suspended solids
208.	TVS	total volatile solids

209.	U	U Factor/U Value
210.	U	Coefficient of Heat Transfer
211.	U	heat transfer coefficient
212.	UNS	Uniform Numbering System
213.	US	United States
214.	V	volt or volts
215.	VA	volt-ampere or volt-amperes
216.	W	watt or watts
217.	WB	wet bulb
218.	wg	water gauge
219.	wk	week or weeks
220.	wt	weight
221.	yd	yard or yards
222.	yr	year or years (English unit)

C. Abbreviations Used on Drawings: As listed on Drawings or in Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 00 – QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 1. Quality control and control of installation.
 2. Tolerances.
 3. References.
 4. Mock-up requirements.
 5. Authority and duties of Owner's representative or inspector.
 6. Sampling and testing.
 7. Testing and inspection services.
 8. Contractor's responsibilities.
- B. Related sections:
 1. Section 01 45 24 - Special Tests and Inspections.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
- H. When specified, products will be tested and inspected either at point of origin or at Work site:
 1. Notify Engineer in writing well in advance of when products will be ready for testing and inspection at point of origin.
 2. Do not construe that satisfactory tests and inspections at point of origin is final acceptance of products. Satisfactory tests or inspections at point of origin do not preclude retesting or re-inspection at Work site.
- I. Do not ship products which require testing and inspection at point of origin prior to testing and inspection.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

- B. Comply with manufacturers' tolerances. When Manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. American Society for Testing and Materials (ASTM): E 329 - Standard for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
- B. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- C. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.
- D. Obtain copies of standards where required by product specification sections.
- E. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

1.5 MOCK-UP REQUIREMENTS

- A. Tests will be performed under provisions identified in this Section and identified in respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be comparison standard for remaining Work.
- D. Where mock-up has been accepted by Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by Engineer.

1.6 AUTHORITY AND DUTIES OF OWNER'S REPRESENTATIVE OR INSPECTOR

- A. Owner's Project Representative employed or retained by Owner is authorized to inspect the Work.
- B. Inspections may extend to entire or part of the Work and to preparation, fabrication, and manufacture of products for the Work.
- C. Deficiencies or defects in the Work which have been observed will be called to Contractor's attention.
- D. Inspector will not:
 - 1. Alter or waive provisions of Contract Documents.
 - 2. Inspect Contractor's means, methods, techniques, sequences, or procedures for construction.
 - 3. Accept portions of the Work, issue instructions contrary to intent of Contract Documents, or act as foreman for Contractor.
 - 4. Supervise, control, or direct Contractor's safety precautions or programs; or inspect for safety conditions on Work site, or of persons thereon, whether Contractor's employees or others.

- E. Inspector will:
1. Conduct on-site observations of the Work in progress to assist Engineer in determining when the Work is, in general, proceeding in accordance with Contract Documents.
 2. Report to Engineer whenever Inspector believes that Work is faulty, defective, does not conform to Contract Documents, or has been damaged; or whenever there is defective material or equipment; or whenever Inspector believes the Work should be uncovered for observation or requires special procedures.

1.7 SAMPLING AND TESTING

- A. General:
1. Prior to delivery and incorporation in the Work, submit listing of sources of materials, when specified in sections where materials are specified.
 2. When specified in sections where products are specified:
 - a. Submit sufficient quantities of representative samples of character and quality required of materials to be used in the Work for testing or examination.
 - b. Test materials in accordance with standards of national technical organizations.
- B. Sampling:
1. Furnish specimens of materials when requested.
 2. Do not use materials which are required to be tested until testing indicates satisfactory compliance with specified requirements.
 3. Specimens of materials will be taken for testing whenever necessary to determine quality of material.
 4. Assist Engineer in preparation of test specimens at site of work, such as soil samples and concrete test cylinders.
- C. Testing:
1. Owner will employ and pay for services of independent testing laboratory to perform routine tests of materials to confirm compliance with requirements of Contract Documents:
 - a. Mill tests, soil compaction test, and other specified tests shall be paid for by Contractor.
 2. When protesting failed tests of material in place or to be used, take additional specimens and have specimens tested:
 - a. When original test proves to have been in error, file claim for reimbursement of direct costs for sampling and testing.
- D. Test standards:
1. Perform sampling, specimen preparation, and testing of materials in accordance with specified standards, and when no standard is specified, in accordance with standard of nationally recognized technical organization.
 2. Physical characteristics of materials not particularly specified shall conform to standards published by ASTM, where applicable.
 3. Standards and publication references in Contract Documents shall be edition or revision in effect on date stipulated in the Contract Documents.

1.8 TESTING AND INSPECTION SERVICES

- A. Contractor will employ and pay for specified services of an independent firm; known as Contractor's independent testing firm, to perform Contractor quality control testing as required in the technical specifications for various work and materials.
- B. Owner will employ and pay for specified services of an "Owner's independent testing firm" to perform testing and inspection as required in the technical specifications for various work and

materials or stipulated in Section 01 45 24 to confirm Contractor's compliance with Contract Documents. If Engineer or Owner's independent testing firm is not properly certified to perform specialty inspections required by the building department, Owner will employ and pay for a quality specialty inspection firm to perform required testing and inspection.

- C. The Contractor's independent testing firm will perform tests, inspections and other services specified in individual specification sections and as required by Owner and requested by the Engineer.
- D. The qualifications of laboratory that will perform the testing, contracted by the Owner or by the Contractor, shall be as follows:
 - 1. Has authorization to operate in the state where the project is located.
 - 2. Meets "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.
 - 3. Meets requirements of ASTM E 329.
 - 4. Laboratory Staff: Maintain full time specialist on staff to review services.
 - 5. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to National Bureau of Standards (NBS) or accepted values of natural physical constants.
 - 6. Will submit copy of report of inspection of facilities made by Materials Reference Laboratory of NBS during most recent tour of inspection, with memorandum of remedies of deficiencies reported by inspection.
- E. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing inspections and source quality control as required by Engineer or Owner.
- F. Reports will be submitted by Contractor's independent testing firm and by Owner's independent testing firm to Engineer, Contractor, and Owner in triplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in Project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with Contract Documents.
 - 12. Interpretation of test results, when requested by Engineer.
- G. Contractor shall cooperate with Owner's independent testing firm, furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Engineer and Owner's independent testing firm 48 hours prior to expected time for operations requiring testing.
 - 2. Make arrangements with Owner's independent testing firm and pay for additional samples and tests required for Contractor's use.
- H. Limitations of authority of testing Laboratory: Owner's independent testing firm or Laboratory is not authorized to:
 - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency or laboratory may not approve or accept any portion of the Work.
 - 3. Agency or laboratory may not assume duties of Contractor.

4. Agency or laboratory has no authority to stop the Work.
 - I. Testing and employment of an Owner's independent testing firm or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
 - J. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same Owner's independent testing firm on instructions by Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.
 - K. The Owner's independent testing firm responsibilities will include:
 1. Test samples of mixes submitted by Contractor.
 2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
 3. Perform specified sampling and testing of products in accordance with specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
 6. Perform additional tests required by Engineer.
 7. Attend preconstruction meetings and progress meetings.
 - L. Owner's independent testing firm individual test reports: After each test, Owner's independent testing firm will promptly submit electronically and three hard copies of report to Engineer and to Contractor. When requested by Engineer, the Owner's independent testing firm will provide interpretation of test results. Include the following:
 1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and specifications section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Certified test results stamped and signed by a registered Engineer in the state that the project is located.
 10. Summary of conformance with Contract Documents.
 - M. Owner's independent testing firm will provide monthly report of certification to identify all work performed for special inspections and other contract requirements on this project. The following certified monthly report at a minimum will include but not limited to:
 1. Results of testing.
 2. Testing logs.
 3. Outstanding deficiencies.
 4. Various statistical data.
 5. Testing curves (up to 4 types) as required by the Engineer.
- 1.9 CONTRACTOR'S RESPONSIBILITIES
- A. Cooperate with Owner's independent testing firm or laboratory personnel and provide access to construction and manufacturing operations.
 - B. Secure and deliver to Owner's independent testing firm or laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.

- C. Provide to Owner's independent testing firm or laboratory and Engineer preliminary mix design proposed to be used for concrete, and other materials mixes which require control by testing laboratory.
- D. Furnish electronically and 5 hard copies of product test reports.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to construction to be tested.
 - 2. To obtain and handle samples at Work site or at source of product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test samples.
- F. Notify Owner's independent testing firm or laboratory 48 hours in advance of when observations, inspections and testing is needed for laboratory to schedule and perform in accordance with their notice of response time.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 1. Furnishing, maintaining, and removing construction facilities and temporary controls, including temporary utilities, construction aids, barriers and enclosures, security, access roads, temporary controls, project sign, field offices and sheds, and removal after construction.
- B. Related sections:
 1. Section 01 14 00 – Work Restrictions.
 2. Section 01 32 00 – Construction Progress Documentation
 3. Section 01 33 00 – Submittal Procedures
 4. Section 01 34 00 – Photographic and Videographic Documentation

1.2 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 1. American Association of Nurserymen: American Standards for Nursery Stock.
 2. Federal Emergency Management Agency.
 3. NFPA, National Fire Prevention Standard for Safeguarding Building Construction Operations.
 4. Telecommunications Industry Association (TIA); Electronic Industries Alliance (EIA): 568B, Commercial Building Telecommunications Cabling Standard.
 5. U.S. Department of Agriculture: Urban Hydrology for Small Watersheds.
 6. U.S. Weather Bureau: Rainfall-Frequency Atlas of the U.S. for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years.

1.3 SUBMITTALS

- A. Informational Submittals:
 1. General: For products specified to be furnished under this Section, submit product data in accordance with Section 01 33 00.
 2. For Temporary Piping Systems:
 - a. Submit layout drawings showing proposed routing of piping, including proposed pipe support and pipe restraint locations.
 - b. Submit product data for piping, fittings, appurtenances, restraints, supports, and all other components of the temporary piping system.
 - c. Submit all information at least 28 days prior to when each temporary piping system is scheduled to be installed and allow 14 days for review and comment by ENGINEER and OWNER.
 3. For Temporary Pumping Systems:
 - a. Submit pump data, performance curves, and other operating information as specified in Section 01 32 00.
 - b. Submit sketches showing layout of temporary pumping system, including pump quantity, configuration in wet well, and proposed piping layout specified in Paragraph 1.02 B.
 - c. Submit piping headloss calculations based on proposed temporary piping system layout.
 - d. Submit all information at least 28 days prior to when the temporary pumping system is scheduled to be installed and allow 14 days for review and comment by ENGINEER and OWNER.

4. Copies of permits and approvals for construction as required by Laws and Regulations and governing agencies.
5. Temporary Utility Submittals:
 - a. Electric power supply and distribution plans.
 - b. Water supply and distribution plans.
 - c. Drainage plans.
 - d. Sanitary sewer.
6. Temporary Construction Submittals:
 - a. Access Roads: Routes, cross-sections, and drainage facilities.
 - b. Parking area plans.
 - c. Contractor's field office, storage yard, and storage building plans, including gravel surfaced area.
 - d. Fencing and protective barrier locations and details.
 - e. Engineer's field office plans.
 - f. Staging area location plan.
 - g. Traffic and Pedestrian Control and Routing Plans: As specified herein, and proposed revisions thereto.
7. Temporary Control Submittals:
 - a. Noise control plan.
 - b. Plan for disposal of waste materials and intended haul routes.

1.4 MOBILIZATION

- A. Mobilization shall Include, but Not be Limited to, these Principal Items:
 1. Obtaining required permits.
 2. Moving Contractor's field office and equipment required for first month operations onto Site.
 3. Installing temporary construction power, wiring, and lighting facilities.
 4. Providing onsite communication facilities, including telephones.
 5. Providing onsite sanitary facilities and potable water facilities as specified and as required by Laws and Regulations, and governing agencies.
 6. Arrange for and erection of Contractor's work and storage yard.
 7. Posting OSHA required notices and establishing safety programs and procedures.
 8. Have Contractor's superintendent at Site full time.
- B. Use area designated for Contractor's temporary facilities as shown on Drawings.

1.5 PROTECTION OF WORK AND PROPERTY

- A. Comply with Owner's safety rules while on Owner's property.
- B. Keep Owner informed of serious onsite accidents and related claims.
- C. Use of Explosives: No blasting or use of explosives will be allowed onsite.

1.6 VEHICULAR TRAFFIC

- A. Traffic Routing Plan: Show sequences of construction affecting use of roadways, time required for each phase of the Work, provisions for decking over excavations and phasing of operations to provide necessary access, and plans for signing, barricading, and striping to provide passages for pedestrians and vehicles.

1.7 TEMPORARY UTILITIES

- A. Temporary Electrical Power:
 1. Arrange with local utility to provide adequate temporary electrical service.

2. Provide and maintain adequate jobsite power distribution facilities conforming to applicable Laws and Regulations.
 3. Provide, maintain, and pay for electric power for performance of the Work except for power required for the final 7-day operational test:
 - a. When using permanent facilities, provide separate meter and reimburse OWNER for power used in connection with performance of the Work.
- B. Temporary Electrical Lighting:
1. In work areas, provide temporary lighting sufficient to maintain lighting levels during working hours not less than lighting levels required by Occupational Safety and Health Administration (OSHA) and state agency which administers OSHA regulations where Project is located.
 2. When available, permanent lighting facilities may be used in lieu of temporary facilities:
 - a. Prior to Substantial Completion of the Work, replace bulbs, lamps, or tubes used by CONTRACTOR for lighting.
- C. Temporary Heating, Cooling, and Ventilating:
1. Heat and ventilate work areas to protect the Work from damage by freezing, high temperatures, weather, and to provide safe environment for workers.
 2. Permanent heating system may be utilized when sufficiently completed to allow safe operation.
- D. Temporary Water:
1. Pay for and construct facilities necessary to furnish potable water for human consumption and non-potable water for use during construction.
 2. Remove temporary piping and connections and restore affected portions of the facility to original condition before Substantial Completion.
 3. Pay for water used for construction prior to Substantial Completion. OWNER will provide water for 7-day final test.
- E. Temporary Sanitary Facilities:
1. Provide suitable and adequate sanitary facilities that are in compliance with applicable Laws and Regulations.
 2. At completion of the Work, remove sanitary facilities and leave site in neat and sanitary condition.
- F. Temporary Fire Protection: Provide sufficient number of fire extinguishers of type and capacity required to protect the Work and ancillary facilities.
- G. First Aid: Post first aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations in readily accessible locations.
- H. Utilities in Existing Facilities: See Section 01 14 00, WORK RESTRICTIONS.
- 1.8 CONSTRUCTION AIDS
- A. Provide railings, kick plates, enclosures, safety devices, and controls required by Laws and Regulations and as required for adequate protection of life and property.
- B. Use construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities of ample size and capacity to adequately support and move loads.
- C. Design temporary supports with adequate safety factor to assure adequate load bearing capability:

1. When requested, submit design calculations by professional registered engineer prior to application of loads.
 2. Submitted design calculations are for information and record purposes only.
- D. Accident Prevention:
1. Exercise precautions throughout construction for protection of persons and property.
 2. Observe safety provisions of applicable Laws and Regulations.
 3. Guard machinery and equipment, and eliminate other hazards.
 4. Make reports required by authorities having jurisdiction, and permit safety inspections of the Work.
 5. Before commencing construction work, take necessary action to comply with provisions for safety and accident prevention.
- E. Barricades:
1. Place barriers at ends of excavations and along excavations to warn pedestrian and vehicular traffic of excavations.
 2. Provide barriers with flashing lights after dark.
 3. Keep barriers in place until excavations are entirely backfilled and compacted.
 4. Barricade excavations to prevent persons from entering excavated areas in streets, roadways, parking lots, treatment plants, or other public or private areas.
- F. Warning Devices and Barricades: Adequately identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers:
1. Devices shall conform to minimum requirements of OSHA and State agency which administers OSHA regulations where Project is located.
- G. Hazards in Public Right-of-Way:
1. Mark at reasonable intervals, trenches and other continuous excavations in public right-of-way, running parallel to general flow of traffic, with traffic cones, barricades, or other suitable visual markers during daylight hours:
 - a. During hours of darkness, provide markers with torches, flashers, or other adequate lights.
 2. At intersections or for pits and similar excavations, where traffic may reasonably be expected to approach head on, protect excavations by continuous barricades:
 - a. During hours of darkness, provide warning lights at close intervals.
- H. Hazards in Protected Areas: Mark or guard excavations in areas from which public is excluded, in manner appropriate for hazard.
- I. Above Grade Protection: On multi-level structures, provide safety protection that meets requirements of OSHA and State agency which administers OSHA regulations where Project is located.
- J. Protect existing structures, trees, shrubs, and other items to be preserved on Project site from injury, damage or destruction by vehicles, equipment, worker or other agents with substantial barricades or other devices commensurate with hazards.
- K. Fences:
1. Enclose site of the Work with fence adequate to protect the Work against acts of theft, violence and vandalism.
 2. Enclose temporary offices and storage areas with fence adequate to protect temporary facilities against acts of theft, violence and vandalism.
 3. When entire or part of site is to be permanently fenced, permanent fence may be built to serve for both permanent and temporary protection of the work site, provided that damaged or defaced fencing is replaced prior to Substantial Completion.

4. Protect temporary and permanent openings and close openings in existing fences to prevent intrusion by unauthorized persons. Bear responsibility for protection of plant and material on site of the Work when openings in existing fences are not closed.
5. During night hours, weekends, holidays, and other times when no work is performed at site, provide temporary closures or enlist services of security guards to protect temporary openings.
6. Fence temporary openings when openings are no longer necessary.
7. Place temporary fencing along property line as shown on plans. Temporary fencing shall be certified to handle longhorn cattle. Temporary fencing shall be regularly inspected by Contractor. If fencing fails and cattle escape, costs to round up cattle will be at the cost of the Contractor and incidental to the project. In case of damage to cattle, or caused by cattle, said damages will be the responsibility of the Contractor.

1.9 SECURITY

- A. Make adequate provision for protection of the work area against fire, theft, and vandalism, and for protection of public against exposure to injury.

1.10 ACCESS ROADS

- A. General:
 1. Build and maintain access roads to and on site of the Work to provide for delivery of material and for access to existing and operating plant facilities on site.
 2. Build and maintain dust free roads which are suitable for travel at 20 miles per hour.
- B. Off-Site Access Roads:
 1. Build and maintain graded earth roads.
 2. Build roads only in public right-of-way or easements obtained by OWNER.
 3. Obtain rights-of-way or easements when electing to build along other alignment.
- C. On-Site Access Roads:
 1. Maintain access roads to storage areas and other areas to which frequent access is required.
 2. Maintain similar roads to existing facilities on site of the Work to provide access for maintenance and operation.
 3. Protect buried vulnerable utilities under temporary roads with steel plates, wood planking, or bridges.
 4. Maintain on-site access roads free of mud. Under no circumstances shall vehicles leaving the site track mud off the site onto the public right-of-way.

1.11 TEMPORARY CONTROLS

- A. Dust Control:
 1. Prevent dust nuisance caused by operations, unpaved roads, excavation, backfilling, demolition, or other activities.
 2. Control dust by sprinkling with water, use of dust palliatives, modification of operations, or other means acceptable to agencies having jurisdiction.
- B. Noise Control:
 1. In inhabited areas, particularly residential, perform operations in manner to minimize noise.
 2. In residential areas, take special measures to suppress noise during night hours.
- C. Mud Control:
 1. Prevent mud nuisance caused by construction operations, unpaved roads, excavation, backfilling, demolition, or other activities.

1.12 PROJECT SIGN

- A. Provide and maintain Project identification sign consisting of painted 8 foot wide by 4 foot high exterior grade plywood and minimum 10 foot long 4 by 4 lumber posts, set in ground at least 3 feet, with exhibit lettering by professional sign painter using no more than 5 sign colors:
 - 1. List at least the title of the Project, and names of the OWNER, ENGINEER, and CONTRACTOR.
- B. Erect Project identification sign where directed.

1.13 REMOVAL

- A. Remove temporary buildings and furnishings before inspection for Substantial Completion or when directed.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Remove underground installations to minimum depth of 24 inches and grade to match surrounding conditions.
- D. Restore existing facilities used during construction to specified or original condition.

1.14 TEMPORARY PROCESS PIPING

- A. CONTRACTOR shall provide all piping, appurtenances, and other materials as required to provide temporary piping systems as specified herein, as indicated on the Drawings, and as needed to perform the Work.
- B. CONTRACTOR shall field route piping as needed and as field conditions dictate, unless otherwise indicated on the Drawings, and determine appropriate lengths of piping and quantity/type of pipe fittings needed to construct temporary piping system. Do not block access points such as stairs, doors, and walkways to existing facilities unless approved in writing by the OWNER.
- C. Restrain piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
 - 1. When piping is buried, use concrete thrust block or mechanical restraints.
 - 2. When piping is exposed or under water, use mechanical or structural restraints.
 - 3. Determine thrust forces by multiplying the nominal cross sectional area of the piping by the operating pressure of the piping.
- D. Temporary piping systems shall be installed in a manner that will not damage existing or new facilities.
- E. Unless indicated otherwise, piping material, including gaskets, shall be suitable for the process fluid requiring temporary piping.
- F. After Temporary Piping System is no longer required:
 - 1. Remove temporary piping system.
 - 2. Clean and repair damage caused by installation or use of temporary piping system.
 - 3. Restore existing facilities to original condition.

1.15 TEMPORARY PROCESS PUMPING

- A. For this contract, no temporary pumping is believed to be required to complete the work. To achieve the Contractor's plan to complete the work, Contractor may require and shall provide temporary pumping system to pump flow as required to complete the work.
 - 1. Anticipated pressure will vary based on headlosses developed and the final length of installed temporary piping. CONTRACTOR shall calculate headlosses and provide pump with sufficient pressure to meet flow requirements. Calculations shall be sealed and signed by a professional engineer registered in the state in which the project is located.
 - 2. Pump(s) shall be capable of passing a solid with a sphere size of 3 inches.
 - 3. Temporary pumps shall be capable of matching plant flow rates through the use of variable flow rate pumping. The use of cycled pumping (i.e, on/off) is not acceptable. Provide all wiring and controls necessary to match plant flow rate based on 4-20 mA signal available at the Operations Building.
 - 4. Provide and pay for all power required to operate temporary pumps.
 - 5. All electrical and instrumentation components will comply with applicable code requirements for the area where the temporary pump is located.
 - 6. Temporary pumping will be required 24 hours per day during the time period when pumping is required and is critical to the proper operation of the OWNER'S treatment plant. Provide 24-hour on-site supervision of pumps to ensure that pumps are always operational and performing as required. Notify the OWNER immediately if temporary pumping cannot be provided.
 - 7. CONTRACTOR shall be responsible for repairing any damage or reimbursing the OWNER for any regulatory fines or additional plant staff time resulting from the CONTRACTOR'S failure to maintain temporary pumping.
 - 8. Provide 100 percent backup (a.k.a., standby, redundant, etc.) pumping capacity equal to the required process flow rate. Backup system shall be capable of providing required pumping capacity immediately upon failure of primary pumping system.
 - 9. All necessary spare equipment and appurtenances shall be available on-site to allow immediate repair and/or replacement of any pumping system component that is not functioning properly.
- B. Providing temporary piping systems as specified in Paragraph 1.14.
- C. Temporary pumping of other process flows is not allowed unless approved in writing by the OWNER.
- D. After Temporary Process Pumping System is no Longer Required:
 - 1. Remove temporary process pumping system.
 - 2. Clean and repair damage caused by installation or use of temporary process pumping system.
 - 3. Restore existing facilities to original condition.

PART 2 - PRODUCTS

2.1 FIELD OFFICES AND SHEDS

- A. CONTRACTOR's Field Office:
 - 1. Maintain on Project Site weathertight space in which to keep copies of Contract Documents, progress schedule, shop drawings, and other relevant documents.
 - 2. Provide field office with adequate space to examine documents, and provide lighting and telephone service in that space.
- B. ENGINEER's Field Office:
 - 1. Not Applicable

PART 3 - EXECUTION

3.1 ENGINEER'S FIELD OFFICE

- A. Not Applicable

3.2 TEMPORARY UTILITIES

A. Power:

1. Electric power will be available at or near Site. Determine type and amount available and make arrangements for obtaining temporary electric power service, metering equipment, and pay all costs for electric power used during contract period, except for portions of the Work designated in writing by Engineer as substantially complete.
2. Cost of electric power will be borne by Contractor.

- B. Lighting: Provide temporary lighting to meet applicable safety requirements to allow erection, application, or installation of materials and equipment, and observation or inspection of the Work.

C. Heating, Cooling, and Ventilating:

1. Provide as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for installation of materials, and to protect materials, equipment, and finishes from damage due to temperature or humidity. Costs for temporary heat shall be borne by Contractor.
2. Provide adequate forced air ventilation of enclosed areas to cure installed materials, to dispense humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases.
3. Pay all costs of installation, maintenance, operation, removal, and fuel consumed.
4. Provide portable unit heaters, complete with controls, oil- or gas-fired, and suitably vented to outside as required for protection of health and property.

D. Water:

1. Potable water is available at the site. Secure written permission for connection and use from Owner and meet requirements for use. Contractor shall pay cost to connect water during construction. Owner shall pay cost to for water used during construction.
2. Include costs to connect and transport water to construction areas in Contract Price.
3. Provide a means to prevent water used for testing from flowing back into source pipeline.

E. Sanitary and Personnel Facilities:

1. Provide and maintain facilities for Contractor's employees, Subcontractors, and all other onsite employers' employees. Service, clean, and maintain facilities and enclosures.

F. Telephone Service:

1. Contractor: Arrange and provide onsite telephone service for use during construction by Contractor. Pay costs of installation and monthly bills.
2. Engineer: Arrange and provide onsite telephone system for use during construction. Pay for all installation and basic monthly billing charges.
3. No incoming calls allowed to Owner's plant telephone system.

- G. Fire Protection: Furnish and maintain on Site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable parts of National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241).

3.3 PROTECTION OF WORK AND PROPERTY

- A. General:

1. Perform Work within right-of-way and easements in a systematic manner that minimizes inconvenience to property owners and the public.
 2. Schedule the Work so construction will not interfere with irrigation of cultivated lands or pasturelands. Construction may proceed during irrigation season, provided Contractor constructs temporary irrigation ditches, turnouts, and miscellaneous structures acceptable to property owners.
 3. Provide continuous access for livestock through farm areas. Do not cut off ready access to portions of farmlands in which livestock are pastured. Maintain existing fences required to restrain livestock. Keep gates closed and secure.
 4. Maintain in continuous service all existing oil and gas pipelines, underground power, telephone or communication cable, water mains, irrigation lines, sewers, poles and overhead power, and all other utilities encountered along line of the Work, unless other arrangements satisfactory to owners of said utilities have been made.
 5. Where completion of the Work requires temporary or permanent removal or relocation of existing utility, coordinate all activities with owner of said utility and perform all work to their satisfaction.
 6. Protect, shore, brace, support, and maintain underground pipes, conduits, drains, and other underground utility construction uncovered or otherwise affected by construction operations.
 7. In areas where Contractor's operations are adjacent to or near a utility, such as gas, telephone, television, electric power, water, sewer, or irrigation system, and such operations may cause damage or inconvenience, suspend operations until arrangements necessary for protection have been made by Contractor.
 8. Notify property owners and utility offices that may be affected by construction operation at least 2 days in advance: Before exposing a utility, obtain utility owner's permission. Should service of a utility become interrupted due to Contractor's operation, notify proper authority immediately. Cooperate with said authority in restoring service as promptly as possible and bear costs incurred.
 9. Do not impair operation of existing sewer system. Prevent construction material, pavement, concrete, earth, volatile and corrosive wastes, and other debris from entering sewers, pump stations, or other sewer structures.
 10. Maintain original Site drainage wherever possible.
- B. Site Security:
1. Erect a temporary security fence for protection of existing facilities. Maintain fence throughout construction period. Obtain Engineer's written permission before removal of temporary security fencing.
 2. Provide and maintain additional temporary security fences as necessary to protect the Work and Contractor-furnished products not yet installed.
- C. Barricades, Lights, Signs, and Equipment:
1. Provide as required by the Department of Transportation in the state having jurisdiction and in sufficient quantity to safeguard public and the Work.
 2. Provide as necessary to prevent unauthorized entry to construction areas and affected roads, streets, and alleyways, inside and outside of fenced area, and as required to ensure public safety and the safety of Contractor's employees, other employer's employees, and others who may be affected by the Work.
 3. Provide to protect existing facilities and adjacent properties from potential damage.
 4. Locate to enable access by facility operators and property owners.
 5. Protect streets, roads, highways, and other public thoroughfares that are closed to traffic by effective barricades with acceptable warning signs.
 6. Locate barricades at the nearest intersecting public thoroughfare on each side of the blocked section.
 7. Illuminate barricades and obstructions with warning lights from sunset to sunrise.
- D. Trees and Plantings:

1. Protect from damage and preserve trees, shrubs, and other plants outside limits of the Work and within limits of the Work, which are designated on the Drawings to remain undisturbed.
- E. Existing Structures:
1. Where Contractor contemplates removal of small structures such as mailboxes, signposts, and culverts that interfere with Contractor's operations, obtain approval of property owner and Engineer.
 2. Move mailboxes to temporary locations accessible to postal service.
 3. Replace items removed in their original location and a condition equal to or better than original.
- F. Finished Construction: Protect finished floors and concrete floors exposed as well as those covered with composition tile or other applied surfacing.
- G. Waterways: Keep ditches, culverts, and natural drainages continuously free of construction materials and debris.
- H. Dewatering: Construct, maintain, and operate cofferdams, channels, flume drains, sumps, pumps, or other temporary diversion and protection works. Furnish materials required, install, maintain, and operate necessary pumping and other equipment for the environmentally safe removal and disposal of water from the various parts of the Work. Maintain foundations and parts of the Work free from water.
- 3.4 TEMPORARY CONTROLS
- A. Air Pollution Control:
1. Minimize air pollution from construction operations.
 2. Burning: Of waste materials, rubbish, or other debris will not be permitted on or adjacent to Site.
 3. Conduct operations of dumping rock and of carrying rock away in trucks to cause a minimum of dust. Give unpaved streets, roads, detours, or haul roads used in construction area a dust-preventive treatment or periodically water to prevent dust. Strictly adhere to applicable environmental regulations for dust prevention.
 4. Provide and maintain temporary dust-tight partitions, bulkheads, or other protective devices during construction to permit normal operation of existing facilities. Construct partitions of plywood, insulating board, plastic sheets, or similar material. Construct partitions in such a manner that dust and dirt from demolition and cutting will not enter other parts of existing building or facilities. Remove temporary partitions as soon as need no longer exists.
- B. Noise Control:
1. Noise Control Plan: Propose plan to mitigate construction noise and to comply with noise control ordinances, including method of construction, equipment to be used, and acoustical treatments.
- C. Water Pollution Control:
1. Divert sanitary sewage and non-storm waste flow interfering with construction and requiring diversion to sanitary sewers. Do not cause or permit action to occur which would cause an overflow to existing waterway.
 2. Prior to commencing excavation and construction, obtain Engineer's agreement with detailed plans showing procedures intended to handle and dispose of sewage, groundwater, and storm water flow, including dewatering pump discharges.
 3. Comply with procedures outlined in U.S. Environmental Protection Agency manuals entitled, "Guidelines for Erosion and Sedimentation Control Planning," "Implementation,

Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity,” and “Erosion and Sediment Control- Surface Mining in Eastern United States.”

4. Do not dispose of volatile wastes such as mineral spirits, oil, chemicals, or paint thinner in storm or sanitary drains. Disposal of wastes into streams or waterways is prohibited. Provide acceptable containers for collection and disposal of waste materials, debris, and rubbish.

- D. Erosion, Sediment, and Flood Control: Provide, maintain, and operate temporary facilities to control erosion and sediment releases, and to protect the Work and existing facilities from flooding during construction period.

3.5 STORAGE YARDS AND BUILDINGS

- A. Coordinate requirements with Section 01 60 00, PRODUCT REQUIREMENTS.
- B. Temporary Storage Yards: Construct temporary storage yards for storage of products that are not subject to damage by weather conditions.
- C. Temporary Storage Buildings:
 1. Provide environmental control systems that meet recommendations of manufacturers of equipment and materials stored.
 2. Arrange or partition to provide security of contents and ready access for inspection and inventory.
 3. Store combustible materials (paints, solvents, fuels) in a well-ventilated and remote building meeting safety standards.
 4. Provide, at a minimum, one temporary storage building or storage trailer to house specified spare part during the duration of construction and until spare parts are accepted by Owner and Engineer.

3.6 ACCESS ROADS

- A. Construct access roads as required and within easements, rights-of-way, or Project limits. Obtain Engineer's approval of access roads.
- B. Maintain drainage ways. Install and maintain culverts to allow water to flow beneath access roads. Provide corrosion-resistant culvert pipe of adequate strength to resist construction loads.
- C. Provide gravel, crushed rock, or other stabilization material to permit access by all motor vehicles at all times.
- D. Maintain road grade and crown to eliminate potholes, rutting, and other irregularities that restrict access.
- E. Coordinate with Engineer detours and other operations affecting traffic and access. Provide at least 72 hours notice to Engineer of operations that will alter access to the Site.
- F. Where access road crosses existing fences, install and maintain gates.
- G. Upon completion of construction, restore ground surface disturbed by access road construction to original grade. Replace damaged or broken culverts with new culvert pipe of same diameter and material.

3.7 PARKING AREAS

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. Provide parking facilities for personnel working on the Project. No employee or equipment parking will be permitted on Owner's existing parking areas, except as specifically designated for Contractor's use.

3.8 VEHICULAR TRAFFIC

- A. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways. No public or private road shall be closed, except by written permission of proper authority. Assure the least possible obstruction to traffic and normal commercial pursuits.
- B. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.
- C. Whenever it is necessary to cross, close, or obstruct roads, driveways, and walks, whether public or private, provide and maintain suitable and safe bridges, detours, or other temporary expedients for accommodation of public and private travel.
- D. Coordinate traffic routing with that of others working in same or adjacent areas.

3.9 CLEANING DURING CONSTRUCTION

- A. In accordance with General Conditions, as may be specified in other Specification sections, and as required herein.
- B. Wet down exterior surfaces prior to sweeping to prevent blowing of dust and debris. At least weekly, sweep all floors (basins, tunnels, platforms, walkways, roof surfaces), and pick up all debris and dispose.
- C. Provide approved containers for collection and disposal of waste materials, debris, and rubbish. At least at weekly intervals, dispose of such waste materials, debris, and rubbish offsite.
- D. At least weekly, brush sweep entry drive and roadways, and all other streets and walkways affected by the Work and where adjacent to the Work.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 57 13 – STORM WATER POLLUTION PREVENTION (SWPPP)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Procedures for Storm Water Pollution Prevention Plans
- B. Related Specification Sections include, but are not necessarily limited to:
 - 1. Division 01 50 00 – Temporary Facilities and Controls

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Construction Activities resulting in less than 1 acre of disturbance
 - a. Work associated with this Item is considered subsidiary to the various Items bid. No separate payment will be allowed for this Item.
 - 2. Construction Activities resulting in greater than 1 acre of disturbance
 - a. Measurement and Payment shall be in accordance with Section 01 22 00.

1.3 REFERENCES

- A. Abbreviations and Acronyms
 - 1. Notice of Intent: NOI
 - 2. Notice of Termination: NOT
 - 3. Storm Water Pollution Prevention Plan: SWPPP
 - 4. Texas Commission on Environmental Quality: TCEQ
 - 5. Notice of Change: NOC
- A. Reference Standards
 - 1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification, unless a date is specifically cited.
 - 2. Integrated Storm Management (iSWM) Technical Manual for Construction Controls

1.4 ADMINISTRATIVE REQUIREMENTS

- A. General
 - 1. Contractor is responsible for resolution and payment of any fines issued associated with compliance to Stormwater Pollution Prevention Plan.
- B. Construction Activities resulting in:
 - 1. Less than 1 acre of disturbance
 - a. Provide erosion and sediment control in accordance with Drawings.
 - 2. 1 to less than 5 acres of disturbance
 - a. Texas Pollutant Discharge Elimination System (TPDES) General Construction Permit is required
 - b. Complete SWPPP in accordance with TCEQ requirements
 - 1) TCEQ Small Construction Site Notice Required under general permit TXR150000
 - a) Sign and post at job site

- b) Prior to Preconstruction Meeting, provide one (1) copy to City Department of Transportation and Public Works, Environmental Division.
 - 2) Provide erosion and sediment control in accordance with:
 - a) The Drawings
 - b) TXR150000 General Permit
 - c) SWPPP
 - d) TCEQ requirements
- 3. 5 acres or more of Disturbance
 - a. Texas Pollutant Discharge Elimination System (TPDES) General Construction Permit is required
 - b. Complete SWPPP in accordance with TCEQ requirements
 - 1) Prepare a TCEQ NOI form and submit to TCEQ along with required fee
 - a) Sign and post at job site
 - b) Send copy to City Department of Transportation and Public Works, Environmental Division.
 - 2) TCEQ Notice of Change required if making changes or updates to NOI
 - 3) Provide erosion and sediment control in accordance with:
 - a) The Drawings
 - b) TXR150000 General Permit
 - c) SWPPP
 - d) TCEQ requirements
 - 4) Once the project has been completed and all the closeout requirements of TCEQ have been met a TCEQ Notice of Termination can be submitted.
 - a) Send copy to City Department of Transportation and Public Works, Environmental Division.

1.5 SUBMITTALS

A. SWPPP

- 1. Submit in accordance with Section 01 33 00, except as stated herein.
 - a. Prior to the Preconstruction Meeting, submit a draft copy of SWPPP to the City as follows:
 - 1) 1 copy to the City Project Manager
 - a) City Project Manager will forward to the City Department of Transportation and Public Works, Environmental Division for review

B. Modified SWPPP

- 1. If the SWPPP is revised during construction, resubmit modified SWPPP to the City in accordance with Section 01 33 00.

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION [NOT USED]

END OF SECTION

SECTION 01 57 14 – TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Installation of Traffic Control Devices and preparation of Traffic Control Plans

B. Related Specification Sections include, but are not necessarily limited to:

1. Division 01 50 00 – Temporary Facilities and Controls

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Installation of Traffic Control Devices

a. Measurement

- 1) Measurement for Traffic Control Devices shall be per month for the Project duration.

- a) A month is defined as 30 calendar days.

b. Payment

- 1) The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" shall be paid for at the unit price bid for "Traffic Control" as described in Specification Section 01 22 00 Measurement and Payment.

c. The price bid shall include:

- 1) Traffic Control implementation
- 2) Installation
- 3) Maintenance
- 4) Adjustments
- 5) Replacements
- 6) Removal
- 7) Police assistance during peak hours

2. Portable Message Signs

a. Measurement

- 1) Measurement for this Item shall be per week for the duration of use.

b. Payment

- 1) The work performed and materials furnished in accordance to this Item and measured as provided under "Measurement" shall be paid for at the unit price bid per week for "Portable Message Sign" rental.

c. The price bid shall include:

- 1) Delivery of Portable Message Sign to Site
- 2) Message updating
- 3) Sign movement throughout construction
- 4) Return of the Portable Message Sign post-construction

3. Preparation of Traffic Control Plan Details

a. Measurement

- 1) Measurement for this Item be per each Traffic Control Detail prepared.

b. Payment

- 1) The work performed and materials furnished in accordance with this Item shall be paid for at the unit price bid per each "Traffic Control Detail" prepared.

c. The price bid shall include:

- 1) Preparing the Traffic Control Plan Details for closures of 24 hours or longer

- 2) Adherence to City and Texas Manual on Uniform Traffic Control Devices (TMUTCD)
- 3) Obtaining the signature and seal of a licensed Texas Professional Engineer
- 4) Incorporation of City comments

1.3 REFERENCES

A. Reference Standards

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification, unless a date is specifically cited.
2. Texas Manual on Uniform Traffic Control Devices (TMUTCD).
3. Item 502, Barricades, Signs, and Traffic Handling of the Texas Department of Transportation, Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. Contact Traffic Services Division (817-392-7738) a minimum of 48 hours prior to implementing Traffic Control within 500 feet of a traffic signal.

B. Sequencing

1. Any deviations to the Traffic Control Plan included in the Drawings must be first approved by the City and design Engineer before implementation.

1.5 SUBMITTALS

- A. Provide the City with a current list of qualified flaggers before beginning flagging activities. Use only flaggers on the qualified list.
- B. Obtain a Street Use Permit from the Street Management Section of the Traffic Engineering Division, 311 W. 10th Street. The Traffic Control Plan (TCP) for the Project shall be as detailed on the Traffic Control Plan Detail sheets of the Drawing set. A copy of this Traffic Control Plan shall be submitted with the Street Use Permit.
- C. Traffic Control Plans shall be signed and sealed by a licensed Texas Professional Engineer.
- D. Contractor shall prepare Traffic Control Plans if required by the Drawings or Specifications. The Contractor will be responsible for having a licensed Texas Professional Engineer sign and seal the Traffic Control Plan sheets.
- E. Lane closures 24 hours or longer shall require a site-specific traffic control plan.
- F. Contractor responsible for having a licensed Texas Professional Engineer sign and seal changes to the Traffic Control Plan(s) developed by the Design Engineer.
- G. Design Engineer will furnish standard details for Traffic Control.

PART 2 - PRODUCTS

2.1 ASSEMBLIES AND MATERIALS

A. Description

1. Regulatory Requirements
 - a. Provide Traffic Control Devices that conform to details shown on the Drawings, the TMUTCD, and TxDOT's Compliant Work Zone Traffic Control Device List (CWZTCDL).
2. Materials

- a. Traffic Control Devices must meet all reflectivity requirements included in the TMUTCD and TxDOT Specifications – Item 502 at all times during construction.
- b. Electronic message boards shall be provided in accordance with the TMUTCD.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection of In-Place Conditions
 - 1. Protect existing traffic signal equipment.

3.2 INSTALLATION

- A. Follow the Traffic Control Plan (TCP) and install Traffic Control Devices as shown on the Drawings and as directed.
- B. Install Traffic Control Devices straight and plumb.
- C. Do not make changes to the location of any device or implement any other changes to the Traffic Control Plan without the approval of the Engineer.
 - 1. Minor adjustments to meet field constructability and visibility are allowed.
- D. Maintain Traffic Control Devices by taking corrective action as soon as possible.
 - 1. Corrective action includes but is not limited to cleaning, replacing, straightening, covering, or removing Devices.
 - 2. Maintain the Devices such that they are properly positioned, spaced, and legible, and that retroreflective characteristics meet requirements during darkness and rain.
- E. If the Inspector discovers that the Contractor has failed to comply with applicable federal and state laws (by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs, or other precautionary measures for the protection of persons or property), the Inspector may order such additional precautionary measures be taken to protect persons and property.
- F. Subject to the approval of the Inspector, portions of this Project, which are not affected by or in conflict with the proposed method of handling traffic or utility adjustments, can be constructed during any phase.
- G. Barricades and signs shall be placed in such a manner as to not interfere with the sight distance of drivers entering the highway from driveways or side streets.
- H. To facilitate shifting, barricades and signs used in lane closures or traffic staging may be erected and mounted on portable supports.
 - 1. The support design is subject to the approval of the Engineer.
- I. Lane closures shall be in accordance with the approved Traffic Control Plans.
- J. If at any time the existing traffic signals become inoperable as a result of construction operations, the Contractor shall provide portable stop signs with 2 orange flags, as approved by the Engineer, to be used for Traffic Control.
- K. Contractor shall make arrangements for police assistance to direct traffic if traffic signal turn-ons, street light pole installation, or other construction will be done during peak traffic times (AM: 7 am – 9 am, PM: 4 pm - 6 pm).
- L. Flaggers
 - 1. Provide a Contractor representative who has been certified as a flagging instructor through courses offered by the Texas Engineering Extension Service, the American Traffic Safety Services Association, the National Safety Council, or other approved organizations.

- a. Provide the certificate indicating course completion when requested.
 - b. This representative is responsible for training and assuring that all flaggers are qualified to perform flagging duties.
 2. A qualified flagger must be independently certified by 1 of the organizations listed above or trained by the Contractor's certified flagging instructor.
 3. Flaggers must be courteous and able to effectively communicate with the public.
 4. When directing traffic, flaggers must use standard attire, flags, signs, and signals and follow the flagging procedures set forth in the TMUTCD.
 5. Provide and maintain flaggers at such points and for such periods of time as may be required to provide for the safety and convenience of public travel and Contractor's personnel, and as shown on the Drawings or as directed by the Engineer.
 - a. These flaggers shall be located at each end of the lane closure.
- M. Removal
1. Upon completion of Work, remove from the Site all barricades, signs, cones, lights and other Traffic Control Devices used for work-zone traffic handling in a timely manner, unless otherwise shown on the Drawings.

END OF SECTION

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 DEFINITIONS

A. Products:

1. New items for incorporation in the Work whether purchased by Contractor or Owner for the Project, or taken from previously purchased stock and may also include existing materials or components required for reuse.
2. Includes the terms material, equipment, machinery, components, subsystem, system, hardware, software, and terms of similar intent and is not intended to change meaning of such other terms used in Contract Documents, as those terms are self-explanatory and have well recognized meanings in construction industry.
3. Items identified by Manufacturer's product name, including make or model designation, indicated in Manufacturer's published product literature, that is current as of the date of the Contract Documents.

1.2 DESIGN REQUIREMENTS

- A. Where Contractor design is specified, design of installation, systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of latest edition of International Building Code (IBC) by International Code Council.

1.3 ENVIRONMENTAL REQUIREMENTS

- A. Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at elevations shown on Drawings.
- B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient temperature range of 0 °F to 104 °F.

1.4 PREPARATION FOR SHIPMENT

- A. When practical, have the factory assemble products, mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements with strippable protective coating.
- B. Package products to facilitate handling and protect from damage during shipping, handling, and storage. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, name of Project and Contractor, equipment number, and approximate weight. Include complete packing list and bill of materials with each shipment.
- C. Extra Materials, Special Tools, Test Equipment, and Expendables:
 1. Furnish as Required by Individual Specifications.
 2. Schedule:
 - a. Ensure that shipment and delivery occur concurrently with shipment of associated equipment.
 - b. Transfer to Owner shall occur immediately subsequent to Contractor's acceptance of equipment from Supplier.
 3. Packaging and Shipment:
 - a. Package and ship extra materials and special tools to avoid damage during long term storage in original cartons insofar as possible, or in appropriately sized, hinged-cover, wood, plastic, or metal box.
 - b. Prominently Displayed on Each Package, the Following:

- 1). Manufacturer's part nomenclature and number, consistent with Operation and Maintenance Manual identification system.
 - 2). Applicable equipment description.
 - 3). Quantity of parts in package.
 - 4). Equipment manufacturer.
 4. Deliver materials to the site.
 5. Notify Engineer upon arrival for transfer of materials.
 6. Replace extra materials and special tools found to be damaged or otherwise inoperable at time of transfer to Owner.
- D. Request a minimum 7-day advance notice of shipment from manufacturer. Upon receipt of Manufacturer's advance notice of shipment, promptly notify Engineer of anticipated date of equipment arrival.
- E. Factory Test Results: Reviewed and accepted by Engineer before product shipment as required in individual Specification sections.

1.5 DELIVERY AND INSPECTION

- A. Deliver products in accordance with accepted current Progress Schedule and coordinate to avoid conflict with the Work and conditions at Site. Deliver anchor bolts and templates sufficiently early to permit setting prior to placement of structural concrete.
- B. Deliver products in undamaged condition, in Manufacturer's original container or packaging, with identifying labels intact and legible. Include on label, date of manufacture and shelf life, where applicable.
- C. Unload products in accordance with Manufacturer's instructions for unloading or as specified, and record receipt of products at Site. Promptly inspect for completeness and evidence of damage during shipment.
- D. Remove damaged products from Site, and expedite delivery of identical new undamaged products, and remedy incomplete or lost products to provide that specified, so as not to delay progress of the Work.

1.6 HANDLING, STORAGE, AND PROTECTION

- A. Handle and store products in accordance with Manufacturer's written instructions and in a manner to prevent damage. Store in approved storage yards or sheds provided in accordance with Section 01 50 00, TEMPORARY FACILITIES AND CONTROLS. Provide Manufacturer's recommended maintenance during storage, installation, and until products are accepted for use by Owner.
- B. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration. Keep running account of products in storage to facilitate inspection and to estimate progress payments for products delivered, but not installed in the Work.
- C. Store electrical, instrumentation, and control products, and equipment with bearings in weather-tight structures maintained above 60 °F. Protect electrical, instrumentation, and control products, and insulation against moisture, water, and dust damage. Connect and operate continuously all space heaters furnished in electrical equipment.

- D. Store fabricated products above ground on blocking or skids, prevent soiling or staining, and store loose granular materials in well-drained area on solid surface to prevent mixing with foreign matter. Cover products that are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
- E. Store finished products that are ready for installation in dry and well-ventilated areas. Do not subject to extreme changes in temperature or humidity.
- F. After installation, provide coverings to protect products from damage due to traffic and construction operations. Remove coverings when no longer needed.
- G. Hazardous Materials: Prevent contamination of personnel, storage building, and Site. Meet requirements of product specification, codes, and manufacturer's instructions.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide the Manufacturers standard materials suitable for service conditions unless otherwise specified in the individual Specifications.
- B. Where product specifications include a named Manufacturer, with or without model number, and also include performance requirements, named Manufacturer's products must meet the performance specifications.
- C. Like items of products furnished and installed in the Work shall be end products of one Manufacturer and of the same series or family of models to achieve standardization for appearance, operation and maintenance, spare parts and replacement, Manufacturer's services, and implement same or similar process instrumentation and control functions in same or similar manner.
- D. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- E. Provide interchangeable components of the same Manufacturer, for similar components, unless otherwise specified.
- F. Equipment, components, systems, sub-systems: Design and manufacture with due regard for health and safety of operation, maintenance, and accessibility, durability of parts, and shall comply with applicable OSHA, State, and local health and safety regulations.
- G. Regulatory Requirement: Coating materials shall meet Federal, State, and local requirements limiting the emission of volatile organic compounds and for worker exposure.
- H. Safety Guards: Provide for all belt or chain drives, fan blades, couplings, or other moving or rotary parts. Cover rotating part on all sides. Design for easy installation and removal. Use 16-gauge or heavier; galvanized steel, aluminum coated steel, or galvanized or aluminum coated ½" mesh expanded steel. Provide galvanized steel accessories and supports, including bolts. For outdoors application, prevent entrance of rain and dripping water.
- I. Authority Having Jurisdiction (AHJ):
 - 1. Provide the Work in accordance with the **Texas** Fire Code that incorporates the **2019** International Building Code [with **Texas** Amendments]. Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing

laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.

2. Materials and equipment manufactured within the scope of standards published by Underwriters Laboratories, Inc. shall conform to those standards and shall have an applied UL listing mark.

J. Equipment Finish:

1. Provide Manufacturer's standard finish and color, except where specific color is indicated.
2. If Manufacturer has no standard color, provide equipment with gray finish as approved by Engineer.

- K. Special Tools and Accessories: Furnish to Owner, upon acceptance of equipment, all accessories required to place each item of equipment in full operation. These accessory items include, but are not limited to, adequate oil and grease (as required for first lubrication of equipment after field testing), light bulbs, fuses, hydrant wrenches, valve keys, hand wheels, chain operators, special tools, and other spare parts as required for maintenance.

- L. Lubricant: Provide initial lubricant recommended by equipment Manufacturer in sufficient quantity to fill lubricant reservoirs and to replace consumption during testing, startup, and operation until final acceptance by Owner.

2.2 FABRICATION AND MANUFACTURE

A. General:

1. Manufacture parts to U.S.A. standard sizes and gauges.
2. Two or more items of the same type shall be identical, by the same Manufacturer, and interchangeable.
3. Design structural members for anticipated shock and vibratory loads.
4. Use 1/4" minimum thickness for steel that will be submerged, wholly or partially, during normal operation.
5. Modify standard products as necessary to meet performance Specifications.

B. Lubrication System:

1. Require no more than weekly attention during continuous operation.
2. Convenient and accessible. Oil drains with bronze or stainless steel valves and fill-plugs easily accessible from the normal operating area or platform.
3. Locate drains to allow convenient collection of oil during oil changes without removing equipment from its installed position.
4. Provide constant-level oilers or oil level indicators for oil lubrication systems.
5. For grease type bearings, which are not easily accessible, provide and install stainless steel tubing; protect and extend tubing to convenient location with suitable grease fitting.

2.3 SOURCE QUALITY CONTROL

- A. Where Specifications call for factory testing to be witnessed by Engineer, notify Engineer not less than 14 days prior to scheduled test date, unless otherwise specified.
- B. Calibration Instruments: Bear the seal of a reputable laboratory certifying instrument has been calibrated within the previous 12 months to a standard endorsed by the National Institute of Standards and Technology (NIST).
- C. Factory Tests: Perform in accordance with accepted test procedures and document successful completion.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect materials and equipment for signs of pitting, rust decay, or other deleterious effects of storage. Do not install material or equipment showing such effects. Remove damaged material or equipment from the Site and expedite delivery of identical new material or equipment. Delays to the Work resulting from material or equipment damage that necessitates procurement of new products will be considered delays within Contractor's control.

3.2 INSTALLATION

- A. Equipment Drawings show general locations of equipment, devices, and raceway, unless specifically dimensioned.
- B. No shimming between machined surfaces is allowed.
- C. Install the Work in accordance with NECA Standard of Installation, unless otherwise specified.
- D. Repaint painted surfaces that are damaged prior to equipment acceptance.
- E. Do not cut or notch any structural member or building surface without specific approval of Engineer.
- F. Handle, install, connect, clean, condition, and adjust products in accordance with Manufacturer's instructions, and as may be specified. Retain a copy of Manufacturers' instruction at Site, available for review at all times.
- G. For material and equipment specifically indicated or specified to be reused in the Work:
 - 1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
 - 2. Arrange for transportation, storage, and handling of products that require offsite storage, restoration, or renovation. Include costs for such Work in the Contract Price.

3.3 FIELD FINISHING

- A. In accordance with Section 09 90 00, PAINTING AND PROTECTIVE COATINGS and individual Specification sections.

3.4 ADJUSTMENT AND CLEANING

- A. Perform required adjustments, tests, operation checks, and other startup activities.

3.5 LUBRICANTS

- A. Fill lubricant reservoirs and replace consumption during testing, startup, and operation prior to acceptance of equipment by Owner.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 72 20 – FIELD ENGINEERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of the required closeout procedures for the project:
 1. Providing and delivering informational submittals.
 2. Preparing, maintaining, providing and delivering Record Documents.
 3. Furnishing Releases from Agreements.
 4. Furnishing Evidence of Compliance with Requirements of Governing Authorities.
 5. Providing Warranties and Bonds.
 6. Providing Certificate of Final Completion.
- B. Related sections:
 1. Section 01 77 00 – Closeout Procedures.

1.2 QUALITY ASSURANCE

- A. Qualifications of Surveyor or Engineer: Registered civil engineer or land surveyor in state where Project is located.
- B. Accuracy of stakes, alignments, and grades may be checked randomly by ENGINEER:
 1. Notice of when checking will be conducted will be given.
 2. When notice of checking is given, postpone parts of the Work affected by stakes, alignments or grades to be checked until checked.
 3. Do not assume that ENGINEER's check substitutes or complements required field quality control procedures.

1.3 CONSTRUCTION STAKES, LINES, AND GRADES

- A. Execute the Work in accordance with the lines and grades indicated.
- B. Make distances and measurements on horizontal planes, except elevations and structural dimensions.

1.4 SURVEY REFERENCE POINTS

- A. Basic reference line, a beginning point on basic reference line, and a benchmark will be provided, by OWNER.
- B. From these reference points, establish other control and reference points as required to properly lay out the Work.
- C. Locate and protect control points prior to starting site work, and preserve permanent reference points during construction:
 1. Make no changes or relocations without prior written notice.
 2. Replace Project control point, when lost or destroyed, in accordance with original survey control.
- D. Set monuments for principal control points and protect them from being disturbed and displaced:
 1. Re-establish disturbed monuments.
 2. When disturbed, postpone parts of the Work that are governed by disturbed monuments until such monuments are re-established.

1.5 PROJECT SURVEY REQUIREMENTS

- A. Establish minimum of 2 permanent benchmarks on site referenced to data established by survey control points.
- B. Record permanent benchmark locations with horizontal and vertical data on Project Record Documents.
- C. Assume responsibility for accuracy of stakes, alignments, and grades by performing verifications and checking in accordance with standard surveying practice.

1.6 RECORD DOCUMENTS

- A. Prepare and submit Record Documents as specified in Section 01 77 00.
- B. Maintain complete, accurate log of control points and survey.
- C. Affix civil engineer's or land surveyor's signature and registration number to Record Drawing to certify accuracy of information shown.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 73 20 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Cutting and patching existing and new construction.
- B. Related sections:
 - 1. Section 01 33 00 – Submittal Procedures.
 - 2. Section 01 60 00 – Product Requirements.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
- B. Cutting and Patching Plan:
 - 1. Submit details of proposed construction before cutting and patching construction commences affecting:
 - a. Work of OWNER or of others.
 - b. Structural integrity of element of Project.
 - 2. Cutting and Patching Plan shall include the following:
 - a. Identification of Work.
 - b. Description of affected construction.
 - c. Necessity for cutting, patching, alteration, or excavation.
 - d. Description of proposed construction.
 - e. Scope of cutting, patching, alteration, or excavation. Verify locations of utilities and facilities which may exist by consulting with the OWNER, utility companies, and the Texas One Call System or other service available in area of Project (see dig/call information on the Drawings):

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Comply with specifications and standards for products involved.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Provide adequate temporary support as necessary to ensure structural integrity of affected portion of Work.
- B. Provide devices and methods to protect other portions of Project from damage and persons from injury.
- C. Provide protection from elements for that portion of Project which may be exposed by cutting and patching, and maintain excavations free from water.

3.2 CUTTING AND PATCHING

- A. Cut, Fit, and Patch when Required to:
 - 1. Make its several parts fit together properly.
 - 2. Remove and replace construction not conforming to Contract Documents.

3. Remove samples of installed construction as specified for testing.
 4. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.
- B. Execute cutting and demolition by methods which will prevent damage and will provide proper surfaces to receive installation of repairs.
- C. Openings in Existing Concrete and Masonry:
1. Create Openings by:
 - a. Saw cutting completely through concrete or masonry, or
 - b. Scoring edges of opening with saw to at least 1 inch depth on both surfaces (when accessible) and removing concrete or masonry by chipping.
 2. Do not allow saw cuts to extend beyond limits of opening.
 3. Make corners square and true by combination of core drilling and grinding or chipping.
 4. Prevent debris from falling into adjacent tanks or channels in service or from damaging existing equipment and other facilities.
- D. Sizing of Openings in Existing Concrete or Masonry:
1. Make openings sufficiently large to permit final alignment of pipe and fittings without deflections.
 2. Allow adequate space for packing around pipes and conduit to ensure watertightness.
- E. Grouting Pipes in Place:
1. Sandblast concrete surfaces and thoroughly clean sand and other foreign material from surfaces prior to placing grout.
 2. Grout pipes, sleeves, castings, and conduits in place by pouring grout under a head of at least 4 inches. Vibrate grout into place. Completely fill the spaces occupied by pipes, sleeves, castings, and conduits.
 3. Water cure the grout.
- F. Connections to Existing Pipes:
1. Cut existing pipe square.
 2. Properly prepare the ends for the connection indicated on the Drawings.
 3. Repair any damage to existing lining and coating.
- G. Rehabilitate all areas affected by removal of existing equipment, equipment pads and bases, piping, supports, electrical panels, electric devices, and conduits such that little or no evidence of the previous installation remains:
1. Fill areas in existing floors, walls, and ceilings from removed piping, conduit and fasteners with non-shrink grout and finish smooth.
 2. Remove Concrete Bases for Equipment and Supports by:
 - a. Saw cutting clean, straight lines with a depth equal to the concrete cover over reinforcement minus 1/2 inch below finished surface. Do not cut existing reinforcement on floors.
 - b. Chip concrete within scored lines and cut exposed reinforcing steel and anchor bolts.
 - c. Patch with non-shrink grout to match adjacent grade and finish.
 3. Terminate abandoned piping and conduits with blind flanges, caps, or plugs.
- H. Treat Existing Concrete Reinforcement as Follows:
1. Where existing reinforcement is to remain, protect, clean, and extend into new concrete.
 2. Where Existing Reinforcement is not to be Retained, Cut Off as Follows:
 - a. Where new concrete joins existing concrete at the removal line, cut reinforcement flush with concrete surface at the removal line.

- b. Where concrete surface at the removal line is the finished surface, cut reinforcement 2 inches below the surface, paint ends with epoxy, and patch holes with dry pack mortar.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 73 40 – WORK WITHIN PUBLIC RIGHT-OF-WAY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for maintenance, support, protection, relocation, reconstruction and adjusting-to-grade, restoration, construction of temporary and new facilities, and abandonment of existing utilities affected by construction work within the public right-of-way.

1.2 REFERENCES

- A. State of Texas, Department of Transportation (TxDOT):
 - 1. Standard Specifications.

1.3 DEFINITIONS

- A. Utility: For purpose of this Section, utility means any public or private service, such as electric light and power systems; gas distribution systems; telephone, telegraph, cable television and other communication services; water distribution; storm drain and sanitary sewer services; police and fire communication systems; street lighting and traffic signs and signals; parking meters; and steam distribution systems.
- B. For Trenching:
 - 1. Open Trench:
 - a. General: Includes excavation, pipe laying, backfilling, and pavement replacement.
 - 2. Any excavated areas shall be considered as "open trench" until all pavement replacement has been made, or until all trenches outside of pavement replacement areas have been backfilled and compacted in accordance with these Contract Documents.

1.4 DESIGN REQUIREMENTS

- A. Trenching:
 - 1. Except where otherwise specified, indicated on the Drawings, or accepted in writing by the ENGINEER, the maximum length of open trench, where construction is in any stage of completion, shall not exceed the linear footage as set forth below. Descriptions under following area designations are general in nature and may be amended in writing by the ENGINEER due to particular or peculiar field conditions:
 - a. Business District Areas C 100 Linear Feet: Store front areas.
 - b. Commercial Areas C 400 Linear Feet: Industrial, shopping centers, churches, schools, hotels, motels, markets, gas stations, government and private office buildings, hospitals, fire and police stations, and nursing homes.
 - c. Residential Areas C 1 Block or 600 Linear Feet, Whichever is the Least: Single and multi-family residences, apartments, and condominiums.
 - d. Undeveloped Areas C 1,000 Linear Feet: Parks, golf courses, farms, undeveloped subdivided land.
 - 2. Completely backfill trenches across streets and install temporary or permanent pavement as soon as possible after pipe laying.
- B. Site Conditions:
 - 1. Use substantial steel plates with adequate trench bracing to bridge across trenches at street and alley crossings, commercial driveways, and residential driveways where trench backfill and temporary patch have not been completed during regular working hours.
 - 2. Provide safe and convenient passage for pedestrians.
 - 3. Maintain access to fire stations, fire hydrant, and hospitals at all times.

4. Provide traffic control devices, barricades and signage as required by the regulating agency.

1.5 SUBMITTALS

- A. Traffic Control Plan: Submit detailed traffic control plan for acceptance by jurisdictional agency.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes description and requirements of the required closeout procedures for the project:
 - 1. Providing and delivering informational submittals.
 - 2. Preparing, maintaining, providing and delivering Record Documents.
 - 3. Furnishing Releases from Agreements.
 - 4. Furnishing Evidence of Compliance with Requirements of Governing Authorities.
 - 5. Providing Warranties and Bonds.
 - 6. Providing Certificate of Final Completion.
- B. Related sections:
 - 1. 01 29 00 – Payment Procedures.
 - 2. 01 32 00 – Construction Progress Documentation.
 - 3. 01 72 20 – Field Engineering.
 - 4. 01 78 23 – Operation and Maintenance Data.
 - 5. 01 79 00 – Demonstration and Training.

1.2 SUBMITTALS

- A. Informational Submittals:
 - 1. Submit Prior to Application for Final Payment.
 - a. Record Documents: As required in General Conditions.
 - b. Approved Shop Drawings and Samples: As required in the General Conditions.
 - c. Operations and Maintenance Manuals: In accordance with Section 01 78 23, and as required in individual Specification sections.
 - d. Certificates of Testing and Inspection: As required in the General Conditions, these General Requirements sections, and the individual Specifications sections.
 - e. Training Sessions: In accordance with Section 01 79 00, and individual Specifications sections.
 - f. Certificate of Substantial Completion.
 - g. Special bonds, Special Guarantees, and Service Agreements.
 - 2. Form of Submittal:
 - a. Bind in commercial quality 8-1/2" by 11" three ring, side binders with hardback, cleanable, plastic covers.
 - 1). Label cover of each binder with typed or printed title Warranties and Bonds, with title of Project; name; address, and telephone number of Contractor and equipment Supplier, and name of responsible principal.
 - 2). Table of Contents: Neatly typed, in the sequence of the of the Project Manual, with each item identified with the number and title of the Specification section in which specified, and the name of the product or Work item.
 - 3). Separate each warranty or Bond with index tab sheets keyed to the Table of Contents. Provide full information, using separate typed sheets as necessary. List Subcontractor, Supplier, and Manufacturer, with name, address, and telephone number of responsible contact for service and warranty issues.
 - 3. Preparation of Submittal:
 - a. Obtain notarized warranties and Bonds, executed in duplicate by responsible Subcontractor, Supplier, and Manufacturer, within 10 days after completion of the applicable item or Work, except for items put into use with Owner's permission, leave date of beginning of time warranty until date of Substantial Completion is determined.
 - 4. Time of Submission: Submit within 10 days after the date of Date of Substantial Completion and prior to submission of Final Application of Payment.

- a. Spare parts and special tools as required by individual Specification sections.
- b. Consent of Surety to Final Payment: As required in General Conditions.
- c. Releases or Waivers of Liens and Claims: As required in General Conditions.
- d. Releases from Agreements.
- e. Final Application for Payment: Submit in accordance with procedures and requirements stated in Section 01 29 00.
- f. Extra Materials: As required by individual Specification sections.

1.3 RECORD DOCUMENTS

- A. Quality Assurance:
 - 1. Furnish qualified and experienced person, whose duty and responsibility shall be to maintain record documents.
 - 2. Accuracy of Records:
 - 3. Coordinate changes within record documents, making legible and accurate entries on each sheet of Drawings and other documents where such entry is required to show change.
 - 4. Purpose of Project record documents is to document factual information regarding aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive Site measurement, investigation, and examination.
 - 5. Make entries within 24 hours after receipt of information that a change in the Work has occurred.
 - 6. Prior to submitting each request for progress payment, request Engineer's review and approval of current status of record documents. Failure to properly maintain, update, and submit record documents may result in a deferral by Engineer to recommend whole or any part of Contractor's Application for Payment, either partial or final.
 - 7. Maintain at Project site, available to OWNER and ENGINEER, 1 copy of the Contract Documents, shop drawings and other submittals, in good order.

1.4 RELEASES FROM AGREEMENTS

- A. Furnish Owner written releases from property owners or public agencies where side agreements or special easements have been made, or where Contractor's operations have not been kept within the Owner's construction right-of-way.
- B. In the Event Contractor is Unable to Secure Written Releases:
 - 1. Inform Owner of the reasons.
 - 2. Owner or its representatives will examine the Site, and Owner will direct Contractor to complete the Work that may be necessary to satisfy terms of the side agreement or special easement.
 - 3. Should Contractor refuse to perform this Work, Owner reserves right to have it done by separate contract and deduct cost of same from Contract Price, or require Contractor to furnish a satisfactory bond in a sum to cover legal Claims for damages.
 - 4. When Owner is satisfied that the Work has been completed in agreement with Contract Documents and terms of side agreement or special easement, right is reserved to waive requirement for written release if:
 - 5. Contractor's failure to obtain such statement is due to grantor's refusal to sign, and this refusal is not based upon any legitimate Claims that Contractor has failed to fulfill terms of side agreement or special easement, or
 - 6. Contractor is unable to contact or has had undue hardship in contacting grantor.

1.5 EVIDENCE OF COMPLIANCE WITH REQUIREMENTS OF GOVERNING AUTHORITIES

- A. Submit the Following:
 - 1. Certificate of Occupancy.
 - 2. Certificates of Inspection:
 - a. Mechanical.

b. Electrical.

1.6 WARRANTIES AND BONDS

- A. Provide executed Warranty or Guaranty Form if required by Contract Documents.
- B. Provide specified additional warranties, guarantees, and bonds from manufacturers and suppliers.

1.7 CERTIFICATE OF FINAL COMPLETION

- A. When 7-day operational test has been successfully completed, ENGINEER will certify that new facilities are operationally complete. ENGINEER will submit a list of known items (punch list) still to be completed or corrected prior to contract completion.
- B. List of items to be completed or corrected will be amended as items are resolved by CONTRACTOR.
- C. When all items have been completed or corrected, submit written certification that the entire work is complete in accordance with the Contract Documents and request final inspection.
- D. Upon completion of final inspection, ENGINEER will either prepare a written acceptance of the entire work or advise CONTRACTOR of work not complete. If necessary, inspection procedures will be repeated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 MAINTENANCE OF RECORD DOCUMENTS

- A. General:
 - 1. Promptly following commencement of Contract Times, secure from Engineer at no cost to Contractor, one complete set of Contract Documents. Drawings will be full size.
 - 2. Label or stamp each record document with title, "RECORD DOCUMENTS," in neat large printed letters.
 - 3. Record information concurrently with construction progress and within 24 hours after receipt of information that change has occurred. Do not cover or conceal Work until required information is recorded.
- B. Preservation:
 - 1. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
 - 2. Make documents and Samples available at all times for observation by Engineer.
- C. Making Entries on Drawings:
 - 1. Use an erasable colored pencil (not ink or indelible pencil), clearly describe change by graphic line and note as required.
 - a. Make annotations with erasable colored pencil conforming to the following color code:

Additions:	Red
Deletions:	Green
Comments	Blue

Dimensions:	Graphite
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2. Date entries.
 3. Call attention to entry by "cloud" drawn around area or areas affected.
 4. Legibly mark to record actual changes made during construction, including, but not limited to:
 5. Depths of various elements of foundation in relation to finished first floor data if not shown or where depth differs from that shown.
 6. Horizontal and vertical locations of existing and new Underground Facilities and appurtenances, and other underground structures, equipment, or Work, and Reference to at least two measurements to permanent surface improvements.
 7. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
 8. Locate existing facilities, piping, equipment, and items critical to the interface between existing physical conditions or construction and new construction.
 9. Changes made by Addenda and Field Orders, Work Change Directive, Change Order, and Engineer's written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.
 10. Dimensions on Schematic Layouts: Show on record drawings, by dimension, the centerline of each run of items that are described in previous subparagraph above.
 11. Clearly identify the item by accurate note such as "cast iron drain," "galv. water," and the like.
 12. Show, by symbol or note, vertical location of item ("under slab," "in ceiling plenum," "exposed," and the like).
 13. Make identification so descriptive that it may be related reliably to Specifications.
 14. Mark and record field changes and detailed information contained in submittals and change orders.
 15. Record actual depths, horizontal and vertical location of underground pipes, duct banks and other buried utilities. Reference dimensions to permanent surface features.
 16. Identify specific details of pipe connections, location of existing buried features located during excavation, and the final locations of piping, equipment, electrical conduits, manholes, and pull boxes.
 17. Identify location of spare conduits including beginning, ending and routing through pull boxes, and manholes. Record spare conductors, including number and size, within spare conduits, and filled conduits.
 18. Provide schedules, lists, layout drawings, and wiring diagrams.
- D. Maintain Documents Separate From Those Used for Construction:
1. Label documents "RECORD DOCUMENTS."
- E. Keep Documents Current:
1. Record required information at the time the material and equipment is installed and before permanently concealing.
- F. Deliver record documents with transmittal letter containing date, Project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR.
- G. During progress meetings, record documents will be reviewed to ascertain that changes have been recorded.
- H. Final Schedule Submittal in accordance with Section 01 32 00.

3.2 FINAL CLEANING

- A. At completion of the Work or of a part thereof and immediately prior to Contractor's request for certificate of Substantial Completion; or if no certificate is issued, immediately prior to Contractor's notice of completion, clean entire Site or parts thereof, as applicable.
1. Leave the Work and adjacent areas affected in a cleaned condition satisfactory to Owner.
 2. Remove grease, dirt, dust, paint or plaster splatter, stains, labels, fingerprints, and other foreign materials from exposed surfaces.
 3. Repair, patch, and touch up marred surfaces to specified finish and match adjacent surfaces.
 4. Clean all windows.
 5. Clean and wax wood, vinyl, or painted floors.
 6. Broom clean exterior paved driveways and parking areas.
 7. Hose clean sidewalks, loading areas, and others contiguous with principal structures.
 8. Rake and clean all other surfaces.
 9. Remove snow and ice from access to buildings.
 10. Replace air-handling filters and clean ducts, blowers, and coils of ventilation units operated during construction.
 11. Leave water courses, gutters, and ditches open and clean.
 12. Perform final cleaning prior to inspections for Final Acceptance.
 13. Employ skilled workers who are experienced in cleaning operations.
 14. Use cleaning materials which are recommended by manufacturers of surfaces to be cleaned.
 15. Prevent scratching, discoloring, and otherwise damaging surfaces being cleaned.
 16. Clean roofs, gutters, downspouts, and drainage systems.
 17. Broom clean exterior paved surfaces and rake clean other surfaces of site work:
 - a. Police yards and grounds to keep clean.
 18. Remove dust, cobwebs, and traces of insects and dirt.
 19. Clean grease, mastic, adhesives, dust, dirt, stains, fingerprints, paint, blemishes, sealants, plaster, concrete, and other foreign materials from sight-exposed surfaces, and fixtures and equipment.
 20. Remove non-permanent protection and labels.
 21. Polish waxed woodwork and finish hardware.
 22. Wash tile.
 23. Wax and buff hard floors, as applicable.
 24. Wash and polish glass, inside and outside.
 25. Wash and shine mirrors.
 26. Polish glossy surfaces to clear shine.
 27. Vacuum carpeted and soft surfaces.
 28. Clean permanent filters and replace disposable filters when heating, ventilation, and air conditioning units were operated during construction.
 29. Clean ducts, blowers and coils when units were operated without filters during construction.
 30. Clean light fixtures and replace burned-out or dim lamps.
- B. Use only cleaning materials recommended by Manufacturer of surfaces to be cleaned.

3.3 WASTE DISPOSAL

- A. Arrange for and dispose of surplus materials, waste products, and debris off-site:
1. Prior to making disposal on private property, obtain written permission from OWNER of such property.
- B. Do not fill ditches, washes, or drainage ways which may create drainage problems.
- C. Do not create unsightly or unsanitary nuisances during disposal operations.

- D. Maintain disposal site in safe condition and good appearance.
- E. Complete leveling and cleanup prior to Final Acceptance of the Work.

3.4 TOUCH-UP AND REPAIR

- A. Touch-up or repair finished surfaces on structures, equipment, fixtures, and installations that have been damaged prior to inspection for Final Acceptance.
- B. Refinish or replace entire surfaces which cannot be touched-up or repaired satisfactorily.

3.5 FINAL CLEANING AND DISINFECTION OF SYSTEMS OF POTABLE WATER MAINS

- A. Clean interior of pipe and fittings.
- B. When pipe contains dirt that cannot be removed by flushing, swab pipe interiors with solution containing not less than 500 parts per million of chlorine until clean.
- C. Flush 12 inch in diameter and smaller pipe as thoroughly as available water sources will permit.
- D. Fill pipe with chlorine solution of sufficient strength to provide 10 parts per million chlorine residual at end of 24 hours.
- E. Flush pipes with potable water until chlorine residual is less than 0.6 parts per million before pipes are put into service.

3.6 CLOSEOUT DOCUMENTS

- A. Submit following Closeout Submittals upon completion of the Work and at least 7 days prior to submitting Application for Final Payment:
 1. Evidence of Compliance with Requirements of Governing Authorities.
 2. Project Record Documents.
 3. Operation and Maintenance Manuals.
 4. Warranties and Bonds.
 5. Keys and Keying Schedule.
 6. Evidence of Payment and Release of Stop Payment Notices as outlined in Conditions of the Contract.
 7. Release of claims as outlined in Conditions of the Contract.
 8. Survey Record Documents as specified in Section 01 72 20.
 9. Certificate of Final Completion.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

DIVISION 2 EXISTING CONDITIONS

SECTION 02 41 00 - DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 1. Portions of buildings and other areas, equipment and materials selective demolition, and partial demolition work are as shown on Drawings and specified herein.
 2. Equipment and materials to be removed for construction and reinstalled for reuse or continued operation are as shown on the drawings and specified herein.

1.2 SUBMITTALS

- A. Shop Drawings: Plans showing all equipment and materials to be removed and reinstalled for reuse on continued operation including interim storage plans for each item.
- B. Quality Control Submittals:
 1. Schedule of demolition, as part of and consistent with the progress schedule specified in Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.
 2. Methods of demolition and equipment proposed to demolish each structure.
 3. Copies of any authorizations and permits required to perform Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Utilities:
 1. Notify Owner and appropriate utilities 72 hours prior to turning off affected services before starting demolition or alterations.
 2. Remove utility lines exposed by demolition excavation.
 3. Remove electric, sanitary, and storm drainage adjacent to buildings to be demolished.
 4. Excavate utility lines serving buildings to be demolished and provide a permanent leak-proof closure for water and gas lines.
 5. Plug sewer lines at locations shown or at limits of excavation if not shown with min. 2,000 psi compressive strength concrete plug to prevent groundwater infiltrating sewer systems. Length of plug shall be 5 feet minimum.
- B. Removal and Storage of Equipment for Reuse:
 1. Do not remove equipment and materials without approval of Engineer.
 2. Properly store and maintain equipment and materials in same condition as when removed.
 3. Engineer will determine condition of equipment and materials prior to removal.

3.2 DEMOLITION

- A. Drawings define minimum portion of equipment to be removed and structures to be modified. Unless otherwise shown, rough cuts or breaks may be made exceeding limits of demolition shown.
- B. Provide all demolition, removal, temporary storage, and reinstallation of existing equipment as required for implementation of the work.

- C. Core drill floor slabs, catch basins, and other concrete improvements to remain in place below ground, or break holes at structure's lowest point to allow water to freely migrate through.
- D. Remove piping from areas to be backfilled. Pipe, valves, and fittings adjacent to those to be removed may also be removed as salvage.
- E. Remove all materials associated with existing equipment that is to be removed or relocated.
- F. Cut off concealed or embedded conduit, boxes, or other materials a minimum of 3/4 inch below final finished surface.
- G. Cut off drilled piers a minimum of 6 inches below bottom of new foundations.
- H. Demolish existing concrete structure to 18" below grade.

3.3 DISPOSAL

- A. Dispose of debris and other non-salvaged materials offsite in licensed landfills.

3.4 BACKFILLING

- A. Demolished Areas: Backfill to existing ground level, elevations shown, or foundation level of new construction.
- B. Backfill Material and Compaction:
 - 1. For fill in structures, use sand conforming to AHTD Standard Specifications for Highway Construction, Section 802.02(b) Fine Aggregate, otherwise conform to Section 31 23 23.13, FILL AND BACKFILL. Top 6" of backfill to grade shall be select fill conforming to Section 31 23 23.13 FILL AND BACKFILL and shall be compacted to 90% standard proctor density.
 - 2. Do not use demolition debris as backfill material.

3.5 SALVAGE

- A. Equipment and materials not reused or reinstalled, including all metals and piping within the limits of demolition, unless otherwise specified, shall be delivered to the Owner for scrap.

END OF SECTION

DIVISION 3 CONCRETE

SECTION 03 11 00 - CONCRETE FORMWORK

PART 1 - GENERAL

1.1 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Concrete Institute (ACI):
 - a. 117, Standard Specifications for Tolerances for Concrete Construction and Materials.
 - b. 318/318R, Building Code Requirements for Reinforced Concrete.
 - c. 347, Formwork for Concrete.

1.2 DESIGN REQUIREMENTS

- A. Design formwork in accordance with ACI 301, ACI 347 and ACI 318 to provide concrete finishes specified in Section 03 30 00, CAST-IN-PLACE CONCRETE.
- B. When high range water reducer (superplasticizer) is used in concrete mix, forms shall be designed for full hydrostatic pressure per ACI 347.
- C. Make joints in forms watertight.
- D. Limit panel deflection to 1/360th of each component span to achieve tolerances specified.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. Form Ties-Tapered Through-Bolts: Proposed method of sealing form tie hole; coordinate with details shown.
 - 2. Manufacturer's Data for the Following Product: Form release agent.
- B. Samples: One each as follows:
 - 1. Form ties.
- C. Information Submittals: Statement of qualification for formwork designer.

1.4 QUALIFICATIONS

- A. Formwork Designer: Formwork, falsework, and shoring design shall be by an Engineer licensed in the State of the project site.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Wall Forms and Underside of Slabs:
 - 1. Materials: Plywood, hard plastic finished plywood, overlaid waterproof particle board, or steel in "new and undamaged" condition, of sufficient strength and surface smoothness to produce specified finish.
 - 2. Circular Structures:
 - a. Conform forms to circular shape of structure.
 - b. Straight panels may be substituted for circular forms provided panels do not exceed 2' in horizontal width and angular deflection is no greater than 3-1/2° per joint.

- B. Painted Surface Forms: High density overlay plywood for flat concrete surfaces to be painted.
- C. All Other Forms: Materials as specified for wall forms.
- D. Form Release Agent:
 - 1. Material: Release agent shall not bond with, stain, or adversely affect concrete surfaces, and shall not impair subsequent treatments of concrete surfaces when applied to forms. A "ready to use" water based material formulated to reduce or eliminate surface imperfections, containing no mineral oil or organic solvents. Environmentally safe, meeting local, state, and federal regulations and can be used in potable water facilities.
 - 2. Manufacturers and Products:
 - a. Master Builders, Inc.; Rheofinish 211.
 - b. Cresset Chemical Company; Crete-Lease 20-VOC.
 - c. US Mix Products Company; US SPEC Slickote.
- E. Rustication Grooves and Beveled Edge Corner Strips: Nonabsorbent material, compatible with form surface, fully sealed on all sides prohibiting loss of paste or water between the two surfaces.
- F. Form Ties:
 - 1. Material: Steel
 - 2. Spreader Inserts:
 - a. Conical or spherical type.
 - b. Design to maintain positive contact with forming material.
 - c. Furnish units that will leave no metal closer than 1" to concrete surface when forms, inserts, and tie ends are removed.
 - 3. Wire ties not permitted.
 - 4. Flat bar ties for panel forms furnish plastic or rubber inserts with minimum 1" depth and sufficient dimensions to permit patching of tie hole.
 - 5. Water Stop Ties: For water-holding structures, basements, pipe galleries, and accessible spaces below finish grade, furnish one of the following:
 - a. Integral steel water stop 0.103" thick and 0.625" in diameter tightly and continuously welded to tie.
 - b. Neoprene water stop 3/16" thick and 15/16" diameter whose center hole is 1/2-diameter of tie, or molded plastic water stop of comparable size.
 - c. Orient water stop perpendicular to tie and symmetrical about center of tie.
 - d. Design ties to prevent rotation or disturbance of center portion of tie during removal of ends and to prevent water leaking along tie.
 - 6. Through-Bolts: Tapered minimum 1" diameter at smallest end.
 - 7. Elastic Vinyl Plug:
 - a. Design and size of plug to allow insertion with tool to enable plug to elongate and return to original length, and diameter upon removal forming watertight seal.
 - b. Manufacturer and Product: Dayton/Richmond Co., Miamisburg, OH; A58 Sure Plug.
 - c. Recess plug 1" minimum and grout over hole. See Section 03 60 00 GROUT.

PART 3 - EXECUTION

3.1 FORM SURFACE PREPARATION

- A. Thoroughly clean form surfaces that will be in contact with concrete or that have been in contact with previously cast concrete, dirt, and other surface contaminants prior to coating surface.
- B. Exposed Wood Forms in Contact with Concrete: Apply form release agent as recommended by the manufacturer.

- C. Steel Forms: Apply form release agent to steel forms as soon as they are cleaned to prevent discoloration of concrete from rust.

3.2 ERECTION

- A. General: Unless specified otherwise, follow applicable recommendations of ACI347.
- B. Beveled Edges (Chamfer):
 - 1. Form 3/4" bevels at concrete edges, unless otherwise shown.
 - 2. Where beveled edges on existing adjacent structures are other than 3/4", obtain Engineer's approval of size prior to placement of beveled edge.
- C. Wall Forms:
 - 1. Do not reuse forms with damaged surfaces.
 - 2. Locate form ties and joints in an uninterrupted uniform pattern.
 - 3. Inspect form surfaces prior to installation to assure conformance with specified tolerances.
- D. Forms for Curbs and Sidewalks:
 - 1. Provide standard steel or wood forms.
 - 2. Set forms to true lines and grades, and securely stake in position.
- E. Form Tolerances: Provide forms in accordance with ACI 117, 347 and 318 and the following tolerances for finishes specified:
 - 1. Wall Tolerances:
 - a. Straight Vertical or Horizontal Wall Surface: Flat planes within tolerance specified.
 - b. Wall Type W-A:
 - 1). Plumb within 1/4" in 10' or within 1" from top to bottom for walls over 40 feet high.
 - 2). Depressions in Wall Surface: Maximum 5/16" when 10' straightedge is placed on high points in all directions.
 - c. Wall Type W-B:
 - 1). Plumb within 1/8" in 10' or within 1/2" from top to bottom for walls over 40' high.
 - 2). Depressions in Wall Surface: Maximum 1/8" when 10' straightedge is placed on high points in all directions.
 - 2. Thickness: Maximum -1/4" or +1/2" from dimension shown.
 - 3. Form Offset: Between adjacent pieces of form work, facing material shall not exceed 1/8" where exposed to public view and 1/4" maximum for all other conditions.

3.3 ADDITIONAL REQUIREMENTS

- A. Construct forms tight enough to prevent loss of concrete mortar.
- B. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses and the like for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
 - 3. Use only form or form-tying methods which do not cause spalling of the concrete upon form stripping or tie removal.
- C. Set edge forms, bulkheads and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

- D. Provide temporary 12 inch wide x 18 inch high openings for cleanouts and inspection ports every 7 feet at the bottom of each lift form and where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations, where possible.
- E. Chamfer exterior corners and edges of permanently exposed concrete.
- F. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds and bulkheads required in the Work.
 - 1. Determine sizes and locations from trades providing such items.
 - 2. Openings shall be of sufficient size to permit final alignment of pipes or other items without deflection or offsets of any kind. Allow space for packing where items pass through the wall to ensure watertightness. Provide openings with continuous keyways and waterstops. Provide a slight flare to facilitate grouting and the escape of entrained air during grouting. Provide formed openings with reinforcement as indicated in the typical structural details. Reinforcing shall be at least 2 inches clear from the opening surfaces and encased items.
- G. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt and other debris just before placing concrete.
- H. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- I. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions before placing reinforcement.
- J. Embedded Items.
 - 1. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions and directions furnished with items to be embedded.
 - a. Install anchor bolts/rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - b. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles and other conditions.
 - c. Check special castings, channels or other metal parts that are to be embedded in the concrete prior to and again after placing the concrete.
 - d. Check nailing blocks, plugs and strips necessary for the attachment of trim, finish and similar work prior to placing the concrete.
- K. Pipes and wall spools cast in concrete.
 - 1. Install wall spools, wall flanges, and wall anchors before placing concrete. Do not weld, tie or otherwise connect the wall spools or anchors to the reinforcing steel.
 - 2. Support pipe and fabricated fittings to be encased in concrete on concrete piers or pedestals. Carry concrete supports to firm foundations so that no settlement will occur during construction.
 - 3. Pipes or spools located below operating water level shall have waterstop ring collars and shall be cast in place. Do not block out such piping and grout after the concrete section is cast. Pipes fitted with thrust rings shall be cast in place.
- L. Removing and reusing forms.
 - 1. General: Do not remove forms from concrete which has been placed with outside temperature below 50°F without first determining and verifying with Engineer if the

concrete has properly set without regard for time. Do not apply loading on green concrete. Immediately after forms are removed, the surface of the concrete shall be carefully examined and any irregularities in the surface shall be repaired and finished as specified.

- a. Leave formwork for beam soffits, joists, structural slabs, beams, girders and other structural elements that support weight of concrete in place until concrete has achieved 100 percent its 28-day design compressive strength.
 - b. Formwork for sides of beams, walls, columns and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50°F (10 deg C) for 48 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
 - c. Leave bracing for walls until the top or roof slab concrete reaches 100% of its 28-day design compressive strength.
 - d. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
2. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
 3. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces.
- M. Aluminum surfaces in contact with concrete.
1. Aluminum surfaces in contact with concrete or grout or dissimilar metals shall be protected with a Mylar isolator, bituminous paint or other material approved by Engineer.
- N. Shores and reshores.
1. Comply with ACI 318 (ACI 318M) and ACI 301 for design, installation and removal of shoring and reshoring.
 - a. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
 2. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
 3. For multi-storied structures, the shoring and reshoring diagrams and procedures shall be signed and sealed by a Registered Professional Engineer in the state where the construction is being undertaken. These diagrams and procedures shall take into account the effect of the loads on the uncured concrete and the construction load on each floor.
 4. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Reinforcing steel and related items required for cast-in-place concrete.
- B. Related Sections:
 - 1. Section 03 11 00 – Concrete Formwork.
 - 2. Section 03 30 00 – Cast-In-Place Concrete.

1.2 SUPERVISION

- A. Workmanship: Provide qualified supervision at all times reinforcing work is in progress. Workmen shall be experienced iron workers.
- B. Codes: Reinforcement placement and detailing shall comply with practice specified in the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" publication ACI 315- latest edition of the American Concrete Institute or its latest revision, unless otherwise specified herein.

1.3 SUBMITTALS

- A. Shop drawings: Shop drawings shall be prepared for all reinforcement required by the project. Shop drawings shall be logically and legibly prepared to permit reasonable ease of sorting, selecting, placing reinforcement as well as checking drawings. Preparer and fabricator shall be identified on the drawings.
 - 1. Reinforcement shall not be fabricated until the shop drawings have been processed, approved and returned.
 - 2. Check all shop drawings to verify reinforcement dimensions required by drawings are satisfied.
 - 3. Provide bar sizes, bar lengths, bar material, bar grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and lap lengths, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- B. Reinforcement shop drawings:
 - 1. Review of reinforcement shop drawings by the Engineer will be limited to general compliance with the Contract Documents.
 - 2. Submit reinforcement shop drawings in a complete package for each specific structure. Partial submittals will be rejected.
- C. Changes to reinforcing steel contract drawing requirements:
 - 1. Indicate in separate letter submitted with shop drawings any changes of requirements indicated on the Drawings for reinforcing steel.
 - 2. Such changes will not be acceptable unless the Engineer has accepted such changes in writing.

1.4 PRODUCT HANDLING

- A. Protection:
 - 1. Use all means necessary to protect reinforcement from dirt and other foreign substances before and after placing.
 - 2. Store in a neat manner in logical order, bundled, tagged, off the ground, and in an area adequately isolated.

3. Re-bundle to maintain identification when placing is interrupted.
- B. Replacement: All damaged or improperly fabricated bars shall be replaced at the Contractor's expense.

PART 2 - PRODUCTS

2.1 CONCRETE REINFORCEMENT

- A. General: All reinforcement shall be free from rust, loose mill scale, and other contaminants.
- B. All bars shall be billet steel bars for concrete reinforcement ASTM A 615 Grade 60.
- C. Wire bar supports located between reinforcing bars and face of concrete:
1. Stainless steel. Type 304 stainless steel bar supports.
 2. Support reinforcing for concrete placed on ground using bar support chairs with Type 304 stainless steel plates for resting on ground welded to the chairs.
- D. Concrete bar supports located between reinforcing bars and face of concrete:
1. Manufactured expressly for supporting reinforcing bars.
 2. Manufactured with two annealed steel wires to securely tie concrete bar support to reinforcing steel.
 3. Manufactured with minimum $f'_c = 5,000$ psi concrete.

2.2 WELDED WIRE REINFORCEMENT (WWR):

- A. In accordance with ASTM A 185.
- B. WWR may not be used in place of reinforcing bars unless accepted in writing by the Engineer.
- C. Provide WWR in flat sheet form.
- D. If WWR is used, provide WWR having cross-sectional area per linear foot of not less than cross-sectional area per linear foot of reinforcing bars indicated on the Drawings.

2.3 ACCESSORIES:

- A. General: Accessories shall be subject to Engineer's approval.
1. Tie wire - 18 gauge annealed steel wire.
 2. Number of chairs shall be adequate to prevent sag during steel and concrete placement.
 3. Wall layer spacers shall be 1/4 inch round "Z" bar.
 4. Horizontal layer spacers shall be wire bar supports or reinforcing bars bent to support top layer.
 5. Dowel bar splicer:
 - a. Dowel bar splicer shall be Richmond or approved equal, manufactured from standard specified rebar material, with NC threads and shop fabricated to specified dowel configurations.
 6. Mechanical Connectors:
 - a. Approved Manufacturers: Dayton Superior, Erico, or approved equal.
 - b. The mechanical connection shall meet the code requirements of developing in tension and compression as required by the referenced codes. Install per the manufacturer's approved procedures.

PART 3 - EXECUTION

3.1 GENERAL

- A. Reinforcing bars and welded wire fabric reinforcement: Verify that reinforcement is new stock free from rust scale, loose mill scale, excessive rust, dirt, oil, and other coatings which adversely affect bonding capacity when placed in the work.
- B. Other trades: Coordinate all work of other trades to avoid conflict with reinforcement.
- C. Shop drawings: Check all shop drawings to verify dimensions required.

3.2 FABRICATING

- A. General: Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice." Reinforcement shall be shop fabricated except where straight bars No. 5 or smaller are required.
- B. Bending: All bending shall be by using bending jigs and mandrels. All bars shall be bent cold.
- C. Cutting: Bars shall be cut by cold shearing. Torch cutting in the field may be permitted in special situations.

3.3 PREPARATION

- A. Surface Preparation:
 - 1. Reinforcing bars: Thin coating of red rust resulting from short exposure will not be considered objectionable. Thoroughly clean any bars having rust scale, loose mill scale, or thick rust coat.
 - 2. Cleaning of reinforcement materials: Remove concrete or other deleterious coatings from dowels and other projecting bars by wire brushing or sandblasting before bars are embedded in subsequent concrete placement.

3.4 PLACING

- A. General:
 - 1. Accurately place all bars to meet tolerances as outlined in ACI 318 and tie in place before placing concrete, include dowels. Tie with 18 gauge steel wire.
 - 2. Corner bars required for horizontal reinforcing. Unless otherwise noted on plans corner bars shall be same size and spacing as horizontal bar.
 - 3. No field bending of bars will be allowed.
- B. Clearance:
 - 1. Preserve clearance between bars of 1 inch minimum, not less than one bar diameter or 1-1/3 times large aggregate, whichever is larger.
 - 2. Provide following concrete coverage over reinforcing steel unless otherwise indicated on plans:
 - a. Three inches above subgrade - in excavation.
 - b. Two inches above subgrade - slab on fill.
 - c. Two inches from form - walls exposed to water or earth and for slab over water.
 - d. One and one-half inches from form - normal cover interior walls, beams, columns, etc.
 - e. Three-fourths inch on top steel - interior slabs.
 - f. One and one-half inches on top and bottom - exterior slab.
 - 3. Lap all reinforcing bars as required by ACI 318-latest edition Class B as indicated on the drawings except where otherwise required by ACI.

4. Stagger splices except where otherwise shown.
 5. Lap welded wire reinforcement a minimum of two spaces.
- C. Dowels: All dowels shall be placed and securely anchored before placing concrete
- D. Supports:
1. Provide a sufficient number to prevent sagging, to prevent shifting, and to support loads during construction; but in no case less than quantities and at locations as indicated in ACI 315.
 2. Do not use brick, broken concrete masonry units, spalls, rocks, wood or similar materials for supporting reinforcing steel.
 3. Do not use reinforcing bars that have less cover than required by the Contract Documents. Do not adjust location of reinforcement required by the Contract Documents to provide cover to these bars.
 4. Wire chairs will not be accepted to hold reinforcing clearance on walls.
- E. Tying of bar reinforcement:
1. Fasten bars securely in place with wire ties.
 2. Tie bars sufficiently often to prevent shifting.
 3. Provide at least 3 ties in each bar length.
 4. Do not apply to dowel lap splices or to bars shorter than 4 feet, unless necessary for rigidity.
 5. Tie slab bars at every intersection around periphery of slab.
 6. Tie wall bars and slab bar intersections other than around periphery at not less than every fourth intersection, but at not greater than following maximum spacings:

Bar Size	Slab Bar Spacing Inches	Wall Bar Spacing Inches
Bars Number 5 and Smaller	60	48
Bars Number 6 through Number 9	96	60
Bars Number 10 and Number 11	120	96

7. After tying wire ties, bend ends of wire ties in towards the center of the concrete section.
 - a. The cover for wire ties shall be the same as the cover requirements for reinforcing bars.
- F. Openings and obstructions:
1. Place additional reinforcing around openings as shown on the drawings and standard details.
 2. Bend reinforcing around obstructions. Place extra reinforcing where cutting is authorized. Engineer's approval required before cutting steel.
 3. Consult Engineer on special situations.
- G. Welded Wire Reinforcement:
1. Install necessary wiring, spacing chairs, or supports to keep welded wire fabric in place while concrete is being placed.
 2. Bend fabric as indicated on the Drawings or required to fit work.
 3. Unroll or otherwise straighten fabric to make flat sheet before placing in the Work.
 4. Lap splice welded wire fabric as indicated on the Drawings.
 5. If lap splice length is not indicated on the Drawings, splice fabric in accordance with ACI 318 and ACI 350.
- H. Certification: Certify material and type of deformation.

- I. Condition: All reinforcement shall be free from loose rust, dirt coating, oil, paint, or any foreign substance.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 03 30 00 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes cast-in-place concrete, including concrete materials, concrete accessories, concrete mixture designs, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls.
 - 3. Slabs-on-grade.
 - 4. Suspended slabs.
 - 5. Concrete toppings.
 - 6. Building frame members.
 - 7. Building walls.
 - 8. Hydraulic (liquid containing) structures.
- B. Related Sections:
 - 1. Section 03 11 00 - Concrete Formwork
 - 2. Section 03 20 00 - Concrete Reinforcement

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 301 – Specifications for Structural Concrete
 - 2. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials
 - 3. ACI 305 - Hot Weather Concreting Standard
 - 4. ACI 306 - Cold Weather Concreting Standard
 - 5. ACI 318 - Building Code Requirements for Structural Concrete and Commentary
 - 6. ACI 350 - Code Requirements for Environmental Engineering Concrete Structures and Commentary
 - 7. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
 - 8. ACI 302.1R – Guide for Concrete Floor and Slab Construction
 - 9. ACI 308.1 – Standard Specification for Curing Concrete
 - 10. Manual of Concrete Practice
- B. ASTM International (ASTM):
 - 1. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 - 2. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - 3. ASTM C33 - Standard Specification for Concrete Aggregates
 - 4. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - 5. ASTM C40 - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete
 - 6. ASTM C42 - Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
 - 7. ASTM C88 - Standard Test Method of Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
 - 8. ASTM C94 - Standard Specification for Ready-Mixed Concrete
 - 9. ASTM C114 - Standard Test Methods for Chemical Analysis of Hydraulic Cement
 - 10. ASTM C117 - Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
 - 11. ASTM C123 - Standard Test Method for Lightweight Particles in Aggregate

12. ASTM C131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
13. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
14. ASTM C142 - Standard Test Method for Clay Lumps and Friable Particles in Aggregate
15. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete
16. ASTM C150 - Standard Specification for Portland Cement
17. ASTM C156 - Standard Test Method for Water Loss [from a Mortar Specimen] Through Liquid Membrane-Forming Curing Compounds for Concrete
18. ASTM C157 - Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
19. ASTM C171 - Standard Specifications for Sheet Materials for Curing Concrete
20. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete
21. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
22. ASTM C192 – Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
23. ASTM C231 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
24. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete
25. ASTM C295 – Standard Guide for Petrographic Examination of Aggregates for Concrete
26. ASTM C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
27. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete
28. ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
29. ASTM C881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
30. ASTM C1064 – Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
31. ASTM C1059 – Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete
32. ASTM C1077 – Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
33. ASTM C1116 – Standard Specification for Fiber-Reinforced Concrete
34. ASTM C1315 – Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete
35. ASTM D448 – Standard Classification for Sizes of Aggregate for Road and Bridge Construction
36. ASTM D1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
37. ASTM D2240 – Standard Test Method for Rubber Property – Durometer Hardness
38. ASTM E329 – Standard Specification for Agencies Engages in Construction Inspection, Testing, or Special Inspection
39. ASTM E1155 – Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers
40. ASTM E1643 – Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs
41. ASTM E1745 – Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

- B. Exposed Concrete: Concrete surface that can be seen inside or outside of structures regardless whether concrete is above water, dry at all times, or can be seen when structure is drained.
- C. Hydraulic Structures: Liquid containing basins.
- D. Defective Areas: Surface defects that include honeycomb, rock pockets, indentations greater than 3/16", cracks 0.005" wide and larger as well as any crack that leaks for liquid containing basins and below grade habitable spaces; cracks 0.010" wide and larger in non-fluid holding structures, spalls, chips, air bubbles greater than 3/4" in diameter, pinholes, bug holes, embedded debris, lift lines, sand lines, bleed lines, leakage from form joints, fins and other projections, form pop-outs, texture irregularities, and stains and other color variations that cannot be removed by cleaning.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Concrete Mixture Designs: For each concrete mixture.
 - 1. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 2. Indicate amounts of mixing water to be withheld for later addition at Project site.
 - 3. Submit Shrinkage Test Results for design mixtures. See 3.14 FIELD QUALITY CONTROL, E. Shrinkage Tests - 3 for shrinkage test requirements and limitations. Any Mix Design submitted without a Shrinkage Test will not be reviewed and will be returned to the Contractor as "Rejected".
- C. Welding certificates.
- D. Qualification Data: For manufacturer, testing agency.
- E. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Curing compounds.
 - 4. Floor and slab treatments.
 - 5. Bonding agents.
 - 6. Adhesives.
 - 7. Vapor retarders.
 - 8. Semi-rigid joint filler.
 - 9. Joint-filler strips.
- F. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- G. Field quality-control test and inspection reports.
- H. Course Aggregate Gradation.
- I. Fine Aggregate Gradation.
- J. One copy of each 30 consecutive strength test results and mix design used from a record of past performance or one copy of the laboratory trial mix design and results and one copy of the mix design proposed for each mixture and use under this contract. If the 30 consecutive strength tests are used, the test shall have been made within the 12 month period prior to this submittal.

- K. Material Test Reports: for the following, from a testing agency acceptable to the ENGINEER, indicating compliance with requirements:
 - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- L. Ready-Mix concrete.
 - 1. Provide delivery tickets for ready-mix concrete or weigh-masters certificate per ASTM C94 including weights of cement and each size aggregate and amount of water added at the plant and record of pours. Record the amount of water added on the job on the delivery ticket. Water added at the plant shall account for moisture in both coarse and fine aggregate. If water is added on the job the total water content shall not exceed the water content of the approved design mix.
 - 2. Keep record showing time and place of each pour (placement) of concrete, together with transit-mix delivery slips certifying the contents of the pour (placement).
 - 3. Furnish records to Engineer upon request.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm with a minimum of 5 years' experience in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
 - 2. The criteria hereinafter set out are solely for the purpose of establishing required mixture proportions and do not constitute a basis for confirming the adequacy of concrete strength.
 - a. Required Average Strength above Specified Compressive Strength: Proportions, including water-cement ratio, shall be established on the basis either of laboratory trial batches or of field experience with the materials to be employed. The proportions shall be selected to produce an average strength of 28 days exceeding the specified compressive strength by the amount indicated below, when both air content and slump are the maximums permitted by the Specifications.
 - b. Determination of the required average strength shall be in accordance with ACI 318 "Building Code Requirements for Reinforced Concrete," except that if suitable data from trial batches or field experience cannot be obtained, permission will not be granted to base concrete proportions on the water-cement ratio limits set out in the above referenced code.
 - 1). Past Plant Performance: Proportions may be established on the actual field performance of the ready-mix producer. Where the concrete production facility has a record, based on at least 30 consecutive strength tests taken within the prior 12 months representing similar materials and conditions to those expected, the strength used as the basis for selecting proportions shall exceed the required f'_c by at least:
 - a). 400 psi if the standard deviation is less than 300 psi;
 - b). 500 psi if the standard deviation is 300 to 400 psi;
 - c). 700 psi if the standard deviation is 400 to 500 psi;
 - d). 900 psi if the standard deviation is 500 to 600 psi;
 - e). 1,200 psi if the standard deviation is above 600 psi or unknown.
 - 2). Strength data for determining standard deviation shall be considered to comply with the foregoing stipulations if they represent either a group of at least 30 consecutive tests or the statistical average of two groups totaling 30 or more tests. The tests used to establish standard deviation shall represent concrete produced to meet a specified strength or strengths within 1,000 psi of that

specified for the proposed work. Changes in materials and proportions within the population of background tests shall not have been more closely restricted than they will be for the proposed work.

- 3). Strength data for determining standard deviation shall be considered to comply with the foregoing stipulations if they represent either a group of at least 30 consecutive tests or the statistical average of two groups totaling 30 or more tests. The tests used to establish standard deviation shall represent concrete produced to meet a specified strength or strengths within 1,000 psi of that specified for the proposed work. Changes in materials and proportions within the population of background tests shall not have been more closely restricted than they will be for the proposed work.
 - 4). Laboratory Trial Batches: When the ready-mix producer does not have a record of past performance, the combination of materials and the proportions selected shall be determined from trial mixes having proportions and consistencies suitable for the work based on ACI 211.1-77.
 - a) When laboratory trial batches are used as the basis for selecting concrete proportions, strength tests shall be made in accordance with "Method of Test for Compressive Strength of Molded Concrete Cylinders" (ASTM C39) on specimens prepared in accordance with "Method of Making and Curing Test Specimens in the Laboratory" (ASTM C192). A curve shall be established showing the relationship between water-cement ratio (or cement content) and compressive strength. The curve shall be based on at least three points representing batches which produce strengths above and below that required. Each point shall represent the average of at least three specimens tested at 28 days or the earlier age designation.
 - b) The average strength required shall exceed the specified compressive strength by 1,200 psi.
 - c) The maximum permissible water-cement ratio (or minimum cement content) for the concrete to be used in the structure shall be that shown by the curve to produce the average strength indicated, but in no case shall the water-cement ratio exceed 0.42 by weight.
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 for testing indicated.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specifications for Structural Concrete."
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 3. ACI 350 "Code Requirements for Environmental Engineering Concrete Structures."
 4. ACI 318 "Building Code Requirements for Reinforced Concrete."
- F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

- G. Sequence of concrete placing: Submit proposed sequence of placing concrete showing proposed beginning and ending of individual placements.
- H. Pre-installation Conference: Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 - 2. Review special inspection and testing and inspecting agency procedure for field quality control, concrete finishes and finishing, cold and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints and joint-filler strips, semi-rigid joint fillers, forms and form removal limitations, shoring and re-shoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures and concrete protection.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements products that may be incorporated into the work include, but are not limited to products specified.
 - 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FORM-FACING MATERIALS

- A. See Section 03 11 00 CONCRETE FORMWORK for additional requirements.
- B. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints. Furnish on exposed surfaces and interior surfaces.
- C. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit. Permitted to furnish on below grade exterior surfaces
- D. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- E. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.
- F. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- G. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

- H. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- I. Form-Release Agent: As specified in Section 03 11 00 CONCRETE FORMWORK.

2.3 REINFORCEMENT ACCESSORIES

- A. Expansion Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
 - 1. All dowels shall be placed and securely anchored before placing concrete. All dowels shall be parallel with each other and perpendicular to the joint.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 - 2. Secure all reinforcement in place using steel chairs, supports, "A" bars and any other ACI approved product. Supports shall be spaced adequately to support the steel firmly in place.
 - 3. Charis will not be accepted to hold reinforcing clearance on walls.
- C. General:
 - 1. Accessories shall be subject to Engineer's approval.
 - 2. Tie wire- 18 gauge steel wire. Ends of wire shall be bent towards the interior part of the wall.
 - 3. Support above forms with fabricated steel chairs. Number of chairs shall be adequate to prevent sag during steel and concrete placement.
 - 4. Wall layer spacers shall be 1/4" ROUND "Z" BAR.
 - 5. Horizontal layer spacers shall be stand.
 - 6. Mechanical Connectors:
 - a. Approved Manufactures: Dayton Superior, Erico, or approved equal.
 - b. The mechanical connection shall meet the code requirements of developing in tension and compression as required by the referenced codes. Install per the manufacture's approved procedures.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement (Non-hydraulic Above Grade Structures): ASTM C150, Type I or II, or combination of Type I with fly ash.
 - 2. Portland Cement (Hydraulic and/or Below Grade Structures): ASTM C150 type II or combination of Type I with fly ash.
 - 3. Fly Ash: ASTM C618, Class C or F fly ash shall not exceed 15 percent of the cementitious materials, unless written approval is given by the Engineer.
- B. Normal-Weight Aggregates: ASTM C33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: 1" nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
 - 3. Fine aggregate:

- a. Provide fine aggregate for concrete or mortar consisting of clean, natural sand or of sand prepared from crushed stone or crushed gravel.
- b. Do not provide aggregate having deleterious substances in excess of following percentages by weight of contaminating substances.
- c. In no case shall total exceed percent listed.

Item	Test Method	Percent
Removed by decantation (dirt, silt, etc.)	ASTM C117	3
Shale or Chert	ASTM C123	1
	ASTM C295*	1
Clay Lumps	ASTM C142	1
* Test Method C123 is used to identify particles in the sample lighter than 2.40 Specific Gravity. Test Method C295 is used to identify which of the lightweight particles are shale or chert. If the results of Test Method C123 are less than 1 percent, Test Method C295 is not required.		

- d. Except as otherwise specified, grade fine aggregate from coarse to fine in accordance with ASTM C33.
4. Coarse aggregate:
- a. Provide coarse aggregate consisting of gravel or crushed stone made up of clean, hard, durable particles free from calcareous coatings, organic matter, or other foreign substances.
 - b. Not exceeding 15 percent by weight, of thin or elongated pieces having length greater than 5 times average thickness.
 - c. Deleterious substances: Not in excess of following percentages by weight, and in no case having total of all deleterious substances exceeding 2 percent.
 - d. Coarse aggregate shall be washed prior to combining in concrete mix.

Item	Test Method	Percent
Shale or chert	ASTM C123	1.25
	ASTM C295**	1
Coal and lignite	ASTM C123	1/4
Clay lumps and friable particles	ASTM C142	1/4
Materials finer than Number 200 sieve	ASTM C117	1/2*
* Except when material finer than Number 200 sieve consists of crusher dust, maximum amount shall be 1 percent.		
** Test Method C 123 is used to identify particles in the sample lighter than 2.40 Specific Gravity. Test Method C 295 is used to identify which of the lightweight particles are shale, chert, coal, or lignite. If the results of Test Method C 123 are less than 1.25 percent (the minimum combined percentage of shale, chert, coal and lignite), Test Method C 295 is not required.		

5. Grading:
- a. Aggregate for building elements and hydraulic structures: In accordance with ASTM C33, Size Number 57, except as otherwise specified or authorized in writing by the ENGINEER.

C. Water: ASTM C94 and potable (not recycled water).

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 - 2. Retarding Admixture: ASTM C494/C494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
 - a. Bayer Corporation.
 - b. ChemMasters.
 - c. Conspec Marketing & Manufacturing Co., Inc.; a Dayton Superior Company.
 - d. Davis Colors.
 - e. Elementis Pigments, Inc.

2.6 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E1745, Class B. Include manufacturers' recommended adhesive or pressure-sensitive tape.
 - 1. Products:
 - a. Fortifiber Corporation: Moistop Ultra.
 - b. Revan Industries Inc.; Vapor Block 10.
 - c. Stego Industries, LLC; Stego Wrap, 15 mils.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.7 FLOOR AND SLAB TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
 - 1. Products:
 - a. Burke by Edoco; Titan Hard.
 - b. ChemMasters; Chemisil Plus.
 - c. ChemTec international; ChemTec One.
 - d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company
 - e. Curecrete Distribution Inc.; Ashford Formula.
 - f. Dayton Superior Corporation; Day-Chem sure Hard.
 - g. Euclid Chemical Company (The); Euco Diamond Hard.
 - h. Kaufman Products, Inc.; SureHard.
 - i. L&M Construction Chemicals, Inc.; Seal Hard.
 - j. Meadows, W. R., Inc.; Liqui-Hard.
 - k. Metalcrete Industries; Floorsaver.
 - l. Nox-Crete Products Group, Kinsman Corporation; Duranox.
 - m. Symons Corporation, a Dayton Superior Company; buff Hard.
 - n. US Mix Products Company; US Spec Industraseal.
 - o. Vexcon Chemicals, Inc.; Vexcon StarSeal PS.

2.8 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 1. Products:
 - a. Axim Concrete Technologies; Cimfilm.
 - b. Burke by Edoco; BurkeFilm.
 - c. ChemMasters; Spray-Film.
 - d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior company; Aquafilm.
 - e. Dayton Superior Corporation; Sure Film.
 - f. Euclid Chemical Company (The); Eucobar.
 - g. Kaufman Products, Inc.; Vapor Aid.
 - h. Lambert Corporation; Lambco Skin.
 - i. L&M Construction Chemicals, Inc.; E-Con.
 - j. MBT Protection and Repair, Div., of ChemRex; Confilm.
 - k. Meadows, W. R., Inc; Sealtight Evapre.
 - l. Metalcrete Industries; Waterhold.
 - m. Nox-Crete Products Group, Kinsman Corporation; Monofilm.
 - n. Sika Corporation, Inc.; SikaFilm.
 - o. Symons Corporation, a Dayton Superior Company; Finishing Aid.
 - p. Unitex; Pro-Film.
 - q. US Mix Products Company; US Spec Monofilm ER.
 - r. Vexcon Chemicals, Inc.; Certi-Vex EnvioAssist.
- B. Absorptive Cover: AASHTO M182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.
 - 1. Products:
 - a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
 - b. Burke by Edoco; Aqua Resin cure.
 - c. ChemMasters; Safe-Cure Clear.
 - d. Conspec Marketing & Manufacturing co., Inc., a Dayton Superior Company; W.B. Resin cure.
 - e. Dayton Superior Corporation; Day Chem Rez cure (J-11-W).
 - f. Euclid Chemical Company (The); Kurez DR VOX.
 - g. Kaufman Products, Inc.; Thinfilm 420.
 - h. Lambert Corporation; Aqua Kure-Clear.
 - i. L&M Construction Chemicals, Inc.; L&M Cure R.
 - j. Meadows, W. R., Inc.; 100 Clear.
 - k. Nox-Crete Products Group, Kinsman Corporation; Resom Cure E/
 - l. Sykkmons Corporation, a Dayton Superior Company; Resi-Chem Clear Cure.
 - m. Tamms Industries, Inc., Horncure WB 30.
 - n. Unitex; Hydro cure 309.
 - o. US Mix Products Company; US Spec Maxcure Resin Clear.
 - p. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.
- F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C1315, Type 1, Class A. Compatible with penetrating liquid floor treatment for surfaces specified to receive penetrating liquid floor treatment.

1. Products:
 - a. Burke by Edoco; Cureseal 1315 WB.
 - b. ChemMasters; Polyseal WB.
 - c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Sealcure 1315 WB
 - d. Euclid Chemical Company (The); Super Diamond Clear VOX.
 - e. Kaufman Products, Inc.; Sure Cure 25 Emulsion.
 - f. Lambert Corporation; UV Safe Seal.
 - g. L&M Construction Chemicals, Inc.; Lumiseal WB Plus.
 - h. Meadows, W. R., Inc.; Vocomp-30.
 - i. Metalcrete Industries; Metcure 30.
 - j. Symons Corporation, a Dayton Superior Company; Cure 7 Seal 31 Percent E.
 - k. Tamms Industries, Inc.; LusterSeal WB 300.
 - l. Unitex; Hydro Seal 25.
 - m. US Mix Products Company; US Spec Radiance UV-25.
 - n. Vexcon Chemicals, Inc.; Vexcon Starseal 1315.

2.9 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Semi-rigid Joint Filler: Two-component, semi-rigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D2240.
- C. Bonding Agent: ASTM C1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 1. Types IV and V, load bearing for bonding hardened or freshly mixed concrete to hardened concrete.

2.10 REPAIR MATERIALS

- A. See Sections 03 01 00, CONCRETE SURFACE REPAIR SYSTEMS.

2.11 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage by weight of cementitious materials other than Portland cement in concrete as follows:
 1. Fly Ash: 15 percent of cementitious materials maximum, unless written approval is given by the Engineer.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement for non-hydraulic structures and 0.10 percent by weight of cement for hydraulic structures.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing or high-range water-reducing admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.12 CONCRETE MIXTURES

- A. Proportion normal-weight concrete mixture as follows for all structural elements:
 1. Minimum Compressive Strength: 4,000 psi at 28 days.
 2. Maximum Water-Cementitious Materials Ratio: 0.42.
 3. Slump Limit: 8-inches Max for concrete with verified slump of 2 to 4-inches before adding high range water-reducing admixture or plasticizing admixture per ACI 301.
 4. Air content: 5 1/2%, $\pm 1.5\%$ at point of delivery.
- B. Proportion normal-weight concrete mixture as follows for all non-structural elements:
 1. Minimum Compressive Strength: 3,000 psi at 28 days.
 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 3. Slump Limit: 8 inch for concrete with verified slump of 2" to 4": before adding high-range water-reducing admixture or plasticizing admixture per ACI 301.
 4. Air content: 5 1/2%, $\pm 1.5\%$ at point of delivery.

2.13 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M and ASTM C1116, and furnish batch ticket information.
 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 PLACING CONCRETE

- A. Place no concrete without prior authorization of the Engineer.
- B. Do not place concrete until:
 1. Reinforcement is secure and properly fastened in its correct position and loose form ties at construction joints have been retightened.
 2. Dowels, bucks, sleeves, hangers, pipes, conduits, anchor bolts, and any other fixtures required to be embedded in concrete have been placed and adequately anchored.
 3. Forms have been cleaned and oiled as specified.
- C. Do not place concrete in which initial set has occurred, or that has been retempered.

- D. Do not place concrete during rainstorms or high velocity winds.
 - E. Protect concrete placed immediately before rain to prevent water from coming in contact with such concrete or winds causing excessive drying.
 - F. Keep sufficient protective covering on hand at all times for protection of concrete.
 - G. After acceptance, adhere to proposed sequence of placing concrete, except when specific changes are requested and accepted by the Engineer.
 - H. Notify the Engineer in writing of readiness, not just intention, to place concrete in any portion of the work:
 - 1. Provide this notification in such time in advance of operations, as the Engineer deems necessary to make final inspection of preparations at location of proposed concrete placing.
 - 2. Place forms, reinforcement, screeds, anchors, ties, and inserts in place before notification of readiness is given to the Engineer.
 - 3. Depositing concrete:
 - a. Deposit concrete at or near its final position to avoid segregation caused by rehandling or flowing.
 - b. Do not deposit concrete in large quantities in one place and work along forms with vibrator or by other methods.
 - c. Do not drop concrete freely into place from height greater than 5 feet.
 - d. Use tremies for placing concrete where drop is over 5 feet.
 - e. Commence placement of concrete on slopes, starting at bottom of slope.
 - I. Place concrete in approximately horizontal layers not to exceed 24 inches in depth and bring up evenly in all parts of forms.
 - J. Continue concrete placement without avoidable interruption, in continuous operation, until end of placement is reached.
 - K. After concrete placement begins, continue concrete placement without significant interruption. Plan and implement precautions to prevent any delay, between layers being placed, from exceeding 20 minutes.
 - L. If concrete is to be placed over previously placed concrete and more than 20 minutes has elapsed, spread layer of cement grout not less than 1/2 inch in thickness nor more than 1 inch in thickness over surface before placing additional concrete.
 - M. Placement of concrete for slabs, beams, or walkways:
 - 1. If cast monolithically with walls or columns, do not commence until concrete in walls or columns has been allowed to set and shrink.
 - 2. Allow set time of not less than 1 hour for shrinkage.
- 3.2 FORMWORK: See Section 03 11 00, CONCRETE FORMWORK.
- 3.3 VAPOR RETARDERS
- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches and seal with manufacturers' recommended tape.

3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer/Owner
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 - 6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 - 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
 - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by the Engineer.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. All embedded items such as wall pipes, embed frames, steel guide rails, channels, etc. (not including conduit and reinforcing) shall be considered "massive embedments" and are required to be kept above 32 deg F during placement and for the first 48 hours after placement. Contractor shall take the necessary measures; including insulated blankets, heated blankets, and heaters; to insure items are kept above 32 deg F. All other methods shall be submitted to the Engineer for approval.
 3. Do not use frozen materials or materials containing ice or snow.
 4. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Top 12-inches of subgrade shall be thawed prior to concrete placement. Contractor is responsible for verifying that the temperature for the top 12-inches of subgrade is above 32 deg F.
 5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 305 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is included in total amount of mixing water. Using liquid nitrogen to cool concrete is contractor's option, but liquid nitrogen should not replace water.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.
 3. All other methods shall be submitted to the Engineer for approval.

3.6 CONCRETE WALL FINISHES

- A. Type W-1 (Ordinary Wall Finish or Coating):
 - 1. Patch tie holes.
 - 2. Knock off projections.
 - 3. Patch defective areas.
- B. Type W-2 (Smooth Wall Finish):
 - 1. Patch tie holes.
 - 2. Grind off projections, fins, and rough spots.
 - 3. Patch defective areas and repair rough spots resulting from form release agent failure or other reasons to provide smooth uniform appearance.
- C. Type W-5 (Finish for Painting):
 - 1. Patch tie holes.
 - 2. Grind off projections, fins, and rough spots.
 - 3. Patch and repair defective areas as specified for Type W-2.
 - 4. Apply paint or coating system as specified in Section 09 90 00 Painting and Protective Coatings.

3.7 CONCRETE SLAB FINISHES

- A. General:
 - 1. Finish slab concrete per the requirements of ACI 302.1R
 - 2. Use manual screeds, vibrating screeds, or roller compacting screeds to place concrete level and smooth.
 - 3. Do not use "Jitterbugs" or other special tools designed for the purpose of forcing coarse aggregate away from the surface and allowing a layer of mortar, which will be weak and cause surface cracks or de-lamination, to accumulate.
 - 4. Do not dust surface with dry materials.
 - 5. Use evaporation retardant.
 - 6. Round off edges of slabs with a steel edging tool, except where a cove finish is shown. Steel edging tool radius shall be 1/4" for slabs subject to wheeled traffic.
- B. Type S-1 (Steel Troweled Finish):
 - 1. Finish by screeding and floating with straightedges to bring surfaces to required finish elevation, use evaporation retardant.
 - 2. While concrete is still green, but sufficiently hardened to bear a person's weight without deep imprint, wood float to true, even plane with no coarse aggregate visible.
 - 3. Use sufficient pressure on wood floats to bring moisture to surface.
 - 4. After surface moisture has disappeared, hand trowel concrete to produce smooth, impervious surface, free from trowel marks.
 - 5. Burnish surface with an additional troweling. Final troweling shall produce a ringing sound from trowel.
 - 6. Do not use dry cement or additional water during troweling, nor will excessive troweling be permitted.
 - 7. Power Finishing:
 - a. An approved power machine may be used in lieu of hand finishing in accordance with directions of machine manufacturer.
 - b. Do not use power machine when concrete has not attained the necessary set to allow finishing without introducing high and low spots in slab.
 - c. Do first steel troweling for slab S-1 finish by hand.
- C. Type S-2 (Wood Float Finish):
 - 1. Finish slabs to receive fill and mortar setting beds by screeding with straight edges to bring surface to required finish plane.

2. Wood float finish to compact and seal surface.
 3. Remove laitance and leave surface clean.
 4. Coordinate with other finish procedures.
- D. Type S-5 (Broomed Finish):
1. Finish as specified for Type S-1 floor finish, except omit final troweling and finish surface by drawing a fine-hair broom lightly across the surface.
 2. Broom in same direction and parallel to expansion joints, or, in the case of inclined slabs, perpendicular to scope, except for round roof slab, broom surface in radial direction.
- E. Type S-6 (Sidewalk Finish):
1. Slope walks down 1/4" per foot away from structures, unless otherwise shown.
 2. Strike off surface by means of strike board and float with wood or cork float to a true plane, then flat steel trowel before brooming.
 3. Broom surface at right angles to direction of traffic or as shown.
 4. Lay out sidewalk surfaces in blocks, as shown or as directed by Engineer, with a grooving tool.
- F. Type S-7: The top surfaces of basins in which raking mechanisms are to be installed
1. Slabs shall be finished by sweeping in cement grout with the mechanism. The cement grout to be used shall be composed of one part Portland cement and two parts sand.
 2. The sweeping-in process shall be performed under the supervision of a factory representative of the equipment manufacturer.
 3. The slab upon which the grout is to be applied shall receive a Type S-5 finish except that after leveling and floating, it shall be raked in such a manner as to provide a good bond for the grout. Raking shall develop a pattern with a depth of 1/4" every 2". Before grout is deposited on the slab, it shall be thoroughly cleaned, wet down with clean water and lightly dusted with neat cement immediately prior to placement of the grout.

3.8 SCHEDULE OF CONCRETE FINISHES

- A. Form Tolerances: As specified in Section 03 11 00, CONCRETE FORMWORK.

- B. Provide concrete finishes as scheduled:

Area	Type of Finish	Required Form Tolerances
EXTERIOR WALL SURFACES		
Above grade/exposed (above a point 12" below finish grade)	W-2	W-B
Backfilled (below a point 12" below final grade)	W-1	W-A
INTERIOR WALL SURFACES		
Hydraulic Structures including tanks, pump stations, flow channels, junction boxes, and basins	W-5	W-A
Buildings, pipe galleries, and other dry areas	W-5	W-B
EXTERIOR SLABS		
Exposed Roof slab or Slab-on-grade for non-hydraulic structures (includes slabs under open canopies)	S-5	
Roof slab or Top of Wall for Hydraulic Structures	S-1	
Other water holding tanks and basins	S-1	
Stairs and landings	S-5	
Sidewalks	S-6	
Other exterior slabs/pads	S-6	

Top surfaces of basins in which raking mechanisms are to be installed	S-7	
INTERIOR SLABS		
Non-Hydraulic areas such as pipe galleries and slabs-on-grade	S-1	
Hydraulic channels / Water Holding Structures	S-1	
Underside of elevated slabs	S-3	
Slabs to receive fill and mortar setting beds	S-2	

3.9 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

3.10 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.

- c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
- 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
- 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
- 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.11 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
 - 1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 - 2. Do not apply to concrete that is less than 28 days' old.
 - 3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.12 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semi-rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 REPAIRING CONCRETE

A. General:

1. Any areas deemed as having excessive defects or considered to have a negative effect on the structural performance of the structure shall be removed to the extents approved by the Engineer. The Engineer has the option of calling for the removal of the entire section if the damage is such that a repair will not be a suitable option. All work required to correct the defect will be the responsibility of the Contractor and will be paid for by the Contractor.
2. Inject cracks as defined in 1.3.D Defective Areas with crack repair epoxy as specified in Section 03 64 00, CONCRETE REPAIR CRACK INJECTION.
3. Repair concrete surfaces defects as defined in 1.3.D Defective Areas using one of the materials specified in Section 03 01 00, CONCRETE SURFACE REPAIR SYSTEMS. Select system, submit for review, and obtain approval from Engineer prior to use.
4. Prior to starting the repair work, obtain quantities of color-matched repair material and manufacturer's detailed instructions for use to provide a structural repair with finish to match adjacent surface.
5. Develop repair techniques with material manufacturer.
6. Dress surface of repair that will remain exposed to view to match color and texture of adjacent surfaces. Repair of concrete shall provide a structurally sound surface finish, uniform in appearance or upgrade finish by other means until acceptable to Engineer.

B. Tie Holes:

1. Fill with nonshrink grout as specified in Section 03 60 00, GROUT.
2. Match color of adjacent concrete.
3. Compact grout using steel hammer and steel tool to drive grout to high density. Cure grout with water.

C. Alternate Form Ties-Through-Bolts:

1. Seal through-bolt hole by sandblasting or mechanically cleaning and roughening entire interior surface of hole, coating roughened surface with bonding agent and driving elastic vinyl plug and then dry packing entire hole on each side of plug with nonshrink grout, as specified in Section 03 60 00, GROUT. Use only enough water to dry pack grout. Dry pack while bonding agent is still tacky or remove bonding agent by mechanical means and reapply new bonding agent.
2. Compact grout using steel hammer and steel tool to drive grout to high density. Cure grout with water.

D. Exposed Metal Objects:

1. Metal objects not intended to be exposed in as-built condition of structure including wire, nails, and bolts, shall be removed by chipping back concrete to depth of 1 inch and then cutting or removing metal object.
2. Repair areas of chipped-out concrete per requirements of Section 03 01 00 CONCRETE SURFACE REPAIR SYSTEMS.

E. Blockouts at Pipes or Other Penetrations:

1. Meet details shown or submit proposed blockouts for review.
2. Use nonshrink, nonmetallic grout, Category I or II as specified in Section 03 60 00, GROUT.

3.14 FIELD QUALITY CONTROL

- #### A. Testing and Inspecting:
- Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports. Payment of the testing and inspection agency shall be by the Contractor from the contract allowance for independent testing in accordance with Section 01 29 00, PAYMENT PROCEDURES.

- B. Inspections:
1. Steel reinforcement placement.
 2. Headed bolts and studs.
 3. Verification of use of required design mixture.
 4. Concrete placement, including conveying and depositing.
 5. Curing procedures and maintenance of curing temperature.
 6. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd. plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C31/C31M.
 - a. Cast and laboratory cure two sets of three standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of three standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C39/C39M; test one set of three laboratory-cured specimens at 7 days and one set of three specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days. The third cylinder will be retained for subsequent testing if required by the Engineer.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 9. Test results shall be reported in writing to Engineer, Owner, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by the Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.
 12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- D. Measure floor and slab flatness and levelness according to ASTM E 1155 48 hours after finishing. Specified overall values of flatness $F(f)=25$; and levelness $F(L)=20$; with minimum local values, $F(f)=17$ and $F(L)=15$.
1. $F(L)$ value only applies to elevated slabs after shoring has been removed.
- E. Shrinkage Tests:
1. Drying shrinkage tests shall be performed for the trial batch indicated in Paragraph CONCRETE MIXTURES FOR HYDRAULIC ELEMENTS for the first placement of each class of concrete for all structures noted in paragraph CONCRETE MIXTURES FOR HYDRAULIC ELEMENTS, and during construction to insure continued compliance with these Specifications. Number of field test to be determined by Engineer or Engineer's Field Representative.
 2. Drying shrinkage specimens shall be 4" by 4" by 11" prisms with an effective gauge length of 10"; fabricated, cured, dried, and measured in accordance with ASTM C157 modified as follows: specimens shall be removed from molds at an age of 23 ± 1 hours after trial batching, shall be placed immediately in water at $70 \text{ }^{\circ}\text{F} \pm 3 \text{ }^{\circ}\text{F}$ for at least 30 minutes, and shall be measured within 30 minutes thereafter to determine original length and then submerged in saturated lime water at $73 \text{ }^{\circ}\text{F} \pm 3 \text{ }^{\circ}\text{F}$. Measurement to determine expansion expressed as a percentage of original length shall be made at age 7 days. This length at age 7 days shall be the base length for drying shrinkage calculations ("0" days drying age). Specimens then shall be stored immediately in a humidity control room maintained at $73 \text{ }^{\circ}\text{F} \pm 3 \text{ }^{\circ}\text{F}$ and $50\% \pm 4\%$ relative humidity for the remainder of the test. Measurements to determine shrinkage expressed as percentage of base length shall be made and reported separately for 7, 14, 21, and 28 days of drying after 7 days of moist curing.
 3. The drying shrinkage deformation of each specimen shall be computed as the difference between the base length (at "0" days drying age) and the length after drying at each test age. The average drying shrinkage deformation of the specimens shall be computed to the nearest 0.0001" at each test age. If the drying shrinkage of any specimen departs from the average of that test age by more than 0.0004", the results obtained from that specimen shall be discarded. Results of the shrinkage test shall be reported in graphical form Length Change (in) vs. Age (days) and Length Change (%) vs. Age (days) to the nearest 0.001% of shrinkage. Compression test specimens shall be taken in each case from the same concrete used for preparing drying shrinkage specimens. These tests shall be considered a part of the normal compression tests for the project. Allowable shrinkage limitations shall be as indicated below.
 - a. Shrinkage Limitation: The maximum concrete shrinkage for specimens cast in the laboratory from the trial batch, as measured at 21-day drying age or at 28-day drying age shall be 0.036% or 0.042%, respectively. The Contractor shall only use a mix design for construction that has first met the trial batch shrinkage requirements.
 - b. The maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 25%.
 - c. If the required shrinkage limitation is not met during construction, the Contractor shall take any or all of the following actions at no additional cost to the Owner, for securing the specified shrinkage requirements. These actions may include

changing the source of aggregates, cement and/or admixtures; reducing water content; washing of aggregate to reduce fines; increasing the number of construction joints; modifying the curing requirements; or other actions designed to minimize shrinkage or the effects of shrinkage

- F. Water Leakage Tests: In accordance with ACI 350.1.
1. Purpose: Determine integrity and water tightness of finished concrete surfaces. Contractor shall perform and pay for all costs associated with water leakage tests. Report all test results to the Engineer.
 2. All water-holding Structures:
 - a. Perform leakage tests after concrete structure is complete and capable of resisting the hydrostatic pressure of the water test. The concrete shall have achieved its full design strength.
 - b. Perform leakage test before backfill, brick facing, or other work that will cover concrete wall surfaces is begun.
 - c. Install all temporary bulkheads, cofferdams, and pipe blind flanges, and close all valves. Inspect each to see that it provides a complete seal.
 - d. Fill with water to test level shown, or maximum liquid level if no test level is given. Maintain this level for 72 hours prior to the start of the test to allow water absorption, structural deflection, and temperature to stabilize.
 - e. Measure evaporation and precipitation by floating a partially filled, transparent, calibrated, open top container.
 - f. Measure the water surface at two points 180° apart, when possible where attachments such as ladders exist, at 24-hour intervals. Using a sharp pointed hook gauge and fixed metal measure capable of reading to 1/100 of an inch. Continue the test for a period of time sufficient to produce at least 1/2" drop in the water surface based on the assumption that leakage would occur at the maximum allowable rate specified or for 72 hours whichever is the lesser time.
- G. Acceptance Criteria:
1. Volume loss shall not exceed 0.075% of contained liquid volume in a 24-hour period, correcting for evaporation, precipitation, and settlement.
 2. No damp spots or seepage visible on exterior surfaces. A damp spot is defined as sufficient moisture to be transferred to a dry hand upon touching.
- H. Repairs When Test Fails: Dewater the structure; fill leaking cracks with crack repair epoxy as specified in Section 03 64 00 CONCRETE REPAIR CRACK INJECTION. Patch areas of damp spots previously recorded, and repeat water leakage test in its entirety until the structure successfully passes the test.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 03 41 00 – PRECAST CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Precast concrete required for this Project.
- B. Reinforcing.
- C. Accessories.

1.2 RELATED SECTIONS

- A. Section 03 11 00, CONCRETE FORMWORK
- B. Section 03 20 00, CONCRETE REINFORCEMENT
- C. Section 03 30 00, CAST-IN-PLACE CONCRETE

1.3 QUALITY ASSURANCE

- A. Qualifications of workmen:
 - 1. Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly trained and experienced in placing and erecting the type of concrete described herein and who shall direct all work performed under this Section.
 - 2. Precast subcontractor shall be experienced in constructing the type of precast material required for the project. Submit data for approval.
 - 3. For finishing of exposed surfaces of the concrete, use only thoroughly trained and experienced journeyman concrete finishers.
 - 4. Approval required in advance in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.
- B. Codes and Standards:
 - 1. Comply with all pertinent codes and regulations and publication ACI 301 of the American Concrete Institute, latest edition.
 - 2. Where provisions of pertinent codes and standards conflict with this Specification, the more stringent provisions shall govern.

1.4 SUBMITTALS

- A. Materials list: Before any precast concrete is delivered to the construction site, submit to the Engineer in accordance with Section 01 33 00 SUBMITTAL PROCEDURES a complete list of all materials proposed to be furnished and installed under this portion of the work, showing manufacturer's name and catalog number for all items such as bond breaker, inserts, chairs, and conduits.

1.5 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

1.6 DESIGN

- A. All design of pre-stressed members shall be done in strict accordance with procedures set forth in the current edition of ACI 318 "Building Code Requirements for Reinforced Concrete."
- B. All precast structural concrete members shall be designed to meet requirements of the Building Code.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Concrete:
 1. Cement shall be Portland Cement conforming to ASTM C150, Portland Cement.
 2. Aggregates shall conform in quality to ASTM C33 for heavyweight aggregate.
 3. Heavyweight aggregates shall be graded crushed stone with a resulting unit weight of concrete of up to 155 pounds per cubic foot.
 4. Water shall be clean and free of injurious and deleterious substances.
 5. Concrete strength shall be minimum 5,000 psi at 28 days.
- B. Steel:
 1. Pre-stressing steel shall be high tensile strength uncoated seven wire strand which is low-relaxation strand or has been stress-relieved as a unit after the wires have been formed into a strand. It shall be manufactured and tested in accordance with ASTM A416. Either 250K or 270K strand may be used.
 2. All reinforcing bars shall conform to the requirements of ASTM A615, Grade 60 as required.
 3. Welded wire fabric shall conform to the requirements of ASTM A185.
 4. Cast in plates shall conform to the requirement of ASTM A36, or A440 as required.

2.2 OTHER MATERIALS

- A. All other materials not specifically described but required for a complete and proper installation of the work of this Section, shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Inspections:
 1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that the work of this Section may be performed in strict accordance with all pertinent codes and regulations, the original design, and the manufacturer's recommendations for the items being installed.
- B. Discrepancies:
 1. In the event of discrepancy, immediately notify the Engineer.
 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 QUALITY

- A. Manufacturer of precast concrete shall be adequately equipped to form, place, and cure the required precast concrete, and shall have experience to produce precast concrete of required strength and water resistance.

3.3 PLACEMENT OF REINFORCEMENT

- A. Place all reinforcement in strict accordance with the drawings and with the provisions of Section 03 20 00, CONCRETE REINFORCEMENT of these Specifications.

3.4 PLACEMENT OF CONCRETE

- A. General:
 - 1. Concrete shall be placed and compacted by tamping or vibrating to produce a dense waterproof product.
 - 2. Finish all concrete surfaces in smooth finish to the tolerances described in Section 03 30 00, CAST-IN-PLACE CONCRETE of these Specifications.
- B. Curing:
 - 1. Cure all concrete of this Section in strict accordance with the methods specified in Section 03 30 00, CAST-IN-PLACE CONCRETE or approved alternative.

3.5 OPENINGS

- A. Locations and sizes of all openings 3 inches wide or larger to be cast into the members, if not shown on the contract drawings, must be supplied when shop drawings are submitted for approval. All other openings not so located shall be job cut by the various trades requiring them. All holes less than 3 inches in dimension through precast members are to be made by drilling or cutting in the field, by the various trades requiring them. However, field holes or cuts may not be made in the precast members without prior approval of the manufacturer.

3.6 ERECTION

- A. Responsibility:
 - 1. The entire method and sequence of erection shall be the responsibility of the Contractor.
- B. Alignment:
 - 1. Set all units in true alignment in all directions.
- C. All precast concrete items with cracks or other flaws that will detract from the appearance, shall be replaced.
- D. Grind to remove sharp edges.

END OF SECTION

DIVISION 13

SPECIAL CONSTRUCTION

SECTION 13 47 13 – CATHODIC PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes passive cathodic protection systems that use magnesium anodes to protect ductile iron pipe at existing gas line crossing.
- B. Related sections:
 - 1. Section 33 34 13 – Ductile Iron Water Transmission Pipe and Fittings
 - 2. Section 40 42 13.16 – Polyethylene Encasement for DIP and CIP

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design, supervise, test, and inspect the installation of cathodic protection systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
 - 1. Design cathodic protection for pipelines according to NACE RP0169.
- B. Survey site and determine soil or water corrosivity (resistivity), current requirements, potential surveys, stray currents, and water chemistry/corrosivity (pH).
- C. Select anodes and accessories relevant to level of protection. Design anodes for an estimated life of 30 years before replacement.
- D. Cathodic protection systems shall provide protective potential that complies with referenced NACE standards. Insulators are required if needed to insulate protected metals from other structures.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For cathodic protection. Include plans, evaluations, sections, details, and attachments to other work.
 - 1. Detail locations of cathodic protection equipment, devices, and outlets, with characteristics and cross-references to products.
 - 2. Include calculations and details of anode designs.
 - 3. Include labeling and identifying scheme for wires, cables, and test boxes.
- C. Delegated-Design Submittal: For cathodic protection system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified corrosion engineer responsible for their preparation.
 - 1. Conduct site tests necessary for design, including soil resistivity, close-interval potential surveys, testing during construction, interference testing, and training of Owner's personnel.
 - 2. Provide system design calculations, stating the maximum recommended anode current output density, and the rate of gaseous production, if any, at that current density.
- D. Provide all submittals per requirements of Section 01 33 00, SUBMITTAL PROCEDURES

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans, drawn to scale, and coordinating connections to piping.
- B. Qualification Data: For qualified professional engineer. Submit evidence of current license, corporate authorization (if applicable) of the engineering business, and NACE certifications.
- C. Field quality-control reports.
- D. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - 1. Basic system operation, outlining the step-by-step procedures required for system startup, operation, adjustment of current flow, and shutdown.
 - 2. Instructions for pipe-to-reference cell and tank-to-reference cell potential measurements and frequency of monitoring.
 - 3. Instructions for dielectric connections, interference and sacrificial-anode bonds; and precautions to ensure safe conditions during repair of pipe, tank or other metallic systems. Instructions shall be neatly bound.
 - 4. Locations of all anodes, test stations, and insulating joints.
 - 5. Structure-to-reference cell potentials as measured during the tests required by "Field Quality Control" Article.
 - 6. Recommendations for maintenance testing, including instructions for pipe-to-reference cell potential measurements and frequency of testing.
 - 7. Precautions to ensure safe conditions during repair of pipe system.

1.6 QUALITY ASSURANCE

- A. Corrosion Engineer Qualifications: A qualified professional engineer who has education and experience in cathodic protection of buried and submerged metal structures and has NACE accreditation or certification as a Corrosion Specialist or Cathodic Protection Specialist.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect anodes from exposure to rain and direct sunlight.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace permanent reference electrodes that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MAGNESIUM ANODES, TYPE II

- A. Comply with ASTM B 843.
- B. Chemical composition as percent of weight shall be as follows:
 - 1. Aluminum: 0.010 maximum.
 - 2. Manganese: 0.50 to 1.3.

3. Zinc: 0.05 maximum.
 4. Silicon: 0.50 maximum.
 5. Copper: 0.02 maximum.
 6. Nickel: 0.001 maximum.
 7. Iron: 0.03 maximum.
 8. Other Impurities: 0.05 each; 0.3 maximum total.
 9. Magnesium: Remainder.
- C. Anode Core: Galvanized steel with anode wire silver-soldered to the core. Connection shall be recessed and epoxy insulated for 600-V rating. Connection shall be covered with heat-shrinkable tubing, and insulation shall be extended over connection.
- D. Anode Wires: Factory-installed cables, with copper conductors, suitable for direct burial; not less than No. 10 AWG with Type THWN insulation according to ASTM D 1248 and NEMA WC 70/ICEA S-95-658; long enough to extend to accompanying junction box without splicing.
- E. Anode Backfill: Backfill materials packaged in water-permeable fabric sack or cardboard container. Anodes shall be factory installed in packaged backfill using methods that result in dense packing of fill with factory-installed anode spacers to ensure centering of anode in packaged anode backfill. Backfill material shall have the following chemical composition by weight:
1. Hydrated Gypsum: 75 percent.
 2. Bentonite Clay: 20 percent.
 3. Anhydrous Sodium Sulfate: 5 percent.

2.2 MAGNESIUM/MANGANESE ALLOY ANODES

- A. Chemical composition as percent of weight shall be as follows:
1. Aluminum: 0.01 maximum.
 2. Manganese: 0.50 to 1.3.
 3. Copper: 0.02 maximum.
 4. Nickel: 0.001 maximum.
 5. Iron: 0.03 maximum.
 6. Other Impurities: 0.05 each; 0.3 maximum total.
 7. Magnesium: Remainder.
- B. Bare Anode Weight: 40 lb, not including core, and a nominal length of 60 inches.
- C. Anode Wires: Factory-installed cables, with copper conductors, suitable for direct burial; not less than No. 10 AWG with Type THWN insulation according to ASTM D 1248 and NEMA WC 70/ICEA S-95-658; long enough to extend to accompanying junction box without splicing.
- D. Anode Backfill: Backfill materials packaged in water-permeable fabric sack or cardboard container. Anodes shall be factory installed in packaged backfill using methods that result in dense packing of fill with factory-installed anode spacers to ensure centering of anode in packaged anode backfill. Backfill material shall have the following chemical composition by weight:
1. Hydrated Gypsum: 75 percent.
 2. Bentonite Clay: 20 percent.
 3. Anhydrous Sodium Sulfate: 5 percent.

2.3 PERMANENT REFERENCE ELECTRODES

- A. Copper/copper sulfate (Cu/CuSO₄), suitable for direct burial. Electrode shall be guaranteed by supplier for 30 years' service in the installed environment.

2.4 WIRE AND CABLE

- A. Anode Header Cable: Single-conductor, Type HMWPE, insulated cable specifically designed for direct-buried dc service in cathodic protection installations.
 1. Conductor: Stranded, annealed, uncoated copper, not less than No. 8 AWG, complying with ASTM B 3 and ASTM B 8.
 2. Insulation: High-molecular-weight polyethylene, complying with NEMA WC 70/ICEA S-95-658.
 3. Minimum Average Thickness of Insulation: 110 mils for Nos. 8 through 2 AWG, and 125 mils for Nos. 1 through 4/0 AWG; rated at 600 V.
 4. Connectors: exothermic welds.
- B. Conductors and Cables: Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
 1. Bonding Conductors for Joint and Continuity Bonds: Not less than No. 8 AWG, stranded, Type THWN copper conductors.
 2. Flexible Pipe Coupling Bonds: Flexible copper straps with electrical resistance equal to No. 1/0 AWG stranded copper wire and with five holes for five exothermic welds to pipe.
 3. Test Wires: No. 12 AWG, Type THWN copper conductors.
 4. Resistance Wires: No. 16 or No. 22 AWG nickel-chromium wire.
 5. Cables for Installation in Conduit: Type THWN copper conductors.

2.5 TEST STATIONS

- A. Plastic Test Stations: Flush-mounted type, manufactured of high-impact-resistant PVC or polycarbonate with watertight conduit connections and cover and removable terminal board having at least five terminals.
- B. Test Station Mounting Enclosures:
 1. Non-Traffic-Area Boxes: Comply with requirements in Section 260533 "Raceways and Boxes for Electrical Systems."
 2. Traffic-Area Boxes: Comply with requirements in Section 260543 "Underground Ducts and Raceways for Electrical Systems." Boxes shall have cast-iron covers with a welded bead legend "CP TEST."

2.6 SEALING, POTTING, AND DIELECTRIC COMPOUNDS

- A. Sealing and Dielectric Insulating Compound: Comply with NACE RP0188. Black, rubber based, soft, permanently pliable, tacky, moldable, and unbacked; 0.5 inch thick.
- B. Potting Compound: Comply with NACE RP0188. Cast-epoxy, two-package type; fabricated for this purpose and covered with heat-shrinkable tape.
- C. Pressure-Sensitive, Vinyl-Plastic Electrical Tape: Comply with UL 510.

2.7 EXOTHERMIC WELDING MATERIALS

- A. Exothermic Weld Kits: Specifically designed by manufacturer for welding materials and shapes required.

- B. Exothermic Weld Caps: Dome of high-density polyethylene, 10-mil minimum thickness, filled with mastic and containing a tunnel portion to separate lead wire from exothermic weld.

2.8 COATING REPAIR MATERIALS

- A. Touchup Coating Materials: Apply touch up coating to match requirements of manufacturer of original coating material.
- B. Adhesive-Applied Coating Materials: Coating materials shall be compatible with factory-applied coating system.
 - 1. Nominal thickness of coating materials shall be not less than 60 mils, plus or minus 5 percent.
 - 2. Coating materials shall be one of the following supplied by factory-applied coating system manufacturer:
 - a. Polyvinyl-chloride, pressure-sensitive, adhesive tape.
 - b. High-density polyethylene/bituminous rubber compound tape.
 - c. Butyl rubber tape.
 - d. Coal-tar epoxy.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

- A. Comply with ANSI/IEEE C2 and NFPA 70.
- B. Make connections to ferrous pipe using exothermic welding.
- C. Coat welds with the coating repair material and apply an exothermic weld cap.

3.2 MAGNESIUM ANODE INSTALLATION

- A. Install magnesium anodes at locations that clear obstructions. Install at least 36 inches and no more than 10 feet from pipe to be protected. Install in augered holes with top of anode a minimum of 36 inches below finished grade. In soils that will collapse into augered holes, use casing of galvanized sheet steel.
- B. Install anodes in a dry condition after plastic or waterproof protective covering has been completely removed from water-permeable permanent container that houses anode metal. Do not use anode-connecting wire for lowering anode into hole. Backfill annular space around anode with fine earth in 6-inch layers; compact each layer using hand tools. Do not strike anode or connecting wire during backfilling and compacting. After backfilling and compacting to within 6 inches of finished grade, pour approximately 5 gal. of water into each filled hole. After water has been absorbed by earth, complete backfilling to finished level.
- C. If rock strata are encountered before achieving specified augured hole depth, install anodes horizontally at depth at least as deep as bottom of pipe to be protected.
- D. Install anodes spaced as indicated, connected through a test station to the pipeline, allowing slack in connecting wire to compensate for movement during backfill operation.
- E. For tank protection, connect groups of anodes to collector cable. Make contact, through a test station, with tank to be protected.
- F. Do not use resistance wires to reduce current output of individual or group anodes.

- G. Wrap polyethylene encasement around wires to provide a watertight pipe area.

3.3 INSTALLATION OF REFERENCE ELECTRODES

- A. Install directly beneath the buried metallic component being protected.

3.4 CABLE AND WIRE INSTALLATION

- A. Install conductors, except anode wires, in PVC conduit with waterproof PVC junction boxes.
- B. Anode Wire Installation: Cover trench bottom for the anode wire with 3-inch layer of sand or stone-free earth. Center wire on backfill layer and do not stretch or kink the conductor. Place backfill over wire in layers not exceeding 6 inches deep, and compact each layer. Use clean fill, free from roots, vegetable matter, and refuse. Place cable underground-line warning tape within 18 inches of finished grade, above cable and conduit.
- C. Bonding Conductors: Install conductors on metallic pipe and tanks, to and across buried flexible couplings, mechanical joints, and flanged joints except at places where insulating joints are specified. Welded and threaded joints are considered electrically continuous and do not require bonding.
 - 1. Install at least two bonds between parts requiring bonding.
 - 2. Bonding conductors must contain sufficient slack for anticipated movement between structures. Bonding conductors across pipe joints shall have not less than a 4-inch slack for pipe expansion, contraction, and soil stress.
 - 3. Connect bonding conductors to pipe, coupling follower rings and coupling middle ring or sleeve. Connect bonding conductors with exothermic welds.
- D. For wire splicing, use compression connectors or exothermic welds.

3.5 TEST STATIONS

- A. Install test stations as follows:
 - 1. Where pipe crosses existing gas line.
- B. Install test stations on backfill complying with requirements for trench bottom fill for anode wires unless otherwise indicated.
- C. Terminate test conductors on terminal boards and install a spare set of test leads at each testing location.

3.6 COATINGS

- A. Field Joints: Apply adhesive-applied coating system in a thickness to achieve corrosion protection equal to adjacent factory-applied coating.

3.7 IDENTIFICATION

- A. Identify anode wires and anode header cables with marker tape.
- B. Identify underground wires and cables with underground-line warning tape.
- C. Identify text boxes with engraved, laminated acrylic or melamine label, permanently attached to text box.

3.8 FIELD QUALITY CONTROL

- A. Comply with NACE RP0169 and NACE RP0285.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installation, including connections.
- D. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- E. Tests and Inspections:
 - 1. Static Pull Test: Choose, at random, one completed anode of each type for this destructive test. Demonstrate that anode wire connections have enough strength to withstand a minimum tensile load of 300 lb. If test fails, replace all anodes and repeat test at another randomly selected anode.
 - 2. Insulation Testing: Before anode system is connected to pipe, test insulation at each insulating joint and fitting. Demonstrate that no metallic contact, or short circuit, exists between the two insulated sections of pipe. Replace defective joints or fittings.
 - 3. Bonding Tests: Test for electrical continuity across all bonded joints. Repair or add additional bonds until electrical continuity is achieved.
 - 4. Baseline Potentials: After backfilling of pipe and anodes is completed, but before anodes are connected to pipe, measure the static potential of pipe to soil. Record initial measurements.
 - 5. Anode Output: Measure electrical current as anodes or groups of anodes are connected to pipe. Use a low-resistance ammeter. Record current, date, time, and location of each measurement.
 - 6. Pipe-to-Reference Electrode Potential Measurements: On completion of installation of entire cathodic protection system, make electrode potential measurements according to NACE RP0169, using a copper/copper-sulfate reference electrode and a potentiometer-voltmeter, or a dc voltmeter with an internal resistance (sensitivity) of not less than 100,000 ohms per volt and a full scale of 1 or 2 V. Make measurements at same locations as those used for baseline potentials. Record voltage, date, time, and location of each measurement, using one of the following two methods:
 - a. 0.85 V Negative Voltage: With cathodic system in operation, measure a negative voltage of at least minus 0.85 V between pipe and a saturated copper/copper-sulfate reference electrode contacting the earth directly over pipe.
 - b. 100-mV Polarization Voltage: Determine polarization voltage shift by interrupting protective current and measuring polarization decay. An immediate voltage shift will occur if protective current is interrupted. Use voltage reading, after immediate shift, as base reading from which to measure polarization decay. Measure at least a minimum polarization voltage shift of 100 mV between pipe and a saturated copper/copper-sulfate reference electrode contacting the earth directly over pipe.
- F. Location of Measurements for Piping: For coated piping or conduit, measure from reference electrode in contact with the earth directly over pipe. Measure at intervals not exceeding 400 feet. Make additional measurements at each distribution service riser, with reference electrode placed directly over service line.
- G. Interference Testing: Test interference with cathodic protection from any foreign pipes and tanks in cooperation with Owner of foreign pipes and tanks. Report results and recommendations.

- H. Stray Current Measurements: Perform at each test station. Mitigate stray currents due to lightning or overhead ac power transmission lines as provided for in NACE standards.
- I. Inspect coatings; comply with NACE RP0188. Repair imperfections of factory-applied coatings as specified in "Coatings" Article.
 - 1. Use electronic holiday detectors to detect coating imperfections.
 - 2. All damage to the protective coating during transit and handling shall be repaired before installation.
 - 3. Repair factory-applied coatings to have equal or better corrosion resistance than the factory-applied coating system. Field-repair material shall be of the type approved by, and shall be applied as recommended by, manufacturer of the coating material.

3.9 ADJUSTING

- A. Adjust cathodic current using resistors as recommended by corrosion engineer who prepared the Delegated-Design Submittal in Part 1.
- B. During the first year after Substantial Completion, test, inspect, and adjust cathodic protection system every three months to ensure its continued compliance with specified requirements.

3.10 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain cathodic protection system.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

DIVISION 31 EARTHWORK

SECTION 31 11 00 - SITE PREPARATION

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.
- B. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.
- C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 2 inches caliper to a depth of 12 inches below subgrade.
- D. Scalping: Removal of sod without removing more than upper 3 inches of topsoil.
- E. Stripping: Removal of topsoil remaining after applicable scalping is completed.
- F. Project Limits: Areas, as shown or specified, within which Work is to be performed.

1.2 SUBMITTALS

- A. Shop Drawings: Drawings clearly showing clearing, grubbing, and stripping limits.

1.3 QUALITY ASSURANCE

- A. Obtain Engineer's approval of staked clearing, grubbing, and stripping limits, prior to commencing clearing, grubbing, and stripping.

1.4 SCHEDULING AND SEQUENCING

- A. Prepare site only after adequate erosion and sediment controls are in place. Limit areas exposed uncontrolled to erosion during installation of temporary erosion and sediment controls to maximum of 5 acres.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or site improvements within limits shown or specified.
- B. Do not injure or deface vegetation that is not designated for removal.

3.2 LIMITS

- A. As follows, but not to extend beyond Project limits.
 - 1. Excavation, including trenches, 5 feet beyond top of cut slopes or shored walls.
 - 2. Fill:
 - a. Clearing and Grubbing: 5 feet beyond toe of permanent fill.
 - b. Stripping and Scalping: 2 feet beyond toe of permanent fill.
 - 3. Structures: 15 feet outside of new structures.

- 4. Roadways: Clearing, grubbing, scalping, and stripping 15 feet from centerline.
- 5. Other Areas: As shown.

B. Remove rubbish, trash, and junk from entire area within Project limits.

3.3 CLEARING

- A. Clear areas within limits shown or specified.
- B. Fell trees so that they fall away from facilities and vegetation not designated for removal.
- C. Cut stumps not designated for grubbing to within 6 inches of ground surface.
- D. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.4 GRUBBING

- A. Grub areas within limits shown or specified.

3.5 SCALPING

- A. Do not remove sod until after clearing and grubbing is completed and resulting debris is removed.
- B. Scalp areas within limits shown or specified.

3.6 STRIPPING

- A. Do not remove topsoil until after scalping is completed.
- B. Strip areas within limits to minimum depths shown or specified. Do not remove subsoil with topsoil.
- C. Stockpile strippings, meeting requirements for topsoil, separately from other excavated material.

3.7 TREE REMOVAL OUTSIDE CLEARING LIMITS

- A. Remove Within Project Limits: Dead, dying, leaning or otherwise unsound trees that may strike and damage Project facilities in falling.
- B. Cut stumps off flush with ground, remove debris and if disturbed, restore surrounding area to its original condition.
- C. Trees subject for removal is at discretion of City Engineer.

3.8 TOPSOIL

- A. Natural, friable, sandy loam, obtained from well-drained areas, free from objects larger than 1-1/2 inches maximum dimension, and free of subsoil, roots, grass, other foreign matter, hazardous or toxic substances, and deleterious material that may be harmful to plant growth or may hinder grading, planting, or maintenance.

3.9 DISPOSAL

- A. Clearing and Grubbing Debris:
 - 1. Dispose of debris
 - 2. Burning of debris will not be allowed.
 - 3. Woody debris may be chipped. Chips may be sold to CONTRACTOR'S benefit or used for landscaping as mulch or uniformly mixed with topsoil, provided that resulting mix will be fertile and not support combustion. Maximum dimensions of chipped material used shall be 1/4-inch by 2 inch. Dispose of chips that are unsaleable or unsuitable for landscaping or other uses with unchipped debris.
 - 4. Limit disposal of clearing and grubbing debris to locations that are approved by federal, state, and local authorities, and that will not be visible from Project.
- B. Scalpings: As specified for clearing and grubbing debris.
- C. Strippings:
 - 1. Dispose of strippings that are unsuitable for topsoil or that exceed quantity required for topsoil
 - 2. Stockpile topsoil in sufficient quantity to meet Project needs. Dispose of excess strippings as specified for clearing and grubbing.

END OF SECTION

SECTION 31 23 16.16 – TRENCHING FOR WATER AND SEWER LINES

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes excavation required for the construction of water and sewer pipes and appurtenances.
- B. Related sections:
 - 1. Section 31 23 23.16 – Trench Backfill
 - 2. Section 31 23 19 - Dewatering
 - 3. Section 33 34 13 – Ductile Iron Water Transmission Pipe and Fittings
 - 4. Section 33 41 19 – Pipe Laying
 - 5. Section 33 34 16 – PVC Pipe and Fittings

1.2 GENERAL

- A. General Requirements: See Division 01, GENERAL REQUIREMENTS, which contains information and requirements that apply to the work specified herein and are mandatory for this project.
- B. Provide and install trench bracing and shoring that conforms to the requirements of 29 CFR Part 1926 Subpart P of the OSHA Standards. Bracing shall be so arranged as not to place any strain on portions of completed work until the construction has proceeded far enough to provide ample strength.
- C. Over excavation, whether by Contractor's negligence or at direction of the Engineer, shall be repaired to required lines and grades.
- D. Trenches shall be dug to the alignment and depth required and shall not advance more than 100 feet ahead of the completed pipe, unless otherwise permitted by the Engineer.

1.3 UTILITIES

- A. Contractor shall call the Texas811 two working days before starting excavation. The Texas811 phone number is 800-344-8377.
- B. The location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied upon as being exact or complete. The Contractor must call each utility owner at least two working days before any excavation to request exact field location of utilities.
- C. Protect utilities encountered during excavation.
- D. Do not interrupt service in utilities encountered during excavation without approval of the utility owner.
- E. If utilities are damaged or utility service is interrupted by work under this section, the utility owner has the first right to repair. If public health or safety is at risk, Contractor shall take appropriate prudent action to repair damage and service interruption. Costs of utility protection and repair shall be at no additional cost to the Owner.

- F. If existing utilities are found to interfere with the permanent facility being constructed, notify the Engineer for instructions. Do not proceed with permanent relocation of utilities without written instructions from the Engineer.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Shall be as specified in Section 31 23 23.16, TRENCH BACKFILL

PART 3 - EXECUTION

3.1 GENERAL

- A. Notify property residents two working days prior to beginning excavation on property.
- B. Excavated materials not suitable for backfill or embankment shall not be incorporated into the project but shall be disposed of by Contractor.
- C. Excavate with caution so that structures and underground conduits can be protected.
- D. Excavate every type of material encountered to the lines and elevations necessary to complete the project.
- E. Reroute surface water before excavating and protect excavated trench from entrance of surface water.
- F. In general, the sheeting and bracing shall be removed as the trench or excavation is backfilled, and in such a manner as to avoid the caving in of the bank or disturbance of adjacent areas or structures. The voids left by the withdrawal of sheeting shall be backfilled the same as trench excavations.
- G. Provide "before and after" color photographs of lawns and gardens to Engineer.
- H. Comply with Section 33 41 19, PIPE LAYING.

3.2 TRENCH DEPTH

- A. Excavate to the elevation necessary to provide the depth of bedding material under the barrel of the pipe, noted on the plans or in these specifications, whichever is greater.
- B. All over-excavation up to 2 feet shall be backfilled with bedding material in 6-inch layers and tamped to a bearing capacity equal to the adjacent undisturbed earth. Over excavation greater than 2 feet will require excavation operation to stop until an engineered backfill is determined. Over excavation shall not proceed until approved by Engineer. Contractor shall bear all expense involved if he fails to obtain prior approval from the Engineer.

3.3 TRENCH WIDTH

- A. Excavate to the width shown in detail drawings. Specified width dimensions must be maintained from trench bottom to an elevation 12 inches above barrel of pipe. Over-width excavation will require excavation operation to stop until additional earth loads can be compared to strength of pipe. Costs of unauthorized deviation from the specified width will be borne by the Contractor.

3.4 TRENCH LENGTH

- A. Excavate to a maximum distance of 100 feet from the pipe jointing operation. Longer distances will be considered when conditions warrant.

3.5 EXCAVATION IN ROCK

- A. When rock is encountered, excavate to an elevation 6 inches below the pipe and to the trench width as shown in the details at no additional cost to Owner.

3.6 EXCAVATION IN UNSUITABLE SOIL

- A. Where, in the judgment of the Engineer, the planned bottom of trench is found to be unstable, excavation shall stop until an engineered subgrade stabilization method is determined.

3.7 EXCAVATION IN WET CONDITIONS

- A. Where the planned bottom of trench contains water or the trench bottom is soft from excess water, excavation depth shall increase a minimum of 6 inches or as directed by the Engineer.

3.8 EXCAVATION IN UNFORESEEN STRUCTURE

- A. Preserve unforeseen structures encountered in excavation.
- B. Advise the Engineer when unforeseen structure interferes with planned work. Engineer will determine if plan will change or if structure will be abandoned.

3.9 UNAUTHORIZED EXCAVATION

- A. Unauthorized excavation is removal of materials beyond specified elevations or dimensions without the Engineer or Owner's specific prior approval.

3.10 UNSUITABLE AND EXCESS EXCAVATED MATERIAL:

- A. Excavated material not suitable for backfill and excess excavated material shall be disposed of by Contractor in a manner approved by the Engineer and applicable governmental regulations.

3.11 EXCAVATION DEWATERING:

- A. Refer to requirements in Section 31 23 19 DEWATERING
- B. Wellpointing or deep wells, where required to keep the excavation dry and the subgrade stable, shall be installed when the excavation extends to within two (2) feet of the water table, except as herein provided, and shall be in continuous operation until backfill is completed to this level.
- C. When construction equipment is to be operated in an area that has been excavated, and wellpointing or deep wells are required to keep the excavation dry and the subgrade stable, the wellpointing or deep wells shall be installed when the excavation extends to within five (5) feet of the water table.
- D. There shall be sufficient pumping equipment, in good working order, readily available at all times to remove any water that accumulates in excavations to the extent that a stable subgrade is obtained.

- E. Where the excavation crosses natural drainage channels, the work shall be conducted in such a manner that unnecessary damage or delays in the prosecution of the work will be prevented.
- F. Trench dewatering shall discharge to an approved location in conformance with the Stormwater Pollution Prevention Plan.
- G. Wellpoint dewatering for the sewer line construction will not be mandatory where a properly stabilized subgrade can be obtained by use of granular bedding. If granular bedding is utilized by the Contractor for stabilization of the trench bottom in lieu of wellpointing, such bedding material will not be measured for separate payment but will be considered subsidiary to the pipe installation.
- H. Where dewatering might be necessary to properly install the sewer line, such as at drainage channel crossings and tunnel or boring locations, the Contractor shall submit his proposal for this dewatering to the Owner for approval.
- I. Dewatering operations shall continue until pipe has been backfilled and a sufficient cover depth has been reached to prevent flotation of pipe.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 31 23 19 – DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Work required to dewater excavations.
- B. Related sections:
 - 1. Section 01 50 00 – Temporary Facilities and Controls.

1.2 WATER CONTROL PLAN

- A. As a minimum, include:
 - 1. Descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment; methods; standby equipment and power supply, pollution control facilities, discharge locations to be utilized, and provisions for immediate temporary water supply as required by this section.
 - 2. Drawings showing locations, dimensions, and relationships of elements of dewatering system.
- B. If system is modified during installation or operation revise or amend and resubmit Water Control Plan.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Remove and control surface and subsurface water during periods when necessary to properly accomplish Work.

3.2 SURFACE WATER CONTROL

- A. See Section 01 50 00, TEMPORARY FACILITIES AND CONTROLS.
- B. Remove surface runoff controls when no longer needed.

3.3 DEWATERING SYSTEMS

- A. Provide, operate, and maintain dewatering systems of sufficient size and capacity to permit excavation and subsequent construction in dry and to lower and maintain groundwater level a minimum of 2 feet below the lowest point of excavation. Continuously maintain excavations free of water, regardless of source, and until backfilled to final grade.
- B. Design and Operate Dewatering Systems:
 - 1. To prevent loss of ground as water is removed.
 - 2. To avoid inducing settlement or damage to existing facilities, completed Work, or adjacent property.
 - 3. To relieve artesian pressures and resultant uplift of excavation bottom.
 - 4. Prevent softening, loosening or otherwise disturbing the excavation subgrade.
- C. Provide sufficient redundancy in each system to keep excavation free of water in event of component failure.

- D. Provide supplemental ditches and sumps only as necessary to collect water from local seeps.

3.4 DISPOSAL OF WATER

- A. Obtain discharge permit for water disposal from authorities having jurisdiction.
- B. Treat water collected by dewatering operations, as required by regulatory agencies, prior to discharge.
- C. Discharge water as required by discharge permit and in manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.
- D. The discharge of ground water into treatment facilities will not be permitted unless specifically authorized by the Owner. Remove solids from treatment facilities and perform other maintenance of treatment facilities as necessary to maintain their efficiency. If Owner allows groundwater discharge into facilities.

3.5 PROTECTION OF PROPERTY

- A. Make assessment of potential for dewatering induced settlement. Provide and operate devices or systems, including but not limited to reinjection wells, infiltration trenches and cutoff walls, necessary to prevent damage to existing facilities, completed Work, and adjacent property.
- B. Securely support existing facilities, completed Work, and adjacent property vulnerable to settlement due to dewatering operations. Support shall include, but not be limited to, sheeting bracing, underpinning, or compaction grouting.

3.6 REMEDIATION OF GROUNDWATER AFTER DEPLETION

- A. If dewatering reduces quantity or quality of water produced by existing wells, temporarily supply water to affected well owners from other sources. Furnish water of a quality and quantity equal to or exceeding the quality and quantity available to the well owner prior to beginning Work or as satisfactory to each well owner.

END OF SECTION

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SECTION 31 23 23.13 - FILL AND BACKFILL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Work and materials required for fill and backfill for all excavations other than trench type excavations.
- B. Related sections:
 - 1. Section 02 41 00 – Demolition.
 - 2. Section 03 30 00 – Cast-In-Place Concrete.
 - 3. Section 31 23 23.16 – Trench Backfill.

1.2 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Society for Testing and Materials (ASTM):
 - a. ASTM C117, Standard Test Method for Materials Finer Than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing.
 - b. ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - c. ASTM D75, Standard Practice for Sampling Aggregates.
 - d. ASTM D698, Standard Test Methods for Laboratory Characteristics of Soil Using Modified Effort (12,400 ft-lbf/ft³).
 - e. ASTM D1556, Standard Test Method for Density of Soil in Place by the Sand Cone Method.
 - f. ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
 - g. ASTM D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
 - h. ASTM D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
 - i. ASTM D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

1.3 DEFINITIONS

- A. Relative Compaction:
 - 1. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with ASTM D698.
 - 2. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by Engineer.
- B. Optimum Moisture Content:
 - 1. Determined in accordance with ASTM D698 specified to maximum dry density for relative compaction.
 - 2. Determine field moisture content on basis of fraction passing 3/4-inch sieve.
- C. Relative Density: Calculated in accordance with ASTM D4254 based on maximum index density determined in accordance with ASTM D4253 and minimum index density determined in accordance with ASTM D4254.
- D. Prepared Ground Surface: Ground surface after completion of required demolition, clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and preparation.

- E. Completed Course: A course or layer that is ready for next layer or next phase of Work.
- F. Lift: Loose (uncompacted) layer of material.
- G. Geosynthetics: Geotextiles, geogrids, or geomembranes.
- H. Well-Graded:
 - 1. A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes.
 - 2. Does not define numerical value that must be placed on coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.
 - 3. Used to define material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.
- I. Influence Area: Area within planes sloped downward and outward at 60-degree angle from horizontal measured from:
 - 1. 1-foot outside outermost edge at base of foundations or slabs.
 - 2. 1-foot outside outermost edge at surface of roadways or shoulder.
 - 3. 0.5-foot outside exterior at spring line of pipes or culverts.
- J. Borrow Material: Material from required excavations or from designated borrow areas on or near site.
- K. Selected Backfill Material/Earthfill: Materials available onsite that Engineer determines to be suitable for specific use.
- L. Imported Material: Materials obtained from sources suitable for specified use.
- M. Structural Fill: Fill materials as required under structures, pavements, and other facilities.
- N. Embankment Material: Fill materials required to raise existing grade in areas other than under structures.
- O. Standard Specification: The latest edition, including supplements of the Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges.

1.4 SUBMITTALS

- A. Quality Control Submittals:
 - 1. Catalog and manufacturer's data sheets for compaction equipment.
 - 2. Certified test results from independent testing agency.

1.5 QUALITY ASSURANCE

- A. Notify Engineer when:
 - 1. Structure is ready for backfilling, and whenever backfilling operations are resumed after a period of inactivity.
 - 2. Soft or loose subgrade materials are encountered wherever embankment or site fill is to be placed.
 - 3. Fill material appears to be deviating from Specifications.

1.6 SEQUENCING AND SCHEDULING

- A. Complete applicable Work specified in Sections 02 41 00, DEMOLITION; 31 11 00 and SITE PREPARATION prior to placing fill or backfill.
- B. Backfill against concrete structures only after concrete has attained compressive strength, specified in Section 03 30 00, CAST-IN-PLACE CONCRETE. Obtain acceptance of concrete work and attained strength prior to placing backfill.
- C. Backfill around water-holding structures only after completion of satisfactory leakage tests as specified in Section 03 30 00, CAST-IN-PLACE CONCRETE.

PART 2 - PRODUCTS

2.1 SOURCE QUALITY CONTROL

- A. Gradation Tests: It will be the Contractor's responsibility to conduct testing as necessary to locate acceptable sources of imported material.
- B. Samples: Collected in accordance with ASTM D75: Clearly mark to show source of material and intended use.
- C. Material containing more than 10 percent gravel, stones or shale particles is unacceptable.
- D. Provide imported material of equivalent quality, if required to accomplish Work.

2.2 EARTHFILL

- A. Excavated material from required excavations, free from rocks larger than 3 inches, from roots and other organic matter, ashes, cinders, trash, debris, and other deleterious materials.

2.3 GRANULAR FILL

- A. Type A, 1-inch minus crushed gravel or crushed rock. Free from coarse to fine and containing sufficient fines to bind material when compacted, but with maximum 8 percent by weight passing no.200 sieve.

2.4 SAND

- A. Free from clay, organic matter, or other deleterious material.
- B. Gradation in accordance with ASTM C117 and ASTM C136.

Sieve Size	Percent Passing by Weight
1/4 -inch	100
No.4	95-100
No.200	0-8

2.5 WATER FOR MOISTURE CONDITIONING

- A. Free of hazardous or toxic contaminants, or contaminants deleterious to proper compaction.

2.6 FOUNDATION STABILIZATION ROCK

- A. Crushed rock or pit run rock.
- B. Uniformly graded from coarse to fine.
- C. Free from excessive dirt and other organic material.
- D. Maximum 2-1/2 inches particle size.

PART 3 - EXECUTION

3.1 GENERAL

- A. Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.
- B. Place and spread fill and backfill materials in horizontal lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified densities prior to placing succeeding lifts. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.
- C. During filling and backfilling, keep level of fill and backfill around each structure and buried tank even.
- D. Do not place fill or backfill, if fill or backfill material is frozen, or if surface upon which fill or backfill is to be placed is frozen.
- E. If pipe, conduit, duct bank, or cable is to be laid within fill or backfill:
 1. Fill or backfill to an elevation 2 feet above top of item to be laid.
 2. Excavate trench for installation of item.
 3. Install bedding, if applicable, as specified in Section 31 23 23.16, TRENCH BACKFILL.
 4. Install item.
 5. Backfill envelope zone and remaining trench, as specified in Section 31 23 23.16, TRENCH BACKFILL, before resuming filling or backfilling specified in this section.
- F. Tolerances:
 1. Final Lines and Grades: Within a tolerance of 0.1-foot unless dimensions or grades are shown or specified otherwise.
 2. Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.
- G. Settlement: Correct and repair any subsequent damage to structures, pavements, curbs, slabs, piping, and other facilities, caused by settlement of fill or backfill material.
- H. Fill and backfill materials shall be conditioned to a water content that is within 2 percentage points (plus or minus) of the optimum required for compaction as determined by ASTM D698.

3.2 BACKFILL UNDER AND AROUND STRUCTURES

- A. Under Facilities: Within influence area beneath structures, slabs, pavements, curbs, piping, conduits, duct banks, and other facilities, backfill with granular fill, unless otherwise shown. Place granular fill in lifts of 6-inch maximum thickness and compact each lift to minimum of 95 percent relative compaction as determined in accordance with ASTM D698, Method C.
- B. Subsurface Drainage: Backfill with granular drain material, where shown. Place granular drain material in lifts of 6-inch maximum thickness and compact each lift to minimum of 90 percent relative density.
- C. Other Areas: Backfill with earthfill to lines and grades shown, with proper allowance for topsoil thickness where shown. Place in lifts of 6-inch maximum thickness and compact each lift to minimum 95 percent relative compaction as determined in accordance with ASTM D698, Method C.

3.3 FILL

- A. Outside Influence Areas Beneath Structures, Tanks, Pavements, Curbs, Slabs, Piping, and Other Facilities: Unless otherwise shown, place earthfill as follows:
 - 1. Allow for 6-inch thickness of topsoil where required.
 - 2. Maximum 9-inch thick lifts.
 - 3. Place and compact fill across full width of embankment.
 - 4. Compact to minimum 95 percent relative compaction as determined in accordance with ASTM D698, Method C.
 - 5. Dress completed embankment with allowance for topsoil, crest surfacing, and slope protection, where applicable.

3.4 SITE TESTING

- A. Gradation:
 - 1. One sample from each 400 tons of finished product or more often as determined by Engineer, if variation in gradation is occurring, or if material appears to depart from Specifications.
 - 2. If test results indicate material does not meet Specification requirements, terminate material placement until corrective measures are taken.
 - 3. Remove material placed in Work that does not meet Specification requirements.
- B. In-Place Density Tests: In accordance with ASTM. During placement of materials, test as follows:
 - 1. One test per every other lift per 200 lineal feet of roadway or trench.
 - 2. A minimum of two tests on granular fill beneath structures.
 - 3. A minimum of two test per 300 cubic yards during backfilling of walls.
- C. Testing shall be the Contractor's responsibility and conducted by persons experienced in such work.

3.5 REPLACING OVEREXCAVATED MATERIAL,

- A. Replace excavation carried below grade lines shown or established by Engineer as follows:
 - 1. Beneath Footings: Concrete of strength equal to that of respective footing.
 - 2. Beneath Fill or Backfill: Same material as specified for overlying fill or backfill.
 - 3. Beneath Slabs-On-Grade: Granular fill.
 - 4. Trenches:

- a. Unauthorized Overexcavation: Either trench stabilization material or granular pipe base material, as specified in Section 31 23 23.16, TRENCH BACKFILL.
 - b. Authorized Overexcavation: Trench stabilization material, as specified in Section 31 23 23.16, TRENCH BACKFILL.
- 5. Permanent Cut Slopes (Where Overlying Area is Not to Receive Fill or Backfill):
 - a. Flat to Moderate Steep Slopes (3: 1, Horizontal Run: Vertical Rise or Flatter): Earthfill.
 - b. Steep Slopes (Steeper than 3: 1):
 - 1) Correct overexcavation by transitioning between areas and designed slope adjoining areas, provided such cutting does not extend offsite or outside easements and right-of-ways, or adversely impacts existing facilities, adjacent property, or completed Work.
 - 2) Backfilling overexcavated areas is prohibited unless, in opinion, backfill will remain stable, and overexcavated material is replaced as compacted earth fill.

END OF SECTION

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SECTION 31 23 23.16 - TRENCH BACKFILL

PART 1 - GENERAL

1.1 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American National Standards Institute (ANSI): 253.1, Safety Color Code.
 2. American Public Works Association (APWA): Uniform Color Code for Temporary Marking of Underground Utility Locations.
 3. American Society for Testing and Materials (ASTM):
 - a. ASTM D448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
 - b. ASTM C94, Specification for Ready-Mixed Concrete.
 - c. ASTM C117, Standard Test Method for Materials Finer than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing.
 - d. ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - e. ASTM C150, Standard Specification for Portland Cement.
 - f. ASTM C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 - g. ASTM D422, Standard Test Method for Particle-Size Analysis of Soils.
 - h. ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil using Standard Effort (12,400 ft-lbf/cubic ft).
 - i. ASTM D1140, Standard Test Methods for Amount of Material in Soils Finer than the No. 200 (75 micrometer) Sieve.
 - j. ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft-lbf).
 - k. ASTM D3776, Standard Test Methods for Mass per Unit Area (Weight) of Fabric.
 - l. ASTM D3786, Standard Test Method for Bursting Strength of Textile Fabrics: Diaphragm Bursting Strength Tester Method.
 - m. ASTM D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
 - n. ASTM D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
 - o. ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
 - p. ASTM D4533, Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
 - q. ASTM D4832, Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
 - r. ASTM D4991, Standard Test Method for Leakage Testing of Empty Rigid Containers by Vacuum Method.
 - s. ASTM D5034, Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).

1.2 DEFINITIONS

- A. Base Rock: Granular material upon which manhole bases and other structures are placed.
- B. Bedding Material: Granular material upon which pipes, conduits, cables, or duct banks are placed.
- C. Imported Material: Material obtained by the Contractor from source(s) offsite.
- D. Lift: Loose (uncompacted) layer of material.

- E. Pipe Zone: Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe, conduit, cable or duct bank.
- F. Prepared Trench Bottom: Graded trench bottom after stabilization and installation of bedding material.
- G. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D698. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.
- H. Relative Density: As defined by ASTM D4253 and ASTM D4254.
- I. Selected Backfill Material: Material available that the Engineer determines to be suitable for a specific use.
- J. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Well-Graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.

1.3 SUBMITTALS

- A. Shop Drawings: Manufacturer's descriptive literature for marking tapes.
- B. Samples:
 - 1. Trench stabilization material.
 - 2. Bedding and pipe zone material.
 - 3. Granular drain.
 - 4. Granular backfill.
 - 5. Earth backfill.
 - 6. Sand(s).
 - 7. Geotextile.
- C. Quality Control Submittals: Catalog and manufacturer's data sheets for compaction equipment.
- D. Certified Gradation Analysis: Submit not less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization material that will be submitted prior to material delivery to site.
- E. Controlled Low Strength Material: Certified mix design and test results. Include material types and weight per cubic yard for each component of mix.

PART 2 - PRODUCTS

2.1 MARKING TAPE

- A. Plastic:
 - 1. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
 - 2. Thickness: Minimum 4 mils.
 - 3. Width: 12 inches.
 - 4. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.

5. Manufacturers and Products:
- Reef Industries; Terra Tape.
 - Allen; Markline.

- B. Color: In accordance with APWA Uniform Color Code for Temporary Marking of Underground Facilities.

Color ^a	Facility
Red	Electric power lines, cables, conduit, and lightning cables
Orange	Communicating alarm or signal lines, cables, or conduit
Yellow	Gas, oil, steam, petroleum, or gaseous materials
Green	Sewers and drain lines
Blue	Water, irrigation, and slurry lines
^a As specified in ANSI Z53.1, Safety Color Code.	

2.2 TRENCH STABILIZATION MATERIAL

- Clean, hard, durable 3-inch minus crushed rock gravel, or pit run, free from clay balls, other organic materials, or debris.
- Uniformly graded from coarse to fine, less than 8 percent by weight passing the 1/4-inch sieve.

2.3 BEDDING MATERIAL AND PIPE ZONE MATERIAL

- Unfrozen, friable, and no clay balls, roots, or other organic material.
- Clean or gravelly sand with less than 5 percent passing No. 200 sieve, as determined in accordance with ASTM D1140, or gravel or crushed rock within maximum particle size and other requirements as follows unless otherwise specified.
 - Duct Banks: 3/4-inch maximum particle size.
 - PVC Irrigation System Piping, and Ductile Iron Pipe with Polyethylene Wrap: 3/8-inch maximum particle size.
 - Pipe Under 18 Inches Diameter: 3/4-inch maximum particle size, except 1/4-inch for stainless steel pipe, copper pipe, tubing, and plastic pipe under 3 inches diameter.
 - Pipe Greater than 18 Inches Diameter: 1-1/2-inch maximum particle size for ductile iron pipe, concrete pipe, welded steel pipe, and pretensioned or prestressed concrete cylinder pipe. 3/4-inch maximum particle size for PVC, FRP, or HDPE Pipe.
 - Perforated Pipe: Granular drain material.
 - Conduit and Direct-Buried Cable:
 - Sand, clean or clean to silty, less than 12 percent passing the No. 200 sieve.
 - Individual Particles: Free of sharp edges.
 - Maximum Size Particle: Pass a No. 4 sieve.
 - If more than 5 percent passes No. 200 sieve, the fraction that passes No. 40 sieve shall be nonplastic as determined in accordance with ASTM D4318.

2.4 EARTH FILL

- As specified in Section 31 23 23.13, FILL AND BACKFILL.

2.5 CONTROLLED LOW STRENGTH FILL

- A. Select and proportion ingredients to obtain compressive strength between 50 and 150 psi at 28 days in accordance with ASTM D4832.
- B. Materials:
 - 1. Cement: ASTM C150, Type I or II.
 - 2. Aggregate: ASTM C33, Size 7.
 - 3. Fly Ash (if used): ASTM C618, Class C.
 - 4. Water: Clean, potable, containing less than 500 ppm of chlorides.

2.6 CONCRETE BACKFILL

- A. Provide as specified in Section 03 30 00, CAST-IN-PLACE CONCRETE.

2.7 TOPSOIL

- A. Topsoil removed and stockpiled from onsite excavation.

2.8 SOURCE QUALITY CONTROL

- A. Perform gradation analysis in accordance with ASTM C136 for:
 - 1. Earth backfill, including specified class(es).
 - 2. Trench stabilization material.
 - 3. Bedding and pipe zone material.
- B. Certify Laboratory Performance of Mix Designs:
 - 1. Controlled low strength fill.
 - 2. Concrete.

PART 3 - EXECUTION

3.1 TRENCH PREPARATION

- A. Water Control: Conform to Section 31 23 19, DEWATERING.
 - 1. Promptly remove and dispose of water entering trench as necessary to grade trench bottom and to compact backfill and install manholes, pipe, conduit, direct-buried cable, or duct bank. Do not place concrete, lay pipe, conduit, direct-buried cable, or duct bank in water.
 - 2. Remove water in a manner that minimizes soil erosion from trench sides and bottom.
 - 3. Provide continuous water control until trench backfill is complete.
- B. Remove foreign material and backfill contaminated with foreign material that falls into trench.

3.2 TRENCH BOTTOM

- A. Firm Subgrade: Grade with hand tools, remove loose and disturbed material, and trim off high areas and ridges left by excavating bucket teeth. Allow space for bedding material if shown or specified.
- B. Soft Subgrade: If it is encountered that it may require removal to prevent pipe settlement, notify Engineer. Engineer will determine the depth of over-excavation, if any, required.

3.3 TRENCH STABILIZATION MATERIAL INSTALLATION

- A. Rebuild trench bottom with trench stabilization material.
- B. Place material over full width of trench in 6-inch lifts to required grade, providing allowance for bedding thickness.
- C. Compact each lift so as to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts.

3.4 BEDDING

- A. Furnish imported bedding material where, in the opinion of the Engineer, excavated material unsuitable for bedding or insufficient in quantity.
- B. Place over the full width of the prepared trench bottom in two equal lifts when the required depth exceeds 8 inches.
- C. Hand grade and compact each lift to provide a firm, unyielding surface.
- D. Minimum Thickness:
 - 1. Pipe, 15-inch and Smaller: 4 inches.
 - 2. Pipe, 18-inch to 36 inch: 6 inches.
 - 3. Pipe, 42-inch and Larger: 12 inches.
 - 4. Conduit: 3 inches.
 - 5. Direct-Buried Cable: 3 inches.
 - 6. Duct Banks: 3 inches.
- E. Check grade and correct irregularities in bedding material. Loosen top 1 to 2 inches of compacted bedding material with a rake or by other means to provide a cushion before laying each section of pipe, conduit, direct-buried cable, or duct bank.
- F. Install to form continuous and uniform support except at bell holes, if applicable, or minor disturbances resulting from removal of lifting tackle.
- G. Bell or Coupling Holes: Excavate in bedding at each joint to permit proper assembly and inspection of joint and to provide uniform bearing along barrel of pipe or conduit.

3.5 BACKFILL PIPE ZONE

- A. Upper limit of pipe zone shall not be less than following:
 - 1. Pipe: 12 inches above top of pipe, unless shown otherwise.
 - 2. Conduit: 3 inches above top of conduit, unless shown otherwise.
 - 3. Direct-Buried Cable: 3 inches above top of cable, unless shown otherwise.
 - 4. Duct Bank: 3 inches above top of duct bank, unless shown otherwise.
- B. Restrain pipe, conduit, cables, and duct banks as necessary to prevent their movement during backfill operations.
- C. Place material simultaneously in lifts on both sides of pipe and, if applicable, between pipes, conduit, cables, and duct banks installed in same trench.
 - 1. Pipes 10 Inches and Smaller Diameter: First lift less than or equal to pipe-diameter.
 - 2. Pipes Over 10 Inches Diameter: Maximum 6-inch lifts.

- D. Thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by "walking in" and slicing material under haunches with a shovel to ensure that voids are completely filled before placing each succeeding lift.
- E. After the full depth of the pipe zone material has been placed as specified, compact the material by a minimum of three passes with a vibratory plate compactor only over the area between the sides of the pipe and the trench walls.
- F. Do not use power-driven impact compactors to compact pipe zone material.

3.6 MARKING TAPE INSTALLATION

- A. Continuously install marking tape along centerline of all buried piping, at depth of 2 feet. Coordinate with piping installation drawings.
 - 1. Metallic Marking Tape: Install with nonmetallic piping
 - 2. Plastic Marking Tape: Install with metallic piping.

3.7 BACKFILL ABOVE PIPE ZONE

- A. General:
 - 1. Process excavated material to meet specified gradation requirements.
 - 2. Adjust moisture content as necessary to obtain specified compaction.
 - 3. Do not allow backfill to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over the top of pipe.
 - 4. Do not use power driven impact type compactors for compaction until at least 4 feet of backfill is placed over top of pipe.
 - 5. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.
 - 6. Backfill around structures with same class backfill as specified for adjacent trench unless otherwise shown or specified.
- B. Select Excavated Backfill:
 - 1. Place in lifts not exceeding 9-inch thickness.
 - 2. Mechanically compact each lift to a minimum of 95 percent relative compaction prior to placing succeeding lifts.
- C. Excavated Backfill: Backfill trench above the pipe zone with granular backfill in lifts not exceeding 8 inches. Compact each lift to a minimum of 95 percent relative compaction prior to placing succeeding lifts.
- D. Concrete Backfill:
 - 1. Place above bedding.
 - 2. Minimum Concrete Thickness: 6 inches on top and sides of pipe.
 - 3. Do not allow dirt or foreign material to become mixed with concrete during placement.
 - 4. Allow sufficient time for concrete to reach initial set before additional backfill material is placed in trench.
 - 5. Prevent flotation of pipe.
 - 6. Begin and end concrete backfill within 4 inches of a pipe joint on each end.
 - 7. Do not encase pipe joints except within the limits of the concrete backfill.
- E. Controlled Low Strength Fill:
 - 1. Discharge from truck mounted drum type mixer into trench.
 - 2. Place in lifts as necessary to prevent uplift (flotation) of new and existing facilities.

3.8 REPLACEMENT OF TOPSOIL

- A. Replace topsoil in top 6 inches of backfilled trench.
- B. Maintain the finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.9 MAINTENANCE OF TRENCH BACKFILL

- A. After each section of trench is backfilled, maintain the surface of the backfilled trench even with the adjacent ground surface until final surface restoration is completed.
- B. Gravel Surfacing Rock: Add gravel surfacing rock where applicable and as necessary to keep the surface of the backfilled trench even with the adjacent ground surface, and grade and compact as necessary to keep the surface of backfilled trenches smooth, free from ruts and potholes, and suitable for normal traffic flow.
- C. Topsoil: Add topsoil where applicable and as necessary to maintain the surface of the backfilled trench level with the adjacent ground surface.
- D. Asphaltic Pavement: Replace settled areas or fill with asphalt as specified in Section 32 12 16, ASPHALT CONCRETE PAVEMENT.
- E. Other Areas: Add excavated material where applicable and keep the surface of the backfilled trench level with the adjacent ground surface.

3.10 SETTLEMENT OF BACKFILL

- A. Settlement of trench backfill, or of fill or facilities constructed over trench backfill, will be considered a result of defective compaction of trench backfill.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Society for Testing and Materials (ASTM):
 - a. ASTM A121, Standard Specification for Metallic-Coated Carbon Steel Barbed Wire.
 - b. ASTM A392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
 - c. ASTM A491, Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric.
 - d. ASTM A1018, Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
 - e. ASTM A824, Standard Specification for Metallic-Coated Steel Marcellled Tension Wire for Use with Chain Link Fence.
 - f. ASTM B6, Standard Specification for Zinc.
 - g. ASTM C94, Standard Specification for Ready-Mixed Concrete.
 - h. ASTM C143, Standard Test Method for Slump of Hydraulic-Cement Concrete.
 - i. ASTM C387, Standard Specifications for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar.
 - j. ASTM F552, Standard Terminology Relating to Chain Link Fencing.
 - k. ASTM F567, Standard Practice for Installation of Chain-Link Fence.
 - l. ASTM F626, Standard Specification for Fence Fittings.
 - m. ASTM F668, Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric.
 - n. ASTM F900, Standard Specification for Industrial and Commercial Swing Gates.
 - o. ASTM F1043, Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework.
 - p. ASTM F1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
 - q. ASTM F1183, Standard Specifications for Aluminum Alloy Chain Link Fence Fabric.
 - r. ASTM F1184, Standard Specifications for Industrial and Commercial Horizontal Slide Gates.
 2. Institute of Electrical and Electronic Engineers (IEEE), Inc.: National Electrical Safety Code.
 3. National Electrical Manufacturers Association (NEMA): 250, Enclosures for Electrical Equipment (1,000 volts max.).

1.2 DEFINITIONS

- A. Terms as defined in ASTM.

1.3 SUBMITTALS

- A. Shop Drawings:
1. Detailed information and specifications for materials, finishes, and dimensions.
 2. Card access system serial communication interface card code message format.
- B. Samples: Approximately 6 inches square, or 6 inches long of posts, rails, braces, fabric, wire, ties, and fittings.

- C. Quality Control Submittals:
 1. Manufacturer's recommended installation instructions.
 2. Evidence of Supplier and installer qualifications.

1.4 SCHEDULING AND SEQUENCING

- A. Complete necessary site preparation and grading before installing chain link fence and gates.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Match style, finish, and color of each fence component with that of other fence components.

2.2 CHAIN LINK FENCE FABRIC

- A. Galvanized fabric conforming to ASTM, Class 1; galvanized after weaving.
- B. Height: 72 inches, unless otherwise shown.
- C. Wire Gauge: No. 9, barewire.
- D. Pattern: 2-inch diamond-mesh.
- E. Diamond Count: Manufacturer's standard and consistent for fabric furnished of same height.
- F. Loops of Knuckled Selvages: Closed or nearly closed with space not exceeding diameter of wire.
- G. Wires of Twisted Selvages:
 1. Twisted in a closed helix three full turns.
 2. Cut at an angle to provide sharp barbs that extend minimum 1/4-inch beyond twist.

2.3 POSTS

- A. General:
 1. Strength and Stiffness Requirements: ASTM F1043, Light Industrial Fence, except as modified in this section.
 2. Steel Pipe: ASTM F1083.
 3. Roll-Formed Steel Shapes: from ASTM A1018, Grade 45, Steel.
 4. Lengths: Manufacturer's standard with allowance for minimum embedment below finished grade of 22 inches plus 3 inches for each 1 foot of fence height greater than 4 feet.
 5. Protective Coatings:
 - a. Zinc Coating: ASTM F1043, Type A external and internal coating.
- B. Line Posts:
 1. Steel Pipe:
 - a. Outside Diameter: 2.375-inch.
 - b. Weight: 3.65 pounds per foot.
- C. End, Corner, Angle, and Pull Posts:
 1. Steel Pipe:
 - a. Outside Diameter: 2.875-inch.
 - b. Weight: 5.79 pounds per foot.

- D. Posts for Swing Gates:
 - 1. ASTM F900.
 - a. Outside Dimensions: 4-inch diameter.
 - b. Weight: 6.56 pounds per foot.

2.4 TOP RAILS AND BRACE RAILS

- 1. Galvanized steel pipe.
- 2. Protective Coatings: As specified for posts.
- 3. Strength and Stiffness Requirements: ASTM F1043, Top Rail, Heavy or Light Industrial Fence.
- 4. Steel Pipe:
 - a. ASTM F1083.
 - b. Outside Diameter: 1.66-inch.
 - c. Weight: 2.27 pounds per foot.

2.5 FENCE FITTINGS

- A. General: In conformance with ASTM F626, except as modified by this article.
- B. Post and Line Caps: Designed to accommodate passage of top rail through cap, where top rail required.
- C. Tension and Brace Bands: No exceptions to ASTM.
- D. Tension Bars:
 - 1. One-piece, no exceptions to ASTM F626.
 - 2. Equal in length to full height of fabric.
- E. Truss Rod Assembly: 3/8-inch diameter.
- F. Barb Arms: 45-degree arms for supporting three strands of barbed wire.

2.6 TENSION WIRE

- A. Zinc-coated steel marcelled tension wire conforming to ASTM A824, Type II, Class 2.

2.7 BARBED WIRE

- A. Zinc-Coated Barbed Wire: ASTM A121, Chain Link Fence Grade:
 - 1. Line Wire: Two strands of No. 12-112 gauge.
 - 2. Barbs:
 - a. Number of Points: Four.
 - b. Length: 318-inch minimum.
 - c. Shape: Round.
 - d. Diameter: No. 14-gauge.
 - e. Spacing: 5 inches.

2.8 GATES

- A. General:
 - 1. Gate Operation: Opened and closed easily by one person.
 - 2. Welded Steel Joints: Paint with zinc-based paint.
 - 3. Chain Link Fabric: Attached securely to gate frame at intervals not exceeding 15 inches.
- B. Swing Gates: ASTM F900.

1. Hinges:
 - a. Furnished with large bearing surfaces for clamping in position.
 - b. Designed to swing either 180 degrees outward, 180 degrees inward, or 90 degrees in or out, as shown, and not twist or turn under action of gate.
2. Latches: Plunger bar arranged to engage stop, except single gates of openings less than 10 feet wide may each have forked latch.
3. Gate Stops: Mushroom type or flush plate with anchors, suitable for setting in concrete.
4. Locking Device and Padlock Eyes: Integral part of latch, requiring one padlock for locking both gate leaves of double gates.
5. Hold-Open Keepers: Designed to automatically engage gate leaf and hold it in open position until manually released.

2.9 CONCRETE

- A. Provide as specified in Section 03 30 00, CAST-IN-PLACE CONCRETE.

2.10 REPAIR AND SALVAGE OF EXISTING FENCE

- A. Non-Salvageable or Non-Reusable Parts:
 1. Fence posts.
 2. Gate posts.
 3. End, corner angle, and pull posts.
 4. Tension and brace bands.
 5. Tension wire.
- B. Salvageable or Reusable Items:
 1. Fence fabric.
 2. Post caps.
 3. Top rails and brace rails.
 4. Truss rod assemblies.
 5. Barb arms.
 6. Barbwire.
- C. All items noted as salvageable shall not be bent, twisted, dented, or damaged in any way. Any such items will not be considered for reuse.
- D. All items not considered for salvage or reuse shall be disposed of offsite at the Contractor's expense. See Section 02 41 00, DEMOLITION.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install chain link fences and gates in accordance with ASTM F567, except as modified in this section, and in accordance with fence manufacturer's recommendations, as approved by Engineer. Erect fencing in straight lines between angle points.
- B. Provide all necessary hardware for a complete fence and gate installation.

3.2 PREPARATION

- A. Establish locations of fence lines, gates, and terminal posts.

3.3 POST SETTING

- A. Driven posts are not acceptable.
- B. Post Hole Depth:
 - 1. Minimum 3 feet below finished grade.
 - 2. 2 inches deeper than post embedment depth below finish grade.
- C. Backfill post holes with concrete to 2 inches above finished grade.
- D. Before concrete sets, crown and finish top of concrete to readily shed water.

3.4 BRACING

- A. Brace gate and corner posts diagonally to adjacent line posts to ensure stability.

3.5 TOP RAILS

- A. Install top rail sleeves with springs at 105 feet maximum spacing to permit expansion in rail.

3.6 CHAIN LINK FABRIC

- A. Do not install fabric until concrete has cured minimum 7 days.
- B. Install fabric with twisted and barbed selvage at top.

3.7 BARBED WIRE

- A. Install three strands of barbed wire on brackets, tighten, and secure at each bracket.

3.8 GATES

- A. Hang gates and adjust hardware so gates operate satisfactorily from open or closed position.
- B. Set gate stops in concrete to engage center drop rod or plunger bar.

3.9 FIELD QUALITY CONTROL

- A. Gate Tests: Prior to acceptance of installed gates and gate operator systems, demonstrate proper operation of gates under each possible open and close condition specified.

3.10 REUSE OF EXISTING FENCE MATERIAL

- A. Existing fence material shall be installed on new posts using new tension bars, brace bands, and tension wire.
- B. Existing fence fabric shall not be spliced to new fence fabric at mid-length between posts where the existing fence fabric ends. A pull post shall be installed with new brace bands, tension bands, and tension wire. Provide a knuckled selvage at the cut portion of the fence as shown on the Drawings.

END OF SECTION

SECTION 32 91 13 – SODDING, SEEDING, FERTILIZING, AND MULCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Sodding.
 - 2. Fertilizer.
 - 3. Mulch.
 - 4. Seed.
 - 5. Preparation.
 - 6. Maintenance.
- B. Related Sections:
 - 1. Section 31 23 16.16 – Trenching for Water and Sewer Lines
 - 2. Section 31 23 23.16 – Trench Backfill
- C. Alternate Methods and Products:
 - 1. Alternate methods from those specified will be considered for use, provided that in the Engineer's opinion the end product will be equal to or exceed that which would result from the specified methods and products.

1.2 DEFINITIONS

- A. Weeds:
 - 1. Includes Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wold Garlic, Perennial Sorrel, and Brome Grass.

1.3 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.4 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.5 MAINTENANCE DATA

- A. Submit maintenance data for continuing Owner maintenance.
- B. Include maintenance instruction, cutting method, maximum grass height, types, application frequency, and recommended coverage of fertilizer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in water proof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 - PRODUCTS

2.1 AGRICULTURAL LIMESTONE

- A. Shall be agricultural limestone with not less than 90 percent passing the No. 4 sieve and containing not less than 40 percent calcium carbonate equivalent. Lime shall be applied at the rate recommended by soil test.

2.2 FERTILIZER

- A. Shall be a standard commercial product which when applied at the proper rate will supply the equivalent quantity of total nitrogen, available phosphoric acid and soluble potash specified. Fertilizer shall be delivered to the site in bags or other suitable containers, each fully labeled, conforming to applicable state fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.
- B. Requirements per acre:
1. Six hundred pounds of 17-17-17 grade fertilizer or equivalent.

2.3 MULCH

- A. Shall be vegetative mulch consisting of cereal straw from stalks of oats, rye, wheat or barley. Straw shall be free of prohibited weed seeds as stated in State Seed Law and shall be relatively free of all other noxious and undesirable seeds. Straw shall be clean and bright, relatively free of foreign material and be dry enough to be spread properly.

2.4 SEED

- A. Seed shall be a mixture with the specified minimum purity and germination requirements, as follows:

<u>Seed Type</u>	<u>% Mix (By Wt.)</u>	<u>Purity %</u>	<u>Germination %</u>
Kentucky K-31 Fescue	52	97	85
Creeping Red Fescue	18	85	80
Rye Grass	8	98	85
Rye Grain	22	-	-

Variation in the above mix to suit local conditions or time of year may be required.

- B. Seed shall be labeled in accordance with USDA regulations. Care shall be taken during transportation to avoid segregation of seed mixtures.
- C. Seed shall be sown at a rate of 217 pounds of seed mix per acre for drill seeding. Seed mixture shall be thoroughly mixed prior to application.

2.5 SODDING

- A. Sodding shall consist of furnishing, and placing sod at all locations shown on the Plans, where directed by the Engineer, and in conformity with these Specifications. Sod shall consist of a live, dense, well-rooted growth of permanent grasses, free of weeds and weedy grasses. All sod shall be cleanly cut in strips having a reasonably uniform thickness of not less than 1 inch, a reasonable uniform width of not less than 8 inches, and a length not less than 12 inches. Sod shall be Kentucky 31 Fescue, Bluegrass, or Bermuda grass. It shall be the obligation of the Contractor to secure a satisfactory growth of grass before final acceptance of the project.

PART 3 - EXECUTION

3.1 GENERAL

- A. The application of fertilizer, seed, and mulch shall follow each other in successive sequence as closely as possible. Seeding shall be accomplished in the first of the following two periods after completion of earthwork.

February 15 to May 1st
September 1st to October 1st

- B. Seeding outside the specified seeding periods may be permitted at the Engineer's option, provided the Contractor is willing to make appropriate modifications to his seeding operations, and will guarantee the crop.

3.2 INSPECTION

- A. Contractor must request that Engineer inspect site grading, clean-up and surface preparation to determine if site is ready for the seeding, fertilizing and mulching operations.
- B. Upon Engineer's approval operations may begin.

3.3 SURFACE PREPARATION

- A. Immediately in advance of fertilizing, the surface to be seeded shall be repaired, if necessary, to eliminate all damage from erosion or construction operations. The surface shall then be loosened and thoroughly pulverized by disking, harrowing and raking or other approved methods, to such an extent that it is free from sod, stones, clods, or roots. All growth of vegetation that will seriously interfere with planting operations shall be removed and disposed of as directed. The final surface shall be smooth and uniform, and left in such a condition as to prevent formation of low places and pockets.

3.4 FERTILIZING

- A. Fertilizer and lime shall be dressed evenly over the areas to be seeded using approved mechanical type spreading equipment.
- B. Fertilizer and lime after spreading shall be immediately incorporated into the soil to a depth of approximately 2 inches, by chisel, spike tooth harrow, or other approved methods.

3.5 SEEDING METHODS

- A. General methods:
1. The Contractor shall employ a satisfactory method of sowing by use of either approved mechanical hand seeders or mechanical power-driven drills. When delays in operation carry the work beyond the specified planting seasons, or when conditions are such that by reason of drought, high winds, excessive moisture, or other factors, satisfactory results are not likely to be obtained, seeding shall stop. It will be resumed only where the desired results are probable or when approved alternate procedures have been adopted.
- B. Broadcast seeding:
1. When broadcast seeding is utilized, the seed shall be uniformly broadcast by mechanical hand seeder, in two directions at right-angles to each other and at 1/2 of the specified rate per acre in each direction. After the seed is broadcast it shall be covered by an approved method to a depth of 1/3 inch to 3/4 inch. Broadcast seeding shall not be done in windy weather.

- C. Drill seeding:
 - 1. When drilling is utilized, it shall be done with approved equipment best suited to perform the work under prevailing conditions. The seed shall be uniformly drilled to a depth of one-third (1/3) inch to three-fourths (3/4) inch at the rate per acre specified. Drill seeding may be required in windy weather.
- D. Prior to start of seeding, the Contractor shall demonstrate that the application of seed is being made at the specified rate. A final check of the total quantity of seed used shall be made against the area seeded. If the check shows that the Contractor has not applied seed at the specified rate, he shall uniformly distribute seed at a rate calculated to meet the shortage.
- E. The Contractor shall maintain the seeded areas until all fertilizing, seeding and mulching is complete and the work accepted by the Engineer. Areas damaged from the Contractor's own operations shall be repaired at his expense. After acceptance of the work the Contractor will not be held responsible for erosion due to weather, or conditions not due to the Contractor's own operations or negligence. The Contractor is not required to guarantee a crop, if seeding is done during the specified seeding periods.

3.6 MULCHING

- A. Immediately after seeding, the Contractor shall apply vegetative mulch at a rate between 1-1/2 and 2-1/2 tons per acre to all seeded areas. Quantity of mulch shall be adjusted within the above limits, as directed by the Engineer, to the particular area or slope being mulched. Total application of mulch for the project shall average approximately 2 tons per acre. Mulch shall be applied by mechanical mulch spreaders equipped to eject by means of a constant air stream controlled quantities of the vegetative mulch.
- B. Mulch shall be embedded by a disc type roller having flat serrated discs spaced not more than 10 inches apart, with cleaning scrapers for each disc.
- C. Where indicated, or in areas of the project where soil conditions are not suitable for satisfactory crimping, asphalt emulsion shall be applied with the mulching operation. The normal rate of application shall be 100 gallons per ton of straw; however, this rate may be varied as directed by the Engineer to suit the particular area or slope conditions.
- D. All mulch shall be distributed evenly over the areas to be mulched within 24 hours after the seeding operation. Following the mulching operation, suitable precautions shall be taken to prohibit traffic over mulched areas. Displaced mulch shall be replaced immediately, including repair of the underlying seed bed, if damaged as well.

3.7 MAINTENANCE

- A. The Contractor shall maintain all seeded areas until the grass is properly established (not less than 90 days) until satisfactory development. Maintenance shall be continued until final acceptance of the work.
- B. Maintenance of seeded areas shall include protecting, watering, mowing, fertilizing, and such other work as may be necessary to establish a permanent lawn. The Contractor shall reseed those seeded areas in which a satisfactory growth is not obtained, and shall refill any areas which become eroded prior to final acceptance of the work.
- C. Paved areas shall be kept clean while maintenance operations are in progress.

3.8 REPLACEMENT

- A. The Contractor shall replace all trees, shrubs, and flowers damaged by construction activities in the areas designated on the construction plans. The replacement trees and shrubs shall be equal in size to the damaged or removed specimen.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

DIVISION 33 UTILITIES

SECTION 33 11 11 – PIPING LEAKAGE TESTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Work, materials, and procedures required to test installed piping other than gravity sewer piping.
- B. Related sections:
 - 1. Section 01 33 00 – Submittal Procedures.

1.2 SUBMITTALS

- A. Submittals shall be made as required in Section 01 33 00, SUBMITTAL PROCEDURES. The following specific information shall be provided:
 - 1. Quality Control Submittals:
 - a. Testing Plan: Submit at least 30 days prior to testing and include at least the information that follows.
 - 1) Testing dates.
 - 2) Piping systems and sections(s) to be tested.
 - 3) Test type.
 - 4) Method of isolation.
 - 5) Calculation of maximum allowable leakage for piping sections(s) to be tested.
 - b. Certifications of Calibration: Testing equipment.
 - c. Certified Test Report.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify Engineer in writing 5 days in advance of testing. Perform testing in presence of Engineer.
- B. Pressure Piping:
 - 1. Install temporary thrust blocking or other restraint as necessary to protect adjacent piping or equipment and make taps in piping prior to testing.
 - 2. Wait 5 days minimum after concrete thrust blocking is installed to perform pressure tests. If high-early strength cement is used for thrust blocking, wait may be reduced to 2 days.
 - 3. Prior to test, remove or suitably isolate appurtenant instruments or devices that could be damaged by pressure testing.
 - 4. New Piping connected to Existing Piping:
 - a. Isolate new piping with grooved-end pipe caps, spectacle blinds, blind flanges, or as acceptable to Engineer.
 - b. Test joint between new piping and existing piping by methods that do not place entire existing system under test load, as approved by Engineer.
 - 5. Items that do not require testing include: Equipment seal drains, tank overflows to atmospheric vented drains, and tank atmospheric vents.
 - 6. Test Pressure: As indicated on the Piping Schedule.
- C. Test section may be filled with water and allowed to stand under low pressure prior to testing.
- D. Gravity Piping:
 - 1. Perform test as specified hereinafter.

2. Perform testing after service connections, manholes, and backfilling have been completed between stations to be tested.
3. Determine groundwater level at time of testing by exploratory holes or other method acceptable to Engineer.

3.2 HYDROSTATIC TEST FOR PRESSURE PIPING

- A. Test piping as indicated in pipe schedule.
- B. Fluid: Clean water of such quality to prevent corrosion of materials in piping system.
- C. Exposed Piping:
 1. Perform testing on installed piping prior to application of insulation.
 2. Maximum Filling Velocity: 0.25 feet per second, applied over full area of pipe.
 3. Vent piping during filling: Open vents at high points of piping system or loosen flanges, using at least four bolts, or use equipment vents to purge air pockets.
 4. Maintain hydrostatic test pressure continuously for 60 minutes, minimum, and for such additional time as necessary to conduct examinations for leakage.
 5. Examine joints and connections for leakage.
 6. Correct visible leakage and retest as specified.
 7. Empty pipe of water prior to final cleaning.
- D. Buried Piping:
 1. Test after backfilling has been completed.
 2. Expel air from piping system during filling.
 3. Apply and maintain specified test pressure with hydraulic force pump. Valve off piping system when test pressure is reached.
 4. Maintain hydrostatic test pressure continuously for 2 hours minimum, reopening isolation valve only as necessary to restore test pressure.
 5. Determine actual leakage by measuring quantity of water necessary to maintain specified test pressure for duration of test.
 6. Maximum Allowable Leakage:

$$L = \frac{S D \sqrt{P}}{133,200}$$
 Where:
 - L = Allowable leakage, in gallons per hour.
 - S = Length of pipe tested, in feet.
 - D = Nominal diameter of pipe, in inches.
 - P = Test pressure during leakage test, in pounds per square inch.
 7. Correct leakage greater than allowable, and retest as specified.

3.3 PNEUMATIC TEST FOR PRESSURE PIPING

- A. Test piping as indicated in pipe schedule.
- B. Do not perform on:
 1. PVC or CPVC pipe.
 2. Piping larger than 18 inches.
 3. Buried and other non-exposed piping.
- C. Fluid: Oil-free, dry air.
- D. Procedure:

1. Apply preliminary pneumatic test pressure of 25 psig maximum to piping system prior to final leak testing, to locate visible leaks. Apply soap bubble mixture to joints and connections, examine for leakage.
 2. Correct visible leaks and repeat preliminary test until visible leaks are corrected.
 3. Gradually increase pressure in system to half of specified test pressure. Thereafter increase pressure in steps of approximately one-tenth of specified test pressure until required test pressure is reached.
 4. Maintain pneumatic test pressure continuously for minimum of 10 minutes and for such additional time as necessary to conduct soap bubble examination for leakage.
 5. Correct visible leakage and retest as specified.
- E. Allowable Leakage: Piping system, exclusive of possible localized instances at pump or valve packing, shall show no visual evidence of leakage.
- F. After testing and final cleaning, purge with nitrogen those lines that will carry flammable gases to assure no explosive mixtures will be present in system during filling process.
- 3.4 HYDROSTATIC TEST FOR 18-INCH THROUGH 30-INCH GRAVITY PIPING.
- A. Testing Equipment Accuracy: Plus or minus 1/2-gallon of water leakage under specified conditions.
- B. Maximum Allowable Leakage: 0.16 gallons per hour per inch diameter per 100 feet. Include service connection footage in test section, subjected to minimum head specified.
- C. Exfiltration Test:
1. Hydrostatic Head:
 - a. At least 6 feet above maximum estimated groundwater level in section being tested.
 - b. No less than 6 feet above inside top of highest section of pipe in test section, including service connections.
 2. Length of Pipe Tested: Limit length such that pressure on invert of lower end of section does not exceed 30 feet of water column.
- D. Infiltration Test:
1. Groundwater Level: At least 6 feet above inside top of highest section of pipe in test section, including service connections.
- E. Piping with groundwater infiltration rate greater than allowable leakage rate for exfiltration will be considered *defective* even if pipe previously passed a leakage test.
- F. *Defective* Piping Sections: Replace or test and seal individual joints, and retest as specified.
- 3.5 PNEUMATIC TEST FOR GRAVITY PIPING 12-INCH AND SMALLER
- A. Equipment:
1. Calibrate gauges with standardized test gauge at start of each testing day.
 2. Install gauges, air piping manifolds, and valves at ground surface.
 3. Provide pressure release device, such as rupture disc or pressure relief valve, to relieve pressure at 6 psi or less.
 4. Restrain plugs used to close sewer lines to prevent blowoff.
- B. Procedure:
1. Require that no person enter manhole where pipe is under pressure.
 2. Slowly introduce air into pipe section until internal air pressure reached 4 psi greater than average back pressure of groundwater submerging pipe.

3. Allow 2 minutes minimum for air temperature to stabilize.

- C. Allowable Leakage: Test section will be considered *defective* when time required for pressure to decrease from 3.5 to 2.5 psi greater than average back pressure of groundwater submerging pipe is less than that computed utilizing values from following table:

D.

TABLE 1*					
A	B	C	D	E	F
Pipe Diameter (Inches)	Time per Foot up to Length in Col C (Seconds)	Test Length (Feet)	Test Time for any Length Between Col C & E	Length at Which time in Col F Applies (Feet)	Time per Foot for Total Length (Seconds)
	0.18	636	1:54	1.114	0.10
	0.40	424	2:50	743	0.23
	0.71	318	3:47	557	0.41
10	1.11	255	4:43	446	0.63
12	1.60	212	5:40	371	0.91
15	2.50	170	7:05	297	1.42
18	3.62	141	8:30	248	2.06
21	4.92	121	9:55	212	2.81
24	6.42	106	11:20	187	3.67
EXAMPLE: 15-inch diameter pipe: For 150 feet, T = 2.50 sec (Col B) x 150 ft = 375 sec – 6:15 For 250 feet, T = 7:05 (Col D) For 500 feet, T = 1.42 sec (Col F) x 500 ft = 710 sec = 11:50					
* Based on 0.003 cfm per square foot with a minimum significant loss of 2 cfm and a maximum loss of 3.5 cfm.					

- E. Piping with groundwater infiltration rate greater than allowable leakage rate for exfiltration will be considered *defective* even if pipe previously passed a leakage test.
- F. *Defective* Piping Sections: Replace or test and seal individual joints, and retest as specified.

3.6 JOINT TESTING FOR 36-INCH AND LARGER GRAVITY PIPING

- A. The Contractor shall develop a numbering system for the pipeline joints so that the test logs can be tied to the tested joint.

- B. The Contractor shall develop a test system that allows the Engineer reasonable access for witnessing the joint testing. The contractor shall submit his proposed testing plan to the Engineer for approval prior to the start of testing.
- C. Pressurize the void at the joint with air to 3.5 psi greater than the pressure exerted by groundwater above the pipe. Allow the air pressure and temperature to stabilize before shutting off the air supply, and start of test timing. If pressure holds, or drops less than 1 psi in 5 seconds, the joint is acceptable.
- D. If there is any visible leakage within the pipeline after the joint testing, repairs will be required before the pipeline is accepted.

3.7 FIELD QUALITY CONTROL

- A. Test Report Documentation:
 - 1. Test date.
 - 2. Description and identification of piping tested.
 - 3. Test fluid.
 - 4. Test pressure.
 - 5. Remarks, including:
 - a. Leaks (type, location).
 - b. Repair/replacement performed to remedy excessive leakage.
 - 6. Signed by Contractor and Engineer to represent that test has been satisfactorily completed.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 33 13 00 - DISINFECTION OF WATER SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Work, material, and procedures for disinfection of installed potable water lines.
- B. Related sections:
 - 1. Section 01 33 00 – Submittal Procedures.

1.2 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Water Works Association (AWWA):
 - a. AWWA B300, Hypochlorites.
 - b. AWWA B301, Liquid Chlorine.
 - c. AWWA B303, Sodium Chlorite.
 - d. AWWA C651, Disinfecting Water Mains.
 - e. AWWA C652, Disinfection of Water-Storage Facilities.
 - f. AWWA C653, Disinfection of Water Treatment Plants.
 - g. AWWA C654, Disinfection of Wells.
 - 2. Standard Methods for the Examination of Water and Wastewater, as published by American Public Health Association, American Water Works Association, and the Water Environment Federation.

1.3 QUALITY ASSURANCE

- A. Independent Testing Agency: Certified in the state of Texas, with 10 years' experience in field of water sampling and testing. Agency shall use calibrated testing instruments and equipment, and documented standard procedures for performing specified testing.

1.4 QUALITY CONTROL SUBMITTALS

- A. Procedures and plans for disinfection and testing.
- B. Type of disinfecting solution and method of preparation.

1.5 SEQUENCING AND SCHEDULING

- A. Commence disinfection after completion of following:
 - 1. Completion and acceptance of internal painting of system(s).
 - 2. Hydrostatic and pneumatic testing, pressure testing, functional and performance testing and acceptance of pipelines, pumping systems, structures, and equipment.

PART 2 - PRODUCTS

2.1 WATER FOR DISINFECTION AND TESTING

- A. Clean, uncontaminated, and potable.
- B. Owner will supply potable quality water, Contractor shall convey in disinfected pipelines or containers.

2.2 CONTRACTOR'S EQUIPMENT

- A. Furnish chemicals and equipment, such as pumps and hoses, to accomplish disinfection.
- B. Water used to fill pipeline may be supplied using temporary connection to existing distribution system. Provide protection against cross-connections as required by AWWA C651.

2.3 MIXING DISINFECTANT.

- A. Prepare solution by mixing any of following as described below. The purpose of the stock solution is to facilitate mixing and dilution to ensure a uniform disinfecting solution. The Contractor will not be required to mix a stock solution if a liquid chlorine gas feed system that can accurately feed a desired amount of chlorine to mix a final (dilute) disinfecting solution is used.
 - 1. Liquid chlorine gas conforming to AWWA B301 and water mixture.
 - 2. Dry chlorine gas conforming to AWWA B301.
 - 3. Calcium hypochlorite conforming to AWWA B300 or sodium hypochlorite conforming to AWWA B303 powder or liquid and water mixture.
- B. Feed dry chlorine gas through devices to regulate the rate of flow and ensure uniform diffusion of gas into water within the pipe or vessel being treated. Chlorinating devices for feeding chlorine gas solution or the gas itself shall prevent of water into chlorine cylinder.
- C. Use following proportions of hypochlorite or chlorine to water:
 - 1. Chlorine Gas or Liquid (100 Percent Cl): 1 pound per 1 1.75 gallons water.
 - a. Apply liquid chlorine gas-water solution by means of a solution feed chlorinating device.
 - 2. Calcium Hypochlorite (65 to 70 Percent Cl): 1 pound per 7.5 gallons water.
 - a. If calcium hypochlorite is used, first mix dry powder with water to make a thick paste, then thin to a 1 percent solution (10,000 ppm chlorine).
 - 3. Sodium Hypochlorite (5.25 Percent Cl): 1 gallon per 4.25 gallons water.
 - a. If sodium hypochlorite procedure is used, dilute the liquid with water to obtain a 1 percent solution.

PART 3 - EXECUTION

3.1 GENERAL

- A. Conform to AWWA C651 for pipes and pipelines, except as modified in these specifications.
- B. Disinfect pumps and pipelines, installed or modified under this Project, intended to hold, transport, or otherwise contact potable water:
 - 1. Disinfect new pipelines that connect to existing pipelines up to the point of connection.
 - 2. Disinfect surfaces of materials that will contact finished water, both during and following construction using spray method described below.
 - 3. Disinfect prior to contact with finished water. Take care to avoid recontamination following disinfection.
- C. Prior to application of disinfectants, clean equipment and pipelines of loose and suspended material. Flush pipelines until clear of suspended solids and color. Use water suitable for flushing and disinfecting.
- D. Conform to AWWA C651 for pipes and pipelines, C652 for tanks and reservoirs, and AWWA C654 for wells, except as modified in these Specifications.

- E. Allow freshwater and stock disinfectant solution to flow into the pipe or vessel at a measured rate so that the chlorine-water solution is at the specified strength. Do not place concentrated commercial disinfectant in the pipeline or vessel before it is filled with water.

3.2 PIPING AND PIPELINES

- A. Flushing:
 1. Before disinfecting, flush all foreign matter from pipeline. Provide hoses, temporary pipes, ditches, and other conduits as needed to dispose of flushing water without damage to adjacent properties. Flushing velocities shall be at least 2.5 fps. For large diameter pipe, where it is impractical or impossible to flush the pipe at specified velocity, clean the pipeline in-place from the inside by brushing and sweeping, then flush the line.
 2. Flush pipelines through flushing branches and remove branches after flushing is completed. Operate valves during flushing process at least twice during each flush.
 3. Flush service connections and hydrants. Flush distribution lines prior to flushing hydrants and service connections.
- B. Disinfecting Solution: Chlorine-water solution having a free chlorine concentration of not less than 50 ppm.
- C. Disinfecting Procedure: In accordance with AWWA C651, unless herein modified.
- D. Pipelines larger than 24 may be disinfected by spraying in accordance with method described in AWWA C652.
- E. Point of Application:
 1. Inject chlorine mixture into pipeline to be treated at beginning of line through corporation stop or suitable tap in top of pipeline.
 2. Control water from existing system to flow slowly into pipeline during application of chlorine.
 3. Control rate of chlorine solution flow in proportion to rate of water entering pipe so that combined mixture shall contain not less than 50 ppm of free available chlorine.
 4. Prevent of chlorine solution into line supplying water.
- F. Retention Period:
 1. Retain treated water in pipeline for at least 24 hours to destroy all nonspore-forming bacteria. At end of 24 hour period, disinfecting solution shall contain at least 10 ppm of free chlorine or the pipeline shall be recleaned, disinfecting solution shall be reapplied, and specified procedure repeated.
 2. Operate valves, hydrants, and appurtenances during disinfection to ensure that disinfecting solution is dispersed into all parts of pipeline, including dead-ends and areas that otherwise may not be treated.
 3. After disinfection, flush water from the permanent source until water through the pipeline is equal chemically and bacteriologically to permanent source of supply.

3.3 PUMPS

- A. Disinfecting Solutions: Minimum free chlorine concentration of 200 ppm.
- B. Disinfecting Procedure: In accordance with AWWA unless herein modified.
- C. Application:
 1. Inject the disinfecting solution into the pump and associated piping and circulate for a minimum 2 hour period of time. At the end of the 2 hour period, the solution shall have a strength of at least 100 ppm free chlorine.

2. Operate valves and/or pump appurtenances during disinfection to ensure that the disinfecting solution is dispersed into all parts of the pumps and lines.
3. If the disinfecting solution contained in the pumps has a residual free chlorine concentration less than 100 ppm after the 2 hour retention period, reclean the pump, reapply disinfecting solution, and retest until a satisfactory test result is obtained.
4. After chlorination, flush the water from the pumps until the water through the units is chemically and bacteriologically equal to the permanent source of supply.

3.4 DISPOSAL OF DISINFECTING WASTEWATER

- A. Do not allow flow into a waterway without neutralizing disinfectant residual.
 1. See AWWA C652 for acceptable neutralization methods.

3.5 TESTING

- A. Test Equipment:
 1. Clean containers and equipment used in sampling and assure they are free of contamination.
 2. Obtain sampling bottles with instructions for handling from and independent testing laboratory.
- B. Chlorine Concentration Sampling and Analysis:
 1. Sampling Frequency for Disinfecting Solution: Two samples per disinfecting procedure.
 2. Residual Free Chlorine Samples: Two samples per disinfecting procedure.
 3. Dechlorinated Disinfecting Wastewater Residual Samples: Two samples per disinfecting procedure.
 4. Sampling Locations: Each 1,000 feet of pipeline or each building.
 5. Analysis to be performed by the Owner's laboratory.
- C. After pipelines have been cleaned, disinfected, and refilled with potable water, Owner will take water Samples and have them analyzed for conformance to bacterial limitations for public drinking water supplies. Samples shall be analyzed for coliform concentrations in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.
 1. A minimum of two Samples on each of 2 consecutive days from each separable structure every 1,000 feet of pipeline will be obtained and analyzed by standard procedures outlined by state and local regulatory agencies.
- D. If the minimum Samples required above are not bacterially negative, the disinfecting procedures and bacteriological testing shall be repeated on the respective facilities until bacterial limits are met.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 33 31 13 – STEEL ENCASEMENT PIPE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the Work necessary to provide and install steel encasement pipe for water and sewer lines.
- B. Related sections:
 - 1. Section 31 23 16.13 – Trenching for Water and Sewer Lines
 - 2. Section 31 23 23.16 – Trenching Bedding and Backfill for Water and Sewer Lines
 - 3. Section 33 41 19 – Pipe Laying

1.2 SUBMITTALS

- A. General: Administrative, shop drawings, samples, quality control, and contract closeout submittals shall conform to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES.
- B. In addition to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES, submit the following additional specific information:
 - 1. Quality Control Submittals:
 - a. Steel encasement diameter, and thickness.
 - b. End seal shop drawings.
 - c. Coating materials
 - d. Casing spacer shop drawings.
 - e. Special shipping, storage and protection, and handling instructions.
 - f. Test procedures.
 - g. Test results, reports, and certifications.

PART 2 - PRODUCTS

2.1 ENCASEMENT PIPE

- A. Encasement pipe shall be used to provide a conduit for the carrier pipe passing below roadways, railroads, or other surfaces where the encasement pipe must be installed by jack and boring or at times open cut. Details for steel encasement are shown on the Plans.
- B. Encasement pipe shall also be used to isolate new water lines in the proximity of existing sewer line to prevent possible sewage contamination of the water system. The locations, lengths and diameters are shown on the Plans.
- C. Steel encasement pipes shall be of the lengths shown on the Drawings and meet the requirements as specified herein. The encasement pipe shall be a smooth wall, welded steel pipe conforming to the latest requirements of ASTM A139, Grade B, ASTM A211 or ASSA C202, Grade B with minimum yield strength of 35,000 psi. The encasement pipe shall be new. USED PIPE SHALL NOT BE ALLOWED. The minimum diameter wall thickness for various nominal diameters of carrier pipes is shown below:

Carrier Pipe Nominal Diameter (inches)	Steel Encasement Pipe Diameter (inches)	Steel Encasement Pipe Minimum Wall Thickness (inches)
6	12	0.2500
8	16	0.3125
10	20	0.3750
12	20	0.3750
14	24	0.4375
16	24	0.4375
18	30	0.5000
20	30	0.5000
24	36	0.5625
30	42	0.6250
36	48	0.6880

- D. In instances where encasement pipe is being used to isolate the water line, the minimum length of encasement pipe shall be 20 linear feet. The encasement pipe shall be centered on the crossing water or sewer line.
- E. Casing pipe shall have a red oxide primer inside and out (from manufacturer) in accordance with AWWA C-210.

2.2 CASING SPACERS

- A. Shall be HDPE spacers manufactured by RACI, or approved equal per the City of Celina Approved Product List..
- B. Spacers shall be designed to support the carrier within the casing and to maintain a maximum clearance of one (1) inch between the casing pipe and runner. Spacers shall be 8 inches wide for carrier pipes up to 14 inches in diameter and 12 inches wide for carrier pipes greater than 14 inches in diameter.
- C. The quantity of runners shall be dependent on the carrier pipe diameter as follows, unless otherwise approved:

Carrier Pipe Nominal Diameter	Quantity of Runners
≤ 14 inches	4
16-36 inches	6
42-48 inches	8

- D. Runners shall be abrasion resistant glass-filled polymer or ultra-high weight molecular polyethylene, with a minimum length of seven (7) inches and a minimum width of one (1) inch. Risers, when required, shall be stainless steel and welded to the band. Interior surfaces of the circular stainless steel band shall be lined with a minimum thickness of 0.09 inches of EPDM or PVC, or approved alternative.

2.3 RUBBER END SEALS

- A. Rubber end seals shall be installed on both ends of the encasement pipe. They shall be the Pull-On type secured to the encasement pipe and the carrier pipe via T-304 stainless steel worm gear bands. The rubber end seals shall be as manufactured by CCI Piping Systems; model ESC, Cascade Waterworks Mfg. Co.; model CCES. or approved equal.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Highway Bore: Do not set up equipment or begin excavating pit on state highway right-of-way without permission of Texas Department of Transportation Division Engineer or his authorized representative.
- B. Railroad Bore: Do not set up equipment or begin excavating pit on or near railroad property without permission of the respective railroad company.
- C. Highway and railroad permits will be obtained by the Owner. Contractor shall coordinate with Engineer on obtaining Right-of-Way permit from railroad and shall conform to all requirements there in.

3.2 INSTALLATION, ENCASEMENT PIPE

- A. General
 - 1. Install encasement pipe at grade and alignment shown on Plans. Allow for height of casement spacers when establishing grade for gravity line encasement pipe. Refer to Standard Details.
- B. Bores
 - 1. Excavate pits and trenches required at each side of crossing to minimum width and length necessary for boring and jacking operation and carrier pipe installation.
 - 2. Carefully set steel guide rails in pit to attain specified grade and alignment.
 - 3. Keep pit pumped free of standing water. Maintain pit bottom to provide stable base for rails and equipment and firm footing for workmen. Granular material used in bottom of pit will not be paid for as extra work, it is subsidiary to encasement pipe.
 - 4. Provide temporary sheeting and bracing as necessary to prevent earth slides.
 - 5. Bore tunnel and simultaneously jack encasement pipe forward one section at a time. Connect sections by full penetration butt welding performed in accordance with AWS D1.1.
 - 6. Remove excavated soil from boring operation as it enters pit and dispose of it offsite.
 - 7. All bored encasement pipe shall be installed by the dry boring and jacking method. Wet boring shall not be allowed.
 - 8. Installation of the encasement shall be carried out in such manner that there will be no settlement of the ground surface above the encasement. The Contractor shall take all precautions to prevent caving of the soils ahead of the pipe. During encasement installation, the Contractor shall use all care to minimize annular space (voids) between the outside of the encasement pipe and the surrounding ground. Therefore, the outside of encasement pipe installed by boring and jacking shall be pressure grouted to eliminate voids as specified below, unless excepted therein. Only the dry bore method shall be used. WATER JETTING OR SIMILAR METHODS USING WATER ARE STRICTLY PROHIBITED.
 - 9. The Contractor shall inspect the locations where the encasement pipe and bore pits are to be installed and familiarize himself with the conditions under which the work will be performed and with all necessary details for the orderly prosecution of the work. The omission of any details in the Plans and/or herein for installation of the encasement and carrier pipe shall not relieve the Contractor of full responsibility for the proper execution and integrity of the work.
 - 10. The Contractor shall satisfy himself of soils condition by any means he deems necessary, i.e., exploratory boring or exploratory pit excavations at bore ends. Any such exploratory work shall be done in such manner as to not jeopardize railroad or highway roadbeds and rights-of-way and shall be backfilled and cleaned up to the satisfaction of the right-of-way owner. The Contractor shall be responsible to obtain his own permission and to furnish bonds, etc. as may be required by private landowners or the public authority having

jurisdiction at the site of any such exploratory work unless otherwise indicated on the Plans or by the Owner/Engineer.

11. The Contractor shall perform all excavation required to complete the work regardless of the material encountered. Excavation from the access shafts (bore pits) in excess of that required to backfill the access shafts and open cut portion of the line shall be disposed of by the Contractor outside the limits of the construction site and at an approved location. Pits and trenches shall be properly shored, sheeted, and braced according to Section 31 50 00, EXCAVATION SUPPORT SYSTEMS, of these Specifications.
12. Any damage to the encasement pipe coating during shipment or handling shall be repaired by the Contractor. Boring and installation of smooth wall pipe shall be by competent supervisors and workmen specializing in this type of work.
13. IN ORDER TO MAINTAIN THE DESIGNED SLOPE OF THE SEWER GRADIENT, THE HORIZONTAL AND VERTICAL ALIGNMENT AT ALL POINTS ON THE ENCASEMENT PIPE SHALL BE HELD TO A TOLERANCE OF ONE-TENTH (0.10) OF A FOOT OF THE DESIGNED LINE AND GRADE. ENCASEMENT PIPES NOT MEETING THIS TOLERANCE SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

C. Open-Cut

1. Steel encasement shall be installed in an open-cut trench as specified in Section 31 23 16.13, TRENCHING FOR WATER AND SEWER LINES and shall be backfilled as specified in Section 31 23 23.16, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.
2. Steel encasement installed by open-cut shall conform to this specification.
3. Pipe joints shall be welded in accordance with AWWA C-206.
4. When practical, the carrier pipe, the end seals, the casing spacers, and the encasement pipe shall be assembled outside of the trench and shall be installed as a single unit.
5. Extreme care shall be used by the Contractor to assure that the rubber end caps are not damaged during installation and backfilling. It is essential that a water-tight seal exist where the rubber end seals contact the carrier pipe and the encasement pipe.

3.3 INSTALLATION, CARRIER PIPE

- A. Installation of the carrier pipe in the encasement shall be accomplished in such manner that neither the pipe nor the encasement is damaged. Care must be exercised to assure that the joints of the pipe are not over-deflected or pulled out during the process. The pipe shall be jointed and pushed or jacked through the encasement. Cables, chains, jacks or other equipment or devices used shall not be in direct contact with the pipe unless thoroughly padded.
- B. The carrier pipe barrel, regardless of its diameter, shall be centered diametrically in the encasement pipe by the use of casing spacers compatible with the material of the carrier pipe. Also, all carrier pipe bell/spigot joints inside the encasement shall be restrained from movement in the axial direction by the use restrained casing spacers. There shall be a restrained casing spacer installed at each carrier pipe joint and another casing spacer without axial restraint (non-restrained) installed at the midpoint of each carrier pipe barrel or at a maximum interval of 10'. All casing spacers, whether restrained or non-restrained, shall also function as hold-down jacks to prevent the carrier pipe from floating.
- C. If, after installation of the carrier pipe, adequate stability has not been provided, in the opinion of the Owner, the annular space between the carrier pipe and the inside of the encasement pipe shall be filled with sand or other material approved by the Owner.
- D. After the carrier pipe has been installed in the encasement pipe, both ends of the encasement pipe shall be sealed with end seals.

3.4 PRESSURE GROUTING

- A. During installation of bored encasement pipe, care shall be exercised to prevent voids between the encasement and the surrounding ground.
- B. On encasement pipes of 12" and larger nominal diameter, the annular space between the encasement pipe and the ground shall be pressure grouted to eliminate all voids. ENCASEMENT PIPES SMALLER THAN 12" SHALL ALSO BE GROUTED IF SO DIRECTED BY THE OWNER DEPENDING ON SOIL CONDITIONS AT THE BORE SITE IDENTIFIED AT THE TIME OF ENCASEMENT INSTALLATION.
- C. When grouting encasement pipes of such diameter that entry by a worker is possible, the grout shall be injected through the encasement pipe wall through 1.5" diameter holes from the inside at one location for each 5.0-foot linear interval over the entire length of the encasement pipe. The sequence for grout injection locations shall be as follows:

*Locations (5' Spaces)	"Clock" Positions
1 st	12:00
2 nd	3:00
3 rd	12:00
4 th	9:00
5 th	12:00

*Repeat 2nd through 5th locations at 5-foot intervals for each location to the end of the encasement pipe.

NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE TO SEE THAT ALL REQUIREMENTS OF OSHA CONCERNING ENTRY OF WORKERS INTO CONFINED SPACES ARE FOLLOWED AS WELL AS ANY OTHER REQUIREMENTS FOR THIS TYPE OF WORK.

- D. For encasement pipes too small to be entered for grouting as addressed above, the annular space may be pressure grouted by means of an external grout pipe attached to the outside of the encasement pipe. After the encasement pipe and the grout pipe are in place, the grout pipe shall be withdrawn as the grout is introduced into the annular space.

3.5 BORE PITS

- A. Excavation and backfill shall be as specified in Sections 31 23 16.13, trenching for water and sewer lines and 31 23 23.16, trench bedding and backfill for water and sewer lines.
- B. The bore pits or access shafts for encasement installation shall be rectangular in plan view, approximately 20'x10', with the longer dimension being in the direction of the encasement pipe. The bore pits shall be sheeted, shored, and braced on all sides as addressed herein. Sheet piling shall be timber or steel piling of ample strength to safely withstand all structural loading of whatever nature due to site and soil condition. The top of the sheet piling shall be at a minimum elevation equal to the natural ground line as it existed prior to construction.

END OF SECTION

SECTION 33 31 26 – TESTING WATER DISTRIBUTION SYSTEMS

PART 1 - GENERAL

1.1 GENERAL

- A. See Section 33 11 11, PIPING LEAKAGE TESTING, which contains information and requirements that apply to the work specified herein and are mandatory for this project.

1.2 SUBMITTALS

- A. Submittals shall be made as required in Section 01 33 00, SUBMITTALS. The following specific information shall be provided:
 - 1. Quality Control Submittals:
 - a. Testing Plan: Submit at least 30 days prior to testing and include at least the information that follows.
 - 1) Testing dates.
 - 2) Piping systems and sections(s) to be tested.
 - 3) Test type.
 - 4) Method of isolation.
 - 5) Calculation of maximum allowable leakage for piping sections(s) to be tested.
 - b. Certifications of Calibration: Testing equipment.
 - c. Certified Test Report.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify Engineer in writing 5 days in advance of testing. Perform testing in presence of Engineer.
- B. Pressure Piping:
 - 1. Install temporary thrust blocking or other restraint as necessary to protect adjacent piping or equipment and make taps in piping prior to testing.
 - 2. Wait 5 days minimum after concrete thrust blocking is installed to perform pressure tests. If high-early strength cement is used for thrust blocking, wait may be reduced to 2 days.
 - 3. Prior to test, remove or suitably isolate appurtenant instruments or devices that could be damaged by pressure testing.
 - 4. New Piping connected to Existing Piping:
 - a. Isolate new piping with grooved-end pipe caps, spectacle blinds, blind flanges, or as acceptable to Engineer.
 - b. Test joint between new piping and existing piping by methods that do not place entire existing system under test load, as approved by Engineer.
 - 5. Items that do not require testing include: Equipment seal drains, tank overflows to atmospheric vented drains, and tank atmospheric vents.
 - 6. Test Pressure: 200 PSI.
- C. Test section may be filled with water and allowed to stand under low pressure prior to testing.

3.2 HYDROSTATIC TEST FOR PRESSURE PIPING

- A. Test piping as indicated in pipe schedule.
- B. Fluid: Clean water of such quality to prevent corrosion of materials in piping system.

- C. Test pressure shall be the lesser of 200 psi or the maximum pressure of all components in the system.
- D. All piping shall be tested in accordance with AWWA C600, latest revision.
- E. All tests shall be performed by the contractor in the presence of a City Inspector and the Engineer of Record.
- F. Contractor shall provide all equipment required to perform tests. Including but not limited to, gauges, meters, and pumps. The contractor shall also make all taps and connections required to perform testing.
- G. Exposed Piping:
 - 1. Perform testing on installed piping prior to application of insulation.
 - 2. Maximum Filling Velocity: 0.25 feet per second, applied over full area of pipe.
 - 3. Vent piping during filling: Open vents at high points of piping system or loosen flanges, using at least four bolts, or use equipment vents to purge air pockets.
 - 4. Maintain hydrostatic test pressure continuously for 60 minutes, minimum, and for such additional time as necessary to conduct examinations for leakage.
 - 5. Examine joints and connections for leakage.
 - 6. Correct visible leakage and retest as specified.
 - 7. Empty pipe of water prior to final cleaning.
- H. Buried Piping:
 - 1. Test after backfilling has been completed.
 - 2. Flush piping and expel air from piping system during filling.
 - 3. Apply and maintain specified test pressure with hydraulic force pump. Valve off piping system when test pressure is reached.
 - 4. Maintain hydrostatic test pressure continuously for 2 hours minimum, if the test pressure falls more than 5 psi within the 2 hour period the test will be terminated and considered a failure due to assumed leaks.
 - 5. Determine actual leakage at the end of the 2 hour test period by restoring the pressure to the initial test pressure and measuring the quantity of water necessary to restore pressure to the initial test pressure.
 - 6. Maximum Allowable Leakage:

$$L = \frac{S D \sqrt{P}}{133,200}$$
 Where:
 - L = Allowable leakage, in gallons per hour.
 - S = Length of pipe tested, in feet.
 - D = Nominal diameter of pipe, in inches.
 - P = Test pressure during leakage test, in pounds per square inch.
 - 7. Correct leakage greater than allowable, and retest as specified.

3.3 PRESSURE TEST FOR TAPPING SLEEVES

- A. The contractor shall provide pumps and all other equipment necessary to test the tapping sleeves. Tapping sleeves shall be tested prior to making any taps. The duration of the hydrostatic test shall be thirty (30) minutes at 225 psi with zero leakage.

3.4 FIELD QUALITY CONTROL

- A. Test Report Documentation:
 - 1. Test date.
 - 2. Description and identification of piping tested.

3. Test fluid.
4. Test pressure.
5. Test start/stop times.
6. Calculated leakage
7. Remarks, including:
 - a. Leaks (type, location).
 - b. Repair/replacement performed to remedy excessive leakage.
8. Signed by Contractor and Engineer to represent that test has been satisfactorily completed.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 33 34 13 - DUCTILE IRON WATER TRANSMISSION PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the Work necessary to completely furnish and install Ductile Iron water transmission pipe and fittings.
- B. Related sections:
 - 1. Section 13 47 13 – Cathodic Protection
 - 2. Section 31 23 16.16 – Trenching for Water and Sewer Lines.
 - 3. Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.
 - 4. Section 33 31 26 – Testing Water Distribution Systems.
 - 5. Section 33 31 13 – Steel Encasement Pipe.
 - 6. Section 33 41 19 – Pipe Laying.

1.2 GENERAL

- A. Like items of ductile iron pipe provided hereinafter shall be the end products of one manufacturer to achieve standardization of appearance, operation, maintenance, and manufacturer's services.
- B. General Requirements: See Division 01, GENERAL REQUIREMENTS, which contains information and requirements that apply to the work specified herein and are mandatory for this project.
- C. All pipe shall be circular and shall be of the sizes shown on the Plans and/or listed in the Unit Price Schedule. All pipe shall be new. Used pipe is prohibited.
- D. At the discretion of the Engineer, all pipe line and materials are subject to inspection and approval at the plant of the manufacturer.
- E. All materials shall equal or exceed the standards specified herein.
- F. During the process of unloading, all pipe materials shall be inspected by the Contractor and any damaged pipe set aside.
- G. After pipe lines are laid, the Contractor shall test for defects and leakage as specified in Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS of these specifications.
- H. Inspection of pipe at the manufacturer's plant, at the point of delivery, on the job site, or in place shall not relieve the Contractor of his responsibility and the material may be subject to rejection until final acceptance of the completed project.

1.3 SUBMITTALS

- A. General: Administrative, shop drawings, samples, quality control, and contract closeout submittals shall conform to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES.
- B. In addition to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES, submit the following additional specific information:
 - 1. Quality Control Submittals:
 - a. Pipe size, class, and thickness.
 - b. Special shipping, storage and protection, and handling instructions.

- c. Test procedures.
- d. Test results, reports, and certifications.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Ductile iron water transmission pipe shall be provided to conform to materials of construction as specified herein.
- B. All force mains shall be installed with tracer wire as specified in Section 33 41 19, PIPE LAYING.
- C. Weights and Marking:
 - 1. Weights of pipe and fittings shall conform strictly to the requirements of ANSI Specifications. The class designations for the various classes of pipe and fittings shall be cast onto fittings in raised numerals, and cast or stamped on the outside of each joint of pipe. Weights shall be plainly and conspicuously painted in white on the outside of each joint of pipe and each fitting after the exterior coating has hardened.
- D. Certification:
 - 1. The Contractor shall upon request furnish the Engineer with certified reports stating that inspection and specified tests have been made and that the results thereof comply with the applicable ANSI Specifications for each.

2.2 DUCTILE WATER TRANSMISSION PIPE

- A. All pipe and pipe fittings furnished for underground sewer piping shall have either push-on, restrained, or mechanical type joints.
- B. Flanged DIP and DI fittings shall be used only as indicated on the Plans. Flanged pipe and pipe fittings shall conform to ANSI/AWWA C115/21.15, Class 200 psi. Flanged drilling shall conform to ANSI B16.1, Class 125 flange.
- C. All DIP, 4-inch through 36-inch, shall conform to the requirements of ANSI/AWWA C150/A21.50 (Thickness Design of Ductile-Iron Pipe) and ANSI/AWWA C151/A21.51 (Ductile Iron, Centrifugally-Cast for Water).
- D. Ductile iron pipe for transmission mains shall have a minimum Pressure Class of 200.
- E. Standard laying lengths shall be 20 feet $\pm$ 1 inch, unless otherwise specified.

2.3 FITTINGS FOR DUCTILE IRON WATER TRANSMISSION PIPE

- A. All fittings over 3-inches shall be ductile iron, mechanical joint polywrapped fittings and shall conform to the requirements of AWWA C153. All fittings shall have a minimum pressure rating of 350 pounds per square inch and shall be lightweight (compact) fittings unless otherwise shown on the Plans.
- B. All fittings shall be furnished with gaskets. MJ fittings shall also be furnished with bolts, nuts, and iron glands. All plugs, caps, tees, and bends deflecting 22-1/2° or more shall be provided with reaction backing.
- C. All casting and mating surfaces shall be smooth and of a workmanlike quality, free from cracks, holes, scale, shrinkage, distortion, grooves, scratches, and other defects. Fittings and other

castings may be rejected if found to be unacceptable by the Engineer in accordance with these Specifications.

- D. Joints shall be mechanical joint, shall conform to ANSI/AWWA C111, and shall be furnished with Mega-lug type retainer glands and gaskets.
- E. Special fittings shall be in accordance with the pipe manufacturer's recommendations and as approved by the Engineer.
- F. All fittings and appurtenances placed on sanitary sewer lines shall meet with the requirements of the type of pipe used and shall be installed in accordance with the manufacturer's recommendations and as approved by the Engineer.
- G. Connections between different kinds of pipe shall be detailed on the Plans and provide self-cleansing sanitary flow and watertight joints and connections.
- H. All fittings shall be fusion-bonded epoxy coated inside and outside in accordance with ANSI/AWWA C116/A21.16.
- I. All valves and fittings (including in-line valves) shall have Megalug style retainer glands or approved equal. Valves, bends, reducers and other hardware near bends shall be positively bolted, all-threaded, or mechanically joined to each other. Bolted includes single and double flanged adapters (such as Foster Adapters or Swivel Adapters) which provide a solid bolted or mechanical joint type connection.

2.4 DUCTILE IRON PIPE JOINTS

- A. Joints shall be mechanical joints (MJ), restrained joints (RJ), or push-on type joints which conform to ANSI/AWWA C111/A21.11 (Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings), unless otherwise specified.
- B. Joints shall have the same pressure rating of the pipe or fittings of which they are a part.
- C. All pipe joints other than those specified herein shall be made in strict accordance with the manufacturer's recommendations and as approved.
- D. All joints shall be made watertight in accordance with the latest applicable AWWA and ASTM standards.

2.5 GASKETS FOR DUCTILE IRON JOINTS AND FITTINGS

- A. Gaskets shall be made of vulcanized styrene butadiene rubber (SBR).
- B. Gaskets shall be marked for nominal pipe size, manufacturer, and year of manufacture.
- C. Gaskets shall comply with the requirements of ANSI/AWWA C111 (Rubber-Gasket joints for Ductile Iron Pressure Pipe and Fittings).

2.6 DUCTILE IRON JOINT AND FITTING LUBRICANT

- A. Lubricant shall be provided by the pipe manufacturer and applied as per the manufacturer's recommendations in accordance with ANSI/AWWA C111/A21.11 (Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings).

- B. Lubricant shall be non-toxic, not support the growth of bacteria and have no deteriorating effects on the gasket or pipe material.
- C. Lubricant containers shall be appropriately identified and labeled with the manufacturer's name.
- D. Each lubricant container shall have printed instructions for usage and joint assembly.

2.7 COATINGS

- A. Interior Coatings
 - 1. All ductile iron pipe shall be cement mortar lined in accordance with ANSI/AWWA C104.
- B. Exterior Coatings
 - 1. All ductile iron pipe shall have an exterior coating as set forth below.
 - a. Factory Primed Pipe
 - 1) Unless otherwise shown on the Plans, all exposed pipe and fittings within the limits of structure walls or exposed pipe and fittings located aboveground shall be delivered to the job site factory-blasted, cleaned, and primed with one (1) coat of Tnemec Series N140 Pota-Pox Plus, or approved equal compatible paint system.
 - b. Bituminous Coating
 - 1) All pipe indicated for buried service shall have a petroleum asphaltic coating approximately one (1) mil thick factory-applied to the outside of all pipe and fittings. The finished coating shall be continuous, smooth, neither brittle when exposed to the cold nor sticky when exposed to the sun, and shall be strongly adherent to the pipe or fitting. The bituminous coating shall not be applied to the first six (6) inches of the exterior of the spigot ends.
 - c. Epoxy Coating
 - 1) All fittings shall be epoxy coated per ANSI/AWWA C-116.

PART 3 - EXECUTION

3.1 GENERAL

- A. All pipe and fittings shall be installed in accordance with these specifications and the Plans.

3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01 60 00, PRODUCT REQUIREMENTS.
- B. Delivery of Materials: Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
- C. Storage: Products shall be carefully stored in a manner that will prevent damage and in an area that is protected from the elements.

3.3 FIELD QUALITY CONTROL

- A. Contractor shall visually inspect all pipe and fittings upon delivery and set aside and damaged or flawed materials and shall not install any damaged or flawed material.
- B. Contractor shall test for defects and leakage as specified in Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS.

3.4 INSTALLATION

- A. Installation shall be as specified in Section 33 41 19, PIPE LAYING.
- B. All ductile iron pipe and fittings shall be encased per Section 40 42 13.16 POLYETHYLENE ENCASEMENT FOR DIP AND CIP
- C. Pipe trenching shall be as specified in Section 31 23 16.16, TRENCHING FOR WATER AND SEWER LINES.
- D. Pipe bedding and backfill shall be as specified in Section 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.
- E. Pipe installed within steel encasement shall conform to Section 33 31 13, STEEL ENCASEMENT PIPE.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 33 34 16 – PVC WATER TRANSMISSION PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the Work necessary to completely furnish and install Polyvinyl Chloride (PVC) water transmission pipe and related fittings.
- B. Related Sections
 - 1. Section 31 23 16.13, TRENCHING FOR WATER AND SEWER LINES
 - 2. Section 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES
 - 3. Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS
 - 4. Section 33 31 13, STEEL ENCASMENT PIPE
 - 5. Section 33 34 13 DUCTILE IRON WATER TRANSMISSION PIPE AND FITTINGS
 - 6. Section 33 41 19, PIPE LAYING

1.2 GENERAL

- A. Like items of PVC pipe provided hereinafter shall be the end products of one manufacturer to achieve standardization of appearance, operation, maintenance, and manufacturer's services.
- B. General Requirements: See Division 01, GENERAL REQUIREMENTS, which contains information and requirements that apply to the work specified herein and are mandatory for this project.
- C. All pipe shall be circular and shall be of the sizes shown on the Plans and/or listed in the Unit Price Schedule. All pipe shall be new. Used pipe is prohibited.
- D. At the discretion of the Engineer, all pipe line and materials are subject to inspection and approval at the plant of the manufacturer.
- E. All materials shall equal or exceed the standards specified herein.
- F. During the process of unloading, all pipe materials shall be inspected by the Contractor and any damaged pipe set aside.
- G. After pipe lines are laid, the Contractor shall test for defects and leakage as specified in Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS of these specifications.
- H. Inspection of pipe at the manufacturer's plant, at the point of delivery, on the job site, or in place shall not relieve the Contractor of his responsibility and the material may be subject to rejection until final acceptance of the completed project.

1.3 SUBMITTALS

- A. General: Administrative, shop drawings, samples, quality control, and contract closeout submittals shall conform to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES.
- B. In addition to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES, submit the following additional specific information:
 - 1. Quality Control Submittals:
 - a. Pipe size, class, and thickness.
 - b. Special shipping, storage and protection, and handling instructions.

- c. Test procedures.
- d. Test results, reports, and certifications.

PART 2 - PRODUCTS

2.1 GENERAL

- A. PVC water transmission pipe shall be provided to conform to materials of construction as specified herein or as shown on the plans.
- B. All transmission mains shall be installed with tracer wire as specified in Section 33 41 19, PIPE LAYING.
- C. All plastic pipe and couplings shall bear identification markings in accordance with AWWA C-900, which shall include the National Sanitation Foundation (NSF) seal of approval. In addition, the plain end of each pipe length shall have two (2) rings, one (1) inch apart, painted around the pipe at the proper location to allow field checking of the correct setting depth of the pipe in the bell or coupling.

2.2 PVC WATER TRANSMISSION PIPE

- A. The material used in making the pipe shall be clean, virgin, Cell Classification 12454 PVC compound as specified in ASTM D1784, Standard Specification of Rigid Polyvinyl Chloride Compounds and Chlorinated Polyvinyl Chloride Compounds.
- B. All PVC pipe, 4 inch through 48 inch, shall conform to ANSI/AWWA C900-16, PVC Pressure Pipe and Fabricated Fitting, 4 inch through 48 inch, for Water Transmission and Distribution.
- C. Standard laying lengths shall be 20 feet $\pm$ 1 inch, unless otherwise specified.
- D. Each PVC water pipe length shall be clearly marked with the manufacturer's name, nominal pipe size, cell classification, AWWA/ASTM designation, and DR.

2.3 FITTINGS FOR PVC WATER TRANSMISSION PIPE

- A. Shall be as specified in Section 33 34 13, Ductile Iron WATER TRANSMISSION pipe and fittings.

2.4 PVC PIPE JOINTS

- A. Joints shall be of the push-on, elastomeric gasket type, conforming to ASTM D3139 (Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals), and/or Uni-Bell UNI-B-01 (Recommended Specification for Thermoplastic Pipe Joints, Pressure and Non-Pressure Applications).
- B. All bells shall be formed integrally with the pipe and shall contain a positively retained, factory installed elastomeric gasket and have a raceway or groove specially formed to accept and retain the gasket.
- C. Wall thickness of the bell at any point shall not be less than the required minimum for the pipe barrel. Pipe spigots shall be beveled and have insertion stop marks.
- D. The use of solvent cement or chemically welded joints shall not be permitted in field construction, except as specifically authorized by the Engineer.

- E. All pipe joints other than those specified herein shall be made in strict accordance with the manufacturer's recommendations and as approved by the Engineer.
- F. All joints shall be made watertight in accordance with the latest applicable AWWA and ASTM standards.

2.5 GASKETS FOR PVC JOINTS AND FITTINGS

- A. Gaskets shall be molded or extruded from a high grade, vulcanized, elastomeric compound consisting of either a basic natural or synthetic rubber.
- B. Gaskets shall be marked for nominal pipe size, manufacturer, and year of manufacture.
- C. Gaskets shall comply with the requirements of ASTM F477 (Elastomeric Seals (Gaskets) for Joining Plastic Pipe) and ASTM D3139.

2.6 PVC JOINT AND FITTING LUBRICANT

- A. Lubricant shall be provided by the pipe manufacturer and applied as per the manufacturer's recommendations.
- B. Lubricant shall be non-toxic, not support the growth of bacteria and have no deteriorating effects on the gasket or pipe material.
- C. Lubricant containers shall be appropriately identified and labeled with the manufacturer's name.
- D. Each lubricant container shall have printed instructions for usage and joint assembly.

2.7 PVC TO DIP JOINTS

- A. Joints connection PVC Pipe to Ductile Iron Pipe shall be EBAA Iron Series 3800 Restrained Coupling, or Approved Equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. All pipe and fittings shall be installed in accordance with these specifications and the Plans.

3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials: Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
- B. Storage: Products shall be carefully stored in a manner that will prevent damage and in an area that is protected from the elements.

3.3 FIELD QUALITY CONTROL

- A. Contractor shall visually inspect all pipe and fittings upon delivery and set aside and damaged or flawed materials and shall not install any damaged or flawed material.
- B. Contractor shall test for defects and leakage as specified in Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS

3.4 INSTALLATION

- A. Installation shall be as specified in Section 33 41 13, PIPE LAYING.
- B. Pipe trenching shall be as specified in Section 31 23 16.13, TRENCHING FOR WATER AND SEWER LINES.
- C. Pipe bedding and backfill shall be as specified in Section 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.
- D. Pipe installed within steel encasement shall conform to Section 33 31 13, STEEL ENCASEMENT PIPE

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

SECTION 33 41 19 – PIPE LAYING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: the Work necessary to install gravity sewer, force main pipe, water pipe and appurtenances.
- B. Related sections:
 - 1. Section 01 60 00 – Product Requirements
 - 2. Section 31 23 16.16 – Trenching for Water and Sewer Lines
 - 3. Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines
 - 4. Section 33 31 26 – Testing Water Distribution Systems
 - 5. Section 33 31 13 – Steel Encasement Pipe
 - 6. Section 33 34 13 – Ductile Iron Water Transmission Pipe and Fittings
 - 7. Section 33 34 16 – PVC Water Transmission Pipe and Fittings

1.2 GENERAL

- A. General Requirements: See Division 01, GENERAL REQUIREMENTS, which contains information and requirements that apply to the work specified herein and are mandatory for this project.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All pipe materials shall be as specified on the Plans and conforming to these specifications.

2.2 WARNING TAPE

- A. Non-metallic sanitary sewer marking tape shall be warning tape as manufactured by Rhino Marking and Protection Systems, Harris Industries, Inc., or approved equal.
- B. Tape shall have a minimum thickness of 4 mils and manufactured with heavy metal-free polyethylene tape that is impervious to all known alkalis, acids, chemical reagents, and solvents found in soil. The minimum overall width of the tape shall not be less than 3-inches. Standard rolls shall be 1000' length.
- C. The tape for sewer lines shall be color coded Green and imprinted with the following message: Caution Buried Sewer Line Below.
- D. The tape for water lines shall be color coded Blue and imprinted with the following message: Caution Buried Water Line Below.

2.3 TRACER WIRE

- A. Tracer wire shall be 12-gauge, stranded coated copper for underground burial.
- B. Jacket color shall be GREEN, and made of High Density Polyethylene (HDPE) or High Molecular Weight Polyethylene (HMWPE) designed for direct burial.
- C. Connectors shall be used for all splices or repairs. Connectors shall be moisture displacement style as manufactured by 3M DBR, or equal.

- D. A locate or conductivity test shall be performed prior to signing off on the project.

2.4 PIPE BEDDING AND BACKFILL

- A. Shall be in accordance with 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.

PART 3 - EXECUTION

3.1 GENERAL

- A. All pipe, fittings, bedding, backfill, and all other appurtenances shall be installed in accordance with these specifications and the Plans.

3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01 60 00, PRODUCT REQUIREMENTS.
- B. Delivery of Materials: Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
- C. Storage: Products shall be carefully stored in a manner that will prevent damage and in an area that is protected from the elements.
- D. Pipe and accessories shall be handled in such a manner that will ensure their condition after installation to be sound and undamaged. Equipment, tools and methods used in unloading, reloading, hauling and laying pipe and fittings shall be such that they are not damaged. Under no circumstances shall loading forks, or other equipment, be inserted into the barrel of the pipe or fitting.
- E. Pipe having pre-molded joint rings shall be handled in such a manner that no weight, including the weight of the pipe itself, will bear on or be supported by the spigot rings at any time. Care shall be taken to avoid dragging the spigot ring on the ground or allowing it to come in contact with gravel, crushed stone, rocks, or other hard objects. Joint rings which have been damaged in any way will not be accepted and shall not be incorporated in the work.

3.3 FIELD QUALITY CONTROL

- A. Provide skilled workmen to insure embedment of pipe.
- B. Contractor shall test for defects and leakage as specified in Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS.

3.4 TRACE WIRE

- A. Regardless of pipe material, a trace wire shall be laid on top of the pipe and shall be looped around the pipe at least once every 10-feet and connected to all valves and fittings. At valves, the trace wire shall be brought up into the valve box as indicated in the plans. A tracing test of trace wire will be required prior to final acceptance.

3.5 PIPE DETECTION TAPE

- A. Pipe detection tape shall be provided in all trenches for force main and water line construction. Installation shall be per manufacturer's recommendations and shall be as close as practical to

finished grade while maintaining a required minimum of 18 inches between the detection tape and the top of any pipe.

3.6 LAYING PIPE

- A. Proper means and equipment shall be used for lowering pipe into the trenches.
- B. The Contractor shall have full responsibility for any diversion of drainage and for dewatering trenches.
- C. Recesses for the pipe bells are mandatory and shall be hand excavated so that the entire pipe barrel is uniformly supported by the bedding material.
- D. Pipe shall be protected from lateral displacement by means of pipe embedment material installed as provided in this specification. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or trench conditions.
- E. When jointed in the trench, the pipe shall form a true and smooth line. Pipe shall not be trimmed except for closures, and pipe not making a good fit shall be removed.
- F. Unless otherwise approved by the Engineer, the laying of pipe shall begin at the lowest point, and the pipe shall be installed so that the spigot ends point in the direction of flow.
- G. Pipe which is a part of a gravity sewer line shall be aligned and constructed to grades as shown on the plans. Lines not conforming to these grades shall be subject to removal and replacement at the Contractor's expense. Force main pipe shall match the horizontal alignment and shall closely match the grades shown on the plans.
- H. Pipe lines or runs intended to be straight shall be laid straight.
- I. During installation, each pipe and fitting shall be inspected for defects. All defective, damaged, or unsound pipe and fittings shall be rejected and removed from the site of the work.
- J. Dependent on type of application, gravity or pressure, place thrust blocking at all pipe fittings, including bends and reducers, as shown on the Plans.
- K. Prior to joining the pipe, the plain ends of the pipe and the bells of the pipe shall be thoroughly cleaned using a soapy water and cloth, removing all foreign materials from the bells, especially the gasket seats. Any burrs or imperfections in that part of the plain end or bell which will be in contact with the gasket shall be removed.
- L. The clean gasket shall be inserted in the bell and a thin film of lubricant shall be applied to the inside surface of the gasket.
- M. The cleaned plain end shall initially be entered in the bell straight. The plain end shall be forced inside the gasket and bell until the limit mark is just visible. The pipe may then be deflected as allowed by the manufacturer.
- N. Lubricants shall be supplied by the pipe manufacturer in sufficient quantities. No substitutes shall be made.
- O. The Contractor shall furnish such jacks, or other devices as are necessary for forcing the pipe into the bell and gasket. Care shall be exercised to avoid damage to the pipe where the pushing device or machine part contacts the pipe. A wood block or suitable pad shall be placed between the pipe and that part of the pushing device which contacts the pipe.

- P. All plain ends that enter a push on bell shall be beveled at 30° for at least one eighth (1/8) inch. All cut pieces or ends of pipe of other classifications shall be so beveled.

3.7 PIPE BEDDING NON-FERROUS PIPE

- A. Non-ferrous pipe includes PVC, Polyethylene and FRP.
- B. Bedding material shall be as specified in Section 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.
- C. Place 6-inches, minimum, of bedding between excavated trench bottom or stabilized trench bottom and bottom of pipe or fitting. Provide depression in bedding for joints so that barrel of pipe or fitting rests on bedding. Place bedding in 6-inch maximum layers, compacted to 95% standard maximum density, to 6-inches over the top of pipe and fittings.
- D. Bedding is considered to be an integral part of the pipe installation. Therefore particular care shall be given to insure that bedding is in intimate contact with the pipe in all directions and that no portion of the bedding shall be compacted to less than the specified density, particularly the area below the springline of the pipe.
- E. Place bedding a minimum of 6-inches over the top of pipe and fittings. Bedding shall be compacted to 95% maximum density.
- F. For areas undercut, whether by Contractor's negligence or by direction of Engineer, provide and place crushed aggregate, compacted to 95% standard maximum density, to bottom elevation of pipe bedding.
- G. When used, the bottom of trench boxes will be above the level of pipe bedding before bedding is compacted. In no case will pipe bedding be compacted against the trench box or before the trench box is raised to allow compaction of bedding.

3.8 PIPE BEDDING DUCTILE IRON PIPE

- A. Bedding material shall be as specified in Section 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.
- B. Place 6-inches, minimum, of bedding between excavated trench bottom or stabilized trench bottom and bottom of pipe or fitting. Provide depression in bedding for joints so that barrel of pipe or fitting rests on bedding. Place bedding in 6-inch maximum layers, compacted to 95% standard maximum density, to a minimum total depth of 3/4 (75%) of the outside diameter of the pipe as indicated on the drawings.
- C. Bedding is considered to be an integral part of the pipe installation. Therefore particular care shall be given to insure that bedding is in intimate contact with the pipe in all directions and that no portion of the bedding shall be compacted to less than the specified density, particularly the area below the springline of the pipe.
- D. For areas undercut, whether by Contractor's negligence or by direction of Engineer, provide and place crushed aggregate, compacted to 95% standard maximum density, to bottom elevation of pipe bedding.
- E. When used, the bottom of trench boxes will be above the level of pipe bedding before bedding is compacted. In no case will pipe bedding be compacted against the trench box or before the trench box is raised to allow compaction of bedding.

3.9 TRENCH BACKFILL

- A. Shall be as specified in Section 31 23 23.19, TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES.

3.10 ALIGNMENT AND GRADE

- A. All pipe shall be laid straight between changes in alignment, except as shown on the Plans, and at a uniform grade between changes in grade. All lines shall be laid so that each section between manholes will lamp.

3.11 JOINTING

- A. Boltless gasketed joints: All instructions and recommendations of the pipe manufacturer, relative to gasket installation and other jointing operations, shall be observed and followed by the Contractor. All joint surfaces shall be lubricated as recommended by the manufacturer immediately before the joint is completed.
- B. Mechanical joints: Mechanical joints shall be carefully assembled in accordance with the manufacturer's recommendations. If effective sealing is not obtained, the joint shall be disassembled, thoroughly cleaned and reassembled. Overtightening bolts to compensate for poor installation practice will not be permitted.

3.12 CUTTING PIPE

- A. Cutting of pipe shall be done in a neat manner, without damage to the pipe or to the lining therein. Pipe cuts shall be smooth, straight and at right angles to the pipe axis. All cutting of pipe shall be done with mechanical pipe cutters of an approved type except that in locations where the use of mechanical cutters would be difficult or impracticable, existing pipe may be cut with diamond point chisels, saws, or other tools which will cut the pipe without damaging impact or shock.

3.13 CLEANING

- A. The interior of all pipe shall be cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. All lumps, blisters and excess coating shall be removed from exterior spigot and interior bell surfaces. Such surfaces shall be wire brushed and wiped clean, dry, and free from oil and grease before placing the spigot in the bell. All joint contact surfaces shall be kept clean until the jointing is completed.
- B. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being installed. No debris, tools, clothing, or other materials shall be placed in the pipe.
- C. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug.

3.14 WATER AND SEWER LINE CROSSINGS

- A. Water and sewer lines crossing shall maintain compliance with the requirements set forth in TCEQ §217.53. Pipe Design.
- B. In general water lines shall be above sewer lines, however if water line cannot be above sewer line because of cover limitations or other obstructions. The water line may be below the sewer line but either the water or sewer line shall be encased 18 feet centered of the crossing line in steel encasement as specified in Section 33 31 13, STEEL ENCASEMENT PIPE.
- C. Water lines shall not pass through manholes.

3.15 PARALLEL WATER AND SEWER LINES

- A. Water and sewer line shall have a minimum 10 feet horizontal separation.
- B. Water and sewer lines shall not be installed within the same trench.

3.16 TESTING

- A. Acceptance testing for water mains shall conform to the relevant portions of Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS.

3.17 TRENCHING

- A. Pipe trenching shall be as specified in Section 31 23 16.16, TRENCHING FOR WATER AND SEWER LINES.

3.18 STEEL ENCASEMENT

- A. Pipe installed within steel encasement shall conform to Section 33 31 13, STEEL ENCASEMENT PIPE.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)

DIVISION 40

PROCESS INTEGRATION

SECTION 40 23 43 – ISOLATION VALVES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Basic requirements for Valves.
- B. Related sections:
 - 1. Section 01 33 00 – Submittal Procedures.
 - 2. Section 01 60 00 – Product Requirements.
 - 3. Section 01 78 23 – Operation and Maintenance Data.
 - 4. Section 33 34 13 – Ductile Iron Water Transmission Pipe and Fittings

1.2 SUBMITTALS

- A. Submittals shall be made as required in Section 01 33 00, SUBMITTALS. The following specific information shall be provided:
 - 1. Shop Drawings:
 - a. Product data sheets for make and model.
 - b. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.
 - c. Refer to specific valve type for additional submittal requirements.
 - 2. Quality Control Submittals:
 - a. Tests and inspection data.
 - b. Manufacturer's Certificate of Proper Installation.
 - c. Manufacturer's printed installation instructions.
 - d. Special shipping, storage and protection, and handling instructions.
 - e. Suggested spare parts list to maintain the equipment in service for a period of 5 years. Include a list of special tools required for checking, testing, parts replacement, and maintenance with current price information.
 - f. List special tools, materials, and supplies furnished with equipment for use prior to and during startup and for future maintenance.

1.3 OPERATION AND MAINTENANCE DATA

- A. O&M Manuals: Content, format, and schedule for providing as specified in Section 01 78 23, OPERATION AND MAINTENANCE DATA.
- B. Maintenance Summary Forms: As specified in Section 01 78 23, OPERATION AND MAINTENANCE DATA.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Valve to include operator, actuator, hand wheel, chain wheel, extension stem, floor stand, worm and gear operator, operating nut, chain, wrench, and accessories for a complete operation.
- B. Valve shall be suitable for intended service. Renewable parts not to be of a lower quality than specified.
- C. Valve shall be the same size as adjoining pipe.
- D. Valve ends to suit adjacent piping.

- E. Resilient seated valves shall have no leakage (drip-tight) in either direction at valve rated design pressure. All other valves shall have no leakage (drip-tight) in either direction at valve rated design pressure, unless otherwise allowed for in this section or in stated valve standard.
- F. Size operators and actuators to operate valve for full range of pressures and velocities.
- G. Valve shall open by turning counterclockwise unless otherwise specified.
- H. Operator, actuator, and accessories shall be factory mounted.
- I. Supply certification product is certified as suitable for contact with drinking water by an accredited certification organization in accordance with NSF 61. Provide certification for each valve type used for drinking water service.
- J. EFFECTIVE JANUARY 4, 2014 ANY VALVE, PIPE, FITTING, SOLDER, OR FLUX USED OR IN CONTACT WITH POTABLE WATER MUST COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT, AN AMENDMENT TO SECTION 1417 OF THE SAFE DRINKING WATER ACT (SDWA). VALVES SPECIFIED IN THIS SECTION MAY NOT MEET REQUIREMENTS OF THIS ACT, HOWEVER THIS DOES NOT RELIEVE THE CONTRACTOR FROM PROVIDING A VALVE TO MEET REQUIREMENTS OF THE (SDWA) AND THE SAME FUNCTIONAL REQUIREMENTS OF THIS SPECIFICATION.

2.2 SCHEDULE

- A. Requirements relative to this section for certain type of actuated or process valves are shown on the Valve Schedules attached as Supplements to the related Sections.

2.3 MATERIALS

- A. Brass and bronze valve components and accessories that have surfaces in contact with water shall be alloys containing less than 16% zinc and 2% aluminum.
- B. Approved alloys are of the following ASTM designations:
 1. B61, B62, B98 (Alloy UNS No.C65100, C65500, or C66100), B139 (Alloy UNS No.C51000), B584 (Alloy UNS No.C90300 or C94700), B164, B194, and B127.
 2. Stainless steel, AISI Type 316 may be substituted for bronze.

2.4 FACTORY FINISHING

- A. Epoxy Lining and Coating:
 1. Interior coatings for valves shall be in accordance with AWWA C550 unless otherwise specified. Coating shall be either two-part liquid material or heat-activated (fusion) material except only heat-activated material if specified as "fusion" or "fusion bonded" epoxy.
 2. Material in contact with potable water shall conform to NSF 61.
 3. Minimum 7-mil dry film thickness except where limited by valve operating tolerances.
 4. Exterior coatings for valves and fittings shall be in accordance with requirements of ANSI/AWWA C-116.

2.5 VALVES:

- A. General:
 1. AWWA gate valves to be in full compliance with stated AWWA standard and the following requirements:
 2. Provide 2-inch operating nut and handwheel for AWWA gate valves 12 inches and smaller.
 3. Provide Affidavit of Compliance per the applicable AWWA standard for AWWA gate valves.

4. Mark AWWA gate valves with manufacturer's name or mark, year of valve casting, valve size, and working water pressure.
5. Repaired AWWA gate valves shall not be submitted or supplied.

B. Gate Valves:

1. Type V141: Buried Gate Valve, 3 Inches and Larger
 - a. Valve shall be resilient wedge type, of non-rising stem design and rated for 250 psig cold water working pressure.
 - b. Valve shall meet or exceed all requirements of the latest revision of AWWA C515.
 - c. Valve shall have mechanical joint ends, except tapping valves may be flanged by mechanical joint.
 - d. Stem shall be sealed by three O-Rings. O-Rings set in a cartridge shall not be allowed.
 - e. Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Country of origin to be clearly cast into body & cover castings.
 - f. Materials:
 - 1). All cast ferrous components shall be ductile iron, ASTM A536.
 - 2). The body, bonnet and O-ring plate shall be fusion-bonded epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C550 and be NSF 61 Certified.
 - 3). Wedge shall be ductile iron fully encapsulated in EPDM rubber.
 - 4). Hardware shall be 304 stainless steel
 - 5). Stems shall be cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem
 - 6). Provide standard AWWA 2-inch operating nut, matching valve key, and valve box for operating stem.
 - g. Manufacturers and Products:
Reference SECTION 00 73 00.1 – CITY OF CELINA APPROVED MATERIALS LIST

C. Butterfly Valves:

- a. General:
 - 1). In full compliance with AWWA C504 and following requirements:
 - 2). Suitable for throttling operations and infrequent operation after periods of inactivity.
 - 3). Elastomer seats which are bonded or vulcanized to the body shall have adhesive integrity of bond between seat and body assured by testing, with minimum 75-pound pull in accordance with ASTM D429, Method B.
 - 4). Bubble-tight with rated pressure applied from either side. Test valves with pressure applied in both directions.
 - 5). No travel stops for disc on interior of body.
 - 6). Self-adjusting V-type or O-ring shaft seals.
 - 7). Isolate metal-to-metal thrust bearing surfaces from flowstream.
 - 8). Provide traveling nut or worm gear actuator with handwheel. Valve actuators to meet the requirements of AWWA C504.
 - 9). Buried service operators shall withstand 450 foot-pounds of input torque at fully open and fully closed positions.
 - 10). Provide linings and coatings per AWWA, unless otherwise indicated on Drawings or specified herein.
 - 11). Valves to be in full compliance with NSF/ANSI 61. [Provide NSF/ANSI 61 certificate for each valve.]
2. Butterfly Valve, 4 Inches and Larger

- a. Valve Style: Flanged end, short body type, Mechanical joint end, flanged by mechanical joint ends
- b. Flanged end connections shall fully conform with ANSI B16.1 Class 125 or Class 250, or AWWA C207 Class D.
- c. Mechanical joint end connections
- d. Materials:
 - 1). Body: Class 150B valve bodies shall be ASTM A126, Class B gray iron or ASTM A536 Grade 65-45-12 ductile iron. Class 250B valve bodies shall be ASTM A536 Grade 65-45-12 ductile iron.
 - 2). Disc: Valve disc shall be made from cast iron ASTM A-126 Class B or stainless steel ASTM A351 in sizes 20" and smaller. Sizes 24" and larger shall be built from ductile iron in conformance to ASTM A-536. Disc shall be furnished with Type 316 stainless steel seating edge to mate with the rubber seat on the body.
 - 3). Shafts: Shafts shall be Stainless Steel. ASTM A276 Type 304, or Type 316, or ASTM A564, grade 630.
 - 4). Seat: Valve seat shall be Buna-N rubber located on the valve body. In sizes 20" and smaller, valves shall have bonded seats that meet test procedures outlined in ASTM D-429 Method B. Sizes 24" and larger shall be retained in the valve body by mechanical means without use of metal retainers or other devices located in the flow stream.
 - 5). Bearings: Shall be sleeve type that is corrosion resistant and self-lubricating.
 - 6). Manual Actuators: Shall be fully grease packed and have stops in the open/close position. The actuator shall have a mechanical stop which will withstand an input torque of 450 ft. lbs. against the stop. The traveling nut shall engage alignment grooves in the housing. The actuators shall have a built in packing leak bypass to eliminate possible packing leakage into the actuator housing.
 - 7). Hardware: All seat retaining hardware shall be Type 316 stainless steel.
- e. Manufacturers and Products:
Reference SECTION 00 73 00.1 – CITY OF CELINA APPROVED MATERIALS LIST

2.6 OPERATORS AND ACTUATORS

- A. Manual Operators:
 - 1. General:
 - a. For AWWA valves, operator force not to exceed requirements of applicable valve standard. Provide gear reduction operator when force exceeds requirements.
 - b. For non-AWWA valves, operator force not to exceed applicable industry standard or 80 pounds, whichever is less, under operating condition, including initial breakaway. Provide gear reduction operator when force exceeds requirements.
 - c. Operator self-locking type or equipped with self-locking device.
 - d. Position indicator on quarter-turn valves.
 - e. Worm and gear operators one-piece design, worm-gears of gear bronze material. Worm of hardened alloy steel with thread ground and polished. Traveling nut type operator's threaded steel reach rod with internally threaded bronze or ductile iron nut.
 - 2. Exposed Operator:
 - a. Galvanized and painted handwheel.
 - b. Cranks on gear type operator.
 - c. Chain wheel operator with tieback, extension stem, floor stand, and other accessories to permit operation from normal operation level.
 - d. Valve handles to take a padlock, and wheels a chain and padlock.
 - 3. Buried Operator:

- a. Buried service operators on valves larger than 2-1/2 inches shall have a 2-inch AWWA operating nut. Buried operators on valves 2 inches and smaller shall have cross handle for operation by forked key. Enclose moving parts of valve and operator in housing to prevent contact with the soil.
- b. Buried service operators to be grease packed and gasketed to withstand submersion in water to 20 feet minimum.
- c. Buried valves shall have extension stems, bonnets, and valve boxes.

2.7 ACCESSORIES

- A. T-Handled Operating Wrench:
 - 1. 2 each galvanized operating wrenches, 4 feet long.
 - 2. Manufacturers and Products:
 - a. Mueller; No. A-24610.
 - b. Clow No.; F-2520.
 - 3. 2 each galvanized operating keys for cross handled valves.
- B. Cast Iron Valve Box: Designed for traffic loads, sliding type, with minimum of 6" ID shaft.
 - 1. Box: Cast iron with minimum depth of 9".
 - 2. Lid: Cast iron, minimum depth 3", marked for the appropriate service.
 - 3. Extensions: Cast iron.

PART 3 - EXECUTION

3.1 SHIPPING, STORAGE, HANDLING, AND PROTECTION

- A. As specified in Section 01 60 00, PRODUCT REQUIREMENTS.

3.2 INSTALLATION

- A. Flange Ends:
 - 1. Flanged valve bolt holes shall straddle vertical centerline of pipe.
 - 2. Clean flanged faces, insert gasket and bolts, and tighten nuts progressively and uniformly.
- B. Mechanical Joint Ends:
 - 1. Clean ends by wire brush or swabbing
 - 2. Apply necessary joint compound.
- C. Screwed Ends:
 - 1. Clean threads by wire brushing or swabbing.
 - 2. Apply joint compound.
- D. Valve Orientation:
 - 1. Install operating stem vertical when valve is installed in horizontal runs of pipe having centerline elevations 4' 6" or less above finished floor, unless otherwise shown.
 - 2. Install operating stem horizontal in horizontal runs of pipe having centerline elevations between 4' 6" and 6' 9" above finish floor, unless otherwise shown.
 - 3. Orient butterfly valve shaft so that unbalanced flows or eddies are equally divided to each half of the disc, i.e., shaft is in the plane of rotation of the eddy.
 - 4. If no plug valve seat position is shown, locate as follows:
 - a. Horizontal Flow: The flow shall produce an "unseating" pressure, and the plug shall open into the top half of valve.
 - b. Vertical Flow: Install seat in the highest portion of the valve.

- E. Install a line size ball valve and union upstream of each solenoid valve, in-line flow switch, or other in-line electrical device, excluding magnetic flow meters, for isolation during maintenance.
- F. Install safety isolation valves on compressed air.
- G. Locate valve to provide accessibility for control and maintenance. Install access doors in finished walls and plaster ceilings for valve access.
- H. Extension Stem for Operator: Where the depth of the valve is such that its centerline is more than 3 feet below grade. Furnish an operating extension stem with 2" operating nut to bring the operating nut to a point 6" below the surface of the ground and/or box cover.
- I. Torque Tube: Where operator for quarter-turn valve is located on floor stand. Furnish extension stem torque tube of a type properly sized for maximum torque capacity of the valve.
- J. Floor Box and Stem: Steel extension stem length shall locate operating nut in floor box.

3.3 TESTS AND INSPECTION

- A. Valve may be either tested while testing pipelines, or as a separate step.
- B. Test that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, in both directions for two-way valve and applications.
- C. Inspect air and vacuum valves as pipe is being filled to verify venting and seating is fully functional.
- D. Count and record number of turns to open and close valve; account for any discrepancies with Manufacturer's data.
- E. Set, verify, and record set pressures for all relief and regulating valves.
- F. Automatic valve to be tested in conjunction with control system testing.
- G. Test hydrostatic relief valve seating; record leakage. Adjust and retest to maximum leakage of 0.1 gpm per foot of seat periphery.

3.4 MANUFACTURER'S SERVICES

- A. A Manufacturer's representative for the equipment specified herein shall be present at the jobsite for the minimum person-days listed for the services herein under, travel time excluded:
 - 1. One person-days for installation assistance, inspection, and certification of the installation. Provide certificate.
 - 2. 1 person-days for functional and performance testing.
 - 3. 1 person-days for pre-startup classroom or jobsite training of OWNER'S personnel.
- B. Training of OWNER'S personnel shall be at such times and at such locations as requested by OWNER.

3.5 MANUFACTURER'S CERTIFICATE(S)

- A. Provide Manufacturer's certificate(s) in accordance with Section 01 79 00.

END OF SECTION

SECTION 40 42 13.16 – POLYETHYLENE ENCASEMENT FOR DUCTILE IRON AND CAST IRON PIPE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes polyethylene encasement to be used on all underground ductile iron and cast iron pipe, fittings, valves, and appurtenances.

1.2 QUALITY CONTROL

- A. Supervision: Provide full time supervisor trained and familiar with the work to be undertaken.
- B. Workmanship: All workmen shall be skilled and experienced in the specified work.

1.3 SUBMITTALS

- A. General: Administrative, shop drawings, samples, quality control, and contract closeout submittals shall conform to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES.
- B. In addition to the requirements of Section 01 33 00, SUBMITTAL PROCEDURES, submit the following additional specific information:
 - 1. Complete catalog information, descriptive literature, specifications, and identification of materials.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Polyethylene encasement materials shall be manufactured of virgin polyethylene possessing the following characteristics:
 - 1. Polyethylene encasement shall be V-BIO ENHANCED POLYWRAP by U.S. PIPE, or approved equal.
 - 2. The minimum tube size for each pipe diameter shall be as listed in Table 1. For pipe sizes greater than 24 inches, tube size may be determined by multiplying the nominal pipe diameter by 2.25 to obtain minimum flat tube width.
 - 3. Polyethylene tube material shall have a thickness of 0.008 inches (8 mils). The minus tolerance on thickness shall not exceed 10 percent of the nominal thickness.
 - 4. The minimum tube size for each pipe diameter shall be as listed in Table 1. For pipe sizes greater than 24 inches, tube size may be determined by multiplying the nominal pipe diameter by 2.25 to obtain minimum flat tube width.

TABLE 1

NOMINAL PIPE DIAMETER (INCHES)	POLYETHYLENE FLAT TUBE WIDTH (INCHES)
4	16
6	20
8	24
10	27
12	30
14	34
16	37
18	41
20	45
24	53
30	67.5
36	81

B. Tape

1. Tape used in field application of polyethylene encasement shall be Polyken #900 as manufactured by Covalence Adhesives, Scotchrap #50 as manufactured by 3M, or approved equal. Tape shall be at least two (2) inches wide.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Polyethylene encasement shall be installed on all buried ductile iron pipe and fittings. Although not intended to be a completely air- and water-tight enclosure, the polyethylene shall prevent contact between the pipe and the surrounding backfill.

B. Pipe:

- a. Cut polyethylene tube to a length approximately 2 feet longer than the length of the pipe section. Slip the tube around the pipe, centering it to provide a 1 foot overlap on each adjacent pipe section, and bunching it accordion-fashion lengthwise until it clears the pipe ends.
- b. Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene tube.
- c. After assembling the pipe joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe, and secure in place with one circumferential turn of adhesive tape plus enough overlap to assure firm adhesion. Then slip the end of the polyethylene from the new pipe section over the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe. Tape it in place. Take up the slack width to make a snug, but not tight, fit along the barrel of the pipe, securing the fold at quarter points with adhesive tape.
- d. Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured with adhesive tape. Proceed with installation of the next section of pipe in the same manner.

B. Pipe-shaped appurtenances:

1. Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene in the same manner as the pipe.
- C. Odd-shaped appurtenances:
 1. Valves, tees, crosses, and other odd-shaped pieces which cannot practically be wrapped in a tube shall be wrapped with a flat sheet or split length of polyethylene tube. The sheet shall be passed under the appurtenance and brought up around the body. Seams shall be made by bringing the edges together, folding over twice, and taping down. Slack width and overlaps at joints shall be handled as described in B.1. Tape polyethylene securely in place at valve stem and other penetrations.
- D. Openings in encasement:
 1. Openings for branches, service taps, blow-offs, air valves, and similar appurtenances shall be made by making an x-shaped cut in the polyethylene and temporarily folding the film back. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut as well as any other damaged areas in the polyethylene with tape.
- E. Junctions between wrapped and unwrapped pipe:
 1. Where polyethylene wrapped pipe joins a pipe which is not wrapped, extend the polyethylene tube to cover the unwrapped pipe a distance of at least 2 feet. Secure the end with circumferential turns of tape.
- 3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING
 - A. Comply with Section 01 60 00, PRODUCT REQUIREMENTS.
 - B. Delivery of Materials: Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
 - C. Storage: Products shall be carefully stored in a manner that will prevent damage and in an area that is protected from the elements.
 - D. The encasement shall be protected from prolonged exposure to sunlight to prevent deterioration of the PE film.

END OF SECTION

Attachment: Contract and Specs-1-2-2019 (Water Transmission Line)



Engineering
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
From: Andy Glasgow, Asst Director of Engineering
CC: Kim Brawner, Director of Engineering
Date: January 8, 2019
Re: MSA with Kimley-Horn and Associates, Inc.

Action Requested:

Consider and act upon a Master Services Agreement (MSA) contract by and between the City of Celina and Kimley-Horn and Associates, Inc. for Engineering and Surveying Services. (Brawner)

Background Information:

This agreement shall provide Professional Engineering Services for various City of Celina Departments in compliance with the "Texas Engineering Practice Act and Rules Concerning the Practice of Engineering and Professional Engineering Licensure" of the Texas Board of Professional Engineers, and all applicable laws. The scope of services may vary from Project to Project shall be determined by City personnel or by mutual agreement between the City and Engineer. The contract term shall commence on the date of execution by the City Council, or their authorized representative, and extend for a period of up to twelve (12) months thereafter with automatic annual renewals for up to five (5) years. The contract term may be extended by mutual agreement of the parties.

Board Review/Citizen Input:

N/A

Alternatives:

City Council could choose to not approve the attached MSA.

Financial Considerations:

None

Legal Review:

The MSA is a standard contract form that has been previously approved by City Council.

Supporting Documents:

Master Services Agreement

Staff Recommendation:

Approval of MSA.

MASTER SERVICES AGREEMENT
Miscellaneous Professional Engineering Services

This agreement for Professional Consulting Services (the “Agreement”), made effective as of the date executed, is made between **Kimley-Horn and Associates, Inc.**, a North Carolina corporation, (hereinafter referred to as “CONSULTANT”) whose mailing address is **2201 West Royal Lane, Suite 275, Irving, TX 75063**, and the **City of Celina, Texas**, a municipal corporation, (hereinafter referred to as “OWNER”), whose mailing address is 142 North Ohio Street, Celina, Texas 75009.

Recitals:

WHEREAS, OWNER desires to engage the services of CONSULTANT as an independent contractor and not as an employee in accordance with the terms and conditions set forth in this Agreement; and

WHEREAS, CONSULTANT desires to render miscellaneous professional engineering and related services for OWNER on an indefinite delivery, indefinite quantity (“IDIQ”) basis and in accordance with the terms and conditions set forth in this Agreement;

NOW THEREFORE, in exchange for the mutual covenants set forth herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties mutually agree as follows:

Article 1
Scope of Services

- 1.1 In consideration of the mutual covenants contained herein, CONSULTANT shall perform Professional Engineering Services to OWNER on an as-needed, Project assignment basis. The specific scope of services, and basis for payment, for each Project assignment shall be determined by OWNER and defined in a Request for Proposal from OWNER TO CONSULTANT.
- 1.2 This Agreement shall also allow CONSULTANT to provide related professional services to OWNER as appropriate including, but not limited to, Land Surveying, Landscape Architecture, Land Planning, and CADD services.
- 1.3 All designs, drawings, specifications, documents, and other work products of CONSULTANT, whether in hard copy or in electronic form, are instruments of service for this Project, whether the Project is completed or not. Reuse, change, or alteration by the OWNER or by others acting through or on behalf of OWNER of any such instruments of service without the written permission of CONSULTANT will be at OWNER's sole risk. CONSULTANT shall own the final designs, drawings, specifications and documents.

Article 2 Term of Contract

- 2.1 The contract term shall commence on the date of execution by OWNER and shall extend for a period of five (5) years thereafter.
- 2.2 The contract term may be extended by mutual agreement of the parties.

Article 3 Compensation and Method of Payment

- 3.1 CONSULTANT will submit a written fee proposal to OWNER for each Project prior to starting work.
- 3.2 For each Project, OWNER shall compensate CONSULTANT for services on either (a) Time & Expense basis with a Not-to-Exceed Total Fee, or (b) on a Lump Sum basis, as directed by OWNER.
- 3.3 The unit prices to be used for Time & Expense basis shall be set forth in Exhibit "A", attached hereto, and made a part hereof for all purposes.
- 3.4 During the term, or any extension to the term, of this contract, the unit prices contained in Exhibit "A" shall remain the same unless revised per mutual agreement of the parties.
- 3.5 Unless otherwise provided herein, payment to CONSULTANT shall be monthly based on CONSULTANT's monthly invoice that shows the total amount of fees earned to date and the amount due and payable as of the current statement, in a form reasonably acceptable to OWNER.
- 3.6 Payment shall be made by OWNER within 30 days after receipt of the invoice.
- 3.7 OWNER shall provide written notification to CONSULTANT within 15 days of receipt of the invoice should OWNER object to all or any part of charges appearing on the invoice. The portion of the invoice that is not in dispute shall be paid by OWNER within 30 days of receipt of said invoice.

Article 4 Personnel and Equipment

- 4.1 To the extent reasonably necessary for CONSULTANT to perform the services under this Agreement, CONSULTANT shall be authorized to engage the services of any subcontractors, agents, assistants, persons, or corporations that CONSULTANT may deem proper to aid or assist in the performance of the services under this Agreement with the prior written approval of OWNER. The cost of such personnel and assistance shall be included in the compensation to CONSULTANT as described in Article 2.
- 4.2 CONSULTANT shall furnish the facilities, equipment, and personnel necessary to perform the services required under this Agreement unless otherwise provided herein.
- 4.3 CONSULTANT shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or disability.

Article 5

Delays and Termination

- 5.1 OWNER or CONSULTANT may terminate this Agreement upon thirty (30) days written notice to the other party. In the event of such termination, the CONSULTANT shall be entitled to compensation for any services completed to the reasonable satisfaction of OWNER in accordance with this Agreement prior to such termination.
- 5.2 If OWNER suspends the Project, CONSULTANT shall be compensated for services performed prior to notice of such suspension. When the Project is resumed, CONSULTANT shall be compensated for expenses incurred in the interruption and resumption of CONSULTANT's services. CONSULTANT's fees for the remaining services and the time schedules shall be equitably adjusted.
- 5.3 OWNER's failure to make payment to CONSULTANT in accordance with the payment terms herein shall constitute a material breach of this Agreement and shall be cause for termination by CONSULTANT.

Article 6

Right of Entry

- 6.1 OWNER shall provide for CONSULTANT's right to enter from time to time, property owned by OWNER and/or others, the entry upon which is necessary for CONSULTANT to fulfill the scope of services included hereunder.
- 6.2 Should the project property not be owned by OWNER, OWNER shall obtain and provide written right of entry from the property owner(s) unless otherwise stated in Exhibit "A".

Article 7

Information Provided by Others

- 7.1 CONSULTANT shall indicate to OWNER the information needed for rendering of services hereunder, and OWNER shall provide to CONSULTANT such information as is available to OWNER. OWNER recognizes it is impossible for CONSULTANT to assure the sufficiency of such information, either because it is impossible to do so, or because of errors or omissions, which may have occurred in assembling the information. OWNER shall be responsible for, and CONSULTANT may rely upon, the accuracy and completeness of all requirements, programs, instructions, reports, data, and other information furnished by OWNER to CONSULTANT pursuant to this Agreement. CONSULTANT may use such requirements, programs, instructions, reports, data, and information in performing or furnishing services under this Agreement.
- 7.2 Subject to the standard of care set forth here within, CONSULTANT and its subconsultants may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.

Article 8 Construction Activities

- 8.1 OWNER agrees that CONSULTANT shall not have any control over, nor shall it be responsible for, job site safety or for construction means, methods, sequence, techniques and procedures necessary for performing, superintending and/or coordination of all construction activities as such responsibilities are the sole responsibility of the general contractor or OWNER. Accordingly, OWNER warrants that this intent shall be made evident in OWNER's agreement with the general contractor.
- 8.2 CONSULTANT shall have no responsibility for discovery, presence, handling, removal or disposal of, or exposure of persons to, hazardous materials or toxic substances in any form at the Project site.

Article 9 Jurisdiction and Applicable Law

- 9.1 This Agreement is to be governed by the laws of the State of Texas.
- 9.2 In compliance with Sec. 29 of the Professional Land Surveying Act, as enacted by the Legislature of the State of Texas, CONSULTANT is required to inform OWNER that land surveying services in the State of Texas are under the jurisdiction of the Texas Board of Professional Land Surveying, 12100 Park 35 Circle, Bldg. A, Suite 156, MC-230, Austin, Texas 78753, (512) 239-5263. Complaints regarding surveying services rendered may be addressed to that agency. The firm registration number is TBPLS No. 10008000.

Article 10 Indemnification

- 10.1 **CONSULTANT SHALL INDEMNIFY AND HOLD HARMLESS OWNER FROM AND AGAINST LAWSUITS, CLAIMS, LIABILITIES, CAUSES OF ACTION, LOSSES, DAMAGES, FORFEITURES, PENALTIES, FINES, COSTS AND EXPENSES, INCLUDING BUT NOT LIMITED TO, REASONABLE ATTORNEY'S FEES AND EXPENSES, BY WHOMEVER ASSERTED, TO THE EXTENT THE SAME ARE CAUSED BY THE NEGLIGENT OR INTENTIONAL TORTIOUS ACTS OF CONSULTANT OR ITS EMPLOYEES OR SUBCONSULTANTS IN THE PERFORMANCE OF THE SERVICES IN THIS AGREEMENT, SUBJECT TO THE LIMITATIONS IN TEXAS LOCAL GOVERNMENT CODE SECTION 271.904.**

Article 11 Conflicts of Interest

- 11.1 CONSULTANT represents that no official or employee of OWNER has any direct or indirect pecuniary interest in this Agreement.

Article 12 Insurance

- 12.1 CONSULTANT shall, during the term hereof, maintain in full force and effect the following insurance: (1) a policy of insurance for bodily injury, death and property damage insuring against all claims, demands or actions relating to the CONSULTANT's performance of services pursuant to this Agreement with a minimum combined single limit of not less than \$1,000,000 Dollars per occurrence for injury to persons (including death), and for property damage; (2) a policy of automobile liability insurance covering any vehicles owned and/or operated by CONSULTANT, its officers and employees, and used in the performance of this Agreement; (3) statutory Worker's Compensation Insurance covering all of CONSULTANT's employees involved in the provision of services under this Agreement; and (4) Professional Liability Insurance covering damages arising out of the negligent acts, errors or omissions.
- 12.2 All insurance and certificate(s) of insurance shall contain the following provisions: (1) name OWNER, its officers and employees as additional insureds as to all applicable coverage with the exception of Workers Compensation Insurance and Professional Liability Insurance; (2) provide for at least thirty (30) days prior written notice to the OWNER for cancellation or non-renewal of the insurance; (3) provide for a waiver of subrogation against the OWNER for injuries, including death, property damage, or any other loss to the extent the same is covered by the proceeds of insurance.
- 12.3 All insurance companies providing the required insurance shall be authorized to transact business in Texas and be rated at least "A" by AM Best or other equivalent rating service.
- 12.4 A certificate of insurance evidencing the required insurance shall be submitted to the OWNER prior to commencement of services.

Article 13 Assignment

- 13.1 Unless otherwise noted, neither CONSULTANT nor OWNER shall assign this Agreement in whole or in part without the prior written consent of both parties. CONSULTANT shall not subcontract any portion of the work to be performed hereunder, except that CONSULTANT may use the services of persons and entities not in the employ of CONSULTANT when it is appropriate and customary to do so. Such persons and entities include, but are not necessarily limited to, surveyors, specialized consultants, and testing laboratories. CONSULTANT's use of others for additional services shall not be unreasonably restricted by OWNER provided CONSULTANT notifies OWNER in advance.
- 13.2 Subject to the provisions regarding assignment, this Agreement shall be binding on and inure to the benefit of the parties to it and their respective heirs, executors, administrators, legal representatives, successors and assigns.

Article 14 Notices

- 14.1 Any notice given hereunder shall be deemed served when hand-delivered in writing to an officer or other duly appointed representative of the party to whom the notice is directed or, if sent by commercial courier service, upon delivery to the address specified in the notice or, if sent by registered or certified mail to the business address identified below, upon the deposit of such notice in a properly addressed and postage paid envelope in the United States Mail.

If intended for OWNER:

City of Celina Engineering Department
ATTN: Kimberly Brawner, PE, PTOE
Director of Engineering
142 N Ohio Street
Celina, TX 75009
972-382-2682 x 1081

If intended for CONSULTANT:

Kimley-Horn and Associates, Inc.
ATTN: L. Nathan Ante, P.E.
Vice President
2201 West Royal Lane, Suite 275
Irving, TX 75063
214-420-5603

Article 15 Standard of Care

- 15.1 The standard of care for all professional consulting services performed or furnished by CONSULTANT under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. CONSULTANT makes no warranties, express or implied, under this Agreement or otherwise, in connection with CONSULTANT's services.

Article 16 Entire Agreement

- 16.1 The Agreement (including attached schedules) constitutes the sole and entire agreement between CONSULTANT and OWNER. This Agreement replaces and supersedes all prior discussions and agreements between the OWNER and CONSULTANT with respect to the matters contained herein. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument signed by both OWNER and CONSULTANT.

Article 17

Independent Contractor

17.1 It is understood and agreed by and between the parties that CONSULTANT, in satisfying the conditions of this Agreement, is acting independently and that OWNER assumes no responsibility or liabilities to any third party in connection with these actions. All services to be performed by CONSULTANT pursuant to this Agreement shall be in the capacity of an independent contractor, and not as an agent or employee of OWNER. CONSULTANT shall supervise the performance of its services and shall be entitled to control the manner and means by which its services are to be performed, subject to the terms of this Agreement. There is no intended third-party beneficiary to this agreement.

Article 18 Audits and Records

18.1 CONSULTANT agrees that, during the term hereof, OWNER and its representatives may, during normal business hours and as often as deemed necessary, inspect, audit, examine and reproduce any and all of CONSULTANT's records relating to the services provided pursuant to this Agreement for a period of one (1) year following the date of completion of services as determined by OWNER or date of termination if sooner.

Article 19 Miscellaneous Provisions

- 19.1 All waivers, indemnifications, and limitations of liability included in this Agreement will survive its completion or termination for any reason.
- 19.2 Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONSULTANT, which agree that the Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- 19.3 OWNER shall not rely in any way on any document unless it is issued in final form, signed or sealed by CONSULTANT or one of its subconsultants.
- 19.4 A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement.
- 19.5 To the fullest extent permitted by law, all causes of action arising under this Agreement shall be deemed to have accrued, and all statutory periods of limitation shall commence, no later than the date of Substantial Completion.

The following Appendices and/or Exhibits are attached to and made a part of this Agreement:

- Exhibit A – Unit Price Schedule

Executed in two (2) counterparts, each of which is deemed to be an original and as of the day and date first written in this Contract.

EXECUTED the ____ day of _____, 2018.

OWNER:
City of Celina, Texas

By:
Sean Terry, Mayor

Attest:
City Secretary

APPROVED AS TO FORM:

City Attorney

CONSULTANT:
Kimley-Horn and Associates, Inc.

By: 
Aaron W. Nathan, Senior Vice President

Attest: 
Caroline Fernandez, Associate

Attachment: Celina MSA_Engineering_KH_signed_20181206 (MSA - Kimley Horn)

EXHIBIT “A”**Standard Rate Schedule**

(Hourly Rates as of July 2018)

Senior Professional II	\$240 - \$265
Senior Professional I	\$180 - \$250
Professional	\$160 - \$210
Senior Technical Support	\$115 - \$190
Technical Support	\$70 - \$100
Analyst	\$105 - \$175
Support Staff	\$ 75 - \$ 115

The CONSULTANT’S compensation shall be computed on the basis set forth herein, unless otherwise stated in the Work Authorization. The OWNER shall pay the CONSULTANT an amount based upon the CONSULTANT’S then-current hourly rates plus an amount to cover certain direct expenses including telecommunications, in-house reproduction, postage, supplies, project related computer time, and local mileage. Other direct expenses will be billed at 1.15 times cost. If the CONSULTANT’S compensation is on an hourly labor fee basis, estimated fees and expenses may be set forth in the Work Authorization in question.

Attachment: Celina MSA_Engineering_KH_signed_20181206 (MSA - Kimley Horn)



Development Services
City of Celina, Texas

Memorandum

To: Honorable Mayor Terry and the Celina City Council
From: Dusty McAfee, Director of Development Services
CC: Jason Laumer, City Manager
Date: January 8, 2019
Re: Fire Station No. 2 and Water Tower Annexation Resolution

Action Requested:

Consider and act upon a resolution accepting a petition from the City of Celina for the voluntary annexation of an approximately 4.00 acre tract of land situated in Lot 1, Block A of the Water Tower Addition at Light Farms, Collin County, Texas and setting two public hearing dates for February 12, 2019 at 5:00 p.m. and March 12, 2019 at 5:00 p.m. at the CISD Administration Building Board Room located at 205 S. Colorado Street, Celina, Texas. The property is generally located on the north side of Light Farms Way and approximately 350 feet east of the Dallas North Tollway. (Fire Station No. 2 and Water Tower Annexation Resolution) (McAfee)

Applicant:

City of Celina
 142 N. Ohio
 Celina, TX 75009

Background Information:

Below is the anticipated annexation schedule for the property:

- January 8, 2019 - City Council acts on a resolution to set the public hearing dates.
- February 12, 2019 - First Public Hearing to be held.
- March 12, 2019 - Second Public Hearing to be held.
- March 12, 2019 - City Council acts on an ordinance annexing the property.

Board Review/Citizen Input:

N/A

Alternatives:

N/A

Financial Considerations:

N/A

Legal Review:

N/A

Supporting Documents:

Location Map
Annexation Resolution

Staff Recommendation:

Staff recommends approval of the Resolution.

**CITY OF CELINA
RESOLUTION NO. 2019 - ____**

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS, SETTING A DATE, TIME, AND PLACE FOR PUBLIC HEARINGS ON A PROPOSED ANNEXATION OF CERTAIN PROPERTIES BY THE CITY AND AUTHORIZING AND DIRECTING CITY STAFF TO PUBLISH NOTICE OF SUCH PUBLIC HEARINGS AND AUTHORIZING CITY STAFF TO TAKE ALL NECESSARY ACTION TO FULFILL THE REQUIREMENTS OF THE MUNICIPAL ANNEXATION ACT.

WHEREAS, the City of Celina, Texas (the “City”) is a Home Rule municipality located in Collin County, Texas, and Denton County, Texas created in accordance with the provisions of the Texas Local Government Code and operating pursuant to the Celina Home Rule Charter; and

WHEREAS, the City of Celina is provided the power to annex land under its Home Rule Charter and Section 43.021 of the Texas Local Government Code pursuant to the requirements and limitations set forth in state law; and

WHEREAS, the City of Celina has determined that it is in the best interest of the City and its citizens to consider the potential annexation of certain properties that are located within the City’s extraterritorial jurisdiction; and

WHEREAS, the City of Celina desires to start the process that will enable the City, should it so desire, to annex the properties referenced in Exhibits “A,” and more fully depicted in the attached Exhibit “ B” into the City of Celina, call two public hearings, and set a proposed annexation proceedings schedule.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS;

- I. That on Tuesday, the 12th day of February, 2019 at 5:00 p.m. and on Tuesday, the 12th day of March, 2019 at 5:00 p.m., at the CISD Administration Board Room located at 205 S. Colorado, Celina, Texas 75009, the City Council will hold public hearings giving all interested persons the right to appear and be heard on the proposed annexations by the City of Celina of the properties more particularly described in the attached Exhibit “A,” and more fully depicted in the attached Exhibit “B”. Services are to be provided to the property as outlined by the service plan in the attached Exhibit “C.”
- II. That City Staff is hereby authorized and directed to cause notice of each public hearing to be published once in a newspaper having general circulation in the City and in the territories described in attached Exhibit “A,” and more fully depicted in the attached Exhibits “B” not more than twenty (20) days, nor less than ten (10) days prior to the date of such public hearing, in accordance with the Municipal Annexation Act.

PASSED AND APPROVED by the City Council of the City of Celina, Texas, this the 8th day January, 2019.

SEAN TERRY, MAYOR

VICKI FAULKNER, CITY SECRETARY

Exhibit A Legal Description

Being a tract of land situated in the John Ragsdale Survey, Abstract No. 734, Collin County, Texas, and being a portion of a tract of land as described in instrument to Lucas Celina 209, Ltd., as recored in Document No. 20070109000040530 of the Land Records of Collin County, Texas, and being more particularly described as follows:

COMMENCING at a 5/8 inch iron rod found with yellow cap at the southeaat corner of said Lucas Celina tract, said corner also being the southwest corner of a tract of land as described in instrument to Forestar/RPG Land Company, LLC, Tract 1, as recorded in Document No. 20080221000239380 of the Land Records of Collin County, Texas;

THENCE North 00 degrees, 36 minutes, 37 seconds West along an east line of said Lucas Celina 209 tract and a west line of said Forestar/RPG Land Compan, LLC tract a distance of 1,500.17 feet to a 5/8 inch iron rod found for an angle point;

THENCE North 30 degrees, 59 minutes, 39 seconds East along an east line of said Lucas Celina 209 tract and a west line of said Forestar/RPG Land Compan, LLC tract a distance of 1,500.17 feet to a 5/8 inch iron rod found for an angle point;

Exhibit B
Property Exhibit

Attachment: Fire Station No. 2 Annexation Resolution (2019-4R : Fire Station No. 2 and Water Tower Annexation Resolution)

Exhibit “C” Service Plan

A) SERVICE PLAN GENERALLY

- 1) This service plan has been prepared in accordance with the Texas Local Government Code (“LGC”), Sections 43.021; 43.065 and 43.056(b)-(o). Municipal facilities and services to the annexed area will be provided or made available on behalf of the City of Celina in accordance with the following plan. The City of Celina shall provide the annexed tract the levels of service, infrastructure, and infrastructure maintenance that are comparable to the levels of service, infrastructure, and infrastructure maintenance available in other parts of the City of Celina with similar topography, land use, and population density. The provisions of the service plan were made available for public inspection and explained at the two public hearings held by the City Council in accordance with LGC Section 43.056(j).
- 2) For purposes of this service plan, to “provide” services includes having services provided by any method or means by which the City provides municipal services to any other areas of the City, and may include causing or allowing private utilities, governmental entities and other public service organizations to provide such services by contract or right, in whole or in part, and may include duties on part of the private landowner with regard to such services.

B) EMERGENCY SERVICES

- 1) Police Protection
 - a) Police protection from the City of Celina Police Department shall be provided to the annexed area at a level consistent with current methods and procedures presently provided to similar areas on the effective date of the annexation ordinance. Some of these services include:
 - i) Normal patrol and responses;
 - ii) Handling of complaints and incident reports;
 - iii) Special units, such as traffic enforcement and investigations; and
 - iv) Coordination with other public safety support agencies.
 - b) As development commences in these areas, sufficient police protection, including personnel and equipment will be provided to furnish these areas with the level of police services consistent with the characteristics of topography, land utilization and population density of the areas.
 - c) Upon ultimate development, police protection will be provided at a level consistent with other similarly situated areas within the city limits.
- 2) Fire Protection
 - a) The Celina Fire Department will provide emergency and fire prevention services to the annexed area. These services include:
 - i) Fire suppression and rescue;
 - ii) Pre-hospital medical services including triage, treatment and transport by Advanced Life Support (ALS) fire engines, trucks and ambulances;
 - iii) Hazardous materials response and mitigation;
 - iv) Emergency prevention and public education efforts;
 - v) Technical rescue response; and
 - vi) Constriction Plan Review and required inspections.
 - b) Fire protection from the City of Celina shall be provided to the annexed area at a level

consistent with current methods and procedures presently provided to similar areas of the City of Celina on the effective date of the annexation ordinance.

- c) As development commences in these areas, sufficient, fire protection, including personnel and equipment will be provided to furnish these areas with the level of services consistent with the characteristics of topography, land utilization and population density of the areas. It is anticipated that fire stations planned to service areas currently with the City of Celina will be sufficient to serve the annexed area.
 - d) Upon ultimate development, fire protection will be provided at a level consistent with similarly situated areas within the city limits.
- 3) Emergency Medical Services
- a) The Celina Fire Department will provide emergency and safety services to the annexed area. These services include:
 - i) Emergency medical dispatch and pre-arrival First Aid instructions;
 - ii) Pre-hospital emergency Advanced Life Support (ALS) response; and transport; and
 - iii) Medical rescue services.
 - b) Emergency Medical Services (EMS) from the City of Celina shall be provided to the annexed area at a level consistent with current methods and procedures presently provided to similar areas of the City of Celina on the effective date of the annexation ordinance.
 - c) As development commences in these areas, sufficient EMS, including personnel and equipment, will be provided to furnish these areas with the level of services consistent with the characteristics of topography, land utilization and population density of the areas.
 - d) Upon ultimate development, EMS will be provided at a level consistent with similarly situated areas within the city limits.

C) SOLID WASTE

- 1) Solid Waste and Recycling Collection Services will be provided to the annexed area immediately upon the effective date of the annexation at a level consistent with current methods and procedures presently provided to similar areas within the City. Private solid waste collection service providers operating in the affected area immediately prior to annexation and currently providing customers with service may continue to provide their existing service for up to two (2) years in accordance with Texas Local Government Code Section 43.056(n).

D) WASTEWATER FACILITIES

- 1) As development commences in these areas, sanitary sewer mains as defined by the Certificate of Convenience and Necessity (CCN) Number 20764, as issued by the Texas Commission on Environmental Quality (TCEQ) will be extended in accordance with the provisions of the City's codes, ordinances, regulations and policies. City participation in the costs of these extensions shall be in accordance with applicable City codes, ordinances, regulations and policies. Capacity and extensions shall be provided consistent with the characteristics of topography, land utilization and population density of the areas. If the annexed area is in the CCN of another provider, wastewater service shall be provided in accordance with the policies of the CCN holder. In some instances, the City might acquire the CCN rights and become the new wastewater provider, in time.
- 2) Sanitary sewer mains and lift stations installed or improved to City standards, and accepted by the City, within the annexed area which are located within dedicated easement, rights-of-way, or any other acceptable location approved by the City Manager or his designee, shall be maintained by the City on the effective date of this ordinance.

- 3) Operation and maintenance of wastewater facilities in the annexed area that are within the certificated service area of another wastewater utility will be the responsibility of that utility. Operation and maintenance of private wastewater facilities in the annexed area will be the responsibility of the owner.

E) WATER FACILITIES

- 1) Connections to existing City of Celina water distribution mains for water service as defined by Certificate of Convenience and Necessity (CCN) Number 12667, as issued by the Texas Commission on Environmental Quality (TCEQ) will be provided in accordance with existing City codes, ordinances, regulations and policies. Upon connection to existing distribution mains, water service will be provided at rates established by city ordinance. If the annexed area is in the CCN of another provider, water service shall be provided in accordance with the policies of the CCN holder. In some instances, the City might acquire the CCN rights and become the new water provider, in time.
- 2) As development commences in these areas, water distribution mains will be extended in accordance with City of Celina codes, ordinances, regulations and policies. City participation in the costs of these extensions shall be in accordance with the City of Celina's codes, ordinances, regulations and policies. Water service extensions and capacity shall be provided consistent with the characteristics of topography, land utilization and population density of the area.
- 3) Operation and maintenance of existing water facilities in the annexed area that are within the service area of another water utility will be the responsibility of that utility. Operation and maintenance of private water facilities in the annexed area will be the responsibility of the owner.

F) ROAD AND STREETS

- 1) Emergency street maintenance shall be provided within the annexed area on the effective date of the applicable ordinance of acceptance. Routine maintenance will be provided within the annexed area and will be scheduled as part of the City's annual program and in accordance with the City's current codes, ordinances, regulations, policies and procedures defined therein and/or as established by the City Council.
- 2) Any construction or reconstruction will be considered within the annexed area on a City-wide basis and within the context of the City's Capital Improvement Plan and/or yearly fiscal budgetary allotments by the City Council. As development, improvement or construction of streets to City standards commences within this property, the policies of the City of Celina with regard to participation in the costs thereof, acceptance upon completion and maintenance after completion shall apply.
- 3) Roadway signage and associated posts will be replaced in priority of importance starting with regulatory signs, then warning signs, then informational signs and in conformance with fiscal allotments by the City Council. If a sign remains, it will be reviewed and placed on the City's inventory listed for routine re-placement. All existing signs will be reviewed for applicability and based upon an engineering study. New signs will be installed when necessary and based upon an engineering study.
- 4) Routine maintenance of road/street markings will be placed on a priority listing and scheduled within the yearly budgetary allotments by the City Council.
- 5) The City will coordinate any request for improved road and street lighting with the local electric provider. Any and all road and street lighting will be pursuant to the rules, regulations and fees of such electric utility and shall be maintained by the applicable utility company.

G) ENVIRONMENTAL HEALTH, INSPECTIONS AND CODE ENFORCEMENT SERVICES

- 1) Enforcement of the City's environmental health ordinances and regulations, including but not limited to, weed and brush ordinances, junked and abandoned vehicle ordinances and animal control ordinances, shall be provided within this area sixty (60) days of the effective date of the annexation ordinance. These ordinances and regulations will be enforced through the use of existing personnel.
- 2) Inspection services including the review of building plans, the issuance of permits and the inspection of all buildings, plumbing, mechanical and electrical work to ensure compliance with City codes and ordinances will be continue to be provided after the effective date of the annexation ordinance. Existing personnel will be used to provide these services.
- 3) The City's zoning, subdivision, sign and other ordinances shall be enforced in this area beginning upon the effective date of the annexation.
- 4) All inspection services furnished by the City of Celina, but not mentioned above, will be provided to this area beginning within sixty (60) days of the effective date of the annexed ordinance.
- 5) As development and construction commence in this area, sufficient personnel will be provided to furnish this area the same level of environmental health, inspection and code enforcement services as are furnished throughout the City.

H) PLANNING AND ZONING SERVICES

- 1) The Planning and zoning jurisdiction of the City will extend to this area upon the effective date of the annexation ordinance. City planning will thereafter encompass this property, and it shall be entitled to consideration for zoning in accordance with the City's Zoning Ordinance and Comprehensive Plan.

I) PARKS, PLAYGROUNDS, LIBRARIES, SWIMMING POOLS

- 1) Residents within the annexed area may utilize all existing park and recreation facilities, on the effective date of this ordinance. Fees for such usage shall be in accordance with current fees established by ordinance.
- 2) As development commences in the area, additional park and recreation facilities shall be constructed based on park policies defined in the Park Master Plan and as specified in the Park Dedication Ordinance. The general planned locations and classifications of parks will ultimately serve residents from the current City limits and residents from areas being considered for annexation.

J) PUBLICLY OWNED FACILITIES

- 1) Any publicly owned facility, building, or service located within the annexed area, and not otherwise owned or maintained by another governmental entity, shall be maintained by the City of Celina on the effective date of the annexation ordinance.

K) OTHER SERVICES

- 1) Other services that may be provided by the City of Celina, such as municipal and general administration will be made available on the effective date of the annexation. The City of Celina shall provide levels of service, infrastructure, and infrastructure maintenance that are comparable to the levels of services, infrastructure, and infrastructure maintenance available in other parts of the City of Celina with similar topography, land use, and population density similar to those reasonably contemplated or projected in the area.

L) UNIFORM LEVEL OF SERVICES IS NOT REQUIRED

- 1) Nothing in this Service Plan shall require the City of Celina to provide a uniform level of full municipal services to each area of the City, including the annexed areas, if different characteristics of topography, land use, and population density are considered a sufficient basis for provided different levels of service. The City Council finds and determines that this Service Plan will not provide any fewer services, and it will not provide a lower level of services, than were in existence in the annexed area at the time immediately preceding the annexation process.
- 2) The City of Celina's codes, ordinances, regulations and policies that apply throughout the City may be reviewed at City Hall and at <http://www.franklinlegal.net/codes.html>.

M) TERM

- 1) This Service Plan shall be valid for a term of ten (10) years. Renewal of the Service Plan shall be at the discretion of the City Council and must be approved by ordinance.

N) AMENDMENTS

- 1) This Service Plan may be amended if the City Council determines at a public hearing that changed conditions or subsequent occurrences make this Service Plan unworkable or obsolete. The City Council may amend the Service Plan to conform to the changed conditions, subsequent occurrences or any other legally sufficient circumstances exist pursuant to the LGC or other Texas or Federal laws that make this service plan unworkable, obsolete or unlawful.



Development Services
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
From: Dusty McAfee, Director of Development Services
CC: Jason Laumer, City Manager
Date: January 8, 2019
Re: Celina Downtown Master Plan

Action Requested:

The Celina City Council will conduct a public hearing to consider testimony, and act upon an ordinance adopting the Celina Downtown Master Plan. (Celina Downtown Master Plan) (Jackson)

Background Information:

Celina's downtown historic square is the focal point of the town. This comprehensive plan, created after multiple town hall meetings with citizens and stakeholders, is the vision for the future development of the entire downtown, both the commercial heart and the Old Town residential areas surrounding it.

Board Review/Citizen Input:

The Planning & Zoning Commission, at the regular meeting held on December 18, 2018, unanimously recommended approval of the Plan. A notice of the public hearing was published in *The Celina Record* on November 30, 2018.

Alternatives:

N/A

Financial Considerations:

N/A

Legal Review:

N/A

Supporting Documents:

Celina Downtown Master Plan

Staff Recommendation:

Staff recommends approval as presented.

**CITY OF CELINA, TEXAS
ORDINANCE**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS,
ADOPTING THE CELINA DOWNTOWN MASTER PLAN; AUTHORIZING
PUBLICATION; AND PROVIDING AN EFFECTIVE DATE**

WHEREAS, the City of Celina is a home rule municipality located in Collin County, and Denton County, Texas created in accordance with the provisions of the Texas Local Government Code, The Texas Constitution and operating pursuant to the enabling legislation of the State of Texas; and

WHEREAS, the City Council of the City of Celina, Texas is empowered under Local Government Code 54.001 to do all acts and make all regulations which may be necessary or expedient for the promotion of the public health, safety and general welfare; and

WHEREAS, the City Council deems it in the best interests of the public to adopt this ordinance for the Celina Downtown Master Plan, to reflect the vision of the community for Downtown Celina and to establish guidelines and considerations for the future growth of the community; and

WHEREAS, the Planning and Zoning Commission has forwarded their recommendation to the City Council of the final draft of the Celina Downtown Master Plan; and

WHEREAS, all statutory and constitutional requirements for the passage of this ordinance have been adhered to, including but not limited to the Open Meetings Act; and

WHEREAS, the purposes of this ordinance are to promote the public health, safety, and general welfare of the citizens of the City of Celina.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS:

SECTION 1
FINDINGS

THAT after due deliberations the City Council has concluded that the adoption of this Ordinance is in the best interest of the City of Celina, Texas and of the public health, safety and welfare.

THAT the document entitled "Celina Downtown Master Plan" is hereby adopted as the guide for future development, redevelopment, and improvement of Downtown Celina.

SECTION 2
SAVINGS

All rights and remedies of the City of Celina, Texas are expressly saved as to any and all violations of the provisions of any other ordinance affecting the comprehensive plan which have secured at the time of the effective date of this ordinance; and, as to such accrued violations and all pending litigation, both civil and criminal, whether pending in court or not, under such ordinances same shall not be affected by this Ordinance but may be prosecuted until final disposition by the court.

SECTION 3 **SEVERABILITY**

The provisions of the Ordinance are severable. However, in the event this Ordinance or any procedure provided in this Ordinance becomes unlawful, or is declared or determined by a judicial, administrative or legislative authority exercising its jurisdiction to be excessive, unenforceable, void, illegal or otherwise inapplicable, in whole or in part, the remaining and lawful provisions shall be of full force and effect and the City shall promptly promulgate new revised provisions in compliance with the authority's decisions or enactment.

SECTION 4 **PUBLICATION**

The City Secretary of the City of Celina is hereby directed to publish in the Official Newspaper of the City of Celina the Caption and Effective Date of this Ordinance as required by Section 52.013 of the Local Government Code.

SECTION 5 **ENGROSSMENT AND ENROLLMENT**

The City Secretary is hereby directed to engross and enroll this Ordinance by copying the descriptive Caption in the minutes of the City Council and by filing this Ordinance in the Ordinance records of the City.

SECTION 6
EFFECTIVE
DATE

This ordinance shall become effective from and after its date of passage

Be it Ordained by the City Council of the City of Celina, Texas.

PASSED AND APPROVED by the City Council of the City of Celina, Texas this ____ day of _____, 2019.

 Sean Terry
 Mayor, City of Celina

ATTEST:

 Vicki Faulkner, City Secretary
 City of Celina, Texas

[SEAL]

APPROVED AS TO FORM:

 City Attorney
 City of Celina, Texas



Development Services
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
 From: Dusty McAfee, Director of Development Services
 CC: Jason Laumer, City Manager
 Date: January 8, 2019
 Re: Celina Estates Development Standards

Action Requested:

The Celina City Council will conduct a public hearing to consider testimony and act upon the approval of development standards for a single-family residential development on an approximately 35.049 acre tract of land situated in the W. J. Stapp Survey, Abstract No. 834 and the Robert Scaggs Survey, Abstract No. 801, Collin County, Texas. The property is generally located on the west side of CR 133, south of CR 128, and north of FM 455. (Celina Estates Development Standards) (McAfee)

Owner:

ZAV Holdings, LLC
 6850 TPC Drive, Suite 108
 McKinney, TX 75070

Background Information:

The proposed development agreement establishes the responsibilities and obligations of both the developer and City. In addition, the agreement determines the level of city participation on various aspects of the development. The applicant is proposing to annex approximately 35.049 acres into the City to facilitate the construction of a single-family residential community located on west side of CR 133, north of FM 455, and south of CR 128. Forty-four (43) single-family homes are planned with one common area/HOA lot.

The development, called Celina Estates, will include lot sizes of ranging from quarter of an acre to one acre.

Board Review/Citizen Input:

At the Planning and Zoning Commission meeting held on December 18, 2018, the Commission recommended approval unanimously.

A notice of the public hearing was published in *The Celina Record* on November 30, 2018. Notices of the public hearing have been sent to all owners of property residing within the city limits, as indicated by the most recently approved Collin County tax rolls, who are located within 200 feet of the subject property. As of the time of packet preparation, staff had received no comments either for or against the proposal.

Alternatives:

N/A

Financial Considerations:

N/A

Legal Review:

N/A

Supporting Documents:

Location Map

Proposed Agreement

Staff Recommendation:

Staff recommends approval.



Development Services
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
 From: Dusty McAfee, Director of Development Services
 CC: Jason Laumer, City Manager
 Date: January 8, 2019
 Re: All Storage Celina Annexation First Public Hearing

Action Requested:

The Celina City Council will conduct the first of two public hearings on the proposed voluntary annexation of approximately 7.426 acre tract of land situated in the Collin County School Land Survey #14, Abstract No. 167, Collin County, Texas, and generally located on the north side of Frontier Parkway and approximately 900 feet east of Prairie Crossing. (All Storage Annexation Resolution) (McAfee)

Applicant:

All Storage Celina, LLC
 82 W. Armstrong Drive
 Mustang, OK 73064

Background Information:

Below is the anticipated annexation schedule for the property:

~~December 11, 2018 – City Council acted upon a resolution to set the public hearing dates.~~

January 8, 2019 - First Public Hearing to be held.

February 12, 2019 - Second Public Hearing to be held.

February 12, 2019 - City Council acts on an ordinance annexing the property.

Board Review/Citizen Input:

Notice of the first public hearing was published in *The Celina Record* on December 28, 2018.

Alternatives:

N/A

Financial Considerations:

N/A

Legal Review:

N/A

Supporting Documents:

Location Map
 Boundary Exhibit

Staff Recommendation:

No action to be taken tonight.



Attachment: All Storage Location Map (All Storage Celina Annexation First Public Hearing)



All Storage Location Map

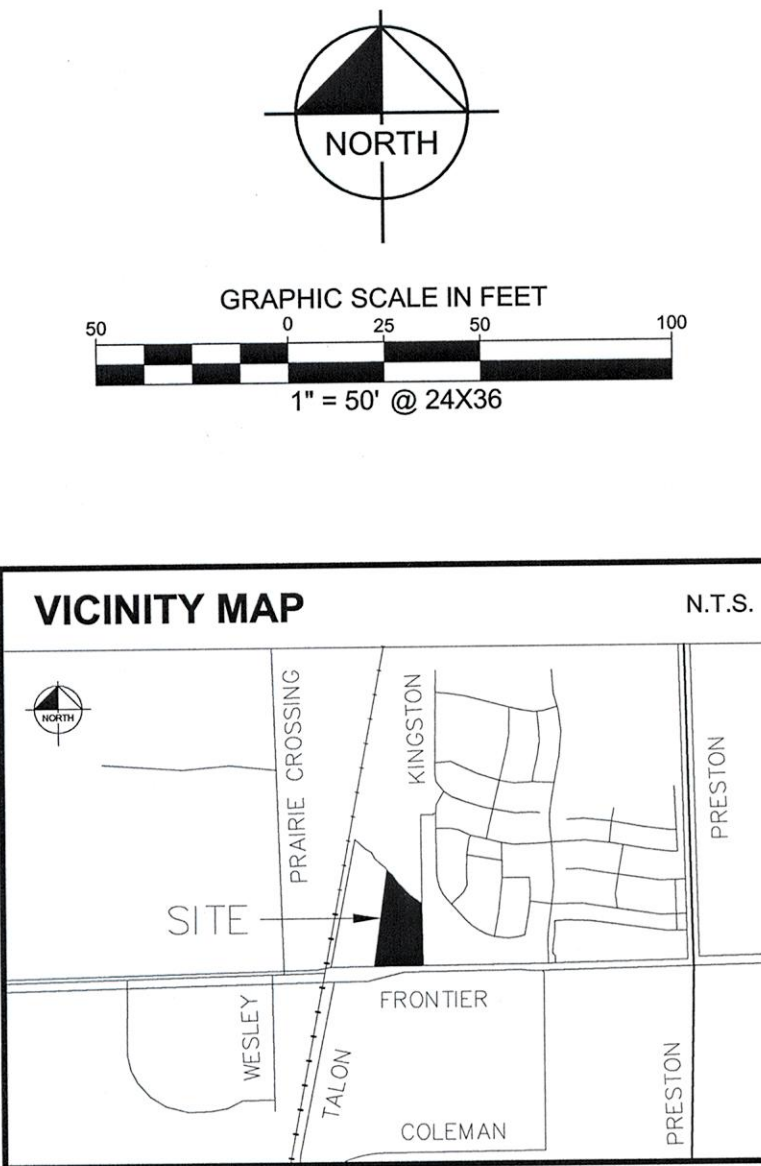
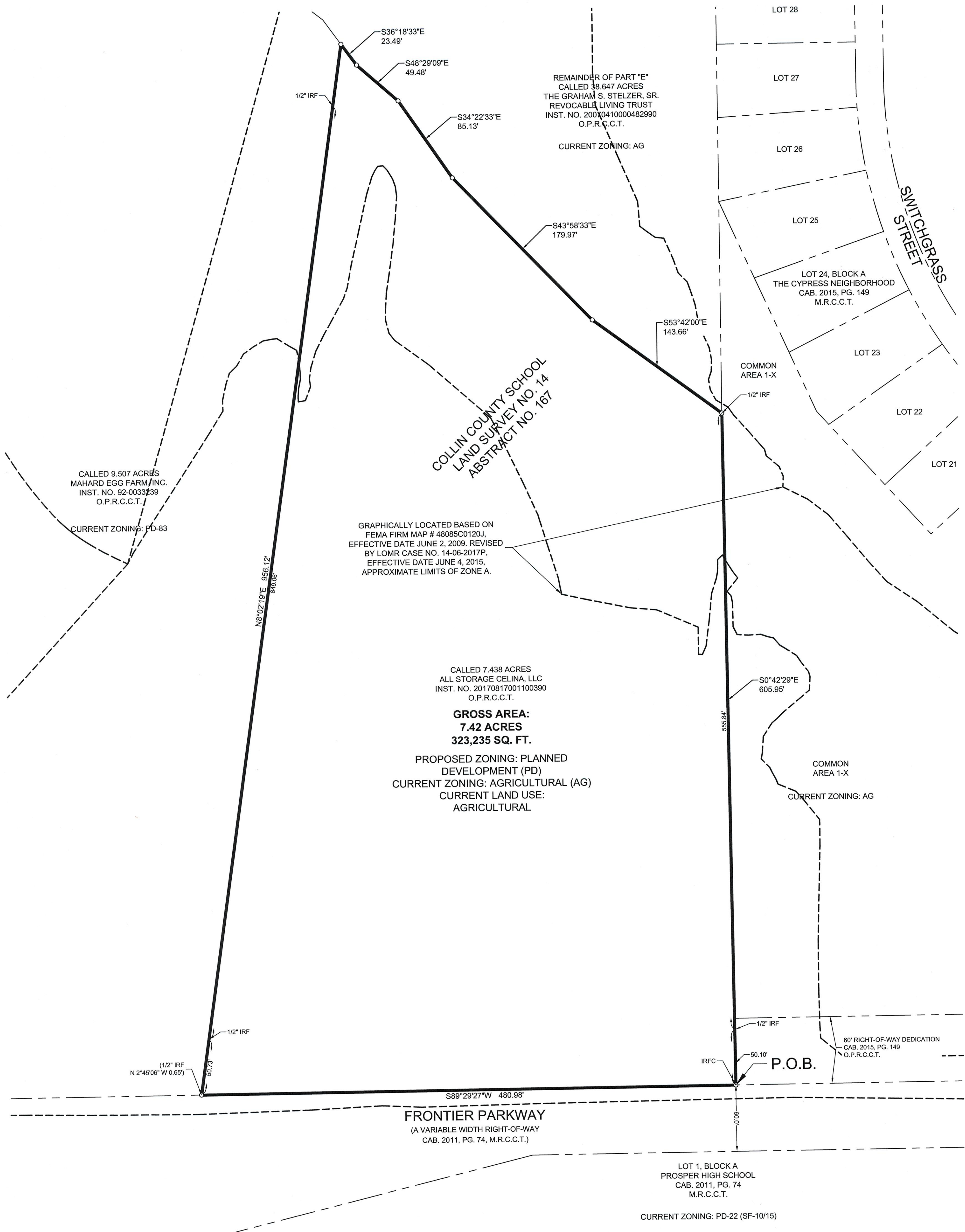
Date: 11/26/2018

Legend

- Roads
- AllStorage
- City Limits
- Parcels

North arrow and scale bar (0, 150, 300 Feet).

Packet Pg. 541



LEGAL DESCRIPTION
7.42 ACRES

BEING a tract of land situated in the Collin County Land Survey No. 14, Abstract No. 167, Collin County, Texas and being all of a called 7.438 acre tract of land described in Special Warranty Deed to All Storage Celina, LLC recorded in Instrument No. 20170817001100390, Official Public Records of Collin County, Texas, and being more particularly described as follows:

BEGINNING at a 5/8-inch iron rod with plastic cap stamped "KHA" found in the north right-of-way line of Frontier Parkway (60-foot wide right-of-way at this point), for the southwest corner of The Cypress Neighborhood, an addition to the City of Celina, Texas according to the plat thereof recorded in Cabinet 2015, Page 149, Map Records of Collin County, Texas;

THENCE with said north right-of-way line of Frontier Parkway, South 89°29'27" West, a distance of 480.98 feet to a point for corner; from said point a 1/2-inch iron rod found bears North 2°45'06" West, a distance of 0.65 feet;

THENCE departing said north right-of-way line of Frontier Parkway and with the east line of a called 9.507 acre tract of land described in Special Warranty Deed to Mahard Egg Farm, Inc. recorded in Instrument No. 92-0033239 of said Official Public Records, North 8°02'19" East, at a distance of 50.73 passing a 1/2-inch iron rod found, continuing with said east line at a distance of 849.06 passing a 1/2-inch iron rod found, in all a total distance of 956.12 feet to a point for corner in the centerline of a branch;

THENCE with the centerline of said branch, the following courses and distances to wit:

- South 36°18'33" East, a distance of 23.49 feet to a point for corner;
- South 48°29'09" East, a distance of 49.48 feet to a point for corner;
- South 34°22'33" East, a distance of 85.13 feet to a point for corner;
- South 43°58'33" East, a distance of 179.97 feet to a point for corner;
- South 53°42'00" East, a distance of 143.66 feet to a 1/2-inch iron rod found for an angle point in the west line of said The Cypress Neighborhood Addition;

THENCE with the west line of said The Cypress Neighborhood Addition, South 0°42'29" East, at a distance of 555.84 a 1/2-inch iron rod found, in all a total distance of 605.95 feet to the **POINT OF BEGINNING** and containing 7.42 acres or 323,235 square feet of land.

Dana Brown
Registered Professional Land Surveyor No. 5336
Kimley-Horn and Associates, Inc.
13455 Noel Road, Two Galleria Office
Tower, Suite 700, Dallas, Texas 75240
Ph. 972-770-1300
dana.brown@kimley-horn.com



EXHIBIT B
ZONING CASE #18-
ALL STORAGE CELINA TRACT
COLLIN COUNTY SCHOOL LAND
SURVEY NO. 14, ABSTRACT NO. 167,
COLLIN COUNTY, TEXAS

Kimley»Horn

13455 Noel Road, Two Galleria Office Tower, Suite 700, Dallas, Texas 75240		FIRM # 10115500		Tel. No. (972) 770-1300 Fax No. (972) 239-3820	
Scale 1" = 50'	Drawn by JBH	Checked by DAB	Date MAR. 2018	Project No. 063231901	Sheet No. 1 OF 1

OWNER/APPLICANT:
ALL STORAGE CELINA, LLC
82 ARMSTRONG DRIVE
MUSTANG, OKLAHOMA 73064
PHONE: 405-376-4509
CONTACT:

ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
5750 GENESIS COURT, SUITE 200,
FRISCO, TEXAS 75034
PHONE: 972-335-3580
CONTACT: CHRIS LEPPERT, P.E.



Development Services
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
 From: Dusty McAfee, Director of Development Services
 CC: Jason Laumer, City Manager
 Date: January 8, 2019
 Re: Celina 40 Pre-Annexation Development Agreement

Action Requested:

The Celina City Council will conduct a public hearing to consider testimony and act upon a Pre-annexation Development Agreement by and between the City of Celina, Texas and G&N Estates, LLC. The property is an approximately 40.279 acre tract of land situated in the Coleman Watson Survey, Abstract No. 495, Collin County, Texas, and generally located on the north side of Choate Parkway, approximately 1,600 feet west of Custer Road, and is located within the City of Celina's ETJ. (Celina 40) (McAfee)

Owner:

G&N Estates, LLC
 5967 Shy Drive
 Frisco, Texas, 75034

Applicant:

Kirkman Engineering
 4821 Merlot Avenue, Suite 201
 Grapevine, Texas 76051

Background Information:

The proposed development agreement establishes the responsibilities and obligations of both the developer and City. In addition, the agreement determines the level of City participation on various aspects of the development. In this case, the applicant is proposing to annex approximately 40.279 acres into the City to facilitate the construction of a commercial development. No unique development standards are requested. The property is located on north side of Choate Parkway, south of the future Collin County Outer Loop, and approximately 1,600 feet west of Custer Road. The property will be developed to the standards of the Zoning Ordinance C-1, Retail district regulations with additional land use restrictions. Following uses are prohibited:

1. Sexually Oriented Businesses,
2. Outdoor Storage/Display,
3. Alternative Financial Services,
4. Body Art Facility,
5. Smoke Shop,
6. Vice Paraphernalia,

7. Gaming or Slot Machines (excluding arcades),
8. Lewd Merchandise Sales, and
9. Liquor Store and Pawn Shop.

An additional allowed use shall be Hotels.

Board Review/Citizen Input:

At the regular meeting held on November 20, 2018, the Planning & Zoning Commission voted unanimously to recommend approval of pre-annexation development agreement, as presented by staff.

A notice of the public hearing was published in *The Celina Record* on November 2, 2018. Notices of the public hearing have been sent to all owners of property residing within the city limits, as indicated by the most recently approved Collin County tax rolls, who are located within 200 feet of the subject property. As of the time of packet preparation, staff had received no comments either for or against the proposal.

Alternatives:

N/A

Financial Considerations:

N/A

Legal Review:

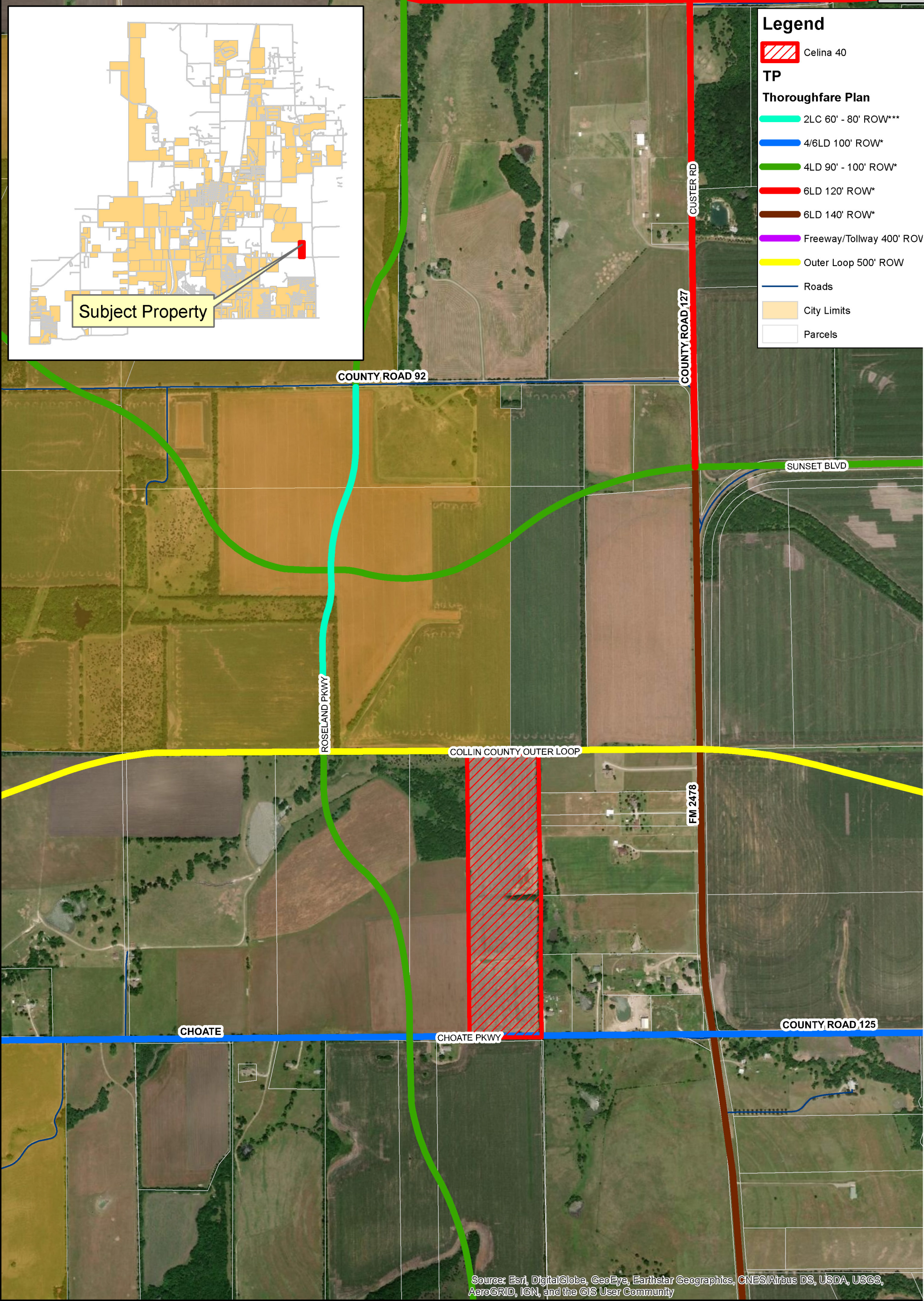
The City Attorney has reviewed the Development Agreement and deemed it acceptable for form.

Supporting Documents:

- Location Map
- Development Agreement

Staff Recommendation:

Staff recommends approval.

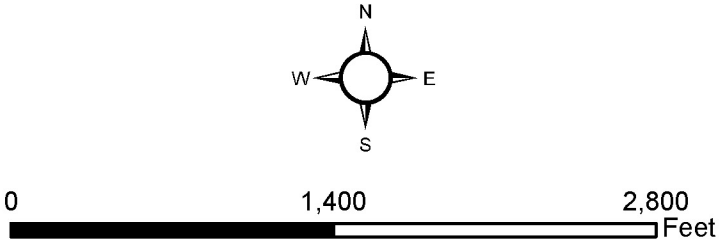


Attachment: Celina 40 Location Map (Celina 40 Pre-Annexation Development Agreement)



Celina 40 Location Map

Date: 11/21/2018



**CELINA 40
DEVELOPMENT AGREEMENT**

This Development Agreement (this “Agreement”) is entered into by and between **G & N Estates LLC**, a Texas limited liability company (the “Owner”) and the **City of Celina**, a home rule municipality located within Collin County, Texas (the “City”), to be effective on the date upon which the last of all of the Parties has approved and duly executed this Agreement (“Effective Date”).

**ARTICLE I
RECITALS**

WHEREAS, certain terms used herein are defined in Article II; and

WHEREAS, the City is a home-rule municipality of the State of Texas located within Denton County and Collin County; and

WHEREAS, the Owner and the City (which are sometimes individually referred to as a “Party” and collectively as the “Parties”) desire to enter into this Agreement; and

WHEREAS, Owner owns an approximately 40.279 acre tract of land (the “Property”); and

WHEREAS, the Property is located wholly within the extraterritorial jurisdiction (the “ETJ”) of the City and described by metes and bounds in **Exhibit A** and depicted on **Exhibit B**; and

WHEREAS, the Owner intends to develop the Property as a C-1 Retail Zoning District; and

WHEREAS, the Parties intend for this Agreement to establish certain restrictions and impose certain commitments in connection with the development of the Property; and

WHEREAS, the City holds the certificates of convenience and necessity (the “CCNs”) to provide retail water and wastewater service to the Property and the Parties intend for the City to provide water and wastewater service to the Property; and

WHEREAS, as the Property is within the City’s extraterritorial jurisdiction, the Parties have the authority to enter into this Agreement pursuant to Section 212.171 *et seq* of the Texas Local Government Code; and

WHEREAS, the Parties intend that this Agreement is a development agreement as provided for by state law in Section 212.171 *et seq* of the Texas Local Government Code; and

WHEREAS, this Agreement shall constitute a “permit” under Chapter 245 of the Texas Local Government Code and as allowed pursuant to Section 212.172(g) of the Texas Local Government Code.

NOW, THEREFORE, for and in consideration of the mutual covenants of the Parties set forth in this Agreement and for other good and valuable consideration, the receipt and adequacy of which are acknowledged, the Parties agree as follows:

ARTICLE II

GENERAL TERMS AND DEFINITIONS

The recitals to this Agreement are incorporated herein for all purposes. Unless the context requires otherwise, the following terms shall have the meanings hereinafter set forth:

City Council means the City Council of the City.

City Regulation(s) means any ordinance, rule, regulation, standard, policy, order, guideline or other City-adopted or City-enforced requirement.

Impact Fees means as defined in Chapter 395 of the Texas Local Government Code.

Property means the real property described by metes and bounds in **Exhibit A** and depicted on **Exhibit B**.

Public Infrastructure means water, wastewater, drainage, roadway, and other public infrastructure necessary to serve the full development of the Property.

ARTICLE III

PUBLIC INFRASTRUCTURE

31 Public Infrastructure. Except as otherwise expressly provided for in this Agreement, all Public Infrastructure shall be designed, constructed and installed by Owner in compliance with the City Regulations in effect on the Effective Date and the City's uniform engineering design standards in effect on the Effective Date. Construction and/or installation of Public Infrastructure shall not begin until complete and accurate plans and specifications have been approved by the City. The Public Infrastructure will be installed within the public right-of-way or in easements granted to the City.

(a) Approval of Plats/Plans. Approval by the City, the City's engineer or other City employee or representative, of any plans, designs or specifications submitted by the Owner pursuant to this Agreement or pursuant to City Regulations shall not constitute or be deemed to be a release of the responsibility and liability of the Owner, its engineer, employees, officers or agents for the accuracy and competency of their design and specifications. Further, any such approvals shall not be deemed to be an assumption of such responsibility and liability by the City for any defect in the design and specifications prepared by the Owner or the Owner's engineer, or engineer's officers, agents, servants or employees, it being the intent of the parties that approval by the City's engineer signifies the City's approval on only the general design concept of the improvements to be constructed. All plats and plans of the Owner related to the Property shall meet the requirements of the City Regulations in effect on the Effective Date.

ARTICLE IV

DEVELOPMENT REGULATIONS

4.1 Full Compliance with City Standards.

(a) Development of the Property shall be subject to the City Regulations and uniform engineering design standards, as amended, except to the extent that the Development Standards, attached as **Exhibit D**, may vary from those terms, then the Development Standards shall control.

4.2 Development Standard Revisions. The City Manager of the City may administratively approve the following “minor revisions” to the Development Standards: (a) an increase in the height of any structure by five percent (5%) or less; (b) a setback reduction of ten percent (10%) or less; (c) an increase in lot coverage of five percent (5%) or less; and (d) a reduction in off-street parking of five percent (5%) or less. The City Council may permit exceptions to strict compliance with the Development Standards when the Owner demonstrates, to the reasonable satisfaction of the City Council, that the requested exception: (a) is not contrary to the public interest; (b) does not cause injury to adjacent property; and (c) does not materially adversely affect the quality of the development.

4.3 Replat. The Owner may submit a replat for all or any portion of the Property.

4.4 Vested Rights. This Agreement shall constitute a “permit” under Chapter 245 of the Texas Local Government Code that is deemed filed with the City on the Effective Date. The Owner does not, by entering into this Agreement, waive any rights or obligations arising under Chapter 245 of the Texas Local Government Code.

4.5 Conflicts. In the event of any conflict between this Agreement and any City Regulation, this Agreement, including any exhibit or attachment, shall control.

ARTICLE V

TERM

The term of this Agreement shall be for a period of fifteen (15) years after the Effective Date. The Parties may extend the term of this Agreement if they execute an agreement in writing. Notwithstanding anything to the contrary in this Agreement, this Agreement shall automatically terminate.

ARTICLE VII

ANNEXATION AND POST-ANNEXATION MATTERS

7.1 Annexation. Within ten (10) days of being requested to do so by the City which shall not be longer than one (1) year after the Effective Date, Owner agrees to (a) submit a voluntary annexation petition for the Property, or (b) if requested by the City, sign a petition for annexation presented to Owner by the City that may contain additional acres (together all acreage the “Petition Property”). Owner agrees to execute and supply any and all instruments and/or other documentation necessary for the City to annex the Petition Property, into the City’s corporate limits. The annexation service plan for the Property shall be consistent with the terms of this Agreement. If the City is unable to complete the annexation of the Petition Property for any reason, including but not limited to procedural error or legal challenge, Owner shall execute another voluntary annexation petition for the Petition Property, within ten (10) days of being requested to do so. Prior to annexation of the Petition Property, the City shall have considered this Agreement, shall have submitted to Owner, and Owner shall review and approve, an annexation service plan which service plan shall be considered a binding, and mutually agreed upon, contractual obligation between the City and Owner. Owner acknowledges and agrees that this Section 7.1 was a material inducement for the

City to enter into this Agreement with Owner.

72 Zoning of Property. While the Parties expressly acknowledge that the Property will be voluntarily annexed in accordance with Section 7.1 of this Agreement, the Parties agree that the Concept Plan, the Development Standards, and the applicable provisions of this Agreement memorialize the plan for development of the Property as provided for in Section 212.172 of the Texas Local Government Code. The City shall consider zoning the Property as a C-1 Retail District consistent with the Development Standards, Concept Plan, and applicable provisions of this Agreement contemporaneously with annexation of the Property. Through this Agreement, the Owner expressly consents and agrees to the zoning of the Property consistent with and as contemplated by this Section.

ARTICLE VIII **EVENTS OF DEFAULT; REMEDIES**

8.1 Events of Default. No Party shall be in default under this Agreement until notice of the alleged failure of such Party to perform has been given in writing (which notice shall set forth in reasonable detail the nature of the alleged failure) and until such Party has been given a reasonable time to cure the alleged failure (such reasonable time to be determined based on the nature of the alleged failure, but in no event more than 30 days after written notice of the alleged failure has been given). Notwithstanding the foregoing, no Party shall be in default under this Agreement if, within the applicable cure period, the Party to whom the notice was given begins performance and thereafter diligently and continuously pursues performance until the alleged failure has been cured and within such 30-day period gives written notice to the non-defaulting Party of the details of why the cure will take longer than 30 days with a statement of how many days are needed to cure.

8.2 Remedies. If a Party is in default, the aggrieved Party may, at its option and without prejudice to any other right or remedy under this Agreement, seek any relief available at law or in equity, including, but not limited to, an action under the Uniform Declaratory Judgment Act, or actions for specific performance, mandamus, or injunctive relief. NOTWITHSTANDING THE FOREGOING, HOWEVER, NO DEFAULT UNDER THIS AGREEMENT SHALL ENTITLE THE AGGRIEVED PARTY TO TERMINATE THIS AGREEMENT OR LIMIT THE TERM OF THIS AGREEMENT.

ARTICLE IX **ASSIGNMENT AND ENCUMBRANCE**

9.1 Assignment. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the Parties hereto. The obligations, requirements, or covenants to develop the Property in this Agreement shall be able to be assigned to any affiliate or related entity of the Owner, or any lien holder on the Property, without the prior written consent of the City. The obligations, requirements or covenants to the development of the Property shall not be assigned by Owner to a non-affiliate or non-related entity of the Owner without the prior written consent of the City Manager, which consent shall not be unreasonably withheld if the assignee demonstrates financial ability to perform. An assignee shall be considered a "Party" for the purposes of this Agreement. Each assignment shall be in writing executed by Owner and the assignee and shall obligate the assignee to be bound by this Agreement to the extent this Agreement applies or relates to the obligations, rights, title, or interests being assigned, and shall contain a representation by the assignee acknowledged by a notary public that the assignee has the financial ability to timely perform the assigned obligations. A copy of each fully executed assignment to an assignee shall

be provided to all Parties within 15 days after execution. No assignment by Owner shall release Owner from any liability that resulted from an act or omission by Owner that occurred prior to the effective date of the assignment unless the City approves the release in writing. Owner shall maintain written records of all assignments made by Owner to assignees, including a copy of each executed assignment and, upon written request from any Party or assignee, shall provide a copy of such records to the requesting person or entity, and this obligation shall survive the assigning Party's sale, assignment, transfer, or other conveyance of any interest in this Agreement or the Property.

92 Encumbrance by City. The City shall not collaterally assign, pledge, grant a lien or security interest in, or otherwise encumber any of its rights, title, or interest under this Agreement, except for the fees and charges to be collected under Article IV, without the Owner's prior written consent, which consent shall not be unreasonably withheld.

93 Assignees as Parties. An assignee authorized in accordance with this Agreement and for which notice of assignment has been provided in accordance with this Agreement shall be considered a "Party" for the purposes of this Agreement. With the exception of the End-Buyer (as defined in Section 10.1 below) of a lot within the Property, any person or entity upon becoming an owner of land or upon obtaining an ownership interest in any part of the Property shall be deemed to be a "Owner" and have all of the obligations of the Owner as set forth in this Agreement and all related documents to the extent of said ownership or ownership interest.

94 No Third-Party Beneficiaries. This Agreement only inures to the benefit of, and may only be enforced by, the Parties. No other person or entity shall have any right, title, or interest under this Agreement or otherwise be deemed to be a third-party beneficiary of this Agreement.

95 Notice of Assignment. In addition to the other requirements in this Agreement, the following requirements shall apply in the event that the Owner sells, assigns, transfers, or otherwise conveys the Property or any part thereof and/or any of its rights or benefits under this Agreement:

- (a) within 30 days after the effective date of any such sale, assignment, transfer, or other conveyance, the Owner must provide written notice of same to the City;
- (b) the notice must describe the extent to which any rights or benefits under this Agreement have been sold, assigned, transferred, or otherwise conveyed;
- (c) the notice must state the name, mailing address, and telephone contact information of the person(s) acquiring any rights or benefits as a result of any such sale, assignment, transfer, or other conveyance; and
- (d) the notice must be signed by a duly authorized person representing the Owner.

ARTICLE X

RECORDATION AND ESTOPPEL CERTIFICATES

Binding Obligations. This Agreement and all amendments hereto (including amendments to the Concept Plan as allowed in this Agreement) and assignments hereof shall be recorded in the deed records of Collin County. This Agreement binds and constitutes a covenant running with the Property. Upon the Effective Date, this Agreement shall be binding upon the Parties and their successors and assigns permitted by this Agreement and forms a part of any other requirements for development within the Property. This Agreement, when recorded, shall be binding upon the Parties and their successors and assigns as permitted by this Agreement and upon the Property;

however, this Agreement shall not be binding upon, and shall not constitute any encumbrance to title as to, any end-buyer/homebuyer of a fully developed and improved lot (“an End-Buyer”) and shall not negate the End-Buyer’s obligation to comply with the City's Regulations, including but not limited to zoning ordinances, as they currently exist or may be amended.

10.1 Estoppel Certificates. From time to time upon written request of the Owner, if needed to facilitate a sale of all or a portion of the Property or a loan secured by all or a portion of the Property, the City will execute to its reasonable knowledge and belief, a written estoppel certificate in a form and substance satisfactory to the City identifying any obligations of the Owner under this Agreement that are in default. The Owner shall pay the City \$1,000 at the time of the Owner’s requests for an estoppel certificate for each request in excess of one per calendar year.

ARTICLE XI **ADDITIONAL PROVISIONS**

11.1 Recitals. The recitals contained in this Agreement: (a) are true and correct as of the Effective Date; (b) form the basis upon which the Parties negotiated and entered into this Agreement; (c) are legislative findings of the City Council of the City; and (d) reflect the final intent of the Parties with regard to the subject matter of this Agreement. In the event it becomes necessary to interpret any provision of this Agreement, the intent of the Parties, as evidenced by the recitals, shall be taken into consideration and, to the maximum extent possible, given full effect. The Parties have relied upon the recitals as part of the consideration for entering into this Agreement and, but for the intent of the Parties reflected by the recitals, would not have entered into this Agreement.

11.2 Notices. Any notice, payment or instrument required or permitted by this Agreement to be given or delivered to any party shall be deemed to have been received when personally delivered or transmitted by telecopy or facsimile transmission (which shall be immediately confirmed by telephone and shall be followed by mailing an original of the same within 24 hours after such transmission) or 72 hours following deposit of the same in any United States Post Office, registered or certified mail, postage prepaid, addressed as follows:

To the City:

Attn: City Manager
City of Celina
142 North Ohio
Celina, TX 75009
Email: jlaumer@celina-tx.gov

With a copy to: Attn: Julie Fort
 Messer, Rockefeller & Fort, PLLC
 6371 Preston Road, Suite 200
 Frisco, Texas 75034
 Email: julie@txmunicipallaw.com

With a copy to: Attn: Lance Vanzant
 Hayes, Berry, White & Vanzant, LLP
 6371 Preston Road, Suite 200
 Frisco, Texas 75034
 Email: lvanzant@hbwvllaw.com

To the Owner: Allen Gandy
 G&N Estates, LLC
 5967 Shy Drive
 Prosper, Texas 75034
 Email: allengandy@yahoo.com

AND

Allen Gandy
 G&N Estates, LLC
 2626 Stonebrook Pkwy, Suite 100
 Frisco, Texas 75034

Any party may change its address or addresses for delivery of notice by delivering written notice of such change of address to the other party.

11.3 Interpretation. The Parties acknowledge that each has been actively involved in negotiating this Agreement. Accordingly, the rule of construction that any ambiguities are to be resolved against the drafting Party will not apply to interpreting this Agreement. In the event of any dispute over the meaning or application of any provision of this Agreement, the provision will be interpreted fairly and reasonably and neither more strongly for nor against any Party, regardless of which Party originally drafted the provision.

11.4 Time. In this Agreement, time is of the essence and compliance with the times for performance herein is required.

11.5 Authority and Enforceability. The City represents and warrants that this Agreement has been approved by official action by the City Council of the City in accordance with all applicable public notice requirements (including, but not limited to, notices required by the Texas Open Meetings Act) and that the individual executing this Agreement on behalf of the City has been duly authorized to do so. The Owner represents and warrants that this Agreement has been approved by appropriate action of the Owner, and that the individual executing this Agreement on behalf of the Owner has been duly authorized to do so. Each Party respectively acknowledges and agrees that this Agreement is binding upon such Party and is enforceable against such Party, in accordance with its terms and conditions and to the extent provided by law.

11.6 Entire Agreement. This Agreement constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, covering the subject matter of this Agreement. This Agreement shall not be modified or amended except in writing signed by the Parties.

11.7 Severability. If any provision of this Agreement is determined by a court of competent jurisdiction to be unenforceable for any reason, then: (a) such unenforceable provision shall be deleted from this Agreement; (b) the unenforceable provision shall, to the extent possible and upon mutual agreement of the parties, be rewritten to be enforceable and to give effect to the intent of the Parties; and (c) the remainder of this Agreement shall remain in full force and effect and shall be interpreted to give effect to the intent of the Parties.

11.8 Applicable Law; Venue. This Agreement is entered into pursuant to, and is to be construed and enforced in accordance with, the laws of the State of Texas, and all obligations of the Parties are performable in Collin County. Exclusive venue for any action to enforce or construe this Agreement shall be in the Collin County District Court.

11.9 Non-Waiver. Any failure by a Party to insist upon strict performance by the other Party of any material provision of this Agreement shall not be deemed a waiver thereof, and the Party shall have the right at any time thereafter to insist upon strict performance of any and all provisions of this Agreement. No provision of this Agreement may be waived except by writing signed by the Party waiving such provision. Any waiver shall be limited to the specific purposes for which it is given. No waiver by any Party of any term or condition of this Agreement shall be deemed or construed to be a waiver of any other term or condition or subsequent waiver of the same term or condition.

11.10 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and constitute one and the same instrument.

11.11 Further Documents. The Parties agree that at any time after execution of this Agreement, they will, upon request of another Party, execute and deliver such further documents and do such further acts and things as the other Party may reasonably request in order to effectuate the terms of this Agreement. This provision shall not be construed as limiting or otherwise hindering the legislative discretion of the City Council seated at the time that this Agreement is executed or any future City Council.

11.12 Exhibits. The following exhibits are attached to this Agreement and are incorporated herein for all purposes:

Exhibit A	Legal Description of Property
Exhibit B	Survey of Property
Exhibit D	Development Standards

11.13 Governmental Powers; Waivers of Immunity. By its execution of this Agreement, the City does not waive or surrender any of its respective governmental powers, immunities, or rights except as provided in this section. The Parties acknowledge that the City waives its sovereign immunity as to suit solely for the purpose of adjudicating a claim under this Agreement. This is an agreement for the provision of goods or services to the City under Section 271.151 et seq. of the Texas Local Government Code.

11.14 Force Majeure. Each Party shall use good faith, due diligence and reasonable care in the performance of its respective obligations under this Agreement, and time shall be of the essence in such performance; however, in the event a Party is unable, due to force majeure, to perform its obligations under this Agreement, then the obligations affected by the force majeure shall be temporarily suspended. Within three business days after the occurrence of a force majeure, the Party claiming the right to temporarily suspend its performance, shall give notice to all the Parties, including a detailed explanation of the force majeure and a description of the action that will be taken to remedy the force majeure and resume full performance at the earliest possible time. The term “force majeure” shall include events or circumstances that are not within the reasonable control of Party whose performance is suspended and that could not have been avoided by such Party with the good faith exercise of good faith, due diligence and reasonable care.

11.15 Amendments. This Agreement cannot be modified, amended, or otherwise varied, except in writing signed by the City and Owner expressly amending the terms of this Agreement.

11.16 Consideration. This Agreement is executed by the Parties hereto without coercion or duress and for substantial consideration, the sufficiency of which is hereby acknowledged.

[signatures on following pages]

Date: _____

By: _____
Sean Terry, Mayor

Vicki Faulkner, City Secretary

Julie Fort, Attorney for City

This instrument was acknowledged before me on the ___ day of _____, 2019 by Sean Terry, the Mayor of the City of Celina, Texas on behalf of said City.

Notary Public, State of Texas

Name printed or typed _____

Commission Expires: _____

Packet Pg. 555

Owner:

G&N Estates, LLC
a Texas limited liability company

By: _____

Name: Allen Gandy
Title: Owner

STATE OF TEXAS §
 §
COUNTY OF _____ §

This instrument was acknowledged before me on the ____ day of _____, 2019 by _____, a Owner of **G&N Estates, LLC**, a Texas limited liability company on behalf of said limited liability company.

(SEAL)

Notary Public, State of Texas

Name printed or typed

Commission Expires: _____

Attachment: Celina 40 DA 12-27-18 (Celina 40 Pre-Annexation Development Agreement)

EXHIBIT A
Legal Description

BEING a tract or parcel of land lying and being situated in the Coleman Watson Survey, Abstract Number 945, Collin County, Texas, being all of a called tract one described in the deed to Jack Walker Moss recorded in Volume 4985, Page 3068 of the Real Property Records of Collin County, Texas, and being more particularly described as follows:

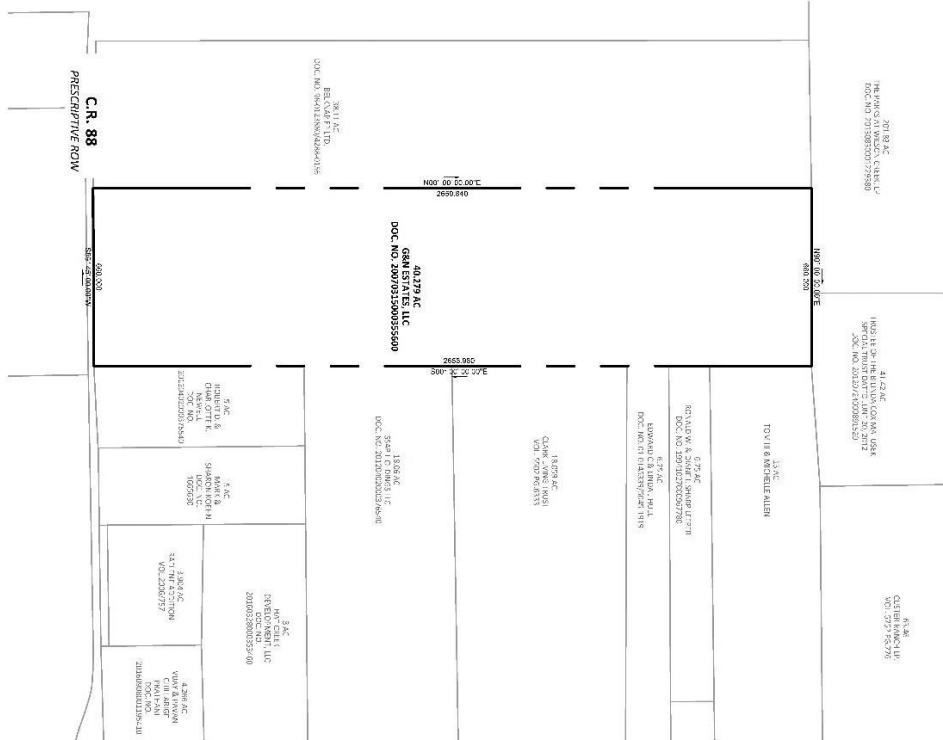
BEGINNING at the northeast corner of said Moss tract and the northwest corner of a tract described in a deed to Tom Allen III, et ux, recorded in volume 2749, page 501 of the real property records of Collin county, Texas and the south line of a tract described in a deed to Billie Leon Cox recorded in Volume 1102, Page 767 of the real property records of Collin County, Texas;

THENCE South with the East line of said Moss tract a distance of 2,656.96 feet to a found 5/8" iron pin at the southeast corner of said Moss tract and the southwest corner of a tract described in a deed to Jamie A. Radebaugh recorded in Volume 6009, Page 4179, Real Property Records, Collin County, Texas, on the north line of a tract described in a deed to Glenn Frank O'Brien, Hazel O'Brien Damstrom, Faye O'Brien Copeland, June O'Brien Lair, and Ermyne O'Brien Messina recorded in volume 2886, Page 967 of the Real Property Records of Collin County, Texas;

THENCE South 89 degrees 45 minutes 00 seconds West with the south line of said Moss tract and the north line of said O'Brien tract a distance of 660.00 feet to a set ½ " iron pin at the southwest corner of said Moss tract and the southeast corner of a tract described in a deed to Belknap FP LTD recorded in Volume 4288, Page 156 of the Real Property Records of Collin County, Texas;

THENCE North with the West line of said Moss tract and the east line of said Belknap tract a distance of 2,659.84 feet to a set ½" iron pin at the northwest corner of said Moss tract and the northeast corner of said Belknap tract and the south line of a tract described in a deed to Bennie G Cox recorded in Volume 1102, Page 747 of the Real Property Records of Collin County, Texas;

THENCE West with the North line of said Moss tract, passing en route the southeast corner of said Bennie G. Cox tract and the southwest corner of said Billie Leon Cox tract, and continuing a distance of 660.00 feet to the point of beginning and containing 40.279 acres of land.



Register at the time these owners of the northwest corner of a tract described in a deed to Tom Albritton, recorded in Volume 2743, page 50, of the real property records of Collier County, Texas at the date the deed was recorded in accordance to the Last Day recorded in Volume 1102, page 767 of the real property records of Collier County, Texas.

There are 89,463,445 inches, 30 seconds were with the south line of 340 Mass road and the north line of 341.7 feet line, a distance of 0.66600 feet, a 341.7" from pit of the south road corner of 3411 Mass Rd and the south east corner of a tract described in a deed to Belvoir PT recorded at Volume 47388 Page 256 of the Real Property Records of Calhoun County, "Exam:

There are four other records of said block tract and the east line of said block tract of tracts of 2,550 sq. ft. to 3,651 sq. ft. on plat of the Northwest Corner of Ash Weiss tract and the north side of S. A. Delaney tract and the south line of a tract described in the record is located in Volume 1100, Page 171 of the Flax Property Records of Colli County, Texas:

There was with the north line of said Mass. road, crossing the said line of said Mass. road, the south-west corner of said Little Lion Cove road, or containing a distance of 560.00 feet to the point of beginning and containing 40.279 acres of land.

CITY PROJECT NO. 301-XXX

CELINA 40

Being 40.279 acres of land situated in the Coleman Watson Survey, Abstract No. 495, Collin County, Texas

Preparation Date: 10/12/2018

OWNER DEVELOPER

3301 E. 37th
Suite 500
Denver, CO 80231

P. Croquet, T. N.
Telnet: croq@tnt

Co-Inst. M.

NAME/APPPLICANT _____

SURVEY _____

WINDR

Levinsohn, J. (1993). *Journal of Management Education*, 17(1), 1-10.

PT No. 15874

Abstract

1000000

EXHIBIT D

Development Standards

LAND USES

The subject property shall be zoned C-1, Retail District and shall abide by the uses listed in the City's approved use chart within the zoning ordinance, and as may be amended in the future. The land uses of a hotel and department store are additional allowed uses on the subject property, and the following land uses are further prohibited on the subject property:

- Sexually Oriented Businesses (SOBs)
- Outdoor storage/display (exempting home improvement centers)
- Alternative financial services
- Body art facility
- Vice paraphernalia
- Gaming or slot machines (excluding arcades)
- Lewd merchandise sales
- Liquor store
- Pawn shop



Engineering
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
From: Kim Brawner, Director of Engineering
CC: Andy Glasgow, Asst Director of Engineering
Date: January 8, 2019
Re: Downtown Street Reconstruction

Action Requested:

Consider and act to authorize the City Manager to execute a contract by and between the City of Celina and Hayden and Associates in the amount of \$530,060.00 for the design of North Colorado Drive from West Walnut Street to North of Maple Street, West Beech Street from North Colorado Drive to Railroad tracks, North Ohio Drive from West Pecan Street to West Beech Street, and West Pecan Street from North Colorado Drive to North Arizona Drive. (Brawner)

Background Information:

The City of Celina has approved the Downtown Master Plan which creates an Inner and Outer Loop in Downtown Celina. The proposed design contract includes the redesign of North Colorado Drive from West Walnut Street to North of Maple Street, West Beech Street from North Colorado Drive to the BNSF railroad tracks, North Ohio Drive from West Pecan Street to West Beech Street, and West Pecan Street from North Colorado Drive to North Arizona Drive.

The proposed Downtown Master Plan will create an Inner Loop that will run in a one-way counter-clockwise motion. The proposed one-way Inner Loop configuration will create back-in angle parking with a single, twelve-foot travel lane and a second, eight-foot, multi-modal travel lane. The Outer Loop will operate with typical two-way traffic control and will include enhanced intersections.

Board Review/Citizen Input:

The Parks Board was presented the Downtown Master plan and has approved the proposed concept plan.

Alternatives:

City Council could decide to not approve the proposed design contract.

Financial Considerations:

The cost of the design is available from 2018 bonds.

Legal Review:

Celina City Council approved a MSA with Hayden and Associates in September 2018. This proposal will be executed as Task Order 2.

Supporting Documents:

- Task Order #2
- Proposed Design Contract
- Proposed Downtown Conceptual Plan
- Downtown Celina Road Sections
- Downtown Street Exhibits

Staff Recommendation:

Approve the proposed design contract.



MASTER SERVICE AGREEMENT (MSA) TASK ORDER

Work Authorization No. 2

Pursuant and subject to the above captioned MSA dated September 11, 2018 between the City of Celina, Texas and Hayden Consultants, the City of Celina hereby requests that CONSULTANT performs the work described below upon the terms set forth:

Work Sites:

- North Colorado Drive from West Walnut Street to North of Maple Street
- West Beech Street from North Colorado Drive to Railroad tracks
- North Ohio Drive from West Pecan Street to West Beech Street
- West Pecan Street from North Colorado Drive to North Arizona Drive

Work to be performed:

The N Colorado Street Project in downtown Celina involves the complete roadway reconstruction of North Colorado Drive from West Walnut Street to North of Maple Street, West Beech Street from North Colorado Drive to Railroad tracks, North Ohio Drive from West Pecan Street to West Beech Street, and West Pecan Street from North Colorado Drive to North Arizona Drive for a total of approximately 3900 linear feet. The City of Celina intends to fully reconstruct each roadway with paving, drainage, water, and wastewater improvements. Each roadway will be contained within the existing 60' right of way and will incorporate Low Impact Development facilities as a method of storm water management. A full geotechnical investigation will be performed for pavement/subgrade design in addition to Subsurface Utility Engineering (S.U.E.) designation QL-B and optional S.U.E. test holes QL-A. Boundary and topographic survey will also be performed.

Date and Time to Commence: February 1, 2019

Date and Time to Complete:

Phase 1A – Topographical Survey	4 weeks
Phase 1B – Preliminary Presentation	3 weeks
Phase 2 – Conceptual Design	3 weeks
Phase 3 – Pre-Final Design	8 weeks
Phase 4 – Final Design	6 weeks
Approximately Completion Date:	November 1, 2019

Invoice Mailing Instructions:

City of Celina
Attn: Kimberly Brawner, P.E.
Director of Engineering
142 N Ohio
Celina, TX 75009
kbrawner@celina-tx.gov

CC: Andy Glasgow aglasgow@celina-tx.gov

Other Requirements or Variance from MSA (if any):

Electronic files of available data

Consultant Provided Information: Full design plansCompensation: \$530,060.00Acceptance:

The foregoing TASK ORDER is accepted on the terms set forth as indicated by the signatures below.

Consultant:

Via attached contract

Authorized representative_____
Date

City Representative:

Kimberly Brawner, P.E. PTOE
Director of Engineering_____
Date



Ms. Kim Brawner, PE, PTOE
Director of Engineering

CITY OF CELINA
142 N. Ohio Street
Celina, TX 75009

Re: Colorado Street Project

Dear Ms. Brawner,

Hayden Consultants, Inc. is pleased to submit this proposal to provide professional services relating to the improvements listed below for the referenced project as provided by the City of Celina at a scoping meeting on 8/16/2018.

SCOPE OF SERVICES

The N Colorado Street Project in Celina involves the complete roadway reconstruction of Colorado St. from Walnut to where it ends, Pecan St. from Arizona Dr. to N. Ohio St., Beech St. from Colorado St. to west of the railroad tracks, and Ohio St. from Pecan St. to Beech St. for a total of approximately 3900 LF. The City of Celina intends to fully reconstruct each roadway with paving, drainage, water, and wastewater improvements. Each roadway is contained within a 60' ROW and is to incorporate Low Impact Development facilities as a method of stormwater management. A full geotechnical investigation will be performed for pavement/subgrade design in addition to Subsurface Utility Engineering (S.U.E.) designation QL-B and optional S.U.E. test holes QL-A. Boundary and topographic survey will also be performed.

COMPENSATION

The Total Service Fee of: **\$ 530,060.00** is based upon the summation of Basic, Special, and Optional Services.

	<i>Total</i>
BASIC SERVICES	
A. Project Administration	\$ 17,920.00
B. Conceptual Design (20% Milestone)	\$ 61,475.00
C. Pre-final Design (60% Milestone)	\$ 93,345.00
D. Final Design (90% - 100% Milestone)	\$ 42,250.00
E. Project Bid Phase	\$ 2,195.00
F. Construction Administration Services/ Record Drawing Creation (NTE)	\$ 10,000.00
G. Water/Wastewater Services	\$ 36,060.00
<i>Sub-total</i>	\$ 263,245.00
SPECIAL SERVICES	
H. Survey Services (Hayden Consultants)	\$ 27,280.00
I. Special Services	
- SUE Utility Research and Designation (QL-D-B) - Hayden	\$ 27,150.00
- SUE QL-A Test Holes (15 Optional) - Hayden	\$ 37,170.00
- Utility Coordination - Hayden	\$ 69,700.00
- Geotechnical Investigation - HJV	\$ 15,615.00

Attachment: Colorado St. Proposal_CO Celina_2018_10_19_rev4 (Colorado Reconstruction)

- Illumination Design - Lee Engineering	\$	19,050.00
- Landscape/Hardscape/Irrigation - Caye Cook	\$	68,850.00
<i>Sub-total</i>	\$	264,815.00
J. Reimbursables	\$	2,000.00
TOTAL FEE (Not to exceed)	\$	530,060.00



SCHEDULE

Hayden Consultants, Inc. acknowledges the importance to the City of Celina of the project schedule and agrees to put forth its best professional efforts to perform its services under this Agreement in a manner consistent with that schedule. The City of Celina understands, however, that Hayden Consultants, Inc. performance must be governed by sound professional practices.

Barring unforeseen circumstances beyond the control of Hayden Consultants, Inc. we would anticipate completion and delivery of the services previously described in accordance with the following schedule:

(Please note that the following applies only to the described task and does not include time for client review)

		# Weeks
Phase IA	Topographic Survey	4
Phase IB	Preliminary Presentation	3
Phase II	Conceptual Design	3
Phase III	Pre-Final Design	8
Phase IV	Final Design	6
		24

Hayden Consultants, Inc. is pleased to have this opportunity to submit this proposal and look forward to working with you on this project. If you have any questions or would like any additional information, please do not hesitate to call me.

Hayden Consultants, Inc.
TBPE No. F-640

A handwritten signature in blue ink, appearing to read 'Adam Cross'.

Adam Cross, PE
Project Manager/ Associate
Hayden Consultants, Inc.
across@haydenconsultants.com
214.753.8108

City of Celina Colorado Street Project													
Estimate of Projected Man-hour Cost													
A. Project Administration	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00	
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs. Cost
Project Management (Contract Documentation, Monthly Invoicing and Periodic Progress Reports)		\$ -	30	\$ 4,950.00		\$ -		\$ -		\$ -	30	\$ 1,950.00	60 \$ 6,900.00
Site Visits (5 total)		\$ -	12	\$ 1,980.00	12	\$ 1,680.00	12.0	\$ 1,260.00		\$ -		\$ -	36 \$ 4,920.00
Progress Meetings/ Review Meetings		\$ -	20	\$ 3,300.00	20	\$ 2,800.00		\$ -		\$ -		\$ -	40 \$ 6,100.00
Subtotal	0	\$ -	62	\$ 10,230.00	32	\$ 4,480.00	12	\$ 1,260.00	0	\$ -	30	\$ 1,950.00	136 \$ 17,920.00
B. Conceptual Design (20% Milestone)	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00	
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs. Cost
Kickoff meeting		\$ -	3	\$ 495.00	3	\$ 420.00		\$ -		\$ -		\$ -	6 \$ 915.00
As-Built Review/ Verification		\$ -		\$ -	2	\$ 280.00	4	\$ 420.00	6	\$ 540.00		\$ -	12 \$ 1,240.00
Engineering Design Base		\$ -		\$ -	3	\$ 420.00	4	\$ 420.00	8	\$ 720.00		\$ -	15 \$ 1,560.00
Topographic/ Boundary Survey Review		\$ -	2	\$ 330.00	2	\$ 280.00	4	\$ 420.00	12	\$ 1,080.00		\$ -	20 \$ 2,110.00
Existing Alignment		\$ -	1	\$ 165.00	4	\$ 560.00	6	\$ 630.00	12	\$ 1,080.00		\$ -	23 \$ 2,435.00
Existing CL and ROW Profiles		\$ -	4	\$ 660.00	12	\$ 1,680.00	12	\$ 1,260.00	24	\$ 2,160.00		\$ -	52 \$ 5,760.00
Existing Roadway Cross-sections (50' Intervals)		\$ -	12	\$ 1,980.00	24	\$ 3,360.00	32	\$ 3,360.00	40	\$ 3,600.00		\$ -	108 \$ 12,300.00
Compile and Review Adjacent Project and Study Information		\$ -	4	\$ 660.00	16	\$ 2,240.00	24	\$ 2,520.00	16	\$ 1,440.00		\$ -	60 \$ 6,860.00
Create Project Basefiles with Master Plans (utilities, adjacent projects, existing data, future plans)		\$ -	4	\$ 660.00	16	\$ 2,240.00	3	\$ 315.00	40	\$ 3,600.00		\$ -	63 \$ 6,815.00
QA/QC	4	\$ 840.00											
LID Design/ Layout Presentations with City Staff	2	\$ 420.00	8	\$ 1,320.00	24	\$ 3,360.00	28	\$ 2,940.00	20	\$ 1,800.00		\$ -	82 \$ 9,840.00
Finalize Conceptual Design (paving and drainage plan)	2	\$ 420.00	8	\$ 1,320.00	24	\$ 3,360.00	28	\$ 2,940.00	40	\$ 3,600.00		\$ -	102 \$ 11,640.00
Subtotal	8	\$ 1,680.00	46	\$ 7,590.00	130	\$ 18,200.00	145	\$ 15,225.00	218	\$ 19,620.00	0	\$ -	543 \$ 61,475.00
C. Pre-final Design (60% Milestone)	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00	
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs. Cost
Respond to Conceptual Comments		\$ -	4	\$ 660.00	4	\$ 560.00		\$ -		\$ -		\$ -	8 \$ 1,220.00
Cover, General Notes/ Quantity, Typical Sections, and Project Control		\$ -	2	\$ 330.00	6	\$ 840.00	8	\$ 840.00	16	\$ 1,440.00		\$ -	32 \$ 3,450.00
Demolition Sheets		\$ -	2	\$ 330.00	8	\$ 1,120.00	16	\$ 1,680.00	20	\$ 1,800.00		\$ -	46 \$ 4,930.00
Paving and Profile Sheets		\$ -	4	\$ 660.00	24	\$ 3,360.00	28	\$ 2,940.00	40	\$ 3,600.00		\$ -	96 \$ 10,560.00
Signing and Striping		\$ -	2	\$ 330.00	8	\$ 1,120.00	12	\$ 1,260.00	20	\$ 1,800.00		\$ -	42 \$ 4,510.00
Grading Plans (Median, Raingarden, & Paving)		\$ -	8	\$ 1,320.00	24	\$ 3,360.00	32	\$ 3,360.00	44	\$ 3,960.00		\$ -	108 \$ 12,000.00
Traffic Sequencing Plan		\$ -	2	\$ 330.00	8	\$ 1,120.00	16	\$ 1,680.00	24	\$ 2,160.00		\$ -	50 \$ 5,290.00
Review H&H Study Performed by Others		\$ -	2	\$ 330.00	4	\$ 560.00	4	\$ 420.00		\$ -		\$ -	10 \$ 1,310.00
Drainage Area Map and Calculations		\$ -	4	\$ 660.00	24	\$ 3,360.00	32	\$ 3,360.00	16	\$ 1,440.00		\$ -	76 \$ 8,820.00
Drainage Plan and Profile		\$ -	6	\$ 990.00	20	\$ 2,800.00	28	\$ 2,940.00	32	\$ 2,880.00		\$ -	86 \$ 9,610.00
Drainage Lateral Profiles		\$ -	4	\$ 660.00	12	\$ 1,680.00	20	\$ 2,100.00	32	\$ 2,880.00		\$ -	68 \$ 7,320.00
LID Detail Sheet Adjustments		\$ -	1	\$ 165.00	2	\$ 280.00	6	\$ 630.00	8	\$ 720.00		\$ -	17 \$ 1,795.00
Erosion Control		\$ -	1	\$ 165.00	2	\$ 280.00	6	\$ 630.00	8	\$ 720.00		\$ -	17 \$ 1,795.00
Cross Sections		\$ -	4	\$ 660.00	16	\$ 2,240.00	20	\$ 2,100.00	36	\$ 3,240.00		\$ -	76 \$ 8,240.00
Other Detail Sheets		\$ -	1	\$ 165.00	4	\$ 560.00	12	\$ 1,260.00	16	\$ 1,440.00		\$ -	33 \$ 3,425.00
QA/QC	4	\$ 840.00	4	\$ 660.00	12	\$ 1,680.00	16	\$ 1,680.00	24	\$ 2,160.00		\$ -	60 \$ 7,020.00
Update Cost Estimates		\$ -	2	\$ 330.00	4	\$ 560.00	4	\$ 420.00		\$ -		\$ -	10 \$ 1,310.00
Submit Pre-final Plans		\$ -	2	\$ 330.00	2	\$ 280.00		\$ -		\$ -	2	\$ 130.00	6 \$ 740.00
Subtotal	4	\$ 840.00	55	\$ 9,075.00	184	\$ 25,760.00	260	\$ 27,300.00	336	\$ 30,240.00	2	\$ 130.00	841 \$ 93,345.00

D. Final Design (90% - 100% Milestone)	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL	
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00		
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost
Respond to Pre-Final Comments		\$ -	4	\$ 660.00	4	\$ 560.00		\$ -		\$ -		\$ -	8	\$ 1,220.00
Revise Plan Sheets		\$ -	10	\$ 1,650.00	28	\$ 3,920.00	40	\$ 4,200.00	48	\$ 4,320.00		\$ -	126	\$ 14,090.00
Prepare LID Specifications, Inspection Checklist, & Maintenance Checklist		\$ -	6	\$ 990.00	24	\$ 3,360.00	16	\$ 1,680.00		\$ -		\$ -	46	\$ 6,030.00
QA/QC	4	\$ 840.00	4	\$ 660.00	6	\$ 840.00	12	\$ 1,260.00	24	\$ 2,160.00		\$ -	50	\$ 5,760.00
Update Cost Estimates		\$ -	2	\$ 330.00	4	\$ 560.00		\$ -	1	\$ 90.00		\$ -	7	\$ 980.00
Submit Final Plans		\$ -	2	\$ 330.00	2	\$ 280.00		\$ -		\$ -	2	\$ 130.00	6	\$ 740.00
Final Revisions		\$ -	4	\$ 660.00	24	\$ 3,360.00	32	\$ 3,360.00	40	\$ 3,600.00	1	\$ 65.00	101	\$ 11,045.00
Submit Construction Documents		\$ -	2	\$ 330.00	2	\$ 280.00		\$ -		\$ -	2	\$ 130.00	6	\$ 740.00
Public Meeting Preparation/ Attendance		\$ -	4	\$ 660.00	4	\$ 560.00		\$ -	4	\$ 360.00	1	\$ 65.00	13	\$ 1,645.00
Subtotal	4	\$ 840.00	38	\$ 6,270.00	98	\$ 13,720.00	100	\$ 10,500.00	117	\$ 10,530.00	6	\$ 390.00	363	\$ 42,250.00

E. Project Bid Phase	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL	
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00		
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost
Attend Pre-Bid and Pre-construction Meeting		\$ -	3	\$ 495.00	3	\$ 420.00		\$ -		\$ -		\$ -	6	\$ 915.00
Plan Revision/Clarification/Addendums		\$ -		\$ -	4	\$ 560.00		\$ -	8	\$ 720.00		\$ -	12	\$ 1,280.00
Subtotal	0	\$ -	3	\$ 495.00	7	\$ 980.00	0	\$ -	8	\$ 720.00	0	\$ -	18	\$ 2,195.00

F. Construction Administration Services/ Record Drawing	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL	
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00		
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost
Construction Advisory Services (RFIs, Construction Site Visits, Record Drawings NTE) - Design Team														\$ 10,000.00
Subtotal														\$ 10,000.00

G. Water/Wastewater Services	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL	
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00		
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost
Preliminary Water and Wastewater Plan (no profiles)		\$ -	8	\$ 1,320.00	24	\$ 3,360.00	32	\$ 3,360.00	44	\$ 3,960.00		\$ -	108	\$ 12,000.00
Prefinal Water and Wastewater Plan		\$ -	4	\$ 660.00	16	\$ 2,240.00	20	\$ 2,100.00	32	\$ 2,880.00		\$ -	72	\$ 7,880.00
Prefinal Water and Wastewater Profiles		\$ -	4	\$ 660.00	16	\$ 2,240.00	24	\$ 2,520.00	32	\$ 2,880.00		\$ -	76	\$ 8,300.00
Finalize Water and Wastewater Plan/Profiles		\$ -	4	\$ 660.00	16	\$ 2,240.00	20	\$ 2,100.00	32	\$ 2,880.00		\$ -	72	\$ 7,880.00
Subtotal	0	\$ -	20	\$ 3,300.00	72	\$ 10,080.00	96	\$ 10,080.00	140	\$ 12,600.00	0	\$ -	328	\$ 36,060.00

Total Basic Design Services \$ 263,245.00

H. Survey Services (Hayden Consultants)	Project Engineer		Engineer-In-Training		RPLS		Survey Crew (2 Man)		Survey Tech		Admin Asst.		TOTAL	
	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 135.00	Rate	\$ 135.00	Rate	\$ 90.00	Rate	\$ 65.00		
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost
Records Research, ROW Research, Boundary Survey		\$ -		\$ -	16	\$ 2,160.00	10	\$ 1,350.00	40	\$ 3,600.00		\$ -	66	\$ 7,110.00
Topographic Survey		\$ -		\$ -	4	\$ 540.00	45	\$ 6,075.00	24	\$ 2,160.00		\$ -	73	\$ 8,775.00
Engineering Verification of Topographic Survey	3	\$ 420.00	3	\$ 315.00		\$ -		\$ -		\$ -		\$ -	6	\$ 735.00
Field Survey of SUE Designation		\$ -		\$ -	2	\$ 270.00	15	\$ 2,025.00	16	\$ 1,440.00		\$ -	33	\$ 3,735.00
Right-of-Entry Letters		\$ -		\$ -	1	\$ 135.00		\$ -	3	\$ 270.00	8	\$ 520.00	12	\$ 925.00
ROW/Easement Field Notes (Optional 2 Total @ \$3,000 each)														\$ 6,000.00
													Total Survey Services \$ 27,280.00	

I. Special Services	Principal		Project Manager		Project Engineer		Engineer-In-Training		CADD Tech		Admin Asst.		TOTAL	
	Rate	\$ 210.00	Rate	\$ 165.00	Rate	\$ 140.00	Rate	\$ 105.00	Rate	\$ 90.00	Rate	\$ 65.00		
	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost
Subsurface Utility Engineering														
SUE Utility Research and Designation (QL-D-B) - Hayden														\$ 27,150.00

SUE QL-A Test Holes (15 Optional) - Hayden															\$ 37,170.00
Utility Coordination - Hayden															\$ 69,700.00
Landscape/Hardscape/Irrigation - Caye Cook															\$ 68,850.00
Geotechnical Investigation - HJV															\$ 15,615.00
Illumination Design - Lee Engineering															\$ 19,050.00
Total Survey and Special Services															\$ 264,815.00

J. Reimbursables														
Reimbursables														Total Reimbursibles \$ 2,000.00

TOTAL \$ 530,060.00

Colorado Street From Walnut to End
CONCEPTUAL ENGINEERS ESTIMATE OF PROBABLE CONSTRUCTION COST

Paving Quantities					
		UNIT	UNIT PRICE	QTY	TOTAL
1	UNCLASSIFIED EXCAVATION	CY	\$ 40.00	15167	\$ 606,700
2	FILL (COMMON)	CY	\$ 20.00	2275	\$ 45,500
3	REMOVE CONC PAVE DRIVE AND APRON	SY	\$ 15.00	900	\$ 13,500
4	REMOVE CONC SIDEWALK	SF	\$ 2.00	1000	\$ 2,000
5	5" THICK CONC WALK	SF	\$ 5.50	20000	\$ 110,000
6	9 IN THICK REINF CONC PAVEMENT	SY	\$ 85.00	12567	\$ 1,068,167
7	6 IN 3600 PSI REINF CONC DRIVE	SY	\$ 65.00	900	\$ 58,500
8	6 INTEGRAL CONC CURB	LF	\$ 5.00	6000	\$ 30,000
9	LIME STABILIZATION BASE COURSE	SY	\$ 7.00	14133	\$ 98,933
10	HYDRATED LIME	TN	\$ 150.00	269	\$ 40,350
11	TRAFFIC CONTROL	LS	\$ 10,000.00	1	\$ 10,000
12	6 IN REINF CONC BARRIER FREE RAMP	EA	\$ 800.00	28	\$ 22,400
13	REMOVE TREE	EA	\$ 650.00	10	\$ 6,500
14	REMOVE SHRUB/LANDSCAPE	LS	\$ 5,000.00	1	\$ 5,000
15	PAVEMENT MARKINGS	LS	\$ 6,500.00	1	\$ 6,500
16	INSTALL STREET SIGN	EA	\$ 150.00	30	\$ 4,500
17	ILLUMINATION	LS	\$ 80,000.00	1	\$ 80,000
18	HANDRAILING	LF	\$ 100.00	50	\$ 5,000
19	HARDSCAPE	LS	\$ 80,000.00	1	\$ 80,000
20	LANDSCAPING AND IRRIGATION	LS	\$ 80,000.00	1	\$ 80,000
PAVING SUBTOTAL					\$ 2,374,000
20% CONTINGENCY					\$ 474,800
PAVING TOTAL					\$ 2,848,800

Drainage Quantities					
		UNIT	UNIT PRICE	QTY	TOTAL
1	18 IN CLASS III REINF CONC PIPE	LF	\$ 130.00	638	\$ 82,940
2	24 IN CLASS III REINF CONC PIPE	LF	\$ 150.00	200	\$ 30,000
3	30 IN CLASS III REINF CONC PIPE	LF	\$ 170.00	536	\$ 91,120
4	36 IN CLASS III REINF CONC PIPE	LF	\$ 200.00	192	\$ 38,400
5	42 IN CLASS III REINF CONC PIPE	LF	\$ 250.00	447	\$ 111,750
6	48 IN CLASS III REINF CONC PIPE	LF	\$ 290.00	170	\$ 49,300
7	54 IN CLASS III REINF CONC PIPE	LF	\$ 350.00	317	\$ 110,950
8	TRENCH SAFETY AND SUPPORT	LF	\$ 1.00	2500	\$ 2,500
8	4" PVC PERFORATED UNDERDRAIN PIPE	LF	\$ 10.00	1000	\$ 10,000
9	10' INLET	EA	\$ 5,000.00	8	\$ 40,000
10	OVERFLOW INLET	EA	\$ 1,500.00	10	\$ 15,000
11	BACKLESS INLET	EA	\$ 1,200.00	2	\$ 2,400
12	CURB CUT	EA	\$ 200.00	20	\$ 4,000
13	BRIDGING STONE	CY	\$ 24.00	167	\$ 4,008
14	MULCH	CY	\$ 135.00	7.41	\$ 1,000
15	CHECK DAM	CY	\$ 350.00	2.50	\$ 875
16	HEADWALL	EA	\$ 6,500.00	1	\$ 6,500
17	FILL (ENGINEERED AND AMENDED SOILS)	CY	\$ 27.00	500	\$ 13,500
18	TREE BOX FILTER (CONCRETE BOX)	EA	\$ 4,000.00	20	\$ 80,000
19	LID TREES	EA	\$ 500.00	20	\$ 10,000
20	SWPPP	LS	\$ 15,000.00	1	\$ 15,000
DRAINAGE SUBTOTAL					\$ 719,000
20% CONTINGENCY					\$ 143,800
DRAINAGE TOTAL					\$ 862,800

Water Quantities					
		UNIT	UNIT PRICE	QTY	TOTAL
1	6" PVC WATER PIPE	LF	\$ 45.00	160	\$ 7,200
2	8" PVC WATER PIPE	LF	\$ 45.00	3900	\$ 175,500
3	IRON FITTING	TON	\$ 3,500.00	5	\$ 17,500
4	WATER SERVICE	EA	\$ 1,000.00	45	\$ 45,000
5	INSTALL FIRE HYDRANT	EA	\$ 3,000.00	8	\$ 24,000
6	REMOVE FIRE HYDRANT	EA	\$ 300.00	8	\$ 2,400
7	6" Gate Valve	EA	\$ 1,700.00	8	\$ 13,600
8	8" Gate Valve	EA	\$ 1,800.00	15	\$ 27,000
9	Trench Excaction Safety and Support	LF	\$ 1.00	4060	\$ 4,060
10	Sand Backfill	CY	\$ 50.00	5	\$ 250
11	Stabilized Backfill	CY	\$ 120.00	601	\$ 72,178
12	Flex Base	SY	\$ 20.00	1804	\$ 36,089
13	Cut and Plug water main with paving	EA	\$ 1,000.00	13	\$ 13,000
14	Adjustment and/or Relocation of Water Meter Box	EA	\$ 300.00	30	\$ 9,000
15	Adjustment of Water Valve Covers and Valve Stacks	EA	\$ 250.00	10	\$ 2,500
16	Television Inspection	LF	\$ 3.00	250	\$ 750
WATER SUBTOTAL					\$ 450,000
20% CONTINGENCY					\$ 90,000
WATER TOTAL					\$ 540,000

Wastewater Quantities					
		UNIT	UNIT PRICE	QTY	TOTAL
1	8" PVC WASTEWATER PIPE	LF	\$ 45.00	3900	\$ 175,500
2	48" Wastewater Manhole	EA	\$ 5,500.00	10	\$ 55,000
3	Trench Excaction Safety and Support	LF	\$ 1.00	3900	\$ 3,900
4	Sand Backfill	CY	\$ 50.00	5	\$ 250
5	Stabilized Backfill	CY	\$ 120.00	578	\$ 69,333
6	Flex Base	SY	\$ 20.00	1733	\$ 34,667
7	Wastewater Lateral	EA	\$ 2,000.00	45	\$ 90,000
8	Television Inspection	LF	\$ 3.00	250	\$ 750
WASTEWATER SUBTOTAL					\$ 429,000
20% CONTINGENCY					\$ 85,800
WASTEWATER TOTAL					\$ 514,800
GRAND TOTAL					\$ 4,766,400

THIS DOCUMENT IS FOR INTERIM REVIEW AND NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMITS PURPOSES.		
ADAM CROSS	111348	10/19/2018
Engineer	P. E. No.	Date

Attachment: Colorado St. Proposal_CO Celina_2018_10_19_rev4 (Colorado Reconstruction)



DOWNTOWN CELINA

Proposed Roadway Sections –
Back-In Angled Parking



DENTON, TX

Hickory Street

Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



DENTON, TX

Hickory Street



FORT WORTH, TX

Monroe Street



FORT WORTH, TX

Monroe Street

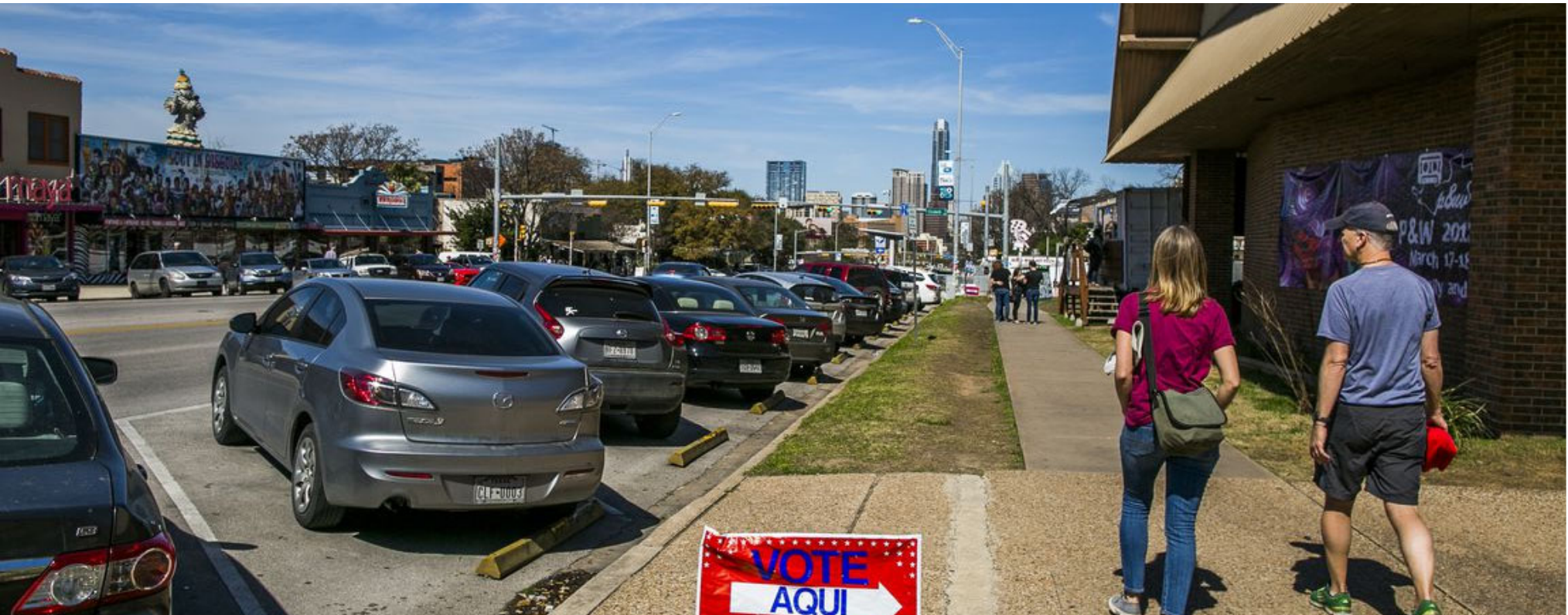




AUSTIN, TX

South Congress Avenue

Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



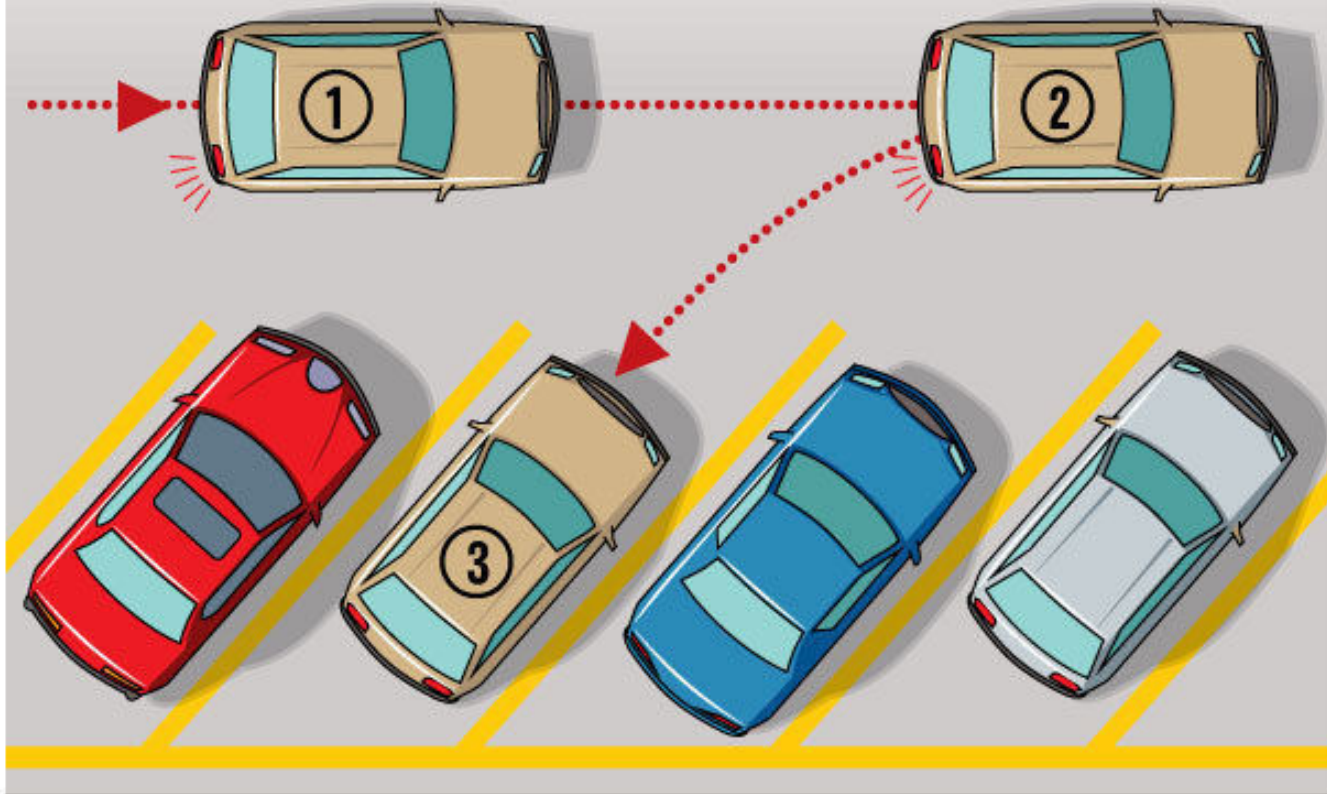
AUSTIN, TX

South Congress Avenue

Attachment: Downtown Celina Road Sections (Colorado Reconstruction)

REVERSE ANGLE PARKING

1. Signal for turn
2. Stop just past the parking space
3. Back into the space, using side mirrors to view lines

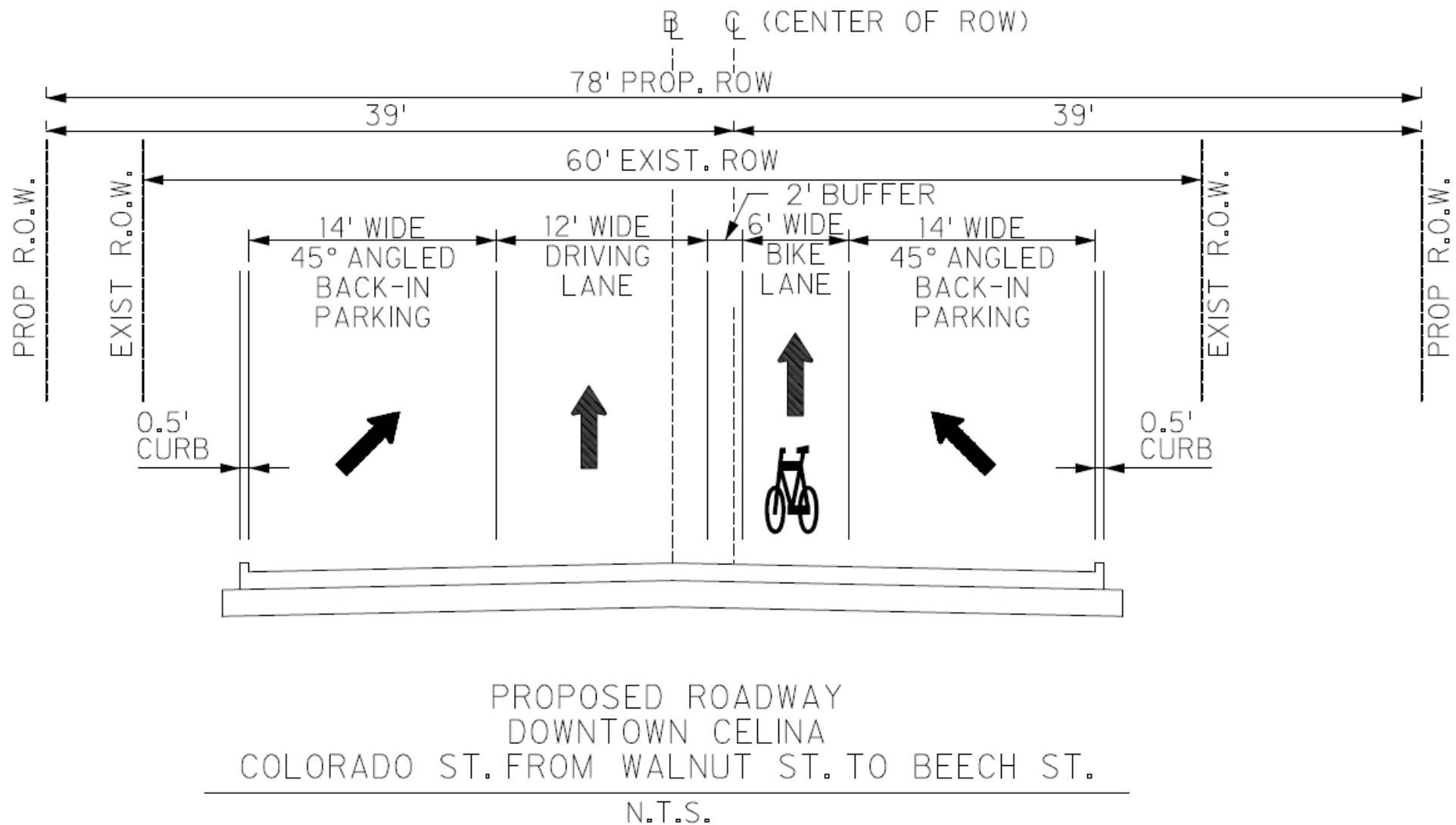


(Edward Riojas/MLive.com)

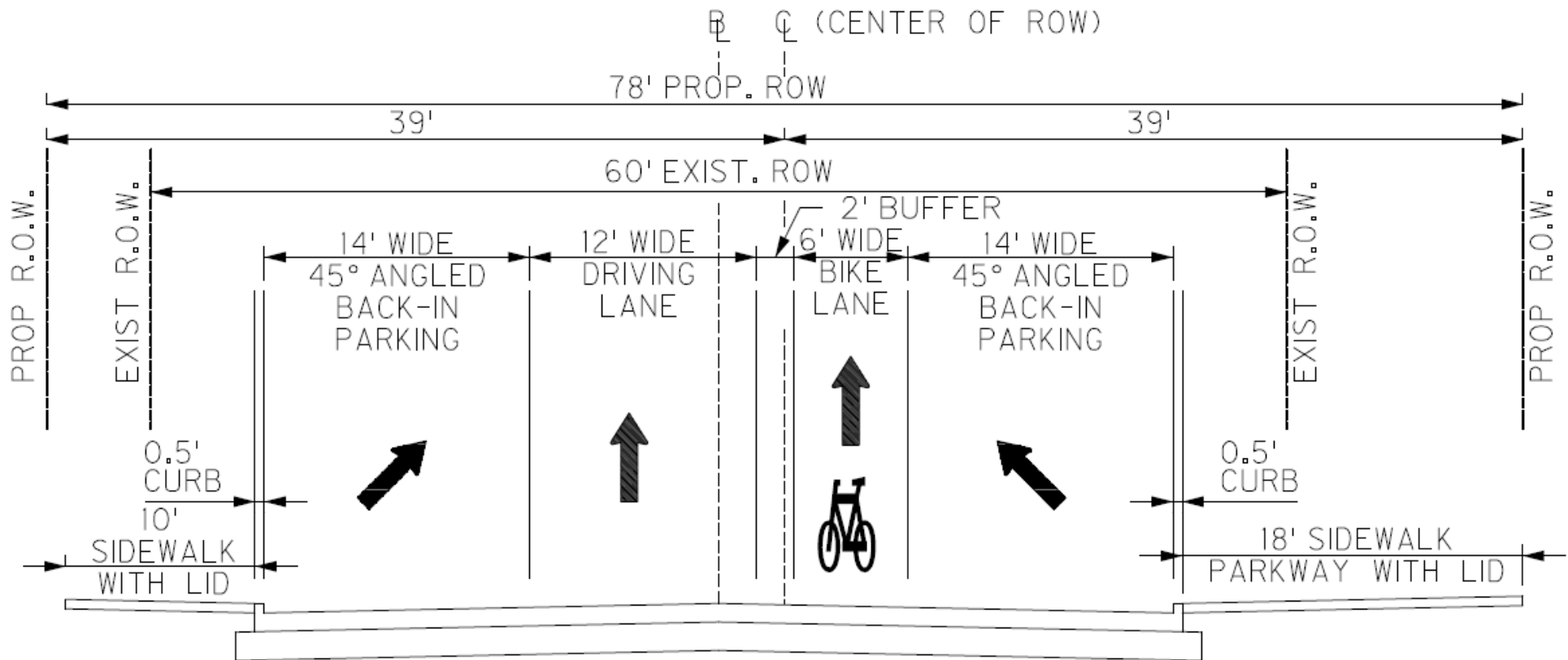
BACK-IN ANGLED
PARKING
INSTRUCTIONAL
VIDEO FROM
AUSTIN, TX

<https://www.youtube.com/watch?v=HddkCbsWHlk&feature=youtu.be>

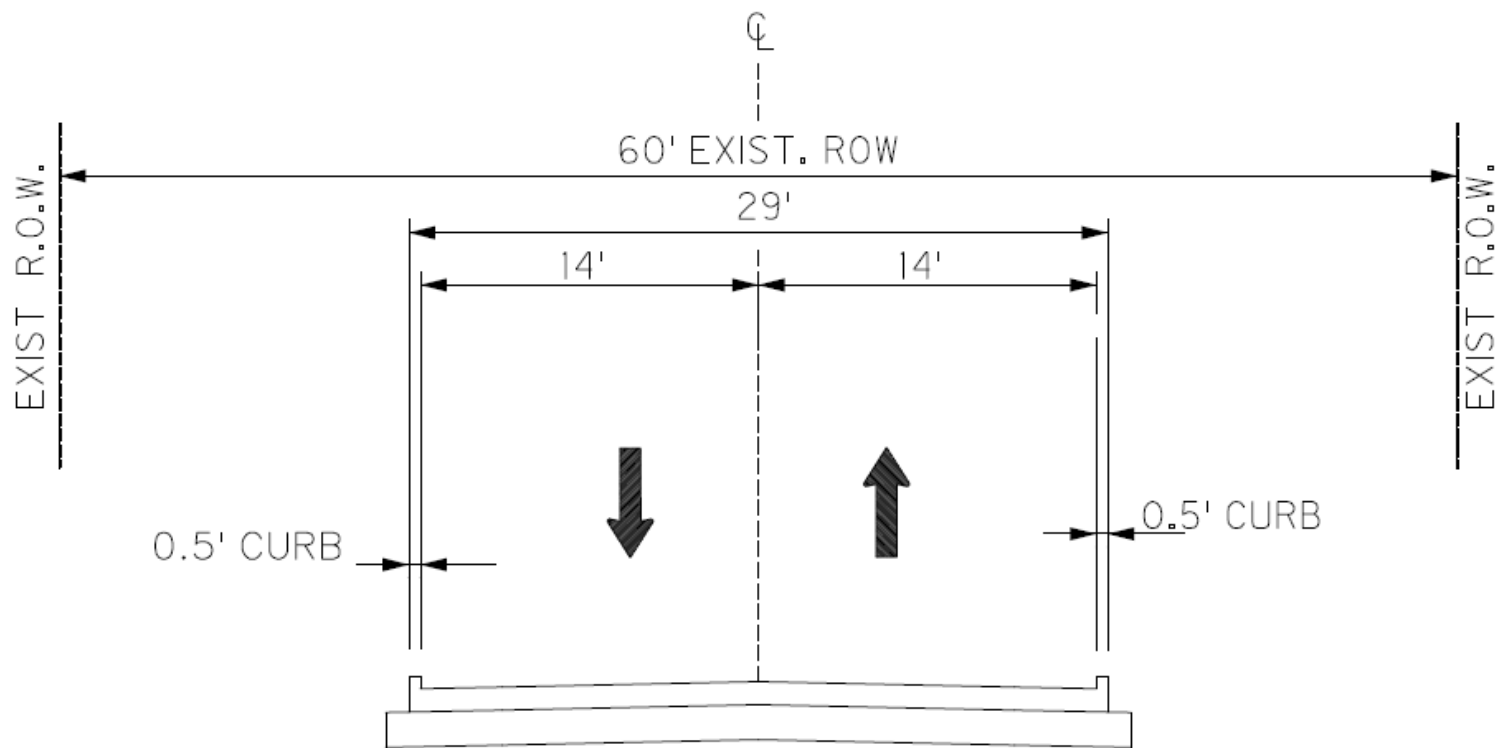




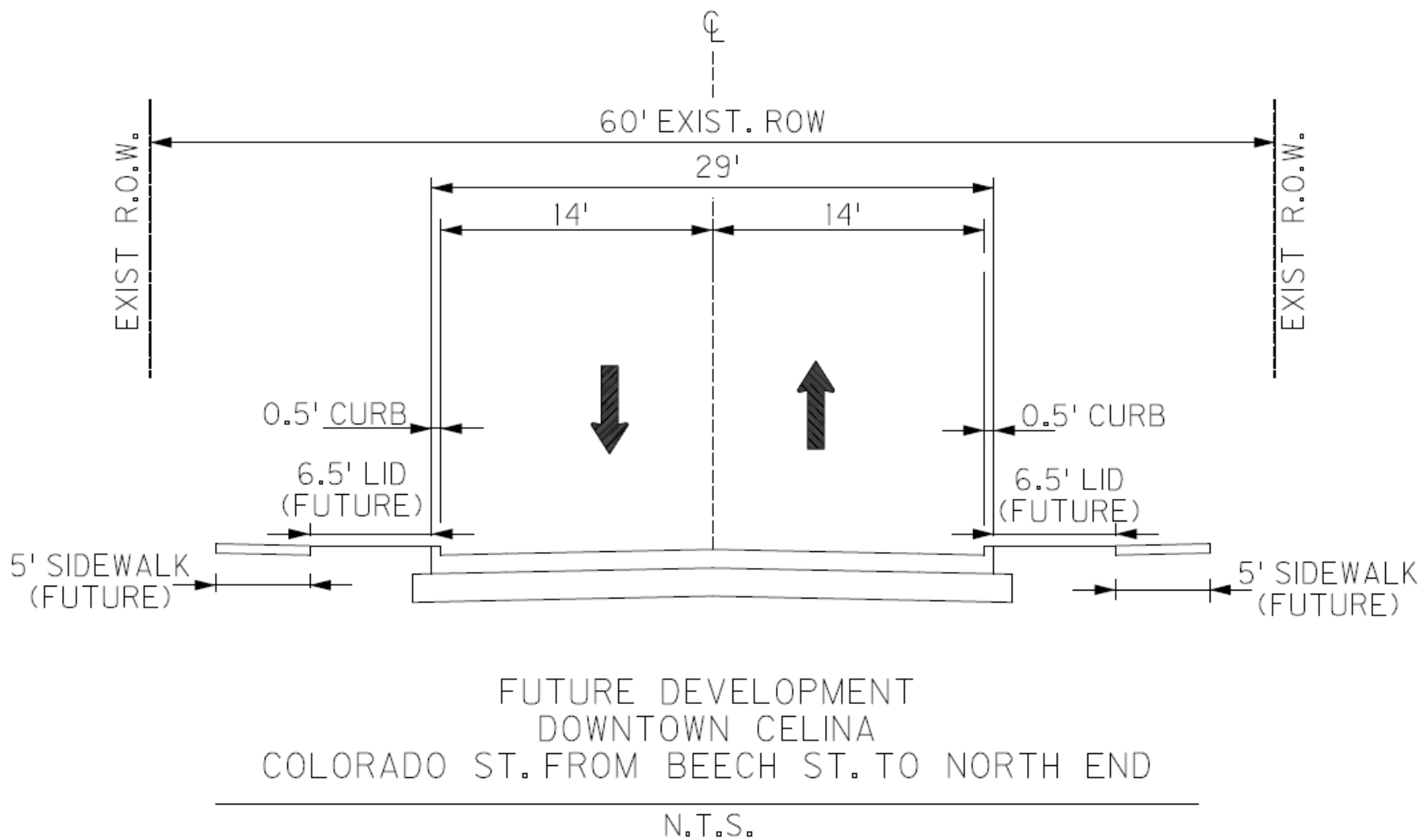
Attachment: Downtown Celina Road Sections (Colorado Reconstruction)

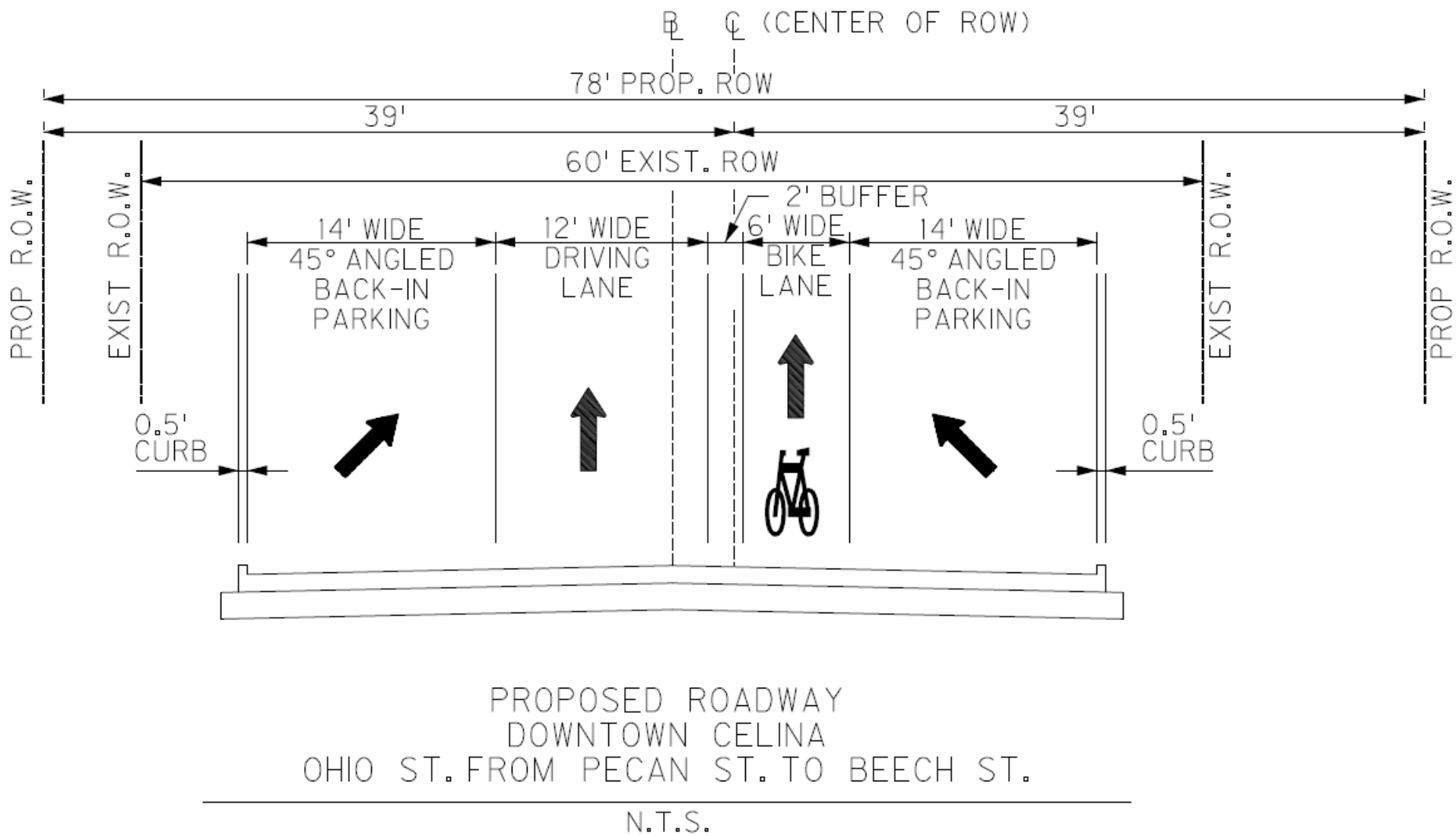


FUTURE DEVELOPMENT
DOWNTOWN CELINA
COLORADO ST. FROM WALNUT ST. TO BEECH ST.
N.T.S.

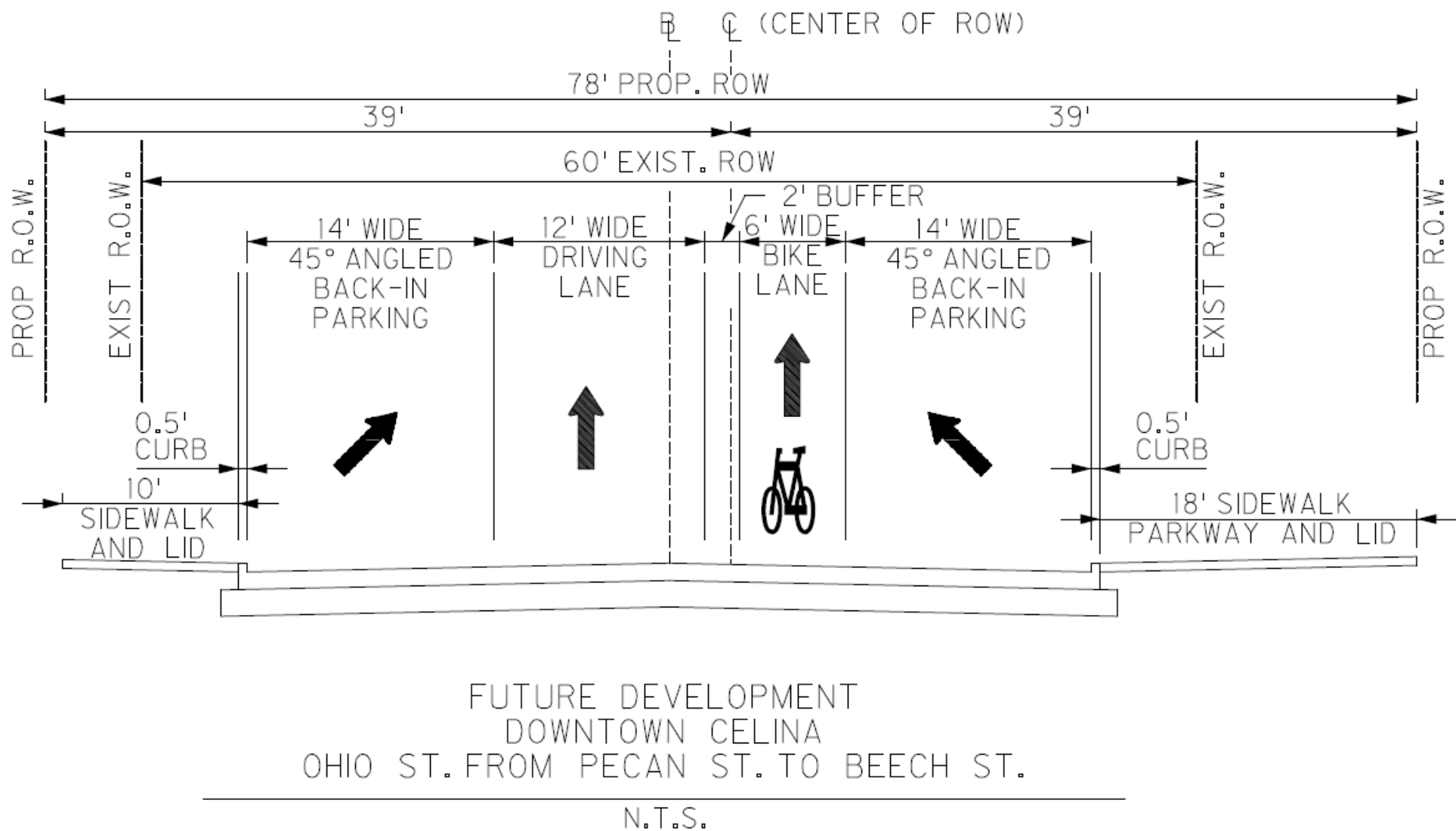


PROPOSED
DOWNTOWN CELINA
COLORADO ST. FROM BEECH ST. TO NORTH END
N.T.S.

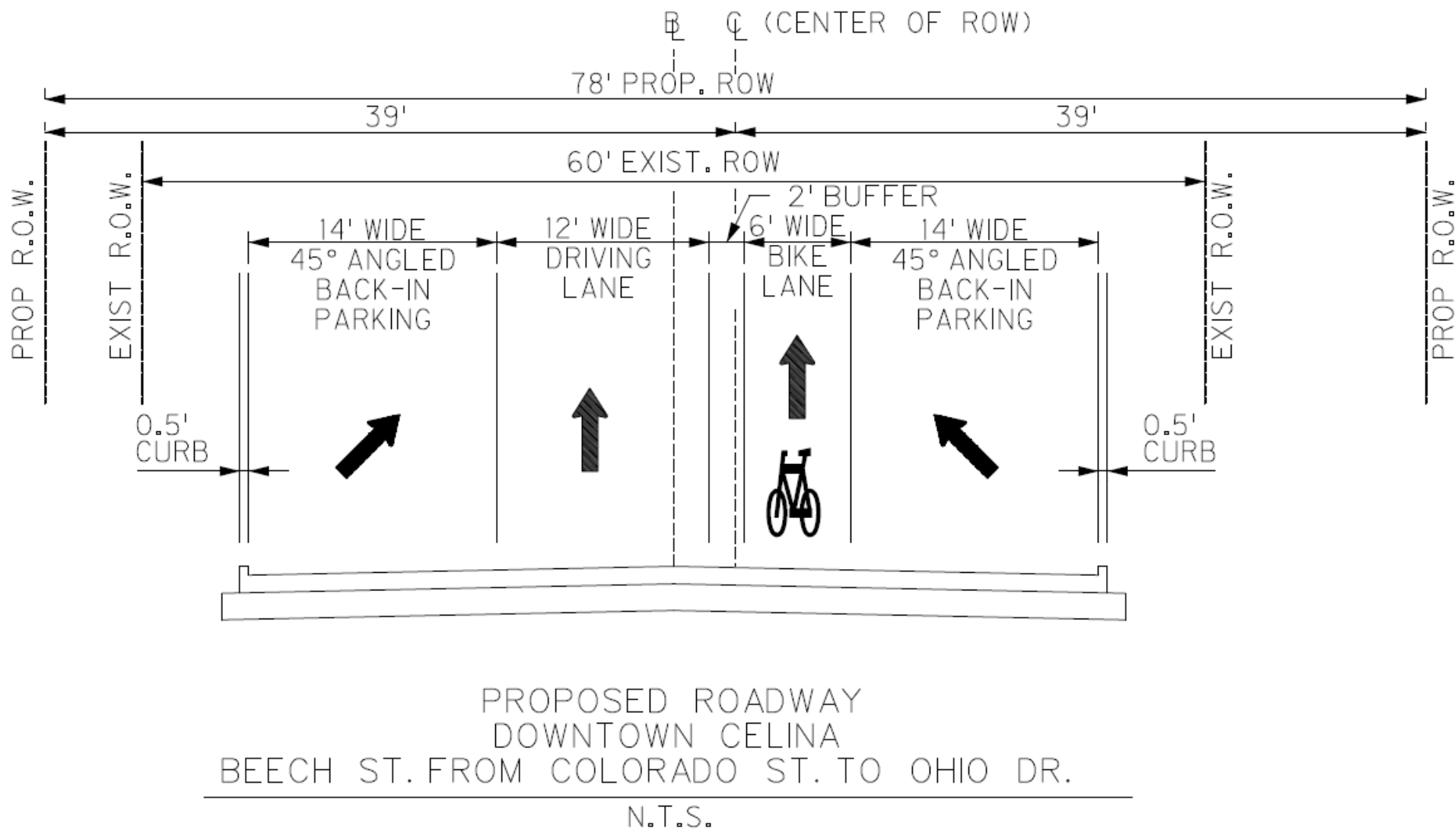




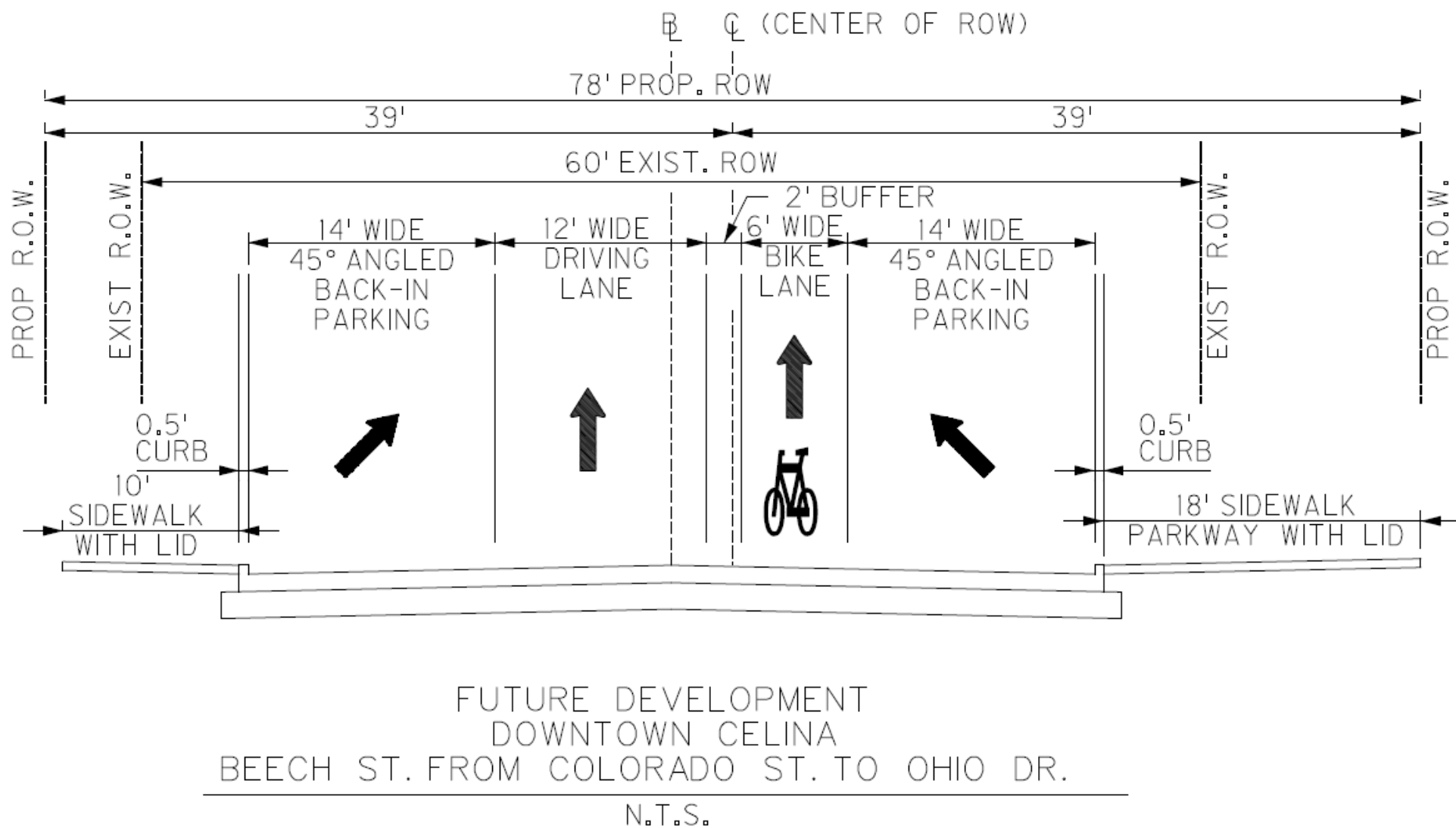
Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



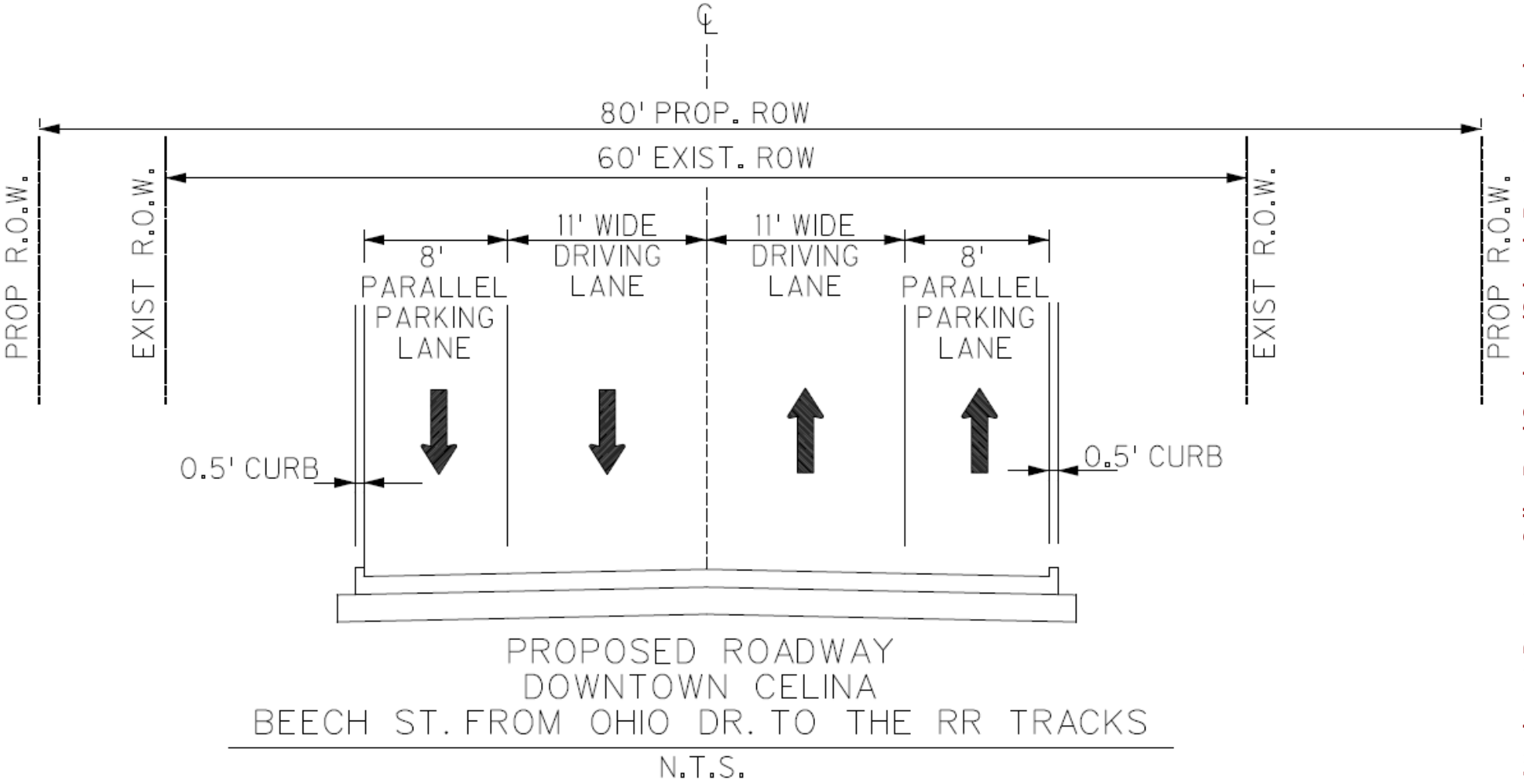
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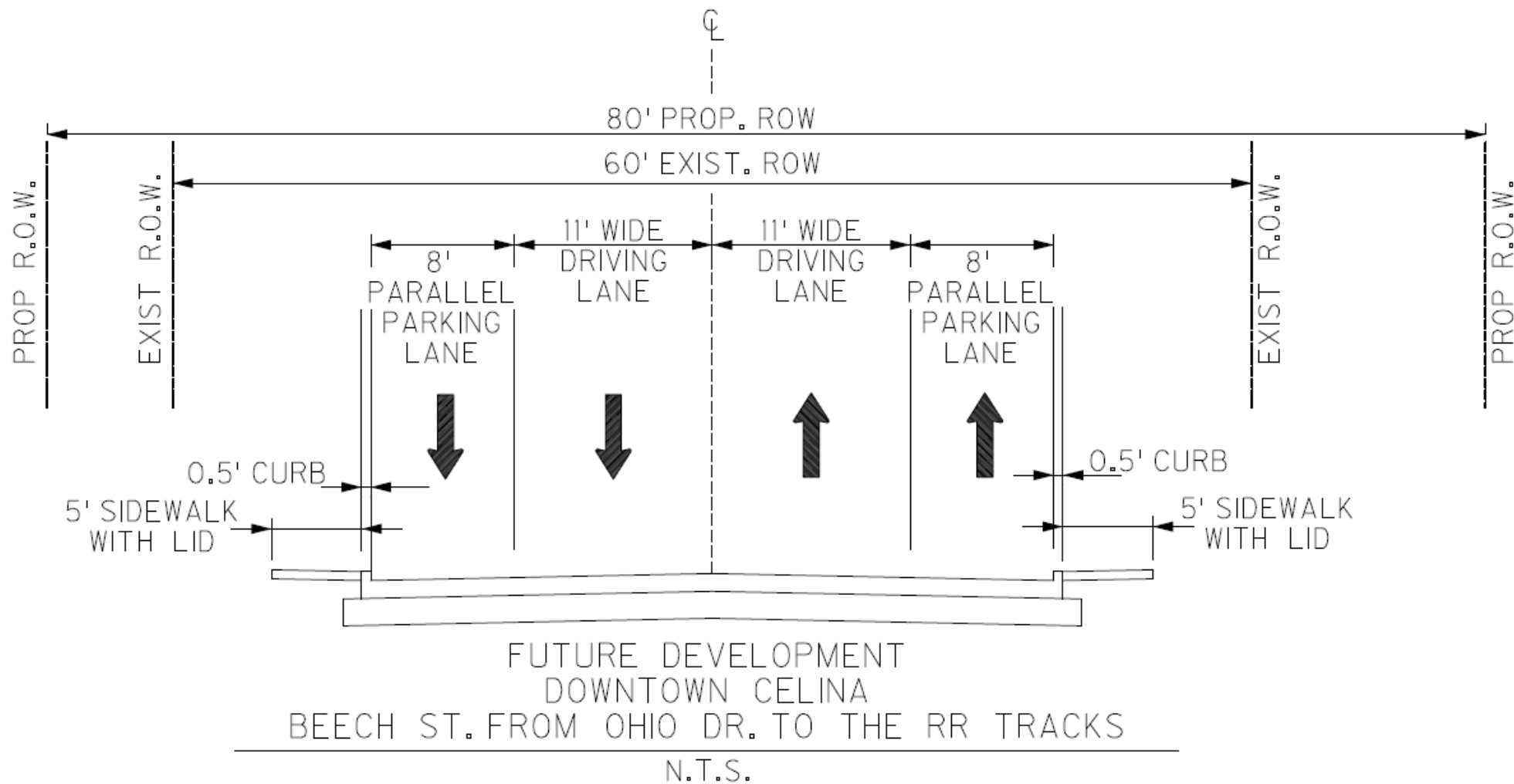
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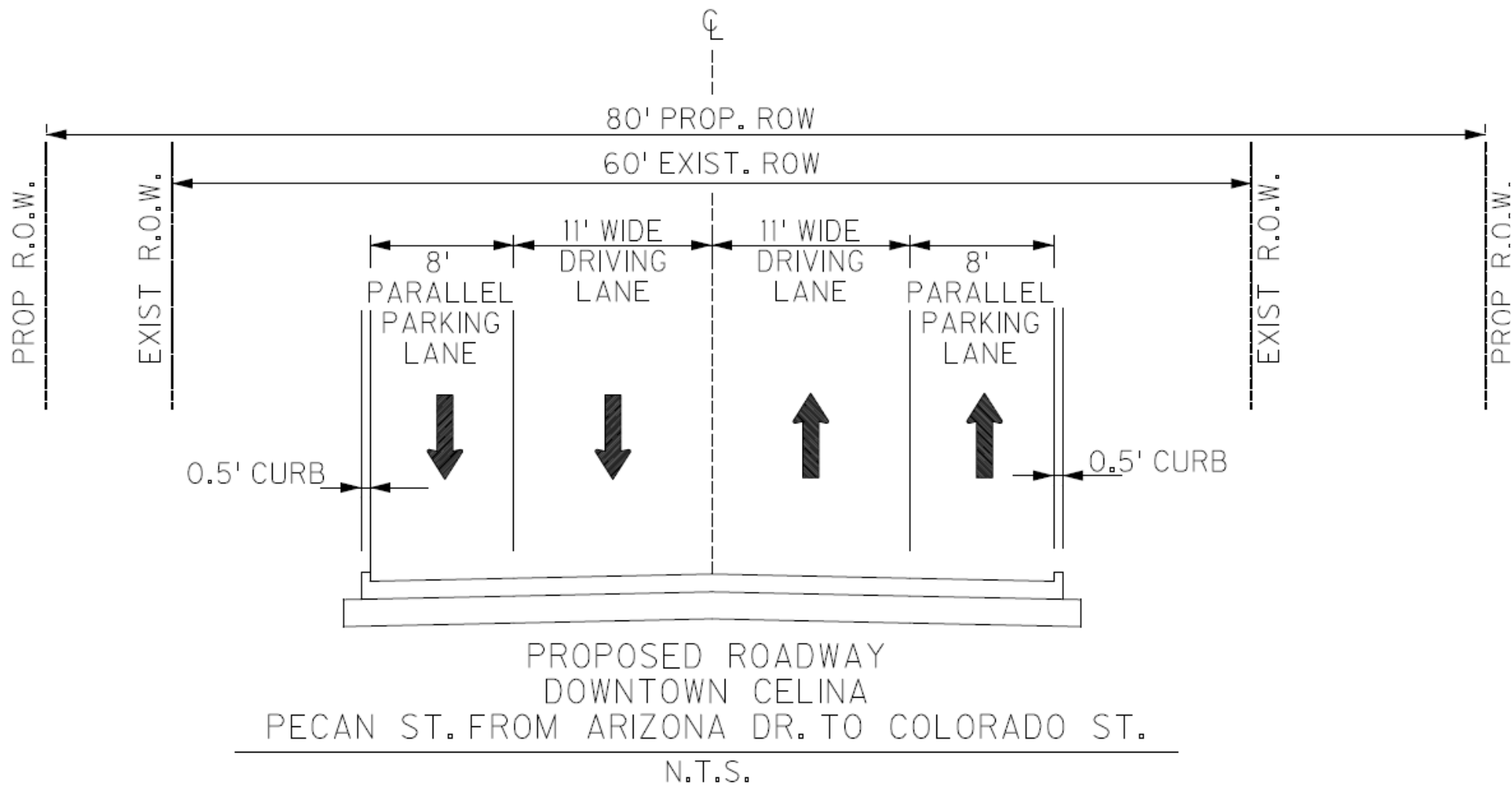
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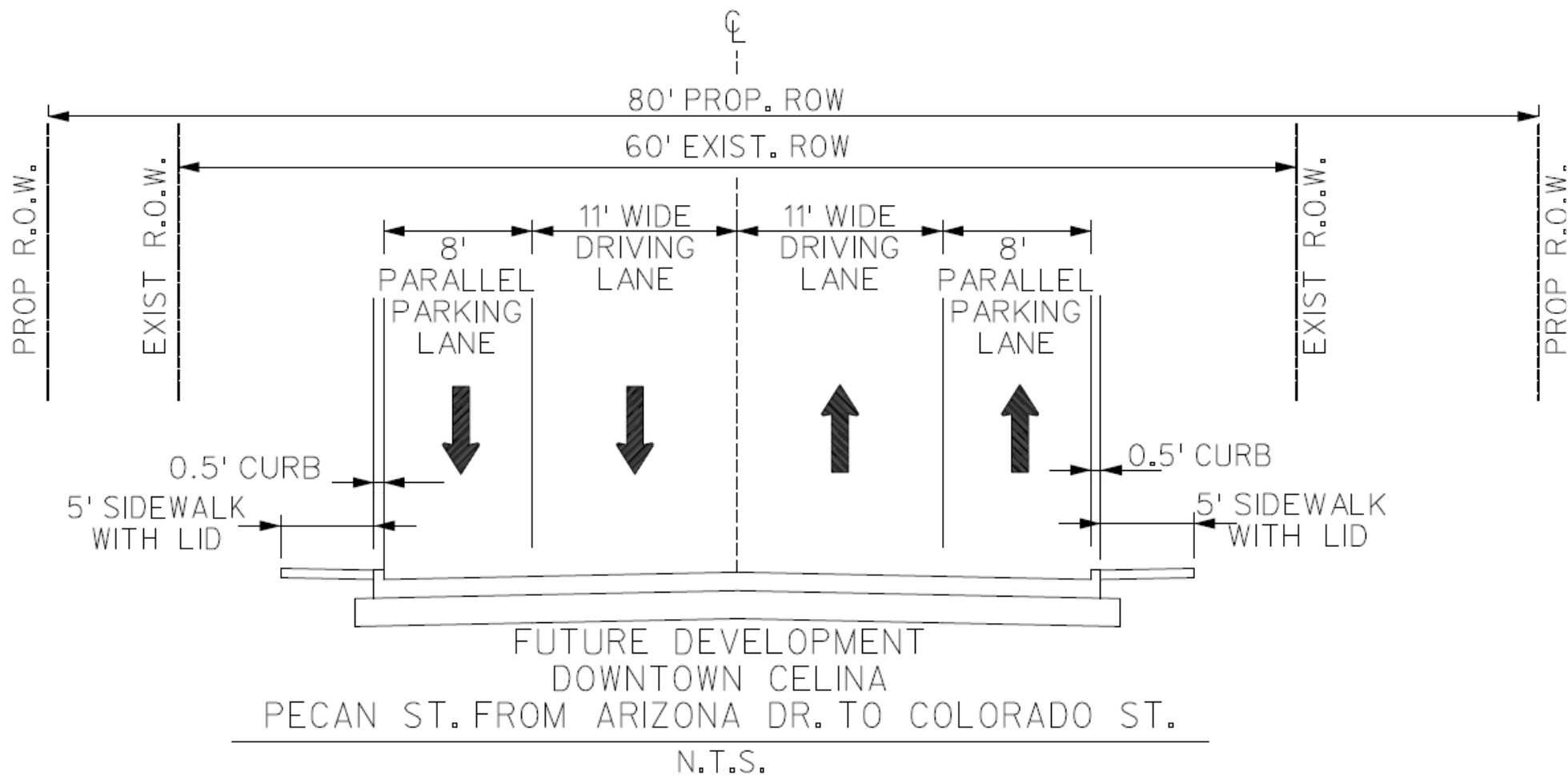
Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



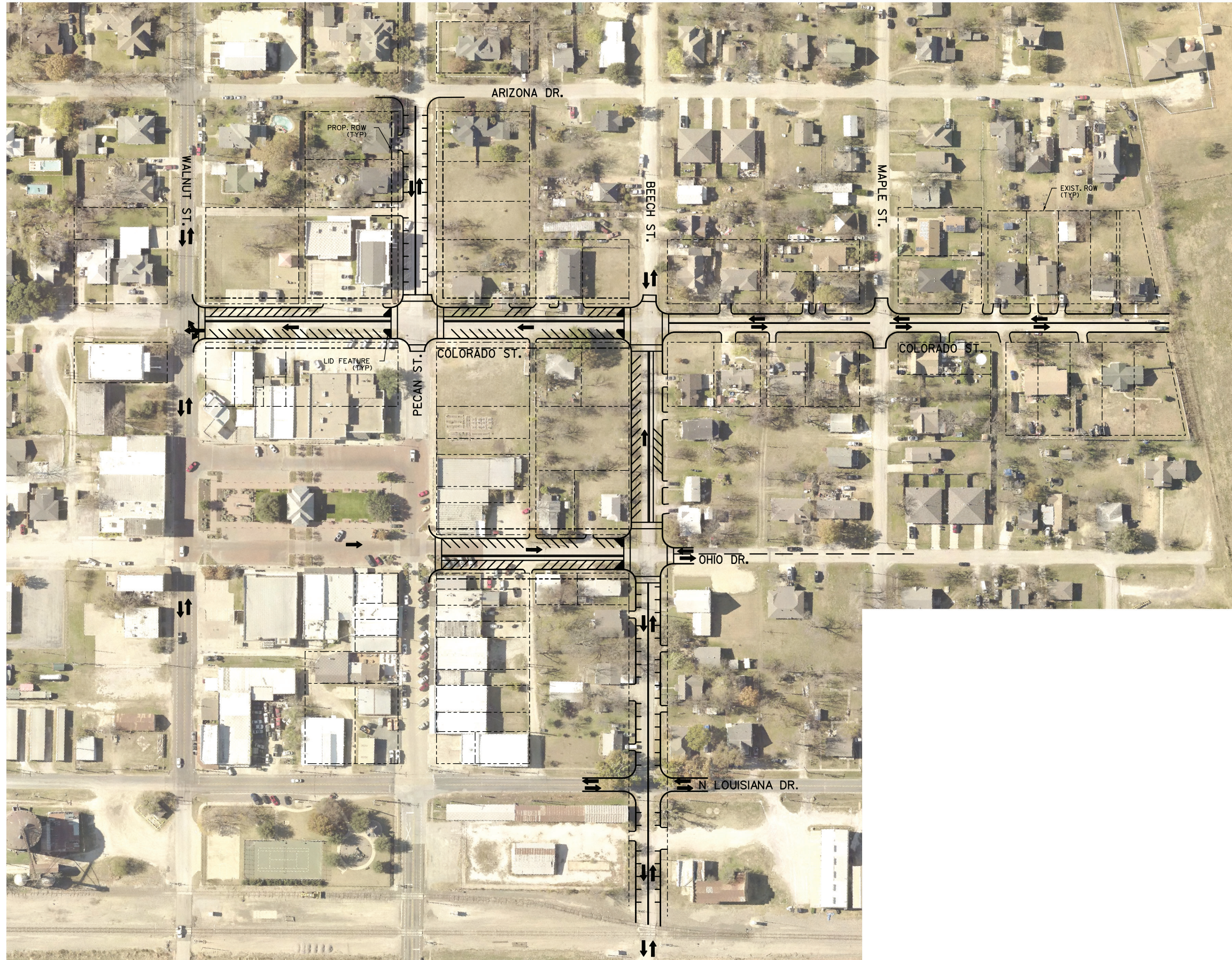
Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



Attachment: Downtown Celina Road Sections (Colorado Reconstruction)



0' 40' 80' 160'
HORIZONTAL SCALE: 1"=80'



PRELIMINARY LAYOUT

FOR INTERIM REVIEW ONLY.
NOT FOR PERMITTING, BIDDING, OR CONSTRUCTION.
Prepared by or under the direct supervision of

HAYDEN CONSULTANTS, INC., TBPE Reg No. F-00640
Adam Cross P.E. 111348
12/28/2018

City of Celina
142 N. Ohio St.
Celina, Texas 75509
972.362.2682

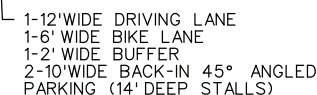
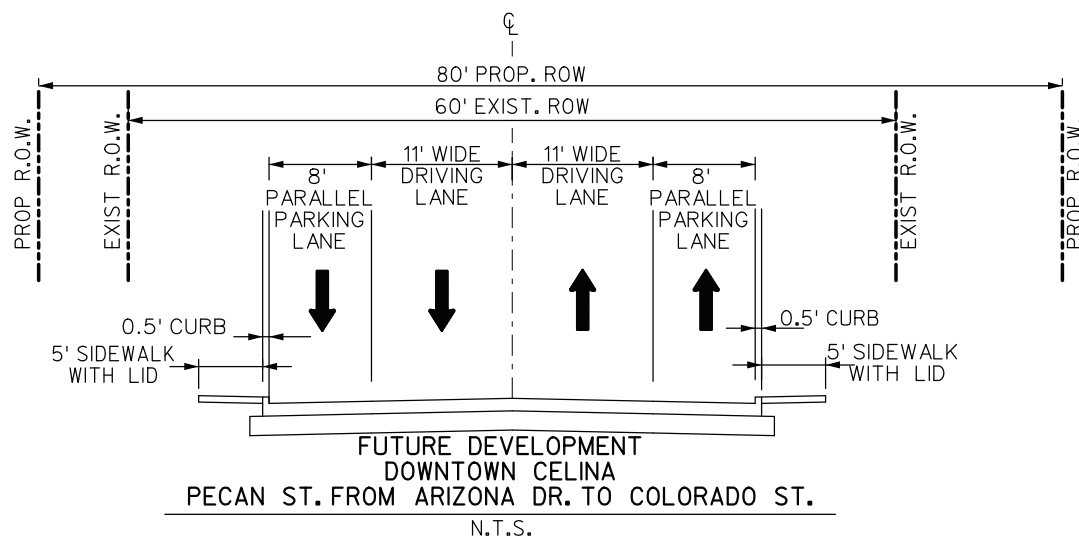


HAYDEN
CONSULTANTS, INC.
5640 MILTON ST., SUITE 500 DALLAS, TEXAS 75206
Ph: 214.753.8100
Firm Registration No. 00540 www.HaydenConsultants.com

CITY OF CELINA PROJECT NO. XXX
COLORADO ST. PROJECT
DOWNTOWN CELINA
OVERALL LAYOUT MAP

DATE: DEC 2018 SCALE: 1/20'
DESIGNED BY: HCI DRAWN BY: HCI

SHEET 4 OF 6
Packet Pg. 593

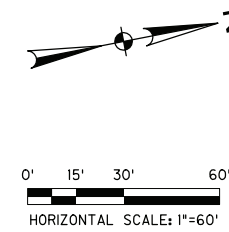


HAYDEN CONSULTANTS, INC., TBPE Reg No. F-00640
Adam Cross P.E. 111348
12/28/2018

HAYDE
CONSULTANTS, I

5646 MILTON ST., SUITE 500 DALLAS, TEXAS 75221
Ph: 214.753.8100
Fax: 214.753.8100
www.hayde.com

DATE: DEC 2018	SCALE: 60'	SHEET 2 OF 5
DESIGNED BY: HCI	DRAWN BY: HCI	Packet Pg. 59



HAYDEN CONSULTANTS, INC., TBPE Reg No. F-00640
Adam Cross P.E. 111348
12/28/2018

Attachment: Downtown Street Exhibits 12.28.2018 (Colorado Reconstruction)



City Secretary
City of Celina, Texas

Memorandum

To: **Honorable Mayor Terry and the Celina City Council**
From: Vicki Faulkner, City Secretary
CC: Jason Laumer, City Manager
Date: January 8, 2019
Re: May 2019 General Election

Action Requested:

Consider and act upon a resolution of the City Council of the City of Celina, Texas, ordering and calling a General Election for the purpose of electing a council member for Place 1, and a council member for Place 6 for three (3) year terms each; authorizing a joint election with the Collin County Elections Administrator, Denton County Elections Administrator and the political subdivisions located entirely or partially inside the boundaries of Denton County and Celina Independent School District Board of Trustees to be held on May 4, 2019. (Faulkner)

Background Information:

This resolution calls the annual General Election for May 4, 2019, in accordance with the Celina Home Rule Charter and the Texas Election Code.

Board Review/Citizen Input:

N/A

Alternatives:

N/A

Financial Considerations:

N/A

Legal Review:

N/A

Supporting Documents:

Resolution

Staff Recommendation:

Approval of resolution.

**CITY OF CELINA, TEXAS
RESOLUTION 2019- R**

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS, ORDERING AND CALLING A GENERAL ELECTION FOR THE PURPOSE OF ELECTING A COUNCIL MEMBER FOR PLACE 1, AND A COUNCIL MEMBER FOR PLACE 6 FOR THREE (3) YEAR TERMS EACH; AUTHORIZING A JOINT ELECTION WITH THE COLLIN COUNTY ELECTIONS ADMINISTRATOR, DENTON COUNTY ELECTIONS ADMINISTRATOR AND THE POLITICAL SUBDIVISIONS LOCATED ENTIRELY OR PARTIALLY INSIDE THE BOUNDARIES OF DENTON COUNTY AND CELINA INDEPENDENT SCHOOL DISTRICT BOARD OF TRUSTEES TO BE HELD ON MAY 4, 2019; PROVIDING FOR ALL NECESSARY ACTIONS; PROVIDING FOR ENGROSSMENT AND ENROLLMENT; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, Section 41.001(a)(1) of the Texas Election Code (hereinafter the “Code”) establishes the first Saturday in May as a Uniform Election Date for the purposes of conducting a General or Special Election; and

WHEREAS, Chapter 271 of the Code provides for joint elections between municipalities and school districts; and

WHEREAS, Section 3.004(a)(3) of the Code provides that the governing body of a municipality shall be the authority to order a General or Special Election; and

WHEREAS, Section 3.005(c)(2) of the Code provides that an election ordered by an authority of a municipality shall be ordered not later than the 78th day before Election Day; and

WHEREAS, Section 31.092 of the Code provides that the County Election Officer (the “Election Officer”) may contract with the City to perform election services; and

WHEREAS, the City, the Celina Independent School District and Collin County Community College (Collin County only) will contract with Denton County and Collin County, Texas through its Election Officer to perform election services pursuant to Section 31.091; and

WHEREAS, Section 2.053 of the Code provides that a City Council may, in its discretion, declare a candidate elected to office if: (1) the candidate is the only person who has qualified to appear on the ballot for that office, and (2) no write-in candidates have submitted their names to be placed on the list for write-in candidates; and

WHEREAS, the City Council desires to and hereby calls a General Election to be conducted on May 4, 2019, to elect one (1) Council Member for Place 1, and one (1) Council Member for Place 6 for three (3) year terms each.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CELINA, TEXAS:

SECTION 1
INCORPORATION

All of the above premises are true and correct and are hereby incorporated in the body of this Resolution as if fully set forth herein.

SECTION 2
DATE OF ELECTION

It is hereby ordered that a General Election (the "Election") shall be held in and throughout the City of Celina on Saturday, May 4, 2019 under the direction and administration of the Election Officers.

SECTION 3
PURPOSE OF ELECTION

The purpose of said General Election is to elect Council Member for Place 1 and a Council Member for Place 6, for three (3) year terms each.

SECTION 4
ELIGIBILITY FOR CANDIDACY

As set forth in Section 3.02 Qualifications of the Celina Home Rule Charter, and where applicable, in the Code, no person shall be eligible for a public elective office of this city, unless that person is a qualified voter of the City; at least 18 years of age on the first day of the term to be filled at the election, have resided in the City not less than six (6) months immediately preceding the deadline for filing an application for a place on the ballot; and shall meet the requirements as set forth in Section 141.001 of the code; has not been determined mentally incompetent by a final judgment of a court, has not been finally convicted of a felony from which the person has not been pardoned or otherwise released from the resulting disabilities; and has resided continuously in the State of Texas for 12 (twelve) months immediately preceding the deadline for filing an application for a place on the ballot (preceding the date of the election for a write-in candidate).

SECTION 5
APPLICATION FOR A PLACE ON THE BALLOT

Pursuant to Section 143.007 (c)(2) of the Code, any eligible and qualified person may have that person's name printed upon the official ballot as a candidate for the office(s) hereinbefore set forth by filing the person's sworn application with the City Secretary not later than 5:00 p.m. of the 78th

day before election day, and not earlier than the 30th day before the date of the filing deadline. Each such application shall be on a form as prescribed by the Code. The order in which the names of the candidates are to be printed on the ballot shall be determined by a drawing by the City Secretary as provided by Section 52.094 of the Code. Notice of the time and place for such drawing shall be given in accordance with Section 52.094(c)(d) of the Code.

SECTION 6

CANCELLATION OF ELECTION

If only one person who has qualified to appear on the ballot for each office hereinbefore set forth, and no write-in candidates have submitted their names to be placed on the list for write-in candidates, the City Council may declare the candidates elected to office and cancel the election called herein.

SECTION 7

RUNOFF ELECTION

In the event a candidate for office fails to receive a majority of all votes cast for that office, a runoff election for that office shall be conducted on a date provided by Section 2.025 of the Code. The runoff election shall be held in accordance with the Code.

SECTION 8

ELECTION PRECINCT, POLLING PLACE, AND HOURS

The polling place in Collin County for the Election shall be at the Celina Independent School District Administration Building, 205 S. Colorado Street, Celina, Collin County, Texas, the polling place in Denton County for the Election shall be posted at a time when determined by Denton County Elections Administrator. In accordance with Section 41.031 of the Code, said polling place shall be open between the hours of 7:00 a.m. and 7:00 p.m. on the date of the Election.

SECTION 9

APPOINTMENT JUDGES AND CLERKS

The Election Officers shall arrange for the appointment, notifications, training and compensation of all Election Judges and Alternate Judges in accordance with law. The presiding Judge shall appoint not less than two (2) nor more than nine (9) qualified elections clerks to serve and assist in the conduct of the election in accordance with law.

SECTION 10

COMPENSATION OF THE JUDGE AND CLERKS

The Election Judge and the Alternate Election Judge shall be compensated in accordance with Section 32.091 of the Code. The Election Judge or Clerk who delivers the returns of the Election,

keys to the ballot boxes or other election equipment, and unused election supplies shall also be paid the additional sum of \$25.00 for delivering such materials. Any payment referred to in this Section shall not exceed the maximum amounts set forth in Sections 32.091 and 32.092 of the Code.

SECTION 11

METHOD OF VOTING

The Election Officer(s) is hereby authorized and instructed to provide and furnish all necessary election supplies to conduct the election. Voting at the Election shall be by use of a Direct Record Electronic Voting System. Preparation of the official ballots for the Election shall conform to the requirements of the Code, and in so doing shall permit the voter to vote for one (1) Council Member for Place 1, and one (1) Council Member for Place 6.

SECTION 12

GOVERNING LAW; QUALIFIED VOTERS

The Election shall be held in accordance with the Constitution of the State of Texas, the Code, and the Home Rule Charter, and all resident, qualified electors of the City shall be eligible to vote at the election. Election materials shall be printed in both English and Spanish for use at the polling place and for early voting for the Election.

SECTION 13

PUBLICATION AND POSTING OF NOTICE

Notice of the Election shall be given by posting a Notice of Election in both English and Spanish at the Celina City Hall, on the bulletin board or other location used for posting notices of the meetings of the City Council not later than twenty-one (21) days prior to the date upon which the Election is to be held, and by publication of said notice at least once in a newspaper published in the City or if none, then in a newspaper of general circulation within the City, the date of said publication to be not less than ten (10) days nor more than thirty (30) days prior to the date set for the Election. Upon publication of the election notice, the City Secretary shall secure a publisher's affidavit, which complies with the requirements of the Code. In addition thereto, a copy of the notice shall also be filed with the City Secretary at least twenty-one (21) days before the Election.

SECTION 14

EARLY VOTING

Early voting by personal appearance shall be conducted by the Election Officer(s), who is hereby appointed the Early Voting Clerk. The main early voting location for Collin County voters shall be located at Collin County Elections, 2010 Redbud Blvd., #102, McKinney, Texas. The main early voting location for Denton County voters shall be located at Denton County Elections, 701 Kimberly Drive, Denton, Texas. Additional branch locations will be identified in the contract

executed with the Collin County and Denton County Elections Administrators. The City Secretary may change the places and times of the locations contained in the contract without further City Council action after consulting with the Denton County Elections administrator and Collin County Elections administrator and determining that a change in the places or times is necessary. For the period early voting for the election is permitted by law, the Early Voting Clerk shall keep said office open Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m., commencing on Monday, April 22, 2019 and terminating on Tuesday, Apr 30, 2019 except that early voting on April 29, 2019, and Apr 30, 2019, shall be between the hours of 7:00 a.m. and 7:00 p.m., and (Collin County only) Saturday, April 27, 2019, (8 a.m. to 5:00 p.m.). Early voting will not be conducted on any official State and/or national holiday during the period of early voting, unless required by the Code.

Application for early voting by mail shall be delivered to the Early Voting Clerk at the same address(s) and not later than the close of regular business in the Early Voting Clerk's office or 12:00 p.m., whichever is later, on April 23, 2019.

Early voting, both by personal appearance and by mail, shall be by use of ballots which conform to the requirements of the Code, and in so doing shall permit the voters to vote for one (1) Council Member for Place 1, and one (1) Council Member for Place 6 for three (3) year terms each. The Early ballots shall be canvassed by the Early Ballot Board, which is hereby created under the direction of the Election Officer.

SECTION 15

DELIVERY OF RETURNS

Pursuant to Section 66.051 of the Code, immediately after the closing of the poll on the day of the Election, the election officers named in this Ordinance shall make four (4) copies of the returns. The returns shall be delivered as follows: The Election Judge shall deliver envelope #1 in person to the presiding officer of the local canvassing authority. If the presiding officer of the local canvassing authority is unavailable, the envelope shall be delivered to the general custodian of election records who shall then deliver it to the local canvassing authority before the time set for convening the local canvass. The Election Judge shall deliver envelope #2 to the general custodian of election records. The Election Judge shall retain envelope #3. The Election Judge shall deliver envelope #4 in person to the voter registrar. If the voter registrar is unavailable, the envelope shall be delivered to the general custodian of election records, who shall deliver it to the voter registrar on the next regular business day. All election records and supplies shall be preserved by the City Secretary in accordance with the Code.

SECTION 16

CANVASSING OF RETURNS

In accordance with Section 67.003 of the Code, the City Council shall canvass the returns not earlier than May 7, 2019, or later than May 15, 2019.

SECTION 17
NECESSARY ACTIONS

The Mayor, City Council, Election Officer and City staff, in consultation with the City Attorney, are hereby authorized and directed to take any and all actions necessary to comply with the provisions of the Code in carrying out and conducting the Election, whether or not expressly authorized herein.

SECTION 18
SEVERABILITY CLAUSE

It is hereby declared to be the intent of the City Council of the City of Celina that the phrases, clauses, sentences, paragraphs, and sections of this Resolution are severable, and if any phrase, clause, sentence, paragraph, or section of this Resolution shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, or sections of this Resolution, since the same would have been enacted by the City Council without incorporation of any such unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 19
ENGROSSMENT AND ENROLLMENT

The City Secretary of the City of Celina is hereby directed to engross and enroll this Resolution by copying the descriptive caption in the minutes of the City Council and by filing this Resolution in the records of the City.

SECTION 20
EFFECTIVE DATE

This Resolution shall become effective from and after its date of passage in accordance with law.

PASSED AND APPROVED by the City Council of the City of Celina, Texas, this the 8th day of January, 2019.

Sean Terry, Mayor

ATTEST:

Vicki Faulkner, City Secretary
City of Celina, Texas

APPROVED AS TO FORM:

Lance Vanzant, City Attorney

Attachment: 2019- R General Election (2019-5R : General Election)