Quality Excavation LTD
5580 US Highway 377
Aubrey, TX 76227
Office – (940) 365-0800
Fax – (940) 365-5961
www.qualityexcavationltd.com

Sealed Bid Documents For:

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BLVD TO MID CITIES BLVD

DO NOT OPEN UNTIL: 2:00 P.M. – DECEMEBER 12, 2017

TO:
City of North Richland Hills
Attn: Purchasing Department - 18-005 Smithfield Rd
Improvements from Davis Blvd to Mid Cities Blvd
4301 City Point Drive
North Richland Hills, TX 76180

FROM:
Quality Excavation, Ltd.
5580 US Hwy 377
Aubrey, Texas 76227

Addenda Received:
Addendum No. 1 – Received 11/27/2017
Addendum No. 2 – Received 12/4/2017
Addendum No. 3 – Received 12/5/2017

NORTH RICHLAND HILLS

NRH

THE CITY OF CHOICE

PURCHASING DEPARTMENT

REQUEST FOR BID

18-005

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

BIDS DUE TUESDAY, DECEMBER 12, 2017

BY 2:00 P.M.

Table of Contents

INVITATION TO BID

The City of North Richland Hills is accepting sealed bids from all interested parties for:

- Bid Number: 18-005
- Bid Type: REQUEST FOR BID
- Bid Name: SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD
- Bid Due Date: Tuesday, December 12, 2017
- Bid Due Time: 2:00 P.M. Central Standard Time
- Pre-Bid Conference: 11:00 A.M. (CST) Tuesday November 28, 2017
  4301 City Point Drive, Community Room, North Richland Hills, TX 76180
- Deadline for questions:
  Date: Thursday, December 07, 2017
  Time: 12:00 P.M.Central Standard Time

DOCUMENTS MAY BE SUBMITTED ELECTRONICALLY VIA:

www.publicpurchase.com

DOCUMENTS MAY BE DELIVERED TO:

City of North Richland Hills
Purchasing, Attn: 18-005 SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD
4301 City Point Drive
North Richland Hills, TX 76180

If delivering a bid packet please include ***One (1) hard copy and One (1) soft copy on Flash drive.*** Submit documents in a sealed envelope with the following information marked plainly on the front:

ATTN: PURCHASING DEPARTMENT
18-005 SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

No oral explanation in regard to the meaning of the specifications will be made, and no oral instructions will be given after the pre-bid meeting and before the award of the contract. Requests from interested vendors for additional information or interpretation of the information included in the specifications should be directed in writing as a question related to this bid on Public Purchase and the question will be answered on Public Purchase. All addendums will also be posted to Public Purchase. It will be the vendor's responsibility to check all information related to this bid on Public Purchase before submitting a response.

The City of North Richland Hills reserves the right to reject in part or in whole all bids submitted, and to waive any technicalities for the best interest of the City of North Richland Hills.

GENERAL CONDITIONS

In submitting this bid, the Bidder understands and agrees to be bound by the following terms and conditions. These terms and conditions shall become a part of the purchase order or contract and will consist of the invitation to bid, specifications, the responsive bid and the contract with attachments, together with any additional documents identified in the contract and any written change orders approved and signed by a city official with authority to do so. All shall have equal weight and be deemed a part of the entire contract. If there is a conflict between contract documents, the provision more favorable to the City shall prevail.

1. BID TIME

It shall be the responsibility of each Bidder to ensure his/her bid is turned in to the City of North Richland Hills on or before **2:00 P.M.,Tuesday, December 12, 2017**. The official time shall be determined by the clock located at the switchboard in the North Richland Hills City Hall lobby. Bids received after the time stated above will be considered ineligible and returned unopened.

All attached bid documents are to be returned completely filled out, totaled, and signed. Envelopes containing bids must be ***sealed***. The City of North Richland Hills will not accept any bid documents other than the attached.

2. WITHDRAWING BIDS/PROPOSALS/QUOTES

Bids may be withdrawn at any time prior to the official opening; request for non-consideration of bids must be made in writing to the Purchasing Manager and received prior to the time set for opening bids. The bidder warrants and guarantees that his/her bid has been carefully reviewed and checked and that it is in all things true and accurate and free of mistakes. Bidder agrees that a bid price may not be withdrawn or canceled by the bidder for a period of ninety (90) days following the date designated for the receipt of bids.

3. IRREGULAR BIDS/PROPOSALS/QUOTES

Bids will be considered irregular if they show any omissions, alterations of form, additions, or conditions not called for, unauthorized alternate bids, or irregularities of any kind. However, the City of North Richland Hills reserves the right to waive any irregularities and to make the award in the best interest of the City.

4. REJECTION/DISQUALIFICATION

Bidders will be disqualified and/or their bids rejected, among other reasons, for any of the specific reasons listed below:

a) Bid received after the time set for receiving bids as stated in the advertisement;
b) Reason for believing collusion exists among the Bidders;
c) Bid containing unbalanced value of any item; bid offering used or reconditioned equipment;
d) Where the bidder, sub-contractor or supplier is in litigation with the City of North Richland Hills or where such litigation is contemplated or imminent;
e) Uncompleted work which in the judgment of the City will prevent or hinder the prompt completion of additional work, or having defaulted on a previous contract;
f) Lack of competency as revealed by reference checks, financial statement, experience and equipment, questionnaires, or qualification statement;
g) Bid containing special conditions, clauses, alterations, items not called for or irregularities of any kind, which in the Owner's opinion may disqualify the Bidder.

However, the City of North Richland Hills reserves the right to waive any irregularities and to make the award in the best interest of the City of North Richland Hills.

5. BID EVALUATION

Award of bid, if it be awarded, will be made to the lowest responsible bidder or may be awarded to the bidder that offers the goods and/or services at the *best value* for the City (Texas Local Government Code, 252.043). In determining the best value the City will consider the following:

a) The purchase price; terms and discounts; delivery schedule;
b) The reputation of the bidder and of the bidder's goods or services;
c) The quality of the bidders' goods or services;
d) The extent to which the bidder's goods or services meet the City specifications and needs;
e) The bidder's past relationship with the City;
f) Total long term cost to the city to acquire the bidder's goods or services;
g) Any relevant criteria specifically listed in the specifications;
h) Compliance with all State and local laws, general conditions and Specifications;
i) Results of testing, if required;
j) Warranty and/or guarantee, maintenance requirements and performance data of the product requested;
k) City's evaluation of the bidder's ability to perform to specifications.

6. AWARD OF BID

The bid award will be made within sixty (60) days after the opening of bids. No award will be made until after investigations are made as to the responsibilities of the best bidder.

The City of North Richland Hills reserves the right to award bids whole or in part when deemed to be in the best interest of the City. Bidder shall state on bid form if their bid is "all or none", otherwise it shall be considered as agreeing to this section.

Information contained in submitted bid documents shall not be available for inspection until after the award has been made by the City Council. Requests for this information must be submitted in writing.

7. ASSIGNMENT

The successful bidder may not assign his/her rights and duties under an award without the written consent of the North Richland Hills City Manager. Such consent shall not relieve the assignor of liability in the event of default by his assignee.

8. SUBSTITUTIONS/EXCEPTIONS

Exceptions/variations from the specifications may be acceptable provided such variations, in each instance, is noted and fully explained in writing and submitted with bid. NO substitutions or changes in the specifications shall be permitted after award of bid without prior written approval by the Purchasing Manager.

9. DELIVERY/ACCEPTANCE

The delivery date is an important factor of this bid and shall be considered during the evaluation process. The City considers delivery time the period elapsing from the time the order is placed until the City receives the order at the specified delivery location.
All material shall be delivered F.O.B. City of North Richland Hills to the address specified at the time of order. Acceptance by the City of North Richland Hills of any delivery shall not relieve the Contractor of any guarantee or warranty, expressed or implied, nor shall it be considered an

acceptance of material not in accordance with the specifications thereby waiving the City of North Richland Hills right to request replacement of defective material or material not meeting specifications.

10. NOTICE OF DELAYS

Whenever the contractor encounters any difficulty which is delaying or threatens to delay timely performance, written notice shall immediately be given to the Purchasing Manager, stating all relevant information. Such notice shall not in any way be construed as a waiver by the City of any rights or remedies to which it is entitled by law. Delays in performance and/or completion may result in cancellation of agreement.

11. SALES TAX

The City of North Richland Hills is exempt from Federal Excise and State sales tax; therefore tax must not be added to bid.

12. TIE BIDS

In the event of a tie bid, State Law provides the bid or contract shall be awarded to the local bidder. In cases where a local bidder is not involved, tie bids shall be awarded by drawing lots at the City Council meeting, or as otherwise directed by the Mayor.

13. BRAND NAME OR EQUAL

If items are identified by a "brand name" description, such identification is intended to be descriptive, not restrictive, and is to indicate the quality and characteristics of products that will be satisfactory. As used in this clause, the term "brand name" includes identification of products by make and model.

Such products must be clearly identified in the bid as an equal product and published specifications of the equal products offered must be included with the bid reply.

Bids offering equal products will be considered for award if determined by the Purchasing Manager and the user department to be equal in all material respects to the brand name products referenced. The decision of acceptable "equal" items or variations in the specifications will solely be the City of North Richland Hills. Unless the bidder clearly indicates in his/her bid that he is offering an "equal" product, his bid shall be considered as offering the brand name product referenced in the invitation for bids.

14. REFERENCES

A minimum of three (3) references, preferably located within the Dallas/Fort Worth Metroplex, must be submitted with each bid. Company name, contact and phone number must be included with each reference.

15. PROHIBITION AGAINST PERSONAL FINANCIAL INTEREST IN CONTRACTS

No employee of the City of North Richland Hills shall have a direct or indirect financial interest in any proposed or existing contract, purchase, work, sale or service to or by the City (CMA-074, Standards of Conduct, Section IV).

16. TERMINATION/NON PERFORMANCE

Continuing non-performance of the vendor in terms of Specifications shall be a basis for the termination of the contract by the City. The City of North Richland Hills reserves the right to

enforce the performance of this contract in any manner prescribed by law or deemed to be in the best interest of the City in the event of breach or default of this contract. The City reserves the right to terminate the contract immediately in the event the successful bidder fails to 1.) Meet delivery schedules or, 2.) Otherwise not perform in accordance with these specifications.

Breach of contract or default authorizes the City to award to another bidder, and/or purchase elsewhere and charge the full increase in cost and handling to the defaulting successful bidder.

The contract may be terminated by either party upon written thirty (30) days' notice prior to cancellation without cause.

17. ATTORNEYS FEES

Neither party to this contract shall be entitled to attorney fees for any matter arising under this contract, whether for additional work, breach of contract, or other claim for goods, services, or compensation. All claims for attorney's fees are hereby WAIVED.

18. INDEMNITY

City shall not be liable or responsible for, and shall be saved and held harmless by Contractor from and against any and all suits, actions, losses, damages, claims, or liability of any character, type, or description, including claims for copyright and patent infringement, and including all expenses of litigation, court costs, and attorney's fees for injury or death to any person, or injury to any property, received or sustained by any person or persons or property, arising out of, or occasioned by, directly or indirectly, the performance of Contractor under this agreement, including claims and damages arising in part from the negligence of City, without; however, waiving any governmental immunity available to the CITY under Texas law and without waiving any defenses of the parties under Texas law. The provisions of this indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

It is the expressed intent of the parties to this Agreement that the indemnity provided for in this section is an indemnity extended by Contractor to indemnify and protect City from the consequences of City's own negligence, provided, however, that the indemnity provided for in this section shall apply only when the negligent act of City is a contributory cause of the resultant injury, death, or damage, and shall have no application when the negligent act of City is the sole cause of the resultant injury, death, or damage, unmixed with the legal fault of another person or entity. Contractor further agrees to defend, at its own expense, and on behalf of City and in the name of City, any claim or litigation brought in connection with any such injury, death, or damage.

The Contractor will secure and maintain Contractual Liability insurance to cover this indemnification agreement that will be primary and noncontributory as to any insurance maintained by the City for its own benefit, including self-insurance.

19. PERFORMANCE AND PAYMENT BONDS

In the event the total contract amount exceeds $100,000, the Contractor shall be required to execute a performance bond in the amount of one hundred (100) percent of the total contract price; if the total contract amount exceeds $50,000 the contractor shall be required to execute a payment bond in the amount of one hundred (100) percent of the total contact price, each in standard forms for this purpose, guaranteeing faithful performance of work and guaranteeing payment to all persons supply labor and materials or furnishing any equipment in the execution of the contract. It is agreed that this contract shall not be in effect until such performance and payment bonds are furnished and approved by the City of North Richland Hills. No exceptions to this provision allowed.

Unless otherwise approved in writing by the City of North Richland Hills, the surety company underwriting the bonds shall be acceptable according to the latest list of companies holding certificates of authority from the Secretary of the Treasury of the United States.

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and current copy of their power of attorney.

21. ELECTRONIC PROCUREMENT

The City of North Richland Hills has adopted policies and procedures complying with Local Government Code Section 252.0415, Section 271.906 and Section 2155.062. The City of North Richland Hills may receive submittals in electronic form in response to procurement requests. However, a bid that is submitted non-electronically by the due date and time will be accepted and then entered electronically by Purchasing after the bid opening.

22. DEPARTMENT OF TRANSPORTATION (TXDOT) RELATED BIDS

"The City of North Richland Hills, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."

Due care and diligence has been used in preparation of this information, and it is believed to be substantially correct. However, the responsibility for determining the full extent of the exposure and the verification of all information presented herein shall rest solely with the bidder. The City of North Richland Hills and its representatives will not be responsible for any errors or omissions in these specifications, nor for the failure on the part of the proposer to determine the full extent of the exposures.

INSURANCE REQUIREMENTS

Contractors performing work on City property or public right-of-way for the City of North Richland Hills shall provide the City a certificate of insurance evidencing the coverages and coverage provisions identified herein. Contractors shall provide the City evidence that all subcontractors performing work on the project have the same types and amounts of coverages as required herein or that the subcontractors are included under the contractor's policy. The City, at its own discretion, may require a certified copy of the policy.

All insurance companies and coverages must be authorized by the Texas Department of Insurance to transact business in the State of Texas and must be acceptable to the City of North Richland Hills.

Listed below are the types and amounts of insurance generally required. The City reserves the right to amend the insurance requirements or require additional types and amounts of coverages or provisions depending on the nature of the work or services to be performed.

Type of Insurance	Amount of Insurance	Provision
1. Commercial General Liability to include coverage for: a) Premises/Operations b) Products/Completed Operations c) Independent Contractors d) Personal Injury e) Contractual Liability f) Personal/Advertising Injury g) Medial Expense h) Fire Legal Liability i) Underground Hazard j) Explosion/Collapse Hazard k) Patent Infringement l) Copyright Law Violations	$1,000,000 each occurrence, $1,000,000 general aggregate; Or $1,000,000 combined single limits	City to be listed as additional insured and provided 30 day-notice of cancellation or material change in coverage City prefers that insurer be rated B+V1 or higher by A. M. Best or A or higher by Standard & Poors
2. Consultants, architects, engineers, Landscape design specialist, other professional services	$500,000 Professional Liability with proof that aggregate is still available.	
3. Workers' Compensation & Employers' Liability	Statutory Limits $500,000 each accident	Alternate employer endorsement required
4. Comprehensive Automobile Liability Insurance, including coverage for loading and unloading hazards, for a) Owned/Leased Vehicles b) Non-Owned Vehicles c) Hired Vehicles	$500,000 Combined single limit for bodily injury and property damage	

A PURCHASE ORDER WILL NOT BE ISSUED WITHOUT EVIDENCE OF INSURANCE.

Client#: 727044 QUALIEXC

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/12/2017

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	CONTACT NAME: Karrye Baldwin	
USI Southwest Dallas /CL 2711 N Haskell Ave Suite 2000 Dallas, TX 75204 214 443-3100	PHONE (A/C, No, Ext): 214 443-3100	FAX (A/C, No): 214 443-3900
	E-MAIL ADDRESS: karrye.baldwin@usi.com	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Liberty Insurance Corporation	42404
INSURER B : Texas Mutual Insurance Company	22945
INSURER C : Liberty Mutual Fire Insurance C	23035
INSURER D : Federal Insurance Company	20281
INSURER E :	
INSURER F :	

INSURED
Quality Excavation, Ltd.
5580 US Hwy 377
Aubrey, TX 76227

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	X COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC OTHER:			TB7Z91456886037	05/04/2017	05/04/2018	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$1,000,000 $300,000 $5,000 $1,000,000 $2,000,000 $2,000,000 $
C	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS [ ] SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			AS2Z91456886027	05/04/2017	05/04/2018	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$1,000,000 $ $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED X RETENTION $10000			TH7Z91456886047	05/04/2017	05/04/2018	EACH OCCURRENCE AGGREGATE $	$5,000,000 $5,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		1303653	05/04/2017	05/04/2018	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
D	Equipment Coverage			06694698WCE	05/04/2017	05/04/2018	Limit of Insurance Per Item $500,000	

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

Re: 18-005 Smithfield Road Improvements from Davis Blvd to Mid Cities Blvd - North Richland Hills

The General Liability and Automobile policies include an automatic Additional Insured endorsement that provides Additional Insured status to the Certificate Holder only when there is a written contract that requires such status, and only with regard to work performed on behalf of the named insured.
(See Attached Descriptions)

CERTIFICATE HOLDER

City of North Richland Hills
Attn: Purchasing Department
4301 City Point Drive
North Richland Hills, TX 76180

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

© 1988-2014 ACORD CORPORATION. All rights reserved.

DESCRIPTIONS (Continued from Page 1)

The General Liability, Automobile and Workers' Compensation policies provide a Blanket Waiver of Subrogation when required by written contract, except as prohibited by law.

The General Liability and Automobile policies contain a special endorsement with "Primary and Noncontributory" wording, when required by written contract.

The Umbrella policy is follow form with respect to the additional insured and waiver of subrogation endorsements on the General Liability, Auto and Employers Liability policies.

The General Liability, Auto Liability, and Workers Compensation policies include an endorsement providing that 30 days notice of cancellation will be given to the Certificate Holder by the insurance carrier 10 days notice in the case of cancellation for nonpayment.

NON-COLLUSION AFFIDAVIT OF BIDDER

State of Texas County of Denton

Doug Murphy verifies that:
(Name)

(1) He/She is owner, partner, officer, representative, or agent of

Quality Excavation, Ltd., has submitted the attached bid: (Company Name)

(2) He/She is fully informed in respect to the preparation, contents and circumstances in regard to attached bid;

(3) Neither said bidder nor any of its officers, partners, agents or employees has in any way colluded, conspired or agreed, directly or indirectly with any other bidder, firm or person to submit a collusive or sham bid in connection with attached bid and the price or prices quoted herein are fair and proper.

SIGNATURE

Doug Murphy
PRINTED NAME

Subscribed and sworn to before me this

12 Day of December 2017.

NOTARY PUBLIC in and for

Denton County, Texas.

QUITA WEAVER
Notary Public, State of Texas
Comm. Expires 08-06-2021
Notary ID 131270337

My commission expires: 9/6/2021

THIS FORM MUST BE COMPLETED, NOTARIZED AND SUBMITTED WITH BID

BID CERTIFICATION

The Undersigned, in submitting this bid, represents and certifies:

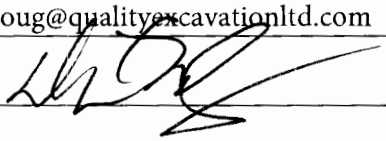
a. He/she is fully informed regarding the preparation, contents and circumstances of the attached bid;

b. He/she proposes to furnish all equipment/service at the prices quoted herein and bid is in strict accordance with the conditions and specifications stated herein;

c. There will be at no time a misunderstanding as to the intent of the specifications or conditions to be overcome or pleaded after the bids are opened;

d. He/she is an equal opportunity employer, and will not discriminate with regard to race, color, national origin, age or sex in the performance of this contract.

e. The undersigned hereby certifies that he/she has read, understands and agrees that acceptance by the City of North Richland Hills of the bidder's offer by issuance of a purchase order will create a binding contract. Further, he/she agrees to fully comply with documentary forms herewith made a part of this specific procurement.

COMPANY:	Quality Excavation Ltd
ADDRESS:	5580 US Hwy 377
CITY, STATE & ZIP:	Aubrey TX 76227
TELEPHONE:	940-365-0800
FAX	940-365-5961
EMAIL:	doug@qualityexcavationltd.com
SIGNATURE:	
PRINTED NAME:	Doug Murphy
DATE:	12/12/2017

COMPLIANCE WITH HOUSE BILL 1295

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that a governmental entity may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties to the governmental entity at the time the business entity submits the signed contract to the governmental entity.

The law applies only to a contract of a governmental entity that either (1) requires an action or vote by the governing body of the entity or agency before the contract may be signed or (2) has a value of at least $1 million. The disclosure requirement applies to a contract entered into on or after January 1, 2016.

The Texas Ethics Commission has adopted rules necessary to implement the law, prescribed the disclosure of interested parties form, and posted a copy of the form on the commission's website.

Filing Process:
The commission has made available on its website a new filing application that must be used to file Form 1295. A business entity must:

1) Use the application to enter the required information on Form 1295,
2) Print a copy of the completed form, which will include a certification of filing that will contain a unique certification number.
3) Sign the printed copy of the form (an authorized agent of the business entity must sign),
4) Have the form notarized,
5) File the completed Form 1295 with the certification of filing with the governmental body with which the business entity is entering into the contract.

The governmental entity must notify the commission, using the commission's filing application, of the receipt of the filed Form 1295 with the certification of filing not later than the 30th day after the date the contract binds all parties to the contract. The commission will post the completed Form 1295 to its website within seven business days after receiving notice from the governmental entity.

Information regarding how to use the filing application may be found at https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

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
CERTIFICATION OF FILING

Certificate Number:
2017-291055

Date Filed:
12/06/2017

Date Acknowledged:

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

Quality Excavation, Ltd.
Aubrey, TX United States

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

City of North Richland Hills

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 services, goods, or other property to be provided under the contract.

#18-005
Smithfiled Rd. Improvements from Davis Blvd. to Mid Cities Blvd.

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. [X]

6 AFFIDAVIT

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

QUITA WEAVER
Notary Public, State of Texas
Comm. Expires 09-08-2021
Notary ID 131270337

Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said Michael Bennison, this the 6th day of December, 2017, to certify which, witness my hand and seal of office.

Quita Weaver — Signature of officer administering oath
Quita Weaver — Printed name of officer administering oath
Contract Administrator — Title of officer administering oath

Not applicable

FOR DISADVANTAGED BUSINESS ENTERPRISES ONLY

Disadvantaged Business Enterprises (DBE) are encouraged to participate in the City of North Richland Hills bid process. Representatives from DBE Companies should identify themselves as such and submit a copy of their Certification.

The City of North Richland Hills recognizes the certifications of both the State of Texas Building and Procurement Commission HUB Program and the North Central Texas Regional Certification Agency. All companies seeking information concerning DBE certification are urged to contact:

Texas Building and Procurement Commission
Statewide HUB Program
1711 San Jacinto Blvd., Austin TX 78701-1416
P O Box 13186, Austin, TX 78711-3186
(512) 463-5872
http://www.window.state.tx.us/procurement/prog/hub/hub-certification/

North Central Texas
Regional Certification Agency
624 Six Flags Drive, Suite 216
Arlington, Texas 76011
(817) 640-0606
http://www.nctrca.org/certification.html

If your company is already certified, attach a copy of your certification to this form and return as part of your packet.

Company Names: _____

Representative: _____

Address: _____

City, State, Zip: _____

Telephone No. _____ **Fax No.** _____

Email address: _____

INDICATE ALL THAT APPLY:

_____**Minority-Owned Business Enterprise**
_____**Women-Owned Business Enterprise**
_____**Disadvantaged Business Enterprise**

CONFLICT OF INTEREST QUESTIONNAIRE

Pursuant to Chapter 176 of the Texas Local Government Code, a person, or agent of a person, who contracts or seeks to contract for the sale or purchase of property, goods, or services with the City of North Richland Hills must file a completed conflict of interest questionnaire. The conflict of interest questionnaire must be filed with the City Secretary of the City of North Richland Hills no later than the seventh business day after the person or agent begins contract discussions or negotiations with the City of North Richland Hills or submits to the City of North Richland Hills an application, response to a request for proposal or bid, correspondence, or another writing
related to a potential agreement with the City of North Richland Hills. An updated conflict of interest questionnaire must be filed in accordance with Chapter 176 of the Local Government Code. An offense under Chapter 176 is a Class C misdemeanor.

The Conflict of Interest Questionnaire is included as part of this document and can be found at:

https://www.ethics.state.tx.us/forms/CIQ.pdf

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor 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 vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

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

OFFICE USE ONLY

Date Received

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

Not applicable

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 on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

Not applicable

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

Not applicable

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

Not applicable

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 Not applicable

Signature of vendor doing business with the governmental entity

12/12/2017

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

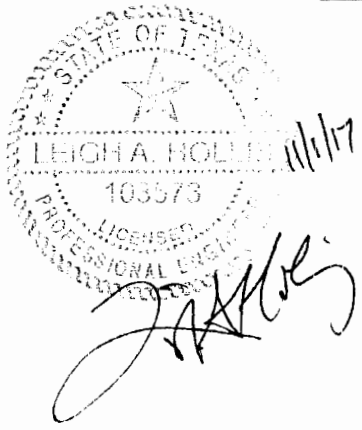
CONTRACT DOCUMENTS
AND
CONSTRUCTION SPECIFICATIONS
FOR

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

FOR THE

CITY OF NORTH RICHLAND HILLS

NRH



November 2017

City of North Richland Hills
Public Works Department

Project RFB 17-023

TABLE OF CONTENTS

SECTION I

BIDDING DOCUMENTS

NOTICE TO BIDDERS

SEALED BIDS on forms prepared by the Engineer will be received by the office of the Purchasing Manager of the City of North Richland Hills at City Hall until 2:00 PM, CDST, Tuesday, December 12, 2017, for furnishing all labor, material, equipment and the performance of all work required for:

SMITHFIELD ROAD IMPROVEMENTS
FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

at which time and place the bids will be publicly opened, read aloud and retained by the Public Works Department for tabulation, checking and evaluation.

COMPLETED BID FORMS shall be submitted in sealed envelopes upon the blank Bid Form furnished in the Construction Specifications. Sealed envelopes shall be marked: "SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD" – DO NOT OPEN UNTIL 2:00 PM, CDST, on Tuesday, December 12, 2017.

COMPLETED BID FORMS shall be accompanied by a Bid Guaranty consisting of either a cashier's check or a Bid Bond on the form included or similar form of Surety Company (FACISIMILES WILL NOT BE CONSIDERED RESPONSIVE) made payable to The City of North Richland Hills, and in the amount of five percent (5%) of the total amount of the largest amount bid as a guarantee that if the bid is accepted, the bidder will execute the Contract and furnish the required Bonds, within the time-frame indicated in the Bid Form, to the City of North Richland Hills.

BIDDERS should carefully examine the plans, specifications and other documents; visit the site of the work; fully inform themselves as to all conditions and matters that can in any way affect the work or the costs thereof. Should a bidder find discrepancies or omissions from the plans, specifications or any other documents or should he/she be in doubt as to the meaning, he/she should at once notify the Purchasing Manager and obtain clarification prior to submitting any bid.

PLANS AND SPECIFICATIONS and contract documents may be examined without charge at the office of Halff Associates, Inc., 4000 Fossil Creek Boulevard, Fort Worth, Texas 76137. Copies of said documents may be obtained from Halff Associates, Inc. at the above address upon a non-refundable payment of $50.00 per set, accompanied by the contractor's name, contact name, address, telephone number and fax number. Plans can also be downloaded from ***Public Purchase*** (see below).

A NON-MANDATORY PRE-BID CONFERENCE has been scheduled for this Project at the North Richland Hills City Hall in the Community Room, (4301 City Point Drive, North Richland Hills, Texas), at 2:00 PM, CDST, Tuesday, November 28, 2017. Halff Associates and the City will not respond to any questions and/or comments regarding this Project after Thursday, December 7, 2017.

PUBLIC PURCHASE: Bidders are encouraged to register with the City of North Richland Hills Purchasing Manager, Scott Kendall, via email at purchasing@nrhtx.com. All Bidders who have registered with Public Purchase (http://www.publicpurchase.com) will receive automatic email notifications pertaining to this Bid, such as addendums and other related information released subsequent to the initial release of plans, specifications, bid forms, and contract documents. **It is the sole responsibility of the Bidder to register as a planholder with the City of North Richland Hills. Questions pertaining to this project should be submitted via Public Purchase where the bid is advertised.**

Minimum wage rates to all laborers and mechanics on the project must not be less than as provided in the Contract Documents and Wage Provisions must particularly comply with all other applicable wage laws of the State of Texas.

The right is reserved, as the interest of the City of North Richland Hills may require, to reject any and all bids, to waive any informality in the bids received, and to select a bid best suited to the City of North Richland Hills' best interest.

In case of ambiguity or lack of clearness in stating bid prices, the City of North Richland Hills reserves the right to adopt the most advantageous construction thereof, or to reject any or all bids. No bid may be withdrawn within sixty (60) days after the date on which bids are opened.

CITY OF NORTH RICHLAND HILLS

Scott Kendall
Purchasing Manager

ADVERTISEMENT DATES:

- **November 8, 2017**
- **November 12, 2017**

SPECIAL INSTRUCTIONS TO BIDDERS

1. BID SECURITY:

A certified check or cashier's check or acceptable bidder's bond made payable to the City of North Richland Hills, Texas, in an amount of five percent (5%) of the bid submitted must accompany each bid as a guarantee that if awarded the contract, the bidder will promptly enter into a contract and execute such bonds as are required.

2. QUALIFICATION OF BIDDERS:

No pre-qualification of bidders is required. However, in consideration of the bids, the City of North Richland Hills may require bidders to furnish a written experience record and a financial statement or the most recent audited financial statement of the firm. The City of North Richland Hills reserves the right to use these items of data to influence a decision as to the award of the contract. Bidders need not submit a statement of experience and financial condition unless requested to do so by the City of North Richland Hills.

3. CONFLICT OF INTEREST QUESTIONNAIRE:

Bidders are required to complete the Conflict of Interest Questionnaire and to submit this completed form along with their bid form documents.

4. WAGE RATES:

Attention is called to the fact that not less than the prevailing wage rates as hereinafter set forth in the Special Provisions of these Contract Documents, which are made a part hereof, must be paid on this project.

5. PRE-BID CONFERENCE:

A **NON-MANDATORY** Pre-Bidders Conference will be conducted at North Richland Hills City Hall in the Community Room, 4301 City Point Drive, North Richland Hills, Texas, at 2:00 PM on Tuesday the 28th of November, 2017.

6. BONDS:

A performance bond and a payment bond, each in the amount of not less than one hundred percent (100%) of the contract price, conditioned upon the faithful performance of the contract and upon payment of all persons supplying labor or furnishing materials, will be required on this project. Additionally, a two (2) year maintenance bond, in the amount of not less than twenty percent (20%) of the final contract price, will be required on this project.

7. POWER OF ATTORNEY:

Attorneys-in-Fact who sign bid bonds or contract bonds must file with each bond a certified and current copy of their power of attorney.

8. STANDARD SPECIFICATIONS:

All work required by this project shall be in accordance with the "Public Works Design Manual" adopted by the City of North Richland Hills and the "Public Works Construction Standards - North Central Texas" adopted by the North Central Texas Council of Governments (NCTCOG), October 2004 Edition, except as modified in the Contract Documents. Where a conflict exists between the "Public Works Design Manual" and the "Public Works Construction Standards - North Central Texas", the "Public Works Design Manual" shall govern. Copies of both of these standards are included in the Contract Documents by reference and are made a part thereof. Omission of any section from this project's Contract Documents does not mean that such section is not applicable to this project.

9. UNIT PRICE CONTRACT:

The contract for this project is a "Unit Price" Contract. As such, the City of North Richland Hills reserves the right to add and/or delete quantities to specific pay items. The City of North Richland Hills may further delete an entire unit price pay item if the City of North Richland Hills desires. The City of North Richland Hills reserves the right to increase or decrease the amount of work to be done by any amount not to be exceeded by twenty-five percent (25%) of the original contract amount. In the event the increase pertains to items not originally bid, the Contractor shall submit a bid in writing to the City of North Richland Hills for approval.

It is further agreed that lump sum prices may be increased to cover additional work ordered by the City of North Richland Hills but not shown on the plans or required by the specifications, in accordance with the provisions of the general conditions; similarly, lump sum prices may be decreased to cover deletion of work so ordered.

The City of North Richland Hills reserves the right to reject the Contractor's bid on such extra work and secure such work to be done other than by said Contractor.

10. MEASUREMENT AND PAYMENT:

The basis of payment for the pay items noted in the proceeding pages shall be full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified and as shown in the project plans/drawings. Any item of work not specifically listed for payment but required by the project documents shall be considered an incidental item of the project and no specific payment will be made.

11. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT:

The successful bidder, upon his/her failure or refusal to execute and deliver the contract and bonds required within ten (10) days after he/she has received notice of the acceptance of his/her bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bond.

12. CONDITIONS OF WORK / OBLIGATION OF BIDDER:

Each bidder must inform himself/herself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her obligation(s) to furnish all material, labor, equipment and incidentals necessary to carry out the provisions of this contract. Insofar as possible, the Contractor, in carrying out his/her work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor or City of North Richland Hills public employees.

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or documents shall in no way relieve the bidder from any obligation in respect to his/her bid.

13. ADDENDA AND INTERPRETATIONS:

Bidders wanting further information, interpretation or clarification of the Contract Documents must make their request in writing to the Engineer by the close of business Thursday, December 7, 2017. Answers to all such requests will be made a part of the Contract Documents. No other explanation or interpretation will be considered official or binding.

Should a bidder find discrepancies in, or omission from the Contract Documents, or should he/she be in doubt as to their meaning, he/she should at once notify the Engineer in order that a written addendum may be sent to all bidders. Any addenda issued will be mailed or be delivered to each prospective bidder. The bid form as submitted by the bidder must be so constructed as to include any addenda issued by the Engineer prior to 24 hours of the opening bids, with the appropriate recognition of addenda so noted in the bid form.

No interpretation of the meaning of plans, specifications or other pre-bid documents will be made to any bidder orally. Every request for such interpretation shall be in writing, addressed to Scott Kendall, Purchasing Manager and to be given consideration, must be received by the close of business Thursday, December 7, 2017. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications and plans which, if issued, will be mailed to all prospective bidders (at the respective addresses furnished on the Plan Holders Sheet), not later than three (3) days prior to the date fixed for opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve the bidder from any obligation under his/her bid submitted. All addenda shall become part of the Contract Documents.

14. LAWS AND REGULATIONS:

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

15. SUBMITTALS:

Prior to any construction commencing on this project the Contractor shall submit the required submittals to the City Engineer and have his approval for all such submittals as required in the Technical Specifications.

16. BID SCHEDULE – BASE BID, ADDITIVE ALTERNATE A , ADDITIVE ALTERNATE B, ADDITIVE ALTERNATE C, ADDITIVE ALTERNATE D, AND ADDITIVE ALTERNATE E:

Additive Alternate A is for the construction of Sanitary Sewer Line A improvements from Station 1+12.51 to Station 6+16.35. Additive Alternate B is for the construction of Water Line "A". Additive Alternate C is for the construction of Water Line "B". Additive Alternate D is for street light improvements. Additive Alternate E is for Landscape and Irrigation. Each bidder shall submit bids for the base project, Additive Alternate A, Additive Alternate B, Additive Alternate C, Additive Alternate D, and Additive Alternate E.

Will be provided upon notice of apparent low bidder

FINANCIAL STATEMENT

Condition of Bidder at close of Business month, _____, 20__

		ASSETS	LIABILITIES
1.	Cash on Hand	$ _____	$ _____
	Cash in Bank	$ _____	$ _____
	Cash Elsewhere	$ _____	$ _____
2.	Accounts receivable from completed contracts (exclusive of claims not approved for payment)	$ _____	$ _____
3.	Accounts receivable from other sources than above	$ _____	$ _____
4.	Amounts earned on uncompleted contracts (not included in Item 3) (Contract price on completed portion of uncompleted contracts less total cost of completed portion)	$ _____	$ _____
5.	Deposits for bids on other guarantees		$ _____
6.	Notes Receivable Past Due	$ _____	
	Due 90 days	$ _____	
	Due Later	$ _____	
7.	Interest Earned	$ _____	
8.	Real Estate, Business Property, present value	$ _____	
	Other property, present value	$ _____	$ _____
9.	Stocks and Bonds, Listed on Exchange	$ _____	$ _____
	Unlisted	$ _____	$ _____
10.	Equipment, Machinery, Fixtures	$ _____	$ _____
	Less Depreciation	$ _____	$ _____
11.	Other Assets	$ _____	
	TOTAL ASSETS	$ _____	$ _____

LIABILITIES AND NET WORTH

		ASSETS	LIABILITIES
1.	Notes Payable to Banks Regular	$ _____	
	(For Certified Checks)	$ _____	
	Equipment Obligations	$ _____	
	Others	$ _____	$ _____
2.	Accounts Payable Current	$ _____	
	Past Due	$ _____	
3.	Real Estate Mortgages	$ _____	$ _____
4.	Other Liabilities		$ _____
5.	Reserves	$ _____	
6.	Capital Stock Paid Up		
	Common	$ _____	
	Preferred	$ _____	
7.	Surplus	$ _____	
	TOTAL LIABILITIES	$ _____	$ _____

Refer to attached Project Reference List

EXPERIENCE RECORD

List of Projects your Organization has successfully completed:

Amount of Contract Award	Type of Work	Date Accepted	Name and Address of Owner

List of Projects your Organization is now engaged in completing:

Amount of Contract Award	Type of Work	Anticipated Date of Completion	Name and Address of Owner

Refer to attached Project Reference List - Any additional information will be provided upon notice of apparent low bidder

List of Surety Bonds in Force on above Uncompleted Work:

Date of Contract Award	Type of Bond	Amount of Bond[1]	Name and Address of Surety

1 List every type of bond separately. If one project has more than one type of bond, list each and every bond for that project on a separate line.

Refer to attached Equipment Schedule

EQUIPMENT SCHEDULE

List of Equipment owned by bidder that is in serviceable condition and available for use:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Portions of work Bidder proposes to sublet if Awarded the Contract including amount and type:

_____

_____

_____

_____

_____

_____

_____

_____

Quality Excavation, LTD
5580 US Highway 377
Aubrey, TX 76227
(940) 365-0800 Off
(940) 365-5961 Fax

QUALITY EXCAVATION
References

City / Town	Contact Name	Contact No.	Scope of Work
Town of Little Elm	Bruce Bannister - Senior Inspector	459-525-0651	Sewer/Storm/Concrete Paving/Storm piping and structures/Water/Fire protection/Fencing/Sidewalk/Asphalt
City of Crossroads	Jason Pool – Inspector/Town Engineer	214-850-7129	Asphalt/Lime Stabilization/Water Line installation and Appurtenances
Town of Hickory Creek	Jeffrey McSpeddon – Head of Public Works	469-576-5094	Deep storm sewer/Asphalt/Concrete roadway/Storm structures
City of The Colony	Dennis Eisenbeis – PW-Inspection	972-877-7152	Paving/Utilities/Landscaping/Irrigation/Street Lights

BID FORM

FOR

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

FOR THE

CITY OF NORTH RICHLAND HILLS, TEXAS

(THIS BID FORM MUST BE COMPLETED IN ITS ENTIRETY, SUBMITTED IN ITS ENTIRETY AND NOT REMOVED FROM THE CONTRACT DOCUMENTS)

Bid Opening Date: 2:00PM December 12, 2017

TO: City of North Richland Hills
4301 City Point Drive
North Richland Hills, Texas 76180

FOR: Smithfield Road Improvements from Davis Boulevard to Mid Cities Boulevard

Pursuant to the foregoing "Notice to Bidders", the undersigned bidder, having thoroughly examined the Contract Documents, the site of the project and understanding the amount of work to be done and the prevailing conditions, hereby proposes to fully complete all of the work and requirements as provided in the plans and Contract Documents and binds himself/herself upon acceptance of this bid form to execute a contract and furnish such bonds as required and proposes to complete the work within the time stated and for the following prices:

Base Bid – Smithfield Road from Davis Boulevard to Mid Cities Boulevard

Section I – Paving & Drainage Improvements

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
1.	1	LS	Construction Staking @ Twenty Five Thousand Three Hundred Fifty Dollars and Zero Cents Per Unit	$25,350.00	$25,350.00
2	1,045	LF	Trench Safety for Storm Drain Lines @ One Dollars and Eighty Cents Per Unit	$1.80	$1,881.00
3.	2	EA	Project Signs @ Four Hundred Fifty Dollars and Zero Cents Per Unit	$450.00	$900.00
4.	1	LS	Joint Storm Water Pollution Prevention Plan @ Six Thousand Five Hundred Dollars and Zero Cents Per Unit	$6,500.00	$6,500.00
5.	6,110	SY	Solid Sodding @ Four Dollars and Seventy Five Cents Per Unit	$4.75	$29,022.50
6.	2,493	SY	Hydromulch Seeding @ One Dollars and Seventy Five Cents Per Unit	$1.75	$4,362.75

7.	18	STA	Mobilization and General Site Preparation @ Seven Thousand One Hundred Twenty Dollars and Zero Cents Per Unit	$7,120.00	$128,160.00
8.	20,741	SF	Sawcut and Remove Existing Concrete Pavement and Flatwork @ One Dollars and Five Cents Per Unit	$1.05	$21,778.05
9.	61,229	SF	Remove Asphalt Pavement @ Zero Dollars and Fifty Cents Per Unit	$0.50	$30,614.50
10.	3,787	LF	Remove Existing Concrete Curb and Gutter @ Seven Dollars and Sixty Five Cents Per Unit	$7.65	$28,970.55
11.	206	LF	Remove Existing Storm Drain Pipe (various sizes) @ Thirty Dollars and Twenty Cents Per Unit	$30.20	$6,221.20
12.	6	EA	Remove Existing Curb Inlet @ One Thousand One Hundred Eighty Dollars and Zero Cents Per Unit	$1,180.00	$7,080.00

13.	1	EA	Remove Existing Grate Inlet @ One Thousand Four Hundred Ten Dollars and Zero Cents Per Unit	$1,410.00	$1,410.00
14.	4,000	CY	Unclassified Street Excavation @ Eleven Dollars and Forty Cents Per Unit	$11.40	$45,600.00
15.	925	CY	Borrow @ Thirteen Dollars and Eighty Five Cents Per Unit	$13.85	$12,811.25
16.	82	LF	Remove and Replace Wood Fence @ Thirty Nine Dollars and Ninety Cents Per Unit	$39.90	$3,271.80
17.	75	LF	Remove Wood Retaining Wall @ Seven Dollars and Forty Five Cents Per Unit	$7.45	$558.75
18.	25	LF	Remove Stone Retaining Wall @ Twenty Two Dollars and Sixty Cents Per Unit	$22.60	$565.00

19.	1	EA	Remove Existing Headwall @ Four Hundred One Dollars and Twenty Five Cents Per Unit	$401.25	$401.25
20.	12	EA	Remove Existing Tree (12 inches and larger) @ One Thousand One Hundred Sixty Dollars and Zero Cents Per Unit	$1,160.00	$13,920.00
21.	11,008	SY	8-inch Thick Lime Treatment @ Seven Dollars and Fifteen Cents Per Unit	$7.15	$78,707.20
22.	264	TON	Hydrated Lime @ One Hundred Sixty Dollars and Zero Cents Per Unit	$160.00	$42,240.00
23.	9,176	SY	7-inch Reinforced Concrete Pavement with Monolithic Curb @ Fifty Four Dollars and Sixty Cents Per Unit	$54.60	$501,009.60
24.	196	SY	1 -inch Continuously Reinforced Concrete Pavement with Monolithic Curb @ Ninety Dollars and Zero Cents Per Unit	$90.00	$17,640.00

25.	982	SY	6-inch Reinforced Concrete Pavement with Monolithic Curb @ Fifty Five Dollars and Fifteen Cents Per Unit	$55.15	$54,157.30
26.	112	LF	Integral Sidewalk Retaining Wall (1.5' Tall or Less) @ Ninety Dollars and Zero Cents Per Unit	$90.00	$10,080.00
27.	184	SF	Integral Sidewalk Retaining Wall @ Eighty Nine Dollars and Thirty Five Cents Per Unit	$89.35	$16,440.40
28.	14,526	SF	4-inch Reinforced Concrete Sidewalk @ Five Dollars and Fifteen Cents Per Unit	$5.15	$74,808.90
29.	3,882	SF	6-inch Reinforced Concrete Driveway Approach @ Seven Dollars and Thirty Cents Per Unit	$7.30	$28,338.60
30.	225	SY	2-Inch Asphalt Type "D" Surface Course HMAC @ Twenty Two Dollars and Zero Cents Per Unit	$22.00	$4,950.00

31.	434	SY	4-Inch Asphalt Type “B” Base Course HMAC @ Twenty Eight Dollars and Zero Cents Per Unit	$28.00	$12,152.00
32.	237	SY	3-Inch Asphalt Type “B” Base Course HMAC @ Twenty Four Dollars and Zero Cents Per Unit	$24.00	$5,688.00
33.	3,801	SF	Stained and Stamped Concrete Crosswalk @ Seventeen Dollars and Eighty Cents Per Unit	$17.80	$67,657.80
34.	50	SF	Monolithic Median Nose @ Sixteen Dollars and Fifteen Cents Per Unit	$16.15	$807.50
35.	6	EA	5-foot Wide TxDOT Type 7 Barrier-Free Ramp @ One Thousand Three Hundred Sixty Five Dollars and Zero Cents Per Unit	$1,365.00	$8,190.00
36.	1	EA	5-foot Wide TxDOT Type 7 Barrier-Free Ramp (Modified Detail C) @ One Thousand Five Hundred Thirteen Dollars and Zero Cents Per Unit	$1,513.00	$1,513.00

37.	5	EA	6-foot Wide TxDOT Type 7 Barrier-Free Ramp @ One Thousand Three Hundred Ninety Five Dollars and Zero Cents Per Unit	$1,395.00	$6,975.00
38.	1	EA	6-foot Wide TxDOT Type 5 Barrier-Free Ramp (Modified Detail A) @ One Thousand Five Hundred Forty Two Dollars and Zero Cents Per Unit	$1,542.00	$1,542.00
39.	1	EA	6-foot Wide TxDOT Type 5 Barrier-Free Ramp (Modified Detail B) @ One Thousand Four Hundred Twenty Seven Dollars and Zero Cents Per Unit	$1,427.00	$1,427.00
40.	1	EA	8-foot Wide TxDOT Type 5 Barrier-Free Ramp (Modified Detail D) @ One Thousand Six Hundred Twenty Eight Dollars and Zero Cents Per Unit	$1,628.00	$1,628.00
41.	1	EA	8-foot Wide TxDOT Type 5 Barrier-Free Ramp (Modified Detail E) @ One Thousand Seven Hundred Forty Two Dollars and Zero Cents Per Unit	$1,742.00	$1,742.00
42.	1	EA	11.5-foot Wide TxDOT Type 5 Barrier-Free Ramp (Modified Detail F) @ One Thousand Nine Hundred Fourteen Dollars and Zero Cents Per Unit	$1,914.00	$1,914.00

43.	1	EA	8-foot Wide TxDOT Type 5 Barrier-Free Ramp (Modified Detail G) @ One Thousand Six Hundred Twenty Eight Dollars and Zero Cents Per Unit	$1,628.00	$1,628.00
44.	1	EA	6-foot Wide TxDOT Type 7 Barrier-Free Ramp (Modified Detail H) @ One Thousand Five Hundred Forty Two Dollars and Zero Cents Per Unit	$1,542.00	$1,542.00
45.	2	EA	9-foot Wide TxDOT Type 21 Barrier-Free Ramp @ One Thousand Seven Hundred Eighty Dollars and Zero Cents Per Unit	$1,780.00	$3,560.00
46.	380	LF	Concrete Curb and Gutter @ Thirty Two Dollars and Zero Cents Per Unit	$32.00	$12,160.00
47.	3	EA	Bollards @ Six Hundred Ninety Dollars and Zero Cents Per Unit	$690.00	$2,070.00
48.	7	EA	Remove Existing Bollard @ Two Hundred Twenty Nine Dollars and Zero Cents Per Unit	$229.00	$1,603.00

49.	2	EA	Concrete Type II SETP-PD (Sloped Headwall) @ Two Thousand Two Hundred Eighteen Dollars and Zero Cents Per Unit	$2,218.00	$4,436.00
50.	364	LF	18-inch Class III Reinforced Concrete Storm Drain Pipe @ Sixty Nine Dollars and Zero Cents Per Unit	$69.00	$25,116.00
51.	37	LF	21-inch Class III Reinforced Concrete Storm Drain Pipe @ Seventy Eight Dollars and Zero Cents Per Unit	$78.00	$2,886.00
52.	464	LF	24-inch Class III Reinforced Concrete Storm Drain Pipe @ Eighty Seven Dollars and Zero Cents Per Unit	$87.00	$40,368.00
53.	68	LF	24-inch Class III Reinforced Concrete Storm Drain Radius Pipe @ Eighty Five Dollars and Zero Cents Per Unit	$85.00	$5,780.00
54.	24	LF	3 -inch Class III Reinforced Concrete Storm Drain Pipe @ One Hundred Forty Two Dollars and Zero Cents Per Unit	$142.00	$3,408.00

55.	88	LF	36-inch Class III Reinforced Concrete Storm Drain Pipe @ One Hundred Forty Seven Dollars and Zero Cents Per Unit	$147.00	$12,936.00
56.	2	EA	4-foot Square Storm Drain Manhole @ Five Thousand Three Hundred Fifty Dollars and Zero Cents Per Unit	$5,350.00	$10,700.00
57.	10	EA	1 -foot Standard Curb Inlet @ Four Thousand Two Hundred Sixty Seven Dollars and Zero Cents Per Unit	$4,267.00	$42,670.00
58.	2	EA	15-foot Standard Curb Inlet @ Five Thousand Ninety Dollars and Zero Cents Per Unit	$5,090.00	$10,180.00
59.	1	EA	2'x2' -Drop Inlet @ Three Thousand One Hundred Sixty Seven Dollars and Zero Cents Per Unit	$3,167.00	$3,167.00
60.	1	LS	Traffic Control - Barricades, Warning and Detour Signs @ Sixteen Thousand Seven Hundred Thirty Three Dollars and Zero Cents Per Unit	$16,733.00	$16,733.00

61.	1	LS	Pavement Markings and Signage @ Thirty Two Thousand Two Hundred Thirty Dollars and Zero Cents Per Unit	$32,230.00	$32,230.00
62.	1	LS	Miscellaneous Paving Improvements @ Ten Thousand Dollars and No Cents Per Unit	$10,000.00	$10,000.00
63.	1	LS	Miscellaneous Drainage Improvements @ Ten Thousand Dollars and No Cents Per Unit	$10,000.00	$10,000.00
64.	1	LS	Miscellaneous Landscape Improvements @ Five Thousand Dollars and No Cents Per Unit	$5,000.00	$5,000.00

Sub-total Amount Bid - Base Bid Section I - Paving and Drainage Improvements **$1,567,159.90**

Base Bid – Smithfield Road from Davis Boulevard to Mid Cities Boulevard
Section II – Water Improvements

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
65	2	EA	Adjust Fire Hydrant to Grade @ Nine Hundred Dollars and Zero Cents Per Unit	$900.00	$1,800.00
66	1	EA	Adjust Existing Water Line @ Two Thousand Two Hundred Dollars and Zero Cents Per Unit	$2,200.00	$2,200.00
67	1	EA	Remove Fire Hydrant @ Three Hundred Dollars and Zero Cents Per Unit	$300.00	$300.00
68	3	EA	Adjust Water Valve to Grade @ Two Hundred Fifty Dollars and Zero Cents Per Unit	$250.00	$750.00
69	5	EA	Adjust Irrigation Control Valve to Grade @ Nine Hundred Sevety Five Dollars and Zero Cents Per Unit	$975.00	$4,875.00

70	2	EA	Adjust Water Meter Box to Grade @ Five Hundred Dollars and Zero Cents Per Unit	$500.00	$1,000.00
71	3	EA	Remove Water Valve @ Two Hundred Fifty Dollars and Zero Cents Per Unit	$250.00	$750.00
72	1	EA	Fire Hydrant Assembly @ Four Thousand One Hundred Dollars and Zero Cents Per Unit	$4,100.00	$4,100.00

Sub-total Amount Bid - Base Bid Section II - Water Improvements **$15,775.00**

Base Bid – Smithfield Road from Davis Boulevard to Mid Cities Boulevard
Section III – Sanitary Sewer Improvements

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
73	524	LF	Trench Safety for Sanitary Sewer Lines @ One Dollars and Zero Cents Per Unit	$1.00	$524.00
74	408	LF	8-inch SDR 35 PVC Sanitary Sewer @ Thirty Eight Dollars and Zero Cents Per Unit	$38.00	$15,504.00
75	116	LF	8-inch SDR 26 PVC Sanitary Sewer @ Forty Four Dollars and Zero Cents Per Unit	$44.00	$5,104.00
76	3	EA	Connect To Existing Sanitary Sewer Manhole @ One Thousand Two Hundred Dollars and Zero Cents Per Unit	$1,200.00	$3,600.00
77	2	EA	5-foot Diameter Sanitary Sewer Manhole @ Five Thousand Nine Hundred Dollars and Zero Cents Per Unit	$5,900.00	$11,800.00

78	10	VF	Extra Depth for 5-foot Sanitary Sewer Manhole @ Five Hundred Dollars and Zero Cents Per Unit	$500.00	$5,000.00
79	22	LF	Concrete Encasement @ Forty One Dollars and Zero Cents Per Unit	$41.00	$902.00
80	75	LF	Pre-Construction Television Inspection @ Six Dollars and Thirty Cents Per Unit	$6.30	$472.50
81	524	LF	Post-Construction Television Inspection @ Three Dollars and Zero Cents Per Unit	$3.00	$1,572.00
82	57	LF	Remove Existing Sanitary Sewer Line @ Nine Dollars and Zero Cents Per Unit	$9.00	$513.00
83	1	EA	Remove Existing Sanitary Sewer Manhole @ Seven Hundred Fifty Dollars and Zero Cents Per Unit	$750.00	$750.00

84	3	EA	Adjust Existing Sanitary Sewer Manhole to Grade @ Six Hundred Dollars and Zero Cents Per Unit	$600.00	$1,800.00
85	1	LS	Miscellaneous Utility Improvements @ Ten Thousand Dollars and No Cents Per Unit	$10,000.00	$10,000.00

Sub-total Amount Bid - Base Bid Section III - Sanitary Sewer Improvements **$57,541.50**

Base Bid – Smithfield Road from Davis boulevard to mid cities boulevard
Section IV – Traffic Signal Improvements

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
86	1	LS	Remove Existing and Install New Traffic Signal at Mid Cities Boulevard @ Tw Hundred Seventy Three Thousand Eight Hundred Sixty Dollars and Zero Cents Per Unit	$273,860.00	$273,860.00
87	1	LS	Remove Existing and Install New Traffic Signal at Davis Boulevard @ Fifty Nine Thousand Seven Hundred Fifty Dollars and Zero Cents Per Unit	$59,750.00	$59,750.00
88	1	LS	Mid Cities Boulevard Temporary Traffic Signal @ Eighty Six Thousand Three Hundred Dollars and Zero Cents Per Unit	$86,300.00	$86,300.00

Sub-total Amount Bid - Base Bid Section IV - Traffic Signal Improvements **$419,910.00**

Total Amount Bid: Base Bid:

Section I - Paving and Drainage Improvements	**$1,567,159.90**
Section II - Water Improvements	**$15,775.00**
Section III - Sanitary Sewer Improvements	**$57,541.50**
Section IV- Traffic Signal Improvements	**$419,910.00**
Total Amount Bid, Numerical Value	**$2,060,386.40**

Additive Alternate A – Sanitary Sewer

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
1.	709	LF	Trench Safety for Sanitary Sewer Lines @ One Dollars and Zero Cents Per Unit	$1.00	$709.00
2.	155	LF	8-inch SDR 35 PVC Sanitary Sewer @ Thirty Eight Dollars and Zero Cents Per Unit	$38.00	$5,890.00
3.	373	LF	8-inch SDR 26 PVC Sanitary Sewer @ Fifty Dollars and Zero Cents Per Unit	$50.00	$18,650.00
4.	1	EA	4-foot Diameter Sanitary Sewer Manhole @ Four Thousand Four Hundred Dollars and Zero Cents Per Unit	$4,400.00	$4,400.00
5.	2	EA	5-foot Diameter Sanitary Sewer Manhole @ Five Thousand Nine Hundred Dollars and Zero Cents Per Unit	$5,900.00	$11,800.00

6.	13	VF	Extra Depth for 5-foot Diameter Sanitary Sewer Manhole @ Five Hundred Dollars and Zero Cents Per Unit	$500.00	$6,500.00
7.	129	LF	6-inch SDR 35 PVC Sanitary Sewer Service Line @ Forty Dollars and Zero Cents Per Unit	$40.00	$5,160.00
8.	52	LF	4-inch SDR 35 PVC Sanitary Sewer Service Line @ Twenty Four Dollars and Zero Cents Per Unit	$24.00	$1,248.00
9.	12	LF	Concrete Encasement @ Forty One Dollars and Zero Cents Per Unit	$41.00	$492.00
10.	709	LF	Post-Construction Television Inspection @ Three Dollars and Zero Cents Per Unit	$3.00	$2,127.00

Sub-total Amount Bid - Additive Alternate A: **$56,976.00**

Additive Alternate B – Water Line

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
1.	695	LF	Trench Safety for Water Lines @ Zero Dollars and eighty Cents Per Unit	$0.80	$556.00
2.	564	LF	16-inch AWWA C9 5 PVC DR 18 (Class 235) Water Line @ Seventy Six Dollars and Zero Cents Per Unit	$76.00	$42,864.00
3.	67	LF	8-inch AWWA C9 PVC DR 18 (Class 15) Water Line @ Forty Dollars and Zero Cents Per Unit	$40.00	$2,680.00
4.	64	LF	6-inch AWWA C9 PVC DR 18 (Class 15) Water Line @ Thirty Five Dollars and Zero Cents Per Unit	$35.00	$2,240.00
5.	1	EA	1-inch Water Service Line (long service) @ One Thousand Nine Hundred Dollars and Zero Cents Per Unit	$1,900.00	$1,900.00

6.	2	EA	5/8-inch Water Service Line (short service) @ One Thousand Two Hundred Dollars and Zero Cents Per Unit	$1,200.00	$2,400.00
7.	1	EA	Fire Hydrant Assembly @ Four Thousand One Hundred Dollars and Zero Cents Per Unit	$4,100.00	$4,100.00
8.	50	LF	Remove Existing Water Line @ Eleven Dollars and Zero Cents Per Unit	$11.00	$550.00
9.	3	EA	Relocate Existing Water Meter @ Three Hundred Fifty Dollars and Zero Cents Per Unit	$350.00	$1,050.00
10.	1	EA	Relocate Existing Backflow Preventer @ Two Thousand Five Hundred Dollars and Zero Cents Per Unit	$2,500.00	$2,500.00
11.	2	EA	Connect to Existing 6-inch Water Line @ One Thousand Two Hundred Fifty Dollars and Zero Cents Per Unit	$1,250.00	$2,500.00

12.	1	EA	Connect to Existing Vault @ Two Thousand Five Hundred Dollars and Zero Cents Per Unit	$2,500.00	$2,500.00
13.	1	EA	6-inch Gate Valve @ One Thousand Four Hundred Dollars and Zero Cents Per Unit	$1,400.00	$1,400.00
14.	1	EA	8-inch Gate Valve @ One Thousand Four Hundred Dollars and Zero Cents Per Unit	$1,400.00	$1,400.00
15.	2	EA	16-inch Direct Bury Butterfly Valve @ Seven Thousand Four Hundred Dollars and Zero Cents Per Unit	$7,400.00	$14,800.00
16.	1	EA	12-inch x 12-inch Tapping Sleeve and Gate Valve @ Five Thousand Five Hundred Dollars and Zero Cents Per Unit	$5,500.00	$5,500.00
17.	20	LF	Concrete Encasement @ Forty Five Dollars and Zero Cents Per Unit	$45.00	$900.00

18.	841	SF	Concrete Pavement Repair @ Seven Dollars and Forty Cents Per Unit	$7.40	$6,223.40
19.	206	SF	Asphalt Pavement Repair @ Five Dollars and Forty Cents Per Unit	$5.40	$1,112.40

Sub-total Amount Bid - Additive Alternate B: **$97,175.80**

Additive Alternate C – Water Line

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
1.	1,088	LF	Trench Safety for Water Lines @ Zero Dollars and Ninety Cents Per Unit	$0.90	$979.20
2.	28	LF	6-inch AWWA C9 PVC DR 18 (Class 15) Water Line @ Thirty Eight Dollars and Zero Cents Per Unit	$38.00	$1,064.00
3.	1,060	LF	8-inch AWWA C9 PVC DR 18 (Class 15) Water Line @ Thirty Eight Dollars and Fifty Cents Per Unit	$38.50	$40,810.00
4.	1	EA	Connect to Existing 2-inch Water Line @ Six Hundred Fifty Dollars and Zero Cents Per Unit	$650.00	$650.00
5.	2	EA	Connect to Existing 6-inch Water Line @ One Thousand Six Hundred Dollars and Zero Cents Per Unit	$1,600.00	$3,200.00

6.	1	EA	Connect to Existing 8-inch Water Line @ One Thousand Seven Hundred Dollars and Zero Cents Per Unit	$1,700.00	$1,700.00
7.	1	EA	6-inch Gate Valve @ One Thousand Four Hundred Dollars and Zero Cents Per Unit	$1,400.00	$1,400.00
8.	2	EA	8-inch Gate Valve @ One Thousand Four Hundred Dollars and Zero Cents Per Unit	$1,400.00	$2,800.00
9.	1	EA	8-inch x 12-inch Tapping Sleeve and Gate Valve @ Five Thousand Dollars and Zero Cents Per Unit	$5,000.00	$5,000.00

Sub-total Amount Bid - Additive Alternate C: **$57,603.20**

Additive Alternate D – Street Light Improvements

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
1.	33	EA	Street Foundations @ One Thousand Six Hundred Sixty One Dollars and Zero Cents Per Unit	$1,661.00	$54,813.00
2.	2,668	LF	2-inch PVC SCH 4 Conduit (open cut) @ Ten Dollars and Forty Cents Per Unit	$10.40	$27,747.20
3.	236	LF	2-inch PVC SCH 4 Conduit (by bore) @ Twenty Five Dollars and Thirty Cents Per Unit	$25.30	$5,970.80
4.	4	EA	Ground Box Type A @ One Thousand Seventy Dollars and Zero Cents Per Unit	$1,070.00	$4,280.00

Sub-total Amount Bid - Additive Alternate D: **$92,811.00**

Additive Alternate E – Landscape and Irrigation Improvements

Item No.	Estim. Quantity	Unit	Name of Pay Item with Unit Price in Words	Unit Bid Price	Amount Bid
1.	1	LS	Furnish and Install Complete Irrigation System @ Fifty Three Thousand Seven Hundred Ninety and Zero Cents Per Unit	$53,790.00	$53,790.00
2.	14	EA	Cedar Elm (4-inch caliper) @ One Thousand Five Hundred Sevety Five and Zero Cents Per Unit	$1,575.00	$22,050.00
3.	22	EA	Natchez Crape Myrtle (3-inch caliper) @ Seven Hundred Two Dollars and Zero Cents Per Unit	$702.00	$15,444.00
4.	500	LF	2-inch Electrical Conduit and Service Wire @ Twelve Dollars and Zero Cents Per Unit	$12.00	$6,000.00

Sub-total Amount Bid - Additive Alternate E: **$97,284.00**

Bid Recap

Total Alternate A	**$56,976.00**
Total Alternate B	**$97,175.80**
Total Alternate C	**$57,603.20**
Total Alternate D	**$92,811.00**
Total Alternate E	**$97,284.00**
Total Base Bid	**$2,060,386.40**
Total Amount (Base Bid + Alt A +Alt B + Alt C + Alt D + Alt E)	**$2,462,236.40**

The undersigned bidder acknowledges receipt of the following Addenda: **(If none is received, then write NONE across the blanks.)**

Addendum No. 1 - Date Received 11/27/2017

Addendum No. 2 - Date Received 12/4/2017

Addendum No. 3 - Date Received 12/5/2017

The undersigned bidder agrees to execute and file with the Owner a contract and bonds on the forms provided within ten (10) days after written notification of award of the contract to him and to begin the work to be performed under the contract within ten (10) days after written authorization to begin the work (Work Order) and to complete the work in full within **315 Consecutive Calendar Days** after the date specified in the "Notice to Proceed/Work Order".

Enclosed with this bid form is a certified check or cashier's check or bid bond payable to the City of North Richland Hills in the amount of five percent (5%) of the total bid, which is to become the property of the City of North Richland Hills, or the attached Bidder's Bond is to be forfeited in the event the contract and bond are not executed within the time set forth, as liquidated damages for delay and additional work caused thereby.

Respectfully Submitted;

Signed: _____

Company: Quality Excavation Ltd

Address: 5580 US Hwy 377

Aubrey TX 76227

SEAL
(If Bidder is a Corporation)

Telephone: 940-365-0800

Fax: 940-365-5961

Submitted by: Quality Excavation Ltd

an individual
~~A partnership~~
A corporation

Doing Business As: N/A

AIA® Document A310™ – 1970

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we
(Here insert full name and address or legal title of Contractor)

Quality Excavation, Ltd.

5580 US Highway 377 S.

Aubrey, TX 76227-6202

as Principal, hereinafter called the Principal, and
(Here insert full name and address or legal title of Surety)

U.S. Specialty Insurance Company
801 South Figueroa Street, Suite 700
Los Angeles, CA 90017

a corporation duly organized under the laws of the State of Texas
as Surety, hereinafter called the Surety, are held and firmly bound unto
(Here insert full name and address or legal title of Owner)

City of North Richland Hills

4301 City Point Drive, Third Floor

North Richland Hills, TX 76180

as Obligee, hereinafter called the Obligee, in the sum of Five Percent Greatest Amount Bid ($ 5% G.A.B.), for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for
(Here insert full name, address and description of project)
Smithfield Road Improvements from David Blvd to Mid Cities Blvd Bid/Sol # 17215

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee 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.

AIA Document A310™ – 1970. Copyright © 1963 and 1970 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 16:38:58 on 04/24/2008 under Order No.1000352359_1 which expires on 4/14/2009, and is not for resale.
User Notes: (1166009828)

Signed and sealed this 12th day of December , 2017

(Witness)

(Witness)

Kimberlee Friesenhahn Witness

Quality Excavation, Ltd.
(Principal) (Seal)

Project Manager / ESTIMATOR
(Title)

U.S. Specialty Insurance Company
(Surety)

(Title) Attorney-in-Fact (Seal)

Trenae Donovan

AIA Document A310™ – 1970. Copyright © 1963 and 1970 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 16:38:58 on 04/24/2008 under Order No.1000352359_1 which expires on 4/14/2009, and is not for resale.
User Notes: (1166009828)

U.S. Specialty Insurance Company

TEXAS COMPLAINT NOTICE

IMPORTANT NOTICE

1. To obtain information or make a complaint:

2. You may contact your agent.

3. You may call the company's toll free telephone number for information or to make a complaint at:

   1-800-486-6695

4. You may also write to the company at:

   801 S. Figueroa Street, Suite 700
   Los Angeles, CA 90017

5. You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights, or complaints at:

   1-800-252-3439

6. You may write to the Texas Department of Insurance at:

   Consumer Protection (111-1A)
   P.O. Box 149091
   Austin, TX 78714-9091
   Fax No. (512) 490-1007
   Web: http://www.tdi.texas.gov
   E-mail: ConsumerProtection@tdi.texas.gov

7. **PREMIUM OR CLAIM DISPUTES:**

   Should you have a dispute concerning your premium or about a claim you should contact the agent or the company first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

8. **ATTACH THIS NOTICE TO YOUR POLICY**

   This notice is for information only and does not become a part or condition of the attached document.

AVISO IMPORTANTE

Para obtener informacion o para someter una queja:

Puede comunicarse con su agente.

Usted puede llamar al numero de telefono gratis de la compania's para informacion o para someter una queja al:

1-800-486-6695

Usted tambien puede escribir a la compañía:

801 S. Figueroa Street, Suite 700
Los Angeles, CA 90017

Puede comunicarse con el Departamento de Seguros de Texas para obtener informacion acerca de companias, coberturas, derechos, o quejas al:

1-800-252-3439

Puede escribir al Departamento de Seguros de Texas al:

Consumer Protection (111-1A)
P.O. Box 149091
Austin, TX 78714-9091
Fax No. (512) 490-1007
Web: http://www.tdi.state.tx.us
E-mail: ConsumerProtection@tdi.texas.gov

DISPUTAS SOBRE PRIMAS O RECLAMOS:

Si tiene una disputa concerniente a su prima o a un reclamo, debe comunicarse con el agente o la compania primero. Si no se resuelve la disputa, puede entonces comunicarse con el departamento (TDI).

UNA ESTE AVISO A SU POLIZA

Esta aviso es solo para proposito de informacion y no se convierte en parte o condicion del documento adjunto.

POWER OF ATTORNEY

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY
UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation, Texas Bonding Company, an assumed name of American Contractors Indemnity Company, United States Surety Company, a Maryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Steven Lewis, Trenae Donovan, Kathy Sells or Lanny Land

its true and lawful Attorney(s)-in-fact, each in their separate capacity if more than one is named above, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver **any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include riders, amendments, and consents of surety, providing the bond penalty does not exceed _____ Fifteen Million _____ Dollars ($ **15,000,000.00**).**
This Power of Attorney shall expire without further action on November 3, 2019. This Power of Attorney is granted under and by authority of the following resolutions adopted by the Boards of Directors of the Companies:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 1st day of November, 2016.

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY
UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

Corporate Seals

By: _____
Daniel P. Aguilar, Vice President

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Los Angeles SS:

On this 1st day of November, 2016, before me, Sabina Morgenstein, a notary public, personally appeared Daniel P. Aguilar, Vice President of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official seal.

Signature _____ (Seal)

SABINA MORGENSTEIN
Commission # 2129258
Notary Public - California
Los Angeles County
My Comm. Expires Nov 3, 2019

I, Kio Lo, Assistant Secretary of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Los Angeles, California this 12th day of December, 2017

Corporate Seals

Bond No. N/A
Agency No. 18799

Kio Lo, Assistant Secretary

Quality Excavation, Ltd. - Project Reference List

Name of Project	Location of Projects (TX)	Primary Project Contact	Contact Designation	Contact Title	Primary Contact Number/ Email	Project Start Date	Project Status	Projected Completion Estimated Date	Contract Value	General Scope
Stanley Drainage	Aubrey	Andrew Mata	Birkhoff, Hendricks, Carter	Engineer	(214) 361-7900	9/18/2017	Ongoing	1/31/2018	$ 246,799.00	Construction of Drainage Channel
Love's Travel Center	Denton	Jeff Mosley	Site Master's Construction, Inc.	Project Manager	(662) 312-4977	6/5/2017	Completed	10/5/2017	$ 915,769.00	Storm Drain / Excavation / Concrete Pavement
Dickson Lane Paving Improvements	Little Elm	Kim Brawmer	Town of Little Elm	Construction Manager	(214) 975-0489	7/28/2017	Completed	10/31/2017	$ 1,043,858.55	Concrete Pavement/Installing Water Main & Sanitary Sewer
Canyon Oaks Paving	Denton	Robert White	Denton County	Civil Engineer	(940) 349-3257	7/24/2017	Completed	10/22/2017	$ 1,821,741.00	Storm Drain and Asphalt Street Construction
Town Center Blvd	Coppell	Louis Hund III	JQ Infrastructure	Engineer	(972) 392-7340	10/2/2017	Ongoing	3/2/2018	$ 1,002,311.25	Storm Drain / Excavation / Concrete Pavement / Sidewalk
Dalrock Estates Street Recon	Rowlett	James P. Amick, P.E.	Neel-Schaffer	Engineer	(817) 870-2422	11/20/2017	Ongoing	9/20/2018	$ 2,499,059.80	Reconstruction / Storm Drain / Pavement
Briar Grove Drive Recon	Princeton	Brittany Shake	Kimley-Horn	Project Manager	(469) 452-2499	11/1/2017	Ongoing	2/1/2018	$ 167,250.40	Reconstruction - excavation / concrete pavement
Florence Drive Recon	Princeton	Brittany Shake	Kimley-Horn	Project Manager	(469) 452-2499	11/1/2017	Ongoing	2/1/2018	$ 345,558.00	Reconstruction - excavation / concrete pavement
Old Central Parking Lot	Denton	Nicholas Nelson	Pacheco Koch, LLC	Engineer	(817) 412-7155	11/14/2017	Ongoing	5/31/2018	$ 792,991.20	Storm Drain / Excavation / Concrete Pavement
Chinn Chapel Road/Woodland Drive Reconstruction	Copper Canyon	Brian Haynes	Halff and Associates	Engineer	bHaynes@Halff.com	3/13/2017	Ongoing	12/30/2017	$ 3,537,407.08	Storm Drain / Excavation / Concrete Pavement
Old Witt Road Reconstruction	Little Elm	Kim Brawmer	City of Little Elm	Construction Manager	(214) 975-0489	10/28/2016	Completed	8/25/2017	$ 3,145,937.98	Concrete Pavement/Installing Water Main & Sanitary Sewer
Memorial Drive Widening	The Colony	Leigh Hollis	Halff Associates, Inc.	Civil Engineer	(817) 764-7446	10/27/2016	Completed	4/30/2017	$ 1,287,660.05	Concrete paving & waterline construction
Main Street Improvements	Lake Dallas	Brian Haynes	Halff Associates, Inc.	Engineer	bHaynes@Halff.com	5/1/2016	Ongoing	6/30/2017	$ 5,090,892.75	Storm Drain / Excavation / Concrete Pavement
Naylor Road Improvements	Crossroads	Jason Pool	City of Crossroads	Engineer	(214) 850-7129	6/1/2016	Completed	4/30/2017	$ 3,524,530.25	Excavation, Culvert/wing walls and asphalt
Raytheon-Multi Parking Lot	McKinney	David Hulett	Raytheon Corp.	Project Manager	(469) 446-8524	9/23/2016	Completed	10/21/2016	$ 360,771.44	Chip seal & seal coat roadways
Cleveland Road Improvements	Hutchins	Aaron Davis	City of Hutchins	Public Works	(972) 795-3704	2/15/2016	Completed	7/15/2016	$ 1,662,466.50	Storm Drain / Excavation / Concrete Pavement/Asphalt
I-35E - 10" Sanitary Sewer Project	Hickory Creek	Mike Anderson	Belcheff & Associates	Engineer	(817) 491-2776	7/15/2015	Completed	4/12/2016	$ 824,959.06	10" Sanitary Sewer Line Construction

Raytheon - Parking Lot Reconst. Lot 4-Phase 2	McKinney	David Hulett	Raytheon Corp.	Project Manager	(469) 446-8524	6/20/2016	Completed	7/7/2016	$ 260,991.20	Cement Subgrade Treatment/Asphalt Paving
Raytheon - Parking Lot Reconst. Lot 4-Phase 1	McKinney	David Hulett	Raytheon Corp.	Project Manager	(469) 446-8524	6/15/2015	Completed	7/27/2015	$ 242,612.20	Cement Subgrade Treatment/Asphalt Paving
John Burns Construction Bush Avenue Valet Lane	University Park	Paul Roy	University Park	Project Manager	(214) 226-9677	8/1/2015	Completed	10/22/2015	$ 136,440.74	Concrete Paving/Excavation
Springtown - Walnut Creek Widening	Springtown	David Payne	Freese & Nichols	Project Manager	(817) 735-7333	5/1/2015	Completed	9/1/2015	$ 799,097.90	Excavation/ Force Main/ Erosion Matting
2nd Upper Trinity	Prosper	Jeff Payne	Freese & Nichols	Project Engineer	jp@freese.com	3/1/2014	Completed	1/1/2015	$ 3,599,581.00	24 and 30" Water Line (19,800 linear Feet)
Storm Water Improvement For Fresh Meadow Drive and	Trophy Club	Ed Helton	Trophy Club	Director of Street Services	(682) 831 4614	2/17/2014	Completed	5/31/2014	$ 970,130.50	Storm Drain / Excavation / Concrete Pavement
Ike Byrom Road	Aubrey	Robert Musgrove	Denton County	Construction Manager	(940) 349 3250	2/3/2014	Completed	6/30/2014	$ 1,142,718.00	Excavation / Storm Drain Box Culvert / Asphalt Pavement
Panther Creek Re-Use Waterline - Phase 1	Frisco	Art Hartle	City of Frisco	City Senior Engineer	(972) 292-5435	10/10/2013	Completed	3/9/2014	$ 1,972,860.00	Waterline
Urban Square at Unicorn Lake	Denton	Aaron Cole	Links Construction	Estimator	(940) 566-5465	10/1/2013	Completed	6/1/2014	$ 633,409.00	Excavation/Water Line/Sewer Line/Fire Hydrants/Concrete
Warschun Road	Aubrey	Robert Musgrove	Denton County	Construction Manager	(940) 349 3250	4/3/2013	Completed	10/3/2013	$ 1,172,042.00	Excavation / Storm Drain / Asphalt Pavement
FM423 Water, Sewer and Storm Improvements	Little Elm	Alan Anderson	Little Elm	City Project Manager	aanderson@littleelm.org	4/1/2013	Completed	11/1/2014	$ 2,400,059.71	Water, Sewer, Force Min, multiple bores
Simmons Road	Double Oak	Brian Haynes	Halff and Associates	Project Engineer	bHaynes@Halff.com	8/1/2012	Completed	2/1/2013	$ 1,664,540.50	Asphalt/ Excavation/ Sanitary Sewer/ Landscaping/ Irrigation,
Hart, Meandering Way & Stacy Road Resurfacing	Fairview	James Chancellor	Town of Fairview	City Engineer	(972) 886 4235	7/5/2012	Completed	11/30/2012	$ 518,734.00	Asphalt Paving and Cement Stabilization
Locust Drive Paving Drainage Rehabilitation	Oak Leaf	Derek Chaney	Birkhoff, Hendricks & Carter, LLP	City Engineer	(214) 361 7900	6/13/2012	Completed	12/31/2012	$ 467,297.00	Driveway Culverts / Ditch Excavation / Cement Stabilization / Asphalt
LS 4&6 Interceptor	Little Elm	Alan Anderson	Little Elm	City Project Manager	aanderson@littleelm.org	4/1/2012	Completed	9/1/2012	$ 3,243,588.00	Lift Station Construction (2) 30' deep sewer/ Landscaping/ Shelter/
Veterans Bridge	Little Elm	Dennis Satre	Halff and Associates	Project Engineer	dsatre@halff.com	10/20/2011	Completed	1/1/2013	$ 6,232,771.67	Bridge Construction/ Hardscape/ Landscape/ Concrete/ Masonry Walls/
Lobo Lane	Little Elm	Alan Anderson	Little Elm	City Project Manager	aanderson@littleelm.org	9/1/2011	Completed	5/1/2012	$ 5,417,872.93	Asphalt/ Excavation/ Sanitary Sewer/ Landscaping/ Irrigation,

Quality Excavation, Ltd.
5580 US Hwy 377
Aubrey, TX 76227
Office - (940) 365-0800
Fax - (940) 365-5961
www.qualityexcavationltd.com

EQUIPMENT LIST

Code	Description
	*****Asphalt Pavers*****
8ASHPV0873	Asphalt Paver, Lee Boy
8ASHPV1522	Asphalt Paver, Weiler
8ASPHE400	Easy Seal 400 Crafco
8ASPHE401	Easy Seal 400 Crafco
	*****Attachments*****
8AT2892746	Forks, 289C
8AT3080163	48' Ditch Bckt, 308
8AT3080314	Hammer for 308
8AT3080484	48' Ditch Bckt, 308
8AT3082009	Bucket, Compactor
8AT3082195	Bucket, Compactor
8AT3082409	Bucket, Compactor
8AT3082410	Bucket, Compactor
8AT3082436	Bucket, Compactor
8AT3202009	24", Bucket Compactor
8AT3202292	24", Bucket Compactor
8AT3204591	24' V-Bottom, 320 Rock Bucket
8AT3204596	Rock Bucket for 320 # 4596
8AT3222758	48" Gen Purpose Bckt
8AT3227901	48" Pavement Bckt for M322
8AT3491601	48" Rock bckt for 349, Rental
8AT4203060	24" Gen. Purpose Bckt, 420F
8AT9300288	930 bckt, 3.1 CYD
8AT9300295	930 bckt, 3.1 CYD
8AT9300560	930 bckt, 3.7 CYD
8AT9304425	Forks, 60" for 930K
8AT9306336	Forks, 60" for 930K
8AT9309535	Forks, 60" for 930K
8ATB0014	Bucket,320 71" Ditch Cleaning
8ATB2381	Bucket, Skidsteer, 78"
8ATB2476	Bucket, Skidsteer, 78"
8ATB30842	Bucket, Skidsteer, 72"
8ATB5103	Bucket, Skidsteer, 78"
8ATB8831	Bucket, Skidsteer, 78"
8ATBA1072	Cat S BA18MAN Broom Attach.
8ATBVB4163	30" V-Bottom Rock bucket, 330

8ATDB0032	24" General Purpose Bckt, 308
8ATDB0120	24" General Purpose Bckt, 308
8ATDB0206	72" Dirt Bucket, 349
8ATDB0334	24" General Purpose Bckt, 308
8ATDB0335	24" General Purpose Bckt, 308
8ATDB1163	48" Gen. Purpose Bckt, 320
8ATDB3361	24" General Purpose Bckt, 308
8ATDB5988	54" HD Dirt bucket for 320
8ATDB8334	54" Gen Purpose Bckt, 320
8ATDB9987	36" General Purpose Bckt, 320
8ATGP0780	48" General Purpose Bckt, 330
8ATIT1254	Integrated Tool, Lifting arm
8ATITLA	Integrated Tool, Lifting arm
8ATLR2180	Loadrite 2180 scale
8ATRB4001	24" V-Bottom, 320 Rock Bucket
8ATRB4591	24' V-Bottom, 320 Rock Bucket
8ATRB5093	24' V-Bottom, 320 Rock Bucket
8BH4200691	Cat 420F Backhoe
	***** CONC CRUSHER*****
8CC2447	Concrete Crusher, 4043T
	***** CONC PVRS & SCREED***
8CPCM4175	Concrete Paver, CurbMaster
8CPVS7879	Vibrating Screed
	****DISTRIBUTORS****
8DITCK9391	Leeboy Oil Distributor
	*** DRILLS & BREAKERS ***
8DRCH3010	Hammer, Drill, Hilti
8DRCH3018	Hammer, Drill, Hilti
8DRCH3614	Hammer, Drill, Hilti
8DRCH3788	Hammer, Drill, Hilti
8DRCH4987	Hammer, Drill, Bosch
8DRCH8397	Hammer, Drill, Hilti
	***** DOZERS *****
8DZD6C2008	Track Dozer, Cat D6C
8DZD6K1089	Track Dozer, D6K
	***** EXCAVATORS *****
8EX3080354	Cat Excavator 308 D
8EX3081115	Cat Excavator 308 E
8EX3081289	Cat Excavator 308 E
8EX3081381	Cat Excavator 308 E
8EX3081518	Cat Excavator 308 D
8EX3201223	Cat Excavator 320 DL/QC
8EX3201310	Cat Excavator 320 EL
8EX3201742	Cat Excavator 320 EL
8EX3202249	Cat Excavator 320 DL/QC
8EX3202524	Cat Excavator 320 EL
8EX3220498	Cat M322 Excavator w/wheels

8EX3300604	Cat Excavator 330 DL
8EX3300780	Cat Excavator 330 CL
8EX3490925	Cat Excavator 349 EL
	*** FORK LIFTS ****
8FL10	Forklift -10K LB Ext Reach
	*** INT TOOL CARRIERS ***
8IT301446	Cat IT 930K Tool Carrier QC
8IT301547	Cat IT 930K Tool Carrier QC
8IT301918	Cat IT 930K Tool Carrier QC
	***** LOADERS *****
8LD9631971	Cat 963D Track Loader
8LD9660364	Cat 966G Wheel Loader
8LD9661191	Cat 966F Wheel Loader
8LDSK0613	Cat Skid Steer Loader,tire
8LDSK1291	Cat Skid Steer Loader, track
8LDSK2105	Cat Skid Steer Loader,track
8LDSK2662	Cat Skid Steer Loader,track
8LDSK5632	Cat skid Steer Loader,tire
8LDSK7950	Cat Skid Steer Loader, track
8MG1400061	Cat 140M Motorgrader
8MG1400350	Cat 140M Motorgrader
	***** MIXERS *****
8MLRRC0263	Cat RM 300
	***** PUMPS *****
8PU02E0209	2" Elec. Submersible Pump,Tsur
8PU02E0543	2" Elec. Submersible Pump,Tsur
8PU02E3080	2" Elec. Submersible Pump,Tsur
8PU02E4513	2" Elec. Submersible Pump,Tsur
8PU02E5709	2" Elec.Submersible Pump, Tsur
8PU02E8548	2" Elec. Submersible Pump,Tsur
8PU02E8850	2" Elec.Submersible Pump, Tsur
8PU02T4033	2" Trash Pump, 5.5HP-Honda,Gas
8PU02T4035	2" Trash Pump, 5.5HP-Honda,Gas
8PU02T4247	2" Trash Pump, Multi-Quip
8PU03T3506	3" Trash Pump, Wacker
8PU03T3507	3" Trash Pump, Wacker
8PU03T4289	3" Trash Pump, Wacker
8PU03T8244	3" Trash Pump, Wacker
8PU60321	6" Thompson 2000 Pump
8PU83N1	Test Pump, Honda GX160
	*** ROLLERS/COMPACTORS ***
8RCPF0128	Pad Foot Roller Cat 433 , 66"
8RCPF0338	Pad Foot Roller Cat CP56, 84"
8RCPS0042	Pnuematic 9 Wheel (PS360B)
8RCSR0867	Roller,Single Steel Wheel 84"
	******RENTALS*****
8RENTBROOM	Rental One

	****** SCREENS ****
8SCR2996	Extec Screen
	*****Sign*****
8SGNRW	Road Closed ahead
8SGNRWA	Road Work Ahead
8SGNUTWA	Utility Work Ahead
	*** SURVEY EQUIP ***
8SRVY01	Survey Equipment
8SRVY03	Total Station
	*** TRAFFIC CONTROL ***
8TCMS0748	Message Center, Solar
8TCMS5613	Message Center, Solar
	*** TRUCKS & CARS ****
8TK10674	Truck, White Ford F-350
8TK13907	Truck, White Ford F-250
8TK14840	Truck, Red Ford F-250
8TK16361	Truck, Red Ford F-250
8TK16423	Truck, flatbed, F-350
8TK16606	Truck, Red Ford F-250
8TK19006	Truck, White Ford, F-350
8TK5WT7299	Truck, Water, Intnl 1000 Gal
8TKDD5158	Truck, dump, Mack 10 yard
8TKDD7278	Truck, dump, Mack 10 yard
8TKDD8485	Truck, dump, Old Intnl Truck
	*** TRAILERS ***
8TL10001	Trailer,Home Made Irrigation
8TL12158	Trailer, Utility, 20'
8TL16635	Trailer, Dump
8TL17952	Trailer, Tool, 20'
8TL17989	Trailer, Utility, 20'
8TL17A95	Trailer, Utility, 20'
8TL17D62	Trailer, Utility, 20'
8TL24955	Trailer, Haul, Interstate 50 T
8TL27874	Trailer, Gooseneck, 34'
8TL29001	Trailer, Haul, Pup
8TL29021	Trailer, Haul, Pup
8TLVS7879	Trailer, Vibrating Screed
	***** UTILITY EQUIPMENT ***
8UTAIR2354	Air Compressor, Atlas Copco
8UTAIR2364	Air Compressor, small - Dewalt
8UTAIR2829	Air Compressor, Porter Cable
8UTAIR6859	Air Compressor,small
8UTB106881	Trench Box, 10'
8UTB108911	Trench Box, 10'
8UTB162034	Trench Box 16' speed shore
8UTB162503	Trench Box, 16'
8UTB164018	Trench Box, 16' - thin wall

8UTB164626	Trench Box ,16' GME
8UTB202353	Trench Box, 20'
8UTB204218	Trench Box, 20'
8UTB204708	Trench Box, 20'
8UTB206837	Trench Box, 20'
8UTB242972	Trench Box, 24'
8UTCS0042	Chainsaw, Echo
8UTCS3689	Chainsaw-Stihl MS290
8UTFPL9070	Laser, Flat Pipe, TP-L4B
8UTGEN2167	Generator, Gas, GP5600 Wacker
8UTGEN3356	Generator, Gas, GP5600 Wacker
8UTGEN3787	Generator, Gas, GP5600 Wacker
8UTGEN4668	Generator, Gas, GP5600 Wacker
8UTGEN6068	Generator, Gas, GP5600 Wacker
8UTGEN6079	Generator, Gas, GP5600 Wacker
8UTGEN6444	Generator, Gas,Briggs & Stratt
8UTIT2575	Impact Tamp,, Sakai
8UTMDT0956	Metal Detector, Iron Pin
8UTPP3766	Vibra Plate, Packer, Multi
8UTPP5459	Vibra Plate, Packer, Multi
8UTPV2631	Vibrator, Pencil, Wacker
8UTPV6978	Vibrator, Pencil, Wacker
8UTPV6980	Vibrator, Pencil, Wacker
8UTPV9932	Vibrator, Pencil, Wacker
8UTQEPL01	Steel Road Plate 5X8
8UTQEPL02	Steel Road Plate 4X8
8UTQEPL03	Steel Road Plate 5X8
8UTQEPL04	Steel Road Plate 4X8
8UTQEPL05	Steel Road Plate 5X8
8UTQSC0205	Quick Cut Saw, Husqvarna K760
8UTQSC0210	Quick Cut Saw, Husqvarna K760
8UTQSC0236	Quick Cut Saw, Husqvarna K760
8UTQSC0254	Quick Cut Saw, Husqvarna K760
8UTQSC0414	Quick Cut Saw, Husqvarna K760
8UTQSC0635	Quick Cut Saw, Husqvarna K760
8UTQSC0762	Quick Cut Saw, Husqvarna K760
8UTQSC0802	Quick Cut Saw, Stihl
8UTQSC1176	Quick Cut Saw, Husqvarna K760
8UTQSC1510	Quick Cut Saw, Husqvarna K760
8UTQSC1520	Quick Cut Saw, Husqvarna K760
8UTQSC2313	Quick Cut Saw, Husqvarna K760
8UTQSC3333	Quick Cut Saw, Stihl
8UTQSC4738	Quick Cut Saw, Stihl
8UTQSC5046	Quick Cut Saw, Stihl
8UTQSC6874	Quick Cut Saw, Stihl
8UTRPL0582	Laser, Rotating, RL-H4C
8UTRPL0665	Laser, Rotating, RL-SV2S

8UTRPL1997	Laser, Rotating, RL-H3C
8UTRPL2231	Laser, Rotating, RL-H3C
8UTRPL2705	Laser, Rotating, RL-H1SA
8UTRPL3380	Laser, Rotating RL-H3C
8UTRPL4499	Laser, Rotating, RL-H3C
8UTRPL5026	Laser, Rotating, RL-SV2S
8UTRPL5027	Laser, Rotating, RL-SV2S
8UTRPL7857	Laser, Rotating, RL-H3C
8UTSS12091	Skill Saw
8UTTS9845	Saw, Table Circlar
8UTW205828	Washer, Pressure, Hand
8UTWEL3288	Welder, Bobcat 250 Diesel
8UTWM6576	Hydrant WaterMeter, QE
	*** FIELD OFFICE EQ ***
8YDT2000A	Diesel Tank, 2000 gal- Off Rd
8YDT2000B	Diesel Tank, 2000 gal- On Rd
8YDT500D	Diesel Tank - Skid Mounted
8YDT550B	Diesel Tank - Skid Mounted
	***** MISC EQUIPMENT *****
8ZOL6731	Bosch Optical level

Quality Excavation, LTD
5580 US Highway 377
Aubrey, TX 76227
(940) 365-0800 Off
(940) 365-5961 Fax

QUALITY EXCAVATION
References

City / Town	Contact Name	Contact No.	Scope of Work
Town of Little Elm	Bruce Bannister - Senior Inspector	459-525-0651	Sewer/Storm/Concrete Paving/Storm piping and structures/Water/Fire protection/Fencing/Sidewalk/Asphalt
City of Crossroads	Jason Pool – Inspector/Town Engineer	214-850-7129	Asphalt/Lime Stabilization/Water Line installation and Appurtenances
Town of Hickory Creek	Jeffrey McSpeddon – Head of Public Works	469-576-5094	Deep storm sewer/Asphalt/Concrete roadway/Storm structures
City of The Colony	Dennis Eisenbeis – PW-Inspection	972-877-7152	Paving/Utilities/Landscaping/Irrigation/Street Lights

Plan Holders

Agency	City of North Richland Hills
Bid Number	18-005
Bid Title	SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

Name	Contact	Address	Phone	Fax	Email
NORTH TX CONSTRUCTION I	LINDA GANT-McBRIDE	2000 S STEMMONS FRWYSU	(940) 498-7855	(940) 498-7870	linda@amtekusa.com
McClendon Construction Co., In	Justin K Blair	PO Box 999 Burleson, TX, 760;	(817) 295-0066	(817) 295-6796	jblair@mcclendonconstruction.com
Hearn Company	Sarrah Hearn	5890 FM 1516 NConverse, TX,	(210) 658-9174		jeannette@virtualbx.com
Durable Specialties, Inc.	Keith Fox	PO Box 535969Grand Prairie, T	(972) 296-6324	(972) 780-7411	keith@durablespecialties.com
HQS Construction, LLC	Shahid Rasul	P.O. Box 250771Plano, TX, 75(	(972) 208-2349	(972) 208-2549	bids@HQSconstruction.com
RFx Analyst	Bid Desk	8 The GreenSuite 5875Dover, I	(310) 776-6059		rfp@rfxanalyst.com
FNH CONSTRUCTION LLC	CANDACE GILLESPIE	4099 MCEWEN ROAD, SUITE	(469) 248-0301		CANDACE@FNHCONSTRUCTION.COM
Ed Bell Construction Company	Doug Teter	10605 Harry Hines Blvd.Dallas,	(214) 358-6581		estimating@edbellconstruction.com
McMahon Contracting LP	Shelley McMahon	3019 Roy Orr BoulevardGrand	(972) 263-6907	(972) 264-0008	shelley@mcmahoncontracting.com
Quality Excavation, Ltd.	Doug Murphy	5550 US Hwy 377Aubrey, TX, 7	(940) 365-0800	(940) 365-5961	doug@qualityexcavationltd.com

SECTION II

CONTRACTUAL DOCUMENTS

STANDARD FORM OF CONSTRUCTION AGREEMENT

THE STATE OF TEXAS §
§
COUNTY OF TARRANT §

THIS AGREEMENT is entered into this the ___ day of _____, 20__, by and between the CITY NORTH RICHLAND HILLLS, a municipal corporation, of the County of Tarrant and State of Texas, hereinafter called "OWNER" and _____of the City of _____, County of _____ and State of _____ hereinafter called "CONTRACTOR."

OWNER and CONTRACTOR in consideration of the mutual covenants contained in this Agreement, agree as follows:

ARTICLE 1. WORK.

CONTRACTOR covenants and agrees to perform the Work in every detail, in a good and first-class workmanlike manner as specified and indicated in the Contract Documents, of which are incorporated in this Agreement in their entirety as if they were herein set out at length written word for word. The CONTRACTOR shall furnish all labor, materials, tools and equipment required to perform and complete the Work in strict accordance with these Contract Documents. The Work is described as follows:

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

ARTICLE 2. CONTRACT PRICE.

OWNER agrees to pay CONTRACTOR for completion of the Work in accordance with the Contract Documents, the price or prices shown in the bidder's proposal, which total the following amount:

_____
_____($ _____)

ARTICLE 3. CONTRACT TIME / LIQUIDATED DAMAGES.

Unless otherwise stated in this agreement, **time shall be considered of the essence.**

a. When **time is of** the essence, the CONTRACTOR shall be liable for failure to deliver or delay in delivery occasioned by and including without limitation strikes, lock-outs, inability of obtaining material or shopping space, breakdowns, delays of carriers or suppliers, and preexisting governmental acts and regulations of the Federal and State governments or any subdivision thereof, unless such governmental acts and regulations affecting delivery could not be found, recognized, or discovered by due diligence on the part of the CONTRACTOR prior to submission of his/her bid and City Council's acceptance thereof.

b. When **time is not of** the essence, this agreement shall be inoperative during such period of time that aforesaid delivery or acceptance may be rendered impossible by reason of fire, strike, Acts of God, or government regulation. Provided, however, to the extent that the CONTRACTOR has any commercially reasonable alternative method of performing this contract by purchase on the market or otherwise, he/she shall not be freed of his/her obligation hereunder by this clause, even though the goods intended for this contract were destroyed or their delivery delayed because of any event described above.

As time is of the essence on this contract, CONTRACTOR agrees to commence work under this contract within ten (10) days from the date specified in the "Notice to Proceed" and to totally complete the Work within **315** consecutive calendar days after the date specified in the "Notice to Proceed", subject to such extensions of time as are indicated in the Special Provisions.

This contract time is both multi-tiered and cumulative. The CONTRACTOR further agrees to pay the following as liquidated damages:

(1) $150 per calendar day for any unfinished work for the first 30 days beyond the 315th day. This $150 rate will start on the 316st consecutive calendar day after the “Notice to Proceed” issuance date and continue through the 345th consecutive calendar day after the “Notice to Proceed” issuance date.*)*

(2) $300 per calendar day for any unfinished work beyond the 345th consecutive calendar day after the “Notice to Proceed” issuance date. This rate shall continue until such time that the Project is complete and accepted by the OWNER.

It is understood between the parties hereto that these sums shall be treated as liquidated damages and not as a penalty, and the OWNER may withhold from the CONTRACTOR's compensation such sums as liquidated damages.

ARTICLE 4. PARTIAL PAYMENT.

OWNER shall make payments to the CONTRACTOR in the following manner. On or about the first of each month, the OWNER, or the OWNER's Authorized Representative, will make accurate estimates of the value, based on contract prices, of the work done and materials incorporated in the work and of materials suitably stored at the site during the preceding calendar month. The CONTRACTOR shall furnish to the OWNER, or the OWNER's Representative, such detailed information as the OWNER may request to aid OWNER as a guide in the preparation of the monthly estimate.

Within the following thirty (30) days, OWNER shall make partial payments to the CONTRACTOR for work performed during the preceding calendar month as estimated by the OWNER or OWNER's Representative. Ten percent (10%) of each estimate shall be retained by the OWNER until final completion and acceptance of all work covered by the Contract for contracts less than four hundred thousand dollars ($ 400,000). Five percent (5%) of each estimate shall be retained by the OWNER until final completion and acceptance of all work covered by the Contract for contracts greater than four hundred thousand dollars ($ 400,000). Upon completion and acceptance of all work in compliance with the Contract, the OWNER shall, within thirty (30) days, pay the CONTRACTOR the balance due under the terms and conditions of the Contract.

It is understood that the monthly estimates shall be approximate only, and all monthly estimates and partial payments shall be subject to correction in the estimate rendered following the discovery of an error in any previous estimate, and such estimate shall not in any respect be taken as an admission of the OWNER of the amount of work done or of its quality or sufficiency nor as an acceptance of the work or the release of the CONTRACTOR of any of its responsibility under the Contract.

ARTICLE 5. DISCRIMINATION.

The CONTRACTOR agrees, in connection with the performance of work under this contract as follows:

a. The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, creed, color, sex, religion, national origin or ancestry. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruiting or recruitment, advertising, layoff, termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.

b. The CONTRACTOR agrees to include this non-discrimination clause in any subcontracts connected with the performance of this agreement.

c. In the event of the CONTRACTOR's non-compliance with the above non-discrimination clause, the contract may be canceled or terminated by the OWNER. The CONTRACTOR may be declared by the OWNER to be ineligible for future contracts with the OWNER, until satisfactory proof of intent to comply shall be made by the CONTRACTOR.

ARTICLE 6. ENTIRE CONTRACT.

This Contract and Agreement contains the entire understanding and agreement of the parties upon the subject matter hereof. There is no agreement, oral or otherwise, which is not set forth in writing as part of this Agreement or the Contract Documents.

ARTICLE 7. MODIFICATION.

This contract cannot be modified except by a writing signed by both parties.

ARTICLE 8. VARIABLES IN COST.

The parties hereto assume and understand that the variables in the CONTRACTOR's cost of performance may fluctuate; consequently, the parties hereto agree that any fluctuations in the CONTRACTOR's costs will in no way alter the CONTRACTOR's obligations under this contract nor excuse nonperformance or delay on his/her part.

ARTICLE 10. VENUE.

This contract shall be governed by the laws of the State of Texas. Venue for any court proceedings shall be in Tarrant County, Texas.

ARTICLE 11. CONTRACT DOCUMENTS.

Documents Listed. The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR for the performance of and payment for the Work, consist of the following:

(1) This Agreement
(2) Addendum(s)
(3) “Notice to Bidders” advertisement
(4) Bidder’s Proposal
(5) Special Instruction to Bidders
(6) Performance, Payment and Maintenance Bonds
(7) Certification of Insurance
(8) Notice to Proceed
(9) Technical Specifications
(10) City of North Richland Hills’ Public Works Design Manual

(11) Special Provisions
(12) General Provisions
(13) Special Specifications
(14) Project Construction Plans/Drawings
(15) Special Material and/or Equipment Specifications
(16) Special Material and/or Equipment Drawings
(17) “Public Works Construction Standards - North Central Texas” adopted by the North Central Texas Council of Governments (NCTCOG), October 2004 Edition
(18) North Central Texas Council of Government references

IN TESTIMONY WHEREOF, the CITY OF NORTH RICHLAND HILLS has caused this instrument to be signed in its corporate name, and on its behalf by the Mayor, duly authorized to execute this instrument by action of the City Council and _____ a corporation, a partnership, an individual acting
(Name of Contractor) ***("X" out the inappropriate wording)***
by and through its duly authorized officials, thereby binding themselves for the faithful and full performance of the terms and provisions of this Agreement.

City of North Richland Hills OWNER	_____ CONTRACTOR
By: _____ City Manager	By: _____
	Title: _____
Attest: _____	Attest: _____
Title: _____	Title: _____

Bond No. _____

PERFORMANCE BOND

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF TARRANT §

THAT _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____of the City of _____, County of _____, and State of _____, (hereinafter referred to as "Principal"), and_____ _____ (hereinafter referred to as "Surety"), a corporation organized under the laws of the State of_____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto THE CITY OF NORTH RICHLAND HILLS (hereinafter referred to as "Owner") in the penal sum of _____($_____) [not less than 100% of the approximate total amount of the contract as evidenced in the bid proposal] in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20__, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of:

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

NOW, THEREFORE, the condition of this obligation is such, that if the said Principal fully and faithfully executes the work and performance of the Contract in accordance with the plans, specifications and Contract Documents, including any extensions thereof which may be granted with our without notice to Surety, during the original term thereof, and during the life of any guaranty required under the Contract, and according to the true intent and meaning of said Contract and the plans and specifications hereto annexed, if the Principal shall repair and/or replace all defects due to faulty materials or workmanship that appear within a period of two years from the date of final completion and final acceptance of the work by owner; and if the Principal shall fully indemnify and save harmless the Owner from all costs and damages which Owner may suffer by reason of failure to so perform herein and shall fully reimburse and repay Owner all outlay and expense which the Owner may incur in making good any default or deficiency, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said contractor shall fail to do so, it is agreed that the Owner may do said work and supply such materials and charge the same against said contractor and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Tarrant County, Texas.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Texas Government Code, Chapter 2253, as amended, and Article 7.19-1 of the Insurance Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the Bond shall automatically be increased by the amount of any Change Order or supplemental agreement with increases the Contract price with or without notice to the Surety, but in no event shall a Change Order or supplemental agreement which reduces the Contract price decrease the penal sum of this Bond. And further that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

Surety agrees that this Bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of two (2) years from the date of completion and acceptance of the improvement by the Owner.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on this the ___ day of _____, 20__.

(Company Name of Principal)	*(Company Name of Surety)*
(Signature)	*(Signature)*
(Printed Name)	*(Printed Name)*
(Title)	*(Title)*
(Address Line 1)	*(Address Line 1)*
(Address Line 2)	*(Address Line 2)*
(City, State and Zip Code)	*(City, State and Zip Code)*
(Witness)	*(Witness)*

The name and address of the Resident Agent of Surety is:

(Name)

(Address Line 1)

(Address Line 2)

(City, State and Zip Code)

(Telephone Number)	*(Fax Number)*

Bond No. _____

PAYMENT BOND

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF TARRANT §

THAT _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____ of the City of _____, County of _____, and State of _____, (hereinafter referred to as "Principal"), and _____(hereinafter referred to as "Surety"), a corporation organized under the laws of the State of_____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto THE CITY OF NORTH RICHLAND HILLS (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of _____ _____ ($_____) [not less than 100% of the approximate total amount of the Contract as evidenced in the bid proposal] in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20__, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of:

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

NOW, THEREFORE, the condition of this obligation is such, that the Bond guarantees the full and proper protection of all claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant, and that conversely should the Principal faithfully perform said Contract and in all respects duly and faithfully observe and perform all and singular the covenants, conditions, and agreements in and by said Contract, agreed to by the Principal, and according to the true intent and meaning of said Contract and the claims and specifications hereto annexed, and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modification to Surety being hereby waived, then this obligation shall be void; otherwise, to remain in full force and effect. Provided further, that if any legal action be filed on this Bond, venue shall lie in Tarrant County, Texas.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Texas Government Code, Chapter 2253, as amended, and Article 7.19-1 of the Insurance Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the Bond shall automatically be increased by the amount of any Change Order or supplemental agreement with increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on this the ___ day of _____, 20__.

(Company Name of Principal)	*(Company Name of Surety)*
(Signature)	*(Signature)*
(Printed Name)	*(Printed Name)*
(Title)	*(Title)*
(Address Line 1)	*(Address Line 1)*
(Address Line 2)	*(Address Line 2)*
(City, State and Zip Code)	*(City, State and Zip Code)*
(Witness)	*(Witness)*

The name and address of the Resident Agent of Surety is:

(Name)

(Address Line 1)

(Address Line 2)

(City, State and Zip Code)

(Telephone Number)	*(Fax Number)*

Bond No. _____

MAINTENANCE BOND

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF TARRANT §

THAT _____ a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____ of the City of _____ _____, County of _____, and State of _____, (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety"), a corporation organized under the laws of the State of _____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto THE CITY OF NORTH RICHLAND HILLS (hereinafter referred to as "Owner") in the penal sum of _____ _____($_____) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20___, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of:

SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD

The maintenance under this Bond contemplates the complete restoration of the work to a functional use if that should be necessary. It is the intended purpose of this bond to require the correction of all defective conditions resulting from materials furnished or work and labor performed by the Contractor under the Contract; and in case the Contractor or Surety shall fail or refuse to commence and actively pursue such corrections within ten (10) days after written notification has been furnished to them by the Owner, it is agreed that the Owner may do the work and supply such materials and the Contractor and Surety shall be liable for the payment of all costs thereby incurred, jointly and severally.

It is further understood and agreed that the obligation under this bond shall be a continuing one against the Contractor and Surety, and that successive recoveries may be had hereon for successive breaches until the full amount shall have been exhausted. It is further understood that the obligation to maintain the work shall continue throughout the maintenance period, and the same shall not be changed, diminished, or in any manner affected from any cause during that time.

NOW, THEREFORE, the condition of this obligation is such, that the Bond guarantees the full and proper maintenance and repair of the work herein contracted to be done and performed for a period of two (2) years from the date of acceptance and Principal will do all necessary backfilling that may arise on account of sunken conditions in ditches, or otherwise, and do and perform all necessary work and repair any defective condition growing out of or arising from the improper laying or construction of same, or on account of any breaking of same caused by said Contractor in construction of same, or account of any defect arising in any of said work laid or constructed by said Contractor or on account of improper excavation or backfilling, it being understood that the purpose of this section is to cover all defective conditions arising by reason of defective materials, work or labor performed by said Contractor, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said Contractor shall fail to do so, it is agreed that the Owner may do said work and supply such materials and charge the same against said Contractor and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Tarrant County, Texas.

The Owner shall be entitled to its reasonable attorneys' fees and costs in any legal proceeding to enforce the Owner's rights under this bond.

PROVIDED, HOWEVER, that said Surety, for value received, stipulates and agrees that the Bond shall automatically be increased by the amount of any Change Order or supplemental agreement with increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on this the ___ day of _____, 20__.

(Company Name of Principal)	*(Company Name of Surety)*
(Signature)	*(Signature)*
(Printed Name)	*(Printed Name)*
(Title)	*(Title)*
(Address Line 1)	*(Address Line 1)*
(Address Line 2)	*(Address Line 2)*
(City, State and Zip Code)	*(City, State and Zip Code)*
(Witness)	*(Witness)*

The name and address of the Resident Agent of Surety is:

_____
(Name)

_____
(Address Line 1)

_____
(Address Line 2)

_____
(City, State and Zip Code)

_____ _____
(Telephone Number) *(Fax Number)*

NOTE: Date of Maintenance Bond must not be prior to date of Contract.
Power of Attorney must be attached.
Amount and Term of Maintenance Bond shall be as stated in the "Special Conditions".

CONTRACTOR'S RELEASE TO CITY

TO: CITY OF NORTH RICHLAND HILLS

RE: **SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD**

This is to certify that _____, by acceptance
(NAME OF CONTRACTOR)
of this final payment, hereby releases the OWNER, the City of North Richland Hills, from all claims and all liabilities of the City of North Richland Hills for all things done or furnished in connection with work on this project and further releases the City of North Richland Hills from any and all liabilities arising from any act of the OWNER or his/her agent arising in connection with this project. This release in no way operates to release the CONTRACTOR or his/her Surety from any obligations under this contract or the bond tendered pursuant thereto.

_____
(NAME OF CORPORATION)

_____
(AUTHORIZED AGENT)

CORPORATION ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF _____ §

BEFORE ME, the undersigned authority in and for Tarrant County, Texas, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that he/she is the _____ of the said _____, a corporation, and that he/she is authorized by said corporation to execute the foregoing instrument as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

CONTRACTOR'S RELEASE TO CITY *(Continued)*

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _ day of _____, 20 ____.

_____ _____

(Notary Public in and for the State of Texas) *(Type or Print Notary's Name)*

My Commission Expires: _____

CONTRACTOR'S AFFIDAVIT OF FINAL PAYMENT

STATE OF TEXAS §
§
COUNTY OF TARRANT §

BEFORE ME, the undersigned authority, on this day personally appeared _____, (hereinafter referred to as "Affidant"), who, *(NAME)*

after being by me duly sworn, deposes and says that he/she is the _____ *(TITLE)* _____ of _____ (a *(NAME OF COMPANY)*

corporation, partnership, trade name) of _____ County, State of *("X" OUT THE INCORRECT)*

Texas (hereinafter referred to as "Contractor"), which said Contractor was awarded the contract dated the ____ day of _____, 20__, for the construction of the **SMITHFIELD ROAD IMPROVEMENTS FROM DAVIS BOULEVARD TO MID CITIES BOULEVARD** (hereinafter referred to as the "Work"), for a total consideration of _____ and _____ Dollars ($ _____) to be paid to the said Contractor (the "Contract"), and that Affidant has full power of authority to make this affidavit.

That THE CITY OF NORTH RICHLAND HILLS, (hereinafter referred to as "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 Texas Government Code, Chapter 2253, as amended, 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 _____ _____ and _____ Dollars ($ _____) as **FULL AND FINAL PAYMENT** under the aforementioned Contract, and hereby waives and releases any right Affidant 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 (hereinafter referred to as "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.

This affidavit is made in compliance with the law and in compliance especially with Chapter 2253 of the Texas Government Code, as amended, and that the undersigned, upon his/her oath, states that the facts indicated in the above instrument of writing are true and correct and that he/she is not incapacitated an any way from making this affidavit.

WITNESS my hand this the ____ day of _____, 20__.

_____
(Affidant)

_____
(Printed Name)

SUBSCRIBED AND SWORN TO BEFORE ME, this the ___ day of _____, 20 ____.

_____ _____
(Notary Public in and for the State of Texas) *(Type or Print Notary's Name)*

My Commission Expires: _____

SECTION III

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

For this contract, the Site Protection & Preparation (Division 200), Roadway Construction (Division 300), Roadway Maintenance & Rehabilitation (Division 400), Underground Construction & Appurtenances (Division 500), Conduit and Appurtenance Rehabilitation (Division 600), Structures (Division 700) and Miscellaneous Construction & Materials (Division 800) of the "Public Works Construction Standards – North Central Texas" adopted by the North Central Texas Council of Governments (NCTCOG), October 2004 Edition, with all amendments thereto, shall govern and shall constitute as the Technical Specifications except as herein amended, modified or supplemented. Omission of any section from the Project's Contract Documents does not mean that such section is not applicable to this Project. The NCTCOG Technical Specifications will be referred to as the Technical Specifications (TS) and will not be physically bound with the other contract documents. Copies may be obtained from the North Central Texas Council of Governments.

EXPLANATION OF BID ITEMS

In this section, NCTCOG Items refer to "Public Works Construction Standards - North Central Texas" adopted by the North Central Texas Council of Governments (NCTCOG), October 2004 Edition. TxDOT Standard Specification Item refers to Texas Department of Transportation's "Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges" 2004.

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

12.1.00 GENERAL

12.1.01 DESCRIPTION

This section covers the requirements for submittal data for equipment and material items to be furnished on this project.

12.2.00 MATERIAL

12.2.01 GENERAL EXECUTION

The CONTRACTOR shall submit to the Engineer, with such promptness as to cause no delay in his/her own work or in that of any other CONTRACTOR, five (5) copies of all shop drawings, manufacturer's catalog sheets, brochures, performance charts, diagrams, schedules and other standard descriptive data required for the work. The Engineer shall review these submittals with reasonable promptness, making any necessary corrections. If the submittals

indicate variances from the requirements of the contract, the CONTRACTOR shall make specific mention of such variation in his/her letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment. Otherwise, the CONTRACTOR shall not be relieved of the responsibility of executing the work in compliance with the contract even though the submittals have been reviewed.

12.2.02 FORM OF SUBMITTALS

The submittals shall be numbered consecutively and shall present the following data as applicable:

A. Name of project
B. Date of submittal
C. References to applicable section(s) of the specifications
D. Applicable standards
E. Identification of revisions on re-submittals
F. Kinds of materials and finishes
G. All working and erection dimensions and clearances
H. All arrangement and section views
I. Connections between functional parts

The Engineer may decline to consider any submittal that does not contain complete data on the work and full information on related matters.

12.2.03 SUBMITTAL PROCEDURE

The procedure for review of submittals shall be as follows:

A. **The CONTRACTOR shall submit <u>five (5) copies</u> of the submittal to the Engineer for his/her approval.** The submittal shall be accompanied by a letter of transmittal containing the following:
   1. Name of the project
   2. Name of the CONTRACTOR
   3. Name of the submittal
   4. References to applicable section(s) of the specifications
   5. Other pertinent information as indicated in Section 12.2.02: “Form of Submittals”

B. When the submittal is satisfactory to the Engineer, all five (5) copies will be stamped and/or marked "Approved" or "Approved as Noted", be dated, receive the signature of the Engineer and two (2) copies will be returned to the CONTRACTOR by separate letter.

C. Should a submittal be unsatisfactory to the Engineer, he/she will stamp and/or mark thereon "Revise and Resubmit" or "Rejected" and will send two (2) copies to the CONTRACTOR with necessary corrections and changes indicated. The CONTRACTOR must make such corrections and/or changes and submit at least five (5) copies of the re-submittal for approval to the Engineer. The CONTRACTOR shall review and resubmit as required by the Engineer until his/her approval is obtained.

D. The CONTRACTOR shall allow sufficient time for preliminary review, corrections, resubmission and final review of all submittals. The CONTRACTOR shall allow not less than fourteen (14) days for each review. Submittals critical to the progress of the project, when requested in writing by the CONTRACTOR, will be given priority review.

12.2.04 LIST OF REQUIRED SUBMITTALS

A. List of all subcontractors

B. Project Construction Schedule

C. Pipe manufacturer certification that the pipe, fittings, valves, fire hydrants, and services meet specifications.

D. Proposed Concrete Mix Designs, including the documentation of all proposed concrete admixtures.

E. Stormwater Pollution Prevention Plan

F. Construction signing and traffic control plan

G. Trench Safety Plan

H Water line connection plan & schedule

12.3.00 CONSTRUCTION

N/A

12.4.00 MEASUREMENT AND PAYMENT

There will be neither a measurement nor a payment made for this item. If there is a cost associated with this item, it shall be included in the unit bid prices of other contract items.

CONSTRUCTION STAKING

The provisions of Item 105.4 of the COG Specifications are hereby revised to state that Construction Stakes shall be provided by the CONTRACTOR. Payment for "Construction Stakes" shall be on a lump sum basis. This item shall include all staking required to lay out the work and for providing field notes to the City for review. The amount bid for this item shall be paid over the duration of the project with the amount paid on each monthly progress estimate determined by the percent complete on all other bid items.

TRENCH SAFETY

The provisions of Item 107.19.3 of the COG Specifications shall govern for "Trench Safety". A trench safety plan shall be submitted for approval as required under "**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES"** of these technical specifications. All trenches must be backfilled at the end of the workday. No open trenches will be allowed outside of working hours.

PROJECT SIGNS

The provisions of Item 107.20 of the COG Specifications and City Specifications shall govern for the erection of project signs. Payment for "Project Signs" shall be on a "per each" basis.

JOINT STORMWATER POLLUTION PREVENTION PLAN

This item shall govern the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Texas Commission on Environmental Quality's (TCEQ) Texas Pollution Discharge Elimination System (TPDES) General Permit Number TXR150000. Implementation of the SWPPP, installation of erosion control devices, maintenance of such devices, removal of the devices after completion of the project and vegetation has been re-established in all disturbed areas, and all required documentation, and any required application fees as outlined in the TPDES General Permit TXR150000 shall be included in the price of this item. The Contractor shall submit to the City a copy of TPDES documents, as appropriate, prior to commencing construction. See NCTCOG Item 201 for erosion control devices. Cost for furnishing and installing any and all BMP's specified in the SWPPP including but not limited to silt fence, inlet protection, rock berms, and stabilized construction entrances shall be subsidiary to this bid item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of lump sum for the preparation of the SWPPP and its implementation. Payment will be made on a monthly basis by dividing the lump sum contract price by the total contract time (months) for the project and shall include all materials, labor, equipment and incidentals necessary to prepare the SWPPP documents and install the recommended erosion control devices.

SOLID SODDING

"Solid Sod" shall be installed under the provisions of Item 202.5 of the COG Specifications. The type of solid sod placed shall match the type of grass in the adjacent lawn area. A 4-inch layer of topsoil, furnished in accordance with Item 202.2, shall be placed on all areas to be solid sodded. The cost of topsoil is incidental to the unit cost of solid sodding. Fertilizer shall be furnished in accordance with Item 202.4 and applied at time of initial sodding only, and at the rate specified in Item 202.4.3.2. The cost of fertilizer is incidental to the unit cost of solid sodding. Sodding shall be watered at least 30 days following placement and as directed by OWNER until completion and acceptance of the project by OWNER at no additional cost.

HYDROMULCH SEEDING

"Hydromulch Seeding" shall be installed under the provisions of Item 202.6 of the COG Specifications. The type of seed used shall be specified unless otherwise approved by the OWNER. All seed used must carry a Texas Testing Seed Label showing purity and germination, name and type of seed and that the seed meets all requirements of the Texas Seed Law. Seed furnished shall be of the previous season's crop and the date of analysis shown on each tag shall be within nine (9)

months of the time of delivery to the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety of seed shall be furnished for analysis and testing when directed by the OWNER. The Bermuda Grass shall equal or exceed 95% purity and 90% germination. Seed densities shall be as follows:

Type I Bermuda Grass-hulled – 45 pounds per acre
Type II Perennial Rye grass – 15 pounds per acre
Type III Bermuda Grass-unhulled – 45 pounds per acre

Planting hulled Bermuda Grass (Type I) shall be done between the months of April through September. Planting of combination unhulled Bermuda Grass seed (Type III) and Perennial Rye (Type II) shall be done between the months of September through February.

A 4-inch layer of topsoil, furnished in accordance with Item 202.2, shall be placed on all areas to be seeded. The cost of topsoil is incidental to the unit cost of hydromulch seeding. Fertilizer shall be furnished in accordance with Item 202.4 and applied at the rate specified in Item 202.4.3.1. The cost of fertilizer is incidental to the unit cost of hydromulch seeding. Seeding shall be watered at least 30 days following placement and as directed by OWNER until completion and acceptance of the project by OWNER at no additional cost. The CONTRACTOR shall mow and protect the seeded areas until acceptance of the project by the OWNER, and the costs will be incidental to the unit cost of hydromulch seeding.

MOBILIZATION AND GENERAL SITE PREPARATION

General Site Preparation shall be in accordance with 203.3 of the COG Specifications with the exception that payment for “General Site Preparation” shall be per 100-foot station as measured along the centerline of Smithfield Road from beginning of street paving to end of street paving. This pay item will include removal of improvements or obstructions not specifically provided for in other pay items of the Bid Proposal to include removing gravel, riprap, trees (smaller than 12 inches), stumps (all sizes), landscaping, planter boxes, shrubbery, plantings, fences, brick columns, and other items located within the right-of-way.

The work will consist of trimming, if required, removal of above ground foliage and tree formations, and complete removal of all root systems below grade. Any backfill necessary after stump removal is subsidiary to this bid item. Pavements and sidewalks shall be patched if necessary to allow for vehicular and pedestrian traffic. All excavated areas shall be backfilled and compacted to prevent additional damage to pavement or other structures. Any damage to yard areas shall be restored at no additional pay, including planters and landscape edging and irrigation systems. Irrigation systems shall be capped of prior to

construction. This Item includes all safety measures and additional traffic control as needed to complete the work. All trees and plant materials shall be properly disposed of offsite. Maintenance of existing street sections within the project limits shall be the responsibility of the Contractor throughout the project duration at no additional compensation.

Only trees, landscaping and plantings located within the right-of-way and designated for removal on the plans shall be removed. All other trees and landscaping shall be protected from damage as shown in the plan details. Cost of mobilization is subsidiary to this bid item.

SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT AND FLATWORK

Removal of concrete pavement covered by this specification shall be only where designated on the Construction Plans or upon specific direction from the Owner's Project Representative.

The CONTRACTOR shall make every effort to remove concrete pavement along existing joints. The CONTRACTOR shall saw cut at no extra cost full-depth at the existing joint or along straight, neat lines to remove the area of pavement specified in the Construction Plans. If the adjacent pavement is damaged during the removal process, the CONTRACTOR shall be responsible to saw cut the damaged portion of the pavement until a clean edge is achieved at no cost to the OWNER. The CONTRACTOR will not be compensated for the additional pavement removal or replacement if the damage was caused by the CONTRACTOR during the removal process. If the pavement is in poor condition prior to the CONTRACTOR beginning the removal process, the CONTRACTOR shall coordinate with the Owner's Project Representative to determine the limits of the concrete removal. In this case, the CONTRACTOR shall be compensated for the removal and replacement of the additional pavement; however, the CONTRACTOR will only be paid for the original length saw cut detailed in the construction plans.

The CONTRACTOR shall exercise appropriate care not to damage other improvements in the process, and the CONTRACTOR shall be responsible for correction of any such damage caused during the removal process. All material removed shall become the property of the CONTRACTOR and be disposed in accordance with local, state and federal guidelines. Item 402.2.1 of the COG Specifications shall govern the removal of existing concrete pavement.

MEASUREMENT AND PAYMENT: Payment for Remove Existing Concrete Pavement shall be by the square foot and shall include the cost of saw cutting.

REMOVE ASPHALT PAVEMENT

Existing asphalt pavement designated on the Plans to be removed shall be removed in accordance with the applicable provisions of Specification Item 203.3 “General Site Preparation.”

No sawcutting shall be performed in streets until temporary traffic measures are in place. Where removal cannot be terminated at a joint, the CONTRACTOR shall neatly sawcut along straight lines and remove existing asphalt as shown on the plans. Measurement and payment shall be made by the square foot asphalt pavement removed and shall include sawcutting and off-site disposal of rubble and debris.

REMOVE EXISTING CONCRETE CURB AND GUTTER

Existing concrete curbs and gutters which are designated on the Plans to be removed or designated to be removed in the field by the Owner’s Project Representative shall be removed in accordance with the applicable provisions of Specification Item 203.3 “General Site Preparation.”

Where removal cannot be terminated at a joint, a saw cut shall be made at no extra cost to the Owner. Any existing reinforcing steel, extending from the concrete which is not removed into that which is removed, shall be retained for a length of 30 diameters into the new concrete.

The CONTRACTOR shall exercise appropriate care not to damage other improvements in the process, and the CONTRACTOR shall be responsible for correction of any such damage caused during the removal process. All material removed shall become the property of the CONTRACTOR and be disposed in accordance with local, state and federal guidelines. Item 402.2.1 of the COG Specifications shall govern the removal of existing concrete curb and gutter.

MEASUREMENT AND PAYMENT: Payment for removal of Curb & Gutter shall be by linear foot removed as measured along the face of the curb or the gutter line and shall include the cost of saw cutting. Note that curb attached to concrete driveways, barrier-free ramps, valley gutters, and approaches shall be included in the concrete pavement removal quantity (per square foot).

REMOVE EXISTING STORM DRAIN PIPE (VARIOUS SIZES)

Existing storm drain pipe where shown on the plans to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for “Remove Existing Storm Drain Pipe (Various Sizes)” shall be on a “per linear foot” basis. Cost shall include

excavation, pipe removal and disposal, pipe cutting and plugging, backfill and labor and materials necessary for complete removal of the line.

REMOVE EXISTING INLET

Existing storm drain inlets (all types) to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Plugging of pipe is incidental to the cost of removal of inlets. Payment for "Remove Existing Curb Inlet" and "Remove Existing Grate Inlet" shall be on a "per each" basis and shall include excavation, concrete removal and disposal, pipe plugging, backfill, and all labor and materials necessary for complete removal of the inlet.

UNCLASSIFIED STREET EXCAVATION

Unclassified Street Excavation shall consist of all the required excavation within the project limits as shown on the Construction Plans, the removal, proper utilization or disposal of all excavated material, and the shaping and finishing of all earthwork in conformity with the lines and grades as shown on the Construction Plans or as established by the Owner. Any usable material from excavation shall be compacted in the areas of the project limits needing fill, and the required compaction testing of this excess material shall be included in this bid item and be completed in accordance with City standards. Unclassified Street Excavation shall meet the requirements of Item 203.4 of the COG Specifications.

MEASUREMENT AND PAYMENT: Unclassified Street Excavation shall be measured and paid for by the cubic yard for excavation from its original position, and shall include all materials excavated without regard to the materials encountered. **There shall be no compensation for any quantities in addition to what is provided in the Bid documents unless the lines and grades are changed by the Engineer.**

BORROW

Offsite borrow material shall meet the provisions of Item 203 of the COG Specifications. Offsite material shall be used only after other on-site materials are exhausted including material from trench excavation. Borrow material shall meet the requirements of the Geotechnical Report. Borrow material shall be free of roots, debris, rocks, and other objectionable material. Material shall be disc bladed with at least two passes and placed in loose lifts of no more than eight inches. Borrow material shall be compacted to a minimum of 95 percent of the maximum dry density as determined by ASTM 698. Moisture content shall range between two percentage points below optimum to five percentage points above optimum (-2 to +5) for plasticity index less than 20. For soils with a plasticity

index of 20 or greater, the moisture content shall range between optimum and five percentage points above optimum (0 to +5). The cost of material testing is the responsibility of the Contractor. Contractor must provide the City with a written and notarized certification from the owner of each proposed off-site borrow source stating that there has never been contamination of the borrow source site with hazardous or toxic materials prior to placement of fill. Measurement and payment of this bid item shall be on a cubic yard basis as measured in place and shall be full compensation for furnishing, testing, hauling, placement, and compaction of borrow material and shall include all labor, materials, and incidentals necessary to complete the work to the limits of construction as shown on the plans and cross-sections.

REMOVE AND REPLACE WOOD FENCE

Fences shown to be removed and replaced within the Plans shall be removed and replaced in accordance with the applicable provisions of Specification Items 203.3 and 801.5.

New fence materials should match the character, style, dimensions, and color of the existing fence. Cost of paint, stain or other incidentals necessary to match existing fence shall be subsidiary to this bid item.

Any temporary fencing necessary due to fence removal shall be subsidiary to this bid item.
MEASUREMENT AND PAYMENT: Payment for removal and replacement of existing fences shall be by the linear foot removed and replaced and shall be full compensation including all materials, labor, equipment, and incidentals necessary to complete the work.

REMOVE RETAINING WALL

Existing retaining walls to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for “Remove Wood Retaining Wall” and “Remove Stone Retaining Wall” shall be on a “linear foot” basis and shall include excavation, debris removal and disposal, backfill and all labor and materials necessary to remove the structure.

REMOVE EXISTING HEADWALL

Existing headwalls to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for “Remove Existing Headwall” shall be on a “per each”

basis and shall include excavation, concrete removal and disposal, backfill and all labor and materials necessary to remove the headwall and associated riprap.

REMOVE EXISTING TREE (12 INCHES AND LARGER)

Removal of existing trees 12 inches in diameter or greater shall be paid for on a "per each" basis and shall include complete removal and disposal of tree, roots, and debris. All organic material shall be removed. Cost of removal and disposal of trees less than 12 inches in diameter designated to be removed, and existing stumps of all sizes located within the project area shall be subsidiary to "Mobilization and General Site Preparation." Only trees designated on the plans or authorized by the OWNER shall be removed. The CONTRACTOR shall take precautions to avoid damage to trees within project limits unless the tree is designated to be removed.

8-INCH THICK LIME TREATMENT

The subgrade shall be stabilized with lime in accordance with the applicable provisions of Specification Item 301, "Subgrade, Subbase and Base Preparation."

This item provides for the treating of the subgrade by pulverizing, addition of lime in slurry form, mixing and compacting the mixed material to the required density in conformity with the typical section, lines and grades as shown in the Plans or as established by the Owner's Project Representative. The Contractor will not be required to expose the secondary subgrade except in unstable areas. Estimated quantities for lime stabilized subgrade are based on 6 lbs per square yard per inch of subgrade as detailed in the table below (unless a higher rate has been specified by the Geotechnical Report or within the plans):

Subgrade Thickness	Lime Application Rate
6"	36 lbs/SY
8"	48 lbs/SY
10"	60 lbs/SY

Once the final subgrade elevations are achieved during construction and all utilities are in place, the subgrade shall be sampled to determine the required lime application rate at a cost subsidiary to this bid item. Any offsite fill brought in for use on the project is subject to geotechnical evaluation to determine lime application rate at a cost subsidiary to this bid item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each square yard of subgrade thickness as specified in the construction plans from a point 12" behind the backs of the proposed curbs or edges of proposed HMAC transition pavement.

HYDRATED LIME

Hydrated lime for subgrade stabilization shall be furnished in accordance with the provisions of Specification Item 301.2, “Lime Treatment.”

MEASUREMENT AND PAYMENT: Lime will be measured by the ton and paid for at the price bid per ton after its incorporation into the subgrade. The actual amount of lime ordered by the Owner’s Project Representative for stabilization and incorporation into the project will be paid for at the price bid per ton. Quantities were computed on the basis of 6 lbs. per square yard per inch of stabilized subgrade.

7-INCH REINFORCED CONCRETE PAVEMENT WITH MONOLITHIC CURB

This item shall include all necessary materials, labor, tools and incidentals required to construct 7” thick reinforced concrete paving on Smithfield Road in conformance with the lines and grades shown on the Plans and in accordance with Figure 4P in the Plans. The reinforcing steel for the 7” thick concrete pavement section shall be #4 bars @ 18” o.c.e.w. as shown on Figure 4P.

Reinforced concrete paving shall be constructed with 3,600 psi Class “C” Portland Cement Concrete, and shall be furnished and placed in accordance with the applicable provisions of Specification Item 303 “Portland Cement Concrete Pavement.” Admixtures containing fly ash will not be acceptable but shall otherwise adhere to the applicable provisions of Specification Item 303.2 “Portland Cement Concrete Pavement Materials.”

MEASUREMENT AND PAYMENT: Measurement and Payment for this item shall be at the contract unit price per square yard, complete in place and include all concrete, monolithic curb, reinforcing steel, required joint work, expansion material, approved elastomeric joint seal material, and other incidentals. Measurement and payment by the square yard for concrete pavement shall be made to the back of curbs. Payment shall be based on Plan dimensions and no separate payment shall be provided for monolithic curb or extra thickness of concrete pavement placed.

10-INCH CONTINUOUSLY REINFORCED CONCRETE PAVEMENT WITH MONOLITHIC CURB

This item shall include all necessary materials, labor, tools and incidentals required to construct 10” thick continuously reinforced concrete paving for the TxDOT section at the intersection of Smithfield Road and Davis Boulevard in conformance with the lines and grades shown on the Plans and in accordance with TxDOT standard details. The reinforcing steel for the 10” thick continuously reinforced concrete pavement section shall be #6 bars @ 7’ o.c. and #6 traverse bars spaced at a max of 1’ o.c. per standard details.

Reinforced concrete paving shall be constructed with 3,500 psi Class "C" Portland Cement Concrete, and shall be furnished and placed in accordance with the applicable provisions of Specification Item 303 "Portland Cement Concrete Pavement." Admixtures containing fly ash will not be acceptable but shall otherwise adhere to the applicable provisions of Specification Item 303.2 "Portland Cement Concrete Pavement Materials."

MEASUREMENT AND PAYMENT: Measurement and Payment for this item shall be at the contract unit price per square yard, complete in place and include all concrete, monolithic curb (TxDOT Type II curb and gutter), reinforcing steel, required joint work, expansion material, approved elastomeric joint seal material, and other incidentals. Cost for dowels, and ties to existing pavement is subsidiary to this bid item. Measurement and payment by the square yard for concrete pavement shall be made to the back of curbs. Payment shall be based on Plan dimensions and no separate payment shall be provided for monolithic curb or extra thickness of concrete pavement placed.

6-INCH REINFORCED CONCRETE PAVEMENT WITH MONOLITHIC CURB

This item shall include all necessary materials, labor, tools and incidentals required to construct 6" thick reinforced concrete paving for the side streets on Smithfield Road in conformance with the lines and grades shown on the Plans and in accordance with Figure 2P in the Plans. The reinforcing steel for the 6" thick concrete pavement section shall be #3 bars @ 18" o.c.e.w. as shown on Figure 2P.

Reinforced concrete paving shall be constructed with 3,600 psi Class "C" Portland Cement Concrete, and shall be furnished and placed in accordance with the applicable provisions of Specification Item 303 "Portland Cement Concrete Pavement." Admixtures containing fly ash will not be acceptable but shall otherwise adhere to the applicable provisions of Specification Item 303.2 "Portland Cement Concrete Pavement Materials."

MEASUREMENT AND PAYMENT: Measurement and Payment for this item shall be at the contract unit price per square yard, complete in place and include all concrete, monolithic curb, reinforcing steel, required joint work, expansion material, approved elastomeric joint seal material, and other incidentals. Measurement and payment by the square yard for concrete pavement shall be made to the back of curbs. Payment shall be based on Plan dimensions and no separate payment shall be provided for monolithic curb or extra thickness of concrete pavement placed.

INTEGRAL SIDEWALK RETAINING WALL (1.5' TALL OR LESS)

This item shall include all the necessary materials, labor, tools and incidentals required to construct integral sidewalk retaining walls less than or equal to 1.5' tall per City standard details included in the plans. The provisions of Item 802.3.2 apply except as modified by these documents.

Concrete shall be 3,000 psi at 28 days. Sidewalk shall be paid under a separate pay item. Cost for backfill, filter fabric, weep holes, aggregate, select fill, formwork, formliner, footings, and excavation is subsidiary to this bid item.

This item was established for bidding purposes only. Exact lengths and locations shall be determined in the field by City Inspectors during sidewalk construction. Pay quantities will be based on length of integral sidewalk retaining wall actually installed.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot and shall be full compensation for all labor and materials necessary to complete the work per City standard details.

INTEGRAL SIDEWALK RETAINING WALL

This item shall include all the necessary materials, labor, tools and incidentals required to construct integral sidewalk retaining walls taller than 1.5' per City standard details included in the plans. The provisions of Item 802.3.2 apply except as modified by these documents.

Concrete shall be 3,000 psi at 28 days. Sidewalk shall be paid under a separate pay item. Cost for backfill, filter fabric, weep holes, aggregate, select fill, formwork, formliner, footings, and excavation is subsidiary to this bid item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square foot measured along the exposed face of wall (does not include footings) and shall be full compensation for all labor and materials necessary to complete the work per City standard details.

4-INCH REINFORCED CONCRETE FOR SIDEWALK

Four (4") inch thick reinforced concrete sidewalks, including reinforcing steel, shall be constructed in accordance with the width and details shown on the Plans and with the applicable provisions of the COG Specifications Item 305.2. Reinforced concrete paving shall be constructed with 3,000 psi Class "A" Portland Cement Concrete. One (1") inch thick layer of cushion sand under the sidewalk is subsidiary to the unit price of the sidewalk.

The Contractor shall be responsible to ensure all sidewalk construction is in accordance with the Americans with Disabilities Act (ADA) and Texas Accessibility Standards (TAS). Any portions of sidewalks which are constructed and do not meet the requirements of ADA and TAS will be required to be removed and replaced at the Contractor's Expense.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square foot including excavation, concrete, reinforcing steel, cushion sand, joint sealer, expansion joint material and elastomeric filler complete in place.

6-INCH REINFORCED CONCRETE DRIVEWAY APPROACH

Six (6") inch thick concrete driveway approaches, including reinforcing steel, shall be constructed in accordance with the details shown on the Plans and with the applicable provisions of COG Specification Item 305.2. A construction joint will be provided at the right-of-way line and where driveways are constructed past the right-of-way line.

MEASUREMENT AND PAYMENT: Six (6") inch thick concrete driveway approaches shall be measured from back of curb and paid for by the square foot including reinforcing steel and expansion joint material.

2-INCH ASPHALT TYPE "D" SURFACE COURSE HMAC

Asphaltic concrete shall meet the requirements for Type "D" of Item 340 of Standard Specifications for Construction of Highways, Streets and Bridge, latest edition. A tack coat shall be applied to the base course before placement of the surface course. Measurement and payment shall per square yard complete in place.

ASPHALT TYPE "B" BASE COURSE HMAC

Asphaltic concrete shall meet the requirements for Type "B" of Item 340 of Standard Specifications for Construction of Highways, Streets and Bridge, latest edition. Asphalt Type "B" Base Course HMAC shall be either 3-inch or 4-inch thick as specified in City standard details. A prime coat shall be applied to the prepared subgrade before placing the first lift. Measurement and payment shall per square yard in place.

STAINED AND STAMPED CONCRETE CROSSWALK

Stained and Stamped Concrete Crosswalk, including reinforcing steel, shall be constructed in accordance with the details shown on the Plans and with the

applicable provisions of COG Specification Item 303. A construction joint will be provided along the perimeter of the proposed crosswalk. Reinforced concrete paving shall be constructed with 7" thick 3,600 psi Class "C" Portland Cement Concrete, and shall be furnished and placed in accordance with the applicable provisions of Specification Item 303 "Portland Cement Concrete Pavement." Admixtures containing fly ash will not be acceptable but shall otherwise adhere to the applicable provisions of Specification Item 303.2 "Portland Cement Concrete Pavement Materials." The reinforcing steel for the 7" thick concrete pavement section shall be #4 bars @ 18" o.c.e.w. as shown on Figure 4P.

MEASUREMENT AND PAYMENT: Stained and Stamped Concrete Crosswalks shall be measured and paid for by the square foot including concrete, reinforcing steel, expansion joint material, stain, patterning, and labor to perform the work.

MONOLITHIC MEDIAN NOSE

Monolithic median nose shall be constructed in accordance with Item 305.3 of the COG Specifications.

MEASUREMENT AND PAYMENT: Measurement and Payment for this item shall be at the contract unit price per square foot, complete in place and include all concrete, monolithic curb, reinforcing steel, required joint work, expansion material, approved elastomeric joint seal material, and other incidentals. Measurement and payment by the square foot shall be made to the back of curbs. Payment shall be based on Plan dimensions and no separate payment shall be provided for monolithic curb or extra thickness of concrete pavement placed.

BARRIER-FREE RAMP

This item shall govern the installation of Barrier Free Ramps in accordance with the details provided in the Plans and Item 305.2 of the COG Specifications.

Concrete for curb ramps shall be constructed with 3,000 psi Class "A" Portland Cement Concrete with 5 sacks of cement per cubic yard, with a maximum slump of 5 inches. Rebar shall be #3 bars spaced at 18" o.c.e.w. Concrete shall meet the requirements of Item 303.

The Contractor shall be responsible to ensure all barrier free ramp construction is in accordance with the Americans with Disabilities Act (ADA) and Texas Accessibility Standards (TAS). Any portions of the barrier free ramp which are constructed and do not meet the requirements of ADA and TAS will be required to be removed and replaced at the Contractor's Expense.

Please note Figures 10P-1 thru 10P-6 reference meeting current requirements of the Texas Accessibility Standards. Per Texas Accessibility Standards Technical

Memorandum TM 08-01 Issues: June 30, 2008, “The ONLY surface texture TDLR is currently aware of that meets the intent of both the Texas Accessibility Standards and the currently enforceable federal Americans with Disabilities Act Accessibility Guidelines are detectable warnings (aka truncated domes) meeting the technical specifications of TAS 4.29.2.” Truncated dome surface shall be provided by using Neenah Foundry cast iron detectable warning plates or approved equal in a color approved by the City representative.

“In accordance with Administrative Rules 68.102 and TAS 2.2, the Department is allowing the detectable warning surface to be a minimum of 24” in depth (in the direction of pedestrian travel) in lieu of the full depth of the curb ramp. The deviation from this particular technical requirement does not require a variance. The truncated domes must still extend the full width of the curb ramp (or landing as applicable at parallel curb ramps) and comply with TAS 4.29.2.”

MEASUREMENT AND PAYMENT: Payment for this item shall be on a “per-each” basis furnished and installed and shall include all concrete, reinforcement, formwork, truncated domes, monolithic curb, labor, materials, and incidentals necessary to complete the work per provided details.

CONCRETE CURB AND GUTTER

Concrete curb and gutter shall be constructed in accordance with Item 305.1 of the COG Specifications and City Specifications (see Figure 2P) and shall consist of a 6-inch wide by 6-inch tall concrete curb and 24-inch wide gutter section.

MEASUREMENT AND PAYMENT: Measurement and Payment for this item shall be at the contract unit price per linear foot, complete in place and include all concrete, reinforcing steel, form work, required joint work, expansion material, approved elastomeric joint seal material, and other incidentals.

BOLLARDS

Bollards shall be installed in locations as shown on the plans. Bollards shall be model R-7530-AL Decorative Bollard as manufactured by Reliance Foundry or approved equal. Bollards shall be mounted with a removable, premium mounting kit and installed in accordance with the manufacturer’s recommendations. Bollards shall include a reflective strip. Sample reflective strip shall be provided to the City for approval prior to installation. Measurement and payment shall be on a “per each” basis for each bollard furnished and installed, and shall include excavation, mounting, reflective strip, concrete and labor to provide a complete installation.

REMOVE EXISTING BOLLARD

Existing bollards to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for “Remove Existing Bollard” shall be on a “per each” basis and shall include excavation, concrete removal and disposal, backfill and all labor and materials necessary to remove the bollard.

CONCRETE TYPE II SETP-PD (SLOPED HEADWALL)

Concrete Type II Safety End Treatments shall be constructed in accordance with Item 702.4 and per the Plan Details (TxDOT Detail SETP-PD). Surfaces adjacent to safety end treatments shall be graded to provide positive drainage. Concrete for safety end treatments shall be Class “C” with a minimum of 5 sacks per cubic yard of cement content and a 3,600 psi minimum compressive strength when tested at 28 days. Measurement and payment shall be on a “per each” basis including excavation, form work, concrete, reinforcing steel, and labor to perform the work.

CLASS III REINFORCED CONCRETE STORM DRAIN (OPEN CUT)

Storm drain line shall be furnished and installed in accordance with Items 501.6, 504 and 508 of the COG Specifications and City Specifications. All Storm drain pipe shall be ASTM C-76, Class III Reinforced Concrete Pipe. Pipe collars shall be installed at all pipe size changes, grade changes, and connections to existing storm drain lines at no additional cost. All proposed storm drain fittings and connections shall be pre-fabricated. Field connections can be used for connections to existing lines only. The cost of trench excavation, embedment, and backfill is incidental to this bid item.

The cost of trench excavation, embedment and backfill is incidental to this bid item. All ditchlines shall be mechanically tamped with the cost incidental to this bid item. Backfill should be placed in 6”-8” loose lifts (12” maximum) and shall be compacted to 95% of the maximum dry density as defined by ASTM D-698 (Standard Proctor) procedures under existing and proposed pavement, and to 90% Standard Proctor procedures elsewhere. Densities shall be taken every one (1) lift at staggered hundred foot increments.

Pipe joints shall be sealed at equal or no extra pay. This item shall include plugs, cutting and plugging existing lines, and connections to adjacent structures necessary for complete installation. If working in paved street and driveway areas open to traffic, the contractor shall provide for a temporary 3-inch hot mix asphalt surface material pavement Type “B” of the TxDOT Standard Specifications for Construction of Highways, Streets and Bridge, latest edition to be placed over the

ditch area until the final improvements are made. This work shall be incidental to Mobilization and General Site Preparation.

Radius pipe shall be used where indicated on the plans. Payment for storm drain line shall be by the linear foot and shall include all excavation, embedment, backfill, fittings and pipe collars.

STORM DRAIN MANHOLE

Storm drain manholes shall be constructed in accordance with Items 502.12 and 702 of the COG Specifications and City Specifications. All manholes shall be cast-in-place. Concrete for storm drain manholes shall be Class "C" with a minimum of 5 sacks per cubic yard cement content and a 3,600 psi minimum compressive strength when tested at 28 days. Payment for storm drain manholes shall be on a "per each" basis and shall include excavation, form work, concrete, reinforcing steel, backfill, ring and lid.

STANDARD CURB INLET

Storm drain inlets shall be constructed in accordance with Items 502.12 and 702 of the COG Specifications and City Specifications. Where applicable, the depth shall be adjusted per the Plan elevations at no additional cost. All inlets shall be cast-in-place. Concrete for inlet shall be Class "C" with a minimum 5 sacks per cubic yard of cement content and a 3,600 psi compressive strength when tested at 28 days. Payment for Standard Curb Inlets shall be on a "per each" basis and shall include excavation, backfill, form work, concrete, reinforcing steel, ring and lid, and labor to perform the work. Existing curb removal and replacement where applicable is incidental to this bid item.

DROP INLET

Drop inlets shall be constructed in accordance with Items 502.12 and 702 of the COG Specifications and City Specifications. Where applicable, the depth shall be adjusted per the Plan elevations at no additional cost. All drop inlets shall be cast-in-place. Concrete for drop inlets shall be Class "C" with a minimum 5 sacks per cubic yard of cement content and a 3,600 psi compressive strength when tested at 28 days. Payment for Drop Inlets shall be on a "per each" basis and shall include excavation, backfill, form work, concrete, reinforcing steel, ring and lid, and labor to perform the work.

TRAFFIC CONTROL - BARRICADES, WARNING, AND DETOUR SIGNS

Barriers, Warning and Detour Signs shall be performed in accordance with Item 801.1 of the COG Specifications and City Specifications.

Prior to construction, the CONTRACTOR will be required to submit a detailed construction sequencing and temporary traffic control plan to address all issues not covered by the construction plans. A schedule shall also be submitted to address times of completion of each stage of the construction sequence and projected dates of road closings, detours, and utility interruptions. The CONTRACTOR shall update this schedule on a monthly basis.

The CONTRACTOR shall follow the sequence of construction provided in these plans. Any deviations from the plans must be submitted in writing to the CITY for approval. Proper notification must be given to all affected property owners at least 48 hours in advance of all construction operations.

No street shall be closed except upon written authority from the OWNER.

Access to adjacent properties must be maintained except for short periods of time when construction actually blocks the driveway. The CONTRACTOR shall place gravel or take other means to insure all-weather access to properties after working hours and during weekends and holidays.

The amount bid for this item shall be paid over the duration of the project with the amount paid on each monthly progress estimate determined by the percent complete on all other bid items.

PAVEMENT MARKINGS AND SIGNAGE

Pavement markings shall be performed in accordance with TxDOT Standard Specifications and the Manufacturer recommendations. Signage shall be installed in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD), latest revision.

Pavement markings include paint striping, thermoplastic striping and markings, and raised pavement markers. Signage includes removing and re-installing existing signs to their permanent location, removing and salvaging existing signs, installation of new signs, temporary relocation of existing signs and replacement of existing damaged signs. The City of North Richland Hills reserves the salvage rights on surplus/replaced signage.

New Street signs will be provided by the City to be mounted and installed by the Contractor.

All pavement markings and signage shall be measured and paid for on a lump sum basis to the limits of construction shown on the plans and shall be full compensation for all labor, materials, equipment, and incidentals necessary to complete the work, including removal of existing signage, markings, surface preparations, sealing, etc. as called for on the plans and in the TxDOT

specifications. Any damage to existing facilities, markings, sod, etc. as a result of this work will be subsidiary to the cost of this bid item.

MISCELLANEOUS PAVING, DRAINAGE, LANDSCAPE AND UTILITY IMPROVEMENTS

The scope of work for these bid items will be determined in the field during the course of construction.

These items are provided to cover the cost of miscellaneous adjustments and other work ordered by the OWNER, Inspector or Engineer but not included in any other Bid Schedule Item. A maximum allowance is indicated in the Bid Schedule for each of these items.

The OWNER reserves the right to delete any or all of these items from the Contract if not needed.

There will not be a measurement for this item. CONTRACTOR shall furnish all invoices and other documentation required by ONWER in order to determine the "actual field cost" of miscellaneous work covered under these items.

Miscellaneous Allowance Items will be paid for based on the "actual field cost" of the work provided plus fifteen percent (15%). The fifteen percent (15%) of the "actual field cost" to be paid to the CONTRACTOR shall cover and compensate him/her for his/her profit, overhead, and all other elements of cost and expense not embraced within the "actual field cost" or covered elsewhere by these specifications.

ADJUST FIRE HYDRANT TO GRADE

This item shall govern adjusting fire hydrants such that the flange of the hydrant is two (2) inches above proposed grade of the parkway. All portions (excluding chains) of fire hydrant above grade shall be painted with TNEMEC Series 02H HI-BUILD TNEME-GLOSS. Color: Chilean Red.

Payment for Adjust Fire Hydrant to Grade shall be on a "per each" basis and shall include excavation, backfill, and painting.

ADJUST EXISTING WATER LINE

This item shall govern adjusting the existing water main to where it is in conflict with proposed improvements (curb inlets, storm drain lines, etc.). Water lines in conflict shall be adjusted to maintain a minimum 2 feet of vertical clearance and 2.5' horizontal clearance from all proposed utilities.

Payment for this item shall be at the contract unit price “per each” location the water main is adjusted and shall include excavation, embedment, backfill, thrust blocking, bends, fittings, and all other appurtenances necessary for a complete adjustment.

REMOVE FIRE HYDRANT

Existing fire hydrant assembly shall be removed and salvaged where shown on the plans and shall follow the provisions of Item 203.3. Associated gate valve shall be removed and salvaged subsidiary to this bid item. The City maintains salvage rights on existing fire hydrants removed and shall provide a location for the contractor to transport the assembly. If The City does not wish to obtain the salvaged assembly, the contractor shall dispose of the assembly offsite in a lawful manner.

Payment for Remove Fire Hydrant shall be on a “per each” basis and shall include excavation, removal, backfill, and transporting the fire hydrant assembly.

ADJUST WATER VALVE TO GRADE

This item shall govern adjusting the valve stack on water valves such that the finished elevation of the rim is flush with the grade of the proposed pavement. See NRH Detail 1W.

Payment for this item shall be at the contract unit price “per each” water valve adjusted and shall include all materials including extension stems if necessary, equipment, labor, tools, and incidentals necessary to complete the work.

ADJUST IRRIGATION CONTROL VALVE TO GRADE

This item shall govern adjusting the valve stack on irrigation control valves such that the finished elevation of the rim is flush with the grade of the proposed parkway along Bridge Street.

Payment for this item shall be at the contract unit price “per each” irrigation control valve adjusted and shall include all materials including extension stems if necessary, equipment, labor, tools, and incidentals necessary to complete the work.

ADJUST WATER METER BOX TO GRADE

This item shall govern adjusting existing water meter boxes such that the finished elevation of the top of box is flush with proposed grade.

Payment for this item shall be at the contract unit price “per each” water meter box adjusted and shall include all materials, equipment, labor, tools, and incidentals necessary to complete the work.

REMOVE WATER VALVE

Existing water valves on main lines and fire hydrant leads shall be removed and salvaged where shown on the plans and shall follow the provisions of Item 203.3. The City maintains salvage rights on existing water valves removed and shall provide a location for the contractor to transport the assembly. If The City does not wish to obtain the salvaged assembly, the contractor shall dispose of the assembly offsite in a lawful manner.

Payment for Remove Water Valve shall be on a “per each” basis and shall include excavation, removal, backfill, and transporting the water valve offsite.

FIRE HYDRANT ASSEMBLY

Fire hydrant assemblies shall be furnished and installed in accordance with Item 502.3 of the COG Specifications and City Specifications (Figure 3W-1). Fire hydrants shall be installed 2-foot to 3-foot behind the back of curb or edge of pavement. Payment for Fire Hydrant Assembly shall be on a “per each” basis and shall include fire hydrant, barrel extension (if required), 6-inch lead line and valve, concrete pads, concrete valve block, traffic button marker, thrust blocking, and all other materials, equipment, labor, tools, and incidentals necessary to complete the work.

SANITARY SEWER LINES (OPEN CUT)

Sanitary sewer line shall be furnished and installed in accordance with Items 501.17, 504 and 507 of the COG Specifications and City Specifications. All sanitary sewer lines less than 12 feet deep shall be PVC SDR-35. All sanitary sewer lines deeper than 12 feet shall be PVC SDR-26. Should existing sanitary sewer main be disrupted, CONTRACTOR shall use bypass sewage pumping to avoid disrupting sewer flow during construction of the new sewer main. The cost of sewage pumping shall be subsidiary to this bid item. CONTRACTOR shall have pumps on the job site capable of handling the flow.

All ditchlines shall be mechanically tamped with the cost incidental to this bid item. Backfill shall be places in 6”-8” loose lifts (12” maximum) and shall be compacted to 95% of the maximum dry density as defined by ASTM D-698 (Standard Proctor) procedures under existing and proposed pavement, and to

90% Standard Proctor procedures elsewhere. Densities shall be taken every one (1) lift at staggered hundred feet increments.

The cost of cutting, plugging, and abandoning existing sanitary sewer lines is incidental to the unit cost of pipe. The ends of all abandoned lines shall be plugged with an adequate quantity of concrete to form a tight enclosure.

All sanitary sewer lines shall be installed with a tracer wire. Payment for sanitary sewer line shall be by the linear foot and shall include excavation, embedment, backfill, tracer wire, testing, materials, equipment, labor, tools and incidentals necessary to complete the work.

CONNECT TO EXISTING SANITARY SEWER MANHOLE

Payment for connect to existing sanitary sewer manhole shall be made for each connection made and shall be full compensation for making the connection. Connections shall be performed in a neat and workmanlike manner and made watertight. Cleaning and bypass pumping, if necessary, will be performed at no extra cost to the Owner to permit the connection. Payment shall also include the cost of plugging abandoned connections.

SANITARY SEWER MANHOLE AND EXTRA DEPTH

Standard Sanitary sewer manholes shall be furnished and installed in accordance with Items 502.1 of the COG Specifications and City Specifications. Payment for standard sanitary sewer manholes shall be based on the number of manholes installed for each specified diameter and shall include excavation, materials, backfill, manhole tie-ins, and vacuum testing. Payment for extra depth for standard sanitary sewer manholes shall be made on the basis of the number of vertical feet of manhole in excess of 6-feet.

CONCRETE ENCASEMENT

Concrete encasement shall be installed at the location shown on the plans in accordance with Item 504.5.2.13 of the COG Specifications. Concrete encasement shall have a minimum dimension of six (6) inches around the pipe. Concrete for encasement shall be Type “B” – 2,000 psi compressive strength at 28 days. Payment for concrete encasement shall be by the linear foot actually installed and shall include supporting pipe and furnishing and installing concrete.

PRE-CONSTRUCTION TELEVISION INSPECTION

Pre-construction television inspection shall be performed on existing sanitary sewer lines in accordance with Items 507.5.2 and 507.2 of the COG

Specifications. Cleaning and bypass pumping will be performed as necessary to allow the television inspection. Measurement and payment for pre-construction television inspection shall be on a per linear foot basis for the length of pipe actually inspected. Cleaning shall be considered subsidiary to this item.

POST-CONSTRUCTION TELEVISION INSPECTION

Post-construction television inspection shall be performed on all sanitary sewer lines in accordance with Item 507.5.2 of the COG Specifications prior to acceptance. The CONTRACTOR shall employ a firm qualified in the type of work to make the television inspections. The City's inspector shall be present during the television inspection. The CONTRACTOR shall furnish to the City a color videotape of all television inspections. Measurement and payment for post-construction television inspection shall be on a per linear foot basis.

REMOVE EXISTING SANITARY SEWER LINE

Existing sanitary sewer lines where shown on the plans to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for "Remove Existing Sanitary Sewer Line" shall be on a "per linear foot" basis and shall include excavation, pipe removal and disposal, pipe cutting and plugging, backfill and all labor and materials necessary to remove the existing line.

REMOVE EXISTING SANITARY SEWER MANHOLE

Existing sanitary sewer manholes to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for "Remove Existing Sanitary Sewer Manhole" shall be on a "per each" basis and includes the complete removal and disposal of manholes, manhole lids, rings, concrete cones, concrete walls, concrete bases, piping, and plugging the ends of the sanitary sewer mains to be abandoned with an adequate quantity of concrete to form a tight enclosure where specified, and backfilling the remaining hole to match surrounding grades or as specified.

ADJUST EXISTING SANITARY SEWER MANHOLE TO GRADE

This item shall govern only for adjusting existing manholes to grade on existing sewer lines to remain under street construction. The cost of adjusting proposed manholes to grade is incidental to the unit cost of the manhole. Adjustments shall be made with grade rings. Rings and lids shall be salvaged and reused. Measurement and payment shall be on a "per each" basis for those manholes actually adjusted.

STREET LIGHT FOUNDATION

Street light foundation shall be constructed in accordance with the details provided by Oncor included in the plans and at locations specified in the plans. Street light foundations shall be measured and paid based on the number of foundations installed and shall include all labor, materials, trenching, hand holes, and incidentals necessary to complete the work. Transformer installation to serve street lights at location specified in the plans including all required appurtenances shall be subsidiary to this bid item. Oncor shall supply and install the street lights. Contractor shall be responsible for coordination with Oncor regarding the installation.

2-INCH PVC SCH 40 CONDUIT (OPEN CUT)

Conduit for street lights shall be installed at the location shown on the plans in accordance with Item 805 of the COG Specifications. Conduit shall be Schedule 40 PVC and shall be installed a minimum of 24 inches below grade. Conduit shall be installed with pull rope. Payment for 2-inch PVC Schedule 40 Conduit installed by open cut shall be made on a linear foot basis.

2-INCH PVC SCH 40 CONDUIT (BY BORE)

Conduit for street lights shall be installed at the location shown on the plans in accordance with Item 805 of the COG Specifications. Conduit shall be Schedule 40 PVC and shall be installed a minimum of 24 inches below grade. Conduit shall be installed with pull rope. Payment for 2-inch PVC Schedule 40 Conduit installed by bore shall be made on a linear foot basis.

GROUND BOX TYPE A

This item will govern for installation of Type A Ground Boxes as specified in the plans. Contractor shall coordinate with Oncor regarding the exact location and inspection of the ground boxes at no additional compensation. Ground Boxes shall meet all Oncor requirements and details. Payment for Ground Box Type A shall be on a per each basis and shall be full compensation for labor, materials, coordination, excavation, backfill, equipment, incidentals, and all appurtenances necessary for complete installation.

REMOVE EXISTING AND INSTALL NEW TRAFFIC SIGNALS

The provisions of TxDOT Item 680 shall apply for the removal of existing and installation of new traffic signals at locations shown in the plans in accordance with all plan details and notes. The City maintains salvage rights to all existing traffic signal components and materials. The contractor shall be responsible for

transporting all removed hardware to a location specified by the City. If the City does not wish to salvage existing traffic signal equipment and materials, then the contractor shall dispose of all materials in a lawful manner. All proposed poles shall be powder coated in Signal Black.

Traffic Signals shall be measured and paid on a lump sum basis for each location. This price is full compensation for furnishing, installing, and testing the complete working installation per plans, including all equipment, wiring, setup, labor, tools, and incidentals. Cost for complete removal and salvage or disposal, including hauling, of existing traffic signals is subsidiary to this bid item.

TEMPORARY TRAFFIC SIGNALS

Temporary traffic signal shall be installed at the location shown on the plans in accordance with Item 681 of the TxDOT Specifications and details provided in the plans. Temporary Traffic Signals shall be measured and paid on a lump sum basis, and shall be full compensation for furnishing, installing, and testing the complete installation, including all equipment, labor, tools, and incidentals.

FURNISH AND INSTALL COMPLETE IRRIGATION SYSTEM

Irrigation system stall be installed in accordance with the plans, details, and specifications outlines in Section IV: Special Specifications. Contractor shall provide and install the irrigation controller, with all necessary appurtenances subsidiary to this bid item.

Contractor is responsible for coordination with Oncor and shall provide and install the electric meter and service for the irrigation controller in accordance with current local regulations, with all necessary appurtenances, including pedestal and leveling pad, subsidiary to this bid item.
Contractor shall provide and install the balance of the irrigation system (including all piping, equipment, wiring, sleeves, connection etc.) as shown on the plans and described by the details and specifications as necessary to provide a complete and functioning irrigation system as designed.

Measurement and payment shall be on a lump sum basis and be total compensation for the installation of the complete working irrigation system including controller cabinet, electric service coordination and installation, meter, meter box, service taps, double check valve, bores, sleeves, and all materials and labor necessary to complete the work. Additional specifications are included in Section IV.

LANDSCAPE PLANTINGS

No plant material shall be installed until the irrigation system is 100% operational and approved by the City. Landscape items shall be installed according to the Planting Details and Specifications provided in the plans.

Measurement and payment for landscape plantings shall be based on the number of plantings of various types installed. Payment shall include excavation, plantings, soil mixes, staking, and maintenance (including by not limited to fertilizing and watering) until accepted by the City.

2-INCH ELECTRICAL CONDUIT AND SERVICE WIRE

Conduit for irrigation electrical service shall be Schedule 40 PVC and installed a minimum of 18-inches below grade. Conduit shall be installed with pull rope. Electrical service wire shall be THWN Copper 3-12AWG for irrigation controllers and shall be installed per Section IV: Special Specifications in this manual.

This item covers conduit and wiring from the electric meter to the irrigation controller only and was established for bidding purposes only. Contractor will be paid for the amount of conduit and wire actually installed in the field. Quantities will be verified by the City Inspector.

Measurement and payment shall be by the linear foot and shall be full compensation for labor, materials, equipment, and incidentals necessary to complete the work.

SANITARY SEWER SERVICE LINE (OPEN CUT)

Sanitary sewer service lines shall be furnished and installed in accordance with Item 507 of the COG Specifications and City Specifications. All sanitary sewer service lines shall be PVC SDR-35.Measurement and payment shall be on a linear foot basis and shall include trench excavation and backfill, concrete blockings, materials, and labor necessary to install the complete service connection. Cleanouts shall be installed at all service connections and are subsidiary to the unit price.

WATER LINES (BY OPEN CUT)

Water line shall be furnished and installed in accordance with Item 506 of the COG Specifications and City Specifications. Water lines 6-inch through 12-inch diameter shall be AWWA C900 PVC, Class 150 DR 18, blue in color. Water lines greater than 12-inch in diameter shall be AWWA C905 PVC, Class 235 DR 18, blue in color.

The cost of trench excavation, embedment and backfill is incidental to this bid item. All ditchlines shall be mechanically tamped with the cost incidental to this bid item. Backfill should be placed in 6”-8” loose lifts (12” maximum) and shall be compacted to 95% of the maximum dry density as defined by ASTM D-698 (Standard Proctor) procedures under existing and proposed pavement, and to 90% Standard Proctor procedures elsewhere. Densities shall be taken every one (1) lift at staggered hundred foot increments.

The cost of fittings and thrust blocking is incidental to the unit cost of pipe. The cost of cutting, plugging, and abandoning existing water lines is incidental to the unit cost of pipe. The ends of all abandoned lines shall be plugged with an adequate quantity of concrete to form a tight enclosure. Measurement and payment shall be made per linear foot of pipe installed or the various sizes. The unit price for this bid item shall consist of all materials, equipment, labor, tools, and incidentals necessary to complete the work.

WATER SERVICE LINES

Water service lines shall be replaced from the main to the meter. Water services shall be furnished in accordance with Items 501.10, 504 and 506 of the COG Specifications and City Specifications. New meter boxes shall be furnished and existing meters salvaged and reused.

Payment shall be on a “per each” basis for the size of service installed (short or long side) (single or double meters) and shall include the meter boxes and connection to the existing service.

REMOVE EXISTING WATER LINE

Existing water lines shown on the plans to be removed shall become the property of the CONTRACTOR to be disposed in accordance with local, state and federal guidelines. Payment for “Remove Existing Water Line” shall be on a “per linear foot” basis and shall include excavation, pipe removal and disposal, pipe cutting and plugging, backfill and all labor and materials necessary to remove the existing line.

RELOCATE EXISTING WATER METER

Existing water meters shall be relocated where shown on the plans and shall be located per Figure 4W. The existing meter, box and appurtenances shall be removed. The existing meter and appurtenances shall be reinstalled at the proposed location and connected to the proposed service. The water service

leading up to the relocated meter and new meter box shall be paid under a separate item.

Payment for Relocate Existing Water Meter shall be on a “per each” basis and shall include removal, reinstallation, excavation, backfill, disposal of meter box, labor and all incidentals to relocate and connect the water service and appurtenances.

RELOCATE EXISTING BACKFLOW PREVENTER

Existing backflow preventer shall be relocated where shown on the plans. The existing backflow preventer and appurtenances shall be removed and reinstalled at the proposed location and connected to the proposed service. The water service leading up to the relocated backflow preventer shall be paid under a separate item.

Payment for Relocate Existing Backflow Preventer shall be on a “per each” basis and shall include removal, reinstallation, excavation, backfill, labor and all incidentals to relocate and connect the backflow preventer and appurtenances.

CONNECT TO EXISTING WATER LINE

Connection to existing water lines shall be made in accordance with Item 501.10 of the COG Specifications. CONTRACTOR shall coordinate shutdown of water lines with City personnel. Excavation to locate exact end of pipe shall be the responsibility of the CONTRACTOR. Measurement and payment shall be “per each” existing water line connection performed and shall include necessary fittings, removal of thrust blocking, materials, equipment, labor, tools, shutdown of the line, end of pipe locating, and incidentals necessary to complete the work.

CONNECT TO EXISTING VAULT

Payment for connect to existing vault shall be made “per each” vault connection performed and shall include necessary fittings, materials, equipment, labor, tools, end of pipe locating, and incidentals necessary to complete the work.

GATE VALVES

Gate valves shall be furnished and installed in accordance with Item 502.6.6.1 of the COG Specifications and City Specifications. The CONTRACTOR shall be paid for each valve installed, including box and lid.

16-INCH DIRECT BURY BUTTERFLY VALVE

Butterfly valves shall be furnished and installed in accordance with Item 502.6.5 of the COG Specifications and City Specifications. Butterfly valves shall be Mueller Lineseal III, Clow, Pratt or M&H. The CONTRACTOR shall be paid for each valve installed, and shall include valve assembly, box, lid, concrete pad and all necessary gears, actuators, extension stems, insulation kits, and fittings.

TAPPING SLEEVE AND GATE VALVE

Tapping sleeve and gate valves shall be furnished and installed in accordance with Item 502.10 of the COG Specifications. The CONTRACTOR shall be paid for each tapping sleeve and gate valve furnished and installed and shall include all materials, equipment, and labor necessary to pressure tap existing water lines.

CONCRETE PAVEMENT REPAIR

This item shall govern full-depth saw cutting and removal of existing concrete and installing a permanent concrete pavement repair per plan typical sections along the proposed water line route in Smithfield Road. Only the necessary amount of existing pavement shall be removed to install the proposed utility. Contractor shall dispose the removed concrete pavement in accordance with local, state and federal guidelines. The pay limits for concrete pavement repair are shown on the plans. Saw cut, removal, and replacement of concrete pavement beyond those limits shall be at the Contractor's expense. Anchorage joints shall be installed in each location where proposed concrete pavement is joined to existing for the purpose of providing shear transfer. The cost of drilling holes, grouting, and installing dowel bars as shown on the details and at the locations specified in the plans shall be considered incidental to the cost of pavement. Payment for concrete pavement repair shall be made on a square foot basis and shall include all labor, materials, excavation, rebar, concrete, subgrade, anchorage joints, dowels, and all incidentals necessary to complete the work.

ASPHALT PAVEMENT REPAIR

This item shall govern saw cutting and removing existing asphalt and installing a permanent asphalt pavement repair (Figure 15P-1) along the proposed water line route in Smithfield Road. Only the necessary amount of existing pavement shall be removed to install the proposed utility. Contractor shall dispose the removed asphalt pavement in accordance with local, state and federal guidelines. The pay limits for asphalt pavement repair are shown on the plans. Saw cut, removal, and replacement of asphalt pavement beyond those limits shall be at

the Contractor’s expense. Payment for asphalt pavement repair shall be made on a square foot basis.

SECTION IV

SPECIAL SPECIFICATIONS

SECTION 328400

PLANTING IRRIGATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Furnish all work and materials, appliances, tools, equipment, facilities, transportation, point of connection and all other services required for the installation of a complete underground permanent, as shown on drawings and/or specified herein. When the term "Contractor" is used in this section, it shall refer to the Texas Licensed Irrigation Contractor.

1.2 QUALITY ASSURANCE

The following Codes, Regulations, Reference Standards, and Specifications apply to work included in this section: ASTM: D2241, D2464, D2466, D2564, and D855.

1.3 WARRANTY AND MAINTENANCE

A. The Contractor shall warranty material and workmanship for one year after final acceptance including repair and replacement of defective materials, workmanship, and labor.

B. Maintenance during warranty shall include, but not necessarily be limited to, the following:

1. Adjustment of sprinkler height and plumb to compensate for settlement and/or plant growth.
2. Backfilling of all trenches.
3. Adjustment of head coverage (arc of spray) as necessary.
4. Unstopping heads plugged by foreign material.
5. Adjustment of controller as necessary to insure proper sequence and watering time.
6. All maintenance necessary to keep the system in good operating order. Repair of damage caused by vandals, other contractors or weather conditions shall be considered extra to these specifications.

C. Warranty and maintenance after final acceptance does not include alterations as necessitated by re-landscaping, re-grading, addition of trees or the addition, and/or changes in sidewalks, walls, driveways, etc.

D. Installations must declare compliance with section 1903.251, Texas Occupations Code.

1.4 SUBMITTALS

A. The Contractor shall submit shop drawings or manufacturer's "cut sheet" for each type of sprinkler head, pipe, controller, valves, check valve assemblies, valve boxes, wire, conduit, fittings, drip irrigation lines and components, and all other types of fixtures and equipment proposed to install on the job. The submittal shall include the manufacturer's name, model number, equipment capacity, and manufacturer's installation recommendation, if applicable, for each proposed item.

B. No partial submittal will be accepted and submittals shall be neatly bound into a brochure and logically organized. After the submittal has been approved, substitutions will not be allowed except by written consent of the Owner’s Representative.

C. Shop drawings shall include dimensions, elevations, construction, details, arrangements, and capacity of equipment, as well as manufacturer's installation recommendations.

1.5 "APPROVED EQUAL" SUBSTITUTIONS

Several items in this section and on the plans are specified by a manufacturer's brand name and catalog number, followed by the phrase "or approved equal". This is not intended to unduly restrict competitive procurements or bidding, but is done to assure a minimum standard of quality which is believed to be best for the item specified.

1.6 CODES/PERMITS

A. All work under this section shall comply with the provisions of these Specifications, as illustrated on the accompanying drawings, or as directed by the Owner's Representative and shall satisfy all applicable local codes, ordinances, or regulations of the governing bodies and all authorities having jurisdiction over this Project.

B. Installation of equipment and materials shall be done in accordance with requirements of the National Electrical Code, City of North Richland Hills Plumbing Code, and standard plumbing procedures. The drawings and these Specifications are intended to comply with all the necessary rules and regulations; however, some discrepancies may occur, the Contractor shall immediately notify the Owner's Representative in writing of the discrepancies and apply for an interpretation. Should the discovery and notification occur after the execution of a contract, any additional work required for compliance with the regulations shall be paid for as covered by these Contract Documents.

C. The Contractor shall give all necessary notices, obtain all permits, and pay all costs in connection with his work; file with all governmental departments having jurisdiction; obtain all required certificates of inspection for his work and deliver to the Owner's Representative.

D. The Contractor shall include in the work any labor, materials, services, apparatus, or drawings in order to comply with all applicable laws, ordinances, rules and regulations whether or not shown on the drawings and/or specified.

E. The installation of the irrigation system shall be made by an individual or firm duly qualified with a minimum of five years experience installing systems of similar size and scope, and licensed under Article No. 8751 VTCS, Titled "Licensed Irrigators Act", S.B. No. 259 as passed by the 66th Texas Legislature.

1.7 EXISTING UTILITIES

A. Locations and elevations of various utilities included with the scope of this work have been obtained from the most reliable sources available and should serve as a general guide without guarantee to accuracy. The Contractor shall examine the Site and verify to his own satisfaction the locations and elevation of all utilities and availability of utilities and services required. The Contractor shall inform himself as to their relation to the work and the submission of bids shall be deemed as evidence thereof. The Contractor shall repair at his own expense, and to the satisfaction of the Landscape Architect, for damage to any utility shown or not shown on the plans.

B. Should utilities not shown on the plans be found during excavations, Contractor shall promptly notify the Landscape Architect for instructions as to further action.

C. Contractor shall make necessary adjustments in the layout as may be required to connect to existing stub-outs, should such stub- outs not be located exactly as shown and as may be required to work around existing work, at no increase in cost to the Owner. All such work will be recorded on record drawings and turned over to the Landscape Architect prior to final acceptance.

1.8 RECORD DRAWINGS

A. Record dimensioned locations and depths for each of the following:

1. Point of connection to proposed backflow device as shown on plan.
2. Sprinkler pressure line routing (provide dimensions for each 100 lineal feet (maximum) along each routing, and for each change in directions).
3. Gate valves.
4. Sprinkler control valves (buried only).
5. Control wire routing.
6. Other related items as may be directed by the Owner's Representative.

B. Locate all dimensions from two permanent points (buildings, monuments, sidewalks, curbs, or pavements).

C. Record all changes which are made from the Contract drawings, including changes in the pressure and non-pressure lines.

D. Record all required information on a set of blackline prints of the Contract drawings. Do not use these prints for any other purpose.

E. Maintain information daily. Keep Contract drawings at the Worksite at all times and available for review by the Owner's Representative.

F. When record drawings have been approved by the Owner's Representative, transfer all information to a set of reproducible mylars using permanent ink or provide a bond copy and electronic file on CD of the final record as-built drawings. Changes using ball-point pen are not acceptable. Make dimensions accurately at the same scale used on original Drawings, or larger. If photo reduction is required to facilitate controller chart housing, notes or dimension must be a minimum 1/4 inch in size.

G. Reproducible mylars and/or bonds and CD will be furnished by the Owner cost for printing and handling.

1.10 CONTROLLER CHART

A. Do not prepare chart until record drawings have been approved by the Owner's Representative.

B. Provide one controller chart for the stations used on the automatic controller(s).

1. Chart may be a reproduction of the record drawing, if the scale permits fitting within the controller door. If photo reduction prints are required, keep reduction to maximum size possible to retain full legibility.
2. Chart shall be blackline print of the actual system, showing the area covered by that controller.

C. Identify the area of coverage of each remote control valve, using a distinctly different pastel color, drawn over the entire area of coverage.

D. Following approval of chart by the Owner's Representative, it shall be hermetically sealed between two layers of 20 mil. thick plastic sheet.

E. Chart must be completed and approved prior to final acceptance of the irrigation system.

1.11 OPERATING AND MAINTENANCE MANUALS

A. Provide individual bound manuals detailing operating and maintenance requirements for irrigation systems.

B. Manuals shall be delivered to the Owner's representative for review and approval no later than 10 days prior to completion of work. Revise manual as required.

C. Provide descriptions of all installed materials and systems in sufficient detail to permit maintenance personnel to understand, operate, and maintain the equipment.

D. Provide the following in each manual:

1. Index sheet, stating Irrigation Contractor's name, address, telephone number, and name of person to contact.
2. Duration of guarantee period.
3. Equipment list providing the following for each item:
   a. Manufacturer's name.
   b. Make and model number.
   c. Name and address of local manufacturer's representative.
   d. Spare parts list in detail.
   e. Detailed operating and maintenance instructions of major equipment.
4. Recommended programs for watering by season.

1.12 CHECKLIST

A. Provide a signed and dated checklist, and deliver to the Owner's Representative prior to final acceptance of the work.

B. Use the following format:

1. Plumbing permits: if none required, so note.
2. Material approvals: approved by and date.
3. Pressure line tests: by whom and date.
4. Record Drawings: received by and date.
5. Controller charts: received by and date.
6. Materials furnished: received by and date.
7. Operation and maintenance manuals: received by and date.
8. System and equipment operation instructions: received by and date.
9. Manufacturer's warranties if required: received by and date.
10. Written guarantee: received by and date.
11. Lowering of heads in lawn areas: if incomplete, so state.

1.13 WATER FOR TESTING

Unless noted otherwise on the plans or elsewhere, water is available on the site necessary for testing, flushing, and jetting.

1.14 BORINGS, SLEEVES AND ELECTRICAL CONDUITS

Sleeves and electrical conduits are the responsibility of the Irrigation Contractor to install prior to paving or related construction and should be installed as noted on the approved irrigation plan. Contractors shall be responsible for locating all sleeves and conduits at no additional cost to the Authority. Borings under existing paving will be required where noted on the drawings and shall be provided at no additional cost to the Owner. Borings shall be a minimum of 18 inch depth and new pipes shall be incased in Schedule 40 PCV sleeves.

1.15 ATTIC STOCK - SPARE PARTS

The Contractor shall supply the Owner with five parts each of irrigation system components excluding controller, mainline pipe and lateral pipe. These items will be kept for use by the Owner after the Organic Landscape Maintenance for One (1) Year (Section 02980) period is completed.

1.16 POINT OF CONNECTION

A. Verify main, meter location, and water pressure at the site, if minimum residual water pressure is less than required, notify owner's representative prior to construction. Contractor shall notify the owner's representative of such and shall receive owners' approval prior to any construction.

B. Follow all state and local codes.

PART 2 - PRODUCTS

2.1 GENERAL

Unless otherwise noted on the plans, all materials shall be new and unused. The irrigation equipment catalog numbers used for reference in these Specifications are to establish minimum quality standards and may be substituted with an "approved equal" as outlined in Paragraph 1.06 of this section, unless specifically requested by the campus maintenance staff and noted as having no "approved equal" to be accepted.

2.2 POLYVINYL CHLORIDE PIPE (PVC PIPE)

PVC pipe manufactured in accordance with ASTM Standards noted herein.

A. Marking and Identification: PVC pipe shall be continuously and permanently marked with following information: Manufacturer's name, size, type of pipe, and material, PVC number, Product Standard number, and the NSF (National Sanitation Foundation) Seal.

B. PVC pipe fittings: Shall be of the same material as the PVC pipe specified and compatible with PVC pipe furnished. Solvent weld type shall be for Schedule 40.

C. PVC Pipe: Mainline and Lateral line pipe shall be Class 200 solvent weld, SDR-21, PS 22-70 for all sizes 1" - 2".

D. Flexible PVC Risers (Nipples): All flexible PVC nipples shall be made from virgin PVC material, and shall comply with ASTM D2287, shall be tested at 200 P.S.I. static pressure for 2 hours and have a quick burst rating of a minimum 400 P.S.I. Flexible PVC pipe nipples shall be factory assembled only.

2.3 SWING JOINTS

Swing joints shall be O-ring seal type. Use Lasco or approved equal.

2.4 WIRE AND SPLICES

A. All wire shall be single strand solid copper, minimum 14 gauge with type UF insulation which is Underwriters Laboratory approved for direct underground burial when used in a National Electrical Code Class II Circuit (30 volts AC or less) as per Articles 725 and 300. Voltage drop shall be taken into consideration.

B. All wire shall be color coded so that the common wire shall have white insulation and the signal wires shall have red insulation.

C. All splices shall be made with King one step Dry splices Tan or Larger.

D. All connectors shall be UL listed, rated 600 volt, for PVC insulated wire. No wire splices shall be buried.

2.5 MANUAL VALVES

A. Manual valves 2 ½" and smaller shall be all brass, globe type with composition disc rated at 150 pounds W.O.G.

B. All valves shall have wheel handles unless cross handles are called for on the plan.

2.6 VALVE BOXES

A. A box shall be provided for all valves.

B. Valve boxes shall be made of high-strength plastic suitable for turf irrigation purposes.

C. Boxes shall be suitable in size and configuration for the operability and adjustment of the valve.

D. Extension sections will be used as appropriate to the depth of piping.

E. All valve box covers shall bolt down or have locking mechanisms and shall be colored green.

2.7 POP-UP SPRAY, MICRO SPRAY, ROTOR AND BUBBLER HEADS

A. Pop-up spray, rotor and bubbler heads are specified on the drawings.

B. One bubbler head shall be provided per each tree per locations as shown on the plans.

C. Spray heads shall have a minimum 4" pop-up or 12” pop-up as designated on the drawings. The sprinkler body and all related parts shall be plastic cycolac or polycarbonate. They shall have a spring retraction for positive return action of the pop-up nozzle. The spring for retraction and the adjustable nozzle screw shall be made of corrosion resistant materials.

D. All heads are to be operated and site adjusted to match precipitation rate of all heads in the zone with proper nozzle selection and arc adjustments.

2.8 ELECTRIC CONTROLLER (PERMANENT IRRIGATION)

A. Electric irrigation controller shall be capable of operating the number of stations as indicated on the drawings. The system is designed to operate only one section valve at a time, unless otherwise noted. The controller will be specified on the irrigation plan.

B. Power source shall be solar.

C. Operation of the controller shall be full automatic, incorporating one 24 hour clock and 14 day calendar per controlled number of electric valves shown on the plan to start the sprinkling cycle any hour or hours of the day or night of any day or days over a repeating 14 day period.

D. The controller shall be capable of repeating watering cycles as required with a maximum delay between the ending of one cycle and the beginning of the next not to exceed 2 hours. Control shall provide optional semi-automatic operation whereby the automatic cycle may be started independent of the clock and manual operation whereby any station may be operated by hand independent of all timing mechanism. The choice of automatic day or hour programming shall be available to the operator on the face of the control panel without the use of tools.

E. The automatic controller shall be equipped with rainproof housing.

F. Provide automatic rain/freeze shutoff with controller.

2.9 REMOTE CONTROL GLOBE VALVES

A. Remote control valves shall have plastic bodies and covers and shall be globe-type diaphragm valves of normally closed design.

B. Commissioning requires the participation of this Contractor to ensure that all systems are operating in a manner consistent with the Contract Documents.

C. A flow stem adjustment shall be included in each valve.

2.10 BACKFLOW PREVENTER

A. A double-check assembly shall be located and sized as shown on the plans.

B. This assembly shall be installed in a box and shall conform to the City Plumbing Codes.

C. Use Rectangle Jumbo Plastic box.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Design Pressure: This irrigation system has been designed to operate with a minimum static inlet water pressure as indicated on the drawing. The Contractor shall take a pressure reading prior to beginning construction. If the pressure reading is 5% less than above, the Contractor shall notify the Owner's Representative.

B. Contractor Responsibility: The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in equipment usage, area dimensions or water pressure exist that might not have been considered in the engineering. Such obstructions or differences shall be brought to the attention of the Owner's Representative in writing. In the event this notification is not performed, the Contractor shall assume full responsibility for any revision necessary.

C. Staking: Before installation is started, place a stake or flag where each sprinkler is to be located, in accordance with drawing. Staking shall be approved by the Owner's Representative before proceeding.

D. Piping Layout: Piping layout is diagrammatic. Route piping around existing trees and root zones in such a manner as to avoid damage to plantings. Where access is restricted, bore under large existing trees to avoid damage and exposure of the root system. Do not dig within the ball of newly planted trees or shrubs.

E. In areas where trees are present, trenches will be adjusted on site to provide a minimum clearance of four times the trunk diameter of the tree (at its base) between any tree and any trench.

F. All material and equipment shall be delivered to the Worksite in unbroken reels, cartons or other packaging to demonstrate that such material is new and of a quality and grade in keeping with the intent of these Specifications.

G. Spray heads and Rotor heads cannot be located closer than 4" of any sidewalk, driveway or foundation.

3.2 EXCAVATION AND TRENCHING

A. The Contractor shall perform all excavation to the depth indicated in these Specifications and Contract drawings. The banks of trenches shall be kept as nearly vertical as practicable. Trenches shall be wide enough to allow a minimum of 4" between parallel pipelines or electrical wiring. Where rock excavation is required, or where stones are encountered in the bottom of the trench that would create a concentrated pressure on the pipe, the rock or stones shall be removed to a depth of six (6) inches minimum below the trench depth indicated. The over depth rock excavation and all excess trench excavation shall be backfilled with loose, moist earth or sand, thoroughly tamped. Whenever wet or otherwise unstable soil that is incapable of properly supporting the pipe is encountered in the trench bottom, such shall be removed to a depth and

length required, and the trench backfilled to trench bottom grade as hereinafter specified, with course sand, fine gravel or other suitable material.

B. Bottom of trench grade shall be continued past ground surface deviations to avoid air pockets and low collection points in the line. The minimum cover specifications shall govern regardless of variations in ground surface profile and the occasional deeper excavation required at banks and other field conditions. Excavation shall be such that a uniform trench grade variation will occur in all cases where variations are necessary.

C. Trench excavation shall comprise the satisfactory removal and disposition of all materials, and shall include all shoring and sheeting required to protect the excavation and to safeguard employees.

D. During excavation, material suitable for backfilling shall be stockpiled in an orderly manner a sufficient distance back from edge of trenches to avoid overloading and prevent slides or cave-ins. Material unsuitable for backfilling shall be wasted as directed by the Owner's Representative. When excavated material is of a rocky nature and the topsoil or any other layer of excavated material is suitable for pipe bedding and backfill in the vicinity of the pipe, such material shall be separately stockpiled for use in such bedding and pipe backfill operations, unless satisfactory imported material is used.

E. All excavations and backfill shall be unclassified and covered in the basic bid. No additional compensation will be allowed for rock encountered.

F. Restore all surfaces, existing underground installations, etc., damaged or cut as a result of the excavations to their original conditions in a manner acceptable to the Owner's Representative.

3.3 PIPE INSTALLATION

A. Sprinkler Mains: Sprinkler mains are that portion of piping from water source to electric valves. This portion of piping is subject to surges since it is a closed portion of the sprinkler system. Sprinkler mains shall be installed in a trench with a minimum of 18 inches of cover.

B. Lateral Piping: Lateral piping is that portion of piping from electrical valve to sprinkler heads. This portion of piping is not subject to surges since it is an "open end" portion of the sprinkler system. Lateral piping shall be installed in a trench with a minimum of 12 inches of cover.

C. Remove lumber, rubbish, and rocks from trenches. Provide firm, uniform bearing for entire length of each pipeline to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before welding, and keep piping clean during and after laying pipe.

D. PVC pipe shall not be installed where there is water in the trench, nor shall PVC pipe be laid when temperature is 40 deg. F or below or when rain is imminent. PVC pipe will expand and contract as the temperature changes. Therefore, pipe shall be snaked from side to side of trench bottom to allow for expansion and contraction.

3.4 PVC PIPE AND FITTING ASSEMBLY

A. Solvent: Make solvent-welded joints following standards noted herein. Thoroughly clean pipe and fittings of dirt, dust, and moisture with an approved PVC primer before applying solvent.

B. PVC to Metal Connection: Work metal connections first. Use a non-hardening pipe dope such as Permatex No. 2 or "Teflon" tape on threaded PVC to metal joints. Use only light wrench pressure.

C. Threaded PVC Connections: Where required, use threaded PVC adapters into which pipe may be welded.

3.5 HYDROSTATIC TESTS

Pressure Test: After the pipe is laid, the joints completed, and the trench partially backfilled, leaving the joints exposed for examination, the newly laid piping or any valved section of main pressure line piping shall, unless otherwise specified, be subjected for four hours to a hydrostatic pressure test of normal city water pressure. Each valve shall be opened and closed during the test. Enclosed pipe, joints, fittings, and valves shall be carefully examined during the partially open trench test. Joints showing visible leakage shall be replaced or remade, as necessary. Cracked or defective pipe, joints, fittings, or valves discovered in consequence of this pressure test shall be repeated until the test results are satisfactory. All replacement and repair shall be at contractor's cost.

3.6 CONTROL WIRE INSTALLATION

A. All control wire less than 500 feet in length shall be continuous without splices or joints from the controller to the valves. Connections to the electric valves shall be made within 18 inches of the valve using connectors specified in Paragraph 2.4 of this section, unless otherwise approved by the Owner’s Representative in writing.

B. All control wires shall be installed at least 18 inches deep. Contractor shall obtain the Owner’s Representative's approval for wire routing when installed in a separate ditch. Control wires may be installed in a common ditch with piping; however, wires must be installed a minimum of 4 inches below or to one side of piping.

C. All wire passing under existing or future paving, sidewalk, construction, etc., shall be encased in PVC Schedule 40 conduit extending at least 2 feet beyond edges of paving, sidewalks, or construction.

3.7 POP-UP SPRAY, MICRO-SPRAY, ROTORY AND BUBBLER HEADS

A. Provide heads and nozzles as specified and install in locations as shown on the Contract Drawings.

B. Pop-up spray and micro-spray heads shall be installed on a “flex” pipe connector as detailed. Rotary heads shall be installed on a double swing joint connected to the lateral pipe. Bubbler shall be a tree well flexible riser-bubbler head on a flex pipe. Provide wire staple to secure the bubbler to the top of the root ball. Keep heads a minimum of 4 inches from paved surfaces.

C. Heads shall be installed with underside of flange flush with the finished grade.

D. Contractor will be required to adjust heads as necessary after establishment of grass or other plant material.

3.8 MANUAL VALVES

A. Manual valves shall be sized and located where shown on the Contract drawings.

B. Valve boxes shall be adjusted to be flush with finished grade.

C. Valve boxes shall be properly supported and of sufficient construction that tractors, mowers or other equipment crossing over the boxes will not push boxes down and crush the pipe, valve, or box.

3.9 VALVE AND VALVE BOX PLACEMENT

A. A ball valve shall precede each valve to provide shut off for repair of valves.

B. All manual, electric, and quick coupling valves shall be in boxes as specified in Paragraph 2.6 of this section, and shall be set with a minimum of six (6) inches of space between their top surface and the bottom of the valve box. The base of the box shall be filled with pea gravel per manufacturer's installation instructions.

C. Valves shall be fully opened and fully closed to ensure that all parts are in operating condition.

D. Valve boxes shall be set plumb, vertical, and concentric with the valve stem.

E. Any valve box which has moved from this required position so as to prevent the use of the operating wheel of the valve shall be reset by the Contractor at his own expense.

3.10 ELECTRIC CONTROLLER

A. Electric controller shall be located as shown on the plans and shall be capable of operating the number of stations indicated.

B. The system is designed to operate only one section at a time, unless otherwise noted on the plans in strict accordance with the manufacturer's published installation instructions.

3.11 ELECTRIC REMOTE CONTROL VALVES

A. Remote control valves shall be located and sized as shown on the plans. All electrical connections shall be made when the weather is dry with connection kits as specified in Paragraph 2.4 of this section in strict accordance with manufacturer's recommended procedures. All remote control valves shall be installed in a horizontal position, in accordance to the manufacturer's published installation instructions.

B. It shall be the responsibility of the Contractor to furnish and install the proper size wire on each of the low voltage circuits from the master control center to the various electric remote control valves.

C. Consideration shall be given to each circuit for allowance of voltage drop and economy consistent with accepted practices of electrical installation. Under no circumstances shall the voltage of any branch circuit be reduced more than proper due to length of run exceeding the maximum allowable for the wire size used.

3.12 BACKFILL AND COMPACTION

A. After system is operating and required tests and inspections have been made, the trenches shall be carefully backfilled with the excavated materials approved for backfilling, consisting of earth, loam, sandy clay, sand, gravel, soft shale, or other approved materials, free from large clods of earth or stone. Rock, broken concrete, or pavement, and large boulders shall not be used as backfill material. The backfill shall be thoroughly compacted and evened with the adjacent soil level.

B. Compact trenches in areas to be planted by thoroughly flooding the backfill. Compact all other areas by flooding or hand tamping. The jetting process may be used in areas when flooding.

C. Backfill for all trenches, regardless of the type of pipe covered, shall be compacted to a minimum of 90% density.

D. Any trenches improperly backfilled, or where settlement occurs, shall be reopened to the depth required for compaction, then refilled and compacted with the surface restored to the required grade and left in a completed surface condition as described above.

E. Specifically tamp backfill under heads and around the flange of heads for one foot (1') by a suitable means after trench backfill has dried from flooding to prevent heads loosening in the ground.

3.13 FINAL ADJUSTMENT

A. After installation has been completed, make final adjustment of sprinkler system prior to Owner's Representative's final inspection.

B. Completely flush system to remove debris from lines by removing nozzle from heads on ends of lines and turning on system.

C. Check sprinklers for proper operation and proper alignment for direction of throw.

D. Check each new section for operating pressure and balance to other sections by use of flow adjustment on top of each valve.

E. Check nozzling for proper coverage. Prevailing wind conditions may indicate that arc or angle of spray should be other than as shown on drawings. In this case, change nozzles to provide correct coverage and furnish record data to Owner's Representative with each change.

F. After system is thoroughly flushed and ready for operation, each section of sprinklers shall be adjusted to control pressure at heads. Use the following method, one section at a time:

1. Remove last head on section and install a temporary riser above grade. Install tee with pressure gauge attached on top of riser and re-install head with nipple onto tee.
2. Correct operating pressure at last head of each section as follows: Spray Heads - 20-25 psi; rotor heads - 30 to 40 psi (and as recommended by the manufacturer).
3. After replacing head, at grade, tamp thoroughly around head.

3.14 CLEAN-UP

A. The Worksite shall be thoroughly cleaned of all waste materials and all unused or salvaged materials, equipment, tools, etc.

B. After completion of the work, areas disturbed shall be leveled and the Worksite shall be raked clean and left in an orderly condition.

3.15 TEMPORARY IRRIGATION FOR GRASS ESTABLISHMENT

The contractor shall provide temporary irrigation for all new turf areas. Temporary irrigation may include equipment securely staked above grade. It shall be the contractor's responsibility to provide complete, consistent temporary coverage in order to establish a viable, mowable stand of grass. Any above grade equipment shall be removed by the contractor upon acceptance of the turf by the owner.

PART 4 - METHOD OF MEASUREMENT

MEASUREMENT:

Landscape Irrigation Systems described in this section will be paid for on a lump sum basis wherein no measurement will be made.

PART 5 BASIS OF PAYMENT

PAYMENT:

A. Landscape Irrigation Systems will be paid for at the Contract lump sum, which price will be full compensation for furnishing and installing equipment; shop drawings; providing all submittals and warranties; furnishing all labor, materials, tools, equipment; and incidentals necessary to complete the work as described in this section and related other sections of these Specifications and plans, as well as maintenance until final acceptance.

B. Payment will be made under:

Number	Pay Item	Pay Unit
02975 - 1	Landscape Irrigation System	Lump Sum

END OF SECTION 328400

SECTION V

SPECIAL PROVISIONS

SPECIAL PROVISIONS

INDEX

SPECIAL PROVISIONS

SP-1: GENERAL

For this contract, the General Provisions (Division 100) of the "Public Works Construction Standards - North Central Texas" adopted by the North Central Texas Council of Governments (NCTCOG), October 2004 Edition, with all amendments thereto, shall govern and shall constitute as the Special Provisions except as herein amended, modified or supplemented. Omission of any section from this Project's Contract Documents does not mean that such section is not applicable to this Project. The NCTCOG General Provisions will be referred to as the General Provisions (GP) and will not be physically bound with the other contract documents.. Copies may be obtained from the North Central Texas Council of Governments.

The following Special Provisions shall take precedence over all other contract conditions, specifications and agreements.

SP-2: PROJECT DESCRIPTION

The work associated with this Project includes, but is not limited to, the following tasks:

1. Construction staking
2. Erosion control
3. General site preparation
4. Lime stabilized subgrade
5. Reinforced concrete pavement
6. Driveway and sidewalk construction
7. Storm drain construction
8. Sanitary sewer construction
9. Replace water services
10. Temporary traffic control

11. Trench safety

12. Cleanup and removal of erosion control

SP-3: DEFINITIONS

Modify GP Item 101.1 Definitions as follows:

The word "City" or "OWNER" in these documents shall be understood as referring to:

The City of North Richland Hills, Texas
7301 N.E. Loop 820
North Richland Hills, Texas 76180

The word "Engineer" in these documents shall be understood as referring to Halff Associates, Inc.

The word "Inspector" in these documents shall be understood as referring to the technical construction inspector within the OWNER's Public Works Department.

The word "OWNER's Representative" in these documents shall be understood as referring to the OWNER's Director of Public Works, Public Works Technical Construction Inspector(s), Engineer of the OWNER, or such other Engineer or Supervisor as may be authorized by the OWNER to act in any particular position.

Any reference to "Special Conditions" or "Supplemental Special Conditions" shall be understood as referring to these Special Provisions.

SP-4: INFORMATION CONCERNING CONDITIONS

Add the following to GP Item 102.3. Examination of Plans, Specifications and Site of the Work:

Prospective bidders shall make a careful examination of the entire site of the project and shall make such explorations as may be necessary to determine the subsoil and water conditions to be encountered; improvements and obstructions which may be encountered, especially those to be protected; methods of providing ingress and egress to private as well as public property; methods of handling traffic during construction and maintenance of the entire project as well as any section thereof; protection of all existing structures both above and below ground; and how the plans fit the proposed project and especially if any discrepancies exist.

The accuracy of the information furnished by the Engineer or the plans and specifications as to underground structures and surface structures, foundation conditions, character of soil, position and quality of ground and subsoil water, etc., are not guaranteed by the OWNER.

Subsurface exploration, to ascertain the nature of the soils at the project site, including the amount of rock, if any, is to be the responsibility of any and all prospective bidders. Whether prospective bidders perform this subsurface exploration jointly or independently, it shall be left to the discretion of such prospective bidders. Subsurface exploration shall not be attempted without the approval of the Engineer.

SP-5: ADDENDA

Bidders wanting further information, interpretation or clarification of the Contract Documents must make their request in writing to the Engineer **at least four (4) days prior to the Bid Opening.** Answers to all such requests will be made a part of the Contract Documents. No other explanation or interpretation will be considered official or binding.

Should a bidder find discrepancies in, or omission from the Contract Documents, or should he/she be in doubt as to their meaning, he/she should at once notify the Engineer in order that a written addendum may be sent to all bidders. Any addenda issued will be mailed or be delivered to each prospective bidder who has requested and received a bid packet. The bid proposal as submitted by the bidder must be so constructed as to include any addenda issued by the Engineer prior to 24 hours of the bid opening, with the appropriate recognition of addenda so noted in the bid proposal.

SP-6: PROPOSED GUARANTY

Modify GP Item 102.5. Proposal Guaranty to include:

The five percent (5%) proposal guaranty shall be five percent (5%) of the largest possible total for the bid submitted.

SP-7: FILING OF PROPOSAL

Add the following to GP Item 102.6. Filing of Proposals:

Bids, affidavits and proposed construction schedules must be submitted in sealed envelopes within the time limit for receiving proposals, as stated in the "NOTICE TO BIDDERS", which envelopes bear a legible notation, "PROPOSAL", and the name of the project. The original copy shall be filed with the City of North Richland Hills in the office of the City Secretary at City Hall.

SP-8: REJECTION OF PROPOSALS

Add the following reasons to GP Item 102.11. Rejection of Proposals:

(7) Proposals that are incomplete insofar as the required signatures, proposal guaranty, or containing any material irregularities.

SP-9: DISQUALIFICATION OF BIDDERS

Add the following reason to GP Item 102.12. Disqualification of Bidders:

(9) where more than one proposal for an individual firm, partnership, or corporation is filed under the same or different names and where such proposals are not identical in every respect.

SP-10: QUALIFICATION TO PERFORM

The OWNER may make such investigations as he/she deems necessary to determine the bidder's ability to perform the work, and the bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any bid if the evidence submitted fails to satisfy the OWNER that such bidder can properly carry out the obligations of the contract and to complete the work contemplated therein.

SP-11: AWARD OF CONTRACT

Add the following to GP Item 103.2. Award of Contract and Commencement of Work:

The award, if made, shall be on the basis of the lowest acceptable bid submitted by a qualified responsible bidder, as determined by the OWNER, within 60 days after the opening of proposals. In determining the lowest acceptable bid, the OWNER will consider all relative factors such as: efficiency of a single contractor in the project area, increase in public safety due to a single contractor's operations, length of construction, coordination of construction activities, previous experience the OWNER may have had with the bidder, effects on area traffic due to construction detours and efficient use of City funds. The right is reserved, as the interest of the OWNER may require, to reject any and all bids and to waive any formality in bids received. It is the intention of the OWNER to award a single contract for this work.

SP-12: BONDS - AMOUNT AND TERMS

In addition to GP Item 103.3. Surety Bonds, add the following:

With the execution and delivery of the contract, the CONTRACTOR shall furnish and file with the City in the amount herein required, the following surety bonds:

(1) A good and sufficient Performance Bond in an amount equal to one hundred percent (100%) of the total awarded contract price, guaranteeing the full and faithful execution of the work and performance of the contract and for the protection of the City against any improper execution of the work or the use of inferior materials.

(2) A good and sufficient Payment Bond in an amount equal to one hundred percent (100%) of the total awarded contract price, guaranteeing payment for all labor, materials and equipment used in the construction of the project.

(3) A good and sufficient Maintenance Bond in an amount equal to twenty percent (20%) of the final contract price, guaranteeing the maintenance in good condition of such project for a period of two (2) years from and after the time of its completion and acceptance by the City.

General conditions for bonds are as follows:

1. The surety on each bond must be a responsible surety company which is licensed and qualified to do business in the State of Texas (surplus lines carriers are not acceptable) and satisfactory to the City. No surety will be accepted who is in default or delinquent on any bond or who is interested in any litigation against the City. Should any surety on the contract be determined unsatisfactory at any time by the City, notice will be given to the CONTRACTOR to the effect, and the CONTRACTOR shall forthwith substitute a new Surety or Sureties satisfactory to the City. (Texas Lloyd's Plan carriers are not acceptable.) No payment will be made under the contract until the new Surety or Sureties, as required, have qualified and have been accepted by the City. The contract shall not be operative nor shall any payments be due until approval of the bonds has been made by the City.

2. The surety company should be listed in the current circular of the "Federal Register - Department of the Treasury - Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsurance Companies".

3. The surety shall/must have an underwriting limitation (as shown in the Federal Register) to cover 110% of the project cost. Exceptions to a requirement may be made in unusual circumstances, subject to approval by the Office of Risk Management and the City Attorney's Office.

4. All bonds shall be made on forms furnished by the City and shall conform to the requirements as set forth herein.

5. Each Bond shall be executed by the CONTRACTOR and the Surety. The name and residence of each individual party to the bond shall be inserted in the body thereof, and each such party shall sign the bond with his/her usual signature on the line opposite the scroll seal, and if signed in the States of Main, Massachusetts, or New Hampshire, an adhesive seal shall be fixed opposite the signature.

6. If the principals are partners, their individual names will appear in the body of the bond or on proceeding pages to be included with said bond with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.

7. The signature of a witness shall appear in the appropriate place, attesting the signature of each individual party to the bond.

8. The principal or surety shall be a corporate surety; the name of the state in which incorporated shall be inserted in the appropriate place in the body of the bond or on proceeding pages to be included with said bond, and said instrument shall be executed and attested under the corporate seal, the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.

9. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary according to the form attached hereto. In lieu of such certificate, records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.

10. The date of any bond must not be prior to the date of the contract in connection with which it is given.

SP-13: INSURANCE REQUIREMENTS

In addition to the provisions of GP Item 1.03.4. Insurance, add the following:

Workmen's Compensation Insurance: Statutory requirements as specified by the Workmen's Compensation Law of the State of Texas and adopted by the Texas Workers' Compensation Commission per Title 28, TAC §110.110. Workers' Compensation Insurance Coverage:

A. Definitions:

(1) Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees (including those subject to a coverage agreement) providing services on a project for the duration of the project.

(2) Building or construction - Has the meaning defined in the Texas Labor Code, §406.096(e)(1).

(3) Contractor - A Person bidding for or awarded a building or construction project by a governmental entity.

(4) Coverage - Workers' compensation insurance meeting the statutory requirements of the Texas Labor Code, §401.011(44).

(5) Coverage Agreement - A written agreement on form TWCC-81, form TWCC-82, form TWCC-83, or form TWCC-84, filed with the Texas Workers' Compensation Commission which establishes a relationship between the parties for purposes of the Workers' Compensation Act, pursuant to the Texas Labor Code, Chapter 406, Subchapters F and G, as one of employer/employee and establishes who will be responsible for providing workers' compensation coverage for persons providing services on the project.

(6) Duration of the project - Includes the time from the beginning of the work on the project until the work on the project has been completed and accepted by the governmental entity.

(7) Persons providing services on the project ("subcontractor" in §406.096) - Includes all persons or entities performing all or part of

the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the CONTRACTOR and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

(8) Project - Includes the provision of all services related to a building or construction contract for a governmental entity.

B. The CONTRACTOR shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the CONTRACTOR providing services on the project for the duration of the project.

C. The CONTRACTOR must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on the CONTRACTOR's current certificate of coverage ends during the duration of the project the CONTRACTOR must prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. The CONTRACTOR shall obtain from each person providing services on the project and provide to the governmental entity:

(1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

(2) no later than seven days after receipt by the CONTRACTOR, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

F. The CONTRACTOR shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

G. The CONTRACTOR shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the CONTRACTOR knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

H. The CONTRACTOR shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. The CONTRACTOR shall contractually require each person with whom it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

(2) provide to the CONTRACTOR, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

(3) provide the CONTRACTOR, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(4) obtain from each other person with whom it contracts, and provide to the CONTRACTOR:

(a) a certificate of coverage, prior to the other person beginning work on the project; and

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.

J. By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the governmental entity that all employees of the CONTRACTOR who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. The CONTRACTOR's failure to comply with any of these provisions is a breach of contract by the CONTRACTOR which entitles the governmental entity to declare the contract void if the CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

In accordance with statutory requirements, the CONTRACTOR shall:

(1) provide coverage for its employees providing services on the project, for the duration of the project based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements;

(2) provide a certificate of coverage showing workers' compensation coverage to the governmental entity prior to beginning work on the project;

(3) provide the governmental entity, prior to the end of the coverage period, a new certificate of coverage showing extension of

coverage, if the coverage period shown on the CONTRACTOR's current certificate of coverage ends during the duration of the project;

(4) obtain from each person providing services on the project, and provide to the governmental entity:

(A) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

(B) no later than seven (7) days after receipt by the contract, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project;

(7) post a notice on each project site informing all persons providing services on the project that they are required to be covered, and stating how a person may verify current coverage and report failure to provide coverage. This notice does not satisfy other posting requirements imposed by the Act or other commission rules. This notice must be printed with a title in at least 30 point bold type and text in at least 19 point normal type, and shall be in both English and Spanish and any other language common to the worker population. The text for the notices shall be the following text in Figure 1 provided by the commission on the sample notice, without any additional words or changes:

Figure 1:

REQUIRED WORKERS' COMPENSATION COVERAGE

"The law requires that each person working on this site or providing services related to this construction project must be covered by

workers' compensation insurance. This includes persons providing, hauling, or delivering equipment or materials, or providing labor or transportation or other service related to the project, regardless of the identity of their employer or status as an employee"

"Call the Texas Workers' Compensation Commission at (512) 440-3789 to receive information on the legal requirement for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage."

In GP Item 103.4.1.2. Commercial General Liability, change the respective limits as follows:

Contractor's General Liability and Property Damage Insurance:

Bodily Injury (or Death)	$ 600,000 each occurrence
Property Damage	$ 600,000 each occurrence

SP-14: POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

In addition to the provisions of GP Item 103.4.5. Policy Endorsements and Special Conditions, add the following:

(a) CONTRACTOR will not be issued a Work Order to commence work on this Contract until he/she has obtained all the insurance required under this section and such insurance has been approved by the OWNER or his representative.

(b) CONTRACTOR shall procure and shall maintain during the life of this Contract, insurance coverage as herein specified, and in case of any work sublet, shall require any subcontractor in like manner to secure and maintain such minimum limits of insurance coverage, also.

(c) The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates, and dates of expiration of policies. Such certificates shall contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered except after thirty (30) days written notice has been received by the OWNER."

SP-15: ORDER OF WORK

Add the following to GP Item 103.6. Notice to Proceed and Commencement of Work:

The CONTRACTOR shall be fully responsible for proper coordination for the relocation of utilities (i.e. power poles, electrical lines, gas lines, telephone lines, television (TV) cable lines, buried cables, etc.) public and private unless otherwise noted on the plans/drawings.

SP-16: PRIORITY OF CONTRACT DOCUMENTS

Delete GP Item 105.1.1. Priority of Contract Documents and substitute the following:

In case of conflict between contract documents, priority of interpretation shall be in the following order:

(1) This Agreement
(2) Addendum(s)
(3) "Notice to Bidders" advertisement
(4) Bidder's Proposal
(5) Special Instruction to Bidders
(6) Performance, Payment and Maintenance Bonds
(7) Certification of Insurance
(8) Notice to Proceed
(9) Technical Specifications
(10) City of North Richland Hills' Public Works Design Manual
(11) Special Provisions
(12) General Provisions
(13) Special Specifications
(14) Project Construction Plans/Drawings
(15) Special Material and/or Equipment Specifications
(16) Special Material and/or Equipment Drawings
(17) "Public Works Construction Standards - North Central Texas" adopted by the North Central Texas Council of Governments (NCTCOG), October 2004 Edition
(18) North Central Texas Council of Government references

SP-17: WARRANTY

In GP Item 105.2.2. Special Warranty, change all references from one year to two (2) years and add the following:

Notwithstanding any certificate which may have been given by the Engineer, if any materials, equipment or any workmanship which does not comply with the

requirements of this contract shall be discovered within two (2) years after completion of construction of the project, and acceptance by the OWNER, the CONTRACTOR shall replace such defective materials or equipment, or remedy any such defective workmanship within ten (10) days after notice in writing of the existence thereof shall have been given by the OWNER or Engineer. In the event of failure of the CONTRACTOR to replace any such defective materials or equipment or to remedy defective workmanship as herein provided, the OWNER may replace such defective materials or equipment or remedy such workmanship as the case may be and in such event the CONTRACTOR shall pay to the OWNER the cost and expense thereof.

SP-18: LINES AND GRADES

Add the following to GP Item 105.4. Construction Stakes:

The CONTRACTOR is responsible to provide all construction staking under this contract.

All work under this contract shall be constructed in accordance with the lines and grades shown on the plans/drawings. The full responsibility for the holding to alignment and grade shall rest upon the CONTRACTOR.

The CONTRACTOR shall protect all property corner markers, and when any such markers or monuments are in danger of being disturbed, they shall be properly referenced and if disturbed shall be reset at the expense of the CONTRACTOR.

SP-19: INSPECTION AND TESTING

Add the following to GP Item 106.5. Samples and Tests of Materials:

The CONTRACTOR shall be responsible for paying for all testing and testing related items (acquiring specimens, proper specimen control, etc.) on this Project.

During the progress of the work, all materials, equipment and workmanship shall be subjected to such inspections and tests as will assure conformance with the contract requirements.

The CONTRACTOR shall furnish at his/her expense all necessary specimens and samples for testing.

Sampling and testing of all materials or construction methods shall be performed by a commercial laboratory, approved by the Engineer, and permitted with the City of North Richland Hills' Public Works Department.

When the CONTRACTOR's materials, construction items or products incorporated in the project fail to satisfy the minimum requirements of the initial test and he/she has to bear the cost of any retesting, he/she shall be responsible for any and all cost associated with such retesting. If in this situation, the CONTRACTOR utilizes the same testing laboratory as the OWNER, the CONTRACTOR shall pay said testing laboratory in full or the testing laboratory shall be able to gain recourse through the CONTRACTOR's Payment Bond.

In the event a conflict arises concerning the interpretation of A.S.T.M., A.C.I., A.W.W.A., etc., specifications/standards, the Engineer shall make his/her determination of the interpretation and his/her determination shall be final.

SP-20: INDEMNIFICATION

The CONTRACTOR shall familiarize himself/herself with GP Item 107.2. Indemnification and GP Item 107.19.3.2. Indemnification. Additionally, the following shall be added to both Indemnification items:

This agreement, however, does not waive any governmental immunity available to the OWNER under Texas law and nor any defenses of the parties under Texas law. The provisions of this paragraph are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

SP-21: SALES TAX

Add the following to GP Item 107.14. State and Local Sales and Use Taxes:

The OWNER qualifies for exemption from state and local sales and use taxes, pursuant to the provisions of Section 151.309 of the Texas Limited Sales, Excise and Use Tax Act, as amended. Therefore, the OWNER shall not be liable for, or pay the CONTRACTOR's cost of such sales and use taxes which would otherwise be payable in connection with the performance of this contract.

SP-22: TRAFFIC CONTROL

Add the following to GP Item 107.19.2. Protection of Persons and Property:

The CONTRACTOR shall not remove any regulatory sign, instructional sign, street name sign, or other sign which has been erected by the City. If it is determined that a sign must be removed to permit required construction, the CONTRACTOR shall contact the City to remove the sign. In the case of regulatory signs, the CONTRACTOR must replace the permanent sign with a

temporary sign meeting the requirements of the above referenced manual and such temporary sign must be installed prior to the removal of the permanent sign. If the temporary sign is not installed correctly or if it does not meet the required specifications, the permanent sign shall be left in place until the temporary sign requirements are met. When construction work is completed to the extent that the permanent sign can be reinstalled, the CONTRACTOR shall again contact the City to reinstall the permanent sign and shall leave his temporary sign in place until such installation is completed.

The CONTRACTOR shall prosecute his traffic control work in such a manner as to create a minimum of interruption to traffic and pedestrian facilities and to the flow of vehicular and pedestrian traffic within the project area.

Access to adjacent property shall be maintained at all times unless otherwise approved by the OWNER.

SP-23: TRENCH SAFETY

Add the following paragraph to GP Item 107.19.3. Trench Safety:

Per Chapter 756, Texas Health & Safety Code, it shall be the responsibility of the CONTRACTOR to provide and maintain a viable trench safety system at all times during construction activities. The CONTRACTOR is directed to become knowledgeable and familiar with the standards as set forth by the Occupational Safety and Heath Administration for trench safety that will be in effect during the period of construction of the project and the CONTRACTOR is responsible for conforming to such regulations as prescribed by Occupational Safety and Health Administration standards.

SP-24: WORK-SITE AREA AND CLEAN-UP

Add the following to GP Item 107.21. Working Area:

During construction the CONTRACTOR shall at all times keep the job site free from waste, debris and rubbish, and shall maintain a daily routine of clean-up.

The working operations of the CONTRACTOR shall at all times be conducted so as to create a minimum of inconvenience to the OWNER or to the public. Stringing of pipe, stockpiling of materials, etc., will be allowed only where no inconvenience is caused and only in amounts that can be readily used by the CONTRACTOR.

All trees, stumps, slashings, brush or other debris to be removed from the site, shall be disposed of in a manner consistent with Local Ordinances and all State

Regulations. Burning of trash, etc., will only be permitted where allowed by Local Ordinances and State Pollution Regulations.

All excavated earth in excess of that required for project embankments and/or backfilling shall be removed from the job site and disposed of in a satisfactory manner. Disposal of excess material into area creeks and drainageways will not be allowed.

Any trees or other landscape features scarred or damaged by the CONTRACTOR's operations shall be restored or replaced at the CONTRACTOR's expense. Trimming or pruning to facilitate the work will be permitted only by experienced workmen in an approved manner. Pruned limbs of one inch (1") diameter or larger, shall be thoroughly treated as soon as possible with a tree wound dressing.

The CONTRACTOR shall take all precautions required to prevent soil erosion during construction. If, in the opinion of the Engineer, excessive erosion occurs, the CONTRACTOR shall take immediate measure to prevent further erosion and restore the disturbed surface with topsoil at completion of the work.

All property along and adjacent to the CONTRACTOR's operations including lawns, yards, shrubs, trees, etc., shall be preserved or restored after completion of the work, to a condition equal to or better than existed prior to start of work.

Upon completion of the work as a whole and prior to final acceptance, the CONTRACTOR shall clean and remove from the site all surplus and discarded materials, temporary structures and all debris. He/She shall leave the site in a neat and orderly condition with an appearance satisfactory to the Engineer and OWNER. Method and location of disposal or surplus and waste materials shall be satisfactory to the Engineer.

The CONTRACTOR shall then thoroughly clean all equipment and materials installed by him/her and shall present for final inspection materials and equipment in a clean, bright and new condition.

No extra payment will be made for any of this type of work required on the project.

SP-25: EXISTING STRUCTURES, FACILITIES AND IMPROVEMENTS

Add the following to GP Item 107.23. Existing Structures, Facilities and Appurtenances:

The CONTRACTOR's attention is directed to the necessity of taking adequate measures to protect all existing structures, facilities, improvements and utilities, including sprinkler systems, encountered.

The plans show the locations of most known surface and subsurface structures. However, the OWNER assumes no responsibility for failure to show any or all of these structures on the plans or in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work, or for increasing the pay quantities in any manner, unless the obstruction encountered is such as to necessitate substantial changes in the lines or grades, or requires the building of special works not provided for in the Contract Documents.

Any non-City utilities (cable, electric, gas, telephone, etc.) damaged by the CONTRACTOR shall be the responsibility of the CONTRACTOR for relocation and/or repair as well as the costs associated with the relocation and/or repair of utilities. Any City utilities (sanitary sewer main and water distribution main) damaged by the non-negligent acts of the CONTRACTOR will not be the responsibility of the CONTRACTOR for repair. Any delays associated with the relocation and/or repair of utilities shall not be basis for a claim for extra pay.

In the progress of the work, the CONTRACTOR may have to relocate certain existing utility service lines. All relocation, repairs and replacement work shall be done at the expense of the CONTRACTOR to the satisfaction of the OWNER, except those for which specific pay items appear in the Bid Proposal.

Any utilities damaged during construction work shall be immediately repaired at the CONTRACTOR's expense.

The CONTRACTOR shall at all times maintain streets and drives in a condition which will provide easy ingress and egress and upon completion of the work, repair all damages to roads and streets used during construction, to a condition at least as good as existed prior to the start of work.

SP-26: PROSECUTION OF CONSTRUCTION

Add the following to GP Item 108.2. Prosecution of the Work:

The CONTRACTOR will, unless otherwise approved by the Engineer, prosecute the construction of this project during normal working hours as defined below:

(a) Normal Work Day shall mean the normal eight (8) hour working day between the hours of 8:00am and 5:00pm

(b) Normal Work Week shall mean the forty (40) hour work week encompassing the five (5) eight-hour days, Monday through Friday.

(c) Holidays to be observed and to be included into the normal work week will be:

New Years Day	January 1st
Martin Luther King Day	Third Monday in January
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	First Monday in September
Thanksgiving Holiday	Fourth Thursday in November and the following Friday
Christmas Holiday	December 24th & December 25th

Any of the above dates falling on a Sunday shall be observed on the following Monday.

(d) All work contemplated to be done which will not be in accordance with the normal hours will require prior approval from the Engineer. The CONTRACTOR shall request permission by the Engineer 72 hours in advance of the time he/she intends to work.

Work which is of necessity performed at times other than normal working hours will not require prior approval unless construction scheduling can be arranged to prevent such conflict of time requirements.

All work performed other than the normal working hours, whether scheduled or required, will in no way increase the cost to the OWNER for the performance of such work. The CONTRACTOR shall pay the OWNER for inspection services, city administrative fees, etc. when work has been approved to be performed on Weekends, Holidays and outside any normal working hours. These services shall be charged at the rate of $75.00 per hour and shall include a four (4) hour minimum charge.

(e) Calendar Days is defined as any day of the week or month; no days being excepted, such as, Saturdays, Sundays, holidays and inclement weather days. Counting of contract time will only be stopped when the Owner issues a written notice stating this fact, or when the project is noted as substantially complete by written notice from the Owner. The Owner shall determine when such action is necessary.

Extensions of time due to weather delays shall be determined in accordance with the following formula:

E = R – P where P is greater than or equal to R, and

E = Extra Precipitation Days
P = Average Precipitation Days
R = Total Precipitation Days

Average Precipitation Days (P) is defined as a day of rain, sleet, hail, snow or any combination thereof, and shall be based upon the average precipitation for each month of the year as defined in the Local Climatological Data summaries issued by the National Climatic Data Center in Asheville, North Carolina, and for this contract shall be as follows:

Average Precipitation

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
No. of Days	6	6	7	7	8	6	4	4	6	6	6	6

Partial months shall be prorated uniformly for the entire month and the sum of all the months used will be rounded to the nearest whole number. This number shall be P.

Total Precipitation Days (R) is defined as a day of rain, sleet, hail, snow or any combination thereof, if determined by the Owner's Project Representative that the Contractor's construction cannot progress substantially due to precipitation and thus be put in the Daily Inspection Logs as a precipitation day. The sum of all precipitation says shall be R.

The total number of Extra Precipitation Days (E) shall be granted to the Contractor as extension of time due to weather delays, and no additional time due to drying time for saturated soil will be allowed.

SP-27: LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME

Delete the Table [Schedule 108.8.1.(a) Liquidated Damages] within GP Item 108.8.1. Priority of Contract Documents and substitute the following:

The contract time for the entire project from the “Notice to Proceed” issuance date through the final completion date is 315 consecutive calendar days (note, this 315 consecutive calendar days is for final completion and not substantial completion). This contract time is both multi-tiered and cumulative.

Liquidated damages will be assessed at the rate of $150 per calendar day for any unfinished work for the first 30 days beyond the 315th day. This $150 rate will start on the 316st consecutive calendar day after the “Notice to Proceed” issuance date and continue through the 345th consecutive calendar day after the “Notice to Proceed” issuance date.

Liquidated damages will be assessed at the rate of $300 per consecutive calendar day for any unfinished work beyond the 345th calendar day after the “Notice to Proceed” issuance date. This rate shall continue until such time that the Project is complete and accepted by the OWNER.

SP-28: OCCUPATIONAL SAFETY AND HEALTH ACT

All work performed under this contract shall meet the requirements of the Occupational Safety and Health Act. It is the responsibility of the CONTRACTOR to familiarize himself/herself with the latest provisions of regulations published by the Occupational Safety and Health Administration in the Federal Register and to perform all of his/her responsibilities thereunder.

The CONTRACTOR shall comply with the provisions of the Occupational Safety and Health Act and the standards and regulations issued thereunder and warrant that all work, materials and products furnished under this contract will conform to and comply with said standards and regulations which are in existence on the date of this contract. The CONTRACTOR further agrees to indemnify, defend, and hold harmless the OWNER for all damages suffered by the OWNER as a result of the CONTRACTOR's failure to comply with the Act and the Standards issued thereunder and for the failure of any material and/or equipment furnished under this contract to so comply.

The CONTRACTOR shall also comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., if not in conflict with those of the Occupational Safety and Health Act and shall maintain an accurate record of all cases of death, occupational disease and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the contract.

The CONTRACTOR alone shall be responsible for the safety, efficiency and adequacy of his/her equipment and employees and for any damage which may result from their failure or their improper construction, maintenance or operation.

SP-29: EASEMENTS/RIGHTS-OF-WAY

Without cost to the CONTRACTOR, the OWNER will provide the necessary easements or rights-of-way required for the project. However, the CONTRACTOR may desire additional temporary easements for the duration of the work for his/her construction, storage or access. All such temporary easements shall be obtained by the CONTRACTOR at no additional cost to the contract or the OWNER.

Unless specifically provided otherwise, the CONTRACTOR, as part of his/her work, shall clear all easements or rights-of-way of all obstructions to the work. On conclusion of his/her operations, he/she shall replace, repair or restore any improvements which may have been removed or damaged, as directed by the Engineer.

SP-30: RIGHT OF ENTRY

The OWNER reserves the right to enter the property or location on which the works herein contracted for are to be constructed or installed, by such agent or agents as he/she may elect, for the purpose of inspecting the work, or for the purchase of constructing or installing such collateral work as said OWNER may desire.

SP-31: AUTHORITY AND DUTIES OF INSPECTOR

Inspectors, designated by and acting under the direction of the OWNER, shall have the authority to inspect all work done and all materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. He/She is authorized to call to the attention of the CONTRACTOR any failure of the work or materials to conform to the plans, specifications and contract documents. He/She shall have the authority to reject materials or suspend the work until any situation at issue can be referred to and decided by the OWNER.

The Inspector is not authorized to revoke, alter or waive any requirements of the plans and specifications. He/She shall in no case act as foreman or perform other duties for the CONTRACTOR, interfere with the management of the work by the latter. Any advice which the Inspector may give the CONTRACTOR shall otherwise not be construed as binding the Engineer in any way, or releasing the CONTRACTOR from fulfilling all of the terms of the Contract.

If the CONTRACTOR refuses to suspend operations on verbal order of the Inspector, a written order will be presented to the CONTRACTOR by the Inspector

giving the reason for suspension of work. After placing the order in the hand of the "man-in-charge", the Inspector shall immediately leave the job. Work performed during the absence of the Inspector will not be accepted nor paid for, and shall be removed and replaced.

Notwithstanding any other provision of this agreement or any other Contract Documents, the Inspector shall not be in any way responsible or liable for any act, errors, omissions or negligence of the CONTRACTOR, any subcontractor or any of the CONTRACTOR's or subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the work.

SP-32: OWNER-ENGINEER RELATIONSHIP

The Engineer will be the OWNER's representative during construction. The duties, responsibilities and limitations of authority of the Engineer as the OWNER's Representative during construction are as set forth in the Contract Documents and shall not be extended or limited without written consent of the OWNER and Engineer. The Engineer will advise and consult with the OWNER, and all of OWNER's instructions to the CONTRACTOR shall be issued through the Engineer.

SP-33: PROFESSIONAL INSPECTION BY ENGINEER

The Engineer shall make periodic visits to the Site to familiarize himself/herself generally with the progress of the executed work and to determine if such work generally meets the essential performance and design features and the technical and functional engineering requirements of the Contract Documents; provided and except, however, that the Engineer shall not be responsible for making any detailed, exhaustive, comprehensive or continuous on-site inspection of the quality or quantity of the work or be in any way responsible, directly or indirectly, for the construction means, methods, techniques, sequences, quality, procedures, programs, safety precautions or lack of same incident thereto or in connection therewith.

Notwithstanding any other provision of this agreement or any other Contract Documents, the Engineer shall not be in any way responsible or liable for any acts, errors, omissions or negligence of the CONTRACTOR, any subcontractor or any of the CONTRACTOR's or subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the work.

SP-34: COPIES OF PLANS AND SPECIFICATIONS FURNISHED

Four (4) sets of plans and specifications (not including the General Provisions) shall be furnished to the CONTRACTOR at no charge for construction purposes. Additional sets may be obtained from the Engineer at **$ 50.00 per set.**

SP-35: VERIFICATION OF MEASUREMENTS

Before ordering any material or doing any work, the CONTRACTOR shall verify all measurements involved and shall be responsible for the correctness of these measurements. No extra charge or compensation will be allowed because of differences between actual dimensions and the dimensions shown on the drawings; any difference which may be found shall be called to the attention of the Engineer for consideration before proceeding with the work.

SP-36: PAY ITEMS - INCIDENTAL CONSTRUCTION

The CONTRACTOR shall be paid only for those items which are listed in the proposal or which are added to the job through a change order. All construction or removal considerations which are not listed as a separate pay item shall be considered as incidental construction. Cost for these items shall be considered in the most appropriate item listed in the schedule(s) of pay items.

SP-37: OMISSIONS

(a) In the event that the specifications inadvertently omit some of the usual and customary work, auxiliary equipment or material required for the satisfactory installation and operation of all work, equipment or material, the CONTRACTOR shall provide these items as directed by the Engineer at his/her own expense. The CONTRACTOR will be assumed to be an experienced and qualified CONTRACTOR in this type of work, and to have studied the purpose of operation of the equipment and the results to be obtained, and is to furnish equipment suitable for the work to be done.

(b) In the event that the specifications inadvertently fail to contain a specification for work to be done and material to be furnished, then the Standard Current Specification or Requirements of the A.W.W.A., A.S.T.M., A.S.C.E., A.S.E.E., A.S.M.E., N.B.F.U., N.E.C., N.E.M.A., O.S.H.A., NCTCOG "Standard Specifications for Public Works Construction" or TxDOT "Standard Specifications for Construction of Highways, Streets and Bridges" shall apply. Should the above specifications not apply, then the work done, equipment or material furnished shall be as directed by the Engineer.

SP-38: MINIMUM WAGE RATES

For the work required of this project, the CONTRACTOR and all sub-contractors shall pay his/her employees the prevailing wage rates in accordance with the Texas Government Code, Chapter 2258. The prevailing wage rates determined applicable for this project are the current prevailing wage rate schedules of the United States Department of Labor adopted in accordance with the Davis-Bacon Act (40 U.S.C. Section 276a, et. seq.) and its subsequent amendments. These prevailing wage

rates can be obtained from the following web page: **www.access.gpo.gov/davisbacon/tx.html** (Tarrant County).

A CONTRACTOR or sub-contractor who does not pay his/her employees in accordance with these prevailing wages shall pay $ 60.00 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in these prevailing wage rates to the CITY.

SP-39: LOSSES FROM NATURAL CAUSES

Unless otherwise specified, all loss or damage to the CONTRACTOR arising out of the nature of the work to be done, or from the action of the elements, or from any unforeseen circumstance in the prosecution of same, or from unusual obstructions or difficulties which may be encountered in the prosecution of the work, shall be sustained and borne by the CONTRACTOR at his/her own cost and expense.

SP-40: EXPLOSIVES, BLASTING, ETC.

Neither explosives nor blasting shall be allowed or used on this project.

SP-41: WORK WITH OWN FORCES

The CONTRACTOR shall perform with his own forces work of a value of not less than fifty percent (50%) of the contract amount.

SP-42: PROJECT NAME CONSTRUCTION SIGNS

The CONTRACTOR shall install two (2) Project Name Construction Signs on Smithfield Road. One sign shall be at or near the intersection of Smithfield Road and Mid-Cities Boulevard and one sign shall be at or near the proposed intersection of Smithfield Road and Davis Boulevard. The exact locations shall be approved by the OWNER prior to installation.

These signs shall be in general accordance with Figure 2M (R 02-26-2007) of the City of North Richland Hills' Public Works Design Manual, but the sign verbiage must be approved by the OWNER prior to fabrication. These signs shall be installed within 15 calendar days from the date the OWNER awards the contract and shall remain in place during the entire construction period. These Signs shall be removed within 15 calendar days after the OWNER's acceptance of the project improvements.

Sign Data:

Project Name:	**Smithfield Road Improvements from Davis Boulevard to Mid Cities Boulevard**
Projected Completion:	*To Be Determined After Contract Award*

SP-43: WATER FOR CONSTRUCTION

The CONTRACTOR shall make the necessary arrangements for securing and transporting all water required in the construction, including water required for mixing of concrete, sprinkling, testing, flushing or jetting.

The CONTRACTOR may remit the City a deposit for a fire hydrant water meter; additionally, the CONTRACTOR will be billed for the water used on the construction of this contract and measured by such fire hydrant meter. Additionally, the cost of any temporary pipe line, metering or other equipment which may be necessary to make use of such fire hydrant water meter and water, shall be considered as incidental to the work and payment therefore shall be included in the various bid items of the proposal. If the CONTRACTOR chooses to use such fire hydrant water meter, he/she shall assume full responsibility for it and return it in the same or similar condition as received otherwise the CONTRACTOR will not be returned his/her deposit.

SP-44: OWNER'S RIGHT TO SUSPEND WORK AND ANNUL CONTRACT

Delete GP Item 108.9.(2) and replace it with the following:

(2) failure of the CONTRACTOR to make the progress set out in the Progress Schedule;

SP-45: OWNERSHIP OF DRAWINGS

All drawings, specifications and copies thereof furnished by the Engineer shall not be reused on other work, and, with the exception of the signed contract sets, are to be returned to him on request, at the completion of the work. All models are the property of the OWNER.

SP-46: ADEQUACY OF DESIGN

It is understood that the OWNER believes it has employed competent engineers and designers. It is, therefore, agreed that the Engineer shall be responsible for the adequacy of the design, sufficiency of the Contract Documents, the safety of the structure and the practicability of the operations of the completed project; provided the CONTRACTOR has complied with the requirements of the Contract Documents, all approved modifications thereof, and additions and alterations thereto approved in writing by the OWNER. The burden of proof of such compliance shall be upon the CONTRACTOR to show that he/she has complied with the requirements of the Contract Documents, approved modifications thereof and all approved additions and alternations thereto.

SECTION VI

GEOTECHNICAL ENGINEERING REPORT

LANDTEC engineers

SMITHFIELD ROAD
FROM FM 1938 (DAVIS) TO ARTHUR DRIVE
NORTH RICHLAND HILLS, TEXAS

GEOTECHNICAL ENGINEERING REPORT

MARCH 2014

PROJECT NO.
0114-1964

SUBMITTED TO
CITY OF NORTH RICHLAND HILLS

SUBMITTED BY
LandTec Engineers, LLC

LANDTEC engineers

Geotechnical & Environmental Engineering
Construction Materials Testing
Laboratory Testing

March 18, 2014
Project No. 1964

Ms. Caroline Waggoner, P.E., CFM
City of North Richland Hills
Public Works
7301 NE Loop 820
North Richland Hills, Texas 76180

RE: PAVEMENT REPORT FOR SMITHFIELD ROAD
From FM 1938 (Davis Blvd.) to Arthur Drive, North Richland Hills, Texas

Dear Ms. Waggoner:

The results of our geotechnical engineering study including pavement and subgrade recommendations for Smithfield Road in North Richland Hills, Texas are presented in the following report. This work was performed in general accordance with our Proposal No. 3401 and subsequent approval by the City.

Thank you for this opportunity to provide engineering services on this project. If you have any questions, please let us know.

Sincerely,

STATE OF TEXAS
THOMAS D. BAKER
40060
REGISTERED
PROFESSIONAL ENGINEER

Thomas D. Baker
March 18, 2014

Thomas D. Baker, P.E., RPLS
Principal | LandTec Engineers, LLC

TBPE Firm No. F-000329 TBPLS Firm No. 100956-00

Distribution: Caroline Waggoner | North Richland Hills, Texas (PDF + 4 copies)

TABLE OF CONTENTS

CONTENTS
(Continued)

Technical Appendices

EXECUTIVE SUMMARY
Smithfield Road – North Richland Hills, Texas

The following information presents a brief summary of the principal findings in the geotechnical engineering report prepared for the Smithfield Road re-construction project. The project includes construction of a new paving on Smithfield Road between F.M. 1938 (Davis Blvd.) and Arthur Drive.

The "Summary" is intended to be a brief overview and, therefore, the text of the report should be followed for specific geotechnical recommendations.

1. **Subsurface Conditions**

   Four borings were drilled to depths of approximately 10 feet on March 5, 2014. Subsurface conditions consist of a wide variety of subgrade materials including sand, clayey sand and sandy lean clay. The soils are generally classified as SP, SC, SM and low CL based on the Unified Soil Classification (USC) System.

   Existing asphalt pavement thickness ranged from approximately 5 to 7 inches in Borings 2 through 4 which were drilled along the existing road. Boring 1 was drilled in the open field as shown on the Plan of Borings.

   Shallow subsurface seepage was not observed within the borings as they were drilled and sampled.

2. **Subgrade and Pavement**

   Based on the borings, subgrade conditions in the area of Boring 2 could consist of sands that would need to be stabilized with cement and the anticipated soils in the area of Borings 3 and 4 would require lime stabilization. Since the area of Boring 1 is several feet lower than the adjacent roadway, it is anticipated fill will be required to raise grade. The type soil stabilization for the area of Boring 1 where fill will be placed will depend on the type soil.

   Recommendations for cement and lime stabilization are provided in the text of the report along with anticipated application rates and compaction requirements. Note that once the final subgrade elevations are achieved during construction and all utilities are placed, the subgrade should be sampled to determine the required stabilization type and amount. The stabilization depth should be 8-inches.

   Based on our analysis for concrete pavement, we recommend the jointed reinforced concrete pavement have a minimum thickness of 7-inches.

   Please see the text of the report for specific information.

1.0 INTRODUCTION

1.1 Project Description and Overview

Submitted herein is our geotechnical engineering report for the Smithfield Road project in North Richland Hills, Texas. This report is based on information provided to LandTec by The City on November 12 and 13, 2013. The project includes the section of Smithfield Road from F.M. 1938 (Davis Blvd.) to just north of Arthur Drive. A map of the project location was provided to us by email on November 12, 2013. The drawing was prepared by Halff Associates.

We understand this section of Smithfield Road will be reconstructed to the pavement section provided to us by email on November 13, 2013. The figure is titled Collector Streets Reinforced Concrete Pavement, Figure 4P, dated May 19, 2010.

Our scope of services included pavement borings and items associated with coordinating the field work such as utility clearance, drilling, laboratory testing for soil classification, strength tests, preparation of boring logs; providing the design team with geotechnical data, subgrade preparation and stabilization, and pavement thickness.

1.2 Purpose and Scope

The purpose of this geotechnical engineering study has been to determine the general subsurface conditions, evaluate the engineering characteristics of the subsurface materials encountered, and develop recommendations for compaction of utility backfill, the type or types of subgrade treatment, and, provide a concrete pavement section for the project.

To accomplish its intended purposes, the study has been conducted in the following phases: (1) drilling sample borings to determine the general subsurface conditions and to obtain samples for testing; (2) performing laboratory tests on appropriate samples to determine pertinent engineering properties of the subsurface materials; and, (3) performing engineering analyses, using the field and laboratory data to develop geotechnical recommendations for the proposed construction.

Once the design is in progress and available to LANDTEC, this report should be reviewed. It is possible, based on the review of the preliminary design that one or more geotechnical recommendations could change.

The scope of services did not include an environmental assessment such as a Phase I for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 Field Exploration

Subsurface materials along the roadway were explored by a total of four (4) borings drilled to depths of approximately 10 feet on March 5, 2014. The boring logs and a key to terms and descriptions on the logs are provided in Appendix A. A boring location map is also included in Appendix A.

The borings were drilled with a truck mounted drilling rig using continuous flight augers. Soil descriptions on the boring logs are a compilation of field data as well as from laboratory testing of samples. The stratification lines represent the approximate boundary between soil types and the transition can be gradual.

Relatively undisturbed samples of cohesive soils encountered in the borings were taken using a thin wall Shelby tube sampler. Depths at which these samples were taken designated "U" are indicated in the "Sample" column of the boring logs. After a Shelby tube was recovered from a boring, the sample was extruded in the field, examined visually and logged. A representative portion was selected, wrapped and sealed to prevent loss of moisture and to protect the sample during transportation. Estimates of the consistency of the cohesive soil samples were obtained in the field using a hand penetrometer.

The result of a hand penetrometer reading is recorded at a corresponding depth in the "Penetrometer, TSF" column of the boring logs. When the capacity of the hand penetrometer is exceeded, the value of 4.5+ is recorded.

2.2 Laboratory Testing

Representative samples of the soils were tested in the geotechnical soils laboratory. Liquid limit and plastic limit tests (Atterberg limits) and percent passing No. 200 sieve were performed on soil samples from the borings in order to classify them according to the Unified Soil Classification (USC) System.

Strength properties of the soil were evaluated by performing unconfined compression tests.

The results of these tests are reported as Qu values (in tons per square foot). Moisture and density determinations were also made on samples to determine the in situ conditions. Results of the laboratory tests including classification, strength, unit weight and moisture are presented on each respective boring log in Appendix A. Swell tests were performed on selected samples and the results are presented in Appendix B along with a summary of laboratory tests.

3 SUBSURFACE CONDITIONS

3.1 Subsurface Stratification

Specific types and depths of subsurface strata encountered in the borings are shown on the attached boring logs. The subsurface soil conditions vary significantly along the roadway and the borings revealed very different soil types varying from sand, silty and clayey sand, sandy lean clay and lean clay in short horizontal and vertical distances.

Boring B-1 was drilled in the open field between F.M. 1938 and Smithfield Road where Smithfield Road will be realigned and intersect F.M. 1938 at Bridge Street. The upper approximately 2 feet consists of tan to yellowish tan sand and clayey sand. Below approximately 2 feet the soils consist of tan and orange clayey sand followed by red, tan and gray sandy lean clay below 8 feet and to the completion depth at 10 feet.

Boring B-1 is approximately 2 to 3 feet lower than F.M. 1938. It is anticipated this location will require several feet of fill material to match grade with adjacent roadways. Stripping of the vegetation as well as some stripping of the near surface silty sand soils will be required prior to placing new roadway fill material.

Borings B-2 and B-3 were drilled in the northbound lane of Smithfield Road within the existing asphalt pavement. Boring B-2 encountered approximately 5 inches of asphalt pavement and is underlain by reddish tan sand. Boring B-3 encountered approximately 6 inches of asphalt pavement which is underlain by brown silty, clayey sand. These materials are underlain by sandy lean clays and lean clays with some sand and silty clayey sand layers to the completion depth at 10 feet below existing pavement grade in Borings B-2 and B-3.

Boring B-4, drilled in the south bound lane, encountered approximately 7 inches of asphalt pavement and is underlain by brown clayey sand to approximately 1.5 feet where yellowish tan and orange sandy lean clay and lean clay was encountered to a depth of approximately 7 feet, where light gray, tan and orange clayey sand was encountered to the completion depth at 10 feet.

The soils vary from fine-grained sands, silty sands and clayey sands to moderate plasticity

sandy lean clays and lean clays with clay and sand seams. The sandy soils are typically dense and the clayey soils are very stiff, laminated, and have colors ranging through reddish brown, brown and orange to tan and yellow. Numerous iron oxide particles and seams are present within the soils.

Hardness terms for soil and rock are for relative comparison of the various samples, and are not intended to be used as an indication of the ease or difficulty of excavation or excavation stability. Hardness terms on the logs may be based upon a combination of the test and observation methods listed in the general notes, description of sand/sandstone, and upon field observations.

3.2 Shallow Subsurface Seepage Observations

Shallow subsurface seepage was not observed in the borings during drilling operations on March 5, 2014. Shallow subsurface seepage can occur due to seasonal variations in the amount of rainfall; site topography and runoff; hydraulic conductivity of soil strata; and other factors not evident at the time the borings were performed.

Water traveling through the soil (subsurface water) is often unpredictable. This could be due to seasonal changes in shallow subsurface water and due to the unpredictable nature of subsurface seepage paths. Therefore, it is necessary during construction for the contractor to be observant for shallow subsurface seepage in excavations in order to assess the situation and make necessary changes and/or recommendations.

3.3 Material Characteristics

The near surface sands and silty sands are relatively non-plastic soils and classify as “SP” and “SM” according to the Unified Soil Classification (USC) System. The clayey sands have measured Liquid Limits (LL’s) of approximately 32 to 43 and Plasticity Index (PI) values of 15 to 23 and classify as “SC” to borderline “CL”.

The sandy lean clays and lean clays have Liquid Limits (LL’s) of approximately 38 to 48, Plasticity Index (PI) values of approximately 21 to 31 and classify as “CL” soils.

Compressive strengths ranging from approximately 0.6 tons per square foot (tsf) to approximately 6.7 tsf were measured in unconfined compression tests on the clayey sands and sandy lean clays.

Swell tests indicated values ranging from approximately 0.1 to 2.1 percent, indicating low to moderate swell conditions for a full moisture cycle. The sandy lean clays and lean clays of the Woodbine Formation are often found to have some swell potential with changes in moisture content.

3.4 Area Geology

Based on experience and field observations this site is within the Woodbine Geological Formation. Sands, clays, sandstones and shales generally compose this formation. Iron oxides, lignite, gypsum, and pyrite are also found throughout the formation. Dense and irregular shaped masses or hard sandstone occur at random throughout the formation and are commonly referred to as "boulders." Structurally, the Woodbine is quite complex in that it contains numerous small faults, lenticular masses, and consequent divergent dips. It is often difficult, if not impossible, to trace a particular bed for any distance. Water is found at various levels in the formation, some as perched tables in sand lenses. The outcrop of the Woodbine formation is generally marked by sandy surface soils supporting a dense growth of oak trees.

3.5 Hard Rock Boulders and Layers

Although not specifically encountered in these borings, hard rock has been encountered on nearby sites. Hard rock layers and boulders are often encountered in the Woodbine Geological Formation.

The rocks are typically described as limy sandstone and ironstone, grading to sandy limestone and limestone, are very hard and highly cemented. Unconfined compressive strengths ranging from 3,000 psi to over 10,000 psi have been recorded for similar rocks on other projects. Experience with these very hard materials has revealed them to be in the form of cemented, irregular-shaped boulders and/or layers varying in thickness from less than one foot to over 10 feet. Construction of foundations, utilities and general excavation, where hard rock is present, typically requires rock-tooth augers, drop chisels, core barrels, or other rock excavation equipment.

4 SUBGRADE RECOMMENDATIONS

4.1 Geotechnical Considerations

Pavement design recommendations described herein are intended to provide a structural section with adequate thickness over an improved subgrade such that wheel loads are reduced to a level the subgrade can support. The support characteristics of the subgrade for pavement design do not account for shrink/swell movements of potentially expansive clay soils. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell of soils as they undergo seasonal moisture changes.

The performance of the pavement for the roadway depends upon several factors including (1) the characteristics of the supporting soil; (2) the magnitude and frequency of wheel load applications; (3) the quality of construction materials; and (4) the desired period of design life.

Post-construction subgrade movements and some cracking of the pavements are not uncommon for subgrade conditions such as those observed at this site. Reducing moisture changes in the subgrade is important to reduce shrink/swell movements.

Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations and environmental factors which will significantly affect the service life must be included in the preparation of the construction drawings and specifications. Normal periodic maintenance will also be required.

An estimate of the soil movement for this site has been made using the Texas Department of Transportation (TxDOT) procedure TEX-124-E for determining Potential Vertical Rise (PVR), swell tests, engineering judgment and experience with similar soil conditions. Soil movements both up and down, ranging from approximately 1 to 2 inches have been estimated, as the soils undergo moisture changes.

The estimated soil movements are based on the subsurface conditions revealed by the borings and for typical seasonal moisture fluctuations which occur in North Texas. Soil

movements, significantly larger than estimated, could occur due to inadequate site grading, poor drainage, ponding of rainfall, broken water and irrigation lines.

We suggest using vegetation which has shallow root systems and avoid landscaping edges that cause water to pond. Trees or large bushes should be planted a distance away from the edge of paving which is equal to or more than the mature height of the tree. Root barriers should be considered for large trees and shrubs. Consider the vertical moisture barrier for placement between the pavement and the tree to provide a stop for roots.

4.2 Pavement Subgrade

The future subgrade soils along the roadway generally consist of non-plastic to low plasticity sands and clayey sands underlain by medium plasticity sandy lean clays and lean clays. The actual subgrade soil type will be dependent on the amount of cut and fill at each location. At the time of preparation of this geotechnical report, cut and fill grades were unknown. However, we anticipate the grades will not change over about 6 to 12 inches up or down. The exception is Boring B-1 where it is anticipated several feet of fill will be placed to raise road grade. Therefore, the actual future subgrade soil type in the area of Boring B-1 is unknown at this time.

Some subgrade areas such as the subgrade soils found at Boring B-2 will consist of mostly sand and can best be stabilized with Portland cement to provide suitable subgrade for pavement. Other areas where the final subgrade is low to medium plastic clayey sand, sandy lean clay and lean clay, such as Borings B-3 and B-4, are anticipated to require a lime treated subgrade.

As referenced previously, Boring B-1 is in an open field and the existing ground elevation is approximately 2 to 3 feet lower than surrounding pavement grades on the adjacent streets. Therefore, if fill is added to this area the subgrade stabilization type will depend on the type soil added as fill material. Fill material needed to achieve final grade in the area of Boring B-1 should have a Liquid Limit less than 45 and a Plasticity Index less than 25 and be placed as referenced in subsequent recommendations for earthwork and fill placement.

Generally in the Woodbine Formation soils if the PI is 10 or below, cement treatment should be used, and, if the PI is 11 and above, the subgrade can be treated with hydrated lime.

4.3 Subgrade Recommendations

Recommendations for subgrade materials are provided as follows:

- Cement Treated Subgrade – Soils with a Plasticity Index (PI) of 10 and below, follow the latest TxDOT specification and apply the Portland cement at an application rate of between 4 and 5 percent or approximately 25 pounds of cement per square yard for the 8 inch thickness. Compact the stabilized subgrade to a minimum of 98 percent of Standard Proctor (ASTM D 698) at a moisture content between optimum and four percentage points above optimum (0 to +4). Gradation and depth checks should be performed on the stabilized subgrade to verify that the specifications have been achieved.

- Lime Treated Subgrade – For soils with a PI of 11 and greater, follow the latest TxDOT Item 260 specification and apply the hydrated lime at an application rate of 5 to 6 percent or approximately 36 pounds of lime per square yard for the 8-inch thickness. Compact to a minimum of 95 percent of Standard Proctor (ASTM D 698) at a moisture content between optimum and four (4) percentage points above optimum (0 to +4). Gradation and depth checks should be performed on the stabilized subgrade to verify that the specifications have been achieved.

- Compacted Subgrade - Scarify the existing soils after removing vegetation and achieving final grades, and recompact to a minimum of 95 percent of the maximum dry density determined by the Standard Proctor test (ASTM D 698) to a moisture content ranging from one (1) percentage point below optimum to four (4) percentage points above optimum (-1 to +4).

The application rates indicated can be used for estimating purposes. The actual application rate should be determined at the time of construction by sampling the finish subgrade soil and testing to determine the optimum stabilization content.

Once the subgrade elevations have been achieved in the field, the subgrade should be observed to determine the overall soil conditions. The subgrade soil should be sampled to determine the final subgrade conditions and to determine the type stabilization (lime or cement) and the optimum content. It is recommended that samples be obtained after all utility construction is complete, the trenches are backfilled properly, and final subgrade elevations are re-established.

The stabilized subgrade should extend a minimum of twelve (12) inches outside the curb

line. This will improve the support for the edge of the pavement and also lessen the "edge effect" associated with shrinkage during dry periods. The stabilized subgrade should be compacted to a minimum of 98 percent of standard Proctor (ASTM D 698) at a moisture content ranging from optimum to four (4) percentage points above optimum (0 to +4). The moisture content and density of the completed subgrade section must be maintained until the paving is complete.

Rigid pavement should be designed with adequate reinforcement, and load transfer devices (e.g., smooth dowels) across all joints. Proper drainage also should be provided both during and after construction. The pavement should be maintained properly, including the use of a flexible joint material to seal cracks that can occur during the life of the pavement.

4.4 Construction Considerations

Depth checks should be made at the rate of one test per 300 linear feet per lane direction in order to determine the subgrade treatment depth is to the required thickness. Depth checks will be made by using a special driven steel probe with grove or other similar device to accurately determine the compacted subgrade thickness. Phenolphthalein will be used to check for reaction and a tape will be used to measure the thickness. Alternate methods such as use of hand auger and actual survey of top and bottom of treated subgrade are also acceptable.

If the completed subgrade is machine milled to achieve a smooth, level surface, depth checks must be performed again to verify the milling machine has not reduced the minimum required subgrade thickness. Depending on the outcome of the additional depth checks, the Engineer may require the subgrade to be reworked with additional stabilization additive.

Finishing of the completed section shall be accomplished by rolling as directed with a pneumatic tire or other suitable roller sufficiently light to prevent hairline cracking.

Once the subgrade is completed, any area of the finished subgrade that is below the final desired grade (shy of grade) based on survey, blue tops, string line, laser, etc. (and meets the minimum required thickness) will not be allowed to have stabilized soil (trimmings) added to achieve grade. This is also called “scabbing on material” and will not be allowed. Any low area will require additional depth of pavement.

The Contractor should make provisions for maintaining the compacted subgrade in a moist condition for the curing time of two (2) to three (3) days, depending on weather conditions and as directed by the engineer. The requirement is to maintain the in situ moisture, approximately two (2) percentage points above optimum throughout the stabilized section. If the pavement will not be immediately placed on the subgrade, generally within 7 to 10 days and depending on weather conditions, and wants to discontinue watering, the contractor must apply an asphalt emulsion material applied at the rate of 0.10 to 0.20 gallons per square yard as determined by the Engineer. The asphalt emulsion used should be of the type and grade shown as on the plans or as approved by the Engineer. During this curing time, all construction vehicles must be prohibited from the subgrade.

The contractor should maintain the completed subgrade within the limits of the contract in good condition, satisfactory to the Engineer as to grade, slope and cross section until such time as the next course is constructed. All irregularities or other defects that may occur shall be repaired by the Contractor as his expense.

These tests will be performed by the project geotechnical engineer at selected locations to verify the pavement design.

5 PAVEMENT RECOMMENDATIONS

5.1 Pavement Design Input Parameters

Pavement thickness analyses were performed using the computer program WinPAS (Pavement Analysis Software) Version 1.0.4. The program is based upon the 1993 AASHTO "Guide for the Design of Pavement Structures". Reference to AASHTO indicates American Association of State Highway Transportation Officials. Information provided in Table 4-1 includes the input data for performing the design.

Table 5-1

Pavement Design Input Summary

Design Parameter	Value
Design Life	25 years
Reliability	85%
Design ESAL's	1,650,000
Initial Serviceability	4.5
Terminal Serviceability	2.5
Overall Standard Deviation	0.39
Load Transfer, J	3.0
Drainage Coefficient	1.0
Effective Modulus of Subgr. Reaction, k	225 psi/in
Concrete Modulus of Elasticity	4,000,000 psi
Concrete Modulus of Rupture	620 psi

5.2 Pavement Section

Based on the results the following pavement section is provided for Jointed Reinforced Concrete Pavement (JRCP) placed on a stabilized subgrade.

Table 5-2

Recommended Pavement Section

Roadway Section	Jointed Reinforced Concrete Pavement Thickness	Subgrade Type
Smithfield Road From F.M. 1938 to Arthur Drive	7 inches (Min)	8 inches (Min.) stabilized (1)

(1) Subgrade stabilized with Portland cement if subgrade is sand, silty sand, or clayey sand with Plasticity Index (PI) of 10 or less. PI of 11 or greater use hydrated lime for stabilized subgrade.

In areas where a high volume of heavy trucks is anticipated, a specific pavement analysis should be made.

6.0 SUBGRADE AND PAVEMENT MAINTENANCE

6.1 Preventative Maintenance

Long-term pavement performance will be dependent upon several factors, including maintaining subgrade moisture levels and providing for preventative maintenance. The following recommendations should be implemented to help promote long-term pavement performance:

1. Site grading should be designed to drain away from the pavements, preferably at a minimum grade of 2 percent.
2. The subgrade and the pavement surface should be designed to promote proper surface drainage, preferably at a minimum grade of 2 percent.
3. Joint sealant should be installed and cracks sealed immediately.
4. Curbs should be extended into the underlying subgrade for a depth of at least 4 inches to help prevent moisture migration into the subgrade soils beneath the pavement section.
5. Compacted, low permeability clay backfill should be placed against the exterior side of the curb and gutter.

Preventative maintenance should be planned and provided for the pavements at this site. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and consist of both localized maintenance (e.g. crack and joint sealing and patching) and global maintenance (e.g. surface sealing). Prior to implementing any maintenance, additional engineering observations are recommended to determine the type and extent of preventative maintenance.

Pavements will be subject to some differential movement due to volume changes caused by moisture related shrink-swell cycles in the soils. Flat grades should be avoided with positive drainage provided away from the pavement edges. Backfilling of curbs should be accomplished as soon as practical to prevent ponding of water.

Openings in pavement, such as landscape islands, are sources for water infiltration into surrounding pavements. Water collects in the islands and migrates into the surrounding subgrade soils thereby degrading support of the pavement. This is especially applicable for islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils.

The civil design for the pavements with these conditions should include features to restrict or to collect and discharge excess water from the islands. Examples of features are edge drains connected to the storm water collection system or other suitable outlet and impermeable barriers (vertical moisture barriers) preventing lateral migration of water such as a cutoff wall installed to a depth of at least 5 feet below the pavement structure.

6.2 Secondary Considerations

1. Utility ditches should be backfilled so that they do not become conduits that allow surface water to flow adjacent to or below the pavement. This can be accomplished by the use of clay or concrete plugs placed within the trench backfill.

2. Landscape irrigation systems should be designed and located to prevent excessive moisture adjacent to paving. Systems should not be located where water will be sprayed and subsequently drain downward and flow into the soils beneath paving.

   Excessive irrigation in islands can cause the surrounding pavement to heave and crack. Utility trenches in and between islands (irrigation, lighting, etc. trenches) should be backfilled with clayey soils to prevent flow of storm and irrigation water below the pavement. Clay plugs or similar means to cut off the flow of excess water below paving is important.

3. Utility lines should be designed with some degree of flexibility and/or with a sleeve to reduce the potential for damage to the utilities should movement occur.

4. Trees and tree root zones can have an impact on structures, paving and general flatwork by causing the soil to dry and shrink, which in turn causes the concrete to undergo settlement. We recommend trees or large bushes not be planted within a distance equal to or more than the mature height of the tree. Vertical moisture barriers can be used between the item to be protected and the tree to provide a barrier to roots. Barriers should be at least 5 feet deep and can consist of narrow trenches filled with concrete or other impervious material such as a heavy mil plastic or HDPE.

7.0 EARTHWORK

7.1 General

General site grading should be such that water will not pond under or next to paving following periods of rainfall. Water standing near structures may result in greater magnitudes of movement than have been anticipated. In general, a slope of one and one-half to three percent should be maintained along the ground surface both during and after construction. Use of drop inlets for quick removal of storm water next to paving is encouraged.

7.2 Subgrade Preparation

Stripping should consist of the removal of all topsoil, roots, vegetation and rubbish not removed by the clearing and grubbing operation. The actual stripping depth should be based on field observations with particular attention given to old drainage areas, uneven topography, and excessively wet soils. The stripped areas should be observed to determine if additional excavation is required to remove weak or otherwise objectionable materials that would adversely affect the fill placement.

The subgrade should be firm and able to support the construction equipment without displacement. Soft or yielding subgrade should be corrected and made stable before construction proceeds. The subgrade should be proof rolled to detect soft spots, which if exist, should be reworked. Proof rolling should be performed using a heavy pneumatic tired roller, loaded dump truck, or similar equipment weighing approximately 25 tons. The proof rolling operations should be observed by the project geotechnical engineer or his representative.

Slopes which will receive fill should be loosened by scarifying or plowing to a depth of not less than six inches. The fill material should be benched into the existing slope in such a manner as to provide adequate bonding between the fill and slope, as well as to allow the fill to be placed in horizontal lifts.

The traffic of heavy equipment, including heavy compaction equipment, may create

pumping and general deterioration of the soil. Occasionally some soils have to be excavated, mixed and dried, and replaced. At times, excavating and replacing with selected soils and/or chemically treated materials is required before an adequate subgrade can be achieved. Therefore, it should be anticipated that some construction difficulties will be encountered during periods when these soils are saturated.

7.3 Placing of Fill Material

Fill materials should be placed on a properly prepared subgrade as specified. The combined excavation, placing, and spreading operation should be done in such a manner to obtain blending of material, and to provide that the materials, when compacted in the fill will have the most practicable degree of compaction and stability.

Materials excavated from cut sections and/or borrow sources and hauled to construct fills must be mixed and not segregated, except where such segregated soil zones are required. All fill should be placed in horizontal lifts. Filling along (parallel to) slopes should not be permitted. In areas where slopes will be constructed using fill, the fill should extend beyond finished contours and cut back to grade.

If the surface of the fill is too smooth and hard to bond properly with a succeeding layer, the surface should be roughened and loosened by disking before the layer is placed.

Where fill is to be placed next to existing fill, that fill should be removed to unweathered, dense material. Each layer should be benched and disked as adjoining lifts are placed. Material hauling equipment should be so routed over the fill surface to distribute the added compaction afforded by the rolling equipment, and to prevent the formation of ruts on the fill surface.

The surface of the fill should be graded to drain freely and maintained throughout construction. During the dumping and spreading process, the contractor should maintain at all times a force of men adequate to remove all roots and debris and all rocks greater than four inches in maximum dimension from the fill materials. No rocks should be allowed within the final eight inches of subgrade.

In the event of slides in any part of the fill prior to final acceptance of the work, the contractor should remove material from the slide area and should rebuild such portion of the fill as requested by the engineer.

7.4 Moisture and Density Control

Following the spreading and mixing of the fill, it should be processed by disking throughout its thickness to break up and provide additional blending of materials. Disking should consist of at least two passes of the disc plow. Additional passes of the disc plow should be made necessary to accomplish breaking up and blending the fill. The recommended loose lift thickness is eight inches. The moisture content of the soil should be adjusted, if necessary, by either aeration or the addition of water to bring the moisture content within the specified range. Water required for sprinkling to bring the fill material to the proper moisture content should be applied evenly through each layer.

Any layers which become damaged by weather conditions should be reprocessed to meet specification requirements. The compacted surface of a layer of fill should be lightly loosened by disking before the succeeding layer is placed.

When the moisture content and the condition of the fill layer are satisfactory, compaction should be made with a tamping-foot roller (sheep foot with cleaner teeth) similar to a Caterpillar 815 or 825 Compactor. The tamping-foot length should be a minimum of eight inches. Vibratory tamping foot rollers (sheep foot rollers) may be required for compaction of some types of fill material, particularly the sandy soils. The roller should weigh no less than 2,000 pounds per linear foot of drum width.

The fill material should be compacted to a minimum of 95 percent of the maximum dry density as determined by the moisture-density relations test method ASTM Designation D 698. The moisture content should range between two percentage points below optimum to five percentage points above optimum (-2 to +5) for soils with a plasticity index (PI) of less than 20. For soils with a PI of 20 or greater, the moisture content should range between optimum and five percentage points above optimum (0 to +5). The moisture content ranges specified are to be considered as maximum allowable ranges. The contractor may have to maintain a more narrow range (within the maximum allowable) in order to consistently

achieve the specified density for some soils or under some conditions. The moisture content and density of all fill material should be maintained at the specified range of moisture and density.

Fill behind below-grade walls should be compacted with hand-operated tampers or light compaction equipment immediately adjacent to the wall. A loose lift thickness of four to six inches is typically required for hand-operated tampers. Backfill on structures receiving fill on both sides should be kept within two feet of the opposite side.

Field density tests should be taken as each lift of fill material is placed. A minimum of one field density/moisture content test should be performed each 300 linear feet of lane direction. A minimum of two tests per lift should be required. Horizontal and vertical control of each moisture-density test location is recommended. The earthwork operations should be observed and tested on a continuing basis by an experienced geotechnical engineering technician working in conjunction with the project geotechnical engineer. The contractor should assist the technician in taking tests to the extent of furnishing labor and equipment to prepare the areas for testing and curtailing operations in the vicinity of the test area during testing.

Each lift should be compacted, tested, and approved before another lift is added. The purpose of the field density tests is to provide some indication that uniform and adequate compaction is being obtained. The actual quality of the fill, as compacted, should be the sole responsibility of the contractor and satisfactory results from the tests should not be considered as a guarantee of the quality of the contractor's filling operations.

In general, final fill or cut slopes constructed in the soils at the site should be maintained on slopes no steeper than 4 horizontal to 1 vertical (4H:1V). In some cases a 4H:1V slope may not be stable depending on the soil type, height of slope and subsurface seepage issues. In these cases, a site specific slope analysis will be required, especially for slopes over about 6 feet.

All slopes, whether temporary construction slopes or permanent fill slopes, should be designed to allow drainage at planned areas where erosion protection can be provided, instead of allowing surface water to flow down unprotected slopes. Vegetative ground cover should be provided as soon as practical on completed slopes.

7.5 Utility Trench Backfill Recommendations

Utility backfill placed within the streets must have the backfill placed under controlled and tested conditions. All utility backfill must be placed according to the plans and specifications and no backfill should be placed unless either the City Inspector or CMT Technician are present to observe and test the backfill. All OSHA requirements concerning side slopes and shoring for trenches must be followed. No personnel should be allowed within the trench unless all OSHA requirements are met including use of ladders and sufficient spotter personnel present outside the trench watching personnel in the trench.

Soil backfill should be placed in 8 to 12 inch loose lifts and be compacted with appropriate compaction equipment such as sheep foot rollers made for compacting trench backfill and/or sheep foot wheel rollers made as attachments for the hydraulic excavator/backhoe. Sheep foot teeth must have cleaner prongs to prevent the soil from clogging the sheep foot roller wheel.

The backfill material must be broken down to clods less than 4 inches in diameter and have the moisture content adjusted (up or down) to accommodate the required range of specified moisture. The trench backfill should be compacted to a minimum of 95 percent of standard Proctor (ASTM D 698) at a moisture content ranging from minus one (-1) to plus four (+4) percentage points above optimum (-1 to +4).

Trench backfill placed below depths of 10 feet should be placed to the lift thickness as previously described and be compacted to 100 percent of standard Proctor at -1 to +4.

During compaction testing the utility installation personnel must stop work and serve as spotters when the CMT Technician is in the trench. CMT Technicians are not allowed in trenches over 3 feet deep unless all OSHA requirements have been met.

7.6 Acceptance of Imported Fill

The owner must approve any soil hauled onto this project from off-site sources by obtaining a written and notarized certification from the landowner of each proposed off-site soil borrow source stating that to the best of the landowner's knowledge and belief there has

never been contamination of the borrow source site with hazardous or toxic materials. The certification must be furnished to the owner prior to furnishing soils to the site. Soil materials derived from the excavation of underground petroleum storage tanks shall not be used as fill on this project.

7.7 Excavations

Excavations for utilities, pipelines, foundations, bore pits for pipe jacking and open cuts could encounter unstable soils and shallow subsurface seepage. In general, suitable temporary excavation slopes across the site will vary. Due to the variable subsurface conditions and groundwater, one slope angle will not be stable at all locations across this large site. Some soil conditions at the site will become unstable using typical slope angles. Unstable soils include, but are not necessarily limited to, (1) jointed, fissured, and slickensided materials; (2) soils with pockets or layers of sand or gravel; (3) limestone with vertical and angular fracture planes; and (4) soils and rocks with groundwater seepage occurring. Slopes in these types of soils may become unstable during periods of wet weather or as loads are applied to the top and/or along the slope. The stability is also affected by weather conditions, excavation depth, adjacent structures, construction equipment, and the length of time the excavation will remain open. Caution is advised when making excavations since cave-ins could occur and create an unsafe worker condition. Soils can typically be excavated with conventional earthmoving equipment. However, excavation equipment varies and field conditions may vary.

Excavations should be shored to provide stability up-slope and to protect construction workers. In all cases, the requirements of the Occupational Safety and Health Administration (OSHA) must be followed. It is important for the contractor to monitor the slope stability by observation and measurement, and to prevent excessive loads (especially heavy vibratory loads) from being applied to the slope. The contractor should be responsible for maintaining the slopes in a safe condition during construction and the use of slope stability monitoring equipment is recommended. This report has not been prepared for trench safety, excavation and fill slope design.

In the Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its

"Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. LandTec Engineers, LLC does not assume responsibility for construction site safety or the contractor's or other parties' compliance with the local, state, and federal safety or other regulations.

8 RECOMMENDED TESTING AND FREQUENCY

8.1 General

The following field and laboratory testing, and frequencies are recommended. These are not intended to encompass all testing requirements for the roadway project, but merely to guide in the overall quality control of the project and are not necessarily limited to the following.

8.2 Summary of Testing

General Earthwork

Density:	Minimum of 95% of Standard Proctor ASTM D698
Moisture:	-2 to +5 (soils with PI < 20) & 0 to +5 (soils with PI >20)
Lift Thickness:	8 inch loose lifts
Field Density Tests:	1 test per each 300 linear feet of lane direction per lift

Subgrade Sampling

Upon the completion of final subgrade and after installation of all utilities, sample the subgrade each 300 linear feet per lane direction to eight (8) inch depth or deeper if stabilization depth is deeper, and as determined by the geotechnical engineer. Perform pH tests and/or Atterberg Limits tests versus the selected stabilization additive for several different percentages, i.e. 0, 2, 4, 6 and 8 percent, on selected representative samples.

Stabilized Subgrade

Density:	Minimum of 98% of Standard Proctor ASTM D698
Moisture:	0 to +4
Lift Thickness:	8 inches
Field Density Tests:	1 test each 300 linear feet of roadway per lane direction
Field Gradation:	1 per three moisture-density tests
Depth Check:	1 per three moisture-density tests

Utility Trench Backfill

Density:	Minimum of 95% of Standard Proctor (ASTM D 698) (100% of Standard Proctor for the portion of the trench over 10’ deep)
Moisture:	-1 to +4
Lift Thickness:	8 to 12 inches
Field Density Tests:	1 test per lift each 300 linear feet of trench with the tests staggered along each lift so that tests are not taken at the same horizontal location in each lift.

9 GENERAL COMMENTS and CONDITIONS

In any geotechnical study, the design recommendations are based on a limited amount of information about the subsurface conditions, especially where cut and fill mass grading operations are ongoing. In the analysis, the geotechnical engineer must assume the subsurface conditions are similar to the conditions encountered in the borings and/or as observed just prior to preparation of the report. However, during construction, anomalies in the subsurface conditions are quite often revealed.

Therefore, it is recommended that the project geotechnical engineer be retained to observe earthwork, utility, subgrade and pavement installation and perform materials evaluation during the construction phase of the project. This enables the project geotechnical engineer to stay abreast with the project and to be readily available to evaluate unanticipated conditions, to conduct additional tests if required and, when necessary, to recommend alternative solutions to unanticipated conditions.

It is proposed that construction observation commence at the outset of the project. Experience has shown that the most suitable method for procuring these services is for the owner to contract directly with the geotechnical / materials engineer. This results in a clear, direct line of communication between the owner or his representative and the geotechnical / materials engineer.

The services described in this report were performed consistent with generally accepted geotechnical engineering principles and practices. No other warranty, expressed or implied, is made. These services were performed in agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

The conclusions and recommendations in this report are invalid if:

* the roadway is relocated;
* the report is used for adjacent or other property, roads or buildings;
* grades, ground-water levels, or both, change between the issuance of this report and construction;
* any other change is implemented that materially alters the project from that proposed when this report was prepared

The boring logs do not provide a warranty of the conditions that may exist at the entire site. The extent and nature of subsurface soil and ground-water variations may not become evident until construction begins. Variations in soil conditions between borings could possibly exist between or beyond the points of exploration or groundwater elevations may change, both of which may require additional studies, consultation, and possible design revisions. Any person associated with this project who observes conditions or features of the site or surrounding areas that are different from those described in this report should report the differences immediately for consideration and evaluation. This report was prepared solely for the use of our client and should be reviewed in its entirety.

It is recommended that LandTec Engineers be retained to review those portions of the plans and specifications for this project that pertain to geotechnical recommendations contained in this report as a means to determine whether the recommendations have been interpreted as intended. This is typically done when the plans are at the 50 to 75 percent design level.

APPENDIX A

LEGEND

B-1 BORING LOCATIONS

NTS

NOTE: BORING LOCATIONS ARE APPROXIMATE.

LANDTEC engineers
TBPE REGISTRATION NO. F-329
1700 ROBERT ROAD, STE 101 PHONE 817.572.2818
MANSFIELD, TX 76063 FAX 817.453.9984

PLAN OF BORINGS
SMITHFIELD ROAD PROJECT
NORTH RICHLAND HILLS, TEXAS

DATE: MARCH 2014 | DRAWN BY: GSG
PROJ NO: 0114-1964 | APPD BY: TDB

FIGURE A1

Q:\Projects\Smithfield Road - 1964\DRAWINGS\A1-POB.dwg A1 - GENERAL VICINITY PLAN SGroves Wednesday, March 12, 2014

Project: Smithfield Road
FM1938 to Arthur Drive
North Richland Hills, Texas

Project Number: 1964

BORING LOG B-1

Sheet 1 of 1

Location: See Plan of Borings
Surface El.: Unknown

Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Hand Penetrometer, tsf	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, pcf	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
	U1		SAND (SP-SM), silty, tan, compact, moist											
			1.0											
	U2		CLAYEY SAND (SC), yellowish tan, stiff, moist	4.5+				12.9	118.8	32	15	17	33	2.1
			2.0											
	U3		CLAYEY SAND (SC), tan & orange, very stiff, moist w/iron ore particles w/some sandy lean clay seams	3.5				10.1	118.6					0.6
	U4			4.0				14.8						
	U5			4.5+				13.6	115.7	32	17	15	38	1.4
5	U6			4.5+										
	U7			4.5+										
	U8			4.5+				11.1					64	
			8.0											
	U9		SANDY LEAN CLAY (CL), red, tan & gray, very stiff, dry w/iron ore seams	4.5+										
	U10			4.5+				11.8		38	17	21	55	
10			10.0											
15														

Completion Depth: 10 ft
Date: 3/5/14

Remarks: Seepage was not observed during drilling and the boring was dry @ completion.

BORING LOG W/FIGURE 1964 SMITHFIELD RD.GPJ LANDTEC.GDT 3/17/14

LANDTEC

Soil and rock descriptions on this boring log are a compliation of data collected in both the field and the laboratory. The stratification lines represent the approximate boundary between soil types and the transition can be gradual.

FIGURE A2

Project: Smithfield Road
FM1938 to Arthur Drive
North Richland Hills, Texas

Project Number: 1964

BORING LOG B-2

Location: See Plan of Borings
Surface El.: Unknown

Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Hand Penetrometer, tsf	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, pcf	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Approx. 5" asphalt pavement 0.4											
	A1		SAND (SP), silty, reddish tan, compact, dry											
	U2		2.0	4.5+				6.0					15	
	U3		CLAYEY SAND (SC), reddish orange & tan, dense, dry w/some gray clay seams	4.5+				13.3	116.0	43	20	23	36	6.7
	S4				50/ 4"									
	A5							11.1						
5			6.0											
	S6		SAND (SP), tan & yellow, dense, dry w/light gray silty clayey sand seams		50/ 5"									
			8.0											
	U7		SILTY, CLAYEY SAND (SC-SM), light gray & yellow, stiff, dry to moist	2.5										
10			10.0											
15														

Completion Depth: 10 ft
Date: 3/5/14

Remarks: Seepage was not observed during drilling and the boring was dry @ completion.

BORING LOG W/FIGURE 1964 SMITHFIELD RD.GPJ LANDTEC.GDT 3/17/14

LANDTEC

Soil and rock descriptions on this boring log are a compliation of data collected in both the field and the laboratory. The stratification lines represent the approximate boundary between soil types and the transition can be gradual.

FIGURE A3

Project: Smithfield Road
FM1938 to Arthur Drive
North Richland Hills, Texas

Project Number: 1964

BORING LOG B-3

Sheet 1 of 1

Location: See Plan of Borings
Surface El.: Unknown

Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Hand Penetrometer, tsf	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, pcf	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Approx. 6" asphalt pavement											
			0.5											
	A1		CLAYEY SAND (SC), silty, brown, stiff, moist w/some gravel											
	U2			3.0				11.4		39	19	20	33	
			2.0											
	U3		SANDY LEAN CLAY to LEAN CLAY (CL), brown, stiff, moist	2.75				24.2	103.2	48	17	31	67	1.0
	U4			2.5				18.8	113.9					1.3
			4.0											
5	U5		SANDY LEAN CLAY to LEAN CLAY (CL), brown & gray, very stiff, moist w/iron ore particles	3.0										
	U6			3.0										
	U7			2.5										
	U8			3.0				19.8	113.2	49	18	31	64	1.3
			8.0											
	U9		SANDY LEAN CLAY to LEAN CLAY (CL), tan, gray & brown, stiff, moist w/iron ore seams	3.5										
	U10			2.0				20.1						
10			10.0											
15														

Completion Depth: 10 ft
Date: 3/5/14

Remarks: Seepage was not observed during drilling and the boring was dry @ completion.

BORING LOG W/FIGURE 1964 SMITHFIELD RD.GPJ LANDTEC.GDT 3/17/14

LANDTEC

Soil and rock descriptions on this boring log are a compliation of data collected in both the field and the laboratory. The stratification lines represent the approximate boundary between soil types and the transition can be gradual.

FIGURE A4

Project: Smithfield Road
FM1938 to Arthur Drive
North Richland Hills, Texas

Project Number: 1964

BORING LOG B-4

Location: See Plan of Borings
Surface El.: Unknown

Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Hand Penetrometer, tsf	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, pcf	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
	A1		Approx. 7" of asphalt pavement 0.6											
	U2		CLAYEY SAND (SC), brown, stiff, dry 1.5	2.0				13.3		39	18	21	34	
	U3		SANDY LEAN CLAY to LEAN CLAY (CL), yellowish tan & orange, very stiff, dry w/iron ore seams	4.5+				13.9	122.0	48	17	31	53	1.9
	U4		4.0	4.5+										
5	U5		SANDY LEAN CLAY to LEAN CLAY (CL), light yellowish tan & gray, very stiff, dry w/sand & iron ore seams	4.5+				8.7	129.4				74	6.2
	U6			4.5+										
	U7		7.0	4.5+										
	U8		CLAYEY SAND (SC), silty, light gray, tan & orange, very stiff, dry w/gray, silty clay seams & tan sand seams	4.5+				11.5						
	U9			4.5+										
10	U10		10.0	4.5+				9.5	118.5					1.0
15														

Completion Depth: 10 ft
Date: 3/5/14

Remarks: Seepage was not observed during drilling and the boring was dry @ completion.

BORING LOG W/FIGURE 1964 SMITHFIELD RD.GPJ LANDTEC.GDT 3/17/14

LANDTEC

Soil and rock descriptions on this boring log are a compliation of data collected in both the field and the laboratory. The stratification lines represent the approximate boundary between soil types and the transition can be gradual.

FIGURE A5

GENERAL NOTES

DRILLING AND SAMPLING SYMBOLS:

U	:	Thin-Walled Tube - 3" O.D., Unless otherwise noted
A	:	Auger Sample
S	:	Split Spoon - 2" O.D., Unless otherwise noted
W	:	Wash Sample
C	:	Core Barrel
T	:	TxDOT Cone Penetrometer (TCP)

RELATIVE DENSITY OF COARSE-GRAINED SOILS:

Penetration Resistance Blows/foot	Relative Density
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
over 50	Very Dense

CONSISTENCY OF FINE-GRAINED SOILS:

Unconfined Compressive Strength, Qu, tsf	Consistency
Less than 0.25	Very Soft
0.25 to 0.50	Soft
0.50 to 1.00	Firm
1.00 to 2.00	Stiff
2.00 to 4.00	Very Stiff
4.00 and higher	Hard

TERMS CHARACTERIZING SOIL STRUCTURE:

Slickensided	:	Having inclined planes of weakness that are slick and glossy in appearance.
Fissured	:	Containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.
Laminated	:	Composed of thin layers of varying color and texture.
Interbedded	:	Composed of alternate layers of different soil types.
Calcareous	:	Containing appreciable quantities of calcium carbonate.
Well graded	:	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes.
Poorly graded	:	Predominantly of one grain size, or having a range of sizes with some intermediate size missing.

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths because of planes of weakness or cracks in the soil. The consistency rating of such soils is based on penetrometer readings.

DEGREE OF WEATHERING:

Unweathered	:	Rock in its natural state before being exposed to atmospheric agents.
Slightly Weathered	:	Noted predominantly by color change with no disintegrated zones.
Weathered/Severely Weathered:		Complete color change with consistency, texture, and general appearance approaching soil.

SUBSURFACE CONDITIONS:

Soil and rock descriptions on the boring logs are a compilation of field data as well as from laboratory testing of samples. The stratification lines represent the approximate boundary between materials and the transition can be gradual.

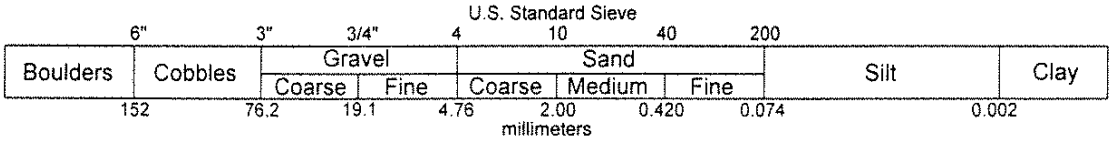
Water level observations have been made in the borings at the times indicated. It must be noted that fluctuations in the groundwater level may occur due to variations in rainfall, hydraulic conductivity of soil strata, construction activity, and other factors.

Hardness terms for soil and rock are for relative comparison of the various samples, and are not intended to be used as an indication of the ease or difficulty of excavation or of excavation stability. Hardness terms on the logs may be based upon a combination of the test and observation methods listed above, and upon field observations.

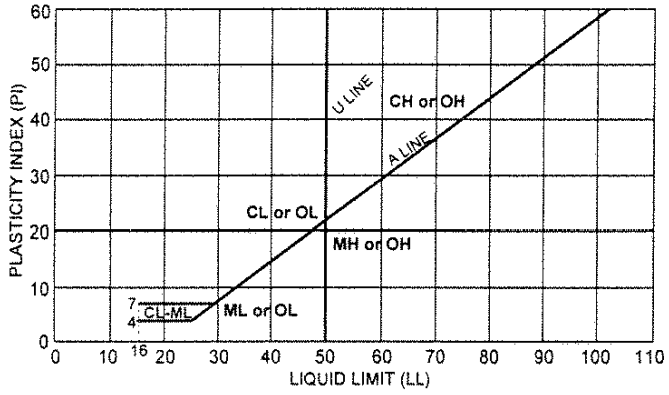
CLASSIFICATION OF SOILS

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests			Soil Classification	
			Group Symbol	Group Name
GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS Less than 5% fines	$C_U \geq 4$ and $1 \leq C_c \leq 3$	GW	Well-graded Gravel
		$C_U \leq 4$ and $1 \geq C_c \geq 3$	GP	Poorly-graded Gravel
	GRAVELS WITH FINES More than 12% of fines	Fines classify as ML or MH	GM	Silty Gravel
		Fines classify as CL or CH	GC	Clayey Gravel
SANDS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN SANDS Less than 5% fines	$C_U \geq 6$ and $1 \leq C_c \leq 3$	SW	Well-graded Sand
		$C_U \leq 6$ and $1 \geq C_c \geq 3$	SP	Poorly-graded Sand
	SANDS WITH FINES More than 12% fines	Fines classify as ML or MH	SM	Silty Sand
		Fines classify as CL or CH	SC	Clayey Sand
SILTS AND CLAYS Liquid limit less than 50%	Inorganic	PI > 7 and plots on or above "A" line	CL	Lean Clay
		PI < 4 and plots below "A" line	ML	Silt
	Organic	Liquid limit – ovendried / Liquid limit – not dried < 0.75	OL	Organic Clay
				Organic Silt
SILTS AND CLAYS Liquid limit more than 50%	Inorganic	PI plots on or above "A" line	CH	Fat Clay
		PI plots below "A" line	MH	Elastic Silt
	Organic	Liquid limit – ovendried / Liquid limit – not dried < 0.75	OH	Organic Silt
				Organic Silt
Highly fibrous organic soils	Primary organic matter, dark in color, and organic odor		Pt	Peat

SOIL GRAIN SIZE



PLASTICITY CHART



APPENDIX B

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	%<#200 Sieve	Water Content (%)	Dry Density (pcf)	Unconfined Compressive Strength tsf
B-1	1.5	32	15	17	33	12.9	118.8	2.1
B-1	2.5					10.1	118.6	0.6
B-1	3.5					14.8		
B-1	4.5	32	17	15	38	13.6	115.7	1.4
B-1	7.5				64	11.1		
B-1	9.5	38	17	21	55	11.8		
B-2	1.3				15	6.0		
B-2	2.5	43	20	23	36	13.3	116.0	6.7
B-2	4.5					11.1		
B-3	1.3	39	19	20	33	11.4		
B-3	2.5	48	17	31	67	24.2	103.2	1.0
B-3	3.5					18.8	113.9	1.3
B-3	7.5	49	18	31	64	19.8	113.2	1.3
B-3	9.5					20.1		
B-4	1.3	39	18	21	34	13.3		
B-4	2.5	48	17	31	53	13.9	122.0	1.9
B-4	4.5				74	8.7	129.4	6.2
B-4	7.5					11.5		
B-4	9.5					9.5	118.5	1.0

LANDTEC ENGINEERS
1700 Robert Road, Suite 101
Mansfield, Texas 76063

Summary of Laboratory Results

Project: Smithfield Road
FM1938 to Arthur Drive
North Richland Hills, Texas

Number: 1964 Date: 3/5/2014

US LAB SUMMARY LANDTEC 1964 SMITHFIELD RD.GPJ LANDTEC.GDT 3/17/14

SUMMARY OF RESULTS
SWELL TESTS

Smithfield Road
North Richland Hills, Texas

Project No. 1964

March 2014

Boring No.	Sample Depth, Ft.	Unit dry Weight, pcf	Initial Moisture Content, %	Final Moisture Content, %	Applied Surcharge Pressure, psf	Vertical Swell, %
B-1	1-2	113.9	13.0	16.7	150	0.1
B-3	2-3	97.9	25.6	25.9	250	0.8
B-4	2-3	115.3	16.5	20.0	250	2.1

APPENDIX C

WinPAS

Pavement Thickness Design According to

1993 AASHTO Guide for Design of Pavements Structures

American Concrete Pavement Association

Rigid Design Inputs

Agency: City of North Richland Hills, Texas
Company: n/a
Contractor: n/a
Project Description: Smithfield Road
Location: From F.M. 1938 to Arthur Drive

Rigid Pavement Design/Evaluation

PCC Thickness	7.00	**inches**	**Load Transfer, J**	3.00	
Design ESALs	1,650,000		**Mod. Subgrade Reaction, k**	225	**psi/in**
Reliability	85.00	**percent**	**Drainage Coefficient, Cd**	1.00	
Overall Deviation	0.39		**Initial Serviceability**	4.50	
Modulus of Rupture	620	**psi**	**Terminal Serviceability**	2.50	
Modulus of Elasticity	4,000,000	**psi**			

Modulus of Subgrade Reaction (k-value) Determination

Resilient Modulus of the Subgrade	4,118.2	**psi**
Resilient Modulus of the Subbase	12,391.0	**psi**
Subbase Thickness	8.00	**inches**
Depth to Rigid Foundation	10.00	**feet**
Loss of Support Value (0,1,2,3)	0.0	

Modulus of Subgrade Reaction	225.10	**psi/in**

Engineer: LandTec Engineers

SERVICES

geotechnical and environmental engineering
construction materials testing
laboratory testing

LANDTEC ENGINEERS, LLC

1700 Robert Road, Suite 101
Mansfield, Texas 76063
p. 817-572-2818
f. 817-453-9984