



SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

**VITRUVIAN PARK
PUBLIC INFRASTRUCTURE – BLOCK 500 A
TOWN OF ADDISON, TEXAS**

**Infrastructure & Development Services # 17-07
Bid Number 18-78**

January 22, 2018

PREPARED BY:

icon Consulting Engineers, Inc.
Civil Engineers - Designers - Planners
Engineering Firm Registration Number F-9007

**2840 W. Southlake Blvd., Suite 110
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TOWN OF ADDISON, TEXAS

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SECTION AB

ADVERTISEMENT FOR BIDS

ADVERTISEMENT FOR BIDS

1. Sealed bids addressed to the Town of Addison, Texas, for **Water, Sanitary Sewer & Paving Improvements for Vitruvian Park Public Infrastructure – Block 500 A** in the Town of Addison, Texas, hereinafter called “City” or “Owner” in accordance with specifications and contract documents prepared by **Icon Consulting Engineers, Inc.** will be received at the office of the Purchasing Department, 5350 Belt Line Road, Addison, Texas until **2:00 p.m. on Tuesday, February 13, 2018**. Bids received by the appointed time will be opened and read aloud. Any bids received after closing time will be returned unopened.
2. The Contractor shall identify his bid on the outside of the envelope by writing the words **INFRASTRUCTURE & DEVELOPMENT SERVICES #17-17, VITRUVIAN PARK PUBLIC INFRASTRUCTURE – BLOCK 500 A**.
3. Paper bids shall be required and accompanied by a bid bond in an amount not less than five percent (5%) of the total maximum bid price payable without recourse to the Town of Addison. The bid bond shall be from a reliable surety company licensed by the State of Texas to act as a Surety and be listed on the current U.S. Treasury Listing of Approved Sureties, or a Binder of Insurance executed by a surety company licensed by the State of Texas to act as a surety or its authorized agent as a guarantee that the bidder will enter into a contract and execute a Performance Bond within ten (10) days after notice of award of contract to him.
4. Plans, specifications and bidding documents may be downloaded from www.bidsync.com. The Town of Addison is a “free buyer”, meaning that prospective bidders need only a free registration to sign up for plan updates. Bidders assume all risk for acquiring plans and/or specs from third party sites and plan rooms, as only Bidsync.com will be directly updated by Addison.
5. The right is reserved by the Mayor and the City Council as the interests of the City may require to reject any or all bids and to waive any informality in bids received and to select the proposal deemed most advantageous to the Town.
6. The Bidder (Proposer) must supply all the information required by the Proposal Form.
7. A Performance Bond, Labor and Material Payment Bond, and Maintenance Bond will be required by the Owner; each Bond shall be in the amount of 100% of the total contract amount. Bonds shall be issued by a surety company licensed by the State of Texas to act as a Surety and be listed on the current U.S. Treasury Listing of Approved Sureties.
8. All questions regarding this bid shall be asked through www.bidsync.com. Questions will be answered in a timely manner. If you have questions regarding Bidsync, please call Will Newcomer, Purchasing Manager, Town of Addison (972) 450-7091.
9. The project consists of installing proposed public water, wastewater, paving and other related improvements in accordance with the plans and specifications.
10. Pre-Bid Conference will be held at 2:00 p.m., on Tuesday, January 30, 2018 in the Conference Room of the Town of Addison’s Service Center, 16801 Westgrove Dr., Addison, Texas 75001.

TOWN OF ADDISON, TEXAS

SECTION IB

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

- A. PROJECT: VITRUVIAN PARK PUBLIC INFRASTRUCTURE – BLOCK 500 A,** in the Town of Addison.

The bids will be evaluated as stated in Section "P" of the instructions to Bidders.

- B. PROJECT DESCRIPTION:** This project consists of furnishing and installing water, sanitary sewer and paving and improvements in accordance with the plans and specifications.
- C. PROPOSALS:** Proposals must be in accordance with these instructions in order to receive consideration.
- D. DOCUMENTS:** Documents include the Bidding Requirements, including the Advertisement for Bids, these Instructions to Bidders, Proposal Forms, Contract Agreement, Bid Bond, Performance Bond, Payment Bond, Maintenance Bond, Contractor's Affidavit of Bills Paid, General Provisions, Special Provisions, Technical Specifications, Waiver of Lien, Drawings, and Addenda which may be issued by the Town of Addison during the bidding period. Bidding Documents may be viewed and/or obtained under the terms and conditions set forth in the Advertisement for Bids, Section AB of this Project Manual.
- E. EXAMINATION OF DOCUMENTS AND SITE:** Bidders shall carefully examine the Bidding Documents and the construction site to obtain first-hand knowledge of the scope and the conditions of the Work. Each Contractor, Subcontractor and Sub-subcontractor, by submitting a proposal to perform any portion of the Work, represents and warrants that he has examined the Drawings, Specifications (Project Manual) and the site of the Work, and from his own investigation has satisfied himself as to the scope, accessibility, nature and location of the Work; the character of the equipment and other facilities needed for the performance of the Work; the character and extent of other work to be performed; the local conditions; labor availability, practices and jurisdictions and other circumstances that may affect the performance of the Work. No additional compensation will be allowed by the Owner for the failure of such Contractor, Subcontractor or Sub-subcontractor to inform himself as to conditions affecting the Work. **A Pre-Bid Meeting will be held at 2:00 P.M. on Tuesday, the 30th day of January, 2018** at the Addison Service Center, 16801 Westgrove Drive, Addison, Texas 75001.
- F. INTERPRETATION OF DOCUMENTS:** If any person contemplating submitting a bid for the proposed Contract is in doubt as to the meaning of any part of the Drawings, Specifications (Project Manual) or other proposed Contract Documents, he may submit to the Town of Addison, not later than seven (7) calendar days prior to the date set for opening bids, a written request for an interpretation or clarification. Bidders should act promptly and allow sufficient time for a reply to reach them before preparing their bids. Any interpretation or clarification will be in the form of an Addendum duly issued. No alleged verbal interpretation or ruling will be held binding upon the Owner.
- G. SUBSTITUTIONS:** Conditions governing the submission of substitutions for specific materials, products, equipment and processes are in the Special Provisions. Requests for substitutions must be received by the Town of Addison seven (7) calendar days prior to the established bid date.

- H. ADDENDA:** Interpretations, clarifications, additions, deletions and modifications to the Documents during the bidding period will be issued in the form of Addenda and a copy of such Addenda will be released through www.bidsync.com. It is the responsibility of each person who has been issued a set of bid documents to obtain addenda through www.bidsync.com. Addenda will be a part of the Bidding Documents and the Contract Documents, and receipt of them shall be acknowledged in the Bid Form. All such interpretations and supplemental instructions will be in the form of written addenda to the contract documents which, if issued, will be sent by telegram, certified or registered mail, facsimile, email or hand delivered to all prospective bidders (at the respective addresses furnished for such purposes) not later than three (3) calendar days prior to the date fixed for the opening of bids. If any bidder fails to acknowledge the receipt of such addenda in the space provided in the bid form, his bid will nevertheless be construed as though the receipt of such addenda had been acknowledged.
- I. COMPLETION TIME:** It is understood and agreed to between the Town of Addison and the Contractor that time is of the essence of this contract and that the time allocated for completion of this project will be **180 calendar days**. The time period shall commence ten (10) calendar days following written notification from the Town of Addison that the Contractor may begin work. Reference Special Provision 22 for Explanation of Contract Time. The completion date of the contract will be same date of the Town's final acceptance of the improvements.
- J. FAILURE TO COMPLETE ON TIME:** The time of completion is an essential element of this contract. For each day that any work shall remain uncompleted after the time specified in the proposal and the Contract, or the increased time granted by the Town of Addison, or as equitably increased by additional work or materials ordered after the Contract is signed, the sum of **\$500 per day** shall be deducted from the monies due the Contractor. The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per day that the Contractor shall be in default after the time stipulated in the Contract for completing the work. The said amounts are fixed and agreed upon by and between the Town of Addison and Contractor because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Town of Addison would sustain and which shall be retained from the monies due, or that may become due, the Contractor under this Contract: and if said monies be insufficient to cover the amount owing, then the Contractor or its surety shall pay any additional amounts due. In the event that the actual damages incurred by the Town of Addison exceed the amount of liquidated damages, the Town of Addison shall be entitled to recover its actual damages.
- K. PREPARATION OF BIDS:** Prices quoted shall include all items of cost, expense, taxes, fees and charges incurred by, or arising out of, the performance of the work to be performed under the Contract. Bids shall be submitted in duplicate and shall be signed in ink. Any bid on other than the required form will be considered informal and may be rejected. Erasures or other changes in a bid must be explained or noted over the initials of the bidder. Bids containing any conditions, omissions, unexplained erasures and alterations, or irregularities of any kind may be rejected as informal. The prices should be expressed in words and figures or they may be deemed informal and may be rejected. In case of discrepancy between the prices written in the bid and those given in the figures, the price in writing will be considered as the bid. In the case of a discrepancy between a unit price and its extension, the unit price will govern. Failure to submit all requested information will make a bid irregular and subject to rejection. Bids shall be signed with name typed or printed below signature, and, if a partnership, give full name of all partners. Where bidder is a corporation, bids must be signed with the legal name of the corporation followed by the name of the state

of incorporation and the legal signature of an officer authorized to bind the corporation to a contract.

NOTE: AN ELECTRONIC SPREADSHEET IS POSTED ON BIDSYNCR FOR THE CONTRACTORS CONVENIENCE. THIS SPREADSHEET MAY BE USED IN LIEU OF THE MANUAL HANDWRITTEN PROPOSAL FORM IN THE SPECIFICATIONS AND SHALL BE ATTACHED TO THE PROPOSAL AND MADE PART OF THE CONTRACT DOCUMENTS. USING THE SPREADSHEET OPTION SHALL NOT AMEND NOR MODIFY ANY WORDING IN THE PROPOSAL FORM OR THE PLANS AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THAT THE SPREADSHEET ADEQUATELY CONVEYS THEIR BID.

- L. SUBMITTAL OF BIDS:** Sealed proposals will be received at the time, date and place stated in the Advertisement for Bids. Proposals shall be made on unaltered Proposal Forms furnished by the Town of Addison. Submit proposal in an opaque, sealed envelope addressed to the Owner and plainly mark on the outside of the envelope the project name, and the name and address of the bidder. The envelopes shall be marked with the following project names:

INFRASTRUCTURE & DEVELOPMENT SERVICES #17-07
VITRUVIAN PARK PUBLIC INFRASTRUCTURE – BLOCK 500 A

The Bid Bond must be completed and signed by each bidder and submitted with the bid. Submit Bids by mail or in person prior to the time for receiving bids set forth in the Advertisement for Bids issued by the Town.

Electronic bidding on bidsync.com will not be considered for this project. The Town of Addison uses bidsync to distribute bids and proposals. There will be NO COST to the contractor for standard bids or proposals. The project is considered a standard bid. For cooperative Bids and Reverse Auctions ONLY, the successful contractor/supplier agrees to pay bidsync a transaction fee of one percent (1%) of the total amount of all contracts for goods and/or services. Cooperative Bids and Reverse Auctions will be clearly marked on the bid documents. To assure that all contractors/suppliers are treated fairly, the fee will be payable whether the bid/proposal is submitted electronically, or by paper means. Refer to www.bidsync.com for further information.

- M. MODIFICATION AND WITHDRAWAL OF BIDS:** Prior to the time set for bid opening, bids may be withdrawn or modified. Bids may be modified only on the official bid form and must be signed by a person legally empowered to bind the bidder. No bidder shall modify, withdraw or cancel his bid or any part thereof for sixty (60) calendar days after the time agreed upon for the receipt of bids.
- N. DISQUALIFICATION:** The Owner reserves the right to disqualify proposals, before or after the opening, upon evidence of collusion with intent to defraud or other illegal practices relating to this proposal upon the part of the bidder.
- O. SUBMISSION OF POST-BID INFORMATION:** Upon notification of acceptance, the selected bidder shall, within five (5) calendar days, submit the following:
1. A designation of the portions of the Work proposed to be performed by the bidder with his own force.

2. A list of names of the subcontractors or other persons or organizations, including those who are to furnish materials and equipment fabricated to a special design proposed for such portions of the Work as may be designated in the Bidding Documents or as may be requested by the Town of Addison. The bidder will be required to establish to the satisfaction of the Owner the reliability and responsibility of the proposed Subcontractors and suppliers to furnish and perform the Work.
3. Other information as required.

P. AWARD: The Owner reserves the right to accept any or to reject any bids without compensation to bidders and to waive irregularities and informalities. The Town of Addison Infrastructure & Development Services Department, in making its recommendation, will consider the following elements:

1. Whether the bidder is a contractor with experience in the type of work involved.
2. Whether the bidder has adequate plant, equipment and personnel to perform the work properly and expeditiously.
3. Whether the bidder has a suitable financial status and reputation for meeting obligations incident to work of the kind specified.
4. Whether the bidder has complied with the terms and conditions of the A+B bidding.

Alternate items may or may not be awarded. Addition or deletion of other items or schedules will be governed by the *Standard Specifications for Public Works Construction – North Central Texas, 4th Edition*, (hereinafter called SSPWC) Item 104.2 "Change or Modification of Contract".

Q. EXECUTION OF THE CONTRACT: The successful bidder will be required to enter into a contract with the Owner within ten (10) days of notice by the Owner that his bid has been accepted. Failure to enter into a contract within the established time limit shall be considered grounds for forfeiture of the bid bond.

R. CONSTRUCTION SCHEDULE: It is the Owner's desire to have the project completed and operational in as short a time as possible. The number of calendar days for completion of the project will begin with the date specified in the Notice to Proceed. The Notice to Proceed will be issued in a manner to facilitate a smooth construction of the project. The Contractor shall begin construction within ten (10) calendar days of the issuance of the Notice to Proceed.

S. FORM OF CONTRACT: The contract for the construction of the project will be drawn up by the Owner. A sample form of agreement is included in the Contract Agreement Section.

T. BONDS: A Performance Bond, a Labor and Material Payment Bond and a Maintenance Bond will be required by the Owner. The performance and payment bonds shall name the Town of Addison, and others as directed by the Town, as joint obligees. Sample forms have been included in the Performance Bond, Payment Bond and Maintenance Bond sections.

U. BID SECURITY: Bids shall be accompanied by a bid bond in an amount not less than five percent (5%) of the total maximum bid price payable without recourse to the Town of Addison. The bid bond shall be from a surety company licensed to do business in the State of Texas as a guarantee that the bidder will enter into a contract and execute a Performance

Bond, Payment Bond and Maintenance Bond within ten (10) calendar days after notice of award of contract to him. Such bid bonds will be returned to all except the three lowest bidders, as requested, after the opening of bids, and the remaining bid bonds will be returned promptly after the Owner has made an award of contract, or, if no award has been made within thirty (30) calendar days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

V. RESOLUTIONS: If the bidder is a corporation, a copy of the resolution empowering the person submitting the bid to bind the bidder must be included with the bid.

W. CONSTRUCTION STAKING: Construction staking and re-staking will not be provided by the Owner. Benchmarks and Horizontal Control are shown on the plans. There is no separate bid item for staking, therefore, the contractor must include value for staking in the various bid items as subsidiary to the contract. Any staking or re-staking that is required shall be the responsibility of the Contractor and shall be at no cost to the Owner.

X. FINAL PAYMENT: The general provisions for Final Payment shall be as stated in Item 1.09.5.4 of the North Central Texas Standard Specifications for Public Works Construction (4th Edition) including all Amendments and Additions. Prior to final payment the Contractor shall provide the Owner with the following items:

1. A Contractor's Affidavit of Bills Paid in accordance with Section BP.
2. A Consent of Surety Company to Final Payment.
3. A complete set of record plans which indicate all construction variations from the original construction documents in accordance with Item 5 of the Special Provisions.
4. A two (2) year Maintenance Bond in accordance with Section MB.
5. Acknowledgement that the project has been reviewed and accepted by TDLR.

Y. PREVAILING WAGE RATES: Wage rates paid on this project shall not be less than specified in the schedule of general prevailing rates of per diem wages as shown in Davis-Bacon, Dallas County.

Z. PRIORITY OF CONTRACT DOCUMENTS: In case of conflict between contract documents, priority of interpretation shall be in the following order: signed agreement, performance and payment bonds, proposal, special provisions (or conditions), technical specifications, general provisions, advertisement for bids, project drawings, *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges* adopted by the Texas Department of Transportation June 1, 2004; Standard Specifications for Public Works Construction – North Central Texas (NCTCOG, October 2004); Town of Addison Standard Drawings. This priority list shall take precedence over item 1.05.1 of the SSPWC.

SECTION PF

PROPOSAL FORM

PROPOSAL FORM

_____, 2018

TO: The Honorable Mayor and Town Council
Town of Addison, Texas

Gentlemen:

The undersigned bidder, having examined the plans, specifications and contract documents, and the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all equipment and to perform labor and work necessary for completion of the work described by and in accordance with the Plans, Specifications and Contract for the following prices, to wit:

Signed by: _____

ACKNOWLEDGMENT OF ADDENDA:

The Bidder acknowledges receipt of the following addenda:

Addendum No. 1 _____

Addendum No. 2 _____

Addendum No. 3 _____

VITRUVIAN PARK PUBLIC INFRASTRUCTURE - BLOCK 500 A
WATER, SANITARY SEWER AND PAVING IMPROVEMENTS
TOWN OF ADDISON PROJECT #2017-07

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
1	1	L.S.	<p>For Mobilization (not to exceed 5% of total bid amount)</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
2	1	L.S.	<p>For Installation and Maintenance of Barricades, Signage, Pav't Markings and Traffic Control Measures for Marsh Lane Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
3	1	L.S.	<p>For Installation and Maintenance of Barricades, Signage, Pav't Markings and Traffic Control Measures for Spring Valley Road Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
4	1	L.S.	<p>For Furnishing, Installation and Maintenance of Traffic Control Measures for Shopping Center Phase 1 Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
5	1	L.S.	<p>For Furnishing, Installation and Maintenance of Traffic Control Measures for Shopping Center Phase 2 Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
6	1	L.S.	<p>For Furnishing, Installation and Maintenance of Traffic Control Measures for Shopping Center Phase 3 Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
7	1	L.S.	<p>For Furnishing, Installation and Maintenance of Traffic Control Measures for Shopping Center Phase 4 Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
8	3	EA.	<p>For Furnishing and Installing Project Signs in Accordance with Sign Plan</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Each</p>		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
9	1	L.S.	For Compliance with Storm Water Pollution Prevention Plan Including Maintenance of Erosion Control Devices complete in place, the sum of _____ _____ Dollars and _____ Cents per Lump Sum		
10	1	EA.	For Furnishing, Installation and Maintenance of Construction Entrance complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
11	2,659	L.F.	For Furnishing, Installation and Maintenance of Silt Fence Sediment Barrier complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
12	13	EA.	For Furnishing, Installation and Maintenance of Inlet Protection Devices complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
13	2	EA.	For Removal, Storage and Re-installation of Existing Street Signage complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
14	6	EA.	For Removal and Disposal of Existing Trees complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
15	4,704	L.F.	For Sawcutting of Existing Concrete Pavement (Reference Sheet 3) complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
16	5,495	S.Y.	For Removal & Recycling of Existing Concrete Pavement complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Yard		
17	1,781	S.Y.	For Furnishing and Placing 10" Reinforced Concrete Pavement (4200 PSI) complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Yard		
18	2,685	S.Y.	For Furnishing and Placing 8" Reinforced Concrete Pavement (4200 PSI) complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Yard		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
19	780	L.F.	For Constructing 6" Reinforced Monolithic Concrete Curb complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
20	239	L.F.	For Constructing 6" Reinforced Monolithic Concrete Sidewalk Curb complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
21	356	L.F.	For Constructing 6" Reinforced Concrete Curb & Gutter complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
22	6,123	S.F.	For Furnishing and Placing 5-inch thick Reinforced Concrete Sidewalk Enhanced Pavement complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Foot		
23	5,645	S.F.	For Furnishing and Placing 4-inch thick Reinforced Concrete Sidewalk Pavement complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Foot		

BASE BID

ITEM NO.	APPROX. QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
24	5	EA.	For Furnishing and Placing Sidewalk Pedestrian Curb Ramps (Ref. PED - 12A) complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
25	16	EA.	For Furnishing and Installing Detectable Warning Surface (Ref. PED - 12A) complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
26	286	S.F.	For Furnishing and Installing Pavestone Concrete Street Paver, Running Bond Pattern, 3-1/8" Thickness, Bellows Brown Color complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Foot		
27	1,342	S.F.	For Furnishing and Installing Pavestone Concrete Paver, Holland Stone, 2-3/8" Thickness, Bellows Brown Color complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Foot		
28	112	S.F.	For Furnishing and Installing Pavestone ADA Truncated Dome Concrete Paver, Running Bond Pattern, 2-3/8" Thickness, Bellows Brown Color complete in place, the sum of _____ _____ Dollars and _____ Cents per Square Foot		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
29	48	L.F.	For Furnishing, Laying and Compacting Short Term Asphalt Pavement Trench Repair		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
30	16	EA.	For Furnishing and Installing Type 11 Reflectorized Blue Pav't Markers for Hydrants		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		
31	2,087	L.F.	For Removal and Disposal of Existing Water Main		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
32	704	L.F.	For Removal and Disposal of Existing Water Service		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
33	19	EA.	For Removal and Salvage of Existing Water Valves		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
34	11	EA.	For Removal and Salvaging of Existing Fire Hydrant Assembly		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		
35	5	EA.	For Relocation of Exist Water Meter		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		
36	29	EA.	For Cutting and Plugging of Existing Water Main		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		
37	2,800	L.F.	For Furnishing and Placing of Grout Fill in Abandoned Water Main		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
38	8	EA.	For Removal of Existing Water Valve Cap and Grout Filling of Abandoned Water Valve Box		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
39	15	EA.	For Connection to Existing Water Main complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
40	15	EA.	For Connection to Existing Water Service complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
41	2,203	L.F.	For Furnishing and Installing 12-Inch PVC Water Pipe by Open Cut with Std. Embedment complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
42	137	L.F.	For Furnishing and Installing 12-Inch Ductile Iron Water Pipe by Open Cut with Std. Embedment complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
43	2,478	L.F.	For Furnishing and Installing 8-Inch PVC Water Pipe by Open Cut with Std. Embedment complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
44	299	L.F.	For Furnishing and Installing 6-Inch PVC Water Pipe by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
45	20	L.F.	For Furnishing and Installing 4" PVC Water Pipe by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
46	237	L.F.	For Furnishing and Installing 2" Water Pipe by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
47	50	L.F.	For Furnishing and Installing 1" Water Pipe by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
48	28	EA.	For Furnishing and Installing 12-Inch Gate Valve Complete w/ Valve Box, Extention, Collar, Debris Cap and Cover		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
49	40	EA.	For Furnishing and Installing 8-Inch Gate Valve Complete w/ Valve Box, Extention, Collar, Debris Cap and Cover complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
50	21	EA.	For Furnishing and Installing 6-Inch Gate Valve Complete w/ Valve Box, Extention, Collar, Debris Cap and Cover complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
51	2	EA.	For Furnishing and Installing 4-Inch Gate Valve Complete w/ Valve Box, Extention, Collar, Debris Cap and Cover complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
52	16	EA.	For Furnishing and Installing Fire Hydrant Assembly, Complete in Place complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
53	10.90	TONS	For Furnishing and Installing Ductile Iron Full Bodied Mechanical Joint Type Fittings w/ Restraining Glands for Water Pipe complete in place, the sum of _____ _____ Dollars and _____ Cents per Ton		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
54	21	EA.	For Furnishing and Installing 2" Water Service Tap complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
55	3	EA.	For Furnishing and Installing 1" Water Service Tap complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
56	22	EA.	For Furnishing and Installing Meter Box complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
57	91	EA.	For Final Adjustment of Existing Water Valves to Finish Grade complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
58	1	L.S.	For Preparing, Furnishing, Installing and Maintaining Trench Safety System for Water Improvements complete in place, the sum of _____ _____ Dollars and _____ Cents per Lump Sum		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
59	5	EA.	For Abandonment of Existing Sanitary Sewer Manhole complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
60	379	L.F.	For Removal and Disposal of Existing Sanitary Sewer Main complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
61	62	L.F.	For Removal and Disposal of Existing Sanitary Sewer Service complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
62	536	L.F.	For Removal and Disposal of Existing Sanitary Sewer Force Main Pipe complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
63	1	EA.	For Removal and Disposal of Existing Sanitary Sewer Cleanouts complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
64	3	EA.	For Removal and Disposal of Existing Bollards complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
65	10	EA.	For Cutting and Plugging of Existing Sanitary Sewer Main complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
66	1,466	L.F.	For Furnishing and Placing Grout Filling in Abandoned Sanitary Sewer Main complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
67	3	EA.	For Connection to Existing Sanitary Sewer Main complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
68	2	EA.	For Connection to Existing Sanitary Sewer Service complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
69	1,767	L.F.	For Furnishing and Installing 8-Inch PVC Sanitary Sewer Main by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
70	180	L.F.	For Furnishing and Installing 8-Inch Ductile Iron Sanitary Sewer Main by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
71	98	L.F.	For Furnishing and Installing 6-Inch PVC Sanitary Sewer Main by Open Cut with Std. Embedment		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Linear Foot		
72	11	EA.	For Furnishing and Installing Sanitary Sewer Lateral Cleanouts		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		
73	1	EA.	For Constructing Standard 4' Diameter Sanitary Sewer Manhole to 6' Depth with Standard Frame and Cover, over Existing Sewer Main		
			complete in place, the sum of _____		
			_____ Dollars		
			and _____ Cents per Each		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
74	12	EA.	For Constructing Standard 4' Diameter Sanitary Sewer Manhole to 6' Depth with Standard Frame and Cover complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
75	29	V.F.	For Extra Depth for Standard 4' Diameter Manhole in Excess of 6' Depth complete in place, the sum of _____ _____ Dollars and _____ Cents per Vertical Foot		
76	81	L.F.	For Furnishing and Placing Cement Stabilized Sand Backfill around Manholes (12" Minimum Width on water main side only) complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		
77	13	EA.	For Final Adjustment of Sanitary Sewer Manholes to Finish Grade complete in place, the sum of _____ _____ Dollars and _____ Cents per Each		
78	1,947	L.F.	For TV Inspection of Sanitary Sewer System complete in place, the sum of _____ _____ Dollars and _____ Cents per Linear Foot		

BASE BID

ITEM NO.	APPROX QUANT.	UNIT	DESCRIPTION OF ITEMS BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
79	1	L.S.	<p>For Preparing, Furnishing, Installing and Maintaining Trench Safety System for Sanitary Sewer Improvements</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Lump Sum</p>		
80	136	L.F.	<p>For Furnishing and Installation of (2) - 4" Electrical Conduit by Open Cut</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Linear Foot</p>		
81	28,300	S.F.	<p>For Furnishing and Installing Hydromulch Seeding (NCTCOG Item 3.10 "Seeding") of all Disturbed Areas.</p> <p>complete in place, the sum of _____</p> <p>_____ Dollars</p> <p>and _____</p> <p>Cents per Square Foot</p>		
TOTAL AMOUNT OF BASE BID (Items 1 Through 81)					

VITRUVIAN PARK
PUBLIC INFRASTRUCTURE – BLOCK 500 A

BID SCHEDULE SUMMARY

Bid Schedule & Description

Total Amount Materials & Services

TOTAL AMOUNT OF BASE BID (Items 1 through 81)

WRITTEN IN WORDS:

NOTES:

1. All items, labor, materials, equipment, facilities, incidentals, and work required for construction of the project are to be provided and installed by the Contractor as part of the project and payment for the cost of such shall be included in the price bid.
2. Prices must be shown in words and figures for each item listed in this proposal. In the event of discrepancy, the words shall control.
3. It is understood that the Bid Security shall be collected and retained by the Owner as liquidated damages in the event a contract is made by the Owner based on this proposal within ninety (90) calendar days after receiving bids and the undersigned fails to execute the contract.
4. Materials, which are "tax exempt", are those items which are physically incorporated into the facilities constructed for the Town of Addison, as set forth in the Special Provisions. Materials include, but are not limited to purchased items such as water pipe, sanitary sewer pipe, storm drain pipe, etc. Services, which are "not tax exempt", are those items which are used by the Contractor but are not physically incorporated into the Town of Addison's facility and/or items which are consumed by construction, as set forth in the Special Provisions. Services include, but are not limited to, items such as supplies, tools, skill and labor, the purchase, rental or lease of equipment, etc.

Name of Person Signing Bid

Signature of Person Signing Bid

Address

Telephone No.

Fax No.

Bidder's Tax I.D. No. or Employer No.

If BIDDER is:

AN INDIVIDUAL

By _____ (Seal)
(Individual's Name)

doing business as _____

Business address: _____

Phone No. _____

A PARTNERSHIP

By _____ (Seal)
(Firm Name)

(General Partner)

doing business as _____

Business address: _____

Phone No. _____

A CORPORATION

By _____
(Corporation Name)

(State of Incorporation)

By _____
(Name of Person Authorized to Sign)

(Title)

(Corporate Seal)

Attest _____
(Secretary)

Business address: _____

Phone No. _____



A JOINT VENTURE

By _____
(Name)

(Address)

By _____
(Name)

(Address)

(Each joint venture must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

SECTION IA

INDEMNIFICATION AGREEMENT

TOWN OF ADDISON **INDEMNIFICATION AGREEMENT**

Contractor's Indemnity Obligation. Contractor covenants, agrees to, and shall DEFEND (with counsel reasonably acceptable to Owner), INDEMNIFY, AND HOLD HARMLESS Owner, UDR, Inc., VPDEV 1 LLC, VP West 1 LLC, their respective past, present and future elected and appointed officials, and each of their respective past, present and future officers, employees, representatives, and volunteers, individually or collectively, in both their official and private capacities (collectively, the "**Owner Persons**" and each being an "**Owner Person**"), from and against any and all claims, liabilities, judgments, lawsuits, demands, harm, losses, damages, proceedings, suits, actions, causes of action, liens, fees (including attorney's fees), fines, penalties, expenses, or costs, of any kind and nature whatsoever, made upon or incurred by Owner and/or Owner Person, whether directly or indirectly, (the "**Claims**"), that arise out of, result from, or relate to: (i) the services to be provided by Contractor pursuant to this Agreement, (ii) any representations and/or warranties by Contractor under this Agreement, (iii) any personal injuries (including but not limited to death) to any Contractor Persons (as hereinafter defined) and any third persons or parties, and/or (iv) any act or omission under, in performance of, or in connection with this Agreement by Contractor or by any of its owners, directors, officers, managers, partners, employees, agents, contractors, subcontractors, invitees, patrons, quests, customers, licensees, sub licensees, or any other person or entity for whom Contractor is legally responsible, and their respective owners, directors, officers, managers, partners, employees, agents, contractors, subcontractors, invitees, patrons, quests, customers, licensees, sub licensees (collectively, "**Contractor Persons**"). SUCH DEFENSE, INDEMNITY AND HOLD HARMLESS SHALL AND DOES INCLUDE CLAIMS ALLEGED OR FOUND TO HAVE BEEN CAUSED IN WHOLE OR IN PART BY THE NEGLIGENCE OR GROSS NEGLIGENCE OF OWNER OR ANY OTHER OWNER PERSON, OR CONDUCT BY OWNER OR ANY OTHER OWNER PERSON THAT WOULD GIVE RISE TO STRICT LIABILITY OF ANY KIND.

Contractor shall promptly advise Owner in writing of any claim or demand against any Owner Person related to or arising out of Contractor's activities under this Agreement and shall see to the investigation and defense without relieving Contractor of any of its obligations hereunder. This defense, indemnity, and hold harmless provision shall survive the termination or expiration of this Agreement.

The provisions in the foregoing defense, indemnity and hold harmless are severable, and if any portion, sentence, phrase, clause or word included therein shall for any reason be held by a court of competent jurisdiction to be invalid, illegal, void, or unenforceable in any respect, such invalidity, illegality, voidness, or unenforceability shall not affect any other provision hereof, and this defense, indemnity and hold harmless provision shall be considered as if such invalid, illegal, void, or unenforceable provision had never been contained in this Agreement. **In that regard, if the capitalized language included in the foregoing indemnity is so determined to be void or unenforceable, the parties agree that:**

(i) the foregoing defense, indemnity, and hold harmless obligation of Contractor shall be to the extent Claims are caused by, arise out of, or result from, in whole or in part, any act or omission of Contractor or any Contractor Persons; and

(ii) notwithstanding the provisions of the foregoing subparagraph (i), to the fullest extent permitted by law, Contractor shall INDEMNIFY, HOLD HARMLESS, and DEFEND Owner and Owner Persons from and against all Claims arising out of or resulting from bodily injury to, or sickness, disease or death of, any employee, agent or representative of Contractor or any of its subcontractors, regardless of whether such Claims are caused, or are alleged to be caused, in whole or in part, by the negligence, or any act or omission, of Owner or any Owner Persons, it being the expressed intent of Owner and Contractor that IN SUCH EVENT THE CONTRACTOR'S INDEMNITY, HOLD HARMLESS, AND DEFENSE OBLIGATION SHALL AND DOES INCLUDE CLAIMS ALLEGED OR FOUND TO HAVE BEEN CAUSED IN WHOLE OR IN PART BY THE NEGLIGENCE OR GROSS NEGLIGENCE OF OWNER OR ANY OTHER OWNER PERSON, OR CONDUCT BY OWNER OR ANY OTHER OWNER PERSON THAT WOULD GIVE RISE TO STRICT LIABILITY OF ANY KIND. The indemnity obligation under this subparagraph (ii) shall not be limited by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor under workers compensation acts, disability benefit acts, or other employee benefit acts.

I understand that the indemnification provisions are required of all Town of Addison Contracts. I have read the provisions and agree to the terms of these provisions.

Project/Bid #: _____

Company Name: _____

Signature: _____ Date: _____

SECTION CA

CONTRACT AGREEMENT

CONTRACT AGREEMENT

STATE OF TEXAS

COUNTY OF DALLAS

THIS AGREEMENT is made and entered into this _____ day of _____, **2018**, by and between the Town of Addison, of the County of Dallas and State of Texas, acting through its City Manager, thereunto duly authorized so to do, Party of the First Part, hereinafter termed the OWNER, and _____, of the City of _____, County of _____, State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payment and agreement hereinafter mentioned, to be made and performed by the OWNER, the said CONTRACTOR hereby agrees with the said OWNER to commence and complete construction of certain improvements as follows:

Town of Addison Public Improvements
to be known as

VITRUVIAN PARK PUBLIC INFRASTRUCTURE – BLOCK 500 A

and all extra work in connection therewith, under the terms as stated in the General and Specific Conditions of the AGREEMENT; and at his own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance and other accessories and services necessary to complete the said construction, in accordance with the conditions and prices stated in the Proposal attached hereto and in accordance with the Advertisement for Bids, Instructions to Bidders, General Provisions, Special Provisions, Plans, and other drawings and printed or written explanatory matter thereof, and the Technical Specifications and Addenda thereto, as prepared by the OWNER, each of which has been identified by the endorsement of the CONTRACTOR and the OWNER thereon, together with the CONTRACTOR's written Proposal and the General Provisions, all of which are made a part hereof and collectively evidence and constitute the entire AGREEMENT.

The CONTRACTOR hereby agrees to commence work within ten (10) calendar days after the date of written notice to do so shall have been given to him, to complete the work within One Hundred Eighty (**180**) calendar days, after he commences work, subject to such extensions of time as are provided by the General Provisions.

The OWNER agrees to pay the CONTRACTOR _____ in current funds for the performance of the Contract in accordance with the Proposal submitted thereof, subject to additions and deductions, as provided in the General Provisions, and to make payments of account thereof as provided therein.

IN WITNESS WHEREOF, the parties of these presents have executed this AGREEMENT in the year and day first above written.

TOWN OF ADDISON, TEXAS (OWNER)

ATTEST:

By: _____
Wes Pierson, City Manager

By: _____
Christie Wilson, Interim City Secretary

(CONTRACTOR)

ATTEST:

By: _____

By: _____

The following to be executed if the CONTRACTOR is a corporation:

I, _____ certify that I am the secretary of the corporation named as CONTRACTOR herein; that _____, who signed this Contract on behalf of the CONTRACTOR is the _____ (official title) of said corporation; that said Contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

Signed: _____

Corporate Seal

No Boycott – Israel: Pursuant to Texas Government Code Chapter 2271, _____ execution of this Agreement shall serve as verification that _____ does not boycott Israel and will not boycott Israel during the term of this Agreement.

SECTION BB

BID BOND

BID BOND

Bidder shall submit a bid bond equal to five percent (5%) of the bid price. Failure to submit a bid bond when required may deem the bid non-responsive. Bid Bonds may be submitted electronically with the executed original provided immediately upon request.

SECTION PrB

PERFORMANCE BOND

**STATUTORY PERFORMANCE BOND PURSUANT TO CHAPTER 2253
OF THE TEXAS GOVERNMENT CODE
(PUBLIC WORKS)**

(Penalty of this Bond must be 100% of Contract Amount)

KNOW ALL MEN BY THESE PRESENTS, That _____
(hereinafter called the Principal), as Principal, and _____
(hereinafter called the Surety), as Surety are held and firmly bound unto the **Town of Addison** (hereinafter
called the Obligee), in the amount of _____
_____ Dollars (\$ _____) 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 Obligee, dated the
_____ day of _____, 2018 to

**Town of Addison Public Improvements
to be known as
VITRUVIAN PARK
PUBLIC INFRASTRUCTURE – BLOCK 500 A**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at
length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said
Principal shall faithfully perform the work in accordance with the plans, specifications and contract
documents, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of
the Texas Government Code and all liabilities on this bond shall be determined in accordance with the
provisions, conditions and limitations of said Chapter to the same extent as if it were copied at length
herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed this instrument this _____
day of _____, 2018.

_____ _____ _____	_____ (Principal) By: _____ _____ (Surety) By: _____ (Attorney-in-Fact)
---------------------------------	-------------------------------------------------------------------------------------------------------

SECTION PyB

PAYMENT BOND

**STATUTORY PAYMENT BOND PURSUANT TO CHAPTER 2253
OF THE TEXAS GOVERNMENT CODE
(PUBLIC WORKS)**

(Penalty of this Bond must be 100% of Contract Amount)

KNOW ALL MEN BY THESE PRESENTS, That _____
(hereinafter called the Principal), as Principal, and _____
(hereinafter called the Surety), as Surety are held and firmly bound unto the **Town of Addison** (hereinafter
called the Obligee), in the amount of _____
_____ Dollars (\$ _____) 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 Obligee, dated the
_____ day of _____, 2018 to

**Town of Addison Public Improvements
to be known as
VITRUVIAN PARK
PUBLIC INFRASTRUCTURE – BLOCK 500 A**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at
length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said
Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution
of the work provided for in said contract, then this obligation shall be void; otherwise to remain in full
force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of
the Texas Government Code and all liabilities on this bond shall be determined in accordance with the
provisions, conditions and limitations of said Chapter to the same extent as if it were copied at length
herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed this instrument this _____
day of _____, 2018.

_____ _____ _____	_____ (Principal) By: _____ _____ (Surety) By: _____ (Attorney-in-Fact)
---------------------------------	-------------------------------------------------------------------------------------------------------

SECTION MB

MAINTENANCE BOND

MAINTENANCE BOND

STATE OF TEXAS

COUNTY OF DALLAS

That _____ as principal and _____
_____, a corporation organized under the laws of _____
and _____ as sureties, said sureties being authorized to do business in the
State of Texas, do hereby expressly acknowledge themselves to be held and bound to pay unto the Town of
Addison, a municipal corporation, chartered by virtue of a Special Act of Legislature of the State of Texas, as
Addison, Dallas County, Texas, the sum of

(\$_____) for the payment of which sum will and truly to be made unto said Town of Addison and its
successors, said principal and sureties do hereby bind themselves, their assigns and successors, jointly and severally.

This obligation is conditioned, however, that whereas said

has this day entered into a written contract with the said Town of Addison to build and construct the

Town of Addison Public Improvements

to be known as

VITRUVIAN PARK

PUBLIC INFRASTRUCTURE – BLOCK 500 A

which contract and the Plans and Specifications therein mentioned adopted by the Town of Addison, are hereby
expressly made a part hereof as though the same were written and embodied herein.

WHEREAS, under the Plans, Specifications and Contract it is provided that the Contractor will maintain and keep in good repair the work herein contracted to be done and performed for a period of two (2) years from the date of startup, and to do all necessary backfilling that may arise on account of sunken conditions in ditches, or otherwise, and to do and perform all necessary work and repair any defective condition growing out of or arising from the improper joining of the same, or on account of any breaking of the same caused by the said Contractor in laying or building the same, or on account of any defect arising in any of said part of said work laid or constructed by the 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 the said Contractor; and in case the said Contractor shall fail to do, it is agreed that the City may do said work and supply such materials, and charge the same against the said Contractor and sureties on this obligation, and the said Contractor and sureties hereon shall be subject to the liquidated damages mentioned in said contract for each day's failure on its part to comply with the terms of the said provisions of said contract;

NOW THEREFORE, if the said Contractor shall keep and perform its said agreement to maintain said work and keep the same in repair for the said maintenance period of two (2) years, as provided, then these presents shall be null and void and have no further effect; but if default shall be made by the said Contractor in the performance of its contract to so maintain and repair said work, then these presents shall have full force and effect, and said Town of Addison shall have and recover from the Contractor and its sureties damages in the premises, as provided, and it is further understood and agreed that this obligation shall be a continuing one against the principal and sureties hereon and that successive recoveries may be had hereon for successive branches until the full amount shall have been exhausted; and it is further understood that the obligation herein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished, or in any manner affected from any cause during said time.

IN WITNESS WHEREOF, the said _____ has caused these presents to be
executed by _____ and the said _____ has hereunto set his
hand this the _____ day of _____, 2018 _____

SURETY

PRINCIPAL

By: _____

By: _____
Attorney in Fact

ATTEST

By: _____
Surety

Secretary

Agency and Address

NOTE: Date of Maintenance Bond must be same as date of City acceptance.

SECTION BP

CONTRACTOR'S AFFIDAVIT OF BILLS PAID

CONTRACTOR'S AFFIDAVIT OF BILLS PAID

STATE OF TEXAS

COUNTY OF DALLAS

Personally, before me the undersigned authority, on this day appeared _____ who, being
duly sworn, on oath, says that he is a legal representative of _____
(full name of Contractor as in contract)

and that the contract for the construction of the project, designated as

**Town of Addison Public Improvements
to be known as**

VITRUVIAN PARK

PUBLIC INFRASTRUCTURE – BLOCK 500 A

Infrastructure & Development Services #17-17

has been satisfactorily completed and that all bills for materials, apparatus, fixtures, machinery and labor used in
connection with the construction of this project have, to the best of my knowledge and belief, been fully paid.

Signature

Title

Sworn to and subscribed before me this _____ day of _____, 2018.

Notary Public in and for

County, Texas

Instructions:

If the contractor is an individual, he shall sign the affidavit. If the contractor is a partnership, any partner may sign the affidavit. If the contractor is a corporation, a person authorized by the by-laws or by the Board of Directors shall sign the affidavit. If the Contractor is a joint-venture of individuals, any of the individuals may sign the affidavit. If the Contractor is a joint-venture of partnerships, or of individuals and partnerships, the affidavit may be signed by the individual or any partner of any partnership. If the contractor is a joint-venture in which a corporation is a party, separate affidavits must be executed in the name of the joint-venture: one by each corporation and one by each individual or partnership. Signatures for corporations should be by a duly authorized officer. If signature is by another, a showing of authority to sign must accompany the affidavit.

SECTION GP

GENERAL PROVISIONS

GENERAL PROVISIONS

The General Provisions of the Contract shall be as stated in the Standard Specifications for Public Works Construction, North Central Texas Council of Governments 2004 Version, under Division 100, "General Provisions," as amended or supplemented and except as modified by the Special Provisions.

SECTION SP

SPECIAL PROVISIONS

SPECIAL PROVISIONS

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SPECIAL PROVISIONS

1. **SCOPE OF WORK:** The work to be performed under the provisions of these Contract Documents shall consist of furnishing all materials, labor, equipment, supplies and appurtenances; providing all construction, plant, equipment and tools; performing all necessary labor and supervision; and the construction complete, including all work appurtenant thereto, the proposed improvements for **Vitruvian Park Public Infrastructure - Block 500.**
2. **GENERAL:** This work shall conform to the requirements of the specifications and the details as shown on the Drawings. These Contract Documents are intended to be complementary. Requirements of any of the Contract Documents are as binding as if called for by all. In the event of conflict between the Drawings and the Specifications, the Contractor will be deemed to have assumed the more expensive way of doing the work unless, before submitting a bid, the Contractor shall have asked for and obtained (by addendum) a written decision as to which method or material is intended.
In cases of discrepancies, calculated dimensions shall govern over scaled dimensions; special provisions and special specifications shall govern over both general and standard specifications; and quantities shown on the plans shall govern over those shown in the proposal.
3. **EXAMINATION OF SITE:** The Contractor acknowledges that he has investigated and satisfied himself as to the conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, or similar physical conditions at the site, conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the work. The Contractor acknowledges that he has inspected the site of the work and is familiar with the soil conditions to be encountered. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Town of Addison assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the Town and the Engineer.
4. **SPECIFICATIONS:** Construction improvements shall be governed by the following published specifications and details (except as modified by these Special Provisions):
Standard Specifications for Public Works Construction, North Central Texas - North Central Texas Council of Governments (latest edition);
Town of Addison Standard Specifications and Construction Details;
Standard Specifications and Details for Manhole and Duct Structure Facilities as established by Oncor Electric Delivery and AT&T.

The Contractor shall keep copies of applicable specifications on the project site at all times. Where reference is made to specifications compiled by other agencies, organizations or departments, such specifications referred to are hereby made a part of the project specifications.

5. **SUBSURFACE INVESTIGATION:** Subsurface exploration to ascertain the nature of soils, including the amount of rock, if any, is the responsibility of any and all prospective bidders. It shall be the responsibility of the bidders to make such subsurface investigations as he deems necessary to determine the nature of the material to be encountered. Some preliminary subsurface exploration has been performed by the Town of Addison and the Engineer, and is provided to the contractor in these documents. This information is provided only as preliminary and all bids shall be based on information obtained by the Contractor. The Town of Addison and the Engineer disclaim any responsibility for the accuracy, true location and extent of the soils information that has been prepared by others. They further disclaim responsibility for interpretation of that data by bidders, as in projecting soil bearing values, rock profiles, soils stability and the presence, level and extent of underground water.
6. **COMPLIANCE WITH LAWS:** The Contractor shall familiarize himself with the nature and extent of the specifications, site conditions, traffic and safety requirements, and shall fully comply with all local, state and federal laws, including all codes, ordinances, rules and regulations applicable to this contract and the work to be done hereunder, which exist or which may be enacted later by governmental bodies having jurisdiction or authority for such enactment. The Contractor shall comply with all federal, state and local laws, rules and regulations of every kind and nature applicable to the performance of its Work hereunder, and shall hold the Town of Addison, UDR Inc., VPDEV 1 LLC, VP West 1 LLC (collectively, the “UDR Parties”) and the Engineer harmless therefrom.
7. **PERMITS, LICENSES AND REGULATIONS:** Permits and licenses for the prosecution of the Work shall be secured and paid for by the Contractor. Wherever the work under this contract requires the obtaining of permits from the Town of Addison or other public authorities, duplicate copies of such permits shall be furnished to the Engineer by the Contractor hereunder before the work covered thereby is started. NO WORK WILL BE ALLOWED TO PROCEED BEFORE SUCH PERMITS ARE OBTAINED.
8. **RIGHTS-OF-WAY AND EASEMENTS:** Rights-of-way and permanent easements, dedicated to the Town of Addison, have been secured for this project and made a part of thereto. The Contractor shall obtain a right-of-way permit from the Town of Addison prior to beginning work. When working within the public rights-of-way and easements, the Contractor shall at all times observe and comply with all Federal and State Laws, and Town of Addison ordinances and regulations which in any way affect the conduct of the work or his operations, and shall observe and comply with all orders, laws, ordinances and regulations which exist or which may be enacted later by bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof will be considered. The Contractor and his Sureties shall indemnify and save harmless the Town of Addison, the UDR Parties, the Engineer and all of their officers, agents, and employees against any and all claims or liability arising from or based on the violation of any such law, ordinance, regulation, or order, whether it be by himself or his employees.

It shall be the responsibility of the Contractor, prior to the initiation of construction on easements through private property, to inform the Town of his intent to begin construction. Before beginning construction in areas of public dedication, the Contractor shall inform the agency having jurisdiction in the area forty-eight (48) hours prior to initiation of the Work. All easements shall be cleaned up after use and restored to their original conditions or better.

9. **RESTRICTED WORK HOURS:** Per the Town of Addison Building Regulations, "It shall be unlawful for a person, firm or corporation to excavate, erect, build, construct, alter, repair or demolish any building or structure which has been issued or which is required to be issued a building permit by the Town of Addison between the hours of 7:00 p.m. and 7:00 a.m. Monday through Friday, and between the hours of 7:00 p.m. and 8:00 a.m. on Saturday and Sunday, if such activity is performed within a residential, apartment, or townhouse zoned area, or within three hundred (300) feet of an occupied residence, except in cases of urgent necessity or in the interest of public safety and convenience, and then only by permit of the City Manager."
10. **COMPLIANCE WITH IMMIGRATION LAWS:** Contractor shall take all steps necessary to ensure that all of the Contractor's employees are authorized to work in the United States as required by the Immigration Reform and Control Act of 1986.
11. **NON-DISCRIMINATION POLICY:** It is the policy of the Town of Addison to afford all people an equal opportunity to bid on any contract being let by the Town. The Town of Addison has a policy that prohibits discrimination against any person because of race, color, sex, or national origin, in the award or performance of any contract. The Town of Addison will require its employees, agents, and contractors to adhere to this policy.
12. **ANTITRUST LAWS:** The Contractor hereby assigns to the Town of Addison any all claims for overcharges associated with this contract which arise under the antitrust laws of the United States 15 U.S.C.A. Sec. 1, et seq. (1973).
13. **ABANDONMENT:** The Town of Addison reserves the right to abandon, without obligation to the Contractor, any part of the project, or the entire project, at any time before the Contractor begins any construction work authorized by the Town of Addison. In case of total abandonment of the project, the contract becomes void. The Town of Addison may abandon portions of the project at any time during the project duration. In case of such partial abandonment, the Contractor shall not be due any payment for lost or unrealized profits on the abandoned portions of the project.
14. **DISCREPANCIES:** If the Contractor, in the course of the Work, finds any discrepancy between the Contract Documents and the physical conditions of the locality, or any errors or omissions in drawings or in the layout as given by survey points and instructions, or if it appears that any Plan, Specification or other Contract Document is or may not be in compliance with any building code or other requirement of any governmental body, he shall immediately inform the Town of Addison and the Engineer in writing, and the Town of Addison and the Engineer shall promptly verify the same. Any Work done after such discovery, until authorized, will be done at the Contractor's risk.

15. **PREVAILING WAGE RATES:** Wage rates paid on this project shall not be less than specified in the schedule of general prevailing rates of per diem wages as attached hereto.
16. **ADDENDA:** Bidders desiring further information, or interpretation of the Plans and Specifications, must make written request for such information to the Engineer (not later than three (3) working days prior to the date set for the Bid opening). Answers to all such requests will be released on www.bidsync.com in addendum form and all addenda will be bound with and 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 omissions from, the Plans, Specifications or Contract Documents, or should he be in doubt as to their meaning, he shall at once notify the Engineer in writing in order that a written addendum may be sent to all Bidders.
17. **PAY ITEMS:** Pay items provided are intended to be all-inclusive of the work required on this project. Work required by the plans or specifications but not provided with a specific pay item shall be considered incidental to other items of work. Final payment to the construction contractor shall not be made until all Work has been finally completed and verified in accordance with the construction contract, plans and specifications and have been finally accepted by the Town of Addison.
18. **INCREASE OR DECREASE IN QUANTITIES:** The quantities shown in the proposal are approximate. Final payment will be based on quantities determined by measurement methods described for each work item.

When the quantity of work to be done or materials to be furnished under any major pay item or contract is more than 125% of the quantity stated in the contract, whether stated by Town of Addison or by Contractor, then either party to the contract, upon demand, shall be entitled to negotiate for revised consideration on the portion of work above 125% of the quantity stated in the contract.

When the quantity of the work to be done or materials to be furnished under any major pay item of the contract is less than 75% of the quantity stated in the contract, whether stated by Town of Addison or by Contractor, then either party to the contract, upon demand, shall be entitled to negotiate for revised consideration on the portion of work below 75% of the quantity stated in the contract. This paragraph shall not apply in the event Town of Addison deletes a pay item in its entirety from this contract.

19. **SUBSIDIARY WORK:** Any and all work specifically governed by documentary requirements for the project, such as conditions imposed by the Plans or these Special Provisions, in which no specific item for bid has been provided for in the Proposal, shall be considered as a subsidiary item of work, the cost of which shall be included in the various bid items in the Proposal. Costs of permits, inspection fees, traffic control, construction staking, surface restoration and cleanup are general items of work which fall in the category of subsidiary work.

20. **QUALIFICATION OF BIDS:** The Town of Addison reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work, and the right to disregard all nonconforming, non-responsive, unbalanced, or conditional Bids. The Town reserves the right to reject the Bid of any Bidder if the Town believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Town. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

21. **AWARD AND EXECUTION OF CONTRACT:** The Town of Addison reserves the right to withhold final action on the Proposal for a reasonable time, not to exceed forty-five (45) days after the date of opening Proposals, and in no event will an award be made until after investigations have been made as to the responsibility of the proposed awardee. The award of the contract, if an award is made, will be to the lowest and best responsible bidder. The award of the contract shall not become effective until the Town of Addison has notified the Contractor in writing of such award.

Within ten (10) days after the Town of Addison has by appropriate resolution, or otherwise, awarded the contract, the Contractor shall execute and file with the Town of Addison the Contract and such bonds as may be required in the Contract Documents.

22. **EXPLANATION OF CONTRACT TIME:** The term "Original Contract Time" as used in this Provision will mean the number of calendar days established in this Contract (**180 calendar days**) for completion of the work of the Contract from the date the Contract was executed. The term "calendar day" as used in this Article will mean every day shown on the calendar. Calendar days will be consecutively counted from commencement of Contract Time regardless of weather, weekends, holidays, suspensions of Contractor's operations, delays or other events as described herein. The Original Contract Time will not be adjusted for any reason, cause or circumstance whatsoever, regardless of fault, save and except in the instance of a catastrophic event (i.e., war, invasion, riot, declared state of emergency, national strike, or other situations as declared by the Town of Addison). The parties anticipate that delays may be caused by or arise from any number of events during the course of the Contract, including, but not limited to, work performed, disruptions, permitting issues, actions of suppliers, subcontractors or other contractors, actions by third parties, weather, weekends, holidays, or other such events, forces or factors sometimes experienced in roadway construction work. Such delays or events and their potential impacts on performance by the Contractor are specifically contemplated and acknowledged by the parties in entering into this Contract, and shall not extend the Original Contract Time. Further, any and all costs or impacts whatsoever incurred by the Contractor in accelerating the Contractor's work to overcome or absorb such delays or events in an effort to complete the Contract prior to expiration of the Original Contract Time, regardless of whether the Contractor successfully does so or not, shall be the sole responsibility of the Contractor in every instance. In the event the project is altered by work deleted, change orders, supplemental agreements, utility conflicts, design changes or defects, extra work, right of

way issues, or other situations which are not the fault of or a direct result of contractor negligence which may impact the critical path of the project construction schedule, the Town may choose to negotiate the extension or reduction of the Original Contract Time with the Contractor.

In the event of a catastrophic event (i.e., war, invasion, riot, declared state of emergency, national strike, or other situations as declared by the Town of Addison) directly and substantially affecting the Contractor's operations on the Contract, the Contractor and the Town shall agree as to the number of calendar days to extend the Original Contract Time. In the event the Contractor and Town are unable to agree to the number of calendar days to extend the Original Contract Time, the Town shall unilaterally determine the number of calendar days to extend the Original Contract Time reasonably necessary and due solely to such catastrophic event and the Contractor shall have no right whatsoever to contest such determination, save and except that the Contractor establishes that the number of calendar days determined by the Town were arbitrary or without any reasonable basis. The Contractor shall have no rights under the Contract to make any claim arising out of this incentive payment provision except as is expressly set forth in this Provision.

Should the Contractor fail to complete the Contract on or before expiration of the Allowable Contract Time the Town shall deduct from the moneys due the Contractor the sum of **\$500 per day** for each calendar day completion exceeds the Allowable Contract Time. The term "Allowable Contract Time" as used in this Article shall mean the Original Contract Time plus adjustments pursuant to the statements above. This deduction shall be the disincentive for the Contractor's failing to timely complete the Contract. **This shall be strictly enforced.**

23. **COPIES OF PLANS FURNISHED:** One (1) set of 11" x 17" plans and one (1) electronic version of the plans shall be furnished to the Contractor, at no charge, for construction purposes. Additional copies may be obtained at cost of \$150 per set upon request.
24. **PRE-CONSTRUCTION CONFERENCE:** The successful Contractor, Engineer, and Town of Addison shall meet for a preconstruction conference before any of the work begins on this project. At this time, details of sequencing of the work, contact individuals for each party, testing requirements, submittals, and pay requests will be covered. Prior to the meeting, the Contractor shall prepare schedules showing the sequencing and progress of their work and its effect on others. A final composite schedule will be prepared during this conference to allow an orderly sequence of project construction.
25. **MOBILIZATION:** The work specified in this item consists of the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, utilities, and other facilities, if necessary, for the construction of proposed improvements. Maximum allowed will be 5% of the total bid.
26. **GENERAL SEQUENCE OF CONSTRUCTION:** Prior to the start of work, the contractor shall develop a detailed construction and sequence of construction schedule using

the critical path method, to be submitted to the Town of Addison for approval, that shall cause minimum interference with traffic along, across and adjacent to the project during construction. If the schedule or sequence becomes unworkable or unsatisfactory as work proceeds, adjustments shall be made subject to Town approval. During all phases of construction access to all existing residences and businesses must be maintained at all times unless otherwise authorized in writing by the Town of Addison. Erosion control devices must be properly installed and maintained during all stages of construction.

27. **PROJECT REPRESENTATIVE:** The Town of Addison, the Engineer, the Contractor(s), and any applicable public utilities shall designate a single individual within their organization to act as liaison for the project. This individual shall be aware of the day to day activities on the project, have authority to make decisions binding on the party, and serve as single point for coordination of activities with the other team members.
28. **COORDINATION WITH OTHERS:** In the event that other Contractors are doing work in the same area simultaneously with this project, the Contractor shall coordinate his proposed construction with that of the other Contractors. The Town of Addison and/or the Engineer shall mediate any disputes, and the Contractors shall comply with their decisions.
29. **INSURANCE:** Each insurance policy that the Contractor must furnish in accordance with these contract documents shall name the Town of Addison, the UDR Parties and the Engineer as additional insured. Contractor shall include in their bid package, a copy of their certificate of insurance showing compliance to the limits established by the Town of Addison.

1.0 The Contractor shall agree to furnish and maintain continuously during the period of this agreement, any renewals or extension, insurance coverage meeting all of the following requirements:

1.1 Commercial General Liability Insurance at minimum combined single limits of \$1,000,000 per occurrence and \$2,000,000 general aggregate for Bodily Injury and Property Damage, which coverage shall include Products/Completed Operations, and XCU Hazards. Coverage for product/completed operations must be maintained for at least two (2) years after the construction work has been completed. Coverage must be amended to provide for an each-project aggregate limit of insurance. Contractual Liability must be included.

1.2 Workers Compensation Insurance at statutory limits, including employer's liability coverage at minimum limits of \$1,000,000 each occurrence-each accident, \$1,000,000 by disease-each occurrence and \$1,000,000 by disease aggregate (see attachment on Workers Compensation Commission rules).

1.3 Commercial Automobile Liability Insurance at minimum combined single limits of \$1,000,000 per occurrence for bodily injury and property damage, including owned, non-owned, and hired car coverage.

- 1.4 Umbrella Liability at minimum limits of \$1,000,000 each-occurrence \$4,000,000 aggregate with respect to primary commercial general liability, automobile liability and employer's liability policies.
- 1.5 Any Subcontractor(s) hired by the Contractor shall maintain insurance coverage equal to that required by the Contractor. It is the responsibility of the Contractor to assure compliance with this provision. The Town accepts no responsibility arising from the conduct, or lack of conduct, of the Subcontractor.
- 1.6 A comprehensive general liability insurance form may be used in lieu of a commercial general liability form. In this event, coverage must be written on an occurrence basis, at limits of \$1,000,000 each-occurrence, combined single limit and coverage must include a broad form comprehensive general liability endorsement, products/completed operations, XCU hazards and contractual liability.
- 2.0 With reference to the foregoing insurance requirements, Contractor shall specifically endorse applicable insurance policies as follows:
- 2.1 The Town and the UDR Parties shall be named as an additional insured with respect to general liability and automobile liability.
- 2.2 All liability policies shall contain no cross liability exclusions or insured versus insured restrictions.
- 2.3 A waiver of subrogation in favor of the Town of Addison and the UDR Parties shall be contained in the workers compensation and all liability policies.
- 2.4 All insurance policies shall be endorsed to require the insured to immediately notify the Town of Addison of any material changes in the insurance coverage.
- 2.5 All insurance policies shall be endorsed to the effect that the Town will receive at least thirty (30) days notice prior to cancellation or non-renewal of the insurance.
- 2.6 All certificates shall be mailed to Town of Addison, Purchasing Dept., P.O. Box 9010, Addison, Texas 75001.
- 2.7 All insurance policies, which name the Town and the UDR Parties as an additional insured, must be endorsed to read as primary coverage regardless of the application of other insurance.
- 2.8 Required limits may be satisfied by any combination of primary and umbrella liability insurances.
- 2.9 Contractor may maintain reasonable and customary deductibles, subject to approval by the Town.
- 3.0 All insurance shall be purchased from an insurance company who meets the following

requirements:

3.1 Must be issued by a carrier, which is rated "A-" or better by A.M. Best's Key Rating Guide.

3.2 Licensed and admitted to do business in the State of Texas and is a subscriber to the Texas Guaranty Fund.

4.0 All insurance must be written on forms filed with and approved by the Texas State Board of Insurance. Certificates of insurance shall be prepared and executed by the insurance company or its authorized agent and shall contain provisions representing and warranting the following:

4.1 Set forth all endorsements and insurance coverages according to requirements and instruction contained herein.

4.2 Shall specifically set forth the notice-of-cancellation or termination provisions to the Town.

5.0 Upon request, Contractor shall furnish the Town of Addison with certified copies of all insurance policies.

30. WORKERS' COMPENSATION INSURANCE COVERAGE:

A. Definitions.

Certificate of Coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self insure issued by the Texas Workers' Compensation Commission (the "TWCC"), 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 providing services on a project, for the duration of the project.

Duration of the Project - includes the time from the beginning of the work on the project until the Contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons Providing Services on the Project ("subcontractor" in Section 406.096 of the Texas Labor Code) - 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, Town-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.

B. The Contractor shall provide coverage, based on property reporting of classification codes and payroll amounts and filing of any coverage agreement, which meets the statutory requirements of Texas Labor Code, 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 Town of Addison 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 Town of Addison, showing that the coverage has been extended.

E. The Contractor shall obtain from each person providing services on the project, and provide to the Town of Addison:

(1) a certificate of coverage, prior to that person beginning work on the project, so that the Town of Addison 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 on file for the duration of the project and for one year thereafter.

G. The Contractor shall notify the Town of Addison in writing by certified mail or personal delivery, within 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 TWCC, 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.

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 Codes 401.011 (44) for all 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 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 the coverage period, 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 Town of Addison in writing by certified mail or personal delivery, within 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 other person with whom it contracts to perform as required by paragraphs (1) - (7) with the certificate 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 Town of Addison that all employees of the Contractor who will provide services on the project will be covered by worker's 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 TWCC'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 Town of Addison to declare the contract void if the Contractor does not remedy the breach within ten days after receipt of notice of breach from the Town.

The following is the form of notice of workers' compensation coverage prescribed by the TWCC. Pursuant to Section 110.110 (d) (7), this notice must be printed with a title in at least 30-point bold type, and text in at least 19-point nominal type, and shall be in both English and Spanish and any other language common to the worker population.

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 (TWCC) at (512) 440-3789 to receive further information on the legal requirements for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage."

31. **CLEAN AIR ACT AND CLEAN WATER ACT:** "Contractor is responsible for compliance with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act, Section 505 of the Clean Water Act, Executive Order 11738, and Environmental Protection Agency regulations."
32. **RESOLUTION OF DISPUTES:** The parties hereby covenant and agree that in the event of any controversy, dispute, or claim, of whatever nature arising out of, in connection with or in relation to the interpretation, performance or breach of this agreement, including but not limited to any claims based on contract, tort or statute, before filing a lawsuit, the parties agree to submit the matter to Alternative Dispute Resolution pursuant to the laws of the State of Texas. The parties shall select a third party arbitrator or mediator from the current list of neutrals on file with the Alternative Dispute Resolution Administrator of the Dallas County District Courts. All forms of Alternative Dispute Resolution may be used except binding arbitration. The proceedings shall be conducted in accordance with the laws of the State of Texas.
33. **SHOP DRAWINGS:** The Contractor shall provide, review, approve and submit all shop drawings, product data and samples required by the Town of Addison, the Engineer and the Contract Documents in accordance with Item 1.28 of the Standard Specifications for Public Works Construction, North Central Texas Council of Governments. The Contractor shall furnish a minimum of four and a maximum of six copies of shop drawings for review by the Engineer, who will review, approve and forward to the Town of Addison for acceptance. Approved submittals will be returned as follows:
- Two (2) – Town of Addison
 - One (1) – Contractor
 - One (1) – Icon Consulting Engineers, Inc.

Maximum size of submittals shall be 11 x 17 inch. No fax copies are acceptable. Shop drawings shall include all items to be installed in the project, including:

- Concrete Mix Designs
- Traffic Control Plan
- Water Main Pipe

- | | | |
|----------------------|---------------------------|----------------------|
| • Storm Sewer Pipe | • Sanitary Sewer Pipe | • Valves & Boxes |
| • Fire Hydrants | • Sanitary Sewer Manholes | • Water Vaults |
| • Trench Safety Plan | • Fittings | • Gradation |
| • Steel Casing Pipe | • Flex Base | • Asphalt |
| • Conduit | • Embedment Materials | • Backfill Materials |

34. **PROJECT VIDEO:** Prior to the start of construction, Contractor shall video the construction area and property adjacent to construction in the presence of the City Inspector. The format shall be DVD. The video shall be narrated. The Contractor shall furnish the Town of Addison a copy of the video in DVD format prior to commencement of project. This shall be subsidiary to project.
35. **TESTING REQUIREMENTS:** The Town of Addison shall designate and pay an independent testing laboratory to furnish testing for this project. Random testing will be provided by the independent lab as necessary for compliance with the specifications. The Contractor shall coordinate construction with the testing lab and the Town of Addison, and shall provide assistance to the testing labs by providing excavation, access, trench safety, materials for testing and any other work required to insure all testing requirements are met. Work performed to accommodate testing will be a subsidiary item and no extra payment will be authorized. All costs for the field quality control testing shall be paid for by the Town of Addison, except for any and all re-testing, which shall be paid by the Contractor and such cost shall be deducted from monthly pay requests. The Contractor shall be responsible for providing any test required by the specifications. All samples and tests shall be performed in accordance with the Standard Specifications for Public Works Construction, North Central Texas Council of Governments (Latest Edition) as amended or supplemented.
36. **INSPECTION:** The Town of Addison and the Engineer reserve the right to inspect, test, measure or verify the construction work for this project as they deem necessary to ascertain that the Work is being accomplished in accordance with the standards and requirements set forth in the Contract Documents. Notwithstanding such reviews, the Contractor will be held responsible for the finished Work, and any acceptance of the Work by the Town or governmental agencies will not relieve the Contractor from responsibility for the Work. The Town reserves the right to place full-time construction inspectors at the site of the Work. Costs for inspection services will be paid by the Town of Addison. The Contractor shall provide assistance to the Town of Addison and the Engineer by providing excavation, trench safety, or other work necessary to facilitate inspection activities, and shall give sufficient notice well in advance of pending construction activities for scheduling of inspection services.

If the Specifications, the Town's instructions, laws, ordinances, or any public authority require any Work to be specially tested, the Contractor shall give the Town timely notice of its readiness for testing, and if the testing is by an authority other than the Town, of the date fixed for such testing. Tests by the Town shall be made promptly, and where practicable at the source of supply.

37. **ACCESS ROUTES, STAGING AREAS AND STORAGE AREAS:** All haul roads and access routes and the location of job site trailers, staging areas, and storage areas shall be subject to the approval of the Town and the Engineer. The Contractor shall be responsible for maintaining and repairing all roads and other facilities used during construction. Upon completion of the project all existing roads and other disturbed areas shall be left in a condition equal to that at the time the Contractor commences work on this project.
38. **PROPERTY ACCESS:** Access to adjacent properties shall be maintained at all times unless otherwise directed by the Engineer and/or Town of Addison. Contractor shall block no more than one half of a driveway at any time. Contractor shall also maintain sufficient sidewalk access throughout the project limits to the existing apartment buildings during construction operations.
39. **PLANT, PROCEDURE, METHODS AND EQUIPMENT:** The Contractor shall determine the methods to be employed, the procedures to be followed, and equipment to be used on the work under this contract, subject to the requirements of these specifications and approval of the Engineer and Town of Addison. Only adequate and safe procedures, methods and equipment shall be used. The Contractor shall so arrange his work and provide such plant and equipment as is necessary in order to meet the progress requirements of the approved time schedule and to complete the work within the period of time as specified in the Construction Agreement. Only such materials and equipment as are necessary for the construction of the work under this contract shall be placed, stored or allowed to occupy any space at the site of the work.

It is expressly agreed that the acceptance or approval of any order of procedure, methods or equipment submitted or employed by the Contractor shall not in any manner relieve the Contractor of responsibility for the safety, maintenance and repairs of any work, or for the construction maintenance and safety of the work hereunder, or from any liability whatsoever on account of any procedure or method employed by the Contractor. Where the work under this contract requires permits from the Town of Addison, the State of Texas, or other public authorities, duplicate copies of such permits shall be furnished to the Engineer by the Contractor before the work covered thereby is started. NO WORK WILL BE ALLOWED TO PROCEED BEFORE REQUIRED PERMITS ARE OBTAINED AND DISTRIBUTED

40. **PARKING OF CONSTRUCTION EQUIPMENT:** At night and during all other periods of time when equipment is not being actively used on the construction work, the Contractor shall park the equipment at locations which are approved by the Town of Addison or the Engineer. The Contractor shall provide adequate barricades, markers and lights to protect the Town of Addison, the Engineer, the public and other work. All barricades, lights, and markers must meet the requirements of the Town of Addison, State and Federal regulations.
41. **ZONING REQUIREMENTS:** During the construction of this project, the Contractor shall comply with the present zoning requirements of the Town of Addison in the use of vacant property for storage purposes.

42. **CONSTRUCTION IN PUBLIC ROADS AND PRIVATE DRIVES:** No public road shall be entirely closed overnight. It shall be the responsibility of the Contractor to build and maintain all weather bypasses and detours, if necessary, and to properly light, barricade and mark all bypasses and detours that might be required on and across the roads involved in the work included in this contract. No interference with traffic flow on city streets shall be permitted during the hours of 6:30 a.m. to 9:30 a.m. and 3:30 p.m. to 7:30 p.m., Mondays through Fridays.

The Contractor shall make every effort to complete construction and allow immediate access to adjacent property at driveway entrances located along the roadways. Towns or tenants of improvements where access and/or entrance drives are located shall be notified at least twenty-four (24) hours prior to the time the construction will be started at their driveways or entrances and informed as to the length of time driveways will be closed. Contractor shall at all times maintain at least one point of access into all properties, unless obtaining written permission from property Town to do otherwise with such written permission being provided to the Town's inspector.

The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for a period of two years from the date of such reconstruction. In the event the repairs and maintenance are not made immediately to the satisfaction of the Town, and it becomes necessary for the Town to make such repairs, the Contractor shall reimburse the Town for the cost of such repairs.

The Contractor shall, at all times, keep a sufficient width of the roadway clear of dirt and other material to allow the free flow of traffic. The Contractor shall assume any and all responsibility for damage, personal or otherwise, that may be caused by the construction along roads and private drives.

43. **HAULING ON TOWN OF ADDISON STREETS:** The Contractor shall receive approval of his haul routes and type of equipment to be used prior to beginning construction. The Contractor shall be responsible for maintaining the cleanliness of existing paved roadways and shall provide equipment and manpower for that purpose.

44. **EXISTING POWER POLES & GUY WIRES:** The Contractor shall have the responsibility of coordinating with the proper authorities for the bracing, replacing or relocating of all utility poles and guy wires which interfere with the construction of this project prior to beginning his construction operations. The Contractor will also be responsible for all damage to poles, guy wires, etc. that are damaged or destroyed by Contractor's operations.

45. **SAFETY RESTRICTIONS - WORK NEAR HIGH VOLTAGE LINES:** The following procedures shall be followed for work near high voltage lines on this contract:

- a. A warning sign not less than five (5) inches by seven (7) inches, painted yellow with black letters that are legible at twelve (12) feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile driver, hoisting

equipment or similar apparatus. The warning sign shall read as follows: "Warning - Unlawful to Operate This Equipment Within Six Feet of High Voltage Lines."

- b. Equipment that may be operated within ten (10) feet of high voltage lines shall have an insulating cage guard protecting the boom or arm, except backhoes or dippers, and insulator links on lift hook connections.
- c. When necessary to work within six (6) feet of high voltage electric lines, notify the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. All such work done by the power company shall be at the expense of the Contractor. The Contractor shall maintain an accurate log of all such calls to the power company.
- d. The Contractor is required to make arrangements with the power company for the temporary relocation or raising of high voltage lines at the Contractor's sole expense.
- e. No person shall work within six (6) feet of high voltage lines without protection measures having been taken as outlined in Paragraph c.

46. PROTECTION OF EXISTING UTILITIES AND STRUCTURES: The location and dimensions shown on the plans relative to existing utilities and subsurface structures are based on the best records and/or field information available and are not guaranteed by the Town of Addison or the Engineer to be accurate as to location and depth. It shall be the Contractor's responsibility to verify locations of adjacent and conflicting utilities sufficiently in advance of his activities in order that he may negotiate such restrictive locations with the Town of Addison of the conflicting utility and/or make local adjustments to provide adequate clearances. The Contractor shall take all necessary precautions in order to protect all utilities and services encountered, whether or not they are indicated on the plans. All damage to utilities resulting from Contractor's operations shall be restored at his expense. The Town of Addison and the Engineer assume no responsibility for failure to show any or all of these utilities or structures on the plans, or to show them in their exact locations. 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 whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the plans, in which case, provisions in these specifications for extra work shall apply.

47. PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED: In case it is necessary to change or move the property of a public utility, such property shall not be moved or interfered with until authorized by the Town of Addison or the Engineer. The right is reserved for the Owner of public utilities to enter upon the limits of the project for the purpose of making such changes or repairs of their property that may be made necessary by performance of the Contract. The Contractor shall be responsible for coordination with the Town of Addison and the Engineer, and all utility companies whose utility lines or streets may be affected by the proposed improvements. The Contractor shall observe the following:

- a. Prior to any excavation, the Contractor shall determine the locations of all existing water, gas, sewer, electric, telephone, telegraph, television, pipelines and other underground utilities and structures.
- b. After commencing work, the Contractor shall use every precaution to avoid interference with existing underground and surface utilities and structures, and protect them from damage.
- c. Where the locations of existing underground and surface utilities and structures are indicated, these locations are generally approximate, and all items which may be encountered during the work are not necessarily indicated. The Contractor shall determine the exact locations of all items indicated, and the existence and locations of all items not indicated.
- d. The Contractor shall repair or pay for all damage caused by his operations to all existing utility lines, public property, and private property, whether it is below ground or above ground, and he shall settle in total the cost of all damage suites which may arise as a result of his operations.
- e. To avoid unnecessary interferences or delays, the Contractor shall coordinate all utility removals, replacements and construction with the appropriate utility company, and then request written authorization from the Town of Addison or the Engineer. The Town of Addison and the Engineer will not be liable for damages due to delay as a result of the above.

48. MAINTENANCE AND REPAIRS: The Contractor shall maintain and keep in good repair all work contemplated under these plans, specifications, and drawings which shall include the maintenance and repair of all existing streets, storm sewer crossings, utility crossings, temporary crossings for access to adjacent property, barricades, lights, and danger signals, and all work which is necessary for the well being of the general public. In the event the Contractor fails in his obligations to properly maintain the work, the Town of Addison shall make such repairs as are necessary and the cost of such repairs shall be deducted from payment due the Contractor.

49. PROTECTION OF WORK: During performance and up to date of final acceptance, the Contractor shall be under the absolute obligation to protect the finished work against damage, loss or injury. In the event of damage, loss or injury, the Contractor shall promptly replace or repair such work, whichever the Town of Addison shall determine to be preferable. The obligation to deliver finished work in strict accordance with the contract prior to final acceptance shall be absolute and shall not be affected by the Town of Addison's approval of or failure to prohibit means and methods of construction used by the Contractor. All risk of loss or damage to the work shall be borne solely by the Contractor until final acceptance of all work by the Town of Addison, as evidenced by the Town of Addison's issuance of a certificate of acceptance.

50. **PUBLIC CONVENIENCE AND SAFETY:** In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.

Materials stored about the work site shall be so placed, and the work shall at all times be so conducted, as to cause no greater obstruction to the traveling public than is considered necessary by the Town of Addison. The materials excavated shall be placed so as not to endanger the work or prevent free access to all fire hydrants, water valves, gas valves, manholes (telephone, telegraph or electrical conduits, and sanitary sewers) and fire alarm or police call boxes in the vicinity.

The Town of Addison reserves the right to remedy any neglect on the part of the Contractor as regards to the public convenience and safety which may come to the Town of Addison's attention, after 24 hours notice in writing to the Contractor, save in cases of emergency, when the Town of Addison shall have the right to remedy any neglect without notice; and, in either case, the cost of such work done by the Town of Addison shall be deducted from the monies due or to become due the Contractor. The Contractor shall notify the Town of Addison and the Engineer when any street is to be closed or obstructed. The Contractor shall provide for emergency vehicle access at all times.

Where the work passes over or through private property, the Town of Addison shall provide such right-of-way. The Contractor shall notify the proper representatives of any public utility, corporation, company or individual, not less than 48 hours in advance of work which might damage or interfere with the operation of their property along or adjacent to the work. The Contractor shall be responsible for all damage or injury to property of any character (except such as may be required by the provisions of the Contract Documents, or caused by agents or employees or the Town of Addison) by reason of any negligent act or omission on the part of the Contractor, his employees, agents or subcontractors, or at any time due to defective work or materials, or due to his failure to reasonably or properly prosecute the work, and said responsibility shall not be released by the fact that the work shall have been completed and accepted.

When and where any such damage or injury is done to public or private property on the part of the Contractor, he shall restore or have restored at his own cost and expense such property to a condition similar or equal to that existing before such damage was done, by repairing, rebuilding or otherwise restoring as he may be directed, or he shall make good such damage or injury in a manner acceptable to the property Town of Addison and the Engineer. In case of failure on the part of the Contractor to restore such property or make good such damage or injury, the Town of Addison may, upon 48 hour written notice under ordinary circumstances, and without notice when a nuisance or hazardous condition results, proceed to repair, rebuild or otherwise restore such property as may be determined necessary, and the cost thereof shall be deducted from any monies due or to become due to the Contractor under this contract; or where sufficient contract funds are unavailable for this purpose, the Contractor or his surety shall reimburse the Town of Addison for all such costs.

51. **PROTECTION OF PERSONS AND PROPERTY:** The Contractor shall have the responsibility to provide and maintain all warning devices and take all precautionary measures required by law or otherwise necessary to protect persons and property while said persons or property are approaching, leaving or within the work site or any area adjacent to said work site. No separate compensation shall be paid to the Contractor for the installation or maintenance of any warning devices, barricades, lights, signs, or any other precautionary measures required by law or otherwise necessary for the protection of persons or property.

The Contractor shall assume all responsibilities to the general public in connection with the general public's immediate approach to and travel through the work site and the area adjacent to said work site.

Where the work is in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the Contractor shall at his own cost and expense provide such flagmen and watchmen and furnish, erect and maintain such warning devices, barricades, lights, signs, and other precautionary measures for the protection of persons or property as may be prudent or necessary, or as required by law. The Contractor's responsibility for providing and maintaining flagmen, watchmen, warning devices, barricades, signs and lights and other precautionary measures shall not cease until the project shall have been completed and accepted by the Town of Addison, and shall cease when the Town of Addison notifies the Contractor in writing of final project acceptance.

If the Town of Addison discovers that the Contractor has failed to comply with applicable federal or state laws (by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs or other precautionary measures for the protection of persons or property), the Town of Addison may order the Contractor to take such additional precautionary measures as required by law to protect persons and property. In addition, the Contractor shall be held responsible for all damages to the work and other public or private property due to the failure of warning devices, barricades, signs, lights or other precautionary measures in protecting said property; and whenever evidence is found of such damage, the Town of Addison may order the damaged portion immediately removed and replaced by and at the cost and expense of the Contractor.

52. **TRAFFIC CONTROL:** It shall be the responsibility of the Contractor to provide traffic control during the construction as required by the State of Texas, the Town of Addison, and in accordance with the following additional requirements:

1. The Contractor shall be required to furnish barricades, flares, flagmen, etc., for the protection of the public, employees and the work.
2. The Contractor shall prosecute his work in such a manner as to create a minimum of interruption to traffic along adjacent roadways.
3. The unit price bid under the appropriate bid item of the proposal shall cover all cost for providing signage, markings, lighting, barricades, flagmen and other devices and personnel required for traffic control during construction of the project.

4. The Contractor shall not remove any regulatory sign, instructional sign, warning sign, street name sign or any other sign or signal which currently exists.

53. BARRICADES, WARNING SIGNS, DETOURS AND SEQUENCE OF WORK:

Throughout the construction operations, streets and intersections will remain open to traffic by constructing the work in stages. All streets, driveways, adjacent business and alleys shall remain open to traffic as far as is practicable.

A. General Construction: The Contractor shall plan his work sequence in a manner that will cause minimum interference with traffic during construction operations. Before beginning work on this project, the Contractor shall submit, for approval by the Town of Addison, a plan of construction operations outlining in detail a sequence of work to be followed; setting out the method of handling traffic on streets, roads and driveways along, across and adjacent to the work. If at any time during the construction, the Contractor's proposed plan of operation for handling traffic does not provide for safe comfortable movement, the Contractor shall immediately change his operations to correct the unsatisfactory conditions.

Ditches across the traffic lanes will be kept covered with a portable traffic-bearing surface at all times unless work in the ditch is in progress. Only one lane of traffic may be closed at a time when work is in progress in a ditch.

B. Safety: The Contractor shall provide, construct and maintain barricades and signs at locations set out in the plans and in the Special Provisions in accordance with the Texas Manual on "Uniform Traffic Control Devices for Streets and Highways". In addition, he shall provide and maintain such other barricades and signs as deemed necessary by the Town or the Engineer, and provide and maintain, between sunset and sunrise, a sufficient number of lights at barricades and points of danger for the protection of vehicular and pedestrian traffic.

Barricades shall be placed in such a manner as not to interfere with the sight distance of drivers entering the street from side streets.

The Contractor shall keep traveled surfaces used in his hauling operation clear and free of dirt or other material.

The Contractor shall provide and maintain qualified flagmen at such points and for such periods of time as may be required to provide for the safety and convenience of public travel and Contractor's personnel.

54. EXCAVATION SAFETY SYSTEMS

The work performed under this section of the specifications consists of providing trench safety systems consisting of shoring, sheeting, trench shield, and/or laid back slopes to meet the trench safety requirements of the Occupational Safety and Health Administration (O.S.H.A.), as required for this project and specified herein.

A. General: Trench safety systems shall be provided by the Contractor as provided in Subpart P - Excavation, Trenching and Shoring, Part 1926 of the Code of Federal

Regulations which describes safety and health regulations as administered by the U.S. Department of Labor Occupational Safety and Health Administration (O.S.H.A.). The standards specified by the O.S.H.A. Regulations shall be the minimum allowed on this project. It shall be the responsibility of the Contractor to design and install adequate trench safety systems for all trenches excavated on this project.

The Contractor shall furnish to the Town for review, prior to beginning construction activity, a Trench Safety Plan for the entire project. The trench safety plan must be prepared and sealed by a Professional Engineer registered in the State of Texas. In addition, all trench safety systems utilized in this project must be designed by a Professional Engineer registered in the State of Texas. The Contractor shall be totally responsible for the safety of all persons involved in the construction of this project.

B. Core Borings: Any core borings and soil data furnished by the Town are for the convenience of the Contractor. The Contractor shall be responsible for any additional soil or geotechnical information required. The Contractor shall be responsible for properly designed trench safety systems to be utilized for any type of subsurface condition found on this project. The furnishing of soil information by the Town of Addison in no way relieves the Contractor of this obligation. If no core borings or soil data are furnished by the Town, it shall be the Contractor's responsibility to obtain whatever geotechnical information required for preparation of trench safety systems.

C. Inspections: In addition to the inspections of the trench and trench safety systems required of the Contractor by the O.S.H.A. Regulations, the Town may further inspect the work. The Town shall have the right to reject any trench safety systems which he finds to be inadequate, and the Contractor shall immediately improve the system to comply with this specification.

D. Measurement and Payment: Measurement and payment of Trench Safety Systems shall be based on the actual linear footage of the pipe installed on the project. The payment shall be full compensation for all planning, engineering, materials, equipment, fabrications, installation, recovery and all incidental work required. All excavation and backfill in addition to that specified elsewhere in these specifications shall be considered subsidiary to this bid item.

55. TRENCH EXCAVATION, BACKFILL AND COMPACTION: Trench excavation, backfill and compaction of storm drain and utility trenches shall be in accordance with Town of Addison Standards and with details shown on the Construction Drawings.

a. Trench Excavation: If the stated maximum trench widths are exceeded, either through accident or otherwise, and if the Engineer determines that the design loadings of the pipe will be exceeded, the Contractor will be required to support the pipe with an improved trench bottom. The expense of such remedial measures shall be entirely the Contractor's own. All trenching operations shall be confined to the width of permanent rights-of-way, permanent easements and any temporary construction easements. All excavation shall be in strict compliance with the Trench Safety Systems Special Condition of this document.

- b. Trench Backfill: Trenches shall be backfilled above the top of the embedment material with approved backfill material per Town of Addison Standards for the appropriate pipe size, pipe material, depth and soil condition.
 - c. Compaction: All trenches under proposed or existing pavement shall be compacted to within a range of 95% to 100% Standard Proctor Density. Trenches which lie outside limits of pavement shall be compacted to a minimum of 90% Standard Proctor Density (ASTM D-698).
56. **TRENCH WALLS:** The Contractor shall use shoring or a drag box in those areas where it is required to protect existing improvements. This shall be subsidiary to the linear foot cost of the pipe and not a separate pay item.
57. **PROPERTY LINES AND MONUMENTS:** 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 expense of the Contractor.
58. **CONSTRUCTION STAKING:** Construction staking will not be provided by the Town of Addison or Engineer. This item will be performed by the Contractor and shall be subsidiary to other bid items. The Contractor will also be responsible for maintaining stakes. If re-staking is required for any reason, it will be the Contractor's responsibility, including associated costs.

All construction staking shall be done under the supervision of a Registered Professional Land Surveyor registered in the State of Texas. The Contractor shall submit copies of cut sheets and field books for the construction of all paving, water, wastewater, and stormwater improvements to the Town of Addison for review prior to construction of the improvements. The information on the cut sheets and field books shall include but not be limited to the following:

- a. Heading to include date, contract number, project name, surveying firm, contractor, and construction plan sheet number.
- b. Location, description of street/line and street/line name, number, letter, etc. designation.
- c. Benchmark Data: Location, description, and elevation.
- d. Slope or percent of grade of each curb line or utility line.
- e. Stations at 50 foot intervals and including all PC, PT, PI, PVC, PVI, PVT, PRC, grade changes, etc.
- f. Offset description including distance to center line or back of curb and direction of offset; left, right, east, west, etc,

- g. Cut to subgrade, pavement, top of curb, or flowline of the street or utility being staked.
 - h. Clarifying remarks such as top of curb, gutter, pavement, subgrade, manhole, cleanout, valve, tee, cross, fire hydrant, wastewater lateral, water service, etc.
 - i. Cut sheets shall be signed by a Texas Registered Professional Land Surveyor.
59. **VENDOR'S CERTIFICATION:** All materials used in construction shall have a vendor's certified test report. Test reports shall be delivered to the Engineer before permission will be granted for use of the material. All vendors' test reports shall be subject to review by the Engineer, and shall be subject to verification by testing of samples of materials as received for use on the project. In the event additional tests are required, they shall be performed by an approved independent testing laboratory and shall be paid for by the Contractor.
60. **WATER PIPE:** All water mains twelve-inch (12") diameter and smaller shall be ANSI / AWWA C-900 PVC pressure pipe with cast iron o.d. except when a) water pipe penetrates meter vault walls and b) specific water pipe crossings as referenced on water profile sheets, in which cases the water pipe shall be Class 51 Ductile Iron, polyethylene wrapped. Pipe joints shall be rubber ring and integral thickened bell, assembled with a factory supplied lubricant. Water mains shall have a minimum class rating of 150-psi for domestic use and a minimum class rating of 200-psi for fire line applications. Joint material for PVC shall conform to ASTM F471.
61. **WASTEWATER PIPE:** All wastewater main piping shall meet the extra strength requirements of ASTM specification D3034 (SDR-35). Pipe shall have the bell and spigot type joints, consisting of integral wall section with factory installed compression rubber ring gasket, securely locked in bell groove to provide positive seal under all installation conditions. Pipe shall be laid with the bell end on the upstream side.
62. **STORM DRAINAGE PIPE:** All pipe for storm drainage improvements shall be reinforced concrete pipe (RCP), Class III, unless otherwise noted on the plans.
63. **POLYETHYLENE WRAPPING:** All valves, ductile iron pipe, cast iron fittings, and specials, shall be polyethylene wrapped. Payment for the polyethylene wrapping for these components shall be subsidiary to the various items bid for the furnishing and installing pipe complete in place. Polyethylene wrap shall precede blocking.
64. **PIPE CLEANING:** Joints shall be wiped and then inspected for proper installation by the inspectors. Each joint shall be swept daily and kept clean during installation. A temporary night plug shall be installed on all exposed pipe ends during any period of work stoppage.
65. **PLUGS:** Pipe plugs for water lines are included in the Bid Item for Water Fittings. Wastewater line plugs shall be considered incidental and shall not be a separate pay item. Plugs for storm drain lines do have separate pay items established for each size provided and shall be paid for accordingly.

66. **CEMENT STABILIZED BACKFILL:** Two (2) sack cement stabilized backfill shall be provided in wastewater pipe trenches at locations of crossings with water lines where shown on the plans and in conformance with Texas Dept. of Health Rules & Regulations for Public Water Systems. Payment for such work including all labor, tools, equipment and material necessary to complete the work shall be included in the linear foot price bid for Cement Stabilized Backfill.
67. **NON-METALLIC WATER PIPE DETECTION:** Detectable underground utility warning tapes, which can be located from the surface by a pipe detector, shall be installed directly above non-metallic pipe. The detectable tape shall be "Detect Tape" as manufactured by Allen Systems, Inc. or an approved equal, and shall consist of a minimum thickness of 0.35-mil. solid aluminum foil encased in a protective inert plastic jacket that is impervious to all known alkalis, acids, chemical reagents and solvents found in the soil. The minimum overall thickness of the tape shall be 5.5-mils. And the width shall not be less than two-inch with a medium unit weight of 2 ½ pounds per inch x 1,000 feet. The tape shall be color coded and imprinted with the messages as follow:

<u>Type of Utility</u>	<u>Color Coded</u>	<u>Legend</u>
Water	Safety Precaution Blue	CAUTION BURIED WATER LINE BELOW
Sanitary	Safety Green	CAUTION BURIED SEWER LINE BELOW

Installation of detectable tapes shall be per manufacturer's recommendations, and shall be as close to the grade as is practical for optimum protection and detectability. Allow a minimum of 18 inches between the tape and the water line.

Payment for detectable tapes shall be included in the linear foot price bid for applicable pipe(s).

68. **PIPE EMBEDMENT:** All storm drain and utility construction shall be installed with embedment per the details shown on the plans for the appropriate pipe size, pipe material, depth and soil condition unless otherwise directed by the Town of Addison or the Engineer.
69. **REMOVALS, ADJUSTMENTS AND REPLACEMENTS:** Existing pavements, driveways, curbs, gutters, sidewalks, etc., to be removed to facilitate the construction of the improvements shall be broken up and disposed of. Care shall be exercised to leave a neat, uniform edge or joint at the excavation limits or sections removed where only portions are to be removed. The Engineer will designate the limits to be removed. Where pavements, driveways, curbs, gutters, sidewalks, etc., shall be replaced, then said replacements shall be to the standard of the previously removed portion or better. Re-sawing of damaged edges will be at the Contractor's expense.

Existing structures such as manholes, inlets, cleanouts, valve boxes, etc. which are not the property of a private firm or company, or an individual required to move their own property,

shall be adjusted, altered or reset to the required elevation and alignment. New materials and workmanship necessary shall conform to the requirements of these Specifications covering the particular Work. Salvaged materials in good condition may be used in rebuilding such structures, provided the materials are thoroughly cleaned before their use. These items shall be subsidiary to other bid items unless quantified in the proposal as a separate bid item.

All private obstructions which are indicated on the Plans to be moved, will be removed and replaced, or moved to new permanent locations by the Contractor, without additional payment to the Contractor. Any such additional item which the Contractor moves or causes to be moved for his own convenience shall be at his own expense.

70. **SHORT TERM ASPHALTIC PAVEMENT REPAIR:** The unit price bid under the appropriate bid item of the proposal shall cover all cost for providing pavement repair per the short term pavement repair detail provided in the plans.
71. **WATER FOR CONSTRUCTION:** The Contractor shall acquire a meter and make the necessary arrangements with the Town of Addison for securing and transporting all water required for construction, including water required for mixing of concrete, sprinkling, testing or flushing. There will be no separate pay item for connection into the existing water system and quantity of water required for construction purposes. The Town of Addison will furnish water for initial cleaning and sterilization of water lines. All additional water used by the Contractor for compaction or any other purpose incidental to this project may be obtained from existing hydrants along adjacent roadways. Note that the Contractor will be responsible for supplying chlorine gas or chlorinated lime (HTH) for water line sterilization.
72. **EXISTING STOCKPILES OF MATERIAL ON SITE:** An existing stockpile of material has been placed on the adjacent property and is available for use on this project if necessary to complete the project to the alignment, grades and cross sections indicated on the plans. This area of stockpiled material is not reflected in the topographic contours shown. The content and quality of this material within this stockpile is also unknown at this time. While the dirt in this stockpile should be good for fill material, the pile may contain large rock and other construction debris or trash that is unsuitable for fill material. This Contractor shall separate and stockpile the unsuitable material at locations on-site as directed by the Engineer. If directed by the Town of Addison and/or the Engineer to remove and dispose of these materials at an authorized disposal site, the Contractor will be reimbursed as an extra to his contract based on actual invoiced costs.
73. **BORROW SOURCE:** If additional sources of earthen material are required for construction of embankment areas to complete the project to the alignment, grades and cross sections indicated on the plans, Contractor will be required to locate, obtain, excavate, deliver and place suitable fill material from an off-site source. Borrow materials should be compatible with existing on-site materials and shall be tested by the Geotechnical Engineer (employed and paid for by the Town of Addison) for acceptance as an approved source of borrow prior to borrow operations. Item 3.6 - Borrow of the Standard Specifications for Public Works Construction, North Central Texas Council of Governments shall apply for all work performed. If borrow material is required, Contractor will be reimbursed by the Town

for the work performed and the material furnished at a negotiated price between the Town and Contractor prior to commencing this work, and included as a change order to the contract.

74. **EXCESS MATERIAL:** Suitable excess material (if any) may be disposed of on this site at locations directed by the Engineer. Topsoil shall be stripped and stockpiled from locations where excess material is to be placed. The Contractor shall scarify the spoil area to a depth of 6 inches and shall place the spoil material in 6-inch lifts, compacted to ninety-five percent (95%) of the maximum density as determined by ASTM D-698 Standard Proctor Test Method at or slightly above optimum moisture content. Rock shall be broken or crushed so that the maximum dimension is 12". No rock larger than 4" will be allowed in the upper 12" of fill. After completion of filling, replace topsoil and smooth grade. Tree stumps and limbs, concrete debris, discarded materials and all unsuitable excess spoil material, including rock measuring larger than 12" in the largest dimension, shall become the property of the contractor and shall be removed from the site and disposed of by the Contractor at his expense. The Contractor shall also comply with all applicable laws governing spillage of debris while transporting to a disposal site, and shall indemnify and save harmless the Town of Addison and the Engineer from all suits, actions, or claims of any character resulting from his arrangements for the disposal of spoil.
75. **DURING CONSTRUCTION:** During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove same from any portion of the site if, in the opinion of the Town of Addison or the Engineer, such material, debris or rubbish constitutes a nuisance or is objectionable. In case of failure on the part of the Contractor to maintain a clean site, the Town of Addison may, upon 24 hour written notice, clean the site, and the cost thereof shall be deducted from any monies due or to become due to the Contractor under his contract; or where sufficient contract funds are unavailable for this purpose, the Contractor or his surety shall reimburse the Town of Addison for all such costs.
76. **CONSTRUCTION TRAFFIC OVER PIPE LINES:** The design of the new pipes and the design of the existing pipe have been taken into account and provided for highway live loads. It is apparent, however, that certain construction vehicles could exceed this highway load condition under shallow bury conditions. It will be the responsibility of the Contractor to protect both the new line and the existing lines from these possibly excessive loads. The Contractor shall not at any time cross the existing or new pipe with a truck delivering new pipe to the site. Any damage to the existing or new pipe will be repaired or replaced by the Contractor to the satisfaction of the Town of Addison.

In locations where it is not permissible to cross the existing or proposed pipes without additional protection, the Contractor may elect to provide additional protection of the pipes so that more frequent crossings of the pipes are allowed. It still is, however, the responsibility of the Contractor to repair any damage to the existing or proposed lines if the damage results from any phase of his construction operation.

77. **CONTRACTOR'S CONTINUING OBLIGATION:** Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the Town of Addison, nor the issuance of a certificate of Substantial Completion, nor any payment by Town of Addison to Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by Town of Addison, nor any act of acceptance by Town of Addison nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by the Town of Addison pursuant to final payment nor any correction of defective Work by Town of Addison will constitute an acceptance of Work not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents.
78. **WAIVER OF CLAIMS:** The making and acceptance of final payment will constitute:
- a. A waiver of all claims by Town of Addison against Contractor, except claims arising from unsettled Liens, from defective Work appearing after final inspection or failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by Town of Addison of any rights in respect of Contractor's continuing obligations under the Contract Documents.
 - b. A waiver of all claims by Contractor against Town of Addison other than those previously made in writing and still unsettled.
79. **IRRIGATION AND SPRINKLER REPAIR:** The contractor shall maintain all existing irrigation systems within the limits of the project during the duration of the contract. The contractor shall employ a licensed irrigator who is responsible for the repair or replacement of any damage to irrigation lines, valves, controllers, sprinklers, wiring and appurtenances which are damaged during construction. This repair is subsidiary to the various other items bid. The contractor will be responsible for any vegetation that dies as a result of damage to the irrigation system and replace it with equal vegetation at his own cost.
80. **REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK:** All work which has been rejected or condemned shall be repaired; or if it cannot be repaired satisfactorily, it shall be removed and replaced at the Contractor's expense. Defective materials shall be immediately removed from the work site. Work done without line and grade having been provided; work done beyond the line or not in conformity with the grades shown on the Drawings or as provided, work done without proper inspection; or any extra or unclassified work done without written authority and prior agreement in writing as to prices, shall be at the Contractor's risk and will be considered unauthorized, and at the option of the Town of Addison may not be measured and paid for and may be ordered removed at the Contractor's expense. Upon failure of the Contractor to repair satisfactorily or to remove and replace, if so directed, rejected, unauthorized or condemned work or materials immediately after receiving notice from the Town of Addison, the Town will, after giving written notice to the Contractor, have the authority to cause defective work to be remedied or removed and replaced, or to cause unauthorized work to be removed and to deduct the cost thereof from any monies due or to become due the Contractor.

81. **DISPOSITION AND DISPOSAL OF MATERIALS:** All materials to be removed from the site including refuse and other debris shall become the property of the Contractor and shall be disposed of outside the limits of the project. Contractor shall also comply with all applicable laws governing the spillage of debris while transporting to a disposal site.
82. **CLEAN-UP FOR FINAL ACCEPTANCE:** The Contractor shall make a final cleanup of all parts of the work before acceptance by the Town of Addison. This cleanup shall include removal of all objectionable rock and other construction materials, and in general preparing the site of the work in an orderly manner and appearance.
83. **TV INSPECTION OF WASTEWATER AND STORM DRAIN SYSTEMS:** Part of the final inspection of the wastewater and storm drain systems on this project shall include a closed circuit TV survey of the completed pipe installation, exclusive of services, and all imperfections in the installed facility revealed by the TV survey of the imperfections in the installed facilities revealed by the TV survey shall be remedied by the Contractor prior to acceptance of the project as complete. All TV survey work, including furnishing of necessary personnel, equipment and material shall be performed by the Contractor.
84. **STREET LIGHTS:** The following, or approved equal, are to be used on this project:
- Street Light Type 1:
Bega Fixture 9701 MH – V240 – BEGA OLD SILVER
Pole 1108HR – BEGA OLD SILVER
Lamp MP 100/U/MED
85. **RECYCLING OF ASPHALT AND CONCRETE:** The existing asphalt pavement on Westgate Lane shall be recycled and reinstalled as base material beneath the new concrete road section. The existing pavement can be removed by cold planning where the material is pulverized, sized and mixed with an additive (asphalt emulsion or a recycling agent) to rejuvenate the existing asphalt. Ripping and crushing the asphalt, then combining the recycled asphalt with hot new aggregate and asphalt or a recycling agent at a central plant is also acceptable. If the amount of recycled asphalt material is insufficient to complete the required base course material required on this project, the Contract shall provide new hot mix asphaltic concrete material to complete the project. Recycling of the existing Marsh Lane concrete street pavement, curb and gutter, and sidewalks is also required. The crushed concrete shall be processed to meet TxDOT Item 247 Type A Grade 2. The recycled concrete meeting this requirement will be allowed in lieu of the crushed limestone flex base. If the amount of recycled concrete material is insufficient to complete the required flex base material required on this project, the Contractor shall provide new crushed limestone flex base material to complete the project. Proof of recycling of all asphalt and concrete from this project will be required from the Contractor.
86. **PHASING OF CONSTRUCTION:** Construction of Vitruvian Park Building 201 will be on-going by others and in conjunction with this Block 200 Public Infrastructure phase of construction. The construction requirements of these projects will entail coordination and

proper staging in order to complete both phases of work. It is of the utmost importance that the contractors for each of these projects work together to that end. Public Infrastructure improvements shall be constructed in the following sequence with the intention of keeping Westgate Lane open for construction operations related to Building 201.

Phase 1: Construction of Electric Duct Bank System

Phase 2: Construction of utility work along Vitruvian Way including Sanitary Sewer, Storm Drain and Electric improvements.

Phase 3: Construction of improvements along Marsh Lane and the West Private Drive including Sanitary Sewer, Storm Drain and Electric improvements.

Phase 4: Construction of utility improvements along proposed Westgate Lane.

Phase 5: Paving improvements for Vitruvian Way, West Private Drive and Westgate Lane.

87. **TOPSOIL SPREADING:** Upon completion of street paving and backfilling of curbs, the Contractor shall provide and spread a 6" layer of topsoil on all unpaved areas of the street right-of-way including medians and parkway areas. Topsoiled areas shall be fine graded to provide a smooth surface, free from lumps and clods, and graded to provide proper drainage.
88. **GRASSING:** Grassing within street rights-of-way and easements will be provided under separate contract by others. This Contractor will be responsible for grassing of all other areas disturbed by this Contractors' operations including job staging area, batch plant site, haul roads, etc. Cost of grassing for these areas shall be considered subsidiary to the cost of the project.
89. **SILICONE JOINT SEALANT:** Silicone joint sealant must be used in all instances where joint sealing applies to Portland cement concrete pavement and curbs. Payment for the use of silicone joint sealant throughout this project will in all cases be subsidiary to this contract at no extra payment.
90. **CLAIMS FOR DAMAGES OR INJURY:** Item 1.24.3 - SMALL CLAIMS FOR DAMAGE OR INJURY is amended to read as follows:

If any person files a claim against the Town of Addison, the UDR Parties or Contractor for personal injury or property damage resulting from, arising out of, or caused by, the operations of the Contractor, or any work within the limits of the project, the Contractor must either submit to the Town of Addison, a duly executed full release within thirty (30) days from the date of written claim, or immediately report the claim to his liability insurance carrier for their action in adjusting the claim. If the Contractor fails to comply with this provision within the stipulated time limit, it will be automatically deemed that the Contractor has appointed the Town as its irrevocably Attorney-In-Fact authorizing the Town to report the claim directly with the liability insurance carrier. This provision is in and of itself a Power-of-Attorney from the Contractor to the Town which authorizes the Town to take said action on behalf of the Contractor without the necessity of the execution of any other document. If the Contractor fails to comply with the provisions of this item the Town, at its own discretion, may terminate this contract or take any other actions it deems appropriate. Any payment or portion thereof due the Contractor, whether it is a final payment, progress payment, payment out of retainage or refund payment may be withheld by the Town as is

authorized by Item 1.52. Bankruptcy, insolvency or denial of liability by the insurance carrier shall not exonerate the Contractor from liability.

As a result of the additional work created to Town of Addison due to un-responded claims for damages by Contractor to third parties, Contractor shall incur penalties for failure to abide by this Special Provision.

In accordance with the obligations set forth in Special Provision Item 1.24.3, Contractor shall respond to the claimant in writing regarding the status of the claim, including whether Contractor disputes the claim, wishes to settle, or will notify its liability insurance carrier regarding the claim. Contractor will be assessed a penalty by the Town of \$75.00 per claim, for its failure to respond to the claimant as described above within thirty days of its written notice of claim by the Town.

To ensure Contractor compliance, the Town of Addison shall be notified, by copied correspondence of responses or settlement by Contractor.

91. **MECHANICS AND MATERIALMEN'S LIEN:** The Contractor shall be required to execute a release of mechanics and materialmen's liens upon receipt of payment.
92. **CONTRACTOR'S AFFIDAVIT OF BILLS PAID:** The Contractor shall be required to execute the form provided in Section BP prior to the acceptance of the project.
93. **PROJECT RECORD DOCUMENTS:** The Contractor shall maintain record drawings and legibly annotate shop drawings to record changes made after review. A red felt-tip marking pen shall be used for all recording.

Maintenance of Documents. The Contractor shall maintain at the job site one record copy of the Contract Drawings, Specifications, Shop Drawings, Change Orders, other modification to the Contract, field test records and other documents submitted by Contractor in compliance with specification requirements. These documents shall be maintained at the job site apart from documents used for construction. These documents are not to be used for construction purposes. The documents shall be maintained in clean, legible condition. The documents shall be made available at all times for inspection by the Town.

Recording. Each document shall be labeled Project Record Copy in 2-inch high printed letters. The record documents shall be kept current. No work shall be covered until required information has been recorded.

Contract Drawings. The appropriate drawing shall be legibly marked to record, where applicable:

- a. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
- b. Field changes of dimension and detail made during construction process.

- c. Changes made by Change Order or Supplemental Agreement.
- d. Details not on original Contract Drawings.
- e. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
- f. Changes made by Change Order or Supplemental Agreement.
- g. Other matters not originally specified.

Shop Drawing. The Contractor shall maintain the Shop Drawings as record drawings and legibly annotate shop drawings to record changes made after review.

Submittal. At the completion of the project, the Contractor shall deliver record drawings to the Town. The transmittal letter shall be accompanied, in duplicate, with:

- a. Date, project title and number.
- b. Contractor's name and address.
- c. Title and number of each record document.
- d. Certification that each document as submitted is complete and accurate.
- e. Signature of Contractor or his authorized representative.

94. TOWN OF ADDISON APPROVAL: This project is subject to final approval and acceptance by the Town of Addison. Final approval acceptance will not be given until the punch list items are completed to the Town's satisfaction and as-built drawings are given to the Town of Addison.

95. ASSIGNMENT: Contractor shall not assign, delegate or transfer the Contract Documents or any of its rights or obligations thereunder or any interest therein without the prior written consent of the Town of Addison. The Town of Addison may freely assign, delegate or transfer the Contract Documents, in whole or in part, or any of its rights or obligations thereunder or any interest therein.

SECTION PS

PROJECT SIGN

PROJECT SIGN

1. Quantity

Two (2) Project Designation signs will be constructed and installed on the project site as directed by the Owner. It will be the responsibility of the Contractor to maintain the sign in a presentable condition at all times during construction. Maintenance will include painting and repairs as directed by the City Engineer or his appointee. The locations of the signs will be given to the Contractor by the Town of Addison at the Pre-Construction Meeting.

2. Material

Sign shall be constructed of ¾-inch thick smooth finish fir plywood (Grade A-C, exterior or better).

Sign will be securely mounted to 6" x 6" square posts. Nuts and bolts will not protrude from face of sign. Posts will be mounted to a support system that will provide adequate stabilization to ensure the sign will not fall over in heavy winds. Sand bags or other techniques may be necessary to protect sign.

3. Dimensions

Size of sign will be four feet tall and six feet wide. The height and arrangement of the lettering shall be in accordance with the attached detail.

4. Paint

Sign will be one-sided and will have a white background. Text will be black, except for the word "ADDISON!" which will be a blue color approved by the City Engineer. The paint will be an outdoor paint and will be maintained throughout the project in proper order. The quality of the paint, painting, and lettering on the signs shall be approved by the City Engineer or his appointee.

5. Payment

Project Signs will be a separate pay item. This will include all labor, equipment, tools, and incidentals necessary to complete and install the work.

The Town of



**PLEASE PARDON THE TEMPORARY
INCONVENIENCE DURING THIS PROJECT**

WATER, SANITARY SEWER & PAVING IMPROVEMENTS

**VITRUVIAN PARK
PUBLIC INFRASTRUCTURE – BLOCK 500 A**

CONTRACTOR: _____

ESTIMATED COMPLETION DATE: October 2018

**AN ADDISON PROJECT
FOR MORE INFORMATION, PLEASE CALL 972-450-2871**

SECTION TS

TECHNICAL SPECIFICATIONS

TS-1 Town of Addison Water System Requirements



TOWN OF ADDISON

WATER SYSTEM REQUIREMENTS

Revision I

3/6/2017

THIS DOCUMENT PROVIDES GUIDANCE TO Developers, Engineers, and Contractors desiring to install additions to the Town of Addison Water Infrastructure.



WATER SYSTEM REQUIREMENTS

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TOWN OF ADDISON

WATER SYSTEM REQUIREMENTS

I. GENERAL

- A. Design criteria for the Town of Addison (TOA) water system shall comply with the Texas Commission on Environmental Quality (TCEQ) Chapter 290 Rules and Regulations for Public Water Systems, (most current revision).
- B. Approved permits from agencies other than the Town shall be submitted to the Town.
- C. All plans shall be prepared by a Professional Civil Engineer licensed in the State of Texas.
- D. The engineer shall include in the design plans a summary of pipe sizes, pipe materials, joint materials, fittings, and quantities of each.
- E. Profile elevations shall be provided for mains eight inch (8") in diameter and larger. All water lines shown on the plans shall be labeled and dimensioned (Stationed).
- F. Line sizes shall comply with the Addison Water Master Plan, (most current revision). The developer/Engineer is responsible for reviewing the current Addison Water Master Plan, and will be required to incorporate the recommendations of that plan into their development.
- G. Water mains shall be sized and extended through the limits of a development to serve adjacent vacant properties. In phased construction of thoroughfares, the water main shall be extended the entire length of the thoroughfare being constructed.
- H. Valves shall be placed in such a manner as to require preferably two (2), but not more than three (3) valves to shut down each segment; and as may be required to prevent shutting off more than one fire hydrant/fire service in any one section; or no more than fifteen (15) residences in a single family residential district.
- I. Valves shall be placed at or near the ends of mains (min. eight-inch (8") dead-ended for future extension, in such a manner that a shut-down can be made for future extension of the main, without causing a loss of service on the existing main. A minimum of twenty feet (20') of main shall be installed after the valve.
- J. Any main (min. eight-inch (8") dead-ended for future extension will require a fire hydrant assembly or flush valve (see III.C.).
- K. Where four inch (4") or larger fire services are connected to Town water mains, valves shall be installed on each side of the Tee connection, and on the service, or as at the direction of the IDSD.
- L. Fire hydrants shall be placed at a maximum spacing of three hundred feet (300') along all streets and fire lanes.
- M. Fire hydrants shall be placed on the projection of the property line when possible.
- N. No hydrant shall be placed within nine feet (9') vertically or horizontally of any wastewater (Sanitary Sewer) main, manhole, lateral, or service line, regardless of construction or pipe type.

II. WATER MAIN LOCATION

- A. Water mains in public street right-of-way (ROW) shall be five feet (5') from the face of curb, on the opposite side of the wastewater main, or as otherwise directed by the Infrastructure and Development Services Department (IDSD). Mains not in ROW shall be centered in an easement, sized proportionately to the size of the water main. Lines less than 8" diameter shall be in a minimum ten foot (10') easement. Lines \geq 8" diameter shall be in a minimum fifteen foot (15') easement.
- B. In residential developments, water mains shall not cross residential lots unless specifically approved by IDSD, and if so, the easement shall be located within a single lot along the shared property line.
- C. Fire hydrants, and large meters ($> 2"$) placed in vaults, located outside of public ROW, shall be centered in a minimum ten foot by ten foot (10' x 10') water easement.
- D. Meters $\leq 2"$, and their meter boxes shall be set in a minimum five foot by five foot (5' x 5') water easement, if not in the ROW.

- E. Water mains shall be a minimum of five feet (5') outside the drip-line of any tree unless approved otherwise by the IDSD.
- F. Water mains installed under creeks or ditches shall be protected by concrete encasement a minimum of ten feet (10') past the toe of the embankment on each side, or as otherwise directed by IDSD.
- G. Water mains that cross under existing street pavement shall be installed in steel encasement pipe (See SD-W03).
- H. Water mains crossing under storm drains shall have a minimum of eighteen inches (18") clearance below the storm drain pipe. One full length of water pipe shall be centered under the centerline of the storm drain pipe.
- I. Water mains crossing or parallel to any wastewater main, lateral, or structure shall be installed as governed by TCEQ Rules and Regulations for Public Water Systems 30 TAC Chapter 290 Subchapter D, 290.44. (e) requirements.
- J. Water mains crossing under a new non-pressure rated wastewater main or lateral shall be encased in a high-density steel pipe, twenty feet (20') minimum, centered under crossing. (See TOA Standard Construction Detail SD-W03). There shall be a minimum of six inches (6") clearance, or as otherwise governed by TCEQ Chapter 290.44. (e) requirements.

III. **WATER MAIN SIZING**

- A. All water mains shall be a minimum of eight inches (8") inside diameter, or as otherwise shown on the Addison Water Master Plan.
- B. Fire hydrant leads shall be six-inch (6") minimum, and shall not exceed twenty-five feet (25') in length, unless otherwise approved by the IDSD.
- C. Dead-end mains longer than one hundred feet (100') are not permitted unless approved by the IDSD. Approved dead-end mains shall have a fire hydrant, Tee, valves, and plug installed at the end of the main for use by the Town. An automatic flush valve may be required at the discretion of the IDSD.

IV. **WATER SYSTEM MATERIALS**

All materials proposed for inclusion in the Town water system shall be submitted for approval prior to purchase, to verify compliance to the following guidelines:

- A. **MAINS**
 - 1. All water mains twelve inches (12") in diameter or smaller shall be AWWA C-900 PVC pressure pipe (blue), with cast iron outside diameter (C.I.O.D.) or approved equal. Pipes that penetrate concrete vault walls shall be ductile iron. Pipe joints shall be thickened bell with integral rubber ring gasket, assembled with factory supplied lubricant. Joint material shall conform to ASTM F477 and ASTM D3139. Water mains shall have a minimum pressure class rating of 235 psi (DR-18). Pipe for fire service or fire hydrant leads shall have a pressure class rating of 305 psi (DR-14).
 - 2. Water mains larger than 12" shall be pre-approved by the IDSD.
 - 3. All water main fittings shall be full-bodied, domestic (USA) ductile iron, mechanical joint type, rated at 250 psi. All mechanical joints shall employ restraining glands (EBAA Mega-Lug or approved equal). All fittings shall be wrapped with 8mil poly prior to embedment and backfill. Compact fittings are not permitted unless pre-approved by the IDSD.
 - 4. All mains supplying fire sprinkler systems outside of utility easements shall be U.L. listed, and have a minimum pressure rating of 305 psi.

5. All valves, hydrants, Tees, and bends shall have concrete thrust blocks installed. Fittings shall be poly-wrapped (8 mil) prior to pouring the thrust block. Thrust blocks shall be a minimum Class "B" (3000 psi) concrete, and be able to withstand 200 psi test pressure. Concrete shall be poured against undisturbed earth, and formed as needed to prevent covering flanges, glands, or bolts. Reference current NCT-COG thrust block specifications as minimum standard.
6. Where tapping sleeves are approved, they shall be at least one nominal size less than the tapped main, full-bodied stainless steel type. Approved manufacturers are Mueller, Ford, and Smith-Blair.

B. VALVES

Valves sixteen-inch (16") and under shall be Resilient Seat Gate Valves (RSGV). All gate valves shall be of the resilient wedge type conforming to AWWA C509, Standard for Resilient Seated Gate Valves, in its most current revision. Valves larger than sixteen-inch (16") shall be approved butterfly valves (See A.2 above). Larger valves shall be submitted for pre-approval by the IDSD. In addition, all valves sixteen-inch (16") and under shall include the following design criteria:

1. In order to maintain a manageable parts inventory and working knowledge of valves, the following resilient seated valves are approved: Mueller A2360-61, AFC 2500 and AVK Series 25.
2. Wedge shall be cast or ductile iron, fully encapsulated in synthetic rubber.
3. Wedge rubber shall be molded in place and permanently bonded to the iron without screws, rivets or similar fasteners.
4. Wedge shall seat against seating surfaces arranged symmetrically about the centerline of the operating stem, so that seating is equally effective regardless of the direction of pressure imbalance across the wedge.
5. Valves for underground installations shall be non-rising stem type, opening counter-clockwise by means of a two-inch (2") square operating nut. Valves for installation in a vault shall be of the rising stem type opening counter-clockwise by means of a hand wheel. The word "OPEN" and an arrow indicating direction to open shall be cast in the metal of the nut or hand wheel.
6. Stem shall be sealed by at least two O-rings. All stem seals shall be replaceable with the valve fully open and while subject to full rated pressure.
7. All bonnet and stuffing box nuts and bolts shall be stainless steel. When placed in vaults, flange bolts and nuts shall be Grade 316 Stainless steel, treated with anti-seize compound.
8. The waterway shall be smooth and shall have no depressions or cavities in the seat area where foreign material can lodge and prevent closure. The waterway shall be large enough to accept full size tapping cutter without damaging the interior of the valve.
9. The valve body and bonnet shall be epoxy coated, inside and out, with fusion-bonded epoxy. There shall be no chips, cracks, or deep scratches that would defeat the purpose of the coating. Coating shall conform to AWWA C550-90 (most current revision), Standard for Protective Interior Coatings for Valves and Hydrants.
10. Buried valves shall be provided with valve boxes consisting of a cast iron base (B&H#2436-B, or #1824-B, or EJIW 8453), a top with cover (B&H#340-1), and a length of six inch (6") PVC DR-14 pipe between the bottom and top sections (See SD-W10).

C. FIRE HYDRANTS

All fire hydrants installed for use in the Town of Addison shall meet or exceed AWWA Standard C502-85 (most current revision). Fire hydrants shall have a 5¼" minimum valve opening. Rated working pressure shall be at least 150 psi; test pressure shall be 300 psi and the hydrant shall be capable of flowing 1000 gpm (Class A). All hydrants shall be manufactured in the United States. Hydrant shall be warranted by the manufacturer for a minimum of 5 years. In addition, all hydrants shall include the following design criteria:

1. In order to maintain a manageable parts inventory and working knowledge of fire hydrants, the following hydrant is approved: Mueller Super Centurion.
2. All fire hydrants shall be dry barrel type, of the three-way style consisting of two (2) opposing 2- ½" hose nozzles separated by one (1) four-inch (4") pumper nozzle.
3. A clearly visible arrow and the word "OPEN" shall be cast in relief on the top of the fire hydrant. The fire hydrant shall be opened by turning the operating nut in a counter-clockwise direction.
4. The operating nut shall be all bronze, one piece, pentagon measuring 1¼" from point to flat and at least 1¼" in height.
5. The manufacturer's name, size of main valve and year of manufacture shall be cast in relief on the upper barrel section and clearly visible to aid in the identification of repair parts.
6. Lower barrel shall have ground line markings cast in relief and clearly visible approximately two-inches (2") below the flange to aid in proper installation.
7. The fire hydrant shall be a "traffic model" with the upper and lower barrels joined at approximately two-inches (2") above ground line by a separate and breakable swivel flange providing for 360 degree rotation of upper barrel for proper nozzle facing. The "traffic model" safety flange shall employ unweakened stainless steel hex head bolts (AWWA C502, Sec. 3.2.17) and fasteners of sufficient strength to bear all test and operating pressures. The stem shall be two-piece, not less than 1¼" in diameter (excluding threading or machined areas) and shall be connected by a breakable stem coupling. The weakened portion of the coupling shall be below the coupling pins to eliminate failure due to excessive torque. All screws, pins, bolts or fasteners used in conjunction with the coupling shall be stainless steel. The coupling shall be made of stainless steel to eliminate failure due to electrolysis and corrosion. The coupling joint shall be located below the top of the lower barrel to prevent vehicle wheel or other forces being applied to stem, which would open the valve mechanism.
8. Shoe and barrel castings shall be fabricated of ASTM A-126, Class B gray iron or ductile iron ASTM A-536, but no combination thereof, assuring uniform strength of all cast components.
9. Hose nozzles shall be 2½", and the pumper nozzle shall be four-inch (4") pumper gauge (40480). Chains between the fire hydrant and nozzle caps shall be omitted or removed. Nozzle section shall allow for field replacement of damaged threads without special tools, excavation or disturbing the ground joint line. Nozzles shall be fastened by mechanical means and secured to prevent nozzles from turning or backing out. Nozzle caps shall be provided with 1¼" pentagon nuts at least 1¼" in height, a recess provided at the inner end of thread for gasket retention. Centerline of lowest nozzle shall be at least eighteen-inches (18") above ground line.
10. Main valve closure shall be compression type, opening against line pressure and closing with the pressure. Main valve shall be 5¼" in diameter. A bronze seat ring shall thread into a bronze drain ring (or shoe bushing). This bronze shall be low-zinc (less than 16%) to minimize galvanic corrosion. Design shall allow for removal of seat, drain valve mechanism, internal rod and all working parts through the top of the hydrant without disturbing the ground line joint or the nozzle section of the hydrant.
11. Lubrication of the upper stem threads, operating nut threads, and upper and lower thrust collar bearing surfaces and O-ring stem seals shall be done automatically as the hydrant is opened. Lubricant shall be low viscosity, non-toxic, FDA approved oil. Oil reservoirs shall be separated from the waterway by two (2) O-rings.
12. The drain system shall consist of two (2) valves feeding two (2) external discharges. Drain system shall be so designed as to provide for both automatic and intentional force flushing at full line pressure. Drain valve mechanism and outlet shall be all bronze.
13. The interior surfaces of the shoe and lower main valve components shall be epoxy coated in compliance with AWWA Standard C-550. The shoe and lower barrel shall be connected by stainless steel bolts, nuts and fasteners of sufficient size and strength to bear all pressures and forces that the hydrant is subject to, including corrosion, for its warranted life.
14. Hydrants shall be delivered at a minimum, with two (2) coats of primer on upper barrel (AWWA C-502 Sec. 4.2.3). Interior and exterior shall be painted as in AWWA C-502 Sec. 4, excluding the interior of shoe which shall be painted be as noted in Sec. 2.F.

15. Hydrants shall be complete in all details when supplied. Due and customary care shall be used in preparation for shipment to eliminate damage in handling or transit. Hydrants must be drained and completely closed before shipment.
16. Manufacturer shall supply an Affidavit of Compliance verifying that the hydrant and all materials used in its construction conform to the applicable requirements of the most current form of AWWA C502 and these supplementary specification, that all specified tests have been performed and that all test requirements have been met.

D. WATER SERVICES – GENERALLY

All water services/meter boxes shall be set in the right-of-way or utility easement, located as approved by the IDSD. No meter shall be installed in an area paved for vehicular traffic or parking. All services shall include an approved backflow prevention assembly (BPA) immediately downstream of the meter, or as approved by the IDSD (See Standard Construction Detail SD-W20). Allowable tap sizes for water services are: $\frac{3}{4}$ ", 1", 2", 4", 6", 8", 10", and 12". All other sizes are prohibited unless specifically approved by the IDSD. Allowable meter sizes are: 5/8" x $\frac{3}{4}$ ", $\frac{3}{4}$ ", 1", 1 $\frac{1}{2}$ ", 2", 3", 4", 6", 8", 10", and 12". Any deviation between tap size and meter size must be approved by the IDSD. Water services shall comply with the following general design standards:

1. All service taps shall be inspected and approved by the IDSD.
2. Multiple meters mounted in parallel are not permitted on the same service.
3. Bullhead connections (multiple meters on the same tap) are not permitted unless specifically approved by the IDSD.
4. Service connections for domestic and/or fire sprinkler systems are not allowed on fire hydrant leads or dead end mains. Domestic service taps are not allowed on fire service lines, but shall be distinctly separate connections to the main line.
5. One meter is required for each residential, commercial, or industrial service connection per TAC 30, Title 16, part 2, chapter 24, subchapter E, Rule 24.89. The size of that service is to be determined by a Licensed Plumber, based on a calculation of fixture unit values served.
6. Irrigation may be serviced independently from a main or hydrant lead, or connected to the domestic service.
7. Fire Services
 - a. All non-single-family developments shall have separate fire and domestic connections to the Town's mainline, independent from each other.
 - b. Domestic and fire service connections shall be separated by a main line valve.
 - c. Single-family fire protection systems (where required) may connect to the domestic service, or have a separate connection to the main. If separate at the main, appropriate Backflow Prevention Assemblies and meters shall be placed on each service.
8. Location of the meter shall be shown on the plans, and placed in either ROW or easement as approved by the IDSD.
9. All meters installed shall be set horizontally level in all directions. Exception shall be made for fire service detector meters on vertically mounted backflow prevention assemblies.
10. All new meters installed in the Town of Addison shall be a Hersey meter with an electronic encoder (translator) register, programmed to read in 1,000 U.S. gallon increments, equipped with a touch-pad reader.
11. General guidelines for meter types and services are as follows: Irrigation and fire service meters will be Class 1 turbine type; Domestic meters > 1 inch will be Class 1 turbine type meters; Domestic meters \leq 1 inch will be either positive displacement (disc) type or Class 1 turbine type. Deviations from these guidelines must be approved by the IDSD.
12. Turbine type meters shall be Hersey MVR™ Class I turbine.
13. Positive displacement meters shall be; Hersey 400 Series IIS™.
14. All meters shall be placed in an approved meter "can" (See Detail SD-W20).

E. CROSS-CONNECTION CONTROL

1. As required by Town of Addison Ordinances (82-94 & 82-97), ALL water services in the Town of Addison shall have a containment Backflow Prevention Assembly (BPA), installed immediately downstream of the meter, or as close as is practical, with no taps, T's, or connections between the meter and the assembly (See TOA Standard Construction Detail SD-W20). Assembly type will be based on the Degree of Hazard as determined by the IDSD, using the most current edition of the **Manual of Cross-Connection Control** as published by USC-FCCCHR for guidance.
2. All backflow assemblies shall be on the most current USC-FCCCHR **List of Approved Backflow Prevention Assemblies**, and installed according to the **Manual**, all applicable plumbing codes, best industry standards, and the manufacturer's recommendations.
3. Backflow assemblies shall be placed in approved meter boxes or vaults complying with TOA Standard Construction Details (SD-W20, 22, 23). Reduced Pressure Zone Assemblies (RPZA) shall be installed above ground, and protected from freezing, with an assembly specifically approved for such use. In no case shall RPZAs be permitted in any below grade installation, or without sufficient drainage capability to prevent immersion of the assembly, or flooding the building.
4. Location of Backflow Prevention Assembly (BPA) shall be shown on the plans, and must be approved by the IDSD.
5. The plumber/contractor/owner is responsible for having the BPA tested upon installation and initiation of service, by a Tester certified by Texas Commission for Environmental Quality (TCEQ) rules, for the specific type of installation (i.e. General, Fireline) and who is registered with the Town of Addison IDSD. The original of the test report shall be submitted to the IDSD.
6. Stainless steel, brass, or nylon/plastic plugs shall be installed in all test cocks after testing. The use of Teflon tape is required to facilitate removal of plugs for future testing of the assembly. Plumber's putty or "pipe dope" is unacceptable for this installation.

F. WATER SERVICES – ≤ Two Inch (2").

1. The service saddle shall be one of the following:
 - a. Double-strap bronze with CC (AWWA taper) threads: Mueller #BR2B, Ford #202B.
 - b. Mueller Servi-Seal™ style 502, 504, 506, or 508; seven inch (7") min. length.
 - c. Ford Style FS303-CC.
 - d. Tap shall be set at 45° of vertical on the main line.
2. The corporation stop shall be AWWA taper thread (CC) by conductive compression connection from the following list:
 - a. ¾" – 1" use Mueller H-15008; or Ford F1000-G.
 - b. 2" – use Mueller B-25008 or H-15013; or Ford FB1000-G.
3. The curb stop shall be 90° angle stop with lock-wing from the following list:
 - a. ¾"-1" – use Mueller H-14258 or B-24258; or Ford KV43-332W-G or KV43-444W-G.
 - b. 2" use Mueller H-14277; or Ford FV43-666W-G or FV43-777W-G.
4. All companion flanges shall be elliptical brass, and all nuts and bolts shall be Grade 316 stainless steel, 5/8"-11 x 2 ½" hex head. Anti-seize compound is required on the threads of the bolts.
5. Saddle and corporation stop must be poly-wrapped (8mil) and hand-backfilled with sand to a depth of twelve inches (12"). Mechanical backfill with material free of rocks and clods larger than three-inch (3") diameter shall be compacted to the surface in 8" lifts.
6. Piping from the corporation stop to the curb stop shall be Type K copper, one continuous piece, poly-wrapped (8mil), or HDPE (Endopoly PE3408/PE4710, or approved equal), and embedded in sand six inches (6") in all directions.
7. Any variation from the above must be submitted for review and approval by the IDSD.
8. Gate valves on the inlet side of the meter are strictly prohibited.
9. Services crossing streets shall be installed in steel encasement pipe (see Sec.II.G, and SD-W03).

G. WATER SERVICES – Meters > Two Inch (2”).

1. Meters larger than two inch (2”) shall be in a vault (see TOA Standard Construction Detail (SD-W22) and placed within the ROW or an easement (see II.C. above).
2. Pipe penetrations through vault walls shall be ductile iron, four inch (4”) minimum.
3. Meter assembly shall include a two inch (2”) test port, with a 2” stainless steel ball valve with stainless steel handle downstream from the meter. Bypass piping (if used) may be one pipe size less than meter size. Bypasses < eight inch (8”) shall be inside the vault.

H. FIRE SERVICES

1. Large fire services shall, at minimum, consist of a Double-Check Detector Assembly (DCDA) in a vault (See TOA Standard Construction Detail SD-W23), placed within the ROW or a water easement (See II.C. above). The Degree of Hazard will determine if another assembly is required. A valve immediately upstream of the assembly shall be the point of demarcation between TOA and the customer, to determine maintenance responsibility.
2. If site conditions preclude the installation of a vault at the property line, alternative installations must be approved by the IDSD. Such cases will require a “demarcation valve” and a 2” service tap to be installed on the upstream side of the valve at the property line. There shall be no taps or T’s installed between that valve and the fire service riser.
3. All large fire services shall pass a 200 psi, two hour pressure test, and a bacteriological test, from the service valve to the riser.
4. Fire services less than or equal to two inch (2”) shall be a Hersey Class I MVR™ turbine meter (See IV.D.10), and shall have the appropriate BPA installed downstream of the meter.

V. SUBMITTALS

A. PLANS

1. Project Civil Plans are to be submitted for review. Sheets included in this Review Set shall include at minimum, the following: Cover, Index, General Notes, Plat and/or Site Plan/Dimension Control, Grading, Drainage Area Map, Storm Drain Calculations, Storm Drain Plan and Profile, Water and Wastewater Plan and Profile, Paving Plan and Profile, Landscape Planting Plan, and Detail sheets. Plans shall be prepared by a Professional Civil Engineer licensed in the State of Texas.
2. All Storm Drain, Water, and Sanitary Sewer lines included for addition to the Public Infrastructure shall be labeled, stationed, and profiled.
3. Plans shall be black-line on 34” x 22” plain paper stock, bound, and scaled for best readability.
4. Submitter shall deliver three (3) sets of printed plans and 2 CDs of digital (pdf) plans for review to the IDSD at 16801 Westgrove Drive, Addison Texas 75001.
5. Plans shall be reviewed as often as necessary for compliance with TOA Requirements, Standards, and Specifications.
6. Upon completion of the plan review process, the submitter shall provide three (3) full size (34’ x 22”) sets, three (3) half-size (11” x 22”) sets, and two (2) CDs (or flash drive) of digital (pdf) plans, for TOA use, plus as many sets as the Developer/Engineer/Contractor will need for their use (including 1 full-size set for field revision/Record Drawings to be kept on-site for site inspections). These plans will be stamped and signed by the TOA as “Approved for Construction”, and re-distributed to all necessary parties.

B. MATERIALS

1. Three (3) packets of Material Submittals shall be delivered for all materials to be installed in the Public Infrastructure including, but not limited to: concrete mix designs, pipe types, fittings, hydrants and valves, service appurtenances (Service brass, meters, meter boxes, backflow devices, etc.), joint sealant, embedment materials, and other incidentals. The submittals shall include the Manufacturer's information including composition and make-up of the material, and recommendations for installation and use.
2. After review and revision for compliance with TOA Requirements, Standards, and Specifications, the packets will be stamped and re-distributed to all necessary parties.

C. DOCUMENTS

1. Additional documents to be submitted prior to construction may include, but are not limited to: contract, bonds, proof of insurance, any required SWPPP paperwork, traffic control plan, trench safety plan, TDLR review, etc.
2. A Pre-Construction Meeting is typically scheduled by the Developer/Contractor, at which time the documents and submittals are delivered, stamped "Approved for Construction" plan sets are distributed, and any permits are issued.

D. TEST REPORTS

1. Test reports shall be provided to the IDSD during the course of construction.
2. These reports shall include, but are not limited to: soil proctor, compaction density, moisture content; concrete slump, temperature, and entrained air content; Sanitary sewer air test, mandrel, digital television record, and manhole vacuum test; Water pressure and bacteriological testing; Storm Drain television record; and any other site or job specific testing that may become necessary to assure the quality and functionality of the work.

E. POST-CONSTRUCTION DOCUMENTS

1. Executed Maintenance Bond.
2. Final RAS/TDLR/ADA Inspection Compliance Report (Third Party).
3. Affidavits of Bills Paid.
4. Contributions to the Public Infrastructure Report (cost and quantities).
5. Sealed, signed, and dated As-Built/Record Drawings in the form of two (2) CDs or USB "thumb" drives of digital files (pdf and AutoCad on each).

VI. CONSTRUCTION

A. TRENCH REQUIREMENTS

1. Trench width shall be a minimum of 24", or pipe O.D. plus 16", whichever is greater.
2. Unless otherwise indicated, all pipe embedment shall be NCT-COG Class "B+" or "B-2". A layer of geotextile fabric shall be placed on top of the stone layer, from wall to wall of the trench, prior to the placement of the select or granular material.
3. Finish backfill shall be native soil free of any rocks or clods greater than three inches (3") in diameter, and compacted from eight inch (8") loose lifts to 95% Standard Proctor Density at zero to three percent (0-3%) of Optimum Moisture. If native material is determined to be unsuitable or insufficient, a select fill approved by the IDSD may be substituted.

4. Trenches under pavement may be backfilled with Flowable fill with a minimum compressive strength of 250 psi to a maximum strength of 400 psi, to the level indicated by the pavement thickness, with the prior approval of the IDSD. A batch design shall be submitted for any flowable fill used within the Public ROW.
5. Locator tape shall be placed on top of the sand embedment, prior to final backfill.
6. Minimum cover over the top of pipe, and beneath improved street pavement shall be as follows:
 - a. Lines larger than sixteen inch (16") shall be six feet (6').
 - b. Lines sixteen inch (16") or twelve inch (12") shall be five feet (5').
 - c. Lines eight inch or less ($\leq 8"$) shall be four feet (4').

B. PIPE INSTALLATION

1. Line and grade stakes for construction of all water mains and services shall be furnished by the developer's Engineer or their designated representative. Property lines and corners must be properly staked to ensure their proper alignment. The Town shall not be liable for improper alignment or delay of any kind caused by improper or inadequate surveys by the developer, or by any interference of other utilities.
2. All water mains crossing under existing roadway pavement must be installed by bore or otherwise as approved by the IDSD. Rust-resistant steel casing, a minimum of one-fourth inch (1/4") thick, shall be used with Raci patented casing spacers, or approved equal. Wooden skids are NOT allowed. See SD-W03.
3. Water lines shall be hydrostatically tested at 150 psi for four (4) hours. Fire line leads shall be tested at 200 psi for two (2) hours.
4. All water mains shall be disinfected according to TCEQ/NCT-COG practices and procedures, and shall pass bacteriological testing for the presence of total coliform bacteria, by a certified water lab. All valves, hydrants, and services shall be operated during the chlorination process to ensure contact with the chlorine solution.
5. High concentrations of chlorinated water shall be de-chlorinated and purged from the water system, into the sanitary sewer system, or other approved disposal methods.
6. After the system has been purged of chlorinated water, contractor shall perform a velocity flush through a fire hydrant(s) to remove any potential debris left in the line. This velocity flush must be de-chlorinated, and may be disposed of into the storm sewer system, or other approved disposal methods.
7. All bleeder lines shall be removed upon completion of the testing, by removing the corporation stop and installing a brass plug into the tapping saddle. Plug shall be prepared with Teflon tape.

C. VALVE INSTALLATION

1. Mainline shut-downs required to install connection tees and valves during regular business hours must be coordinated with the IDSD at least seventy-two (72) hours prior to the actual shut-down. Mainline shut-downs outside of regular business hours, must be coordinated with the IDSD at least five (5) business days prior to the actual shut-down. The contractor is responsible for all overtime costs associated with mainline shut-downs outside of regular business hours. The contractor is required to schedule all main shut-downs after consultation with all affected parties. Verification of those consultations shall be provided to the Town as part of the coordination.
2. Valves shall be set on a two-foot by two-foot Class B concrete pad (See SD-W09).
3. Flange and MJ bolts shall be Core 10 T bolts on all direct-bury valves.
4. Valves deeper than five feet (5') will require extensions as directed by the IDSD (See SD-W11).
5. Buried valves shall be provided with valve boxes consisting of a cast iron base (B&H#2436-B, or #1824-B, or EJIW 8453), a top with cover (B&H#340-1), and a length of six inch (6") PVC DR-14 pipe between the bottom and top sections (See SD-W10).

6. Valve boxes located outside of paved areas require the placement of a reinforced concrete locator pad, 24" x 24" x 6" set flush with the finished grade.
7. The location of all valves shall be marked on the nearest pavement with the letter "V" stamped or sawn into the pavement. The point of the V shall be pointing toward the valve.
8. All butterfly valves shall be placed in a vault or manhole.
9. Once connected to the active Town of Addison water system, operation of any valve shall be by Addison IDSD personnel exclusively. Operation by others constitutes a violation of Town Ordinance (Sec. 82-86).

D. HYDRANT INSTALLATION

1. Fire hydrants shall have a minimum four foot (4'), or a maximum five foot (5') lower barrel. Fine grade adjustments are to be made with 45° bends, or with the use of Gradelok™ piping, or other methods, with the approval of the IDSD, to position the bottom of the breakaway flange two to six inches (2" – 6") above final grade.
2. Installation shall consist of a mechanical joint by flange Tee, a flange by mechanical joint valve, and approved pipe to a mechanical joint hydrant shoe. All mechanical joints shall be restrained (See SD-W17).
3. Fire hydrants shall be placed a minimum of three feet (3') and a maximum of six feet (6') from the edge of a fire lane or roadway (Back of Curb).
4. All hydrants placed outside of Town ROW shall be in easements (see II.A.) and adequately protected from damage by vehicular traffic as approved by IDSD and the Addison Fire Department (see SD-W18). All such protection is the responsibility of the property owner on which the hydrant is placed.
5. All hydrants shall be installed so that the large steamer nozzle faces 90° to the fire lane or street, or as directed by the fire Department or the IDSD.
6. A three foot (3') wide non-erodible surface shall be placed around the fire hydrant, and extended to the pavement directly in front of the hydrant (See SD-W16).
7. Fire hydrants shall be located at street or fire lane intersections, when feasible. When so located, the hydrant shall be placed so that no part of the fire truck will block the intersection or access when connecting to the hydrant.
8. Fire hydrants shall be accessible to the Fire Department at all times.
9. A blue Stimsonite, Fire-lite™ reflector, Model 88-SSA (or approved other) shall be placed just off-center of the street or fire lane opposite the hydrant (not in wheel path). At intersections, the reflectors shall be placed on both roadways opposite the hydrant (See SD-W19).

E. WATER SERVICE INSTALLATIONS

1. Service saddles shall be placed at a 45° angle on the main. The saddle, corporation stop, and service pipe shall be poly-wrapped, then backfilled by hand with sand to a minimum one foot (1') over the tap. Native fill – no rocks or clods larger than three inches in diameter – may be used to backfill to the surface, in eight inch (8") loose lifts and compacted to 95% if under pavement, or 90% under turf.
2. The service curb stop shall be installed at a depth of eight inches (8") to twelve inches (12") below finished grade, usually in advance of paving. After paving, the contractor shall furnish and install the meter box. The meter box is to be set in the ROW or at the utility easement line, near the center of the lot to be served. No meter box shall be installed in an area paved for vehicular traffic, or in vehicular parking areas.

3. Water meter boxes shall be provided for each service according to the TOA Standard Construction Details (SCD). Water meter boxes for \leq two inch (2") meters, shall have a minimum depth of eighteen inches (18") and have at least four inches (4") to six inches (6") of Grade 4 crushed stone, and four inches (4") to six inches (6") of free airspace under the meter inside the box. Meter boxes and openings shall be large enough to allow access to, and operation of, all meter nuts, flanges, or bolts without obstruction. Openings below grade in the meter box shall be permanently closed to prevent the infiltration of mud or silt into the box. Lids shall be reader type to accommodate the installation of a touch-pad. Meters larger than two inch ($>2''$) are required to be in a concrete vault (See SD-W21).
4. A minimum of eighteen inches (18") of copper, brass, or HDPE pipe shall be placed between the water meter and the BPA, or the first fitting after the meter connection.
5. The BPA shall be installed immediately after the meter in a meter box of the owner's choosing, but with the same characteristics of the meter installation described above. All valves must be accessible and operable, and all test cocks accessible for testing. If an RPZ Assembly is required due to the degree of hazard, it shall be placed above ground in an approved enclosure, designed to protect the device from tampering or freezing.
6. The Town of Addison does not sell or provide water meters, but rather, the Owner must provide the meter for the initial installation. The meter must comply with all of the current specifications of the IDSD, as provided for in Section IV.D. above.
7. During the course of construction, the curb stop will remain locked off at all times, until the BPA is installed and ready for testing by a certified and approved Backflow Device Tester. The Town shall unlock and turn on the service for the test, and re-lock the service after the test. After confirmation of a passing installation inspection and a passing test of the BPA, the owner, or his representative, may apply for service at the TOA Finance Department, 5350 Belt Line Rd, phone number 972-450-7075. Upon completion of the application requirements, the Finance Department will then contact the Water Department with a connect order to turn the water on for service.
8. At completion of the project or development, a Final Walk-Thru will be conducted to identify any deviations from these Requirements and Standards. Upon rectification of those deviations, the TOA will accept the project and the Maintenance Bond will be initiated.

SECTION GEO

GEOTECHNICAL REPORT



GEOTECHNICAL EXPLORATION

on

VITRUVIAN PARK – PROPOSED RETAIL

Off Marsh Lane and Spring Valley Road

Addison, Texas

ALPHA Report No. G152590

Prepared for:

UCR DEVELOPMENT

8080 Parklane, Suite 740

Dallas, Texas 75231

Attention: Mr. Greg McGahey

December 1, 2015

Prepared By:

ALPHA TESTING, INC.

2209 Wisconsin Street, Suite 100

Dallas, Texas 75229

December 1, 2015

UCR Development

8080 Parklane, Suite 740
Dallas, Texas 75231
Attention: Mr. Greg McGahey

Re: Geotechnical Exploration
Vitruvian Park – Proposed Retail
Off Marsh Lane and Spring Valley Road
Addison, Texas
ALPHA Report No. G152590

Attached is the report of the geotechnical exploration performed for the project referenced above. This study was authorized by Mr. Harry G. Alcock and performed in accordance with the Abbreviated Agreement for Professional Services dated October 21, 2015 and ALPHA Proposal No. 49698 dated October 19, 2015.

This report contains results of field explorations and laboratory testing and an engineering interpretation of these with respect to available project characteristics. The results and analyses were used to develop recommendations to aid design and construction of foundations and pavement.

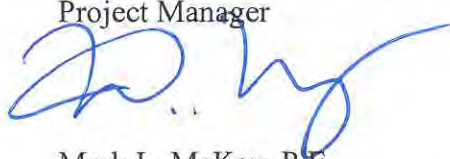
ALPHA TESTING, INC. appreciates the opportunity to be of service on this project. If we can be of further assistance, such as providing materials testing services during construction, please contact our office.

Sincerely,

ALPHA TESTING, INC.



Andrew M. Adams, E.I.T.
Project Manager



Mark L. McKay, P.E.
Senior Geotechnical Engineer
Geotechnical Department Manager

AMA/MLM
Copy: (1) Client



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On

ALPHA REPORT NO. G152590

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APPENDIX

A-1	Methods of Field Exploration Boring Location Plan – Figure 1
B-1	Methods of Laboratory Testing Swell Test Results – Figure 2 Logs of Borings Key to Soil Symbols and Classifications



1.0 PURPOSE AND SCOPE

The purpose of this geotechnical exploration is for ALPHA TESTING, INC. (“ALPHA”) to evaluate for the “Client” some of the physical and engineering properties of subsurface materials at selected locations on the subject site with respect to formulation of appropriate geotechnical design parameters for the proposed construction. The field exploration was accomplished by securing subsurface samples from widely spaced test borings performed across the expanse of the site. Engineering analyses were performed from results of the field exploration and results of laboratory tests performed on representative samples.

Also included are general comments pertaining to reasonably anticipated construction problems and recommendations concerning earthwork and quality control testing during construction. This information can be used to evaluate subsurface conditions and to aid in ascertaining construction meets project specifications.

Recommendations provided in this report were developed from information obtained in test borings depicting subsurface conditions only at the specific boring locations and at the particular time designated on the logs. Subsurface conditions at other locations may differ from those observed at the boring locations, and subsurface conditions at boring locations may vary at different times of the year. The scope of work may not fully define the variability of subsurface materials and conditions that are present on the site.

The nature and extent of variations between borings may not become evident until construction. If significant variations then appear evident, our office should be contacted to re-evaluate our recommendations after performing on-site observations and possibly other tests.

2.0 PROJECT CHARACTERISTICS

It is proposed to construct new retail buildings at Vitruvian Park located generally at the southwest corner of the intersection of Marsh Lane and Spring Valley Road in Addison, Texas. A site plan illustrating the general outline of the property provided by the Client, with ALPHA’s boring locations noted on it, is provided as Figure 1, titled “Boring Location Plan,” in the Appendix of this report. At the time the field exploration was performed, the site was developed and occupied by existing retail buildings and paved parking and drive lanes. cursory observations indicate the site is relatively level.

Present plans provide for the construction of new single story retail buildings with footprints ranging from about 3,000 SF to 20,000 SF. The new structures are anticipated to carry light to moderate loads to be carried by the foundations. It is anticipated these loads will be supported using a shallow footing foundation system or possibly a slab-on-grade foundation system. New area pavement is expected to consist of Portland cement concrete (PCC). Grading plans were not yet available for this study. For the purpose of our analysis we have assumed cuts and fills of about 1 ft or less to achieve final grade.



3.0 FIELD EXPLORATION

Subsurface conditions on the site were explored by drilling a total of ten (10) test borings in general accordance with ASTM Standard D 420 to depths of up to about 25 ft using standard rotary drilling equipment. Seven (7) borings (Borings 1 through 6, and 9) were drilled in the building areas to a depth of 25 ft each and three (3) borings (Borings 7, 8, and 10) were drilled in the paving areas to a depth of 5 ft. The approximate location of each test boring is shown on the Boring Location Plan, Figure 1, enclosed in the Appendix of this report. Details of drilling and sampling operations are briefly summarized in Methods of Field Exploration, Section A-1 of the Appendix.

Subsurface types encountered during the field exploration are presented on the Log of Boring sheets (boring logs) included in the Appendix of this report. The boring logs contain our Field Technician's and Engineer's interpretation of conditions believed to exist between actual samples retrieved. Therefore, the boring logs contain both factual and interpretive information. Lines delineating subsurface strata on the boring logs are approximate and the actual transition between strata may be gradual.

4.0 LABORATORY TESTS

Selected samples of the subsurface materials were tested in the laboratory to evaluate their engineering properties as a basis in providing recommendations for foundation design and earthwork construction. A brief description of testing procedures used in the laboratory can be found in Methods of Laboratory Testing, Section B-1 of the Appendix. Individual test results are presented on the Log of Boring or summary data sheets enclosed in the Appendix.

5.0 GENERAL SUBSURFACE CONDITIONS

Based on the Geological Atlas of Texas, Dallas Sheet, available from the Texas Bureau of Economic Geology, published by the University of Texas at Austin, as well as the boring results and our experience at the Vitruvian site, the project site is generally located on the contact between the Austin Chalk Formation and the underlying Eagle Ford Formation. The Austin Chalk consists of massive gray unweathered limestone, overlain by tan weathered limestone. Near-surface residual soils associated with the Austin Chalk generally consist of high plasticity clays and/or low to moderate plasticity calcareous clays. The Eagle Ford Formation is composed predominantly of shale with occasional platy beds of sandstone and limestone. Residual overburden soils associated with the Eagle Ford Formation generally consist of clay and shaly clay with very high shrink/swell potential. In full section the Eagle Ford Formation should be over 200 ft thick at this site.

Subsurface materials are highly variable and generally consist of clay (CH) and calcareous clay (CL) to depths of about 2 to 5 ft below existing grade underlain by alternating layers of tan weathered shaly limestone, gray shaly limestone, and/or clay (CH/CL) layers followed by deeper clay shale. Clay shale was encountered in Borings 3 through 6 and 9 at depths of about 11 to 23 ft below existing grade and extended to the boring termination depths (25 ft). The upper 2 to 4 ft of material in Borings 1 through 4, 6, 7, and 10 was visually classified as fill or possible fill material. The letters in parenthesis represent the soils' classification according to the Unified



Soil Classification System (ASTM D 2488). More detailed stratigraphic information is presented on the Log of Boring Sheets attached to this report.

Most of the subsurface materials are relatively impermeable and are anticipated to have a relatively slow response to water movement. Therefore, several days of observation will be required to evaluate actual groundwater levels within the depths explored. Also, the groundwater level at the site is anticipated to fluctuate seasonally depending on the amount of rainfall, prevailing weather conditions and subsurface drainage characteristics.

During the field explorations, free groundwater was encountered in the open boreholes upon completion of Borings 1 and 2 at depths of about 17 to 24 ft below the existing ground surface. No free groundwater was encountered in the other borings. It is common to detect seasonal groundwater from fill materials, from natural fractures within the clayey matrix, near the soil/rock (shaly limestone/clay shale) interface or from fractures in the rock, particularly during or after periods of precipitation. If more detailed groundwater information is required, monitoring wells or piezometers can be installed.

Further details concerning subsurface materials and conditions encountered can be obtained from the Log of Boring sheets provided in the Appendix of this report.

6.0 DESIGN RECOMMENDATIONS

The following design recommendations were developed on the basis of the previously described Project Characteristics (Section 2.0) and General Subsurface Conditions (Section 5.0). If project criteria should change, including the structure locations on the site our office should conduct a review to determine if modifications to the recommendations are required. Further, it is recommended our office be provided with a copy of the final plans and specifications for review prior to construction.

The following design criteria given in this report were developed assuming the at-grade floor slab for the planned building is constructed within 1 ft of existing grade as encountered during drilling operations. Substantial cutting and filling on the site (more than 1 ft) can alter the recommended foundation design parameters. Therefore, it is recommended our office be contacted before performing other cutting and filling on site to verify the appropriate design parameters are utilized for final foundation design.

It is our understanding the existing structures and pavement on the site will be removed prior to construction of the new facilities. Therefore, it is recommended any area disturbed during removal of the existing facilities be re-compacted in accordance with the recommendations provided in Section 7.3 of this report. All foundation elements of the existing facilities should be either removed or cut off at least 1 ft below finished grade or 1 ft below the new structural elements, whichever is deeper. All abandoned utility lines should be either removed or positively sealed to prevent possible water seepage into the subsurface clayey materials.

Considering the subsurface conditions encountered in the borings, the use of shallow spread footing foundations can be considered to support the proposed structures. The building floor slabs could bear on-grade following subgrade improvement to reduce



potential movement to 1 inch. As an alternative, the smaller pad site buildings could be supported on a slab foundation after subgrade improvement to reduce ground movements. If foundation movement is not acceptable, it will be necessary to support the building on drilled pier foundations. We would be pleased to discuss drilled piers if desired.

6.1 Existing Fill

As discussed in Section 5.0 of this report, existing fill or possible fill was encountered in Borings 1 through 4, 6, 7, and 10 to depths of about 2 to 4 ft below the existing ground surface. Fill could be encountered in other areas of the site that was not readily identified in the borings. If compaction records for this fill cannot be obtained, the existing fill should be considered as uncontrolled fill. Uncontrolled fill is not suitable for direct support of slab foundations. Considering the soil improvements required to reduce potential seasonal movements of foundations (as discussed below in Section 6.3), it is expected all of the existing fill soil would be over-excavated and replaced in the building pad areas. Pavement areas should be properly prepared and tested as discussed in Section 7.1 of this report.

Although not encountered at the borings, uncontrolled fill can contain large concrete pieces, rubble, organic material, wood, reinforcement steel, plastic and other debris. This debris is not suitable for reuse as replacement fill and should be removed from the site. Test pits could be performed prior to construction to assess the lateral extent, depth and nature of the existing fill. ALPHA TESTING would be pleased to assist with a test pit program if desired.

6.2 Shallow Spread Footing Foundations

The proposed structures could be supported by footings bearing on tan limestone. Retail buildings supported using shallow spread footings bearing on competent shaly limestone can be designed using an allowable bearing pressure of 3.5 kips per sq ft.

The above bearing pressure is applicable for footings bearing on limestone, encountered at depths of 2 to 4 ft below the existing ground surface. If it is desired to maintain a uniform foundation bearing elevation, the foundation over-excavation (after exposing the competent tan limestone) can be backfilled to the desired elevation with flexible base material. Flexible base requirements are contained in Section 7.3 of this report, below. Foundation over-excavations should extend laterally beyond the edge of the foundation a distance of at least one-half the thickness of the flexible base fill to be placed under the foundation.

Strip footing should have a least lateral dimension of 16 inches and individual spread footings should have a least dimension of 24 inches for bearing capacity considerations. Careful field inspection of footing excavations will contribute substantially to reducing foundation movements. Footings subject to lateral forces or overturning should be proportioned such that the soil reaction force on the base of the footing lies within the middle one-third of the footing width.



Foundations bearing on limestone will be subjected to total foundation movements of less than 1 inch. Careful field inspection of footing excavations should be performed by the construction testing laboratory which will contribute substantially to reducing foundation movements.

Careful monitoring during construction is necessary to locate any pockets or seams of unsuitable materials which might be encountered in excavations for footings. Unsuitable materials encountered at the foundation bearing level should be removed and replaced with either lean concrete (about 2,000 psi strength at 28 days), structural concrete, or backfill soils compacted to at least 98 percent of standard Proctor maximum dry density (ASTM D 698) and at a moisture content within 2 percentage points of the material's optimum moisture content.

Resistance to sliding will be developed by friction along the base of the footings and passive earth pressure acting on the vertical face of the footing and/or a key installed in the base of the footings, if required. We recommend a coefficient of base friction of 0.35 along the bottom of the footing bearing on limestone. The available passive earth resistance on the vertical face of the toe of the footing and a possible key installed in the base of the footing may be calculated using an allowable uniform passive earth pressure of 500 psf for footings or keys bearing laterally against undisturbed vertical cuts in either compacted clayey fill or native clay soils, and 1,500 psf against undisturbed cuts in limestone. Passive resistance on the vertical face of the footing within 1 ft of the final site grade should be neglected.

6.3 Subgrade Improvements for Floor Slabs

Our findings indicate floor slabs and adjoining flatwork cast on-grade could experience soil-related potential seasonal movements of about 2 ½ inches if constructed within 1 ft of existing grade.

The above potential seasonal movements were estimated in general accordance with methods outlined by the Texas Department of Transportation (TxDOT) Test Method Tex-124-E and engineering judgment and experience. Estimated movements were calculated assuming the moisture content of the in-situ soil within the normal zone of seasonal moisture content change varies between a "current" condition and a "wet" condition as defined by Tex-124-E. Also, it was assumed a 1 psi surcharge load from the footings, floor slabs or flatwork acts on the subgrade soils. Movements exceeding those predicted above could occur if positive drainage of surface water is not maintained or if soils are subject to an outside water source, such as leakage from a utility line or subsurface moisture migration from off-site locations.

We understand it is desired to reduce potential seasonal movements of the floor slabs to about 1 inch. Subsurface improvement can consist of over-excavating the existing clayey soils and moisture-conditioning the over-excavated soils, in conjunction with placement of a specified thickness of non-expansive material.



The extent and depth of this subgrade improvement method for the planned structures are summarized below in Table A. The subgrade improvement procedures are discussed in Section 6.3.1 below. In choosing these methods of slab foundation movement reduction, the Owner is accepting some post construction seasonal movement of the slab, about 1 inch.

TABLE A Resulting Estimated Potential Seasonal Movement = 1 inch	
SUBGRADE IMPROVEMENT METHOD TO REDUCE POTENTIAL SEASONAL MOVEMENTS TO 1 INCH	NON-EXPANSIVE MATERIAL, FT
Minimum Thickness of Non-Expansive Material In Conjunction with Moisture-Conditioned Soil Extending to the Top of Shaly Limestone (See Section 6.3.1)	*1

***Non-Expansive fill material** could consist of select fill (plasticity index 15 or less), or crushed stone flexible base material (meeting TxDOT Standard Specifications Item 247, Grade 1 or 2) and is described in Section 7.3.

The floor slab should be a "floating" slab (that is, fully ground supported and not structurally connected to walls or foundations). This reduces the risk of cracking and displacement of the floor slab due to differential movements between the slab and foundations. A floor slab doweled into perimeter grade beams can develop a plastic hinge (crack) parallel to and approximately 5 to 10 ft inside the building perimeter. The structural engineer should determine the need for connections between the slab and structural elements and determine if control joints to limit cracking are needed. A properly designed and constructed moisture barrier should be placed between the slab and subgrade soils to retard moisture migration through the slab.

6.3.1 Subgrade Improvement Utilizing Moisture-Conditioned Soil

Movements can be reduced to about 1 inch by placing at least 1 ft of non-expansive material between the bottom of the slab and the top surface of moisture-conditioned soil (below final grade) extending to the top surface of shaly limestone, encountered at depths of 2 to 4 ft in our borings.

Moisture conditioning consists of processing and compacting the specified minimum thickness of on-site soil at a "target" moisture content approximated to be at least 5 percentage points (with an upper limit of 7 percentage points) above the material's optimum moisture content as determined by the standard Proctor method (ASTM D 698). The moisture-conditioned soil should be placed in 8-in thick loose lifts and compacted to a dry density of 93 to 97 percent of standard Proctor maximum dry density. Moisture conditioning of the on-site soil should extend throughout the entire structure pad areas and adjoining flatwork, and at least 5 ft beyond the perimeter of the structure/flatwork. However, non-expansive fill material should not extend beyond the structure/flatwork. If paving is not planned adjacent to the structure/flatwork (i.e. above the moisture-conditioned soils), a moisture barrier consisting of a minimum of 10 mil plastic sheeting with 8 to 12 inches of soil cover



should be provided above the moisture conditioned soils. Moisture-conditioned soils should be maintained in a moist condition prior to placement of the required thickness of non-expansive material, plastic sheeting or flatwork. *Non-expansive fill material should not be placed above the plastic sheeting.*

The resulting estimated potential seasonal movements (about 1 inch) were calculated assuming the moisture content of the moisture-conditioned soil varies between the “target” moisture content and the “wet” condition while the deeper undisturbed in-situ soil within the normal zone of seasonal moisture content change varies between the “dry” condition and the “wet” condition as defined by methods outlined in TxDOT Test Method Tex-124-E.

Please note, it is the intent of the moisture-conditioning process described above to reduce the free swell potential of the moisture-conditioned soil to 1 percent or less. Additional laboratory tests (i.e., standard Proctors, absorption swell tests, etc.) should be conducted during construction to verify the “target” moisture content for moisture-conditioning (estimated at 5 percentage points above the material’s optimum moisture content as defined by ASTM D 698) is sufficient to reduce the free swell potential of the processed soil to 1 percent or less. In addition, it is recommended samples of the moisture-conditioned material be routinely obtained during construction to verify the free swell of the improved material is 1 percent or less.

Installation of moisture-conditioned soils should be monitored and tested on a full-time basis by a representative of ALPHA TESTING, INC., to verify the soils tested were placed with the proper lift thickness, moisture content, and degree of compaction.

6.4 Slab-on-Grade Foundations for Lightly Loaded Retail Buildings

As an alternate, buildings could be supported using a slab-on-grade foundation system designed for potential seasonal movements of 1 inch. As discussed in Section 6.3 above, slab foundations under current conditions will be subject to potential soil-related movements of about 2 inches. Subgrade improvements as described in Section 6.3 will be required to reduce slab foundation movements to 1 inch.

A slab-on-grade foundation should be designed with exterior and interior grade beams adequate to provide sufficient rigidity to the foundation system. A net allowable soil bearing pressure of 1.5 kips per sq ft may be used for design of all grade beams bearing on and properly placed and improved subgrade soils as outlined in Section 6.3. Grade beams should bear a minimum depth of 12 inches below final grade and should have a minimum width of 10 inches for bearing capacity considerations.

It is common to experience some minor cosmetic distress to structures with slab-on-grade foundation systems due to normal ground movements. To reduce cracking as normal movements occur in subgrade soils, all grade beams and the floor slab should be adequately reinforced with steel (conventional reinforcing steel and/or post-tensioned



reinforcement). A properly designed and constructed moisture barrier should be placed between the slab and subgrade soils to retard moisture migration through the slabs.

6.5 Flatwork

Flatwork, pavement and any other soil-supported building elements will be subjected to the same level of movement as discussed in Section 6.3 above. In any areas where post-construction movements of flatwork would be critical, flatwork should be structurally supported, or subgrade improvements as discussed in Section 6.3 should be considered.

6.6 Seismic Considerations

The Site Class for seismic design is based on several factors that include soil profile (soil or rock), shear wave velocity, and strength, averaged over a depth of 100 ft. Since our borings did not extend to 100-foot depths, we based our determinations on the assumption that the subsurface materials below the bottom of the borings were similar to those encountered at the termination depth. Based on Section 1613.3.2 of the 2012 International Building Code and Table 20.3-1 in the 2010 ASCE-7, we recommend using Site Class C (very dense soils and soft rock) for seismic design at this site.

6.7 New Area Pavement

Clay soils encountered near the existing ground surface will probably constitute the subgrade for most parking and drive areas. To permit correlation between information from test borings and actual subgrade conditions exposed during construction, a qualified Geotechnical Engineer should be retained to provide subgrade monitoring and testing during construction. If there is any change in project criteria, the recommendations contained in this report should be reviewed by our office.

Calculations used to determine the required pavement thickness are based only on the physical and engineering properties of the materials used and conventional thickness determination procedures. Pavement joining buildings should be constructed with a curb and the joint between the building and curb should be sealed. Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations, reinforcing steel, joint design and environmental factors will significantly affect the service life and must be included in preparation of the construction drawings and specifications, but all were not included in the scope of this study. Normal periodic maintenance will be required for all pavement to achieve the design life of the pavement system.

Please note, the recommended pavement sections provided below are considered the minimum necessary to provide satisfactory performance based on the expected traffic loading. In some cases, City minimum standards for pavement section construction may exceed those provided below.



6.7.1 Pavement Subgrade Preparation

In areas where clayey soils are exposed after final subgrade elevation is achieved, the exposed surface of the pavement subgrade soil should be scarified to a depth of 6 inches and mixed with a minimum 8 percent hydrated lime (by dry soil weight) in conformance with TxDOT Item 260. Assuming an in-place unit weight of 100 pcf for the pavement subgrade soils, this percentage of lime equates to about 36 lbs of lime per sq yard of treated subgrade. The actual amount of lime required should be confirmed by additional laboratory tests (ASTM C 977 Appendix XI) prior to construction. The soil-lime mixture should be compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698) and at least 3 percentage points above the mixture's optimum moisture content. In all areas where hydrated lime is used to stabilize subgrade soil, routine Atterberg-limit tests should be performed to verify the resulting plasticity index of the soil-lime mixture is at/or below 15.

It is recommended that pavement subgrade stabilization procedures extend at least 1 ft beyond the edge of the pavement to reduce effects of seasonal shrinking and swelling upon the extreme edges of pavement.

Lime stabilization of the pavement subgrade soil will not prevent normal seasonal movement of the underlying untreated materials. Pavement and other flatwork will have the same potential for movement as slabs constructed directly on the existing undisturbed soils. Therefore, good perimeter surface drainage with a minimum slope of 2 percent away from the pavement is recommended. The use of sand as a leveling course below pavement supported on expansive clays should be avoided. Normal maintenance of pavement should be expected over the life of the structures.

6.7.2 Portland Cement Concrete (PCC) Pavement

Following subgrade improvement as recommended in Section 6.7.1 above, the following PCC (reinforced) pavement sections are recommended.

TABLE I RECOMMENDED PCC PAVEMENT SECTIONS	
Paving Areas and/or Type	PCC Thickness, Inches
**Parking Areas Subjected Exclusively to Passenger Vehicle Traffic	5
Drive Lanes, Fire Lanes, Areas Subject to Light Volume Truck Traffic	6
Dumpster Traffic Areas	7

****Note:** Lime treatment of the pavement subgrade is not necessary for pavements subjected *exclusively* to passenger vehicle traffic, although lime treatment in these areas would be generally beneficial to the long-term performance of the pavement and improve constructability. Prior to construction of pavement on untreated clay subgrade soil, the exposed subgrade should be scarified to a depth of at least 6 inches and compacted to at



least 95 percent of standard Proctor maximum dry density (ASTM D 698) and within the range of 1 percentage point below to 3 percentage points above the material's optimum moisture content.

Portland-cement concrete should have a minimum compressive strength of 3,000 lbs per sq inch (psi) at 28 days in parking areas subjected exclusively to passenger vehicle traffic. We recommend a minimum compressive strength of 3,500 per sq inch (psi) at 28 days for the street, drive lanes, fire lanes, and truck areas. Concrete should be designed with 5 ± 1 percent entrained air. Joints in concrete paving should not exceed 15 ft. Reinforcing steel should consist of No. 3 bars placed at 18 inches on-center in two directions.

Alternately, mechanical lime stabilization of the pavement subgrade could be eliminated by increasing the PCC thickness in the pavement sections presented above by 1 inch. Prior to construction of pavement on untreated clay subgrade soil, the exposed subgrade should be scarified to a depth of at least 6 inches and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698) and within the range of 1 percentage point below to 3 percentage points above the material's optimum moisture content.

6.8 Drainage and Other Considerations

Adequate drainage should be provided to reduce seasonal variations in the moisture content of foundation soils. All pavement and sidewalks within 5 ft of the structures should be sloped away from the buildings to prevent ponding of water around the foundations. Final grades within 5 ft of the structures should be adjusted to slope away from the structures at a minimum slope of 2 percent. **Maintaining positive surface drainage throughout the life of the structures is essential.**

In areas with pavement or sidewalks adjacent to the new structures, a positive seal must be maintained between the structure and the pavement or sidewalk to minimize seepage of water into the underlying supporting soils. Post-construction movement of pavement and flat-work is common. Normal maintenance should include examination of all joints in paving and sidewalks, etc. as well as re-sealing where necessary.

Several factors relate to civil and architectural design and/or maintenance, which can significantly affect future movements of the foundation and floor slab system:

1. Preferably, a complete system of gutters and downspouts should carry runoff water a minimum of 5 feet from the completed structures.
2. Large trees and shrubs should not be allowed closer to the foundations than a horizontal distance equal to roughly one-half of their mature height due to their significant moisture demand upon maturing. Excessive drying of soils adjacent to the structure due to vegetation demands or insufficient watering during drought conditions can cause settlements to interior floor slabs and/or shallow footings beyond that indicated in this report.



3. Moisture conditions should be maintained "constant" around the edge of the slabs/footings. Ponding of water in planters, in unpaved areas, and around joints in paving and sidewalks can cause slab/footing movements beyond those predicted in this report.
4. Area paving and/or flatwork adjacent to the building is preferred over landscaping or planter boxes to help maintain relatively uniform moisture conditions beneath the interior slab and shallow footings. Planter box structures placed adjacent to the buildings should be provided with a means to assure concentrations of water are not available to the subsoil stratigraphy. Landscape areas adjacent to the structure should be contained or a vertical moisture barrier installed between the landscaping and structure. The vertical moisture barrier should extend to a depth at least 3 feet below expected root growth.
5. The root systems from existing trees at this site will have dried and desiccated the surrounding clay soils, resulting in soil with near-maximum swell potential. Clay soils surrounding tree root mats in building pad, paving, and flatwork areas should be removed to a minimum depth of 3 ft below the root mat and compacted in-place with moisture and density control as described in Section 7.3 of this report, below.

Trench backfill for utilities should be properly placed and compacted as outlined in Section 7.3 of this report and in accordance with requirements of local City standards. Since granular bedding backfill is used for most utility lines, the backfilled trench should not become a conduit and allow access for surface or subsurface water to travel toward the new structures. Concrete cut-off collars or clay plugs should be provided where utility lines cross building lines to prevent water from traveling in the trench backfill and entering beneath the structures.



7.0 GENERAL CONSTRUCTION PROCEDURES AND RECOMMENDATIONS

Variations in subsurface conditions could be encountered during construction. To permit correlation between test boring data and actual subsurface conditions encountered during construction, it is recommended a registered Professional Engineering firm be retained to observe construction procedures and materials.

Some construction problems, particularly degree or magnitude, cannot be anticipated until the course of construction. The recommendations offered in the following paragraphs are intended not to limit or preclude other conceivable solutions, but rather to provide our observations based on our experience and understanding of the project characteristics and subsurface conditions encountered in the borings.

7.1 Site Preparation and Grading

All areas supporting floor slabs, foundations, pavement, or areas to receive new fill should be properly prepared.

After completion of the necessary stripping, clearing, and excavating and prior to placing any required fill, the exposed soil subgrade should be carefully evaluated by probing and testing. Any undesirable material (organic material, wet, soft, or loose soil) still in place should be removed.

The exposed soil subgrade should be further evaluated by proof-rolling with a heavy pneumatic tired roller, loaded dump truck or similar equipment weighing approximately 20 tons to check for pockets of soft or loose material hidden beneath a thin crust of possibly better soil.

Proof-rolling procedures should be observed routinely by a Professional Engineer, or his designated representative.

Any undesirable material (organic material, wet, soft, or loose soil) exposed during the proofroll should be removed and replaced with well-compacted material as outlined in Section 7.3.

Prior to placement of any fill, the exposed soil subgrade should then be scarified to a minimum depth of 6 inches and recompact as outlined in Section 7.3.

If fill is to be placed on existing slopes (natural or constructed) steeper than six horizontal to one vertical (6:1), the fill materials should be benched into the existing slopes in such a manner as to provide a minimum bench-key width of five (5) feet. This should provide a good contact between the existing soils and new fill materials, reduce potential sliding planes, and allow relatively horizontal lift placements.

Slope stability analysis of embankments (natural or constructed) was not within the scope of this study.



The contractor is responsible for designing any excavation slopes, temporary sheeting or shoring. Design of these structures should include any imposed surface surcharges. Construction site safety is the sole responsibility of the contractor, who shall also be solely responsible for the means, methods and sequencing of construction operations. The contractor should also be aware that slope height, slope inclination or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state and/or federal safety regulations, such as OSHA Health and Safety Standard for Excavations, 29 CFR Part 1926, or successor regulations. Stockpiles should be placed well away from the edge of the excavation and their heights should be controlled so they do not surcharge the sides of the excavation. Surface drainage should be carefully controlled to prevent flow of water over the slopes and/or into the excavations. Construction slopes should be closely observed for signs of mass movement, including tension cracks near the crest or bulging at the toe. If potential stability problems are observed, a geotechnical engineer should be contacted immediately. Shoring, bracing or underpinning required for the project (if any) should be designed by a professional engineer registered in the State of Texas.

Due to the nature of the clayey soils found near the surface at the borings, traffic of heavy equipment (including heavy compaction equipment) may create pumping and general deterioration of shallow soils. Therefore, some construction difficulties should be anticipated during periods when these soils are saturated.

7.2 Foundation Excavations

All foundation excavations should be properly monitored to verify loose, soft or otherwise undesirable materials are removed and foundations will bear on satisfactory material. Soil exposed in the base of all foundation excavations should be protected against detrimental change in condition, such as surface sloughing or side disturbance, rain or excessive drying. Unsuitable or disturbed materials encountered at the foundation bearing level should be removed and replaced with either lean concrete (about 2,000 psi strength at 28 days), structural concrete, or select, non-expansive meeting the requirements of Section 7.3 below. In lieu of undercutting, disturbed materials at the foundation bearing surface less than about 6 inches thick could be recompacted in-place prior to placement of foundation concrete. Footing excavations exposing limestone should be cleaned and inspected by the testing laboratory prior to placing concrete.

Surface runoff should be drained away from excavations and not allowed to pond in the bottom of the excavation. If possible, all concrete for foundations should be placed on the same day the excavation is made. That is, the exposed foundation material should not be allowed to become excessively dry or wet before placement of concrete. The moisture content and condition of these soils should be maintained in a damp, but not wet, condition both during and after construction.



7.3 Fill Compaction

Materials used as select, non-expansive material should have a liquid limit less than 35, a plasticity index (PI) not less than about 4 nor greater than 15 and contain no more than 0.5 percent fibrous organic materials, by weight. All select material should contain no deleterious material and should be compacted to a dry density of at least 95 percent standard Proctor maximum dry density (ASTM D 698) and within the range of 1 percentage point below to 3 percentage points above the material's optimum moisture content. (Note: The plasticity index and liquid limit of material used as select, non-expansive material should be routinely verified during placement using laboratory tests. Visual observation and classification should not be relied upon to confirm the material to be used as select, non-expansive material satisfies the above Atterberg-limit criteria.).

Flexible base used as non-expansive fill in the building pad should consist of TxDOT Standard Specifications Item 247, Grades 1, 2 or 3, Types A, B, C, or D. The flexible base should be placed in loose lifts not exceeding 8 inches and compacted to a minimum of 95 percent of the material's maximum standard Proctor dry density, at a moisture content of -2 to +2 percentage points of the material's optimum moisture content.

Select fill or flexible base used within the building pad should not extend beyond the perimeter of the structure to prevent it from being a conduit of water beneath the structure.

The following recommendations pertain to soils placed as fill for general site grading and backfilling **outside** the building pad area. The fill in the building pad area should conform to the requirements above and in Section 6.3 of this report.

Clay and shaly clay soils with a plasticity index equal to or greater than 25 should be compacted to a dry density between 93 and 97 percent of standard Proctor maximum dry density (ASTM D 698). The compacted moisture content of the clays during placement should be within the range of 2 to 6 percentage points above optimum.

Clay and calcareous clay soils with a plasticity index equal less than 25 should be compacted to a dry density between 95 and 100 percent of standard Proctor maximum dry density (ASTM D 698). The compacted moisture content of the clays during placement should be within the range of 1 to 4 percentage points above optimum.

Clay fill should be processed and the largest particle or clod should be less than 6 inches prior to compaction.

Compaction should be accomplished by placing fill in about 8-inch thick loose lifts and compacting each lift to at least the specified minimum dry density. Field density and moisture content tests should be performed on each lift.

In cases where either mass fills or utility lines are more than 10 ft deep, the fill/backfill below 10 ft should be compacted to at least 98 percent of standard Proctor maximum dry density (ASTM D-698) and within 2 percentage points of the material's optimum



moisture content. The portion of the fill/backfill shallower than 10 ft should be compacted as outlined above.

Even if fill is properly compacted, fills in excess of about 10 ft are still subject to settlements over time of up to about 1 to 2 percent of the total fill thickness. This should be considered when designing utility lines under pavements and/or wall backfill.

7.4 Groundwater

Groundwater was encountered in Borings 1 and 2 at depths of about 17 to 24 ft below existing grade. From our experience, groundwater could be encountered at shallower depths and in other areas of the site during excavation for foundations, utilities, and other general excavation. The risk of encountering this seepage is increased during or after periods of precipitation. Standard sump pit and pumping procedures should be adequate to control seepage on a local basis. Where sump pits and pumping are not capable of controlling seepage, supplemental dewatering measures (such as, but not limited to, submersible pump in slotted casings and wellpoints) may be required.

In any areas where cuts made to establish final grades, attention should be given to possible seasonal water seepage that could occur through natural cracks and fissures in the newly exposed stratigraphy. Also, seasonal groundwater seepage could occur where limestone is at or near the final site grade and where it is exposed in slopes and cuts. In these areas subsurface drains may be required to intercept seasonal groundwater seepage. The need for these or other dewatering devices should be carefully addressed during construction. Our office could be contacted to visually observe final grades to evaluate the need for such drains.



8.0 LIMITATIONS

Professional services provided in this geotechnical exploration were performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. The scope of services provided herein does not include an environmental assessment of the site or investigation for the presence or absence of hazardous materials in the soil, surface water or groundwater. ALPHA, upon written request, can be retained to provide these services.

ALPHA TESTING, INC. is not responsible for conclusions, opinions or recommendations made by others based on this data. Information contained in this report is intended for the exclusive use of the Client (and their designated design representatives), and is related solely to design of the specific structures outlined in Section 2.0. No party other than the Client (and their designated design representatives) shall use or rely upon this report in any manner whatsoever unless such party shall have obtained ALPHA's written acceptance of such intended use. Any such third party using this report after obtaining ALPHA's written acceptance shall be bound by the limitations and limitations of liability contained herein, including ALPHA's liability being limited to the fee paid to it for this report. Recommendations presented in this report should not be used for design of any other structures except those specifically described in this report. In all areas of this report in which ALPHA may provide additional services if requested to do so in writing, it is presumed that such requests have not been made if not evidenced by a written document accepted by ALPHA. Further, subsurface conditions can change with passage of time. Recommendations contained herein are not considered applicable for an extended period of time after the completion date of this report. It is recommended our office be contacted for a review of the contents of this report for construction commencing more than one (1) year after completion of this report. Non-compliance with any of these requirements by the Client or anyone else shall release ALPHA from any liability resulting from the use of, or reliance upon, this report.

Recommendations provided in this report are based on our understanding of information provided by the Client about characteristics of the project. If the Client notes any deviation from the facts about project characteristics, our office should be contacted immediately since this may materially alter the recommendations. Further, ALPHA TESTING, INC. is not responsible for damages resulting from workmanship of designers or contractors. It is recommended the Owner retain qualified personnel, such as a Geotechnical Engineering firm, to verify construction is performed in accordance with plans and specifications.



APPENDIX



A-1 METHODS OF FIELD EXPLORATION

Using standard rotary drilling equipment, a total of ten (10) test borings were performed for this geotechnical exploration at the approximate locations shown on the Boring Location Plan, Figure 1. The test boring locations were staked by either pacing or taping and estimating right angles from landmarks which could be identified in the field and as shown on the site plan provided during this study. The locations of test borings shown on the Boring Location Plan are considered accurate only to the degree implied by the methods used to define them.

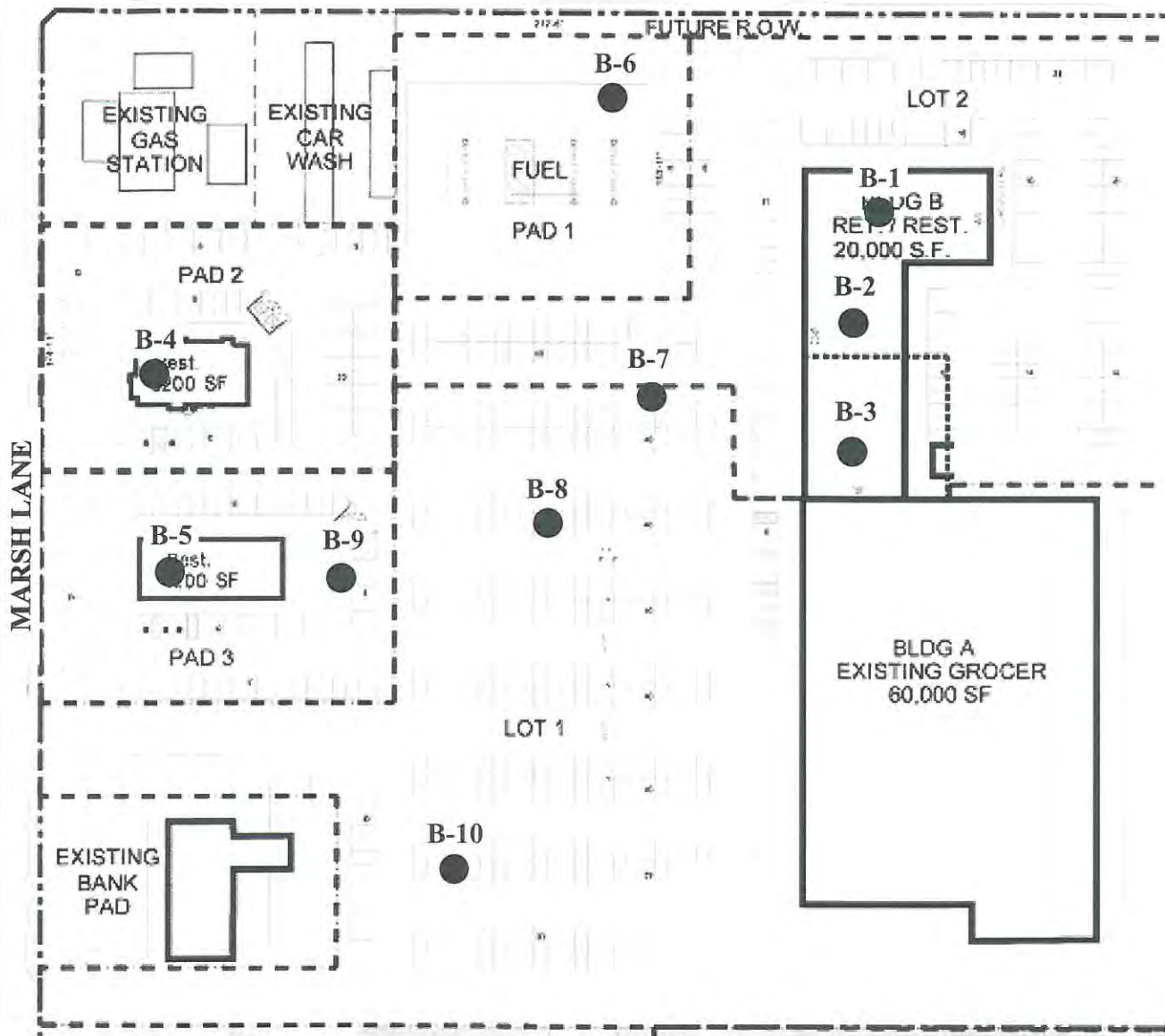
Relatively undisturbed samples of the cohesive subsurface materials were obtained by hydraulically pressing 3-inch O.D. thin-wall sampling tubes into the underlying soils at selected depths (ASTM D 1587). These samples were removed from the sampling tubes in the field and examined visually. One representative portion of each sample was sealed in a plastic bag for use in future visual examinations and possible testing in the laboratory.

Representative samples of the subsurface materials were also obtained employing split-spoon sampling procedures in general accordance with ASTM Standard D 1586. Disturbed samples were obtained at selected depths in the borings by driving a standard 2-inch O.D. split-spoon sampler 18 inches into the subsurface material using either a 170-pound hammer falling 24 inches or and a modified version of a 140-pound hammer falling 30 inches. The number of blows required to drive the split-spoon sampler the final 12 inches of penetration (N-value) is recorded in the appropriate column on the Log of Boring sheets.

Texas Department of Transportation Texas Cone Penetration (TCP) tests were completed in the field to determine the apparent in-place strength characteristics of the rock type materials. A 3-inch diameter steel cone driven by a 170-pound hammer dropped 24 inches is the basis for TxDOT strength correlations. Depending on the resistance (strength) of the materials, either the number of blows of the hammer required to provide 12 inches of penetration, or the inches of penetration of the cone due to 100 blows of the hammer are recorded on the field logs and are shown on the Log of Boring sheets as “TX Cone” (reference: TxDOT Test Method TEX 132-E).

Logs of all borings are included in the Appendix of this report. The logs show visual descriptions of subsurface strata encountered using the Unified Soil Classification System. Sampling information, pertinent field data, and field observations are also included. Samples not consumed by testing will be retained in our laboratory for at least 14 days and then discarded unless the Client requests otherwise.

SPRING VALLEY ROAD



● Approximate Boring Locations



Geotechnical Exploration
 Vitruvian Park - Proposed Retail
 Off Marsh Lane and Spring Valley Road
 Addison, Texas
 Alpha Project No. G152590

ALPHA TESTING
 WHERE IT ALL BEGINS

Boring Location Plan
 Figure 1



B-1 METHODS OF LABORATORY TESTING

Representative samples were evaluated and classified by a qualified member of the Geotechnical Division and the boring logs were edited as necessary. To aid in classifying the subsurface materials and to determine the general engineering characteristics, natural moisture content tests (ASTM D 2216), Atterberg-limit tests (ASTM D 4318) and dry unit weight determinations were performed on selected samples. In addition, pocket-penetrometer tests are conducted on selected soil samples to evaluate the soil shear strength. Results of all laboratory tests described above are provided on either the accompanying Log of Boring or summary data sheets as noted.

In addition to the Atterberg-limit tests, the expansive properties of some of the clay soils encountered were further analyzed by absorption swell tests. The swell test is performed by placing a selected sample in a consolidation machine and applying either the approximate current or expected overburden pressure and then allowing the sample to absorb water. When the sample exhibits very little tendency for further expansion, the height increase is recorded and the percent free swell and total moisture gain calculated. Results of the absorption swell test are provided on the Swell Test Data sheet, Figure 2 included in this appendix.

SWELL TEST DATA

Boring No.	1	2	3	4	5	6	8	9
Average Depth, ft	3	3	3	3	3	3	3	3
Dry Unit Weight, pcf	90	93	82	106	91	96	95	87
Liquid Limit	69	72	73	33	34	40	32	54
Plastic Limit	25	26	27	17	17	18	15	22
Plasticity Index	44	46	46	16	17	22	17	32
Initial Moisture Content	24%	23%	30%	15%	20%	25%	20%	22%
Final Moisture Content	31%	31%	35%	27%	29%	30%	27%	30%
Free Swell	1.3%	4.1%	0.3%	0%	0%	0%	0%	0%

Geotechnical Exploration
 Vitruvian Park - Proposed Retail
 Off Marsh Lane and Spring Valley Road
 Addison, Texas
 Alpha Project No. G152590



Swell Test Data
 Figure 2



PROJECT NO.: G152590

Hammer Drop (lbs / in): 170 / 24

[illegible]



PROJECT NO.: G152590

Hammer Drop (lbs / in): 170 / 24

[illegible]



PROJECT NO.: G152590

Hammer Drop (lbs / in): 170 / 24

[illegible]



LOG OF BORING NO.: 4
Sheet 1 of 1
PROJECT NO.: G152590

Client:	UCR Development	Location:	Addison, Texas
Project:	Vitruvian Park - Proposed Retail	Surface Elevation:	
Start Date:	11/9/2015	End Date:	11/9/2015
Drilling Method:	CONTINUOUS FLIGHT AUGER	West:	
		North:	
		Hammer Drop (lbs / in):	170 / 24

[illegible]



PROJECT NO.: G152590

Hammer Drop (lbs / in): 170 / 24

[illegible]











LOG OF BORING NO.: 6
Sheet 1 of 1
PROJECT NO.: G152590

[illegible]



PROJECT NO.: G152590

Hammer Drop (lbs / in): 170 / 24

Depth, feet	Graphic Log	GROUND WATER OBSERVATIONS		Sample Type	Recovery % RQD	TX Cone or Std. Pen. (blows/ft.in)	Pocket Penetrometer (tsf)	Unconfined Comp. Strength (tsf)	% Passing No. 200 Sieve	Unit Dry Weight (pcf)	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
		▽ On Rods (ft): _____ None	▼ After Drilling (ft): _____ Dry											
MATERIAL DESCRIPTION														
5		5" ASPHALT BASE	0.4											
		Brown CLAY with calcareous nodules and limestone fragments-FILL	2.0				3.5				23	76	28	48
		Tan Weathered SHALY LIMESTONE with clay seams and layers				50/ 4.5"								
			5.0			100/ 1.25"								
		TEST BORING TERMINATED AT 5 FT												
10														
15														
20														
25														
30														

Client: UCR Development
Project: Vitruvian Park - Proposed Retail
Start Date: 11/10/2015 End Date: 11/10/2015
Drilling Method: CONTINUOUS FLIGHT AUGER

Location: Addison, Texas
 Surface Elevation: _____
 West: _____
 North: _____
 Hammer Drop (lbs / in): 170 / 24

[illegible]



LOG OF BORING NO.: 9
Sheet 1 of 1
PROJECT NO.: G152590

Client:	UCR Development	Location:	Addison, Texas
Project:	Vitruvian Park - Proposed Retail	Surface Elevation:	
Start Date:	11/10/2015	End Date:	11/10/2015
Drilling Method:	CONTINUOUS FLIGHT AUGER	West:	
		North:	
		Hammer Drop (lbs / in):	170 / 24



















[illegible]

Client:	UCR Development	Location:	Addison, Texas
Project:	Vitruvian Park - Proposed Retail	Surface Elevation:	
Start Date:	11/9/2015	End Date:	11/9/2015
Drilling Method:	CONTINUOUS FLIGHT AUGER	West:	
		North:	
		Hammer Drop (lbs / in):	170 / 24






[illegible]

KEY TO SOIL SYMBOLS AND CLASSIFICATIONS

SOIL & ROCK SYMBOLS

	(CH), High Plasticity CLAY
	(CL), Low Plasticity CLAY
	(SC), CLAYEY SAND
	(SP), Poorly Graded SAND
	(SW), Well Graded SAND
	(SM), SILTY SAND
	(ML), SILT
	(MH), Elastic SILT
	LIMESTONE
	SHALE / MARL
	SANDSTONE
	(GP), Poorly Graded GRAVEL
	(GW), Well Graded GRAVEL
	(GC), CLAYEY GRAVEL
	(GM), SILTY GRAVEL
	(OL), ORGANIC SILT
	(OH), ORGANIC CLAY
	FILL

SAMPLING SYMBOLS

	SHELBY TUBE (3" OD except where noted otherwise)
	SPLIT SPOON (2" OD except where noted otherwise)
	AUGER SAMPLE
	TEXAS CONE PENETRATION
	ROCK CORE (2" ID except where noted otherwise)

RELATIVE DENSITY OF COHESIONLESS SOILS (blows/ft)

VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM	11 TO 30
DENSE	31 TO 50
VERY DENSE	OVER 50

SHEAR STRENGTH OF COHESIVE SOILS (tsf)

VERY SOFT	LESS THAN 0.25
SOFT	0.25 TO 0.50
FIRM	0.50 TO 1.00
STIFF	1.00 TO 2.00
VERY STIFF	2.00 TO 4.00
HARD	OVER 4.00

RELATIVE DEGREE OF PLASTICITY (PI)

LOW	4 TO 15
MEDIUM	16 TO 25
HIGH	26 TO 35
VERY HIGH	OVER 35

RELATIVE PROPORTIONS (%)

TRACE	1 TO 10
LITTLE	11 TO 20
SOME	21 TO 35
AND	36 TO 50

PARTICLE SIZE IDENTIFICATION (DIAMETER)

BOULDERS	8.0" OR LARGER
COBBLES	3.0" TO 8.0"
COARSE GRAVEL	0.75" TO 3.0"
FINE GRAVEL	5.0 mm TO 3.0"
COURSE SAND	2.0 mm TO 5.0 mm
MEDIUM SAND	0.4 mm TO 5.0 mm
FINE SAND	0.07 mm TO 0.4 mm
SILT	0.002 mm TO 0.07 mm
CLAY	LESS THAN 0.002 mm