ROCKWALL COUNTY, TEXAS
REQUEST FOR PROPOSAL FOR
CRENSHAW ROAD EAST PROJECT
RFP #001-03-26

RFP Due Date: May 1st, 2026

CONSTRUCTION SPECIFICATIONS
FOR

CRENSHAW ROAD EAST

WSB, LLC.
TEXAS FIRM REGISTRATION NUMBER F-16849
3522 SAM RAYBURN HWY.
MELISSA, TEXAS 75454

SECTION A - TABLE OF CONTENTS

PUBLIC NOTICE
Request for Proposals

Rockwall County invites the following:

Request for Proposals (RFP) for Crenshaw Road East Project for Rockwall County, Texas. Specifications are on file in the Rockwall County Auditor's office, 1101 East Yellowjacket Ln., Ste. 170, Rockwall, Texas 75087 and on the Rockwall County website: www.rockwallcountytexas.com/811/Requests-for-BidsProposals and Bidnet (bidnetdirect.com/texas/rockwallcounty).

Sealed submittals shall be marked on the outside "**001-03-26 Crenshaw Road East Project for Rockwall County, Texas**" to Lisa Constant Wylie, Rockwall County Auditor, 1101 East Yellowjacket Ln., Ste. 170, Rockwall, Texas 75087.

The deadline for RFP submission is Friday, May 1st, 2026 @ 10:00 AM Central Time.

Rockwall County reserves the right to accept or reject any and all submittals.
BY ORDER OF THE COMISSIONERS COURT
Rockwall County
Lisa Constant Wylie
Rockwall County Auditor

SECTION C - INSTRUCTION TO BIDDERS

1.0 Defined Terms

Terms used in the Instructions to Bidders which are defined in the General Provisions have the meanings assigned to them in the General Provisions. The term "Bidder" means one who submits a Bid directly to the Owner, as distinct from a sub-Bidder, who submits a Bid to a Bidder. The term "Successful Bidder" means the lowest responsible Bidder to whom the Owner makes an award. The term "Bidding Documents" includes the; Instructions to Bidders; the Bid proposal form; Construction Trade Requirements Assurance form; the General, Special, and Supplemental Conditions; Standard Specifications and Supplemental Specifications; Federal requirements; and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids), Contract Drawings and any documents referenced in the above. General Provisions and Specifications are included in the **Public Works Construction Standards – North Central Texas, Latest Edition** produced by the:

North Central Texas Council of Governments
616 Six Flags Drive, Centerpoint Two, Arlington, Texas, 76011
P.O. Box 5888
Arlington, Texas 76005-5888
817-640-3300

2.0 Copies of Bidding Documents

Complete sets of Bidding Documents can be downloaded from Bidnet (www.bidnetdirect.com/texas/rockwallcounty) and on the Rockwall County website (www.rockwallcountytexas.com/811/Requests-for-BidsProposals.). Copies of the **Public Works Construction Standards – North Central Texas (Latest Edition) and the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges – TxDOT 2024 Edition,** can be obtained from the North Central Texas Council of Governments, Arlington, Texas and TxDOT respectively. All inquiries regarding the meaning or interpretation of, or for any additional information of any Request for Proposal provision, must be submitted in writing via e-mail to Sherri Moreno, Assistant Auditor at smoreno@rockwallcountytexas.com. Verbal questions will not be entertained. All questions will be posted and answered on the County's website and Bidnet. Except for the submission of written questions or in response to requests from Rockwall County, firms shall refrain from contacting members of the Evaluation Committee, Commissioners Court, consultants, or other staff with respect to this RFP or the selection process.

3.0 Examination of Contract Documents and Site

3.1 The Contract Documents can be divided into four major portions:

- General Provisions of the Contract
- Technical Specifications
- Forms of the Contract
- Contract Drawings

Each of these parts is repetitive in nature from one contract to the next. For that reason, standards have been adopted to aid both in the preparation of documents and in the preparation of bids.

The General Provisions of the Contract are found in Division 100 of the **Public Works Construction Standards - North Central Texas**. These "General Provisions" do not always correspond to the needs of the County of Rockwall, or the specific projects being bid. Adaptations are included in sections of the bid package referred to as the Supplemental Conditions and the Special Conditions and Provisions.

Specifications for technical material and construction methods can be found in Divisions 200 through 800. These will need to be modified from time to time to fit the requirements of a particular project. The Special Conditions and Provisions of this document provide those modifications.

3.2 It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions which may affect cost, progress, performance or furnishing of the Work, (c) consider federal, state, and local laws and regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate the Bidder's observations with the Contract Documents, (e) notify the Engineer of any conflicts, errors or discrepancies in the Contract Documents, and (f) have possession of and be familiar with the **Public Works Construction Standards – North Central Texas** as revised and updated, latest revision and the **Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges – TxDOT 2024 Edition**. All inquiries regarding the meaning or interpretation of, or for any additional information of any Request for Proposal provision, must be submitted in writing via e-mail to Sherri Moreno, Assistant Auditor at smoreno@rockwallcountytexas.com.

3.3 Information and data reflected in the Contract Documents with respect to underground facilities at or contiguous to the site is based upon information and data furnished to the Owner and Engineer by owners of such underground facilities or others, and Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided in the Special Conditions and Provisions. The Contractor is responsible for observing meters, valves, manholes, and other surface appurtenances related to the underground facilities and probe ahead of excavation to locate underground facilities that may interfere with the work. Call Texas811 for locates before excavating. Any damage to underground facilities will be repaired at the expense of the Contractor.

4.0 Interpretation and Addenda

4.1 All inquiries regarding the meaning or interpretation of, or for any additional information of any Request for Proposal provision, must be submitted in writing via e-mail to Sherri Moreno, Assistant Auditor at smoreno@rockwallcountytexas.com. Verbal questions will not be entertained. All questions will be posted and answered on the County's website and Bidnet. Except for the submission of written questions or in response to requests from Rockwall County, firms shall refrain from contacting members of the Evaluation Committee, Commissioners Court, consultants, or other staff with respect to this RFP or the selection process.

4.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by the Owner or Engineer.

4.3 In the event an Addendum is issued, the Addendum shall be signed and returned with the Bid proposal form. Failure to submit a signed addenda will be cause for rejection of bid.

5.0 Bid Security

5.1. Each Bid must be accompanied by a bid security made payable to the Owner in an amount of not less than 5% of the Bidder's maximum bid price and in the form of either a cashier's check, certified check, or a Bid Bond as specified in the General Provisions. Bid Bonds furnished must be in general agreement with the provisions of the form provided. **Bid security shall be placed at the beginning of the submitted bid package or the bid may not be accepted.** Item 102.5 of the General Provisions contains further information about bid securities.

6.0 Substitute or "Or-Equal" Items

6.1 The materials and equipment described in the bidding documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered unless a written request for approval has been submitted by the Bidder and has been received at least seven (7) working days prior to the date for receipt of bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. The burden of proof of merit of the proposed substitute is upon the Bidder.

6.2 The Engineer's decision of approval or disapproval of a proposed substitution shall be final. If the Engineer approves any proposed substitution, such approval will be set forth in an addendum issued to all prospective Bidders. Bidders shall not rely on approvals made in any other manner.

7.0 Bid Proposal Form

7.1. The Bid Proposal Form is included with the Bidding Documents. For additional copies of items, reference Bidnet and the Rockwall County website.

7.2. All blanks on the Bid Proposal Form should be completed in ink or typed. Any changes shall be initialed.

7.3 In the event alternate Proposals are presented in the Bid Proposal Form, Bidders may submit a bid for any one of or all of the separate sections defined.

7.4 The unit price shall be written in words (not figures) in the "description" column. The amount in figures and the total amount in figures should be placed in the appropriate column. Discrepancies in the multiplication of units of work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated total of any column of figures and the correct sums thereof will be resolved in favor of the correct sums. Discrepancies between written amounts and figures shall be resolved in favor of the written amounts.

8.0 Submission of Bids

8.1 Bids shall be submitted at the time and place indicated in the Legal Notice Advertisement for Bids and shall be enclosed in a sealed envelope or package, marked with the bid number, project title, and name and address of the Bidder and shall be accompanied by the bid security and other related documents. If the bid is sent through the mail or other delivery system, the

sealed envelope shall be enclosed in a separate envelope with the notation "Bid enclosed" on the face of it.

9.0 Opening of Bids and Award of Contract

9.1 Bids will be opened and read aloud publicly.

9.2 The Owner 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 to negotiate contract terms with the successful Bidder inside the limits established by statute. The Owner reserves the right to disregard all nonconforming, nonresponsive, unbalanced, or conditional bids. Owner reserves the right to reject the bid of any Bidder if Owner believes 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 Owner within the constraints of state statute.

10.0 Work Schedule

A general schedule laying out the forecasted time to completion is required to be submitted with the bid documents. Upon contract award, a written Notice to Proceed will be issued to the contractor. Work shall begin within the 10 calendar days following the notice.

Bid Checklist

Please include the following items with the bid proposal. Refer to the Instructions to Bidders for detailed information regarding the information on this Bid Checklist.

1) _____ Read Instructions to Bidders section

2) _____ Completed and signed Bid Proposal Forms

3) _____ OSHA safety forms

4) _____ Proposal Guaranty

5) _____ Qualification Questionnaire

6) _____ Surety company information

7) _____ List of similar completed projects

8) _____ Bidder's work force and equipment summary

9) _____ List of Bidder's projects currently under construction

10)_____ List of Bidder's projects currently under contract

11)_____ Addenda

12)_____ Key personnel information

13)_____ List of Contract Exceptions, if applicable

14)_____ Pre-bid meeting summary, if applicable

15)_____ Proposed RPLS information

16)_____ Proposed Project Duration

SECTION D – QUALIFICATION QUESTIONNAIRE

Complete the following questions and return with bid:

1. Read in its entirety, Division 100 General Provisions of the Public Works Construction Standards, Supplemental Conditions, Contract Special Conditions and Provisions, and Technical Specifications within the Bid Documents.

   I hereby certify that I have read and made any and all investigations necessary to fully understand Division 100 General Provisions of the Public Works Construction Standards – North Central Texas, Latest Edition, Supplemental Conditions, and Contract Special Conditions and Provisions within the Bid Documents.

   _____

   _____

   _____
   Printed Company Name and Address

   _____
   Printed name, signature of a duly authorized officer or agent of the Bidder's company, and date.

2. Safety record (102.4.1) - The County of Rockwall hereby notifies all prospective bidders that the safety record of a bidder may be considered in determining the responsibility of the bidder. Submit bidder's Summary of Work Related Injuries and Illnesses (OSHA's Form 300A) for the last three years and a copy of the bidder's Log of Work-Related Injuries and Illnesses (OSHA's Form 300) for last year with column B blacked-out.

3. Bidder Background Information:

   I. Is the bidder or bidder's surety currently in any litigation against the County of Rockwall? If yes, please explain:

   _____

   _____

   _____

   II. Is the bidder or bidder's surety currently in any litigation against WSB, LLC.? If yes, please explain:

   _____

   _____

   _____

III. Is the bidder or his surety contemplating litigation against the County of Rockwall or is litigation against the County of Rockwall imminent? If so, please explain:

_____

_____

_____

IV. Is the bidder or his surety contemplating litigation against WSB, LLC. or is litigation against WSB, LLC. imminent? If so, please explain:

_____

_____

_____

V. The bidder may be disqualified if, in the sole opinion of the County of Rockwall, the County of Rockwall believes that litigation between the County of Rockwall and the Bidder is imminent.

VI. Has the bidder had any claims on any of its bonds in the past three years? If so, please explain:

_____

_____

_____

VII. Attach name, contact information, and authorization from bidder for each surety to release information to the County of Rockwall for all surety companies used by the bidder in the past three years. If the County of Rockwall cannot obtain information from a bidder's surety, the bid may be deemed non-responsive by the County of Rockwall.

VIII. Is the bidder in arrears on any existing contract? If so, explain and provide client contact information.

_____

_____

_____

IX. Has the bidder defaulted on any previous contract? If so, explain and provide client contact information.

_____

_____

_____

X. Has the bidder ever failed to make payments due to any subcontractor, vendor, or employee? If so, please explain.

_____

_____

_____

XI. Is the bidder a defendant in any lawsuit for failure to make payments to any subcontractor, vendor, or employee? If so, please explain and provide contact information for plaintiff in the lawsuit?

_____

_____

_____

XII. Is the bidder in litigation with regard to any current or past contracts? If so, please explain and provide client contact information.

_____

_____

_____

XIII. Bidder may be disqualified by the County of Rockwall for uncompleted work which, in the sole judgment of the County of Rockwall, could prevent or hinder the prompt completion of this project, if awarded.

(1) Attach a list of projects similar in scope and size completed in past three years. Include the name of the Bidder's project manager and project superintendent and client contact information.

(2) Attach a summary of the Bidder's work force and equipment owned or leased.

(3) Attach a summary of current projects under construction including total contract value, total estimated schedule, percent complete, client contact information (client name, client contact, phone number, e-mail address, physical address)

(4) Attach a summary of projects currently under contract, but not under construction with contract value, estimated start and finish dates, client contact information (client name, client contact, phone number, e-mail address, physical address)

(5) Estimate the percentage of work proposed to be completed by bidder's own work force and to be subcontracted.

_____

_____

4. Provide the names and contact information for the following key project personnel proposed for the project. The key personnel named in this proposal shall be assigned to this project until completion, except as otherwise provided in Section 105.6 of the General Provisions.

   a. Proposed Contract Manager – bidder's representative with authority to execute contracts on behalf of the bidder

      _____

      _____

   b. Proposed Project Manager

      _____

      _____

   c. Proposed Field Superintendent, attach resume and references

      _____

      _____

   d. Project Scheduler and Project Controller

      _____

      _____

5. Designate an address, fax number, and e-mail address where all notices, directions or other communications may be delivered, refer to section 105.8 of the General Provisions.

_____

_____

_____

6. Exceptions – Summarize and attach all contract exceptions proposed by the Bidder. Contract exceptions shall be cited by exact section, paragraph, etc. along with proposed alternative contract language, as applicable. The County of Rockwall reserves the right to reject any and all contract exceptions and award a contract with original contract terms and conditions. The County of Rockwall may, at the County's sole discretion, disqualify a bid submitted with any contract exceptions. Does the bidder have any exceptions to the Contract?

   _____ If so, please attach List of Contract Exceptions.

7. County may contact apparent low responsive bidder(s) during proposal evaluation to seek clarification of the Bidder's proposal or request additional information. Failure of Bidder to provide additional information or clarification of Bidder's proposal in writing to the County of Rockwall in a timely fashion may, in the County of Rockwall's sole discretion, result in the bidder being deemed non-responsive by the County of Rockwall. Additional information that the County of Rockwall may request includes financial statements for previous year(s);

8. Horizontal and vertical control monuments for the project are provided as shown on the Plans. Contractor shall retain the services of a registered professional land surveyor to establish all lines, grades, benchmarks, centerlines and measurements necessary for the proper performance and control of the work. Contractor shall submit the name, address, phone number, and RPLS registration number of the contractor's proposed RPLS.

_____

_____

SECTION E - BID PROPOSAL FORM

Proposal of _____
hereinafter called the "Bidder."

To: Whom it may concern,
County of Rockwall, Texas

Gentlemen:

The Bidder, in compliance with your Legal Notice Advertisement for Bids for CRENSHAW ROAD EAST, having thoroughly examined the plans, specifications, Instructions to Bidders, Legal Notice Advertisement for Bids, and all of the other related contract documents as amended by proper addenda, and the site(s) of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies; and to construct the project in accordance with the plans, specifications and contract documents, as amended by proper addenda, in accordance with the time set forth therein and at the prices stated in Attachment A.

The Bidder confirms that the General Provisions and the standard specifications for this contract are located in the **Public Works Construction Standards – North Central Texas, Latest Edition and the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges – TxDOT 2024 Edition**.

Accompanying this Bid Proposal is a cashier's check, certified check, or acceptable bid bond (in general agreement with the provisions of the form provided) in the total amount of $_____(not less than five percent of the maximum amount Bid) made payable to the County of Rockwall, Texas. The bid security will be returned to the Bidder unless, in case of award, the undersigned fails to execute a contract and file the required bonds and insurance within ten (10) calendar days of the date of receipt of a written Notice of Award, in which case it shall be retained by the Owner as liquidated damages due to delay and other inconveniences suffered by the Owner as a result of such failure on the part of the Bidder.

It is understood that the County of Rockwall reserves the right to reject any or all bids.

It is understood that the quantities of work to be done at unit prices indicated on Attachment A are approximate only and are intended principally to serve as a guide in evaluating bids. It is further agreed that, subject to the constraints of the General Provisions, the quantities of work to be done and materials to be furnished at the unit prices bid may be increased or decreased as may be considered necessary, in the opinion of the Engineer, to complete the work fully as planned and contemplated, and that all quantities of work, whether increased or decreased are to be performed at the unit prices set forth except as provided for in the General Provisions.

Bidder hereby agrees to commence work under this contract within ten (10) calendar days of the date specified in a written "Notice to Proceed", and to complete the project within the number of calendar days proposed by the bidder on the Bid Proposal Form.

In the event of the award of a contract to the undersigned by the County of Rockwall, Texas, the undersigned will furnish Performance and Payment Bonds in the amount required, to secure proper compliance with the terms and provisions of the contract, to guarantee and insure the work until final completion and acceptance and to guarantee payment of all lawful claims for labor performed and materials furnished in the fulfillment of the contract.

The Bidder has examined copies of all the Bidding Documents and of the following Addenda if applicable (receipt of which is hereby acknowledged):

Dated	Received	Number
_____	_____	No. 1
_____	_____	No. 2
_____	_____	No. 3
_____	_____	No. 4

SECTION E - BID PROPOSAL FORM - ATTACHMENT A BID PROPOSAL: CRENSHAW ROAD EAST COUNTY OF ROCKWALL, TEXAS						
ITEM NO.	**DESCRIPTION / UNIT PRICE**	**SPEC. REF.**	**TOTAL EST.**	**UNIT**	**UNIT PRICE**	**TOTAL AMT.**
G1	Mobilization, including all necessary activities specified in 200, for protection of site, work, and existing utilities and trees in right-of-way and easements as designated in the project drawings, complete and in place, for the amount of: _____ _____ dollars and _____cents per lump sum paid out in equal payments for the duration of the project.	NCTCOG 200	1	LS	$ -	$ -
G2	Comprehensive Site Preparation and Protection, including all necessary activities specified in 203.1, for protection of site, work, and existing utilities and trees in right-of-way and easements as designated in the project drawings, complete and in place, for the amount of: _____ _____ dollars and _____cents per lump sum paid out in equal payments for the duration of the project.	NCTCOG 203.1	1	LS	$ -	$ -
G3	Barricades, Signs, and Traffic Control, including all necessary activities specified in 801.1 and TxDOT Item #502, as designated in the project drawings, complete and in place, for the amount of: _____ _____ dollars and _____cents per lump sum paid out in equal payments for the duration of the project.	NCTCOG 801.1, TxDOT Item #502	1	LS	$ -	$ -
G4	Remove street sign ssembly, for the amount of: _____ _____ dollars and _____ cents per each.	NCTCOG 203.1	18	EA	$ -	$ -
G5	Remove and relocate NTMWD sign, for the amount of: _____ _____ dollars and _____ cents per each.	NCTCOG 203.1	1	EA	$ -	$ -
G6	Remove barbed wire fence, for the amount of: _____ _____ dollars and _____ cents per linear foot.	NCTCOG 203.1	4,631	LF	$ -	$ -
G7	Remove and replace barbed wire fence, for the amount of: _____ _____ dollars and _____ cents per linear foot.	NCTCOG 203.1	278	LF	$ -	$ -
G8	Remove existing asphalt pavement, for the amount of: _____ _____ dollars and _____ cents per square yard.	NCTCOG 203.1	307	SY	$ -	$ -
G9	6" Concrete Driveway, including necessary grading, complete and in place for the amount of: _____ _____ dollars and _____ cents per square yards.	NCTCOG 303	489	SY	$ -	$ -
G10	Barbed wire fence, complete and in place for the amount of: _____ _____ dollars and _____ cents per linear foot.	TxDOT Item #552	9,943	LF	$ -	$ -

G11	16' gate, complete and in place for the amount of: _____ _____ dollars and _____ cents per each.	TxDOT Item #552	11	EA	$ -	$ -
G12	20' gate, complete and in place for the amount of: _____ _____ dollars and _____ cents per each.	TxDOT Item #552	1	EA	$ -	$ -
G13	24' double chain link gate to be approved by NTMWD, complete and in place for the amount of: _____ _____ dollars and _____ cents per each.		1	EA	$ -	$ -
G14	Unclassified street excavation as specified in NCTCOG 203.2, for the amount of: _____ _____ dollars and _____ cents per cubic yard.	NCTCOG 203.2	8,703	CY	$ -	$ -
G15	Embankment as specified in NCTCOG 203.2, for the amount of: _____ _____ dollars and _____ cents per cubic yard.	NCTCOG 203.2	11,922	CY	$ -	$ -
P1	8" lime treated subgrade, complete and in place, for the amount of: _____ _____ dollars and _____ cents per square yard.	NCTCOG 301.2	18,907	SY	$ -	$ -
P2	Lime material (6% ~48 LBS/SY), complete and in place, for the amount of: _____ _____ dollars and _____ cents per TON.	NCTCOG 301.2	454	TON	$ -	$ -
P3	6" concrete driveway, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 303	577	SY	$ -	$ -
P4	3/4" crushed limestone gravel driveway, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 301	516	SY	$ -	$ -
P5	8" reinforced concrete pavement, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 303	17,781	SY	$ -	$ -
P6	25' B-B 8" reinforced concrete pavement w/ curb, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 303, 305.1	278	SY	$ -	$ -
P7	6" reinforced concrete surface crossing, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 303, 305	120	SY	$ -	$ -
P8	8" type C HMAC pavement, complete and in place, for the amount of: _____ _____dollars and _____ cents per TON.	NCTCOG 302	327	TON	$ -	$ -
P9	Metal beam guard fence, for the amount of: _____ _____ dollars and _____ cents per linear foot.	TxDOT Item #540	1,090	LF	$ -	$ -

P10	Small street sign assembly, complete and in place for the amount of: _____ _____ dollars and _____ cents per each.	TxDOT Item #644	15	EA	$ -	$ -
P11	24" (W) stop bar, complete and in place for the amount of: _____ _____ dollars and _____ cents per linear foot.	TxDOT Item #666, #668	30	LF	$ -	$ -
P12	4" (W) reflective pavement markings, complete and in place for the amount of: _____ _____ dollars and _____ cents per linear foot.	TxDOT Item #666, #668	13,669	LF	$ -	$ -
P13	4" (Y)(DBL) reflective pavement markings, complete and in place for the amount of: _____ _____ dollars and _____ cents per linear foot.	TxDOT Item #666, #668	6,829	LF	$ -	$ -
P14	Raised pavement markings TY A-A, complete and in place for the amount of: _____ _____ dollars and _____ cents per linear foot.	TxDOT Item #666, #668	6,829	LF	$ -	$ -
D1	18" CLASS III RCP, complete and in place for the amount of: _____ _____ dollars and _____ cents per linear foot.	NCTCOG 508.3	135	LF	$ -	$ -
D2	18" safety end treatment PSET-SC, complete and in place for the amount of: _____ _____ dollars and _____ cents per each.	NCTCOG 508.3, TxDOT Item #467	4	EA	$ -	$ -
D3	18" safety end treatment PSET-SP, complete and in place for the amount of: _____ _____ dollars and _____ cents per each.	NCTCOG 508.3, TxDOT Item #467	2	EA	$ -	$ -
D4	12" Stone Rip Rap (24" depth), complete and in place for the amount of: _____ _____ dollars and _____ cents per square yard.	NCTCOG 808.3, TxDOT Item #432	1,775	SY	$ -	$ -
E1	Erosion Control and SWPPP (excluding silt fence) as specified in 202, complete and in place for the amount of: _____ _____ dollars and _____ cents per lump sum.	NCTCOG 202	1	LS	$ -	$ -
E2	Installation and maintenance of Silt Fence, as specified herein, complete and in place, for the amount of: _____ _____ dollars and _____ cents per linear foot.	NCTCOG 202.5	13,449	LF	$ -	$ -
E3	Block sodding on all areas of non-farmland disturbed during the project, to be applied in the specified manner, and methods to comply with NCTCOG section 204.5 complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 204.5, TxDOT Item #162	5,763	SY	$ -	$ -

E4	Seeded Curlex on all areas of non-farmland disturbed during the project, to be applied in the specified manner, and methods to comply with NCTCOG section 204.6 complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 204.6, TxDOT Item #164	31,053	SY	$ -	$ -
E5	Hydromulch on all areas of non-farmland disturbed during the project, to be applied in the specified manner, and methods to comply with NCTCOG section 204.6 complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	NCTCOG 204.6, TxDOT Item #164	16,067	SY	$ -	$ -
6005	Cement stabilized backfill, complete and in place, for the amount of: _____ _____dollars and _____ cents per cubic yard.	TxDOT Item #400	73	CY	$ -	$ -
6004	Drilll Shaft (36") complete and in place, for the amount of: _____ _____dollars and _____ cents per linear foot.	TxDOT Item #416	2,922	LF	$ -	$ -
6013	Class C concrete (abutment), complete and in place, for the amount of: _____ _____dollars and _____ cents per cubic yard.	TxDOT Item #420	41	CY	$ -	$ -
6029	Class C concrete (cap), complete and in place, for the amount of: _____ _____dollars and _____ cents per cubic yard.	TxDOT Item #420	258	CY	$ -	$ -
6037	Class C concrete (column), complete and in place, for the amount of: _____ _____dollars and _____ cents per cubic yard.	TxDOT Item #420	143	CY	$ -	$ -
6023	Shear key, complete and in place, for the amount of: _____ _____dollars and _____ cents per cubic yard.	TxDOT Item #422	13	CY	$ -	$ -
6001	Reinforced concrete slab, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	TxDOT Item #422	51,680	SF	$ -	$ -
6015	Approach slab, complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	TxDOT Item #422	62	CY	$ -	$ -
6036	Prestressed concrete girder (TX34), complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	TxDOT Item #425	6,042	LF	$ -	$ -
6023	Rail (TY SSTR) (SLOTTED), complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	TxDOT Item #450	3,076	LF	$ -	$ -
6018	Sealed expansion joint (SEJ-M) (4 IN), complete and in place, for the amount of: _____ _____dollars and _____ cents per square yard.	TxDOT Item #454	230	LF	$ -	$ -

TOTAL BID: $ _____

Schedule Proposal:

Contractor agrees to perform all work within _____ calendar days from the notice to proceed issue date.

The proposed schedule may be used to assess liquidated damages in accordance with Section 108.8 of the General Provisions should the contractor fail to complete the project in the time specified in this proposal.

Selection Criteria:

The lowest responsible bidder will be chosen, in a manner solely determined by the Owner, based on a combination of the bidder's qualifications statements submitted with the bid, prices listed in the proposal, and bidder's proposed schedule.

The undersigned certifies that the bid prices shown on Attachment A have been carefully checked *and* are submitted as correct and final.

All addenda have been signed and submitted with the bid proposal.
The address indicated below will be used for all correspondence in relation to this contract unless otherwise noted.

Bid Submitted By:

_____
Contractor:

_____
Contractor's Representative (Printed)

_____
Contractor's Representative (Signature)

Seal
(If Corporation)

_____
Title

_____
Street Address

ATTEST:

_____
Secretary

_____
City and State

_____
Telephone No.

NOTE: Powers of attorney authorizing agents to sign the proposal must be certified, must be in writing and must accompany this proposal.

SECTION F - BID BOND

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

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

SIGNED, **SEALED** and **DATED** this _____day of_____ 20__

WHEREAS, the Principal is herewith submitting its proposal for_____ _____
the condition of the above obligations are such that if the aforesaid Principal shall be awarded the Contract, the said Principal will, within the time required, enter into a Contract and give Bonds, if required, for the faithful performance of the Contract and the prompt payment for labor and materials in the prosecution thereof, then this obligation shall be null and void; otherwise the Principal and Surety will pay unto the OWNER the full penal sum hereof, as liquidated damages, it being difficult and impractical to determine accurately the actual amount of damages occurring to OWNER by reason of Principal's failure to execute said Contract and Bonds.

PROVIDED FURTHER, that if any legal action be filed upon this Bond, venue shall lie exclusively in **ROCKWALL** County, Texas.

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone number: _____

WITNESS

_____

PRINCIPAL

_____

Printed/Typed Name:_____

Title:_____

Company:_____

Address:_____

_____

_____

WITNESS

_____

SURETY

_____

Printed/Typed Name:_____

Title:_____

Company:_____

Address:_____

_____

_____

SECTION G - NOTICE OF AWARD

TO: _____

_____

_____

_____

_____

Project known as Crenshaw Road East, described as follows: approximately 1.3 miles of two-lane concrete roadway including approximately 1500 linear feet of bridge, grading improvements, drainage improvements, and an asphalt transition.

The OWNER has considered the bid submitted by you for the above described work in response to its Legal Notice Advertisement for Bids and Instructions to Bidders.

You are hereby notified that your bid has been accepted in the amount of $ _____.

You are required to execute the contract and furnish the required Contractor's Performance and Warranty, and Payment Bonds within ten (10) calendar days from the date of this notice to you.

If you fail to execute said contract and to furnish said bonds within ten (10) calendar days from the date of this notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

Please return an acknowledged copy of this Notice of Award to the OWNER.

Dated this ___ day of _____ , 2026.

County of Rockwall
(Owner)

By_____

Title _____

_____
(Owner Signature)

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

_____

this the ____ day of _____, 2026

By _____

Title _____

Signature_____

SECTION H – STANDARD CONSTRUCTION CONTRACT

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

THIS CONTRACT is made and entered into on this the _____ day of _____, 2026, by and between the County of Rockwall, Texas, (hereinafter referred to as "Owner") and _____, (hereinafter referred to as "Contractor"). In consideration of the mutual covenants hereinafter set forth, the Owner and Contractor agree as follows:

Article I. Work

The Contractor shall perform all of the work as specified in the Contract Documents. The work is generally described as follows: The Base Bid consists of approximately 1.3 miles of two-lane concrete roadway including approximately 1500 linear feet of bridge, grading improvements, drainage improvements, and an asphalt transition, as shown on the plans prepared by WSB, LLC. titled “Crenshaw Road East”, dated February 2026.

Plans and Specifications prepared by:	WSB, LLC. 3522 Sam Rayburn Hwy Melissa, TX 75454

All work shall be performed as specified or indicated in the Contract Documents; and, at the Contractor's own cost and expense, the Contractor shall furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services as may be necessary in order to complete the construction, as described above and in accordance with the Contract Documents unless otherwise agreed to by the Owner.

Article II. Contract Documents

The Contract Documents may only be altered, amended or modified as provided in the General Provisions. The Contract Documents consist of: this written agreement setting forth the work to be performed; advertisement, if any; instructions to bidders, if any; proposal; addenda; specifications, including the general, special, and technical conditions, provisions, plans, or working drawings; any supplemental changes or agreements pertaining to the work or materials therefore; bonds; the Public Works Construction Standards published by the North Central Texas Council of Governments, latest edition; the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges published by TxDOT, latest edition, as amended; and any additional documents incorporated by reference. These form the Contract Documents, and all are as fully a part of the Contract as if attached to this agreement or repeated herein.

Article III. Contract Time

The Contractor shall perform and complete all the items of work listed and referred to in the Contract Documents within _____ calendar days.

Article IV. Contract Price

The Owner shall pay the Contractor _____ for completion of the work in accordance with the Contract Documents using current funds. Such payments shall be subject to the General and Special Conditions to the Contract, as contained in the Contract Documents.

Article V. Miscellaneous Provisions

The terms used in this Contract shall have the same meaning as designated in the General Provisions of the Public Works Construction Standards, North Central Texas Council of Governments, latest edition and the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges published by TxDOT, latest edition. The Contract Documents, which constitute the entire agreement between the Owner and Contractor, are listed in Article II. No assignment by either party hereto of any rights under or interests in the Contract Documents will be binding on the other party hereto without the written consent of the party sought to be bound. The Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives hereto to the covenants, agreements, and obligations contained in the Contract Documents.

Article VI. Texas Government Code Section 2252.908

Before this Standard Contract can be signed, the Contractor shall complete "New Form 1295 Filing Application," which can be downloaded at www.ethics.state.tx.us and submit it to the Rockwall County Auditor's Office. The Rockwall County Auditor will complete the form online when the paper copy is received.

IN WITNESS WHEREOF, the Owner and Contractor have executed this Contract in duplicate and on the date aforementioned. All portions of the Contract Documents have been signed or identified by the Owner and Contractor.

CONTRACTOR:	**ATTEST:**
_____	_____
By: _____	By: _____
Printed Name: _____	Printed Name: _____
Title:_____	Title:_____

OWNER:	**ATTEST:**
County of Rockwall	_____
By: _____	By: _____
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____

SECTION I: PERFORMANCE BOND

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

THAT _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____of the City of _____, County of _____, State of _____, (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety"), a corporation organized under the laws of the State of _____ and authorized under the laws of the State of Texas to act as Surety on bonds for principals, are held and firmly bound unto _____ (hereinafter referred to as "OWNER") in the penal sum of $ _____ (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal plus 10-percent of the stated penal sum as an additional sum of money representing additional court expenses, attorneys' fees, and liquidated damages arising out of or connected with the below identified Contract) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

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

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

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

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any change order or supplemental agreement which increases the Contract price with or without notice to the Surety, but in no event shall a Change Order or

Supplemental Agreement which reduces the Contract price decrease the penal sum of this Bond. And further that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

Surety agrees that the bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one (1) year from the date of completion and acceptance of the improvement by the OWNER.

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

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

WITNESS

_____

PRINCIPAL

_____

Printed/Typed Name:_____

Title:_____

Company:_____

Address:_____

_____

_____

WITNESS

_____

SURETY

_____

Printed/Typed Name:_____

Title:_____

Company:_____

Address:_____

_____

_____

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone number: _____
Note: Date of bond must NOT be prior to date of Contract.

SECTION J: PAYMENT BOND

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

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

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

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

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

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

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

WITNESS **PRINCIPAL**

_____ _____

Printed/Typed Name:_____

Title:_____

Company:_____

Address:_____
_____
_____

WITNESS **SURETY**

_____ _____

Printed/Typed Name:_____

Title:_____

Company:_____

Address:_____
_____
_____

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone number: _____

Note: Date of bond must NOT be prior to date of Contract.

SECTION K: NOTICE TO PROCEED

TO:_____ DATE: _____

_____ PROJECT: Crenshaw Road East

_____ _____

_____ _____

You are hereby notified to commence work in accordance with the contract dated _____, on or before _____, and you are to complete the work within _____ ( ) consecutive calendar days thereafter. The date of completion of all work is therefore _____, 2027.

_____
(Owner Signature)

Printed Name_____

Title _____

ACCEPTANCE OF NOTICE:

Receipt of the above Notice to Proceed is hereby acknowledged:

By _____
(Contractor Signature)

This the _____ day of _____, 2026

Printed Name _____

Title _____

SECTION L - SUPPLEMENTAL CONDITIONS

1.0 General: These Supplemental Conditions modify or expand the General Provisions found in the **Public Works Construction Standards - North Central Texas, Latest Edition** published by and available through the North Central Texas Council of Governments. It is the intent of the Owner that these documents should be viewed together.

2.0 Modification of Existing Sections: Item numbers below correspond to item numbers in the General Provisions. This section contains modifications or additions to the existing items.

Item 101. Definitions and Abbreviations

Add the following definitions to those listed:

Advertisement: When the word advertisement is used, it shall be interpreted to mean the **Legal Notice Advertisement for Bids**, duly signed and published.

Certificate of Acceptance: A document, issued to the Owner, constituting a representation on the part of WSB, LLC. acting as the Owner's representative, stating the referenced project has been completed in general accordance with the Contract Documents on a specified date; and that, furthermore, final payment on the project as modified is due. The Owner will issue the Certificate of Acceptance stating the date upon which, ***in the opinion of staff***, the project was complete and thus time charges should cease.

General Provisions: Division 100 of the **Public Works Construction Standards - North Central Texas** published by and available through the North Central Texas Council of Governments as amended and revised and incorporated documents thereto.

Notice to Proceed: A written notice, delivered or emailed in accordance with the definition of "Notice," to the mailing or email address indicated in the Contract Document stating the date by which work on the Contract must begin.

Standard Specifications: When referenced in general terms, the entire Public Works Construction Standards published by and available through the North Central Texas Council of Governments; when referenced in specific, division numbers 200 through 800 of that document, as amended, and revised and incorporated documents thereto.

Superintendent: The authorized representative of the Contractor.

Supplemental Agreement: A written agreement between the parties of the contract covering alterations and unforeseen work incidental to the project.

Substantially Completed: By the term "substantially completed" is meant that the structure has been made suitable for use or occupancy or the facility is in condition to serve its intended purpose, but still may require minor miscellaneous work and adjustment.

Work Order: Same as Notice to Proceed.

Replace Definition of Contract or Contract Documents with the following:

Contract or Contract Documents: The written agreement covering the performance of work. The contract and contract documents include the Legal Notice Advertisement for Bids; instructions to bidders; bid proposal form; addendum; General Provisions and Specifications as found in the Public Works Construction Standards, as amended and revised, published by and available through the North Central Texas Council of Governments; these Supplemental Conditions; the Special Conditions and Provisions; the Supplemental Specifications (if any); Federal Requirements Section (if any); Project Specific Special Requirements and Specifications (if any); plans and/or working drawings (if any) and any supplemental changes or agreements pertaining to the work or materials thereof; bonds; and any additional documents incorporated by reference in the above.

Replace Definition of Equal with the following:

Equal: Materials, articles or methods which are of equal or higher quality than those specified or shown on the drawings in the sole opinion of the Engineer, and as further defined in the "or equal" clause, said materials being approved by the Engineer.

The following legal holidays are listed to supplement the definition of "Working Days":

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Friday after Thanksgiving Day
Christmas Day

Add the following abbreviations to those listed:

ASCE	American Society of Civil Engineers
HI	Hydraulic Institute
GI	Galvanized Iron
SF	Square Feet
CF	Cubic Feet
MGD	Million Gallons per Day
@	At

Item 102.5. Proposal Guaranty

Modify the first paragraph in this section to allow the use of a certified check as bid surety. Modify language throughout to indicate that statements referring to cashier's checks also apply to certified checks.

Item 103.3 Surety Bonds

It should be understood, that this section, by reference to Article 5160 of the Revised Civil Statutes of Texas, requires performance and payment bonds (as outlined elsewhere) for projects where the total cost of the project equals or exceeds fifty thousand dollars ($50,000). The section also (implicitly) waives said requirements where a project cost is less than twenty-five thousand dollars ($25,000).

Item 105.1.1 Priority of Contract Documents

Replace this section in its entirety with the following:
In case of conflict between contract documents, priority of interpretation shall be in the following order: signed agreement (or contract); performance and payment bonds; bid proposal form; project drawings; technical specifications; Contract Special Conditions and Provisions; Supplemental Conditions; Legal Notice Advertisement for Bids (or request for proposals); **Public Works Construction Standards - North Central Texas** standard drawings and referenced specifications; approved shop drawings and submittals; or all as may exist in this contract.

Item 105.1.3 Contract Drawings and Specifications

Add the following paragraph to Item 105.1.3:
All drawings, specifications and copies thereof furnished by the Engineer shall not be reused on other work, and except for the signed contract sets, are to be returned to the Engineer on request at the completion of the work. All models are the property of the Owner.

Item 107.19 Public Convenience and Safety:

Modify the item to indicate that the County will not charge the Contractor for emergency work, as defined in this section, until and unless telephone calls to the contractor's listed emergency numbers have been unsuccessful in resolving the emergency situation in an expedient manner.

Add the following paragraph as the fifth paragraph of Item 107.19:
The Contractor shall supply the names and phone numbers of at least two competent employees to handle general emergency and emergency traffic needs on the project twenty-four hours a day. Failure of the Contractor to immediately correct improper or dangerous conditions after the County attempts to contact these employees shall be grounds for action on the part of the County as defined in the second paragraph of this section.

Add the following paragraph as the sixth paragraph of Item 107.19:
All fences, outbuildings, trees, or other encumbrances, accepting houses, upon or within the limits of the right-of-way and interfering with construction, shall be removed by the Contractor or otherwise disposed of if, and as, required by the engineer. The County will provide for removing houses within the limits of the right-of-way which interfere with construction.

Add the following paragraph to Item 107.20.3: Trench Safety.

107.20.3 Additional Safety Requirement

a) The Contractor is responsible to test for toxic and combustible gases and oxygen deficiency prior to entry into manholes (or other confined spaces) and at all times personnel are inside the manholes. At the first indication of the presence of toxic or combustible gas or oxygen deficiency, the Contractor shall take such precautions as are required.

b) The Contractor is responsible to provide forced air or other remedial measures to clear the manholes prior to and during entry.

SECTION M – CONTRACT SPECIAL CONDITIONS AND PROVISIONS

1. **AWARD AND EXECUTION OF CONTRACT:** Addendum to Section 103.

   Add Section 103.9 Contract Time and Inclement Weather: Time will be charged for all calendar days regardless of weather conditions.

2. **TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER**: This provision specifies the procedure for the determination of time extensions for unusually severe weather. The listing below defines adverse weather days to be anticipated monthly. An adverse weather day is defined as being caused by any weather which caused or would have caused the progression of work to be halted for no less than half of one typical working day. The listing is based upon data from the National Oceanographic & Atmospheric Administration (NOAA) or similar data.

   MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
13	12	12	9	9	10	9	10	7	8	10	12

   The above schedule of anticipated adverse weather will constitute the baseline for monthly (or portion thereof) weather time evaluations. Upon acknowledgment of the Notice to Proceed and continuing throughout the contract on a monthly basis, actual adverse weather days will be recorded on a calendar day basis (include weekends and holidays) and compared to the monthly anticipated adverse weather in the schedule above. The term “actual adverse weather days” shall include days impacted by actual adverse weather days.

   The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Once the number of actual adverse weather days anticipated in the schedule above have occurred, the Engineer, upon the Contractor's written request, will examine any subsequently occurring adverse weather days to determine whether the Contractor is entitled to a time extension. The Contractor’s written request must be received within seven (7) calendar days of the requested day. Before adverse weather entitlement is granted, the Contractor must demonstrate fifty percent or more of the individual workdays were affected by the subsequent adverse weather. The adverse weather must also delay work critical to the timely completion of the project. The Engineer will convert any delays meeting the above requirements to calendar days and issue a modification.

   For all weather dependent activities, the Contractor’s schedule must reflect the anticipated adverse weather delays noted above.

   The following is considered as adverse weather: Weather of a nature where workers cannot perform work as scheduled or gain access to the work site (i.e. hurricane, tornado, high winds, floods, extremely cold weather, ice storm, sleet, heavy snowstorm, et cetera).

3. **WORK HOURS:** Standard construction work hours are between 7:00 AM and 6:00 PM Monday through Saturday. Standard inspection hours are between 8:00 AM and 5:00 PM Monday through Friday. Requests to work on Saturday shall be received in written form no later than the preceding Thursday by 12:00 p.m. Inspections performed on Saturdays or not within standard inspection hours will be billed to the contractor directly. Requests to work on any legal holiday shall be received in written form 48-hours prior to the listed holiday. Work on a Sunday or any legal holiday will be permitted only with written permission from the County of Rockwall. If work suspends for more than two days, a written communication is required to notify the intent to resume work. The written

communication shall give the inspection personnel a minimum of 24-hour notice of the intent to resume work.

4. **CONTRACT DRAWINGS AND SPECIFICATIONS:** Addendum to Section 105.1.3 – The OWNER, through the Engineer, shall furnish to the Contractor, without charge, five copies of the contract and any supplemental drawings and specifications for the project. Contractor can acquire additional copies, if so desired, from WSB, LLC. for $500.00 per set.

5. **CONSTRUCTION STAKING:** Addendum to Section 105.4. Construction Stakes – Horizontal and vertical control monuments for the project are provided as shown on the Plans. Contractor shall retain the services of a registered professional land surveyor (RPLS) to establish all lines, grades, benchmarks, centerlines and measurements necessary for the proper performance and control of the work. Contractor shall submit the name, address, phone number, and RPLS registration number of the proposed RPLS prior to contract award. Contractor may retain the services of the design surveyor as shown on the drawings. The cost of construction staking is incidental to respective items of work and the cost for such shall be included in respective unit rates. The OWNER may retain an independent surveyor to confirm lines, grades, and measurements established by the Contractor. Contractor shall not destroy or otherwise disturb control monuments established by the OWNER for the project. All monuments destroyed or otherwise disturbed during performance of the work will be re-established by the OWNER at the Contractor's expense. Cost to confirm/re-establish control monuments shall be the responsibility of the Contractor by the surveyor retained by the OWNER to confirm/re-establish control monuments. Should the Contractor fail to make payment to the surveyor, the amount due the surveyor shall be deducted from the final payment due the Contractor. The Contractor shall provide construction stakes for this project. The Contractor shall supply all survey information required to record the actual elevations of the constructed manholes and other information required to complete the "Record Drawings" as require by the County of Rockwall.

6. **INSPECTION OVERTIME:** Addendum to Section 105.9.3. Inspection Overtime – All inspection overtime in excess of what is specified in Section 105.9.3, including weekday, weekend, and holiday overtime, associated with this project shall be billed to the Contractor at a rate of $150.00 per hour plus expenses. Vehicle expenses will be determined based on Continental United States (CONUS) privately owned vehicle mileage rates. This specification is intended to cover the overtime costs associated with inspection, observation and/or material testing performed by County staff and/or a Geotechnical Professional. The Contractor shall notify the Engineer by 12 P.M. of the immediately preceding Thursday of intent to work on the weekend. The Contractor shall be prepared to authorize overtime inspection upon request. Failure of the Contractor to work on the weekend after notifying the Engineer of intent to work may result in overtime charges if deemed by the Engineer as excessively revising the proposed schedule.

7. **PRE-CONSTRUCTION CONFERENCE:** Contractor shall attend a pre-construction conference within 10 days following Contractor's receipt of the Notice to Proceed from the OWNER. At a minimum, the Contractor's Contract Manager, Project Manager, Field Superintendent, Project Scheduler/Controller, RPLS, and major subcontractor representatives shall attend the meeting. Topics of discussion may include introductions, scope, schedule, budget, invoicing and reporting, contract review, change orders, communications, submittals, construction sequencing plan, traffic control plan, lane closures, emergency contact information, and public relations. Representatives in attendance may include Police Chief, Fire Chief, Inspector, materials testing representative, City Engineer, County Engineer, and Franchise Utilities representatives.

The cost of the preconstruction conference is incidental to the project; and the cost for such shall be included in unit rates for the work.

8. **MONTHLY STATEMENT:** On a monthly basis, on an agreed upon date, the Contractor shall prepare and submit to the OWNER, through WSB, LLC., an itemized statement specifying project costs which have been incurred for the reporting period and for the project to date. In addition, the Contractor shall prepare a monthly written progress report which includes a written description of the work accomplished for each pay item during the invoicing period. The itemized statement and written monthly progress report shall be submitted for review and approval on a monthly basis and a minimum of 7 days prior to submittal of progress payment invoices.

9. **SAMPLES AND MATERIAL TESTING:** Addendum to Section 106.5. Samples and Tests of Materials – OWNER will contract with a reputable commercial materials testing laboratory to verify that material testing specifications are being met. Payment to the materials testing laboratory shall be made within 10 days of receipt of invoice for the same. If retesting is required due to unsatisfactory test results, contractor shall reimburse the OWNER, or OWNER's representative, for any additional costs incurred due to the additional testing required including time and mileage.

10. **EROSION CONTROL:** Contractor shall minimize erosion during construction by disturbing minimal vegetation and earth as necessary to accommodate construction and shall install erosion protection measures as shown on the approved SWP3 and in accordance with its detail sheets. Inspection and maintenance of erosion protection measures is the responsibility of the Contractor and shall be performed in compliance with (TPDES) Construction General Permit TXR150000 and frequently enough to prevent excessive sediment buildup and keep erosion protection structures intact, and whenever else deemed necessary by the OWNER, Engineer, or other authorized representative of either. At creek crossings, hydraulic mulching and/or other approved erosion control measures shall be used to re-establish vegetation on disturbed areas for a distance of at least one hundred (100) feet in both directions along the project line from the centerline of the creek as soon as possible after land disturbing activities, installation of the proposed line, and backfilling have been completed. Contractor to maintain their concrete washout area throughout duration of project.

11. **UTILITY RELOCATION:** Contractor shall incorporate utility relocations as necessary into project execution and schedule. Contractor shall coordinate directly with each affected utility. Utilities crossed lying within easements or right-of-way shall be relocated at the expense of the utility owner. Likewise, utilities found lying in dedicated easements shall be relocated at the expense of the utility owner. The Contractor is responsible for coordination of all utility locations and resolving conflicting areas.

12. **CONSTRUCTION PLAN:** Based on the Contractor's proposed Construction Sequencing Plan, Contractor shall prepare and submit a Control Plan for pollution prevention of the public roadway system. The Contractor must prevent the tracking of pollutants onto the roadway system from the site.

13. **SANITARY PROVISIONS:** Addendum to Section 107.18 - Contractor shall provide toilet facilities within 500 feet of all active work areas.

14. **STANDARD DRAWINGS:** Public Works Construction Standards, North Central Texas, Standard Drawings, Latest Edition Details are provided with bid documents. Modifications to the Standard Drawings, as may or may not be shown in the detail sheets, shall be used in lieu of the Standard Drawings when present. For all items of work where there are no modifications to the Standard Drawings, the Standard Drawing Details shall be followed.

15. **INSURANCE:** Insurance Certificates shall list as additional insured: THE COUNTY OF ROCKWALL, CITY ENGINEER OF THE CITY OF ROYSE CITY, and WSB, LLC. The minimum insurance coverage shall be as defined in NTCOG Section 103.4. The contractor, in addition to the provisions stated above, should carry a "Umbrella" Liability Insurance as defined in Section 103.4.3.

16. **EXISTING SITE PROTECTION:** Contractor shall protect any and all existing structures, underground utilities, existing trees, and existing fences to maximum extent possible. Contractor shall film and provide to WSB, LLC. and the County of Rockwall a pre-construction video that includes pre-existing conditions for all rights-of-way and easements associated with the project.

17. **PAY ITEMS:** Items not listed in the bid proposal shall be considered subsidiary to the construction and no separate pay items will be issued.

18. **RECORD DRAWINGS**: Upon completion of construction, the Contractor shall provide to design engineer "As-Built" information, performed by a Texas Registered Professional Land Surveyor, that include horizontal and vertical control documentation of the locations of all improvements installed.

19. **CONTINGENT FEES:** OWNER prohibits contingent fees for securing business.

20. **GRATUITIES:** OWNER prohibits gratuities from or to any parties engaged in this project.

21. **EXCAVATION SPOILS:** All excavation spoils from the project shall be hauled off or stockpiled at a location designated by the Engineer.

22. **RIGHT OF ENTRY:** The Contractor shall only work or traverse within the prescriptive or assumed rights-of-way, easements, and property of the County of Rockwall, as shown within the contract documents. If the Contractor desires to work or traverse on property other than that of the County of Rockwall, written evidence of Right to Entry to these properties shall be provided using the attached Release of Liability Form, including a statement of the reasons for entry onto the property, signature by an individual authorized to represent the property and indemnification of the County of Rockwall, the City of Royse City Engineer, and WSB, LLC. The County of Rockwall shall be no party to agreements beyond that expressed in this contract.

23. **CITY OF ROYSE CITY SPECIAL PROVISIONS TO NCTCOG:** Please reference special provisions included in SECTION P.

RELEASE OF LIABILITY

We, _____ and _____, the undersigned (individually and collectively, "Releasors") own the property located at _____ _____("Property"). Releasors, being over the age of 18, voluntarily chose, for various reasons and sufficient consideration, to allow, grant and authorize (collectively, "Authorization") _____ _____ ("Contractor") to lease, use and/or occupy (collectively, "Use") a portion or portions of the Property located outside the Easement (hereinafter defined) ("Private Property") in connection with Contractor's construction and/or installation of a _____ _____ ("Work"), which is a part of the County of Rockwall, Texas' ("County") project known as **Crenshaw Road East** ("Project"). Releasors acknowledge and agree that such Authorization for Use of the Private Property was not required by the County, and the County's construction contract with the Contractor required the Work be performed within the easement and/or right-of-way (collectively, "Easement"), as applicable, previously granted to and/or acquired by the County on the Property. Releasors further acknowledge and agree that they knew they would be required to provide this Release prior to granting the Authorization to Use the Private Property for the Work.

Releasors fully understand, now, and at the time of the Authorization of the Use of the Private Property for the Work, which such Authorization could have resulted in injury (including death), accident, incident and/or damage to Releasors and/or the Private Property. Releasors assume full and complete responsibility for any injury (including death), accident, incident and/or activity that may have occurred, or which may occur, to Releasors and/or the Private Property, as applicable, as a result of the Authorization of the Use of the Private Property for the Work.

Releasors were provided sufficient and substantial consideration, the sufficiency, which is forever confessed, ("Consideration") for the Authorization to Use the Private Property for the Work. In exchange for the Consideration, Releasors hereby agree to release, acquit, hold harmless forever discharge and waive (collectively, "Release") any and all claims that Releasors may, now or later, have against the County, its commissioners, officers, agents, representatives, employees, members, heirs, legatees, administrators, executors and assigns, in whole or in part, in both their private and public capacities, and the Contractor, its officers, agents, representatives, employees, members, heirs, legatees, administrators, executors and assigns, in whole or in part, (collectively, "Releasees"). This Release shall include, but not be limited to, the release of any and all actions, causes of actions, claims demands, damages, lawsuits, costs, loss of services, expenses and compensation, whether known or unknown, on account of, or in any way arising out of or connected in any manner with the Authorization of the Use of the Private Property for the Work including, but not limited to, liability, damages, injury (including death), property damage, legal fees and/or costs caused by or related, in any way, to any negligent, strict liability, intentional and/or grossly negligent act of any Releasee (collectively, "Claims").

Releasors declare, represent and warrant that in making this Release:

(1) Releasors rely wholly upon their own individual judgment, belief and knowledge of the nature of the Authorization of the Use of the Private Property for the Work and the Release provided herein; and
(2) Releasors have not been influenced to any extent whatsoever in making this Release by any representations or statements made by any of the Releasees; and
(3) Releasors recognize and acknowledge that the Releasees, individually and/or collectively, make no warranties, express or implied, as to the Use of the Private Property for the Work; and
(4) Releasors are each fully authorized and empowered to execute this Release, upon the terms stated herein, and fully authorized and legally competent to execute this Release as the legal, valid and binding act and deed of the Releasors; and
(5) The Claims released or purportedly released above are currently owned solely by Releasors and/or their respective family members, all of whom have authorized Releasors to sign this document on their behalf, free and clear of all liens, encumbrances, pledges, assignments, claims and security interests of any kind or nature; and
(6) Releasors have the right to compromise and settle the Claims that were or could have been asserted by Releasors or any family member which relate to, directly or indirectly, any conduct occurring prior to Releasors' execution of this document; and
(7) Releasors understand and agree that this Release results in Releasors possessing no Claim, assuming Releasors ever did possess one, if the underlying actions or omissions allegedly giving rise to the Claim occurred before or at the time of Releasors signing this document, even if the injuries and/or damages do not manifest themselves, or are not discovered, until after the execution of this document.

RELEASORS AGREE TO INDEMNIFY AND HOLD HARMLESS THE RELEASEES FROM ANY AND ALL COSTS AND DAMAGES ARISING FROM CLAIMS OR ENCUMBRANCES CONTRARY TO THE REPRESENTATIONS AND WARRANTIES CONTAINED IN THE PRECEDING PARAGRAPH OF THIS RELEASE, INCLUDING, BUT NOT LIMITED TO, ANY CLAIMS BY ANY FAMILY MEMBERS.

It is Releasors express intention in signing this Release to bind themselves and their respective executors, administrators, heirs, legatees and assigns. This Release is for the benefit of the Releasees and all others who may be liable to Releasors for any damage, harm and/or injury to Releasors (including death) or property arising out of the Authorization to Use the Private Property for the Work.

It is further agreed that the execution of this Release shall not constitute a waiver by the County, their respective commissioners, officers, agents, representatives, employees, member, heirs, legatees, administrators, executors and assigns, in either their private or public capacity, of its/their governmental immunity and/or any other defense it may have at law and/or equity, whether state and/or federal.

This Release is not, under any circumstance, to be construed as an admission of any liability, wrongdoing or culpability whatsoever by any or all of the Releasees, and that, in fact, the County disputes any and all contentions which may be alleged by Releasors as a potential basis for liability of the County.

Releasors have carefully read the foregoing and know and understand the contents thereof. Releasors sign this Release voluntarily as each of their own individual free act, with full knowledge of its significance, intending for both Releasors to be legally bound thereby.

Releasors acknowledge and agree that this Release has been executed by each Releasor without coercion or duress and for the Consideration.

Should any portion (word, clause, phrase, sentence, paragraph or section) of this Release be declared void or unenforceable, such portion shall be considered independent and severable from the remainder, the validity of which shall remain unaffected.

Releasors agree that venue in the event of any dispute relating to, in any way, this Release, shall be exclusively in Rockwall County, Texas.

IN WITNESS, WHEREOF, we, the contracting parties, by our duly authorized agents, hereto affix our signatures and seals on this the _____ day of_____, 20_____.

RELEASORS:

_____ _____

STATE OF TEXAS §
§
COUNTY OF ROCKWALL §

Before me, the undersigned authority, on this day personally appeared _____ _____, known to me to be the person(s) whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the _____ day of _____, 20_____.

_____
Notary Public, State of Texas

_____
Print or Type Notary's Name

My Commission Expires:_____

SECTION N – PROJECT DRAWINGS

INCLUDED AS SEPARATE ATTACHMENT

SECTION O – NCTCOG PUBLIC WORKS CONSTRUCTION STANDARDS – LATEST EDITION

Not included, but PDF copy is available if requested.

SECTION P – CITY OF ROYSE CITY SPECIAL PROVISIONS TO NCTCOG

CITY OF ROYSE CITY
SPECIAL PROVISIONS TO NTCOG

MATERIALS AND CONSTRUCTION METHODS

STANDARDS:
All work included as a part of this contract shall be performed in accordance with the Standard Specifications for Public Works Construction - North Central Texas, 4th Edition, dated 2004, except where noted otherwise in the City of Royse City's supplemental "Special Provisions", the Special Conditions, and the Special Specifications included in these Specifications and Contract Documents.

NOTE: The * symbol specifies that this item is also covered in the City of Royse City's "Special Provisions" to the "Standard Specifications for Public Works Construction, North Central Texas". These Special Provisions are additional and modify the "Standard Specifications".

CITY OF ROYSE CITY, TEXAS

SPECIAL PROVISIONS
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION

MATERIALS AND CONSTRUCTION METHODS

The North Central Texas Standard Specifications shall be modified and clarified by the addition of the following requirements to the various items. Except when specifically stated, none of the requirements shall be deleted.

DIVISION 200 – SITE PROTECTION AND PREPARATION

ITEM 202.2 TOPSOIL

202.2.3. Construction Methods

Add the following:

A minimum of four (4) inches of topsoil shall be provided on all major thoroughfare medians and rights-of-way and on all earthen channel slopes. This will be material imported from off site. The City will approve material prior to placement.

ITEM 202.6 SEEDING TURF-GRASS

Table 202.6.3 (a) Delete the mixture, rate, and planting dates and substitute:

Type I Unhulled Perennial Bermuda: Reserve and Spangle Top Grass Seeds (September – March)

Type II: Perennial Bermuda Grass – Unhulled: (April – August)

A mix of seed shall be used in overlapping seasons.

202.6.4 Construction Methods

Add as follows:

All seeding operations shall be performed by either "Drilling" or "Cultipacker" process or approved equivalent. Seed shall be covered by + ¼" Topsoil.

202.6.4.1 Description

Add the following:

The Contractor shall maintain the seeded areas including watering until a "Stand of Grass" is obtained. A "Stand of Grass" shall consist of **75% to 80%** coverage, a minimum of one (1) inch in height. Re-seeding will be required in washed areas.

ITEM 203.3 GENERAL SITE PREPARATION

203.3.2 Construction Methods

Add the following: Unless otherwise approved in writing by the City of Royse City, where excavation to grade established in the field by the Owner terminates in loose or solid rock, the Contractor shall excavate 6-inches below the required

subgrade elevations for the entire roadbed width and shall backfill with suitable selected materials as indicated on the plans. Suitable selected material shall include lime treated subgrade or a base material having a plasticity, index not greater than 12. Payment for such work will be made under the items of unclassified street excavation, lime treated subgrade and hydrated lime. The 6-inch lime treated subgrade or base shall be compacted to 95% density.

ITEM 203.7 EMBANKMENT

203.7.2 Construction Methods

Add the following paragraph: Excavated material from the channel which is used as embankment to complete the established alignment, grade and cross-section of the channel shall be compacted to 95% density.

203.7.3 Density

Add: Embankment in the City of Royse City shall be compacted to not less than 95% of the maximum density.

DIVISION 300 – ROADWAY CONSTRUCTION

ITEM 301 SUBGRADE, SUB-BASE & BASE PREPARATION

301.1.1.3 Construction Methods

Add the following:

Prior to final compaction of subgrade, samples of the subgrade material shall be collected by a testing laboratory approved by the City, and laboratory tests made to determine the amount of lime required.

The application rate for hydrated lime shall be selected to obtain at least the optimum lime percentage indicated by test method ASTM C977-83a, Appendix XI; however, not less than 27 lbs. per S.Y. shall be applied. A Geotechnical Engineer's report reflecting the recommended application rate and including supporting test data shall be submitted in writing to the City, for approval prior to beginning any lime treatment. Laboratory test may be waived provided a minimum of 36 lbs. per S.Y. is applied.

ITEM 301.2 LIME TREATMENT (Add the following)

The lime treated subgrade shall be moist cured until covered by other base or pavement up to fourteen (14) days after final compaction. After 14 days without covering an application of 0.10 to 0.20 gallons per square yard emulsified asphalt shall be applied at the Contractor's expense. Reapplication of emulsified asphalt may be required if lime treated subgrade is not covered shortly after first application. Lime treated subgrade may be covered by other base or Pavement when density of 95% of maximum at optimum moisture content is obtained.

301.2.1.2 Quicklime (dry) shall not be used in the construction of roadway work in the City.

ITEM 301.3 PORTLAND CEMENT TREATMENT

Add the following: Portland cement modification of subgrade soils is not approved in Royse City. Subgrade soils means natural ground or embankment encountered in the construction.

ITEM 301.5 FLEXIBLE SUB-BASE OR BASE (CRUSHED STONE / CONCRETE)

301.5.1.1 General

Add the sentence: No local limestone material shall be used as flexible base (crushed limestone) on Royse City paving projects, unless. otherwise shown on the plans.

ITEM 302.2 AGGREGATE FOR HOT-MIX ASPHALT PAVEMENT

Central Mixing Plant

Add the following: When a fly ash admixture is used with Type I cement in the production of Portland cement concrete, separate silos shall be provided for fly ash and cement and provisions shall be made for individual measurements.

Finishing

Add the following: The finished concrete pavement construction under these specifications is expected to meet certain quality standards for surface of the concrete including the durability, texture, riding surface and appearance. The surface must be durable, firm, dense and well bonded to the aggregate to maintain an appearance and texture which is satisfactory to the Owner. Concrete pavement having a poor surface which has spalled (exposed aggregate) due to poor quality paste, high water-cement ratio, over-vibration, improper curing, extreme weather or any other reason, or does not have a satisfactory riding surface shall be removed and replaced at the Contractor's expense. It is extremely important that the Pavement have a good rideable surface, free from undulations and rough joints. The City Engineer shall determine the acceptability of the Pavement.

- Machine Finishing

  Machine finishing of pavement shall include the use of power-driven spreaders, reciprocating type power-driven vibrators, power-driven transverse strike-off, and screed.

  The concrete pavement shall be consolidated by a reciprocating type mechanical vibrator. As soon as the concrete has been spread between the forms, the mechanical vibrator shall be operated to consolidate the concrete and remove all voids. Hand manipulated vibrators shall be used for areas not covered by the mechanical vibratory unit.

  The transverse finishing machine shall first be operated to compact and finish the pavement to the required section and grade, without surface voids. The machine shall be operated over each area as many times and at such intervals as directed. At least two trips will be required and the last trip over a given area shall be a continuous run of not less than 40 feet. After completion of finishing with the transverse finishing machine a transverse drag float may be used.

  After the floating has been completed and the excess water removed, but while the concrete is still plastic, the surface of the concrete shall be tested for trueness with an approved 10-foot steel straightedge furnished by the Contractor. The straightedge shall be operated from the side of the pavement, placed parallel to the pavement centerline and passed across the slab to reveal any high sports or depressions. The straightedge shall be advanced along the pavement in successive stages of not more than one-half its length. Practically perfect contact of the straightedge with surface will be required, and the pavement shall be leveled to this condition, in order to insure conformity with the surface test required below after the pavement has fully hardened and to insure a smooth rideable surface. Any correction of the surface required shall be accomplished

by adding concrete if required and by operating the longitudinal float over the area. The surface test with the straightedge shall then be repeated.

After completion of the straightedge testing and surface correction the surface of the pavement shall be finished by an approved method. Methods available for pavement surface finish including a burlap drag finish, a broom finish or a belt finish. Unless otherwise shown on the plans, the pavement surface shall be finished with the burlap drag.

a. Burlap Drag Finish

If the surface texture is to be a drag finish, a drag shall be used; it shall consist of a seamless strip of damp burlap or cotton fabric, and it shall produce a uniform surface of gritty texture after dragging it longitudinally along the full width of pavement. For pavement 16 feet or more in width, the drag shall be mounted on a bridge which travels on the forms. The diameter of the drag shall be such that a strip of burlap or fabric at least 3 feet wide is in contact with the full width of pavement surface while the drag is used. The drag shall consist of not less than two layers of burlap with the bottom layer approximately 6 inches wider than the upper layer. The drag shall be maintained in such a condition that the resultant surface is of uniform appearance and reasonably free from gravels over 1/16-inch in depth. Drags shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags substituted.

b. Broom Finish

If the surface texture is to be broom finished, it shall be applied when the water sheen has practically disappeared. The broom shall be drawn from the. center to the edge of the pavement with adjacent strokes slightly overlapping. The broom operation shall be so executed that the corrugation. produced in the surface shall be uniform in appearance and not more than 1/16-inch in depth. Brooming shall be completed before the concrete is in such condition that the surface will be torn or unduly roughened by the operation. The surface thus finished shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom. Brooms shall be of the quality, size, and construction and shall be operated to produce a surface finish meeting the approval of the Owner. Subject to the approval of the Owner, the Contractor may be permitted to substitute mechanical brooming in lieu of the manual brooming as herein described.

c. Belt Finish

If the surface texture is to be belt finish, when straight-edging is completed and after sheen has practically disappeared and just before the concrete becomes non-plastic, the surface shall be belted with a 2-ply canvas belt not less than 8 inches wide and at least 3 feet longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the centerline and with a rapid advance parallel to the centerline.

- Hand Finishing

Hand finishing of concrete pavement will be' permitted in areas where it is not practical or possible to construct with finishing machines. These areas include, but are not limited to, intersections, left turn, lanes, crossovers, transition areas and where the pavement width is not uniform. In all hand finished areas, one-half (½) extra sack of cement per cubic yard of concrete shall be used in the mix. In hand finished areas, the concrete shall be struck off with an approved strike-off screed to such elevation that when

consolidated and finished the surface of the pavement shall conform to the required section and grade. The strike template shall be moved forward with a combined transverse and longitudinal motion in the direction the work is progressing, maintaining a slight excess of material in front of the cutting edge. The concrete shall then be tamped with an approved tamping template to compact the concrete thoroughly and eliminate surface voids and the surface screeded to required section. After completion of a strike-off, consolidation and transverse screeding, a hand-operated longitudinal float shall be operated to test and level the surface to the required grade.

Workmen shall operate the float from approved bridges riding on the forms and spanning the pavement. The longitudinal float shall be held in contact with the surface and parallel to the centerline and operated with short longitudinal strokes while being passed from one side of the pavement to the other. If contact with the pavement is not made at all points, additional concrete shall be placed, if required, and screeded, and the float shall be used to produce a satisfactory surface. Care shall be exercised to keep the ends of the float from digging into the surface of the pavement. After a section has been smoothed so that the float maintains contact with the surface at all points in being passed from one side to the other, the bridges may be moved forward half the length of the float and the operation repeated. Other operations and surfaces tests shall be as required for machine finishing.

- Edging at Forms and Joints

  After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side of each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints shall be worked with an approved tool and rounded to the radius required by the plans. A well-defined and continuous radius shall be produced and a smooth, dense mortar finish obtained. The surface of the slab shall not be unduly disturbed by tilting of the tool during use.

  At all joints, any tool marks appearing on the slap adjacent to the joints shall be eliminated by brooming the surface. In doing this, the rounding of the edge shall not be disturbed. All concrete on top of the joint filler shall be completely removed.

  All joint shall be tested with a straightedge before the concrete has set, and correction shall be made if one side of the joint is higher than the other or if they are higher or lower than the adjacent slabs.

ITEM 303.8 PAVEMENT TESTING AND EVALUATION

303.8.2 Pavement Thickness Test

Delete in its entirety and substitute therefore the following:

Upon completion of the work and before final acceptance and final payment shall be made, pavement thickness tests shall be made by the Contractor. Tests shall be made at 400-foot spacings along the length of the pavement. In the event a deficiency in the thickness of pavement is revealed, two (2) subsequent sets necessary to isolate the deficiency shall be made - one at a jointed section prior to the deficient station and one at a jointed section following the deficient station. Additional tests shall be obtained as necessary, at jointed section intervals to isolate the deficient area. Removal and replacement of concrete shall extend to joint boundaries, the full width of pavement section. If the average thickness of pavement in a particular section is less than called for on the plans, the pavement section shall be removed and replaced with the correct thickness, extending to joint boundaries, the full width of the pavement section, at the Contractor's entire

expense. No additional payment over the contract unit price shall be made for any pavement of a thickness exceeding that required on the plans.

303.8.3.1 For Standard Classes of Concrete

Revise the first paragraph to read: During the progress of the work, the Inspector or a commercial laboratory shall cast test cylinders or beams to maintain a check on the strengths of the concrete being placed. Add the following sentence and table: A table titled "PAVEMENT STRENGTH REQUIREMENTS", is provided showing the required pavement thickness, 7-day strength, 28-day strength, minimum cement factor and maximum slump for each street type to be constructed in Royse City. Requirements for high strength pavement and less thickness is also shown if required by the City.

PAVEMENT STRENGTH REQUIREMENTS

Item No.	Street Type	Street Width (F-F)	Thick-ness	Compr. 7-Day	Strength 28-Day	Mm. Cement	Max. Slump
1.	Principal Arterial, Minor Arterial	2-33' & 2-24'	8"	2940	4,000	6.5	3"
2.	Collector (including office and comm. Street)	44' to 36'	8"	2500	4,000	6.0 ,	3"
3.	Residential •	28'	6"	2500	4,000	6.0	3"

Modify the first sentence in the 5th paragraph to remove the words: "Contractor may, at its option and expense" and replace with the following words: "Contractor shall".

Add to the end of 5th paragraph: Test cores shall be obtained within five (5) working days after the 28-day test results have been provided by the commercial laboratory. All test cores shall be obtained by a commercial laboratory, at the Contractors expense. One (1) core shall be obtained in the immediate area of the deficiency and two (2) additional cores shall be obtained - one at a jointed section prior to the deficient station and one at a jointed section following the deficient station. Additional cores shall be obtained as necessary, at jointed section intervals to isolate the deficient area. Removal and replacement of concrete shall extend to joint boundaries, the full width of pavement section.

Replace the 7th paragraph to read "Pavement not meeting the minimum specified 28-day strength after cores have been tested shall be removed and replaced at the Contractor's expense." Delete the table and the paragraph below it.

ITEM 305.1 CONCRETE CURB AND GUTTER

305.1.3.2 Reinforcing Steel

In first paragraph, replace last sentence with the following:

All bars at splices shall be lapped a minimum of 30 diameters of the bar or 12-inches, whichever is greater.

ITEM 305.2 CONCRETE SIDEWALKS, DRIVEWAY APPROACHES, & BARRIER FREE RAMPS

305.2.2.2 Reinforcement

Revise the first sentence to read:

Driveway approaches and walk reinforcing shall be No. 3 bars on 24-inch centers.

305.2.3 Construction Methods

General: Add to end of first paragraph:

The drive approach shall have a minimum thickness equal to the thickness of the adjacent street or 6 inches, whichever is greater.

305.2.3.7 Joints

Revise second sentence to read:

Expansion joints shall be placed in the sidewalk at 20-foot intervals or as otherwise specified by the Owner.

DIVISION 400 – ROADWAY MAINTENANCE AND REHABILITATION

DIVISION 500 – UNDERGROUND CONSTRUCTION & APPURTENANCES

ITEM 501.4 CONCRETE PRESSURE PIPE AND FITTINGS

C302 Reinforced Concrete Pressure Pipe, Non Cylinder Type, for Water and Other Liquids, and C300 Reinforced Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids are not approved for use in the City, unless otherwise shown in the plans or approved in writing. Reinforced concrete cylinder pipe in sizes 16 inches through 21 inches shall be Pretensioned Pipe Type C303. For pipe 42 inches in diameter and above the pipe shall be Prestressed Pipe Type C301. Between 24 inches and 36 inches the pipe furnished may be either type. All pipe shall be designed to withstand the working pressure and external load as shown in the plans.

ITEM 501.5 REINFORCE CONCRETE WASTEWATER PIPE WITH RUBBER GASKET JOINTS

ASTM Designation C76 and shall be of the Thick Wall Pipe design with aggregates consisting of limestone aggregate in the proportion of at least 75 percent by weight of the total aggregates, unless otherwise provided in the Special Conditions to the Specifications.

ITEM 501.7 DUCTILE-IRON PRESSURE PIPE AND FITTINGS (Add the Following)

Minimum design thickness for all Ductile-Iron Pipe installed shall be Class 50 on sizes 12 inches and smaller, and Class 51 on sizes 14 inches and larger.

ITEM 501.9 STEEL PIPE AND FITTINGS

501.9.2 Applicable Standard Specifications (Add the following)

Contractor shall, submit a written certification that the pipe has been manufactured and tested in accordance with the applicable standards.

The pipe shall be manufactured, fabricated, coated and lined by a single manufacture being a certified member in good standing of the Steel Plate Fabricators Association (SPFA).

501.9.3 Pipe and Fitting Requirements

Substitute the following for the sentence following (2) Wall Thickness: All steel pipe to be furnished for this project shall be designed in accordance with AWWA

Ml 1 for the most critical application of internal pressures and external loads. The following design conditions shall apply:

Internal Pressure (Design to account for working and surge together)

1) Working Pressure of 200 psi
2) Surge allowance of 250 psi

External Loading for Buried Pipe

1) External loads shall be comprised of the weight of the backfill together with live and' impact loads. Earth loads shall be calculated based on ditch and positive projecting conduit. The earth load for the pipe design shall be the greater of the above two conditions.
2) External live loads shall be at least equivalent to AASHTO HS-20 loading.
3) Modulus of soil reaction (E') < 1000 psi
4) Unit weight of fill (w)> 120 pcf
5) Deflection lag factor (Dl) (1.0)
6) Bedding constant (K) = 0.100
7) hw = h = depth of cover above top of pipe
8) Maximum deflection in percent of pipe diameter 'shall be ad determined by AWWA Ml 1, latest edition, as calculated using moment of inertia of steel cross section of pipe wall. Moment of inertia of cement mortar shall not be included in calculation of maximum deflection.

Available Deflections

Mortar-lined and coated = 2 percent of pipe diameter

Maximum Working Stress

The maximum combined stress based on working pressure shall be no greater than 50 percent of the minimum yield strength or 18,000 psi, whichever is less.

The maximum combined stress based on test pressure shall be no greater than 75 percent of the minimum yield strength or 24,000 psi, whichever is less.

501.9.4 Joints: Add the following:

In general, pipe joints shall be as follows, as indicated on the Drawings or as specified.

1) Flanged joints shall be provided as a minimum at all flanged valves, meters and other equipment.

   a. Flanges: Unless otherwise noted, flanges shall conform to the requirements of AWWA C207, Table D, E or F as required.

   b. Flange Bolts and Nuts: Shall be furnished in size and numbers stipulated in AWWA C207. Unless otherwise indicated, bolts shall be carbon steel to meet the requirements of ASTM Designation A307, Grade B for regular joints.

2) Restrained Lap-Welded slip joints (expanded bell) with a single fillet weld.

3) Carnegie-Shape Rubber Gasket Joint: Bell and spigot rubber gasket joint will be furnished with the bell end of the pipe mechanically expanded to the required internal diameter and the spigot end furnished as a sized Carnegie shape welded to the opposite end of the pipe. The expanded bell and Carnegie spigot shall be designed such that when the pipe is laid and jointed, it will be self-centered, and the 0-ring rubber gasket will be enclosed tightly on all four sides and confined under compression adequate to ensure water tightness. Gaskets to be full-face for use with flat face flanges and ring type for use with raised face flanges. Gasket material for water service pipe shall be cloth inserted rubber sheet, 1/8-inch thick or red rubber, ASTM D1330, Grade 1. Gasket material for air piping shall be as above, but of EPDM.

4) Mechanical Couplings: Mechanical couplings designed to provide a stress relieving flexible joint shall consist of a cylindrical sleeve, two gaskets, two follower rings and a set of bolts and nuts.

   a. Sleeves: Manufactured of ASTM A53 steel, for sizes 10-inches and smaller. ASTM A36 steel for sizes 12-inches and larger. Minimum sleeve length shall be five inches for pipe 12-inches and smaller, 7-inches for pipe 14-inches through 24-inches, and 10-inches for pipe larger than 24-inches.

   b. Follower Rings: Ductile Iron ASTM A536 or AISI Cl 020 Steel.

   c. Bolts and Nuts: High strength low alloy steel with heavy semi-finished hexagon nuts.

   d. Gaskets: Shall be of synthetic rubber suitable for operating conditions.

   e. Shop Finish: Manufacturer's standard unless otherwise noted.

   f. Manufacturer: 'Baker 200, Dresser Style 39, Rockwell Series 411 or approved equal.

ITEM 502.3 FIRE HYDRANTS

502.3.1 Materials

Add the following:

All fire hydrants furnished shall conform strictly with the latest specification C-502 of the American Water Works Association Standards for dry barrel fire hydrants and must comply with the following supplementary details and changes or addition.

(a) Inlet Connection: Unless otherwise specified the inlet connection shall 'be a six (6) inch standard mechanical joint complete with all joint accessories. The inlet shoe shall be cast of the same or stronger metal than the lower barrel to prevent impact damage of the shoe. The interior of the shoe, including the lower valve plate and/or cap nut shall have a protective epoxy coating of at least 4 mils applied in the shop. If a cap nut is utilized it must be locked in place with a stainless steel lock washer or similar non-corrosive device and all machined surfaces must be protected from water intrusion to prevent corrosion and assure ease of field teardown or maintenance.

(b) Main Valve: The main valve shall be reversible compression type, closing with the pressure and shall be not less than 5-1/4" in diameter. Composition of the main valve shall be molded rubber or neoprene having a durometer hardness of 90 ± 5 and shall be not less than 1" thick to protect against hydrant chatter and give long term durability.

(c) Outlet Nozzles: All hydrants shall be "three way", equipped with two hose nozzles and one pumper nozzle.

(d) Diameter Outlet Nozzles: The hydrant shall have two hose nozzles, two and one-half (2-1/2") inches nominal I.D., and one pumper nozzle four and one-half (4-1/2") inches nominal I.D. with Natural Standard Hose Threads.

(e) Nozzle Attachment: All nozzles shall be mechanically connected into the barrel and have "0" Ring pressure seals to provide a positive seal between nozzles and hydrant barrel. A suitable nozzle lock shall be provided and shall be stainless steel or bronze. Nozzles shall not be caulked in.

Nozzle caps shall be furnished with pentagon nut the same size as the operating nut. They shall be furnished with interior rubber gaskets that will seat against bronze nozzles. All caps shall be secured to hydrant barrel by heavy duty non-kinking chains with a chain loop on each cap that permits free turning of the cap, for speed and ease of removal by fire fighters.

(f) Operating Nut: The operating nut shall be non-rising, pentagonal shape, measuring 1-1/8" at the top and 1-1/4" at the base from point to flat. Pentagon shall have a depth of at least one and one-quarter inch (1-1/4"). The hydrant shall be constructed in such a manner that the operating nut, "0" Rings and washers can be removed and replaced without removing the bonnet. All bearing surfaces of the operating nut shall be bronze.

(g) Hold-down Nut: Hold-down nut must have integral weather seal. Resilient seal between hold-down nut and operating nut shall prevent debris entry to protect operating nut from damage.

(h) Lubrication Reservoir: The hydrant shall have a completely "0" Ring sealed oil reservoir with a minimum of two (2) "0" Ring pressure seals to prevent contamination of the oil around the operating parts of the hydrant. The oil reservoir shall be cast in such a manner that all operating parts shall be repairable without removal of the bonnet to facilitate repairs and shall be of a design that all bearing surfaces and threaded parts will be automatically lubricated upon each operation of the hydrant. If bearing surfaces are not lubricated, the design shall keep operating friction to a minimum. A high wear resistant thermoset plastic anti-friction washer shall be in place above the thrust collar to minimize operation torque and facilitate long term ease of operation~ The operating threads must be sealed against contact with water to all times regardless of open or closed position of main valve. The hydrant shall have the capability of field personnel to visually. check oil level and add additional oil if needed. Filler and inspection plug shall be recessed or flush type.

(i) Traffic Feature: Hydrants shall be "traffic model" having upper and lower barrel joined approximately two inches (2") above the groundline by a breakable "swivel" flange providing 360 degree rotation of the upper barrel for nozzle positioning and must be capable of rotating barrel with line

pressure on. The groundline shall not be less than eighteen inches (18") below the centerline of the lowest nozzle and shall be clearly marked in a permanent manner on the lower barrel. A breakable stainless steel stem coupling shall join the two-piece stem adjacent to the ground line flange. Screws, clevis pins, fasteners or bolts used in the coupling shall be Series 300 stainless steel. The weakened portion of the stem coupling shall be located to divert pressure from the stem coupling directly to the upper and lower stems when torque is applied in seat ring removal.

Design of the coupling shall be such that when the coupling is broken, no part of the coupling will shatter or come loose and fall into hydrant and the break will not occur through the pins or bolts holding the coupling to the stem.

(j) Drain Valve Assembly: Hydrants shall be equipped with two drain valves which drain the barrel when the hydrant is closed and seal shut when the hydrant is in the open position. The upper valve plate,' seat ring and drain ring (shoe bushing) must be bronze and work in conjunction to form an all bronze drainway. Upper valve plate if not bronze, must be epoxy coated.

The bronze seat ring shall be a minimum 5-1/4" inside diameter and shall thread into a bronze drain ring forming an all bronze drainway with two (2) drain outlets for double protection against drain clogging and corrosive damage. All bronze components shall have less than 16% zinc alloy, Grade A to give high corrosion resistance as recommended 'in Section 2.1, Table I of American Water Works Association Standard C-502. Seat ring seals shall be "0" Rings. Hydrant shall be designed so that during opening and closing operation(s), water pressure force flushes the drain valve and drain openings to prevent clogging, thus allowing barrel drainage:

(k) Repair: All internal operating .parts shall be removable from above ground level with a' lightweight stem wrench.

(l) Provisions for Extension: All hydrants shall be capable of being extended to accommodate future grade changes without excavation. Extension of the hydrant shall be made by adding at the groundline flange a new coupling and stem section equal to the length of the extension. This must facilitate easy field grade adjustment.

Stem extensions made by adding new section of stem to the threaded section of the stem at the top of the hydrant will not be' accepted.

Extension kits must be available from manufacturer in six-inch (6") increments.

(m) Pressure Loss and Working Pressure: Pressure loss through one (1) four and one-half inch (4-1/2") nozzle at 1000 GPM shall not be more than 5.0 psi.

ITEM 502.6 VALVES

502.6.2 Resilient-Seated Gate Valves for Ordinary Water Works Service

Unless otherwise approved in writing, all Gate Valves for direct buried service in the City's distribution system, 6 inches through 12 inches in diameter, shall be Resilient Seated Gate Valves that conform strictly with the latest specification C-509 of the American Water Works Association Standards and must comply with the following supplementary details, changes or additions.

(a) Body: Gate valves shall be iron body designed for a working pressure of 250 psi. All valves shall be hydrostatically tested at 200 psi and shell tested at 500 psi. Any leakage during testing shall be cause for rejection. For ease of repair the body, bonnet and stuffing box shall be flanged together with ASTM Grade B bolts and nuts. Each valve shall have the maker's initials, pressure rating, and year in which manufactured cast in the body.

(b) Stems: Stems shall be machined from manganese bronze rod with an integral forged thrust collar machined to size. The stems shall be non-rising and equipped for nut operation, which shall be opened by turning to the left.

(c) Stem Seals: The seals shall consist of two "0" rings above and one "0" ring below the thrust collar. An anti-friction washer shall be located above and below the thrust collar for operating torque.

(d) Stem Nut: The stem nut shall be ASTM'B-62 bronze.

(e) Resilient Wedge: The wedge shall be cast iron, fully encapsulated in molded rubber complying with ASTM D2000. Wedge must have molded wedge guides preventing the disc from tilting downstream during operation. Protective guide cap bearings made of polymer bearing material to provide a bearing interface between the wedge guide and valve interior.

(f) Paint and Protective Coatings: All valves furnished under these specifications shall be painted on the exterior as specified in AWWA C509 with asphalt varnish.

All ferrous metal surfaces in the internal part of the valve shall be protected with a fusion epoxy coating 'to a nominal thickness of 10 mils for corrosion protection and shall be of a color that is easily identified as an epoxy coating.

The proguard fusion epoxy coating shall fully comply with AWWA C550 .and certified NSF 61. The coating shall be 'non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121.2514 entitled Resins and Polymeric Coatings. The coating shall 'have a satin finish and shall be suitable for field overcoating and touchup with the same coating' material without sanding or special surface preparation, or application of heat in excess of room temperature.

(g) Experience and Certification: Valves, furnished under these specifications, shall be manufactured by a firm that has been producing valves of this general type continuously for. the past 'five (5) years. Each company or. manufacturer supplying valves under these specifications shall have on file, with the City of Royse City, approved records of experience and detailed

drawings of the proposed valves. Drawings shall cover the specific valve to be furnished for installation and shall show all dimensions including metal thickness, construction details and materials used in all parts of the valve together with ASTM Designation and Structural properties of these materials.

The manufacturer shall furnish to the City of Royse City, a Certification that the valve complies with the specifications without any exceptions. This certification shall apply to specific valves being installed within the City water distribution system. The certification shall state (1) the number of valves covered by the certifications, (2) the Addition where valves are being installed or the Project Name, and (3) name of Contractor installing valves.

The City may require the Manufacturer, Supplier or Contractor to dismantle valves at any time to determine compliance with these specifications. Location of any valve within the City system, installed after adoption of these specifications, that does not meet the specifications completely shall be cause for prohibiting the future use of any valves from the same manufacturer.

(h) Tapping Sleeves: The materials for tapping sleeve bodies shall be cast-iron or ductile-iron in accordance with AWWA Standard CI 10 (ANSI 21.10), in two sections, or halves to be bolted together with high-strength, corrosion resistant, low alloy steel bolts conforming to AWWA Standard C111 (ANSI 21.11).

Cast iron and ductile-iron sleeve shall be mechanical joint, or as specified, or dimensions to secure, proper fit on the type and class of pipe on which they are to be used. Each sleeve shall be furnished with a 3/8-inch test opening so that tests can' be made prior to tapping. Opening shall be provided with a 3/8-inch bronze plug.

502.6.5 Butterfly Valves (Add the Following)

All Butterfly Valves for installation underground in the City's distribution system 16 inches through 48 inches shall be in accordance with this specification.

All butterfly valves furnished shall conform strictly with the latest specification C-'504 of the American Water Works Association Standard for rubber-seated butterfly valves and must comply with the following supplementary details and changes or addition.

(a) Body: The body shall be cast-iron ASTM A126, Class B and shall have face 'to face dimensions in accordance with AWWA Standards for short body, Class '150-B. All butterfly valves shall have a floating body seat ring to compensate for change in direction of flow to assure bottle-tight seal in either direction.

(b) Shaft: Valve shafts shall be an 18-8, Type 304 stainless steel. Valve disc and shaft shall be standard self-adjusting Chevron "V" type packing. Shaft seals shall be of a design allowing replacement without removing the valve shaft.

(c) Disc and Seat: The valve disc shall be cast iron ASTM A126, Class B. The valve seat shall be Buna-N located on the valve body. Valves 20" and smaller shall have a bonded seat that meets test procedures in ASTM D429, Method

B. Valves 24" and larger shall be retained in the valve body' by mechanical means without the use of metal retainers or other devices located in the flow stream.

(d) Operator: Butterfly valve operators shall be of the traveling nut design. All operators shall have adjustable mechanical stop limiting devices to prevent over travel of the disc. The operator shall have a mechanical stop which will withstand an input torque of 450 Ft. lbs. against the stop. The traveling nut shall engage alignment grooves in the housing.

(e) Operation: Unless otherwise shown in the plans, all valves shall open counter clockwise.

(f) Valve Ends: Valve ends shall be Mechanical Joint End, or Flanged Ends. Mechanical joint valves shall come complete with bolts, nuts, gaskets and glands. It shall be the responsibility of the Contractor to coordinate the ends of the adjoining pipe with the type valve end he proposes to use.

(g) Testing: All valves seats shall be tested at 150 psi as described in AWWA C-504 and in addition shall have a shell test of 300 psi. Any leakage shall be cause for rejection.

(h) Paint and Protective Coatings: All butterfly 'valves furnished under these specifications shall be painted on exterior as specified in AWWA C-504, with asphalt varnish.

All ferrous metal surfaces in the internal part of the valve shall be protected with a two-part thermoset epoxy coating to a nominal thickness of 4 mils for corrosion protection and shall be of a color that is easily identified as an epoxy coating. This shall be applied in shop.

The thermoset epoxy coating shall be a two-part epoxy and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121 .2514 entitled Resins & Polymeric Coatings. The coating shall have a satin finish and' shall be suitable for field overcoating and touchup with the same coating material without sanding or special surface preparation, or application of heat in excess of room temperatures.

(i) Experience and Certification: Butterfly valves, furnished under these specifications, shall be manufactured by a firm that has been producing valves of this general type continuously for the past five (5) years. Each company or manufacturer supplying valves under these specifications shall have on file, at the City of Royse City, approved records of experience and detailed drawings of the proposed valves. Drawings shall cover the specific valve to be furnished for installation in the City of Royse City and shall show all dimensions including metal thickness, construction details and materials used in all parts of the valve together with ASTM Designation and structural properties of these materials.

The manufacturer shall furnish to the City, a Certification that the valve complies with the specifications without any exceptions. This certification

shall apply to specific valve being installed with the City water distribution system. The certification shall state (1) the number of valves covered by the certification, (2) the Addition where valves are being installed or the Project Name and (3) name of Contractor installing valves.

The City may require 'the Manufacturer, Supplier or Contractor to dismantle valves at any time to determine compliance with these specifications. Location of any valve with the City system, installed after adoption of these specifications, .that does not meet the specifications completely shall be cause for prohibiting the future use of any valves from the same manufacturer.

ITEM 504 OPEN CUT - BACKFILL

ITEM 504.2 MATERIALS

504.2.2.1 Add the following sentence:

All stone used for pipe embedment shall be standard crushed rock-aggregate, Grade 4, unless otherwise approved in writing.

ITEM 504.3 EXCAVATION AND FOUNDATION

Prior to start of excavation the Contractor shall remove and stockpile the Topsoil and protect the Topsoil from contamination during construction.

After the trench has been refilled, topsoil shall be replaced to the extent that rock, excavated from the trench, will be completely covered and the area is returned to its original condition, except that in cultivated areas a minimum of 12 inches of top soil shall be replaced.

ITEM 504.4 BACKFILL – GENERAL REQUIREMENTS

The material used in the backfill shall be pulverized to the extent necessary to produce, a free flowing material free of clay balls larger than 6-inch diameter.

ITEM 504.5 EMBEDMENT (Add the Following)

Rock Cuttings or Sand will not be permitted in the pipe bedding for sanitary sewer or water lines in the City of Royse City.

504.5.2.15 Class "H" Embedment:

Replace language with the following:

See Standard Drawing 3060. The embedment consists of a completely encased pipe with Standard Crushed Stone, Grade 4. Class "H" Embedment shall be used on the P.V.C. Sanitary Sewer Pipe installed within the City of Royse City.

After the trench has been cut to a depth below the barrel of the pipe a distance of 1/8 Bc (3 inches minimum and 6 inches maximum), the bedding layer shall be brought to a point slightly above grade with compacted crushed stone. Bell holes shall be formed and the pipe laid and joined as specified. The stone shall be brought up in uniform layers of six inches to a point six inches over the top of the pipe when compacted. On PVC Pipe 18 inches through 27 inches in diameter the crushed stone shall be brought up in uniform layers to a point nine inches over the top of the pipe when compacted.

ITEM 506 OPEN CUT – WATER CONDUIT INSTALLATION

506.3 Laying Water Conduit

Valves for installation in the City's distribution system shall be installed by direct burial as shown on the standard detail sheets and shall be provided with valve boxes for operation of the valve.

506.5 Hydrostatic Test:

Remove paragraphs one & two along with Table 506.5.(a) and replace with the following language and Tables below:

"Before being accepted, all ductile iron, C-900 PVC or concrete cylinder water mains shall be tested with a hydraulic test pressure of not less than four hours. Concrete pressure pipe shall be tested with a hydraulic test pressure of 120 percent of the design pressure. Steel pressure pipe shall be tested with a hydraulic test pressure not to exceed 150 percent and not less than 120 percent of the designed working pressure. The rate of leakage of all pipe tested shall not exceed the amounts shown in the Table 506.5 A titled "Hydrostatic Test-C-900 PVC, Steel or Ductile Iron Water Mains" or Table 506.5 B "Hydrostatic Test-Concrete Cylinder Water Mains". Water lines of material in combination shall be tested for the type of pipe (material) with the least stringent hydraulic test pressure and maintained over a period of not less than four hours."

TABLE 506.5 A - HYDROSTATIC TEST

C-900 OR 905 PVC, STEEL OR DUCTILE-IRON WATER MAINS

GALLONS ALLOWED									
L.F.	Pipe Diameter								
Pipe	4"	6"	8"	10"	12"	14"	16"	18"	20"
5	0.016	0.024	0.032	0.039	0.047	0.055	0.063	0.071	0.079
10	0.032	0.047	0.063	0.079	0.095	0.110	0.126	0.142	0.158
20	0.063	0.095	0.126	0.158	0.189	0.221	0.253	0.284	0.316'
30	0.095	0.142	0.189	0.237	0.284	0.331	0.379	0.426	0.473
40	0.126	0.189	0.253	0.316	0.379	0.442	0.505	0.568	0.631
50	0.158	0.239	0.316	0.395	0.473	0.552	0.631	0.710	0.789
60	0.189	0.284	0.379	0.473	0.568	0.663	0.758	0.852	0.947
70	0.221	0.331	0.442	0.552	0.663	0.773	0.884	0.994	1.105
80	0.253	0.379	0.505	0.631	0.756	0.884	1.010	1.136	1.263
90	0.284	0.426	0.568	0.710	0.852	0.994	1.136	1.278	1.420
100	0.316	0.473	0.631	0.789	0.947	1.105	1.263	1.420	1.578
200	0.631	0.947	1.263	1.578	1.894	2.210	2.525	2.841	3.157
300	0.947	1.420	1.894	2.367	2.841	3.314	3.788	4.261	4.735
400	1.263	1.894	2.525	3.157	3.788	4.419	5.051'	5.682	6.313
500	1.578	.2.367	3.157	3.946	4.735	5.524	6.313	7.102	7.891
600	1.894	2.841	3.788	4.735	5.682	6.629	7.576	8.523	9.470
700	2.210	3.314	4.419	5.524	6.629	7.734	8.838	9.943	11.048
800	2.525	3.788	5.051	6.313	7.576	8.838	10.101	11.364	12.626
900	2.841	4.261	5.682	7.102	8.523	9.943	11.364	12.784	14.205
1000	3.157	4.735	6.313	7.891	9.470	11.048	12.626	14.205	15.783

Maximum allowable water loss in 4 hours at 180 pounds per square inch of pressure for a rate of 25. gallons per inch diameter of pipe per mile over a 24-hour period

EQUATION THE ABOVE CHART IS BASED ON:

$$\text{Maximum Loss (Gal.)} = 25 \times \text{Diameter of Pipe in Inches} \times \frac{\text{L.F. of Pipe}}{5280} \times \frac{4}{24}$$

TABLE 506.5 B - HYDROSTATIC TEST

CONCRETE CYLINDER WATER MAINS

GALLONS ALLOWED									
L.F. Pipe	Pipe Diameter								
	4"	6"	8"	10"	12"	14"	16"	18"	20"
5	0.031	0.047	0.063	0.078	0.095	0.110	0.126	0.142	0.158
10	0.063	0.095	0.126	0.158	0.189	.0.221	0.253	0:284	0.315
20	0.126	0.189	0.253	0.316	0.379	0.442	0.505	0.568	0.631
30	0.188	0.284	0.379	0.473	0.568	0.663	0.758	0.852	0.947
40	0.253	0.379	0.505	0.631	0.758	0.884	1.010	1.136	1.263
50	0.316	0.473	0.631	0.789	0.947	1.105	1.263	1.420	1.578
60	0.379	0.568	0.758	0.947	1.136	.1.326	1.515	1.704	1.894
70	0.442	0.663	0.884	1.105	1.326	1.547	1.768	1.989.	2.210
80	0.505	0.758	1.010	1.263.	1.515	1.768	2.020	2.273	2.525
90	0.568	0.852	1.136	1.420	1.704	1.989	2.273	2.557	2.841
100	0.631	0.947	1.263	1.578	1.894	2.209	2.525	2.841	3.156
200	1.263	1.894	2.525	3.156	3.788	4.419	5.050	5.682	6.313
300	1.894	2.841	3.788	4.735	5.682	6.628	7.575	8.522	9.470
400	2.525	3.788	5.050	6.313	7.575	8.838	10.100	11.363	12.626
500	3.158	4.735	6.313	7.891	9.470	11.047	12.626	14.204	15.782
600	3.788	5.682	7.575	9.469	11.363	13.257	15.151	17.045	18.938
700	4.419	6.628	8.838	11.047	13.257	15.468	17.676	19.885	22.095
800	5.050	7.575	10.100	12.626	15.152	17.676	20.201	22.726	25.251
900	5.682	8.522	11.363	14.204	17.044	19.886	22.726	25.567	28.405
1000	6.313	9.469	12.626	15.782	18.939	22.096	25.253	28.408	31.564

Maximum allowable water loss in 4 hours at 180 pounds per square inch of pressure for a rate of 50 gallons per inch diameter of pipe per mile over a 24-hour period

EQUATION THE ABOVE CHART IS BASED ON:

$$\text{Maximum Loss (Gal.)} = 50 \times \text{Diameter of Pipe in Inches} \times \frac{\text{L.F. of Pipe}}{5280} \times \frac{4}{24}$$

ITEM 506.7 Purging and Disinfection of Water Conduits (Add the following)

On all waterlines installed in the City of Royse City the Contractor shall be responsible for Purging, Testing and Sterilization of the completed lines.

DIVISION 600 – CONDUIT AND APPURTENANCES REHABILITATION

DIVISION 700 – STRUCTURES

DIVISION 800 – MISCELLANEOUS CONSTRUCTION & MATERIALS

ITEM 801.3 RAILINGS

801.3.2. MATERIALS

Add the following:

Reflectorized marking for guard rail and other traffic control used shall meet the requirements of 3M Scotchlite Brand Reflective Sheeting Grade, Series 2800, 3800 or 5800, or equal. The. marking shall conform to U.S. Department of Transportation, Federal Highway Administration, STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, 1979 FP-79, Type III A, Sections 633.36 and 718.01 and Federal Supply Service, General Services Administration, LS-300 C, SHEETING AND TAPE REFLECTIVE NON-EXPOSED LENS, Reflectivity 2, Class 4.

ITEM 801.5 WIRE FENCING

801.5.2.1 Wire Fencing Fabric: All chain link fencing shall be No. 9 gage copper bearing open-hearth steel wire.

801.5.2.2 Posts

801.5.2.2.1 Metal:

Add the following:

All posts shall be heavily galvanized by the hot-dip process after fabrication and shall be fitted with watertight malleable iron caps. All posts shall be of the following size and shape:

Line Posts: "H" Section hot rolled weighing not less than 4.10 pounds per linear foot or 3-1/2-inch O.D. pipe weighing not less than 3.65 pounds per linear foot.

Terminal Posts: Three inch (3") steel pipe weighing not less than 5.79 pounds per linear foot.

Gate Posts: Four-inch (4") O.D. steel pipe weighing not less than 9.11 pounds per linear foot.

801.5.2.3 Rails. Gates. Braces and Fittings:

Add the following:

Shall be 1-5/8 inch steel pipe weighing not less than 2.27 pounds per linear foot.

ITEM 803.2 GABION STRUCTURES

803.2.2 Materials

Add the sentence: All wire used, including tie and connecting wire, shall be certified by Mill Test Reports showing compliance with specification requirements.

803.2.2.2 Stone

Add the following: Facing stone shall be hand selected, large stone and shall be selected for best appearance. Facing stone shall be an off-white color and prior to laying the stone, samples shall be delivered' to the site and shall be approved 'by the Engineer for gradation and appearance.

ITEM 805 ELECTRICAL COMPONENTS AND CONDUIT

ITEM 805.3 MATERIAL

Add new subsection:

805.3.6. Pull Box. All pull boxes shall be Quazite precast polymer concrete, or approved equal. Boxes shall be approximately 17" x 30" x 30" and shall be furnished with a concrete cover.

SECTION Q – GEOTECHNICAL INVESTIGATION

GEOTECHNICAL ENGINEERING SERVICES REPORT

CRENSHAW ROAD IMPROVEMENTS
ROCKWALL COUNTY, TEXAS

Prepared For:
Rockwall County

WSB PROJECT NUMBER
2-202557

March 15, 2026

March 15, 2026

Rockwall County
101 E Rusk Street
Rockwall, Texas 75087

Attn : TBD

RE: Geotechnical Engineering Services Report
Crenshaw Rd Improvements
Rockwall County, Texas
WSB Project Number: 2-202557

Mr. ??:

WSB has completed the geotechnical engineering services for the proposed Crenshaw Road improvements from Sabine Creek Wastewater Treatment Plant to FM 2453, in Rockwall County, Texas.

The purpose of the subsurface exploration was to evaluate the geotechnical engineering properties of the subgrade soils for the above referenced project. This report includes the geotechnical information and recommendations needed for the design and construction of the proposed improvements.

We appreciate the opportunity to work with you on this project. If you have any questions regarding the information contained in this report, please call us at (469) 907-5500.

Respectfully,
WSB

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APPENDICIES

1.0 Introduction

Project Location. The project is located along Crenshaw Road, from Sabine Creek Wastewater Treatment Plant to FM 2453 (approximately 1.3-mi stretch), in Rockwall County, Texas. The general location and layout of the project site are provided in Appendix A.

Project Description. The project consists of proposed roadway improvements for Crenshaw Road including construction of new pavement and approximately 1570 LF multi-span bridge.

Project Authorization. This geotechnical investigation was performed in accordance with ??.

Report Specificity. This report was prepared to meet the specific needs of the client for the specific project identified. Recommendations contained herein should not be applied to any other project at this site by the client or anyone else without the explicit approval of WSB.

2.0 Subsurface Exploration

The subsurface exploration was completed on ??. The table below summarizes the soil borings performed. The boring location plan is provided in Appendix A.

Summary of Bridge Borings			
Boring ID	Depth (feet)	Date Drilled	General Location
B-01	75	TBD	Proposed Bridge From Sta. 80+47.95 to 95+67.95
B-02	75	TBD	
B-03	75	8/9/2024	
B-04	75	8/1/2024	
B-05	75	7/30/2024	
B-06	75	7/29/2024	
B-07	75	7/26/2024	
B-08	75	7/24/2024	
B-09	75	7/19/2024	

Summary of Pavement Borings			
Boring ID	Depth (feet)	Date Drilled	General Location
P-01	10	8/7/2024	Approximately Sta. 71+32
P-02	20	8/7/2024	Approximately Sta. 77+18
P-03	10	7/18/2024	Approximately Sta. 98+78

Summary of Pavement Borings			
Boring ID	Depth (feet)	Date Drilled	General Location
P-04	10	7/18/2024	Approximately Sta. 108+36
P-05	TBD	TBD	Approximately Sta. 120+77

The project was accessed with a CME-55 track-mounted, rotary drilling rig equipped with 3.25-inch hollow stem augers. Representative soil samples were obtained using the Shelby Tube sampling procedure in general accordance with ASTM Specification D1587 and using Standard Penetration Test (SPT) sampling procedures in general accordance with ASTM Specifications D1586. Texas Cone Penetration (TCP) test was performed to evaluate the strength characteristics of rock materials and according to TxDOT Tex-132-E procedure and TxDOT geotechnical manual.

The SPT sampling process utilizes a split-barrel (two-piece) sampling tube to obtain soil samples. A 2-inch outside diameter sampling tube is hammered, using an automatic drive hammer, into the bottom of the boring with a 140-pound weight falling 30 inches. The number of blows required to advance the tube the last 12 inches of an 18-inch sampling interval or portion thereof is recorded as the standard penetration resistance value, SPT-N value. The in-situ relative density of granular soils and the consistency of cohesive soils can be estimated from the SPT-N value. The uncorrected, SPT-N values recorded for each test are shown on the attached boring logs at their respective sampling depths.

TCP test was performed by driving a 3-inch outside diameter steel cone with a 170-pound weight falling 24 inches. The number of blows for 12 inches of penetration, or the inches of penetration due to 100 blows of the hammer, whichever occurs first, are recorded. The TCP blow counts and penetration values recorded for each test are shown on the attached boring logs at their respective test depths.

The soil borings were located in the field by a WSB representative using handheld GPS device with horizontal accuracy of 20 feet. The approximate boring locations and depths are provided in the boring location diagram included in Appendix A of this report.

As part of the drilling operations, the drill crew prepared field boring logs. The drill crew examined the samples retrieved during drilling operations and recorded a soil description on the field boring logs. The split-barrel samples were packaged in plastic bags to reduce moisture loss and tagged for identification. The Shelby tube and split-barrel samples were transported to our laboratory for further evaluation. The field boring logs also include the visual classifications of the auger sample materials encountered during drilling and the engineer's interpretation of the subsurface conditions between samples. This report contains the final boring logs that represent the engineer's evaluation and the laboratory test results of the soil samples.

3.0 Site Conditions

3.1 Seismic Site Classification

Based on the subsurface materials encountered during our investigation and the ASCE/SEI 7-16 Standards, the site class is “D”. This site class should be used when designing the foundation systems for this project. The following seismic design parameters based on the ASCE/SEI 7-16 Seismic Hazard Map may be used.

Seismic Site Classification and Parameters		
Site Class	D	
Seismic Design Category	B	
Approximate Site Coordinates	Latitude	32.9274338° N
	Longitude	96.3115382° W
S_s – MCE_R Acceleration (Short period)	0.107g	
S_1 – MCE_R Acceleration (1.0s period)	0.058g	
S_{MS} – Site Modified MCE_R Acceleration (Short period)	0.171g	
S_{M1} – Site Modified MCE_R Acceleration (1.0s period)	0.139g	
S_{DS} – Design MCE_R Acceleration at 5% Damping (Short period)	0.114g	
S_{D1} – Design MCE_R Acceleration at 5% Damping (1.0s period)	0.093g	
F_a – Site Amplification Factor (Short period)	1.6	
F_v – Site Amplification Factor (1.0s period)	2.4	
*MCE_R = Maximum Considered Earthquake Ground Motion Response.		

3.2 Geology

Based on available surface geology maps, it appears the project alignment is located across several geologic formations including: the Alluvial Deposits, Neylandville Marl, and Marlbrook Marl Formations. A geologic map and USGS formation description are provided in Appendix D. The Alluvial Deposits generally consist of sand, silt, clay, and gravel. The Naylandville Marl Formation generally consists of high plasticity clay with silt and sand overlying gray Marl/Claystone. The Marlbrook Marl Formation generally consists of high plasticity clay with silt overlying gray Marl/Claystone.

3.3 Stratigraphy

Descriptions of the soil layers (per ASTM Unified Soil Classification System, USCS) encountered and their approximate depths are provided in the boring logs included in Appendix B. A summary of the stratigraphy indicated by the borings is provided below.

Generalized Subsurface Conditions Along Proposed Pavement (Borings P-01 to P-05)			
Depth from Existing Ground Surface (feet)		Soil/Rock Description	Detailed Description of Soils/Rock Encountered
Top of Layer	Bottom of Layer		
0	10	FAT CLAY	Soft to hard FAT CLAY (CH).
* Boring Termination Depth = 10 to 20 feet from ground surface.			

Generalized Subsurface Conditions Along Proposed Bridge (Borings B-01 to B-09)			
Depth from Existing Ground Surface (feet)		Soil Description	Detailed Description of Soils Encountered
Top of Layer	Bottom of Layer		
0	20 to 33	FAT CLAY	Firm to hard FAT CLAY (CH).
20 to 33	75	MARL	Soft gray MARL.
* Boring Termination Depth = 75 feet from ground surface.			

3.4 Groundwater Conditions

Groundwater was encountered in some of the borings during the drilling operations. Groundwater levels encountered at the boring locations are summarized in the tables below.

Groundwater Level at Boring Locations		
Boring No.	Depth of Groundwater Initially Encountered (feet)	Groundwater Depth After 15 Minutes (feet)
B-01	TBD	TBD
B-02	TBD	TBD
B-03	28.0	24.0
B-04	37.0	36.0
B-05	38.0	36.0
B-06	Not encountered	Not encountered
B-07	30.0	29.5
B-08	Not encountered	Not encountered
B-09	38.0	33.0

Groundwater level fluctuations and/or perched water conditions may occur due to seasonal variations in the amount of rainfall and other factors such as drainage characteristics. To obtain more accurate groundwater level information, long-term observations in a monitoring well or piezometer that is sealed

from the influence of surface water would be needed. The possibility of groundwater level fluctuations should be considered during the preparation of construction plans.

4.0 Laboratory Testing

All samples obtained from the project site were transferred to our laboratory for processing and/or testing. Laboratory tests were performed on select soil samples in agreement with the applicable TxDOT and ASTM testing procedures. Laboratory testing included estimation of the natural moisture content (Tex-103-E), Atterberg limits (Tex-104-E, Tex-105-E, Tex-106-E), percent of material finer than sieve #200 (Tex-111-E), unconfined compressive strength of cohesive soil (ASTM D2166), one-dimensional (1-D) consolidation properties of soils using incremental loading tests (ASTM D2435), and soluble sulfate content in soils (Tex-145-E). The results of moisture content, Atterberg limits, unconfined compressive strength of cohesive soil, and sieve analysis tests can be found in WinCore boring logs provided in Appendix B.

4.1 Swell Potential Based on Atterberg Limits

Atterberg limits for select soil samples within the top 10 feet were used to evaluate the swell potential of onsite soils. The plasticity index (PI) of the samples and their swelling potential rating based on the average PI are summarized in the table below. Note that Marl is assumed to have no swelling potential.

Swell Potential Rating Based Average PI Within Top 10-feet				
General Location	Applicable Soil Borings	PI Range (min. – max.)	Average PI	Swell Potential
Pavement Area from Sta. 70+00 to 79+00	P-01 and P-02	39 - 60	48	Very High
Pavement Area from Sta. 96+00 to 126+02	P-03, 04, and 05	33 - 67	51	Very High
Along Proposed Bridge	B-03 to B-13	37 - 68	56	Very High

4.2 Soluble Sulfate Tests

Soluble sulfate tests (Tex-145-E) were performed on select soil samples. Detailed sulfate test results are provided in Appendix B. The results of these tests are summarized below.

Boring ID	Depth (feet)	Soluble Sulfate Concentration (ppm)
P-01	0-2	<100
P-02	2-4	<100
P-03	0-2	<100
P-04	2-4	<100

5.0 Evaluation and Recommendations

5.1 Potential for Vertical Rise (PVR)

TxDOT Tex-124-E method was used to evaluate the potential for vertical rise (PVR) of onsite soil materials. The calculated PVR is an empirical estimate of a soil's potential for swell based upon the soil's plasticity, applied loading (due to structures or overburden), and antecedent moisture content. The wetter a soil's antecedent moisture content, the lower its calculated PVR will be for a given plasticity index and load. However, soils with a higher antecedent moisture content will be more susceptible to shrinkage due to drying. Maintaining a consistent moisture content in the soil is the key to minimizing both swell- and shrink-related structural problems. The calculated PVR values below should not be considered as absolute values that will occur, but rather an approximate estimate based on industry standard practice and local experience. Extreme changes in soil moisture may occur in events such as but not limited to ponding water, leaking water lines, inadequate drainage and nearby trees causing soil desiccation. Thus, movements that exceed those calculated below may be encountered. Regular maintenance should be provided to address any potential detrimental issues that may affect the soil moisture during the lifespan of the structure.

Estimated PVR Using Tex-124-E Method. The PVR at each boring location was estimated using Tex-124-E method. The PVR values for existing conditions at the pavement borings are summarized in the table below. A 10 feet zone of seasonal moisture change was used in our PVR estimates.

Summary of PVR Results at the Boring Locations		
Boring ID	Soil's Antecedent Moisture Condition	Estimated PVR (inches)
P-01	Dry	5.1
P-02	Dry to wet	3.1
P-03	Dry to wet	2.3
P-04	Dry to wet	4.4

5.2 Short-Term Construction Excavations

Sloped (un-supported) Excavations. On-site sloped (un-supported) short-term construction excavations should be designed in accordance with Occupational Safety and Health Administration (OSHA) excavation standards. Based on our investigation, the on-site soils may be classified as Type B (per OSHA classification system) from the ground surface to a depth of 20-feet. Short-term construction excavations in Type B soils may be constructed with a maximum slope of 1H:1V (horizontal to vertical) to a depth of 20-feet. If excavations are to be deeper than 20-feet, WSB should be contacted to evaluate the excavation. Recommendations provided herein are not valid for any long-term or permanent slopes on-site.

Shored Excavations. Vertical short-term construction excavations may be used in conjunction with trench boxes or other shoring systems. Shoring systems should be designed using an equivalent fluid weight of 85 pounds per cubic foot (pcf) above the groundwater table and 105 pcf below the groundwater table excluding the effect from surcharge loads. If present, lateral pressure from surcharge loads (dead and live) at the ground surface should be added to the lateral earth pressures calculated. Lateral pressures from surcharge can be estimated using a lateral earth coefficient of 0.5 and assumed to act as a uniform pressure along the sides of the excavation. Surcharge loads located at a horizontal distance (from the edge) equal to or greater than the excavation depth may be ignored. We recommend a maximum of 200 feet of unshored excavation be open at any one time to prevent the possibility of failure and excessive ground movement. Unshored excavations should not remain open for a period longer than 24-hours.

Limitations. Recommendations for short-term construction excavations assume there are no nearby structures or other improvements that might be detrimentally affected by the construction excavation. If there are nearby structures or improvements, WSB should be contacted before proceeding in construction to evaluate the construction excavations.

Excavation Monitoring. Excavations should be monitored to confirm site soil conditions consistent with those encountered in the borings drilled as part of this study. Discrepancies in soil conditions should be brought to WSB attention for review and revision of recommendations, as appropriate.

5.3 General Site Development

Site Preparation. We recommend removing all existing structures, trees, pavements, vegetation, topsoil, and any other unsuitable materials from the construction areas. We also recommend removing any existing stumps, roots larger than 2 inches in diameter, rocks larger than 3 inches in diameter, and any matted roots from the proposed construction area. After removing all vegetation and unsuitable materials, the exposed surface should be proofrolled.

Proofroll. The proof-roll should conform to TxDOT Standard Specifications Item 216 – “Proof Rolling”. We recommend proof-rolling the exposed native subgrade for embankment and paving areas. Proof-rolling should be performed in overlapping passes and in mutually perpendicular directions using equipment with minimum subgrade loadings of 25 tons. The proofroll should be performed after the final grade is established in areas to be cut. In areas to be filled, the proofroll should be performed prior to fill placement. Areas of loose or soft subgrade encountered in the proofroll should be removed and replaced with engineered fill according to the applicable TxDOT fill specifications.

Subgrade Scarification. After proofroll and prior to any fill placement, the subgrade should be scarified to a minimum depth of 6 inches, moisture conditioned and compacted to 95% of the material’s maximum

dry density and at a workable moisture level within -1 to +3% above optimum per TxDOT Specifications Tex-114-E.

5.4 Fill and Compaction

Embankment Fill. Any embankment fill placed to construct new embankments should conform to TxDOT Specifications, Item 132 – "Embankment". We recommend embankment fill have Plasticity Index (PI) of less than 35 and free of debris and organics. The fill should be placed on prepared surfaces in loose lifts not to exceed 8 inches and should be compacted to at least 98% of the maximum dry density at a moisture content within -2 to +2% of the optimum moisture content as per TxDOT Standard Tex-114-E. **Import fill material should be evaluated prior to site delivery and tested for laboratory moisture-density testing, plasticity index, and sulfates screening (less than 3,000 ppm). The use of shale or shaley clay for embankments is prohibited.**

Unsuitable Materials. Materials considered unsuitable for use as fill include low and high plasticity silt (ML and MH), silty clay (CL-ML), organic clay and silt (OH and OL) and highly organic soils such as peat (Pt). Such materials may be used for site grading and in unimproved areas as approved by the Geotechnical Engineer. Soils placed in unimproved areas should be placed in loose lifts not exceeding 10-inches and should be compacted to at least 90% maximum dry density and at a moisture content within ±3% of the optimum per TxDOT Standard Tex-114-E.

Fill Testing. Construction monitoring and fill compaction testing should be provided for all construction activities according to TxDOT Standard Specifications. We recommend each lift be tested for density and moisture at a rate of one test per 4,000 square feet of embankment per lift or minimum of two tests per lift.

5.5 Straight Shaft Drilled Piers for Bridge Foundations

Straight shaft drilled piers are suitable to support the proposed bridge in this project. The axial capacities, LPILE parameters, and geotechnical recommendations required for drilled shafts design are provided in this section. The design of drilled shafts and determination of shaft diameter and length should be made by the Structural Engineer.

Proposed Bridges. Based on the provided information, the project scope includes construction of a new bridge along Crenshaw Rd. The table below summarizes the proposed bridge and applicable soil borings for bridge foundation design.

General Location	Approximate Station	Applicable Soil Borings
Proposed Bridge Along Crenshaw Rd	Sta. 80+47.95 to 92+37.95	B-01 to 09

Drilled Shaft Size and Maximum Allowable Service Load. TxDOT Geotechnical Manual provides recommended maximum allowable service load based on drilled shaft size without detailed structural design. The table below provides the recommended maximum allowable loads as given in the manual.

Maximum Allowable Drilled Shaft Service Loads by TxDOT	
Shaft Diameter (inches)	Load (tons)
24	175
30	275
36	400
42	525
48	700
54	900
60	1,100

Minimum Shaft Penetration. The drilled shafts should be brought to bear at least two shaft diameters into competent bearing strata. Increase the minimum penetration for additional skin friction resistance to fulfill the design requirements.

Depth to Bearing Strata. Based on the soil conditions encountered at the borings, the competent bearing stratum is gray Marl. The table below summarizes the depths and elevations to the competent bearing strata at each soil boring.

Summary of Depths and Elevations to Bearing Strata			
Bridge Location	Boring ID	Gray Marl	
		Depth to Top of Stratum (feet) (1)	Elevation at Top of Stratum (feet) (2)
Proposed Bridge Along Crenshaw Rd	B-01	TBD	TBD
	B-02	TBD	TBD
	B-03	30	468.4
	B-04	33	465.1
	B-05	30	467.7
	B-06	30	467.7
	B-07	30	467.6
	B-08	20	476.2
	B-09	20	478.1

Note:
1. Depth to strata is measured from existing ground surface and may vary when moving away from the boring location.
2. Based on survey of surface elevations at the boring locations.

Disregard Depth. To account for potential erosion from scour, future excavation, seasonal soil moisture variation (shrinkage and swelling), and other factors, disregard the contribution from at least top 5-feet from ground surface. Additionally, the frictional resistance from any compacted or uncompacted fill materials should be neglected.

Axial Capacity Calculations. The allowable unit skin friction (table and graph) and point bearing (graph) capacities were generated using WinCore software and provided in Appendix E. To obtain the frictional resistance (Q_s) over the shaft length, find the accumulative friction (in tons/ft) corresponding to the shaft length from the unit skin friction graph and then multiply by the shaft's perimeter. Note that the accumulative friction graph does not account for the disregard depth, which should be neglected from the skin friction resistance calculations. To obtain the point bearing resistance (Q_p) at the shaft tip, obtain the average end bearing capacity (tsf) within two shaft diameters below the shaft tip from the point bearing graph and then multiply by the shaft's cross-sectional area. The allowable shaft capacity is calculated as the sum of Q_s and Q_p.

Uplift. The uplift force on the shafts due to swelling of active clays can be approximated by assuming a uniform uplift pressure of 1500 psf within the native clay (CL and CH) soils acting over the perimeter of the shaft to a depth of 10 feet. The uplift force can be neglected for the shaft portion in contact with Marl, if applicable.

Drilled Shaft Reinforcement. The longitudinal reinforcement for drilled shafts should extend over the full length of the shaft. Drilled shaft reinforcement should be designed for axial, lateral, and uplift loads.

Lateral Resistance. The following LPILE parameters are recommended in the shafts design for lateral resistance.

LPILE Parameters for Borings B-01 to 07		
Depth from existing ground surface (feet)	Material Type	LPILE Parameters
0 to 3	Native Clay	Soil Type: Soft Clay (Matlock) Effective Unit Weight: 125 pcf Undrained Shear Strength: 50 psf Strain @ ½ Peak Strength (ε50): 0.02 p-y Modulus (k): 10 pci
3 to 30	Native Clay	Soil Type: Stiff Clay W/o Free Water (Matlock) Effective Unit Weight: 125 pcf Undrained Shear Strength: 1500 psf Strain @ ½ Peak Strength (ε50): 0.005 p-y Modulus (k): 500 pci

LPILE Parameters for Borings B-01 to 07		
Depth from existing ground surface (feet)	Material Type	LPILE Parameters
30 to 75	Gray Marl	Soil Type: Weak Rock (Reese) Effective Unit Weight: 125 pcf Young's Modulus (E_r): 3,000 psi (assumed) Uniaxial Compressive Strength: 100 psi RQD: 20% (assumed) K_{rm}: 0.0005

LPILE Parameters for Borings B-08 and 09		
Depth from existing ground surface (feet)	Material Type	LPILE Parameters
0 to 3	Native Clay	Soil Type: Soft Clay (Matlock) Effective Unit Weight: 125 pcf Undrained Shear Strength: 50 psf Strain @ ½ Peak Strength (ε50): 0.02 p-y Modulus (k): 10 pci
3 to 20	Native Clay	Soil Type: Stiff Clay W/o Free Water (Matlock) Effective Unit Weight: 125 pcf Undrained Shear Strength: 1500 psf Strain @ ½ Peak Strength (ε50): 0.005 p-y Modulus (k): 500 pci
20 to 75	Gray Marl	Soil Type: Weak Rock (Reese) Effective Unit Weight: 125 pcf Young's Modulus (E_r): 3,000 psi (assumed) Uniaxial Compressive Strength: 100 psi RQD: 20% (assumed) K_{rm}: 0.0005

Pier Spacing. Piers spaced closer than three shaft diameters (diameter of larger shaft) center to center will have reduced bearing capacities. A reduction factor of 70 percent (i.e., 70% multiplied by the single pier bearing capacity) should be used for piers placed 2 to 3 diameters apart, measured center to center. For piers closer than 2 shaft diameters, we should be contacted to review and provide additional recommendations.

Settlement. Foundation settlement for isolated drilled piers constructed as described herein should be less than 0.5-inches. Foundation settlement can be highly affected by the condition at the bottom of pier excavation. Failure to adequately clean loose soils and cuttings from the hole bottom may lead to large settlements.

Groundwater. Groundwater was encountered at some of the bridge boring locations during our subsurface investigation at depths ranging between 28 to 38 feet below ground surface. Groundwater will likely be encountered during pier excavation and the risk of groundwater seepage is increased during or after periods of precipitation. We recommend the contractor be

prepared for drilled shaft construction in presence of groundwater. Pumping the groundwater out of the shaft hole or temporary casing may be used to seal off the permeable strata and allow dry concrete placement. If water could not be controlled, concrete placement using the slurry method (wet method) should be used.

Construction Observation. Construction of piers should be observed by qualified engineer representative/inspector to ensure:

1. the bearing stratum and penetration depth are per the design.
2. the removal of all cuttings and loose materials.
3. that groundwater seepage, if encountered, is handled correctly.
4. the shafts are vertical (within acceptable tolerance).
5. that the top of the shafts in contact with clay are not enlarged (i.e., mushroomed).

TxDOT Construction Specifications. Drilled shaft foundations construction specifications found in TxDOT Item 416 (Drilled Shaft Foundations) should be followed. These specifications include requirements for construction using casing or the slurry displacement method, as appropriate.

Concrete Placement. Concrete should be placed immediately after pier excavation has been completed. In no event should a pier excavation be allowed to remain open for more than 8 hours. Concrete should have a slump of 5 to 7 inches and should not be allowed to strike the shaft sidewall or steel reinforcement during placement.

5.6 Pavement

Rigid pavement (concrete) may be used for Crenshaw Rd. Traffic data indicating the number and type of vehicles for use in pavement design was not available. Therefore, our recommendations are based upon our experience and assuming normal vehicular loading. Any unusual loading conditions should be brought to our attention prior to finalizing the pavement design so that we assess and modify our recommendations as necessary.

Reinforced Concrete Pavement. Portland cement concrete with a minimum 28-day compressive strength of 4,000 pounds per square inch (psi) should be used. Grade 60 reinforcing steel should be used in the transverse and longitudinal directions. The following pavement thicknesses and reinforcing are recommended.

Pavement Use	Thickness (inches)[1]	Pavement Subgrade	Steel Reinforcing
Crenshaw Rd	7	Lime Stabilized	No. 4 bars spaced at 18-inch intervals each way

Notes:
1. Thickness based on design life of 20 years and reliability of 90%.

The maximum control joint spacing should be 15 feet. Saw cut control joints should be cut within 6 to 12 hours of concrete placement. Where not specified herein, concrete pavements should comply with TxDOT Item 360 - "Concrete Pavement", or local equivalent.

Pavement Subgrade. Based on our investigation, the onsite subgrade soils consist of high plasticity clay. The pavement subgrade should be placed in loose lifts not exceeding 8-inches and should be uniformly compacted to a minimum of 95% maximum dry density and within ±2% of the optimum moisture content per Tex-114-E. We recommend the subgrade be stabilized using lime treatment as shown below.

Reagent	Application Rate (pounds per square yard)[1]	Application Depth (inches)
Lime	32	6

Notes:
1. Based on 7% lime by dry weight of soil.

Lime stabilization should be performed in accordance with TxDOT Item 260 - “Lime Treatment”, or local equivalent.

6.0 Closing and Limitations

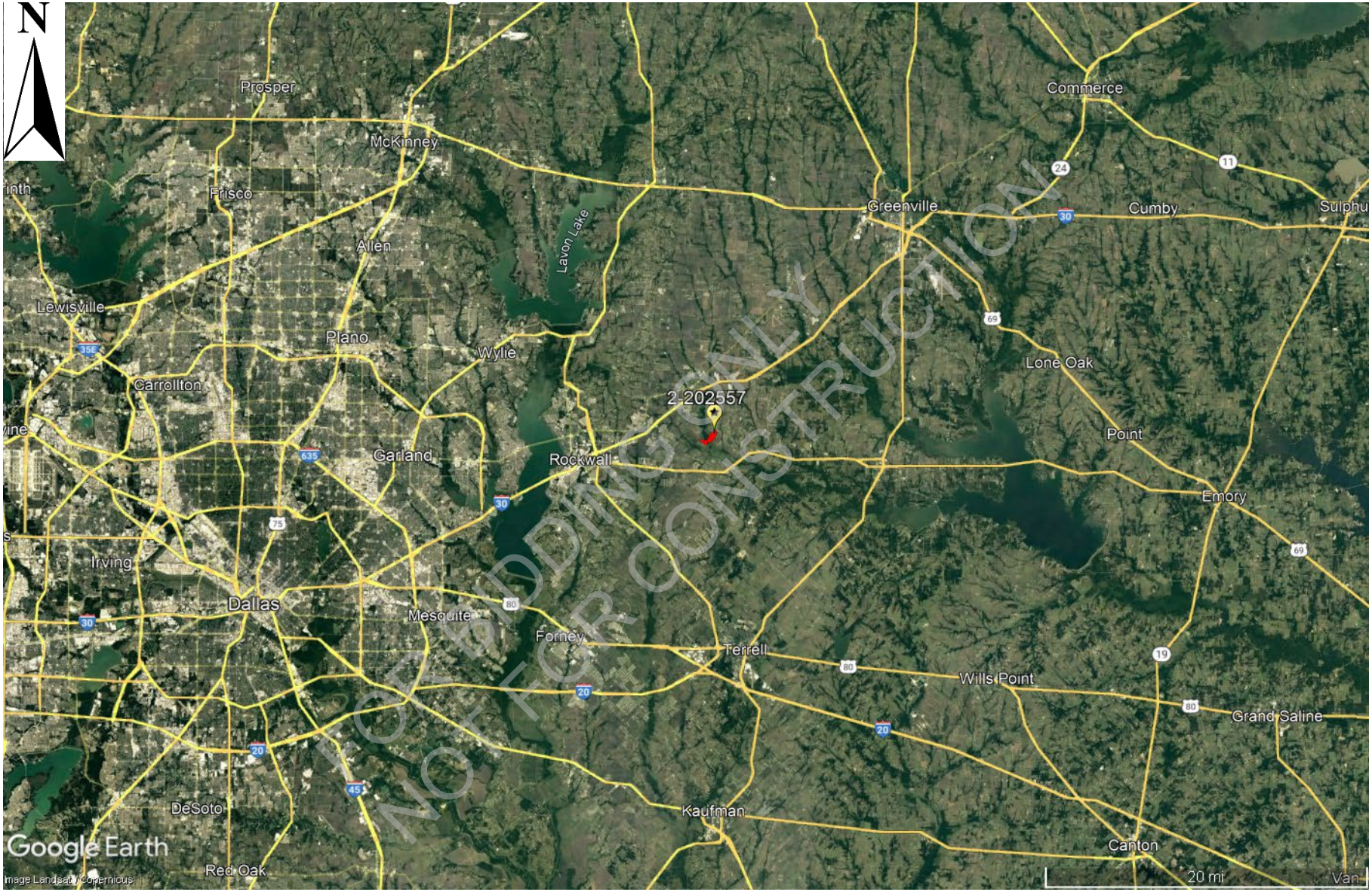
This report was prepared for Rockwall County in reference to the proposed Crenshaw Road improvements, from Sabine Creek Wastewater Treatment Plant to FM 2453 (approximately 1.3-mi stretch), in Rockwall County, Texas. This report provides geotechnical recommendations based on the subsurface conditions encountered in the borings. It is not practical or economical to perform enough subsurface investigation borings to identify all conditions at the site. Subsurface conditions may vary with distance away from the borings completed for this report. Conditions that may affect the recommendations contained within the geotechnical report may exist and may not become known until construction. If variations appear during construction, it may be necessary to revise the recommendations contained in this report. Therefore, monitoring of subsurface conditions during construction should be performed by a geotechnical engineer or his representative to verify that conditions are consistent with the geotechnical report.

WSB warrants that the findings and recommendations contained herein have been made with generally accepted professional geotechnical practices in the local area. No other warranties are implied or expressed. The scope of services and recommendations contained in this report do not include any environmental assessment or identification of contaminated or hazardous materials. Any statements in this report or in the boring logs concerning suspicious odors, colors, irregular textures or abnormal conditions are for informational purposes only and have not been verified by testing.

Appendix A

Project Location and Boring Location Diagrams

PROJECT LOCATION - GENERAL



WSB Project No. 2-202557

Crenshaw Road

PROJECT LOCATION - LOCAL

WSB Project No. 2-202557

Crenshaw Road

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BRIDGE BORING LOCATION PLAN

WSB Project No. 2-202557

Crenshaw Road

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PAVEMENT BORING LOCATION PLAN – P-01 and 02

WSB Project No. 2-202557

Crenshaw Road

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PAVEMENT BORING LOCATION PLAN – P-03 and 04

WSB Project No. 2-202557

Crenshaw Road

wsb

Appendix B

Boring Logs and Laboratory Test Results

DRILLING LOG

	County	Rockwall	Hole	B-03	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Bridge	Date	8/9/24
Version 3.3	CSJ		Station		Grnd. Elev.	498.44 ft
			Offset		GW Elev.	478.44 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)			21				PP=4.50
						36	75	55		PP=2.75, -#200=98%
5		2 (6) 2 (6)								
10		2 (6) 3 (6)		0	9.32	42	87	65	118	PP=2.00, -#200=99%
15		4 (6) 4 (6)				34				PP=2.50
20		5 (6) 5 (6)				27	63	48		PP=3.00, -#200=97%
25		5 (6) 6 (6)				33				PP=3.25
468.4 30		23 (6) 26 (6)	MARL, soft, gray.							PP=1.75
35		49 (6) 50 (4)				29	78	50		N=9-11-12, -#200=99%
40		50 (2.5) 50 (3.75)								N=10-11-15

Remarks: Northing: 7027916.44 & Easting: 2639625.64.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-03	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	8/9/24
	CSJ		Station		Grnd. Elev.	498.44 ft
			Offset		GW Elev.	478.44 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 30 (6)								
50		50 (6) 50 (5.5)								N=19-21-30
55		38 (6) 50 (6)								
60		50 (1.5) 50 (3.25)								N=22-22-33
65		50 (2) 50 (1.5)								
70		50 (3.5) 50 (2.5)								N=16-18-27
423.4 75		34 (6) 28 (6)								
80										

Remarks: Northing: 7027916.44 & Easting: 2639625.64.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	B-04	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Bridge	Date	8/1/24
Version 3.3	CSJ		Station		Grnd. Elev.	498.12 ft
			Offset		GW Elev.	462.12 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to very stiff, dark gray, and gray and brown. (CH)			32	70	49		PP=3.75, -#200=99%
						32				PP=3.50
5		3 (6) 3 (6)								
10		2 (6) 3 (6)				31	81	64		PP=2.25, -#200=97%
15		4 (6) 4 (6)		0	25.2	27	77	62	125	PP=2.50, -#200=96%
20		8 (6) 10 (6)				28				N=3-4-5
25		10 (6) 11 (6)				35				N=5-6-8
30		18 (6) 18 (6)				34	84	58		N=7-10-12, -#200=99%
465.1			MARL, soft, gray.							
35		29 (6) 49 (6)								N=7-10-14
40		50 (4) 50 (4)				29				N=9-12-15

Remarks: Northing: 7028054.6 & Easting: 2639741.09.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	B-04	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Bridge	Date	8/1/24
Version 3.3	CSJ		Station		Grnd. Elev.	498.12 ft
			Offset		GW Elev.	462.12 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 50 (3.5)								N=10-11-11
50		50 (2.5) 50 (2)								N=8-12-14
55		50 (1) 50 (0.5)								N=11-23-29
60		50 (1.5) 50 (1)								N=16-18-19
65		50 (1.75) 50 (1)								
70		50 (1.88) 50 (1)								
423.1 75		50 (1.75) 50 (1.25)								
80										

Remarks: Northing: 7028054.6 & Easting: 2639741.09.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-05	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/30/24
	CSJ		Station		Grnd. Elev.	497.68 ft
			Offset		GW Elev.	461.68 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)			24				PP=4.25
						25	74	55		PP=3.50, -#200=97%
5		2 (6) 2 (6)								
10		3 (6) 3 (6)		0	17.4	29	56	37	122	PP=1.75, -#200=95%, LL???
15		4 (6) 4 (6)				28				N=3-4-5
20		12 (6) 13 (6)				27	73	59		N=3-3-4, -#200=82%
25		11 (6) 10 (6)				34				N=6-7-10
467.7 30		47 (6) 50 (6)				28	79	55		N=6-8-11, -#200=99%
			MARL, soft, gray.							
35		25 (6) 27 (6)								N=9-12-15
40		50 (4) 50 (5)				28				N=6-10-15

Remarks: Northing: 7028198.23 & Easting: 2639907.91.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-05	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/30/24
	CSJ		Station		Grnd. Elev.	497.68 ft
			Offset		GW Elev.	461.68 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (4) 50 (3)								N=13-18-19
50		50 (1) 50 (1)								N=11-17-23
55		50 (2) 50 (1)								N=19-21-26
60		50 (2) 50 (1.5)								N=24-30-37
65		50 (2.25) 50 (1.13)								N=22-25-29
70		50 (5) 50 (2.5)								N=25-27-31
422.7 75		50 (2) 50 (3.5)								N=22-28-31
80										

Remarks: Northing: 7028198.23 & Easting: 2639907.91.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-06	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/29/24
	CSJ		Station		Grnd. Elev.	497.59 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)			39	87	65		PP=3.00, -#200=99%
						28				PP=2.75
5		2 (6) 3 (6)								
10		3 (6) 3 (6)				28	77	58		PP=1.75, -#200=96%
15		7 (6) 7 (6)		0	27.7	28	88	69	124	PP=2.00, -#200=92%
20		8 (6) 7 (6)				34				N=7-8-9
25		14 (6) 12 (6)				36				N=5-6-8
467.6 30		50 (4) 50 (4.5)	MARL, soft, gray.							N=6-7-10
35		50 (4) 50 (4)				28				N=9-13-17
40		50 (3.5) 50 (3)								N=11-15-21

Remarks: Northing: 7028396.33 & Easting: 2640058.38.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3

County	Rockwall	Hole	B-06	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/29/24
CSJ		Station		Grnd. Elev.	497.59 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 50 (2)								N=11-17-23
50		50 (2) 50 (2)								N=25-31-40
55		50 (2) 50 (1)								N=17-19-25
60		50 (2.5) 50 (1)								N=21-28-23
65		50 (2) 50 (0.5)								N=19-24-26
70		50 (2.5) 50 (1)								N=19-24-33
422.6 75		50 (3.5) 50 (6)								N=15-18-24
80										

Remarks: Northing: 7028396.33 & Easting: 2640058.38.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	B-07	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Bridge	Date	7/26/24
Version 3.3	CSJ		Station		Grnd. Elev.	497.63 ft
			Offset		GW Elev.	468.13 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to very stiff, dark gray, and gray and brown. (CH)			32	84	60		PP=4.00, -#200=99%
						31				PP=3.25
5		2 (6) 3 (6)								
10		4 (6) 4 (6)		0	15.2	31	81	60	119	PP=2.50, -#200=96%
15		7 (6) 6 (6)				41				PP=3.25
20		9 (6) 11 (6)				38	116	90		PP=2.50, -#200=99%, LL???
25		12 (6) 18 (6)				37				N=5-6-8
467.6 30		50 (5) 50 (3.5)	MARL, soft, gray.							N=10-12-14
35		50 (3) 50 (2.5)				29				N=12-20-25
40		50 (1) 50 (2)								N=11-14-17

Remarks: Northing: 7028483.65 & Easting: 2640185.11.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-07	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/26/24
	CSJ		Station		Grnd. Elev.	497.63 ft
			Offset		GW Elev.	468.13 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 50 (2.5)								N=16-18-21
50		50 (2) 50 (1)								N=15-20-24
55		50 (1.5) 50 (1.5)								N=17-18-25
60		50 (3.5) 50 (1)								N=19-22-26
65		50 (3) 50 (2.25)								N=18-21-25
70		50 (3.25) 50 (2.75)								N=16-18-21
422.6 75		50 (1) 50 (1)								N=19-30-43
80										

Remarks: Northing: 7028483.65 & Easting: 2640185.11.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-08	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/24/24
	CSJ		Station		Grnd. Elev.	496.20 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)			17				PP=4.50+
						20	65	49		PP=2.50, -#200=92%
5		2 (6) 3 (6)								
10		8 (6) 8 (6)				39	89	68		PP=2.75, -#200=95%
15		9 (6) 11 (6)				33	100	74		PP=3.75, -#200=99%
476.2 20		50 (5) 50 (6)				33				PP=3.50
			MARL, soft, gray.							
25		50 (3) 50 (3)								N=10-12-16
30		50 (4.5) 50 (4.5)				29				N=10-16-18
35		50 (4.5) 50 (4)								N=10-15-20
40		50 (3) 50 (2.25)								N=13-19-23

Remarks: Northing: 7028605.85 & Easting: 2640307.22.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-08	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/24/24
	CSJ		Station		Grnd. Elev.	496.20 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (2.5) 50 (1.75)								N=14-18-23
50		50 (2.5) 50 (2)								N=15-21-28
55		50 (2) 50 (1.5)								N=20-27-41
60		50 (2.5) 50 (1.5)								N=21-26-37
65		50 (2.25) 50 (1.5)								N=5-18-24
70		50 (2) 50 (1.75)								N=17-22-50/5.5in
421.2 75		50 (1.75) 50 (1.5)								
80										

Remarks: Northing: 7028605.85 & Easting: 2640307.22.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	B-09	District	Dallas
	Highway	Crenshaw Rd	Structure	Bridge	Date	7/19/24
	CSJ		Station		Grnd. Elev.	498.09 ft
			Offset		GW Elev.	465.09 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)			19	50	35		PP=3.75, -#200=87%
						25				PP=1.75
5		4 (6) 4 (6)								
10		8 (6) 8 (6)				21	86	61		PP=3.75, -#200=99%
15		14 (6) 14 (6)				32				N=5-7-8
478.1 20		25 (6) 50 (6)				32	66	46		N=7-7-9, -#200=91%
			MARL, soft, gray.							
25		50 (3.5) 50 (4.5)				28				N=14-17-23
30		50 (5) 50 (4.5)				28				N=14-19-27
35		32 (6) 50 (5.5)								N=15-16-18
40		50 (3.75) 50 (4.25)								N=15-18-23

Remarks: Northing: 7028734.27 & Easting: 2640418.38.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	B-09	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Bridge	Date	7/19/24
Version 3.3	CSJ		Station		Grnd. Elev.	498.09 ft
			Offset		GW Elev.	465.09 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		34 (6) 24 (6)								N=14-17-19
50		50 (3) 50 (1.5)								N=22-33-36
55		50 (3.25) 50 (2)								N=30-50-50/4.5in
60		50 (1.5) 50 (1.25)								
65		50 (1.25) 50 (1.5)								
70		50 (2) 50 (1.5)								
423.1 75		50 (1.5) 50 (1.24)								
80										

Remarks: Northing: 7028734.27 & Easting: 2640418.38.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	P-01	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Pavement	Date	8/7/24
Version 3.3	CSJ		Station		Grnd. Elev.	506.80 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, very stiff to hard, dark gray, and brown. (CH)			23	66	47		PP=4.50+, -#200=97%
										Sulfates <100 ppm (0'-2')
						22	79	60		PP=4.25
5						32				PP=3.75, -#200=96%
						26				PP=3.75
496.8		10				27				PP=4.00

Remarks: Northing: 7027410.53 & Easting: 2638496.98.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	P-02	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Pavement	Date	8/7/24
Version 3.3	CSJ		Station		Grnd. Elev.	496.81 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to hard, dark gray, gray, and brown. (CH)			21				PP=4.50+
						25	62	47		PP=3.50, -#200=95%
5										Sulfates <100 ppm (2'-4')
						29				PP=3.00
						24				PP=3.75
10						39	56	39		PP=2.75, -#200=94%

Remarks: Northing: 7027425.85 & Easting: 2639037.13.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

	County	Rockwall	Hole	P-02	District	Dallas
WinCore	Highway	Crenshaw Rd	Structure	Pavement	Date	8/7/24
Version 3.3	CSJ		Station		Grnd. Elev.	496.81 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to hard, dark gray, gray, and brown. (CH)							
15										PP=4.50+
476.8 20										PP=4.50

Remarks: Northing: 7027425.85 & Easting: 2639037.13.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	P-03	District	Dallas
	Highway	Crenshaw Rd	Structure	Pavement	Date	7/18/24
	CSJ		Station		Grnd. Elev.	501.97 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to hard, dark gray, light gray, and brown. (CH)			29	58	45		PP=4.50+, -#200=91%
										Sulfates <100 ppm (0'-2')
						23				PP=2.25
5						18	50	33		PP=4.25, -#200=93%
						24				N=4-5-6
492. 10						25				N=6-7-8

Remarks: Northing: 7028968.28 & Easting: 2640592.09.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

DRILLING LOG

WinCore Version 3.3	County	Rockwall	Hole	P-04	District	Dallas
	Highway	Crenshaw Rd	Structure	Pavement	Date	7/18/24
	CSJ		Station		Grnd. Elev.	502.38 ft
			Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			CLAY, fat, soft to hard, dark gray, light gray, and brown. (CH)			29				PP=4.50
						40	86	67		PP=1.75, -#200=92%
5										Sulfates <100 ppm (2'-4')
						40				PP=1.25
						41				PP=3.50
492.4 10						39	82	60		N=3-5-8, -#200=99%

Remarks: Northing: 7029866.07 & Easting: 2640995.98.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

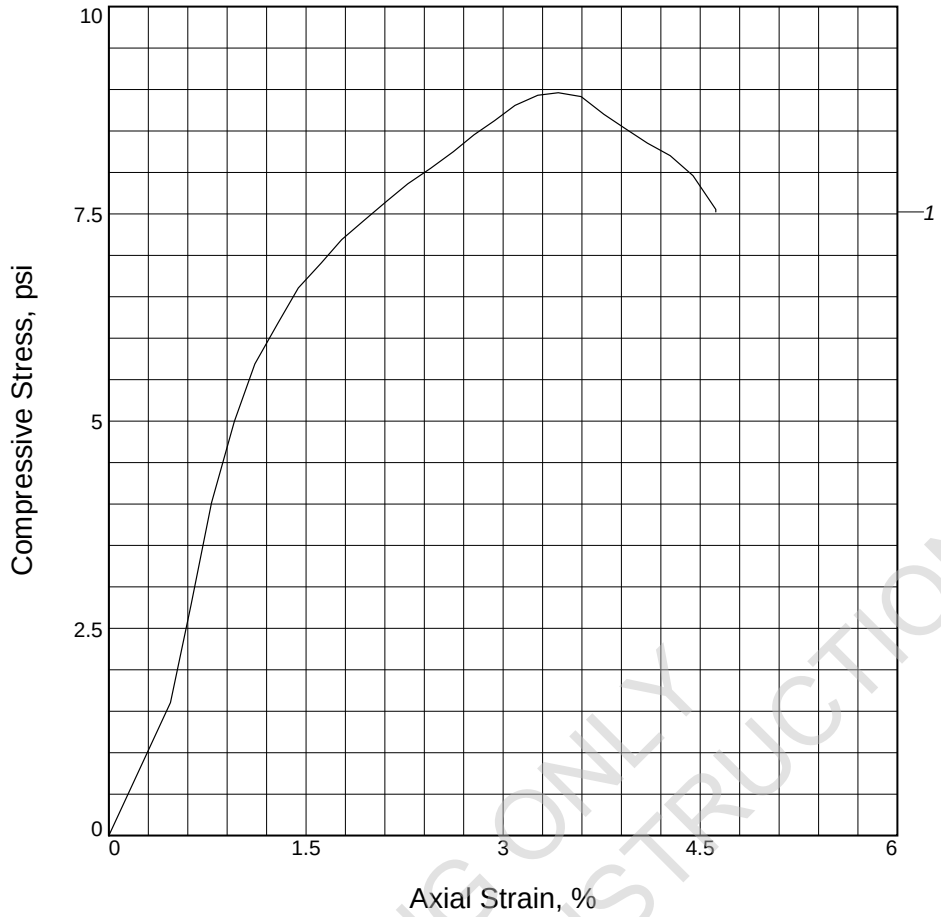
Project Name: Crenshaw Rd Improvements
Project Location: Rockwall County, Texas

WSB Project Number: 2-202557
Date: 9/6/2024

Soluble Sulfate Content Test Results (Tex-145-E)						
Sample ID	**Sample Depth (feet)**	**Dilution Ratio (1:X)**	**Colorimeter Readings**			**Sulfate Concentration (ppm)**
P-01, S1	0-2	20	BDL	BDL	BDL	<100
P-02, S2	2-4	20	BDL	BDL	BDL	<100
P-03, S1	0-2	20	BDL	BDL	BDL	<100
P-04, S2	2-4	20	BDL	BDL	BDL	<100

*BDL= Below Detection Limit

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	8.96			
Undrained shear strength, psi	4.48			
Failure strain, %	3.4			
Strain rate, %/min.	1.00			
Water content, %	41.3			
Wet density, pcf	112.8			
Dry density, pcf	79.8			
Saturation, %	99.6			
Void ratio	1.1279			
Specimen diameter, in.	2.84			
Specimen height, in.	5.76			
Height/diameter ratio	2.03			

Description: Dark gray FAT CLAY (CH)

LL =	**PL =**	**PI =**	**Assumed GS=** 2.72	**Type:** Shelby Tube

Project No.: 2-202557
Date Sampled: 8/9/2024
Remarks:

Figure _____

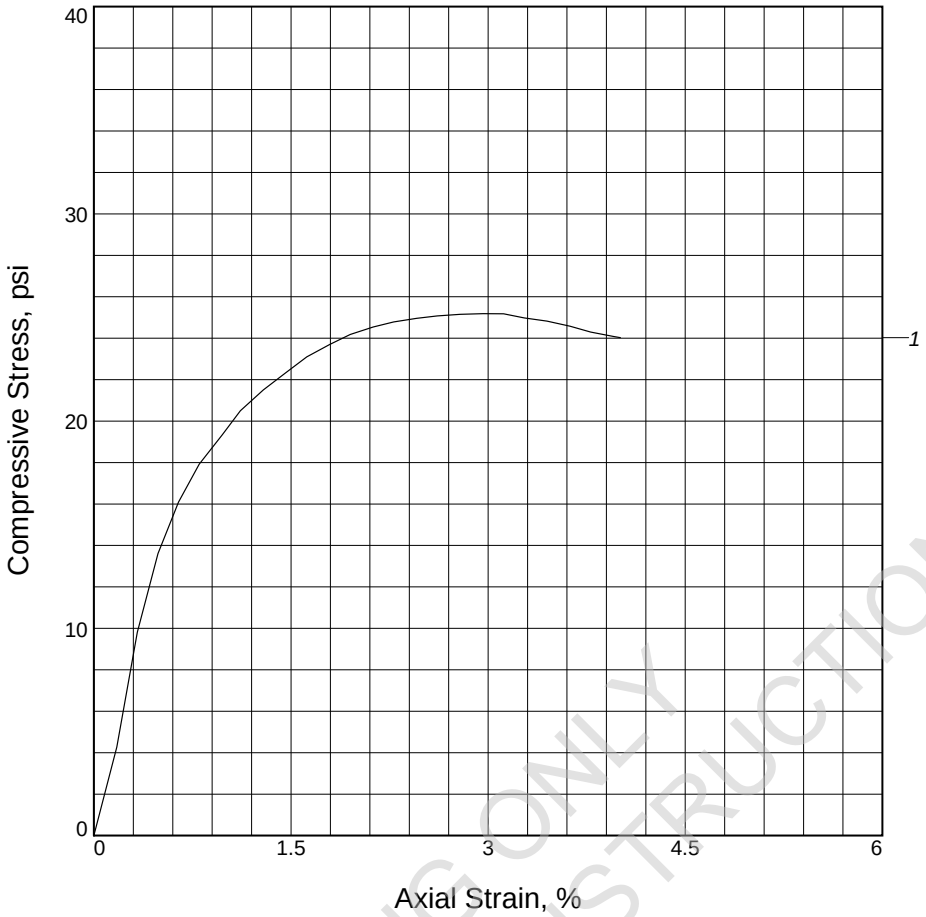
Client: Rockwall County

Project: Crenshaw Road

Location: Boring B-03
Sample Number: 3 **Depth:** 8'-10'

wsb

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	25.19			
Undrained shear strength, psi	12.59			
Failure strain, %	3.0			
Strain rate, %/min.	1.00			
Water content, %	26.8			
Wet density, pcf	124.5			
Dry density, pcf	98.2			
Saturation, %	100.0			
Void ratio	0.7299			
Specimen diameter, in.	2.82			
Specimen height, in.	5.74			
Height/diameter ratio	2.03			

Description: Gray and brown FAT CLAY (CH)

LL =	**PL =**	**PI =**	**Assumed GS=** 2.72	**Type:** Shelby Tube

Project No.: 2-202557
Date Sampled: 8/1/2024
Remarks:

Figure _____

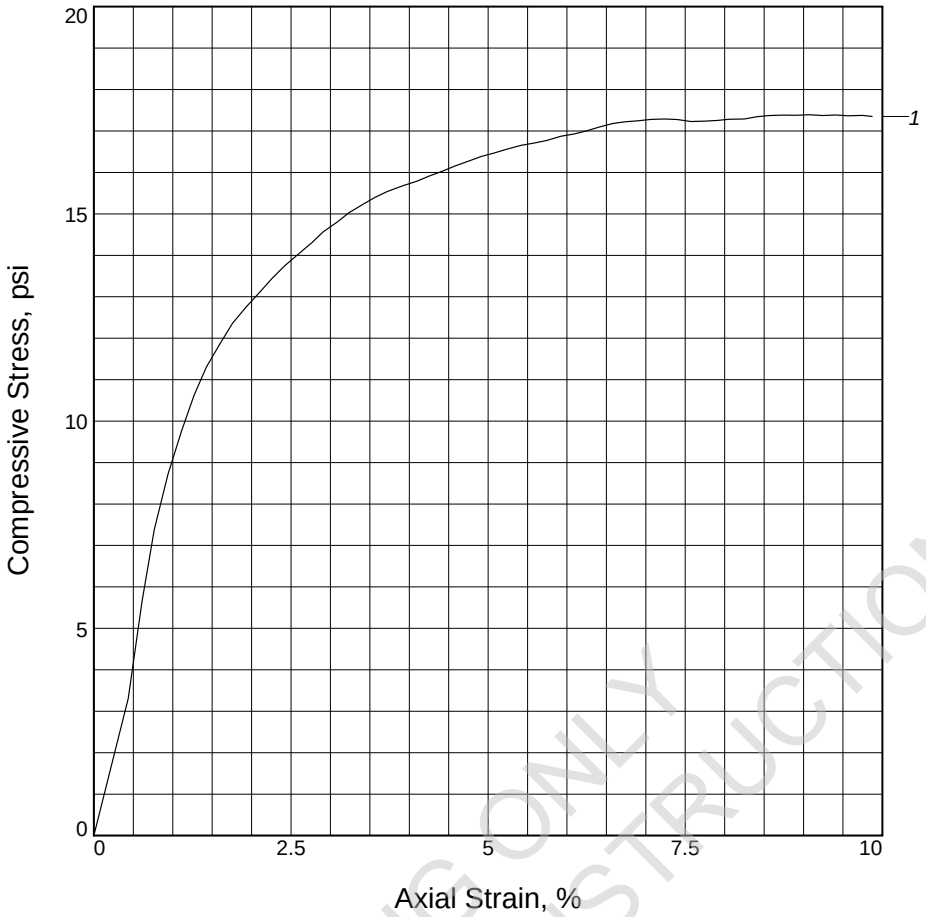
Client: Rockwall County

Project: Crenshaw Road

Location: Boring B-04
Sample Number: 4 **Depth:** 13'-15'

wsb

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	17.39			
Undrained shear strength, psi	8.70			
Failure strain, %	9.1			
Strain rate, %/min.	1.00			
Water content, %	28.9			
Wet density, pcf	122.3			
Dry density, pcf	94.9			
Saturation, %	99.5			
Void ratio	0.7896			
Specimen diameter, in.	2.85			
Specimen height, in.	5.75			
Height/diameter ratio	2.02			

Description: Gray and brown FAT CLAY (CH)

LL =	**PL =**	**PI =**	**Assumed GS=** 2.72	**Type:** Shelby Tube

Project No.: 2-202557
Date Sampled: 7/30/2024
Remarks:

Figure _____

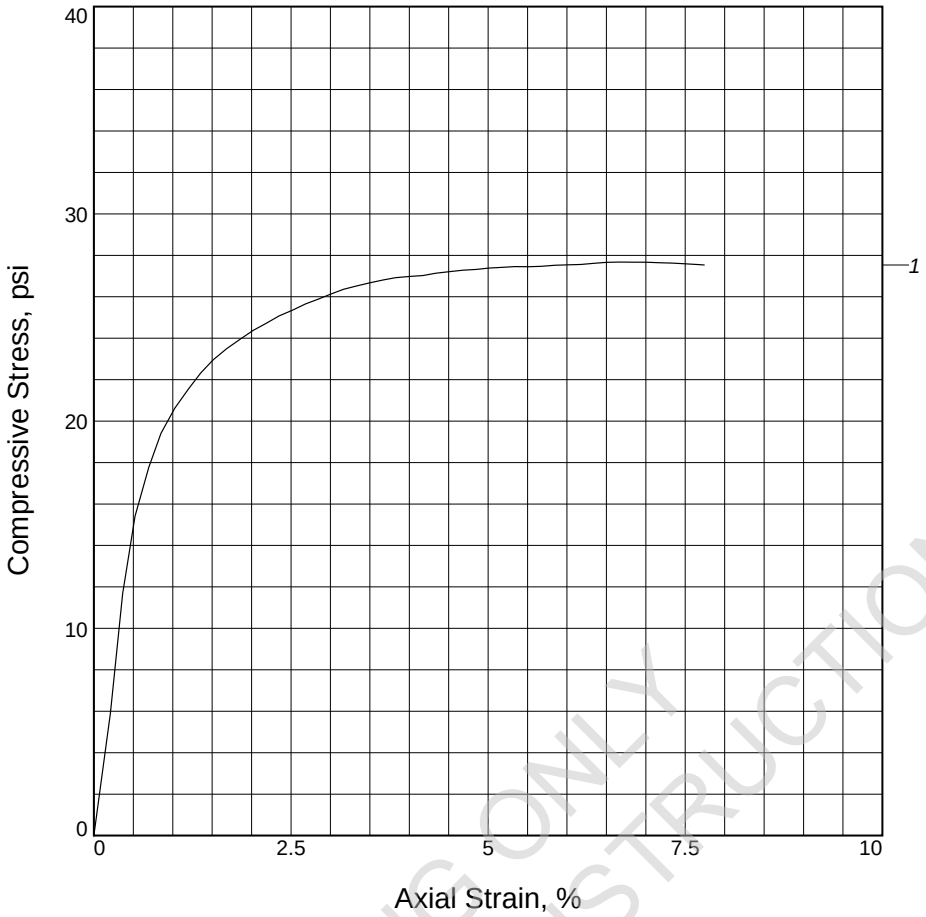
Client: Rockwall County

Project: Crenshaw Road

Location: Boring B-05
Sample Number: 3 **Depth:** 8'-10'

wsb

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	27.67			
Undrained shear strength, psi	13.84			
Failure strain, %	6.7			
Strain rate, %/min.	1.00			
Water content, %	26.9			
Wet density, pcf	124.3			
Dry density, pcf	97.9			
Saturation, %	99.8			
Void ratio	0.7339			
Specimen diameter, in.	2.81			
Specimen height, in.	5.75			
Height/diameter ratio	2.04			

Description: Brown FAT CLAY (CH)

LL =	**PL =**	**PI =**	**Assumed GS=** 2.72	**Type:** Shelby Tube

Project No.: 2-202557
Date Sampled: 7/29/2024
Remarks:

Figure _____

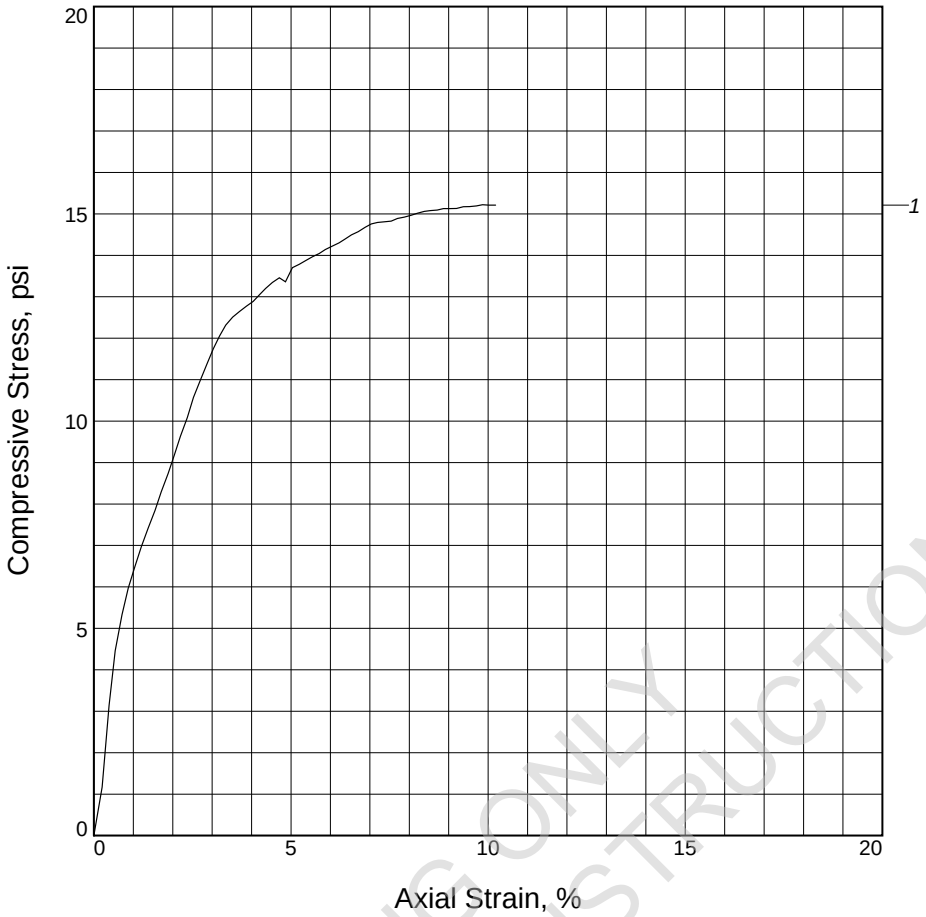
Client: Rockwall County

Project: Crenshaw Road

Location: Boring B-06
Sample Number: 4 **Depth:** 13'-15'

wsb

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	15.22			
Undrained shear strength, psi	7.61			
Failure strain, %	9.9			
Strain rate, %/min.	1.00			
Water content, %	31.2			
Wet density, pcf	119.4			
Dry density, pcf	91.0			
Saturation, %	97.9			
Void ratio	0.8666			
Specimen diameter, in.	2.81			
Specimen height, in.	5.74			
Height/diameter ratio	2.04			

Description: Dark gray FAT CLAY (CH)

LL =	**PL =**	**PI =**	**Assumed GS=** 2.72	**Type:** Shelby Tube

Project No.: 2-202557
Date Sampled: 7/26/2024
Remarks:

Figure _____

Client: Rockwall County

Project: Crenshaw Road

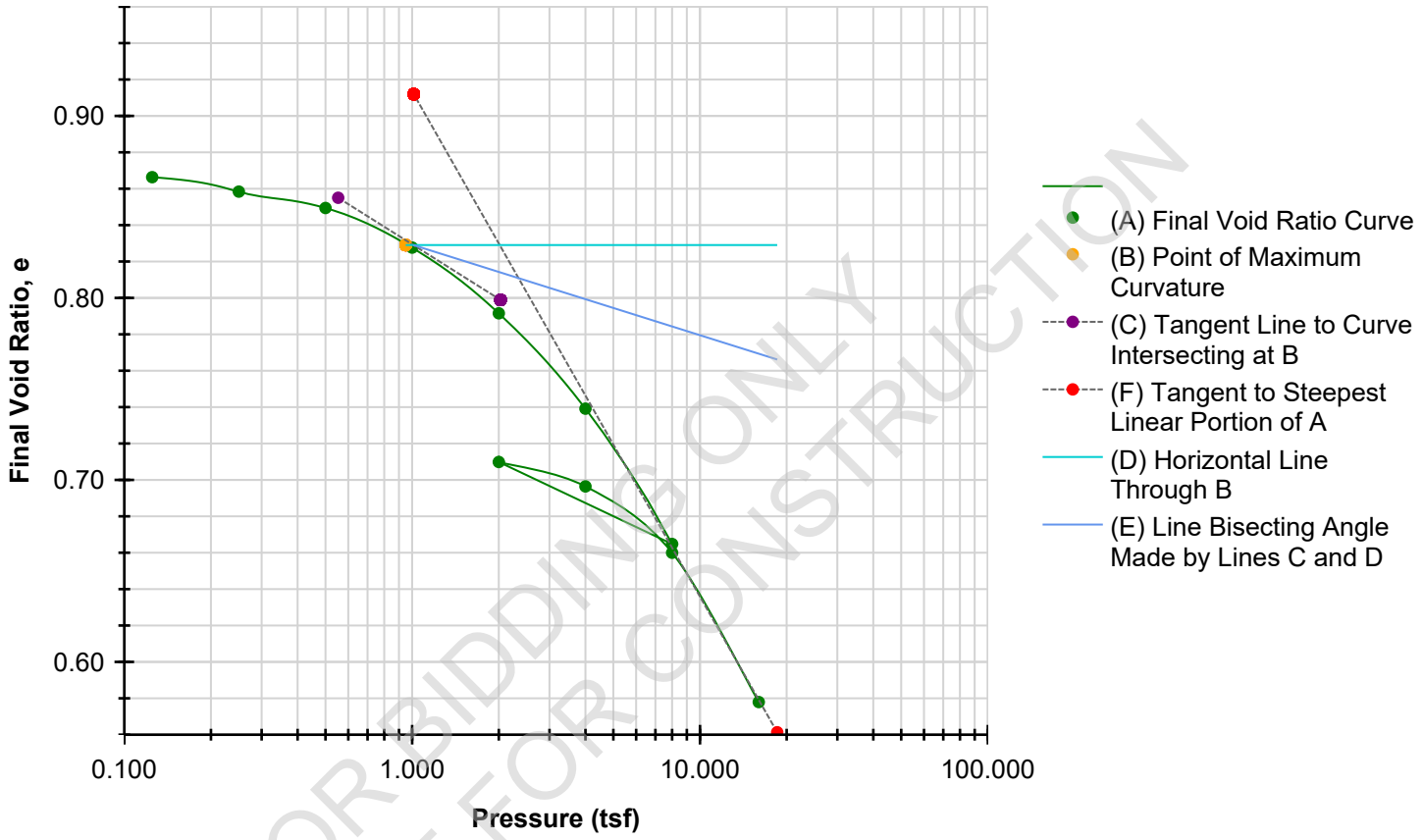
Location: Boring B-07
Sample Number: 3 **Depth:** 8'-10'

wsb

WSB
3522 Sam Rayburn Hwy
Melissa, TX 75454
469-907-5500

Final Voids [Log]

ASTM D2435



Preconsolidation Stress (tsf)	2.342	**Cc**	0.277	**Cr**	0.076

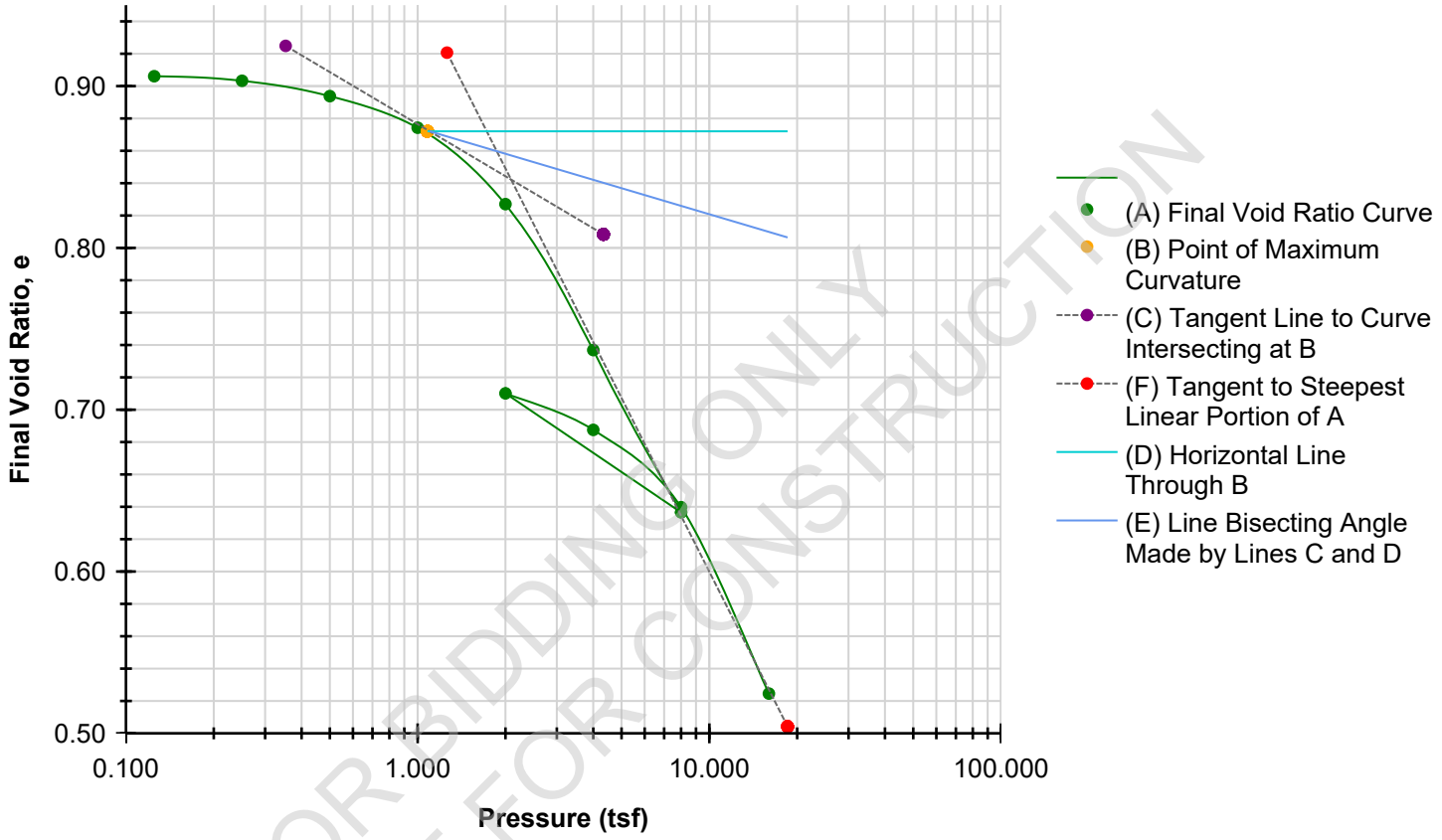
	BEFORE	AFTER			
			Liquid Limits	0	**Test Date** 8/21/2024
Moisture (%)	28.7	23.4	**Plastic Limits**	0	
Dry Density (pcf)	92.2	106.9			
Saturation (%)	92.8	108.3			
Void Ratio	0.84	0.59	**Specific Gravity**	2.72	ASSUMED

Sample Description				
Project Number	2-202557	**Depth (ft)**	8-10	**Remarks**
Sample Number	3	**Boring Number**	B-06	
Project	Crenshaw Road			
Client	Rockwall County			
Location	Rockwall County, Texas			

WSB
3522 Sam Rayburn Hwy
Melissa, TX 75454
469-907-5500

Final Voids [Log]

ASTM D2435



Preconsolidation Stress (tsf)	1.868	**Cc**	0.359	**Cr**	0.122

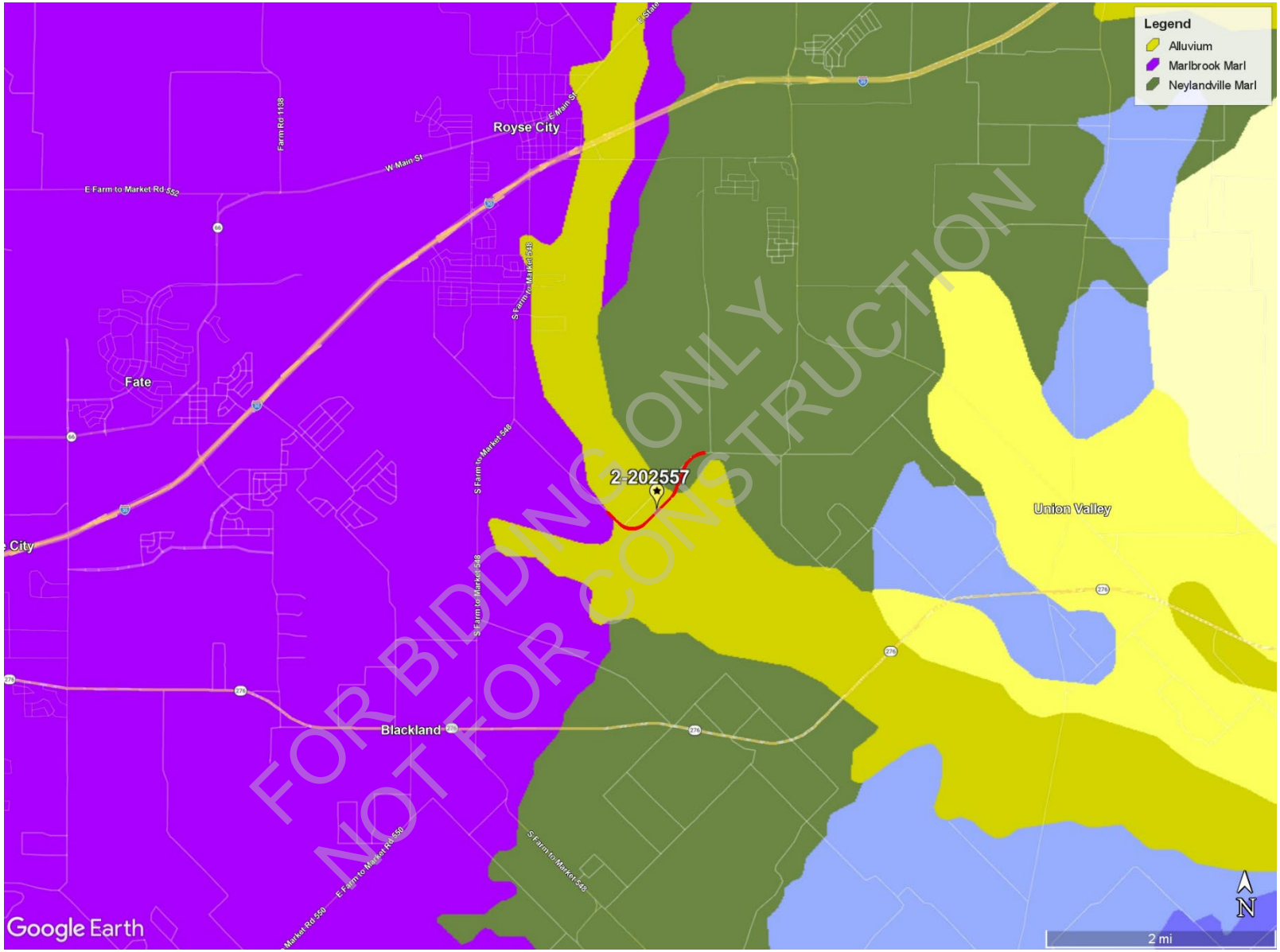
	BEFORE	AFTER			
			Liquid Limits	0	**Test Date** 8/21/2024
Moisture (%)	31.0	23.7	**Plastic Limits**	0	
Dry Density (pcf)	89.6	111.6			
Saturation (%)	94.0	123.5			
Void Ratio	0.90	0.52	**Specific Gravity**	2.72	ASSUMED

Sample Description				
Project Number	2-202557	**Depth (ft)**	2-4	**Remarks**
Sample Number	2	**Boring Number**	P-02	
Project	Crenshaw Road			
Client	Rockwall County			
Location	Rockwall County, Texas			

Appendix C

Geologic Information

GEOLOGIC MAP



WSB Project No. 2-202557

Crenshaw Road

wsb

Appendix D

Axial Capacity Charts of Drilled Shaft Piers

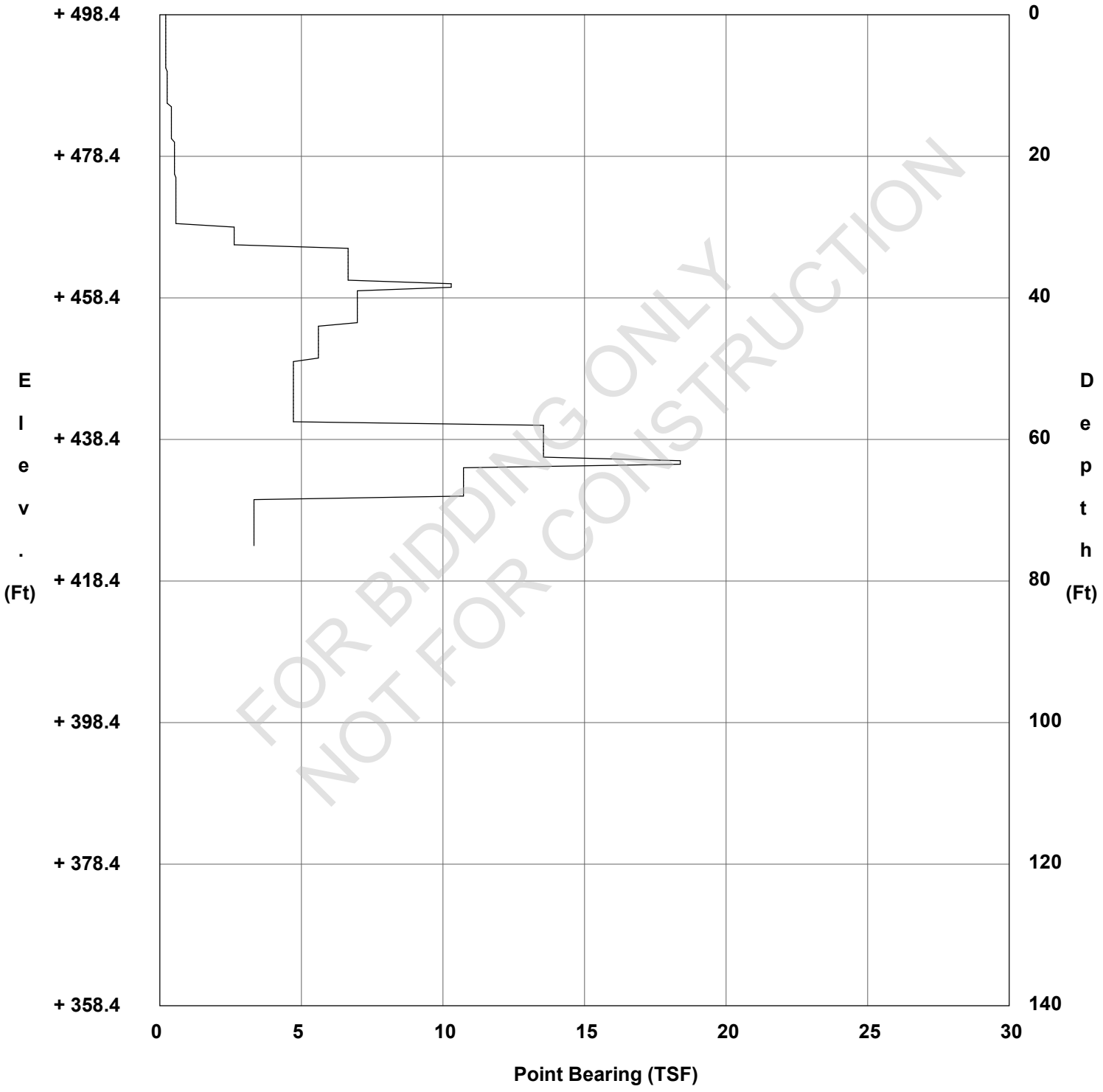
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-03	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	8/9/24
Control		Station		Grnd. Elev.	498.44 ft
		Offset		GW Elev.	478.44 ft

Diameters Below Tip Checked = 2

TCP Bearing Values Used



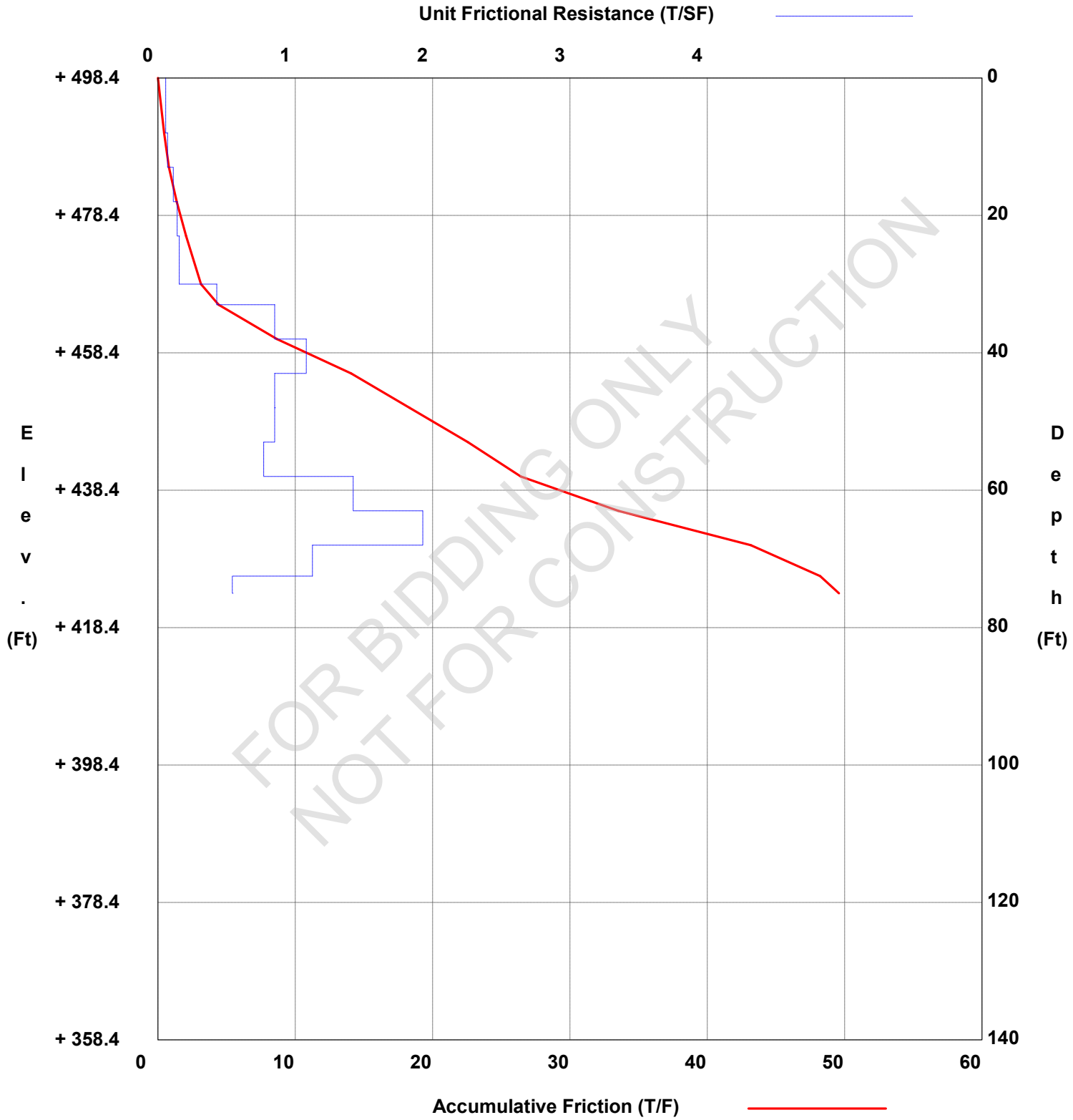
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-03	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	8/9/24
Control		Station		Grnd. Elev.	498.44 ft
		Offset		GW Elev.	478.44 ft

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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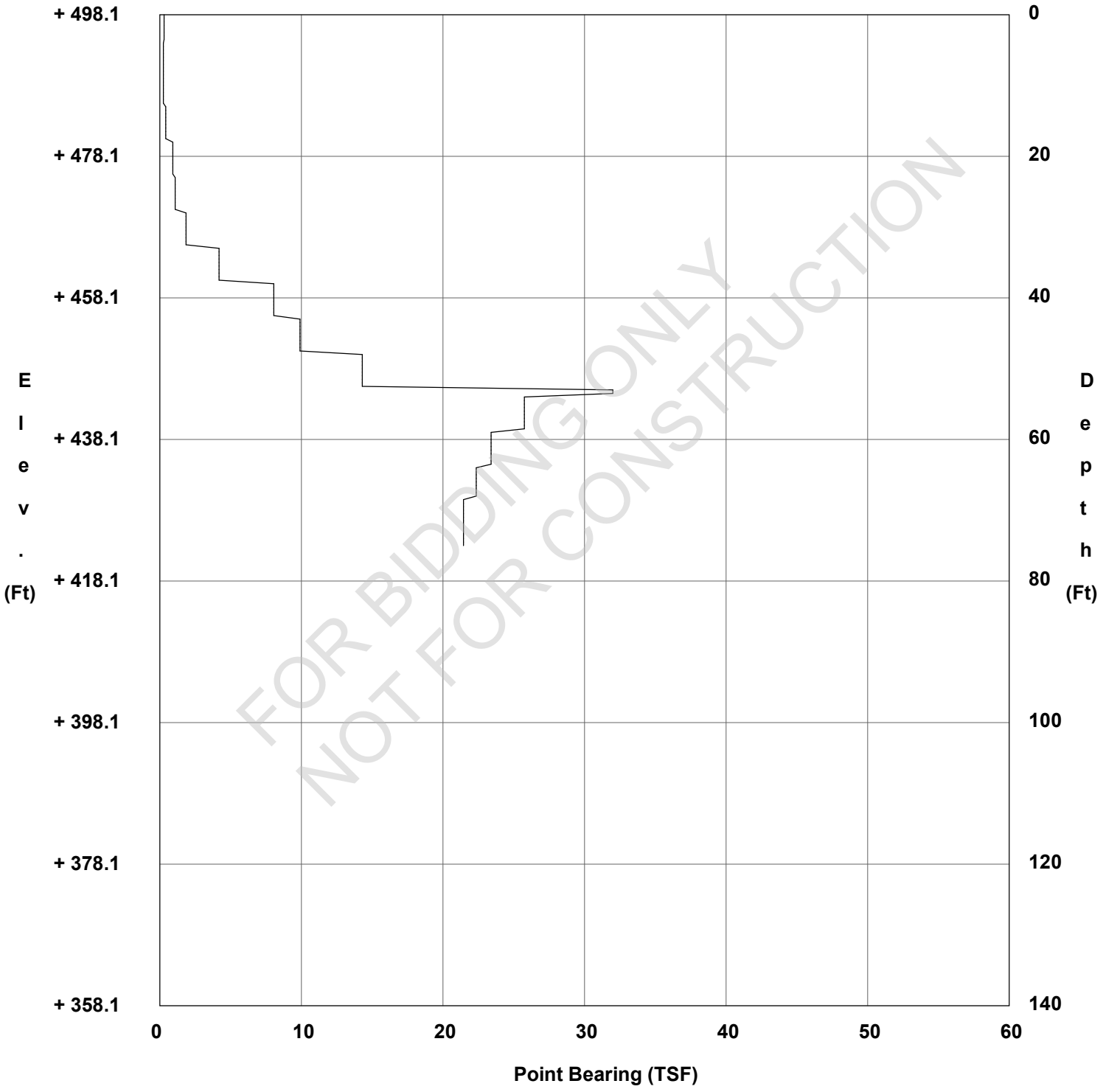
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-04	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	8/1/24
Control		Station		Grnd. Elev.	498.12 ft
		Offset		GW Elev.	462.12 ft

Diameters Below Tip Checked = 2

TCP Bearing Values Used



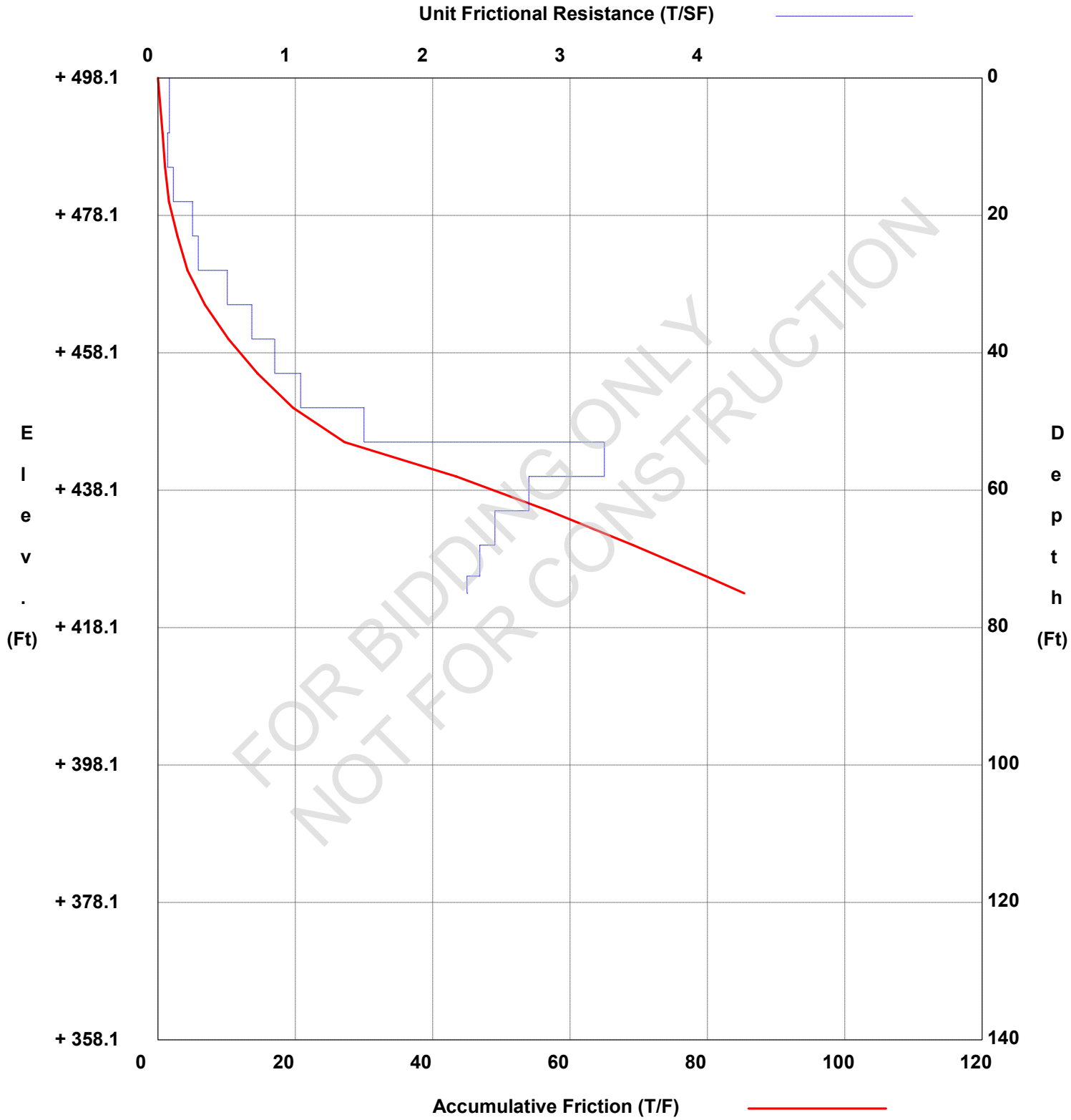
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-04	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	8/1/24
Control		Station		Grnd. Elev.	498.12 ft
		Offset		GW Elev.	462.12 ft

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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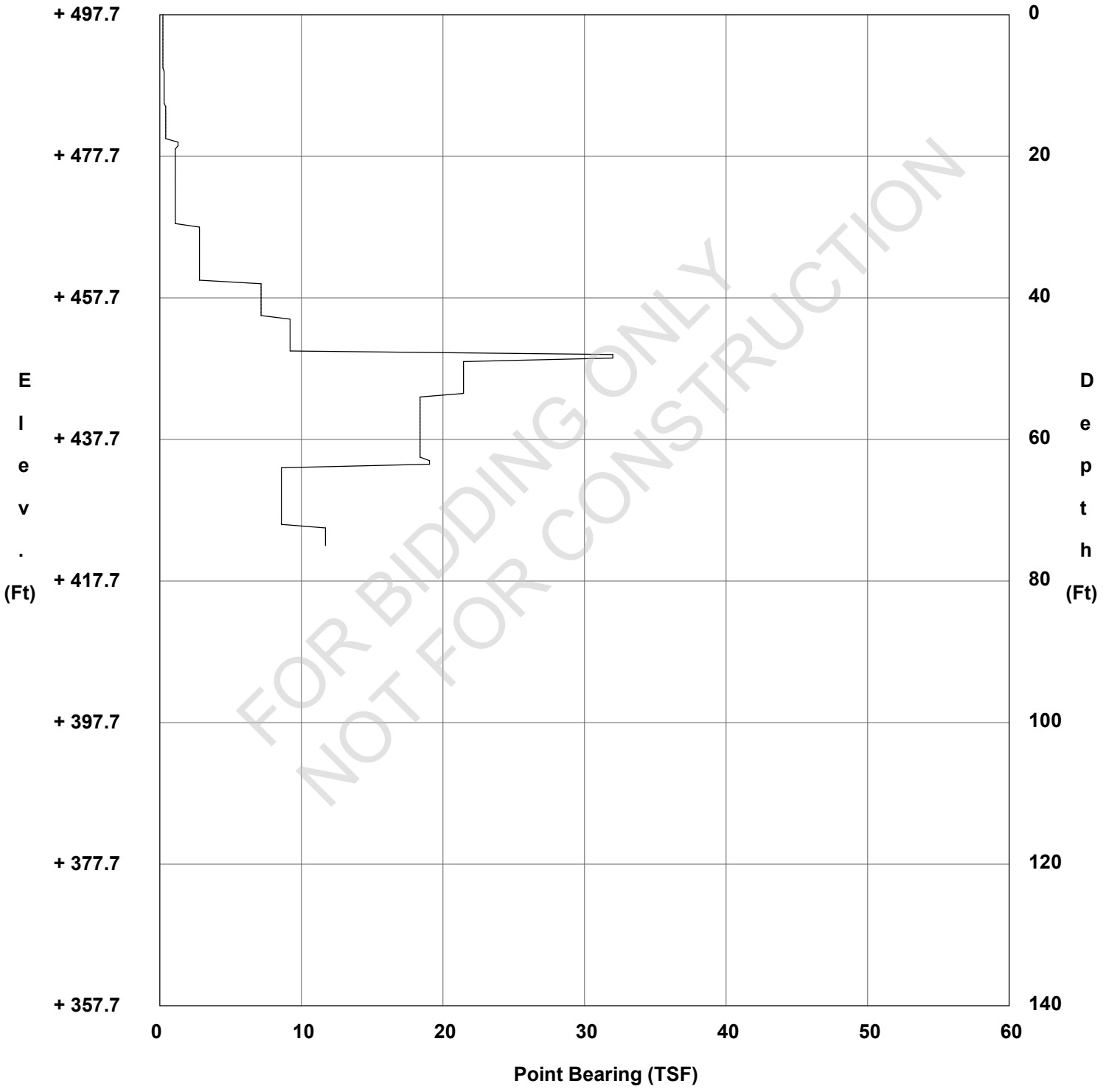
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-05	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/30/24
Control		Station		Grnd. Elev.	497.68 ft
		Offset		GW Elev.	461.68 ft

Diameters Below Tip Checked = 2

TCP Bearing Values Used



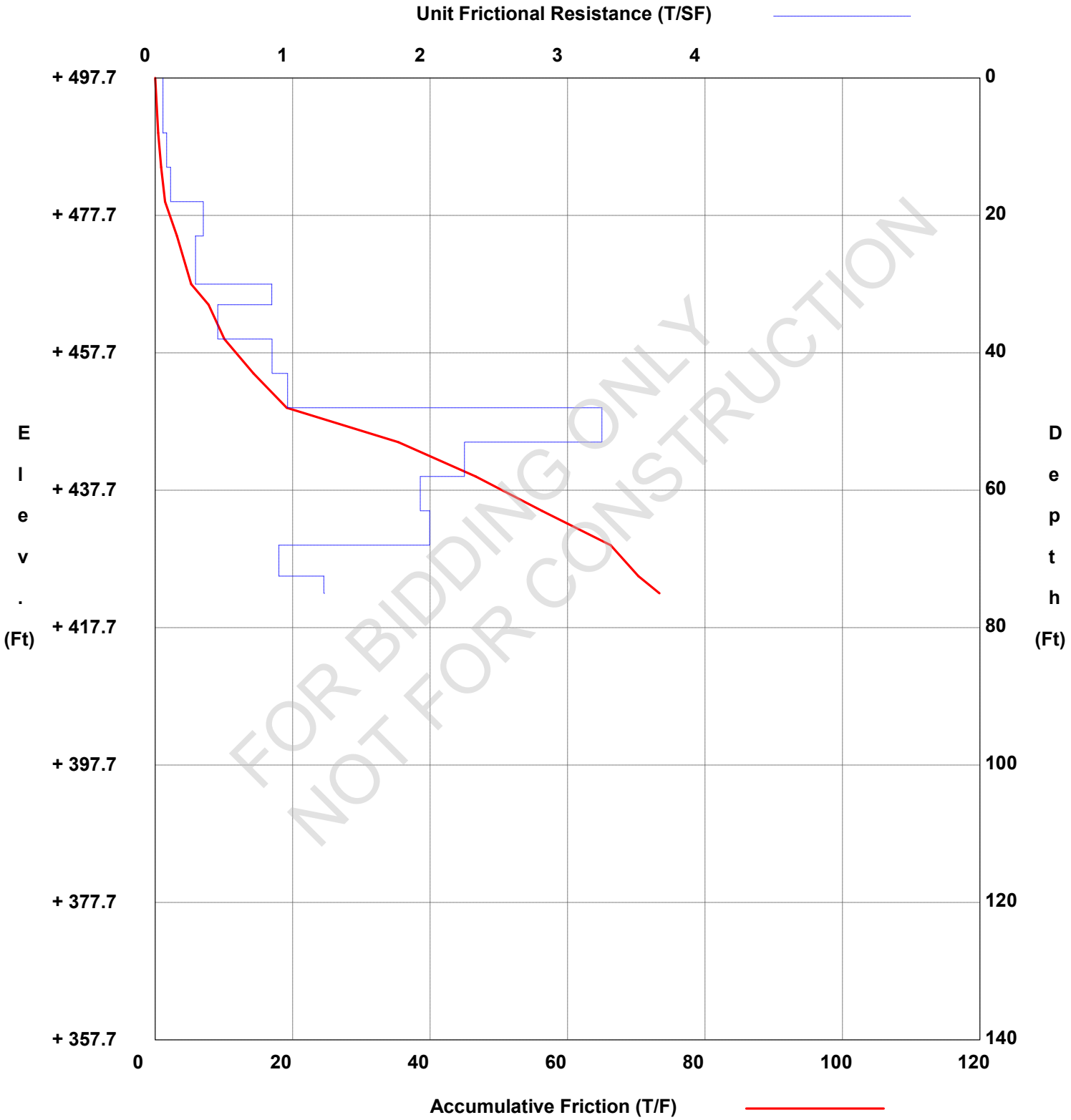
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-05	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/30/24
Control		Station		Grnd. Elev.	497.68 ft
		Offset		GW Elev.	461.68 ft

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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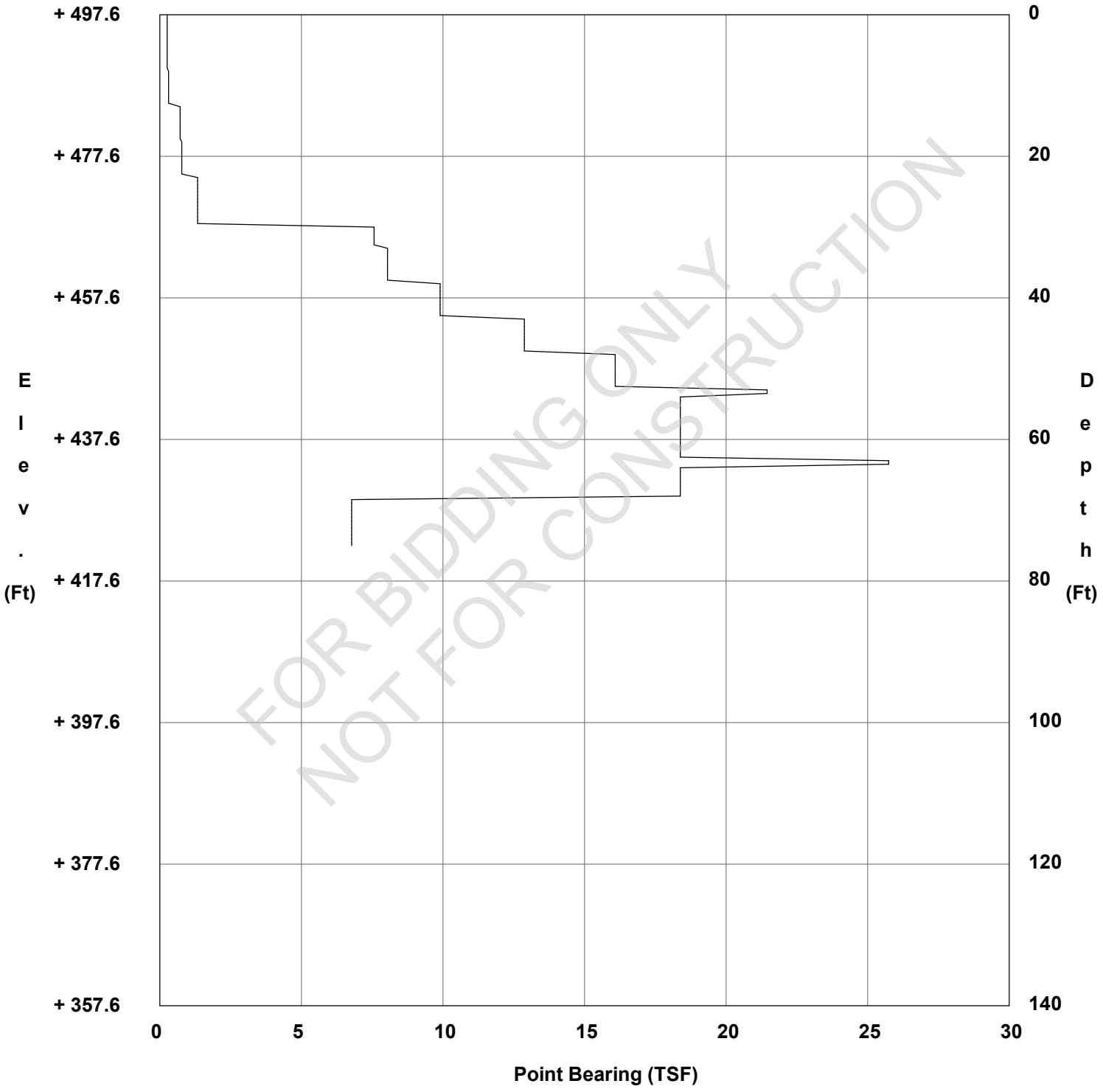
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-06	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/29/24
Control		Station		Grnd. Elev.	497.59 ft
		Offset		GW Elev.	N/A

Diameters Below Tip Checked = 2

TCP Bearing Values Used



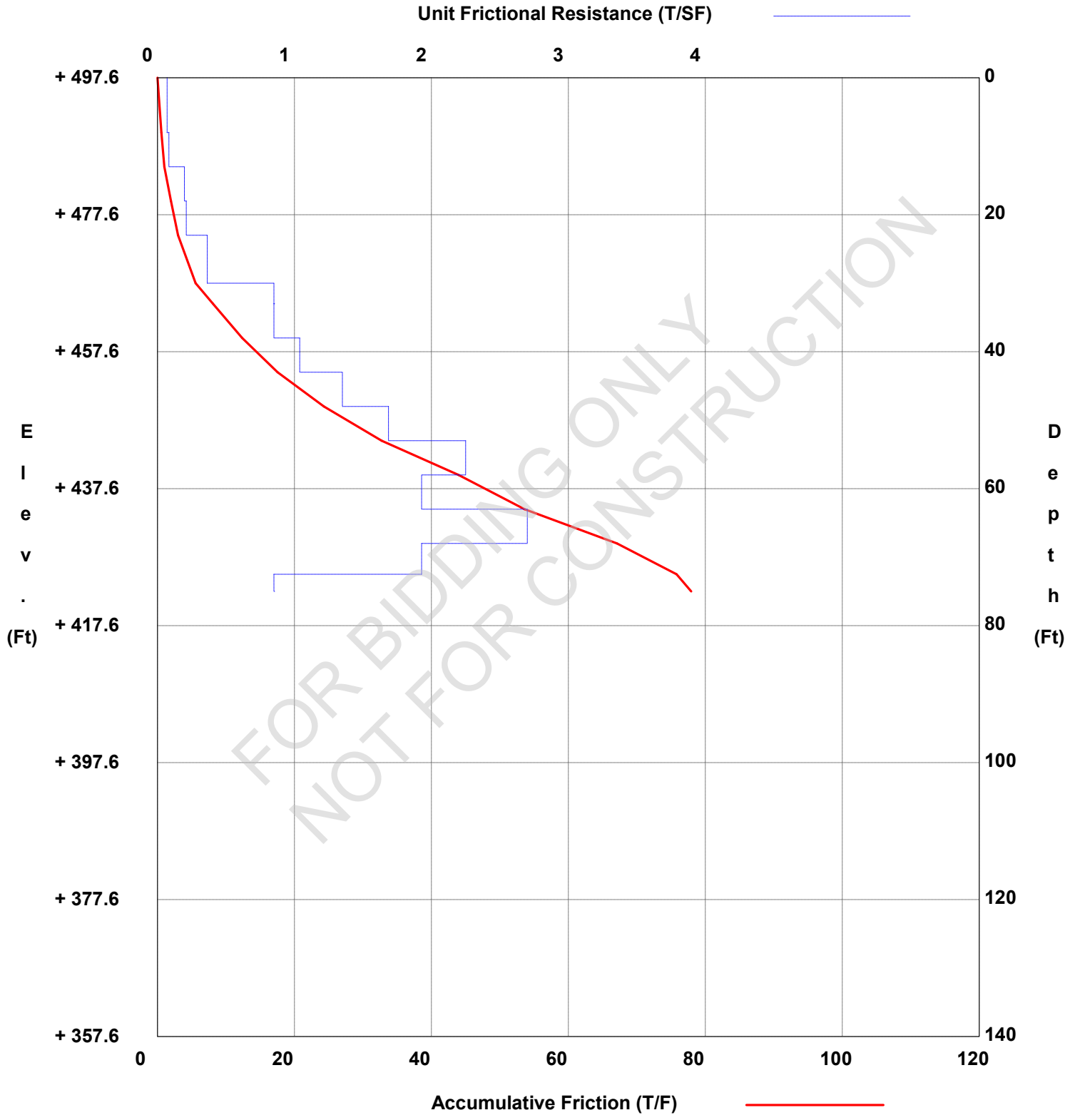
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-06	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/29/24
Control		Station		Grnd. Elev.	497.59 ft
		Offset		GW Elev.	N/A

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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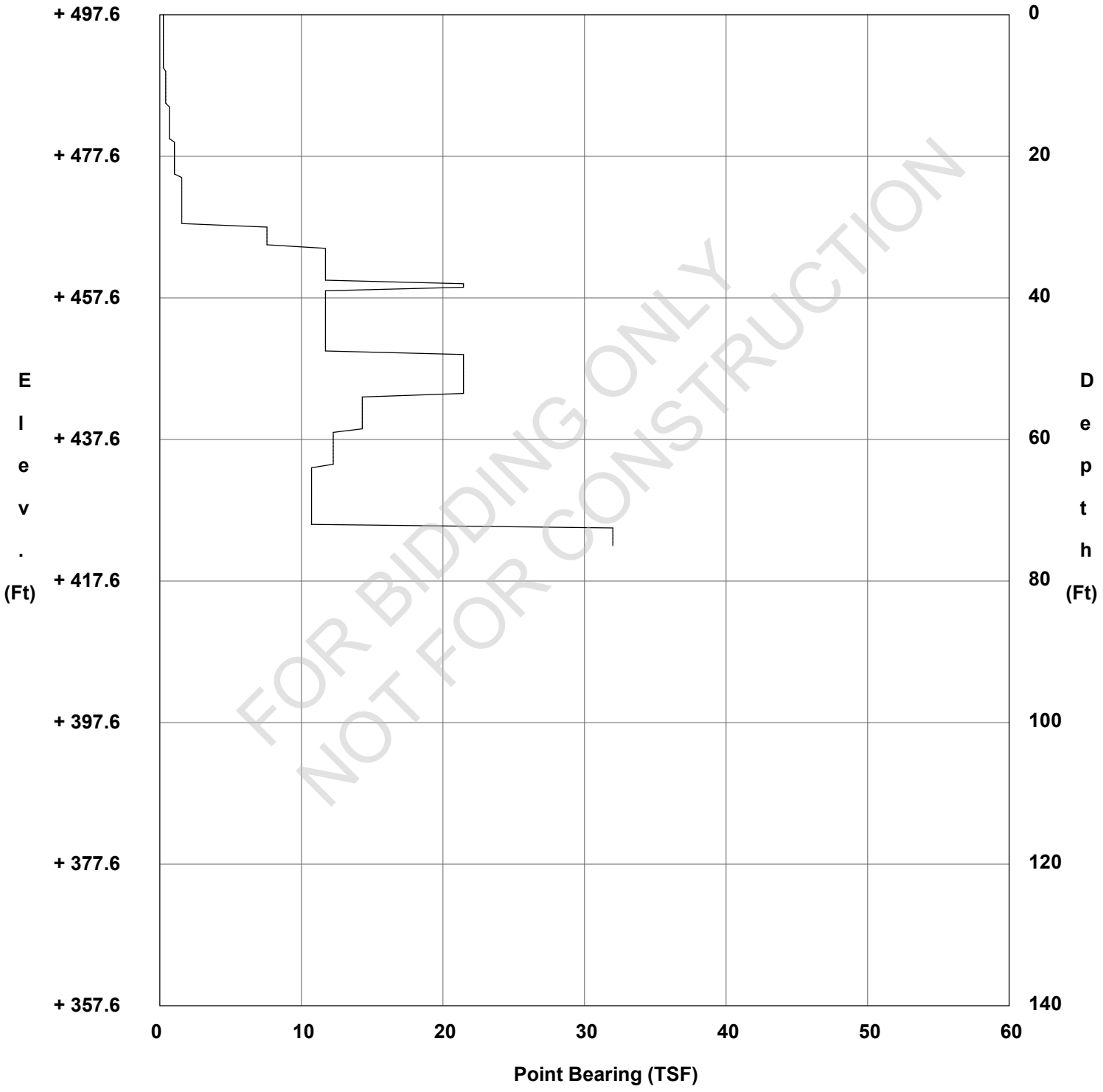
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-07	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/26/24
Control		Station		Grnd. Elev.	497.63 ft
		Offset		GW Elev.	468.13 ft

Diameters Below Tip Checked = 2

TCP Bearing Values Used



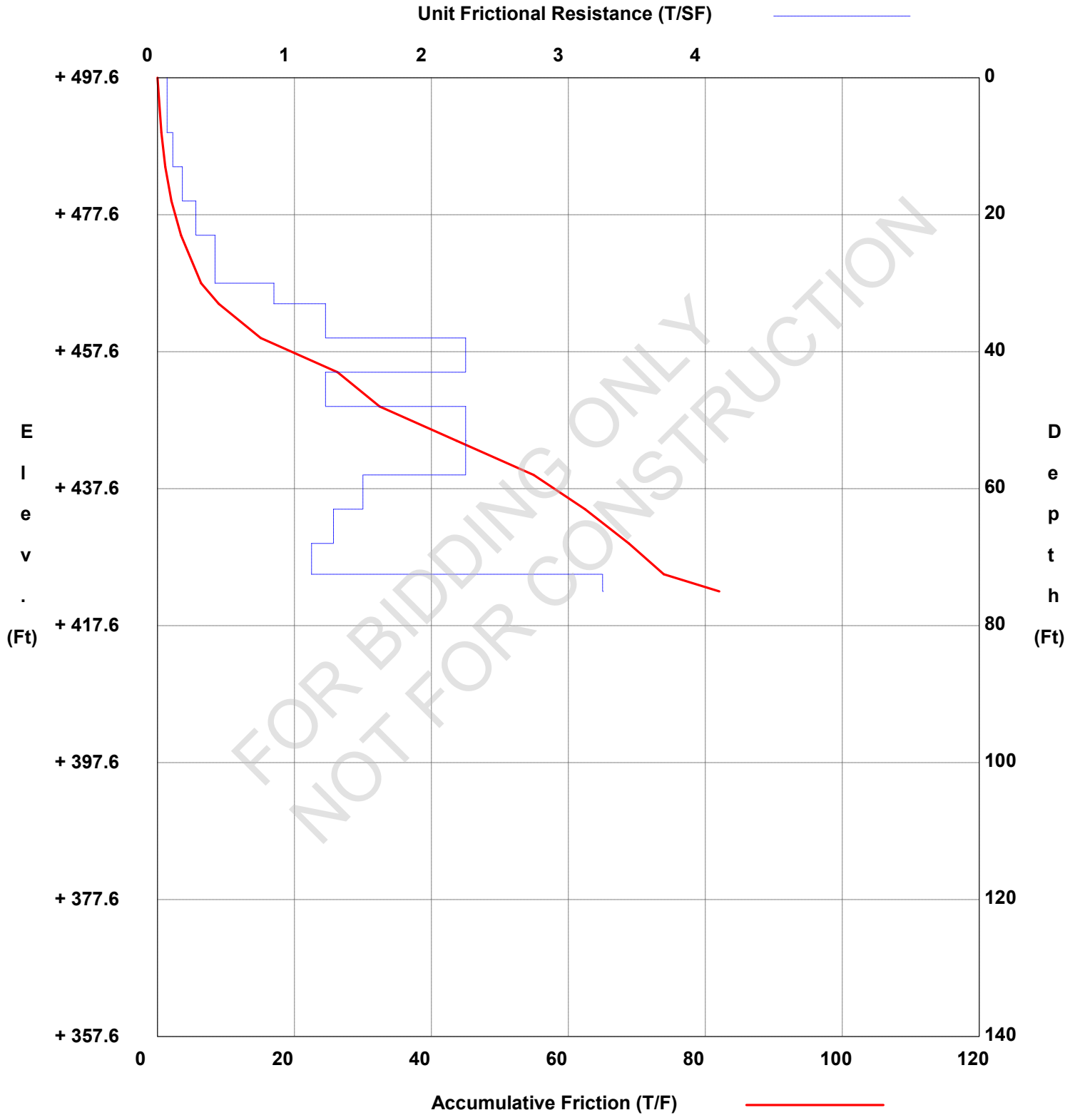
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-07	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/26/24
Control		Station		Grnd. Elev.	497.63 ft
		Offset		GW Elev.	468.13 ft

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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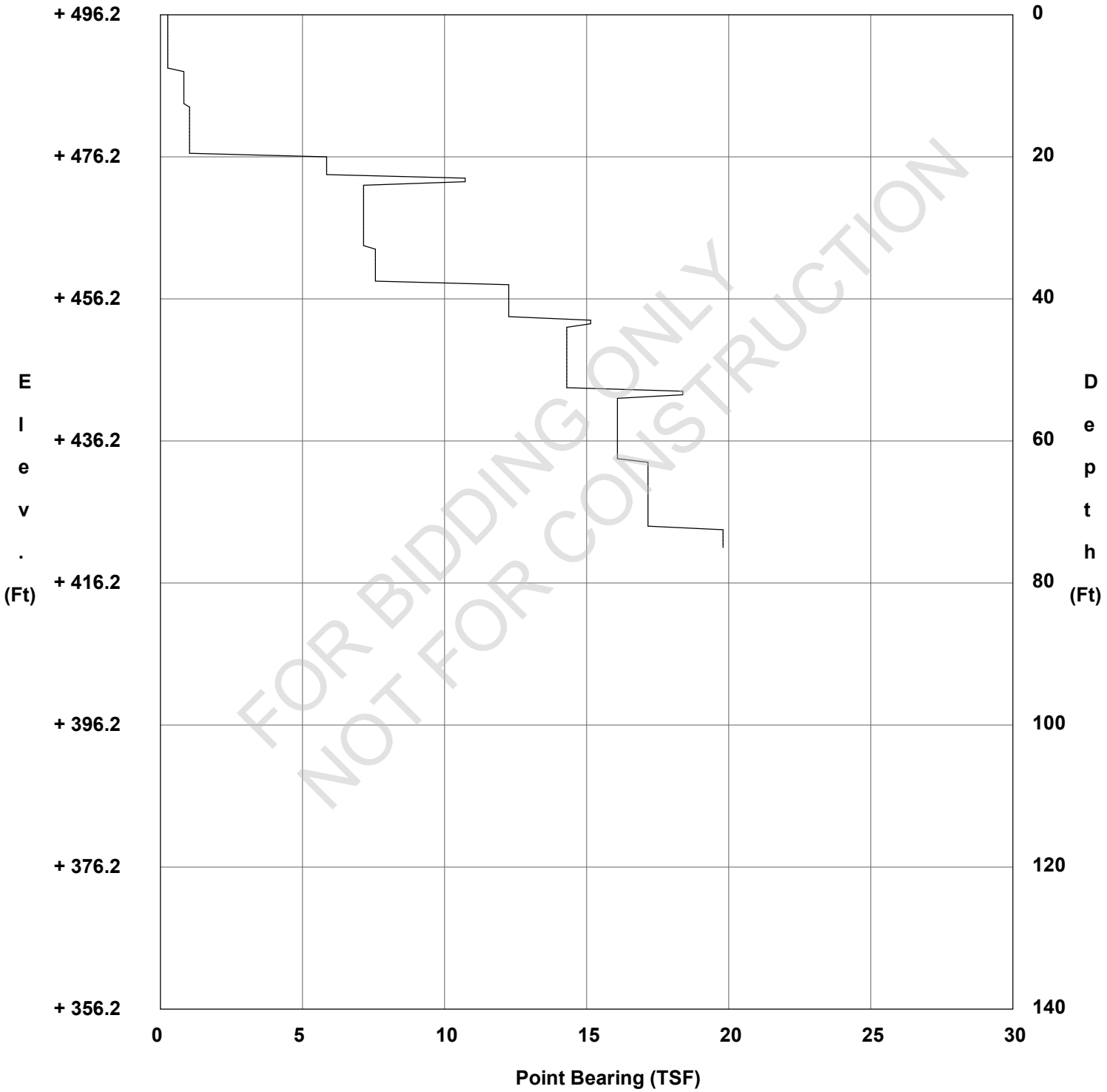
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-08	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/24/24
Control		Station		Grnd. Elev.	496.20 ft
		Offset		GW Elev.	N/A

Diameters Below Tip Checked = 2

TCP Bearing Values Used



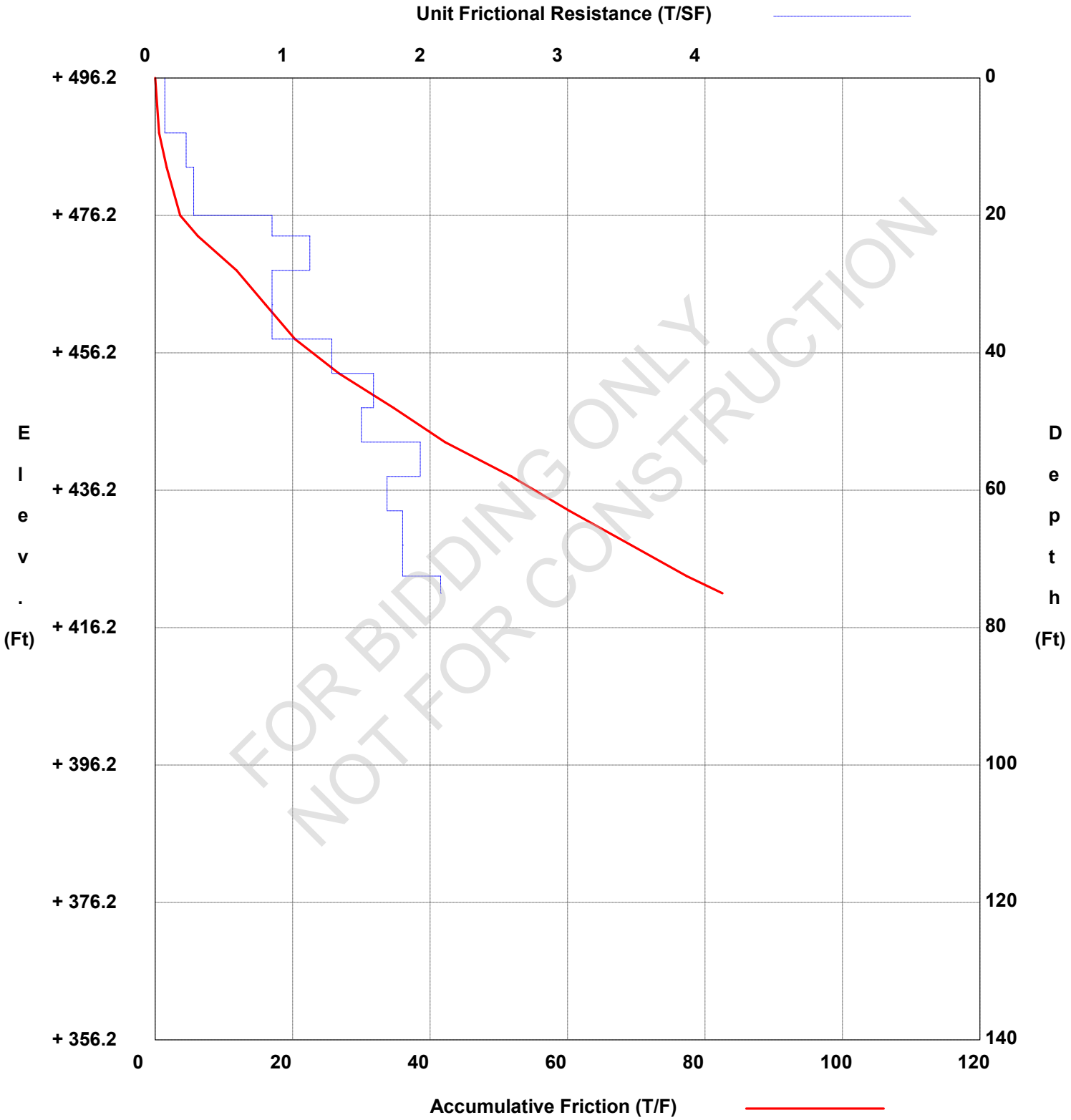
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-08	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/24/24
Control		Station		Grnd. Elev.	496.20 ft
		Offset		GW Elev.	N/A

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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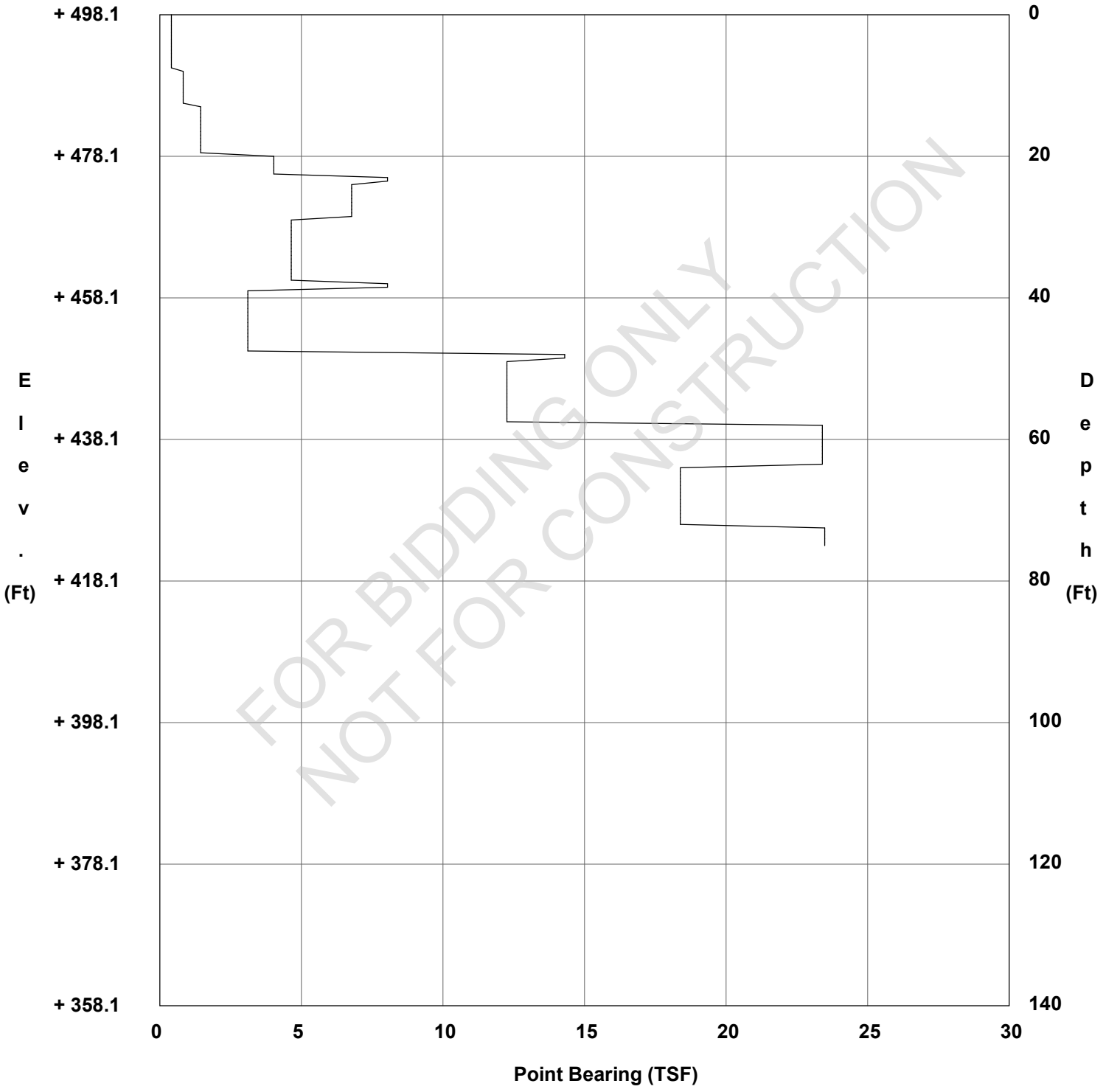
POINT BEARING DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-09	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/19/24
Control		Station		Grnd. Elev.	498.09 ft
		Offset		GW Elev.	465.09 ft

Diameters Below Tip Checked = 2

TCP Bearing Values Used



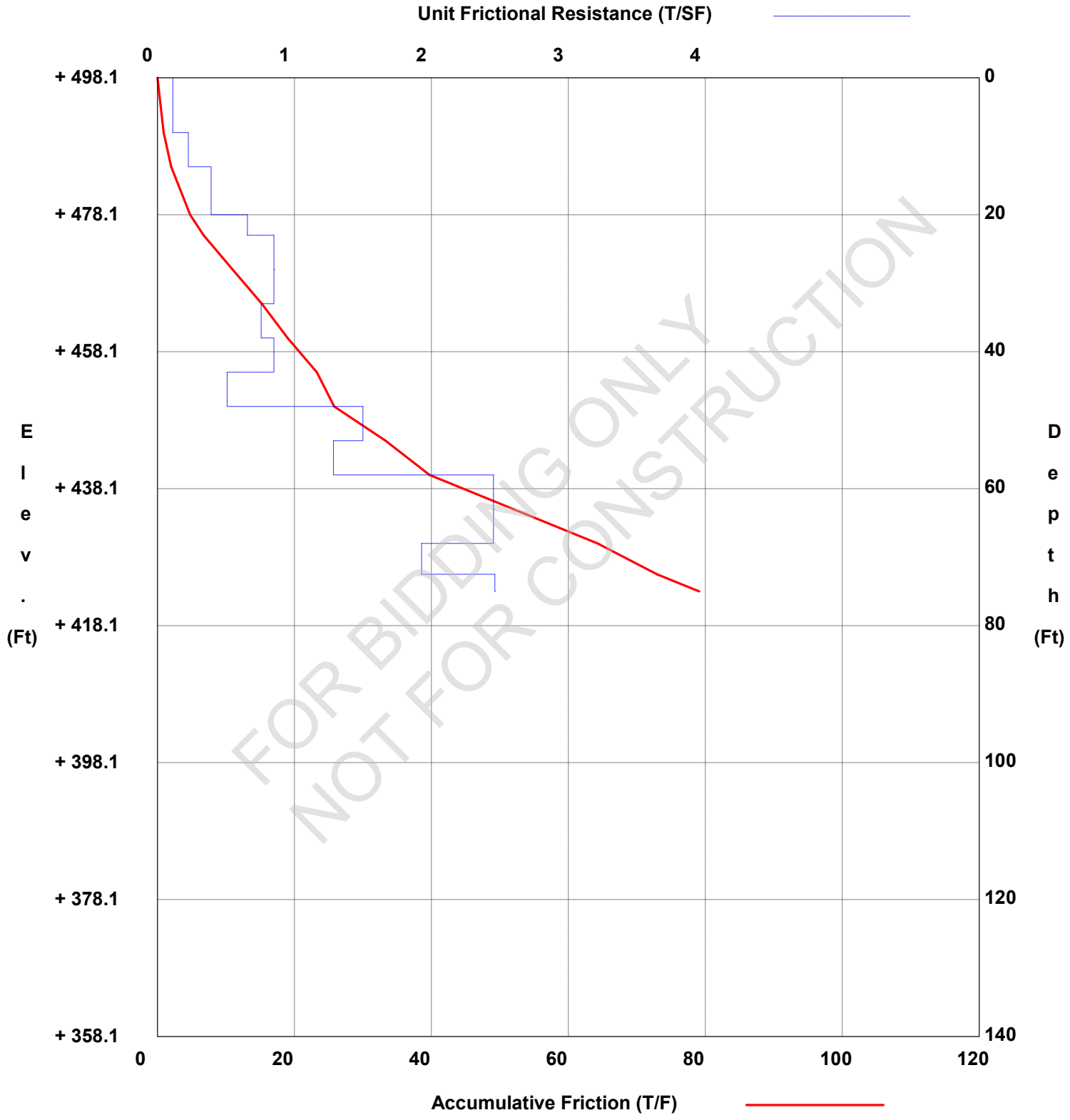
SKIN FRICTION DESIGN

WinCore
Version 3.3

County	Rockwall	Hole	B-09	District	Dallas
Highway	Crenshaw Rd	Structure	Bridge	Date	7/19/24
Control		Station		Grnd. Elev.	498.09 ft
		Offset		GW Elev.	465.09 ft

Drilled Shaft Design: Soil Reduction Factor = 0.7

TCP Friction Values Used



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