Fort Bend County, Texas
Invitation for Bid

Construction of Long Point Creek Channel Rehabilitation and Conveyance Improvements for Fort Bend County Drainage District
BID 25-027

SUBMIT BIDS TO:

Fort Bend County
Purchasing Department
Travis Annex
301 Jackson, Suite 201
Richmond, TX 77469

Note: All correspondence must include the term "Purchasing Department" in address to assist in proper delivery

SUBMIT NO LATER THAN:

Tuesday, December 17, 2024
2:00 PM (Central)

LABEL ENVELOPE:

BID 25-027
Long Point Creek Channel Rehab

ALL BIDS MUST BE RECEIVED IN AND TIME/DATE STAMPED BY THE PURCHASING OFFICE OF FORT BEND COUNTY ON OR BEFORE THE SPECIFIED TIME/DATE STATED ABOVE.

BIDS RECEIVED AS REQUIRED WILL THEN BE OPENED AND PUBLICLY READ.

BIDS RECEIVED AFTER THE SPECIFIED TIME, WILL BE RETURNED UNOPENED.

Results will not be given by phone.
Results will be provided to bidder in writing after Commissioners Court award.

Requests for information must be in writing and directed to:
Brooke Lindemann
Contracts Manager
Brooke.Lindemann@fortbendcountytx.gov

Vendor Responsibilities:

- Download and complete any addendums. (Addendums will be posted on the Fort Bend County website no Later than 48 hours prior to bid opening)
- Submit response in accordance with requirements stated on the cover of this document.
- DO NOT submit responses via email or fax.

Prepared: 11/13/24
Issued: 11/17/24

COUNTY PURCHASING AGENT
Fort Bend County, Texas

Vendor Information

Jaime Kovar
Purchasing Agent
Office (281) 341-8640

Legal Company Name (top line of W9)			
Business Name (if different from legal name)			
Type of Business	☐ Corporation/LLC ☐ Partnership ☐ Sole Proprietor/Individual ☐ Tax Exempt		Age in Business?
Federal ID # or S.S. #		SAM.gov Unique Entity ID #	
SAM.gov CAGE / NCAGE			
Publicly Traded Business	___ No ___ Yes Ticker Symbol _____		
Remittance Address			
City/State/Zip			
Physical Address			
City/State/Zip			
Phone Number			
E-mail			
Contact Person			
Check all that apply to the company listed above and provide certification number.	DBE-Disadvantaged Business Enterprise ☐ SBE-Small Business Enterprise ☐ HUB-Texas Historically Underutilized Business ☐ WBE-Women's Business Enterprise ☐	**Certification #** _____ **Certification #** _____ **Certification #** _____ **Certification #** _____	Cert Date / Exp Date _____ _____ _____ _____ _____ _____ _____ _____
Company's gross annual receipts	<$500,000 _____	$500,000-$4,999,999 _____	
	$5,000,000-$16,999,999 ___	$17,000,000-$22,399,999 _____	>$22,400,000 _____
NAICs codes (Please enter all that apply)			
Signature of Authorized Representative			
Printed Name			
Title			
Date			

THIS FORM MUST BE SUBMITTED WITH THE SOLICITATION RESPONSE

1.0 GENERAL REQUIREMENTS:

1.1 Read this entire document carefully. Follow all instructions. You are responsible for fulfilling all requirements and specifications. Be sure you understand them.

1.2 General Requirements apply to all advertised bids; however, these may be superseded, whole or in part, by the scope, special requirements, specifications, special specifications or other data contained herein.

1.3 Governing Law: Bidder is advised that these requirements shall be fully governed by the laws of the State of Texas and that Fort Bend County may request and rely on advice, decisions and opinions of the Attorney General of Texas and the County Attorney concerning any portion of these requirements.

1.4 Bid Form Completion: Fill out, sign, and return to the Fort Bend County Purchasing Department one (1) complete bid form. An authorized representative of the bidder must sign the Contract Sheet. The Contract will be binding only when signed by the County Judge, Fort Bend County and a purchase order authorizing the item(s) desired has been issued. The use of corrective fluid is not acceptable and may result in the disqualification of bid. If an error is made, the bidder must draw a line through error and initial each change.

If a pricing form in Excel is included and/or posted on the County's website amongst this bid document, the Vendor must download, complete and save the Excel (not a PDF of the Excel file) file of the pricing form on a flash drive. The Excel file on the flash drive must be downloadable by the Purchasing Department in order to copy and paste the vendor's pricing to the County's tabulation. The flash drive must be labeled and included in the same sealed envelope with the respondent's completed bid document along with a printed copy of the pricing form completed by the vendor.

1.5 Bid Returns: Bidders must return all completed bids to the Fort Bend County Purchasing Department at 301 Jackson, Suite 201 Richmond Texas no later than 2:00 P.M. on the date specified. Late bids will not be accepted. Bids must be submitted in a sealed envelope, addressed as follows: Fort Bend County Purchasing Agent, Travis Annex, 301 Jackson, Suite 201 Richmond, Texas 77469.

1.6 Addenda: No interpretation of the meaning of the drawings, specifications or other bid documents will be made to any bidder orally. All requests for such interpretations must be made in writing addressed to Brooke Lindemann, Contracts Manager, 301, Jackson, Suite 201, Richmond, Texas, 77469, E-mail: Brooke.Lindemann@fortbendcountytx.gov. Any and all interpretations and any supplemental instructions will be in the form of written addenda to the contract documents which will be posted on Fort Bend County's website. Addenda will **ONLY** be issued by the Fort Bend County Purchasing Agent. It is the sole

responsibility of each bidder to insure receipt of any and all addenda. All addenda issued will become part of the contract documents. Bidders must sign and include it in the returned bid package. Deadline for submission of questions and/or clarification is no later than **Tuesday, December 10, 2024 at 9:30AM (central)** Requests received after the deadline will not be responded to due to the time constraints of this bid process.

1.7 References: All bidders must submit, **WITH BID**, at least three (3) references from clients for whom a project similar to that specified herein has been successfully accomplished. References must include clients name, contact person and telephone number.

1.8 Bid Bond: All bidders must submit, **WITH BID**, a cashier's check or certified check for at least five percent (5%) of the total bid price, payable to the order of Fort Bend County, or a Bid Bond in the same amount issued by a surety, acceptable to Fort Bend County, authorized to do business in the State of Texas, as a guarantee that the Bidder will do the work described herein at the rates stated herein. Unsuccessful bidder's Cashier's Check or Certified Check will be returned only after a written request to do so have been received in the Office of the Fort Bend County Purchasing Agent.

1.9 Material Safety Data Sheets: Under the "Hazardous Communication Act", commonly known as the "Texas Right to Know Act", a bidder must provide to Fort Bend County and using departments, with each delivery, material safety data sheets, which are, applicable to hazardous substances defined in the Act. Bidders are obligated to maintain a current, updated file in the Fort Bend County Purchasing Department. Failure of the bidder to maintain such a file will be cause to reject any bid applying thereto.

1.10 Pricing: Prices for all goods and/or services shall be firm for the duration of this Contract and shall be stated on the bid sheet. Prices shall be all inclusive. No price changes, additions, or subsequent qualifications will be honored during the course of the Contract. All prices must be written in ink or typewritten. If there are any additional charges of any kind, other than those mentioned above, specified or unspecified, bidder MUST indicate the items required and attendant costs or forfeit the right to payment for such items.

1.11 Term Contracts: If the Contract is intended to cover a specific time period, said time will be given in the specifications under scope.

1.12 Recycled Materials: Fort Bend County encourages the use of products made of recycled materials and shall give preference in purchasing to products made of recycled materials if the products meet applicable specifications as to quantity and quality. Fort Bend County will be the sole judge in determining product preference application.

1.13 Evaluation: Evaluation shall be used as a determinant as to which bid items or

services are the most efficient and/or most economical for Fort Bend County. It shall be based on all factors which have a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Fort Bend County Purchasing Department and recommendation to Fort Bend County Commissioners Court. Compliance with all bid requirements, delivery and needs of the using department are considerations in evaluating bids. Pricing is NOT the only criteria for making a recommendation. The Fort Bend County Purchasing Department reserves the right to contact any bidder, at any time, to clarify, verify or request information with regard to any bid.

1.14 Disqualification of Bidder: Upon signing this bid document, a bidder offering to sell supplies, materials, services, or equipment to Fort Bend County certifies that the bidder has not violated the antitrust laws of this state codified in section 15.01, et seq., Business & Commerce Code, or the federal antitrust laws, and has not communicated directly or indirectly the bid made to any competitor or any other person engaged in such line of business. Any or all bids may be rejected if Fort Bend County believes that collusion exists among the bidders. Bids in which the prices are obviously unbalanced may be rejected. If multiple bids are submitted by a bidder and after the bids are opened, one of the bids is withdrawn, the result will be that all of the bids submitted by that bidder will be withdrawn; however, nothing herein prohibits a vendor from submitting multiple bids for different products or services.

1.15 Awards: Fort Bend County reserves the right to award this Contract on the basis of lowest and best bid in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one bidder, to reject any or all bids. In the event the lowest dollar bidder meeting specifications is not awarded a contract, the bidder may appear before the Commissioners Court and present evidence concerning its responsibility.

1.16 Contract Obligation: Fort Bend County Commissioners Court must award the Contract and the County Judge or other person authorized by the Fort Bend County Commissioners Court must sign the Contract before it becomes binding on Fort Bend County or the bidders. Department heads are not authorized to sign agreements for Fort Bend County. Binding agreements shall remain in effect until all products and/or services covered by this purchase have been satisfactorily delivered and accepted.

2.0 SCOPE:

It is the intent of Fort Bend County to contract with one (1) vendor for all materials, supplies, equipment, tools, services, labor and supervision necessary to complete the Construction of Long Point Creek Channel Rehabilitation and Conveyance Improvements, hereinafter referred to as the "Project," as specified herein.

2.1 *Work* means the procurement, delivery and proper construction and/or

installation of all materials and facilities and associated appurtenances necessary to fulfill the winning bidder's obligations (hereinafter the "Contractor") under the Contract as awarded for the Project specified herein, including the coordination and administration of all services necessary for Contractor, and/or its agents and/or subcontractors, to fulfill Contractor's obligations under the Contract.

3.0 PRE-BID CONFERENCE:

A pre-bid conference will be conducted on **Tuesday, December 3, 2024 at 9:30 AM** (CST). The pre-bid conference will be held at the Fort Bend County Purchasing Department located in the Travis Annex at 301 Jackson, Suite 201, Richmond, Texas 77469. All bidders are encouraged to attend.

4.0 LIQUIDATED DAMAGES:

The County and the Contractor recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the County if the work is not complete on time. Accordingly, instead of requiring any such proof, the County and the Contractor agree that as liquidated damages for delay (but not as a penalty) the Contractor shall pay the County $1,500.00 for each day that expires after the time specified herein for completion until the Work is complete, unless contract time has been adjusted by extension of time approved by Commissioner's Court.

The Contractor will be placed on one (1) year probation if liquidated damages are accrued. During the probation period, if the Contractor accrues liquidated damages on another project, they will be disqualified from being awarded any County work for two (2) years.

5.0 COMPLETION TIME & PAYMENT:

5.1 Fort Bend County shall pay the Contractor in current funds for the Contractor's performance of the Contract the contract sum, as stated herein, after receipt of notice to proceed and a purchase order issued by the Fort Bend County Purchasing Agent.

5.2 Based upon Applications for payment submitted to the County Auditor, Fort Bend County shall make progress payments on account of the contract sum to the Contractor as provided below and elsewhere in the contract documents.

5.2.1 The period covered by each application for payment shall be one calendar month ending on the last day of the month.

5.2.2 Provided a customary, accurate and complete application for payment is received by the County Auditor not later than the 15th day of a month, Fort Bend County shall make payment of all undisputed amounts to the Contractor not later than the 15th day of the next month. If an application for payment is received by the County Auditor after the application

deadline fixed above, payment shall be made by Fort Bend County not later than 30 days after the County Auditor receives the application for payment.

5.2.3 Application for payment shall indicate the percentage of completion of each portion of the Project as of the end of the period covered by the application for payment.

5.2.4 Subject to the provisions of the contract documents, the amount of each progress payment shall be computed as follows:

5.2.4.1 Take that portion of the contract sum properly allocable to completed Project less retainage of ten percent (10%).

5.2.4.2 Add that portion of the contract sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved by Fort Bend County, suitably stored off the site at a location agreed upon in writing), less retainage of ten percent (10%).

5.2.4.3 Subtract the aggregate of previous payments made by Fort Bend County.

5.2.4.4 The progress payment amount as determined in above shall be further modified under the following circumstances:

Upon substantial completion of the Project, add a sum sufficient to increase the total payments to one hundred percent (100%) of the contract sum, less such amounts as Fort Bend County shall determine should be deducted for incomplete work and unsettled claims.

5.2.4.5 Final payment, constituting the entire unpaid undisputed balance of the contract sum, shall be made by Fort Bend County to the Contractor when Fort Bend County and the Contractor agree that the Contract has been fully performed by the Contractor.

5.3 Before the first application for payment, the Contractor shall submit to the Drainage District a schedule of values allocated to various portions of the work, prepared in such form and supported by such data to substantiate its accuracy as the Drainage District may require. This schedule, unless objected to by the Drainage District shall be used as a basis for reviewing the Contractor's application for payment.

5.4 Contractor must provide with each application for payment a contractor's affidavit certifying bills against the Contractor for labor, material and expendable equipment employed in the performance of Contractor have been paid in full prior to acceptance of final payment from Fort Bend County.

5.5 The Contractor will permit Fort Bend County, or any duly authorized agent of Fort Bend County, to inspect and examine the books and records of the Contractor for the purpose of verifying the amount of work performed under the Contract. Fort Bend County's right to inspect survives the termination of the Contract for a period of five years.

6.0 LIMIT OF APPROPRIATION:

Prior to the execution of this Contract, Contractor has been advised by County, and Contractor clearly understands and agrees, such understanding and agreement being of the absolute essence to this Contract, that County shall have available only those funds specifically allocated in this Contract to fully discharge any and all liabilities which may be incurred by County in bringing this Project to an absolute conclusion, resulting in a complete, fully furnished, fully equipped and fully usable facility, and that the total of any and all basic construction costs, costs of providing the required services and materials, all fees and compensation of any sort to the Contractor, and any and all costs for any and all things or purposes coming inuring under or out of this Contract, irrespective of the nature thereof, shall not exceed said specifically allocated sum, notwithstanding any word, statement or thing contained in or inferred from the preceding provision of this Contract which might in any light by any person be interpreted to the contrary.

7.0 RIGHT TO ASSURANCE:

Whenever Fort Bend County in good faith has reason to question the Contractor's intent or ability to perform, Fort Bend County may demand that the Contractor give written assurance of its intent to perform and its plan to properly continue performance, including a reasonably detailed timeline. In the event that a demand is made and no assurance is given within five (5) business days, Fort Bend County may treat this failure as an anticipatory repudiation of the Contract.

8.0 PERFORMANCE & PAYMENT BONDS:

In the event the total accepted bid price exceeds $25,000 the Contractor must provide a payment bond in the amount of 100% of the total contract sum, and in the event the total accepted bid price exceeds $100,000 the contractor must also provide a performance bond in the amount of 100% of the total contract sum. Bonds must be submitted to the Office of the County Purchasing Agent within ten (10) calendar days after receipt of notification of bid award. Such bonds shall be executed by a corporate surety duly authorized and admitted to do business in the State of Texas and licensed in the State of Texas to issue surety bonds with a Best Rating of "A" or better. Fort Bend County reserves the right to accept or reject any surety company proposed by the Contractor. In the event Fort Bend County rejects, the proposed surety company, the

Contractor will be afforded five (5) additional days to submit the required bonds issued by a surety company acceptable to Fort Bend County.

9.0 POWER OF ATTORNEY:

An attorney-in-fact who signs a bid bond, performance bond or payment bond must file with each bond a certified and effectively dated copy of his or her power of attorney.

10.0 INSURANCE:

10.1 All respondents shall submit, with response, a current certificate of insurance indicating coverage in the amounts stated below. In lieu of submitting a certificate of insurance, respondents may submit, with response, a notarized statement from an Insurance company, authorized to conduct business in the State of Texas, and acceptable to Fort Bend County, guaranteeing the issuance of an insurance policy, with the coverage stated below, to the firm named therein, if successful, upon award of this Contract.

10.2 At contract execution, contractor shall furnish County with properly executed certificates of insurance which shall evidence all insurance required and provide that such insurance shall not be canceled, except on 30 days prior written notice to County. Contractor shall provide certified copies of insurance endorsements and/or policies if requested by County. Contractor shall maintain such insurance coverage from the time Services commence until Services are completed and provide replacement certificates, policies and/or endorsements for any such insurance expiring prior to completion of Services. Contractor shall obtain such insurance written on an Occurrence form (or a Claims Made form for Professional Liability insurance) from such companies having Best's rating of A/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

10.2.1 Workers' Compensation insurance. Substitutes to genuine Workers' Compensation Insurance will not be allowed.

10.2.2 Employers' Liability insurance with limits of not less than $1,000,000 per injury by accident, $1,000,000 per injury by disease, and $1,000,000 per bodily injury by disease.

10.2.3 Commercial general liability insurance with a limit of not less than $1,000,000 each occurrence and $2,000,000 in the annual aggregate. Policy shall cover liability for bodily injury, personal injury, and property damage and products/completed operations arising out of the business operations of the policyholder.

10.2.4 Business Automobile Liability coverage with a combined Bodily Injury/Property Damage limit of not less than $1,000,000 each accident.

The policy shall cover liability arising from the operation of licensed vehicles by policyholder.

10.3 County and the members of Commissioners Court shall be named as additional insured to all required coverage except for Workers' Compensation and Professional Liability (if required). All Liability policies including Workers' Compensation written on behalf of contractor, excluding Professional Liability, shall contain a waiver of subrogation in favor of County and members of Commissioners Court.

10.4 If required coverage is written on a claims-made basis, contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of the contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning from the time that work under the agreement is completed.

10.5 Contractor shall not commence any portion of the work under this Contract until it has obtained the insurance required herein and certificates of such insurance have been filed with and approved by Fort Bend County.

10.6 No cancellation of or changes to the certificates, or the policies, may be made without sixty (60) days prior, written notification to Fort Bend County.

10.7 Approval of the insurance by Fort Bend County shall not relieve or decrease the liability of the Contractor.

11.0 INDEMNIFICATION:

Respondent shall save harmless County from and against all claims, liability, and expenses, including reasonable attorney's fees, arising from activities of respondent, its agents, servants or employees, performed under this agreement that result from the negligent act, error, or omission of respondent or any of respondent's agents, servants or employees.

11.1 Respondent shall timely report all such matters to Fort Bend County and shall, upon the receipt of any such claim, demand, suit, action, proceeding, lien or judgment, not later than the fifteenth day of each month; provide Fort Bend County with a written report on each such matter, setting forth the status of each matter, the schedule or planned proceedings with respect to each matter and the cooperation or assistance, if any, of Fort Bend County required by Respondent in the defense of each matter.

11.2 Respondent's duty to defend, indemnify and hold Fort Bend County harmless shall be absolute. It shall not abate or end by reason of the expiration or termination of any contract unless otherwise agreed by Fort Bend County in writing. The provisions of this section shall survive the termination of the contract and shall remain in full force and effect with respect to all such matters

no matter when they arise.

11.3 In the event of any dispute between the parties as to whether a claim, demand, suit, action, proceeding, lien or judgment appears to have been caused by or appears to have arisen out of or in connection with acts or omissions of Respondent, Respondent shall never-the-less fully defend such claim, demand, suit, action, proceeding, lien or judgment until and unless there is a determination by a court of competent jurisdiction that the acts and omissions of Respondent are not at issue in the matter.

11.4 Respondent's indemnification shall cover, and Respondent agrees to indemnify Fort Bend County, in the event Fort Bend County is found to have been negligent for having selected Respondent to perform the work described in this request.

11.5 The provision by Respondent of insurance shall not limit the liability of Respondent under an agreement.

11.6 Respondent shall cause all trade contractors and any other contractor who may have a contract to perform construction or installation work in the area where work will be performed under this request, to agree to indemnify Fort Bend County and to hold it harmless from all claims for bodily injury and property damage that may arise from said Respondent's operations. Such provisions shall be in form satisfactory to Fort Bend County.

11.7 Loss Deduction Clause - Fort Bend County shall be exempt from, and in no way liable for, any sums of money which may represent a deductible in any insurance policy. The payment of deductibles shall be the sole responsibility of Respondent and/or trade contractor providing such insurance.

12.0 PREVAILING WAGES:

This project is subject to the prevailing wage rate requirements of Chapter 2258 of the Government Code. All persons employed by Contractor shall be compensated at not less than the rates shown below. Contractor shall keep detailed records of each of its workers and said records shall be made available to County for inspection at all reasonable times. The Contractor shall pay Fort Bend County sixty dollars ($60.00) for each worker employed by the Contractor for the provision of services described herein for each calendar day or part of the day that the worker is paid less than the below stated rates. Contractors may also visit www.wdol.gov/dba.aspx.

General Decision Number: TX20240038 01/05/2024
Superseded General Decision Number: TX20230038

State: Texas
Construction Type: Highway

Counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, San Jacinto and Waller Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022, Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least $17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022, Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2024

SUTX2011-013 08/10/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures)	$ 12.98 **	
ELECTRICIAN	$ 27.11	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.34 **	
Structures	$ 12.23 **	

LABORER	
Asphalt Raker	$ 12.36 **
Flagger	$ 10.33 **
Laborer, Common	$ 11.02 **
Laborer, Utility	$ 11.73 **
Pipelayer	$ 12.12 **
Work Zone Barricade Servicer	$ 11.67 **
PAINTER (Structures)	$ 18.62
POWER EQUIPMENT OPERATOR:	
Asphalt Distributor	$ 14.06 **
Asphalt Paving Machine	$ 14.32 **
Broom or Sweeper	$ 12.68 **
Concrete Pavement Finishing Machine	$ 13.07 **
Concrete Paving, Curing, Float, Texturing Machine	$ 11.71 **
Concrete Saw	$ 13.99 **
Crane, Hydraulic 80 Tons or less	$ 13.86 **
Crane, Lattice boom 80 tons or less	$ 14.97 **
Crane, Lattice boom over 80 Tons	$ 15.80 **
Crawler Tractor	$ 13.68 **
Excavator, 50,000 pounds or less	$ 12.71 **
Excavator, Over 50,000 pounds	$ 14.53 **
Foundation Drill, Crawler Mounted	$ 17.43
Foundation Drill, Truck Mounted	$ 15.89 **
Front End Loader 3 CY or Less	$ 13.32 **
Front End Loader, Over 3 CY	$ 13.17 **
Loader/Backhoe	$ 14.29 **
Mechanic	$ 16.96 **
Milling Machine	$ 13.53 **
Motor Grader, Fine Grade	$ 15.69 **
Motor Grader, Rough	$ 14.23 **
Off Road Hauler	$ 14.60 **
Pavement Marking Machine	$ 11.18 **
Piledriver	$ 14.95 **
Roller, Asphalt	$ 11.95 **
Roller, Other	$ 11.57 **
Scraper	$ 13.47 **
Spreader Box	$ 13.58 **
Servicer	$ 13.97 **
Steel Worker	
Reinforcing Steel	$ 15.15 **
Structural Steel Welder	$ 12.85 **
Structural Steel	$ 14.39 **

TRUCK DRIVER	
Low Boy Float	$ 16.03 **
Single Axle	$ 11.46 **
Single or Tandem Axle Dump	$ 11.48 **
Tandem Axle Tractor w/Semi Trailer	$ 12.27 **

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

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.20) or 13658 ($12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an

internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

13.0 PERMITS:

It shall be the sole responsibility of the successful bidder to obtain all required permits in the name of Fort Bend County.

14.0 CONTRACTOR'S RESPONSIBILITY FOR WORK:

14.1 Preconstruction Work. Contractor shall do (or cause to be done) the following as preconstruction work:

14.1.1 On written demand as requested by Fort Bend County, cause the Contractor’s personnel to meet with Fort Bend County and the Engineer to discuss the status of the Project.

14.1.2 On written demand as requested by Fort Bend County, review drawings and specifications with the Engineer to permit the Contractor and the

Engineer to determine the compliance of the proposed facility with applicable building codes.

14.2 Construction Work. Contractor shall do (or cause to be done) the following as construction work:

14.2.1 Perform (or cause to be performed) all preparatory work at the construction site required herein, including (without limitation) soil and concrete testing and demolition of improvements existing at the construction site and all actions necessary for compliance with all laws and regulations as to actions to be taken by owners or contractors before construction begins, including without limitation those in regard to archaeological and environmental requirements.

14.2.2 Construct and install (or cause to be constructed and installed) the Project on the construction site in accordance with this Contract and the drawings and specifications approved by Fort Bend County.

14.2.3 Furnish (or cause to be furnished) all materials, supplies, equipment, tools, labor, supervision, utilities, transportation, and other materials and services necessary to complete the Project described herein.

14.2.4 Materials testing necessary for the Project and required by laws and regulations, construction industry standards as approved by Fort Bend County and this Contract; the frequency of testing shall be approved by Fort Bend County. **It is the contractor's responsibility to engage a material testing laboratory to perform testing on the structural concrete to be used for foundation work in this project. The cost of testing shall be incidental to bid item for drill shaft foundation. Testing of concrete shall comply with current TXDOT criteria. Contractor has to submit the name of the testing laboratory, intended to be used by the contractor for this project, for County's approval.**

14.3 Standards for Review and Approval. Fort Bend County acknowledges that in order to meet the deadlines for the completion of the Project, and in order to accomplish the efficient completion of the Project, the Contractor may submit matters to Fort Bend County in stages for approval or consent. Upon receipt of any matter submitted by the Contractor for review and approval, Fort Bend County shall review the same and shall diligently and promptly (but in any event within 14 calendar days for any such matter, other than a proposed change order, and within 28 calendar days for a proposed change order) give the Contractor notice of Fort Bend County's approval or disapproval, setting forth in detail all reasons for any disapproval. Fort Bend County's right to disapprove any such matter submitted (other than a proposed change order) shall be limited to the elements thereof (a) which do not conform substantially to matters previously approved, (b) which are new elements not previously presented and approved and the Contractor is unable to demonstrate that such new element is reasonably

necessary for completion of the Project, or (c) which depict matters that are violations of this Contract or applicable laws and regulations.

14.3.1 If Fort Bend County disapproves of a particular matter or Proposed Change Order, the Contractor shall have the right to resubmit such matter or Proposed Change Order to Fort Bend County, altered to satisfy Fort Bend County's basis for disapproval. Any resubmission shall be subject to review and approval by Fort Bend County.

14.3.2 Fort Bend County and the Contractor shall attempt in good faith to resolve any disputes concerning the approval of any aspect of the Project expeditiously, so as not to delay the completion of the Project in accordance with this Contract.

14.3.3 Expedited Approvals. Fort Bend County recognizes the importance of expeditious action upon all matters submitted to Fort Bend County for review and approval and of expeditious response to those aspects of the Project requiring approval by governmental authorities having jurisdiction there over. Fort Bend County agrees to exercise its rights of review and approval hereunder with due diligence, reasonableness, and good faith. Fort Bend County shall use its reasonable efforts to expedite any required review of the Project or other matters by any governmental authority.

14.4 Changes.

14.4.1 General. Fort Bend County may make changes to the Project by altering, adding to, or deducting from the Project. All changes in the Project which (a) require an adjustment in the contract sum or an adjustment in the final completion date or (b) involve a material change in the overall scope or function of the Project shall be requested and authorized before commencing such changes by use of written change order notices, Proposed Change Orders and Change Orders, which change order procedure shall be the exclusive means to effect such changes in the Project.

14.4.2 Change Order Procedure. If at any time Fort Bend County desires to make any change in the Project requiring the issuance of a Change Order, Fort Bend County shall so advise the Contractor in writing by delivery to the Contractor of a written notice describing the change. Upon receipt of such notice initiated by Fort Bend County, the Contractor shall within a reasonable period of time advise Fort Bend County of the Contractor's proposal for the adjustments, if any, in the contract sum, the schedule of values, and the final completion date attributable to such change by delivering a written notice thereof (the "Proposed Change Order") to Fort Bend County. Such Proposed Change Order shall contain a description of the proposed change and shall set forth the Contractor's estimate of the increase or decrease, if any, in the contract sum and the change, if any, in

the schedule of values and the final completion date attributable to such change. If the Contractor desires to make a change in the Project requiring the issuance of a change order, the Contractor shall deliver to Fort Bend County a Proposed Change Order. Upon execution by Fort Bend County, a Proposed Change Order shall constitute (and be defined herein as) a "Change Order" for purposes of this Contract. The Contractor shall forthwith perform the work as changed in accordance with such Change Order. All work performed pursuant to a Change Order shall be performed in accordance with the terms of this Contract. All Proposed Change Orders shall be submitted for approval by Fort Bend County. No action, acquiescence or inaction by Fort Bend County or any representative of Fort Bend County shall be construed to be a waiver of requirements set forth in this Contract in regard to Change Orders or ratification of a violation of such requirements, and all acts in violation of this provision shall be considered void.

14.4.3 Change Order Authorization. Each Change Order shall be signed by Fort Bend County and an authorized representative of the Contractor.

14.4.4 Contract Sum Adjustments. The contract sum and the schedule of values shall be adjusted only as a result of a Change Order requiring such adjustment. Any extra work performed without a proper Change Order shall be considered voluntary and not subject to additional compensation. The Contractor shall not be entitled to an adjustment in the contract sum (or a Change Order permitting such adjustment) or to damages as a result of any delays in the Project caused by the acts or omissions of Fort Bend County, provided that this sentence is not applicable to delays that constitute more than 90 days in any 365-day period or cause the Project to be interrupted for a continuous period of 45 days through no fault of the Contractor.

14.4.5 When Fort Bend County and the Contractor agree upon the adjustments in the contract sum, the schedule of values, and the final completion date attributable to such adjustment, such agreement will be documented by preparation and if approved by the Fort Bend County Commissioners Court, execution of an appropriate Change Order.

14.5 Site Access. Prior to the transfer date, Fort Bend County and the Contractor shall have uninterrupted access to the construction site. Subsequent to the transfer date, Fort Bend County will permit the Contractor, the Engineer, and their representatives and subcontractors to enter upon the Project at times reasonably necessary to complete the punch list items.

14.6 Applicable Laws and Regulations. Contractor shall in its performance of the Project comply with all applicable laws and regulations. Any delays in the prosecution of the Project caused by any changes in the laws and regulations or

the application or enforcement of the laws and regulations may entitle the Contractor to an extension of time.

14.7 Familiarity with Project. The Contractor represents and accepts that it has: (a) visited the property(ies), (b) taken such other steps as may be necessary to ascertain the nature and location of the Project and the general and local conditions which affect the Project or the cost thereof, (c) investigated the labor situation as regards to the Project, (d) examined the property(ies), the obstacles which may be encountered and all other observable conditions having a bearing upon the performance of the Project, the superintendence of the Project, the time of completion and all other relevant matters, and (e) reported to Fort Bend County the results of all of the foregoing. The Contractor represents that it is familiar with all phases of the Project and the matters that may affect the Project or its prosecution under this Contract.

14.8 Standard of Performance. The Contractor shall prosecute (or cause to be prosecuted) the Project in accordance with the best efforts for the construction and development of projects similar to the Project in the State of Texas, using qualified, careful, and efficient contractors and workers and in conformity with the provisions of this Contract. The Contractor shall perform the work in a good and workmanlike manner.

14.9 Warranty of Contractor. The Contractor warrants to Fort Bend County that: (i) the Contractor possesses the skill and knowledge ordinarily possessed by well-informed members of its trade or profession and the Contractor will use its best efforts to ensure that the services provided under this Contract will be performed, delivered, and conducted in accordance with the best professional standards and in accordance with industry standards, and (ii) the Contractor is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly equipped, organized and financed to perform such work, and (iii) following the date of acceptance of this Contract, the services provided by the Contractor to Fort Bend County will conform to the representations contained in this Contract, including all attachments, schedules and exhibits. All warranties provided by the Contractor in this Contract shall be cumulative, shall be deemed consistent and not in conflict, are intended to be given full force and effect and to be interpreted expansively to give the broadest warranty protection to Fort Bend County.

14.10 Contractor's Personnel. Contractor shall employ only competent, skilled personnel for the Project. Prior to the final completion date, the Contractor shall maintain a superintendent who shall be authorized to act on behalf of the Contractor and with whom Fort Bend County may consult at all reasonable times. The superintendent shall not be transferred from the Project without Fort Bend County's consent (which shall not be unreasonably withheld or delayed); provided, however, the superintendent shall not be assigned solely to the Project and shall be entitled to spend reasonable time working on matters unrelated to the Project so long as such

work on other matters does not render the superintendent unavailable to the Project or unavailable to Fort Bend County. However, such obligation to furnish the superintendent and such staff personnel shall not be construed (a) to preclude the promotion within the Contractor's organization of any person assigned to the Project or (b) to give rise to any liability of the Contractor if any person assigned to the Project (including, without limitation, the superintendent) leaves the Contractor's employment. If the superintendent is transferred from the Project, Fort Bend County shall have the right to approve the replacement superintendent (which approval will not be unreasonably withheld or delayed). The Contractor, the Architect, and the other subcontractors shall comply with all applicable health, safety, and loss prevention rules of applicable governmental authorities. The Contractor shall, at its own expense, remove from the Project any person who fails to comply with such rules and instructions. The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ on the Project any unfit person or anyone not skilled in the work assigned to him. Fort Bend County may, upon written notice to the Contractor, require the Contractor to remove an individual immediately from providing services for the following reasons: violation of the terms and conditions of this Contract; violation of Fort Bend County's or the Contractor's work rules and regulations; criminal activity; or violation of state, federal, or municipal statutes. Fort Bend County may, upon thirty (30) days written notice to the Contractor, require the removal of any individual from providing services without cause.

14.11 Inspection. The Project and all parts thereof shall be subject to inspection from time to time by inspectors designated by Fort Bend County. No such inspections shall relieve The Contractor of any of its obligations hereunder. Neither failure to inspect nor failure to discover or reject any of the work as not in accordance with the drawings and specifications or any provision of this Contract shall be construed to imply an acceptance of such work or to relieve the Contractor of any of its obligations hereunder. Fort Bend County agrees that its right of inspection shall be used reasonably and in a timely manner so as not to delay orderly completion of the Project.

14.12 Protection Against Risks. The Contractor shall take all precautions which are necessary and adequate, against conditions created during the progress of the Project which involve a risk of bodily harm to persons or a risk of damage or loss to any property. The Contractor shall regularly inspect all work, materials and equipment to discover and determine any such conditions and shall be responsible for discovery, determination, and correction of any such conditions. The Contractor shall comply with all federal, state, and local occupational hazard and safety standards, codes and regulations applicable in the jurisdiction where the Project is being performed. The Contractor shall include the substance of this clause in its entirety in all subcontracts for any work to be performed at the construction site.

14.13 Equipment. Except as expressly provided herein to the contrary, the Contractor shall furnish (or cause to be furnished) all construction, transportation, installation, tools, and other equipment and facilities required for the performance of the Project within the times specified herein. Such equipment and facilities shall be serviceable and kept fit for the uses intended. Defective items shall be removed from the construction site promptly and at the Contractor's cost. The Contractor shall schedule (or cause to be scheduled) its other operations so as to not interfere with its duty to timely furnish the necessary equipment and facilities and personnel to operate the same at the times necessary for the orderly completion of the Project.

14.14 Materials. Except as may be specifically provided otherwise in the Contract or approved in advance by Fort Bend County, the Contractor shall provide Fort Bend County with copies of material testing reports and to cause all materials, equipment, and fabricated items incorporated in the Project to be new and of a suitable grade of their respective kinds for their intended use.

14.15 Delay, Disruption or Hindrance Damages. Contractor and the County contemplate that Contractor's performance may be delayed, disrupted or interfered with by unanticipated causes including but not limited to the following:

a) Severe and unavoidable natural disasters such as fires, floods, epidemics and earthquakes;
b) Abnormal weather conditions;
c) Acts or failures to act of the County , third party utility owners or other third – party entities; and
d) Acts of war or terrorism.

Contractor and the County agree and stipulate that an extension of the Contract Time shall be the sole remedy of Contractor for delays in performance of the Work, whether or not such delays are foreseeable, except for delays caused solely by acts of the County that constitute fraud, intentional misrepresentation, gross negligence, intentional arbitrary or capricious acts and/or omissions or intentional interference with Contractor's performance of the Work and then only to the extent such acts continue after Contractor notifies Owner in writing of such conduct. For delays caused by any act(s) other than fraud, intentional misrepresentation, gross negligence, intentional arbitrary or capricious acts and/or omissions or intentional interference with Contractor's performance of the Work Contractor shall not be entitled to any compensation or recovery of any damages including, without limitation, those damages prohibited or limited in Sections 14.15.1 – 14.15.8 below. The County's exercise of any of its rights or remedies under the Contract including, without limitation, ordering changes in the Work or directing suspension, rescheduling, or correction of the Work, in response to any breach or failure by the Contractor to comply with the terms of the Contract Documents or the Contractor's obligations arising therefrom, shall not be construed as intentional interference with Contractor's performance of the Work

regardless of the extent or frequency of the County's exercise of such rights or remedies.

Without limiting the foregoing, except as otherwise expressly provided in this Agreement in calculating the amount of any claim recoverable by Contractor, the following limitations on the recovery of damages shall apply:

14.15.1 No indirect or consequential damages will be allowed.

14.15.2 No recovery shall be based on a comparison of planned expenditures to total actual expenditures, or on estimated losses of labor efficiency, or on a comparison of planned manloading to actual manloading, or any other analysis that is used to show damages indirectly.

14.15.3 Damages, to the extent recoverable, are limited to the additional, actual costs specifically shown to have been directly incurred by the Contractor and solely caused by the proven wrong.

14.15.4 No damages will be allowed for home office overhead or other home office charges.

14.15.5 No exemplary damages or unjust enrichment damages shall be recoverable.

14.15.6 No recovery of attorney's fees shall be recoverable except as expressly permitted under the Agreement.

14.15.7 No profit will be allowed on any damage claim, except as expressly recoverable under the Agreement as Fee on Cost of the Work incurred.

14.15.8 Notwithstanding any other damage limitation herein the County and the Contractor recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Contractor if the County is found to have intentionally interfered with Contractor's performance of the Work by fraud, misrepresentation, gross negligence, or intentional arbitrary or capricious acts and/or omissions. Accordingly, instead of requiring any such proof, the County and the Contractor agree that as liquidated damages (in lieu of any other remedy or damages) for delay, disruption or hindrance (but not as a penalty) the County shall pay the Contractor $1,500.00 for each day that a court of competent jurisdiction finds the County's conduct referenced in Section14.15 (above) is the sole cause of Contractor's delay in completing the Work.

15.0 TERMINATION:

15.1 Fort Bend County may terminate the Contract for cause if the Contractor:

15.1.1 Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials.

15.1.2 Fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractor.

15.1.3 Persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction.

15.1.4 Otherwise commits substantial breach of a provision of the Contract Documents.

15.2 When any of the above reasons exists, Fort Bend County may, without prejudice to any other rights or remedies of Fort Bend County and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

15.2.1 Take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor.

15.2.2 Finish the Project by whatever reasonable method Fort Bend County may deem expedient.

15.2.3 When Fort Bend County terminates the Contract for one of the reasons stated in this section, the Contractor shall not be entitled to receive further payment until the Project is finished. Therefore, the Contractor shall be promptly paid for all work actually and satisfactorily completed.

15.3 Termination for Convenience of Fort Bend County

Fort Bend County reserves the right, without breach, to terminate the Contract prior to, or during the performance of the Work, for any reason. Upon such an occurrence, the following shall apply.

15.3.1 The County will notify Contractor in writing of the county’s determination to terminate the contract for convenience and the effective date of the Contract termination. The notice may also contain instructions necessary for the protection, storage or decommissioning of incomplete work or systems, and for safety.

15.3.2 Upon receipt of the notice of termination, Contractor shall immediately proceed with the following obligations, regardless of any dispute in determining or adjusting any amounts due at that point in the Contract:

15.3.2.1 Stop all work.

15.3.2.2 Place no further subcontracts or orders for materials or services.

15.3.2.3 Terminate all subcontracts for convenience.

15.3.2.4 Cancel all materials and equipment orders as applicable.

15.3.2.5 Take appropriate action that is necessary to protect and preserve all property related to the Contract which is in the possession of Contractor.

15.3.2.6 When the Contract is terminated for Owner's convenience, Contractor may recover from Owner payment for all Work executed. Contractor may not claim lost profits or lost business opportunities.

15.4 Settlement on Termination. When the Contract is terminated by the County under 15.3, at any time prior to one hundred eighty (180) days after the effective date of termination, Contractor shall submit a final termination settlement proposal to the County based upon recoverable costs as provided under the Contract. If Contractor fails to submit the proposal within the time allowed, the County may unilaterally determine the amount due to Contractor because of the termination and pay the determined amount to Contractor.

16.0 COMPLETION, TRANSFER, & ACCEPTANCE:

16.1 Final Completion. Upon the occurrence of the final completion date, the punch list items shall be promptly commenced and thereafter completed within thirty (30) days after final completion.

16.2 Transfer and Acceptance. Upon the occurrence of final completion, care, custody and control of the Project shall pass to Fort Bend County. As referenced herein, the "Transfer Date" shall mean the date on which the care, custody and control of the Project passes to Fort Bend County. Subsequent to the Transfer Date all risk of loss with respect to the Project shall be by Fort Bend County and the Contractor shall be thereafter obligated to cover the Project with their Insurance.

17.0 SUSPENSION BY FORT BEND COUNTY FOR CONVENIENCE:

17.1 Fort Bend County may, without cause, order the Contractor in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as Fort Bend County may determine.

17.2 An adjustment shall be made for increase in the cost of performance, caused by suspension, delay or interruption. No adjustment shall be made to the extent:

17.2.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible.

17.2.2 That an equitable adjustment is made or denied under another provision of this Contract.

17.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

18.0 INDEPENDENT CONTRACTOR:

The Contractor shall be an independent contractor and any provisions of this Contract that may appear to give Fort Bend County the right to direct the Contractor as to the details of the manner of doing the Project shall be deemed to mean that the Contractor shall follow the desires of Fort Bend County in the results of the Project only and not in the means whereby the Project is to be accomplished. The Contractor shall be responsible as to the details of completing the Project. Neither the agents, representatives, nor employees of the Contractor, shall be deemed to be the agents, representatives, or employees of Fort Bend County. The Contractor further represents that it accepts a fiduciary role and responsibility with respect to Fort Bend County and will, to its best abilities, act in the best interests of Fort Bend County and the timely completion of the Project. The Contractor agrees and understands that neither it nor any of its agents or employees may act in the name of Fort Bend County except and unless specifically authorized in writing by Fort Bend County to do so. The Contractor shall furnish construction administration and management services and use the Contractor's best efforts to complete the Project in an expeditious and economical manner consistent with the interests of Fort Bend County.

19.0 NOTICE

19.1 All written notices, demands, and other papers or documents to be delivered to Fort Bend County under this Contract shall be delivered to the Drainage District, 1124 Blume Rd, Rosenberg, TX 77471, or at such other place or places as Fort Bend County may from time to time designate by written notice delivered to the Contractor. For purposes of notice under this Contract, a copy of any notice or communication hereunder shall also be forwarded to the following address: Fort Bend County, 301 Jackson Street, Richmond, Texas 77469, Attention: County Judge.

19.2 All written notices, demands, and other papers or documents to be delivered to the Contractor under this Contract shall be delivered to the Authorized Representative identified in the Contract documents or such other place or places as the Contractor may designate by written notice delivered to Fort Bend County.

20.0 RECORDS:

20.1 Fort Bend County shall be the absolute and unqualified owner of all drawings, preliminary layouts, record drawings, sketches and other documents prepared

pursuant to the Contract by Contractor.

20.2 The Contractor agrees to maintain and preserve for a period of at least five years after the earlier of the expiration of the defects period or termination of this Contract, accurate and complete records relating to the performance of the Project. The Contractor agrees to, upon request, provide Fort Bend County with such records.

21.0 SUCCESSORS & ASSIGNS:

21.1 Fort Bend County and the Contractor bind themselves and their successors, executors, administrators and assigns to the other party of this Contract and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Contract.

21.2 Neither Fort Bend County nor the Contractor shall assign, sublet or transfer its interest in this Contract without the prior written consent of the other.

21.3 Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public and/or governmental body that may be a party hereto.

22.0 PUBLIC CONTACT:

Contact with the news media, citizens of Fort Bend County or governmental agencies shall be the sole responsibility of Fort Bend County. Under no circumstances, whatsoever, shall Contractor release any material or information developed in the performance of its services hereunder without the express written permission of Fort Bend County, except where required to do so by law.

23.0 MODIFICATIONS:

This instrument contains the entire Contract between the parties relating to the rights herein granted and obligations herein assumed. Any oral or written representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent written modification signed by both parties hereto.

24.0 SILENCE OF SPECIFICATIONS:

The apparent silence of specifications as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of specifications shall be made on the basis of this statement. The items furnished under this contract shall be new, unused of the latest product in production to commercial trade and shall be of the highest quality as to materials used and workmanship. Manufacturer furnishing these items shall be experienced in design and construction of such items and shall be an established supplier of the item bid.

25.0 SEVERABILITY:

In the event one or more of the provisions contained in these requirements or the specifications shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision hereof and these requirements or the specifications shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

26.0 GOVERNING FORMS:

In the event of any conflict between the terms and provisions of these requirements and the specifications, the specifications shall govern. In the event of any conflict of interpretation of any part of this overall document, Fort Bend County's interpretation shall govern.

27.0 TAX EXEMPT:

Fort Bend County is exempt from state and local sales and use taxes under Section 151.309 of the Texas Tax Code. This Contract is deemed to be a separate contract for Texas tax purposes, and as such, Fort Bend County hereby issues its Texas Exemption for the purchase of any items qualifying for exemption under this Contract. Contractor is to issue its Texas Resale Certificate to vendors and subcontractors for such items qualifying for this exemption, and further, contractor should state these items at cost.

28.0 ENTIRE AGREEMENT:

The Parties agree that this Contract contains all of the terms and conditions of the understanding of the parties relating to the subject matter hereof. All prior negotiations, discussions, correspondence and preliminary understandings between the parties and others relating hereto are superseded by this Contract. By entering into this Contract, the parties do not intend to create any obligations, express or implied, other than those specifically set out in this Contract.

29.0 APPLICABLE LAW & VENUE

This Contract shall be construed under and in accord with the laws of the State of Texas, and all obligations of the parties created hereunder are performable in Fort Bend County, Texas, and that venue for any litigation arising out of or related to this Contract shall lie solely in the court of appropriate jurisdiction located in Fort Bend County, Texas.

30.0 ENCLOSURE:

The following being incorporated herein by reference for all purposes as though fully set forth herein word for word.

Enclosure #1 – Specifications and Plans

31.0 PRICING:

Vendors are required to obtain and complete the Excel Bid Pricing Form on the Fort Bend County website and return to Purchasing as stated in Section 1.4 and 1.5.

32.0 PROJECT DURATION:

Bidder agrees, if awarded the contract, to complete all work required by the contract documents **within _____ calendar days (maximum 465 days)** after issuance of a purchase order by the County Purchasing Agent and notice to proceed by the Drainage District.

33.0 AWARD:

This contract will be awarded to the overall lowest and best bid.

34.0 TEXAS ETHICS COMMISSION FORM 1295:

34.1 Effective January 1, 2016 all contracts executed by Commissioners Court, regardless of the dollar amount, will require completion of Form 1295 "Certificate of Interested Parties", per the new Government Code Statute §2252.908. All vendors submitting a response to a formal Bid, RFP, SOQ or any contracts, contract amendments, renewals or change orders are required to complete the Form 1295 online through the State of Texas Ethics Commission website. Please visit: https://www.ethics.state.tx.us/filinginfo/1295/

34.2 On-line instructions:

34.2.1 Name of governmental entity is to read: Fort Bend County.

34.2.2 Identification number used by the governmental entity is: B25-027.

34.2.3 Description is the title of the solicitation: Construction of Long Point Creek Channel Rehabilitation and Conveyance Improvements.

34.3 Apparent low bidder(s) will be required to provide the Form 1295 within three (3) calendar days from notification; however, if your company is publicly traded you are not required to complete this form.

35.0 STATE LAW REQUIREMENTS FOR CONTRACTS:

The contents of this section are required by Texas Law and are included by County regardless of content.

35.1 Agreement to Not Boycott Israel Chapter 2271 Texas Government Code: Contractor verifies that if Contractor employs ten (10) or more full-time employees and this Agreement has a value of $100,000 or more, Contractor does

not boycott Israel and will not boycott Israel during the term of this Agreement.

35.2 Texas Government Code Section 2251.152 Acknowledgment: By signature on vendor form, Contractor represents pursuant to Section 2252.152 of the Texas Government Code, that Contractor is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153.

36.0 HUMAN TRAFFICKING:

By acceptance of this contract, Contractor acknowledges that Fort Bend County is opposed to human trafficking and that no County funds will be used in support of services or activities that violate human trafficking laws

37.0 INDEMNITY FOR BODILY INJURY OR DEATH CLAIMS

Indemnity for certain bodily injury or death claims. To the fullest extent permitted by law, contractor shall indemnify, defend and hold harmless the county from and against all claims, losses, expenses, costs, demands, suits, causes of action, and damages, including without limitation, attorneys' fees and expenses, for bodily injury or death of any employee of contractor, its agents, or its subcontractors of every tier, even if the bodily injury or death is caused by or alleged to have been caused by the sole or partial negligence, fault or strict liability of any indemnitee.

Indemnity for all other claims. For all claims not addressed in the preceding section or section 11.0 above , including, without limitation, claims for damage to or loss of use of property and claims for bodily injury to or death of any person other than that addressed in the immediately preceding section, to the fullest extent permitted by law, contractor shall indemnify, defend and hold harmless the county from and against all claims, losses, expenses, costs, demands, suits, causes of action, and damages, including without limitation, attorneys' fees and expenses, of any nature whatsoever arising out of or related to this contract or the work to be performed under this contract, but only to the extent of the negligence or other fault of the contractor, its agents, representatives, employees or subcontractors of any tier.

38.0 AGREEMENT TO ARBITRATE UNDER THE FEDERAL ARBITRATION ACT

To the maximum extent allowed by law, any controversy or claim arising out of or relating to this contract, or the breach thereof, shall be settled by arbitration under the Federal Arbitration Act, 9 U.S.C. § 1, et seq. administered by the American Arbitration Association under its Construction Industry Arbitration Rules, and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. For cases in which the amount in controversy is less than $250,000, there shall be no discovery other than an expeditious and complete exchange of documents relative to the dispute. For cases in which the amount in controversy is between $250,000 and $1,000,000, there shall be no discovery except for an expeditious and complete exchange of such documentary information and up to three (3) depositions per side (including expert depositions, if any). For cases in which the amount in

controversy exceeds $1,000,000, there shall be no discovery except for an expeditious and complete exchange of such documentary information up to five (5) depositions per side (including expert depositions, if any). No formal interrogatories, request for admissions or formal request for production of documents shall be allowed in the arbitration process. The hearing on the merits will be completed no later than ninety (90) days after the initial demand for arbitration is made for disputes involving amounts in controversy of up to $250,000; no later than no later than one hundred twenty (120) days after the initial demand for arbitration is made for disputes involving amounts in controversy of between $250,000 and $1,000,000; and, no later than three hundred sixty five (365) days after the initial demand for arbitration is made for disputes involving amounts in controversy of over $1,000,000.

39.0 ADDITIONAL REQUIRED FORMS:

All vendors submitting are required to complete and return with submission

39.1 Electronic Excel file of Pricing Form on flash drive and printed hard copy

39.2 Vendor Form

39.3 W9 Form

39.4 Tax Form/Debt/Residence Certification

39.5 Contractor Acknowledgement of Stormwater Management Program

Contract Sheet
Bid 25-027

THE STATE OF TEXAS
COUNTY OF FORT BEND

This memorandum of agreement made and entered into on the _____ day of _____, 20_____, by and between Fort Bend County in the State of Texas (hereinafter designated County), acting herein by County Judge KP George, by virtue of an order of Fort Bend County Commissioners Court, and _____ (hereinafter designated Contractor).

(company name)

WITNESSETH:

The Contractor and the County agree that the bid and specifications for the **Construction of Long Point Creek Channel Rehabilitation and Conveyance Improvements for Fort Bend County Drainage District.** which are hereto attached and made a part hereof, together with this instrument and the bond (when required) shall constitute the full agreement and contract between parties and for furnishing the items set out and described; the County agrees to pay the prices stipulated in the accepted bid.

It is further agreed that this contract shall not become binding or effective until signed by the parties hereto and a purchase order authorizing the items desired has been issued.

Executed at Richmond, Texas this _____day of _____20_____.

Fort Bend County, Texas

By:_____
County Judge, KP George

By:_____
Signature of Contractor

By:_____
Printed Name and Title

Form **W-9**
(Rev. December 2014)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See **Specific Instructions** on page 2.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification; check only **one** of the following seven boxes:

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____

Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

6 City, state, and ZIP code

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number

			–		–				

or

Employer identification number

		–							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	**Signature of U.S. person ▶**	**Date ▶**

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at *www.irs.gov/fw9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding?* on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,

2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4—A foreign government or any of its political subdivisions, agencies, or instrumentalities

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over $600 required to be reported and direct sales over $5,000[1]	Generally, exempt payees 1 through 5[2]
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.ssa.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: *A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.*

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor[2]
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee[1] The actual owner[1]
5. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	**Give name and EIN of:**
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity[4]
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

***Note.** Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov.* You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: *spam@uce.gov* or contact them at *www.ftc.gov/idtheft* or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

Job No.: _____

TAX FORM/DEBT/ RESIDENCE CERTIFICATION
(for Advertised Projects)

Taxpayer Identification Number (T.I.N.): _____

Company Name submitting Bid/Proposal: _____

Mailing Address: _____

Are you registered to do business in the State of Texas? Yes No

If you are an individual, list the names and addresses of any partnership of which you are a general partner or any assumed name(s) under which you operate your business

_____

_____

I. **Property:** List all taxable property in Fort Bend County owned by you or above partnerships as well as any d/b/a names. Include real and personal property as well as mineral interest accounts. (Use a second sheet of paper if necessary.)

Fort Bend County Tax Acct. No.*	Property address or location**
_____	_____
_____	_____
_____	_____
_____	_____

** This is the property account identification number assigned by the Fort Bend County Appraisal District.*

*** For real property, specify the property address or legal description. For business personal property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored at a warehouse or other location.*

II. **Fort Bend County Debt** - Do you owe any debts to Fort Bend County (taxes on properties listed in I above, tickets, fines, tolls, court judgments, etc.)?

Yes No If yes, attach a separate page explaining the debt.

III. **Residence Certification** - Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Fort Bend County requests Residence Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

I certify that _____ is a Resident Bidder of Texas as defined in Government Code
[Company Name]
§2252.001.

I certify that _____ is a Nonresident Bidder as defined in Government Code
[Company Name]
§2252.001 and our principal place of business is _____.
[City and State]

Mandatory Form

Contractor Acknowledgement of Storm Water Management Program

I hereby acknowledge that I am aware of the stormwater management program and standard operating procedures developed by Fort Bend County in compliance with the TPDES General Permit No. TXR040000. I agree to comply with all applicable best management practices and standard operating procedures while conducting my services for Fort Bend County. I agree to conduct all services in a manner that does not introduce illicit discharges of pollutants to streets, stormwater inlets, drainage ditches or any portion of the drainage system. The following materials and/or pollutant sources must not be discharged to the drainage system as a result of any services provided:

1. Grass clippings, leaves, mulch, rocks, sand, dirt or other waste materials resulting from landscaping activities, (except those materials resulting from ditch mowing or maintenance activities)
2. Herbicides, pesticides and/or fertilizers, (except those intended for aquatic use)
3. Detergents, fuels, solvents, oils and/or lubricants, other equipment and/or vehicle fluids,
4. Other hazardous materials including paints, thinners, chemicals or related waste materials,
5. Uncontrolled dewatering discharges, equipment and/or vehicle wash waters,
6. Sanitary waste, trash, debris, or other waste products
7. Wastewater from wet saw machinery,
8. Other pollutants that degrade water quality or pose a threat to human health or the environment.

Furthermore, I agree to notify Fort Bend County immediately of any issue caused by or identified by:

_____

(Company/Contractor)

that is believed to be an immediate threat to human health or the environment.

_____ _____

Contractor Signature Date

_____

Printed Name

_____

Title

Table of Contents

1. LIST OF COUNTY SPECIFICATIONS

Project: Long Point Creek Channel Improvement
Engineer: iGET SERVICES LLC

ITEM NO.	SPEC NO.	SPECIFICATION SECTION
1	DWG	Project Sign
2	100	Preparing ROW
3	104	Removing old concrete (pavement)
4	105	Removing conc (curb or curb & gutter)
9	495	Removing old structures – inlets (all depths)
10	496	Removing old structures – manholes (all depths)
11	463	Remove & Relocate signs
12	500	Remove & Relocate Mailbox
13	501	Tree protection & trimming
14	463	Remove and Dispose existing asphaltic surface and base material (all depths)
15	324	Construction perimeter fence
16	360	Concrete pavement (8") (high strength)
17	361	Doweling into existing pavement (5/8" diameter)
18	433	Cement stabilized sand (6" thick)
19	530	Concrete curb & gutter (monolithic)
20	530	Concrete sidewalks (4.5")
21	530	Curb ramps (type 7)
22	429	Trench excavation protection (depths > 5 feet)
23	460	Reinforced Concrete Pipe (cl iii)(18 in)
24	460	Reinforced Concrete Pipe (cl iii)(24 in)
25	460	Reinforced Concrete Pipe (cl iii)(36 in)
26	472	Inlet complete (ty a)
27	473	Inlet complete (ty c) (curb)
28	474	Inlet complete (ty a) (spl-1)(mod)
29	DRG	Concrete flume
31	665	Work Zone Pavement markings 4" white/solid (removable) furnished -applied & removed
32	666	Work Zone Pavement markings 4" yellow/solid (removable) furnished-applied & removed
33	671	Traffic Control - barricades, barriers, barrels, cones, and signing
34		Flashing arrow board
35	671	Temporary commercial driveways - furnish-install & remove
36	624	Aluminum signs (ground mounted)- furnish & install
37	660	Reflectorized pavement markings type i (thermoplastic) 4" yellow/solid - furnish & applied (15' over 40')
38	660	Reflectorized pavement markings type i (thermoplastic) 4" white/dashed - furnish & applied (15' over 40')
39	660	Reflectorized pavement markings type i (thermoplastic) 4" white/solid - furnish & applied (15' over 40')

ITEM NO.	SPEC NO.	SPECIFICATION SECTION
40	660	Reflectorized pavement markings type i (thermoplastic) 8" white/solid - furnish & applied (15' over 40')
41	660	Reflectorized pavement markings type i (thermoplastic) 12" white/solid - furnish & applied
42	660	Reflectorized pavement markings type i (thermoplastic) 24" white/solid - furnish & applied
43	660	Reflectorized pavement markings type i (thermoplastic) word "only" - furnish & applied
44	660	Reflectorized pavement markings type i (thermoplastic) single arrow-left - furnish & applied
45	660	Reflectorized pavement markings type i (thermoplastic) single arrow-right - furnish & applied
46	663	Reflectorized pavement markers type ii-c-r - furnish & install
47	663	Non-reflectorized ceramic traffic buttons (white) - furnish & install
48	660	Painted curb (yellow)
49	674	Removing pavement striping & markings (4" width, any color/dashed) (15' over 40')
50	674	Removing pavement markings (any button)
55	674	Reflectorized pavement marking type ii (white) (bike symbol)
90	162	Sodding for erosion control (various widths)
91	165	Hydro-mulch seeding
92	731	Filter fabric fence, furnish and remove
93	719	Inlet protection barrier, furnish, install, and remove
94	724	Stabilized construction access, furnish, install, and remove
95	751	SWPP inspection and maintenance
96	110	Special roadway excavation
97	160	Furnishing and placing topsoil
98	TX 7306003	Extra mowing
99	672	Off-duty uniformed peace officers
100	671	Portable traffic barrier, furnish and install
101		Skilled labors
102		Unskilled labors
103	COH 252	Water (fire hydrant w/6" valve & box)
104	COH 252	Water (gate valve & box)compl(8")
105	COH 252	Tee (8" x 8") used 8x6
106	TX 70496075	Service line (long side) (5/8" to 1")
107	TX 70326220	Tapping sleeve and valve (8 in x 8 in)
108	TX 70496127	Cut and plug water main (8in)
109	TX 7646001	Drain Inlet Cleaning
110	TX 5126025	Portable traffic barrier, move
111	TX 400-7010	Em Stabil Bkfl
112	TX 400-7001	Structural Excavation
113	TX 416-7005	Drill Shaft (30 In)
114	420-7012	Cl C Conc (Abut)
115	422-7001	Reinf. Conc Slab

ITEM NO.	SPEC NO.	SPECIFICATION SECTION
116	422-7013	Approach Slab
117	425-7001	Prestr Conc Girder (Tx28)
118	450-7030	Rail (Ty C1w)
119	434-6002	Laminated Elastomeric Bearing Pad (Min. 50 Durometer)
120	423-7001	Retaining Wall (Mse)-Wing Wall
121	500-6001	Mobilization (Crane Lifting Girder, Equipment Etc)
122	SPL	Prestressed Concrete Panels (PCP)
123	454-7003	Armor Joint (Sealed)
124	540-7002	Mtl W-Beam Gd Fen (Steel Post)
125	427-7004	Silicone Resin Paint Finish

2. SUMMARY OF WORK- FBC B25-027

The project is in Fort Bend County south of Missouri City and is shown on FEMA FIRM panel 48157C0315L effective on April 2, 2014. Subdivisions surrounding the Long Point Creek from Highway 6 to McKeever Rd include Creek Mont subdivision, Cochran & McCluer Subdivision and Newpoint Estates Subdivision.

The project consists of channel improvements along a stretch of Long Point Creek from downstream of Highway 6 to the upstream of McKeever Road and a diversion channel originated from Long Point Creek to its outfall to Oyster Creek. Pathway of the Long Point Creek improvement being proposed is as follows: starting immediately south of Hwy 6, running south bound, crossing the Darby Lane, running further south and south-West, branching out into west bound and south bound flows, with west bound flow into a diversion channel, eventually meeting Oyster creek, and south flow into an inverted syphon to cross McKeever Road. The creek spans from State Highway 6 to McKeever Rd, a total distance of approximately 6,600 linear feet, and the west bound diversion channel, parallel to McKeever Rd., approximately 1,900 feet, until it meets Oyster creek. The improvement also consists of raising the Darby Lane road which crosses the channel. The proposed road will be raised above 100-year flood level and a new concrete bridge is proposed over the channel.

There are few appurtenances that will be added as part of the channel improvement, such as fence near confluence area where the elevation difference is more than 10 feet.

3. UTILITY ADJUSTMENT SUMMARY

The project begins from Hwy-6 to Darby Lane with numerous utilities on either side of channel and Darby Lane crossing the channel. The channel cross section is improved on either side of the proposed road with lining and grading. The channel is meandering left and right and so utilities are obstructing the flow. There are some electric overhead lines that need to be cautioned during construction of bridge.

Contractor to adjust utilities coordinating with county and engineering department of the County. 811-Calls shall be made as required by FBC.

4. GEOTECHNICAL REPORT

March 30, 2022

iGET Services LLC
10039 Bissonnet Street, Suite 336
Houston, Texas 77036

Attn: Dr. Satya Pilla, P.E.

Re: Additional Geotechnical Engineering Services
Long Point Creek Channel Improvements
Fort Bend County, Texas
Terracon Project No. 92205342.Supplement1

Dear Dr. Pilla,

Terracon Consultants, Inc. (Terracon) is pleased to submit our supplemental letter report for the above referenced project in Houston, Texas. These additional services were authorized by Dr. Satya Pilla, P.E. with iGET Services LLC through e-mail authorization on March 4, 2022. This letter should be considered a supplement to our Geotechnical Engineering Report (Terracon Project No. 92205342, dated June 29, 2021) for this project.

Based on the information provided by iGET Services LLC, we understand that grade is planned to be raised up to 2 feet along Darby Lane to match the elevation of the bridge over Long Point Creek. The proposed improvements are planned to extend 300 feet east and 300 feet west of the bridge within the current pavement width. We understand the bridge is planned to remain in place and will not be modified as part of the proposed improvements. We understand that subgrade preparation and pavement design guidelines have been requested at this time.

Subsurface Exploration

We advanced two additional soil borings designated as BR-1 and BR-2 with a standard truck-mounted drill rig using solid stem continuous flight augers to a depth of 10 feet below the existing grade. The field exploration and laboratory testing were analogous to our Geotechnical Engineering Report (Terracon Project No. 92205342, dated June 29, 2021).

Subsurface Profile

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions observed at each exploration point are indicated on the individual log. The individual log can be found in the Exploration Results section and the GeoModel can be found in the Figures section of this report.

Existing pavements consisted of about 4 inches of asphaltic concrete overlying approximately 20 inches of crushed stone material.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at the boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Fill: Fat Clay	dark gray, with slickensides, ferrous stains, scattered roots, and scattered wood pieces
2	Fat Clay	dark gray and tan, soft to medium stiff, with slickensides, calcareous nodules, and ferrous stains

Groundwater Conditions

The borings were advanced using dry drilling techniques to their termination depths of about 10 feet below existing grade in an effort to evaluate groundwater conditions at the time of our field program. Groundwater was not observed at borings BR-1 and BR-2 during or upon completion of drilling.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the improvements may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project and should be evaluated prior to construction.

PAVEMENTS

New pavement construction areas should be stripped of existing pavements, vegetation, loose/soft topsoil, and other debris/unsuitable surface materials (including crushed stone material). The existing roadside ditches in construction areas should be drained and de-mucked of wet/loose soils, organics, etc. to expose firm native soils. Any open excavations remaining after site stripping should be backfilled with on-site clay soils, provided they are free of organics and debris. The soils used to backfill the excavations should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Effort (ASTM D 698) in lifts not exceeding 8 inches loose measure.

Once final subgrade elevations have been achieved, the exposed soil subgrade areas should be carefully proofrolled with a 20-ton pneumatic roller or equivalent equipment, such as a fully loaded dump truck, to detect weak zones in the subgrade. Special care should be exercised when proofrolling areas containing fill soils in an attempt to observe soft/weak zones within the fill soils. Weak areas detected during proofrolling, as well as zones of fill containing organic matter and/or debris, should be removed to expose firm subgrade and replaced with soils exhibiting similar

performed under the direct observation of the geotechnical engineer or his/her representative. Proper site drainage should be maintained during construction so that ponding of surface runoff does not occur and cause construction delays and/or inhibit site access.

Subsequent to proofrolling, and just prior to placement of fill (if any), the exposed subgrade within the construction areas should be evaluated for moisture and density. The subgrade should be between optimum moisture content and 4 percent wet of optimum moisture content, and have an in-place dry density of at least 95 percent of the Standard Effort (ASTM D 698) maximum dry density. If the moisture or density does not meet the above criteria, the subgrade should be scarified to a minimum depth of 6 inches, moisture conditioned to between optimum and 4 percent wet of optimum moisture content, and compacted to at least 95 percent of the Standard Effort (ASTM D 698) maximum dry density.

Any fill soils used for grade adjustments in the new pavement areas should consist of clean soils that are free of organics/debris with similar characteristics as the on-site soils and should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Effort (ASTM D 698) at a moisture content within 4 percent wet of the optimum moisture content in lifts not exceeding 8 inches loose measure.

Prior to any filling operations, samples of the proposed borrow materials should be obtained for laboratory moisture-density testing. The tests will provide a basis for evaluation of fill compaction by in-place density testing. A qualified soil technician should perform sufficient in-place density tests during the filling operations to evaluate that proper levels of compaction are being attained. Construction operations may encounter difficulties due to wet or soft surface soils becoming a general hindrance to equipment, especially following periods of wet weather. If the subgrade cannot be adequately compacted to the minimum densities as described previously, one of the following measures will be required: 1) removal and replacement with select fill, 2) chemical treatment of the soil to dry and improve the condition of the subgrade, or 3) drying by natural means if the schedule allows. Based on our experience with similar soils in this area, chemical treatment is generally an efficient and effective method to improve the condition of wet and weak subgrade. Terracon should be contacted for additional recommendations if chemical treatment is planned to be utilized due to soft and wet subgrade.

The subgrade should be conditioned by one of these means such that it can be proofrolled without undue deflection or rutting, then the chemical treatment should be applied to the top 8 inches of the subgrade underlying the pavement as described subsequently. If the soils are reworked to a depth greater than 8 inches or if replacement fill is used, the disturbed soil or fill should be compacted to a minimum of 95 percent of the Standard Effort (ASTM D 698) maximum dry density in lifts not exceeding 8 inches loose measure.

Based on the subsurface conditions, we anticipate that the new pavement subgrade will generally consist of high plasticity clay soils. We recommend that the top 8 inches of the finished subgrade soils directly beneath the pavements be chemically treated. Chemical treatment will increase the

supporting value of the subgrade and decrease the effect of moisture on subgrade soils. Chemical treatment should occur after all utility trenches have been excavated and backfilled.

We understand that the proposed pavement section is planned to consist of 3 inches of asphaltic concrete surface course underlain by 8 inches of flexible base material over 8 inches of chemically treated subgrade. Specific testing (such as CBR's, resilient modulus, etc.) was not performed for this project to evaluate the support characteristics of the subgrade. Based on the minimum pavement component thicknesses being considered at this site, we have performed roadway design calculations to evaluate the estimated equivalent 18-kip single axle loads (ESAL's) that these new pavement sections would be designed to support. Pavement design was performed using the "AASHTO Guide for Design of Pavement Structures, 1993." This estimation of ESALs is based on the assumption that excellent drainage is maintained over the life of the pavement and that pavement moisture levels approach saturation one percent of the time or less.

Flexible Pavement System			
Equivalent 18-kip Single Axle Loads (ESALs)	Material Thickness, Inches		
	Asphaltic Concrete Surface Course	Flexible Base Material	Chemically Treated Subgrade
700,000	3.0	8.0	8.0

Please contact Terracon for additional analyses if recommendations are needed for other traffic loadings. Maintenance and drainage will have a significant influence on the acceptable performance of the new pavement. The service life of this pavement is dependent on periodic maintenance, adequate drainage, and traffic that is consistent with the design traffic values presented above.

Presented below are our recommended material requirements for the various pavement section components.

Hot Mix Asphaltic Concrete Surface Course – The asphaltic concrete surface course should be plant mixed, hot laid Type D (Fine Graded Surface Course) meeting the requirements in TxDOT 2014 Standard Specifications Item 340. Specific criteria for the job specifications should include compaction to within an air void range of 3.8 to 8.5 percent calculated using the maximum theoretical specific gravity of the mix measured by TxDOT Tex-227-F. The asphalt cement content by percent of total mixture weight should be within ± 0.5 percent asphalt cement from the job mix design.

Flexible Base Material – Base material should be composed of crushed limestone or crushed concrete meeting the requirements of TxDOT 2014 Standard Specifications Item 247, Type A or D, Grade 1. The base material should be compacted to at least 95 percent of the Modified Effort (ASTM D1557) maximum dry density at moisture content within 2 percent of the optimum moisture content.

Lime Treated Subgrade – The medium to high plasticity clay soils should be treated with lime in accordance with the TXDOT 2014 Standard Specifications Item 260. The amount of lime should be determined for subgrade soils by conducting laboratory tests just prior to construction. Based on the classification test results, we recommend that about 8 to 10 percent lime by dry weight be used for estimating and planning. The percentages are given as application by dry weight and are typically equivalent to about 55 to 70 pounds of lime per square yard per 8-inch depth. The actual quantity of lime should be determined at the time of construction based on lime determination tests conducted using bulk samples of the subgrade soils. The pulverization, mixing and curing of the lime treated subgrade is of particular importance in these clays. The subgrade should be compacted to a minimum of 95 percent of the Standard Effort (ASTM D 698) maximum dry density at a moisture content between optimum and 4 percent wet of the optimum moisture content.

The pavement design method described above is intended to provide structural sections with adequate thickness over a particular subgrade such that wheel loads are reduced to a level the subgrade can support. The support characteristics of the subgrade for pavement design do not account for shrink/swell movements of an expansive clay subgrade such as the soils encountered at this site. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade. Post-construction subgrade movements and some cracking of pavements are not uncommon for clay subgrade conditions such as those observed at this site. Reducing moisture changes in the subgrade is important to reduce shrink/swell movements. Although chemical treatment will help to reduce such movement/cracking, this movement/cracking cannot be feasibly eliminated. Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations and environmental factors which will significantly affect the service life must be included in the preparation of the construction drawings and specifications. Normal periodic maintenance will be required.

Long-term pavement performance will be dependent upon several factors, including maintaining subgrade moisture levels and providing for preventative maintenance. The following recommendations should be implemented to help promote long-term pavement performance:

- The subgrade and the pavement surface should be designed to promote proper surface drainage, preferably at a minimum grade of 2 percent;
- Install joint sealant and seal cracks immediately;
- Extend curbs into the treated subgrade for a depth of at least 4 inches to help reduce moisture migration into the subgrade soils beneath the pavement section; and
- Place compacted, low permeability clayey backfill against the exterior side of the curb and gutter.

Preventative maintenance should be planned and provided for the pavements at this site. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and consist of both localized maintenance (e.g. crack and joint sealing and patching) and global

maintenance (e.g. surface sealing). Prior to implementing any maintenance, additional engineering observations are recommended to determine the type and extent of preventative maintenance.

We trust that the information contained herein meets your project needs at this time. Please note that any items not specifically discussed above should be addressed as indicated in our original report. Please contact us if you have any questions or if we can be of further assistance.

Sincerely,
Terracon Consultants, Inc.
(Texas Firm Registration No.: F-3272)

Santosh Aryal, E.I.T.
Staff Geotechnical Engineer

Patrick M. Beecher, P.E.
Geotechnical Services Manager

Rebecca L. Cummins, P.E.
Group Manager

Attachments:

Appendix A – Field Exploration:
- *Site Location*
- *Exploration Plan*
- *Boring Logs (BR-1 and BR-2)*
- *GeoModel*

Appendix B – Supporting Documents:
- *General Notes*
- *Unified Soil Classification System*

APPENDIX A

FIELD EXPLORATION

SITE LOCATION

Long Point Creek Channel Improvements ■ Fort Bend County, Texas
March 30, 2022 ■ Terracon Document No. 92205342.Supplement1

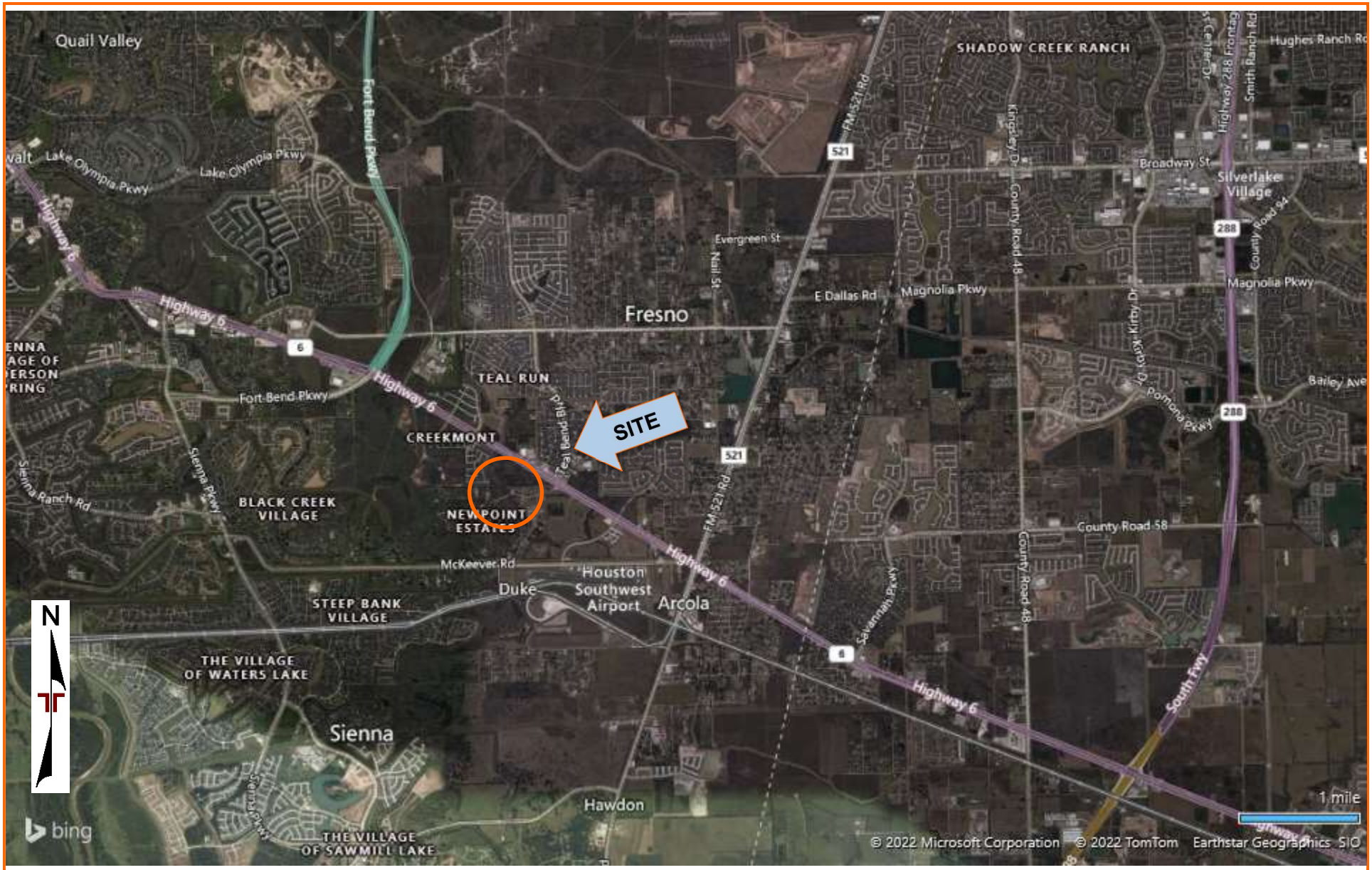


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Long Point Creek Channel Improvements ■ Fort Bend County, Texas
March 30, 2022 ■ Terracon Document No. 92205342.Supplement1

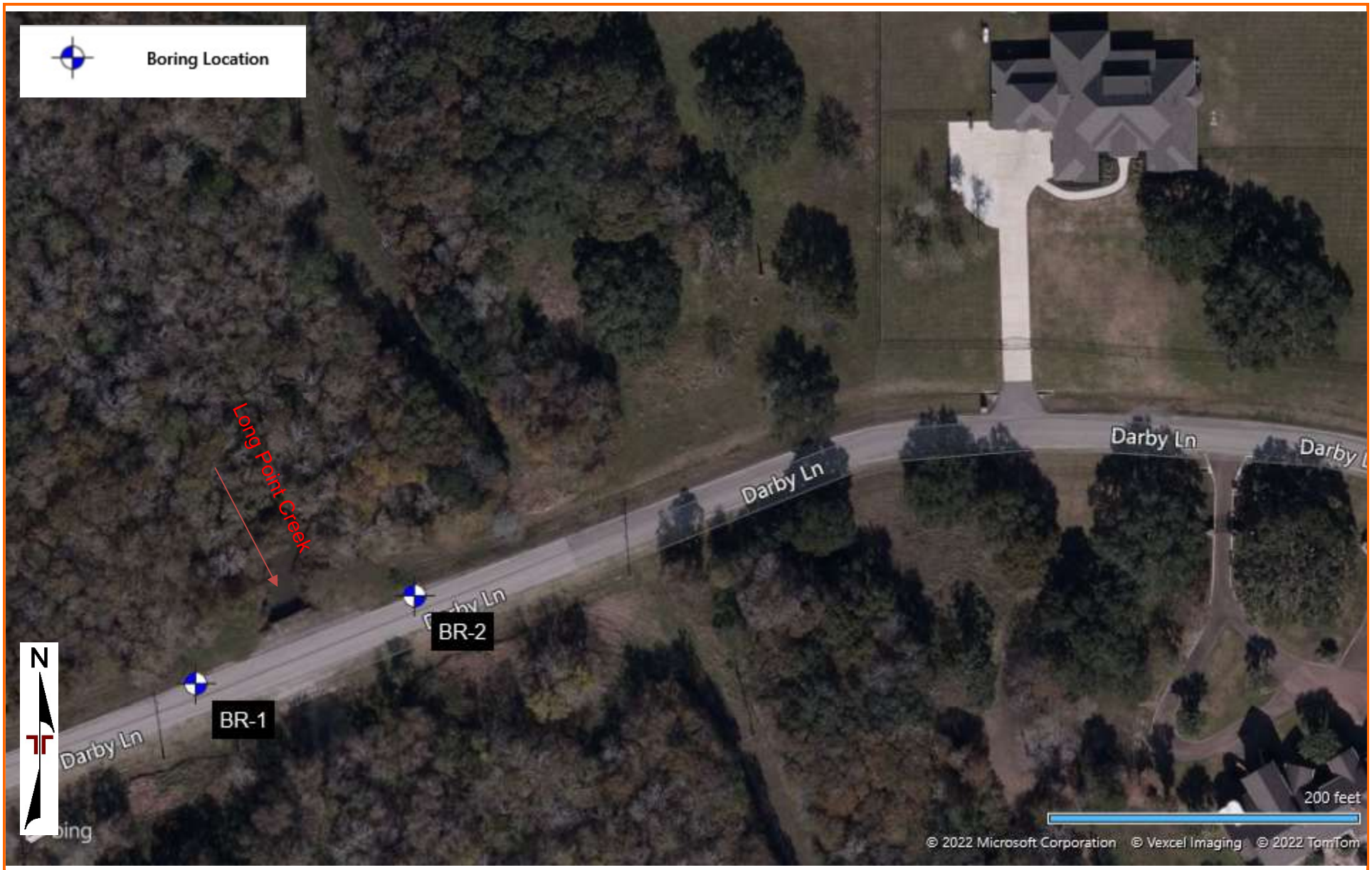


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

BORING LOG NO. BR-1

PROJECT: Long Point Creek Channel Improvements

CLIENT: iGet Services LLC
Houston, Texas

SITE: Darby Lane, Fresno
Fort Bend County, Texas

LOCATION See Exploration Plan

Latitude: 29.5155° Longitude: -95.4884°

MODEL LAYER	GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		PAVEMENT, about 4 inches of asphaltic concrete underlain by about 20 inches of crushed stone material											
		2.0											
1		**FILL - FAT CLAY (CH)**, dark gray, with slickensides, ferrous stains, scattered roots, and scattered wood pieces				1.5 (HP)				30.9		74-22-52	
			5			1.0 (HP)				40.8		87-24-63	
		6.0											
2		**FAT CLAY**, dark gray and tan, soft to medium stiff, with ferrous stains - with slickensides 6 to 8 feet				0.5 (HP)							
		- calcareous nodules below 8 feet				1.0 (HP)							
		10.0	10										
		Boring Terminated at 10 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Dry augered to 10 feet.

Abandonment Method:
Boring backfilled with cement bentonite grout and patched at the surface with asphaltic concrete patch upon completion of drilling.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
11555 Clay Rd, Ste 100
Houston, TX

Boring Started: 03-16-2022 | Boring Completed: 03-16-2022

Drill Rig: Truck | Driller: Herman Drilling

Project No.: 92205342.Supplement1

BORING LOG NO. BR-2

PROJECT: Long Point Creek Channel Improvements

CLIENT: iGet Services LLC
Houston, Texas

SITE: Darby Lane, Fresno
Fort Bend County, Texas

LOCATION See Exploration Plan

Latitude: 29.5157° Longitude: -95.4880°

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		2.0	**PAVEMENT**, about 4 inches of asphaltic concrete underlain by about 20 inches of crushed stone material											
1		6.0	**FILL - FAT CLAY**, dark gray, with slickensides, ferrous stains, scattered roots, and scattered wood pieces				1.5 (HP)				34.9		74-25-49	
				5			2.5 (HP)							
2		10.0	**FAT CLAY**, dark gray and tan, soft to medium stiff, with slickensides and ferrous stains				1.0 (HP)							
							0.5 (HP)							
			Boring Terminated at 10 Feet	10										

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Dry augered to 10 feet.

Abandonment Method:
Boring backfilled with cement bentonite grout and patched at the surface with asphaltic concrete patch upon completion of drilling.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
11555 Clay Rd, Ste 100
Houston, TX

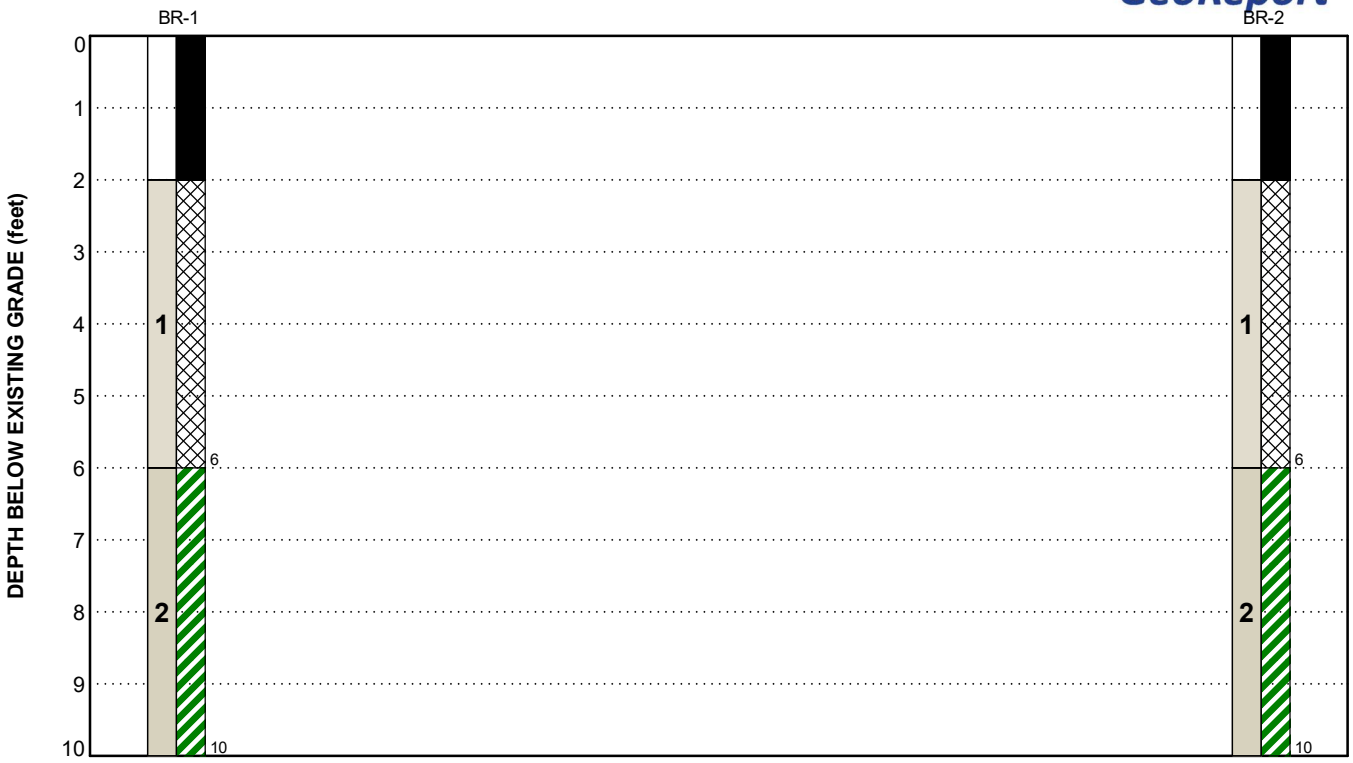
Boring Started: 03-16-2022 | Boring Completed: 03-16-2022

Drill Rig: Truck | Driller: Herman Drilling

Project No.: 92205342.Supplement1

GEOMODEL

Long Point Creek Channel Improvements ■ Fort Bend County, Texas
Terracon Project No. 92205342.Supplement1



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Fill: Fat Clay	dark gray, with slickensides, ferrous stains, scattered roots, and scattered wood pieces
2	Fat Clay	dark gray and tan, soft to medium stiff, with slickensides, calcareous nodules and ferrous stains

LEGEND

- Pavement
- Fill
- Fat Clay

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

APPENDIX B

SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Long Point Creek Channel Improvements ■ Fort Bend County, Texas

Terracon Project No. 92205342.Supplement1

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Auger Cuttings Shelby Tube	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** **Cave In Encountered** Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**N** Standard Penetration Test Resistance (Blows/Ft.) **(HP)** Hand Penetrometer **(T)** Torvane **(DCP)** Dynamic Cone Penetrometer **UC** Unconfined Compressive Strength **(PID)** Photo-Ionization Detector **(OVA)** Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay [K, L, M, N] / Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay [K, L, M, P] / Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

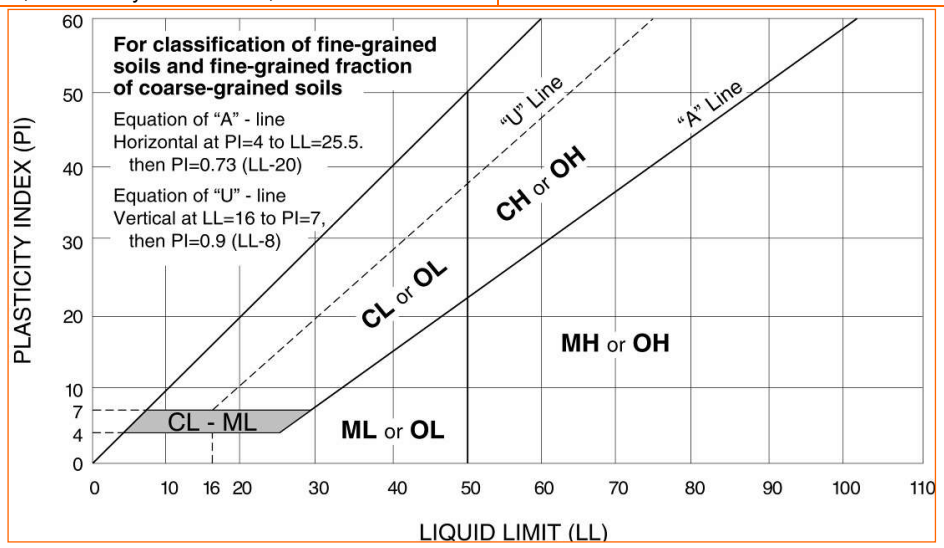
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



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FORT BEND COUNTY DRAINAGE DISTRICT

CONSTRUCTION PLANS FOR DARBY LANE BRIDGE AND CHANNEL REHABILITATION AND CONVEYANCE IMPROVEMENTS TO LONG POINT CREEK

PROJECT NO.

VINCENT M. MORALES, JR.
COMMISSIONER PRECINCT 1

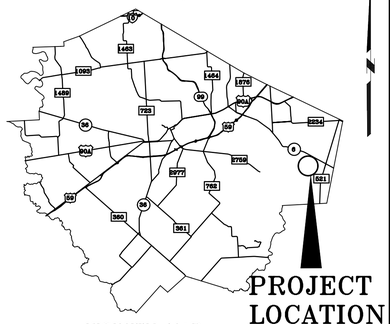
KP GEORGE
COUNTY JUDGE

ANDY MEYERS
COMMISSIONER PRECINCT 3

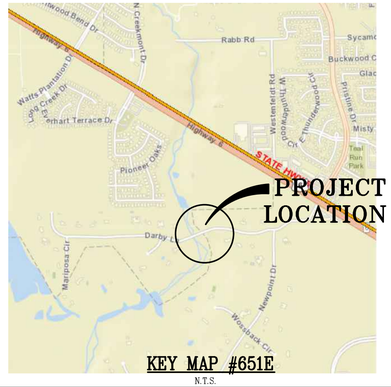
GRADY PRESTAGE
COMMISSIONER PRECINCT 2

Dexter L. McCoy
COMMISSIONER PRECINCT 4

PROJECT LOCATION
KEY MAPS #651E



VICINITY MAP
N.T.S.



KEY MAP #651E
N.T.S.

THE STATE OF TEXAS
FORT BEND COUNTY

NOV./2022
PRECINCT-2

Fort Bend County, Texas

iGET SERVICES LLC
10039 BISSONNET STREET, SUITE 336
HOUSTON, TX 77493
EMAIL: INFO@IGETSERVICES.COM
PHONE: +1 832 858 3982

10/10/2024

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER

APPROVED: _____ 11/14/2024
COUNTY ENGINEER DATE
J. STACY SLAWINSKI, P.E.

FBCED, STANDARD 01

DRAWING INDEX

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		02 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\Cover.dwg

DN: | CK: | DW: | CK:

DN: CK: DW: CK:

GENERAL CONSTRUCTION NOTES:

1. ALL CONTRACT ITEMS SHALL COMPLY WITH THE "SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES IN HARRIS COUNTY", REVISED FEBRUARY 2010
2. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING ANY WORK
3. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING STREETS OF CONSTRUCTION DIRT AND DEBRIS AT CLOSE OF EACH DAY WORK
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SECURITY TO PROTECT THE PROJECT SITE, CONTRACTOR PROPERTY, EQUIPMENT, AND WORK
5. THE CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF THE JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING THE WORK.
6. THE CONTRACTOR'S STAGING SHALL BE DETERMINED BY THE CONTRACTOR WITH CONCURRENCE BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION
7. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS A MINIMUM OF 24 HOURS PRIOR TO TO BLOCKING DRIVEWAYS OR ENTERING UTILITY EASEMENTS
8. INGRESS AND EGRESS SHALL BE PROVIDED FOR TRAFFIC DURING CONSTRUCTION
9. THE CONTRACTOR SHALL MAINTAIN THE JOB SITE REASONABLY AND IN USABLE CONDITION DURING THE PROGRESS OF THE WORK. AFTER THE CONSTRUCTION WORK HAS BEEN COMPLETED, ALL DEBRIS, TRASH, EXCESS MATERIALS AND EQUIPMENT OCCASIONED BY THE WORK AND THE CONSTRUCTION SHALL BE REMOVED FROM THE JOB SITE. THE SITE SHALL BE LEFT IN A NEAT APPEARING AND WORKMAN CONDITION LIKE BEFORE FINAL ACCEPTANCE
10. CONTRACTOR SHALL BE RESPONSIBLE FOR AND ADEQUATELY PROTECT EXISTING STRUCTURES, UTILITIES, TREES, SHRUBS, FENCES AND OTHER ADJOINING FACILITIES, ' DAMAGES CAUSED BY CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE
11. PAVED SURFACES, PAVEMENTS MARKERS AND MARKINGS SHALL BE PROTECTED FROM DAMAGE BY TRACKED EQUIPMENTS.
12. IRON RODS DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PUBLIC LAND SURVEYOR FOR THE ORIGINAL PROPERTY OWNER AT NO SEPARATE PAY.
13. CONSTRUCTION STAKING WILL BE PROVIDED BY THE CONTRACTOR. TWO COPIES OF STAKING NOTES TO BE PROVIDED TO THE ENGINEER PRIOR TO CONSTRUCTION
14. COORDINATE WITH CONTRACTOR FOR TEMPORARY BENCHMARK
15. THE CONTRACTOR SHALL MAINTAIN UPDATED REDLINE RECORD DRAWINGS ON SITE FOR INSPECTION BY THE ENGINEER
16. THE REMOVAL OF ANY ABANDONED UTILITIES REQUIRED TO COMPLETE THE WORK SHALL BE INCIDENTAL AND NO SEPARATE PAYMENT SHALL BE MADE.
17. IT IS THE CONTRACTOR'S RESPONSIBILITY TO STOCKPILE NECESSARY MATERIAL ON-SITE OR SECURED OFF-SITE AT NO ADDITIONAL EXPENSE TO COUNTY. ALL STORM SEWER, CHANNEL EXCAVATION, IF SUITABLE NEEDS TO BE CONSUMED BEFORE BORROW IS BROUGHT ON-SITE
18. THE APPROXIMATE LOCATIONS OF KNOWN EXISTING UTILITIES ARE SHOWN. CONTRACTOR SHALL DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD PRIOR TO COMMENCING OF THE WORK AND SHALL CONTACT THE HOUSTON AREA UTILITY COORDINATION COMMITTEE 48 HOURS BEFORE BEGINNING OF THE WORK AT TEL: 713-223-4567
19. ALL OPEN CUTS SHALL BE COVERED WITH WITH ANCHORED STEEL PLATES WHEN WORK IN NOT IN PROGRESS
20. CONTRACTOR SHALL VIDEO TAPE ALL EXISTING PROJECT PRIOR TO CONSTRUCTION
21. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS & STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, SHORING AND WORKING AROUND ELECTRICAL POWER LINES
22. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION
23. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL SEDIMENTS IN EXISTING DRAINAGE STRUCTURES
24. CONTRACTOR SHALL COORDINATE WITH ANY OTHER CONTRACTOR OF ANY TRADE OR DISCIPLINE WORKING ADJACENT TO THE PROJECT SITE PRIOR TO AND DURING CONSTRUCTION.
25. PAVING SHALL BE IN ACCORDANCE WITH THE "REGULATIONS OF TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" AND/OR AMENDMENTS OF THE SAME.

UNDERGROUND UTILITIES:

LOCATIONS OF CENTERPOINT ENERGY MAIN LINES TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC WHERE APPLICABLE ARE SHOWN IN APPROXIMATE LOCATIONS ONLY.
SERVICE LINE ARE USUALLY NOT SHOWN, OUR THESE PLANS ONLY.
INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION.
IT DOES NOT IMPLY THAT CONFLICT ANALYSIS HAS BEEN MADE.
THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT TEL: (713) -223-4567 OR TEL: (811 CALL) MIN. 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

- WHEN CENTERPOINT ENERGY PIPE LINE MARKING ARE NOT VISIBLE, CALL TEL: (713) -659-2111 FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
- WHEN EXCAVATING WITHIN 18 FEET OF TEH INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
- WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED. SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS TO THE PIPING

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES. WARNING OVERHEAD ELECTRICAL LINES:

OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT CONTRACTOR SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

- ANY ACTIVITY WHERE PERSON OR THINGS MAY WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES AND
- OPERATING A CRANE, BERRICK, POWER SHOVEL, DRILLING APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAN CARRIES BOTH CRIMINAL AND CIVIL LIABILITIES. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTER POINT ENERGY/ELECTRIC COMPANY AT TEL: (713)-207-2222

ACTIVITIES ON OR ACROSS CENTER POINT/ELECTRIC COMPANY OR EASEMENT PROPERTY: NO APPROVAL TO USE, CROSS OR OCCUPY EASEMENT PROPERTY IS GIVEN, CALL TEL: (713) -207-2222

AT&T TEXAS/SWBT FACILITIES

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES
2. THE CONTRACTOR SHALL CALL TEL: 1-(800)-924-9420 A MIN. OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND UTILITIES FIELD LOCATED 3.
3. WHEN EXCAVATING WITHIN EIGHTEEN (18) FEET OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN DRILLING, THE CONTRACTOR SHALL EXPOSE THE AT&T/SWBT FACILITIES
4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED. THE CONTRACTOR WILL WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT
5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION DEPT. AT TEL: 1-800-924-9420

STANDARD FBCDD (FORT BEND COUNTY DRAINAGE DISTRICT) NOTES FOR CONSTRUCTION DRAWINGS:

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL PERMITS AND _APPROVALS WITH ASSISTANCE FROM ENGINEER. IF NECESSARY OBTAIN PERMIT OR ERIE CAT TONS FROM FORT BEND COUNTY ENGINEER TO ENTER FORT BEND DRAINAGE DISTRICT HT-OF -WAY
2. NOTIFY THE FORT BEND COUNTY DRAINAGE DISTRICT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION
3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE FORT BEND COUNTY DRAINAGE DISTRICT REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN FORT BEND COUNTY DRAINAGE DISTRICT RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND/OR EASMENTS SHALL BE STAKED AND FLAGGED
4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.
5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE, FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO THE INSTALLATION
6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4"
7. BACKFILL IN ACCORDANCE WITH THE HARRIS COUNTY FLOOD CONTROL DISTRICT STANDARD SPECIFICATION, SECTION 02315- EXCAVATION OR BACKFILLING, OR EQUIVALENT
8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM. AS NECESSARY TO ENSURE NO WATER REMAINS IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASIN) DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL, SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS, ENSURE NO WATER IS ABOVE THE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL
9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITION
10. REMOVE ALL EXCAVATED MATERIAL FROM THE FORT BEND COUNTY DRAINAGE DISTRICT OR DRAINAGE RIGHT-OF-WAY. NO FILLS IS TO BE_PLACED WITHIN A DESIGNATED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTION AUTHORITY

CONCRETE-LINED TRAPEZOIDAL CHANNELS

1. ALL CONCRETE SHALL BE CLASS A CONCRETE UNLESS NOTED OTHERWISE. REFER TO FORT BEND COUNTY DRAINAGE MANUAL FOR SEC. 3.3.4.2 FOR ADDITIONAL DETAILS
2. FULLY LINED CROSS-SECTIONS SHALL HAVE A MINIMUM BOTTOM WIDTH OF EIGHT (8) FEET.
3. CONCRETE SLOPE PROTECTION PLACED ON 3:1 SIDE SLOPES SHALL HAVE A MINIMUM THICKNESS OF 5-INCHES AND MINIMUM 6 X 6 X W2.9 X W2.9 WELDED WIRE FABRIC OR EQUIVALENT
4. CONCRETE SLOPE PROTECTION PLACED ON 2:1 SIDE SLOPES SHALL _HAVE A MINIMUM THICKNESS OF 5-INCHES AND MINIMUM 6 X 6 X W4.0 X W4.0 WELDED WIRE FABRIC OR EQUIVALENT.
5. THE MINIMUM SIDE SLOPES FOR ANY CONCRETE LINED AREAS SHALL BE 2:1 AND ENSURE THAT THE ESCAPE STAIRWAYS ARE INCLUDED AS PER SEC. 3.3.4.3 (6).
6. ALL SLOPE PAVING SHALL INCLUDE A MINIMUM _18-INCH TOE_WALL_AT THE TOP AND SIDES AND A 4-INCH TOE WALL ACROSS OR ALONG THE CHANNEL BOTTOM FOR CLAY SOILS, IN SANDY SOILS, A 36-INCH TOE WALL IS RECOMMENDED ACROSS THE CHANNEL BOTTOM.
7. IN INSTANCES WHERE THE CHANNEL IS FULLY LINED, BACKSLOPE DRAINAGE STRUCTURES MAY NOT BE REQUIRED. PARTIALLY LINED CHANNELS WILL REQUIRE BACKSLOPE DRAINAGE STRUCTURES.
8. WEEP HOLES SHALL BE USED TO RELIEVE HYDROSTATIC HEAD BEHIND LINED CHANNEL SECTIONS. THE SPECIFIC TYPE, SPACING AND CONSTRUCTION METHOD FOR THE WEEP HOLES WILL BE BASED ON THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
9. WHERE CONSTRUCTION IS_TO TAKE PLACE UNDER CONDITIONS OF MUD AND/OR STANDING WATER, A SEAL SLAB OF CLASS C CONCRETE SHALL BE PLACED IN CHANNEL BOTTOM PRIOR TO PLACEMENT OF CONCRETE SLOPE PAVING.
10. CONTROL JOINTS SHALL BE PROVIDED AT APPROXIMATELY TWENTY-FIVE FEET ON CENTER. THE USE OF A SEALING AGENT SHALL BE UTILIZED TO PREVENT MOISTURE INFILTRATION
11. MINIMUM RIGHT-OF-WAY REQUIREMENTS FOR FORT BEND COUNTY INCLUDE THE CHANNEL FROM BANK TO BANK PLUS THE MAINTENANCE BERM AREAS ON BOTH SIDES AND SHALL BE DEDICATED AT THE TIME OF PLATTING OF THE ADJACENT PROPERTY.

ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG.
LONE STAR: 8-1-1 (HOUSTON)
TEXAS: 8-1-1 (STATE WIDE)

CONTRACTOR SHALL NOTIFY FORT BEND COUNTY DRAINAGE DISTRICT 48 HOURS BEFORE COMMENCING ANY WORK
FBCDD: 281-342-2863

CONTRACTOR SHALL CONTACT
CITY OF MEADOWS PLACE FOR
LICENSING AND "PERMIT PLACEMENT"
BEFORE COMMENCING ANY WORK
TEL: (281) -983-2932
9:00 AM TO 4:00 PM M-F

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16828
10039 BISSONET STREET., ST. 336.
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
REGISTERED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

GENERAL NOTES 2

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		03 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\Cover.dwg

TRAFFIC SIGNAL

1. ALL ITEMS RELATING TO THE CONSTRUCTION OF TRAFFIC SIGNAL INSTALLATIONS, EXCEPT FOR PUNCHLIST ITEMS, SHALL BE COMPLETED PRIOR TO THE ACTIVATION OF THE SIGNAL SYSTEM(S), UNLESS OTHERWISE REQUIRED BY THE CONTRACT.

2. THE CONTRACTOR SHALL MEET WITH THE FORT BEND COUNTY TRAFFIC SIGNAL MAINTENANCE GROUPS FIELD INSPECTOR, HEREAFTER REFERRED TO AS THE TRAFFIC INSPECTOR, ONE-WEEK PRIOR TO THE DESIRED ACTIVATION OF ANY NEW TRAFFIC SIGNALS. THE CONTRACTOR SHALL OBTAIN VERBAL CONCURRENCE FROM THE TRAFFIC INSPECTOR THAT ADEQUATE PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE TO SCHEDULE A PRE-"TURN ON" WALK-THROUGH INSPECTION MEETING. IF IN THE OPINION OF THE TRAFFIC INSPECTOR, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE PRE-"TURN ON" WALK-THROUGH INSPECTION MEETING WILL BE POSTPONED TO ALLOW ADEQUATE TIME FOR INCOMPLETE CONSTRUCTION ITEMS AND PREPARATIONS TO BE COMPLETED. AFTER THE CONTRACTOR HAS COMPLETED ALL INCOMPLETE ITEMS AND PREPARATIONS, THE CONTRACTOR SHALL REQUEST THE TRAFFIC INSPECTOR REVIEW AND APPROVE ITEMS PREVIOUSLY IDENTIFIED.IF, IN THE OPINION OF THE TRAFFIC INSPECTOR, ALL ITEMS HAVE BEEN ADDRESSED SATISFACTORILY, THE DATE OF THE PRE-"TURN ON" WALK-THROUGH INSPECTION SHALL BE ESTABLISHED. TIME EXTENSIONS TO THE CONTRACT TIME WILL NOT BE GRANTED FOR DELAYS CAUSED BY INCOMPLETE CONSTRUCTION OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO COMPLETE TRAFFIC SIGNAL SYSTEM WITHIN THE TIMEFRAME SET FORTH IN THE CONTRACT.

3. PRIOR TO ACTIVATING A NEW TRAFFIC SIGNAL, THE CONTRACTOR SHALL REQUEST A PRE-TURN ON WALK-THROUGH INSPECTION MEETING, IN ACCORDANCE WITH ITEM 2. THE PURPOSE OF THE MEETING WILL BE TO ESTABLISH THAT THE TRAFFIC SIGNAL SYSTEM HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, AND IN A MANNER THAT DOES NOT ADVERSELY IMPACT PUBLIC SAFETY. THIS MEETING SHALL BE ATTENDED BY THE TRAFFIC INSPECTOR, THE ENGINEER OF RECORD, AND THE CONTRACTOR. AS A MINIMUM, ANY DEFICIENCIES THAT ADVERSELY IMPACT PUBLIC SAFETY WILL BE IDENTIFIED FOR CORRECTION PRIOR TO ESTABLISHING THE "TURN ON" DATE FOR THE TRAFFIC SIGNAL SYSTEM. ITEMS THAT HAVE AN IMPACT ON PUBLIC SAFETY INCLUDE, BUT ARE NOT LIMITED TO: PAVEMENT MARKINGS AND SIGNAGE, PROPER AND ACCEPTABLE BONDING OF EARTH GROUNDS, PROPERLY ALIGNED TRAFFIC SIGNALS, FULLY OPERATIONAL VEHICULAR AND PEDESTRIAN DETECTION, COMPLETED CABINET-TO-FIELD WIRING, AND PROPERLY TERMINATED ELECTRICAL SERVICE CONDUCTORS. FAILURE TO ADDRESS THE PUNCHLIST ITEMS IDENTIFIED AS BEING CRITICAL TO PUBLIC SAFETY PRIOR TO THE PRE-TURN ON WALK-THROUGH MEETING WILL RESULT IN THE "TURN ON" BEING POSTPONED TO ALLOW ADEQUATE TIME FOR THE INCOMPLETE ITEMS TO BE COMPLETED. AT SUCH TIME AS MEETING ATTENDEES AGREE THAT THE TRAFFIC SIGNAL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, AND THAT THE TRAFFIC SIGNAL, AS IT EXISTS, IS NOT A THREAT TO PUBLIC SAFETY, A "TURN ON" DATE WILL BE ESTABLISHED.

4. THE CONTRACTOR SHALL HAVE 10 DAYS FROM THE DATE THE TRAFFIC SIGNAL SYSTEM IS TURNED ON TO COMPLETE ANY PUNCHLIST ITEMS IDENTIFIED AT THE PRE-"TURN ON" WALK-THROUGH MEETING OR AT THE TIME THE SIGNAL SYSTEM IS ACTIVATED THAT ARE NOT OTHERWISE ADDRESSED PRIOR TO ACTIVATION OF THE TRAFFIC SIGNAL SYSTEM.

5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO STANDARD SPECIFICATION ITEM 1000, TRAFFIC SIGNAL INSTALLATION AND MODIFICATION, WHICH INCLUDES PROCEDURES AND REQUIREMENTS REGARDING ACTIVATION OF TRAFFIC SIGNAL CONTROL SYSTEMS. THE PROJECT MANUAL MAY INCLUDE SPECIAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS RELATED TO PROPOSED TRAFFIC CONTROL SIGNAL SYSTEM INSTALLATION(S) AND MODIFICATION(S) REQUIRING THE CONTRACTOR'S ADHERENCE TO DEFINED CHECKLISTS, PROCEDURES AND/OR REPORTS AT NO ADDITIONAL COST TO THE COUNTY BEYOND THE ESTABLISHED BID ITEMS OF THE CONTRACT.

6. ALL SIGNAL ALTERATIONS MUST BE APPROVED AND COORDINATED THROUGH FBC ENGINEERING AND ROAD & BRIDGE.

BRIDGE CONSTRUCTION

1. BRIDGE FOUNDATION DESIGNS BASED ON RECOMMENDATIONS CONTAINED IN GEOTECHNICAL INFORMATION REFERENCE PROJECT NO. 92205342.SUPPLEMENT2 DATED SEPT 27, 2022 .PREPARED BY TERRACON CONSULTANTS, INC.

2. STREAMS SHALL BE KEPT OPEN AT ALL TIMES. CONTRACTOR SHALL PROVIDE MEASURES NECESSARY TO PREVENT TRANSPORT/EROSION OF SOILS INTO STREAMS FROM CONSTRUCTION AREAS. NO DREDGING OR FILLING IS PERMITTED WITHIN CREEK CHANNELS.

3. PRIOR TO BEGINNING GRADING OPERATIONS 4" OF TOPSOIL AND ORGANIC MATERIAL WILL BE REMOVED FROM THE CONSTRUCTION AREA AND STOCKPILED ON SITE AS APPROVED. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL SHALL BE RETURNED TO AREAS TO BE SEEDED AND FERTILIZED TO ACHIEVE FINISHED GRADES.

4. PROPOSED GRADES ARE TO BE ATTAINED BY RESHAPING EXISTING SITE BY CUT AND FILL OPERATIONS AND IMPORT FILL. FILL OPERATIONS ARE TO BE ACCOMPLISHED BY PLACING MATERIAL IN 8-IN LIFTS AND COMPACTING TO 98% DENSITY AS DETERMINED BY ASTM D698. SELECT MATERIAL TO BE AN APPROVED MATERIAL WITH ATTERBERG PLASTICITY INDEX (P.I.) BETWEEN 6-18 WITH MAXIMUM LIQUID LIMIT (L.L.) OF LESS THAN 40%

5. INSURE THAT NO DRAINAGE ON OR OFF THE SITE IS BLOCKED BY PROPOSED CONSTRUCTION. FINISHED GRADES TO BE SLOPED TO PROVIDE DRAINAGE.

6. EACH AREA OF CONCRETE WORK SHALL BE FINISHED AND CURED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

7. SUPPORT BARS SECURELY TO PREVENT BOTH VERTICAL AND HORIZONTAL MOVEMENT DURING PLACING OF CONCRETE.

TRAFFIC CONTROL

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE MOST RECENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE APPROVED TRAFFIC CONTROL PLAN.

2. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS EXCEPT DURING FLAGGING OPERATION

3. LANE CLOSURES SHALL BE DURING OFF-PEAK HOURS ONLY (MONDAY THROUGH FRIDAY 9 A.M. TO 4 P.M.) UNIFORMED PEACE OFFICERS OR FLAGGERS IN RADIO CONTACT ARE REQUIRED TO DIRECT TRAFFIC DURING LANE CLOSURES.

4. DETOURS REQUIRE PRIOR APPROVAL OF THE FIELD ENGINEER AND PRECINCT. DETOUR PLANS, IF ALLOWED, MUST INCLUDE APPROPRIATE DETOUR SIGNAGE, PUBLIC NOTICE VIA SIGNAGE TWO WEEKS IN ADVANCE STATING THE DATES OF THE AGREED UPON DATE OF CLOSURE AND DATE THE ROAD WILL RE-OPEN TO TRAFFIC. CONTRACTOR TO USE (WITH PRIOR APPROVAL OF THE FIELD ENGINEER) HIGH EARLY STRENGTH CONCRETE AND OTHER RELATED CONSTRUCTION METHODS TO MINIMIZE THE DURATION OF THE DETOUR AND TO ENSURE THAT THE ROADWAY IS OPEN ON, OR PRIOR TO, THE AGREED UPON DATE.

5. ONE DAY PRIOR TO THE IMPLEMENTATION OF A TRAFFIC CONTROL PLAN PHASE OR STEP, OR THE IMPLEMENTATION OF AN ADDITIONAL, REVISED, OR NEW TRAFFIC CONTROL ELEMENT, THE CONTRACTOR SHALL MEET WITH THE ENGINEER TO GIVE A DETAILED DESCRIPTION OF THE CONTRACTOR'S PLAN AND PREPARATIONS. THE CONTRACTOR SHALL OBTAIN WRITTEN CONCURRENCE FROM THE ENGINEER THAT ADEQUATE PROJECT PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE PRIOR TO SWITCHING TRAFFIC. IF, IN THE OPINION OF THE ENGINEER, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE CONTRACTOR SHALL NOT IMPLEMENT THE NEXT PHASE, STEP, OR ELEMENT OF TRAFFIC CONTROL UNTIL INCOMPLETE CONSTRUCTION ITEMS OR PREPARATIONS ARE COMPLETED. TIME EXTENSIONS WILL NOT BE GRANTED FOR DELAYS CAUSED BY THE INCOMPLETE CONSTRUCTION ITEMS OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO IMPLEMENT TRAFFIC CONTROL.

6. TRAFFIC CONTROL PER THE CONTRACT IS REQUIRED FOR THE ENTIRE DURATION OF THE PROJECT, INCLUDING THE PUNCHLIST PERIOD. PAYMENT FOR TRAFFIC CONTROL THAT IS PROPERLY INSTALLED FOR LESS THAN A FULL MONTH SHALL BE BASED ON A PERCENTAGE BASIS OF THE TIME INSTALLED. TRAFFIC CONTROL PAYMENTS TO THE CONTRACTOR SHALL END 10 DAYS AFTER SUBSTANTIAL COMPLETION, ALTHOUGH PROPER TRAFFIC CONTROL MUST BE MAINTAINED UNTIL PUNCHLIST COMPLETION.

7. THE PURPOSE OF THE CONSTRUCTION SEQUENCE AND TRAFFIC HANDLING OUTLINED HEREIN IS TO DOCUMENT A VIABLE TCP THAT CAN BE UTILIZED TO CONSTRUCT THE PROJECT. IT IS THE BASIS OF ESTIMATION FOR THE TRAFFIC CONTROL BID ITEMS, AND IS TO BE UTILIZED AND IMPLEMENTED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT TCP, HE/SHE SHALL PREPARE AND SUBMIT THE ALTERNATIVE TCP TO THE COUNTY FOR APPROVAL NO LESS THAN 10 WORKING DAYS PRIOR TO THE PROPOSED IMPLEMENTATION DATE. THE TCP SHALL BE DRAWN TO SCALE AND SIGNED & SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS. UPON APPROVAL BY FORT BEND COUNTY, THE ALTERNATIVE PLAN SHALL BECOME THE BASIS FOR A "CHANGE IN CONTRACT" TO REVISE THE TRAFFIC CONTROL BID ITEMS ACCORDINGLY AND BECOME PART OF THE CONTRACT DOCUMENTS.

8. ALL TEMPORARY PAVEMENT MARKINGS ON PERMANENT PAVEMENT SHOULD BE RPMS OR TABS.

9. TRAFFIC PATTERN CHANGES REQUIRE CHANGEABLE MESSAGE BOARDS PLACED AT LEAST 2 WEEKS IN ADVANCE OF PROPOSED CHANGE. QUANTITY, PLACEMENT AND WORDING TBD BY FBC.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336.
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

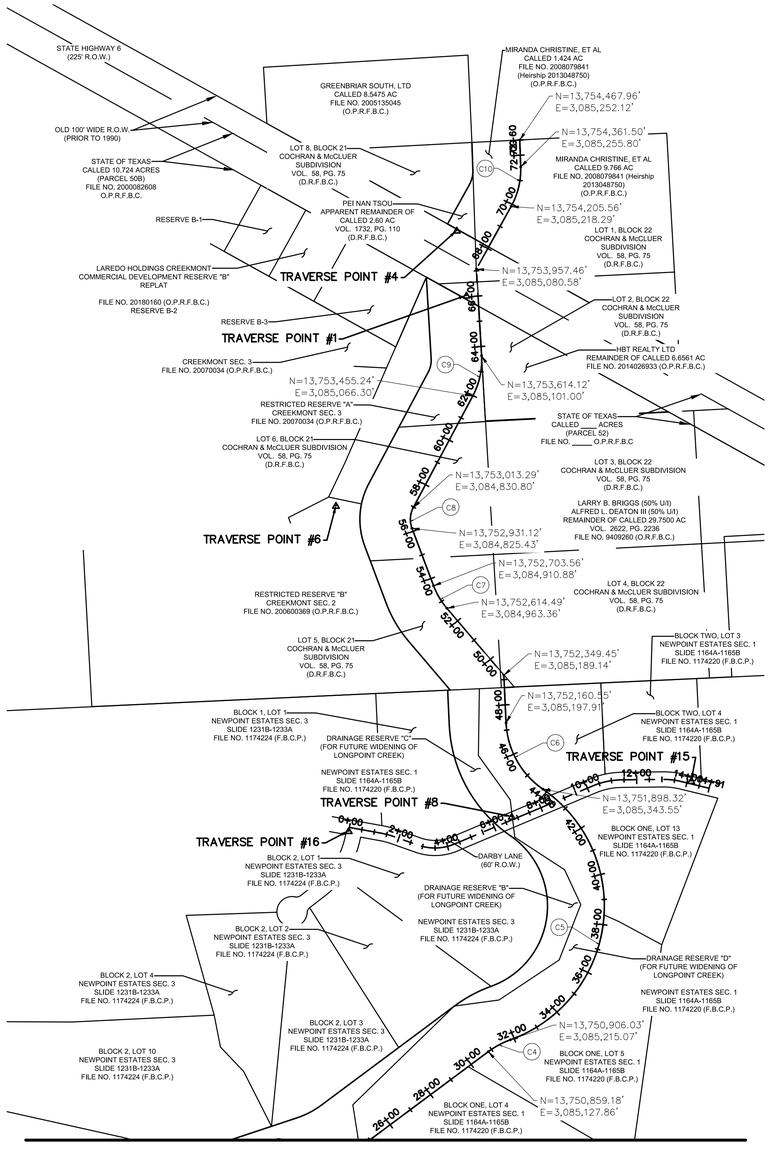
LONG POINT CREEK

GENERAL NOTES 2

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		04 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\Cover.dwg

dn: dc: dw: ck:



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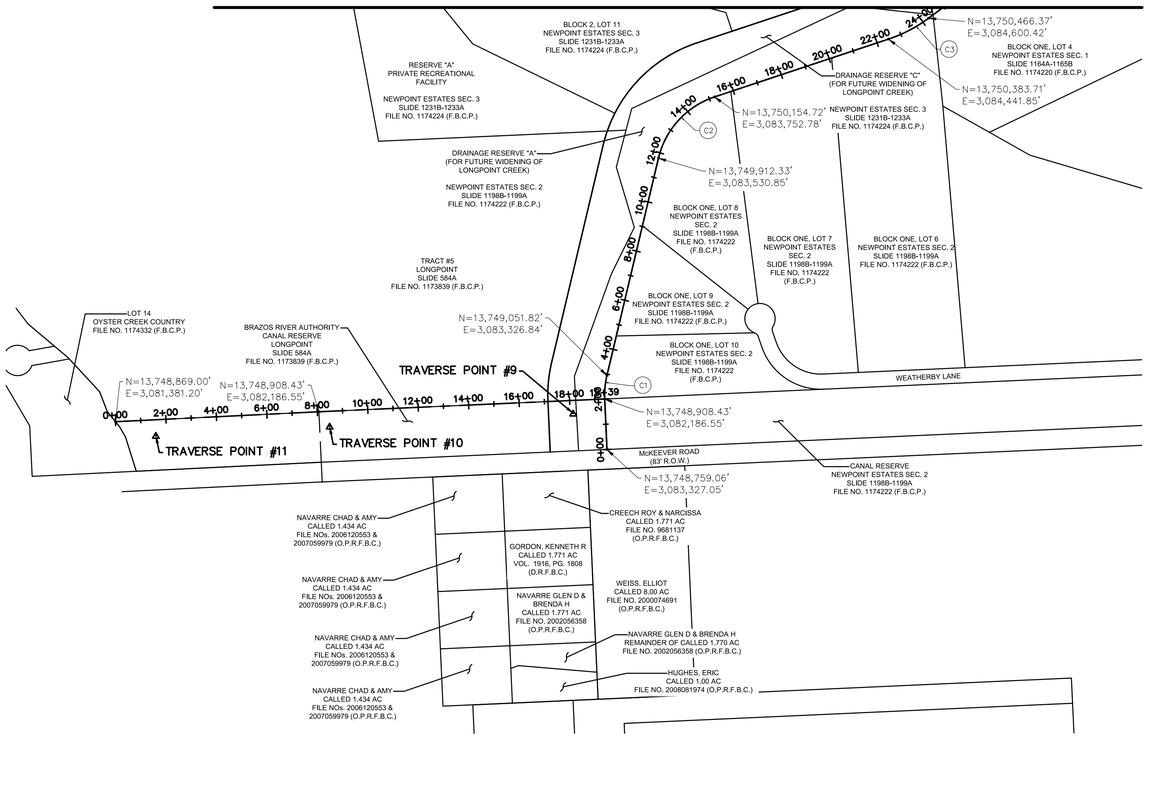


Curve Table					
Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	93.70'	337.50'	15° 54' 26"	N05° 23' 02"E	93.40'
C2	343.30'	337.50'	58° 16' 48"	N42° 28' 39"E	328.69'
C3	179.61'	562.50'	18° 17' 40"	N62° 28' 13"E	178.84'
C4	99.36'	337.50'	16° 52' 04"	N61° 45' 25"E	99.00'
C5	1,233.33'	562.50'	125° 37' 32"	N07° 22' 41"E	1,000.71'
C6	310.88'	337.50'	52° 46' 34"	N29° 02' 48"W	300.00'
C7	103.91'	300.00'	19° 50' 42"	N30° 30' 15"W	103.39'
C8	84.88'	100.00'	48° 37' 59"	N03° 44' 06"E	82.36'
C9	164.71'	300.00'	31° 27' 23"	N12° 19' 24"E	162.64'
C10	162.38'	300.00'	31° 00' 46"	N13° 31' 37"E	160.41'

NOTE:
ELEVATIONS SHOWN HEREON ARE DERIVED FROM GPS OBSERVATIONS UTILIZING CORS BASE STATION HTME_0817 (LATITUDE: N 29 38' 04.52196", LONGITUDE: W 95 34' 38.34899", ELEVATION 100.687), REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88, GEOID 12B) GPS OBSERVATIONS WERE ALSO MADE TO THE FOLLOWING HARRIS COUNTY FLOODPLAIN REFERENCE MARKS:
HCFCD RM NUMBER 010565: PUBLISHED ELEV.=72.28' (NAVD88, 2001ADJ), GPS OBSERVED ELEV.=71.97' (NAVD88, GEOID 12B)
HCFCD RM NUMBER 010210: PUBLISHED ELEV.=62.33' (NAVD88, 2001ADJ), GPS OBSERVED ELEV.=62.13' (NAVD88, GEOID 12B)

BASIS OF BEARINGS:
TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE No. 4204, NAD 83 (2011) EPOCH 2010.00, THE COORDINATES SHOWN HEREON ARE GRID COORDINATES AND MAY BE BROUGHT TO GROUND SURFACE BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 1.00013. ALL DISTANCES ARE HORIZONTAL GROUND SURFACE DISTANCES IN U.S. SURVEY FEET.

MOSES SHIPMAN SURVEY, A-86, FORT BEND COUNTY, TEXAS
THOMAS BARNETT SURVEY, A-7, FORT BEND COUNTY, TEXAS

I, DAVID I. PECK, A REGISTERED PROFESSIONAL LAND SURVEYOR OF THE STATE OF TEXAS, HEREBY CERTIFY THAT THE ABOVE PLAT CORRECTLY REPRESENTS A SURVEY MADE ON THE GROUND UNDER MY SUPERVISION ON MARCH 02, 2021. THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS MANUAL OF PRACTICE REQUIREMENTS FOR A CATEGORY 11, CONDITION 3, THREE-DIMENSIONAL CONTROL SURVEY.

STATE OF TEXAS REGISTERED DAVID IVAN PECK 6325 PROFESSIONAL LAND SURVEYOR

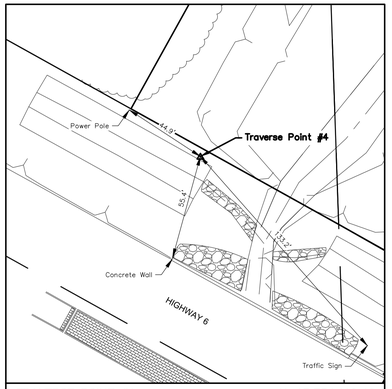
DAVID I. PECK
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS, No. 6325

NO.	REVISIONS	DATE	NAME
1	ADDED BASELINE AND TRAVERSE POINTS	03/21/22	T.E.B

FORT BEND COUNTY
DRAINAGE DISTRICT

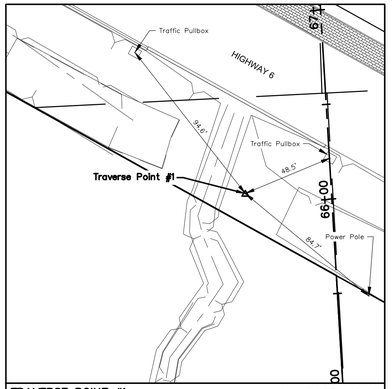
WEISSER Engineering & Surveying
19500 Park Row | Houston, Texas 77084
T.B.P.E. Reg. No. F-68 | T.B.P.L.S. Reg. No. 10194324
www.weisserengr.com | 281.579.7300

PROJECT TITLE: LONG POINT CREEK
DRAWN BY: D.G.
CK'D BY: J.H.
SHEET DESCRIPTION: SURVEY CONTROL OVERALL
SCALE: N.T.S.
DATE: 03/02/21
APPROVED BY:
SHEET NO: 01 / 15



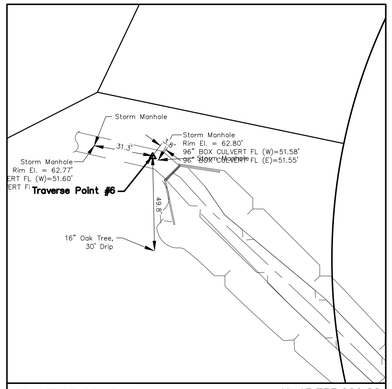
TRAVERSE POINT #4
1/2" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
LONG POINT CREEK BASELINE

N=13,754,110.42
E=3,085,002.94
ELEV. = 57.27'
STATION = 68+03.45
OFFSET = 142.13' Lt.



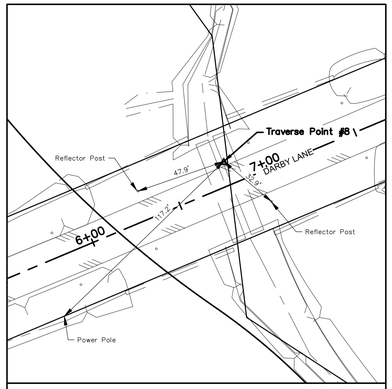
TRAVERSE POINT #1
1/2" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
LONG POINT CREEK BASELINE

N=13,753,853.17
E=3,085,041.28
ELEV. = 55.55'
STATION = 66+05.60
OFFSET = 45.43' Lt.



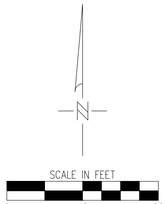
TRAVERSE POINT #6
1/2" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
LONG POINT CREEK BASELINE

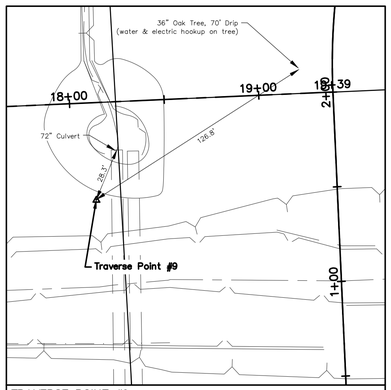
N=13,753,020.88
E=3,084,524.43
ELEV. = 62.83'
STATION = 56+62.63
OFFSET = 298.42' Lt.



TRAVERSE POINT #8
MAG NAIL
LONG POINT CREEK BASELINE

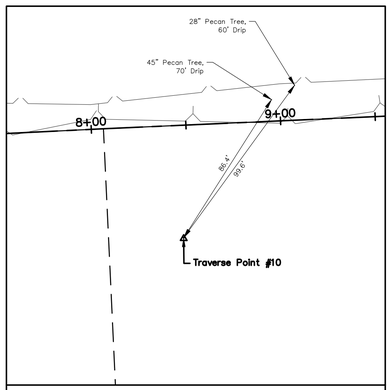
N=13,751,789.93
E=3,085,220.47
ELEV. = 60.44'
STATION = 44+44.76
OFFSET =160.70' Lt.





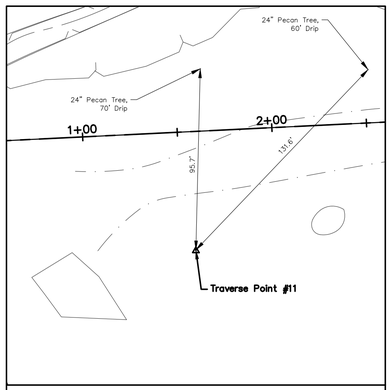
TRAVERSE POINT #9
1/2" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
McKEEVER ROAD BASELINE

N=13,748,902.21
E=3,083,193.22
ELEV. = 62.91'
STATION = 18+11.93
OFFSET = 51.10' Rt.



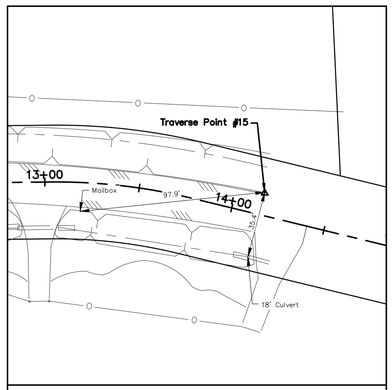
TRAVERSE POINT #10
5/8" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
McKEEVER ROAD BASELINE

N=13,748,850.90
E=3,082,228.90
ELEV. = 64.53'
STATION = 8+46.17
OFFSET = 59.36' Rt.



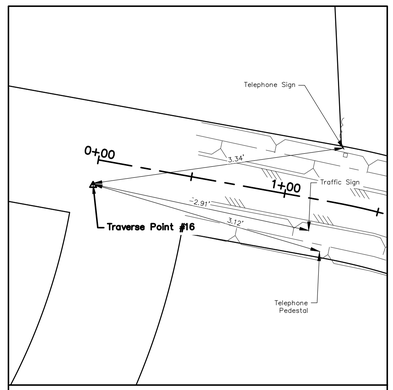
TRAVERSE POINT #11
5/8" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
McKEEVER ROAD BASELINE

N=13,748,814.22
E=3,081,540.84
ELEV. = 65.88'
STATION = 1+56.79
OFFSET =62.53' Rt.



TRAVERSE POINT #15
5/8" I.R. W/ CAP STAMPED
"WEISSER ENG HOUSTON, TX"
DARBY LANE BASELINE

N=13,751,931.33
E=3,085,931.18
ELEV. = 64.55'
STATION = 14+14.90
OFFSET =12.24' Lt.



TRAVERSE POINT #16
PK NAIL
DARBY LANE BASELINE

N=13,751,733.52
E=3,084,575.14
ELEV. = 65.10'

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THOMAS BARNETT SURVEY, A-7, FORT BEND COUNTY, TEXAS

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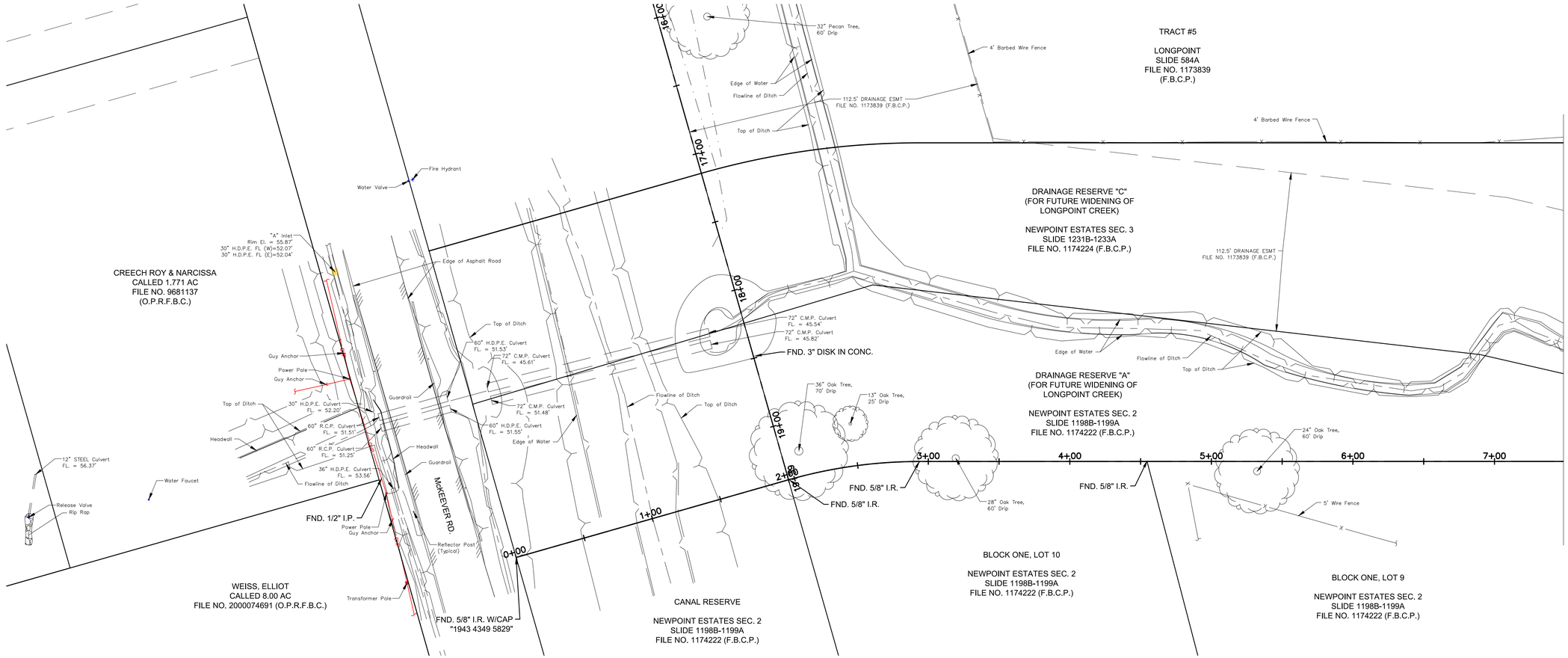
www.weissereng.com | 281.579.7300

PROJECT TITLE:	LONG POINT CREEK
DRAWN BY: D.G.	
CK'D BY: J.H.	SHEET DESCRIPTION: SURVEY CONTROL DETAIL SHEET
SCALE: 1"=40'	SHEET NO: 02 / 15
DATE: 03/02/21	APPROVED BY:



NOTE:
THIS SURVEY IS BEING CREATED SOLELY FOR THE PARTIES HEREIN STATED. NO LICENSE HAS BEEN CREATED, EXPRESS OR IMPLIED, TO COPY THIS SURVEY EXCEPT AS IS NECESSARY IN CONJUNCTION WITH THIS TRANSACTION.

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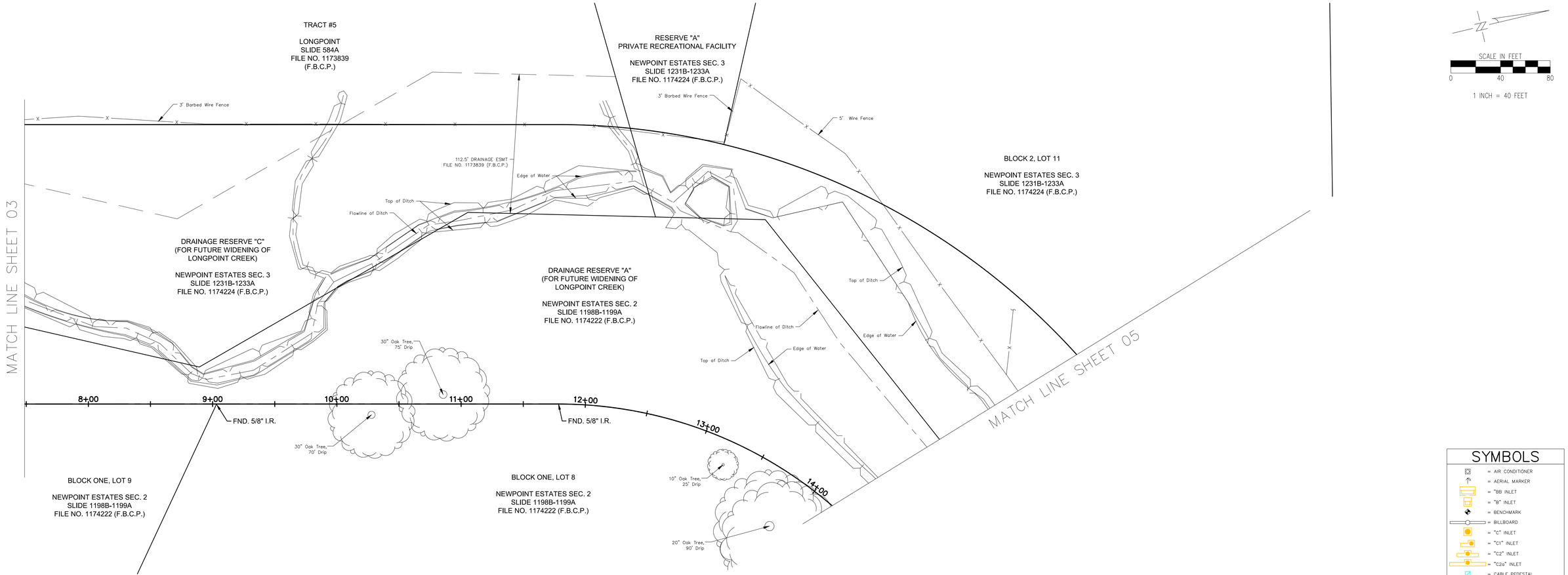

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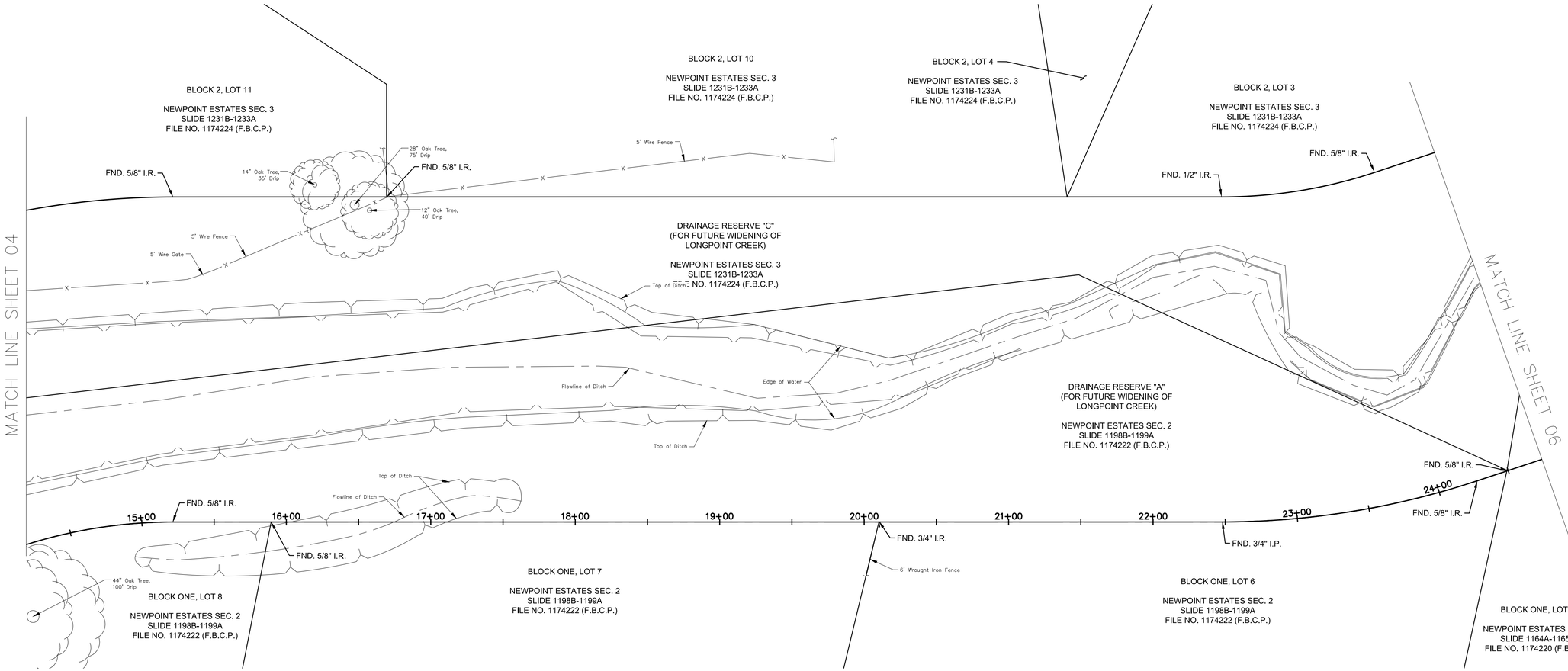

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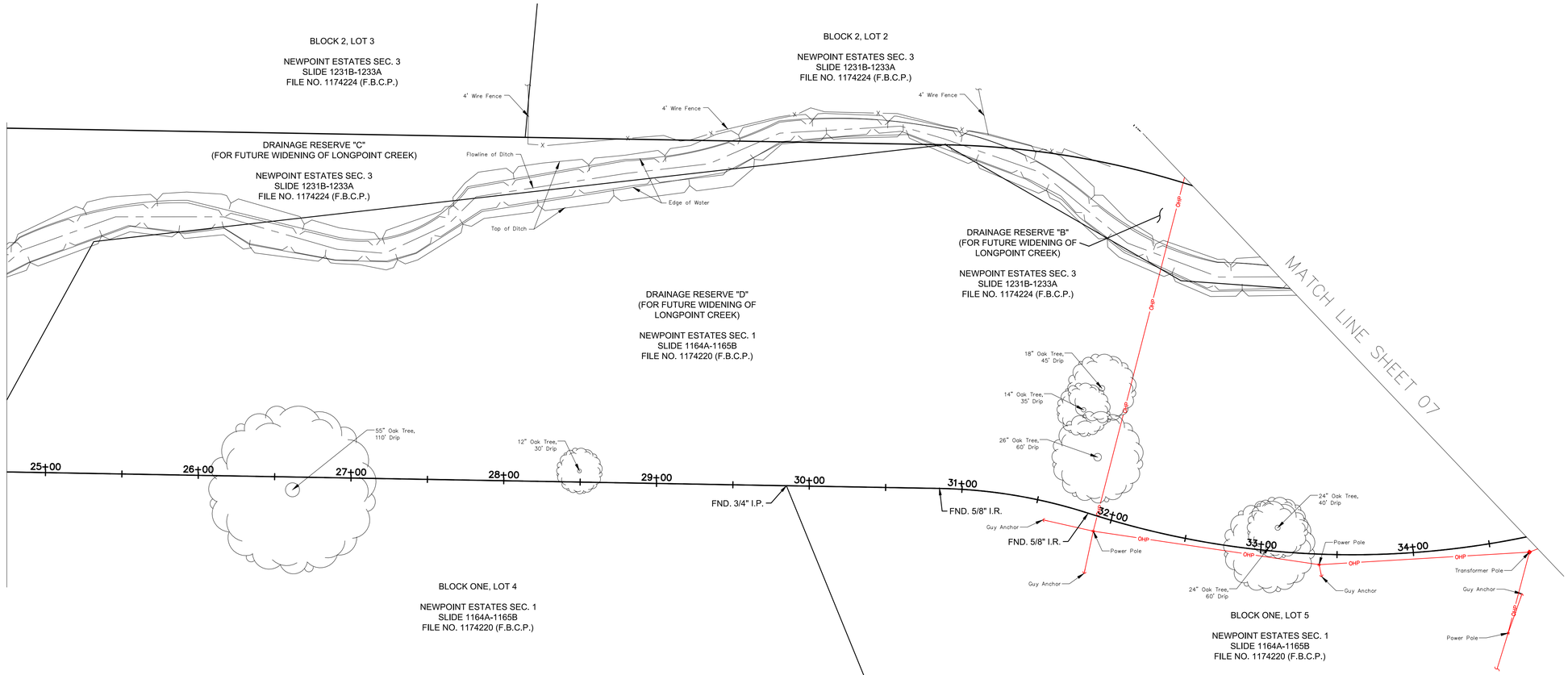

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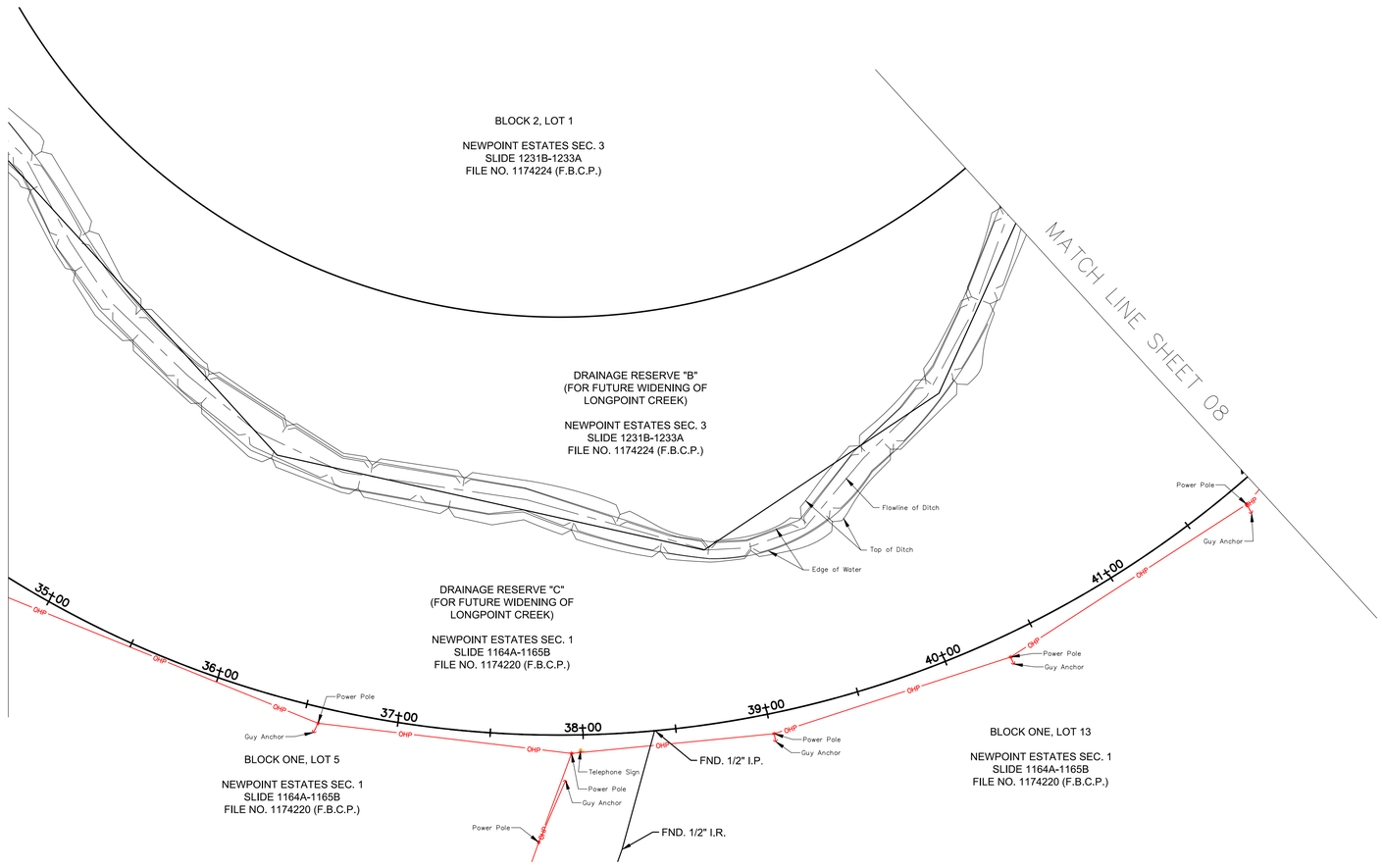

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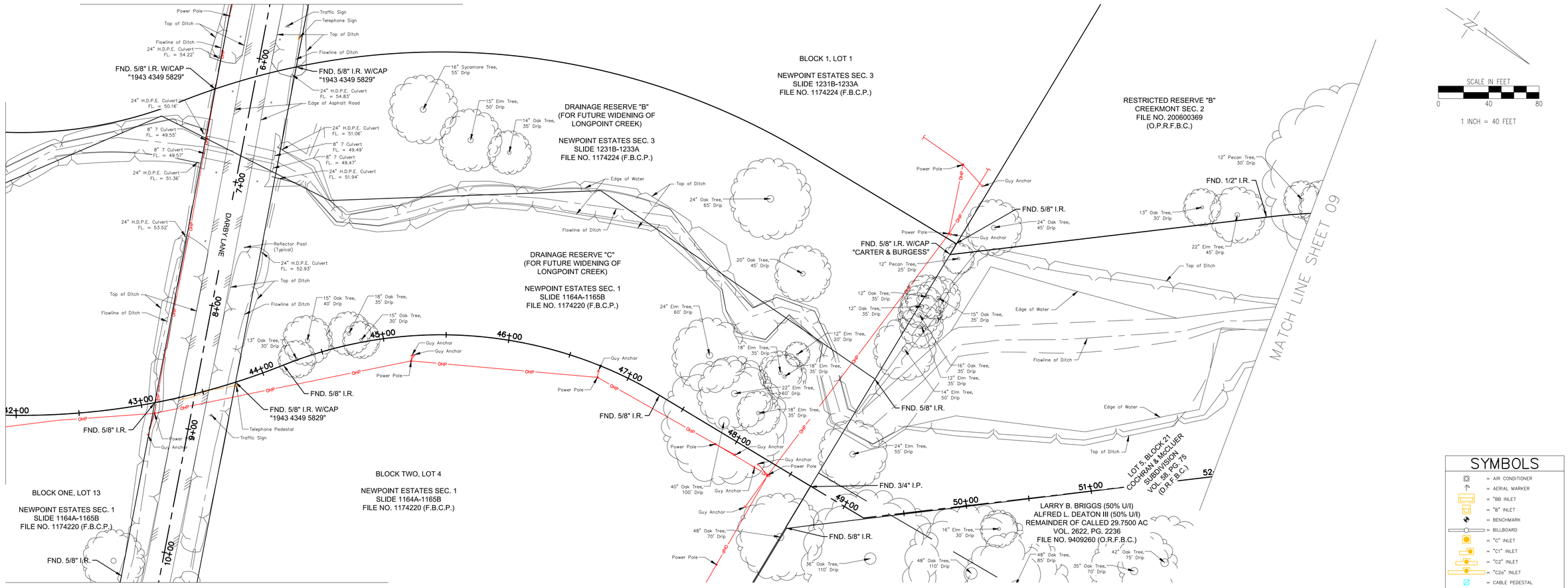

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1	ADDITIONAL TOPO ALONG DARBY LANE	03/21/22	T.E.B

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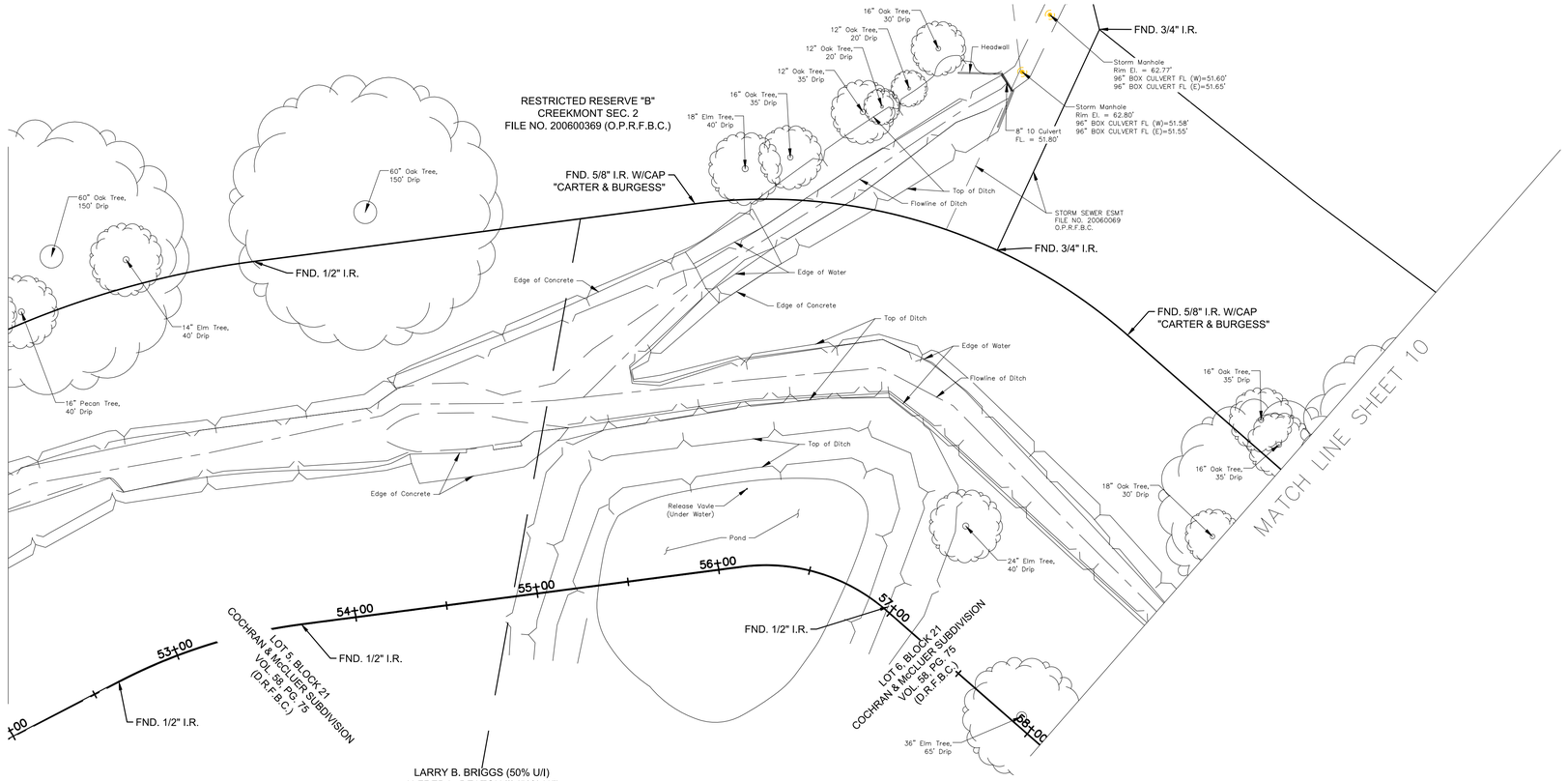

SCALE IN FEET
0 40 80
1 INCH = 40 FEET

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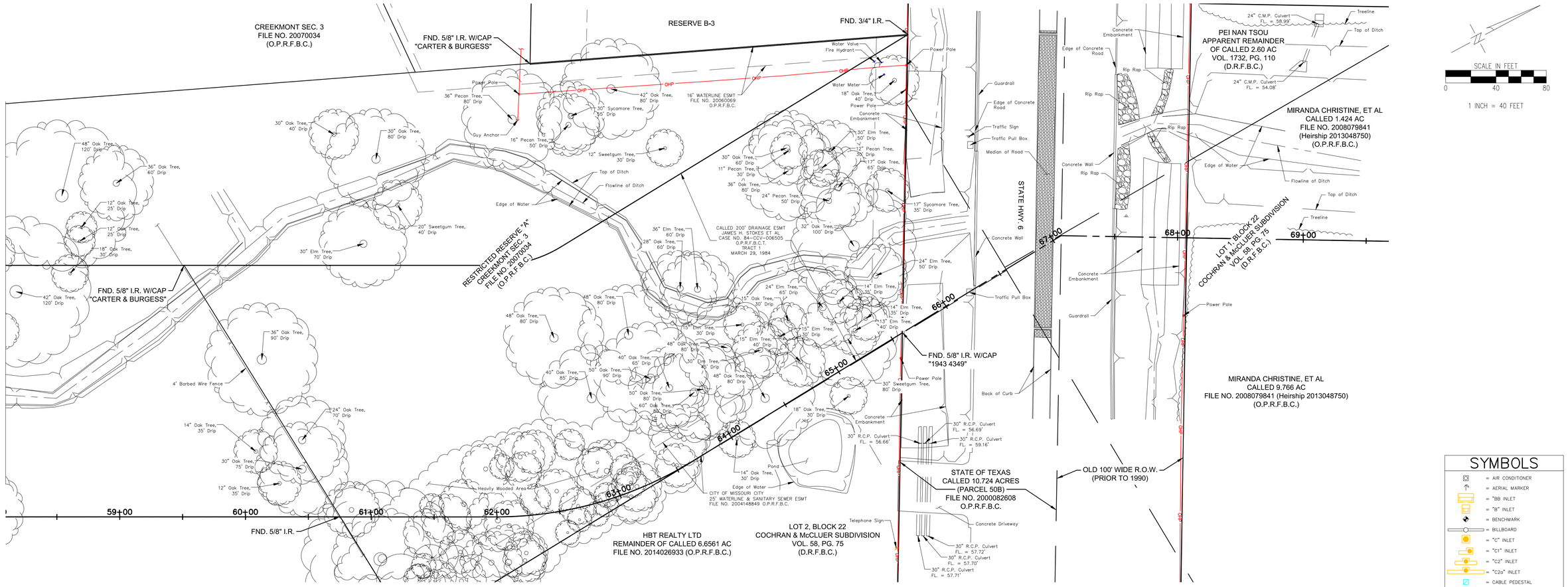

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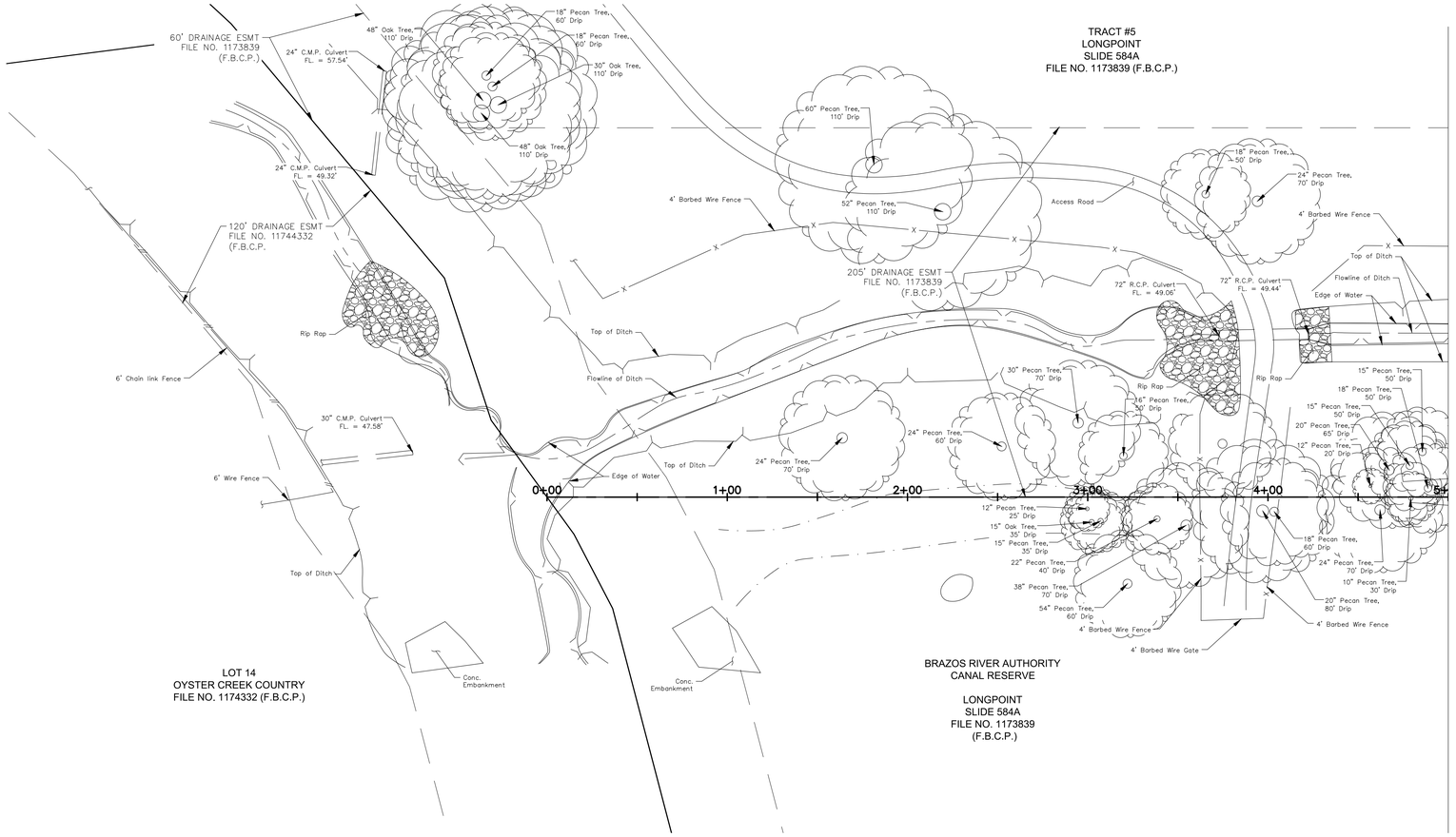

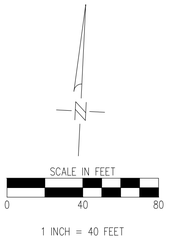

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DAVID IVAN PECK
6325
PROFESSIONAL
LAND SURVEYOR

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MOSES SHIPMAN SURVEY, A-86, FORT BEND COUNTY, TEXAS
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NO.	REVISIONS	DATE	NAME

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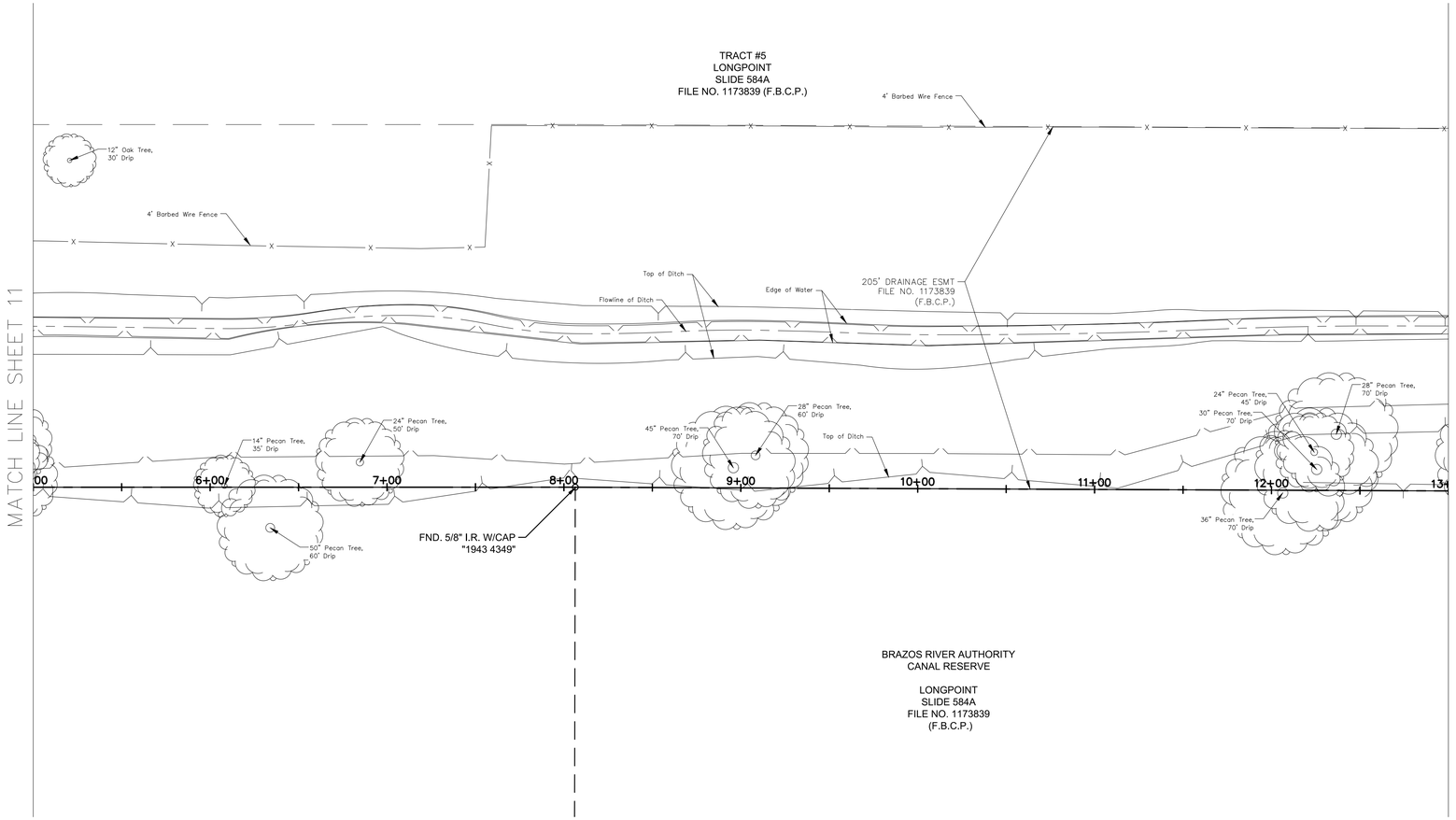
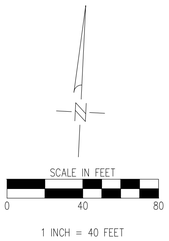
www.weisserengineering.com | 281.579.7300

PROJECT TITLE:	MCKEEVER ROAD
DRAWN BY: D.G.	
CK'D BY: J.H.	SHEET DESCRIPTION: EXISTING RIGHT-OF-WAY MAP
SCALE: 1"=40'	SHEET NO: 11 / 15
DATE: 03/02/21	APPROVED BY:





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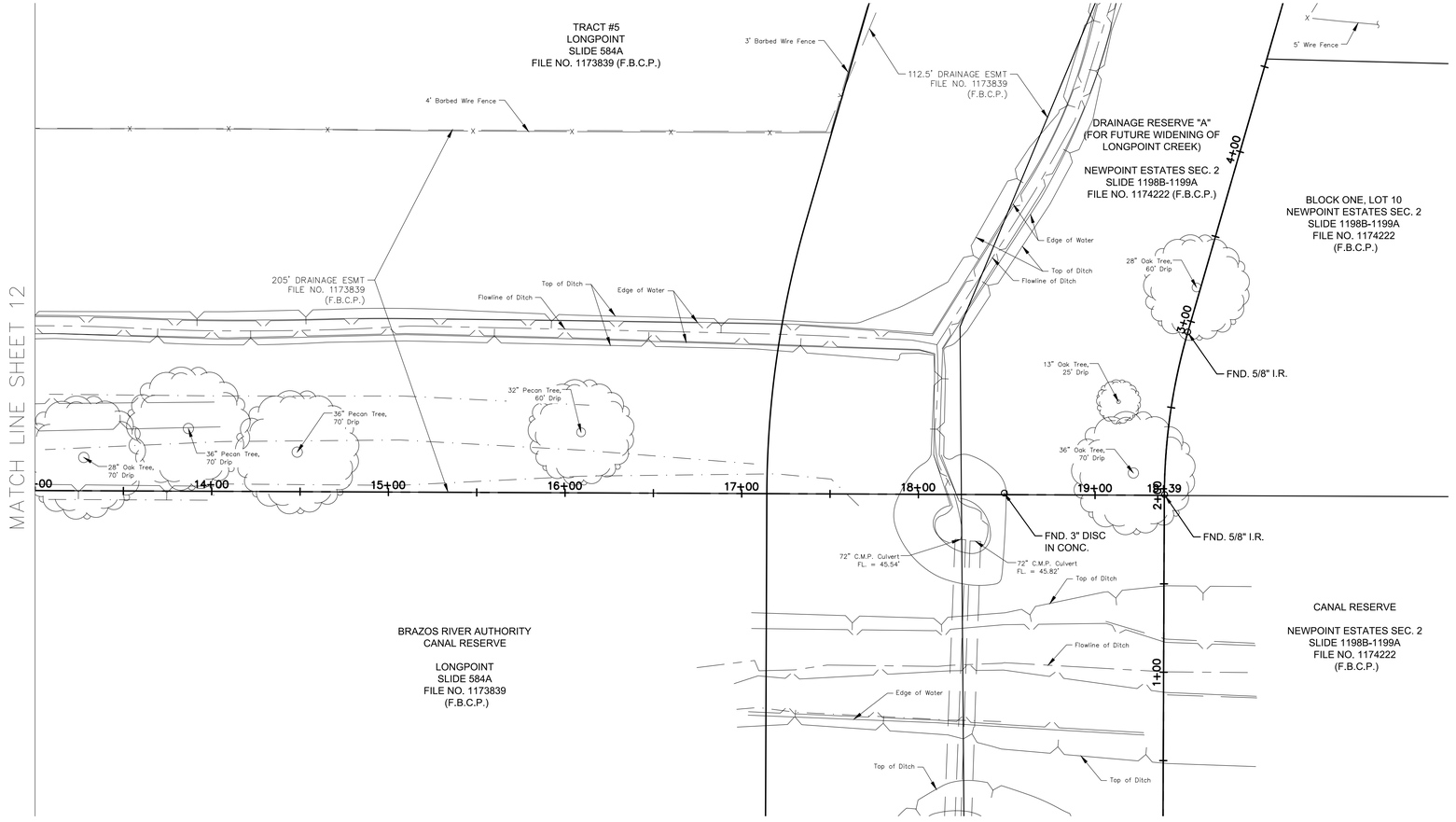
DRAWN BY: D.G.
CK'D BY: J.H.
SHEET DESCRIPTION: EXISTING RIGHT-OF-WAY MAP
SCALE: 1"=40'
DATE: 03/02/21
APPROVED BY:
SHEET NO: 12 / 15



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DATE: 03/02/21
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APPROVED BY:
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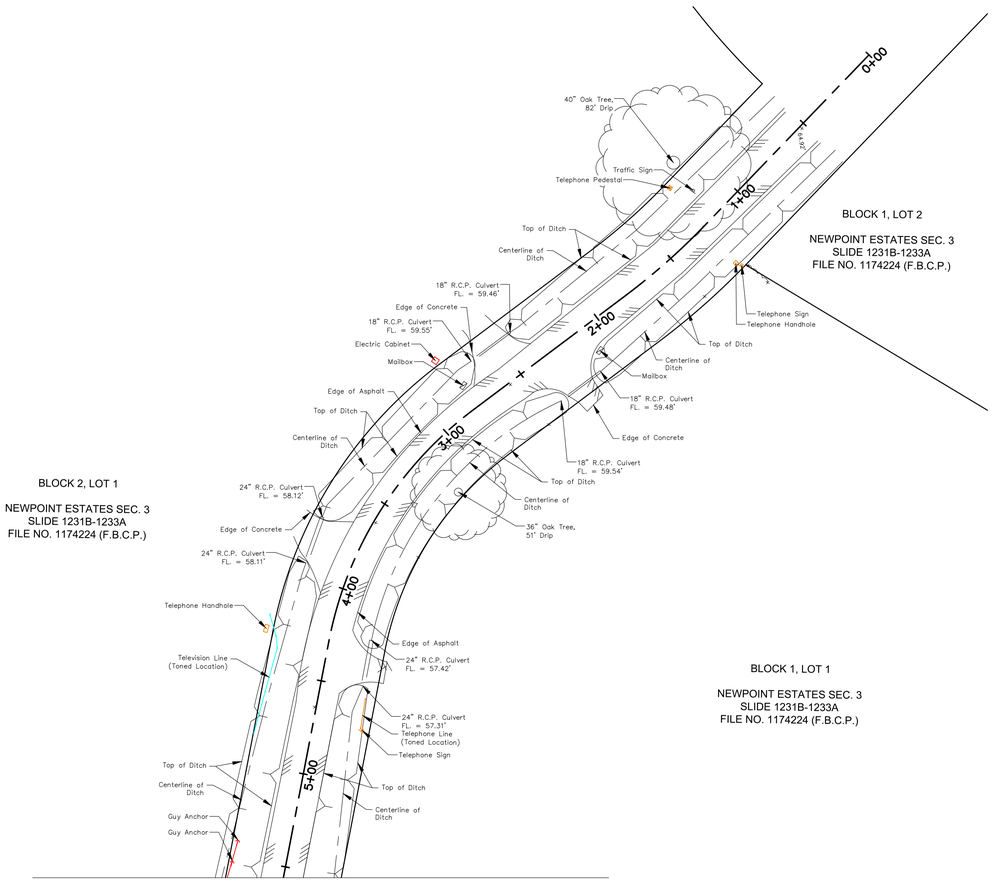

BLOCK 2, LOT 1

NEWPOINT ESTATES SEC. 3
SLIDE 1231B-1233A
FILE NO. 1174224 (F.B.C.P.)

BLOCK 1, LOT 2

NEWPOINT ESTATES SEC. 3
SLIDE 1231B-1233A
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BLOCK 1, LOT 1

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MATCH LINE SHEET 08

SCALE IN FEET
0 40 80

1 INCH = 40 FEET

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1	ADDITIONAL TOPO ALONG DARBY LANE	03/21/22	T.E.B

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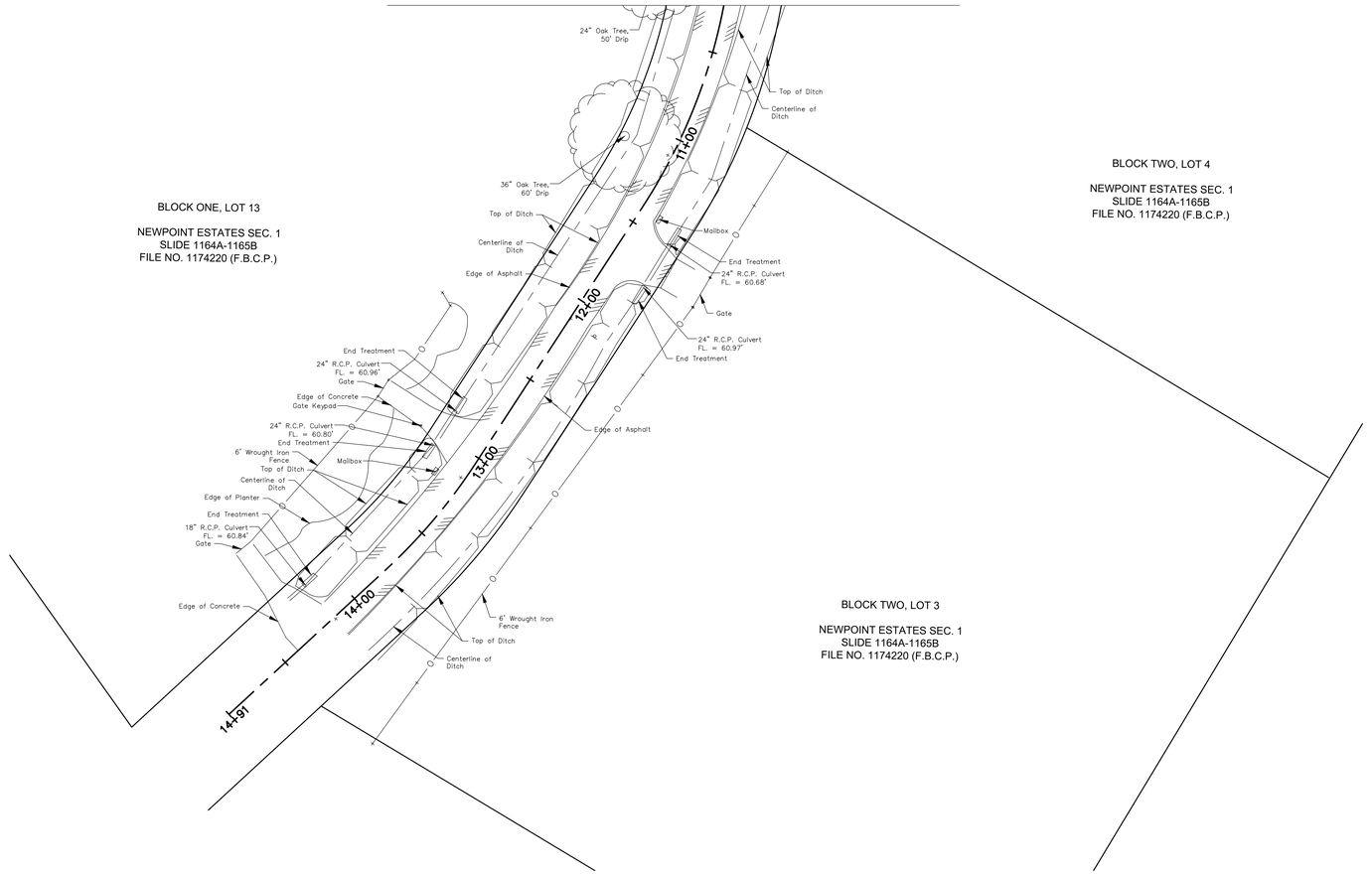
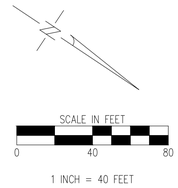
PROJECT TITLE: DARBY LANE
DRAWN BY: D.G.
CK'D BY: J.H.
SHEET DESCRIPTION: EXISTING RIGHT-OF-WAY MAP
SCALE: 1"=40'
DATE: 03/02/21
APPROVED BY:
SHEET NO: 14 / 15

MATCH LINE SHEET 08





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THIS SURVEY IS BEING CREATED SOLELY FOR THE PARTIES HEREIN STATED; NO LICENSE HAS BEEN CREATED, EXPRESS OR IMPLIED, TO COPY THIS SURVEY EXCEPT AS IS NECESSARY IN CONJUNCTION WITH THIS TRANSACTION.

BASIS OF BEARINGS:
TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE No. 4204, NAD 83 (2011) EPOCH 2010.00, THE COORDINATES SHOWN HEREON ARE GRID COORDINATES AND MAY BE BROUGHT TO GROUND SURFACE BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 1.00013. ALL DISTANCES ARE HORIZONTAL GROUND SURFACE DISTANCES IN U.S. SURVEY FEET.

NOTE:
ELEVATIONS SHOWN HEREON ARE DERIVED FROM GPS OBSERVATIONS UTILIZING CORS BASE STATION HTME_0817 (LATITUDE: N 29 38' 04.52196", LONGITUDE: W 95 34' 38.34899", ELEVATION 100.687), REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88, GEOID 12B) GPS OBSERVATIONS WERE ALSO MADE TO THE FOLLOWING HARRIS COUNTY FLOODPLAIN REFERENCE MARKS:
HCFCD RM NUMBER 010565: PUBLISHED ELEV.=72.28' (NAVD88, 2001ADJ), GPS OBSERVED ELEV.=71.97' (NAVD88, GEOID 12B)
HCFCD RM NUMBER 010210: PUBLISHED ELEV.=62.33' (NAVD88, 2001ADJ), GPS OBSERVED ELEV.=62.13' (NAVD88, GEOID 12B)

I, DAVID I. PECK, A REGISTERED PROFESSIONAL LAND SURVEYOR OF THE STATE OF TEXAS, HEREBY CERTIFY THAT THE ABOVE PLAT CORRECTLY REPRESENTS A SURVEY MADE ON THE GROUND UNDER MY SUPERVISION ON MARCH 02, 2021. THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS MANUAL OF PRACTICE REQUIREMENTS FOR A CATEGORY 2, ROUTE SURVEY AND A CATEGORY 6, CONDITION 2, TOPOGRAPHIC SURVEY.

STATE OF TEXAS REGISTERED DAVID IVAN PECK 6325 PROFESSIONAL LAND SURVEYOR

DAVID I. PECK
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS, No. 6325

MOSES SHIPMAN SURVEY, A-86, FORT BEND COUNTY, TEXAS
THOMAS BARNETT SURVEY, A-7, FORT BEND COUNTY, TEXAS

NO.	REVISIONS	DATE	NAME
1	ADDITIONAL TOPO ALONG DARBY LANE	03/21/22	T.E.B

FORT BEND COUNTY
DRAINAGE DISTRICT

WEISSER Engineering & Surveying
19500 Park Row | Houston, Texas 77084
T.B.P.E. Reg. No. F-68 | T.B.P.L.S. Reg. No. 10194324
www.weisserengineering.com | 281.579.7300

PROJECT TITLE: DARBY LANE
DRAWN BY: D.G.
CK'D BY: J.H.
SHEET DESCRIPTION: EXISTING RIGHT-OF-WAY MAP
SCALE: 1"=40'
DATE: 03/02/21
APPROVED BY:
SHEET NO: 15 / 15

DATE:
FILE: C:\Users\get Osama\OneDrive\0-Projects\FBC-LongPoint-Creek-Channel-Improvement\00-Long point creek-darby lane\3-Osama Bridge Design\CAD\Cover.dwg

DN:	CK:	DW:	CK:

LONG POINT CREEK CHANNEL REHABILITATION AND CONVEYANCE IMPROVEMENTS

(PROPOSED CHANNEL DESIGN)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

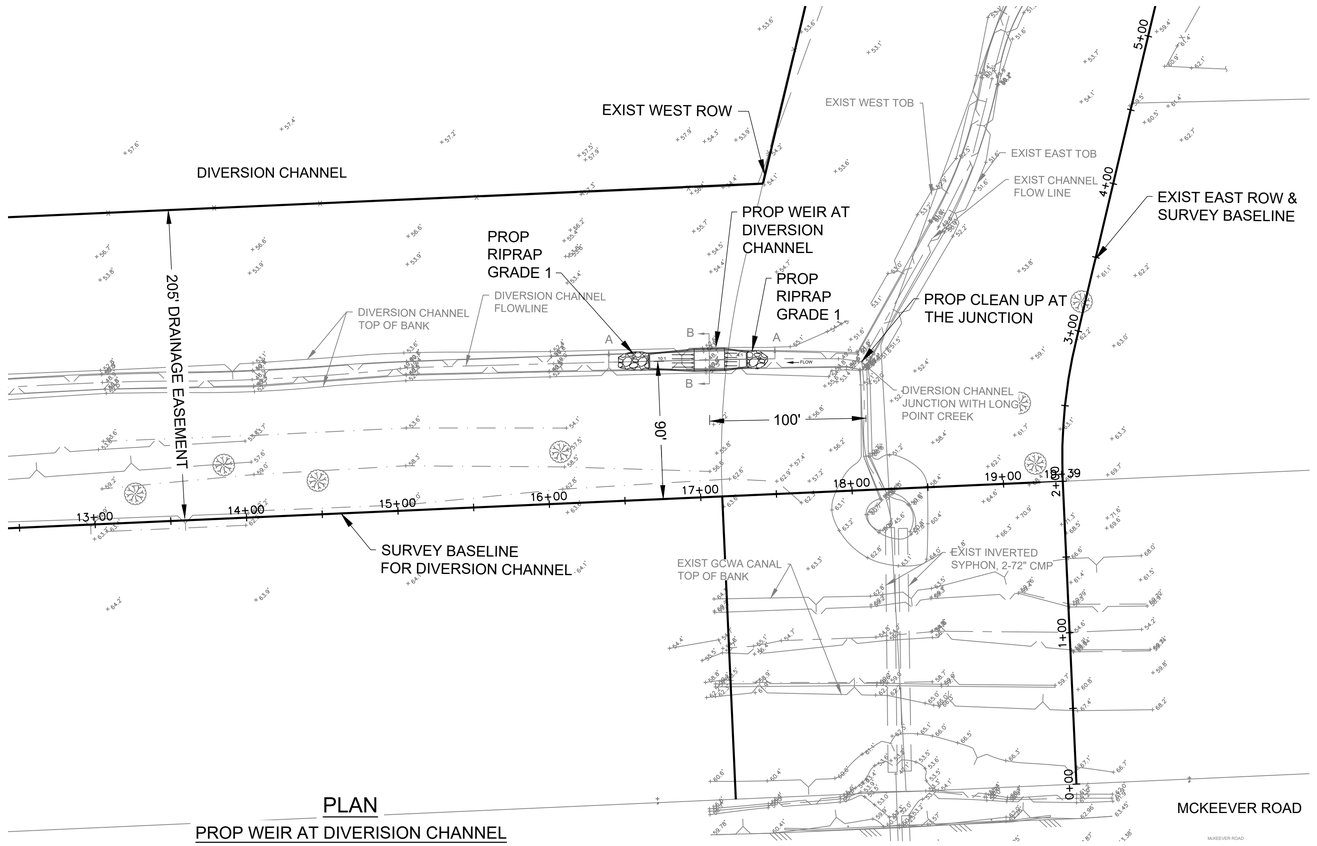
iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/10/2024

LONG POINT CREEK

(PROPOSED CHANNEL DESIGN)

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/10/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		20 OF 116

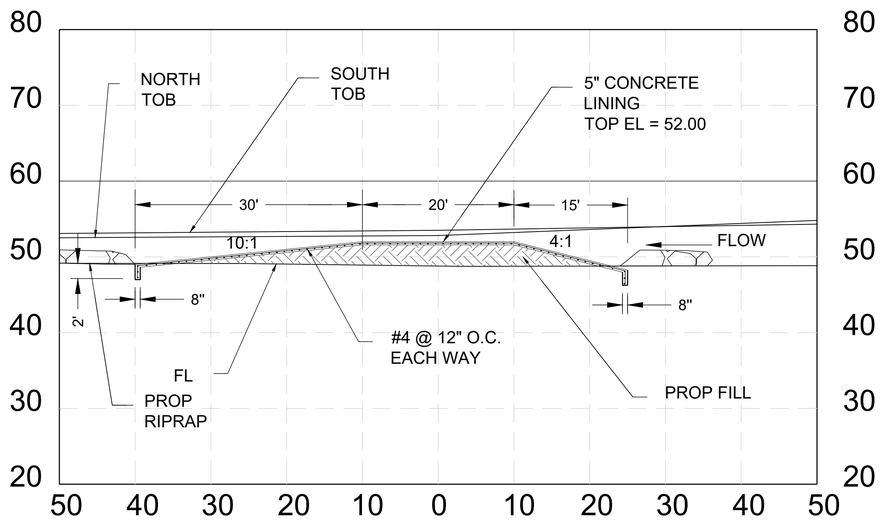


NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.

PLAN

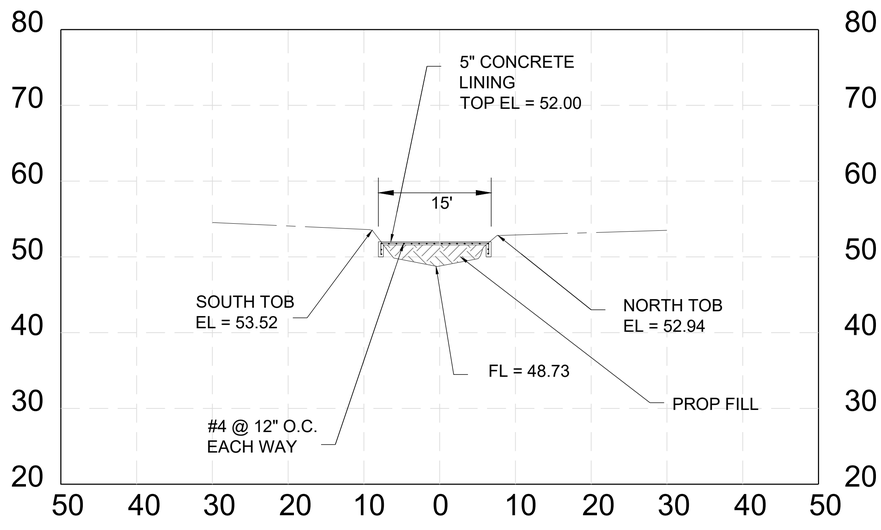
PROP WEIR AT DIVERISION CHANNEL

SCALE: 1" = 50' (H)



SECTION A–A

SCALE: 1" = 10' (H), 1" = 10' (V)



SECTION B–B

SCALE: 1" = 10' (H), 1" = 10' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET , ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

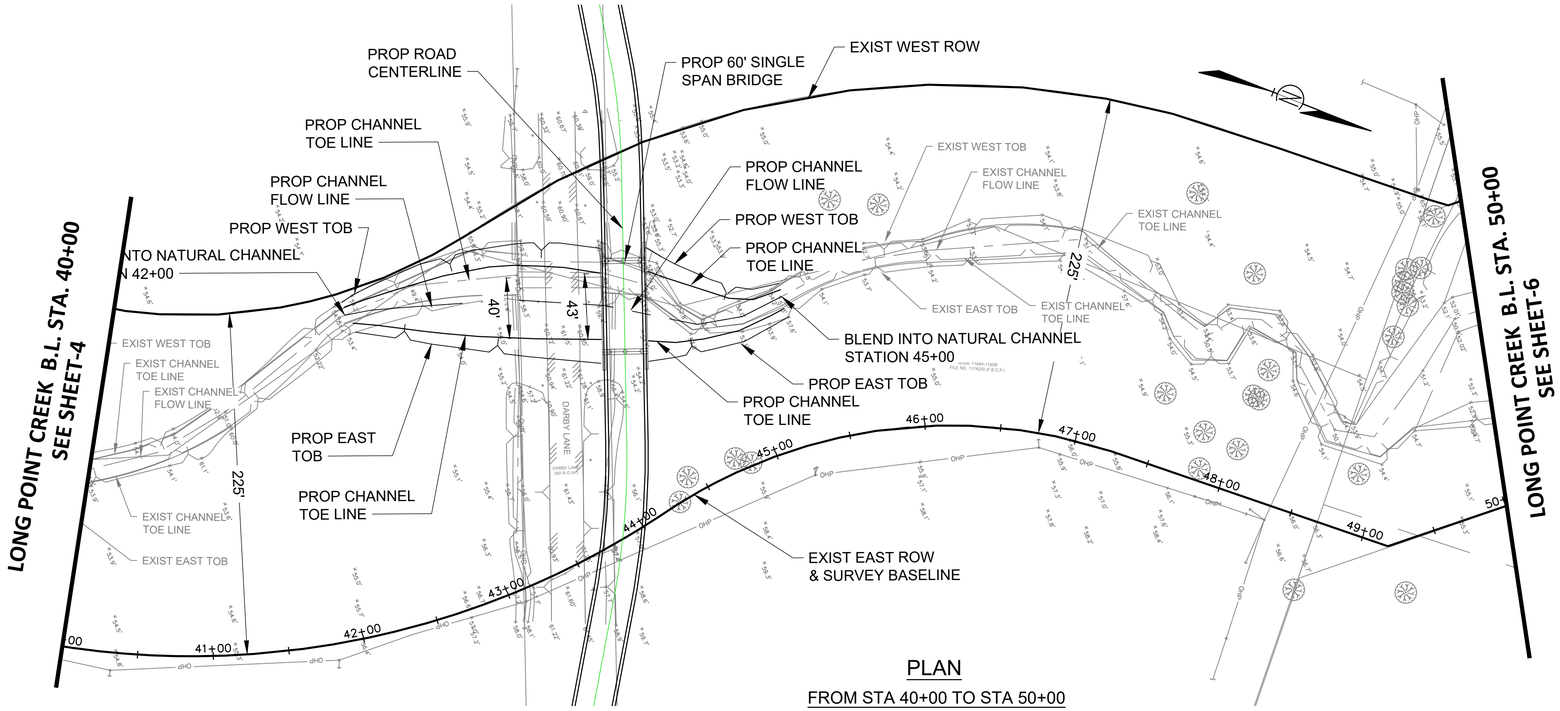
LONG POINT CREEK

WEIR AT DIVERSION CHANNEL PLAN & SECTIONS

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		21 OF 116

DW: CK: DW: CK:

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

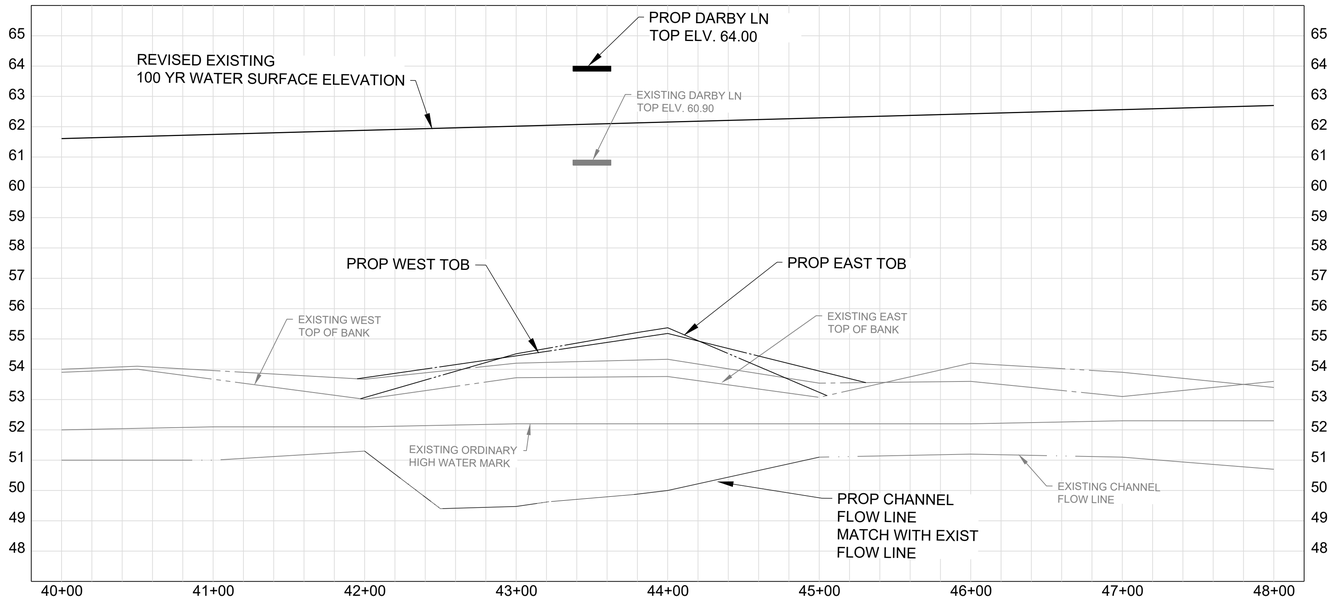


PLAN

FROM STA 40+00 TO STA 50+00

SCALE: 1" = 50' (H)

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. SEE SECTION SHEET 7 TO 38 FOR CROSS SECTIONS.



PROFILE

FROM STA 40+00 TO STA 48+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

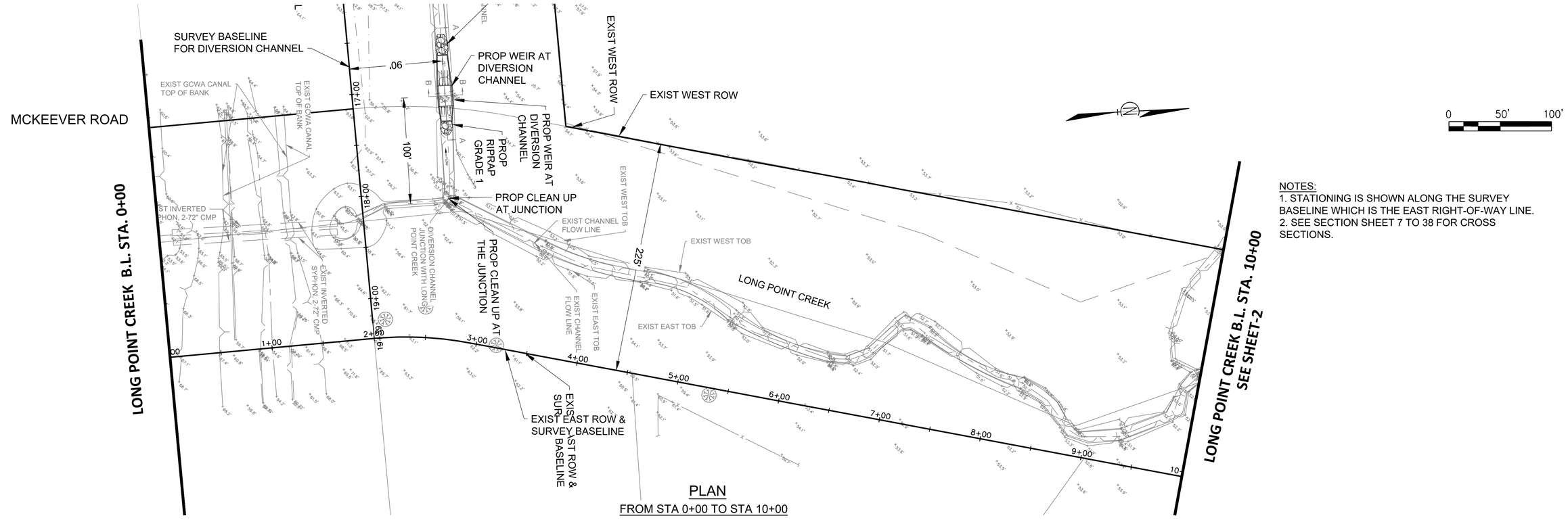
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK AT DARBY LN PLAN & PROFILE

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		22 OF 116

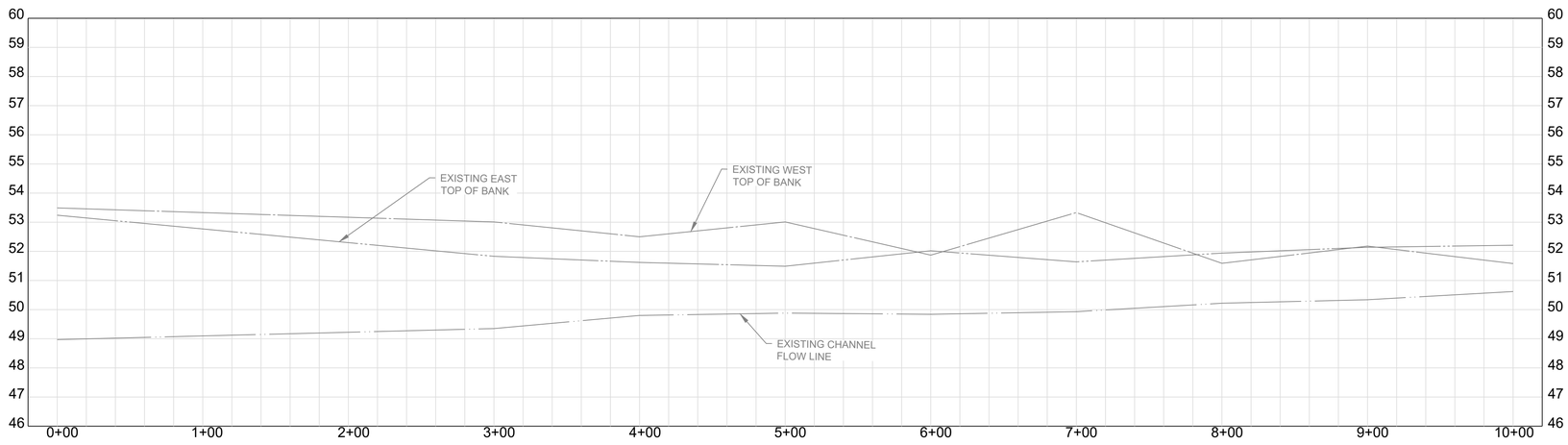
DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. SEE SECTION SHEET 7 TO 38 FOR CROSS SECTIONS.

PLAN
FROM STA 0+00 TO STA 10+00

SCALE: 1" = 50' (H)



PROFILE
FROM STA 0+00 TO STA 10+00
SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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HOUSTON, TX 77036
PH. 832-834-3430

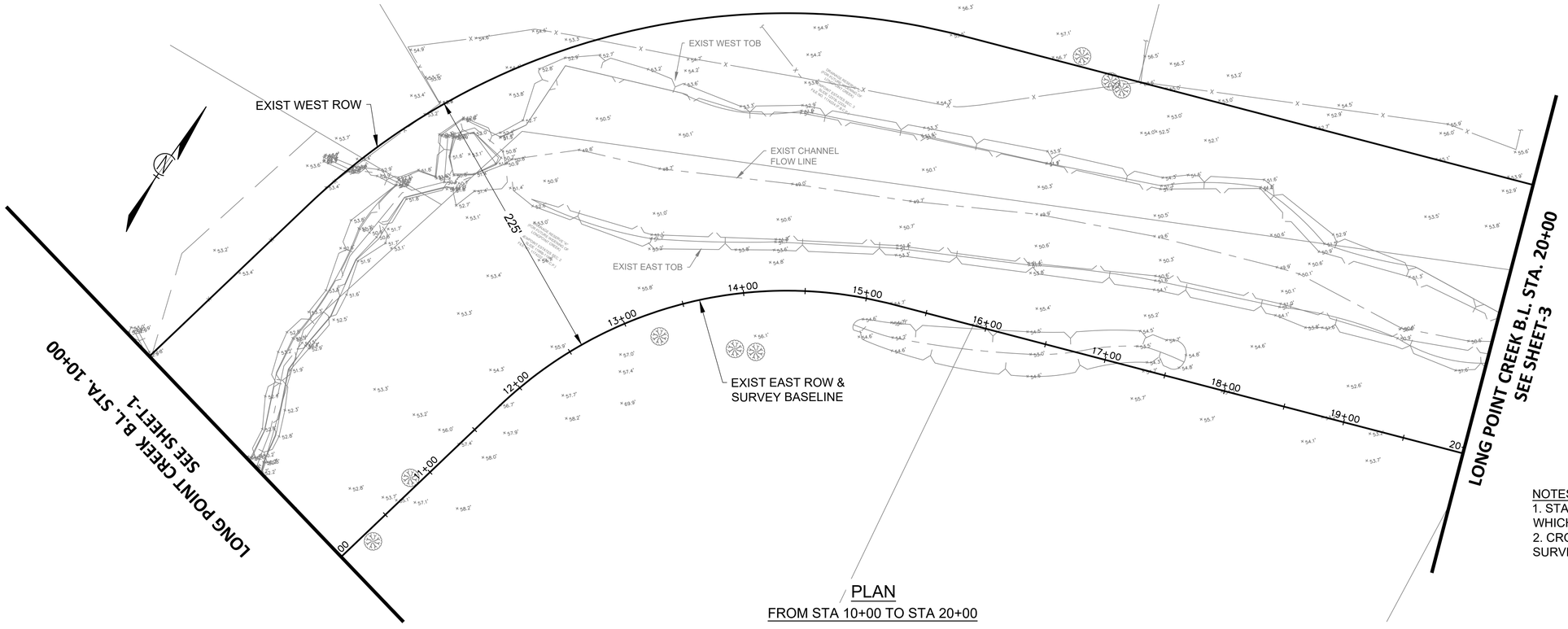
STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 1

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		23 OF 116

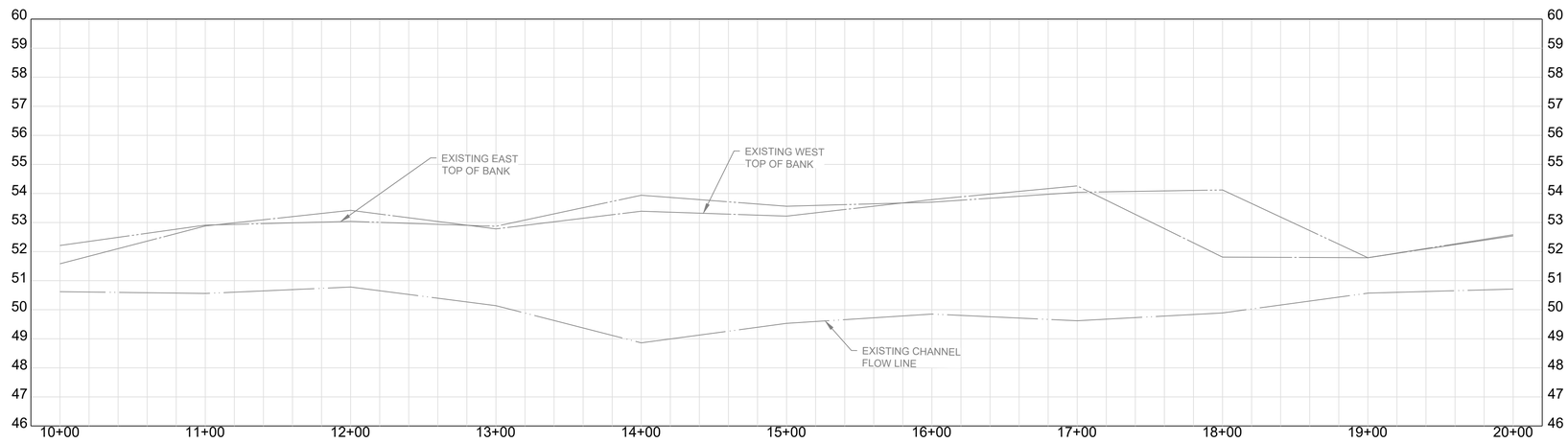
DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



PLAN

FROM STA 10+00 TO STA 20+00

SCALE: 1" = 50' (H)



PROFILE

FROM STA 10+00 TO STA 20+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

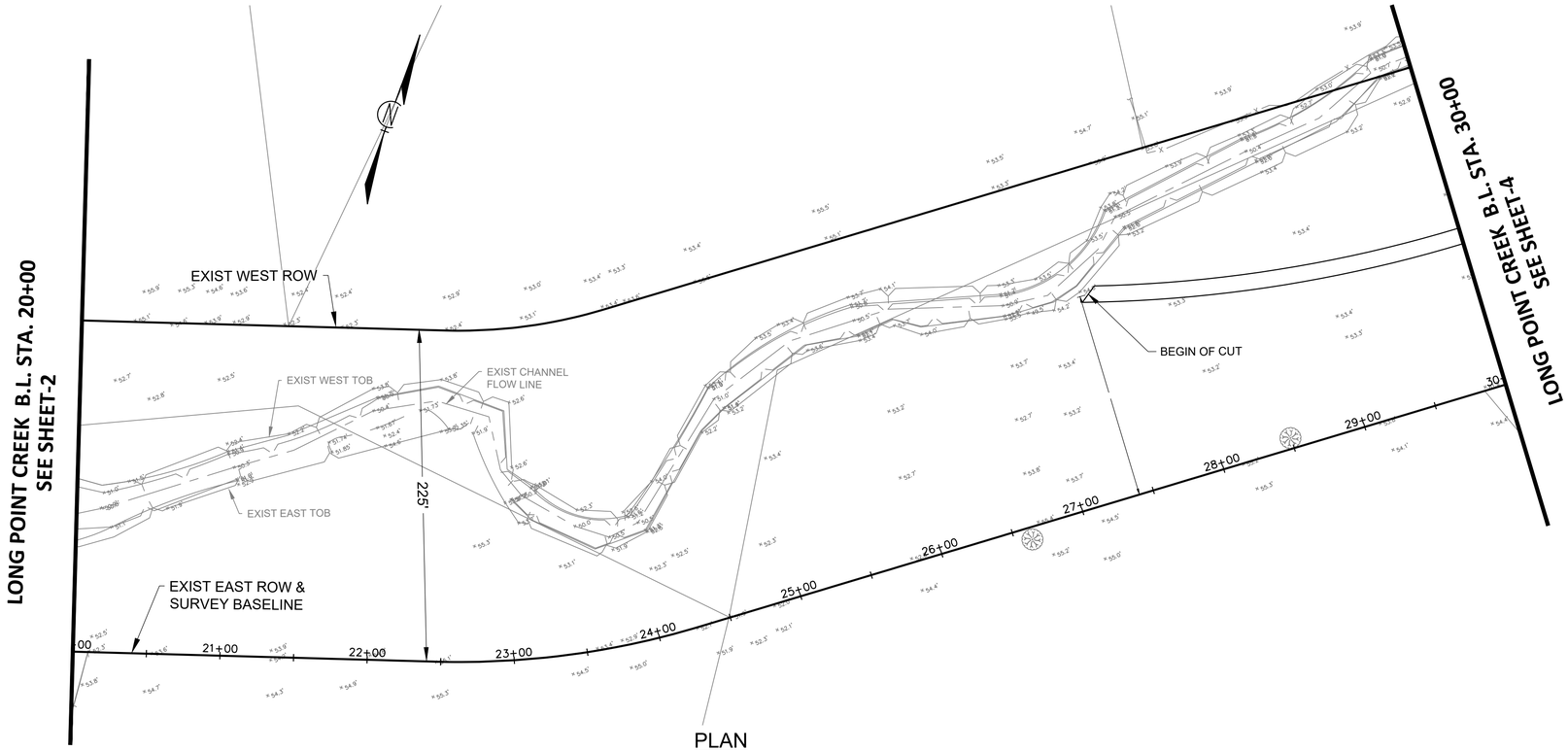
LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 2

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		24 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

DW: CK: DW: CK:



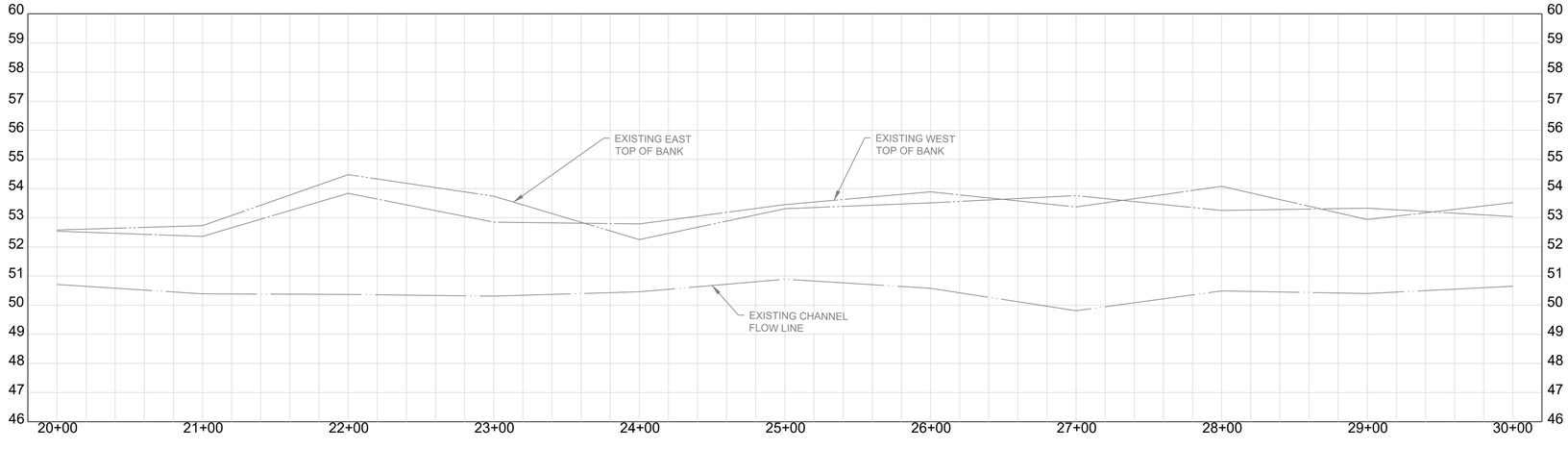
PLAN

FROM STA 20+00 TO STA 30+00

SCALE: 1" = 50' (H)

0 50' 100'

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. SEE SECTION SHEET 7 TO 38 FOR CROSS SECTIONS.



PROFILE

FROM STA 20+00 TO STA 30+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

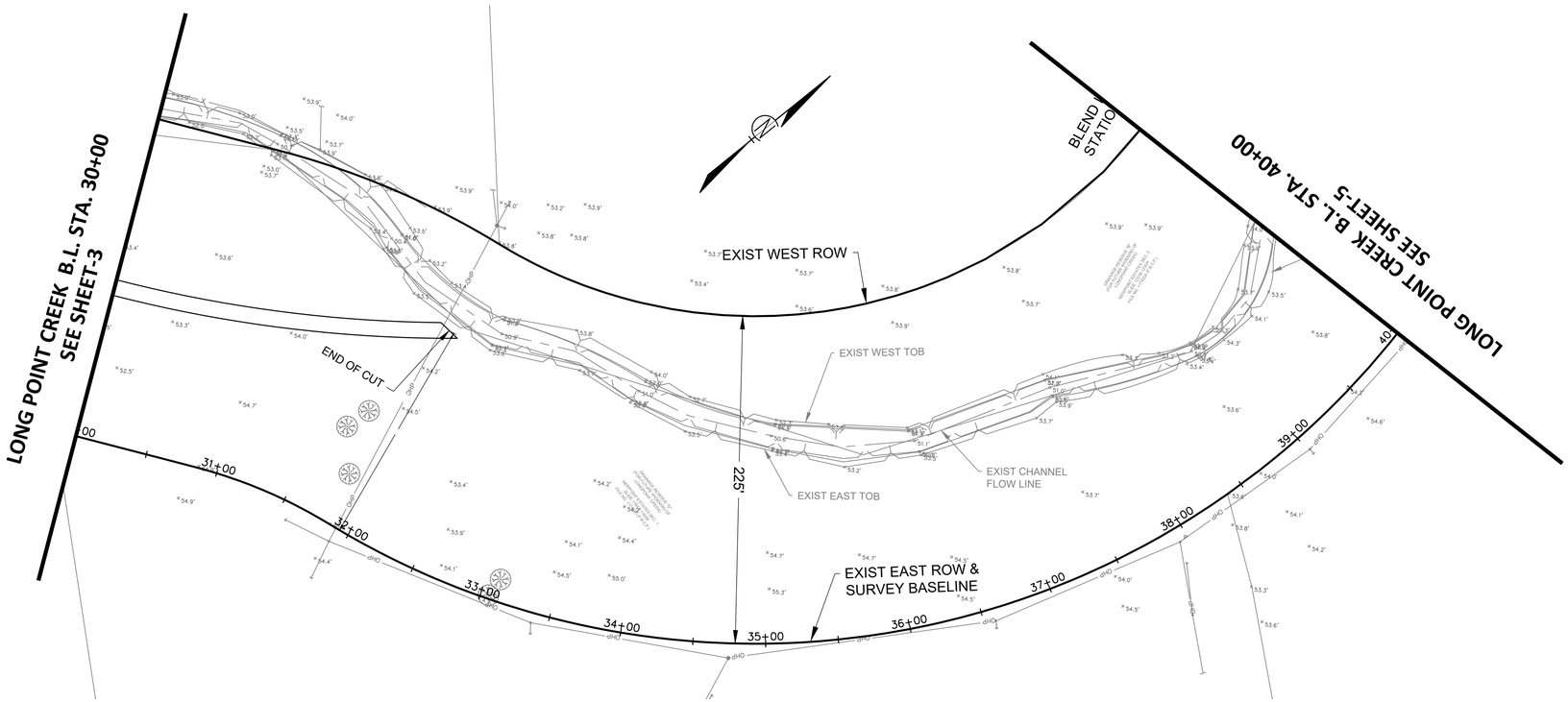
LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 3

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		25 OF 116

DW: CK: DW: CK:

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

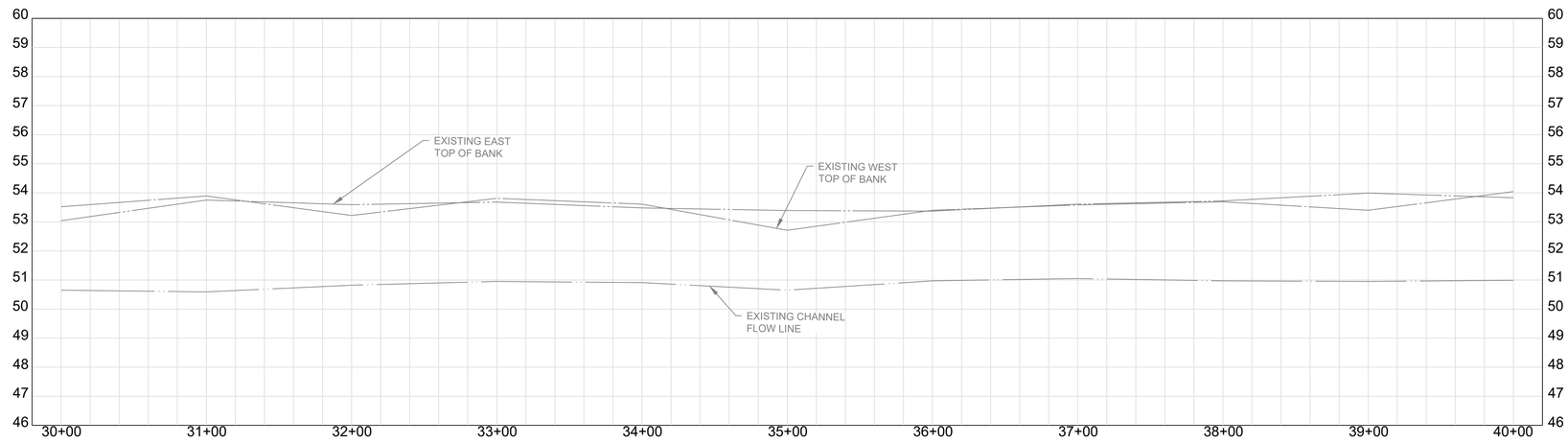


PLAN

FROM STA 30+00 TO STA 40+00

SCALE: 1" = 50' (H)

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. SEE SECTION SHEET 7 TO 38 FOR CROSS SECTIONS.



PROFILE

FROM STA 30+00 TO STA 40+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET , ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

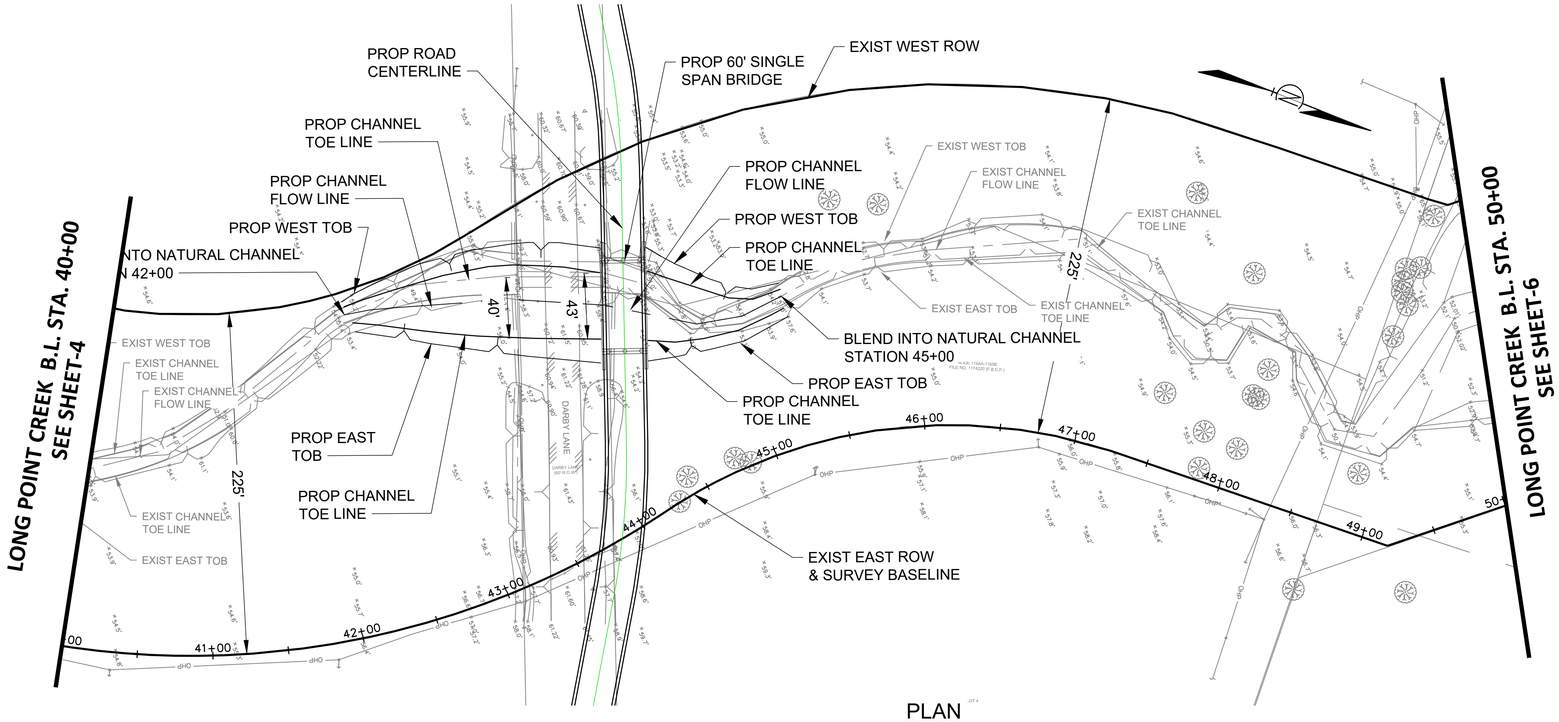
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 4

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		26 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



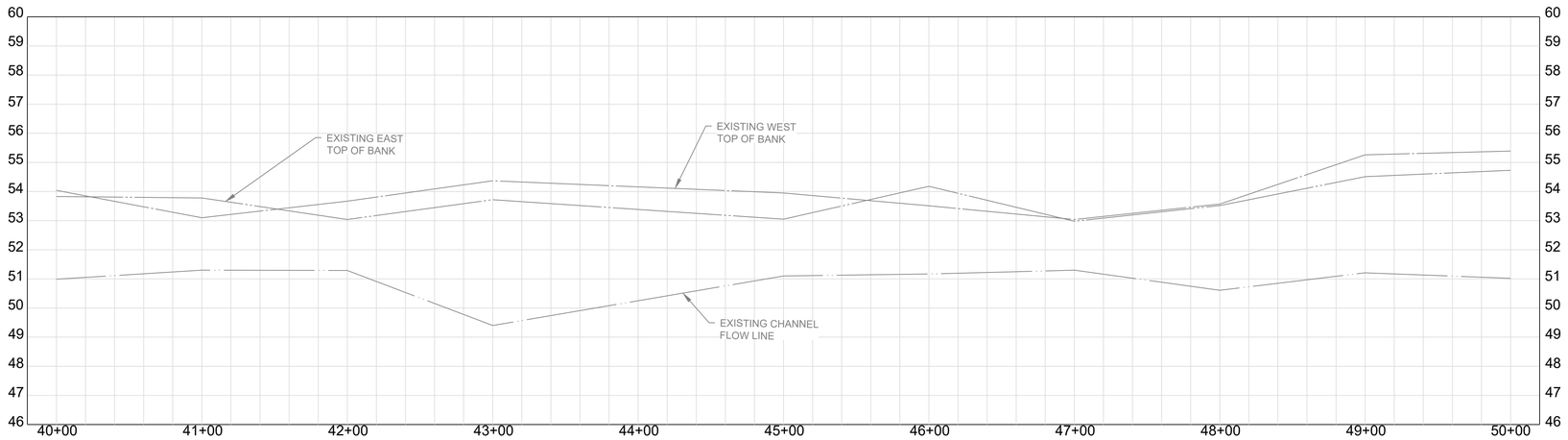
PLAN

FROM STA 40+00 TO STA 50+00

SCALE: 1" = 50' (H)

0 50' 100'

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. SEE SECTION SHEET 7 TO 38 FOR CROSS SECTIONS.



PROFILE

FROM STA 40+00 TO STA 50+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-10628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

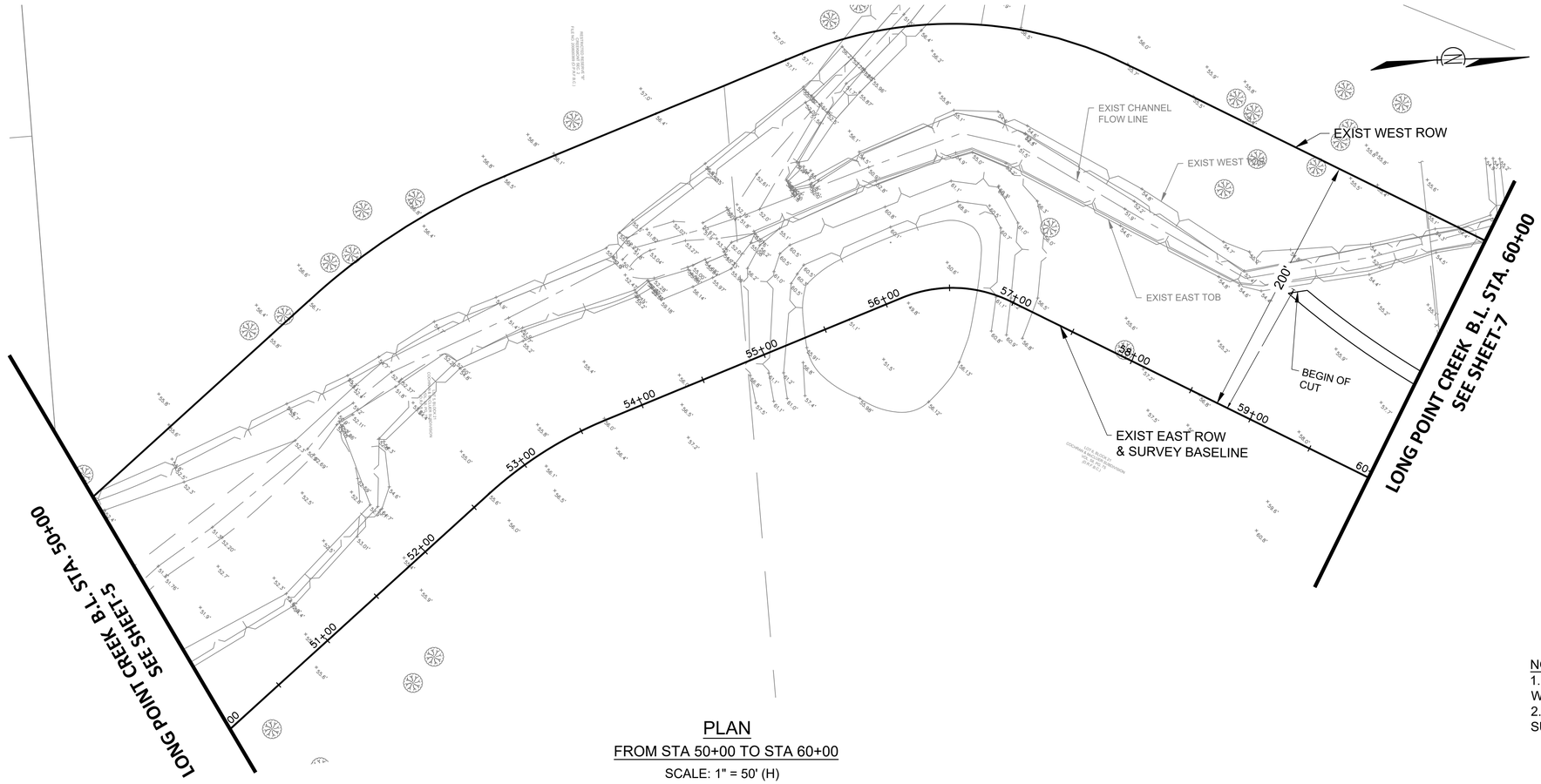
LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 5

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		27 OF 116

DW: CK: DW: CK:

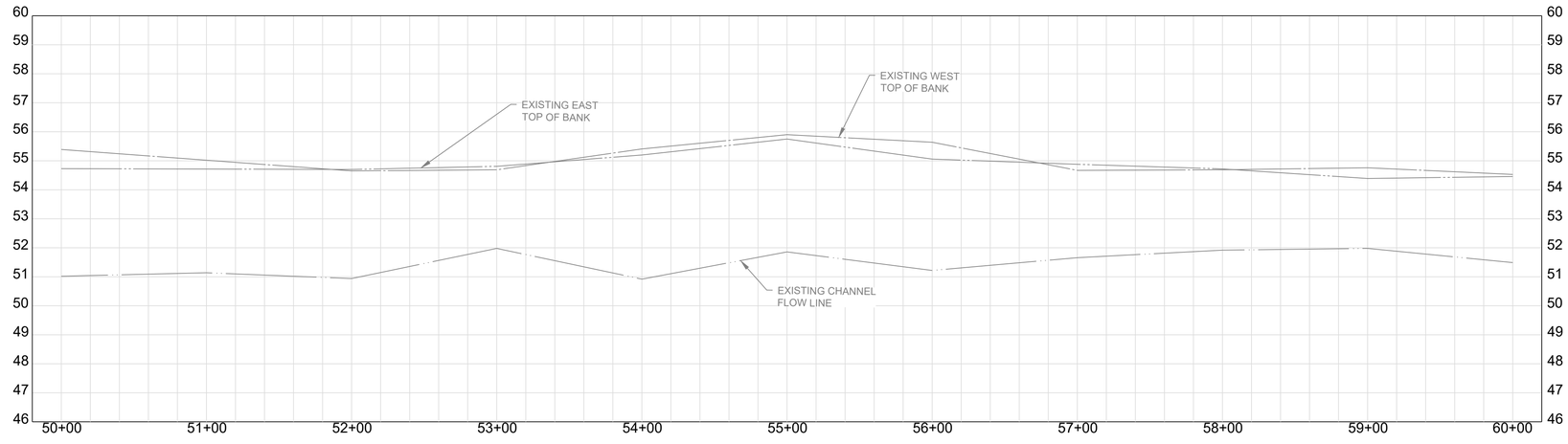
DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



PLAN

FROM STA 50+00 TO STA 60+00

SCALE: 1" = 50' (H)



PROFILE

FROM STA 50+00 TO STA 60+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-10628.
10039 BISSONNET STREET., ST. 336.
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 6

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		28 OF 116

DW: CK: DW: CK:

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

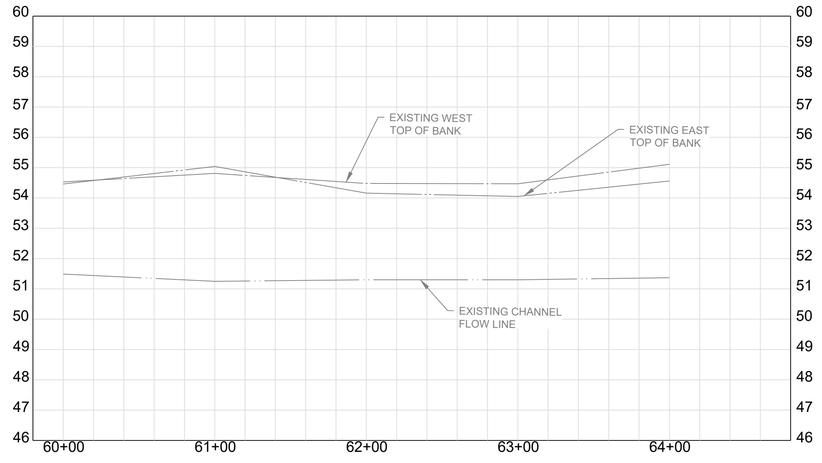
PLAN

FROM STA 60+00 TO STA 64+00

SCALE: 1" = 50' (H)

0 50' 100'

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. SEE SECTION SHEET 7 TO 38 FOR CROSS SECTIONS.



PROFILE

FROM STA 60+00 TO STA 64+00

SCALE: 1" = 50' (H) , 1" = 2.5' (V)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

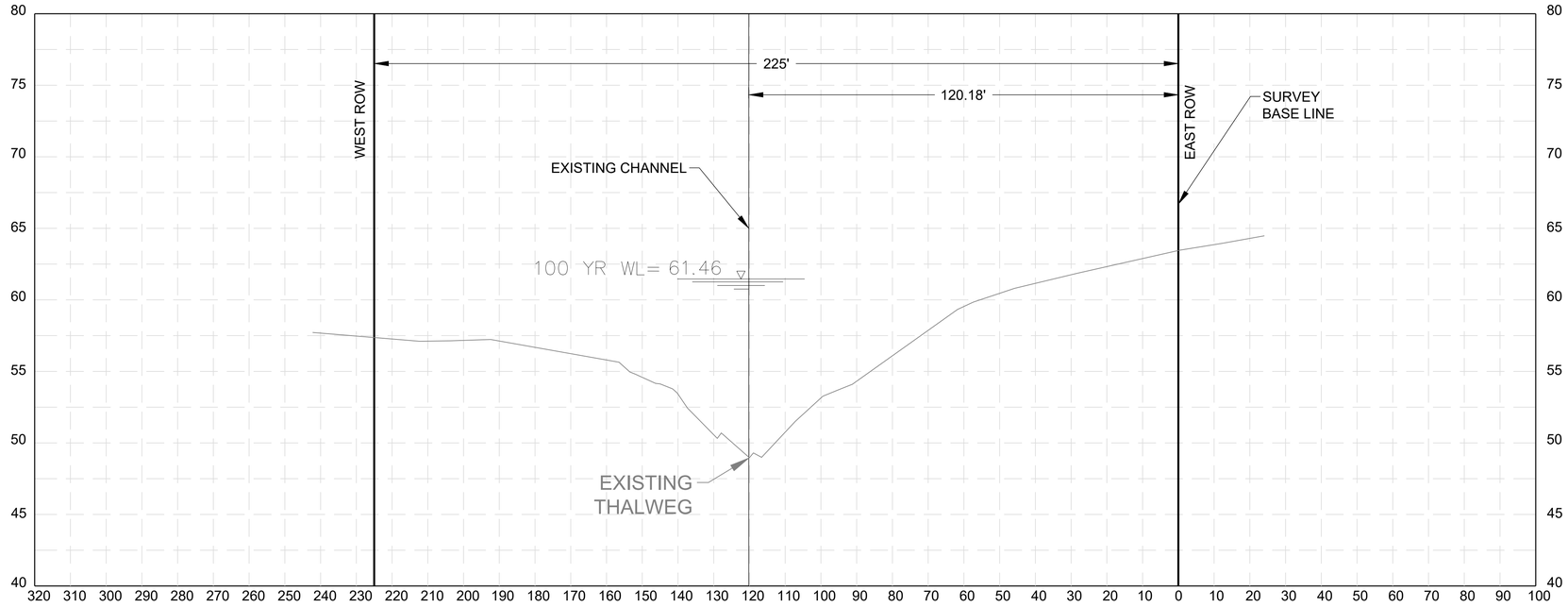
LONG POINT CREEK

LONG POINT CREEK
PLAN AND PROFILE SHEET 7

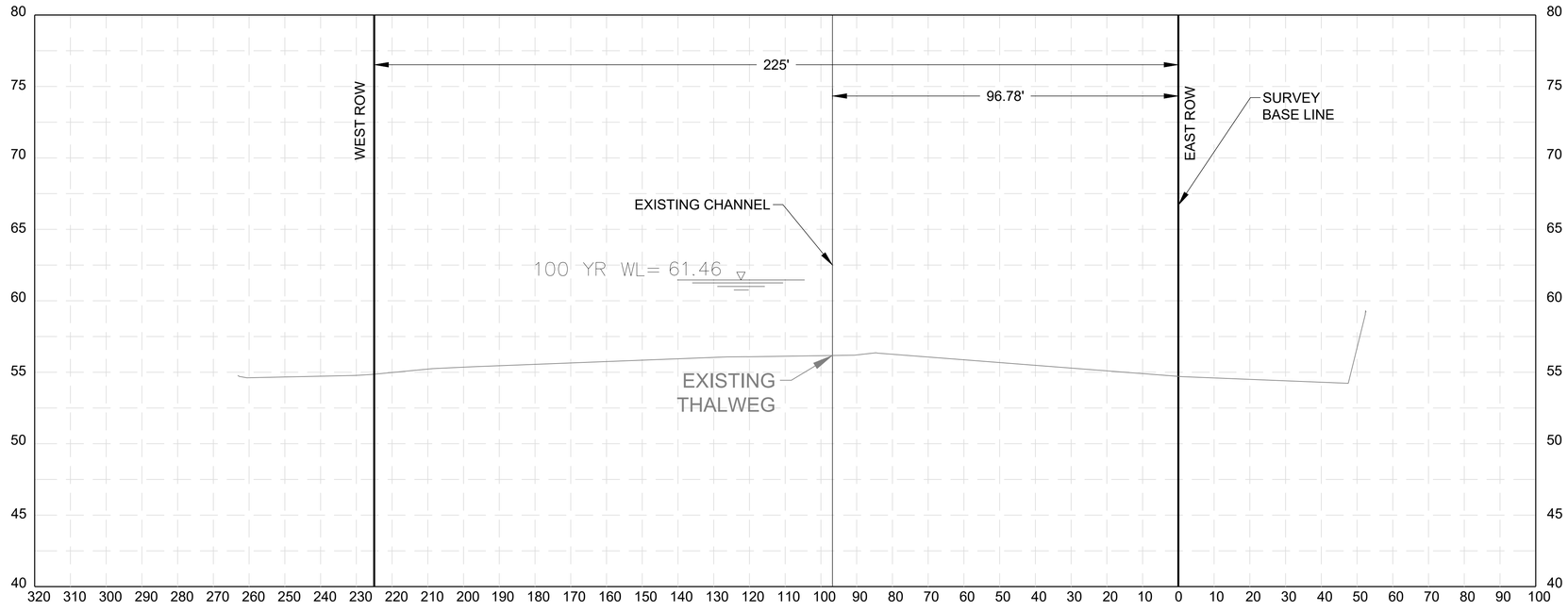
SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		29 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

DW: CK: DW: CK:



STATION 0+00



STATION 1+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

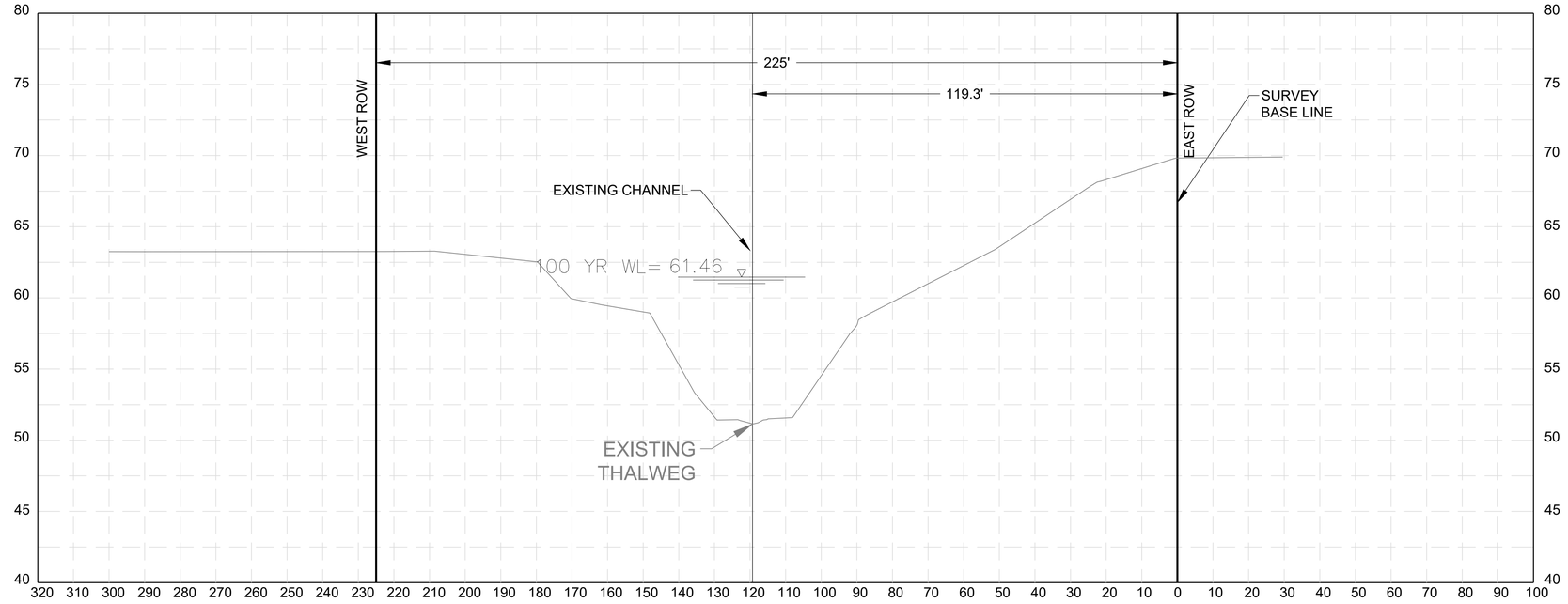
LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 1

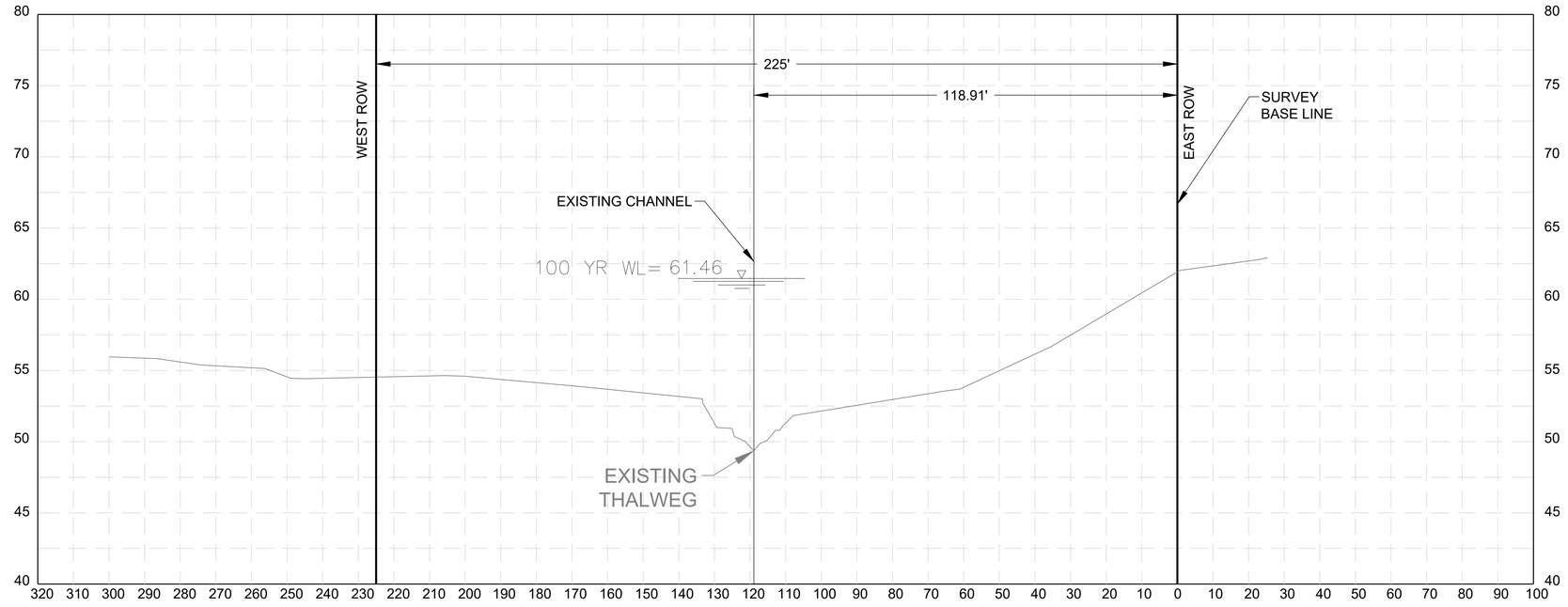
SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		30 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

DW: CK: DW: CK:



STATION 2+00



STATION 3+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

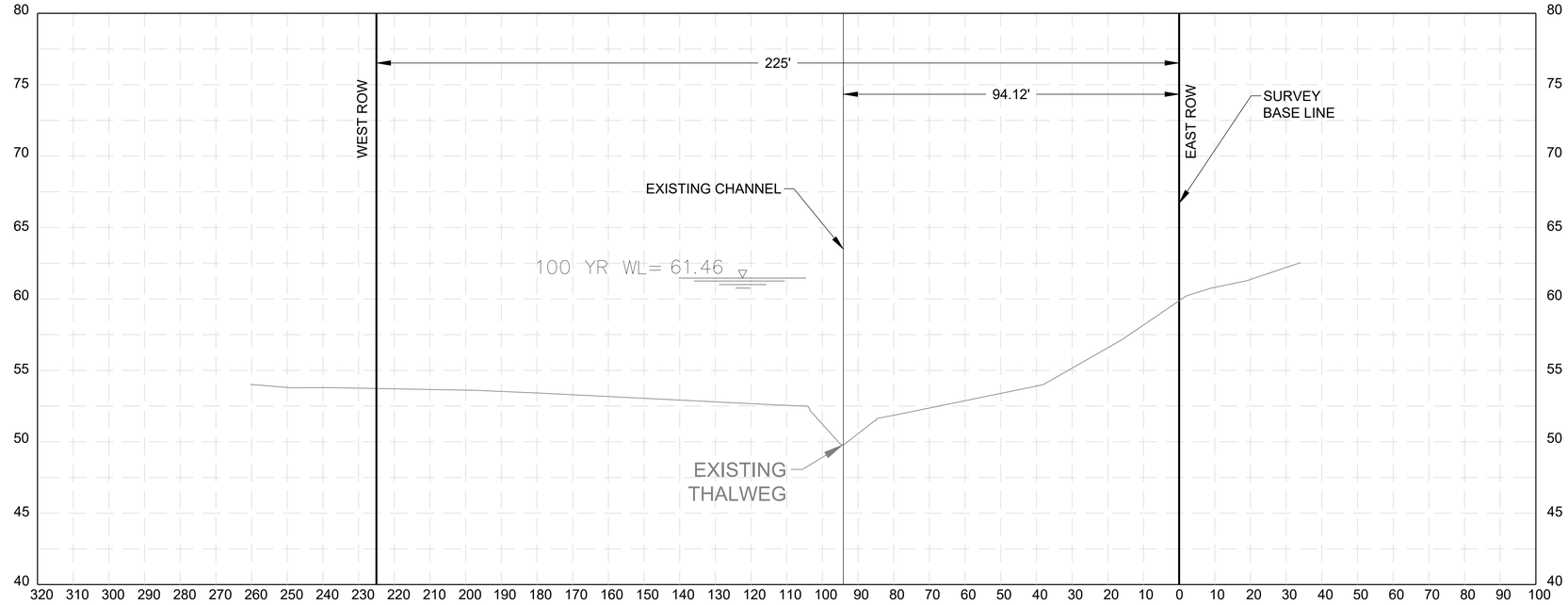
LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 2

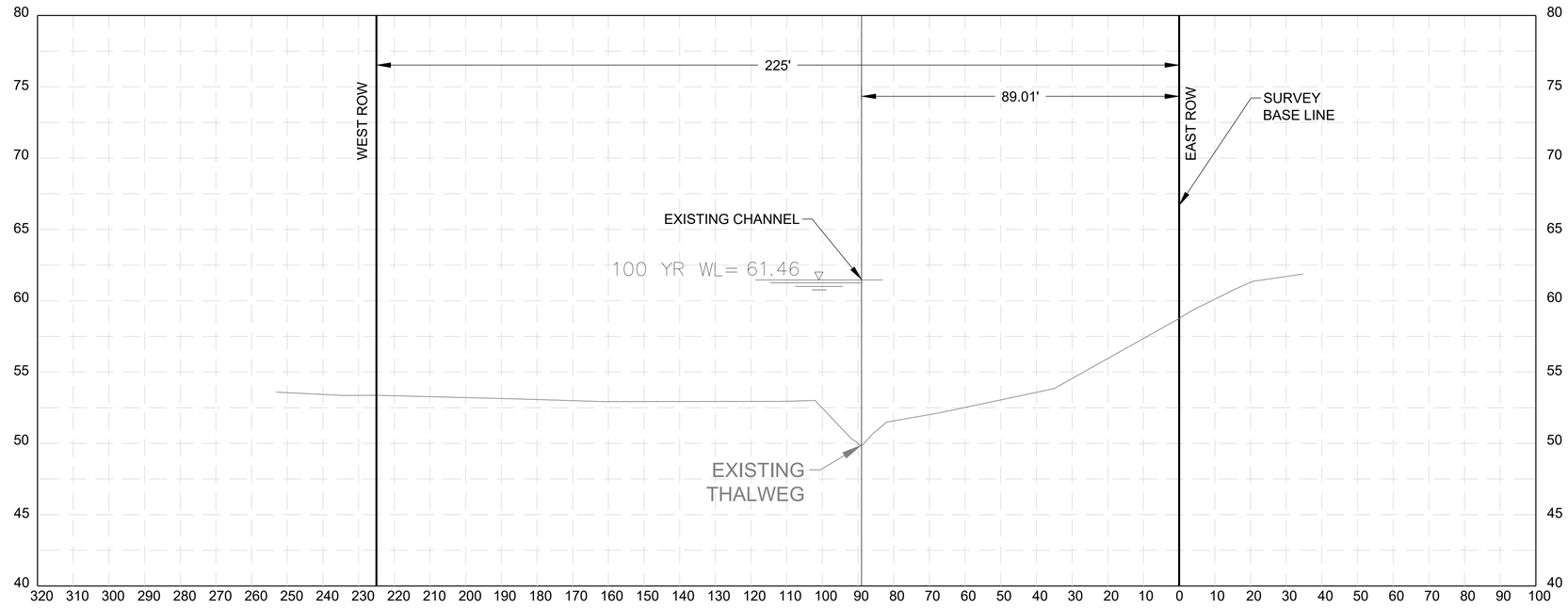
SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		31 OF 116

DW: CK: DW: CK:

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 4+00



STATION 5+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 3

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		32 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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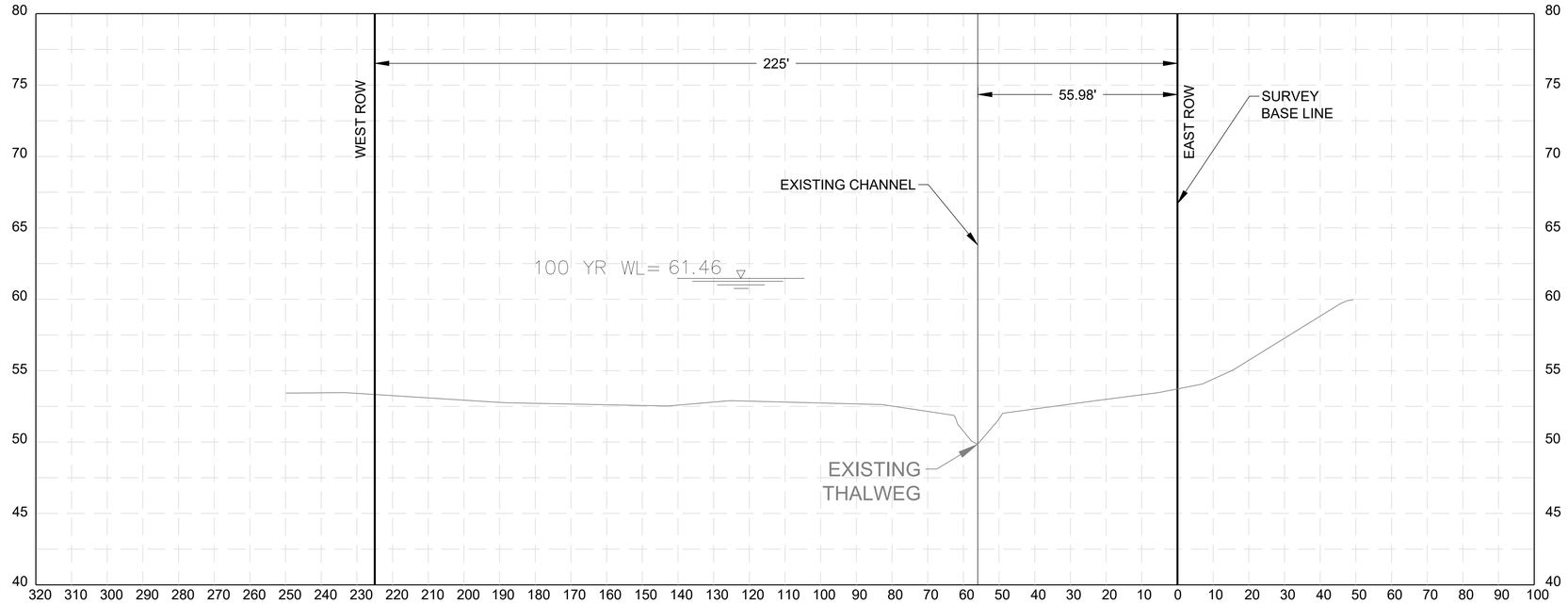
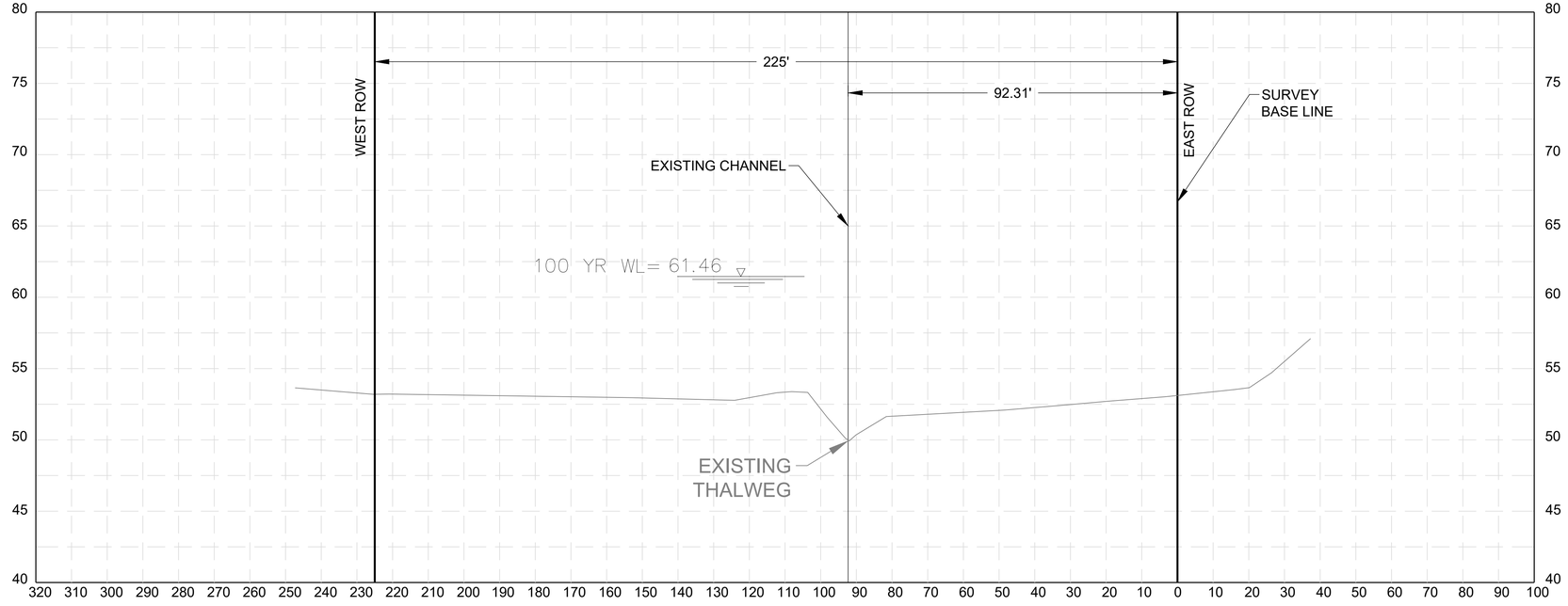


STATION 6+00



STATION 7+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 4

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		33 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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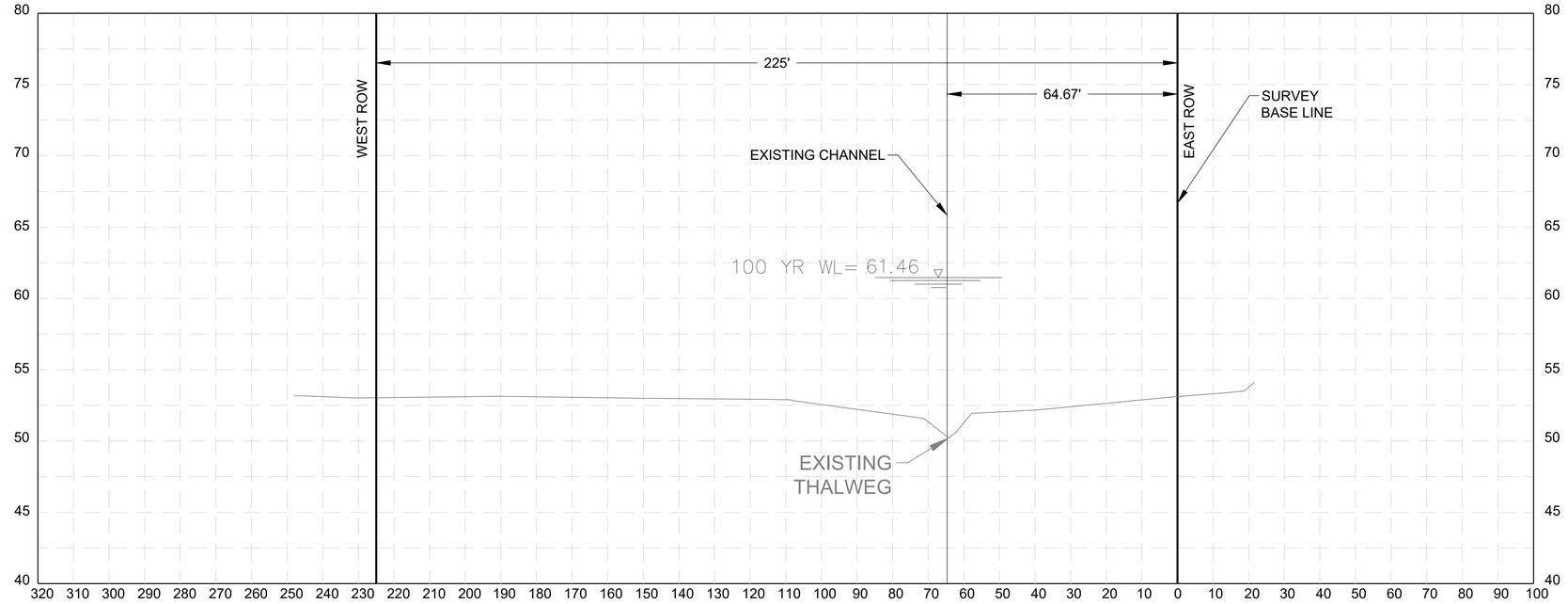
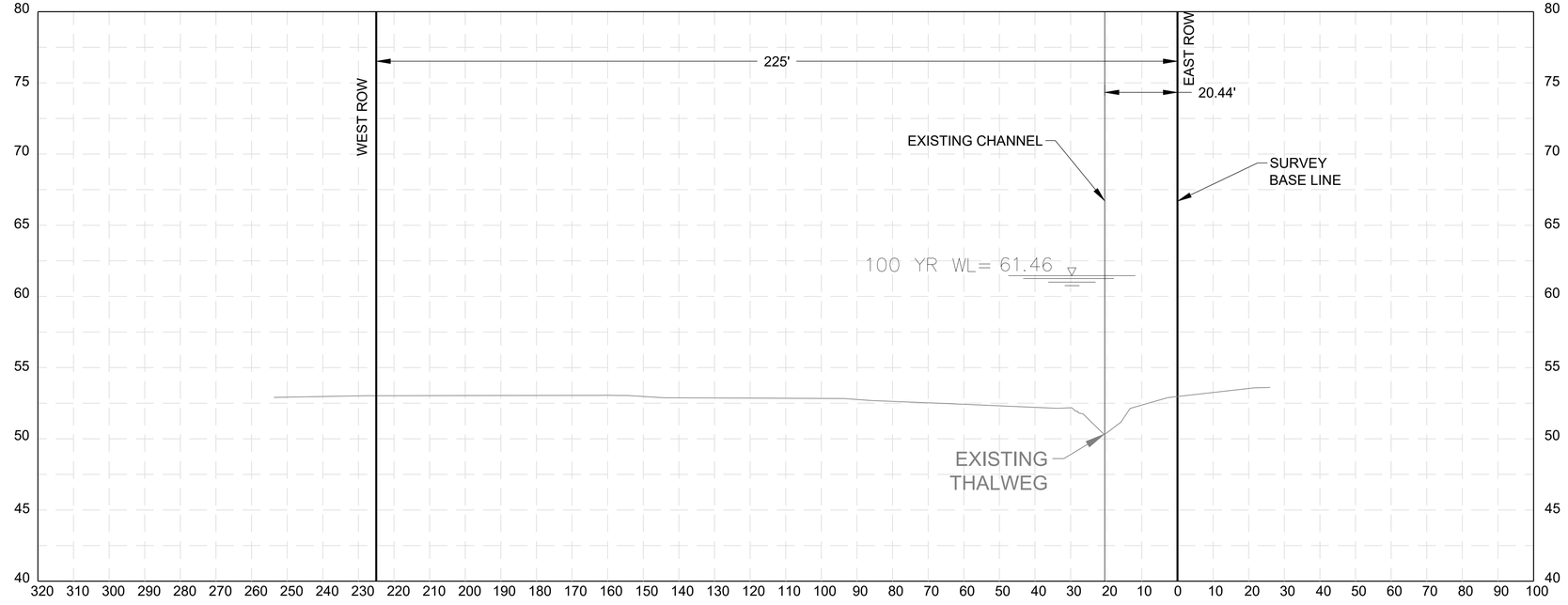


STATION 8+00



STATION 9+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 5

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		34 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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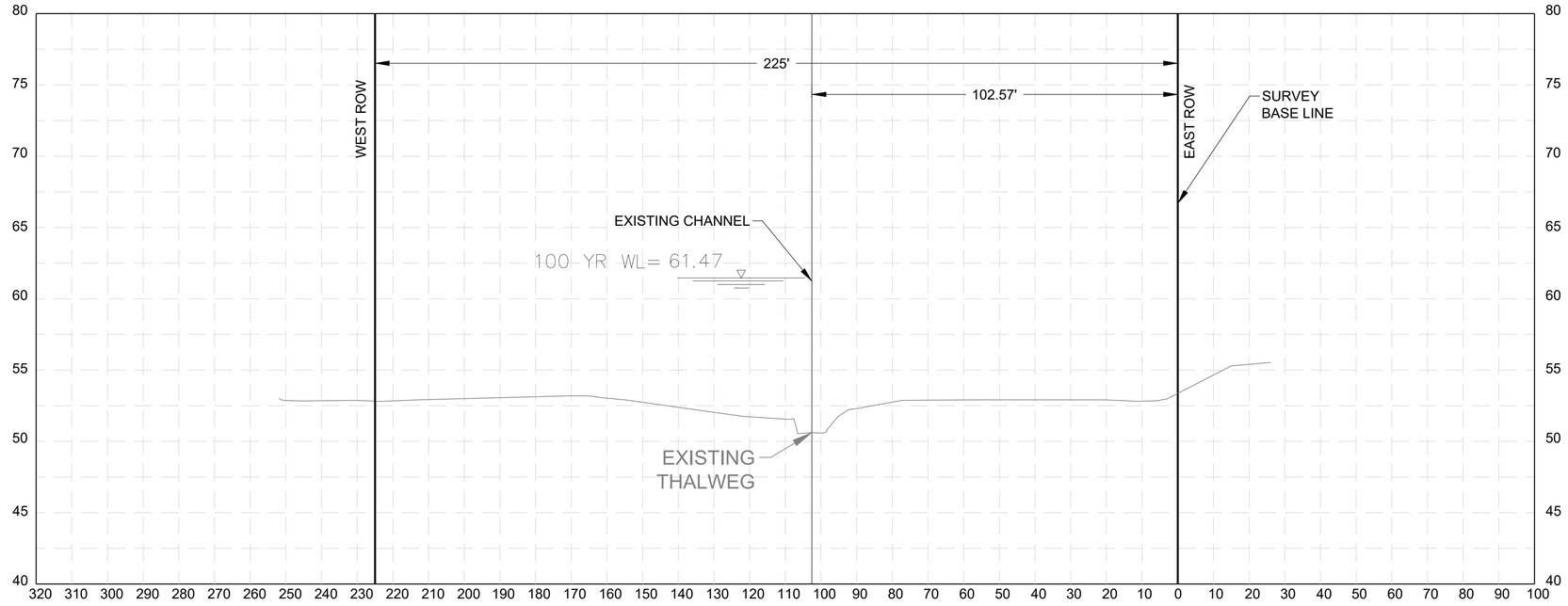
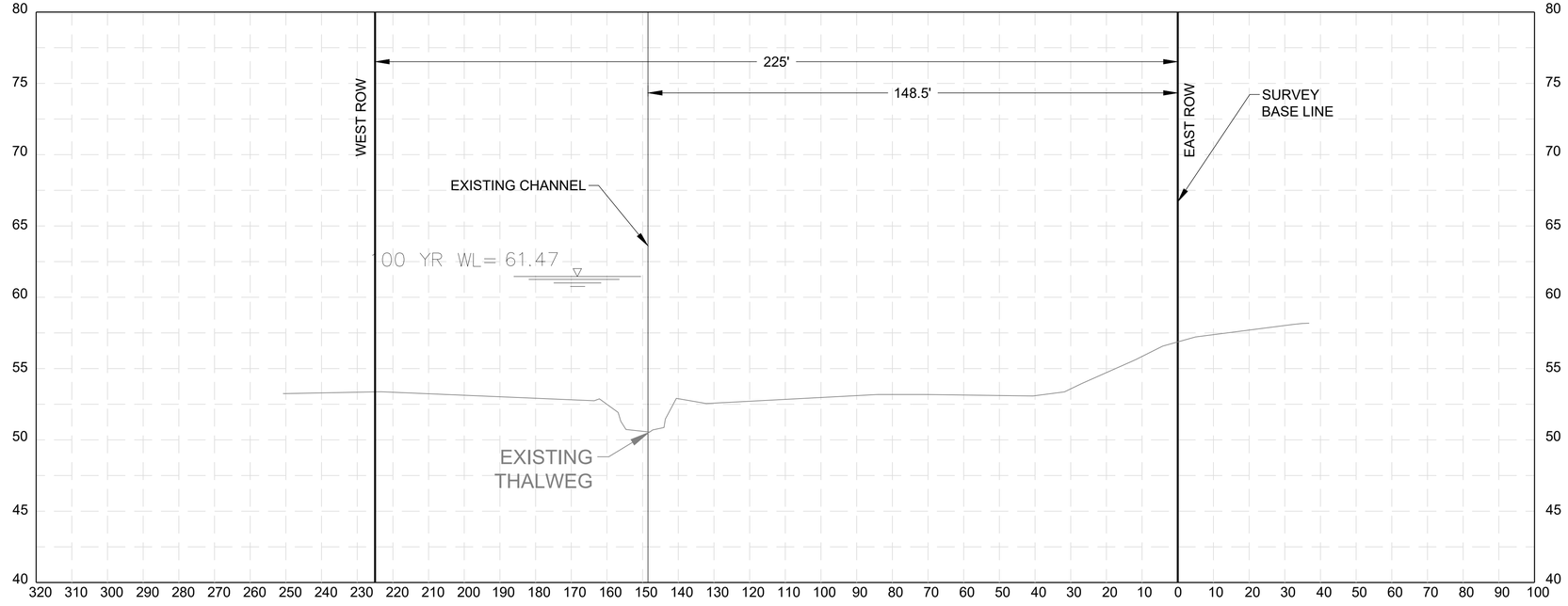


STATION 10+00



STATION 11+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 6

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		35 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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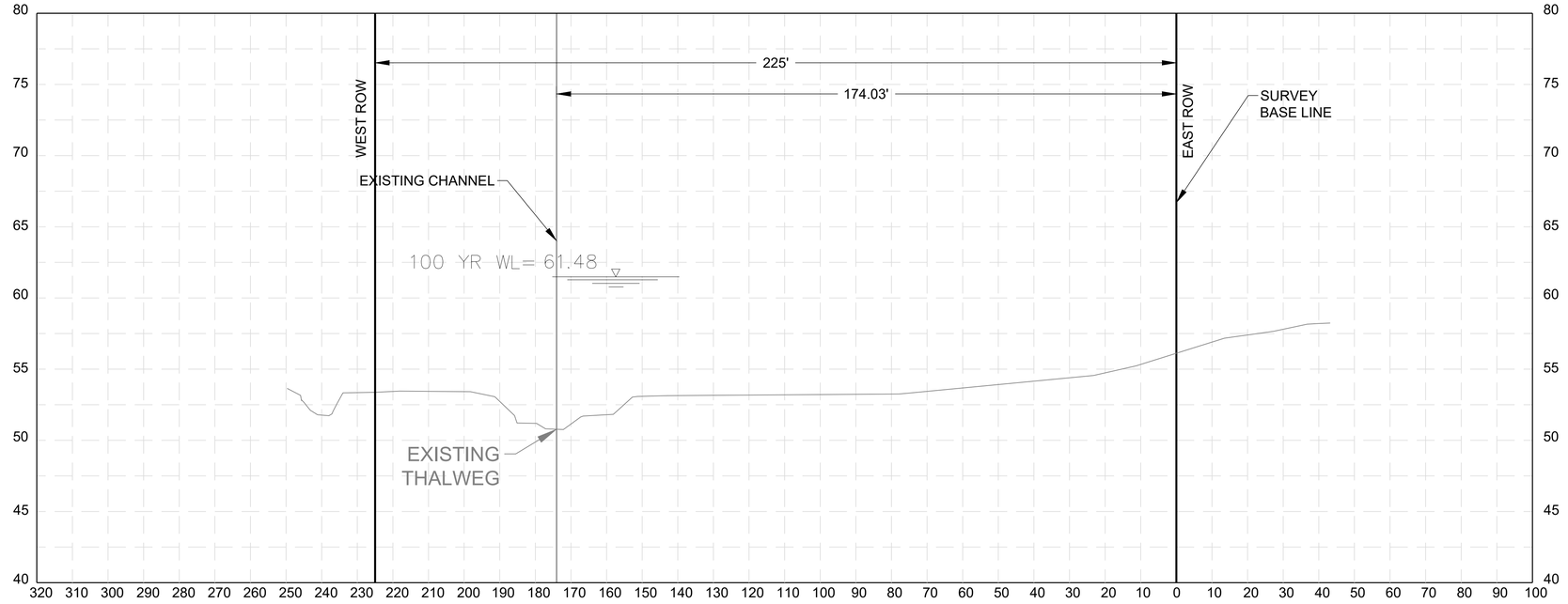
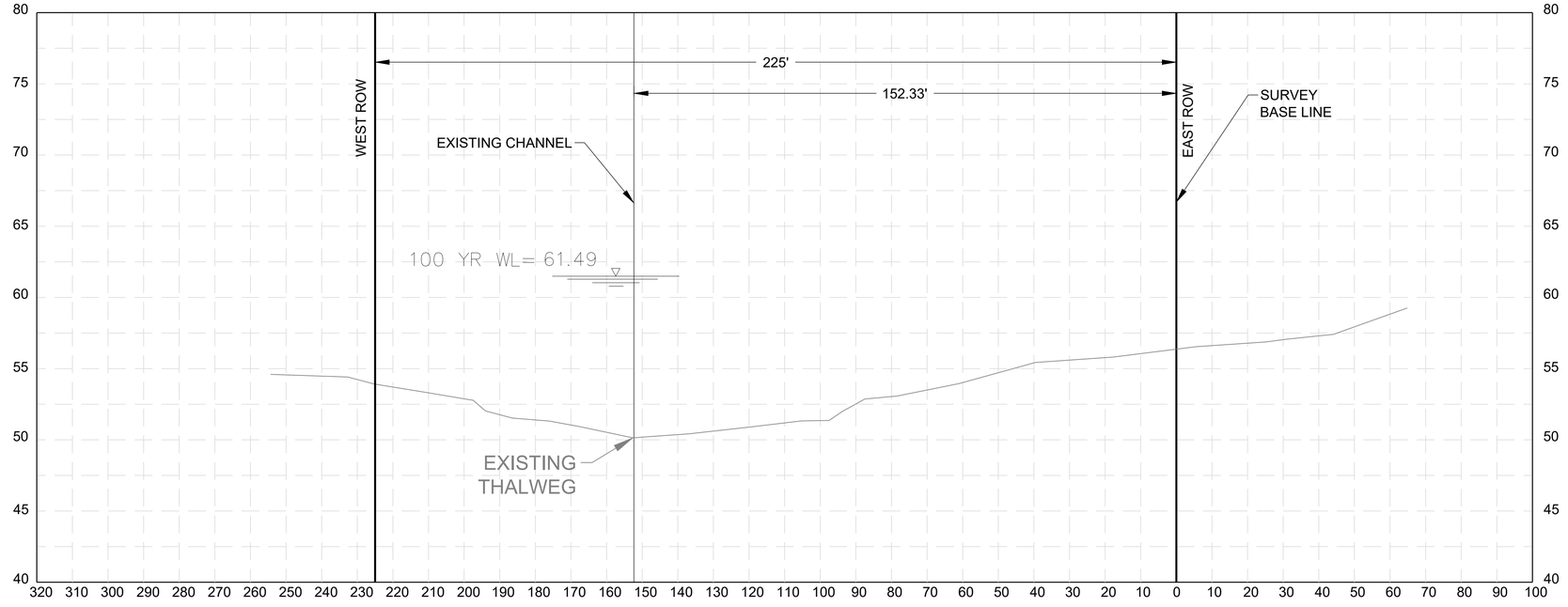


STATION 12+00



STATION 13+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 7

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		36 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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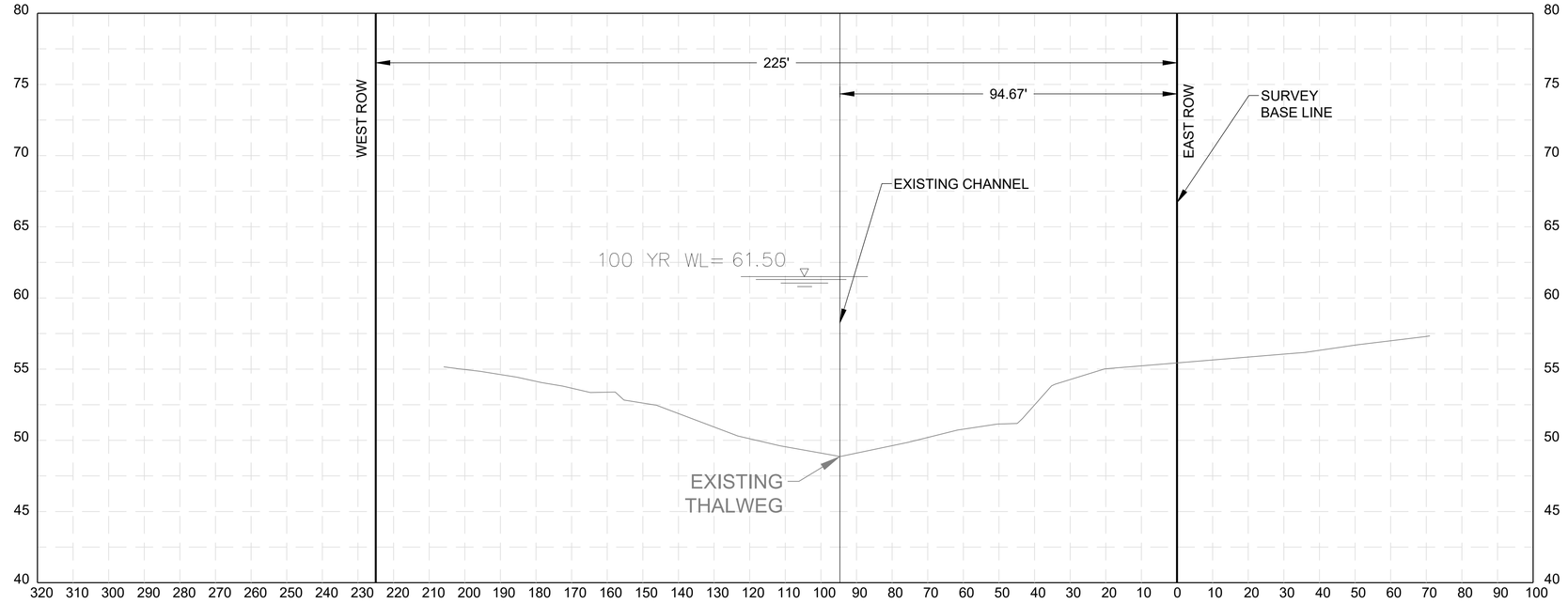
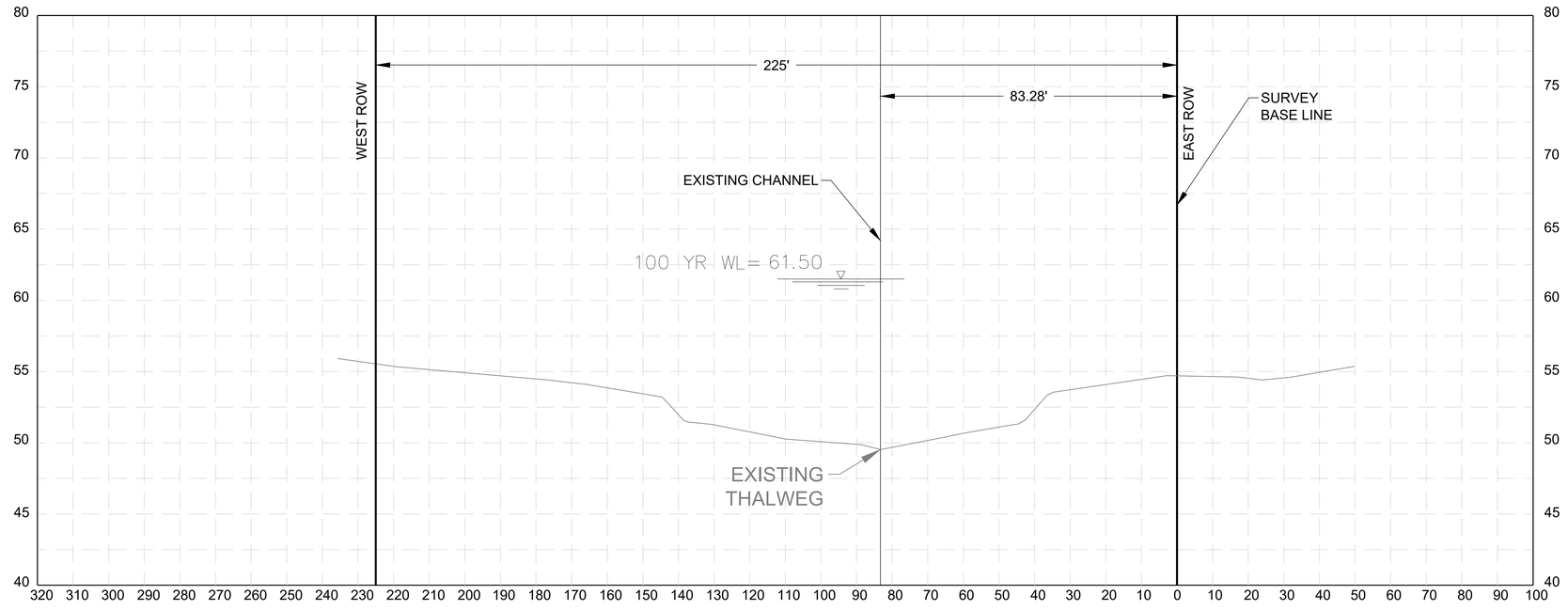


STATION 14+00



STATION 15+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 8

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		37 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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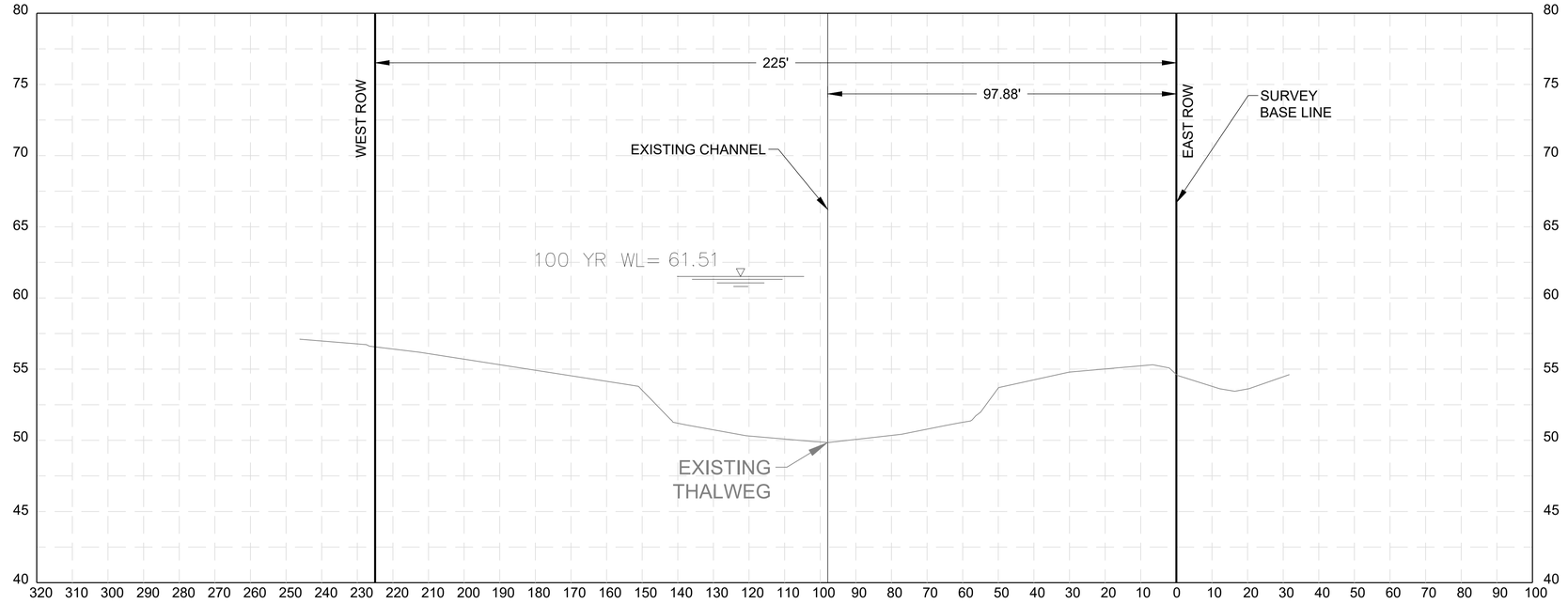
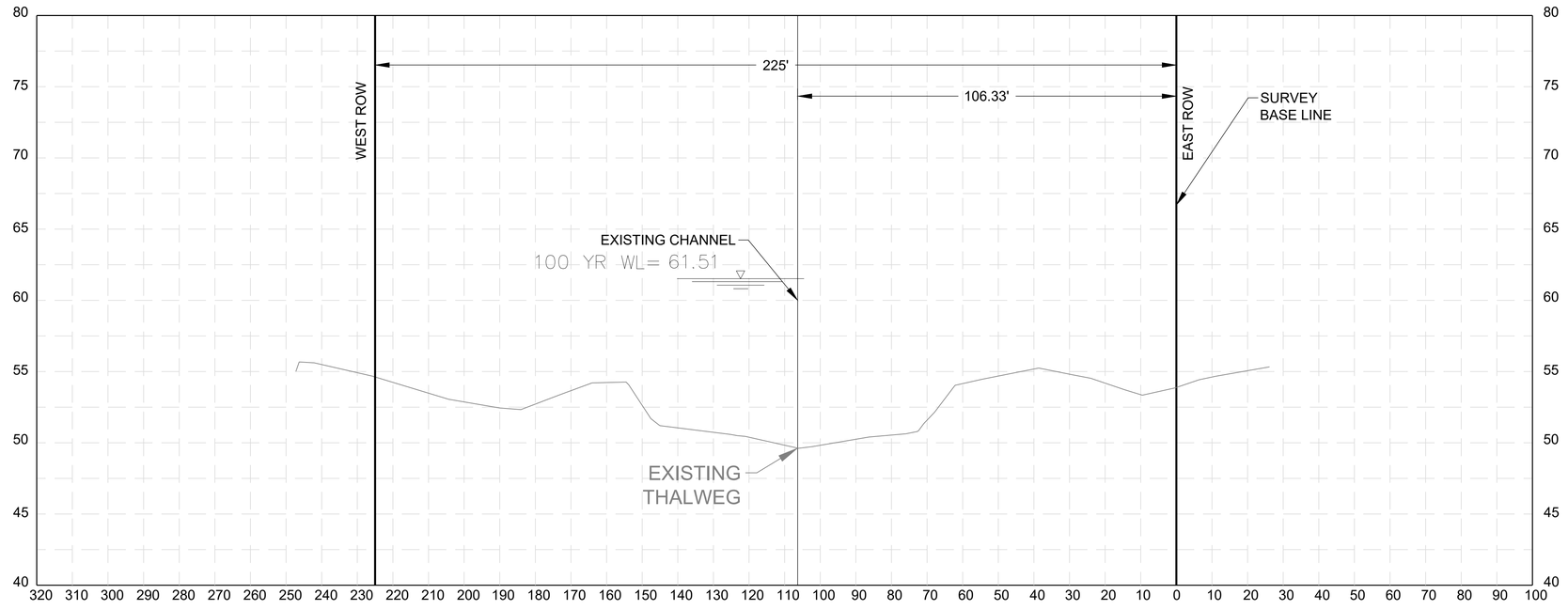


STATION 16+00



STATION 17+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

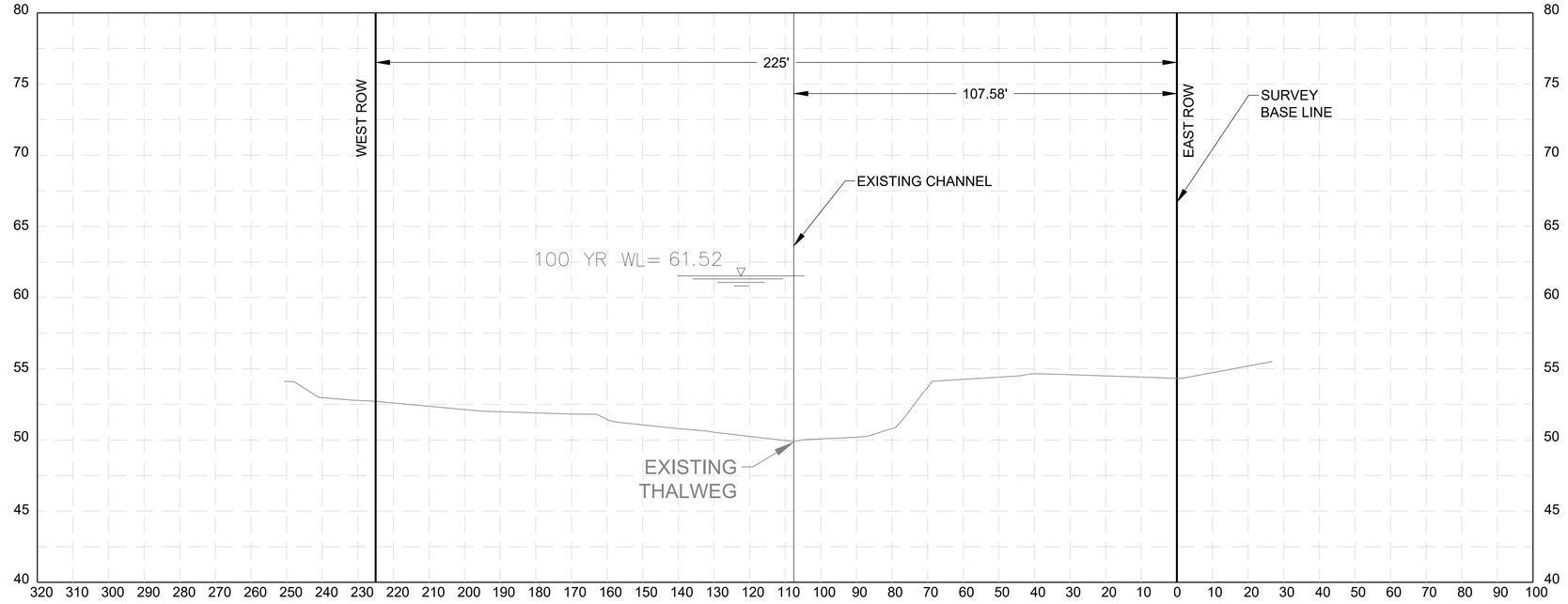
STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

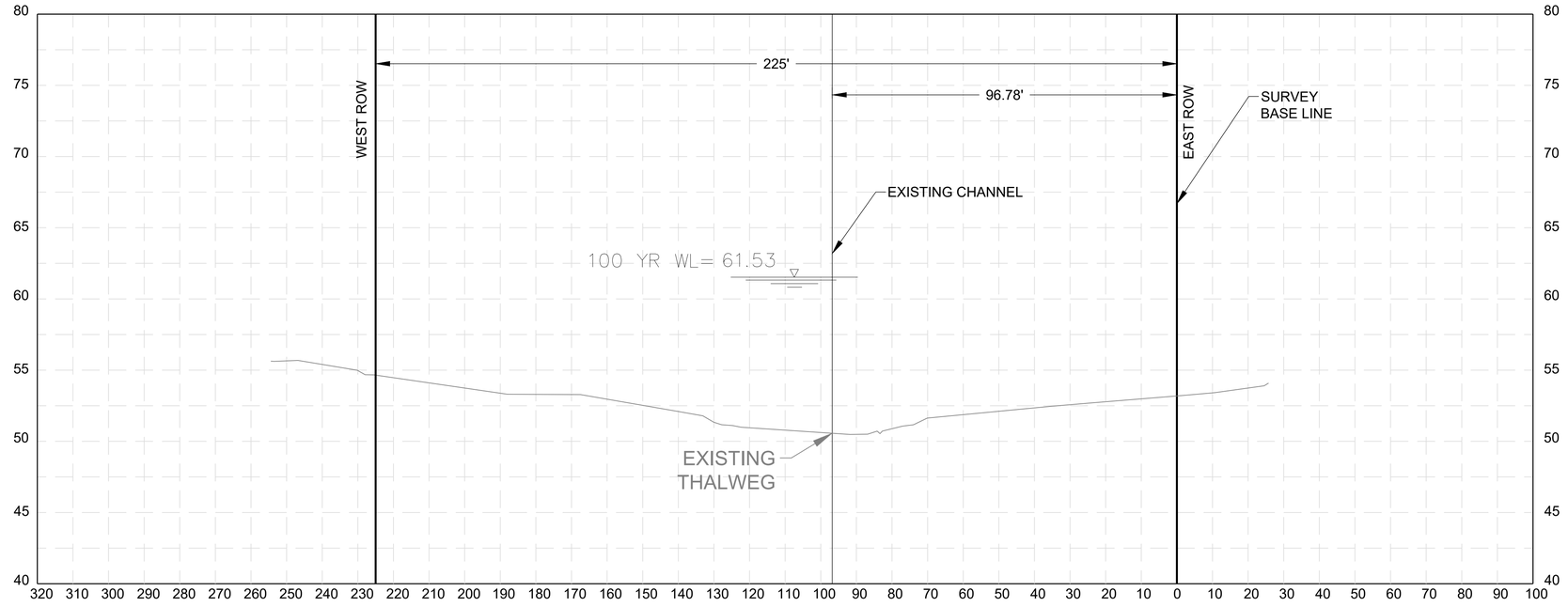
LONG POINT CREEK
SECTION SHEET 9

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		38 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 18+00



STATION 19+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 10

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		39 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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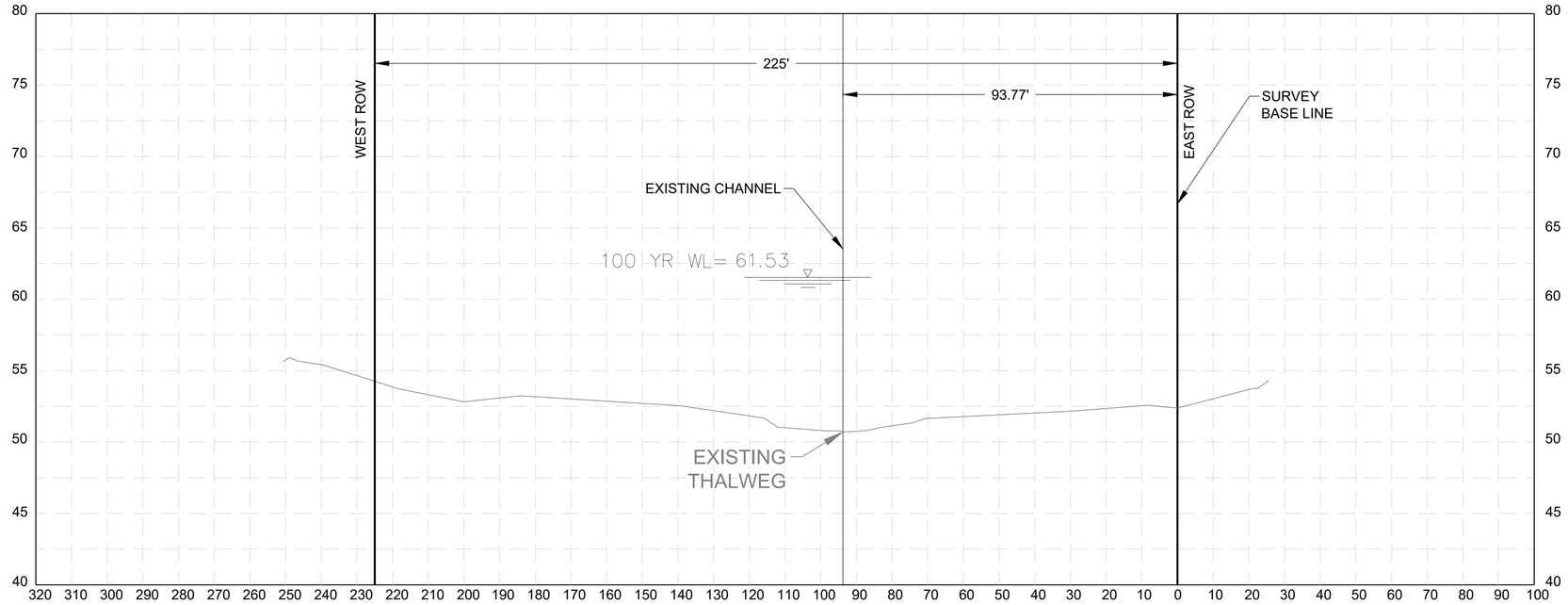
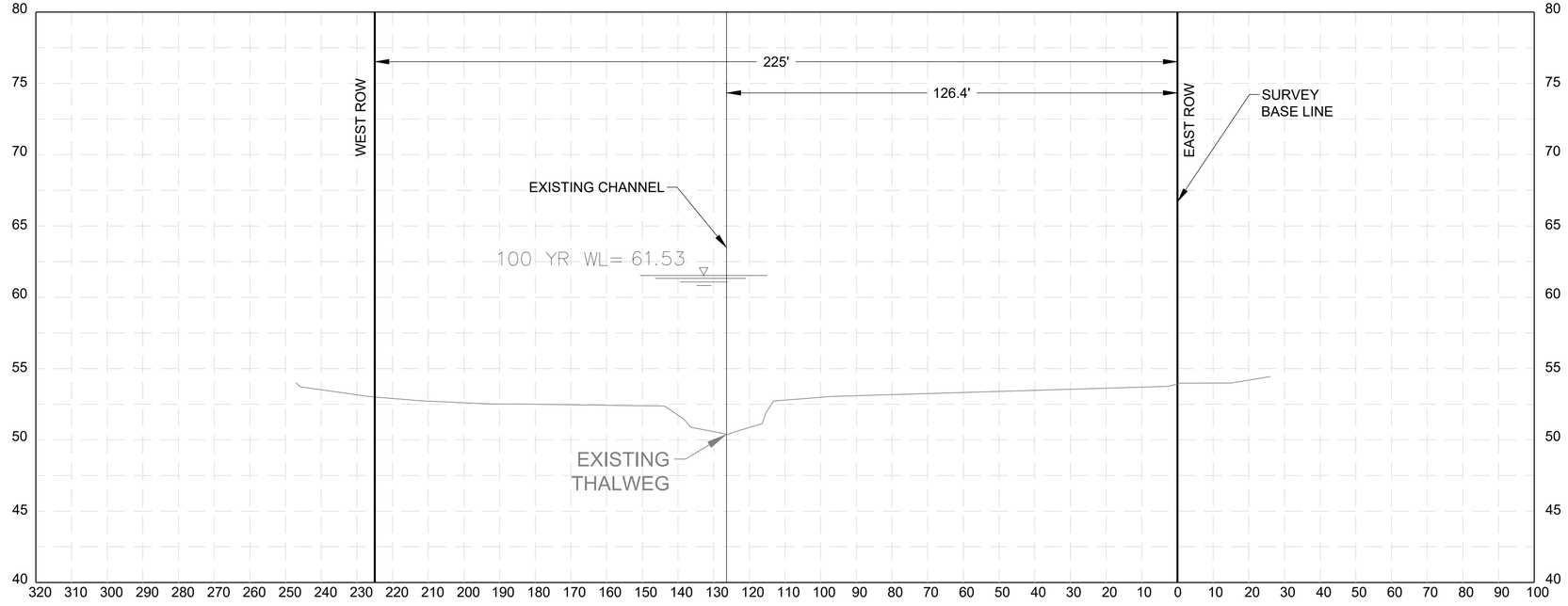


STATION 20+00



STATION 21+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 11

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		40 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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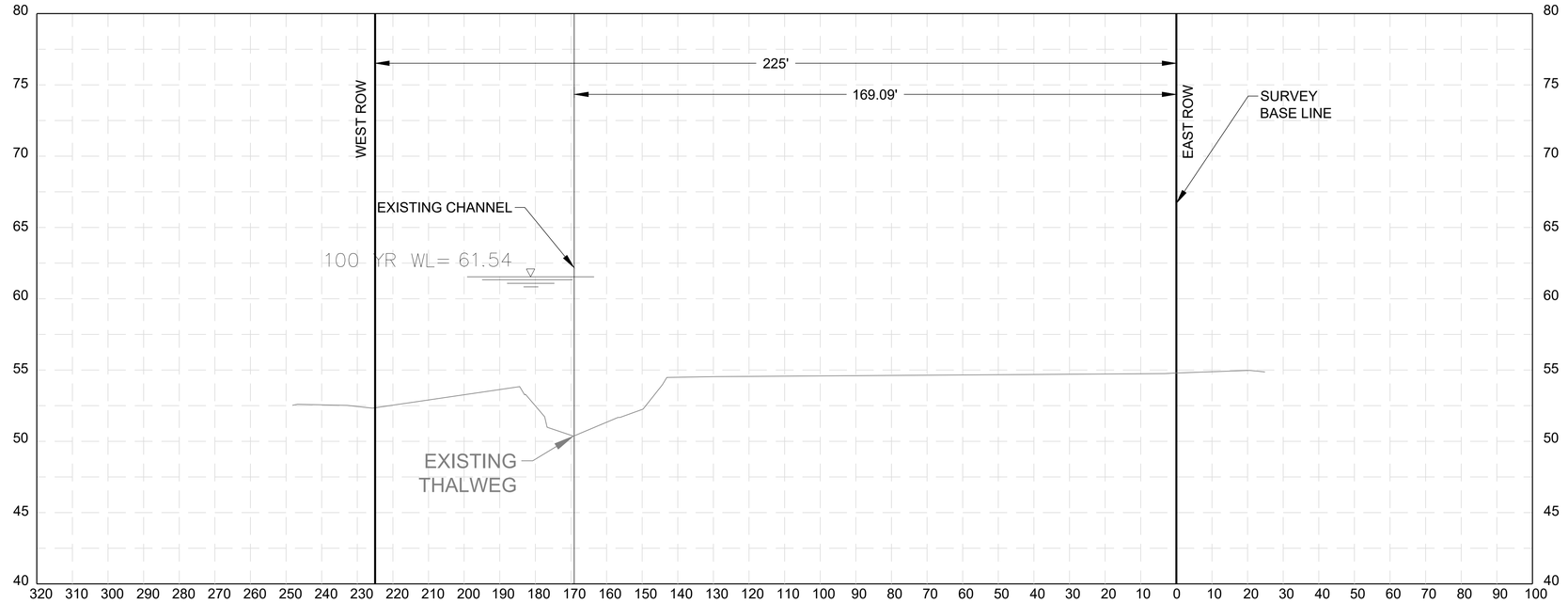
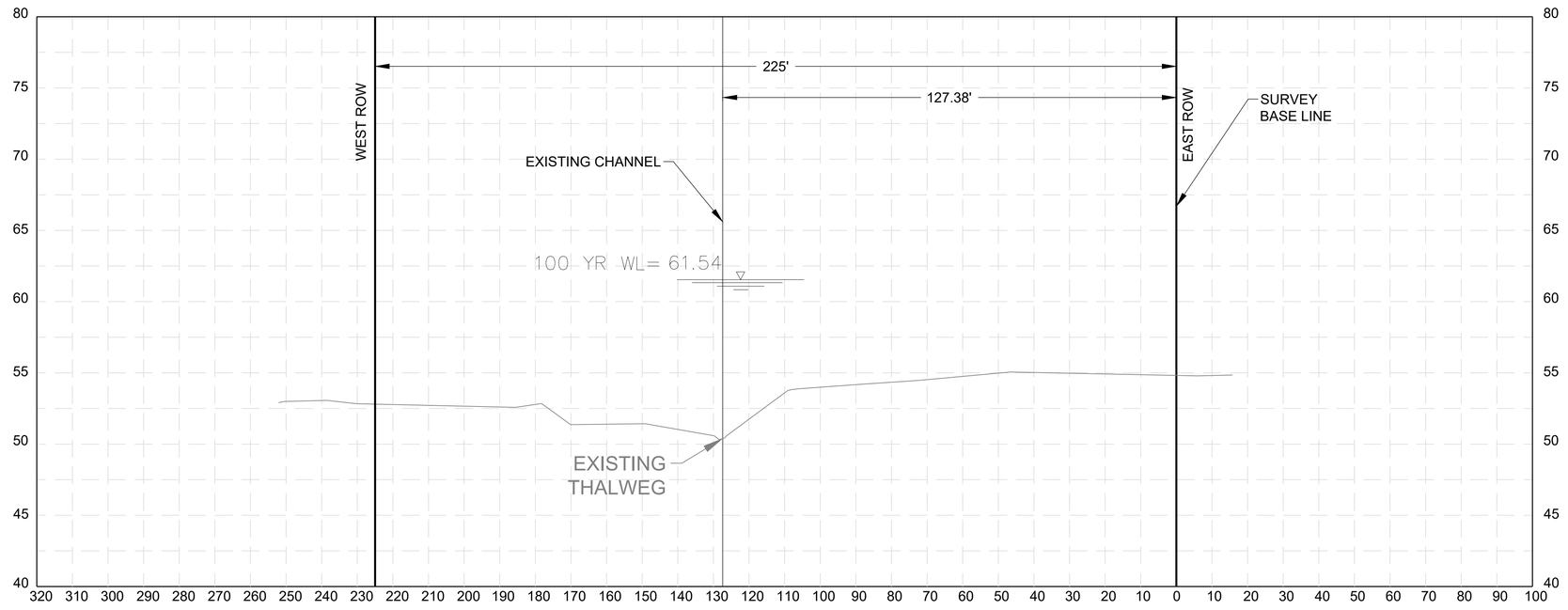


STATION 22+00



STATION 23+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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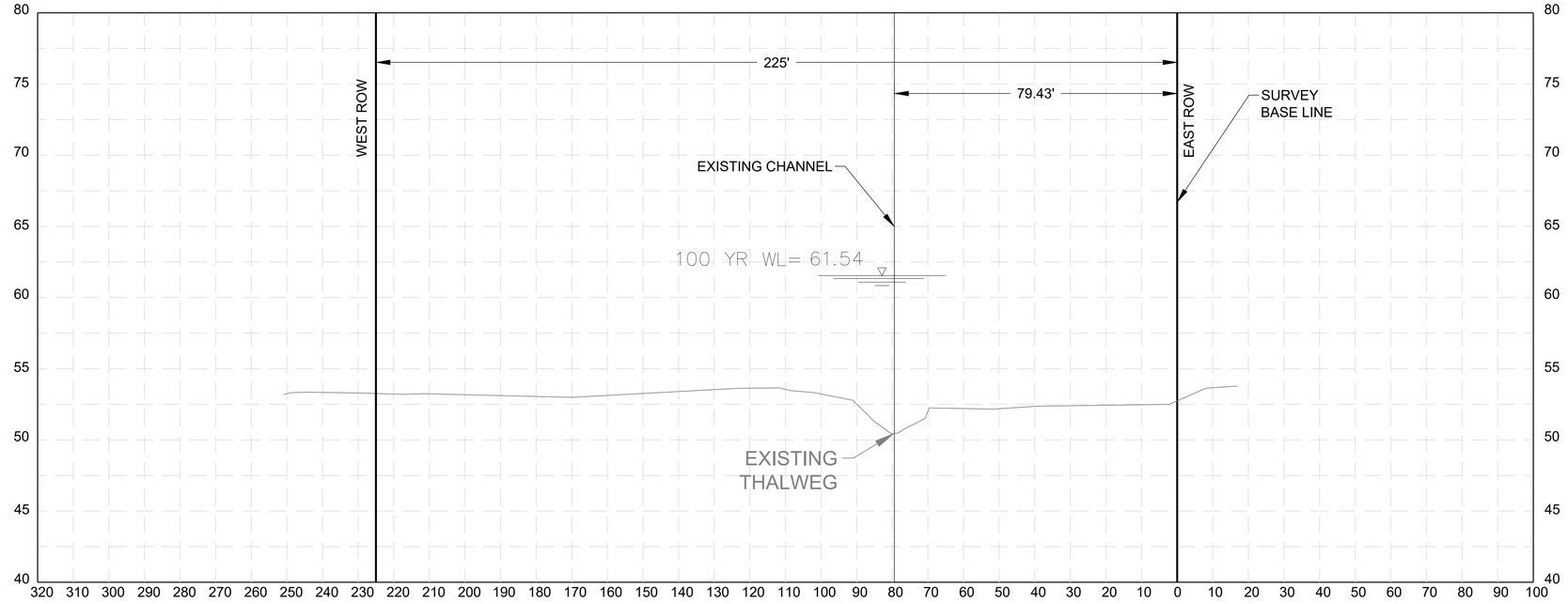
STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

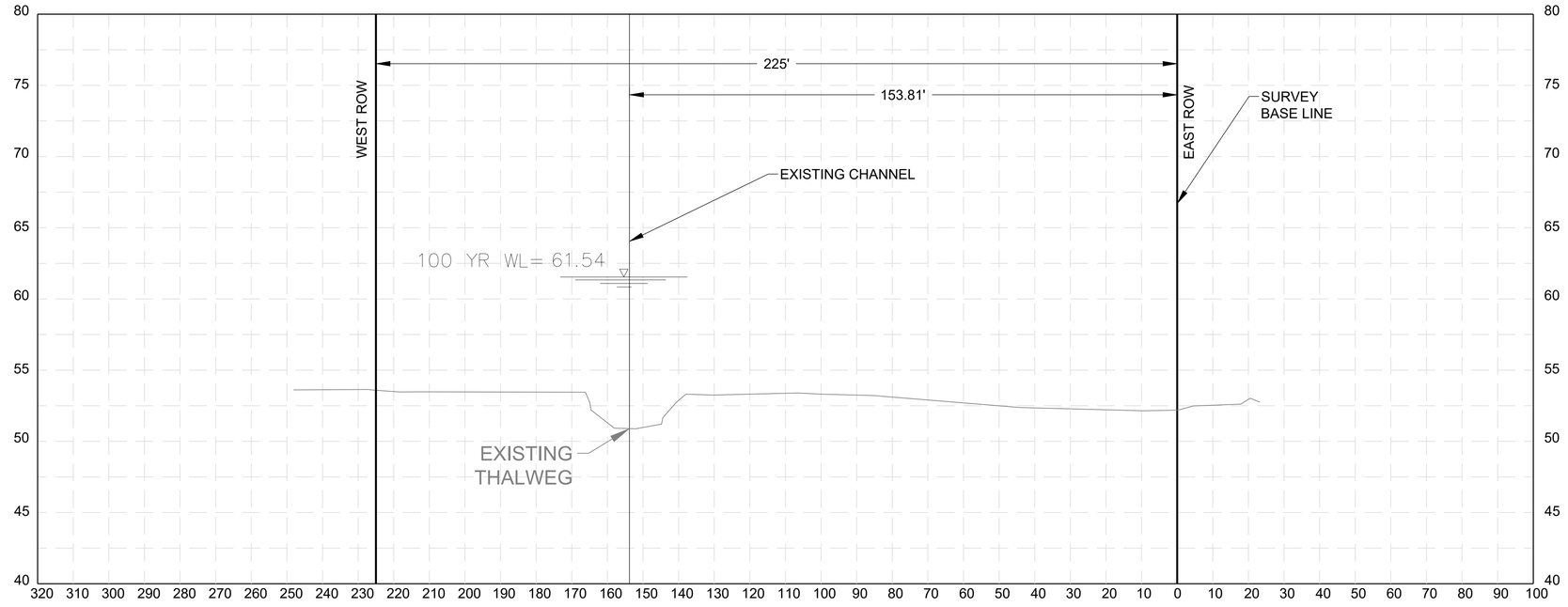
LONG POINT CREEK
SECTION SHEET 12

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		41 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 24+00



STATION 25+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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STATE OF TEXAS
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118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 13

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		42 OF 116

DWN: CK: DW: CK:

DATE:
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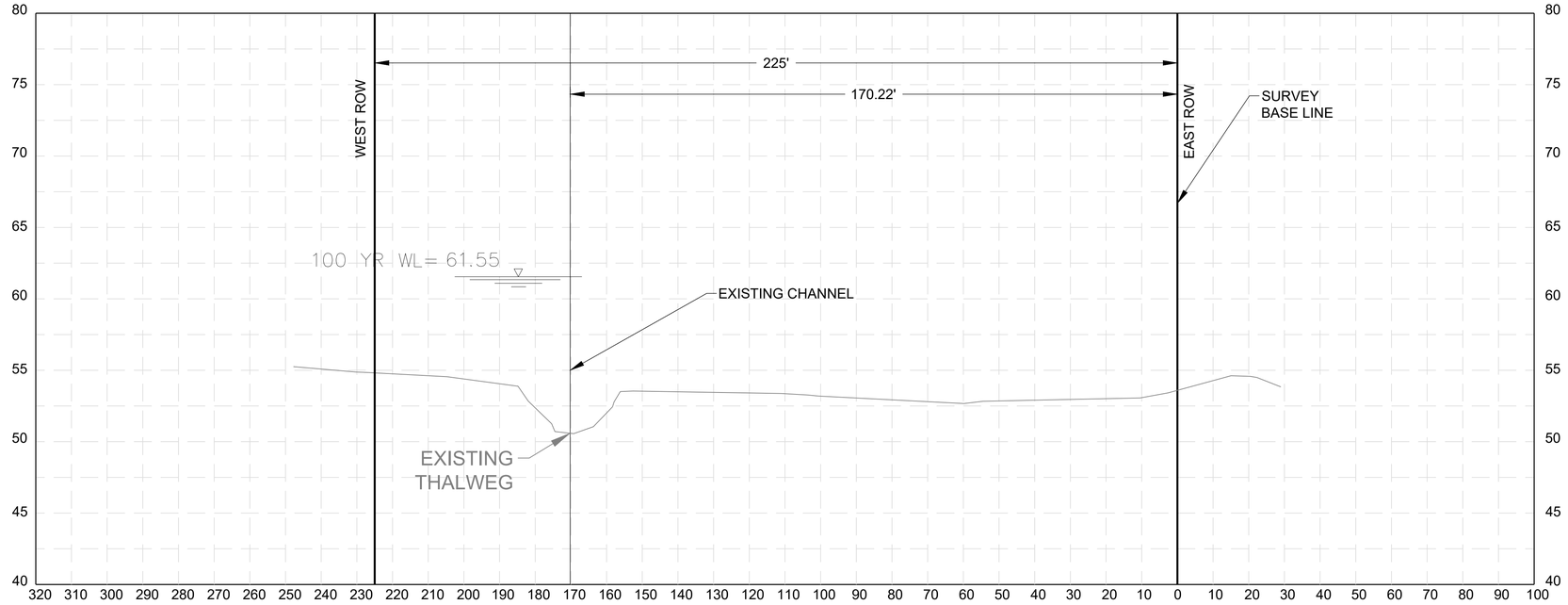
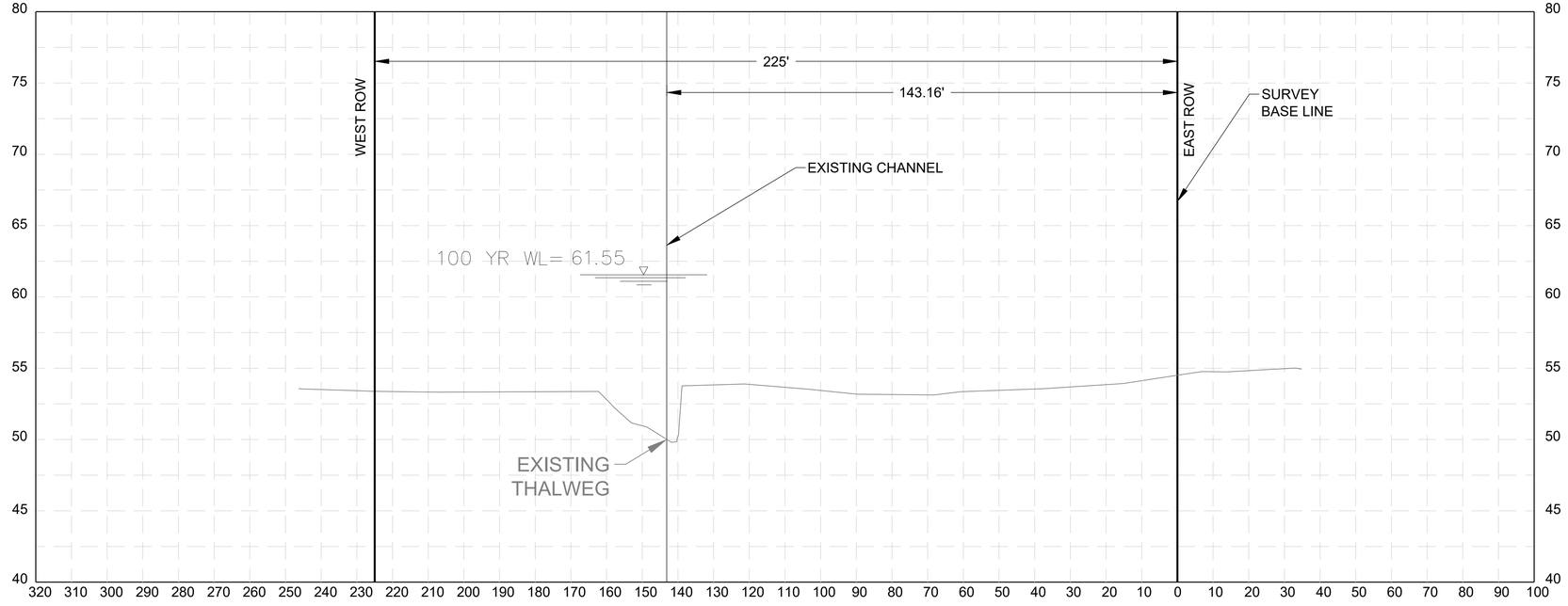


STATION 26+00



STATION 27+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 14

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		43 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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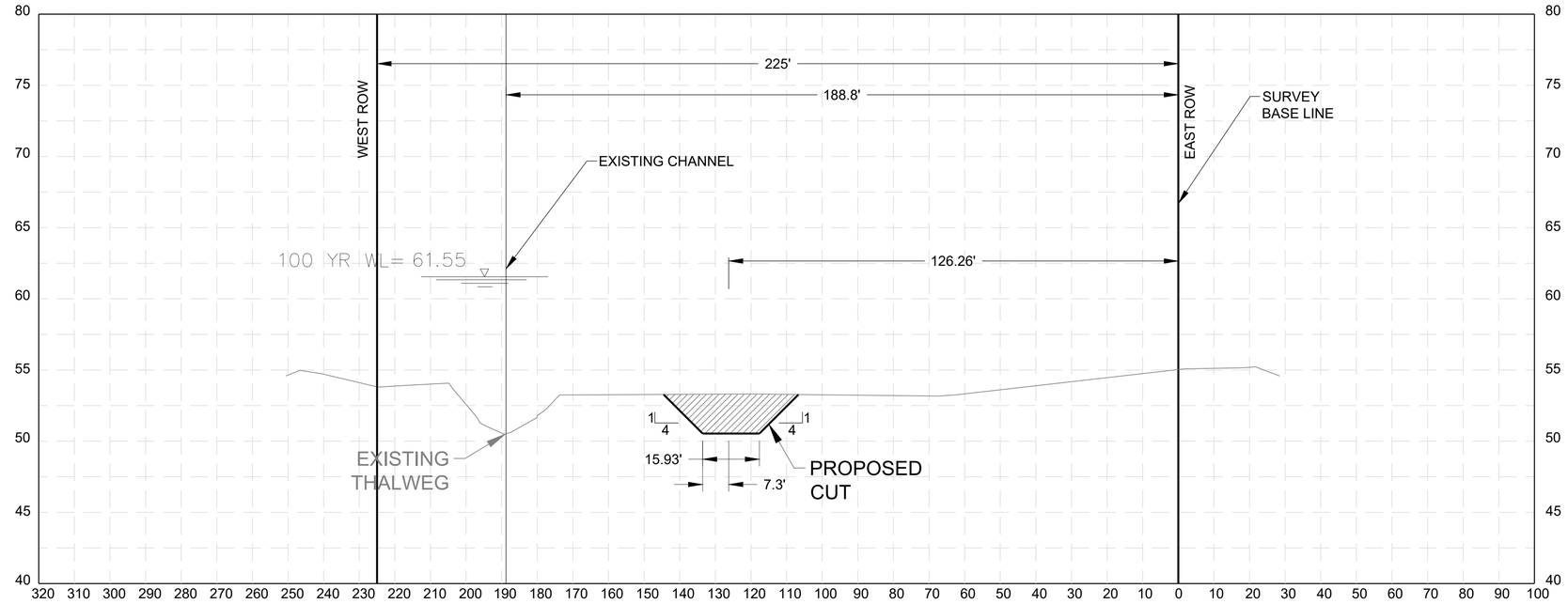
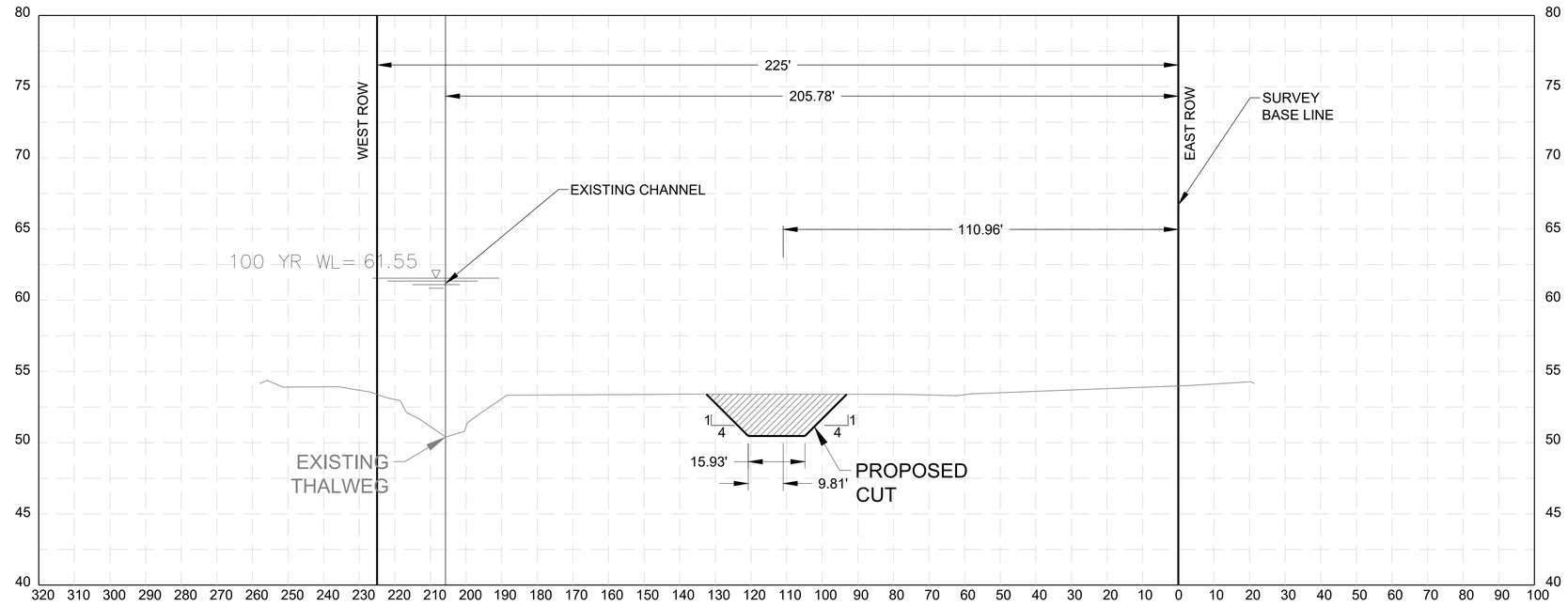


STATION 28+00



STATION 29+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 15

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		44 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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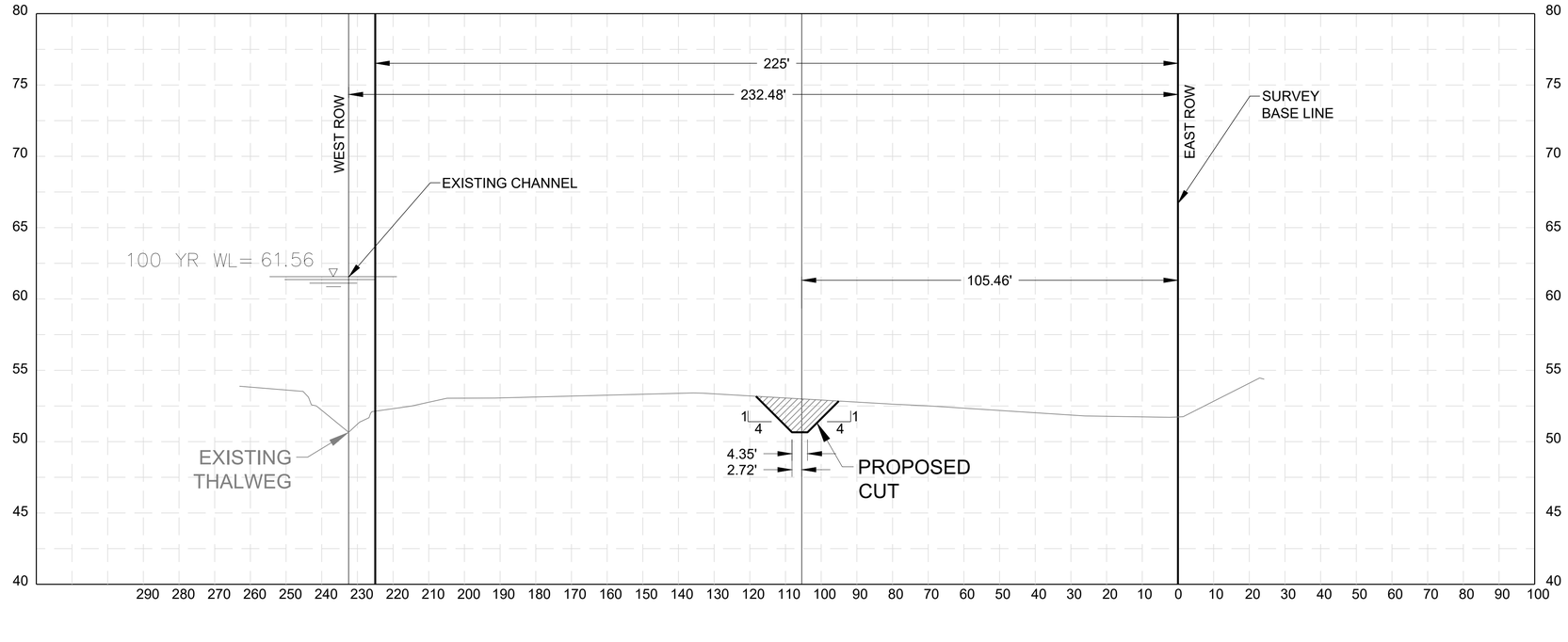
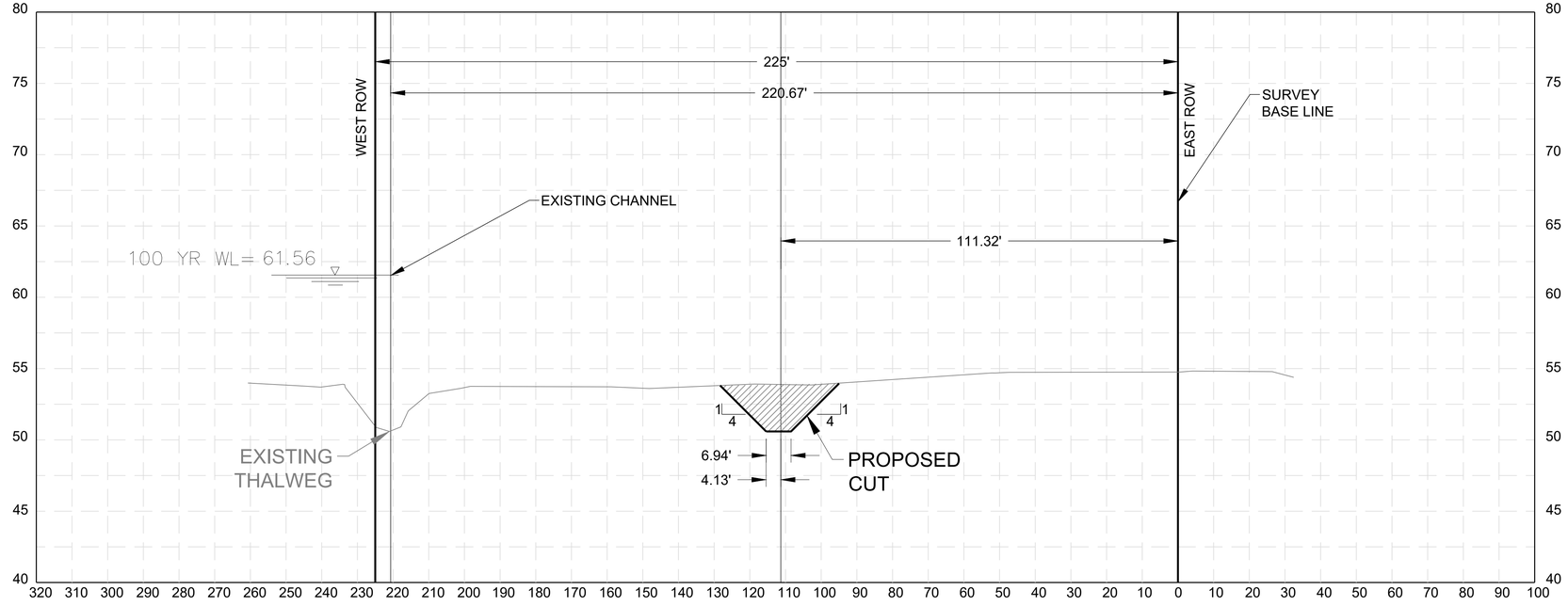


STATION 30+00



STATION 31+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 16

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		45 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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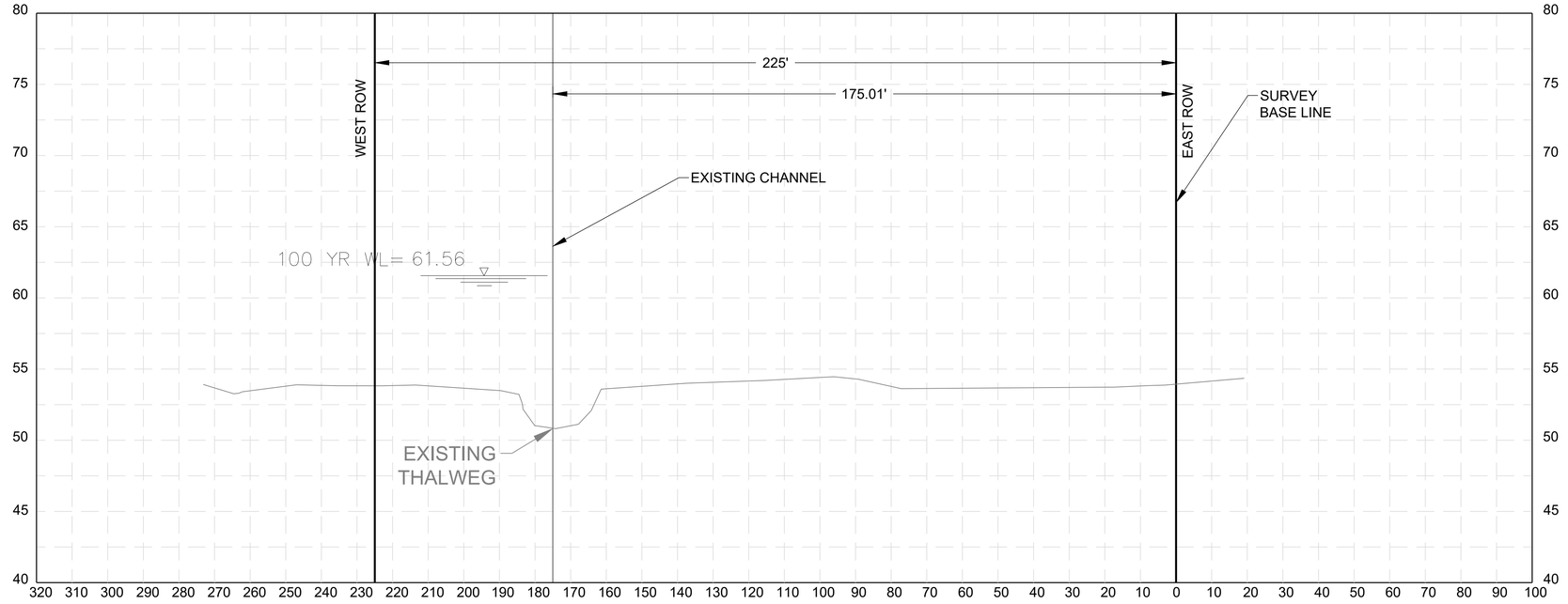
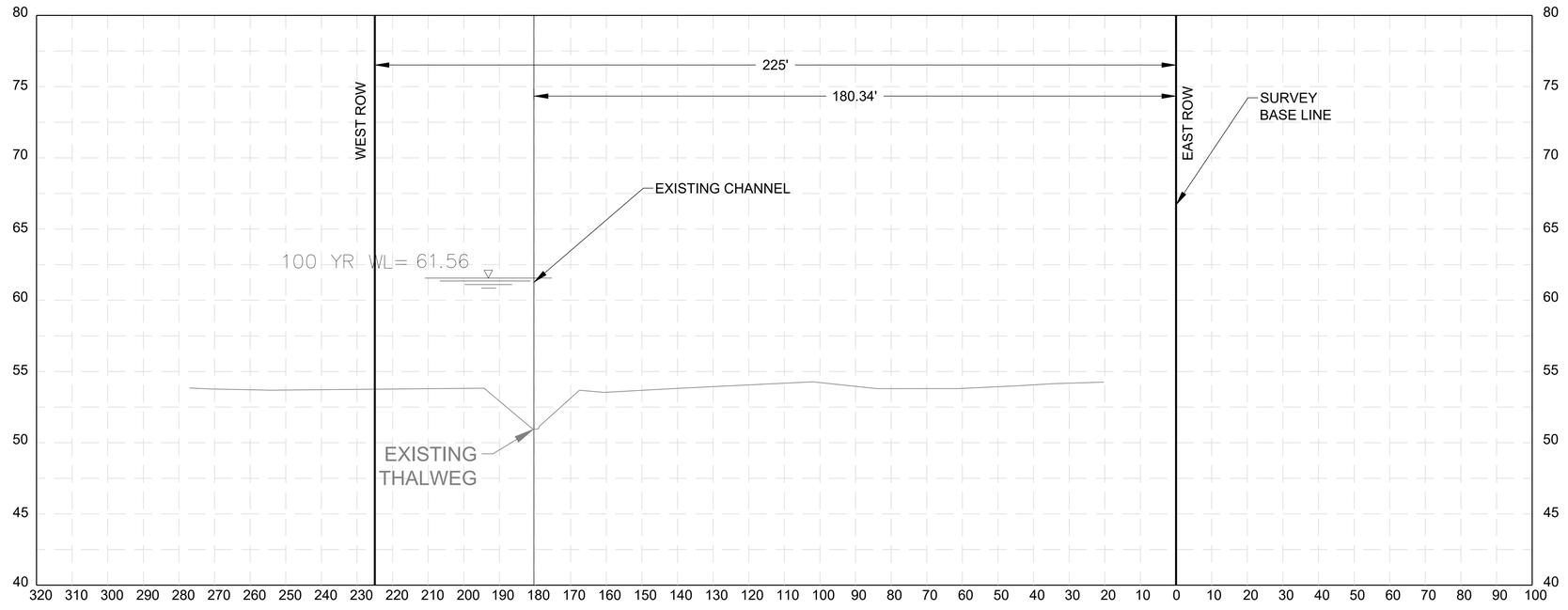


STATION 32+00



STATION 33+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 17

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		46 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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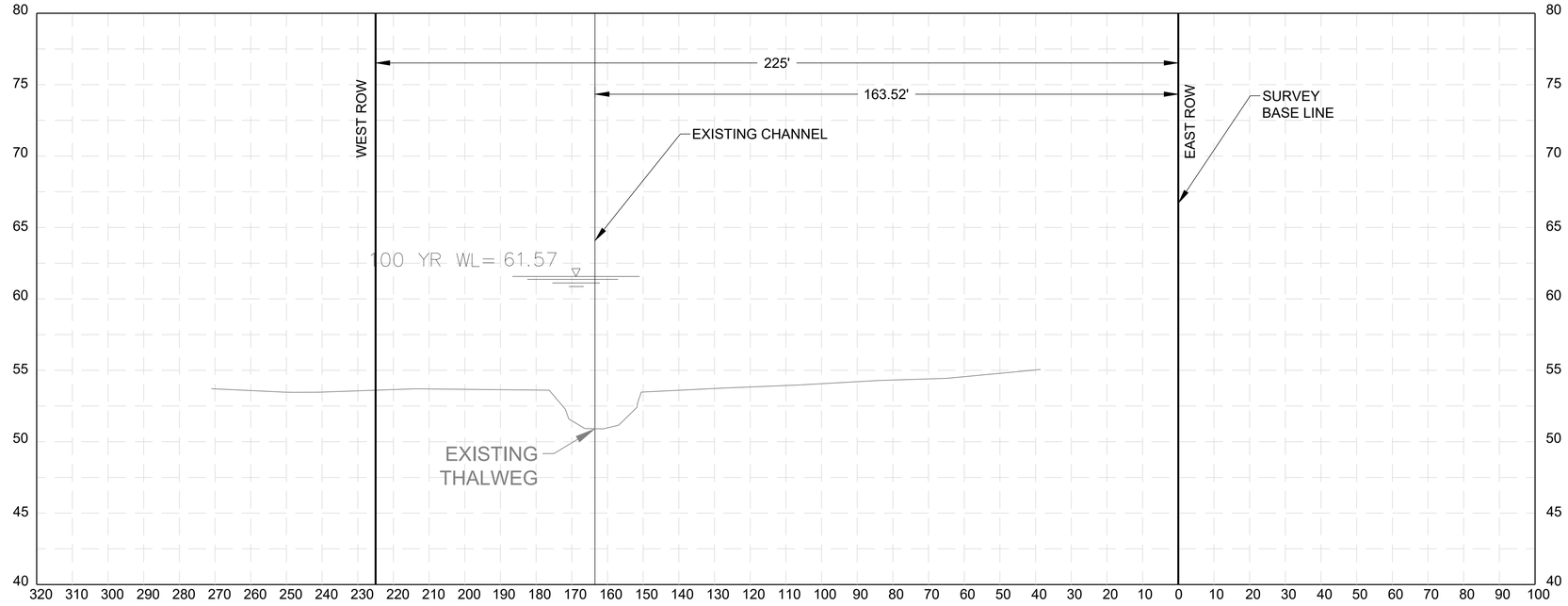
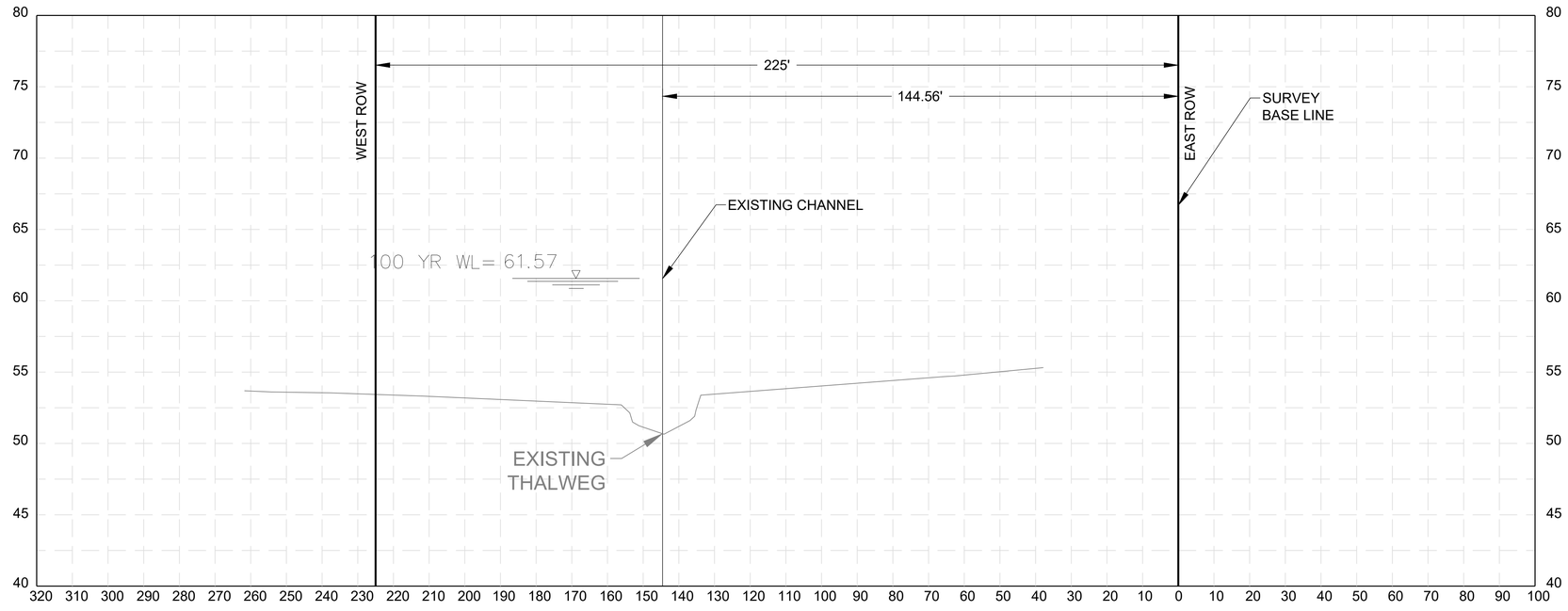


STATION 34+00



STATION 35+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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HOUSTON, TX 77036
PH. 832-834-3430

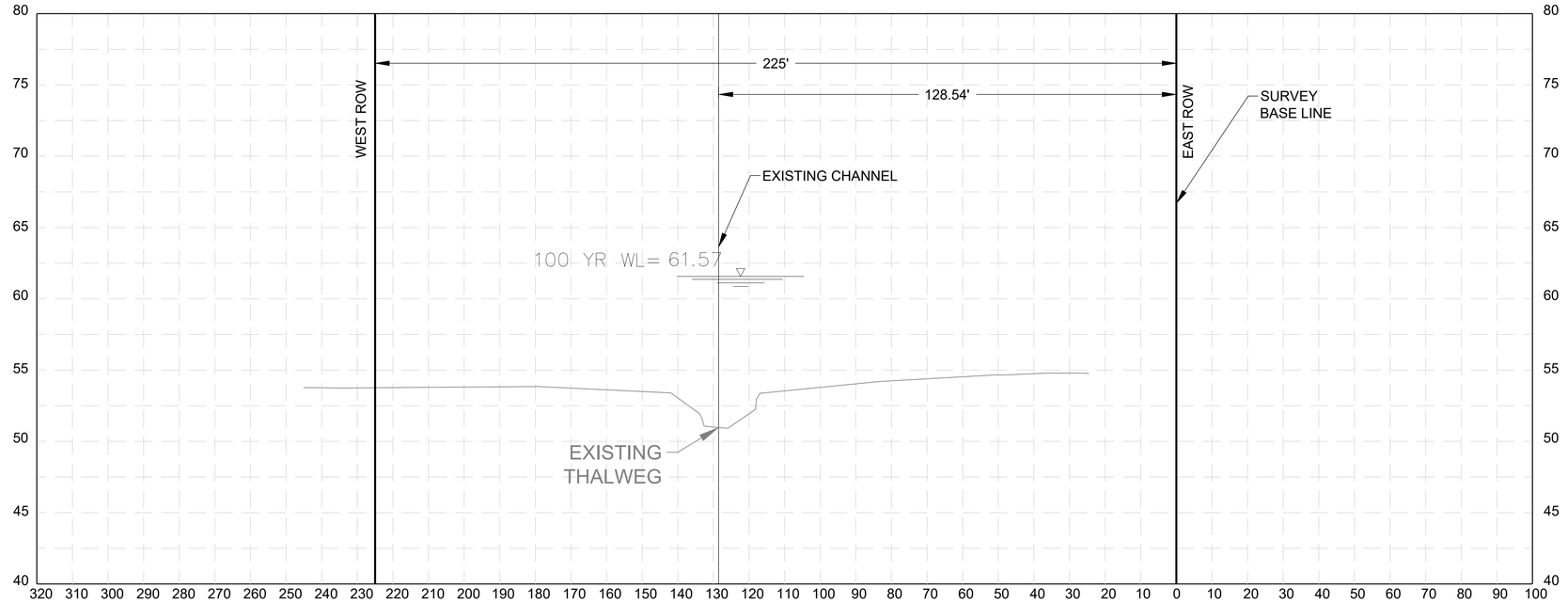
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

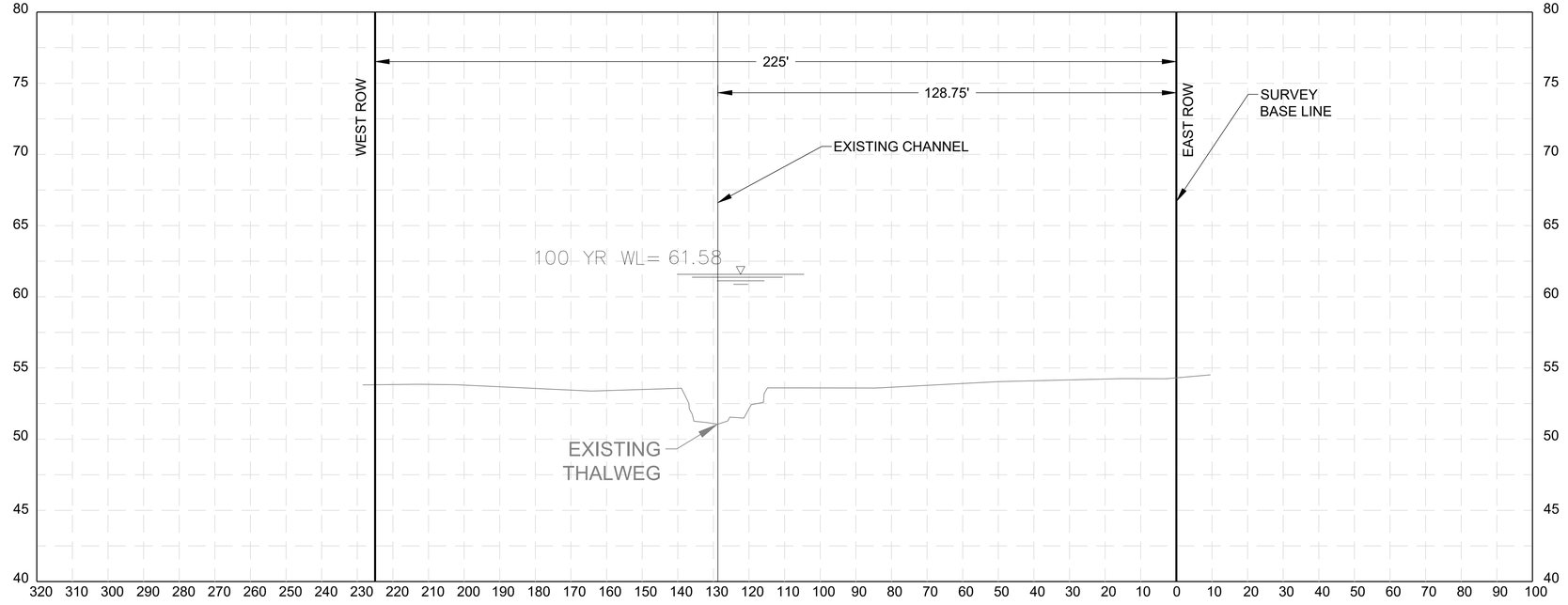
LONG POINT CREEK
SECTION SHEET 18

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		47 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 36+00



STATION 37+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 19

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		48 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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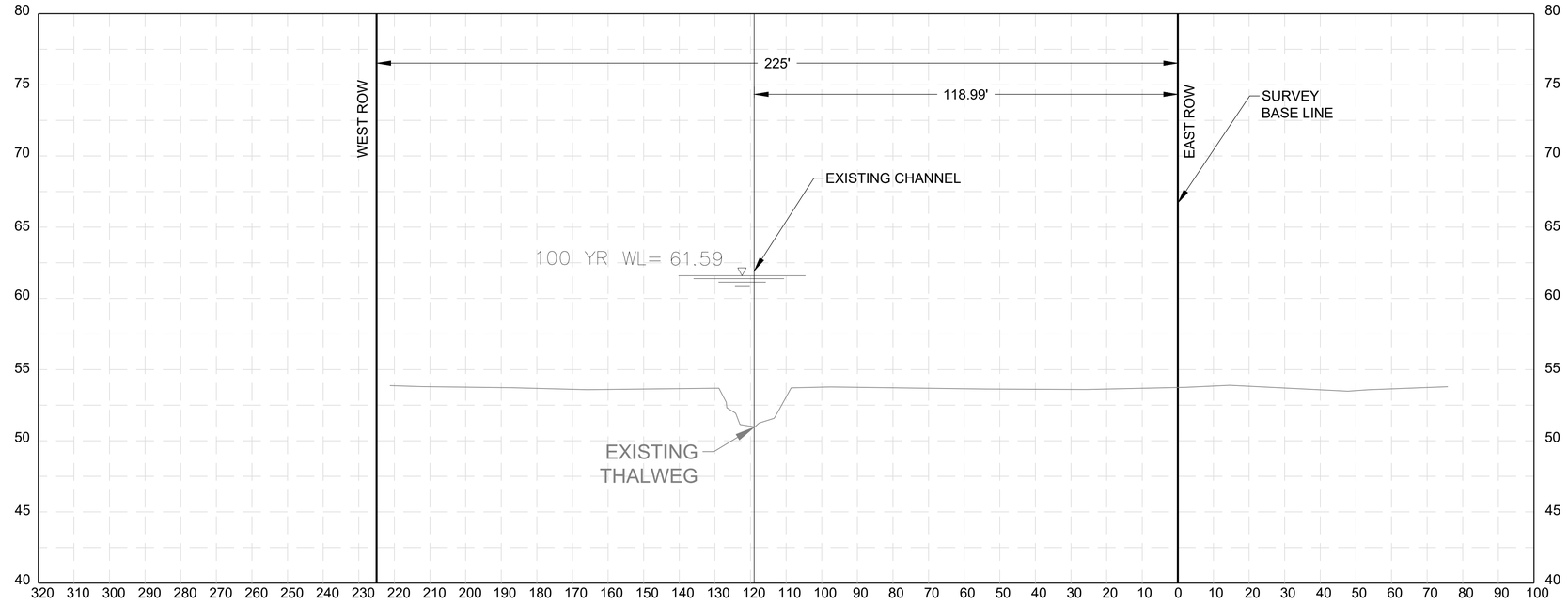
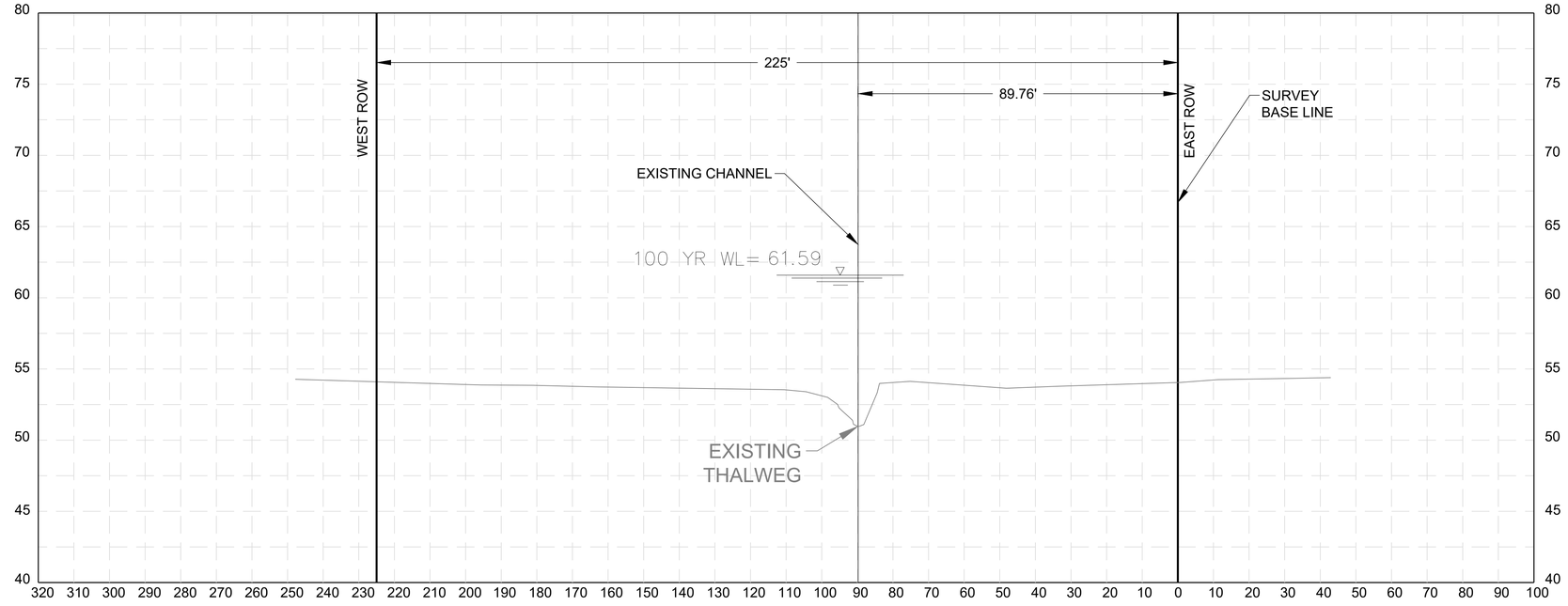


STATION 38+00



STATION 39+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

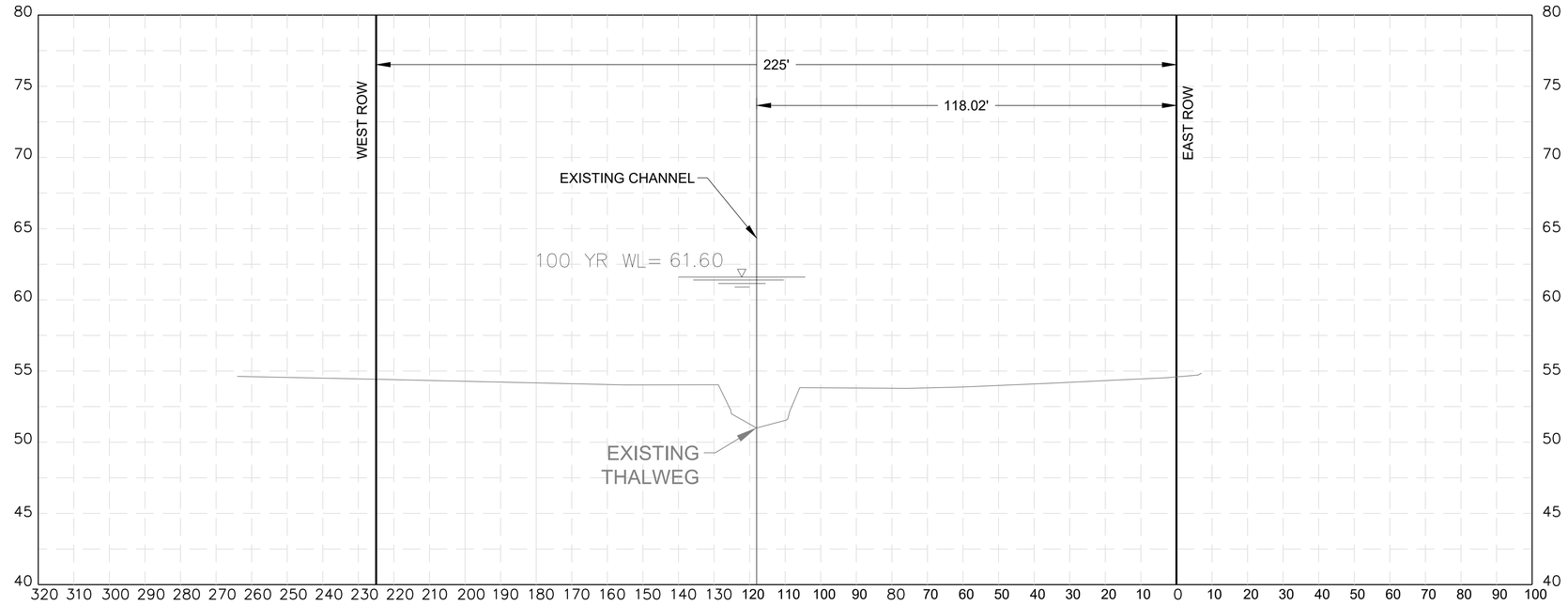
LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 20

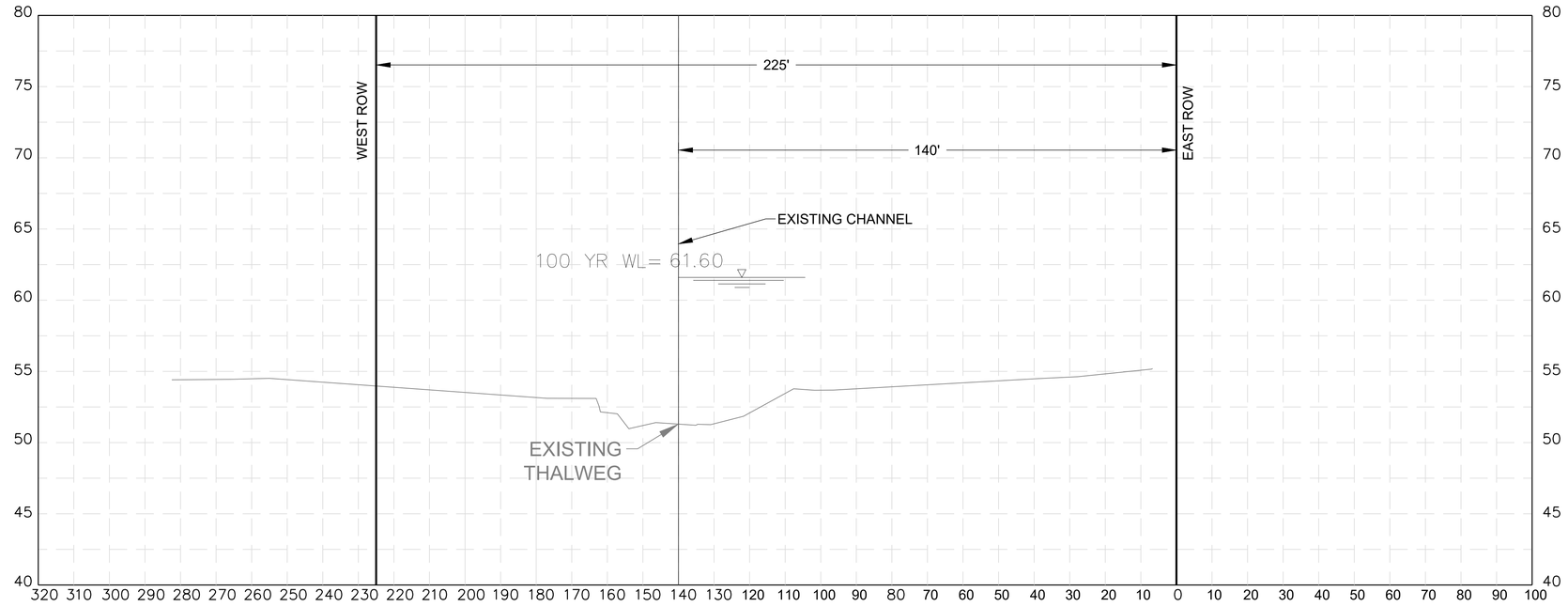
SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		49 OF 116

DW: CK: DW: CK:

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 40+00



STATION 41+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-10628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 21

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		50 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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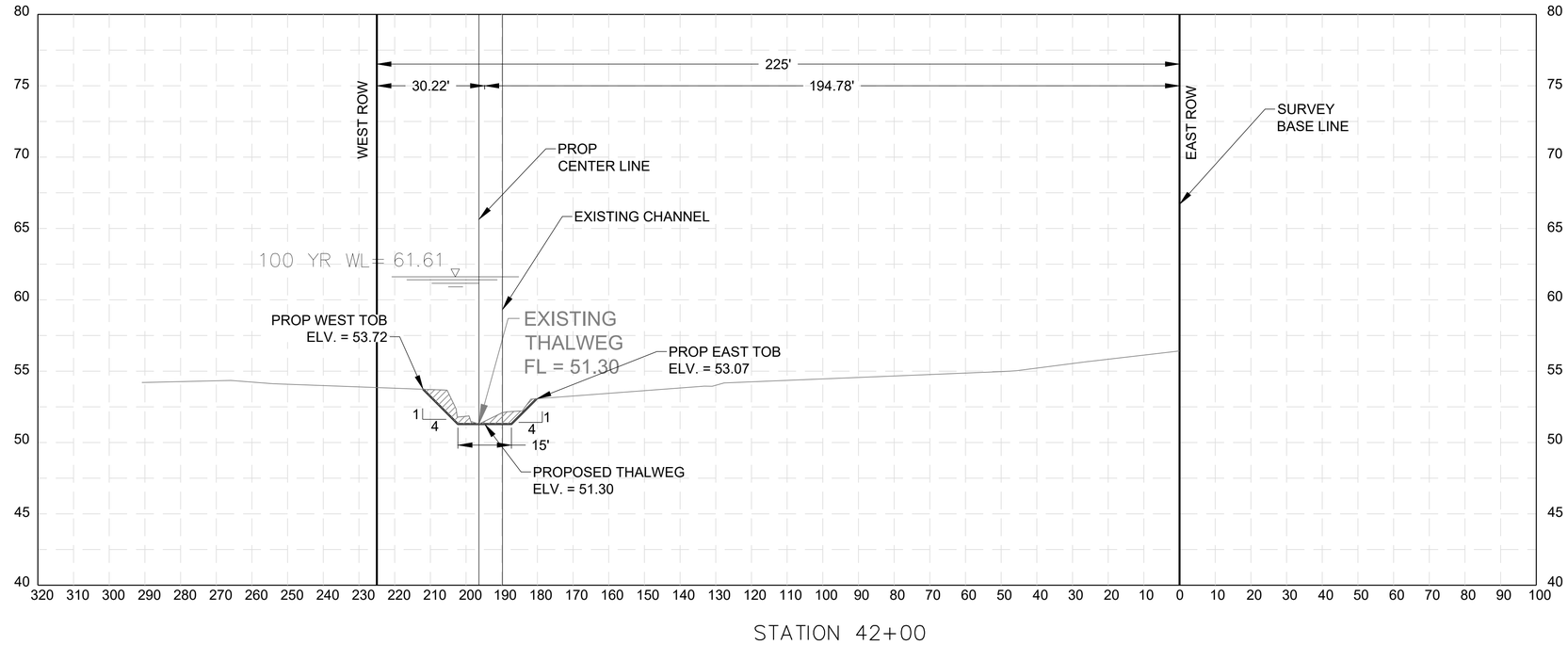
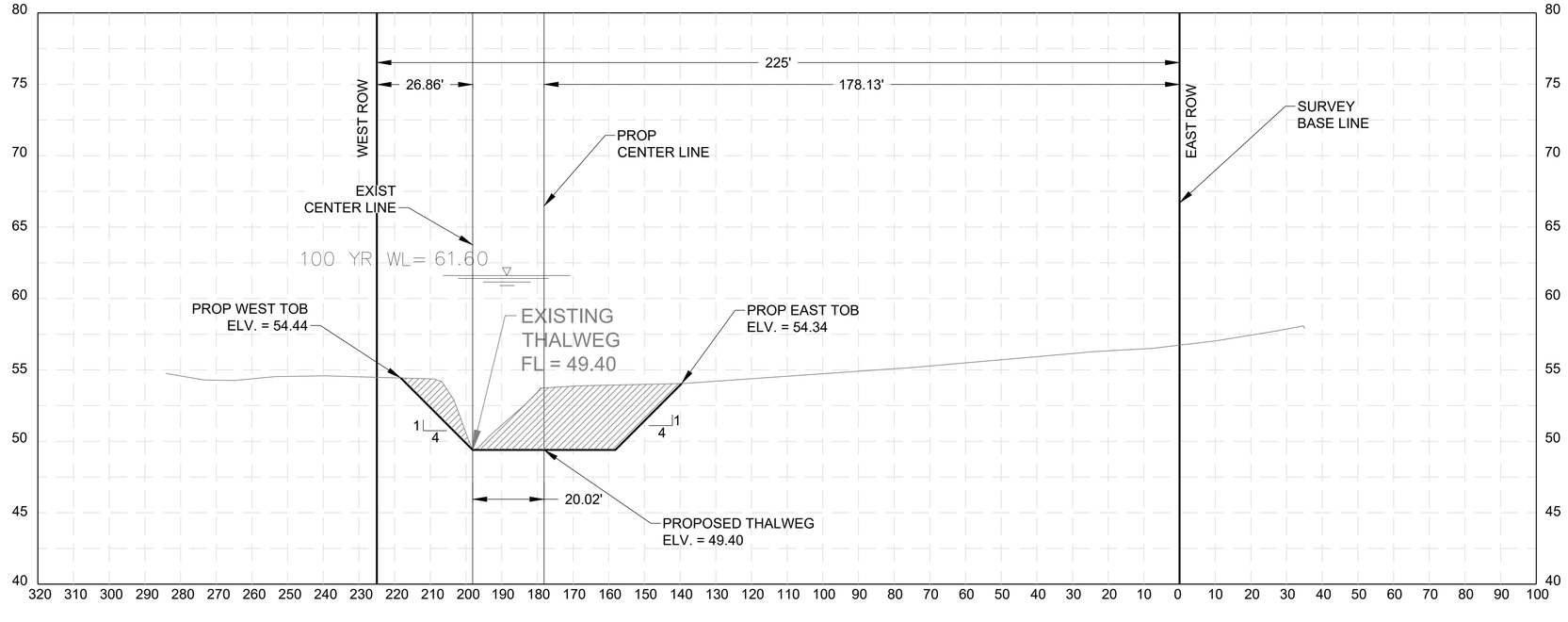


STATION 42+00



STATION 43+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 22

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		51 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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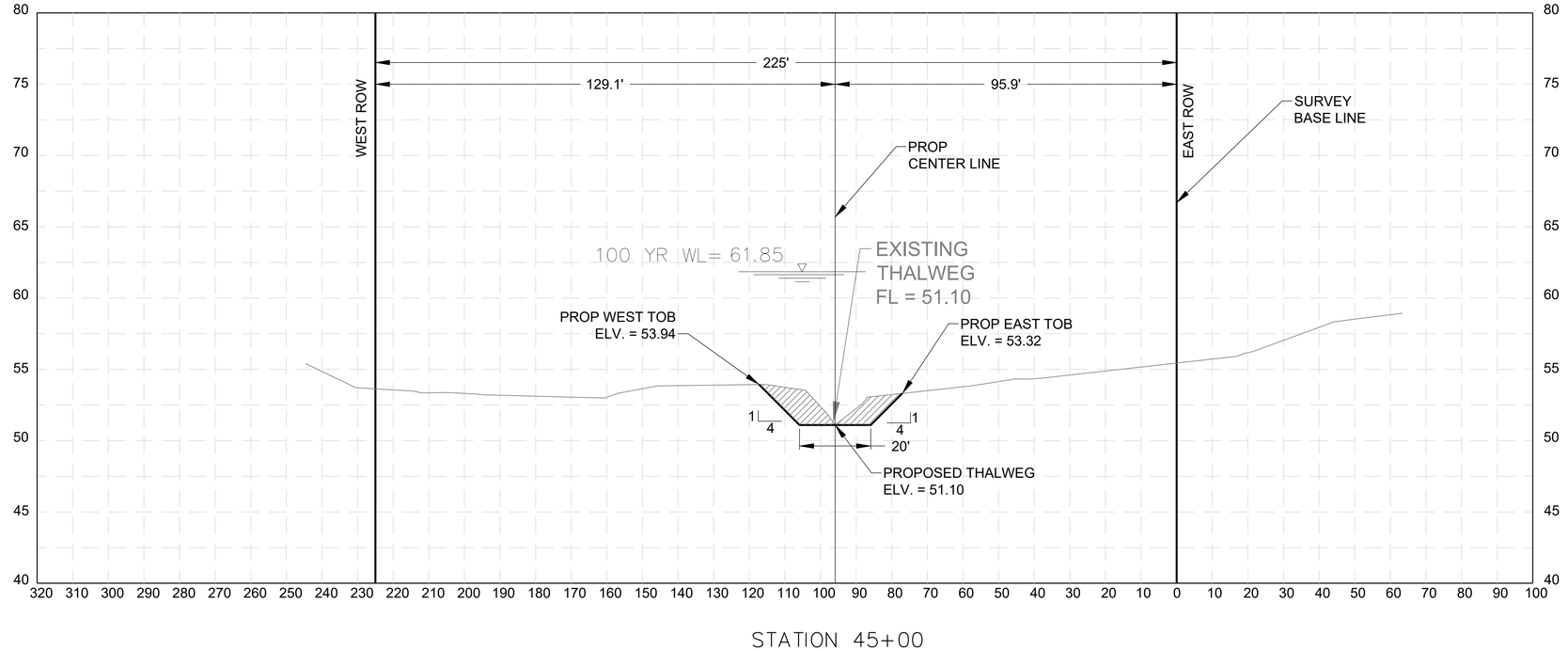
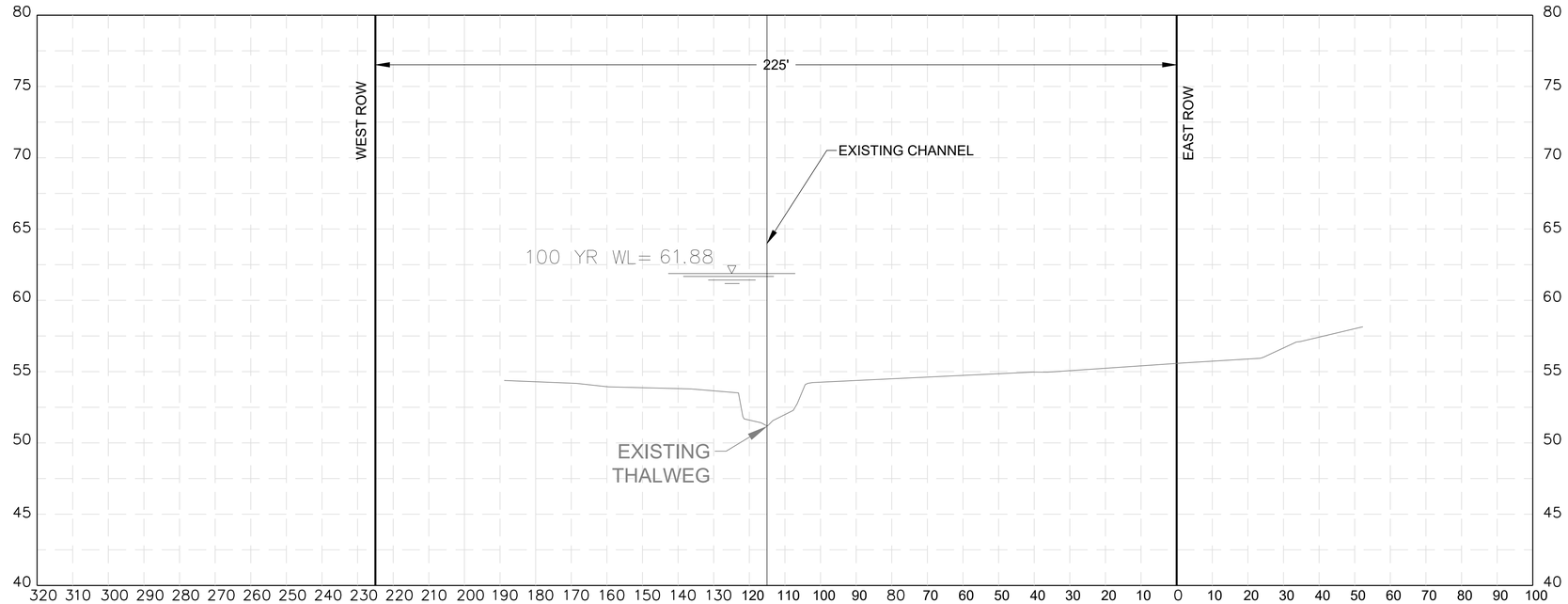


STATION 45+00



STATION 46+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET , ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

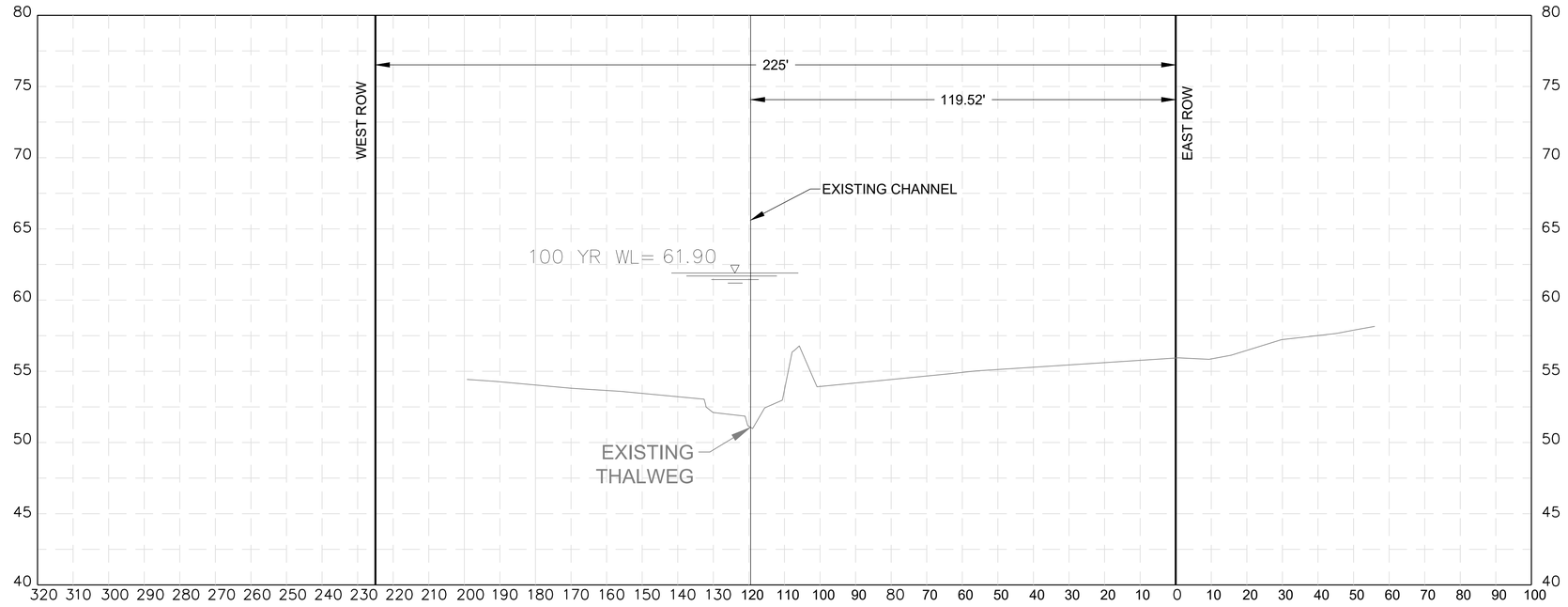
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

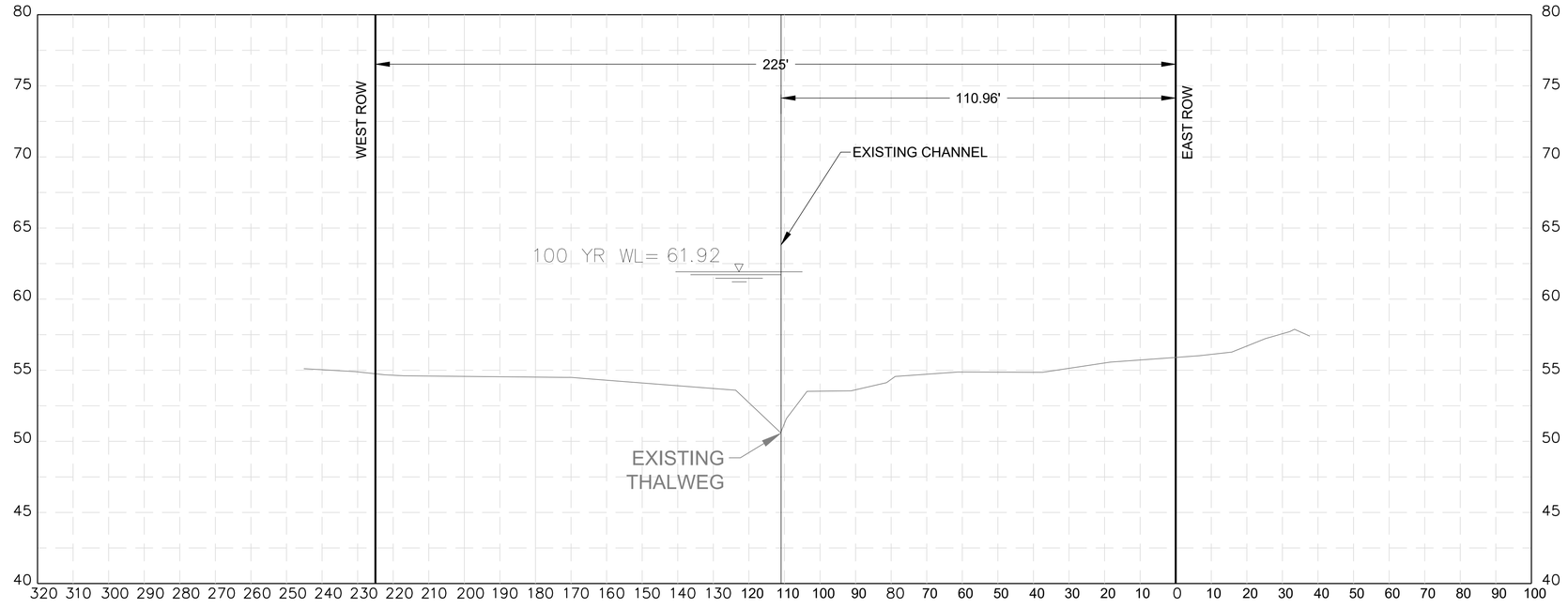
LONG POINT CREEK
SECTION SHEET 23

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		52 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 47+00



STATION 48+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 24

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		53 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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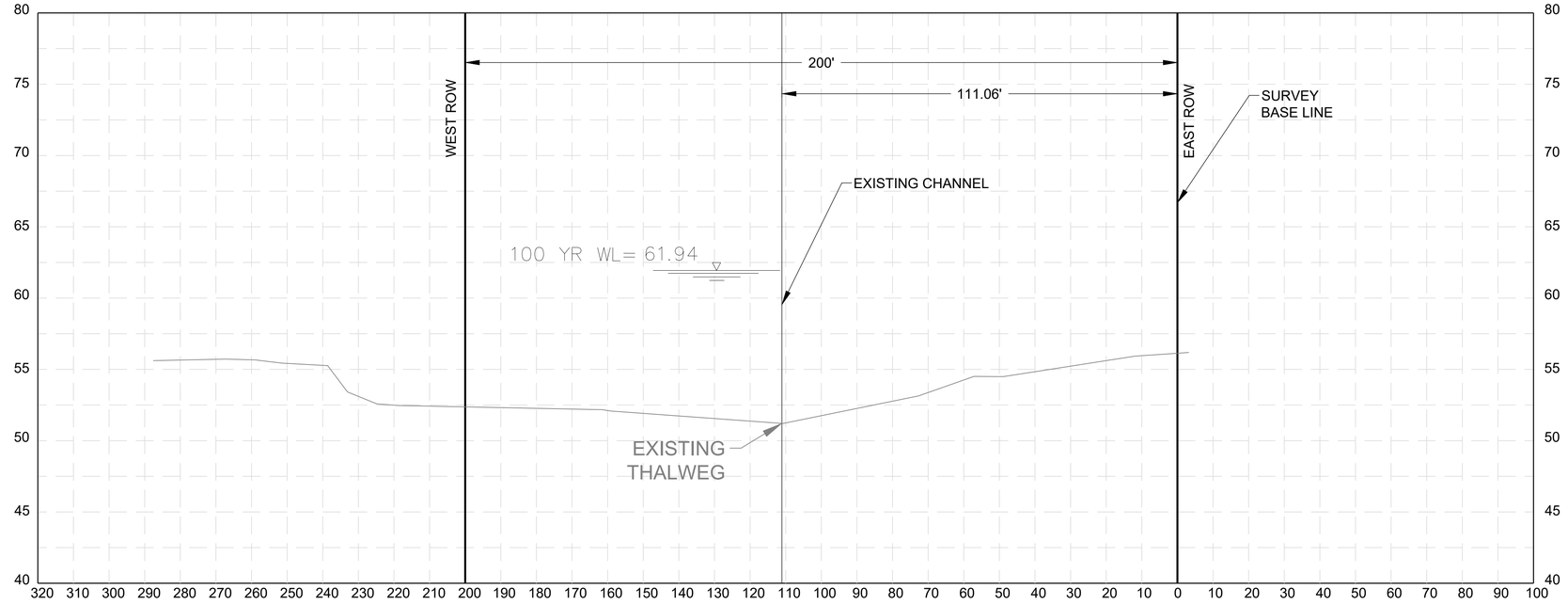
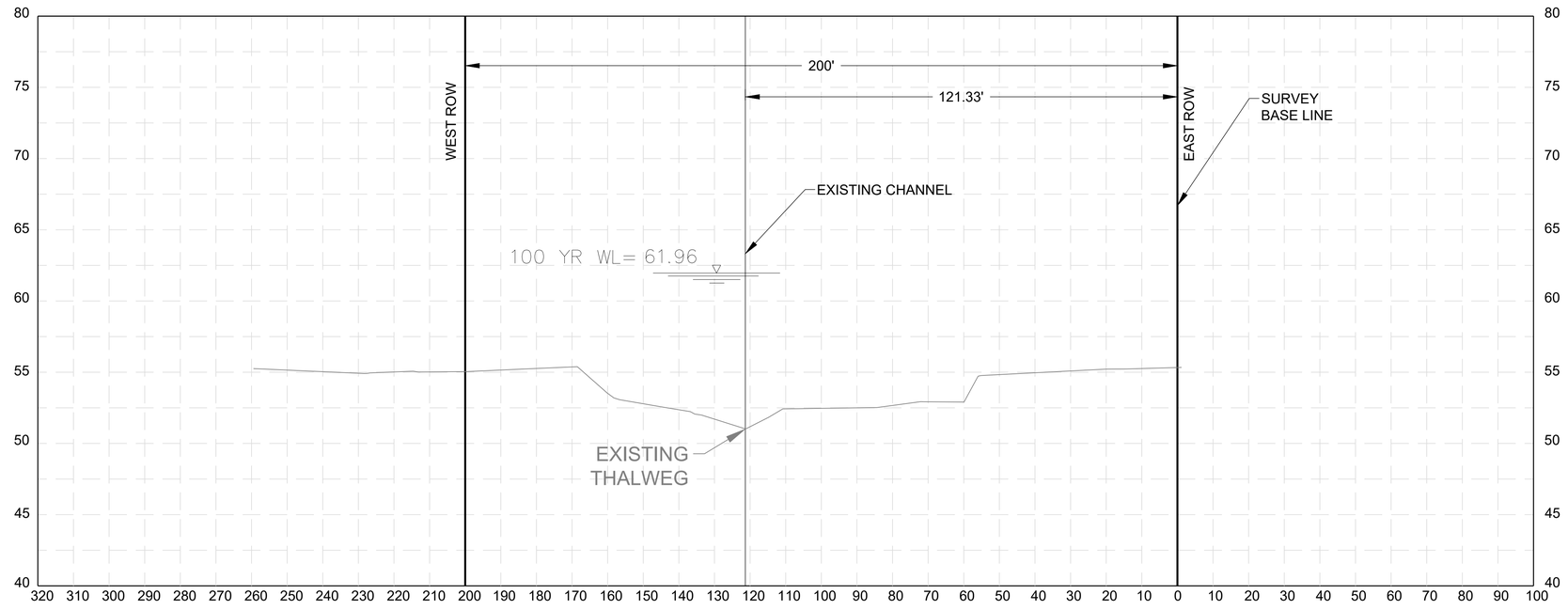


STATION 49+00



STATION 50+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 25

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		54 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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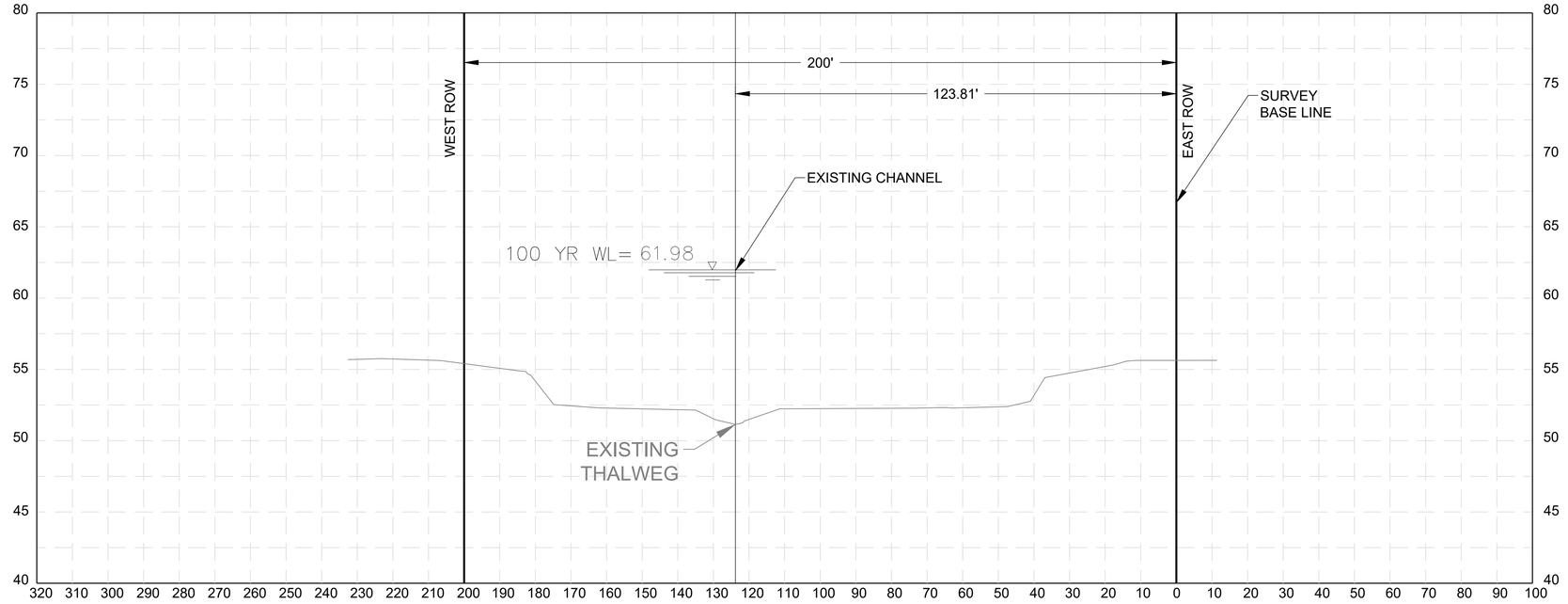
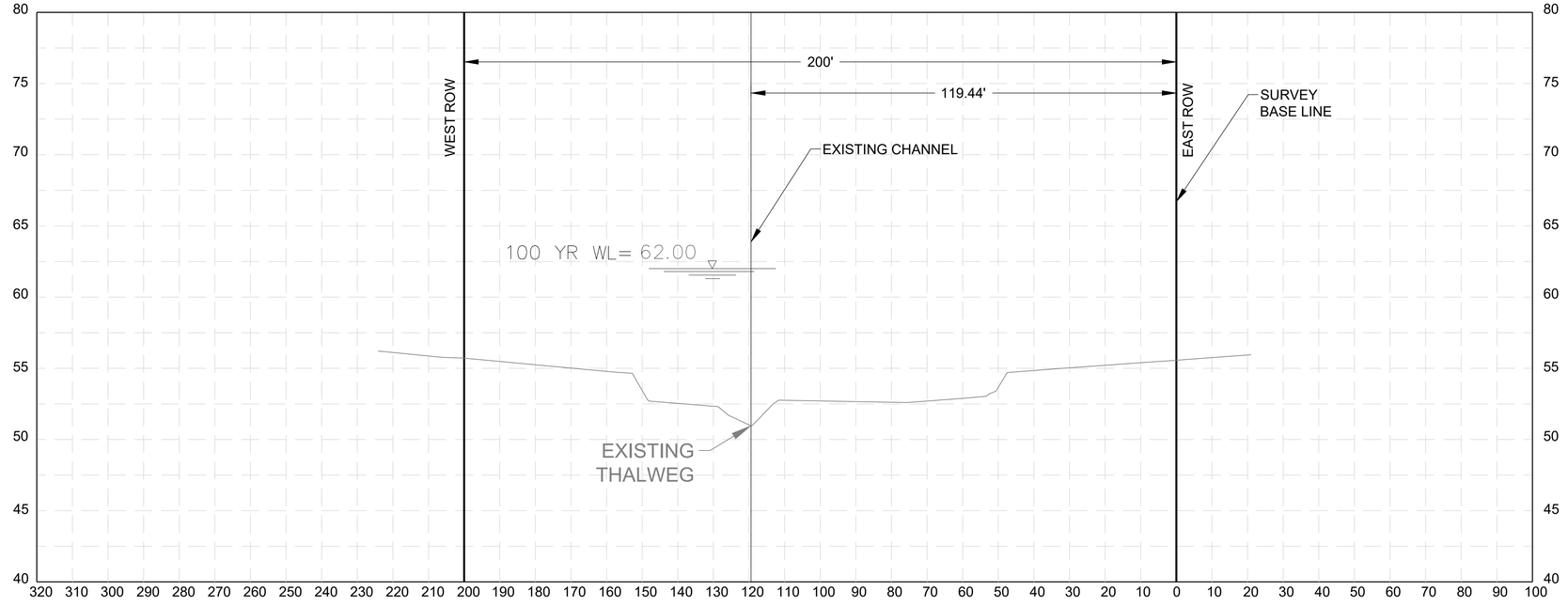


STATION 51+00



STATION 52+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 26

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		55 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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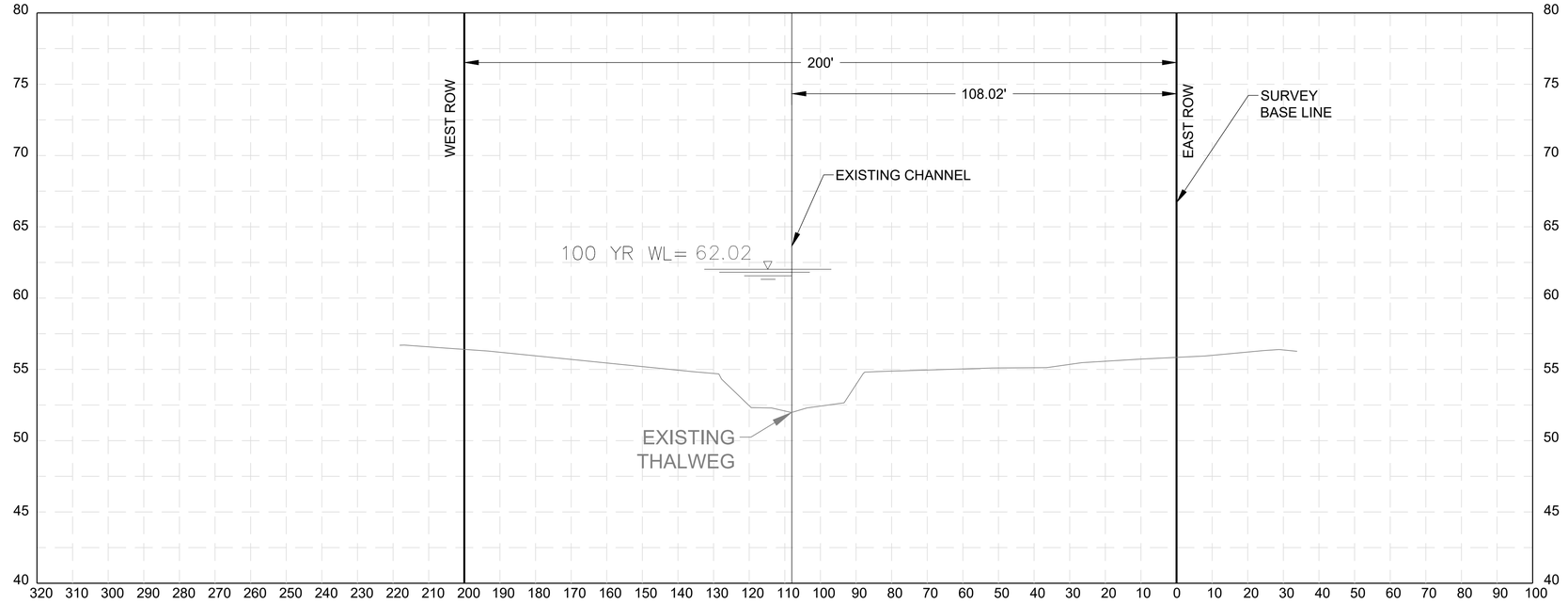
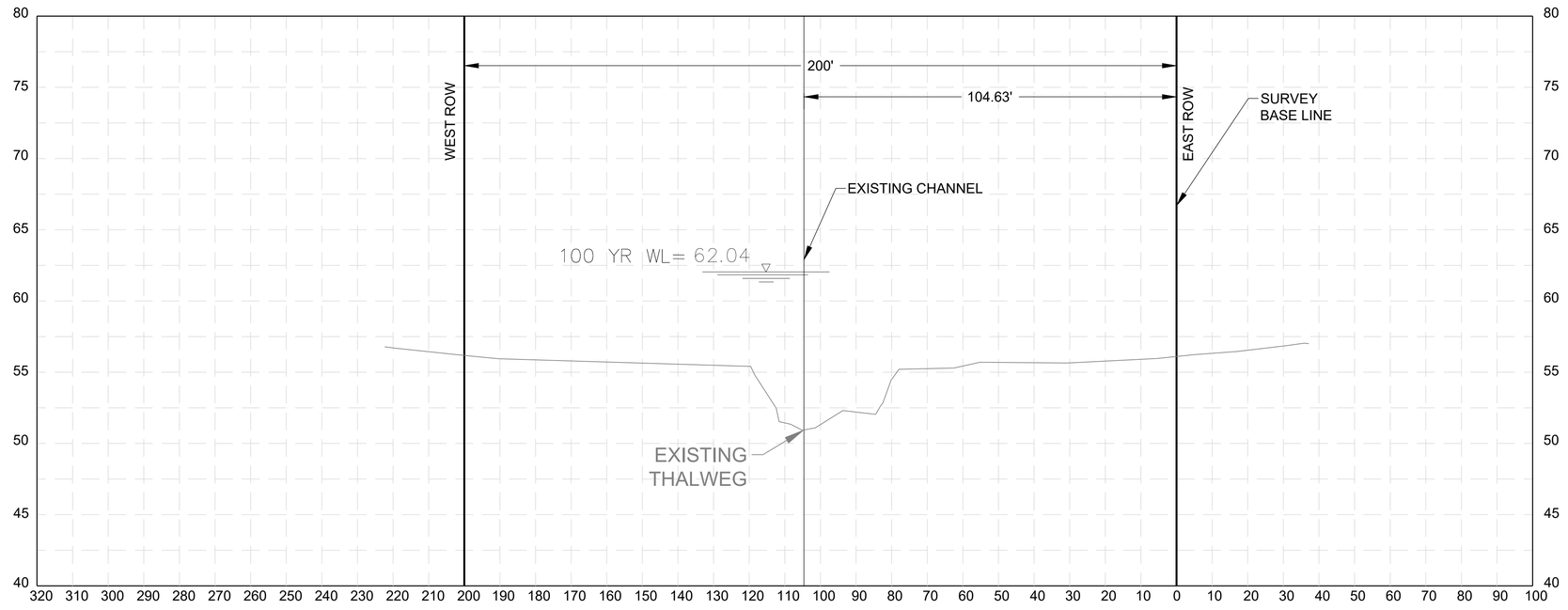


STATION 53+00



STATION 54+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-10628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 27

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		56 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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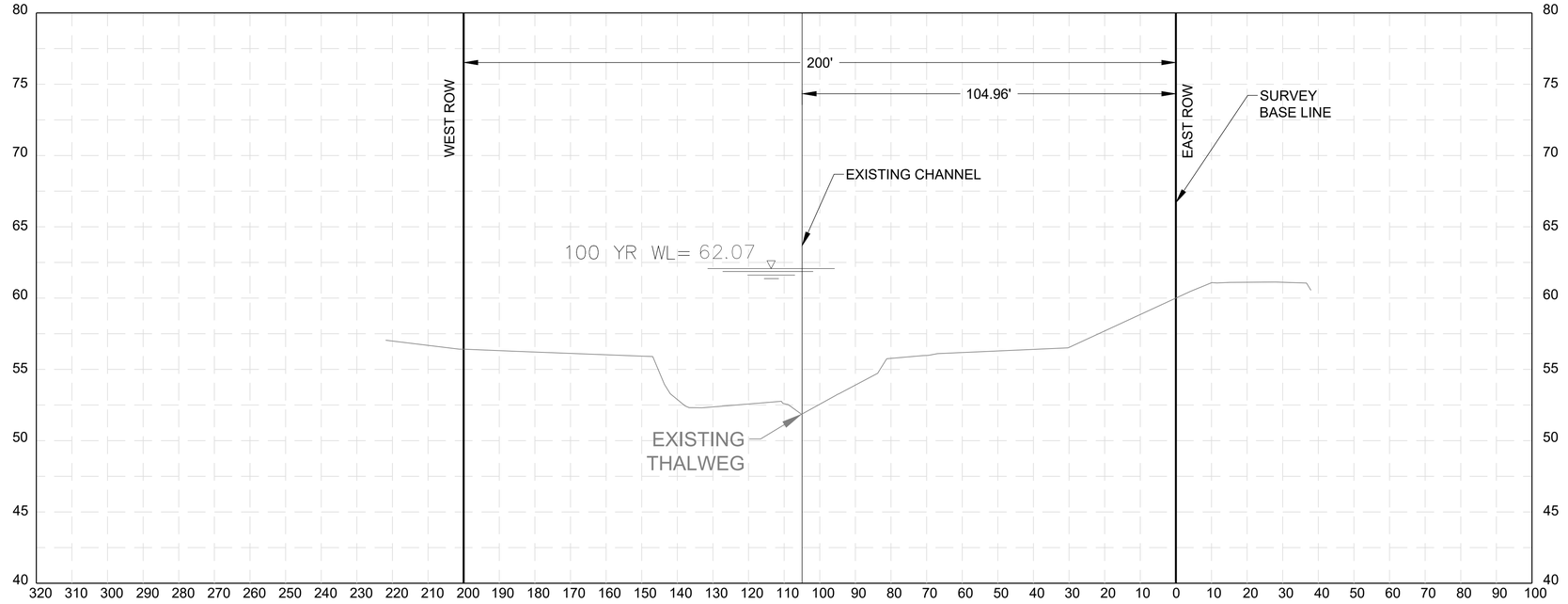
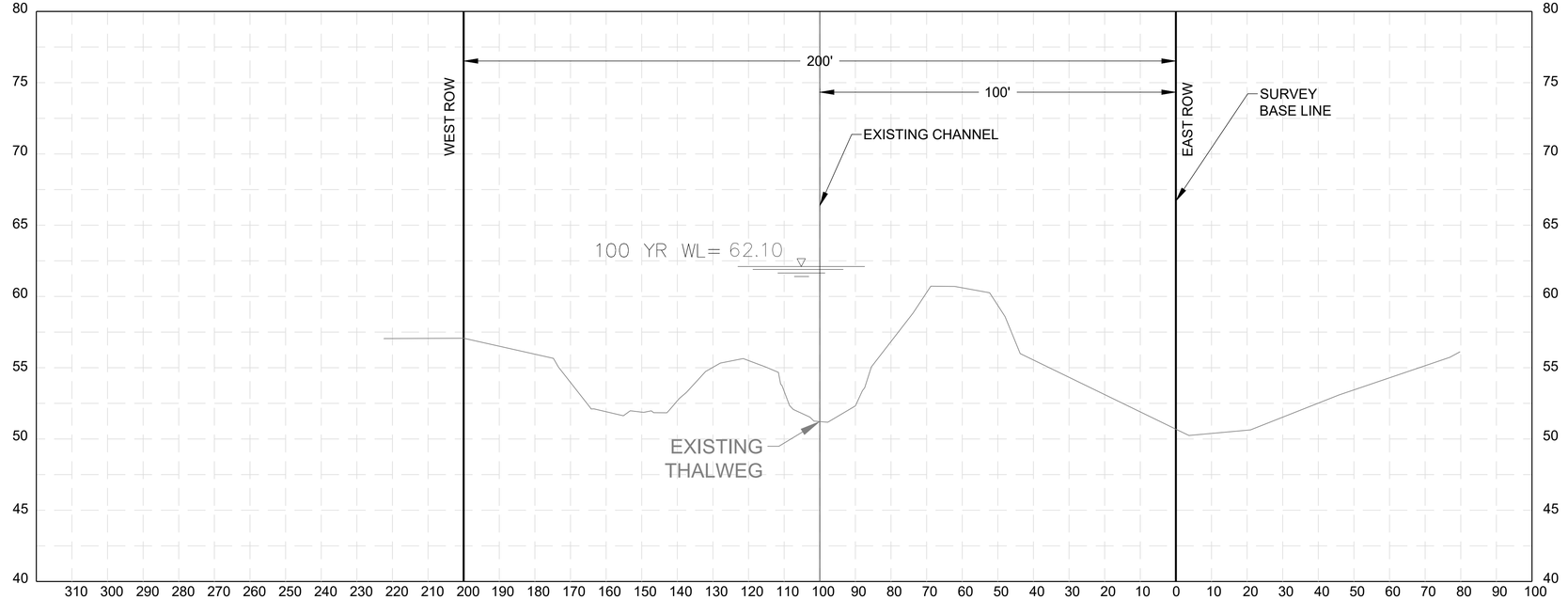


STATION 55+00



STATION 56+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-10628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 28

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		57 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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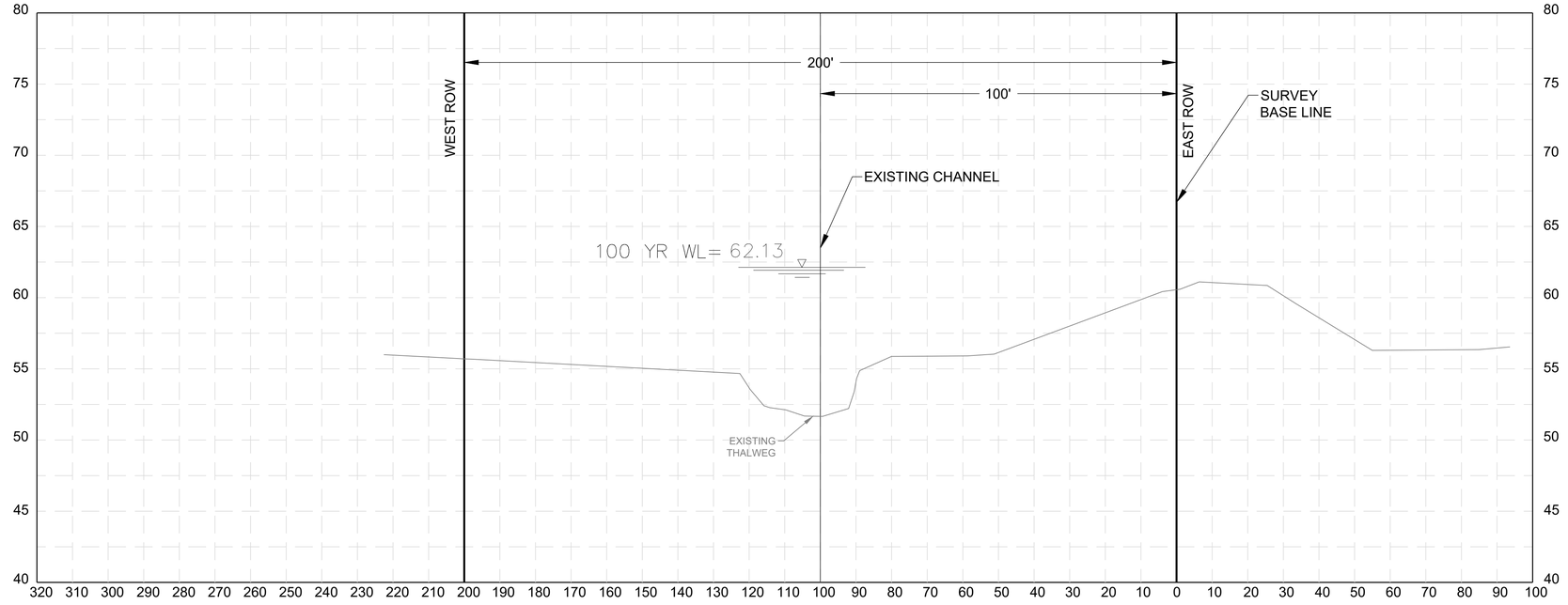
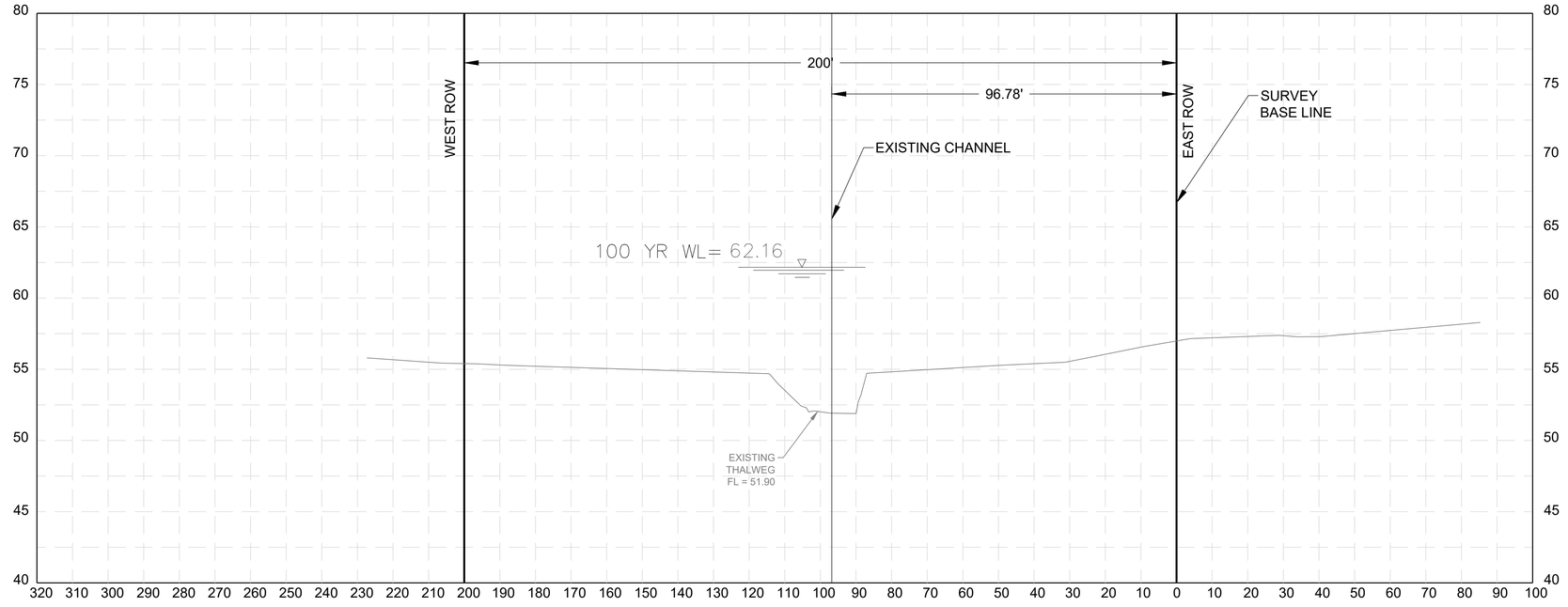


STATION 57+00



STATION 58+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

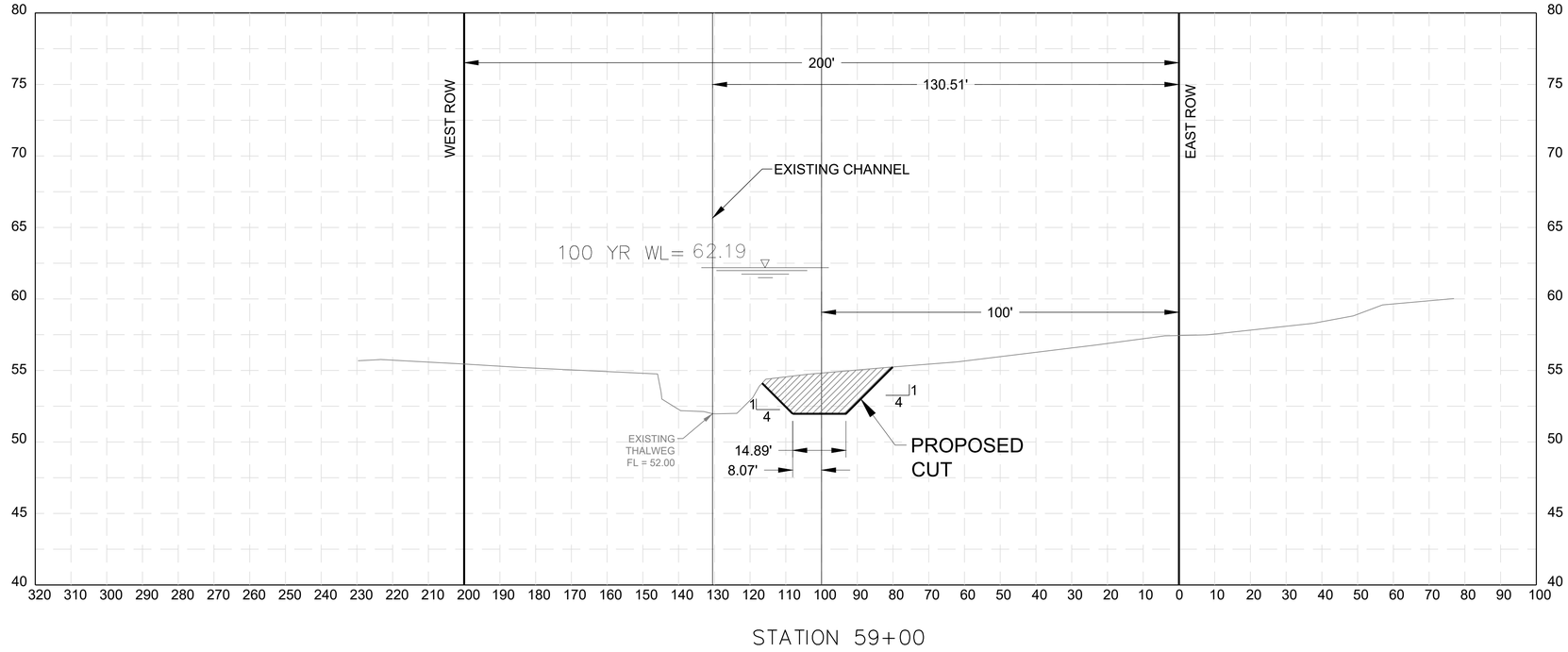
LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 29

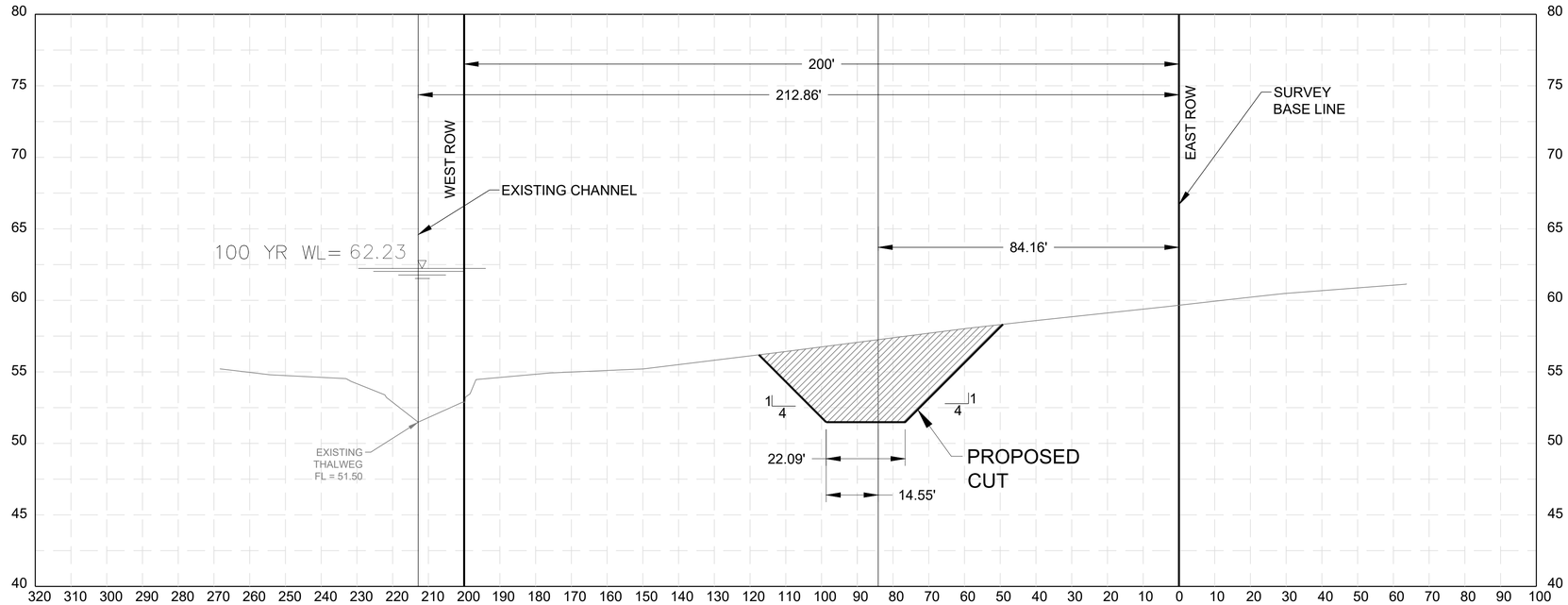
SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		58 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

DW: CK: DW: CK:



STATION 59+00



STATION 60+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

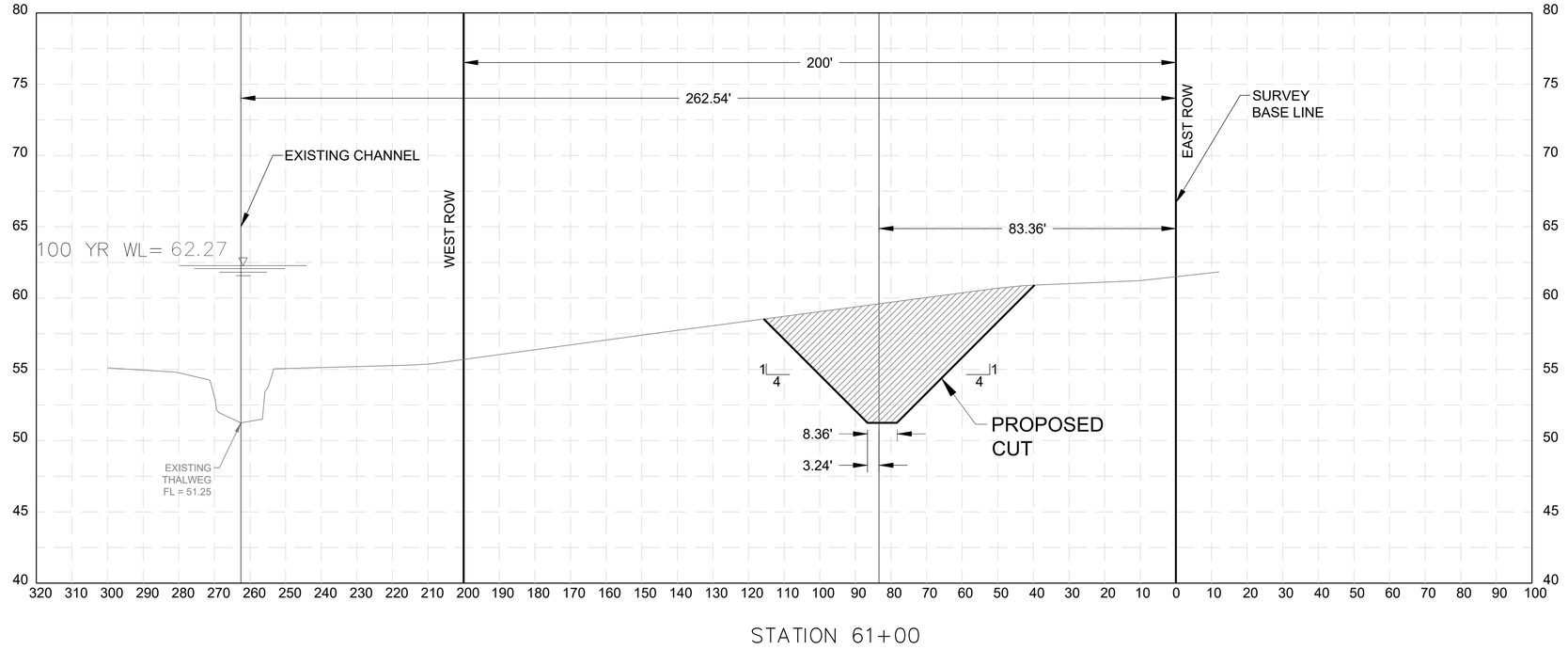
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

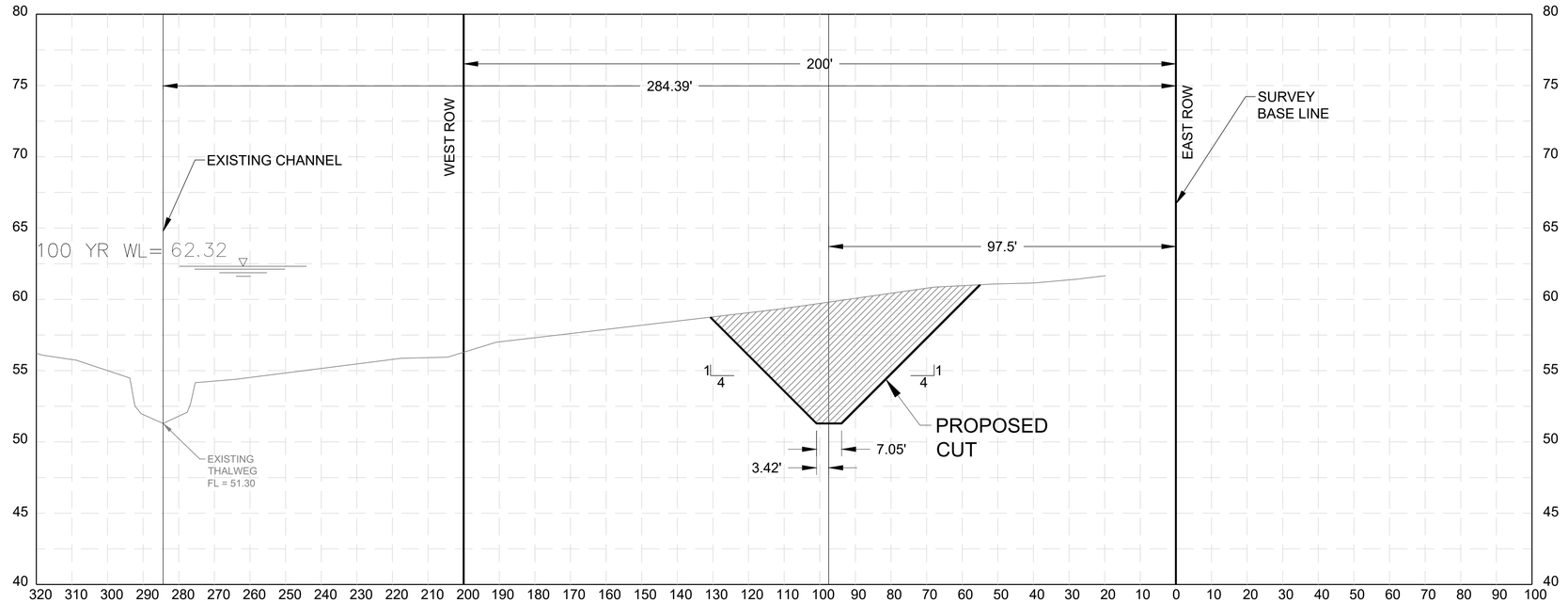
LONG POINT CREEK
SECTION SHEET 30

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		59 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg



STATION 61+00



STATION 62+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 31

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		60 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

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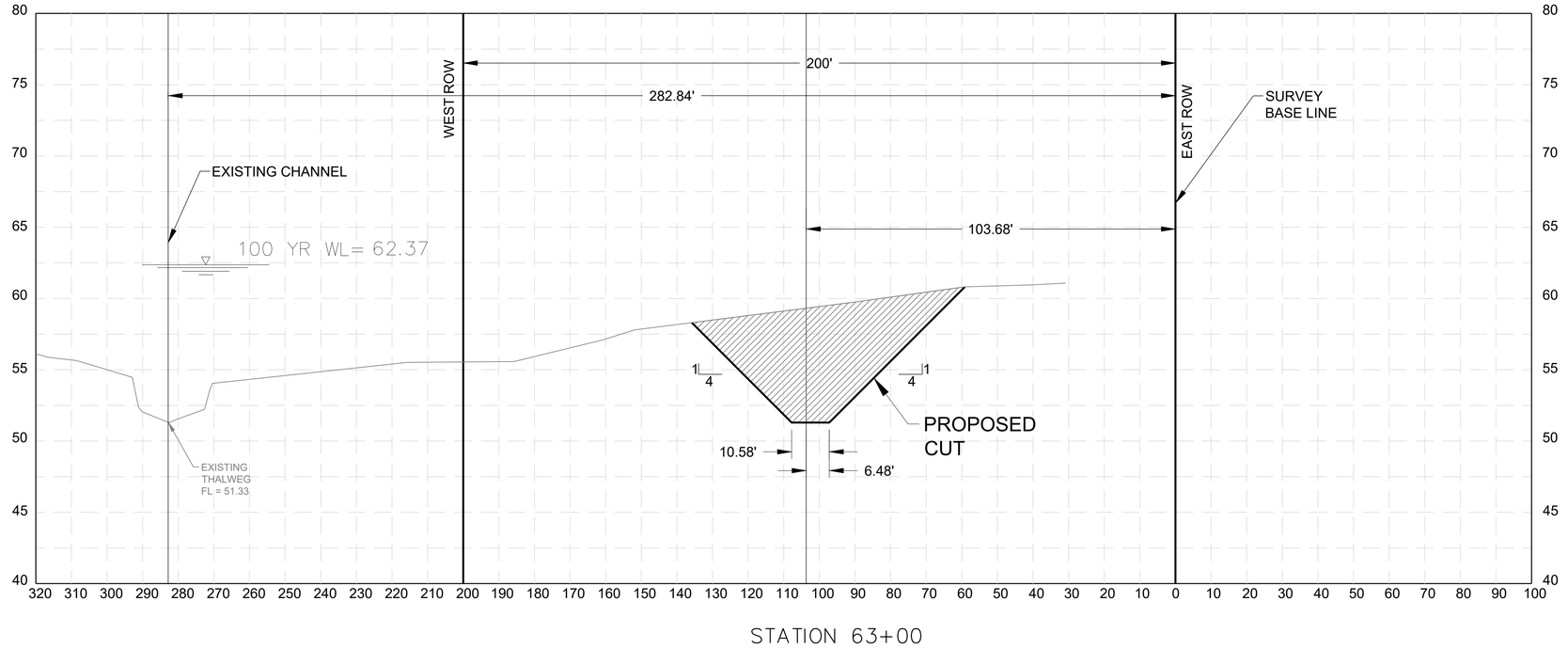
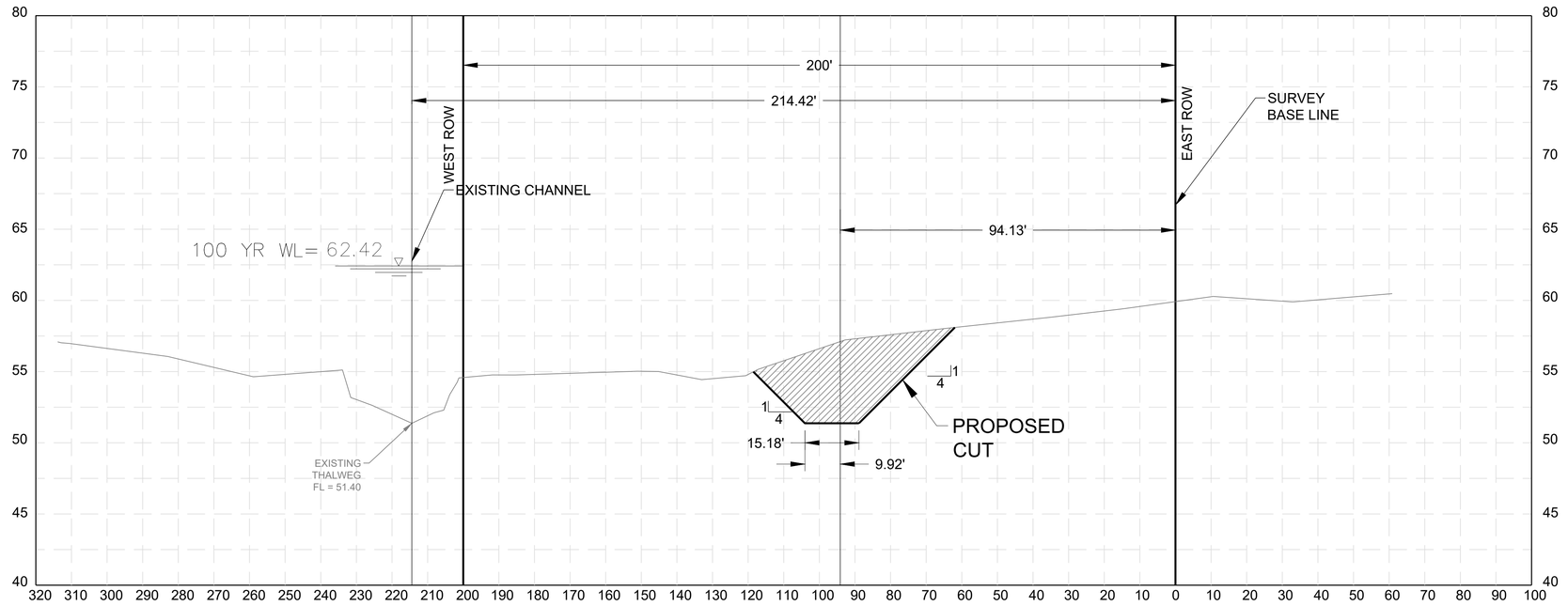


STATION 63+00



STATION 64+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

NOTES:
1. STATIONING IS SHOWN ALONG THE SURVEY BASELINE WHICH IS THE EAST RIGHT-OF-WAY LINE.
2. CROSS SECTIONS ARE CUT PERPENDICULAR TO THE SURVEY BASELINE AT EACH STATION.

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration No. F-16628,
10039 BISSONNET STREET , ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

LONG POINT CREEK
SECTION SHEET 32

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		61 OF 116

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\1-Mohamed\Plan and Profile Sheet-1-Long Point Creek-10.3.2024-1.dwg

DW: CK: DW: CK:

DN: | CK: | DW: | CK:

DARBY LANE AT LONG POINT CREEK

(PROPOSED ROADWAY DESIGN)

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration, No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH: 832-834-3430

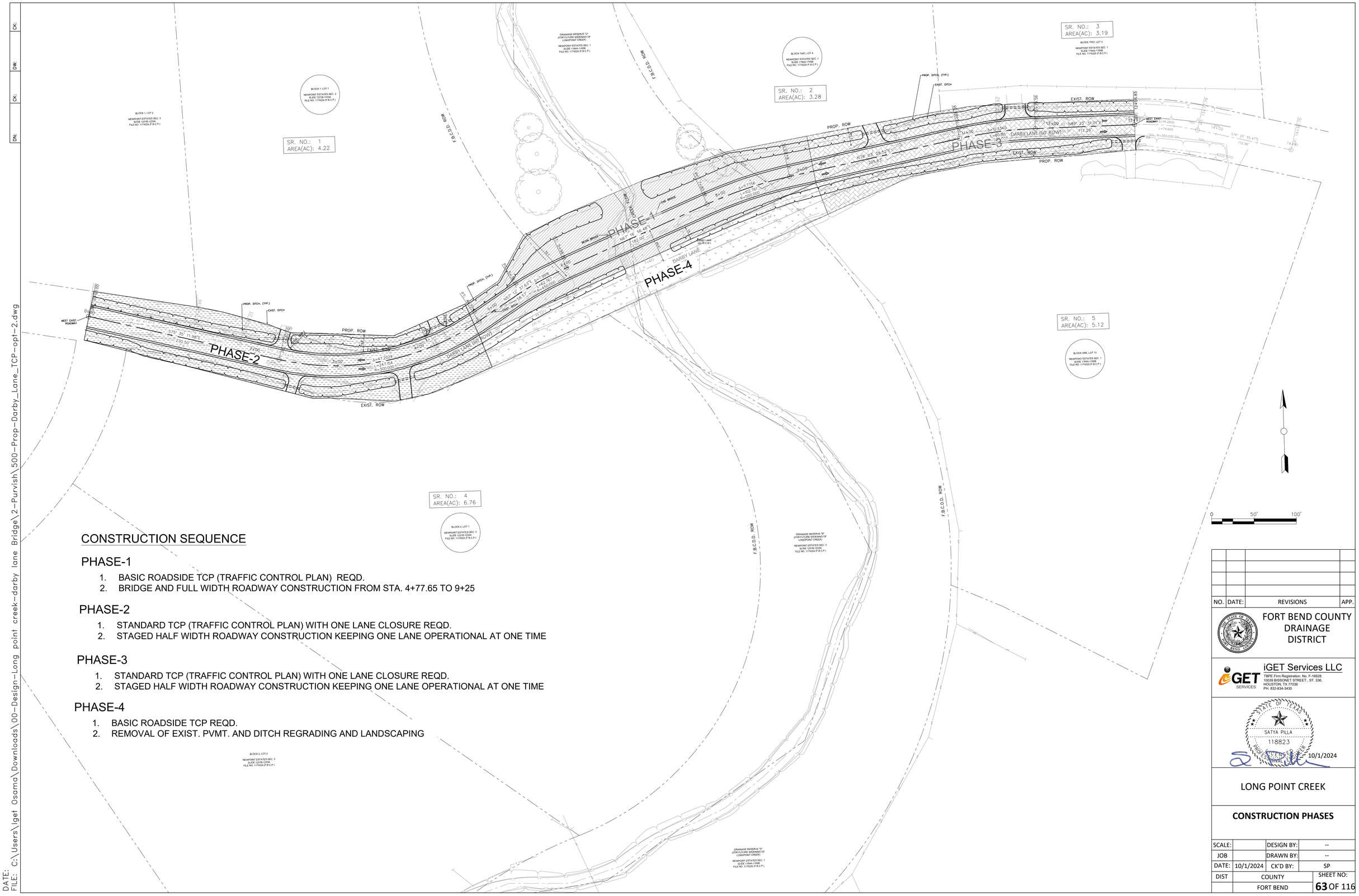
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/1/2024

LONG POINT CREEK

(PROPOSED ROADWAY DESIGN)

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		62 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\Cover.dwg



CONSTRUCTION SEQUENCE

PHASE-1

1. BASIC ROADSIDE TCP (TRAFFIC CONTROL PLAN) REQD.
2. BRIDGE AND FULL WIDTH ROADWAY CONSTRUCTION FROM STA. 4+77.65 TO 9+25

PHASE-2

1. STANDARD TCP (TRAFFIC CONTROL PLAN) WITH ONE LANE CLOSURE REQD.
2. STAGED HALF WIDTH ROADWAY CONSTRUCTION KEEPING ONE LANE OPERATIONAL AT ONE TIME

PHASE-3

1. STANDARD TCP (TRAFFIC CONTROL PLAN) WITH ONE LANE CLOSURE REQD.
2. STAGED HALF WIDTH ROADWAY CONSTRUCTION KEEPING ONE LANE OPERATIONAL AT ONE TIME

PHASE-4

1. BASIC ROADSIDE TCP REQD.
2. REMOVAL OF EXIST. PVMT. AND DITCH REGRADING AND LANDSCAPING

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH: 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/1/2024

LONG POINT CREEK

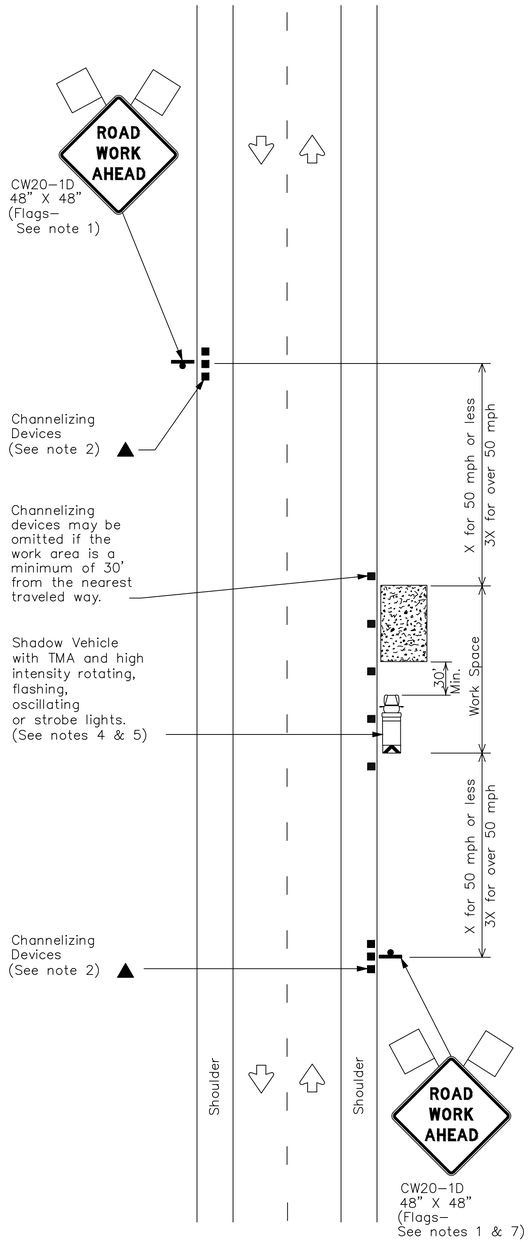
CONSTRUCTION PHASES

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		63 OF 116

DN: DW: CK: CK:

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\2-Purvish\500-Prop-Darby_Lane_TCP-opt-2.dwg

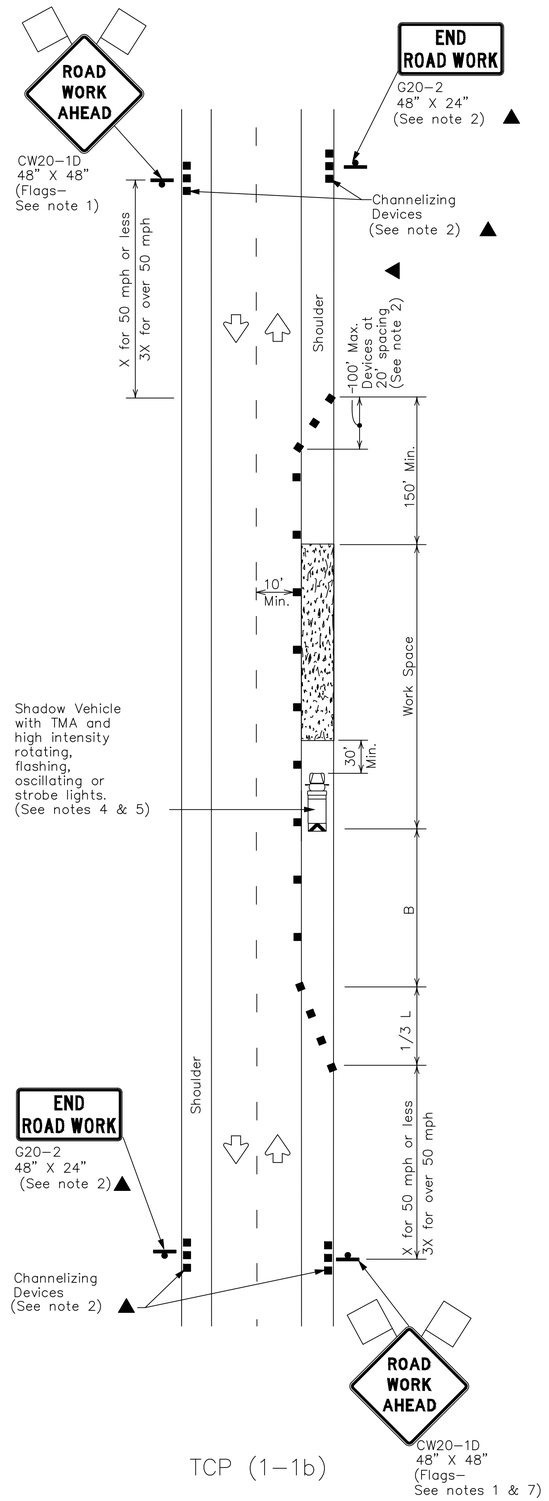
DATE:
FILE:



TCP (1-1a)

WORK SPACE NEAR SHOULDER

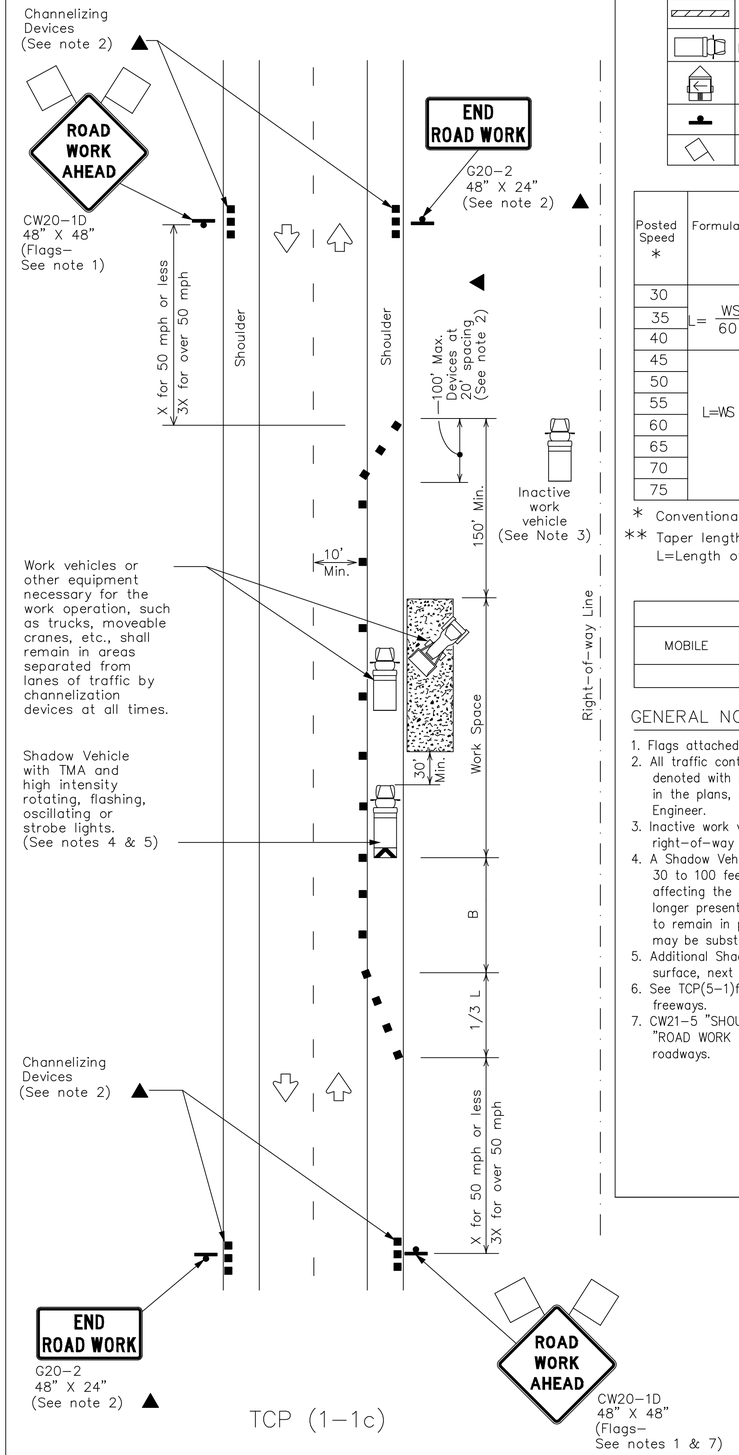
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER

Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER

Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1)for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD " signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

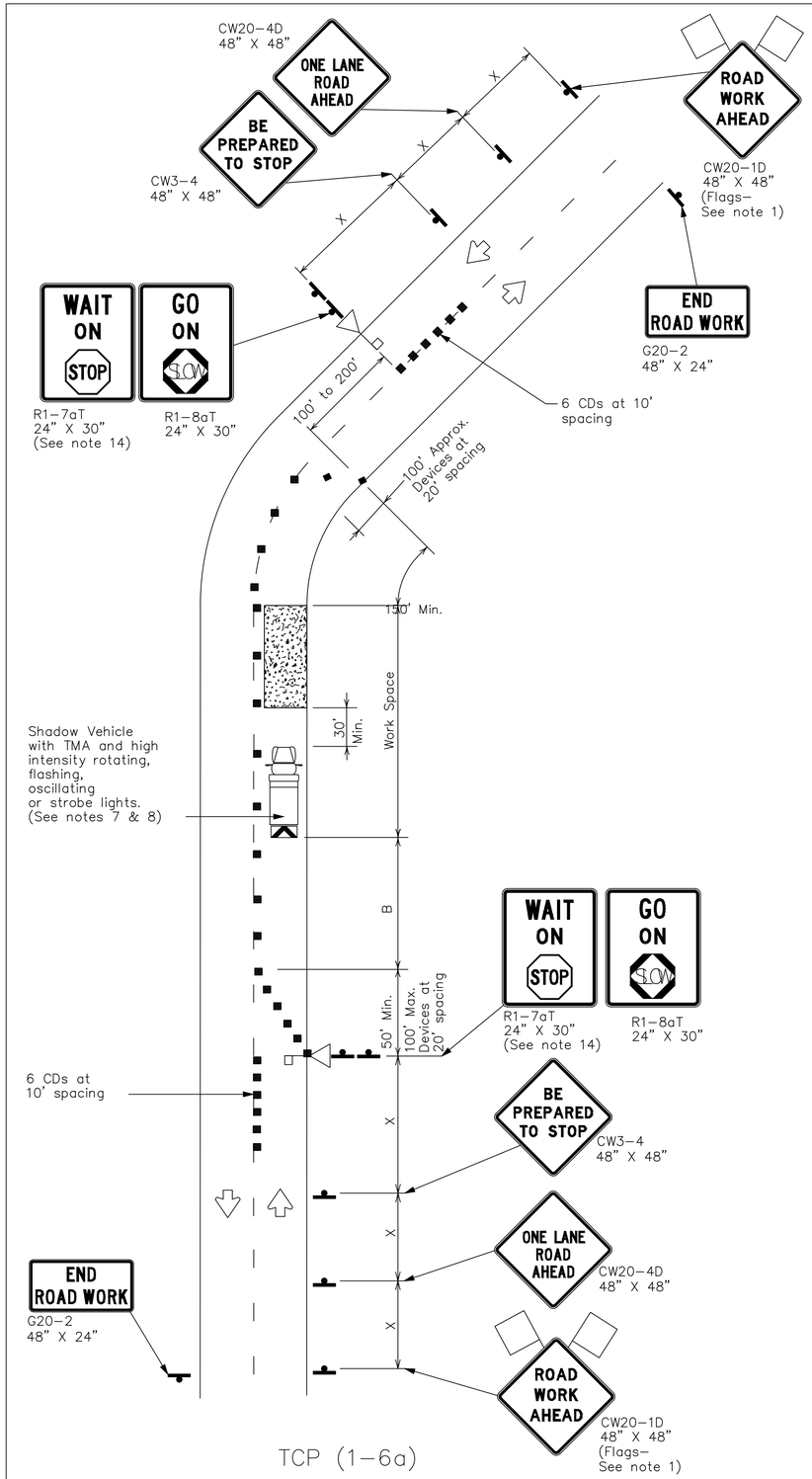
TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12				
1-97 2-18				

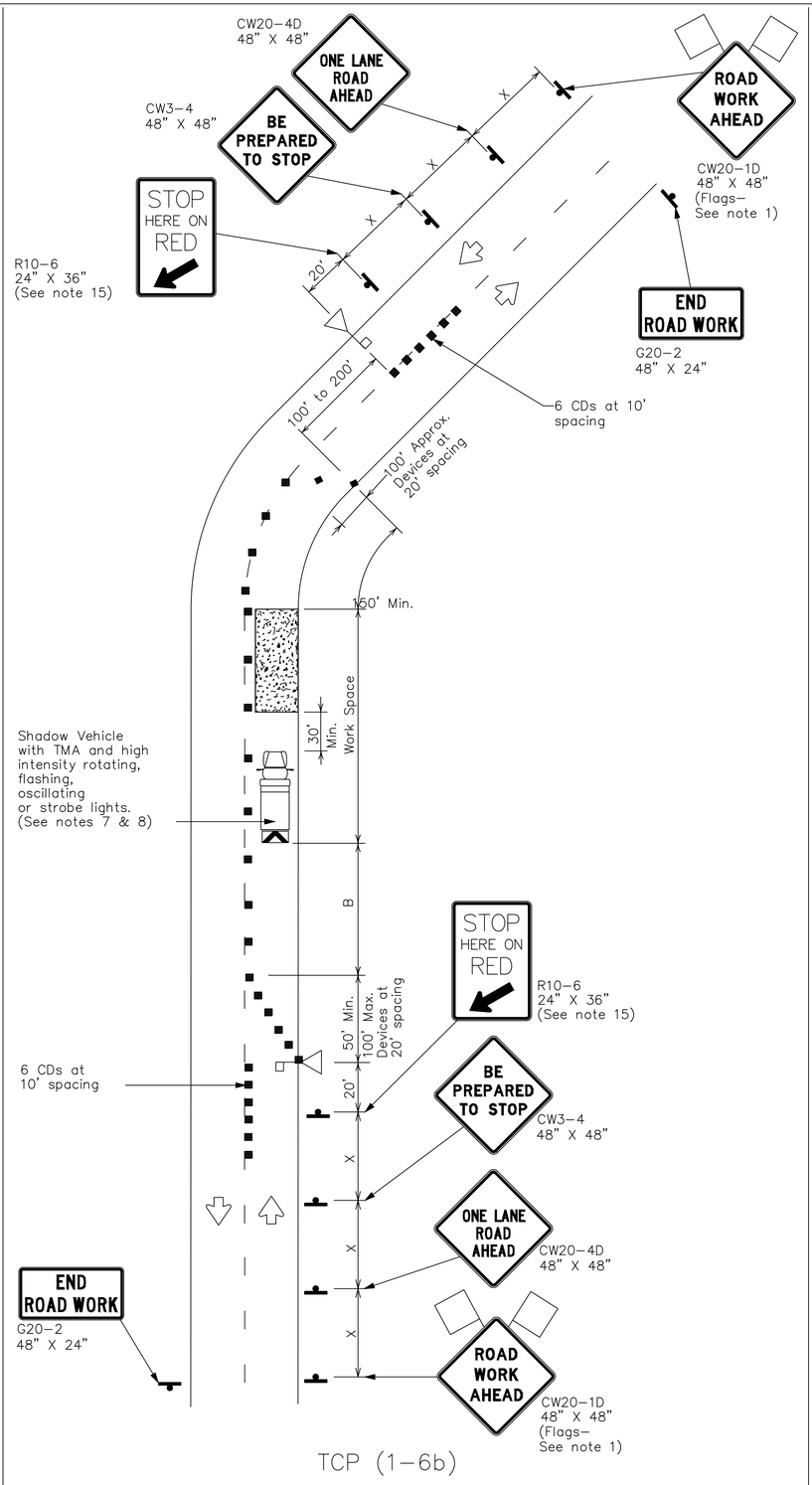
151

DATE:
FILE:



TCP (1-6a)

ONE LANE TWO-WAY
CONTROL WITH STOP/SLOW AFADs



TCP (1-6b)

ONE LANE TWO-WAY CONTROL
WITH RED/YELLOW LENS AFADs

LEGEND			
	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Automated Flagger Assistance Device (AFAD)	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

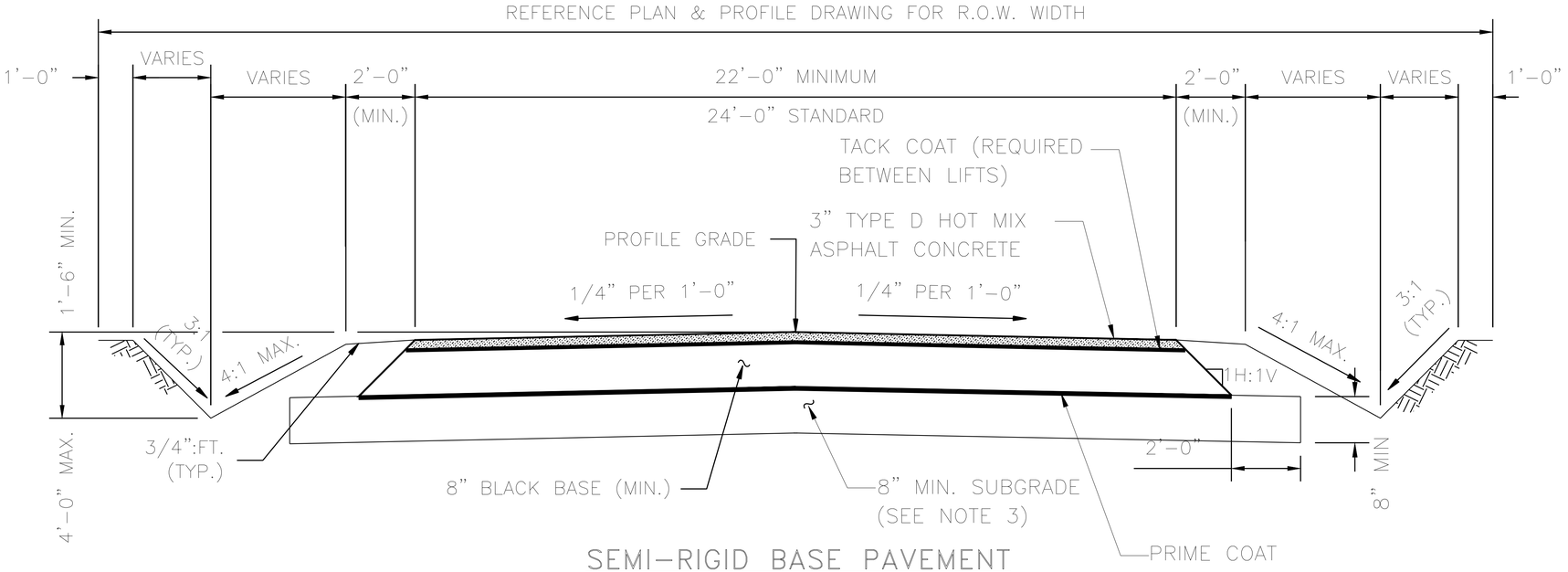
1. Flags attached to signs where shown are REQUIRED.
2. AFADs shall only be used in situations where there is one lane of approaching traffic in the direction to be controlled.
3. Adequate stopping sight distance must be provided to each AFAD location for approaching traffic. (See table above). 4. Each AFAD shall be operated by a qualified/certified flagger. Flaggers operating AFADs shall not leave them unattended while they are in use.
5. One flagger may operate two AFADs only when the flagger has an unobstructed view of both AFADs and of the approaching traffic in both directions.
6. When pilot cars are used, a flagger controlling traffic shall be located on each approach. AFADs shall not be operated by the pilot car operator.
7. All AFADs shall be equipped with gate arms with an orange or fluorescent red-orange flag attached to the end of the gate arm. The flag shall be a minimum of 16" square.
8. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
9. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
10. Flaggers should use two-way radios or other methods of communication to control traffic.
11. Length of work space should be based on the ability of flaggers to communicate.
12. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the AFAD.
13. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
14. The R1-7aT "WAIT ON STOP" sign and the R1-8aT "GO ON SLOW" sign shall be installed at the AFAD location on separate supports or they may be fabricated as one 48" x 30" sign. They shall not obscure the face of the STOP/SLOW AFAD.
15. The R10-6 "STOP HERE ON RED" arrow sign shall be offset so as not to obscure the lenses of the AFAD.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADS)
TCP(1-6)-18

FILE: tcp1-6-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18				
	DIST	COUNTY		SHEET NO.



SEMI-RIGID BASE PAVEMENT DITCH SECTION

SCALE: NTS

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

10/1/2024

SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER

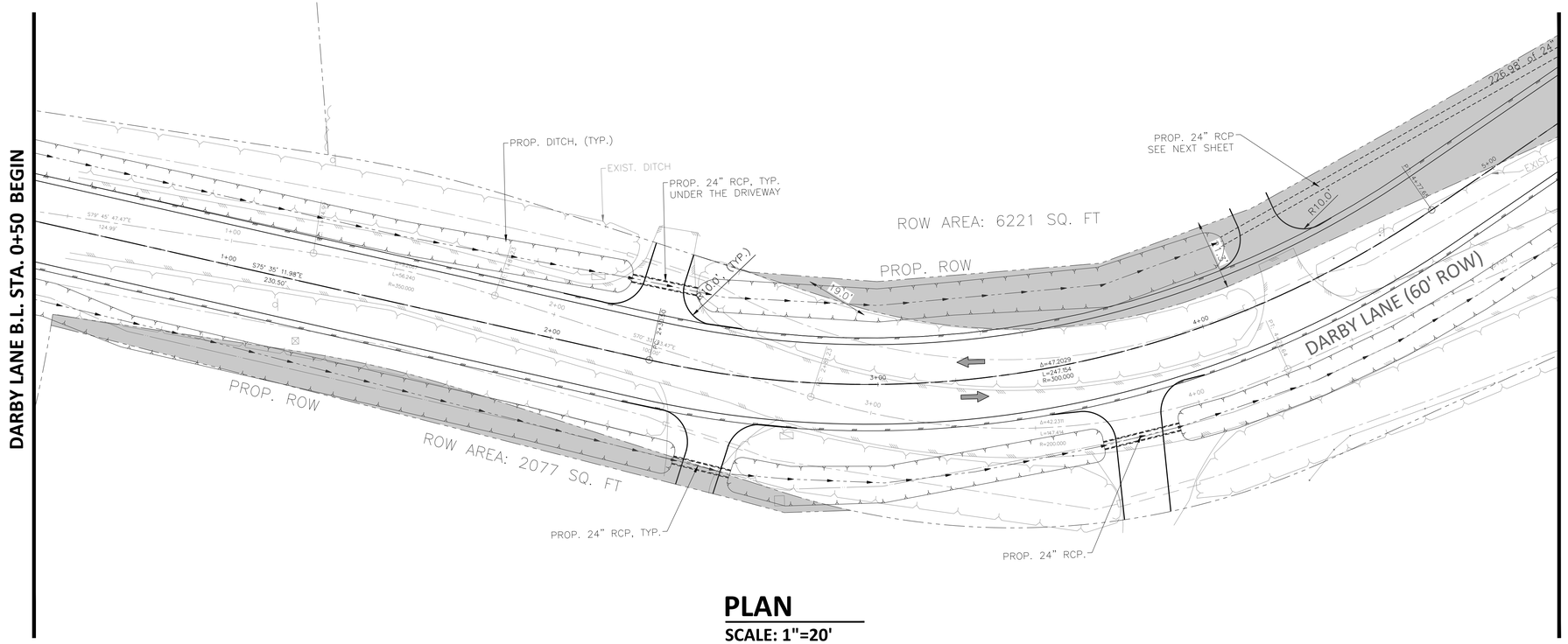
LONG POINT CREEK

ROADWAY TYPICAL SECTION

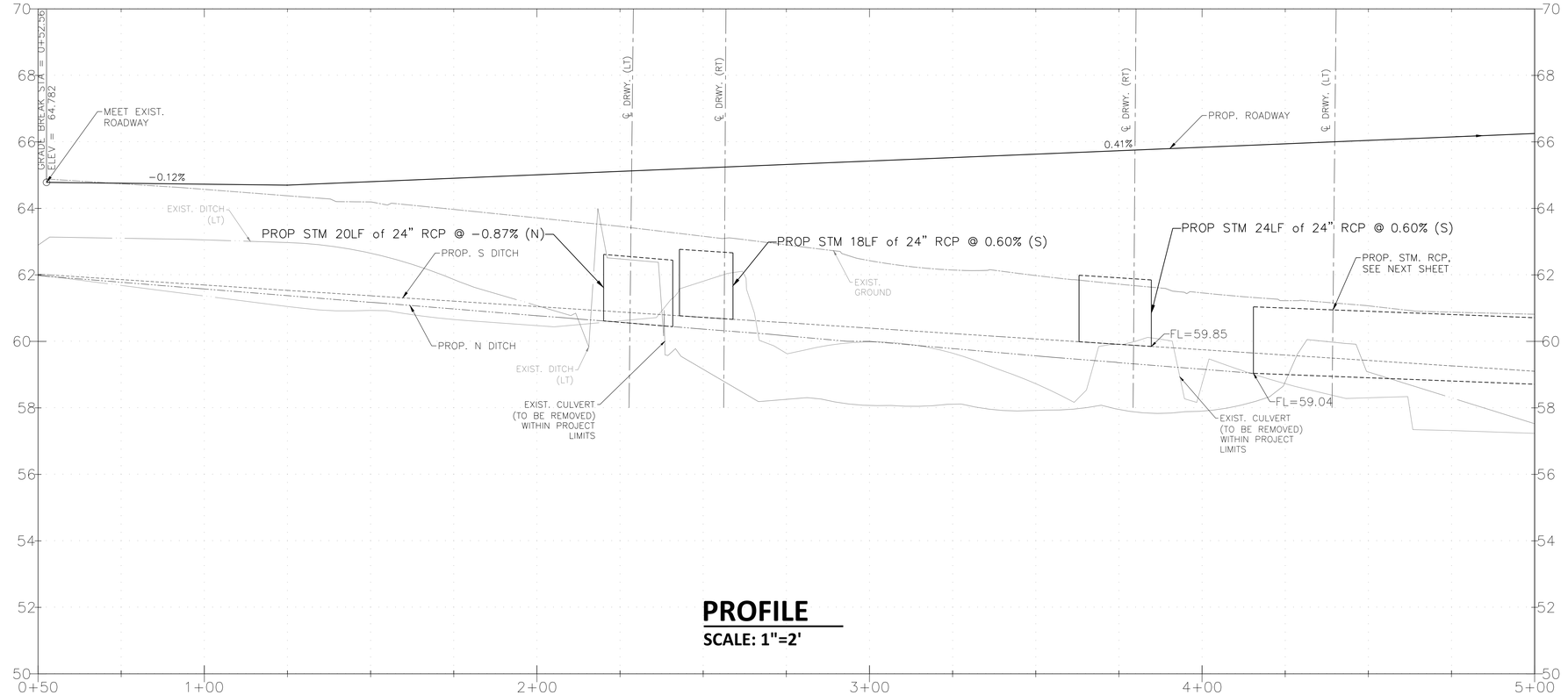
SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		66 OF 116

DN: CK: DW: CK:

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\2-Purvish\2000-Prop-Darby_Lane_ROW-opt-3.dwg



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=2'

0 20' 40'

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/10/2024

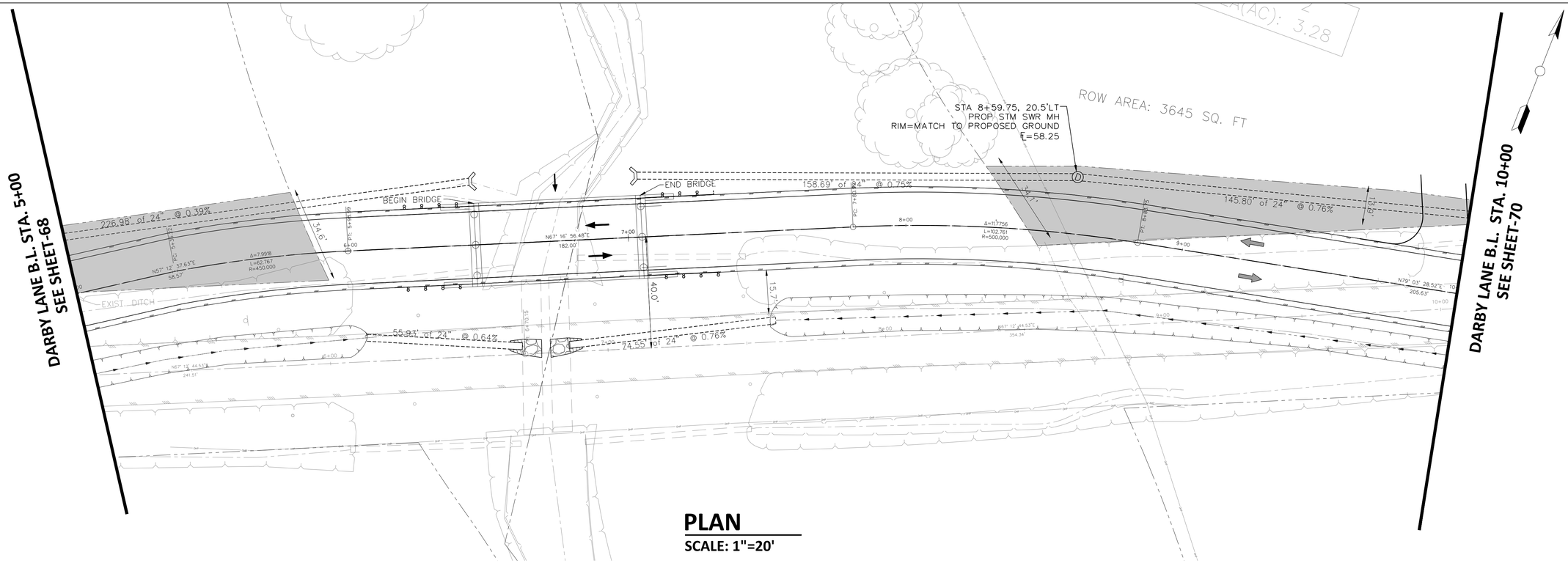
LONG POINT CREEK

PLAN & PROFILE-1

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/10/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		67 OF 116

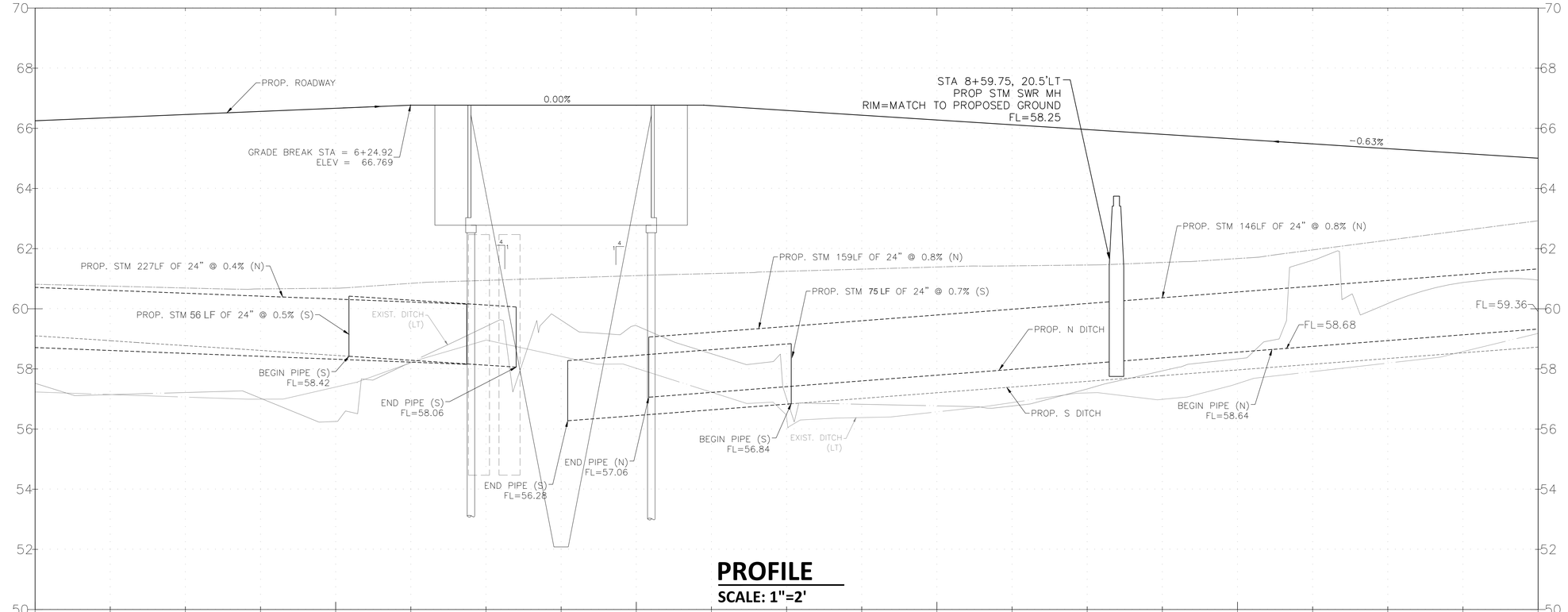
DATE:
FILE: C:\Users\Iget Osama\OneDrive\0-Projects\FBC-LongPoint-Creek-Channel-Improvement\00-Long point creek-darby lane\2-Purvish\2000-Prop-Darby_Lane_ROW-opt-3 DW:10-10-2024.dwg CK:

DATE: 10-10-2024
FILE: C:\Users\Iget Osama\OneDrive\0-Projects\FBC-LongPoint-Creek-Channel-Improvement\00-Long point creek-darby lane\2-Purvish\2000-Prop-Darby_Lane_ROW-opt-3 dw:10-10-2024.dwg ck:



PLAN
SCALE: 1"=20'

DARBY LANE



PROFILE
SCALE: 1"=2'

0 20' 40'

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

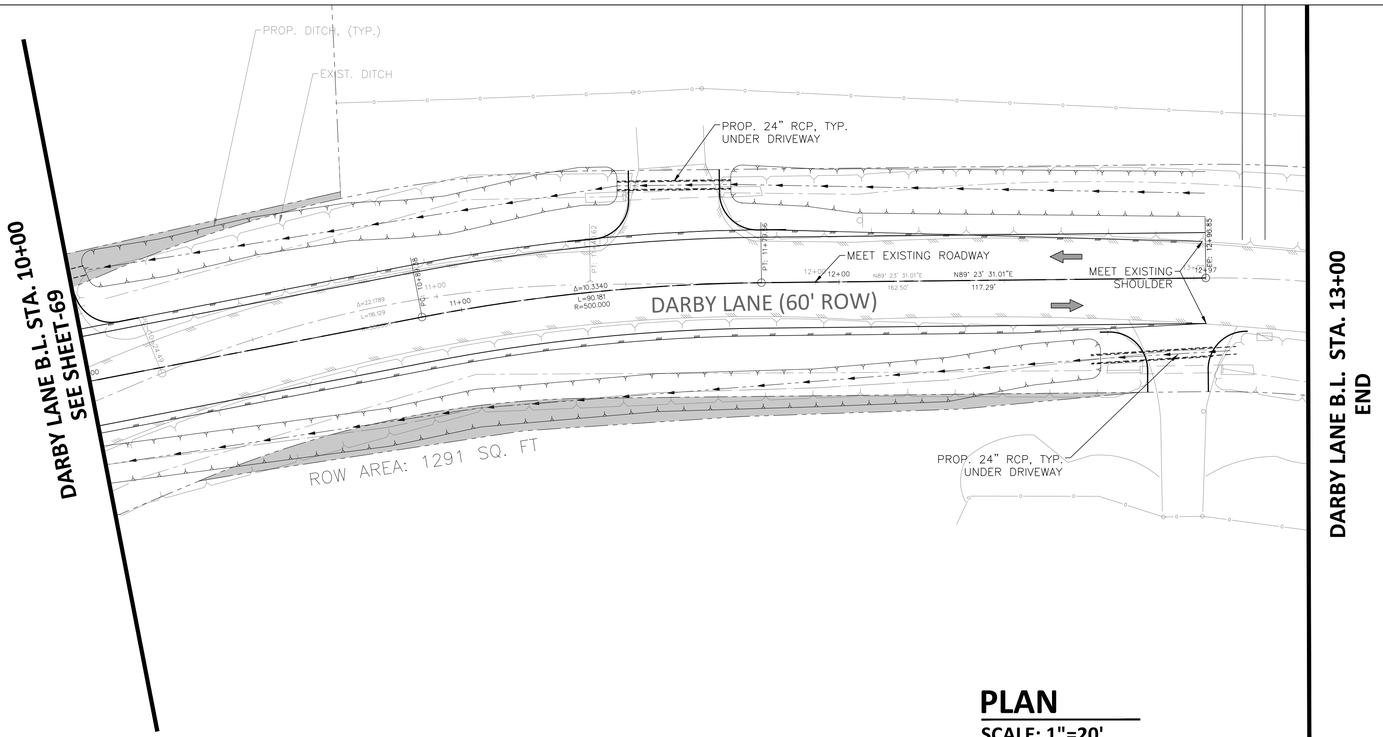
iGET Services LLC
TBPE Firm Registration No. F-16828
10039 BISSONET STREET , ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/10/2024

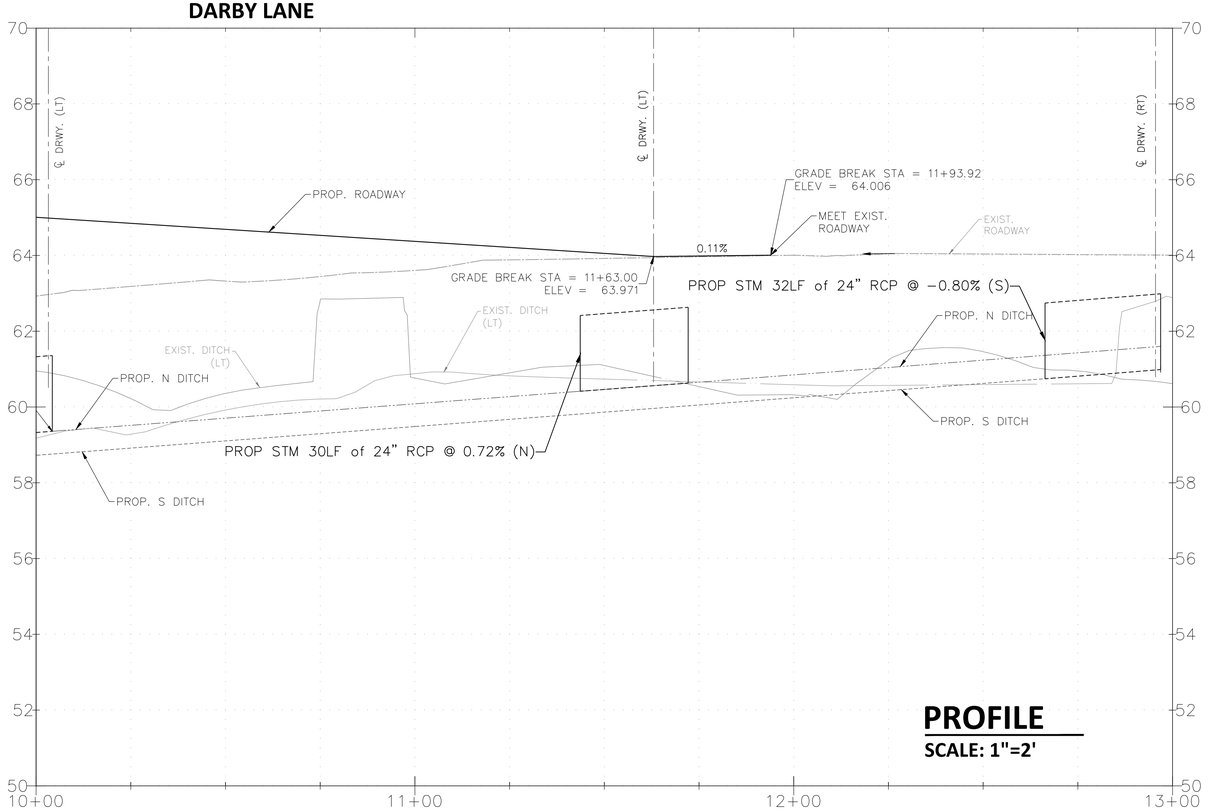
LONG POINT CREEK

PLAN & PROFILE-2

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/10/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		68 OF 116



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=2'

0 20' 40'

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

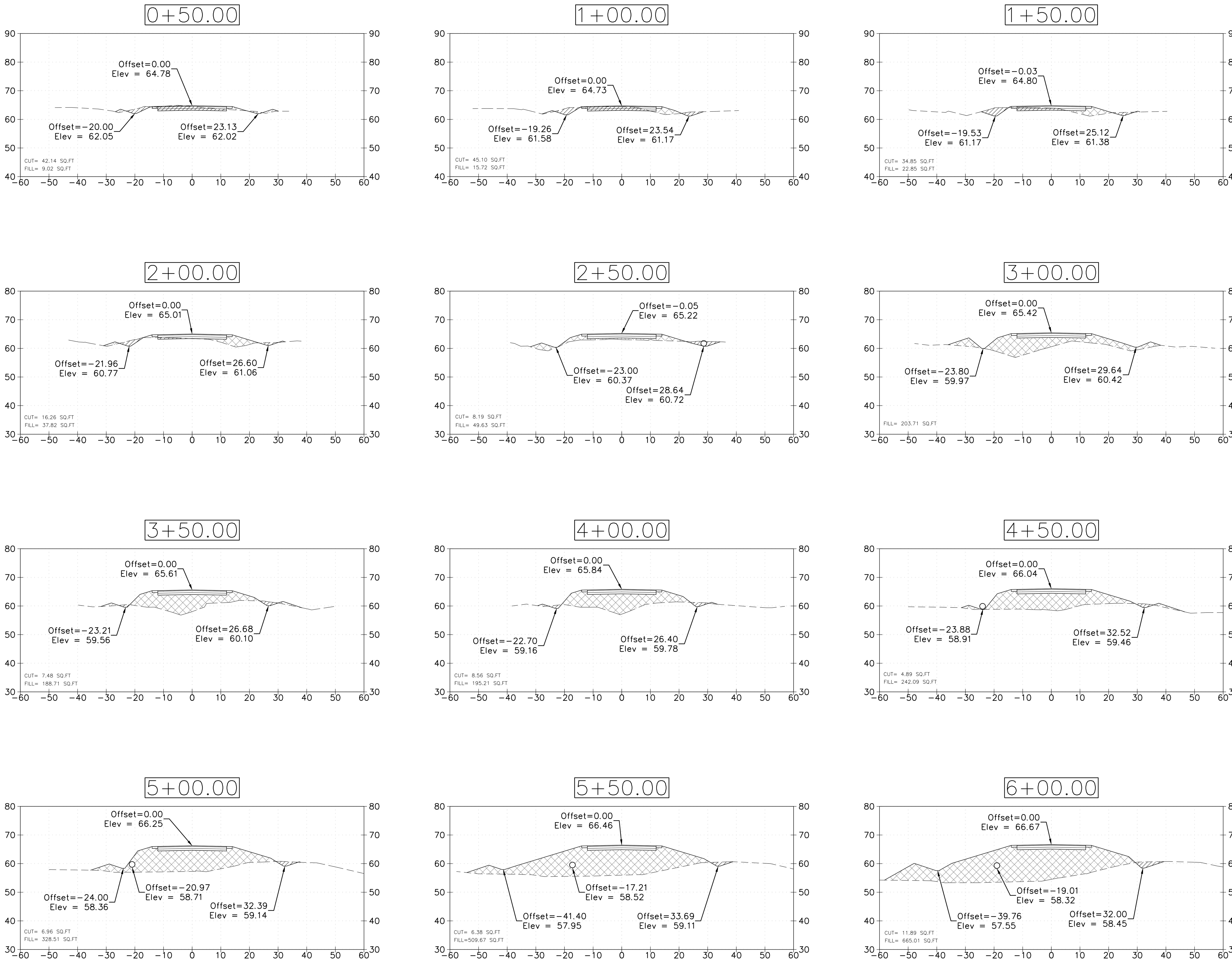
STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/10/2024

LONG POINT CREEK

PLAN & PROFILE-3

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/10/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		69 OF 116

DATE:
FILE: C:\Users\Iget Osama\OneDrive\0-Projects\FBC-LongPoint-Creek-Channel-Improvement\00-Long point creek-darby lane\2-Purvish\2000-Prop-Darby_Lane_ROW-opt-3 dw:10-10-2024.dwg ck:



LEGENDS:

EXISTING GRADE

PROPOSED GRADE

PROPOSED CUT

PROPOSED FILL

0 20' 40'

CROSS SECTIONS

SCALE: HOR. 1"=20'
VER. 1"=20'

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH: 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/1/2024

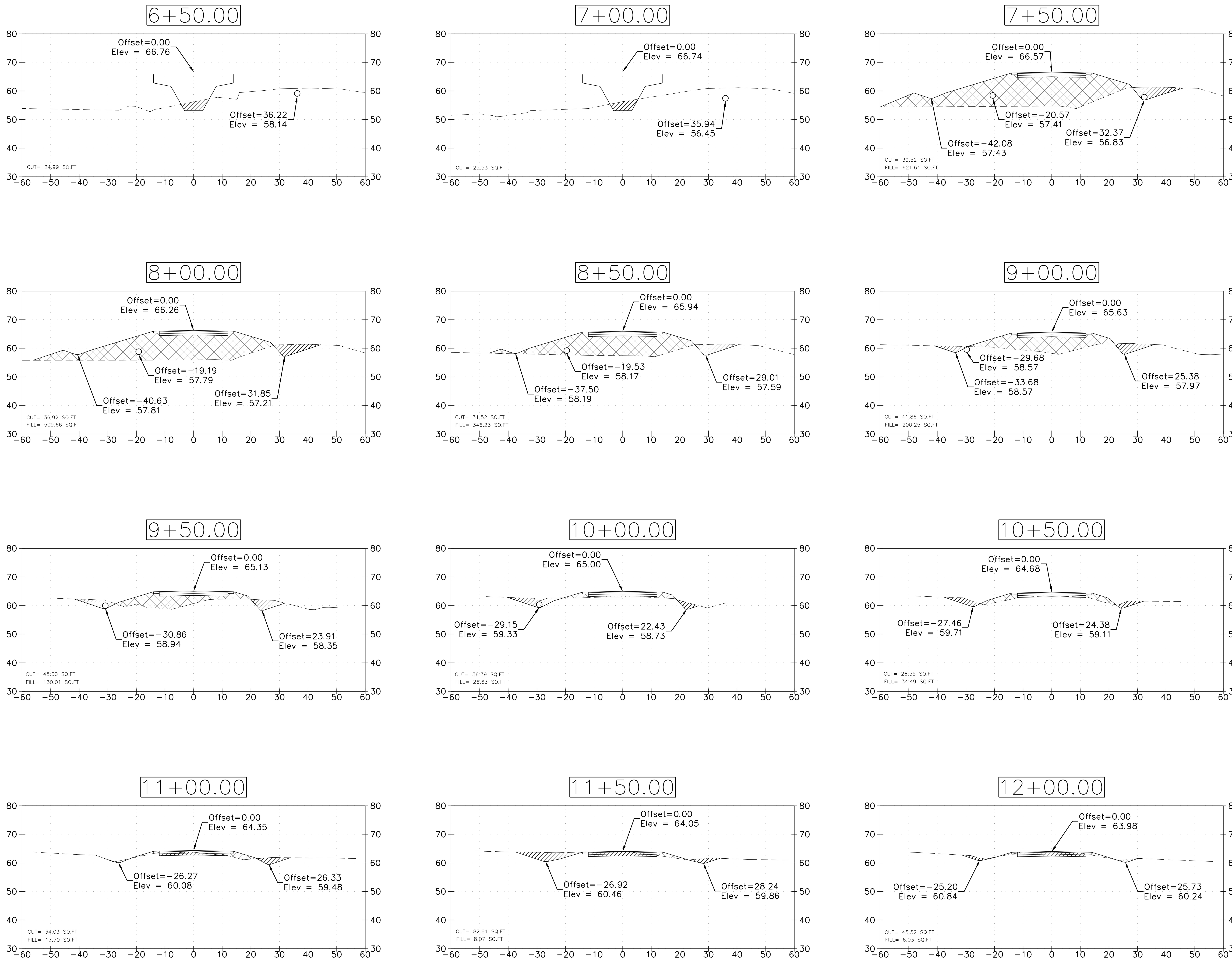
LONG POINT CREEK

CROSS SECTIONS-1

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY	SHEET NO:	
	FORT BEND	70 OF 116	

DN: CK: DW: CK:

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\2-Purvish\2000-Prop-Darby_Lane_ROW-opt-3.dwg



LEGENDS:

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CUT
- PROPOSED FILL

CROSS SECTIONS

SCALE: HOR. 1"=20'
VER. 1"=20'

STATION	FILL VOLUME (CY)	CUT VOLUME (CY)	CUMULATIVE FILL VOL (CY)	CUMULATIVE CUT VOL (CY)
+50.00	17	78	17	78
1+00.00	29	84	46	162
1+50.00	42	65	88	226
2+00.00	70	30	158	256
2+50.00	92	20	250	277
3+00.00	377	0	627	277
3+50.00	349	14	977	290
4+00.00	362	16	1338	306
4+50.00	448	9	1787	315
5+00.00	614	13	2401	328
5+50.00	950	12	3350	340
6+00.00	1237	22	4588	362
6+50.00	0	46	4588	408
7+00.00	0	47	4588	456
7+50.00	1157	79	5745	535
8+00.00	950	68	6694	603
8+50.00	647	58	7341	661
9+00.00	371	78	7712	739
9+50.00	241	89	7953	828
10+00.00	49	73	8002	901
10+50.00	64	49	8066	950
11+00.00	33	63	8099	1013
11+50.00	15	153	8114	1166
12+00.00	11	84	8125	1251
12+50.00	16	64	8141	1315

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH: 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/1/2024

LONG POINT CREEK

CROSS SECTIONS-2

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY	SHEET NO:	
	FORT BEND	71 OF 116	

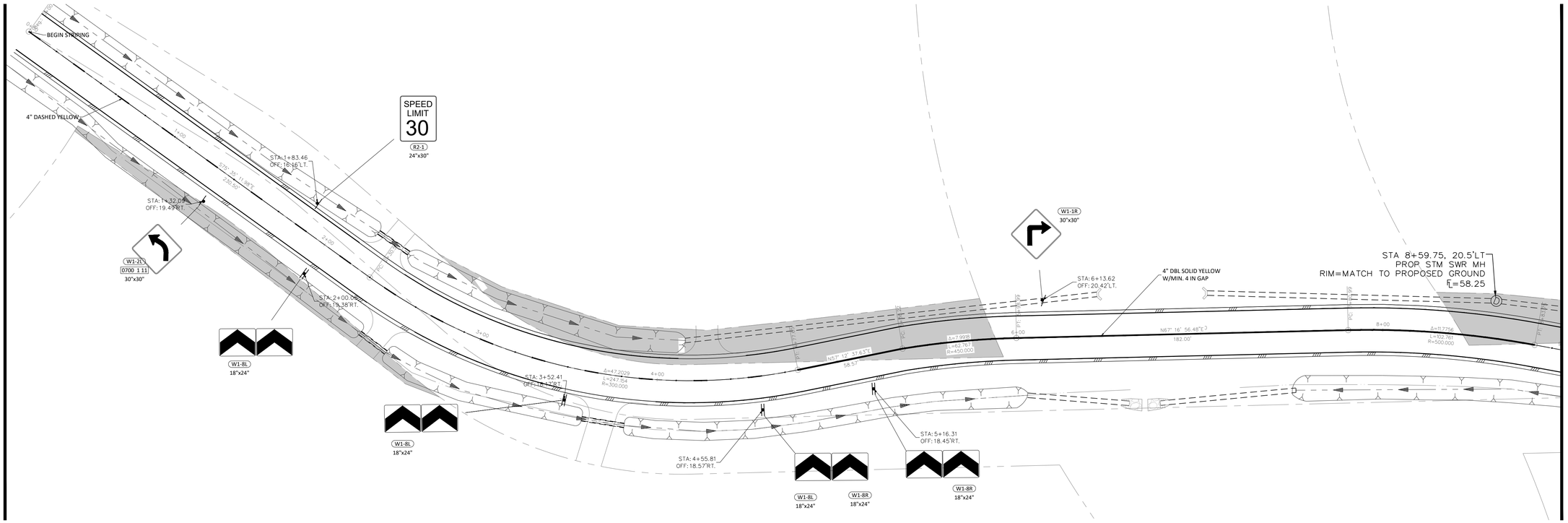
DN: CK: DW: CK:

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\2-Purvish\2000-Prop-Darby_Lane_ROW-opt-3.dwg

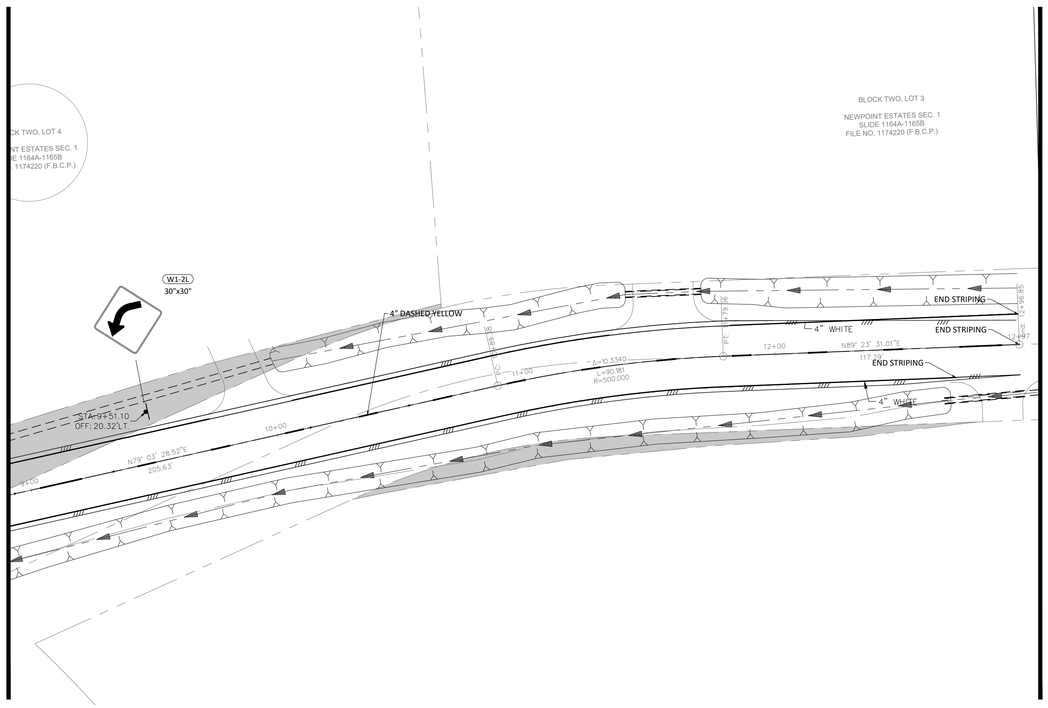
DN: | CK: | DW: | CK:

DATE:
FILE: C:\Users\Iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\2-Purvish\4000-Prop_Signs_N_Markings.dwg

DARBY LANE B.L. STA. 0+00 BEGIN



DARBY LANE B.L. STA. 9+00



DARBY LANE B.L. STA. 12+96.00 END

0 30' 60'

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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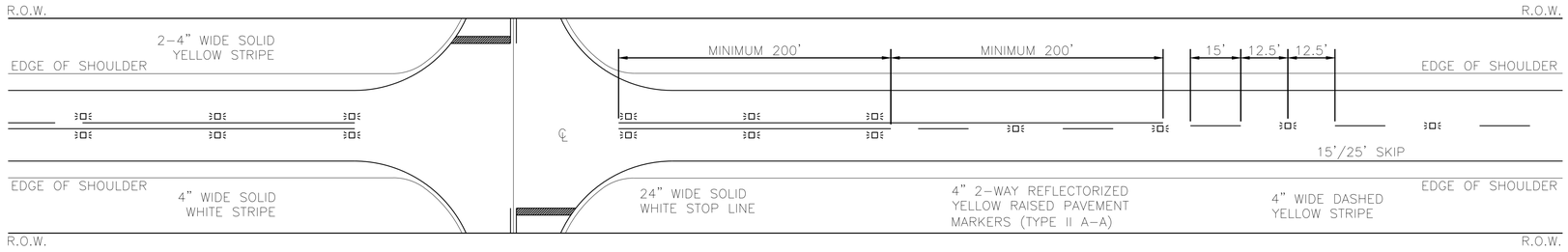
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/1/2024

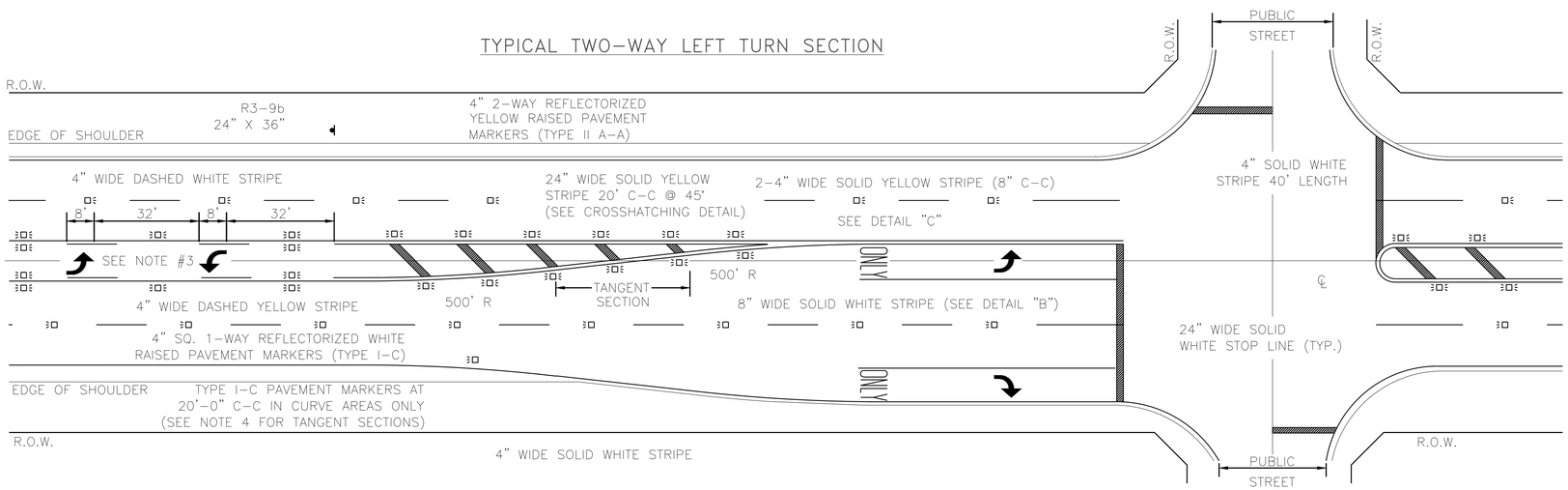
LONG POINT CREEK

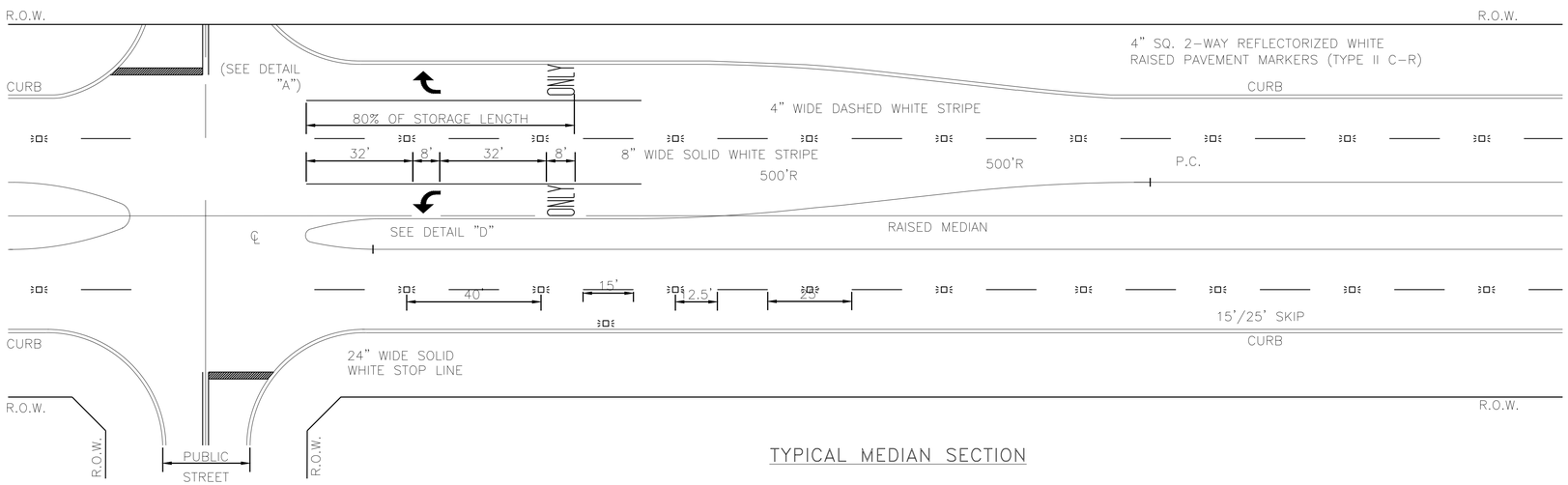
PVMT SIGN & MARKINGS

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		72 OF 116



TYPICAL TWO LANE TWO–WAY ROAD



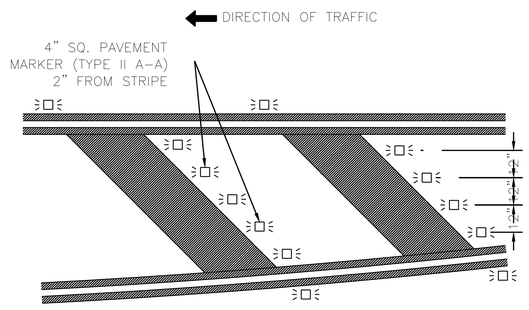


TYPICAL MEDIAN SECTION

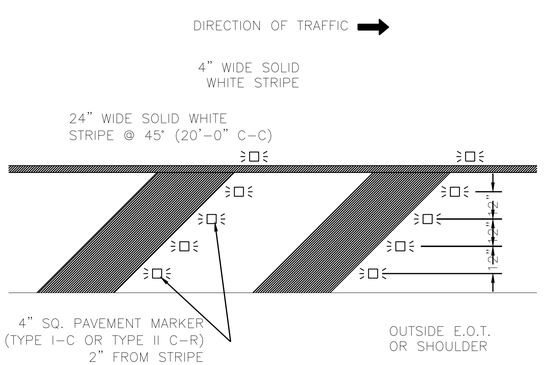
NOTES:

1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (TMUTCD).
2. ALL TRAFFIC BUTTONS AND MARKERS SHALL BE INSTALLED ADJACENT TO STRIPES (APPROXIMATELY 2").
3. REPEAT ARROWS AT APPROXIMATELY 1000' INTERVALS WITHIN TWO–WAY LEFT TURN SECTION.
4. WITHIN A TANGENT SECTION THE TYPE I–C PAVEMENT MARKERS SHALL BE PLACED AT 40' C–C ON ROADWAYS WITHOUT CURB AND GUTTERS.
5. WHEN PAVEMENT MARKINGS EXTEND INTO OR CONTINUE THROUGH AN INTERSECTION AREA, THEY SHALL BE THE SAME COLOR AND AT LEAST THE SAME WIDTH AS THE LINE MARKINGS THEY EXTEND.
6. WHEN CROSSWALK MARKINGS ARE USED WITHIN AN ESTABLISHED SCHOOL ZONE, MID–BLOCK, OR AT UNCONTROLLED INTERSECTIONS, CROSSWALK SHALL BE CONTINENTAL STYLE.
7. ADDITIONAL SET OF "WORD" AND "ARROW" PAVEMENT MARKINGS SHALL BE USED WHEN TURN LANE STORAGE LENGTH IS 160 FEET OR GREATER.

CROSSHATCHING DETAIL



OUTSIDE EDGE CROSSHATCHING DETAIL



NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2–1–21	RWB

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY ·

iGET SERVICES
iGET Services LLC
TBPE Firm Registration, No. F–16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER

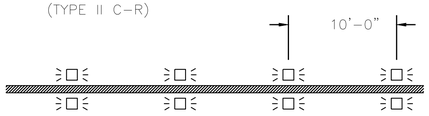
PROJECT TITLE:

DRAWN BY: INIT		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PAVEMENT MARKING DETAILS	
SCALE: NONE	SHEET 1 OF 2	SHEET NO: 73
DATE: 2–1–21	APPROVED BY:	

C:\Users\iget Osama\Downloads\00–Design–Long point creek–darby lane Bridge\2–Purvish\4001–STD–MRK–FBC–1.dwg

DETAIL "A"
(FOR DIVIDED ROADWAYS)

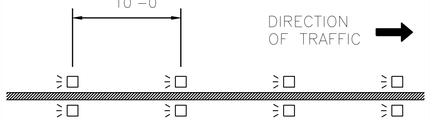
FOR DIVIDED ROADWAYS USE 4" SQ.
2-WAY REFLECTORIZED PAVEMENT MARKERS
(TYPE II C-R)



8" WHITE STRIPE

DETAIL "B"
(FOR UNDIVIDED ROADWAYS)

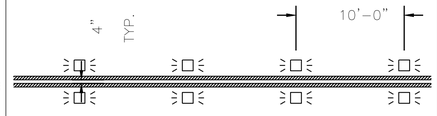
4" SQ. 1-WAY REFLECTORIZED WHITE
RAISED PAVEMENT MARKERS (TYPE I-C)



8" WHITE STRIPE

DETAIL "C"

4" SQ. 2-WAY REFLECTORIZED YELLOW
RAISED PAVEMENT MARKERS (TYPE II A-A)

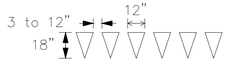


4" YELLOW STRIPES

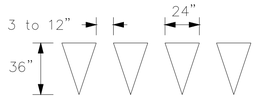
PAVEMENT MARKER LEGEND

SYMBOL	DESCRIPTION
≻□≺	4" x 4" REFLECTORIZED RAISED PAVEMENT MARKER
□≺	INDICATED DIRECTION OF TRAFFIC FLOW

YIELD LINE DETAILS



FOR POSTED SPEED ON ROAD BEING MARKED EQUAL TO OR LESS THAN 40 MPH.

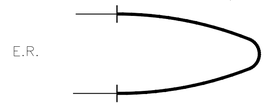


FOR POSTED SPEED ON ROAD BEING MARKED EQUAL TO OR GREATER THAN 45 MPH

DETAIL "D"

* PAINT FROM THE BACK OF CURB TO THE GUTTER LINE

MEDIAN NOSE CURB TO BE PAINTED YELLOW (FROM ER TO ER)

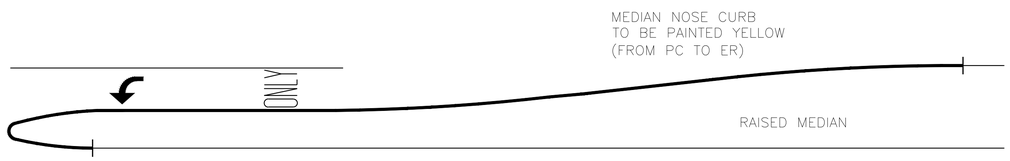


TYPICAL MEDIAN NOSE

YELLOW PAINT

TYPICAL CURB SECTION

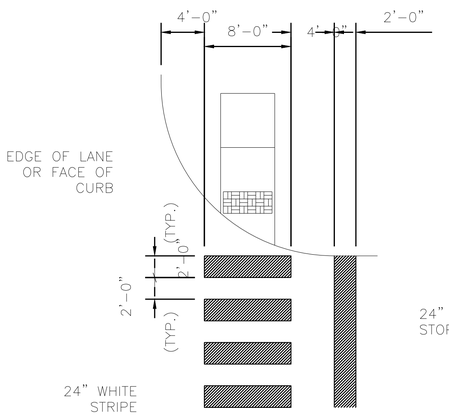
MEDIAN NOSE CURB TO BE PAINTED YELLOW (FROM PC TO ER)



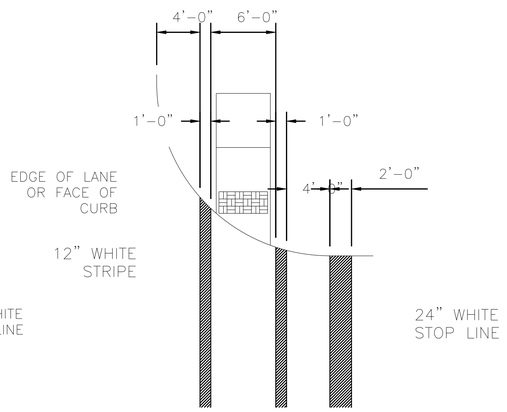
RAISED MEDIAN WITH TURN BAY

TYPICAL CROSSWALK PLACEMENT

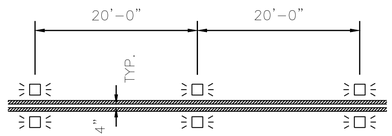
CONTINENTAL TYPE



STANDARD TYPE



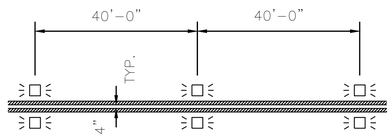
CENTER LINE DETAIL
CURVE SECTION



TYPE II A-A PAVEMENT MARKERS

4" YELLOW STRIPES

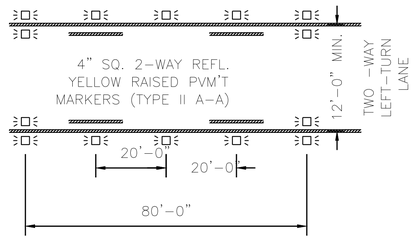
CENTER LINE DETAIL
TANGENT SECTION



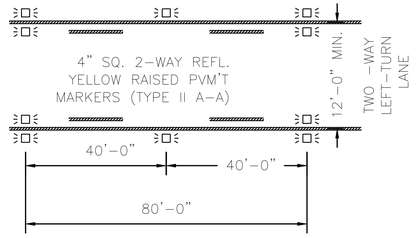
TYPE II A-A PAVEMENT MARKERS

4" YELLOW STRIPES

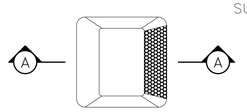
TWO-WAY LEFT TURN
CURVE SECTION



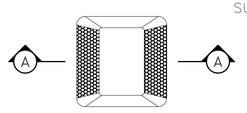
TWO-WAY LEFT TURN
TANGENT SECTION



RAISED PAVEMENT MARKERS



TYPE I (TOP VIEW)



TYPE II (TOP VIEW)

SECTION A-A

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-21	RWB

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336.
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS · SATYA PILLA · 118823 · LICENSED PROFESSIONAL ENGINEER

PROJECT TITLE:		
DRAWN BY: INIT		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PAVEMENT MARKING DETAILS	
SCALE: NONE	SHEET 2 OF 2	SHEET NO: 74
DATE: 2-1-21	APPROVED BY:	

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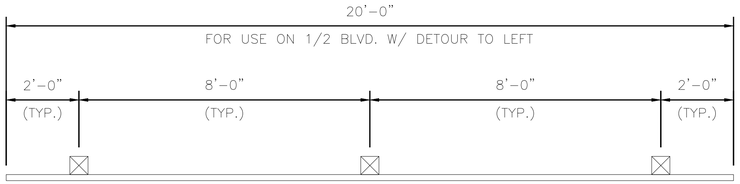
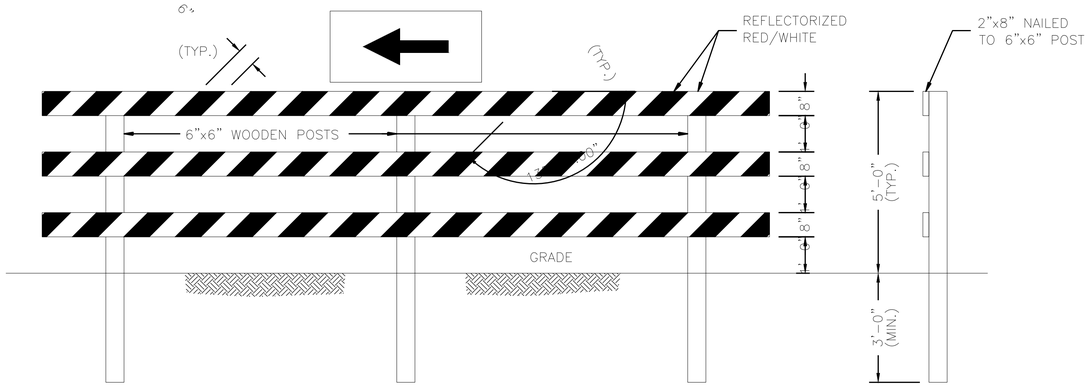


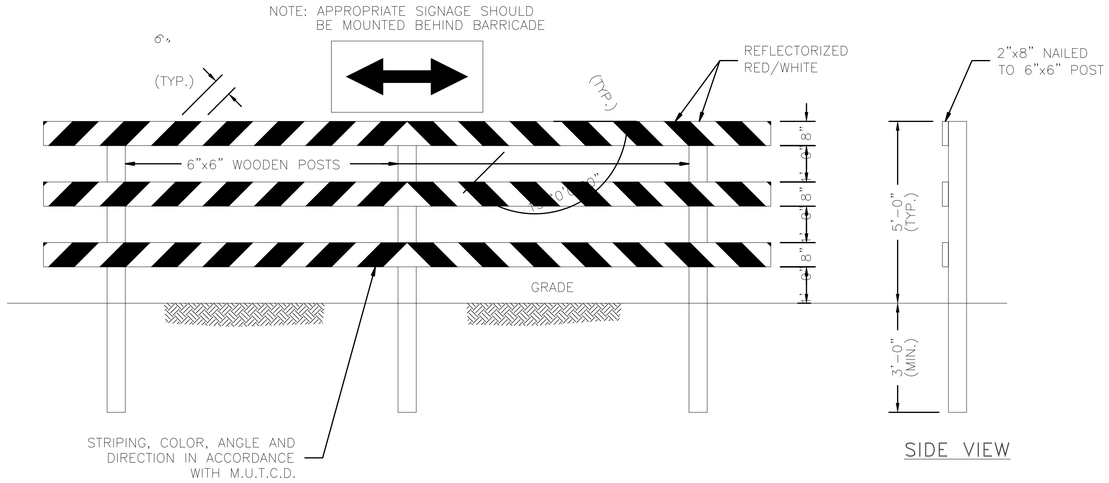
PLAN VIEW



FRONT VIEW

SIDE VIEW

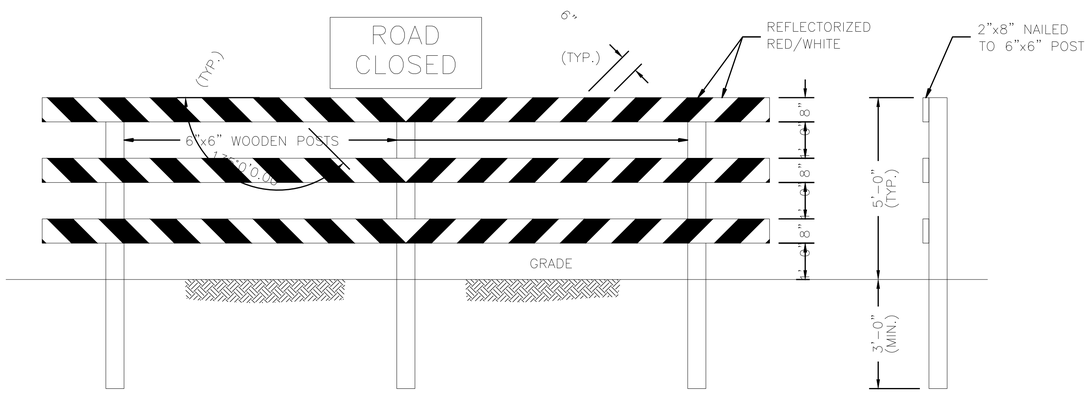
DETOUR ROUTE



FRONT VIEW

SIDE VIEW

T-INTERSECTION



FRONT VIEW

SIDE VIEW

ROAD CLOSED - NO OUTLET

APPLICATION: PERMANENT AND SEMI-PERMANENT CLOSURE OF ROADWAY OR ROADWAY TERMINATION

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-21	RWB
2			
3			
4			
5			

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

iGET SERVICES iGET Services LLC
TBPE Firm Registration No. F-16628.
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HOUSTON, TX 77036
PH. 832-634-3430

STATE OF TEXAS · SATYA PILLA · 118823 · LICENSED PROFESSIONAL ENGINEER

PROJECT TITLE:

DRAWN BY: INIT		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: TYPE III BARRICADE DETAILS	
SCALE: 1"=2'-0"		SHEET NO: 75
DATE: 2-1-21	APPROVED BY:	

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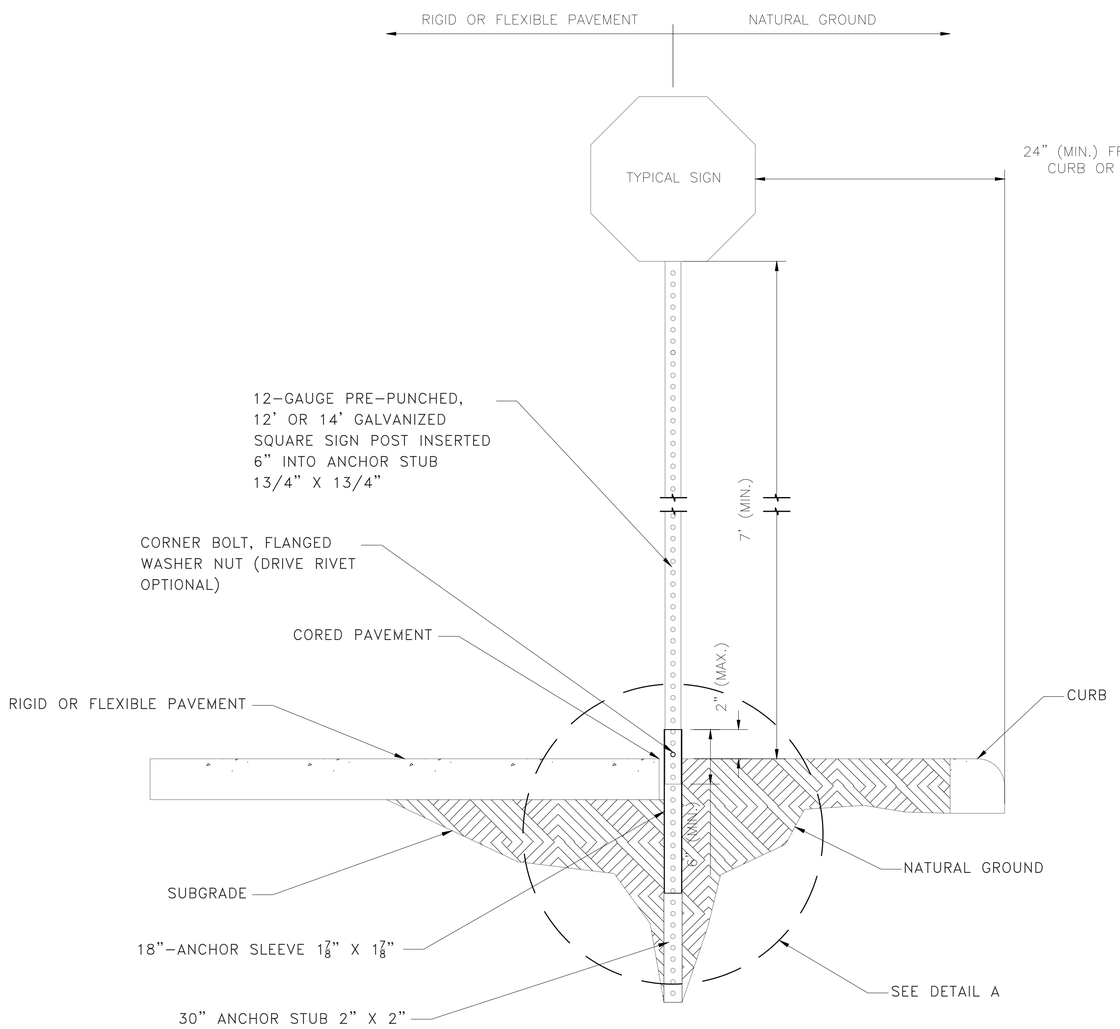

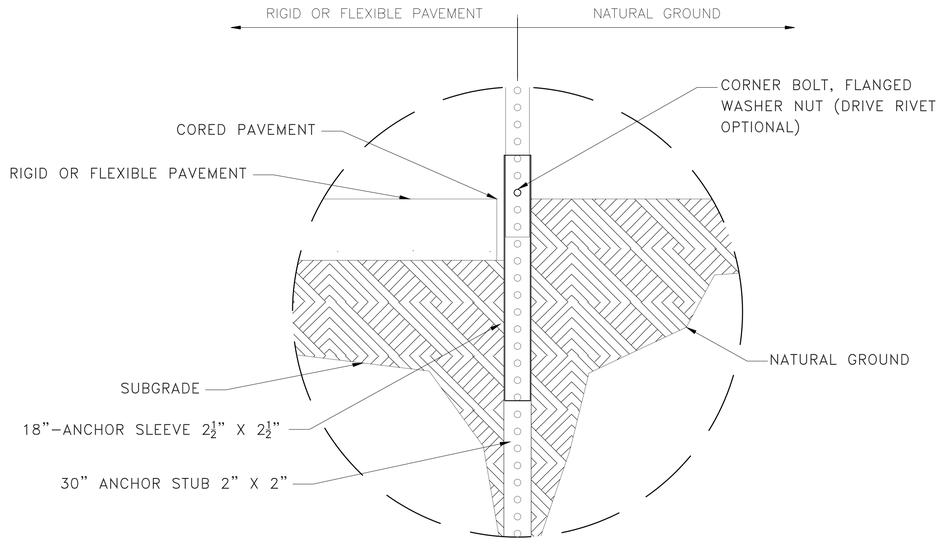

TYPICAL GROUND SIGN INSTALLATION
DETAIL A

NOTES:

1. THE CROSS SECTION OF ALL MEMBERS SHALL BE SQUARE TUBE FORMED OF 12 GAUGE AND MANUFACTURED FROM HOT-GALVANIZED STEEL
2. THE TELESCOPE BREAKAWAY SYSTEM OR "SYSTEM" IS DEFINED AS FOLLOW:
- A MINIMUM 30" ANCHOR STUB;
- 18" ANCHOR SLEEVE.
1. DRIVE THE SYSTEM TOGETHER MAKING SURE THE HOLES ARE ALIGNED.
2. THE SYSTEM IS TO BE DRIVEN INTO NATURAL GROUND EXPOSED SUBGRADE UNTIL ONLY 1 TO 2 INCHES ARE LEFT EXPOSED.
5 ATTACH THE SIGN TO AN 1 3/4" SQUARE POST AT THE DESIRED HEIGHT, SUCH THAT IT MEETS THE MINIMUM VERTICAL CLEARANCE.
6. SIGNS ARE FASTENED TO THE POST BY USING DRIVE RIVETS OR BOLTS.
7. INSERT THE SIGN POST APPROXIMATELY 6 TO 8 INCHES INTO THE ANCHOR BASE.
8. BOLT THE SIGN POST TO THE ANCHOR ASSEMBLY WITH A CORNER BOLT.
9. WHEN INSTALLING IN RIGID OR FLEXIBLE PAVEMENT, USE A CORING MACHINE TO EXPOSE THE SUBGRADE MATERIAL AND INSTALL THE SYSTEM.

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-21	RWB

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS · SATYA PILLA · 118823 · LICENSED PROFESSIONAL ENGINEER

PROJECT TITLE:

DRAWN BY: INIT		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: TYPICAL GROUND SIGN INSTALLATION	
SCALE: AS NOTED		SHEET NO: 76
DATE: 2-1-21	APPROVED BY:	

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DARBY LANE AT LONG POINT CREEK

(PROPOSED BRIDGE DESIGN)

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\Cover.dwg

DN: | CK: | DW: | CK:

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336.
HOUSTON, TX 77036
PH: 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/1/2024

LONG POINT CREEK

(PROPOSED BRIDGE DESIGN)

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		77 OF 116

DN: CK: DW: CK:

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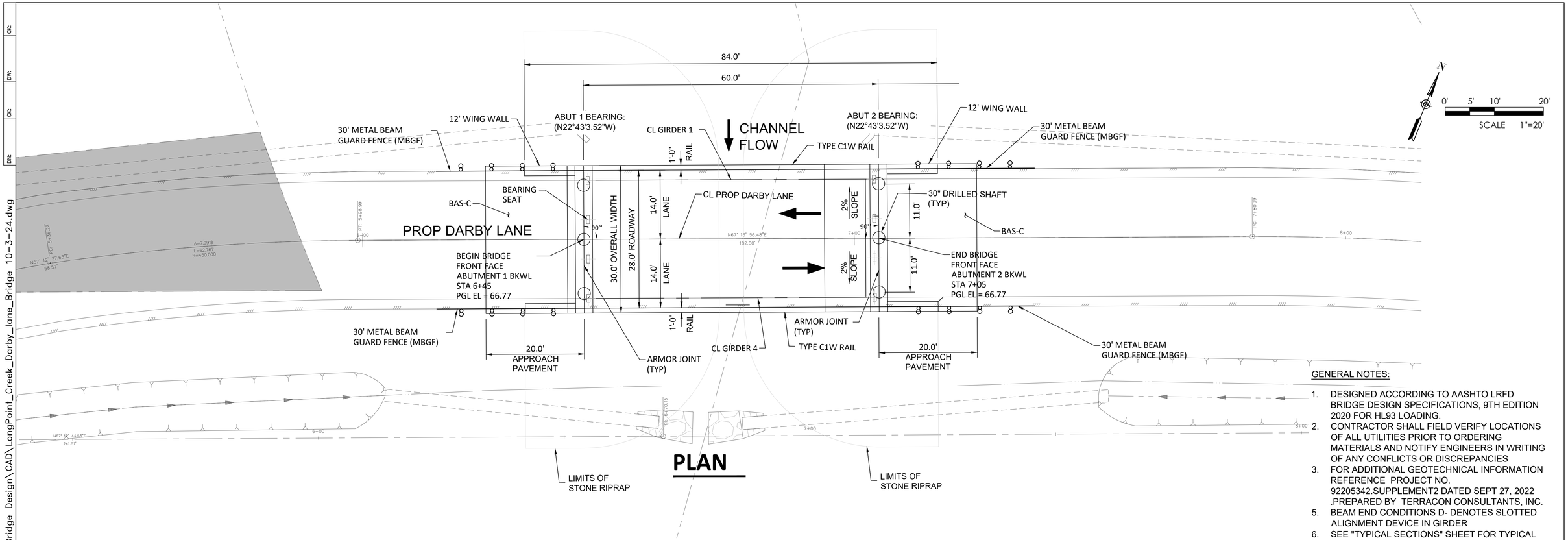
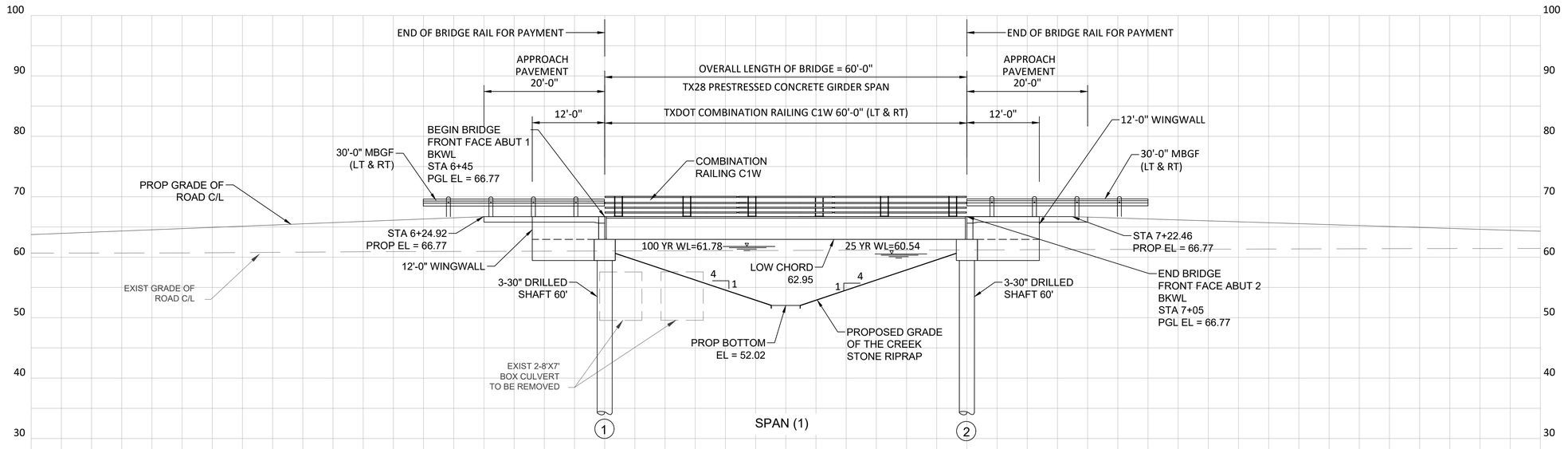


GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION 2020 FOR HL93 LOADING.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEERS IN WRITING OF ANY CONFLICTS OR DISCREPANCIES
3. FOR ADDITIONAL GEOTECHNICAL INFORMATION REFERENCE PROJECT NO. 92205342.SUPPLEMENT2 DATED SEPT 27, 2022 .PREPARED BY TERRACON CONSULTANTS, INC.
5. BEAM END CONDITIONS D- DENOTES SLOTTED ALIGNMENT DEVICE IN GIRDER
6. SEE "TYPICAL SECTIONS" SHEET FOR TYPICAL SECTION



ELEVATION

HL-93 LOADING

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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HOUSTON, TX 77036
PH. 832-834-3430

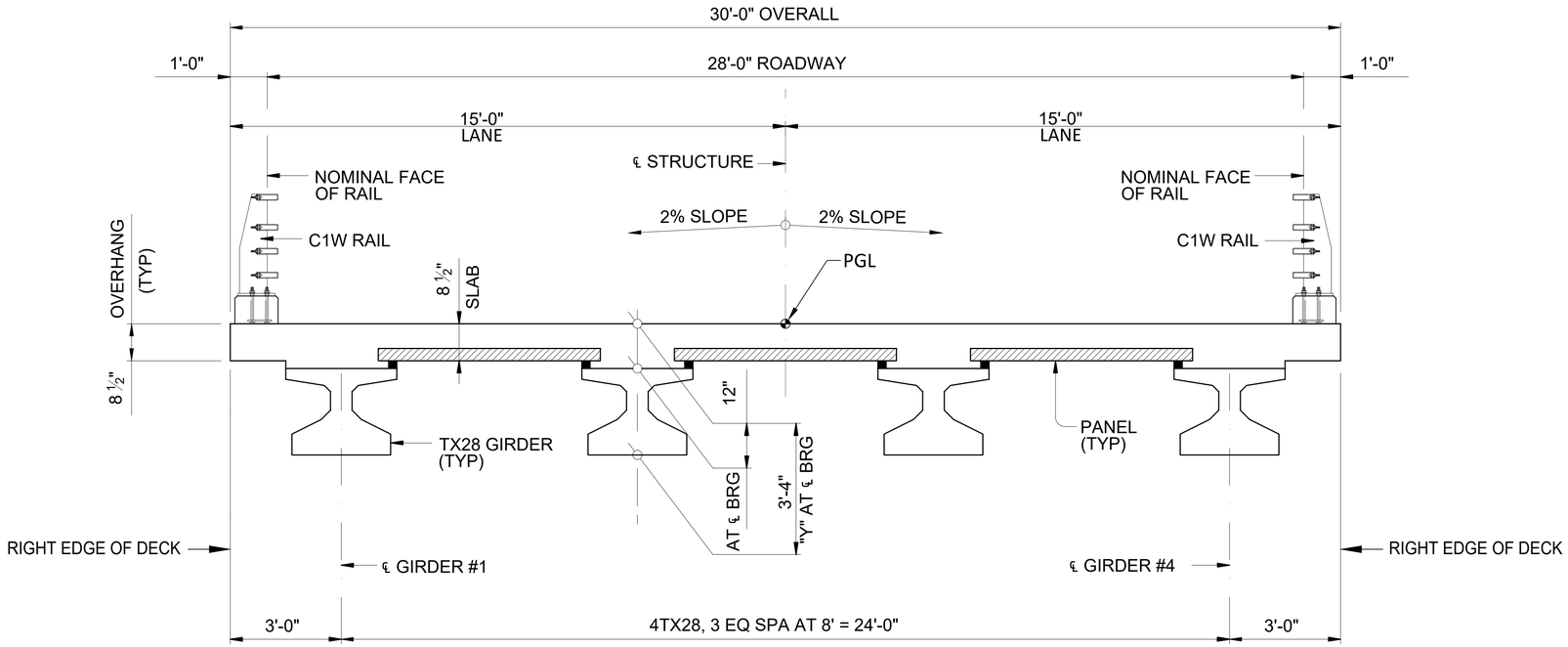
STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

BRIDGE PLAN & PROFILE

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		78 OF 116

DATE:
FILE:



TYPICAL TRANSVERSE SECTION

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration, No. F-16628
10039 BISSONET STREET , ST. 336,
HOUSTON, TX 77036
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STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

BRIDGE TYPICAL SECTION

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		79 OF 116

DATE:
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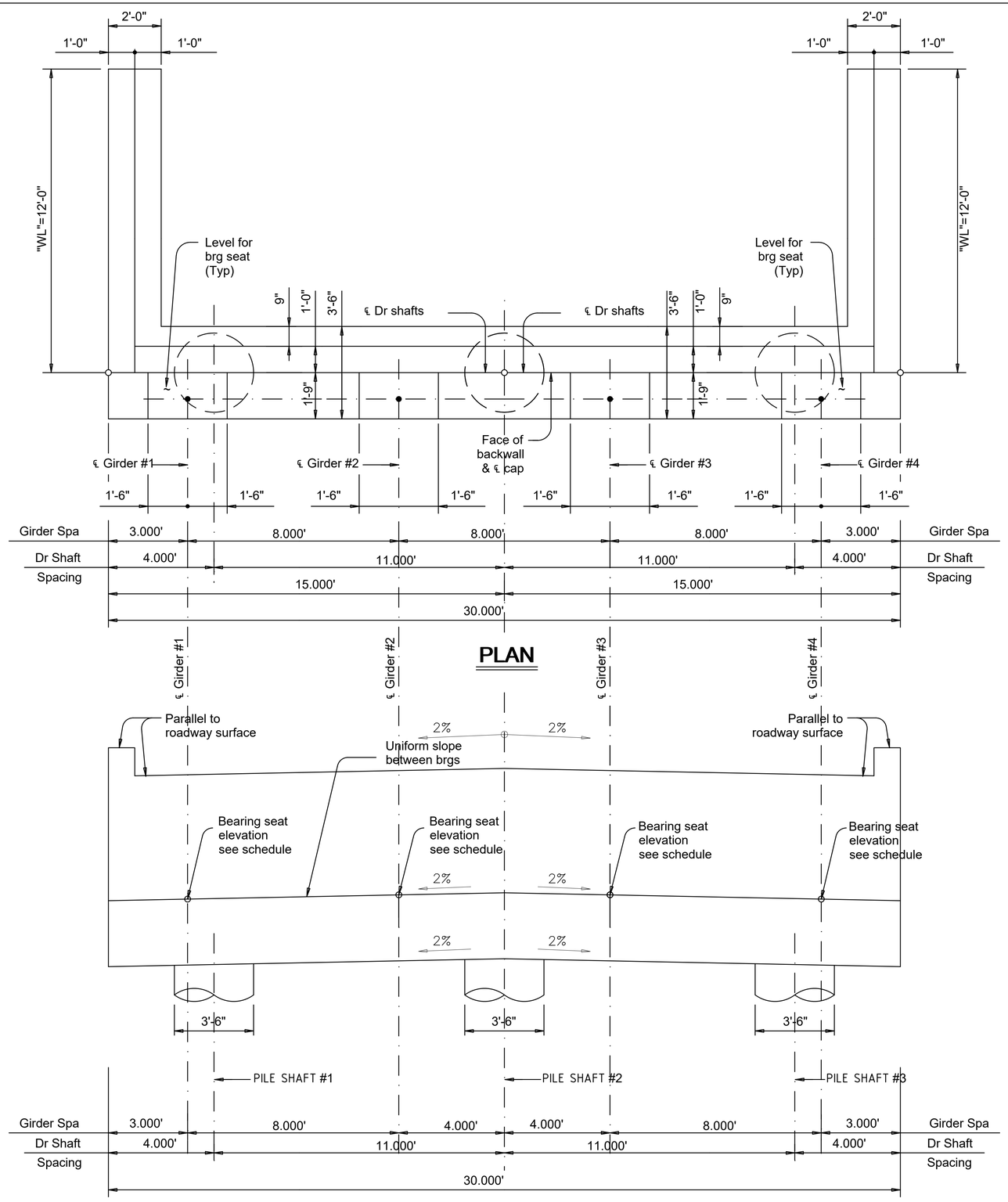

BEARING SEAT ELEVATIONS

		GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
ABUT 1	(FWD)	62.593	62.753	62.753	62.593
ABUT 2	(BK)	62.593	62.753	62.753	62.593

NOTES

① SEE STANDARD SIG FOR STEEL REINFORCEMENT

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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PH. 832-634-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

BEARING SEAT ELEVATION

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		80 OF 116

DATE:
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DN:	CK:	DW:	CK:

ESTIMATED QUANTITIES

ITEM CODE	400	416	420	422		425	450	454
	7010	7005	7012	7001	7013	7001	7030	7003
ITEM DESCRIPTION	CEM STABIL BKFL	DRILLED SHAFT (30 IN)	CL C CONC (ABUT)	REINF CONC SLAB	APPROACH SLAB	PRSTR CONC GIRDER (TX28)	COMB RAIL C1W	ARMOR JOINT (SEALED)
UNIT	CY	LF	CY	SF	CY	LF	LF	LF
1-ABUTMENT (1)	45	180	20		24			30
1-ABUTMENT (2)	45	180	20		24			30
1-PRESTR CONC GIRDER UNIT				1800		238	120	
TOTAL	90	360	40	1800	48	238	120	60

BEARING SEAT ELEVATIONS

		GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
ABUT 1	(FWD)	62.593	62.753	62.753	62.593
		GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
ABUT 2	(BK)	62.593	62.753	62.753	62.593

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

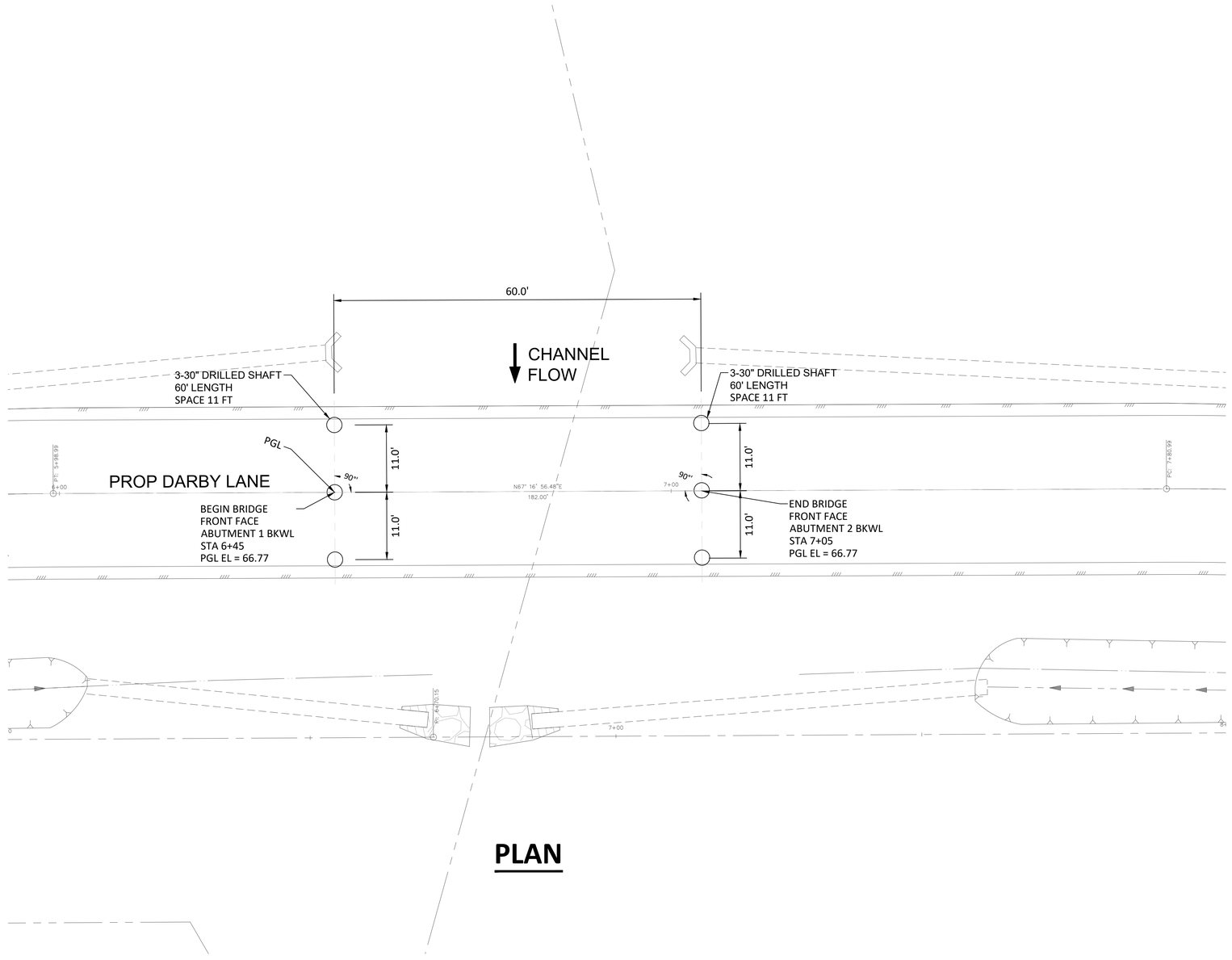
iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-634-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

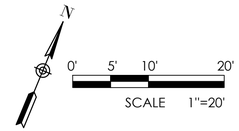
LONG POINT CREEK

BRIDGE QUANTITIES & ELEVATIONS

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		80 OF 116



PLAN



GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION 2020 FOR HL93 LOADING.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITIES PRIOR TO ORDERING MATERIALS AND NOTIFY ENGINEERS IN WRITING OF ANY CONFLICTS OR DISCREPANCIES
3. FOR ADDITIONAL GEOTECHNICAL INFORMATION REFERENCE PROJECT NO. 92205342.SUPPLEMENT2 DATED SEPT 27, 2022 .PREPARED BY TERRACON CONSULTANTS, INC.
5. BEAM END CONDITIONS D- DENOTES SLOTTED ALIGNMENT DEVICE IN GIRDER
6. SEE "TYPICAL SECTIONS" SHEET FOR TYPICAL SECTION

HL-93 LOADING

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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HOUSTON, TX 77036
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STATE OF TEXAS
SATYA PILLA
118823
PROFESSIONAL ENGINEER
10/3/2024

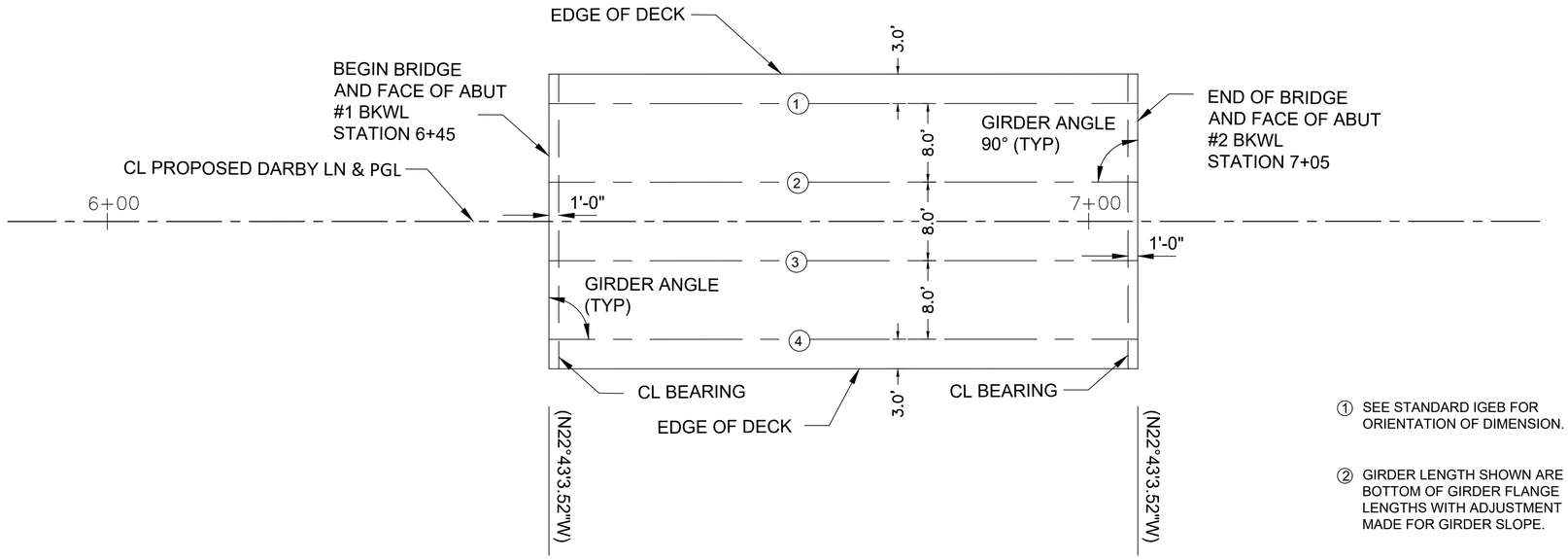
LONG POINT CREEK

FOUNDATION LAYOUT

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		81 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\LongPoint_Creek_Darby_lane_Bridge 10-3-24.dwg

DN:	CK:	DW:	CK:



① SEE STANDARD IGEB FOR ORIENTATION OF DIMENSION.

② GIRDER LENGTH SHOWN ARE BOTTOM OF GIRDER FLANGE LENGTHS WITH ADJUSTMENT MADE FOR GIRDER SLOPE.

BENT REPORT

ABUTMENT NO. 1 (FWD) (N22°43'3.52"W)

SPAN 1	GIRDER SPAC. (CL BENT)	GIRDER ANGLE
GIRDER 1	0.000	90°0'0.00"
GIRDER 2	8.000	90°0'0.00"
GIRDER 3	8.000	90°0'0.00"
GIRDER 4	8.000	90°0'0.00"
TOTAL	24.000	

ABUTMENT NO. 2 (BK) (N22°43'3.52"W)

SPAN 1	GIRDER SPAC. (CL BENT)	GIRDER ANGLE
GIRDER 1	0.000	90°0'0.00"
GIRDER 2	8.000	90°0'0.00"
GIRDER 3	8.000	90°0'0.00"
GIRDER 4	8.000	90°0'0.00"
TOTAL	24.000	

GIRDER REPORT

SPAN 1	HORIZONTAL DISTANCE C-C BENT	C-C BRG	TRUE DISTANCE ② BOT.GDR.FLG	GIRDER SLOPE	GIRDER BEARING
GIRDER 1	60.000	58.000	59.500	0.000000	N67°16'56.48"E
GIRDER 2	60.000	58.000	59.500	0.000000	N67°16'56.48"E
GIRDER 3	60.000	58.000	59.500	0.000000	N67°16'56.48"E
GIRDER 4	60.000	58.000	59.500	0.000000	N67°16'56.48"E

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
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HOUSTON, TX 77036
PH. 832-634-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

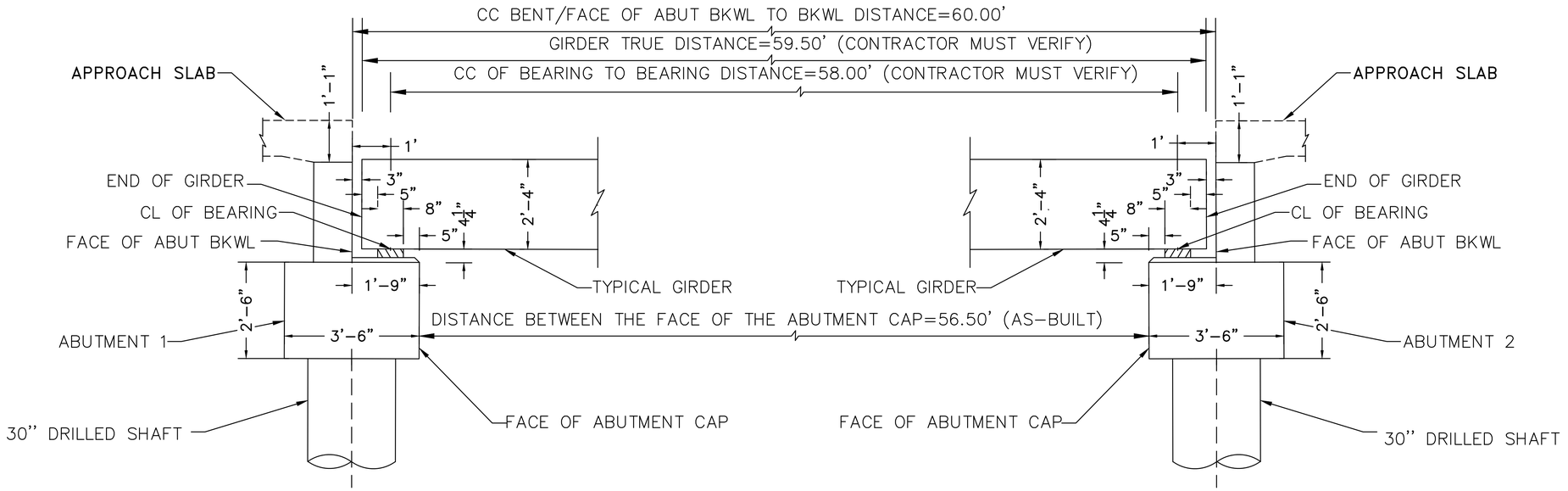
LONG POINT CREEK

BRIDGE FRAMING LAYOUT

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		82 OF 116

dn: | ck: | dw: | ck:

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\LongPoint_Creek_Darby_lane_Bridge 10-3-24.dwg



TX28 GIRDER

GIRDER REPORT

SPAN 1	HORIZONTAL DISTANCE C-C BENT	C-C BRG	TRUE DISTANCE ② BOT.GDR.FLG	GIRDER SLOPE	GIRDER BEARING
GIRDER 1	60.000	58.000	59.500	0.000000	N67°16'56.48"E
GIRDER 2	60.000	58.000	59.500	0.000000	N67°16'56.48"E
GIRDER 3	60.000	58.000	59.500	0.000000	N67°16'56.48"E
GIRDER 4	60.000	58.000	59.500	0.000000	N67°16'56.48"E

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

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HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

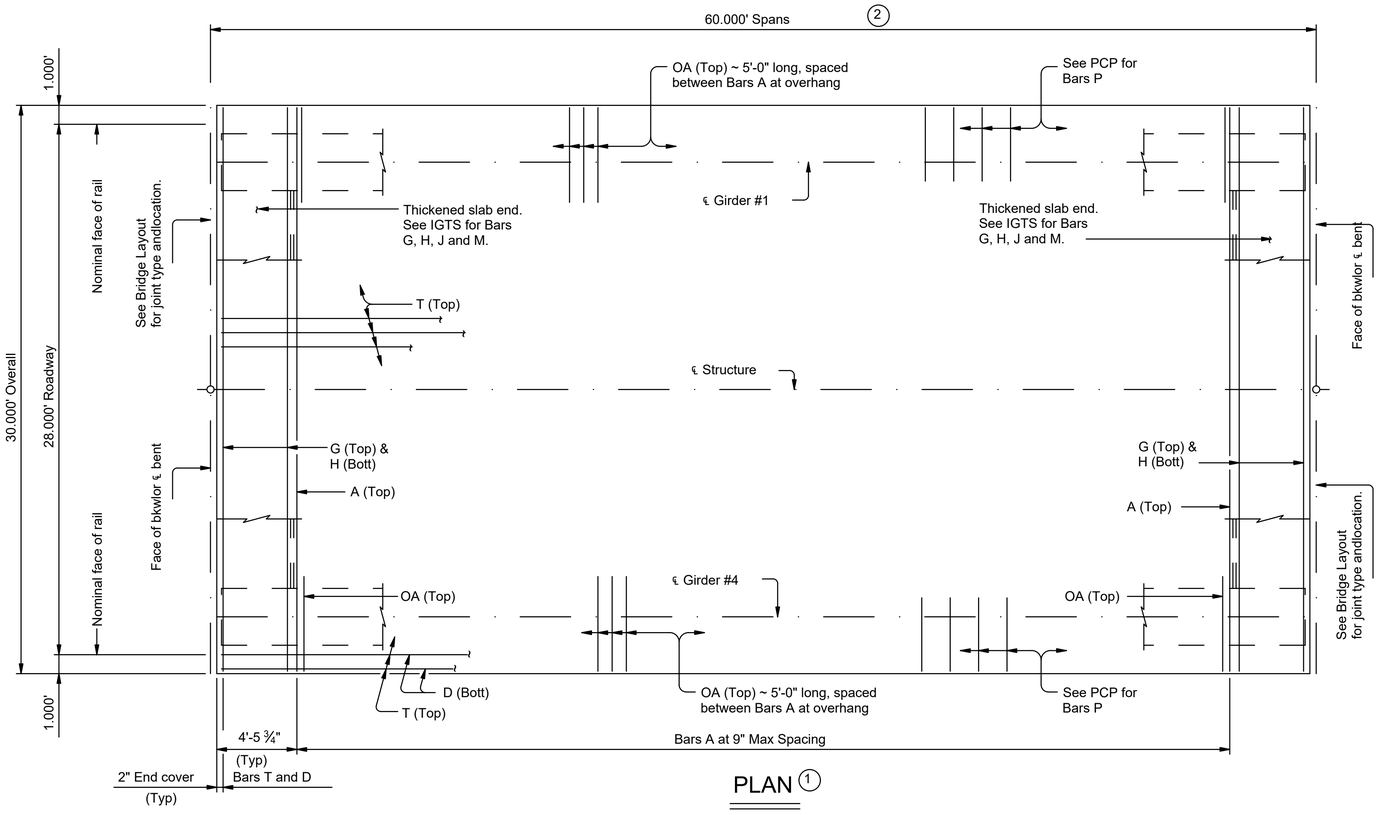
LONG POINT CREEK

GIRDER LENGTH EXHIBT AS BUILD MEASUREMENT

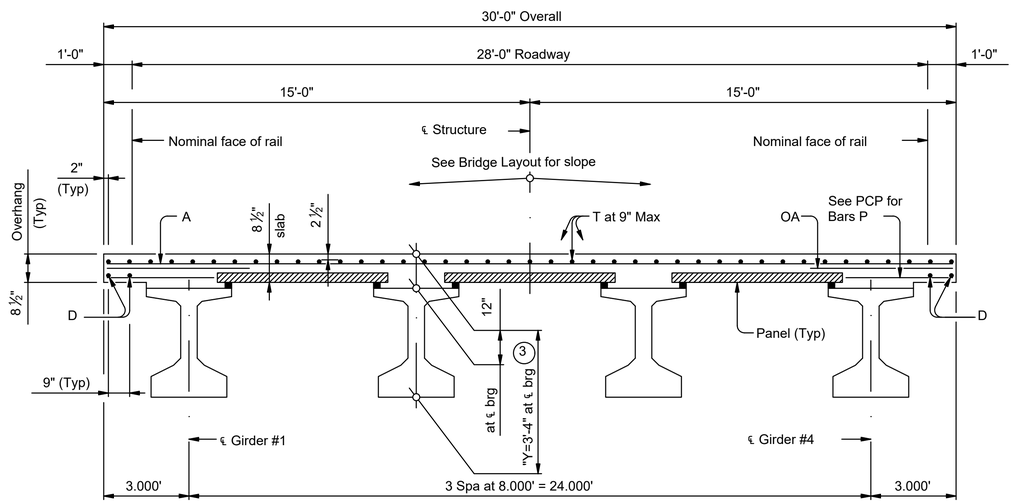
SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		84 OF 116

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\LongPoint_Creek_Darby_lane_Bridge 10-3-24.dwg

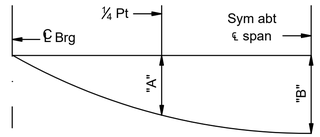
DN:	CK:	DW:	CK:



PLAN (1)



TYPICAL TRANSVERSE SECTION



DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior girders only (Ec = 5000 ksi).
Adjust values as required for exterior girders and if optional slab forming is used. These values may require field verification.

TABLE OF DEAD LOAD DEFLECTIONS

SPAN LENGTH	"A"	"B"
60 Ft	0.048	0.068

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

TABLE OF ESTIMATED QUANTITIES

	REINF CONCRETE SLAB	Prestressed Concrete Girders: ABUT TO ABUT (4)	TOTAL REINF STEEL (5)	ARMOR JOINT
Ft	SF	LF	Lb	LF
60	1,800	238.00	4,140	60

(4) Fabricator will adjust lengths for girder slopes as required.

(5) Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.

TABLE OF SECTION DEPTHS

GIRDER TYPE	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ SPAN
Tx28	12"	3'-4"	12"

(1) If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see standard IGCS for adjustment to slab reinforcement and quantities.

(2) Bars may be adjusted laterally 3" plus or minus to locate railing anchor bolts.

(4) Fabricator will adjust lengths for girder slopes as required.

(5) Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.

(6) Extend bars A, G and H 1'-7" into Phase 2 Construction.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Multi-span units, with slab continuous over interior bents, may be formed with the details shown on this sheet and standard IGCS.
See IGTS standard for Thickened Slab End details and See PCP and PCP-FAB for panel details not shown.
See PCP(O) and PCP(O)-FAB for precast overhang panel details if this option is used.
See IGMS standard for miscellaneous details.
See applicable rail details for rail anchorage in slab.
See PMDF standard for details and quantity adjustments if this option is used.
This standard does not support the use of transition bents.

Cover dimensions are clear dimensions, unless noted otherwise.

MATERIAL NOTES:

Provide Class S concrete (f'c = 4,000 psi).
Provide Class S (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"
Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, D, OA, P or T unless noted otherwise.

HL-93 LOADING

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET , ST. 336,
HOUSTON, TX 77036
PH: 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

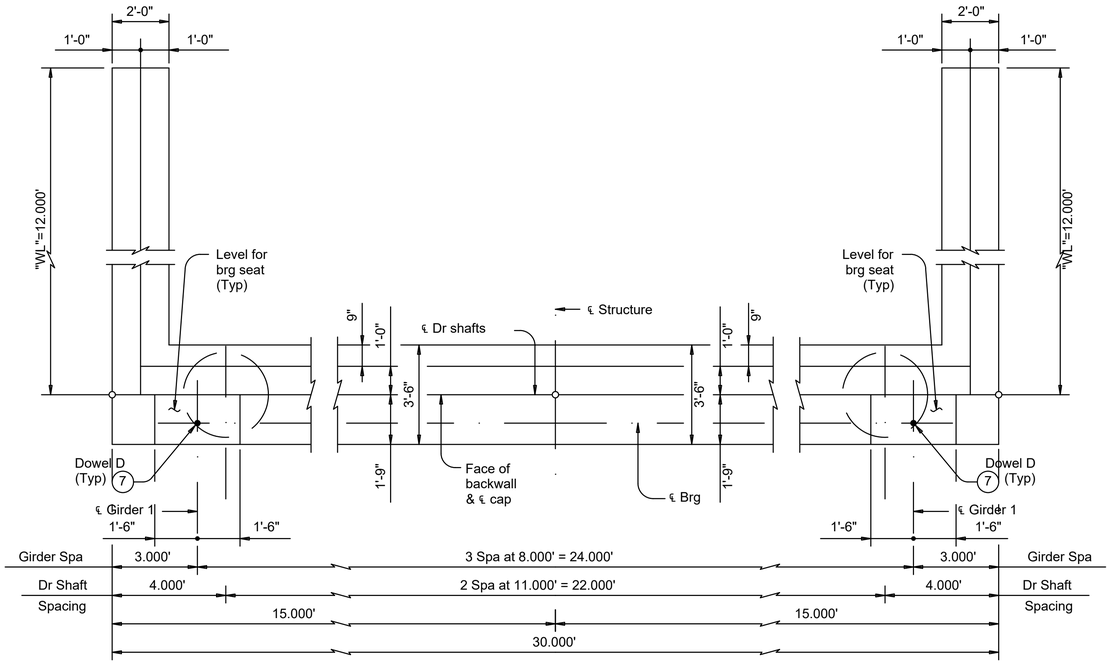
LONG POINT CREEK

PRESTRESSED CONCRETE I-GIRDER SPAN TYPE Tx28

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		83 OF 116

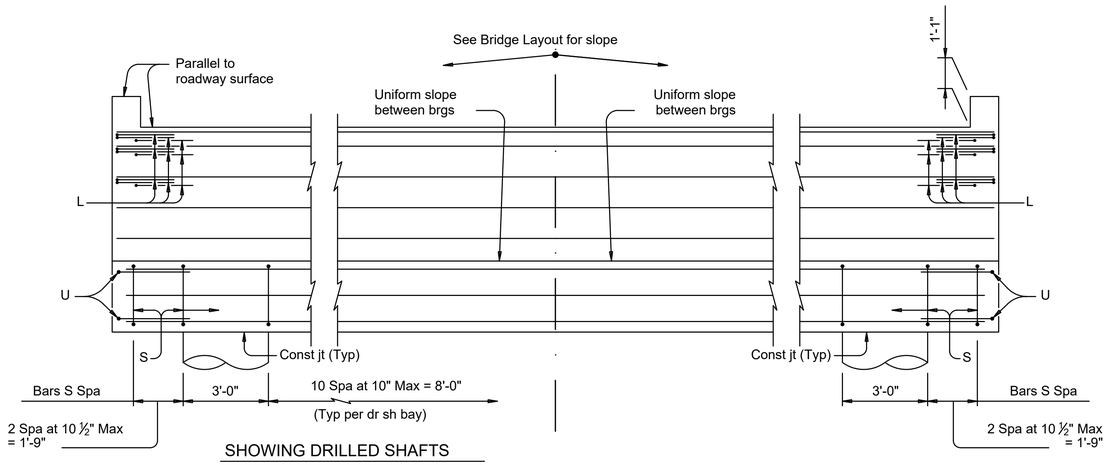
DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\LongPoint_Creek_Darby_lane_Bridge 10-3-24.dwg

CK: DW: CK: DN:



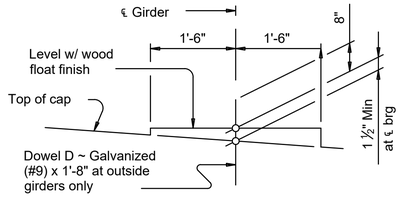
SHOWING DRILLED SHAFTS

PLAN



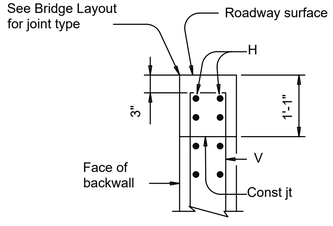
SHOWING DRILLED SHAFTS

ELEVATION



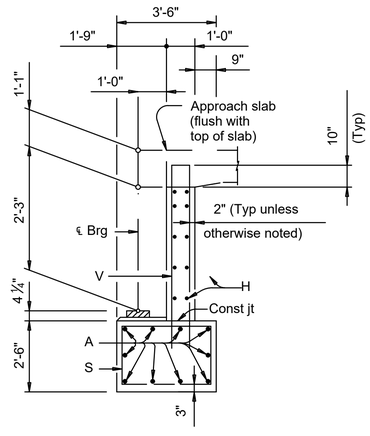
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



BACKWALL DETAIL

(Without approach slab)



SECTION A-A

(With approach slab)

TABLES OF ESTIMATED QUANTITIES

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	12	#11	29'-0"	1,849
D (7)	2	#9	1'-8"	11
H	8	#6	29'-8"	356
L	18	#6	4'-0"	108
S	28	#5	11'-6"	336
U	4	#6	8'-1"	49
V	29	#5	11'-4"	343
wH1	14	#6	13'-5"	282
wH2	20	#6	11'-8"	350
wS	26	#4	7'-10"	136
wV	26	#5	11'-4"	307
Reinforcing Steel			Lb	4,127
Class "C" Concrete			CY	19.4

TOP OF DRILLED SHAFT ELEVATIONS

	DRILLED SHAFT 1	DRILLED SHAFT 2	DRILLED SHAFT 3
ABUT 1 (FWD)	67.82	68.04	67.82
	DRILLED SHAFT 1	DRILLED SHAFT 2	DRILLED SHAFT 3
ABUT 2 (BK)	67.82	68.04	67.82

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

See Bridge Layout for header slope and foundation type, size and length.

See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Concrete Riprap (CRR) standard sheet or Stone Riprap (SRR) standard sheet for riprap attachment details, if applicable.

See applicable rail details for rail anchorage in wingwalls.

These abutment details may be used with standard SIG-40 only.

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

MATERIAL NOTES:

Provide Class C concrete (f'c = 3,600 psi).

Provide Class C (HPC) concrete if shown elsewhere in the plans.

Provide Grade 60 reinforcing steel.

Galvanize dowel bars D.

HL93 LOADING

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NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
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10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED PROFESSIONAL ENGINEER
10/3/2024

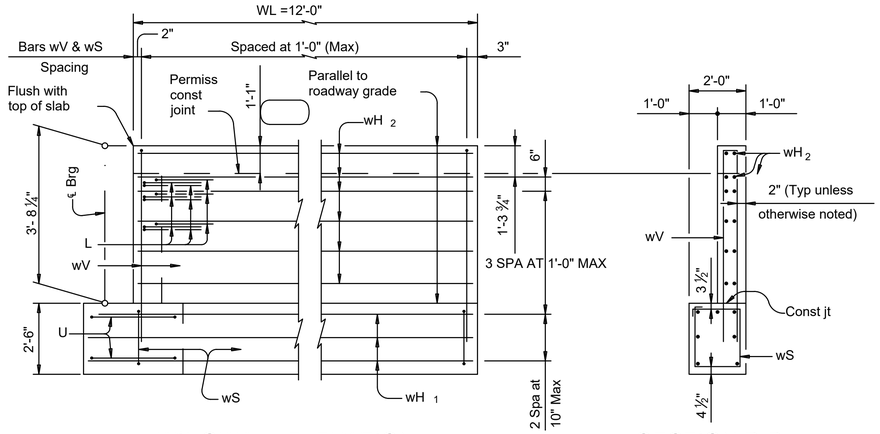
LONG POINT CREEK

BRIDGE ABUTMENT NO 1 OR 2

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		84 OF 116

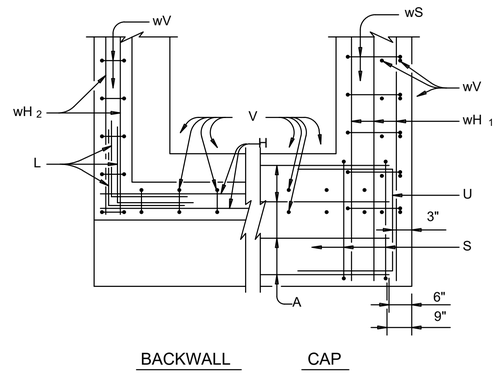
DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\Long Point Creek_Darby_lane_Bridge 10-3-24.dwg

DN: CK: DW: CK:



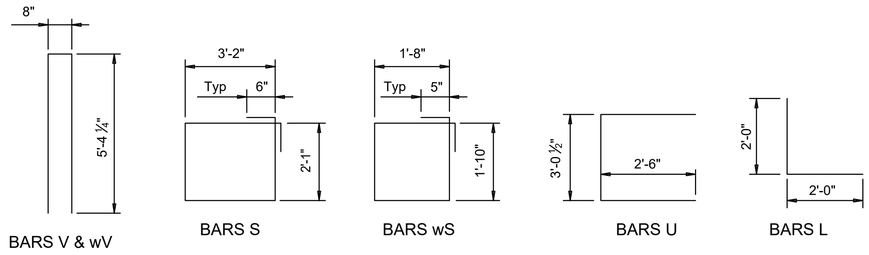
WINGWALL ELEVATION

SECTION B-B



BACKWALL CAP

CORNER DETAILS



HL-93 LOADING

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY
DRAINAGE
DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-634-3430

STATE OF TEXAS
SATYA PILLA
118823
LICENSED
PROFESSIONAL ENGINEER
10/3/2024

LONG POINT CREEK

BRIDGE ABUTMENT NO 1 OR 2 WINGWALL

SCALE:		DESIGN BY:	--
JOB		DRAWN BY:	--
DATE:	10/3/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		85 OF 116

DATE:
FILE: C:\Users\get Osama\Downloads\00-Design-Long point creek-darby lane Bridge\3-Osama Bridge Design\CAD\LongPoint_Creek_Darby_lane_Bridge 10-3-24.dwg

DN: | CK: | DW: | CK:

STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS		
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS						NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)								Moment	Shear	Inv	Opr	Inv
DARBY LANE BRIDGE SPAN= 60 FT	1	ALL	Tx28		22	0.6	270	9.75	6.48	4	22.5	4.400	6.500	2.557	-3.243	2487	0.680	0.980	1.33	1.82	1.04

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = 0.24 f'ci

Optional designs must likewise conform.

(2) Portion of full HL93.

DESIGN NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications. Load rated using Load and Resistance Factor Rating according to AASHTO Manual for Bridge Evaluation.

Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.

Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:

Provide Class H concrete.

Provide Grade 60 reinforcing steel bars.

Use low relaxation strands, each pretensioned to 75 percent of fpu.

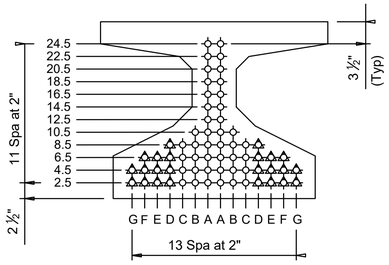
Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked △. Double wrap full-length debonded strands in outer most position of each row.

When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.

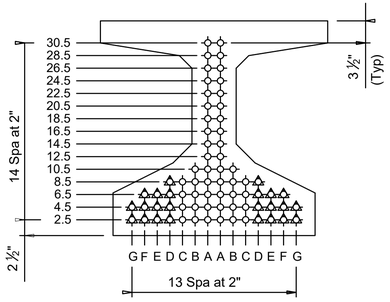
Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

DEPRESSED STRAND DESIGNS:

Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that, at the girder ends, the upper two strands are in the position shown in the table.



TYPE Tx28



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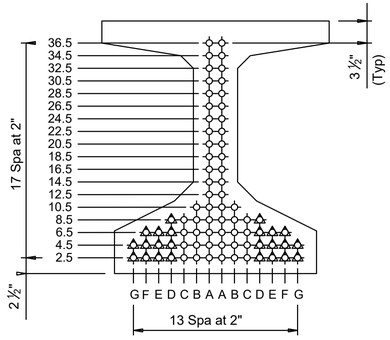

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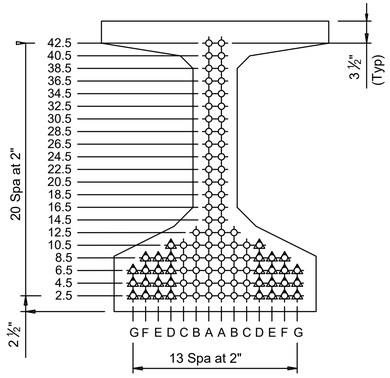

TYPE Tx46

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Texas Department of Transportation

Bridge Division Standard

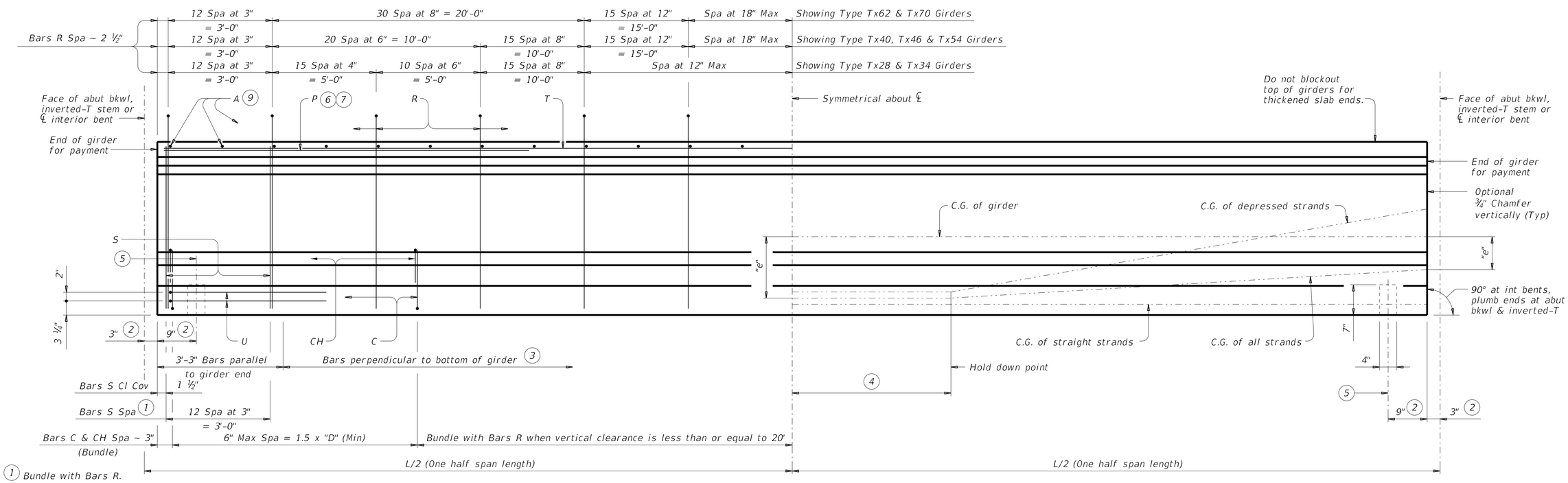
PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

28' ROADWAY

IGSD-28

FILE:	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Redesigned girders. 1-21: Added load rating.				
	DIST	COUNTY		SHEET NO.
				86

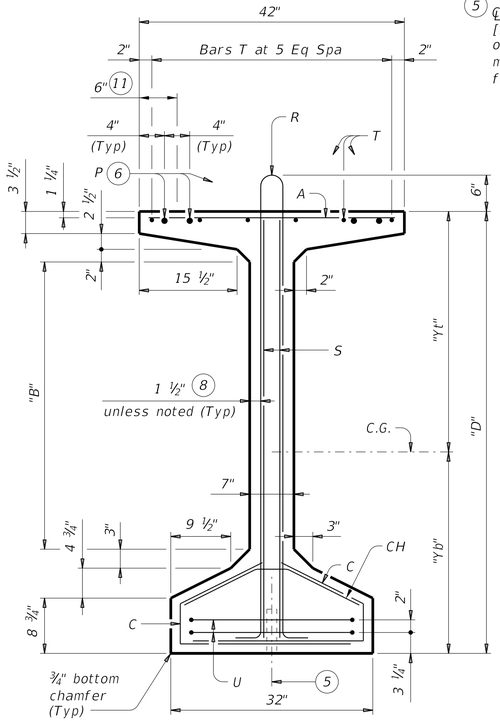
DATE:
FILE:



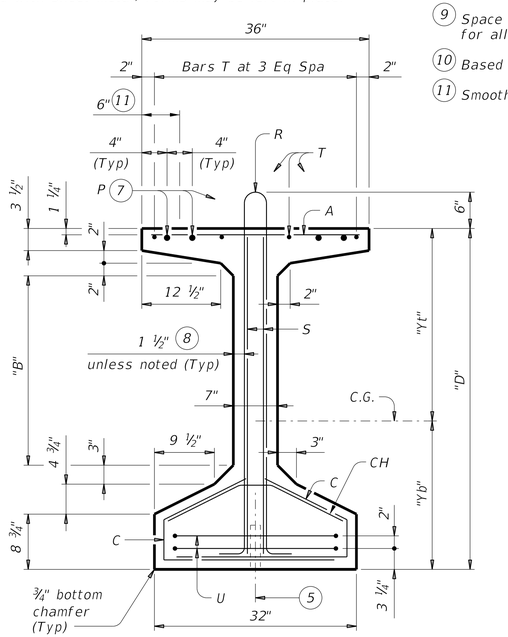
1. Bundle with Bars R.
2. Measured along ℄ Girder at interior bents; perpendicular to abutment bkwl or inverted-T stem.
3. The average of the top and bottom spacing of Bars R cannot exceed the required spacing.
4. L/20, but not less than 5'-0" (-0,+2').
5. ℄ 4" x 1 ½" Vertical Slotted Hole at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details. Anchorage holes may be tapered (4 ¾" x 1 ⅝") at base. If holes are formed with sheet metal, forms may be left in place.

GIRDER ELEVATION

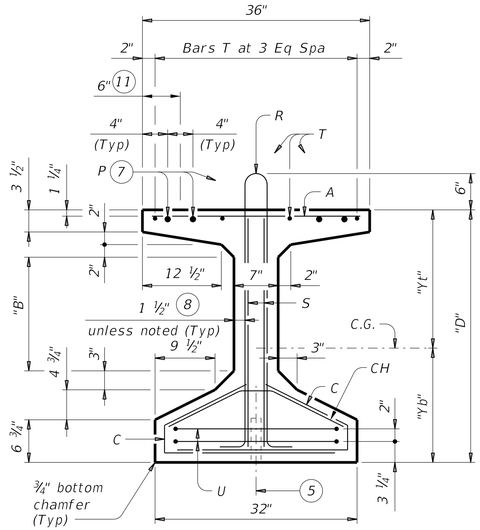
6. Bars P (#6 x 15'-0") required in Tx62 and Tx70 girders. At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.
7. Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.
8. 1 ⅜" Clear Cover to Bars S.
9. Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes".
10. Based on 155 pcf total weight of concrete and reinforcing steel.
11. Smooth trowel finish on the slab overhang side of exterior girder.



TYPE Tx62 & Tx70



TYPE Tx46 & Tx54



TYPE Tx28, Tx34 & Tx40

GIRDER DIMENSIONS AND SECTION PROPERTIES

Girder Type	"D" (in.)	"B" (in.)	"Yt" (in.)	"Yb" (in.)	Area (in.²)	"Ix" (in.⁴)	"Iy" (in.⁴)	Weight (10) (plf)
Tx28	28	6	15.02	12.98	585	52,772	40,559	630
Tx34	34	12	18.49	15.51	627	88,355	40,731	675
Tx40	40	18	21.90	18.10	669	134,990	40,902	720
Tx46	46	22	25.90	20.10	761	198,089	46,478	819
Tx54	54	30	30.49	23.51	817	299,740	46,707	880
Tx62	62	37 ½"	33.72	28.28	910	463,072	57,351	980
Tx70	70	45 ½"	38.09	31.91	966	628,747	57,579	1,040

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Provide Class H concrete.
Provide Grade 60 reinforcing steel.
An equal area of deformed Welded Wire Reinforcement (WWR) (ASTM A1064) may be substituted for Bars A, C, R or T unless otherwise noted.
It is permissible for bars or strands to come in contact with materials used in forming anchor holes.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

Texas Department of Transportation

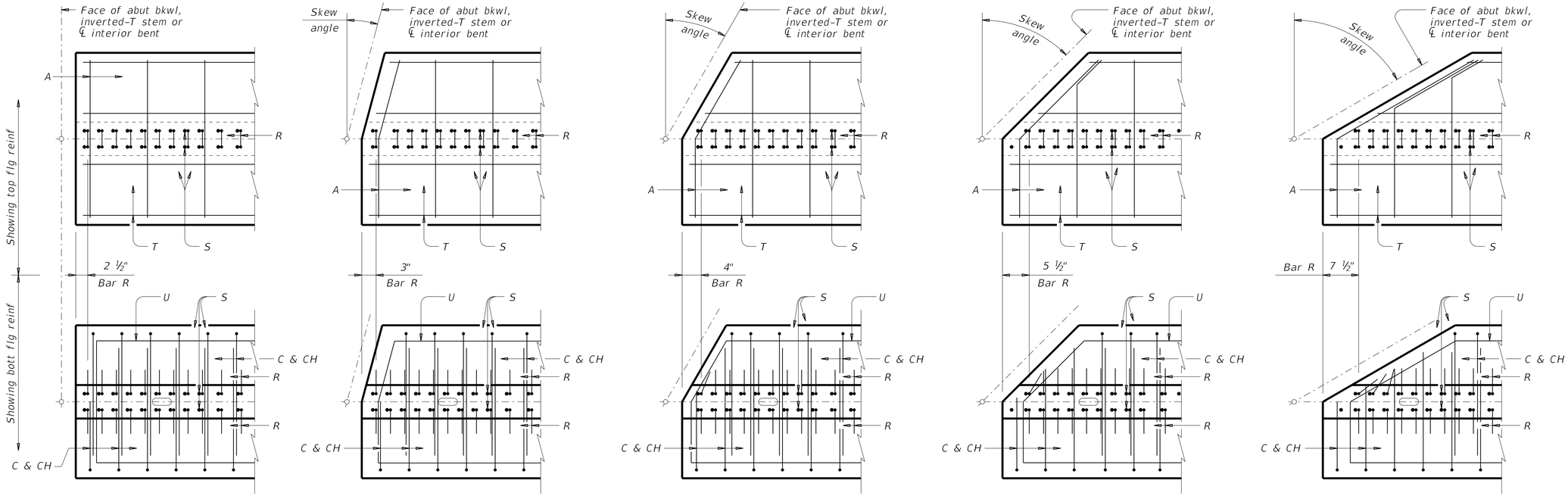
Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

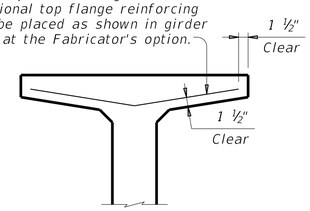
FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.
				87

DATE:
FILE:

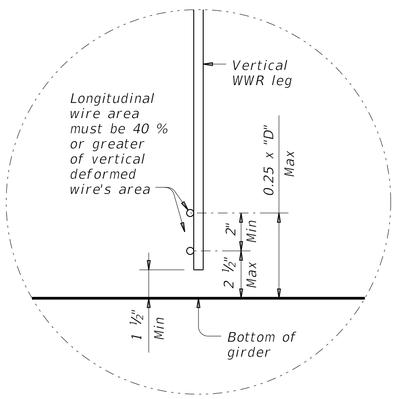


PLAN OF GIRDER ENDS (12)

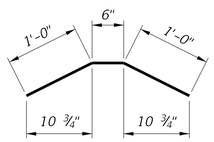
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



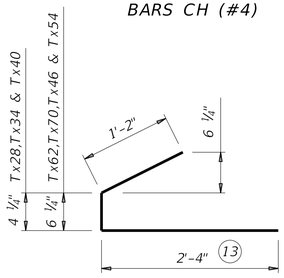
OPTIONAL TOP FLANGE REINFORCING DETAIL



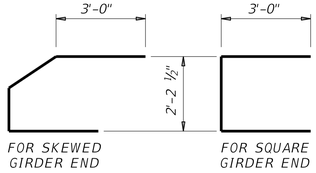
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



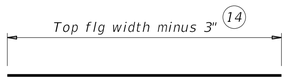
BARS CH (#4)



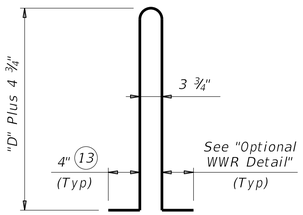
BARS C (#4)



BARS U (#5)

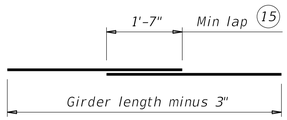


BARS A (#3)



BARS R (#4) (16)

BARS S (#6)



BARS T (#4)

(12) Reinforcing patterns shown are provided as guides to determine reinforcement placement in skewed ends. Place Bars S as close to girder end as cover requirements permit, which may prevent them to be bundled with Bars R.

(13) Bars may be cut or bent at skewed end as required.

(14) Increase as necessary for bars at skewed end.

(15) No portion of bar less than 10 ft.

(16) For Welded Wire Reinforcement (WWR) option, area of Bars R may be reduced in proportion to the increase in reinforcement yield strength over 60 ksi. Yield strength of WWR is limited to 75 ksi.

HL93 LOADING

Texas Department of Transportation

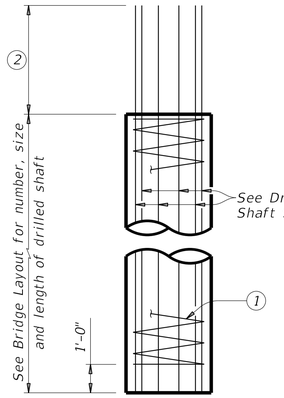
Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

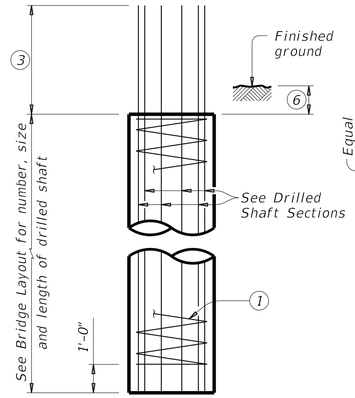
IGD

FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.
				88

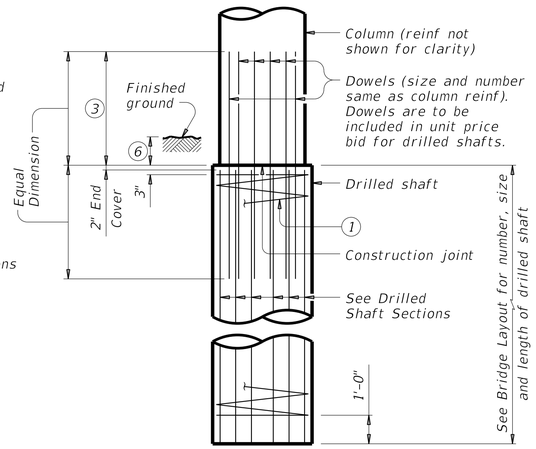
DATE:
FILE:



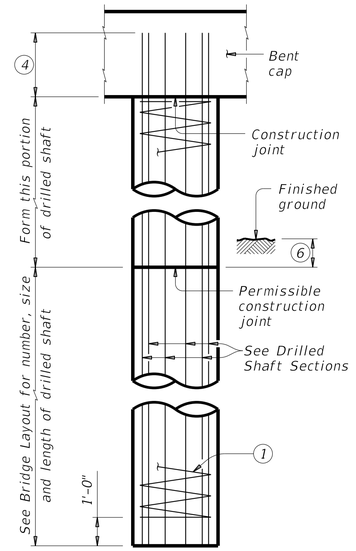
ABUTMENTS, WINGWALLS AND MULTI-DRILLED SHAFT FOOTINGS



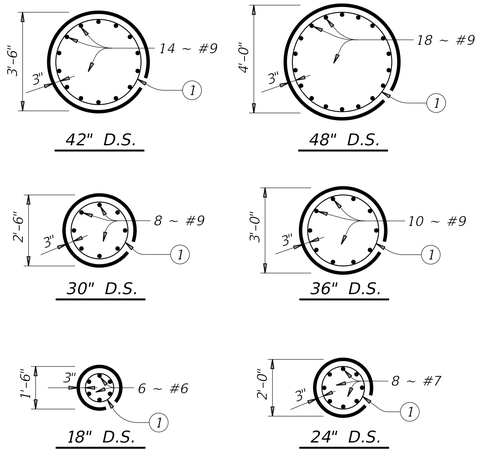
INTERIOR BENTS DRILLED SHAFT DIA EQUAL TO COLUMN DIA



INTERIOR BENTS DRILLED SHAFT DIA GREATER THAN COLUMN DIA



OPTIONAL INTERIOR BENT DRILLED SHAFT DETAIL (5)

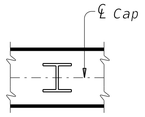


DRILLED SHAFT SECTIONS

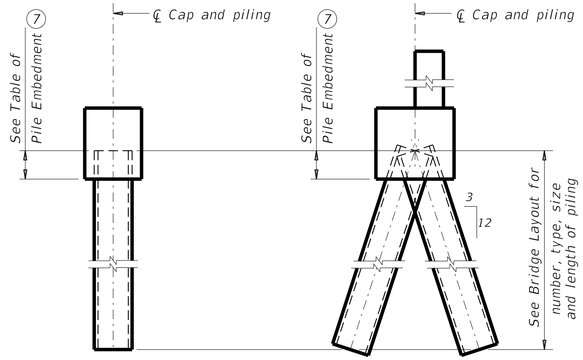
DRILLED SHAFT DETAILS

TABLE OF PILE EMBEDMENT	
Pile Type	Embedment Depth (Ft)
16" Sq Concrete 18" Sq Concrete HP14 Steel HP16 Steel	1'-0"
20" Sq Concrete 24" Sq Concrete HP18 Steel	1'-6"

See Prestressed Concrete Piling (CP) standard for additional details on concrete pile embedment.

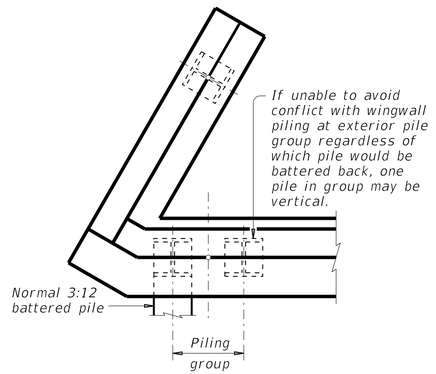


ORIENTATION OF STEEL H-PILING



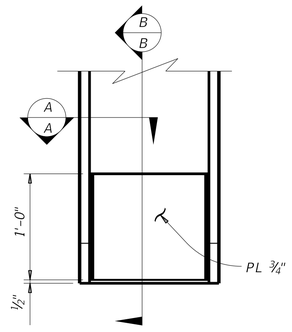
PILING DETAILS

(Concrete or steel H)

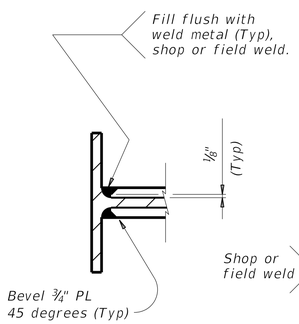


DETAIL "A"

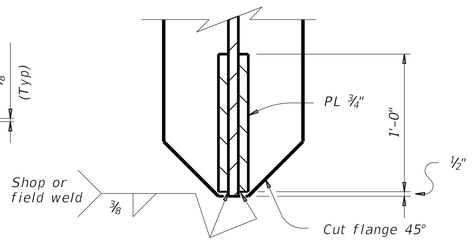
(Showing plan view of a 30° skewed abutment)



ELEVATION



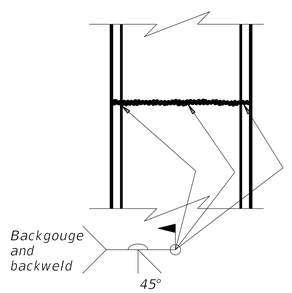
SECTION A-A

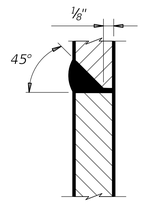


SECTION B-B

STEEL H-PILE TIP REINFORCEMENT

See Item 407 "Steel Piling" to determine when tip reinforcement is required and for options to the details shown.





SECTION THRU FLANGE OR WEB

STEEL H-PILE SPLICE DETAIL

Use when required.

(1) #3 spiral at 6" pitch (one and a half flat turns top and bottom).

(2) Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-0"
#9 Bars = 2'-3"

(3) Min lap with column reinf:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"

(4) Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-3"
#9 Bars = 2'-9"

(5) Drilled shafts may extend to the bottom of bent caps for "H" heights of 6 ft and less (as shown on the Bridge Layout), if approved. This option can only be used when the drilled shaft diameter equals the column diameter. Obtain approval of the forming method above the ground line prior to construction. No adjustments in payment will be made if this option is used.

(6) 1'-0" Min, unless shown otherwise on plans.

(7) Or as shown on plans.

Texas Department of Transportation

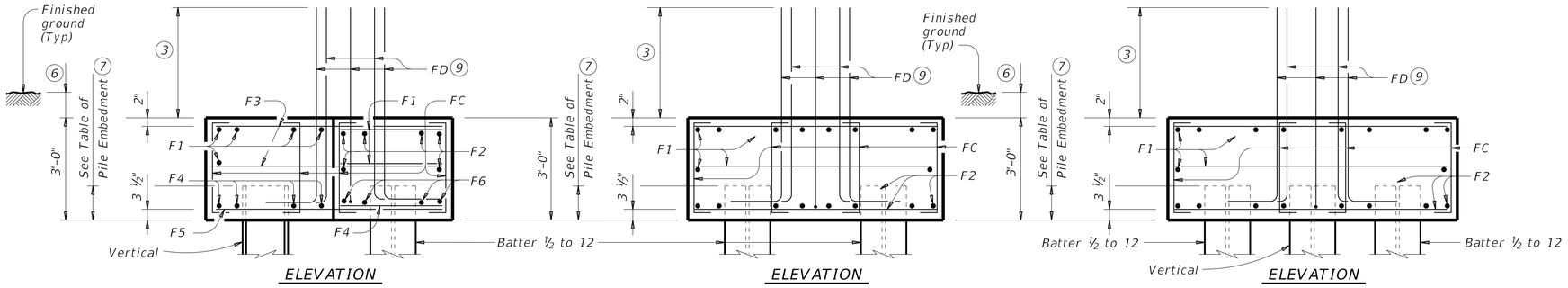
Bridge Division Standard

COMMON FOUNDATION DETAILS

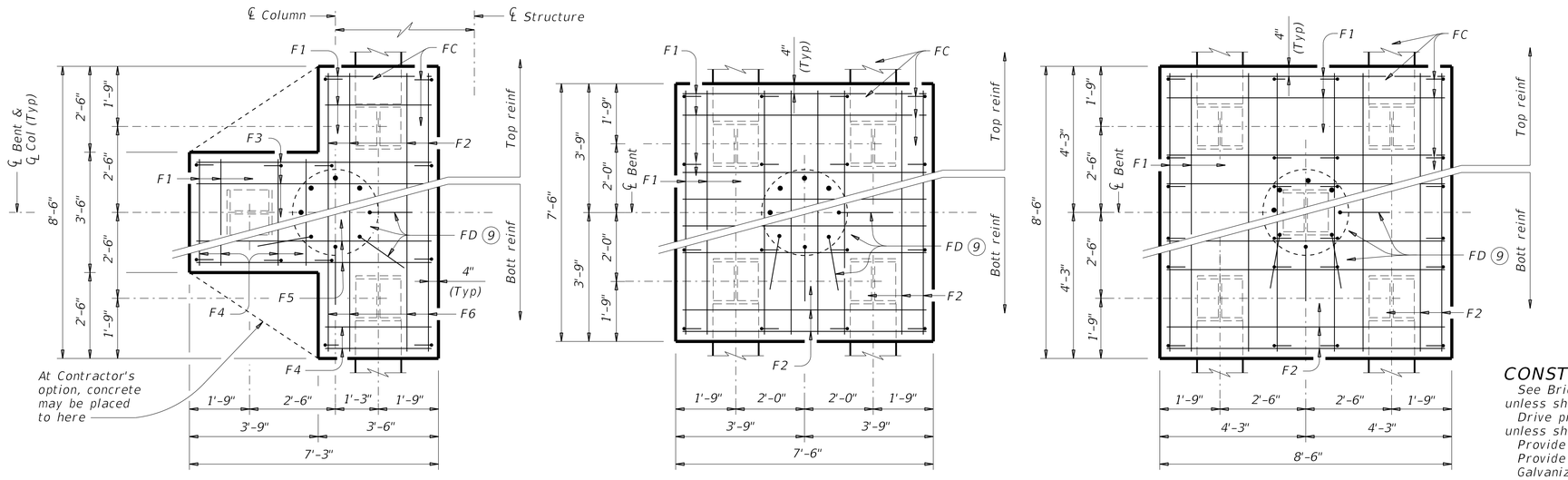
FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS 01-20: Added #11 bars to the FD bars.				
	DIST	COUNTY		SHEET NO.
				89

DATE:
FILE:



ELEVATION ELEVATION ELEVATION



PLAN PLAN PLAN

THREE PILE FOOTING (8)

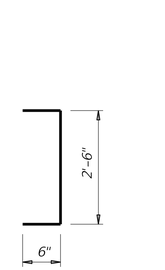
For 36" Dia and smaller columns.

FOUR PILE FOOTING (8)

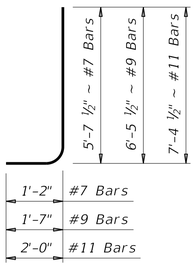
For 42" Dia and smaller columns.

FIVE PILE FOOTING (8)

For 42" Dia and smaller columns.



BARS FC



BARS FD (9)

(3) Min lap with column reinforcing:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"

(6) 1'-0" Min, unless shown otherwise on plans.

(7) Or as shown on plans.

(8) See Bridge Layout for type, size and length of piling.

(9) Number and size of FD bars must match column reinforcing. Tie FD bars to the top of the bottom reinforcing mat.

(10) Adjust FD quantity, size and weight as needed to match column reinforcing.

TABLE OF FOOTING QUANTITIES FOR 30" COLUMNS

ONE 3 PILE FOOTING

Bar	No.	Size	Length	Weight
F1	11	#4	3'- 2"	23
F2	6	#4	8'- 2"	33
F3	6	#4	6'- 11"	28
F4	8	#9	3'- 2"	86
F5	4	#9	6'- 11"	94
F6	4	#9	8'- 2"	111
FC	12	#4	3'- 6"	28
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	623
Class "C" Concrete			CY	4.8

ONE 4 PILE FOOTING

Bar	No.	Size	Length	Weight
F1	20	#4	7'- 2"	96
F2	16	#8	7'- 2"	306
FC	16	#4	3'- 6"	37
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	659
Class "C" Concrete			CY	6.3

ONE 5 PILE FOOTING

Bar	No.	Size	Length	Weight
F1	20	#4	8'- 2"	109
F2	16	#9	8'- 2"	444
FC	24	#4	3'- 6"	56
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	829
Class "C" Concrete			CY	8.0

CONSTRUCTION NOTES:

See Bridge Layout for foundation type required. Use these foundation details unless shown otherwise.
Drive piling under abutment wingwalls to a minimum resistance of 10 Tons/Pile unless shown otherwise.
Provide Class C Concrete (f'c = 3,600 psi), unless shown otherwise.
Provide Grade 60 reinforcing steel.
Galvanize reinforcing if shown elsewhere in the plans.
Provide bar laps for drilled shaft reinforcing, where required, as follows:
Uncoated or galvanized (#6) ~ 2'-6"
Uncoated or galvanized (#7) ~ 2'-11"
Uncoated or galvanized (#9) ~ 3'-9"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

DESIGNER NOTES:

Do not use the drilled shaft details shown on this standard for retaining wall, noise wall, barrier, or sign foundations without structural evaluation.
Do not use the footings shown on this standard in direct contact with salt water or exposed to salt water spray.
Maximum allowable pile loads for the footings shown are:
72 Tons/Pile with 24" Dia Columns
80 Tons/Pile with 30" Dia Columns
100 Tons/Pile with 36" Dia Columns
120 Tons/Pile with 42" Dia Columns

Texas Department of Transportation

Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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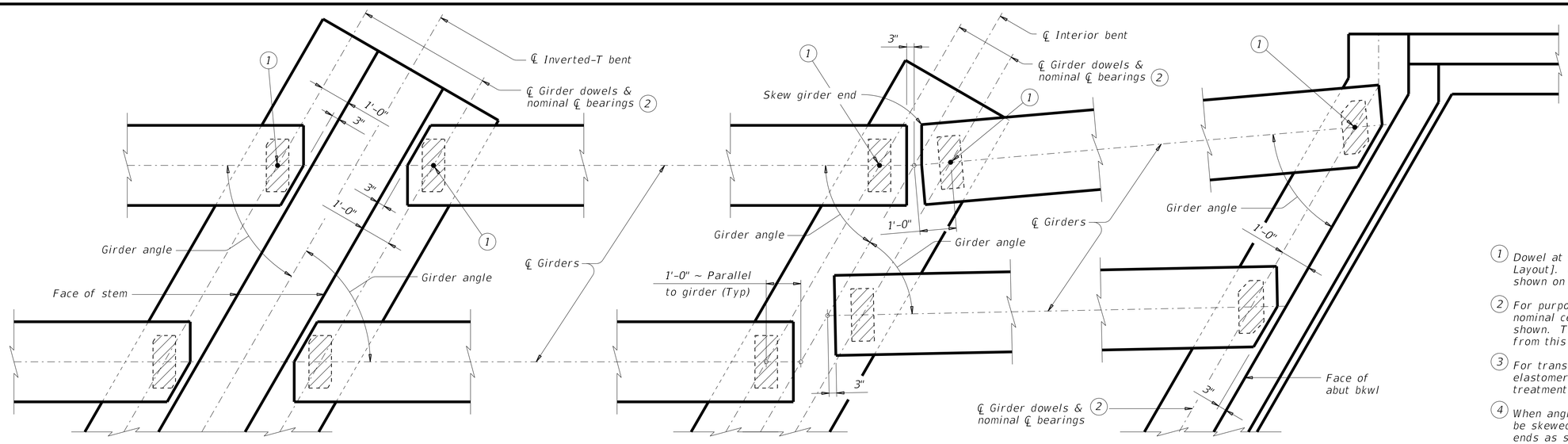
REVISIONS				
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
				90

DATE:
FILE:



AT INVERTED-T BENT W/SKEW

AT CONVENTIONAL INTERIOR BENT W/SKEW

AT ABUTMENT W/SKEW (3)

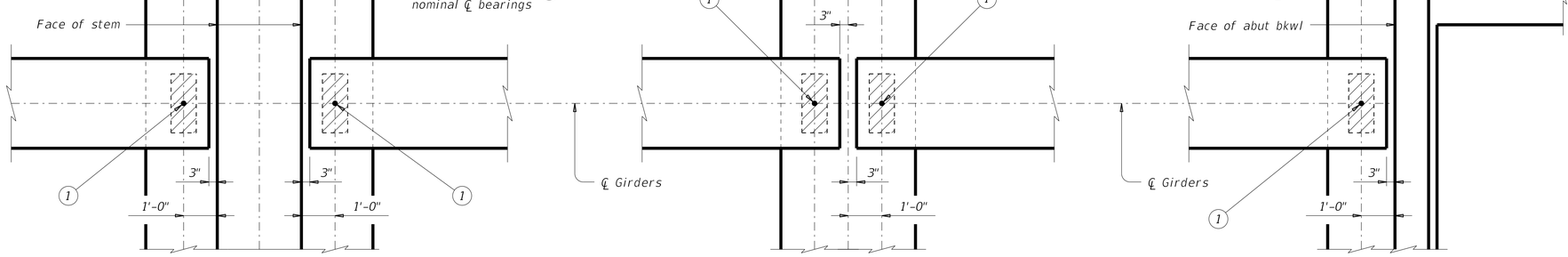
(1) Dowel at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details.

(2) For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.

(3) For transition bents with backwall, girder and elastomeric bearings must receive the same treatment as shown for abutments.

(4) When angle exceeds 0°, one or both girders ends must be skewed to maintain the clearance between girder ends as shown in view.

(5) See Table of Bearing Pad Dimensions for bearing size. Girder end skew angles in Table not applicable for this situation. Table reflects girder conflicts of this type on radial bents only.

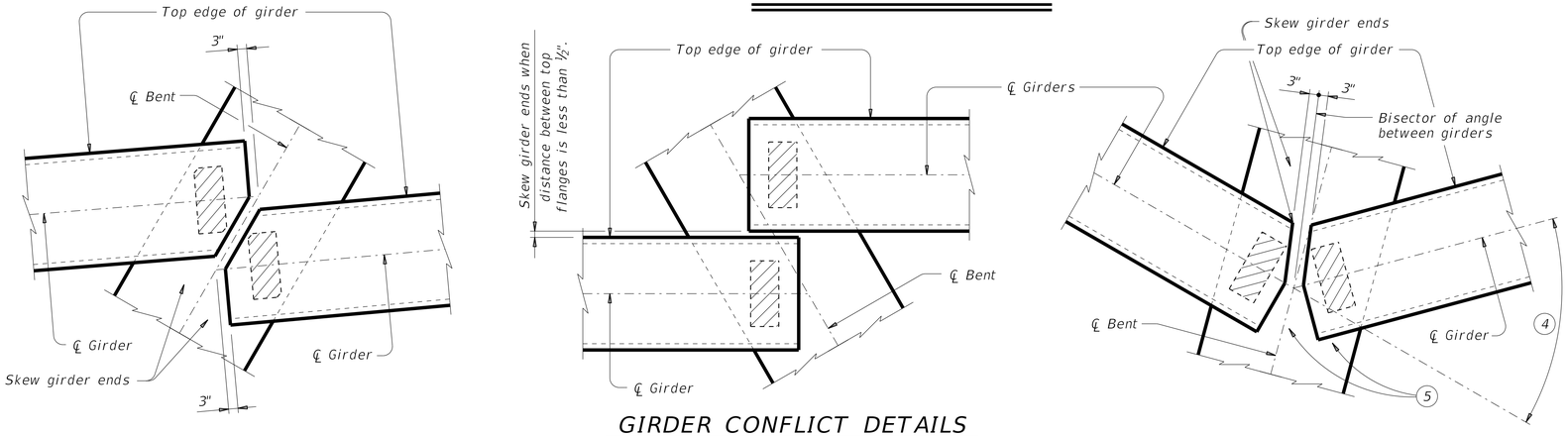


AT INVERTED-T BENT

AT CONVENTIONAL INTERIOR BENT

AT ABUTMENT (3)

GIRDER END DETAILS



GIRDER CONFLICT DETAILS

GENERAL NOTES:

These details accommodate skew angles up to 60°.

Shop drawings for approval are required.

A bearing layout which identifies location and orientation of all bearings must be developed by the bearing fabricator. Permanently mark each bearing in accordance with the bearing layout. A copy of the bearing layout is to be provided to the Engineer.

Cost of furnishing and installing elastomeric bearings, including beveled and embedded steel plates, must be included in unit price bid for "Prestressed Concrete Girders".

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

FILE: igebsts1-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.
				91

DATE:
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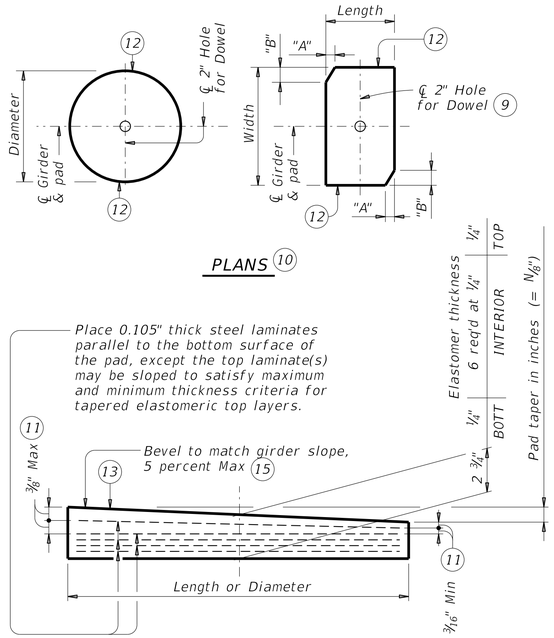
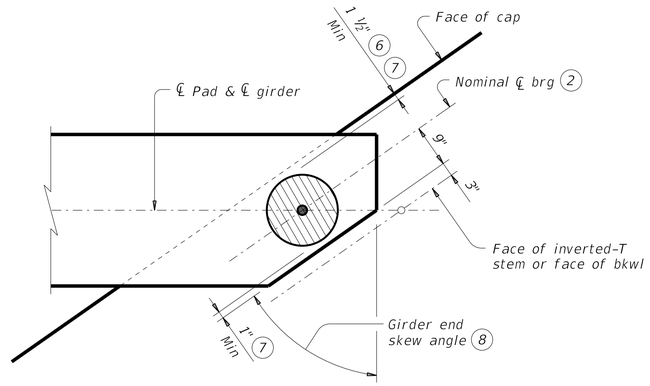
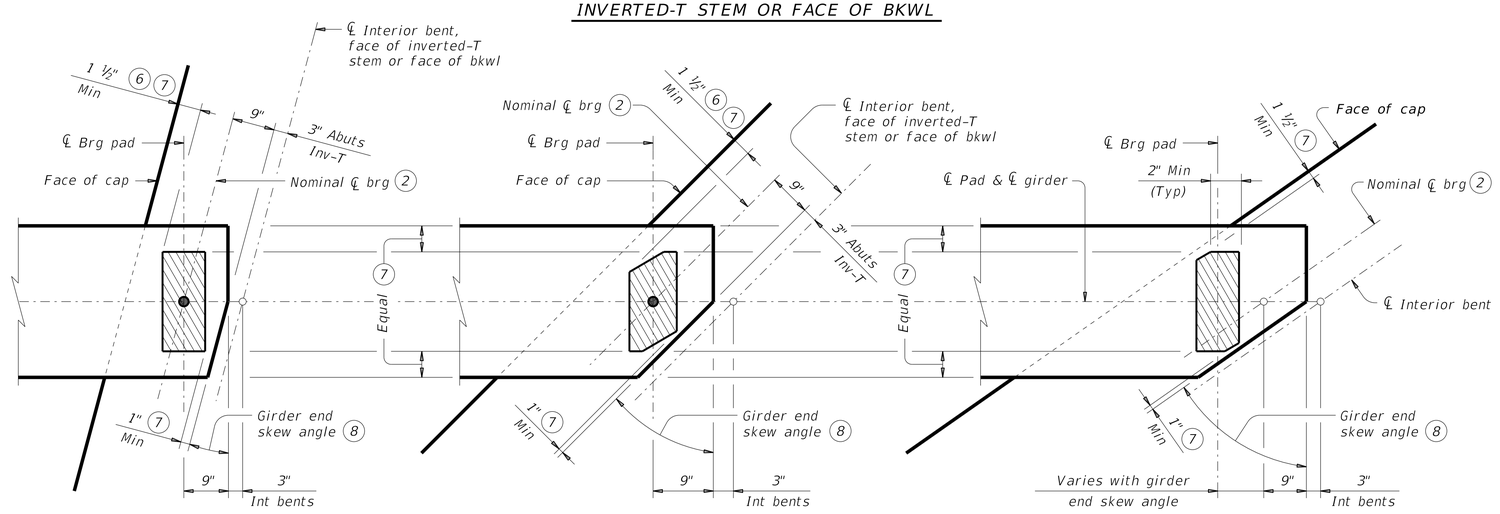


LAMINATED ELASTOMERIC BEARING PAD

(50 DUROMETER)



ROUND BEARINGS FOR SKEWED GIRDER ENDS AT FACE OF INVERTED-T STEM OR FACE OF BKWL



SKEWED GIRDER ENDS AT INT BENTS, FACE OF INVERTED-T STEM OR FACE OF BKWL

SKEWED GIRDER ENDS AT CONVENTIONAL INTERIOR BENTS 16

(NO GIRDER DOWELS)

BEARING PAD PLACEMENT DIAGRAMS

TABLE OF MINIMUM SUBSTRUCTURE DIMENSIONS 14

Girder Type	Abutments	Int Bents	Inv-T Bents
	Face of Bkwl to Face of Cap	Overall Cap Width	Corbel Width
Tx28 thru Tx54	1'-9"	3'-6"	1'-10 ½"
Tx62 & Tx70	2'-0"	4'-0"	2'-1 ½"

TABLE OF BEARING PAD DIMENSIONS

Bent Type	Girder Type	Bearing Type 13	Girder End Skew Angle Range	Pad Size Lgth x Wdth	Pad Clip Dimensions "A"	Pad Clip Dimensions "B"
ABUTMENTS, INVERTED-T AND TRANSITION BENTS WITH BACKWALLS	Tx28,Tx34, Tx40,Tx46 & Tx54	G-1-"N"	0° thru 21°	8" x 21"	---	---
		G-2-"N"	21°+ thru 30°	8" x 21"	1 ½"	2 ½"
		G-3-"N"	30°+ thru 45°	9" x 21"	4 ½"	4 ½"
		G-4-"N"	45°+ thru 60°	15" Dia	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 21°	9" x 21"	---	---
		G-6-"N"	21°+ thru 30°	9" x 21"	1 ½"	2 ½"
		G-7-"N"	30°+ thru 45°	10" x 21"	4 ½"	4 ½"
		G-8-"N"	45°+ thru 60°	10" x 21"	7 ¼"	4 ¼"
CONVENTIONAL INTERIOR BENTS	Tx28,Tx34, Tx40,Tx46 & Tx54	---	---	---	---	---
		---	---	---	---	---
		G-1-"N"	0° thru 60°	8" x 21"	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 60°	9" x 21"	---	---
CONVENTIONAL INTERIOR BENTS WITH SKEWED GIRDER ENDS (GIRDER CONFLICTS) 16	Tx28,Tx34, Tx40,Tx46 & Tx54	G-1-"N"	0° thru 18°	8" x 21"	---	---
		G-2-"N"	18°+ thru 30°	8" x 21"	1 ½"	2 ½"
		G-9-"N"	30°+ thru 45°	8" x 21"	3"	3"
		G-10-"N"	45°+ thru 60°	9" x 21"	6"	3 ½"
	Tx62 & Tx70	G-5-"N"	0° thru 18°	9" x 21"	---	---
		G-5-"N"	18°+ thru 30°	9" x 21"	---	---
		G-11-"N"	30°+ thru 45°	9" x 21"	1 ½"	1 ½"
		G-12-"N"	45°+ thru 60°	9" x 21"	3"	1 ¾"

(2) For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.

(6) 3" for inverted-T.

(7) Place centerline pad as near nominal centerline bearing as possible between limits shown.

(8) Girder end skew angle is equal to 90° minus the girder angle except at some conflicting girders.

(9) Provide 2" dia hole only at locations required. See Substructure details for location.

(10) See Table of Bearing Pad Dimensions for dimensions.

(11) Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.

(12) Locate Permanent Mark here.

(13) Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. The Fabricator must include the value of "N" (amount of taper in ⅛" increments) in this mark.
Examples: N=0, (for 0" taper)
N=1, (for ⅛" taper)
N=2, (for ¼" taper)
(etc.)
Fabricated pad top surface slope must not vary from plan girder slope by more than $\left(\frac{0.0625"}{\text{Length or Dia}}\right)$ IN/IN.

(14) Substructure dimensions must satisfy the minimums provided to accommodate the elastomeric bearings shown on this standard.

(15) See sheet 3 of 3 for beveled plate use when slopes exceed 5 percent.

(16) If girder end is skewed for a girder conflict at an interior bent and a beveled sole plate is required, use bearing type for abutments at this location. Location of bearing centerline is to be set as for abutments in this case.

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

FILE: igebsts1-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
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	DIST	COUNTY		SHEET NO.
				92

DATE:
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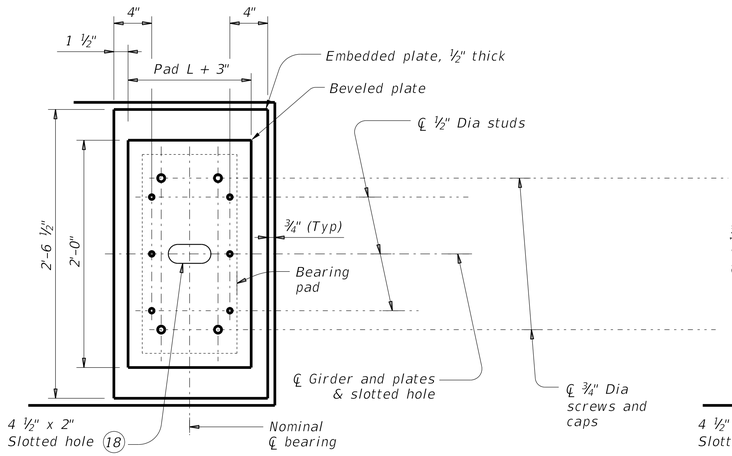
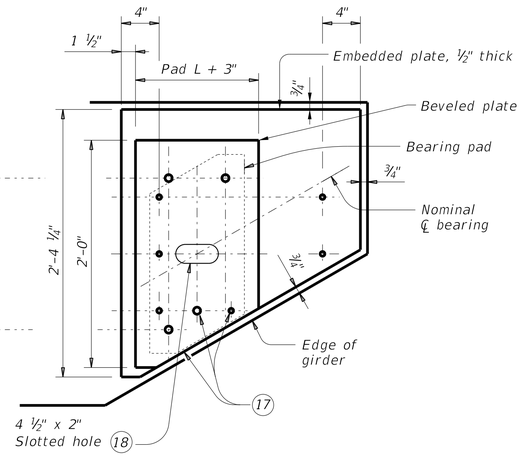
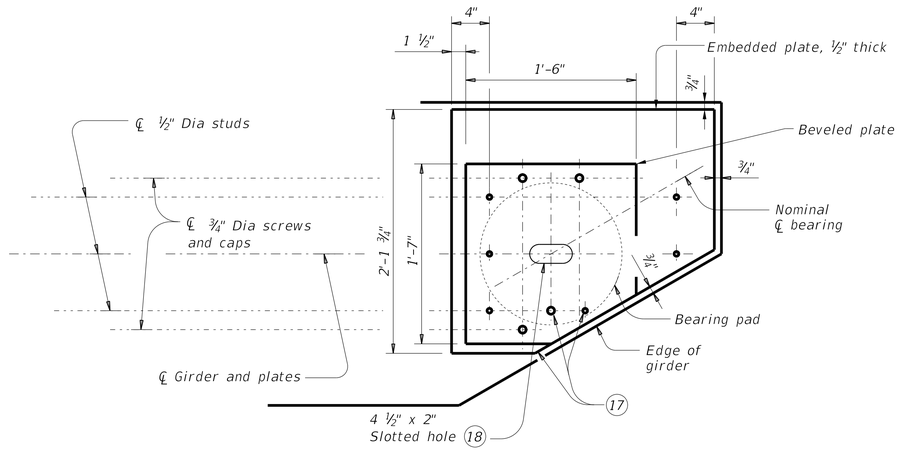


NORMAL GIRDER END
RECTANGULAR BEARING PAD

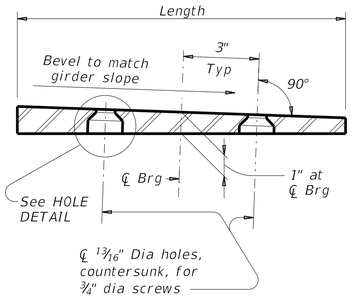


SKEWED GIRDER END
CLIPPED RECTANGULAR BEARING PAD



SKEWED GIRDER END
15" DIA BEARING PAD

PLAN VIEW OF SOLE PLATE DETAILS



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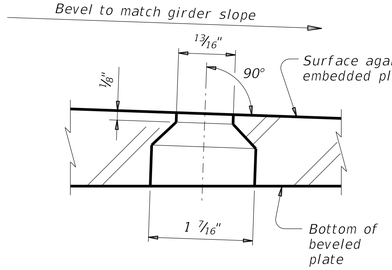


HOLE DETAIL

(17) Cut beveled and embedded plates to match girder end skew. Adjust location of screw and stud as shown when necessary.

(18) Slotted hole is required at doweled girder end locations.

SOLE PLATE NOTES:

Provide constant thickness elastomeric bearings with beveled and embedded steel sole plates in accordance with these details when the girder slope exceeds 5 percent or if otherwise required in the plans. Provide for all girders in the span.

On the shop drawings, dimension sole plates to the nearest 1/16" based on required thickness at centerline of bearing and slope of girder. Thickness tolerance variation from the approved shop drawings is 1/16"+/-, except variation from a plane parallel to the theoretical top surface can not exceed 1/16" total. Bearing surface tolerances listed in Item 424 apply to embedded and beveled plates.

Steel plate must conform to ASTM A36, A572 Gr 50, or A709 Gr 36 or Gr 50. Hot dip galvanize both the embedded plate and beveled sole plate after fabrication. Seal weld caps to embedded plate before galvanizing.

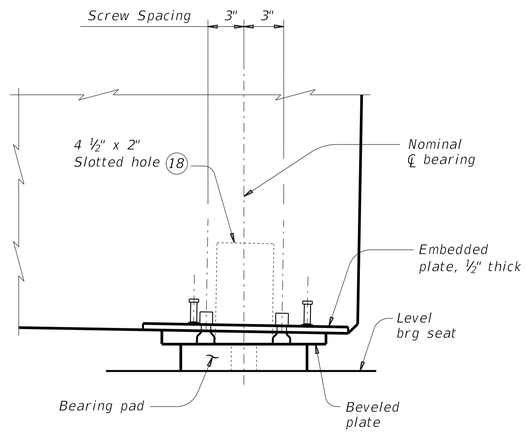
When determining if relocation of screw holes and studs are necessary for skewed girder ends, minimum clearance from screw or stud centerline to plate edge is 1.25".

Tap threads in the embedded plate only. Drill and tap prior to galvanizing.

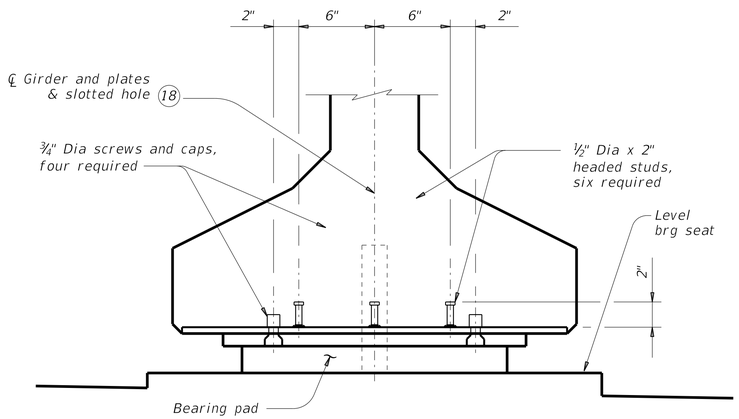
¾" Dia screws must be electroplated, socket flat head countersunk cap screws conforming to ASTM F835. Electroplating must conform to ASTM B633, SC 2, Type I. Provide screws long enough to maintain a ¾" minimum embedment into the embedded plate and galvanized cap. Provide galvanized steel caps (16 ga Min) with a nominal 1" inside diameter and deep enough to accommodate the screws, but not less than ½" deep or deeper than 1".

Install beveled sole plates prior to shipping girders. Installed screw heads must not protrude below the bottom of the beveled plate.

BEVELED PLATE DETAILS



SIDE ELEVATION



END ELEVATION
Showing normal girder end.

GIRDER DETAILS

HL93 LOADING

SHEET 3 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

FILE: igebsts1-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
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	DIST	COUNTY		SHEET NO.
				93

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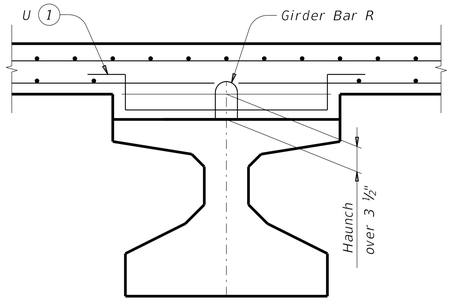
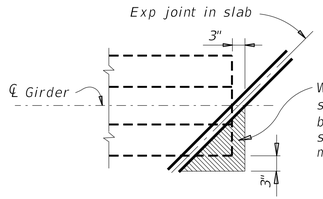
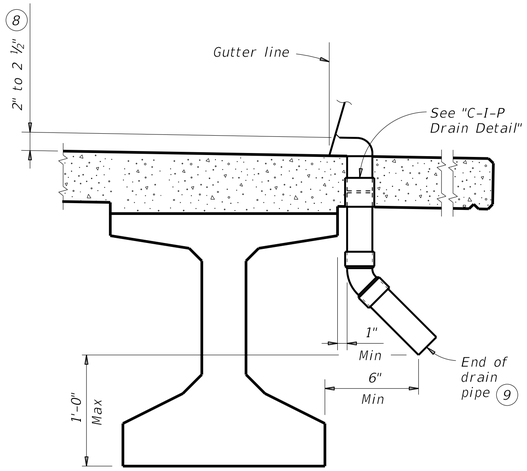


HAUNCH REINFORCING DETAIL

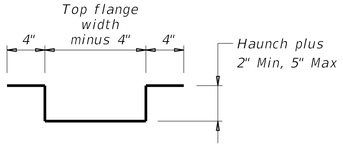


Where flanges project under slab of adjacent span, provide a minimum of ½" clearance between top of girder and bottom of adjacent slab. Polystyrene or other suitable compressible material may be used as a filler.

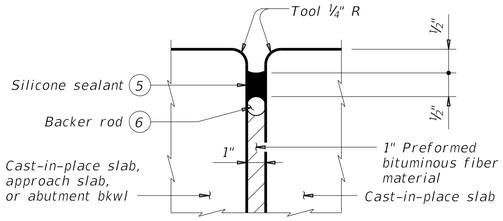
TREATMENT AT GIRDER END FOR SKEWED SPANS



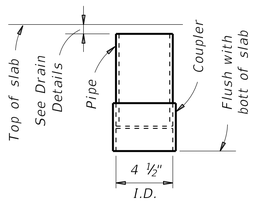
DRAIN DETAIL (10)



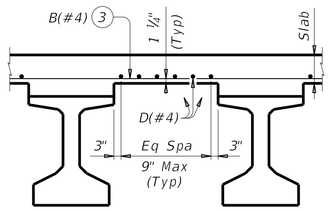
BARS U (#4)



TYPE A JOINT DETAIL (7)



C-I-P DRAIN DETAIL (2)



TYPICAL PART TRANSVERSE SLAB SECTION WITHOUT PCP (4)

Top reinforcing steel not shown for clarity.

(1) Space Bars U with girder Bars R in all areas where measured haunch exceeds 3 ½".

(2) Roughen outside of PVC with coarse rasp or equal to ensure bond with cast-in-place concrete.

(3) Bars B(#4) spaced at 9" Max with 2" end cover. Overhang option, Contractor's may end alternating bars B(#4) at centerline outside girder.

(4) Provide Grade 60 reinforcing steel. Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

(5) Class 7 silicone sealant that conforms to DMS-6310. Install when ambient temperature is between 55°F and 85°F and rising. Engineer to determine allowable hours for sealant application.

(6) 1 ¼" backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(7) The maximum distance between Type A expansion joints is 100'. See Bridge Layout for location of joints.

(8) Drain entrance formed in rail or sidewalk.

(9) Water may not be discharged onto girders.

(10) All drain pipe and fittings to be 4" diameter (Sch 40) PVC. See Item 481 "Pipe for Drains" for pipe, connections and solvent welding. Bend reinforcing steel to clear PVC 1". Drain length and location is as directed by the Engineer. Drains are not permitted over roadways or railways, or within 10'-0" of bent caps. Degrease outside of exposed PVC, apply acrylic water base primer, then coat with same surface finishing material as used for outside girder face. Variations of the above designs, as required for the type of rail used and its location on the structure, may be installed with the approval and direction of the Engineer.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Payment for Type A joint will be as per Item 454, "Bridge Expansion Joints."

All other items (reinforcing steel, drains, etc.) shown on this sheet are subsidiary to other bid items.

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

DECK FORMWORK NOTES:

Overhang bracket hangers are limited to a safe working load of 3,600 lbs, applied to and along the axis of a coil rod at 45 degrees from vertical, regardless of higher loads permitted by hanger manufacturers. Do not place a hanger less than 12" from girder end. Space hangers accordingly.

Texas Department of Transportation

Bridge Division Standard

MISCELLANEOUS SLAB DETAILS

PRESTR CONCRETE I-GIRDERS

IGMS

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10-19: Modified Note 7. Type A now a pay item.	DIST	COUNTY		SHEET NO.
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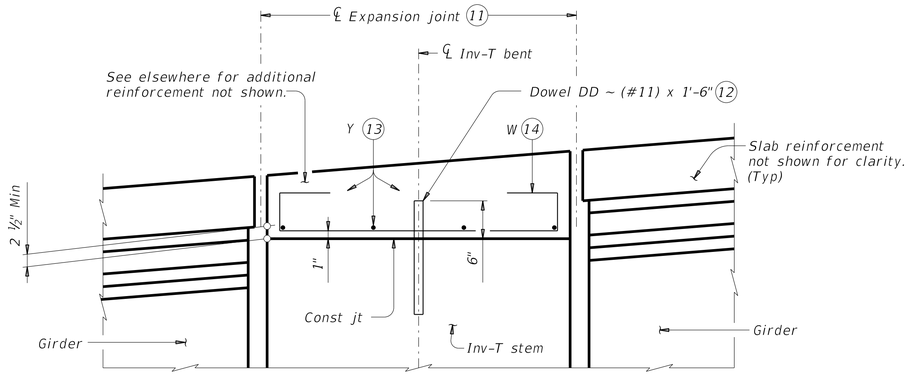
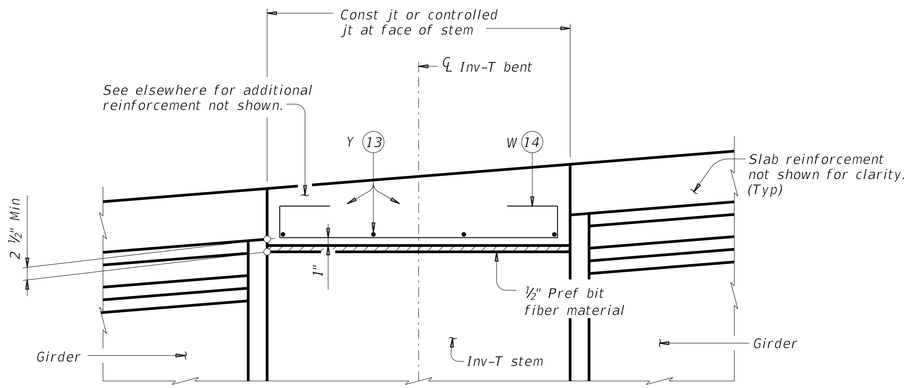
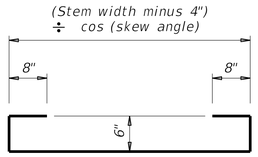


SHOWING EXPANSION JOINTS

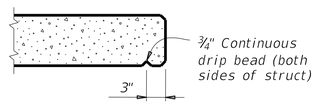


SHOWING CONST JTS OR CONTROLLED JTS

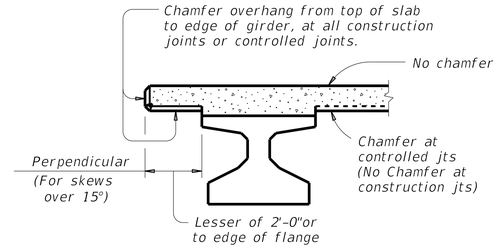
REINFORCEMENT OVER INV-T BENTS



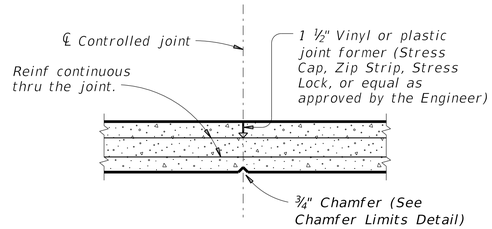
BARS W (#4)



DRIP BEAD DETAIL



CHAMFER LIMITS DETAIL (15)



CONTROLLED JOINT DETAIL

(Saw-cutting is not allowed)

(11) See Layout for joint type.

(12) Dowels DD (#11) spaced at 5 Ft Max. See Inv-T bents for quantity and location.

(13) Space Bars Y (#4) at 12" Max. Use 2" end cover. Number of Bars Y must satisfy spacing limit. Place parallel to bent.

(14) Space Bars W at 12" Max (3" from end of cap). Tilt if necessary to maintain cover requirements. Place parallel to longitudinal slab reinforcement.

(15) See Span details for type of joint and joint locations.

DATE:
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SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

MISCELLANEOUS SLAB DETAILS

PRESTR CONCRETE I-GIRDERS

IGMS

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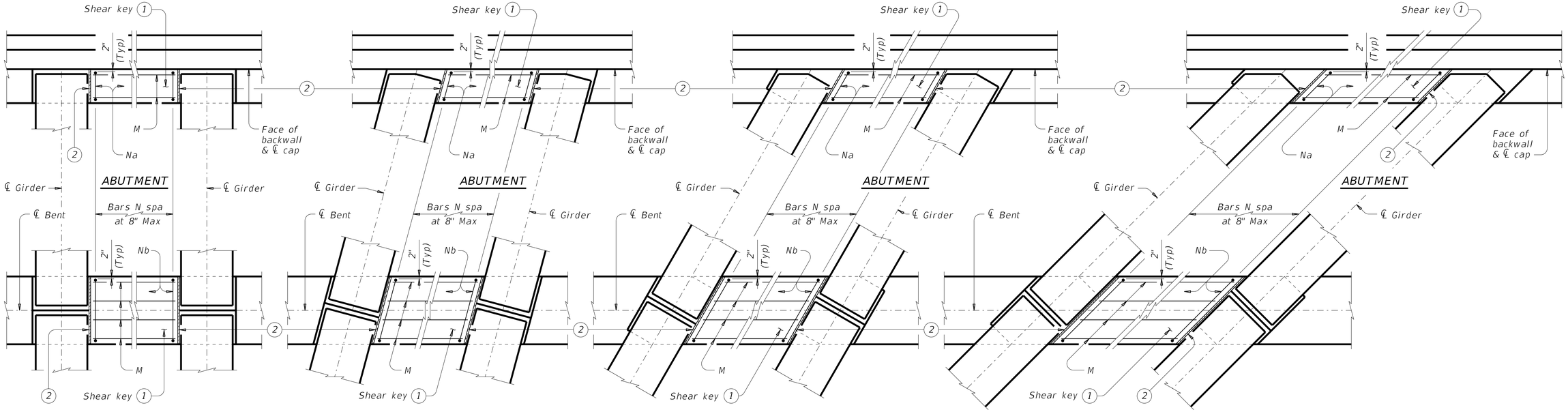


PARTIAL PLANS WITH NO SKEW

Showing shear keys on 3'–6" wide caps. 4'–0" caps similar.

PARTIAL PLANS WITH 15° SKEW

Showing shear keys on 3'–6" wide caps. 4'–0" caps similar.

PARTIAL PLANS WITH 30° SKEW

Showing shear keys on 3'–6" wide caps. 4'–0" caps similar.

PARTIAL PLANS WITH 45° SKEW

Showing shear keys on 3'–6" wide caps. 4'–0" caps similar.

(1) Place shear keys on the upstream side of structure between outside girder and next adjacent girder, unless shown otherwise on plans.

(2) UHMW polyethylene wear pad. (Typ)

(3) Leave a ¼" gap plus or minus between girder and face of wear pad. Cast wear pad with shear key, smooth side facing girder. Care must be taken to keep concrete from flowing under girder. Slope top of shear keys in accordance with Item 420.4.9, "Treatment and Finishing of Horizontal Surfaces."

(4) Measure at higher bearing seat elevation forward or back. Dimension based on typical bearing pad and bearing seat. Increase as necessary to maintain 5" overlap.

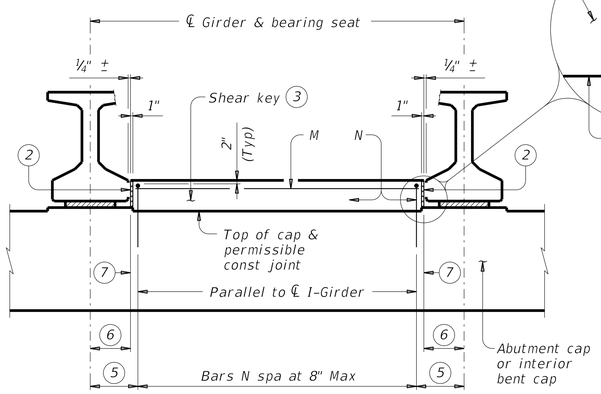
(5) With No Skew = 1'–8 ¼", measured along ℄ cap.
With Skew = 1'–8 ¼" ÷ Cos Skew, measured along ℄ cap.

(6) With No Skew = 1'–4 ¼", measured along ℄ cap.
With Skew = 1'–4 ¼" ÷ Cos Skew, measured along ℄ cap.

(7) Face of UHMW polyethylene wear pad. Smooth side of pad facing girder.

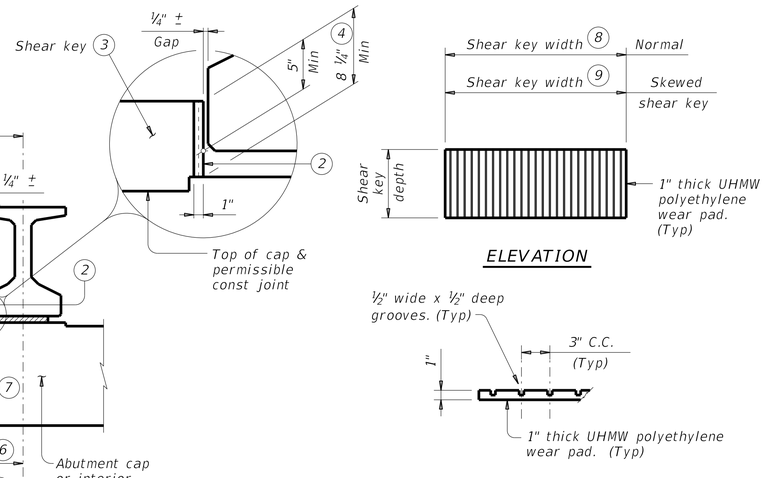
(8) Abutments = ½ Cap width.
Interior bents = Cap width.

(9) Abutments = ½ Cap width ÷ Cos Skew.
Interior bents = Cap width ÷ Cos Skew.

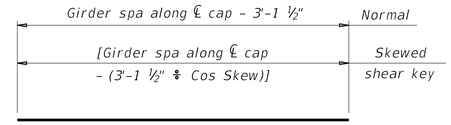


PARTIAL ELEVATION OF ABUTMENT OR INTERIOR BENT CAP (1)

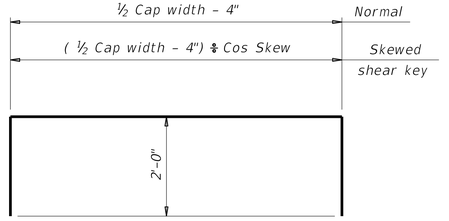
Showing shear key with girder Type Tx46.
Other I-Girder types similar.



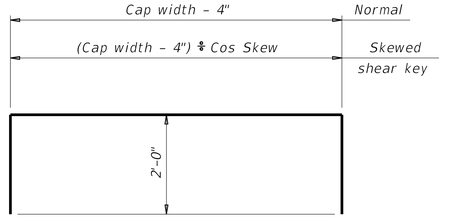
ULTRA HIGH MOLECULAR WEIGHT (UHMW) POLYETHYLENE WEAR PAD DETAILS



BARS M (#5)



BARS Na (#5)
(For abutments)



BARS Nb (#5)
(For interior bents)

CONSTRUCTION NOTES:

Provide Class "C" concrete (f'c = 3,600 psi). Provide Class "C" (HPC) if shown elsewhere on the plans.
Provide Grade 60 reinforcing steel.
Provide epoxy coated reinforcing steel for shear key if abutment or interior bent reinforcing steel is epoxy coated.
Provide Ultra High Molecular Weight (UHMW) polyethylene wear pads in accordance with ASTM D6712.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Details showing skew are drawn showing right forward skew. See Bridge Layout for actual skew direction.
These details are limited to bridges skewed 45 degrees and less.
This standard is only applicable for I-Girders.
Modify details for bearing conditions, and girder spacing not shown on this standard. Details do not account for sole plate or pedestal bearing seat.
Include shear key concrete in abutment or bent concrete for payment.
UHMW polyethylene wear pads are subsidiary to Class "C" concrete.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

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SHEAR KEY DETAILS
PRESTR CONCRETE I-GIRDERS

IGSK

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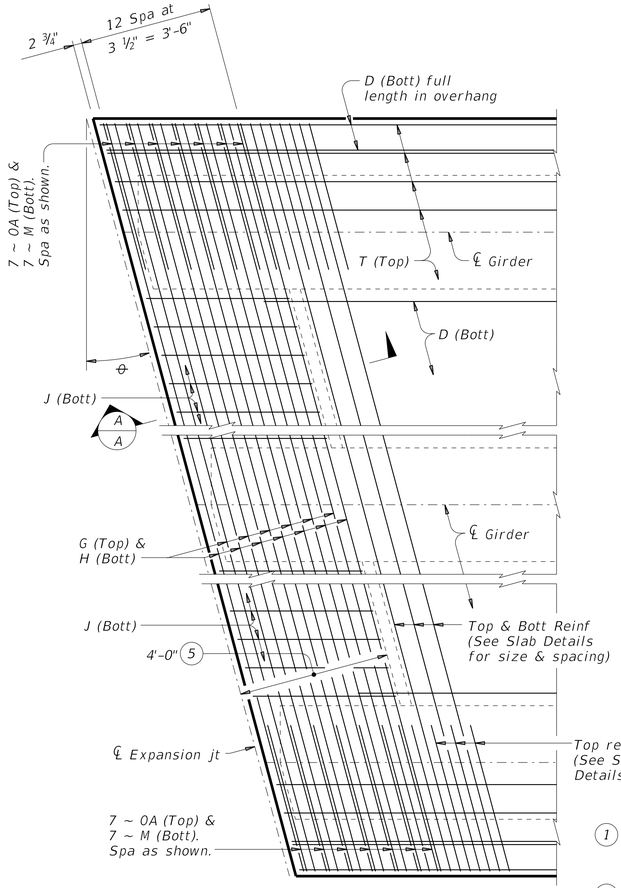
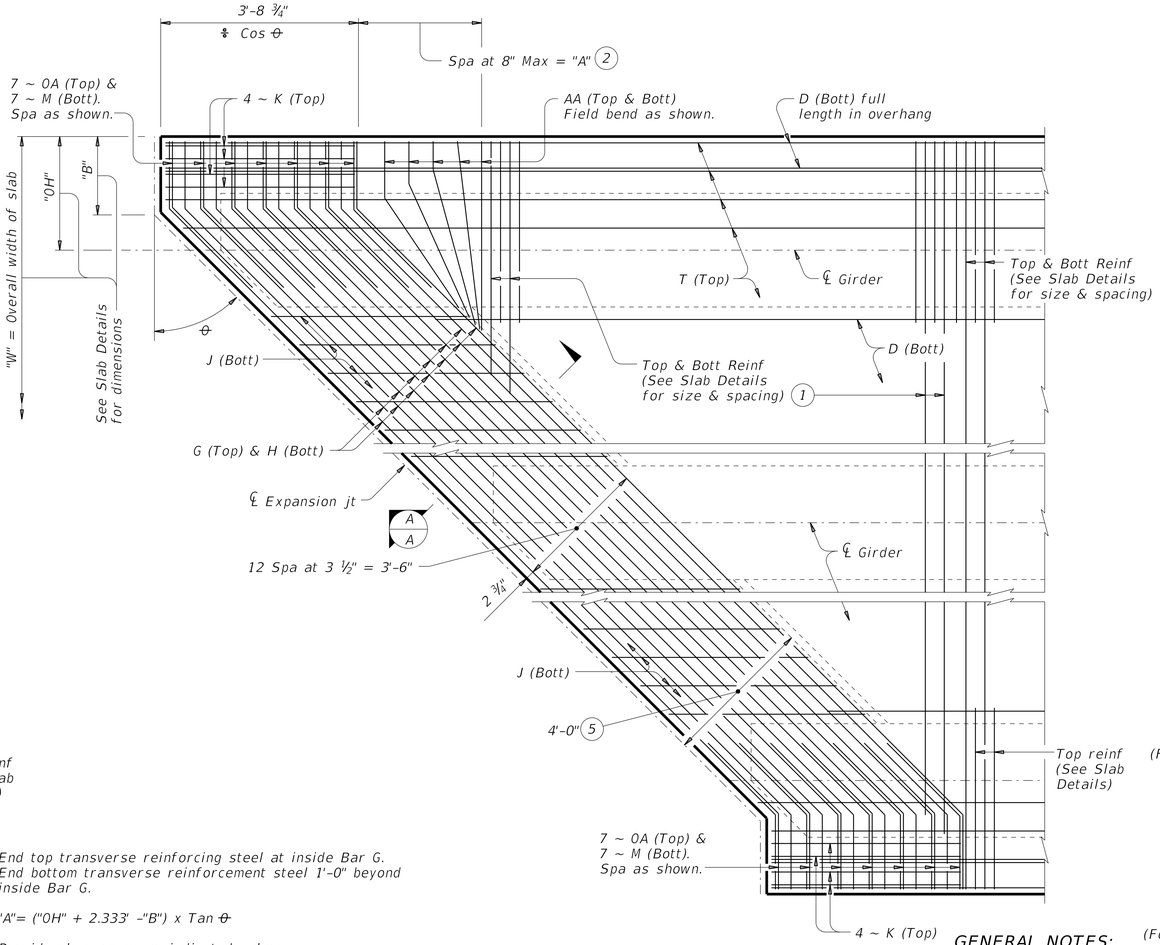


PARTIAL PLAN FOR SLABS WITHOUT BREAKBACK



PARTIAL PLAN FOR SLABS WITH BREAKBACK

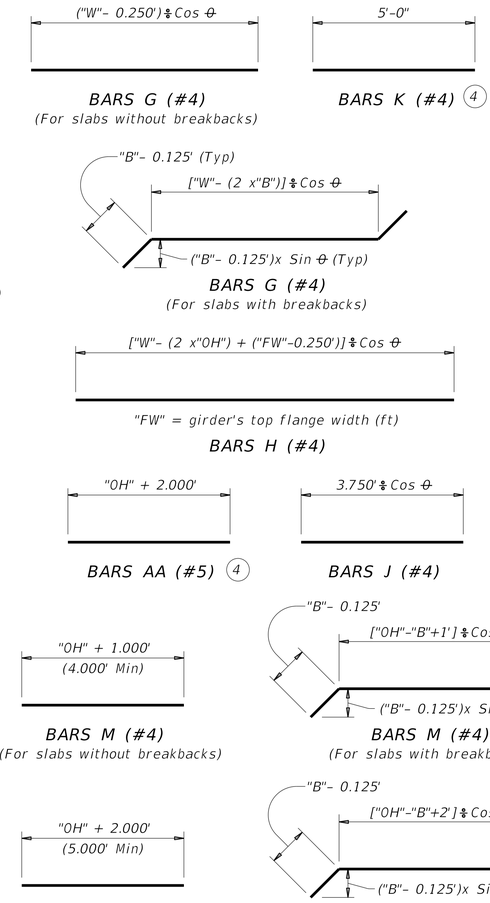
(1) End top transverse reinforcing steel at inside Bar G. End bottom transverse reinforcement steel 1'-0" beyond inside Bar G.

(2) "A"= ("0H" + 2.333' -"B") x Tan θ

(3) Provide clear cover as indicated unless otherwise shown on Span Details.

(4) Only required on slabs with breakbacks.

(5) Thickened slab end dimensioned perpendicular to face of bkwl, centerline interior bent or face of inverted-T stem.



GENERAL NOTES:

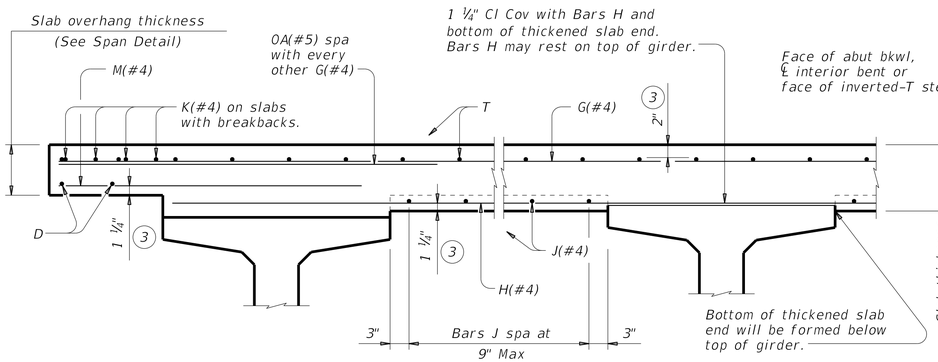
Designed according to AASHTO LRFD Bridge Design Specifications.
These details are restricted to Prestressed Concrete I-Girder Spans.
These details are to be used in conjunction with the Span Details and PCP standard (if prestressed concrete panels are used).
When Option 2 from PCP standard is used, provide Bars AA, G, K and OA in the slab.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
If slab reinforcing steel is shown on the Slab Details to be epoxy coated, then Bars AA, G, K, H, J, M and OA must be epoxy coated.
Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

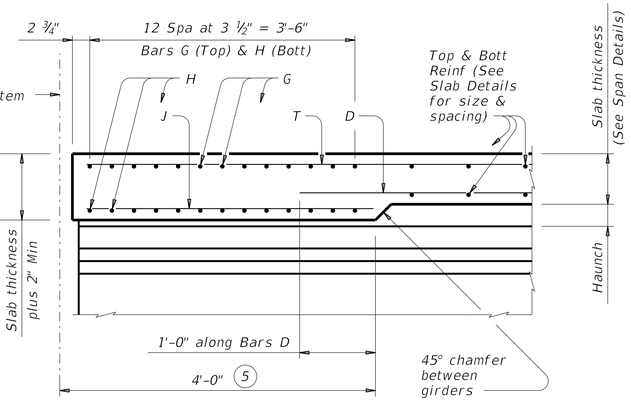


2" AND MORE OF HAUNCH

LESS THAN 2" OF HAUNCH

TYPICAL TRANSVERSE SECTION

(Showing Prestressed Conc I-Girders at ℄ Brg)



SECTION A-A

(Showing with 2" and more of haunch)

Texas Department of Transportation

Bridge Division Standard

THICKENED SLAB END DETAILS

PRESTRESSED CONCRETE I-GIRDER SPANS

IGTS

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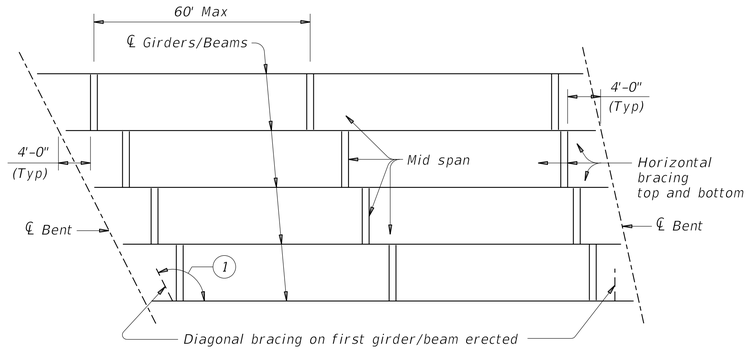
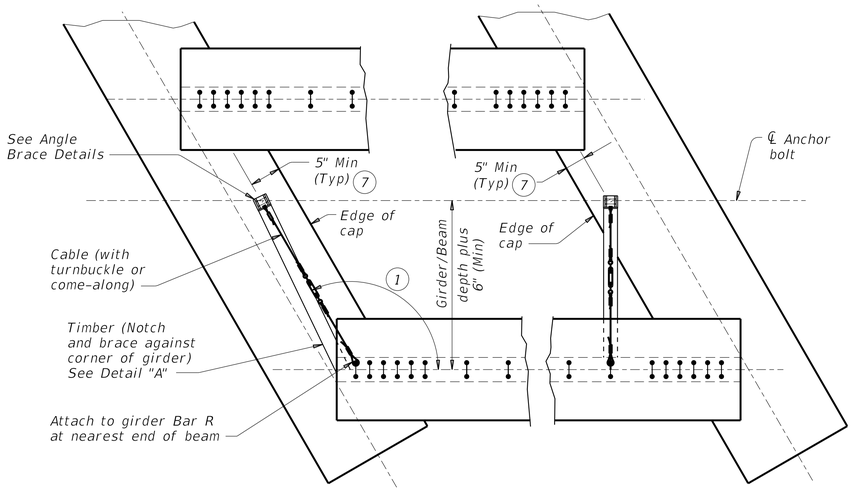
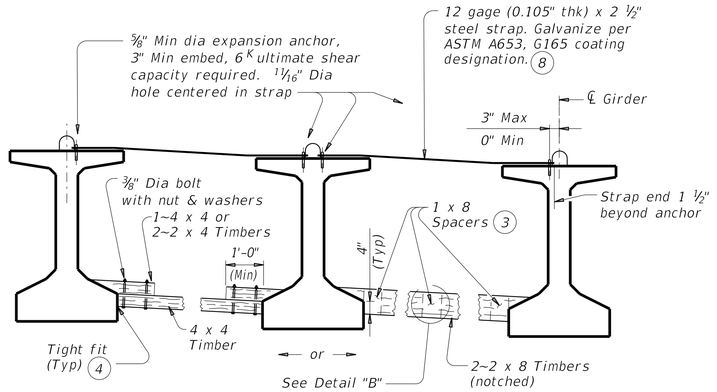


ERECTION BRACING

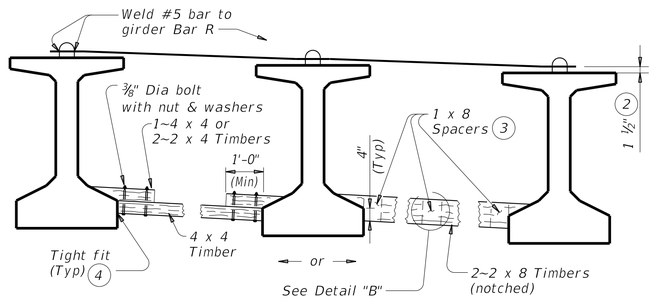


PLAN



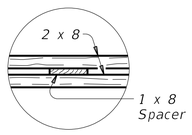
FOR ERECTION BRACING, OPTION 1

(This option is not allowed when slab is formed with PMDF or plywood.)



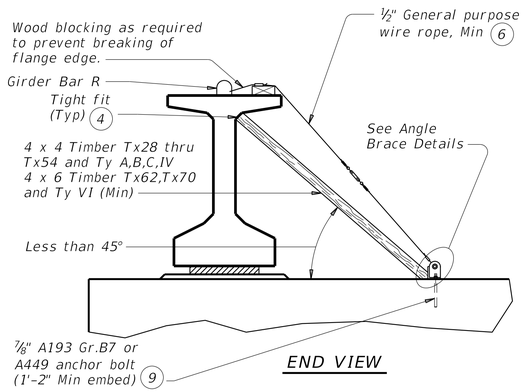
FOR ERECTION BRACING, OPTION 2

HORIZONTAL BRACING DETAILS 5



PLAN

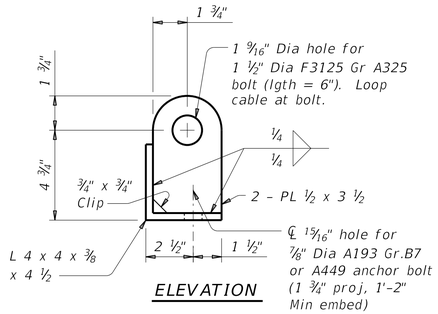
DETAIL "B"



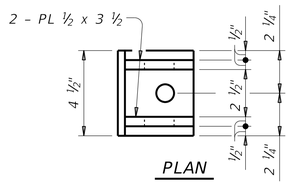
END VIEW

DIAGONAL BRACING DETAILS 5

(To be used on both ends of the first girder/beam erected in the span in each phase.)



ELEVATION



PLAN

ANGLE BRACE DETAILS

HAULING & ERECTION:

The Contractor's attention is directed to the possible lateral instability of prestressed concrete girders and beams over 130' long, especially during hauling and erection. The use of the following methods to improve stability is encouraged: Locate lifting devices at the maximum practical distance from girder ends; use external lateral stiffening devices during hauling and erection; lift with vertical lines using two machines; and take care in handling to minimize inertial and impact forces.

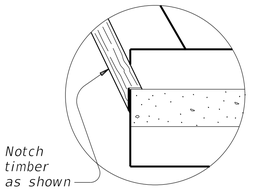
ERECTION BRACING:

Erection bracing details shown are considered the minimum for fulfilling the bracing requirements of Item 425.

Required erection bracing must be placed immediately after erection of each girder and remain in place until additional bracing as required for slab placement is in place. This standard is needed in all cases to meet requirements for Slab Placement Bracing.

PHASED CONSTRUCTION:

Place erection and slab placement bracing for all girders in a phase as shown in these details. For phases after first, also place erection and slab placement bracing between outer girder of completed phase and adjacent girder of current phase. When the phase construction joint is between girders, top bracing can be omitted.



DETAIL "A"

(1) If angle shown exceeds 120 degrees, move diagonal brace to other side of girder/beam and place square to girder/beam. This may prevent exterior girder from being erected first.

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R (See Sheet 2 of 2).

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(6) All hardware used with cable must be able to develop a minimum 25 kips breaking strength. Use thimbles at all loops in cable. Install cable clamps with saddles bearing against the live end and U-bolts bearing aginst the dead end.

(7) It is acceptable to tie anchor bolts to cap reinforcement.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(9) Anchor bolt may be drilled and epoxied in place. Provide 25k minimum pullout. Core drill hole.

Texas Department of Transportation

Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS
PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

MEBR(C)

FILE: mebcsts1-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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	DIST	COUNTY		SHEET NO.
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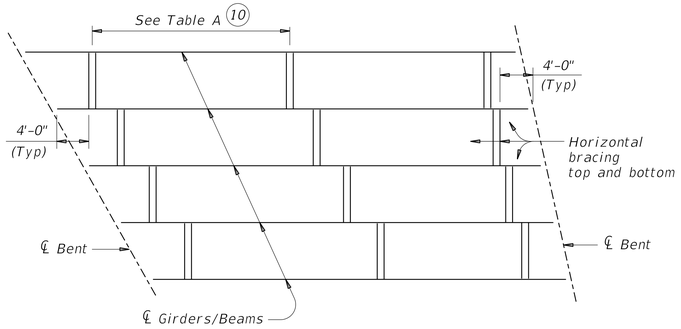


SLAB PLACEMENT BRACING

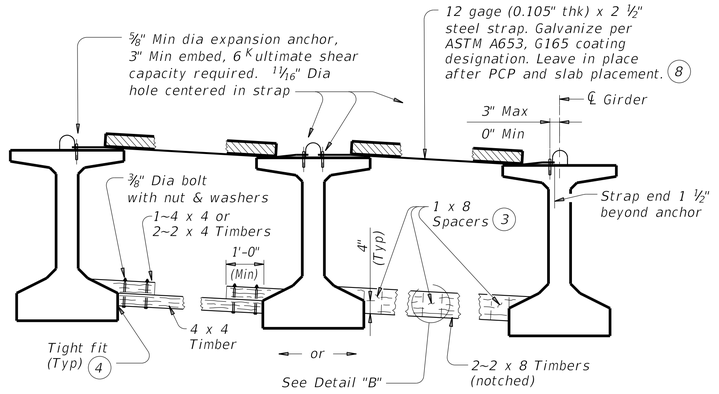
TABLE A

OPTION 1-RIGID BRACING (STEEL STRAP)

Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	¼ points
Tx34	¼ points	¼ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	⅛ points	⅛ points
B	⅛ points	⅛ points
C	⅛ points	⅛ points
IV	¼ points	⅛ points
VI	¼ points	⅛ points

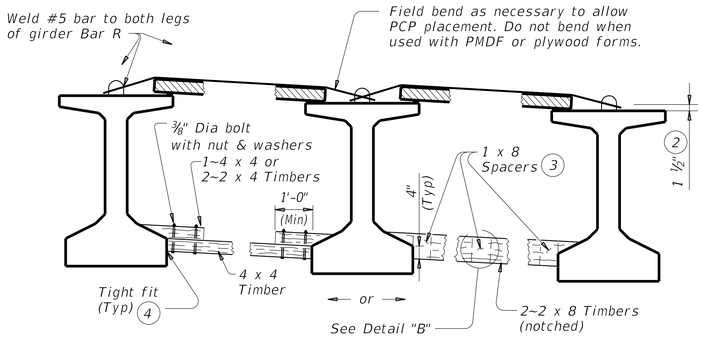
OPTION 2-FLEXIBLE BRACING (NO. 5 OVER PCP)

Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	⅛ points
Tx34	¼ points	⅛ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	2.0 ft	1.5 ft
B	3.0 ft	2.0 ft
C	4.5 ft	2.0 ft
IV	¼ points	4.0 ft
VI	¼ points	4.0 ft



FOR SLAB PLACEMENT BRACING, OPTION 1 - RIGID

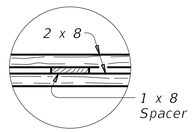
(Showing slab formed with PCP. This option is not allowed when slab is formed with PMDF or plywood.)



FOR SLAB PLACEMENT BRACING, OPTION 2 - FLEXIBLE

(Showing slab formed with PCP.)

HORIZONTAL BRACING DETAILS (5)



PLAN

DETAIL "B"

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R.

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(10) Bracing spacing (¼ and ⅛ points) measured between first and last typical brace location.

(11) Measure slab overhang from centerline of girder or beam. When overhang varies in span, determine bracing spacing based on largest overhang.

SLAB PLACEMENT BRACING:

The details for slab placement bracing are considered minimum for fulfilling the requirements of Specification Items 422 and 425.

Required slab placement bracing must remain in place until slab concrete has attained a compressive strength of 3000 psi.

GENERAL NOTES:

Bracing details for spans longer than 150' are not provided. The Contractor must submit proposed bracing details for such conditions to the Engineer for approval prior to erection.

Systems equal to or better than those shown may be used provided details of such systems are submitted to and approved by the Engineer prior to erection.

Use of these systems or details does not relieve the Contractor of the responsibility for the adequacy of the bracing and the safety of the structure.

Removal of bracing for short periods of time to align girders and beams is permissible.

All turn-buckles, come-alongs, anchors and other connections must be capable of developing the full strength of the cable shown.

Furnish anchor bolts and nuts in accordance with Item 449, "Anchor Bolts".

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Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS

PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

MEBR(C)

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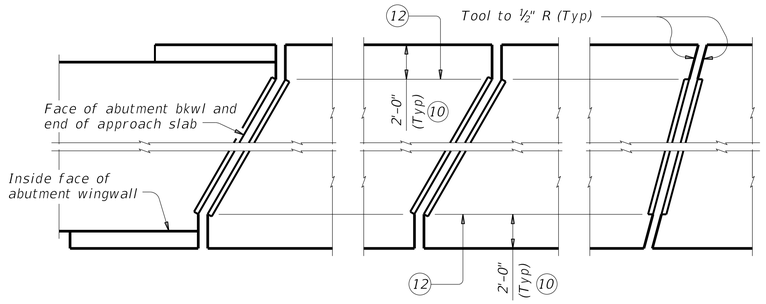
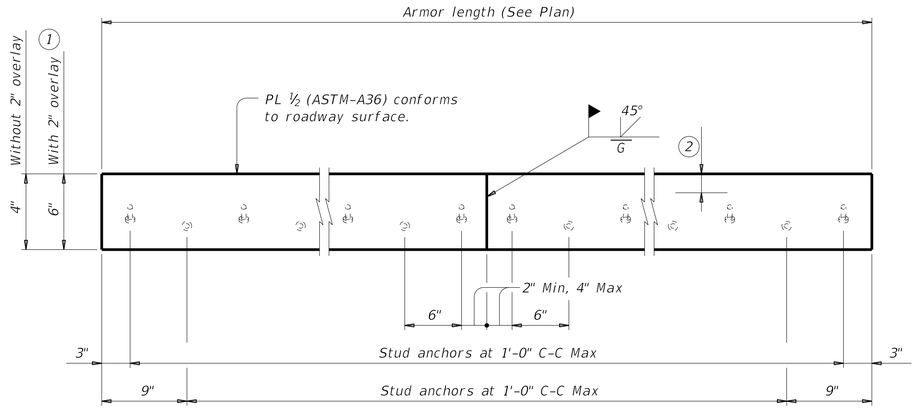


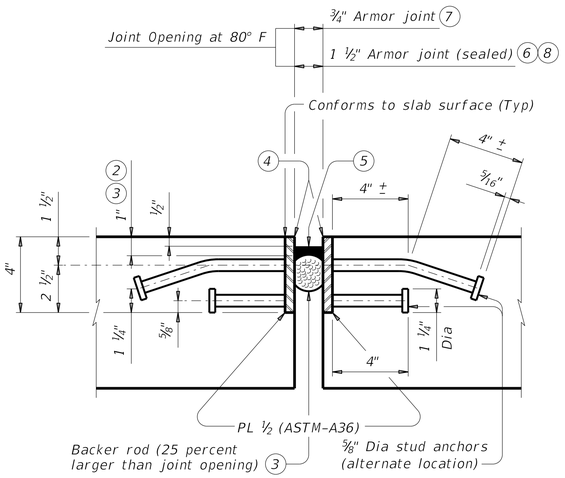
JOINTS AT ABUTMENTS | SKEWS OVER 15° | SKEWS THRU 15°

PLANS OF ARMOR PLATES

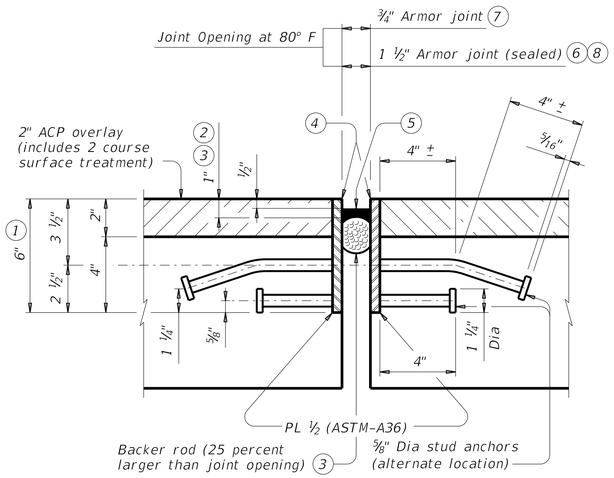


ELEVATION OF BASIC ARMOR PLATE

1. Adjust 6" plate height for overlay thicknesses other than the 2" shown. Adjust weight by 1.70 plf for each ½" variation in thickness.
2. Do not paint top 1 ½" of plate if using sealed armor joint.
3. Set top of backer rod 1" below top of armor plate. Backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.
4. Blast clean entire contact area between sealant and plate (SSPC-SP10) before installing sealant. Light brush blast and thoroughly clean all dust and debris from concrete surfaces in contact with joint sealant before application of silicone seal.
5. Use Class 7 joint sealant that conforms to DMS-6310.
6. Place sealant while ambient temperature is between 55°F and 80°F and is rising.
7. Armor joint does not include joint sealant or backer rod.
8. Armor joint (sealed) includes Class 7 joint sealant and backer rod.
9. Form vertical leg of seal as per the Manufacturer's recommendations. Use Class 4 joint sealant if Class 7 cannot be installed correctly. Install according to Manufacturer's recommendations.
10. Unless shown otherwise, terminate armor plate at slab break point if break is more than 2'-0" from slab edge.
11. See "Plans of Armor Plates".
12. At Fabricator's option, armor plate may extend up to 6" beyond this point for skews through 15°.
13. Align shipping angle perpendicular to joint.



SHOWN WITHOUT 2" OVERLAY AT JOINT LOCATION



SHOWN WITH 2" OVERLAY AT JOINT LOCATION 1

ARMOR JOINT SECTIONS

Showing Armor Joint (Sealed)

FABRICATION NOTES:

Match mark corresponding plate sections and secure together for shipment with shipping angle. Do not use erection bolts.

Ship armor joints in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for stage construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Use groove welds for all shop and field butt splices. Grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section, except as stated in Note 2, with System II or IV primer in accordance with Item 446 "Field Cleaning and Painting Steel." Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Items 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of armor joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure armor joints in position and place to proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for Armor Joint.

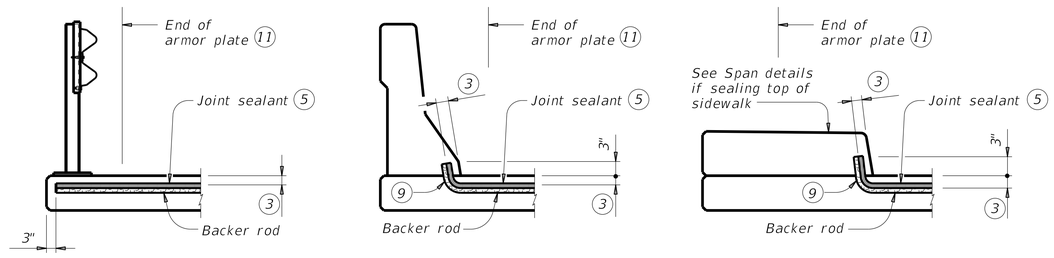
Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

GENERAL NOTES:

Provide armor joints at locations shown on the plans. Provide the seal when "Armor Joint (Sealed)" is noted on the plans. These joint details accommodate a joint movement range of 1 ⅜" (¾" opening movement and ⅜" closure movement).

Payment for armor joint, with or without seal, is based on length of armor plate.

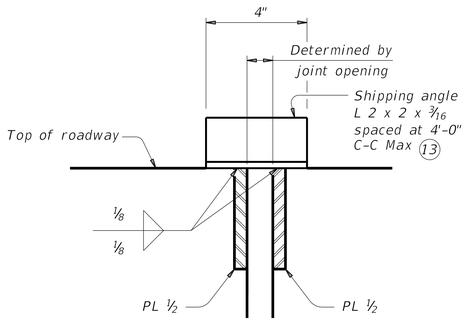
WEIGHTS FOR ONE ARMOR JOINT (2 PLATES)	
WITHOUT OVERLAY	16.10 plf
WITH 2" OVERLAY 1	22.90 plf



AT STEEL POST BRIDGE RAIL | AT CONCRETE BRIDGE RAIL | AT SIDEWALK

JOINT SEALANT TERMINATION DETAILS

Armor joint (sealed) only. Armor plate is not shown for clarity.



SHOWN WITHOUT 2" OVERLAY AT JOINT LOCATION

With overlay similar

SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

Texas Department of Transportation

Bridge Division Standard

ARMOR JOINT DETAILS

AJ

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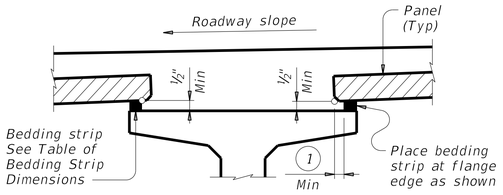
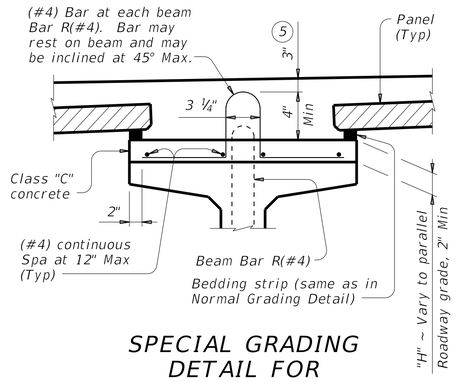


NORMAL GRADING DETAIL (3)

Showing prestressed concrete I-girders.
(Other beam types similar)



SPECIAL GRADING DETAIL FOR CONCRETE BEAMS

Showing prestressed concrete I-girders.
(Other beam types similar)

TABLE OF BEDDING STRIP DIMENSIONS		
WIDTH	HEIGHT (4)	
	Min	Max
1" (Min)	½"	2"
1 ¼"	½"	2 ½"
1 ½"	½"	3"
1 ¾"	½"	3 ½"
2"	½"	4"
2 ¼"	½"	4 ½" (2)
2 ½"	½"	5" (2)
2 ¾"	½"	5 ½" (2)
3" (Max)	½"	6" (2)

(1) 2" Min for I-giders, 1 ½" Min for all other beam types.

(2) Allowed for I-girders, not allowed on other beam types.

(3) To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in ¼" increments. Bedding strips must be comprised of one layer. Bond bedding strips to the beams with an adhesive compatible with bedding strips. Bedding strips over 2.5" high may need to be bonded to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is ¼". Alternatively, bedding strips may be cut to grade. Panels may be supported by an alternate method, using a commercial product, if approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 6" high for I-Girders, 4" high for all other beam types, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.

(4) Height must not exceed twice the width.

(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(7) Space Bars UP(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3 ½" with I-girders, and 3" for all other beam types. Epoxy coating for Bars UP is not required.

(8) Do not locate construction joints on top of a panel.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

CONSTRUCTION NOTES:

Erected panels must bear uniformly on bedding strips of extruded polystyrene placed along top flange edges.

Placing panels to minimize joint openings is recommended.

If additional blocking is needed, special grading details for supporting the panels and extra reinforcing between beam and slab will be considered subsidiary to deck construction.

Bars U, shown on PCP-FAB, may be bent over or cut off if necessary.

Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete material under the edges of the panels. Bedding strips must be placed at beam flange edges so that adequate space is provided for the mortar to flow a minimum of 1 ½" under the panels as the slab concrete is placed.

To allow the proper amount of mortar to flow between beam and panel, the minimum vertical opening must be at least ½". Roadway cross-slope reduces the opening available for entry of the mortar. Bedding strips varying in thickness across the beam are therefore required.

For clear span between U-beams less than or equal to 18", see Permissible Slab Forming Detail on Miscellaneous Slab Detail sheets, UBMS.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.

If the top and bottom layer of reinforcing steel is shown on the Span Details to be epoxy coated, then the D, E, P, & Z bars must be epoxy coated.

Provide bar Laps, where required, as follows:

Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Panel placement may follow either Option 1 or Option 2 except Option 1 must be used if the skew exceeds 45 degrees.

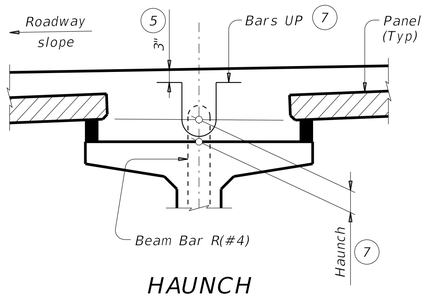
Use of Prestressed Concrete Panels is not permitted for horizontally curved steel plate or tub girders. See Span Details for other possible restrictions on their use.

These details are to be used in conjunction with the Span Details, PCP-FAB and other applicable standard drawings.

When panel support (bedding strips) deviates from what is shown herein, provide details signed and sealed by a professional Engineer.

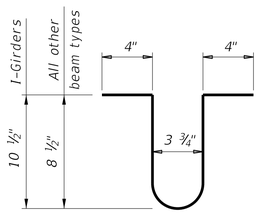
Any additional reinforcement or concrete required on this standard is considered subsidiary to the bid Item "Reinforced Concrete Slab".

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

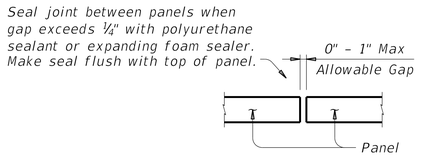


HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.
(Other beam types similar)

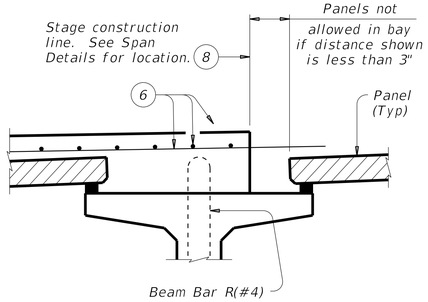


BARS UP (#4) (7)

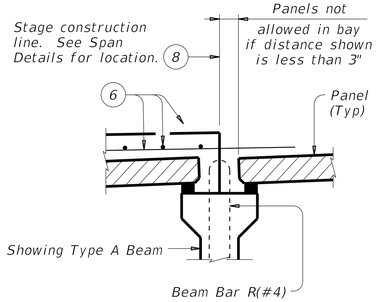


PANEL JOINTS

(Panel reinforcing not shown for clarity.
The gap cannot be considered as a panel fabrication tolerance. Adjust panel placement to minimize joint openings.)



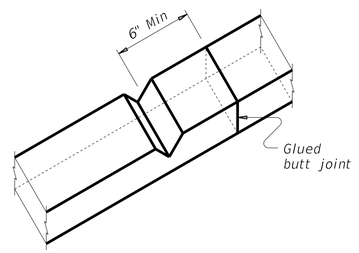
PRESTR CONC I-GIRDERS



PRESTR CONC I-BEAMS

STAGE CONSTRUCTION LIMITATIONS

(Other beam types similar)



BEDDING STRIP DETAIL (9)

HL93 LOADING

SHEET 1 OF 4

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS DECK DETAILS

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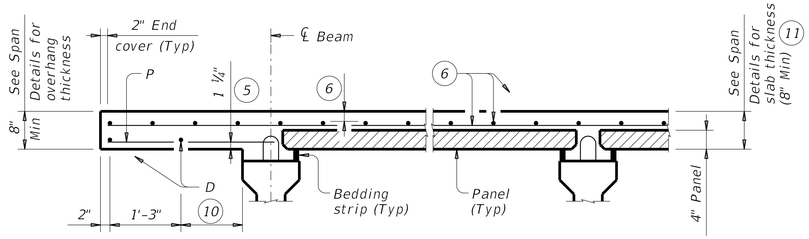
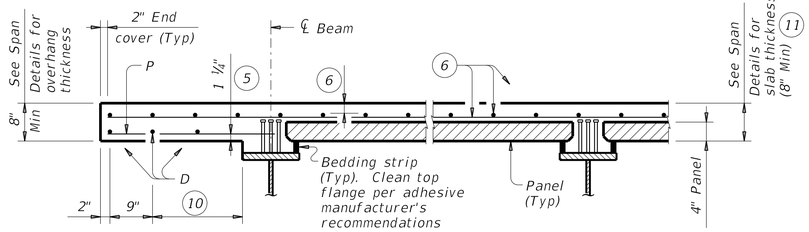
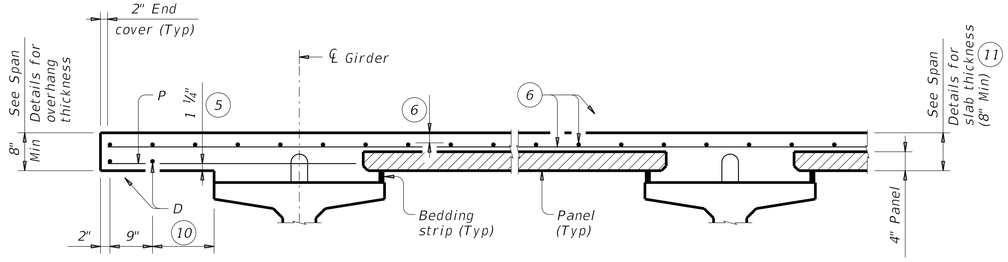


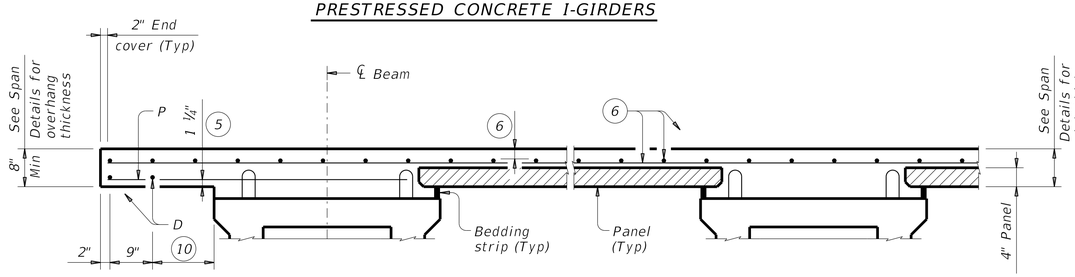
PRESTRESSED CONCRETE I-BEAMS



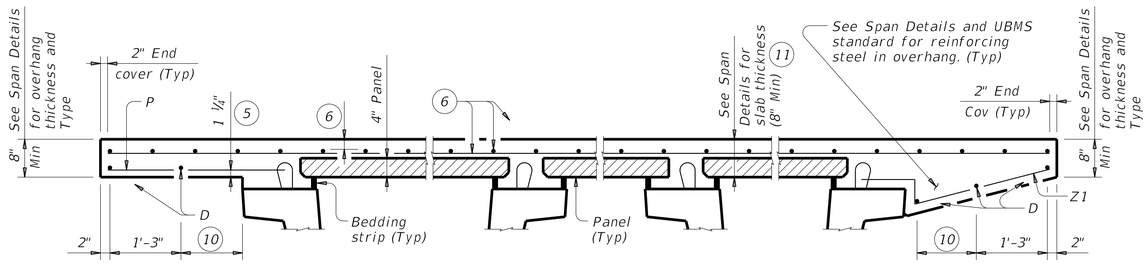
STEEL BEAMS



PRESTRESSED CONCRETE I-GIRDERS



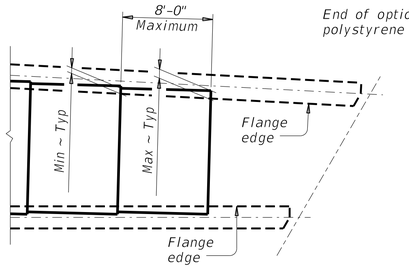
PRESTRESSED CONCRETE X-BEAMS



NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

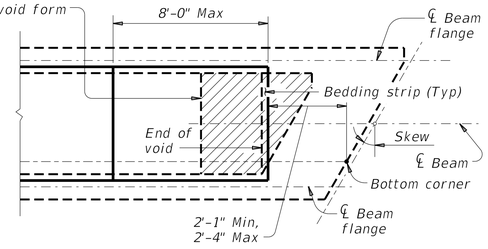
SLOPED OVERHANG WITH PRESTR CONC U-BEAMS

TYPICAL PART TRANSVERSE SECTIONS

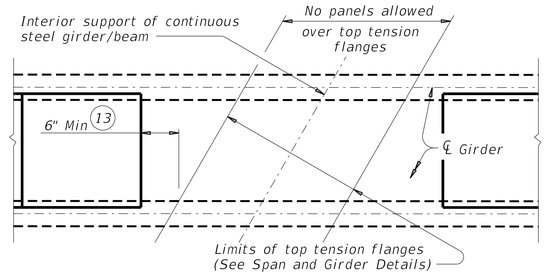


AT FLARED BEAMS OR GIRDERS

See PCP-FAB standard for Min and Max dimensions based on beam/girder type.



OVER CONC U-BEAMS



AT INT SUPPORTS OF CONTINUOUS STEEL GIRDERS

PART PLANS OF PANEL PLACEMENT

(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

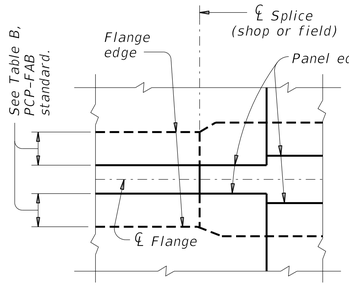
(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

(10) Equally space additional bar if more than 1'–3" Max.

(11) The actual thickness constructed may exceed the slab thickness shown on the Span Details but the extra thickness may be no more than 2" (1" for prestressed concrete U-beams and steel beams). Bearing seat elevations or finished grade may be adjusted.

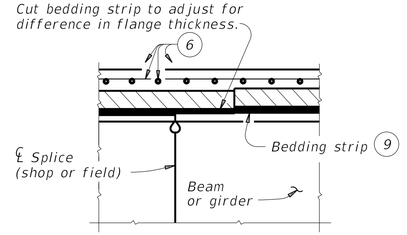
(12) Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.

(13) Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



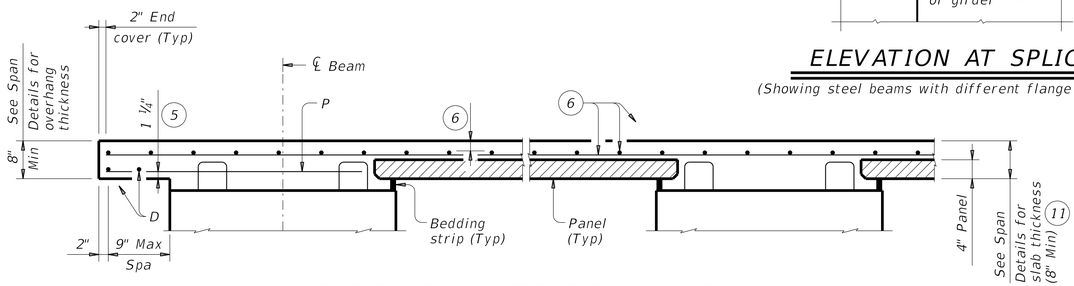
PLAN AT SPLICE

(Showing steel beams with flange width transition)



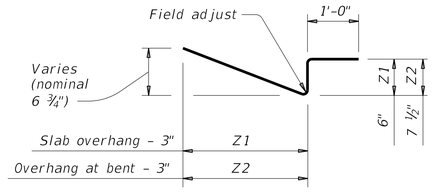
ELEVATION AT SPLICE

(Showing steel beams with different flange thickness)



PRESTRESSED CONCRETE SPREAD SLAB BEAMS

Bars P over exterior beams are still required when no overhang is used. In this case, only one Bar D, 2" from slab edge, is required.



BARS Z (#4) (12)

HL93 LOADING SHEET 2 OF 4

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Bridge Division Standard

PRESTRESSED CONCRETE PANELS DECK DETAILS

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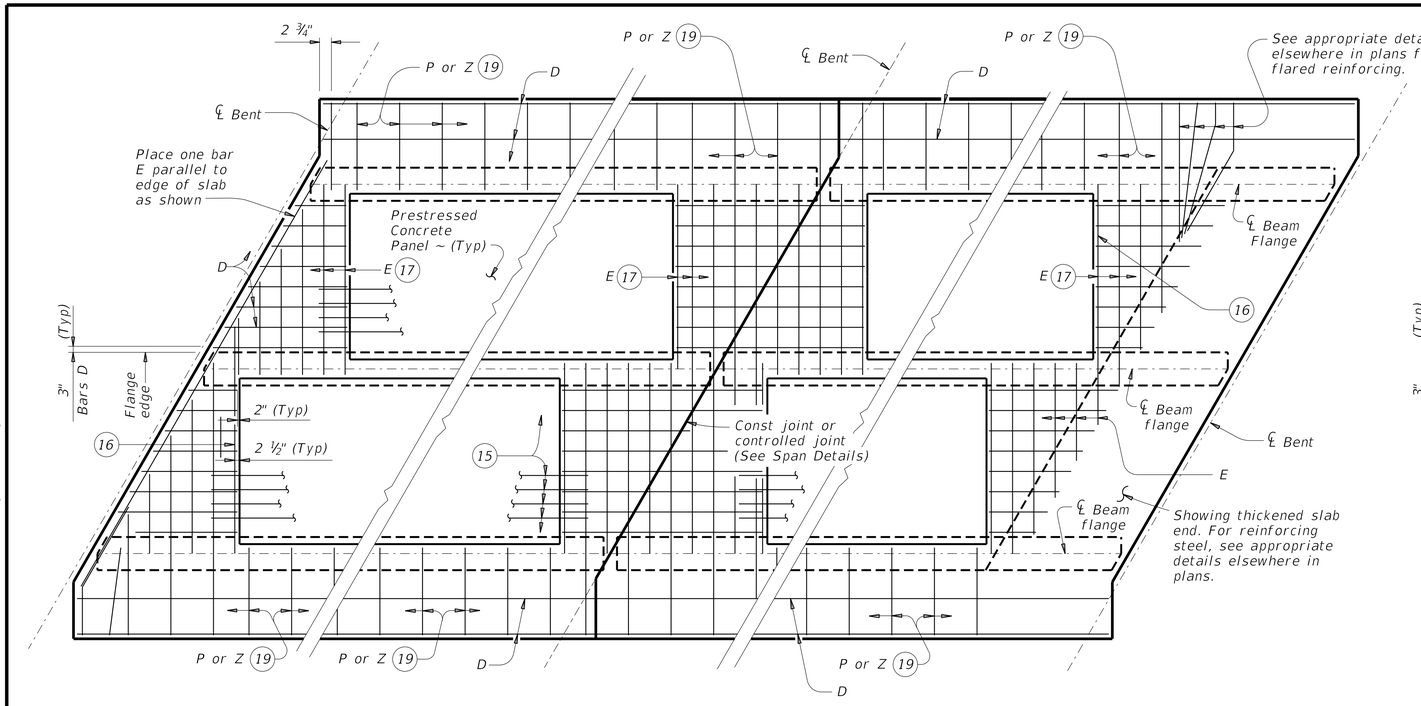
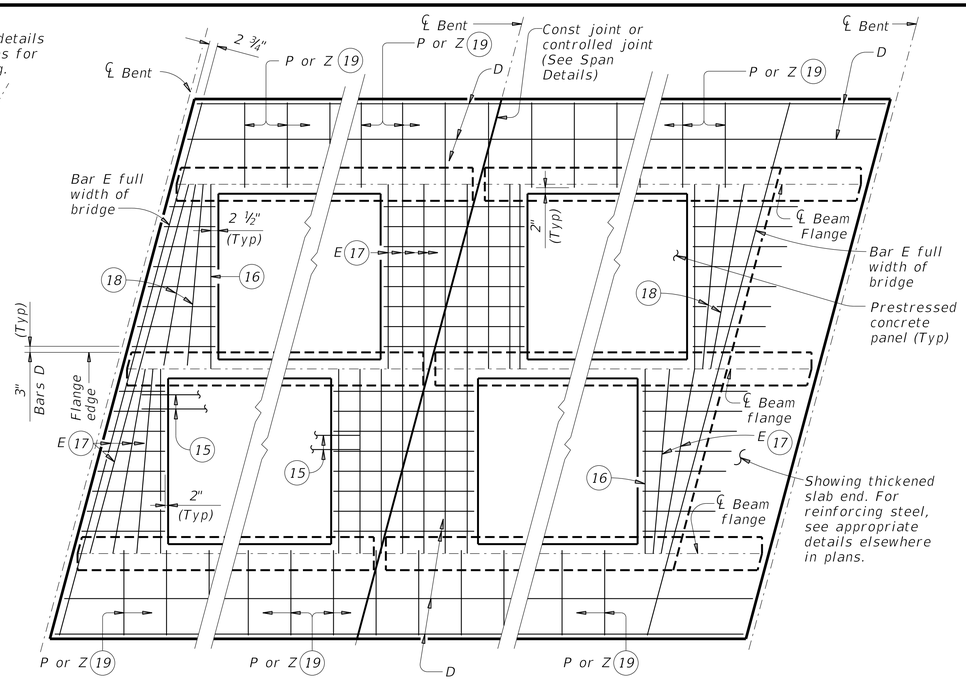


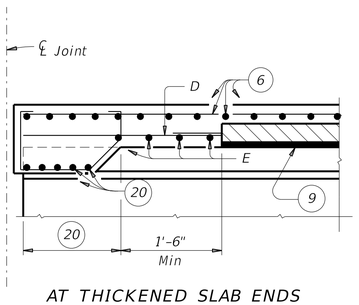
AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

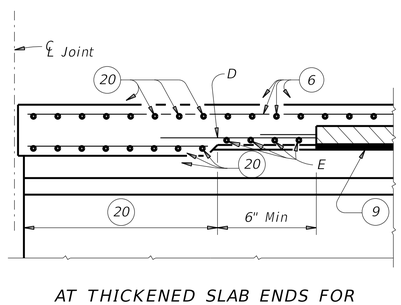


AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

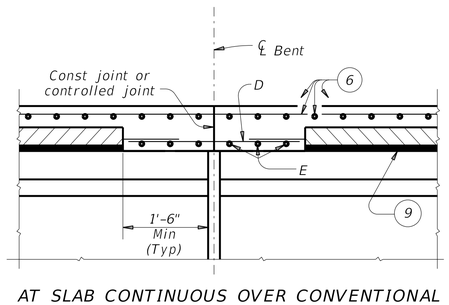
OPTION 1 ~ PLAN OF SLABS WITH SKEWED REINFORCEMENT



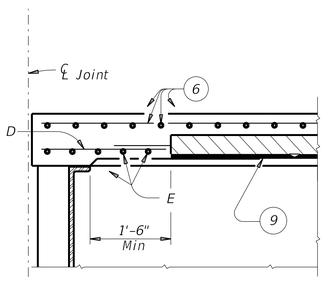
AT THICKENED SLAB ENDS FOR PRESTR CONC U-BMS



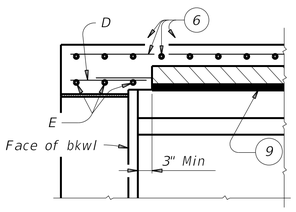
AT THICKENED SLAB ENDS FOR PRESTR CONC I-BMS AND STEEL BMS



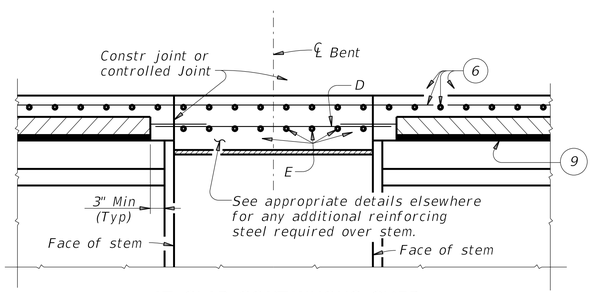
AT SLAB CONTINUOUS OVER CONVENTIONAL INTERIOR BENTS FOR ALL SIMPLE SPAN BMS



AT CONVENTIONAL END DIAPHRAGMS FOR STEEL BMS



AT SLAB OVER ABUTMENT BACKWALL FOR ALL BMS



AT SLAB CONTINUOUS OVER INVERTED-T BENTS FOR ALL BMS

OPTION 1 ~ ELEVATIONS AT BEAM ENDS

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c.

(14) Max Spacing as listed unless otherwise shown.

(15) At connection with cast-in-place slab, extend longitudinal panel reinforcement. See PCP-FAB for details.

(16) Maintain one Bar E(#4) parallel to panel ends (Typ).

(17) Bars E(#4) not continuous over beam flanges must overlap beam flange 6" Min.

(18) Add flared Bars E(#4) (Min Spa = 6", Max Spa = 12") as required at panel ends.

(19) Where possible, Bars E(#4) may be extended into overhangs to replace Bars P(#4). Bars Z(#4) are required for sloped overhangs with U-Beams.

(20) See appropriate thickened slab end details for reinforcing and limits of thickened slab end.

TABLE OF REINFORCING STEEL (14)

BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18

HL93 LOADING

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Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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REVISIONS	DIST	COUNTY		SHEET NO.
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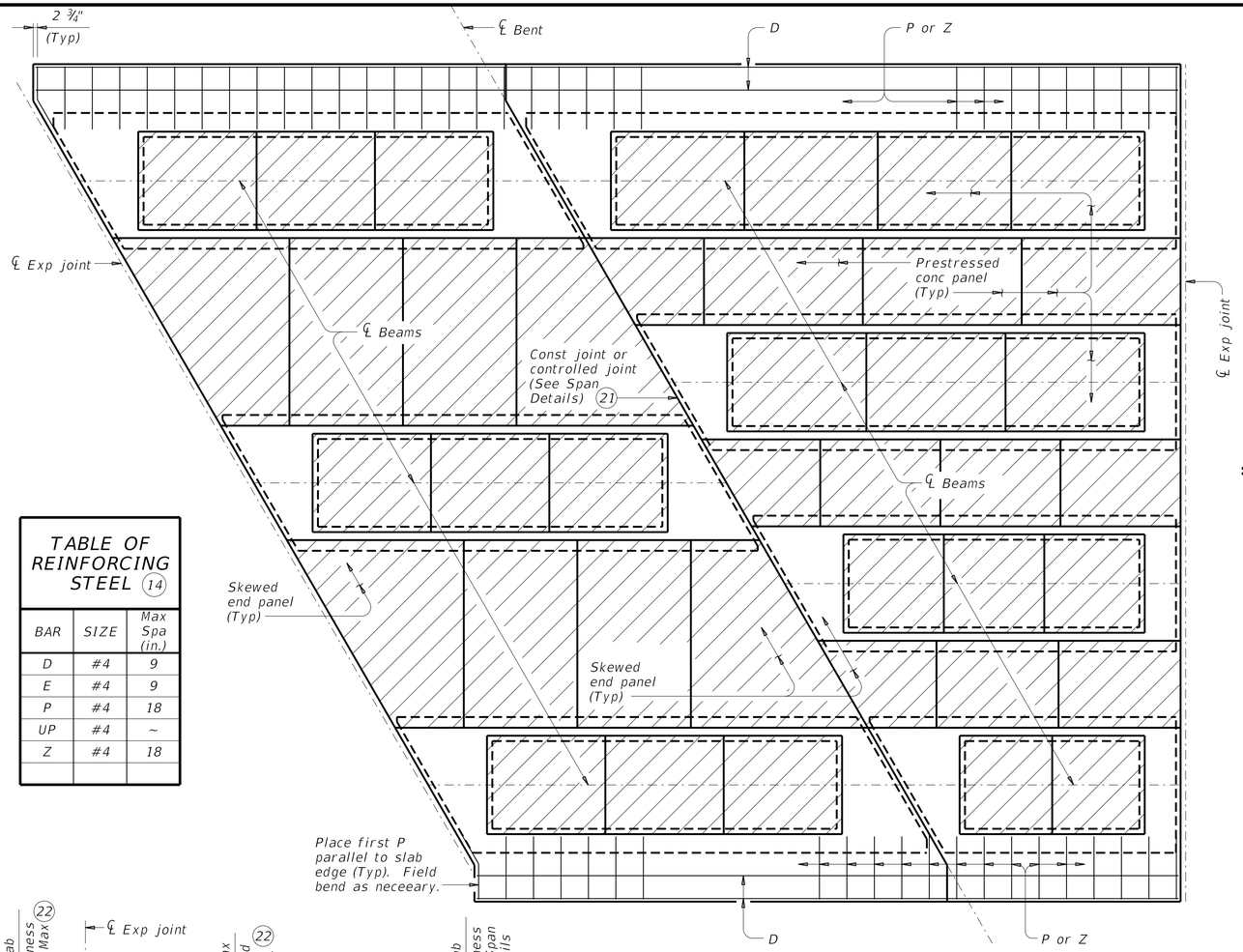
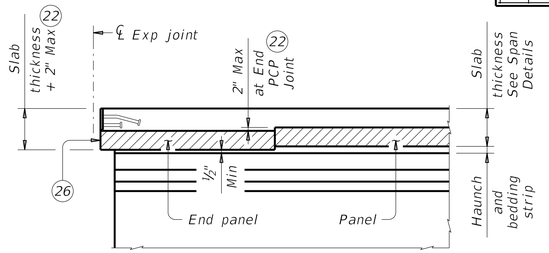


OPTION 2 ~ PLAN OF SLAB

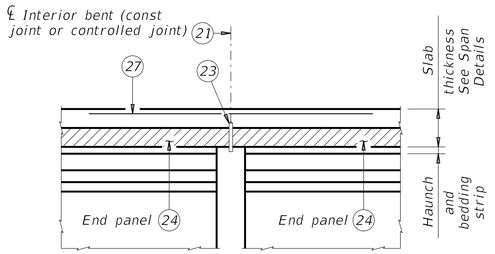
(Showing U-Beams; other beams similar)

TABLE OF REINFORCING STEEL (14)		
BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18



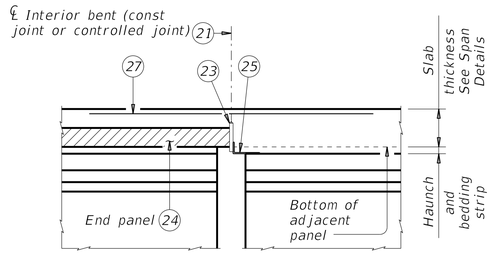
JOINTS (BETWEEN BEAMS/GIRDERS OR AT INV-T STEM)

For SEJ-B, SEJ-M, SEJ-S(0), AJ, and Type A expansion joints only.



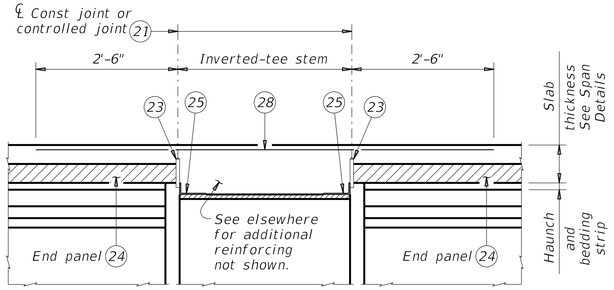
CONVENTIONAL INTERIOR BENT

Panel against panel between beams/girders.



CONVENTIONAL INTERIOR BENT

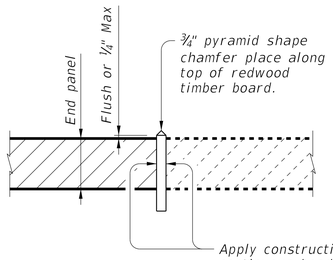
Panel against beam/girder end in adacent span.



INVERTED-T BENT

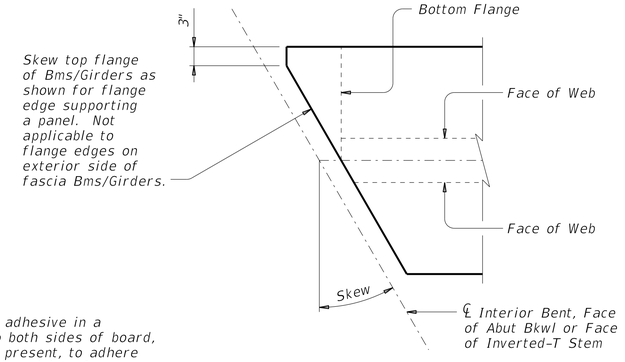
Panels against inverted-tee stem

OPTION 2 ~ ELEVATIONS AT BEAM ENDS (6)



ELEVATION EXAMPLE OF END PANEL AND TIMBER BOARD (23)

See "Option 2 ~ Elevation At Beam Ends".



OPTION 2 ~ SHOWING MODIFICATION TO BEAM/GIRDER TOP FLANGE FOR SKEWS OVER 5°

Showing I-Bm/I-Girder, U-Bms and Steel Bms similar.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(14) Max Spacing as listed unless otherwise shown.

(21) 1 ½" Vinyl or plastic joint former at controlled joints (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

(22) End panel may be set up to 2" lower to accommodate expansion joint hardware, provided bedding strip is not less than ½" thick.

(23) ¾" thick redwood timber board, leave in place. Redwood timber board placed flush with top of panel or within ¼" Max above panel. Place ¾" pyramid shape chamfer along top of timber board. See "Elevation Example of End Panel and Timber Board". Place straight, within ¼" of centerline of bent or face of inverted-tee, across bridge width and end board at exterior flange edge of fascia beams/girders. Do not extend into overhang.

(24) Place panel within ½" of ¾" thick board.

(25) Permanent galvanized steel sheet form. Removable formwork is acceptable.

(26) Place end panel within ½" of expansion joint opening. End panel cannot encroach on required expansion joint opening.

(27) Place additional (#4) bar 5'-0" in length between every slab bars T. Center (#4) bar on Joint.

(28) Place additional (#4) bar continuous 2'-6" beyond each side of Inverted-T Stem between every slab bars T.

SPECIAL OPTION 2 CONSTRUCTION NOTES:

When Option 2 is chosen bottom mat of thickened end slab reinforcing is not required. Use the same top mat as shown on the Thickened Slab End Details sheet.

Placing panels adjacent to expansion joints and bent centerlines prior to completing interior panel placement is recommended. Saw cutting panels to fit is acceptable when approved by the Engineer. Minimum distance from a saw cut edge to a panel strand is 1 ½".

Do not extend the longitudinal panel reinforcement into the cast-in-place slab.

Top flanges of beams and girders on skewed bridges must be modified as shown on this drawing. The Contractor is responsible for coordinating this modification with the beam fabricator prior to submitting shop drawings for approval.

Fabricator may optionally skew the whole end. When electing to skew whole end, girder end details and bearing type at conventional interior bent must be changed to use condition at abutment. Fabricator must coordinate change in bearing type, bearing centerline location, and dowel location with Engineer and Contractor. Show appropriate changes on girder and bearing shop drawings.

Bending of anchor studs of expansion joints shown on standards AJ, SEJ-B, SEJ-M, and SEJ-S(0) is permissible if necessary to clear top of end panels. The Contractor is responsible for coordinating modifications with the joint fabricator. Submit shop drawings for approval when modifications to expansion joint hardware are made.

Bedding strips under skewed end panels must conform to the requirements of Item 422 except their minimum compressive strength must be 60 psi.

Provide Bars AA, G, K and 0A from standard IGTS in the slab.

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Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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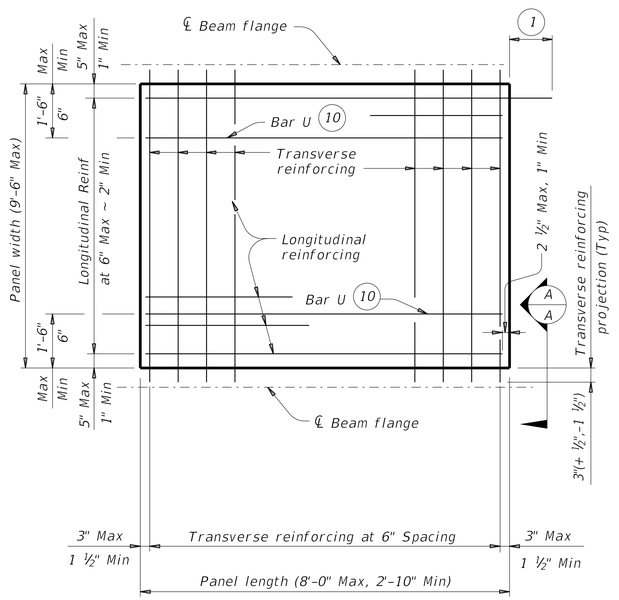
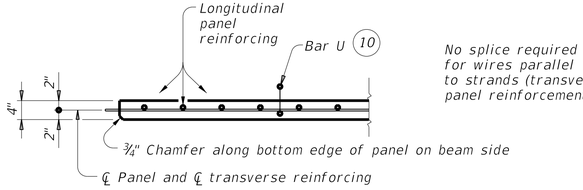
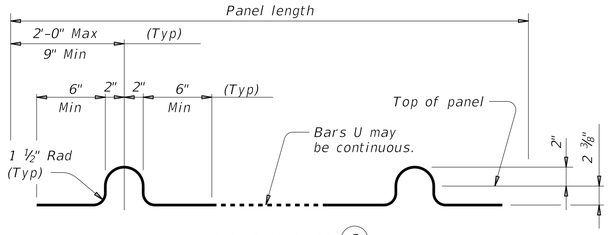


TYPICAL NON-SKEWED PANEL PLAN

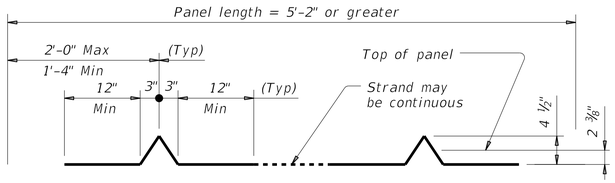


SECTION A-A

(Not showing supplemental #4 bars for skewed end panels.)

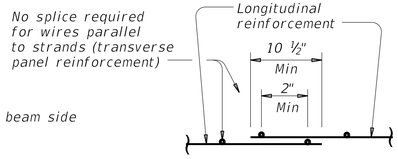


BARS U (#3) 2



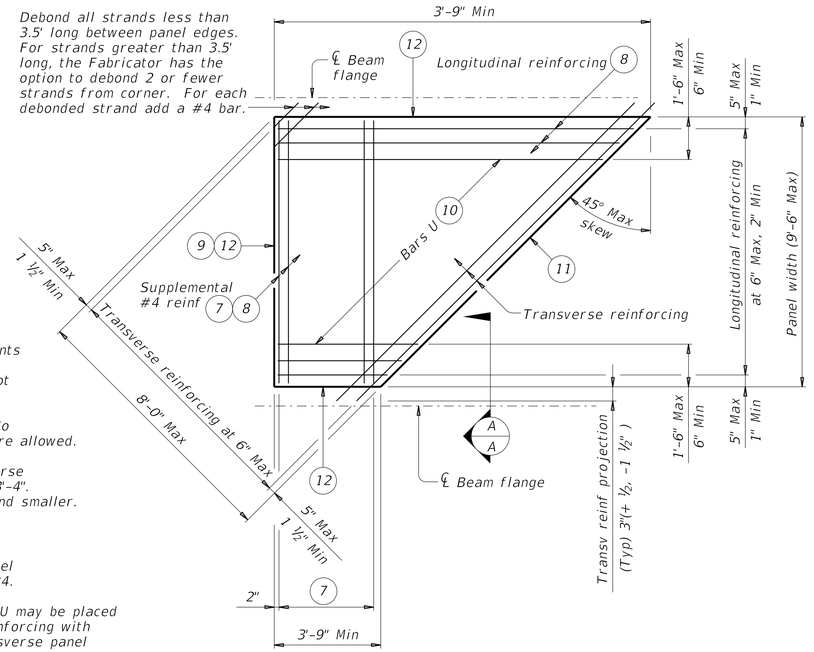
OPTIONAL STRAND FOR BARS U 3

1. At connection with cast-in-place slab, extend longitudinal panel reinforcement 1'-0" (+2",-0") past panel end. Alternatively, provide (#3) x 2'-0" dowels at 6" Max Spacing and extend dowels 1'-0" past panel end.
2. Four loops required per panel.
3. Four loops required per panel. ⅜" or ½" strands may be used.
4. Normal dimensions must be used on spans with parallel beams. Maximum and Minimum dimensions apply only to spans with flared beams.
5. See Normal Grading Detail on PCP standard for lap requirements and bedding strip dimensions. Some laps shown in tables cannot utilize all bedding strip widths.
6. One Splice allowed per panel. No more than two sheets of WWR are allowed.
7. Provide (#4) bars under transverse reinforcing, 10 Spaces at 4" = 3'-4". Omit for 5 degree (1:12) skew and smaller.
8. End Cover 2 ½" Max, 1" Min.
9. Recess strands on indicated panel edge in accordance with Item 424.
10. At the fabricator's option, Bars U may be placed parallel to transverse panel reinforcing with horizontal legs in plane of transverse panel reinforcing.
11. Use length of indicated panel edge as panel width for purpose of determining type of transverse reinforcing.
12. Timber form work permissible this edge.



WELDED WIRE REINFORCEMENT (WWR) SPLICE DETAIL 6

Debond all strands less than 3.5' long between panel edges. For strands greater than 3.5' long, the Fabricator has the option to debond 2 or fewer strands from corner. For each debonded strand add a #4 bar.

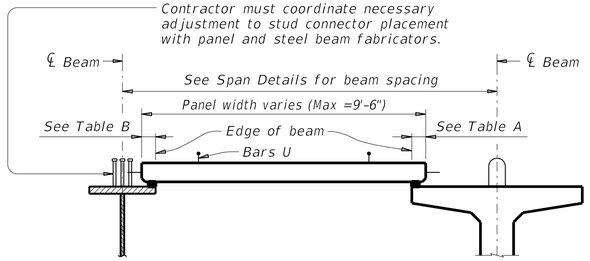


TYPICAL SKEWED END PANEL PLAN

(Only to be used with details shown elsewhere in the plans.)

TABLE A (4) (5)			
Beam Type	Normal (In.)	Min (In.)	Max (In.)
A	3	2 ½	3 ½
B	3	2 ½	3 ½
C	4	3	4 ½
IV	6	4	7 ½
VI	6 ½	4 ½"	8 ½
U40 – 54	5 ½	5 ½	7
Tx28-70	6	5	7 ½
XB20 – 40	4	3	4 ½
XSB12 – 15	4	3	4 ½

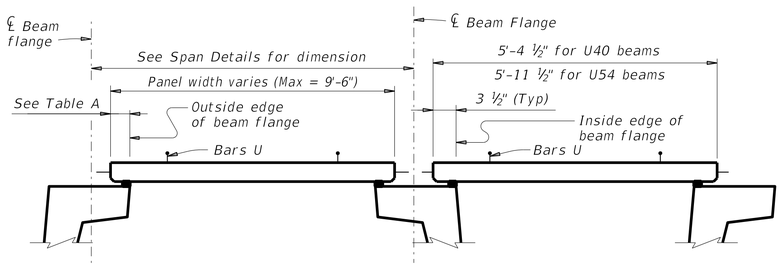
TABLE B (4) (5)			
Top Flange Width	Normal (In.)	Min (In.)	Max (In.)
11" to 12"	2 ¾	2 ½	2 ¾
Over 12" to 15"	3 ¼	3	3 ¼
Over 15" to 18"	4	3	4 ¾
Over 18"	5	3 ½	6 ¼



STEEL BEAMS

PRESTRESSED CONCRETE BEAMS OR GIRDERS

Typ unless noted otherwise



PRESTRESSED CONCRETE U-BEAMS

TYPICAL SECTIONS FOR DETERMINING PANEL WIDTH

GENERAL NOTES:

Provide Class H concrete for panels. Release strength f'ci=3,500 psi. Minimum 28 day strength f'c=5,000 psi.

Provide ¾" chamfer along bottom edge of panel on beam side.

Do not use epoxy-coated reinforcing steel bar or strand in panels.

Remove laitance from top panel surface.

Finish top of panel to a roughness between a No. 6 and No. 9 concrete surface profile, inclusive, as specified by the International Concrete Repair Institute (ICRI).

Shop drawings for the fabrication of panels will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

A panel layout which identifies location of each panel must be developed by the Fabricator. Permanently mark each panel in accordance with the panel layout. A copy of the layout is to be provided to the Engineer.

TRANSVERSE PANEL REINFORCEMENT:

For panel widths over 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kips per strand.

For panel widths over 3'-6" up to and including 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kip per strand. Optionally, (#4) Grade 60 reinforcing bars may be used in lieu of prestressed strands.

For panel widths up to 3'-6", use (#4) Grade 60 reinforcing bars (prestressed strands alone are not allowed).

Place transverse panel reinforcement at panel centroid and space at 6" Max.

LONGITUDINAL PANEL REINFORCEMENT:

Any of the following options may be used for longitudinal panel reinforcement:

1. (#3) Grade 60 reinforcing steel at 6" Max Spacing. No splices allowed.
2. ⅜" Dia prestressing strands at 4 ½" Max Spacing (unstressed). No splices allowed.
3. ½" Dia prestressing strands at 6" Max Spacing (unstressed). No splices allowed.
4. Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) providing 0.22 sq in per foot of panel width. Wires larger than D11 not permitted. Provide transverse wires to ensure proper handling of reinforcing. One splice per panel is allowed. See WWR Splice Detail.

No combination of longitudinal reinforcement options in a panel is allowed.

Place longitudinal panel reinforcement above or below transverse panel reinforcement. Must be placed above transverse panel reinforcement for skewed end panels with supplemental (#4) reinforcement.

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PRESTRESSED CONCRETE PANEL FABRICATION DETAILS

PCP-FAB

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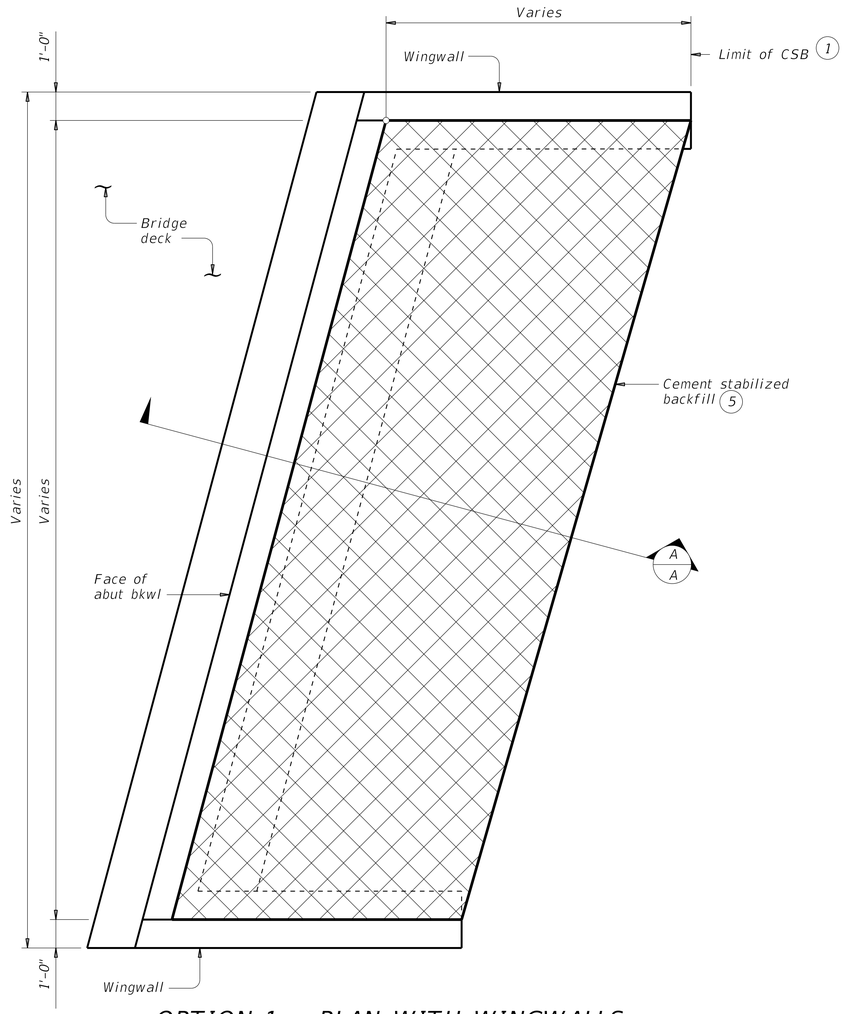
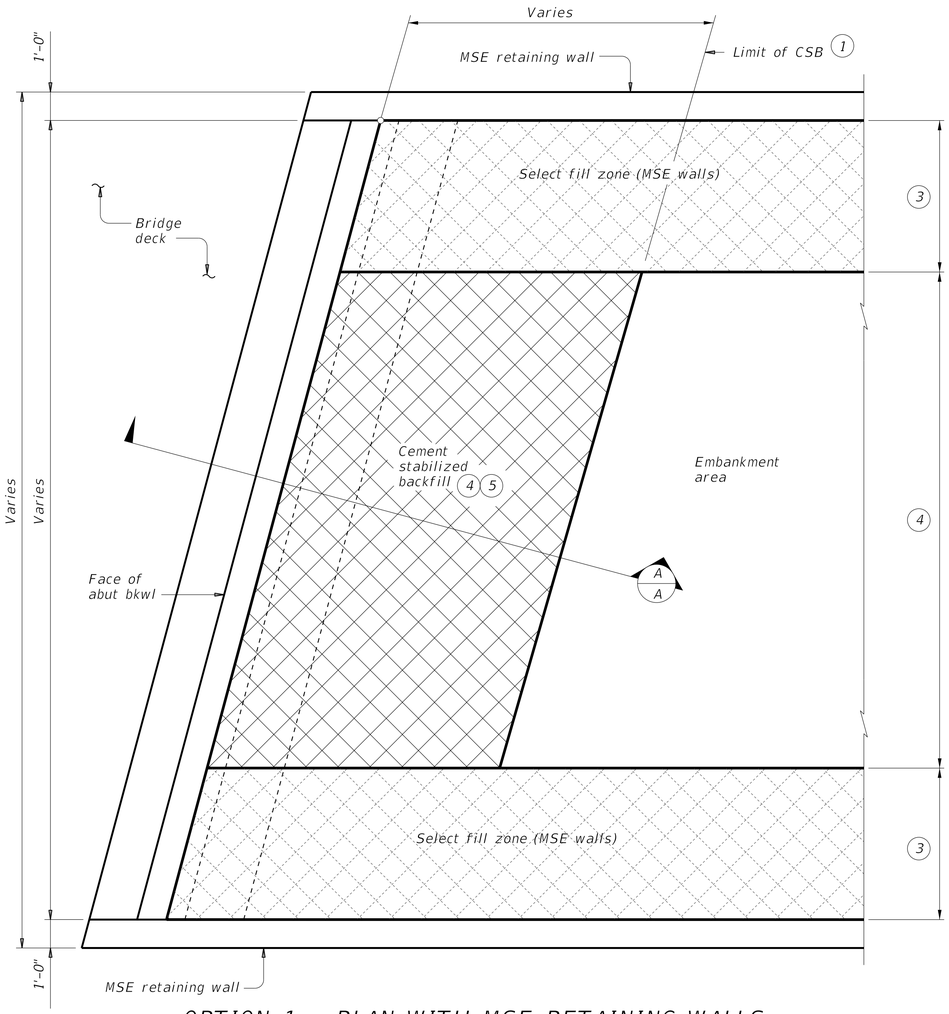


OPTION 1 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.



OPTION 1 ~ PLAN WITH MSE RETAINING WALLS

1 Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.

2 Bench backfill as shown with 12" (approximate) bench depths.

3 Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.

4 When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.

5 If shown in the plans flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:
a). If flowable backfill is to be placed over MSE backfill then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
b). Place flowable fill in lifts not exceeding 2 feet in height, place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).

GENERAL NOTES:

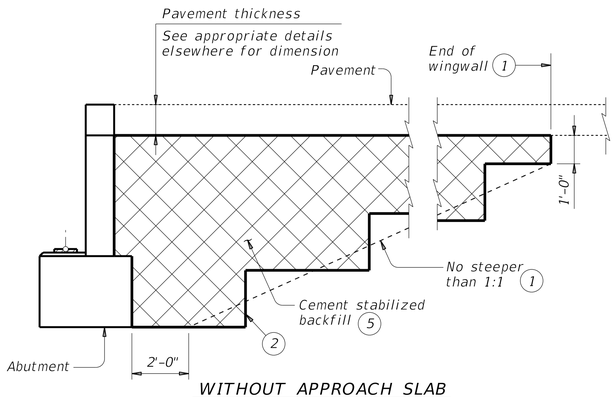
See the Bridge Layout for selected Option. Option 2 is intended for new construction requiring high plasticity embankment fill with a plasticity index (PI) greater than 30 or pavement built in poor native soil. Poor soils are defined as high plasticity clays or expansive clays. Option 1 is intended for construction only requiring PI controlled embankment fill or excavation in competent soils/rocks in order to construct the abutment.

Provide Cement Stabilized Backfill (CSB) meeting the requirements of Item 400, "Excavation and Backfill for Structures", to the limits shown at bridge abutments.

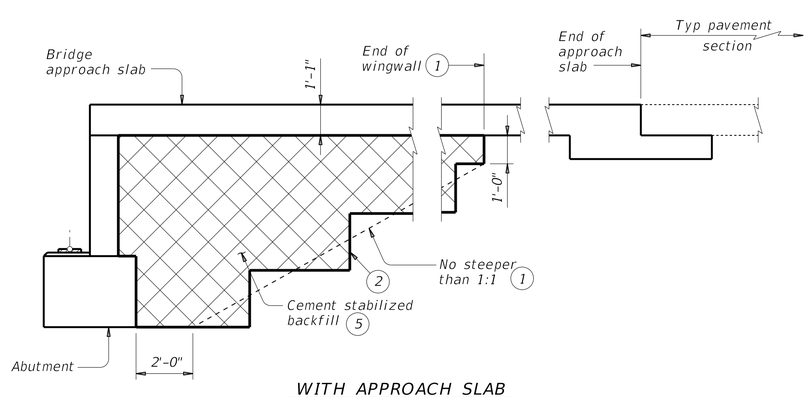
If required elsewhere in the plans, provide Flowable Backfill meeting the requirements of Item 401, "Flowable Backfill", to the limits shown at bridge abutments.

Details are drawn showing left forward skew. See Bridge Layout for actual skew direction.

These details do not apply when Concrete Block retaining walls are used in lieu of wingwalls.



WITHOUT APPROACH SLAB



WITH APPROACH SLAB
(Showing BAS-C, BAS-A similar.)

SECTION A-A

Texas Department of Transportation

Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL

BRIDGE ABUTMENT

CSAB

FILE: csabste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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02-20: Added Option 2.	DIST	COUNTY		SHEET NO.
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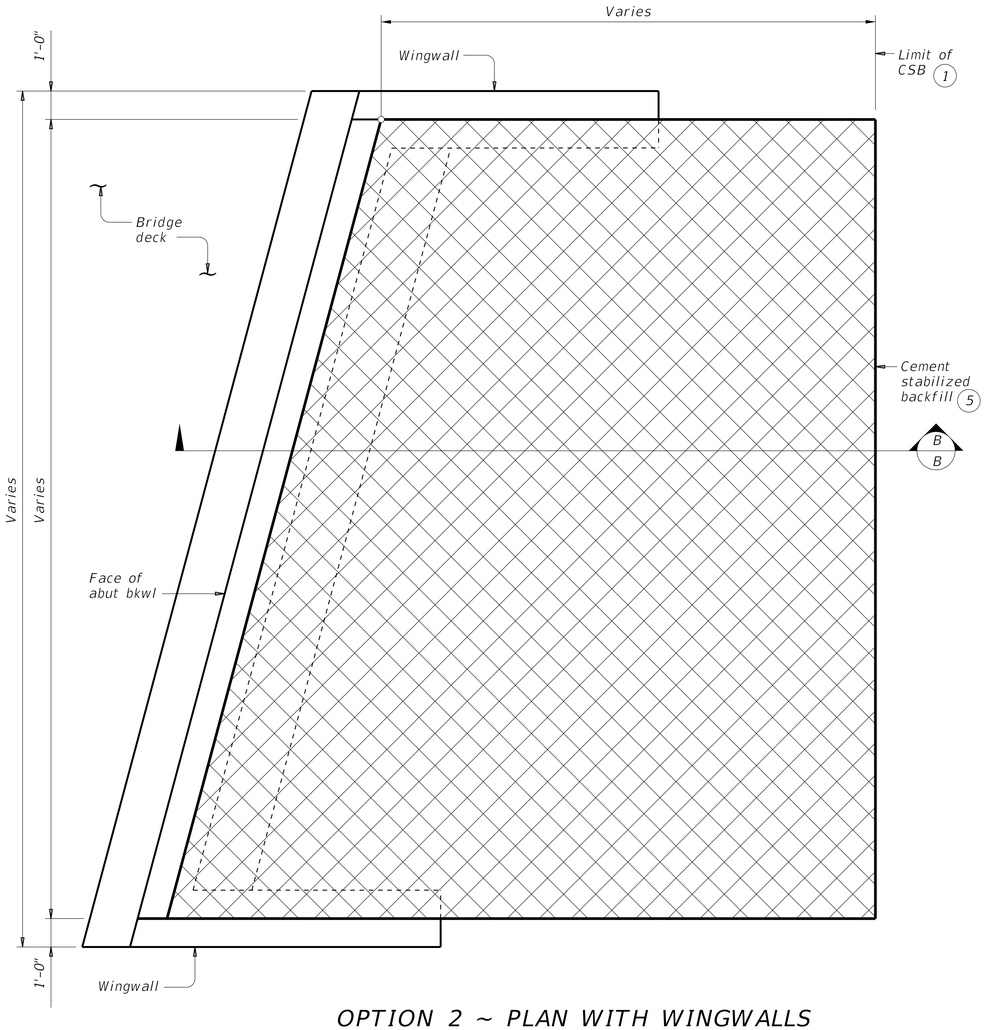
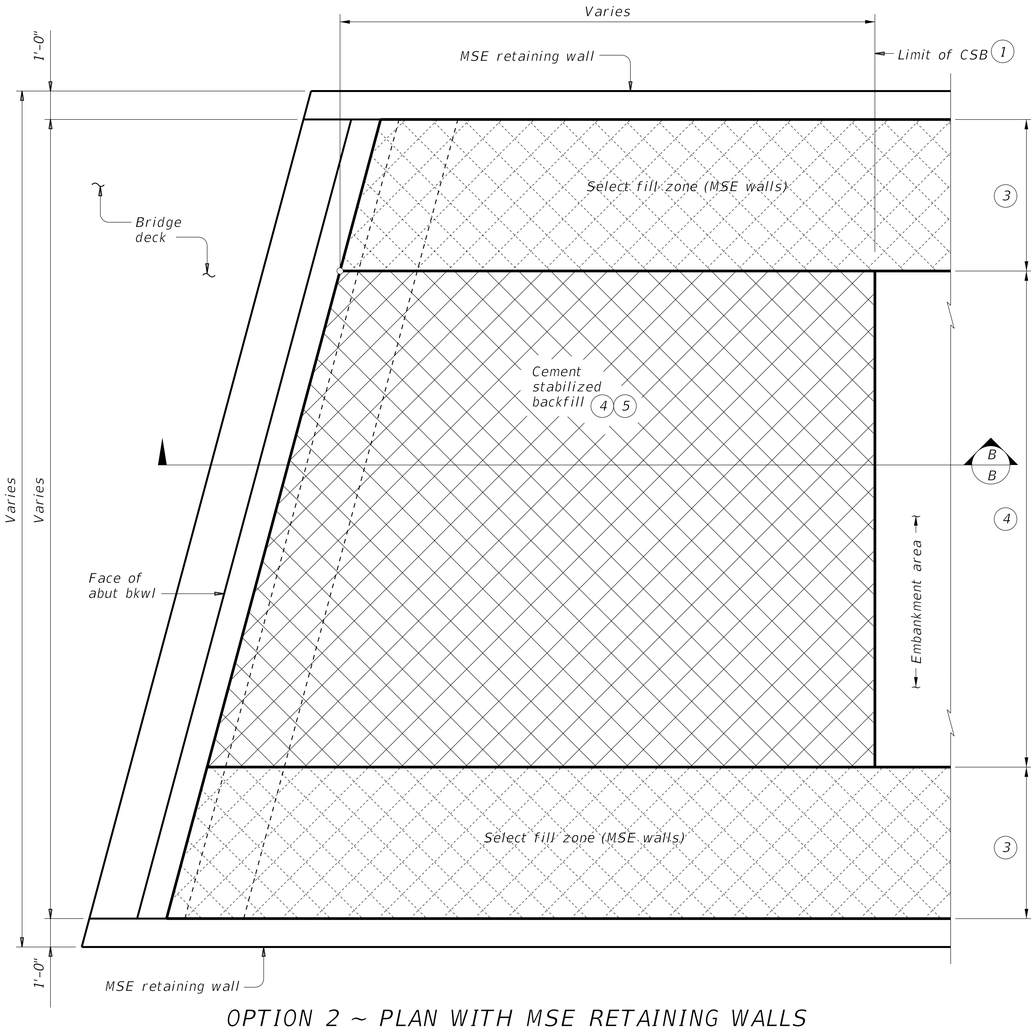


OPTION 2 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.



OPTION 2 ~ PLAN WITH MSE RETAINING WALLS

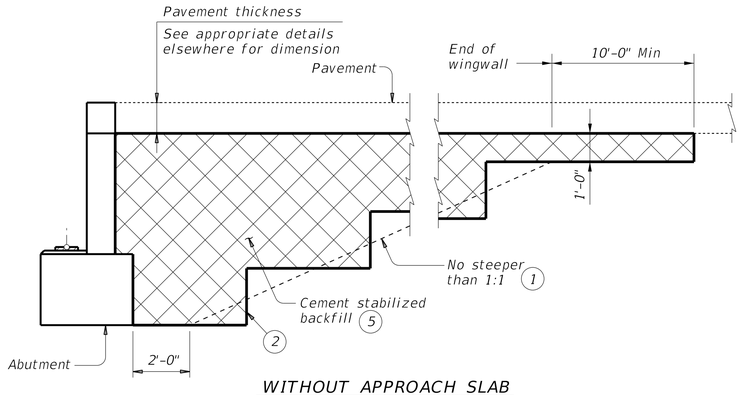
(1) *Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.*

(2) *Bench backfill as shown with 12" (approximate) bench depths.*

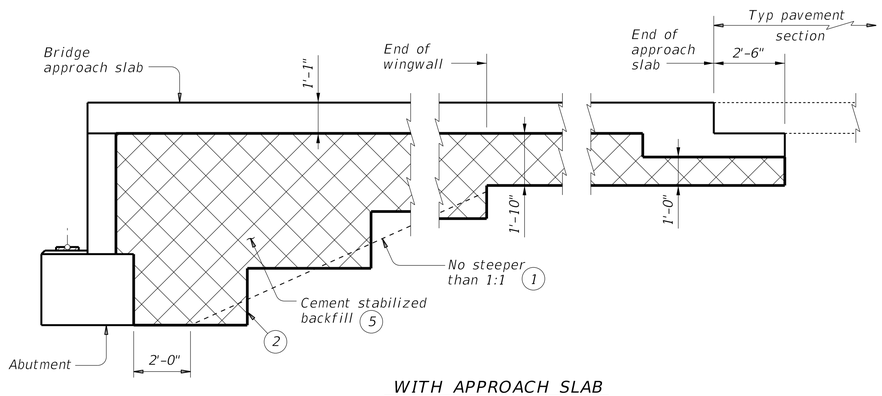
(3) *Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.*

(4) *When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.*

(5) *If shown in the plans flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:*
a). If flowable backfill is to be placed over MSE backfill then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
b). Place flowable fill in lifts not exceeding 2 feet in height, place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION B-B

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

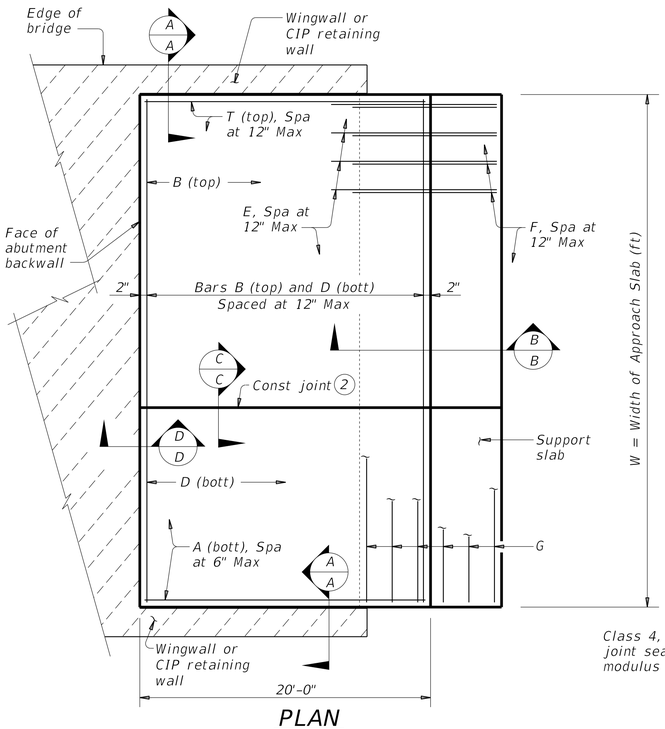
CEMENT STABILIZED ABUTMENT BACKFILL

BRIDGE ABUTMENT

CSAB

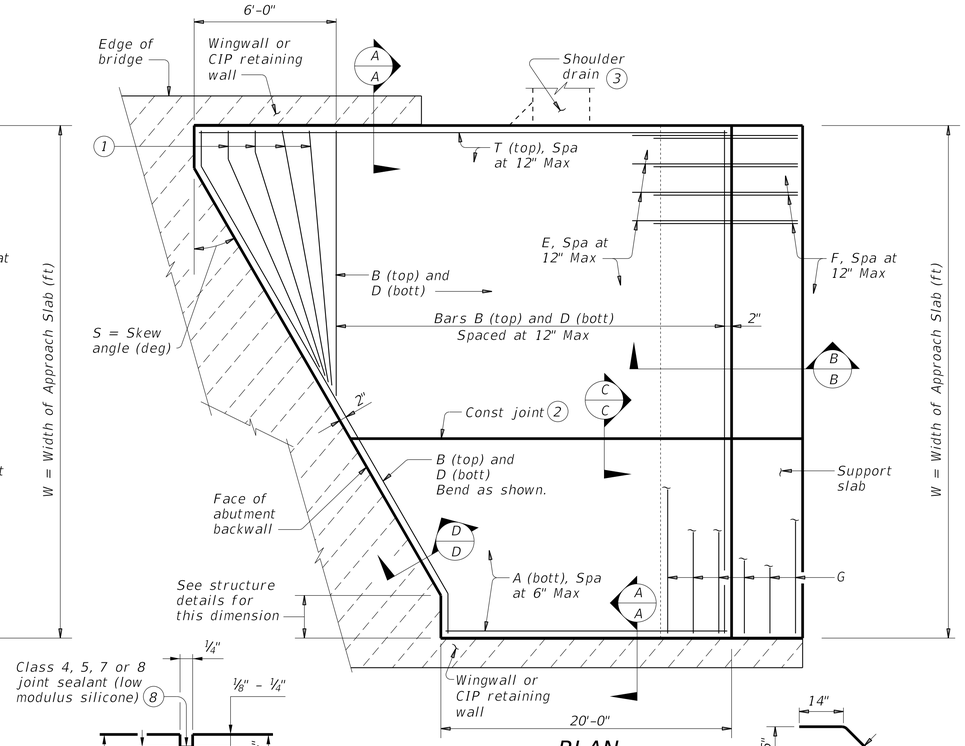
FILE: csabste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
02-20: Added Option 2.	DIST	COUNTY		SHEET NO.
				107

DATE:
FILE:



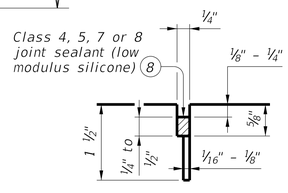
PLAN

(Showing non-skewed approach slab.)



PLAN

(Showing skewed approach slab.)



LONGITUDINAL SAW CUT JOINT DETAIL

BAR TABLE	
BAR	SIZE
A	#8
B	#5
D	#5
E	#5
F	#5
G	#5
T	#5

APPROXIMATE QUANTITIES 4

Reinf steel weight = 8.5 Lbs/SF of Approach Slab
= 18.4 Lbs/LF of Support Slab

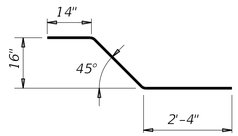
Vol of Appr Slab Conc (CY) = 1.057W – 0.008W x T + 0.02W² Tan S
(Includes Support Slab)

W = Width of Approach Slab (ft)

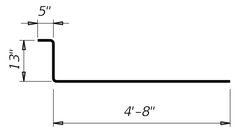
T = Conc Pavement Thickness (in)

S = Skew Angle (deg)

1. Flare Bars B and D in this region (1'-6" Max Spa, 3" Min Spa). Minimum flared bar length = 2'-6". Bend bars as necessary.
2. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
3. See details elsewhere in plans for shoulder drain location and details.
4. For Contractor's information only. Quantities shown are for one approach slab only.
5. On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness. Smooth trowel finish. Oil top of support slab with 60 grade oil and apply heavy coat of powdered graphite. Press down one layer of 30# roofing felt.
6. Multiple piece tie bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.
7. See details elsewhere in plans for required cross-slope.
8. Place in accordance with Item 438.
9. Provide backer rod that is 25% larger than joint opening and compatible with the sealant.
10. If bridge rail is present at the wingwall or CIP retaining wall, place ½" rebonded recycled tire rubber between concrete railing and top of approach slab as shown when concrete railing projects over the approach slab.



BARS E (#5)



BARS F (#5)

GENERAL NOTES:

Construct approach slab in accordance with Item 422.

Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.

Provide Grade 60 reinforcing steel.

Provide longitudinal joints as shown on the Longitudinal Saw Cut Joint Detail at lane lines and shoulders when width between longitudinal construction joints or edges of approach slab exceeds 16 feet. Saw cut joints within 24 hours of concrete placement to a depth of 1 ½" and seal in accordance with Item 438. Alternately, provide a controlled joint consisting of 1 ½" vinyl or plastic joint former (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

Provide rebonded recycled tire rubber joint filler that meets the requirements of DMS-6310. "Joint Sealants and Fillers."

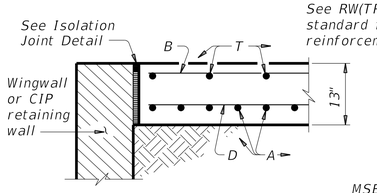
Construct the subgrade or subbase away from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.

Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown on the plans.

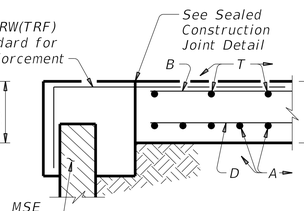
Cure for 4 days using water or membrane curing per Item 422.

All details shown herein are subsidiary to bridge approach slab.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

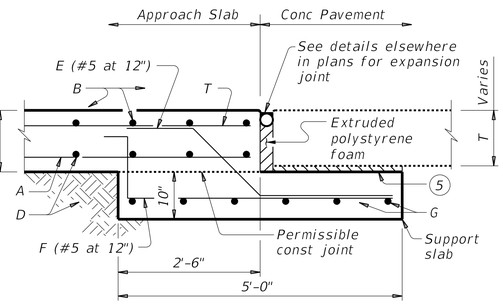


SHOWING WINGWALL OR CIP RETAINING WALL

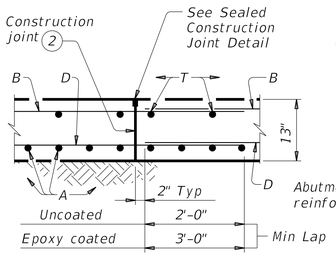


SHOWING MSE WALL

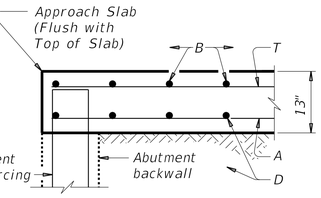
SECTION A-A



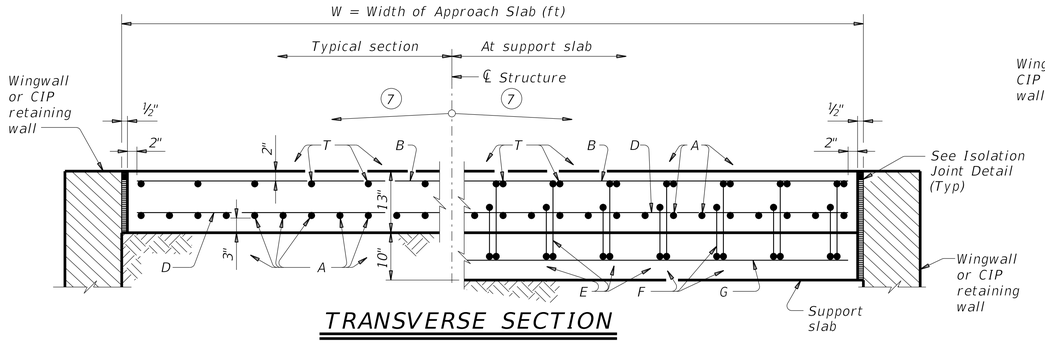
SECTION B-B



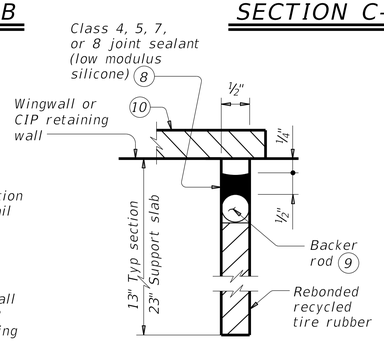
SECTION C-C 6



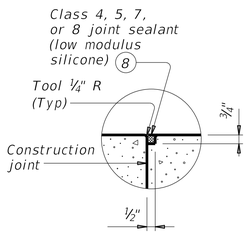
SECTION D-D



TRANSVERSE SECTION



ISOLATION JOINT DETAIL



SEALED CONSTRUCTION JOINT DETAIL

Texas Department of Transportation

Bridge Division Standard

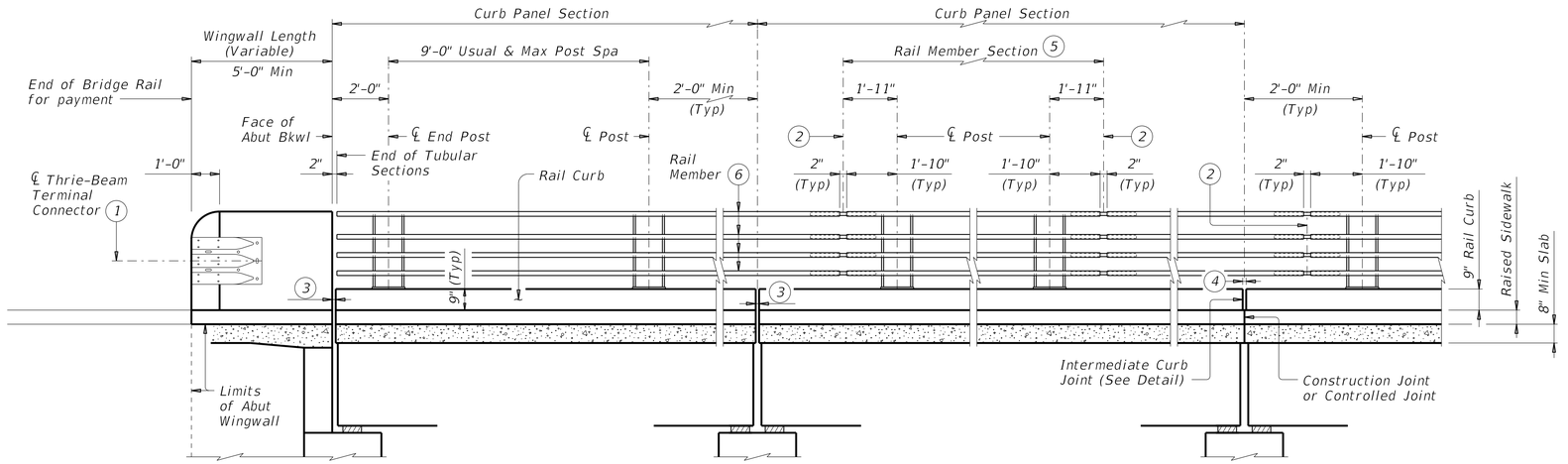
BRIDGE APPROACH SLAB

CONCRETE PAVEMENT

BAS-C

FILE: bascste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
02-20: Removed stress relieving pad.	DIST	COUNTY		SHEET NO.
				108

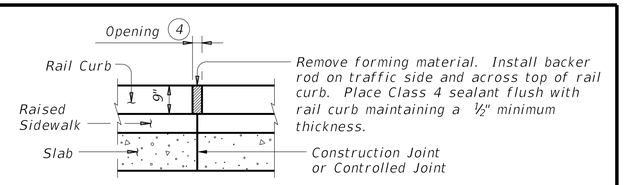
DATE:
FILE:



AT ABUTMENTS | AT BENTS WITH SLAB EXP JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

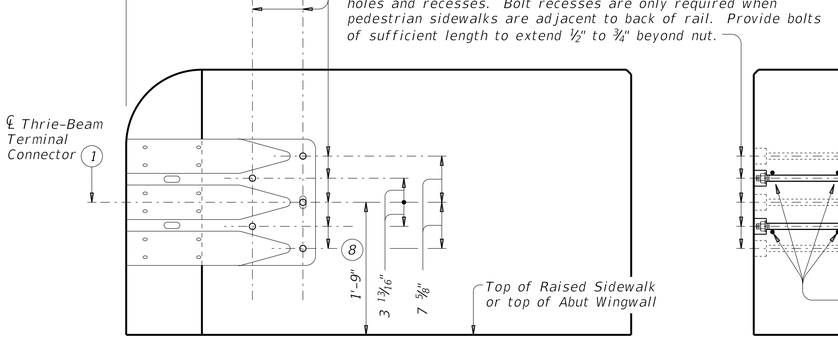
ROADWAY ELEVATION OF RAIL

Showing combination rail on a raised sidewalk.



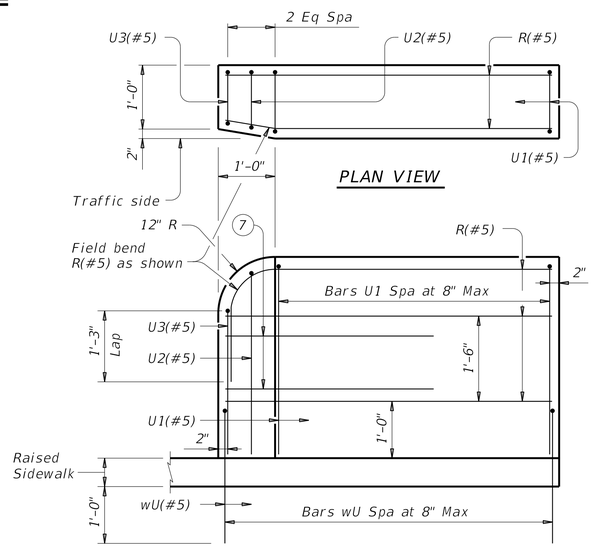
INTERMEDIATE CURB JOINT DETAIL

Provide at all interior bents without slab expansion joints.

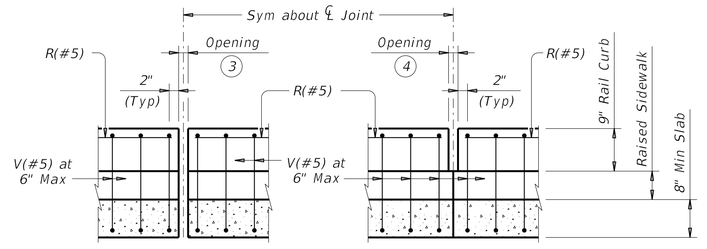


ELEVATION | SECTION

TERMINAL CONNECTION DETAILS



AT ABUTMENT WINGWALL



AT BENTS WITH SLAB EXPANSION JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

Showing with raised sidewalk

1. Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
2. ℄ Expansion Joint or Splice Joint as required.
3. Same as slab joint opening. (5" Max Expansion Joint).
4. ¼" Min, ¾" Max.
5. Rail member sections must have at least two posts but not more than four.
6. HSS 6 x 2 x ¼ (ASTM-A1085 or A500 Grade B).
7. Place 4 additional Bars R(#5) 3'-8" in length inside Bars U(#5) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.
8. Increase 2" for structures with Overlay.

Texas Department of Transportation

Bridge Division Standard

COMBINATION RAIL

TYPE C1W

FILE: rlstd017-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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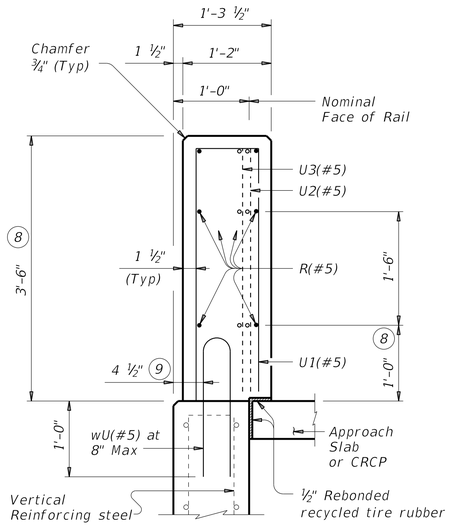
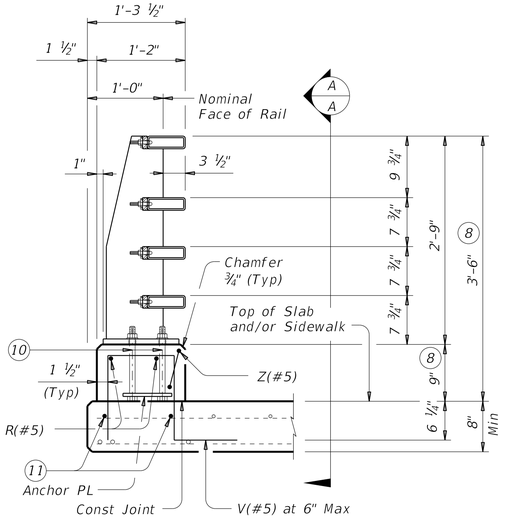
REVISIONS				
	DIST	COUNTY		SHEET NO.
				109

DATE:
FILE:

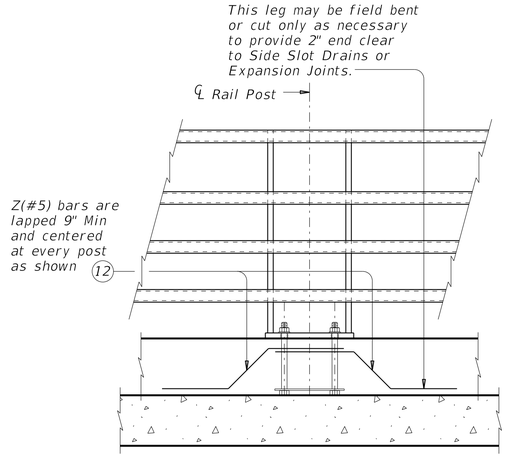


ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



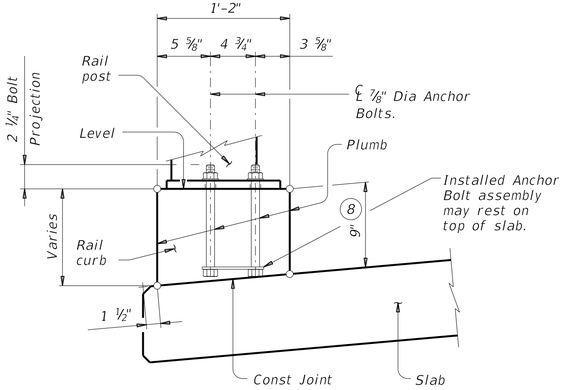
ON BRIDGE SLAB

SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK

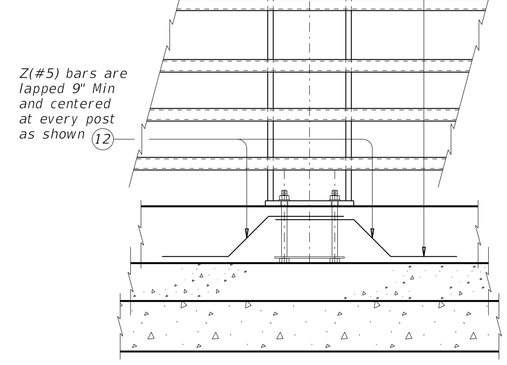


VIEW A-A

Bars V and R omitted for clarity.
Showing without raised sidewalk.

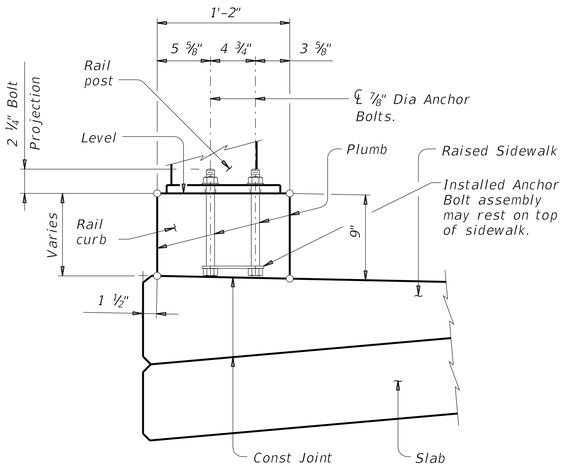


WITHOUT RAISED SIDEWALK



VIEW B-B

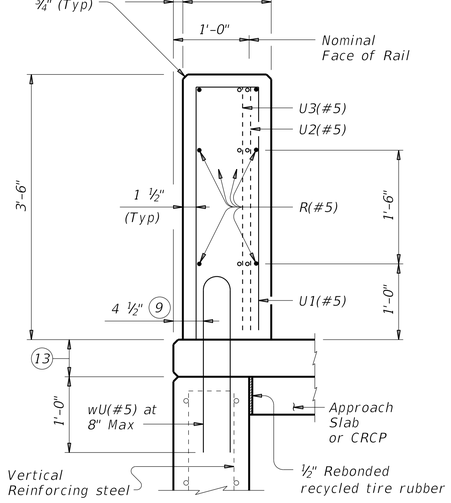
Bars V and R omitted for clarity.
Showing with raised sidewalk.



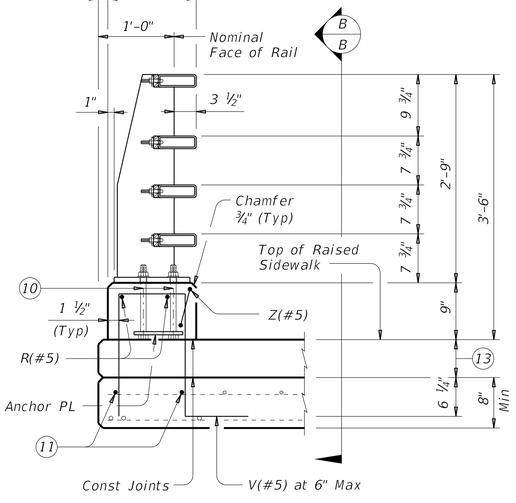
WITH RAISED SIDEWALK

RAIL CURB FORMING DETAIL

Reinforcing steel and rail curb chamfers not shown for clarity.



ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK

(8) Increase 2" for structures with Overlay.

(9) 5 ¼" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(10) ℄ ⅞" Dia Anchor Bolts. See "Anchor Bolt Assembly Details".

(11) Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

(12) Adjust Bars Z(#5) as necessary to avoid Bars V(#5).

(13) Raised Sidewalk.

Texas Department of Transportation

Bridge Division Standard

COMBINATION RAIL

TYPE C1W

FILE: rlstd017-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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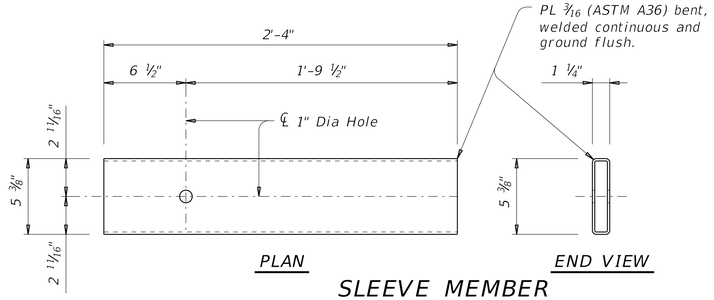
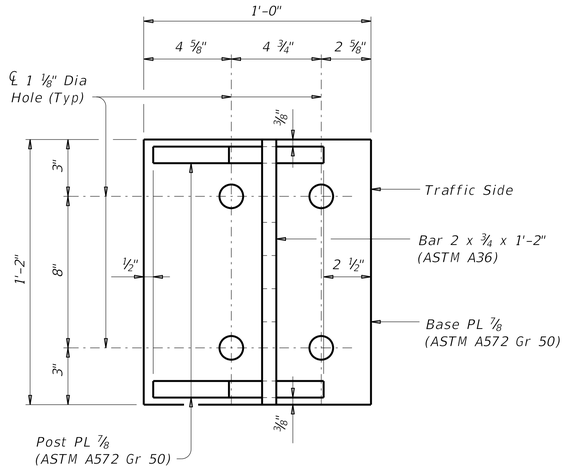
REVISIONS				
	DIST	COUNTY		SHEET NO.
				110

DATE:
FILE:

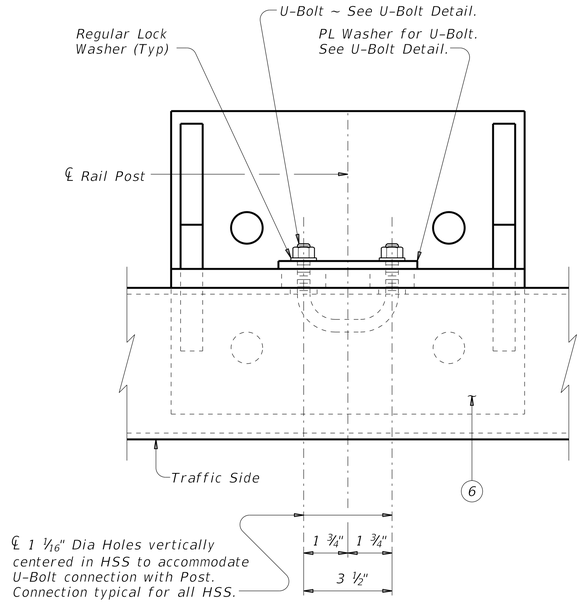


SLEEVE MEMBER



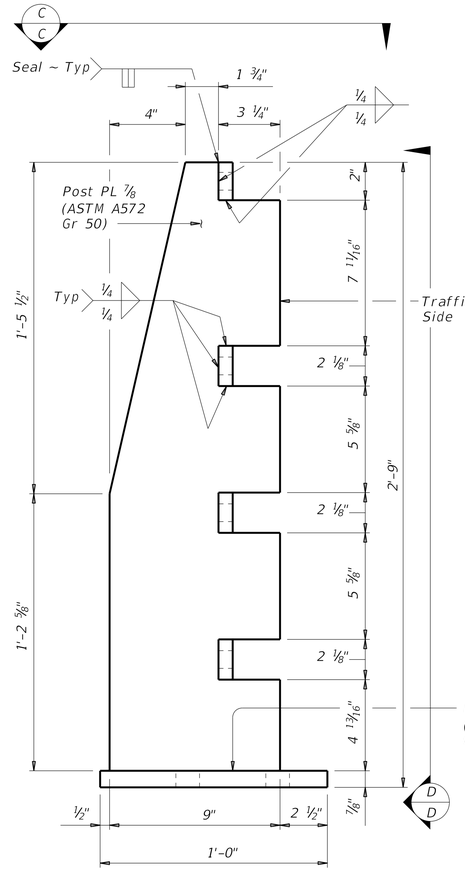
VIEW C-C

(Showing Hole location in Base PL)

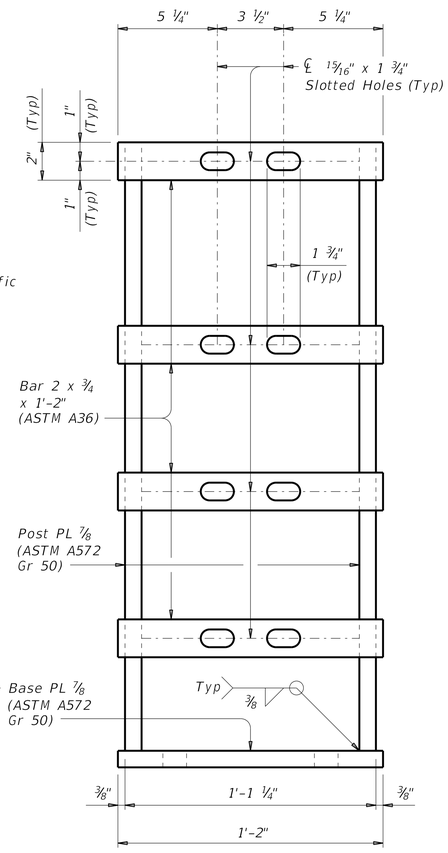


TOP VIEW OF RAIL POST

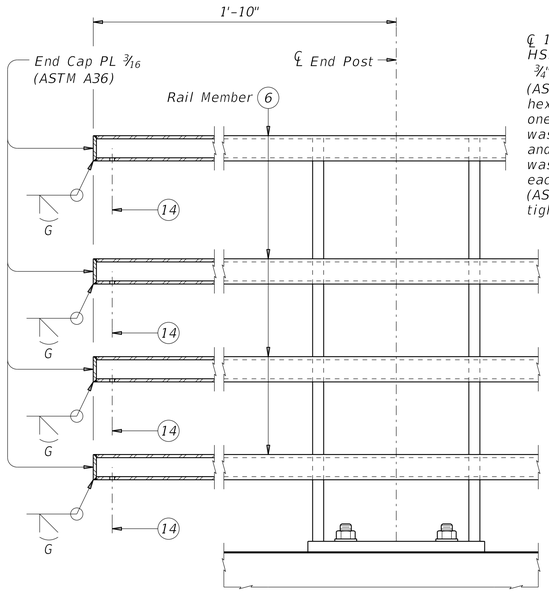
(Showing connection for rail post and HSS.)



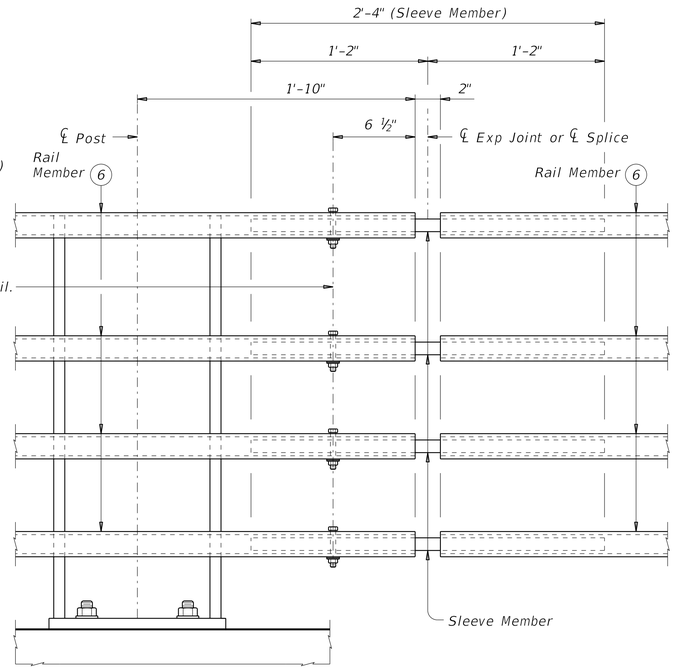
POST DETAIL



VIEW D-D

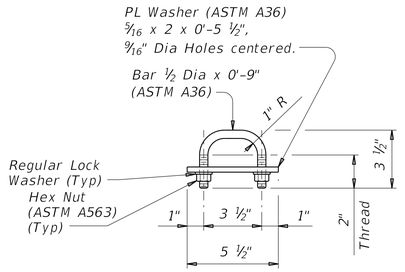


END CAPS ON HSS AT END POST



EXPANSION JOINT OR SPLICE

℄ 1" Dia holes in HSS centered for ¾" Dia x 3 ½" (ASTM F3125 Gr A325) hex head bolts with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut (ASTM A563). Wrench tight, do not crush rail.



U-BOLT DETAIL

(Showing U-Bolt for rail post and HSS.)

(6) HSS 6 x 2 x ¼ (ASTM A1085 or A500 Grade B).

(14) ℄ ⅜" Dia Drain Hole in bottom of HSS.

Texas Department of Transportation

Bridge Division Standard

COMBINATION RAIL

TYPE C1W

FILE:	rlstd017-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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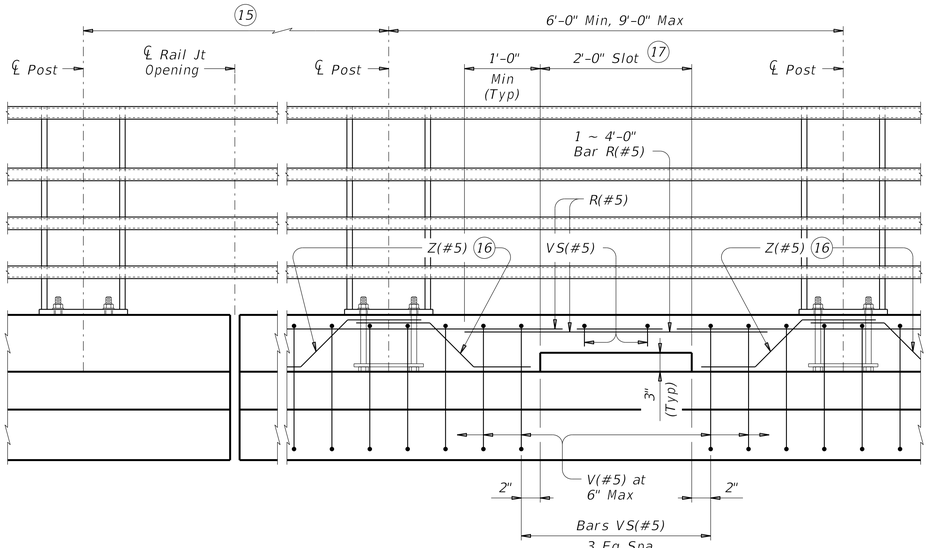
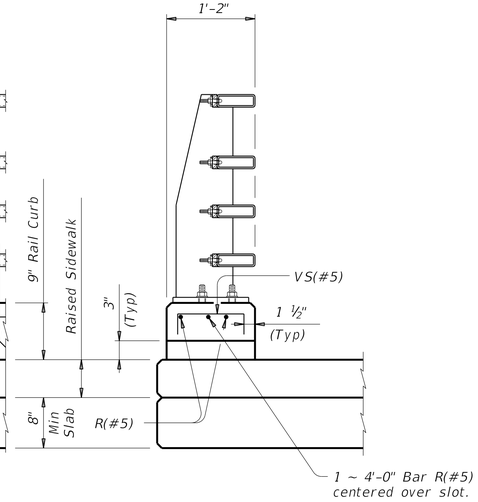
REVISIONS		DIST	COUNTY		SHEET NO.
					111

DATE:
FILE:



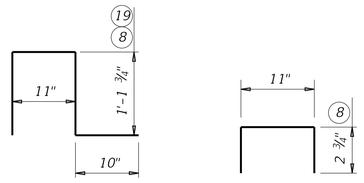
ELEVATION



SECTION THRU SIDE SLOT DRAIN

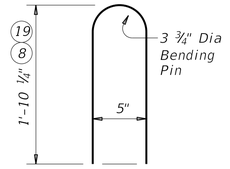
OPTIONAL SIDE SLOT DRAIN DETAILS 18

Showing side slot drain on raised sidewalk, without raised sidewalk similar.

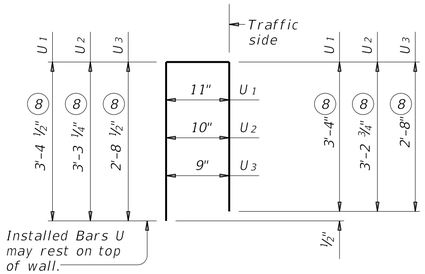


BARS V(#5)

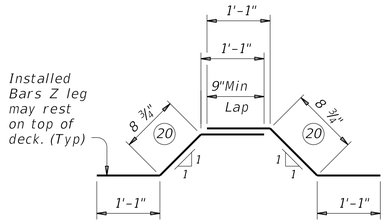
BARS VS(#5)



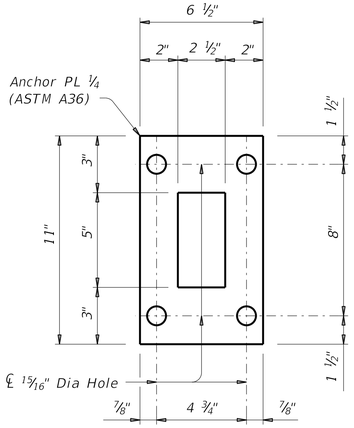
BARS wU(#5)



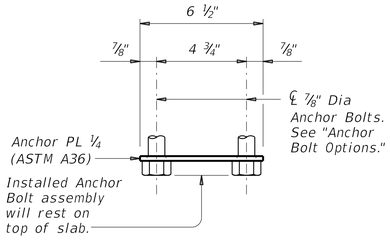
BARS U(#5)



BARS Z(#5)

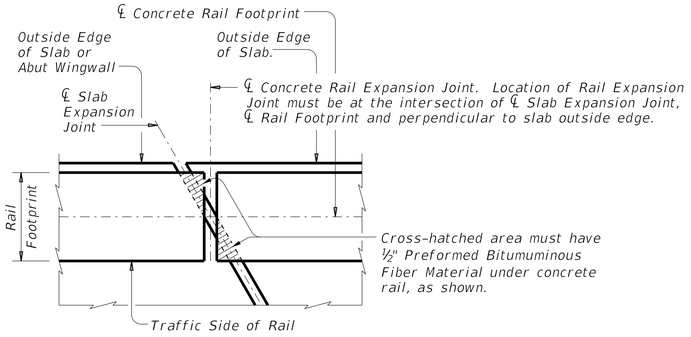


PLAN OF ANCHOR PLATE



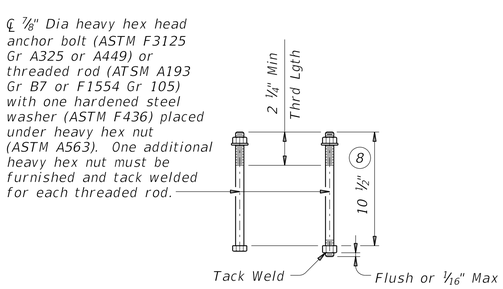
ELEVATION

ANCHOR BOLT ASSEMBLY DETAILS



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.



ANCHOR BOLT OPTIONS

(Showing Anchor Bolts for Base Plate)

(8) *Increase 2" for structures with Overlay.*

(15) *Side slot drains are not allowed in areas where there is a joint in the concrete curb between rail posts.*

(16) *Bars Z(#5). See "Section Thru Rail" and "View A–A or B–B" for Bar Z placement and spacing.*

(17) *Center side slot drain between posts within the limits shown.*

(18) *Side slot drains may be used where shown elsewhere on the plans or as directed by the Engineer. Do not place drains over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway and a sidewalk, side slot drains are not permitted.*

(19) *For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail's location.*

(20) *Increase 2 ¾" for structures with Overlay.*

CONSTRUCTION NOTES:

The face of tubular sections and rail curb must be plumb unless otherwise approved by the Engineer. Steel posts must be square to the top of curb. Use Type VIII epoxy mortar under post base plates if gaps larger than 1/16" exist.

Bend tubes to required radius for curved rails. Shop drawings for approval are required for curved rails.

One shop splice per rail member section is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

Round or chamfer exposed edges of rail members and rail posts must be rounded or chamfered to approximately 1/16" by grinding.

Chamfer all exposed concrete corners.

MATERIAL NOTES:

Provide ASTM A1085 or A500 Gr B for all HSS.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over gavanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel". Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.

Provide ⅞" Dia ASTM F3125 Gr A325 or A449 bolts (or ASTM A193 Gr B7 or F1554 Gr 105 threaded rods with one tack welded heavy hex nut each) with one hardened steel washer (ASTM F436) placed under each heavy hex nut that conforms to ASTM A563 requirements.

Provide ½" Dia round bar U-bolts (ASTM A36) with plate washer (ASTM A36) and regular lock washers placed under hex nuts that conform to ASTM A563 requirements. See "U-Bolt Detail".

Provide Class "S" concrete. When Class "S" concrete for slab is HPC, include a minimum of 3 gallons of calcium nitrite inorganic corrosion inhibitor per cubic yard of Class "S" concrete.

Provide bar laps, where required, as follows:

Uncoated or galvanized ~ #5 = 2'–0"
Epoxy coated ~ #5 = 3'–0"

GENERAL NOTES:

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

This railing cannot be used on bridges with expansion joints providing more than 5" movement or on cast-in-place retaining walls, unless otherwise noted.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Submit erection drawings showing panel lengths, rail post spacing, and anchor bolt setting, to the Engineer for approval.

Average weight of railing with no overlay:

205 plf total
131 plf (Conc)
74 plf (Steel).

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

Bridge Division Standard

COMBINATION RAIL

TYPE C1W

FILE: rlstd017-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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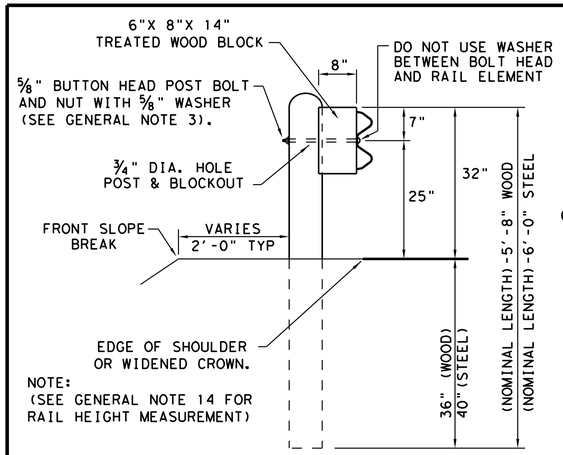
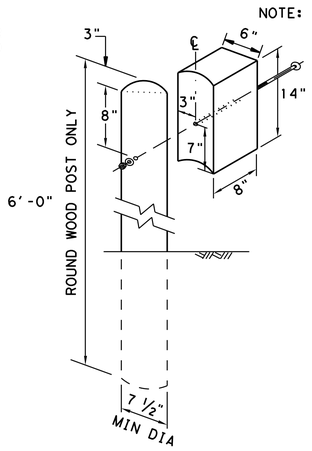
REVISIONS				
	DIST	COUNTY		SHEET NO.
				112

DATE:
FILE:

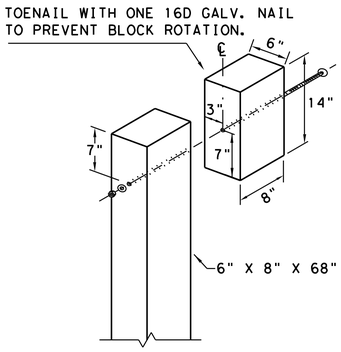


TYPICAL POST PLACEMENT

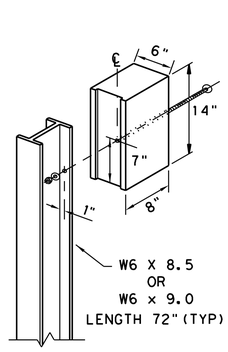


WOOD BLOCK TO ROUND WOOD POST

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

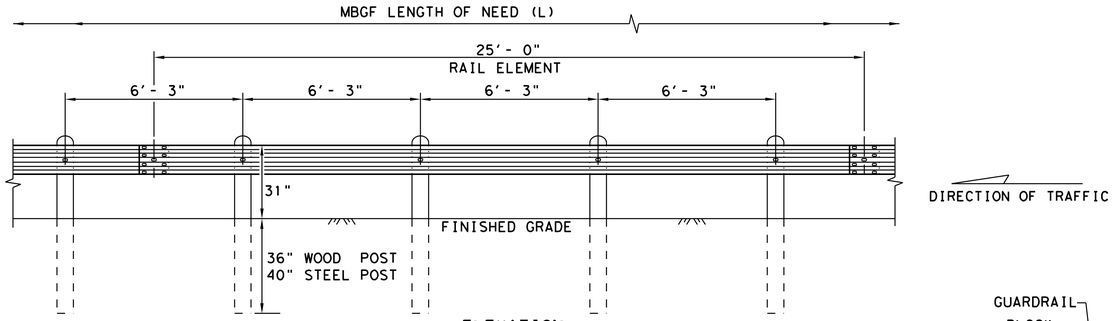


WOOD BLOCK TO RECTANGULAR WOOD POST



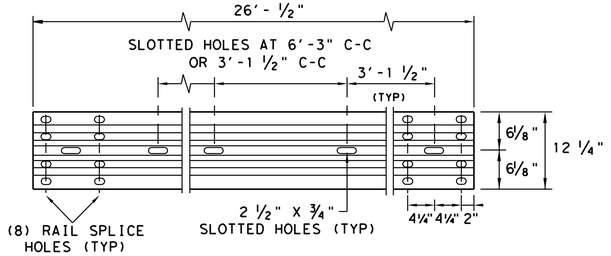
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



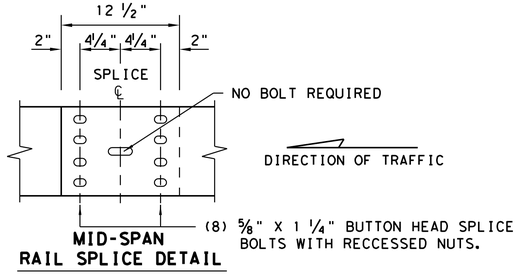
ELEVATION MID-SPAN RAIL SPLICE

SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25'- 0" (NOM.) W-BEAM SECTION

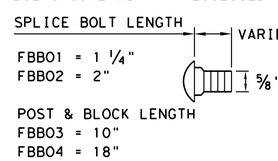
NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



MID-SPAN RAIL SPLICE DETAIL

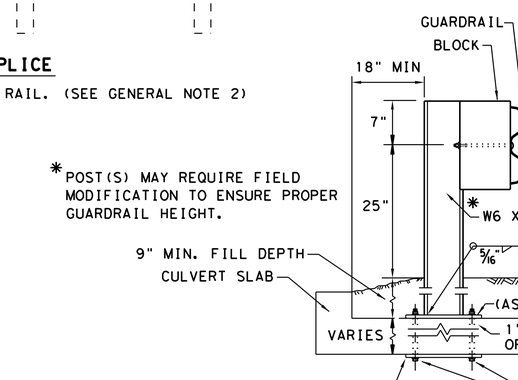
NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

NOTE:
FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.



BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



* POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅞" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ⅞" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ¼" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
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	DIST	COUNTY		SHEET NO.
				113

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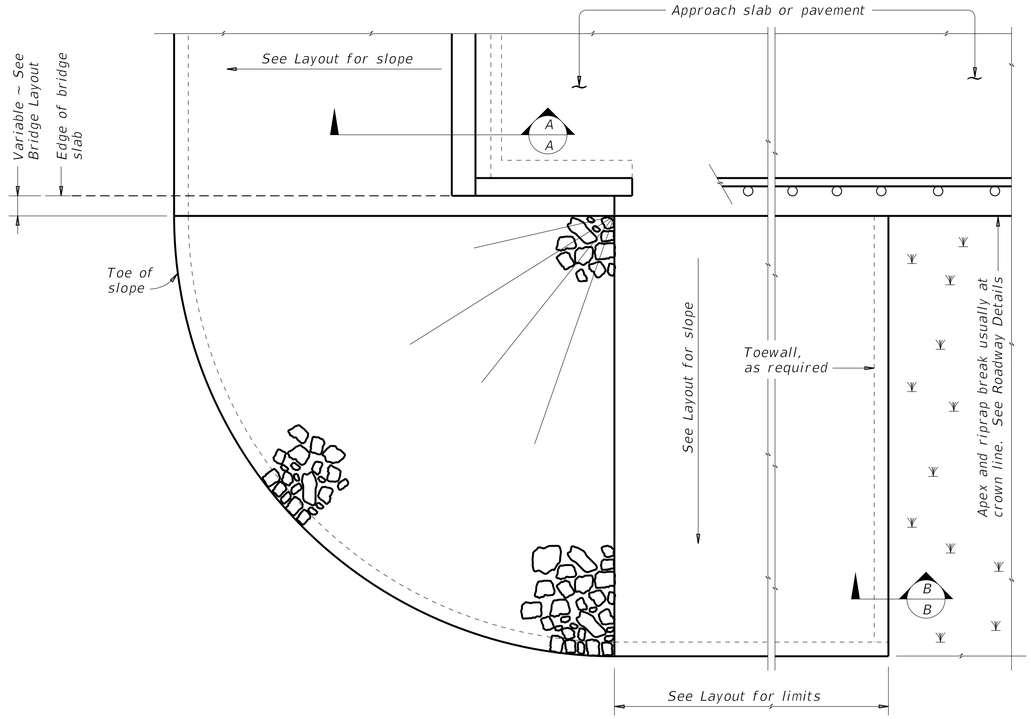
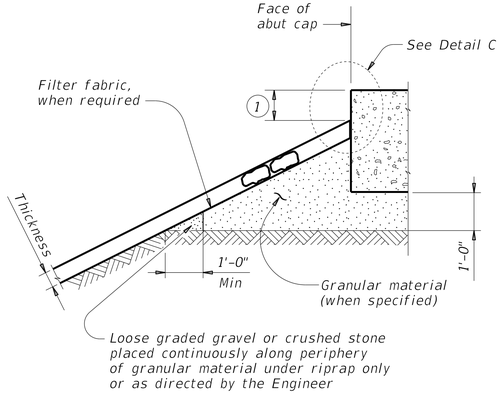
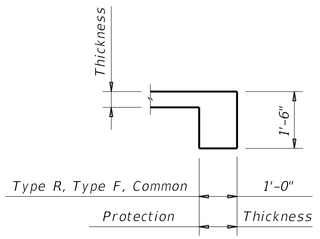


PLAN

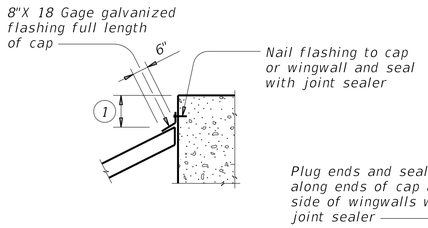


SECTION A-A AT CAP

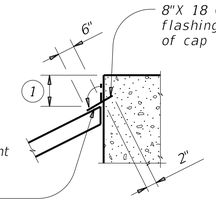


SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".

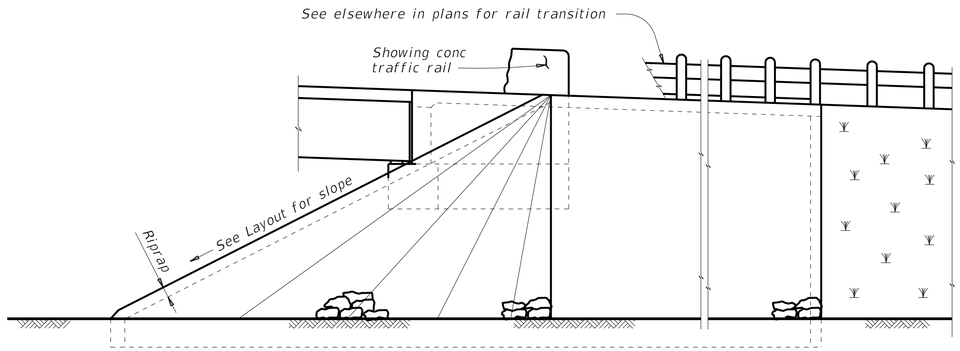


CAP OPTION A



CAP OPTION B

DETAIL C



ELEVATION

1 Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

GENERAL NOTES:
Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.
See elsewhere in plans for locations and details of shoulder drains.

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
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				114

DATE:
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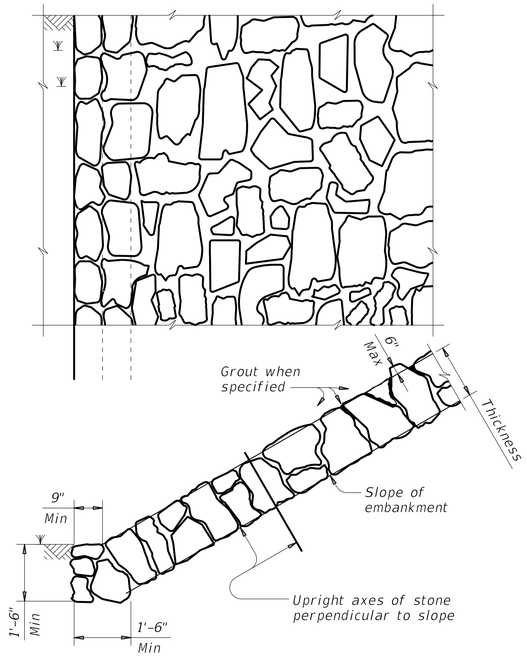


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

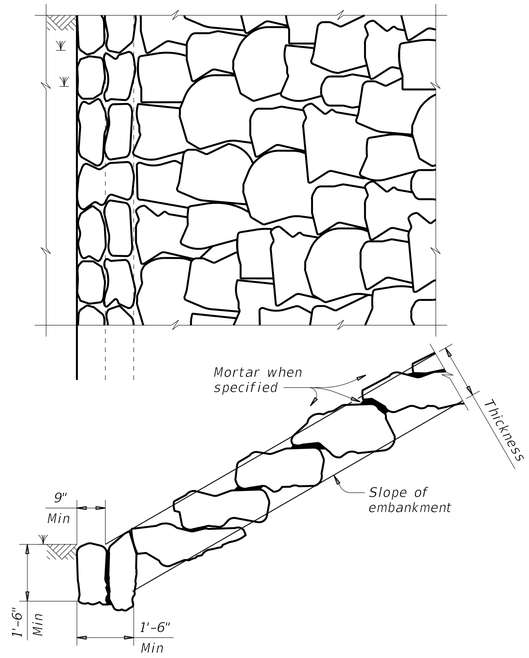


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

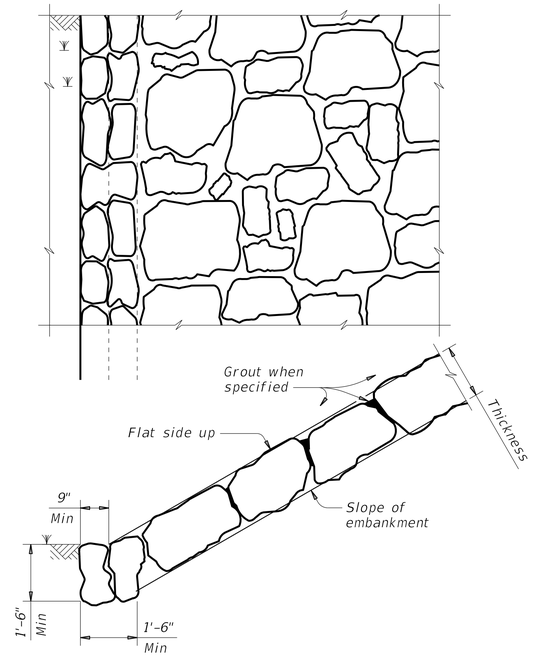


FIGURE 3 ~ TYPE F STONE RIPRAP

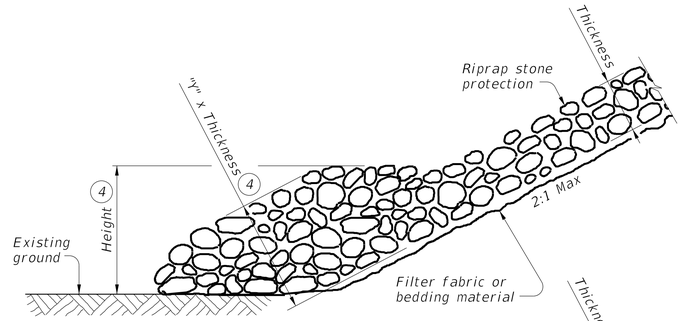
grouted

2 *Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.*

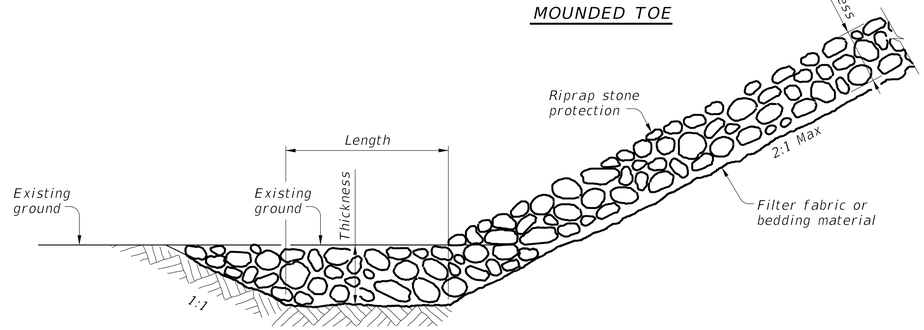
3 *Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.*

4 *"Y" and Height need to be defined. See layout or detail sheet for values if this option is used.*

5 *List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.*
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.

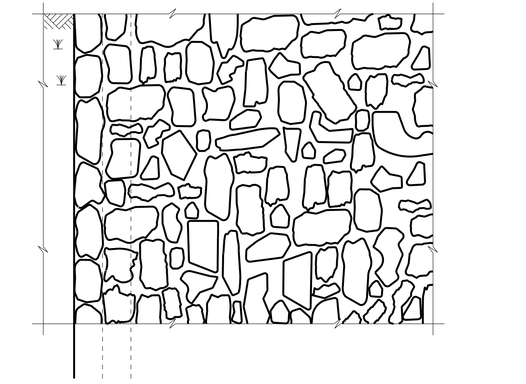


MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS 5



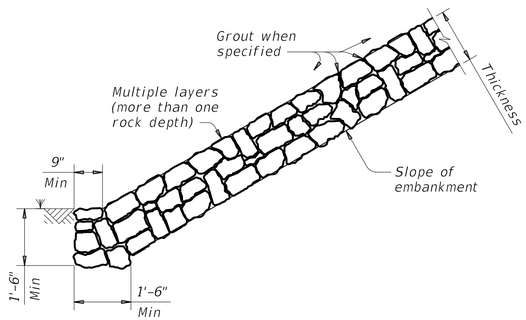
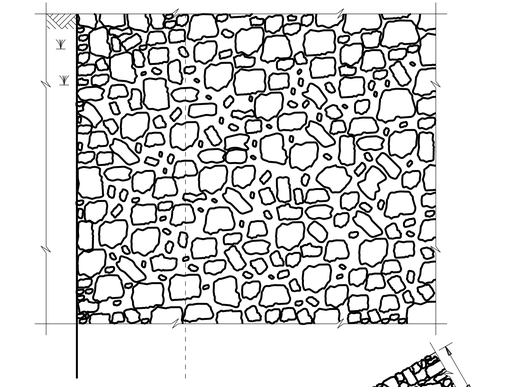


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted



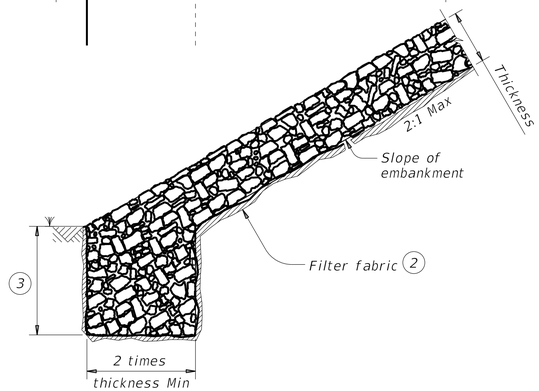


FIGURE 5 ~ PROTECTION STONE RIPRAP 5

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

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REVISIONS				
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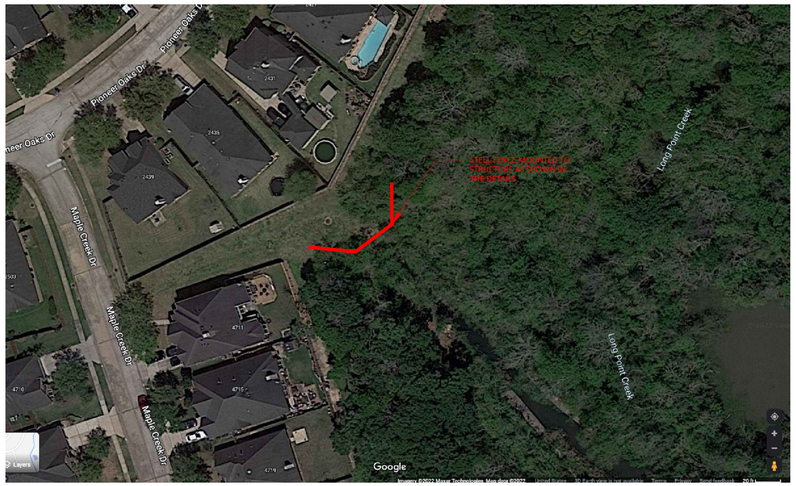
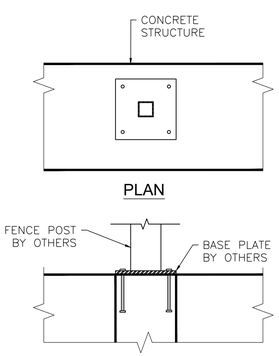
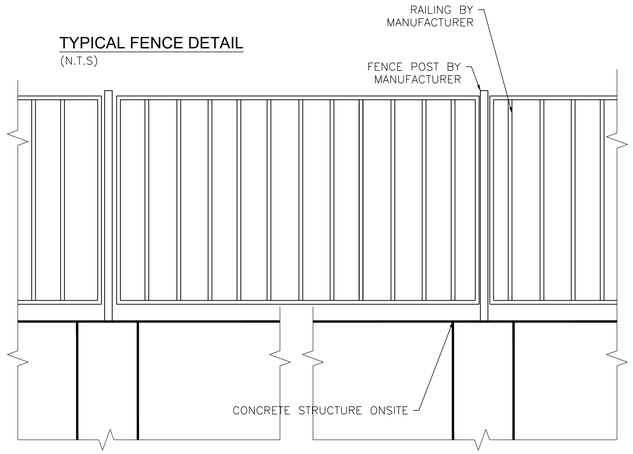
				115







NOTES:

1. **CONTRACTOR SHOULD INSTALL FENCE AS PER MANUFACTURER SPECS.**
2. **FENCE SHALL BE MOUNTED TO CONCRETE STRUCTURE OR STABLE STRUCTURE TO SERVE AS FALL PROTECTION**
3. **FENCE SHOULD BE IN ACCORDANCE TO THE FORT BEND COUNTY STANDARDS**
4. **CONTRACTOR TO PERFORM FIELD INSPECTION FOR INSTALLATION OF FENCE IN GUIDANCE OF FBCDD ENGINEER**

NO.	DATE:	REVISIONS	APP.

FORT BEND COUNTY DRAINAGE DISTRICT

iGET Services LLC
TBPE Firm Registration. No. F-16628.
10039 BISSONET STREET., ST. 336,
HOUSTON, TX 77036
PH. 832-834-3430

STATE OF TEXAS
SATYA PILLA
118823
REGISTERED
PROFESSIONAL ENGINEER
10/1/2024

LONG POINT CREEK

FENCE DETAIL

SCALE:		DESIGN BY:	MR
JOB		DRAWN BY:	MR
DATE:	10/1/2024	CK'D BY:	SP
DIST	COUNTY		SHEET NO:
	FORT BEND		116OF116

DN: CK: DW: CK:

DATE:
FILE: C:\Users\iget Osama\Downloads\00-Design-Long point creek-darby lane Bridge\2-Purvish\8000-Misc-details.dwg