ADDENDUM NO. 1
CONSTRUCTION OF THE
BRIDGE IMPROVEMENTS
TO SERVE
LAUD HOWELL PARKWAY, PROJECT 1, PHASE 2
HONEY CREEK MUNICIPAL MANAGEMENT DISTRICT NO. 1 OF COLLIN COUNTY
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

AUGUST 24, 2026

LJA JOB NO. NT852F-0285

The following changes will be considered part of the Construction Plans, Bid Proposal and Contract Documents:

1.) Reference: **Contract Documents – Invitation to Bidders**
Replace: Page 1 of 1 with revised Page 1 of 1 (attached).
Clarification: The Bid Opening has been rescheduled to 3:00 p.m., Thursday, September 3, 2026.

2.) Reference: **Contract Documents – Bid Proposal**
Replace: Pages 1 through 7 with revised Pages 1 through 8 (attached)
Clarification: Added TxDOT Type T222 Traffic Rail with TRF Foundation. Note that this improvement is shown on Civil Plan & Profile Sheets 41 & 42.

Section A – Eastbound Bridge
New Item:
Line Item 17 – TxDOT Type T222 Traffic Rail

Section B – Westbound Bridge
New Item:
Line Item 17 – TxDOT Type T222 Traffic Rail

3.) Reference: **Contract Documents – Exhibit A – Schedule of Drawings**
Replace: Pages 1 through 6 with revised Pages 1 through 6 (attached).
Clarification: The list of drawings has been revised per the updates to the construction plans.

4.) Reference: **Construction Plans – Laud Howell Parkway, Project 1, Phase 2**
Replace: Sheets 2, 15 through 21, 48A, 68A, 161, 162, 166, 181 and 182 with revised Sheets 2, 15 through 21, 48A, 68A, 161, 162, 166, 181 and 182 (attached)
Clarification:

- Sheet 2 – Sheet index updated to include jointing plans and updated bridge details.
- Sheets 15-21 – Tree survey plans updated to show new tree protection fencing in orange and trees to be removed with phase 2 in red for visual clarity.
- Sheets 48A & 68A – Added roundabout jointing plans.
- Sheets 161-162 – 8' junction box on Culvert 6 relocated to lie within project 1 pavement.
- Sheet 166 – Added riprap to Culvert 15.
- Sheets 181-182 – Steel encasement upsized to 20" for all 12" waterlines. WL4 profile revised

5.) Reference: **Construction Plans – Bridge Sheets**
Replace: Sheets B-7 through B-18, B-21 and B-22 of 57 with revised Sheets B-7 through B-18, B-21 and B-22 of 55 (attached). Note that all bridge sheets are included with this Addendum.
Clarification:

- A separate foundation load was added for Bent 5 on bent sheets (B-7, B-18).
- Bar A spacing was updated from 9” to 6” on deck plan (B-10).
- Indicate that the bars shown on the deck plan and sections are required to be epoxy coated (B-10, B-11, B-21, B-22).
- The reinforcing steel approximation factor was increased from 2.3 psf to 3.4 psf per Dallas standards. Estimated weight of reinforcing steel in the “Estimated Table of Quantities” table was updated for the change (B-10, B-11, B-21, B-22).
- The deck span between girders 4 and 5 for each bridge was changed to cast-in-place versus the precast panel alternative to allow for the T402 barrier to be anchored properly (B-10, B-11, B-21, B-22).
- Span 5 girder design information was updated to reflect the current design for the EB bridge (B-12).
- 5 linear feet of drilled shaft quantity was added to the WB bridge quantity table (B-15).

There are no other changes or revisions to the Construction Plans, Bid Proposal and Contract Documents at this time.



INVITATION TO BIDDERS

SEALED PROPOSALS addressed to Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County for construction of both the Bridge Improvements for Laud Howell Parkway, Project 1, Phase 2 and the Paving Improvements for Laud Howell Parkway, Project 1, Phase 2, LJA Job No. NT852F-0285, will be received electronically via https://bids.lja.com, until **3:00 p.m., Thursday,September 3, 2026** and then publicly opened and read aloud. Bidders must register on this website to submit an electronic bid. Contractors will electronically enter into the bid proposal, found at https://bids.lja.com, their proposed pricing and upload only the bid security. The contractors can bid on both contracts, but it is not required. Separate bid proposals shall be submitted for each project. Contracts will be awarded separately. Electronic bids do not include bids submitted by telegraphic or facsimile transmission. The bids will be publicly opened at the office of LJA Engineering, Inc., located at 6060 North Central Expressway, Suite 400, Dallas, Texas 75206**.**

Bidders may choose to attend the bid opening via audio conference. To join the audio conference, dial 1 (346) 202-6170 and enter conference ID number 189 187 4#.

Bidders may elect to submit hard copy bids to the office of LJA Engineering, Inc., located at 6060 North Central Expressway, Suite 400, Dallas, Texas 75206.

The Developer, Honey Creek Land Company, LLC, will be the Payor for the contract for the Owner.

Copies of the Plans and Specifications may be obtained from the Engineer for a non-refundable fee of $50.00 per set. The plans, specifications and bid documents will be available at https://bids.lja.com on Friday, July 31, 2026**.** It is the downloader's responsibility to determine that a complete set of documents, as defined in the Instructions to Bidders are received. This website will be updated periodically with Addenda, Plan Holders List, additional reports or other information relevant to bidding the project.

Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County will hold a NON-MANDATORY pre-bid conference at 10:00 a.m. on Wednesday, August 12, 2026, at the office of LJA Engineering, Inc., located at 6060 North Central Expressway, Suite 400, Dallas, Texas 75206.

Bidders may choose to attend the pre-bid conference via audio conference. To join the audio conference, dial 1 (346) 202-6170 and enter conference ID number 374 485 536#.

Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County reserves the right to reject any and all bids. The Successful Bidder, if any, will be the responsible Bidder which in the Board's judgment will be most advantageous to the District and result in the best and most economical completion of the Project. (Texas Water Code 49.273)

Bid security in the form of bid bond or cashier's check payable to Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County in an amount not less than five percent (5%) of the Bid submitted, must accompany each Bid.

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Bid and/or Contract and bidder/contractor agrees that the Contract can be terminated if the bidder/contractor knowingly or intentionally fails to comply with a requirement of that subchapter.

Bidder/Contractor declares that it has not received from a governmental body a notice of noncompliance with a provision of Subchapter J, Chapter 552, Texas Government Code, or, if such notice has been received, bidder/contractor has taken adequate steps to ensure future compliance with such subchapter and has provided or upon request will provide documentation of same.

Advertisement Dates: Friday, July 31, 2026; Friday, August 7, 2026

BID PROPOSAL

Date: _____

Bid of _____

[ ] a sole proprietorship

[ ] a corporation organized and existing under the laws of _____

[ ] a partnership consisting of _____

[ ] a limited partnership

[ ] a limited liability company organized under the laws of _____

[ ] other _____

FOR: **CONSTRUCTION OF THE BRIDGE IMPROVEMENTS FOR LAUD HOWELL PARKWAY, PROJECT 1, PHASE 2**
HONEY CREEK MUNICIPAL MANAGEMENT DISTRICT NO. 1 OF COLLIN COUNTY
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS
LJA JOB NO. NT852F-0285

TO: **Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County**
c/o LJA Engineering, Inc.
6060 N. Central Expressway, Suite 400
Dallas, TX 75206

BID PROPOSAL
CONSTRUCTION OF THE BRIDGE IMPROVEMENTS FOR LAUD HOWELL PARKWAY, PROJECT 1, PHASE 2
LJA JOB NO. NT852F-0285

Ladies and Gentlemen:

Pursuant to the foregoing Invitation and Instructions to Bidders, the undersigned bidder hereby proposes to do all the work for the unit prices bid to furnish all necessary superintendence, labor, machine, equipment, tools, materials, insurance and miscellaneous items, to complete all work according to the bids, as provided in the construction plan and contract documents, and clean up the site to the satisfaction of the Owner/Engineer, and bind himself on acceptance of this proposal to execute a contract and bonds for completing said project within the time stated for the following prices, to wit:

SECTION A – EASTBOUND BRIDGE

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL
1.	MOBILIZATION	LS	1		
2.	CEMENT STABILIZED BACKFILL	LS	1		
3.	DRILL SHAFT (18 IN)	LS	1		
4.	DRILL SHAFT (42 IN)	LS	1		
5.	CLASS C CONCRETE (ABUTMENT)	LS	1		
6.	CLASS C CONCRETE (CAP)	LS	1		
7.	CLASS C CONCRETE (COLUMN)	LS	1		
8.	REINFORCED CONCRETE SLAB	LS	1		
9.	APPROACH SLAB	LS	1		
10.	PRESTRESSED CONCRETE GIRDER (TX62)	LS	1		
11.	RIPRAP (STONE PROTECTION)(18 IN)	LS	1		
12.	STRUCTURAL STEEL (MISC NON-BRIDGE)	LS	1		
13.	RAIL (TY T402)	LS	1		
14.	PEDESTRIAN RAIL (CUSTOM) MOD	LS	1		
15.	SEALED EXPANSION JOINT (4 IN)(SEJ-M)	LS	1		
16.	DEWATERING	LS	1		

** Denotes Minimum Unit Price Bid for Each Item*

SECTION A – EASTBOUND BRIDGE

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL
17.	TXDOT TYPE T222 TRAFFIC RAIL WITH TRF FOUNDATION	LS	1		
SECTION A – EASTBOUND BRIDGE SUBTOTAL:					

SECTION B – WESTBOUND BRIDGE

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL
1.	MOBILIZATION	LS	1		
2.	CEMENT STABILIZED BACKFILL	LS	1		
3.	DRILL SHAFT (18 IN)	LS	1		
4.	DRILL SHAFT (42 IN)	LS	1		
5.	CLASS C CONCRETE (ABUTMENT)	LS	1		
6.	CLASS C CONCRETE (CAP)	LS	1		
7.	CLASS C CONCRETE (COLUMN)	LS	1		
8.	REINFORCED CONCRETE SLAB	LS	1		
9.	APPROACH SLAB	LS	1		
10.	PRESTRESSED CONCRETE GIRDER (TX62)	LS	1		
11.	RIPRAP (STONE PROTECTION)(18 IN)	LS	1		
12.	STRUCTURAL STEEL (MISC NON-BRIDGE)	LS	1		
13.	RAIL (TY T402)	LS	1		
14.	PEDESTRIAN RAIL (CUSTOM) MOD	LS	1		
15.	SEALED EXPANSION JOINT (4 IN)(SEJ-M)	LS	1		
16.	DEWATERING	LS	1		
17.	**TXDOT TYPE T222 TRAFFIC RAIL WITH TRF FOUNDATION**	**LS**	**1**		
SECTION B – WESTBOUND BRIDGE SUBTOTAL:					

SECTION C – MISCELLANEOUS ITEMS

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL
1.	PAYMENT AND PERFORMANCE BONDS (100%)	LS	1		
2.	MAINTENANCE BONDS -BRIDGE (2 YR, 100%)	LS	1		
SECTION C – MISCELLANEOUS ITEMS SUBTOTAL:					

BID PROPOSAL SUMMATION

BASE BID	
SECTION A – EASTBOUND BRIDGE	$
SECTION B – WESTBOUND BRIDGE	$
SECTION C – MISCELLANEOUS ITEMS	$
TOTAL AMOUNT BASE BID	$

It is understood that in the event the successful bidder fails to enter into the Contract and to furnish a Performance Bond and Payment Bond in the amount of 100 percent of the Contract and for all parts of the work, as specified in the Instructions to Bidders, the Bidder will forfeit the Certified or Cashier's Check, OR Bid Bond, as provided in the Contract Documents.

The undersigned proposes, if awarded the Contract, to begin work as stipulated in the written Notice to Proceed issued by the Engineer and to achieve Substantial Completion of the Work within the time shown below:

Completion Days: _____

The undersigned proposes, if awarded the Contract, to begin work as stipulated in the written Notice to Proceed issued by the Engineer and to achieve Substantial Completion of the Work within the time shown below. **Substantial Completion calendar days are not to be calculated into the Final Completion calendar days total. Final Completion calendar days defined as the number of days required to complete the secondary milestone of the contract**:

Completion Days: _____

This bid proposal shall be considered part of the contract.

(Signature) (Date)	(Company Name - Bidder)
(Typed Name)	(Address)
(Title)	(City) (County) (State) (Zip)
(Attest)	(Phone)
(Seal, if Bidder is Corporation)	(E-mail)

ACKNOWLEDGMENT OF RECEIPT OF ADDENDUM (1/1)

ADDENDUM NO. 1	(Company Name)	(Signature and Date)
ADDENDUM NO. 2	(Company Name)	(Signature and Date)
ADDENDUM NO. 3	(Company Name)	(Signature and Date)
ADDENDUM NO. 4	(Company Name)	(Signature and Date)
ADDENDUM NO. 5	(Company Name)	(Signature and Date)
ADDENDUM NO. 6	(Company Name)	(Signature and Date)
ADDENDUM NO. 7	(Company Name)	(Signature and Date)
ADDENDUM NO. 8	(Company Name)	(Signature and Date)
ADDENDUM NO. 9	(Company Name)	(Signature and Date)
ADDENDUM NO. 10	(Company Name)	(Signature and Date)
ADDENDUM NO. 11	(Company Name)	(Signature and Date)

Contract #:

CONSTRUCTION OF THE
BRIDGE IMPROVEMENTS FOR LAUD HOWELL PARKWAY,
PROJECT 1, PHASE 2
HONEY CREEK MUNICIPAL MANAGEMENT DISTRICT NO. 1 OF COLLIN COUNTY
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA JOB NO. NT852F-0285

LIST OF DRAWINGS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SHEET INDEX
3.	GENERAL NOTES
4.	GENERAL NOTES
5.	PROJECT LAYOUT
6.	TYPICAL SECTIONS
7.	TYPICAL SECTIONS - ROUNDABOUTS
8.	REMOVAL PLAN - START - 21+00
9.	REMOVAL PLAN - 21+00 - 43+00
10.	REMOVAL PLAN - 43+00 - 65+00
11.	REMOVAL PLAN - 65+00 - 87+00
12.	REMOVAL PLAN - 87+00 - 109+00
13.	REMOVAL PLAN - 109+00 - 131+00
14.	REMOVAL PLAN - 131+00 - 142+00
15.	TREE SURVEY PLAN - START - 21+00
16.	TREE SURVEY PLAN - 21+00 - 43+00
17.	TREE SURVEY PLAN - 43+00 - 65+00
18.	TREE SURVEY PLAN - 65+00 - 87+00
19.	TREE SURVEY PLAN - 87+00 - 109+00
20.	TREE SURVEY PLAN - 109+00 - 131+00
21.	TREE SURVEY PLAN - 131+11 - 142+00
22-32.	TREE SURVEY TABLES
33-45.	PAVING PLAN & PROFILE - LAUD HOWELL PARKWAY
46.	PAVING PLAN & PROFILE - CR 1107 CONNECTIONS
47.	PAVING PLAN & PROFILE - CR 201 CONNECTION
48.	ROUNDABOUT AT TAYLOR BURK - PAVING PLAN
48A.	ROUNDABOUT AT TAYLOR BURK - JOINTING PLAN
49.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB1A & RB1C
50.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB1B & RB1D

51.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB1E & RB1G
52.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB1F & RB1H
53-54.	ROUNDABOUT AT TAYLOR BURK - GEOMETRIC CONTROL PLAN
55.	ROUNDABOUT AT TAYLOR BURK - CONTOUR MAP
56.	ROUNDABOUT AT TAYLOR BURK - FASTEST PATH - INTERIM
57.	ROUNDABOUT AT TAYLOR BURK - FASTEST PATH - THROUGH
58.	ROUNDABOUT AT TAYLOR BURK - FASTEST PATH - RIGHT
59.	ROUNDABOUT AT TAYLOR BURK - FASTEST PATH - LEFT
60.	ROUNDABOUT AT TAYLOR BURK - INTERIM TURN PATHS
61-62.	ROUNDABOUT AT TAYLOR BURK - TURN PATHS
63-67.	ROUNDABOUT AT TAYLOR BURK - SIGHT DISTANCE
68.	ROUNDABOUT AT HARDIN - PAVING PLAN
68A.	ROUNDABOUT AT HARDIN - JOINTING PLAN
69.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB2A & RB2C
70.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB2B & RB2D
71.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB2E & 2B2G
72.	PAVING PLAN & PROFILE - ROUNDABOUT APPROACHES RB2F & RB2H
73.	PAVING PROFILE - CENTRAL ISLANDS
74-75.	ROUNDABOUT AT HARDIN - GEOMETRIC CONTROL PLAN
76.	ROUNDABOUT AT HARDIN - CONTOUR MAP
77.	ROUNDABOUT AT HARDIN - FASTEST PATH - INTERIM
78.	ROUNDABOUT AT HARDIN - FASTEST PATH - THROUGH
79.	ROUNDABOUT AT HARDIN - FASTEST PATH - RIGHT
80.	ROUNDABOUT AT HARDIN - FASTEST PATH - LEFT
81.	ROUNDABOUT AT HARDIN - INTERIM TURN PATHS
82-83.	ROUNDABOUT AT HARDIN - TURN PATHS
84-88.	ROUNDABOUT AT HARDIN - SIGHT DISTANCE
89.	GRADING PLAN - START - 21+00
90.	GRADING PLAN - 21+00 - 43+00
91.	GRADING PLAN - 43+00 - 65+00
92.	GRADING PLAN - 65+00 - 87+00
93.	GRADING PLAN - 87+00 - 109+00
94.	GRADING PLAN - 109+00 - 131+00
95.	GRADING PLAN - 131+00 - 142+00
96-126.	CROSS SECTIONS
127.	EXISTING DRAINAGE AREA MAP
128.	OVERALL INTERIM DRAINAGE AREA MAP
129-131.	INTERIM DRAINAGE AREA MAP
132.	OVERALL ULTIMATE DRAINAGE AREA MAP
133-135.	ULTIMATE DRAINAGE AREA MAP

136. INTERIM DRAINAGE AREA SUMMARY
137-138. ULTIMATE DRAINAGE AREA SUMMARY
139. INLET & DITCH CALCULATIONS
140-142. STORM DRAIN CALCULATIONS
143. HYDRAULIC CALCS - RIPRAP CALCS
144. OVERALL STORM LAYOUT
145. STORM DRAIN PLAN & PROFILE - SD17 & LAT 17A4
146. STORM DRAIN PLAN & PROFILE - CULVERT 1
147. STORM DRAIN PLAN & PROFILE - SD1 - START - 10+50
148. STORM DRAIN PLAN & PROFILE - SD1 - 10+50 - END
149. STORM DRAIN PLAN & PROFILE - CULVERT 2
150. STORM DRAIN PLAN & PROFILE - LATS 2A1, 2B1, & 2C1
151. STORM DRAIN PLAN & PROFILE - CULVERT 3
152. STORM DRAIN PLAN & PROFILE - LATS 3A, 3B1, & 3B2
153. STORM DRAIN PLAN & PROFILE - CULVERT 4
154. STORM DRAIN PLAN & PROFILE - CULVERT 4A
155. PLAN & PROFILE - CULVERT 4 UPSTREAM STRUCTURAL WALL
156. PLAN & PROFILE - CULVERT 4 DOWNSTREAM STRUCTURAL WALL
157. STORM DRAIN PLAN & PROFILE - SD18 & SD4A
158. STORM DRAIN PLAN & PROFILE - SD4B, LAT 4B5, & LAT 4B6
159. STORM DRAIN PLAN & PROFILE - CULVERT 5
160. STORM DRAIN PLAN & PROFILE - LATS 5A1, 5A2, 5B1, & 5C1
161. STORM DRAIN PLAN & PROFILE - CULVERT 6
162. STORM DRAIN PLAN & PROFILE - SD6 & LAT 6A2
163-164. STORM DRAIN PLAN & PROFILE - SD15
165. STORM DRAIN PLAN & PROFILE - SD15 & LAT OFF-15A
166. STORM DRAIN PLAN & PROFILE - CULVERT 15
167. STORM DRAIN PLAN & PROFILE - SD16
168. STORM DRAIN PLAN & PROFILE - CULVERT 7
169. STORM DRAIN PLAN & PROFILE - SD7
170. STORM DRAIN PLAN & PROFILE - SD8
171-177. STORM DRAIN PLAN & PROFILE - LATERAL PROFILES
178-180. WATER PLAN & PROFILE - WL1
181. WATER PLAN & PROFILE - WL SLEEVE 1, WL2, & WL6
182. WATER PLAN & PROFILE - WL3, WL4, & WL SLEEVE 5
183-189. PAVEMENT MARKING & SIGNAGE PLAN
190. ROUNDABOUT AT TAYLOR BURK - SIGNAGE PLAN
191. ROUNDABOUT AT TAYLOR BURK - STRIPING PLAN
192. ROUNDABOUT AT HARDIN - SIGNAGE PLAN
193. ROUNDABOUT AT HARDIN - STRIPING PLAN

194.	ROUNDABOUTS AT LAUD HOWELL - SIGNAGE SCHEDULE
195-197.	EROSION CONTROL PLAN - LAUD HOWELL PARKWAY
198-200.	EROSION CONTROL DETAILS
201-203.	PAVING DETAILS
204.	TRENCH & EMBANKMENT DETAILS
205-207.	WATER DETAILS
208-209.	STORM DETAILS
210.	TXDOT DETAILS - FW-0, SW-0, & PW
211.	TXDOT DETAILS - SCC-3 & 4 & SCC-5 & 6
212.	TXDOT DETAILS - SCC-9 & MC-10-16
213.	TXDOT DETAILS - SCC-MD, MCC-MD, & STACKED MANHOLE
214.	TXDOT DETAILS - PRD-13
215-216.	PAVEMENT MARKING & SIGNAGE DETAILS
217.	TXDOT DETAILS - BC(1)-21 & BC(2)-21
218.	TXDOT DETAILS - BC(3)-21 & BC(4)-21
219.	TXDOT DETAILS - BC(5)-21 & BC(6)-21
220.	TXDOT DETAILS - BC(7)-21 & BC(8)-21
221.	TXDOT DETAILS - BC(9)-21 & BC(10)-21
222.	TXDOT DETAILS - BC(11)-21 & BC(12)-21
223.	TXDOT DETAILS - TCP(1-1)-18 & TCP(1-2)-18
224.	TXDOT DETAILS - TCP(1-3)-18 & TCP(1-4)-18
225.	TXDOT DETAILS - TCP(1-5)-18 & TCP(1-6)-18
226.	TXDOT DETAILS - TCP(2-1)-18 & TCP(2-2)-18
227.	TXDOT DETAILS - TCP(2-3)-23 & TCP(2-4)-18
228.	TXDOT DETAILS - TCP(2-5)-18 & TCP(2-6)-18
229.	TXDOT DETAILS - TCP(2-7)-23 & TCP(2-8)-23
230.	TXDOT DETAILS - TCP(3-1)-13 & TCP(3-2)-13
231.	TXDOT DETAILS - TCP(3-3)-14 & TCP(3-4)-13
232.	TXDOT DETAILS - TCP(3-5)-18
233.	TXDOT DETAILS - WZ(RCD)-13 & WZ(TD)-17
234.	TXDOT DETAILS - TRF & T222
B-1.	HONEY CREEK EB BRIDGE LAYOUT (1 OF 2)
B-2.	HONEY CREEK EB BRIDGE LAYOUT (2 OF 2)
B-3.	EB & WB TYPICAL SECTION
B-4.	EB ESTIMATED QUANTITIES
B-5.	EB ABUTMENT NO. 1 & 6
B-6.	EB ABUTMENT NO. 1 & 6 DETAILS
B-7.	EB INTERIOR BENTS NO. 2 - 5
B-8.	EB FRAMING PLAN (1 OF 2)

B-9.	EB FRAMING PLAN (2 OF 2)
B-10.	EB PRESTRESSED CONCRETE GIRDER UNIT 1
B-11.	EB PRESTRESSED CONCRETE GIRDER UNIT 2
B-12.	EB BRIDGE PRESTRESSED CONCRETE I-GIRDER DESIGNS
B-13.	HONEY CREEK WB BRIDGE LAYOUT (1 OF 2)
B-14.	HONEY CREEK WB BRIDGE LAYOUT (2 OF 2)
B-15.	WB ESTIMATED QUANTITIES
B-16.	WB ABUTMENT NO. 1 & 6
B-17.	WB ABUTMENT NO. 1 & 6 DETAILS
B-18.	WB INTERIOR BENTS 2 - 5
B-19.	WB FRAMING PLAN (1 OF 2)
B-20.	WB FRAMING PLAN (2 OF 2)
B-21.	WB PRESTRESSED CONCRETE GIRDER UNIT 1
B-22.	WB PRESTRESSED CONCRETE GIRDER UNIT 2
B-23.	PRESTRESSED CONCRETE I-GIRDER DESIGNS
B-24.	42" RAILING W/ THICKENED CONCRETE EDGE
B-25.	BRIDGE APPROACH SLAB
B-26.	BRIDGE LIGHTING DETAILS (1 OF 2)
B-27.	BRIDGE LIGHTING DETAILS (2 OF 2)
B-28.	CEMENT STABILIZED ABUTMENT BACKFILL (1 OF 2)
B-29.	CEMENT STABILIZED ABUTMENT BACKFILL (2 OF 2)
B-30.	COMMON FOUNDATION DETAILS (1 OF 2)
B-31.	COMMON FOUNDATION DETAILS (2 OF 2)
B-32-33.	PRESTRESSED CONCRETE I-GIRDER DETAILS
B-34.	ELASTOMERIC BEARING AND GIRDER END DETAILS (1 OF 3)
B-35.	ELASTOMERIC BEARING AND GIRDER END DETAILS (2 OF 3)
B-33.	ELASTOMERIC BEARING AND GIRDER END DETAILS (3 OF 3)
B-37.	MISCELLANEOUS SLAB DETAILS (1 OF 2)
B-38.	MISCELLANEOUS SLAB DETAILS (2 OF 2)
B-39.	SHEAR KEY DETAILS
B-40.	THICKENED SLAB END DETAILS
B-41.	PRESTRESSED CONCRETE PANEL (1 OF 4)
B-42.	PRESTRESSED CONCRETE PANEL (2 OF 4)
B-43.	PRESTRESSED CONCRETE PANEL (3 OF 4)
B-44.	PRESTRESSED CONCRETE PANEL (4 OF 4)
B-45.	PRESTRESSED CONC PANEL FABRICATION DETAILS
B-48.	PERMANENT METAL DECK FORMS (1 OF 2)
B-47.	PERMANENT METAL DECK FORMS (2 OF 2)
B-48.	SHOULDER DRAIN AT END OF BRIDGE RAIL (1 OF 2)
B-49.	SHOULDER DRAIN AT END OF BRIDGE RAIL (2 OF 2)

B-50.	SEALED EXPANSION JOINT TYPE M
B-51.	STONE RIPRAP (1 OF 2)
B-52.	STONE RIPRAP (2 OF 2)
B-53.	TRAFFIC RAIL (1 OF 3)
B-54.	TRAFFIC RAIL (2 OF 3)
B-55.	TRAFFIC RAIL (3 OF 3)
S-1.	RETAINING WALL PLAN & PROFILE
S-2.	RETAINING WALL DETAILS (1 OF 2)
S-3.	RETAINING WALL DETAILS (2 OF 2)
S-4.	CULVERT 4A DETAILS
L1.	PROPOSED ILLUMINATION LAYOUT - LAUD HOWELL PWKY AT TAYLOR BURK DR
L2.	PROPOSED ILLUMINATION LAYOUT - LAUD HOWELL PKWY BRIDGE
L3.	PROPOSED ILLUMINATION LAYOUT - LAUD HOWELL PKWY AT HARDIN BLVD
L4.	STANDARD DETAIL DRAWINGS - ED(1)-25
L5.	STANDARD DETAIL DRAWINGS - ED(3)-25
L6.	STANDARD DETAIL DRAWINGS - ED(4)-25
L7.	STANDARD DETAIL DRAWINGS - ED(5)-25
L8.	STANDARD DETAIL DRAWINGS - ED(6)-25
L9.	STANDARD DETAIL DRAWINGS - ED(9)-25
L10.	STANDARD DETAIL DRAWINGS - RID(1)-20
L11.	STANDARD DETAIL DRAWINGS - RID(2)-20
L12.	STANDARD DETAIL DRAWINGS - RIP(1)-20
L13.	STANDARD DETAIL DRAWINGS - RIP(2)-19
L14.	STANDARD DETAIL DRAWINGS - RIP(3)-19
L15.	STANDARD DETAIL DRAWINGS - RIP(4)-19
L16-17.	STANDARD DETAIL DRAWINGS - BL-D
L18.	STANDARD DETAIL DRAWINGS - 7005M

INVITATION TO BIDDERS

SEALED PROPOSALS addressed to Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County for construction of both the Bridge Improvements for Laud Howell Parkway, Project 1, Phase 2 and the Paving Improvements for Laud Howell Parkway, Project 1, Phase 2, LJA Job No. NT852F-0285, will be received electronically via https://bids.lja.com, until **3:00 p.m., Thursday,September 3, 2026** and then publicly opened and read aloud. Bidders must register on this website to submit an electronic bid. Contractors will electronically enter into the bid proposal, found at https://bids.lja.com, their proposed pricing and upload only the bid security. The contractors can bid on both contracts, but it is not required. Separate bid proposals shall be submitted for each project. Contracts will be awarded separately. Electronic bids do not include bids submitted by telegraphic or facsimile transmission. The bids will be publicly opened at the office of LJA Engineering, Inc., located at 6060 North Central Expressway, Suite 400, Dallas, Texas 75206**.**

Bidders may choose to attend the bid opening via audio conference. To join the audio conference, dial 1 (346) 202-6170 and enter conference ID number 189 187 4#.

Bidders may elect to submit hard copy bids to the office of LJA Engineering, Inc., located at 6060 North Central Expressway, Suite 400, Dallas, Texas 75206.

The Developer, Honey Creek Land Company, LLC, will be the Payor for the contract for the Owner.

Copies of the Plans and Specifications may be obtained from the Engineer for a non-refundable fee of $50.00 per set. The plans, specifications and bid documents will be available at https://bids.lja.com on Friday, July 31, 2026**.** It is the downloader's responsibility to determine that a complete set of documents, as defined in the Instructions to Bidders are received. This website will be updated periodically with Addenda, Plan Holders List, additional reports or other information relevant to bidding the project.

Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County will hold a NON-MANDATORY pre-bid conference at 10:00 a.m. on Wednesday, August 12, 2026, at the office of LJA Engineering, Inc., located at 6060 North Central Expressway, Suite 400, Dallas, Texas 75206.

Bidders may choose to attend the pre-bid conference via audio conference. To join the audio conference, dial 1 (346) 202-6170 and enter conference ID number 374 485 536#.

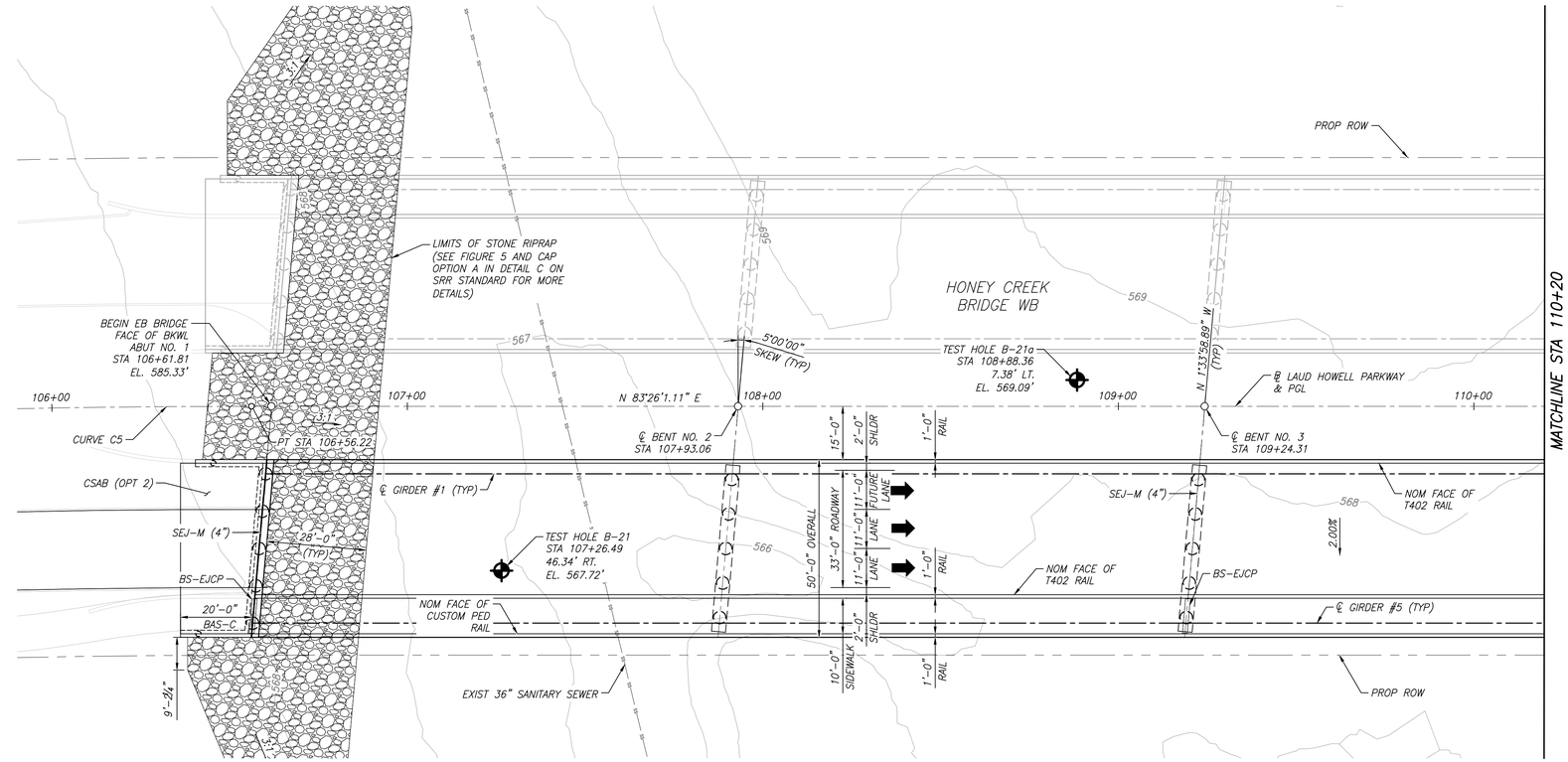
Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County reserves the right to reject any and all bids. The Successful Bidder, if any, will be the responsible Bidder which in the Board's judgment will be most advantageous to the District and result in the best and most economical completion of the Project. (Texas Water Code 49.273)

Bid security in the form of bid bond or cashier's check payable to Honey Creek Land Company, LLC on behalf of Honey Creek Municipal Management District No. 1 of Collin County in an amount not less than five percent (5%) of the Bid submitted, must accompany each Bid.

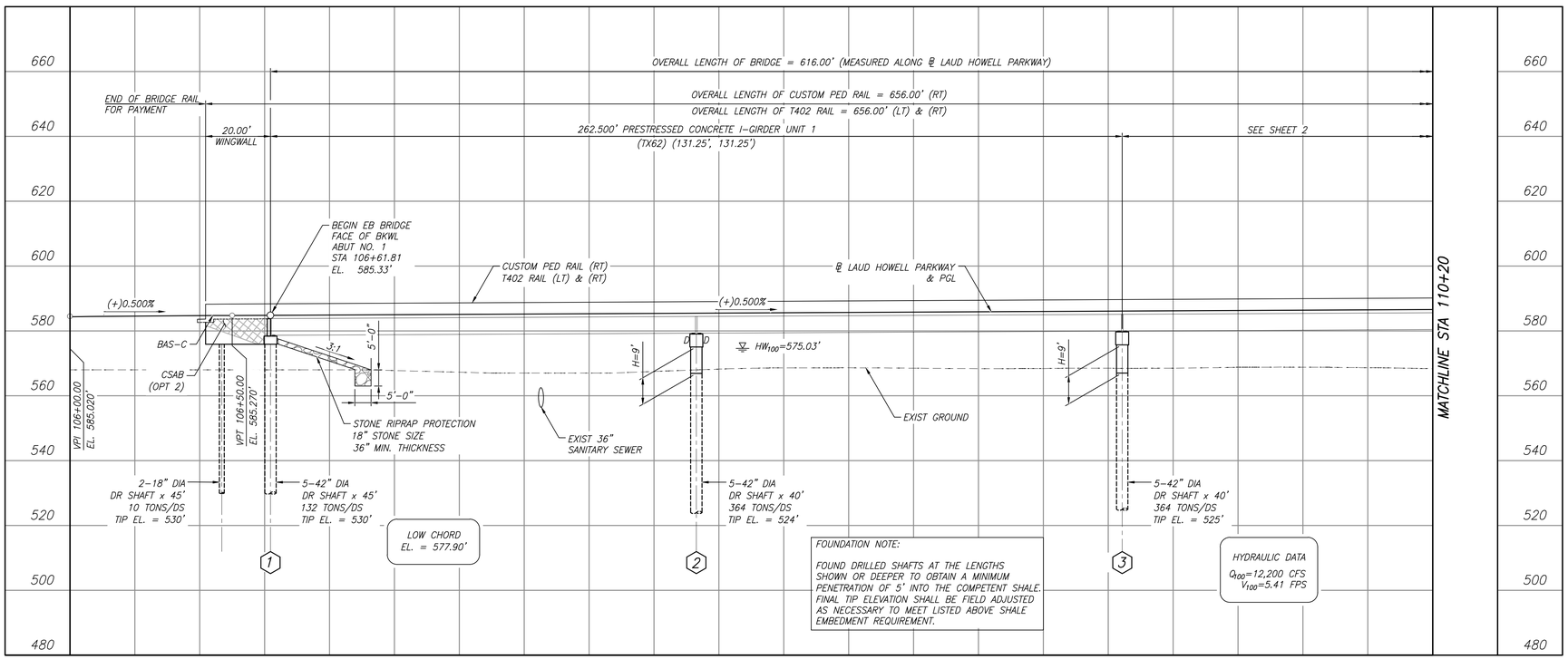
The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Bid and/or Contract and bidder/contractor agrees that the Contract can be terminated if the bidder/contractor knowingly or intentionally fails to comply with a requirement of that subchapter.

Bidder/Contractor declares that it has not received from a governmental body a notice of noncompliance with a provision of Subchapter J, Chapter 552, Texas Government Code, or, if such notice has been received, bidder/contractor has taken adequate steps to ensure future compliance with such subchapter and has provided or upon request will provide documentation of same.

Advertisement Dates: Friday, July 31, 2026; Friday, August 7, 2026



PLAN



ELEVATION

CURVE DATA

VPI STATION = 106+00.00
EL = 585.02'
EX = 0.25'
K = 80.00'
L = 100.00'

CURVE C5 DATA

PI STATION = 98+54.68
DELTA = 28° 25' 52.59"
DEGREE OF CURVE = 1° 44' 10"
TANGENT = 835.99
RADIUS = 3300
PC STATION = 90+18.69
PT STATION = 106+56.22

GENERAL NOTES:

DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020, (ENGLISH UNITS), AS MODIFIED BY THE TxDOT LRFD BRIDGE DESIGN MANUAL (2024).

ELEVATIONS AND VERTICAL PROFILE INFORMATION SHOWN ON THIS SHEET REPRESENT THE TOP OF DECK ELEVATION AT THE CENTERLINE ALIGNMENT RATHER THAN THE TOP OF THE CURB AS REFERENCED IN THE CIVIL PLANS. PGL ELEVATION IS 0.52' ABOVE TOP OF CURB ELEVATION.

"D" DENOTES DOWEL IN FIRST INSIDE GIRDER.

SEE TYPICAL SECTIONS SHEET FOR ADDITIONAL DETAILS.

DESIGN SPEED = 45 MPH.

ADT (2035): 16,500 VPD
ADT (2045): 32,500 VPD

FUNCTIONAL CLASSIFICATION: LOCAL ARTERIAL.

TERRAIN: ROLLING.

ALL UTILITIES, STRUCTURES, DIMENSIONS, AND ELEVATIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING ANY CONSTRUCTION WORK.

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

SEE BORING LOG SHEETS FOR TEST HOLE INFORMATION.

SAW-CUT GROOVING OF THE BRIDGE DECK AND APPROACH SLAB IS NOT REQUIRED.

IF THE TEMPORARY CASING CANNOT BE REMOVED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND TxDOT. ADDITIONAL ANALYSIS AND REMEDIATION BY THE ENGINEER IN CHARGE MAY BE REQUIRED.

SEE ILLUMINATION SHEET FOR LOCATIONS OF LIGHTPOLE BLISTERS.

LEGEND:

RIPRAP

FOUNDATION NOTE:

FOUND DRILLED SHAFTS AT THE LENGTHS SHOWN OR DEEPER TO OBTAIN A MINIMUM PENETRATION OF 5' INTO THE COMPETENT SHALE. FINAL TIP ELEVATION SHALL BE FIELD ADJUSTED AS NECESSARY TO MEET LISTED ABOVE SHALE EMBEDMENT REQUIREMENT.

HYDRAULIC DATA
Q_{100}=12,200 CFS
V_{100}=5.41 FPS

HL93 LOADING

DATE	REVISION	BY

HONEY CREEK EB BRIDGE LAYOUT

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

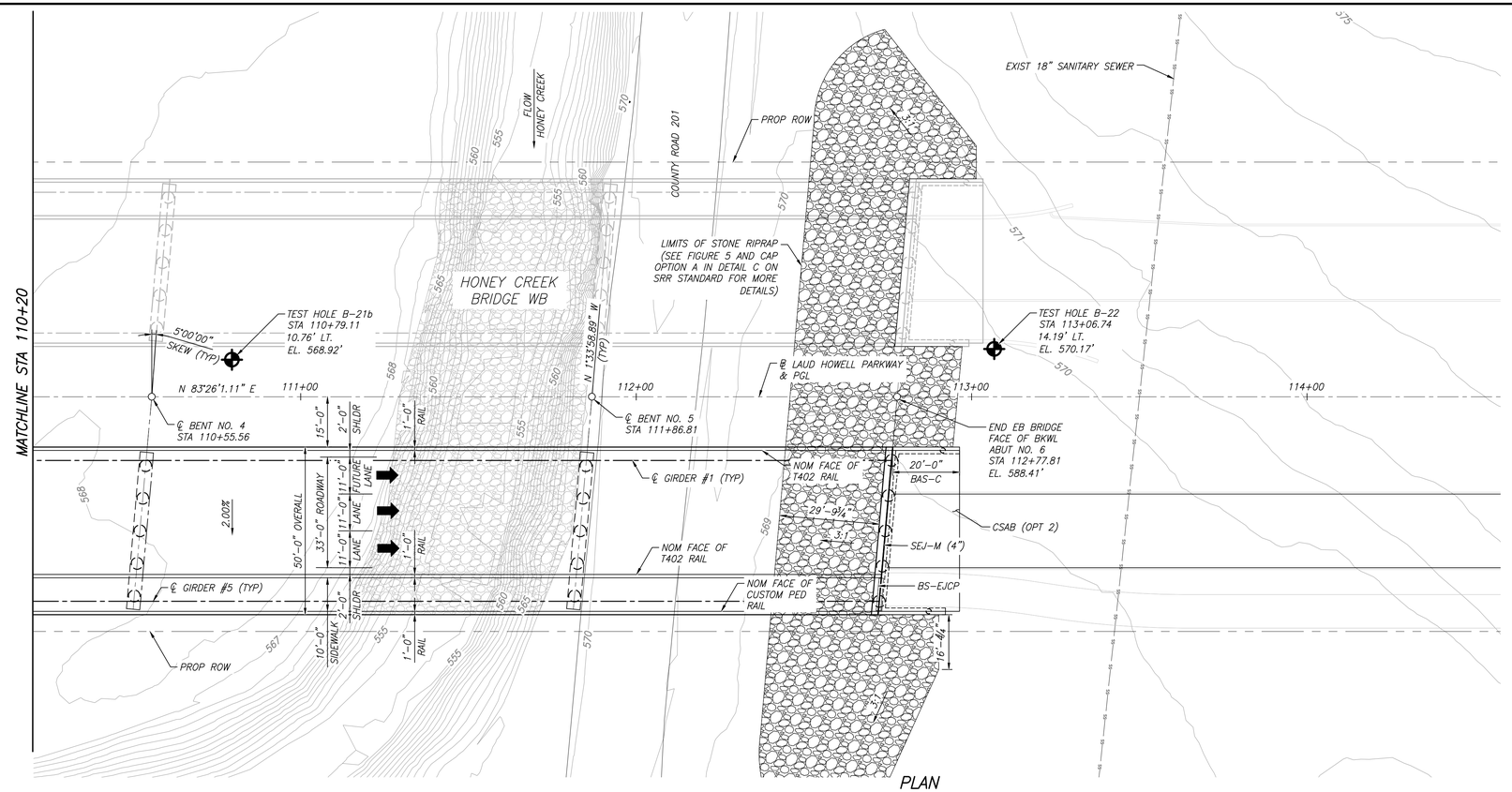
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: 1"=20' VERT: 1"=20'
SHEET B-1 OF B-55 SHEETS

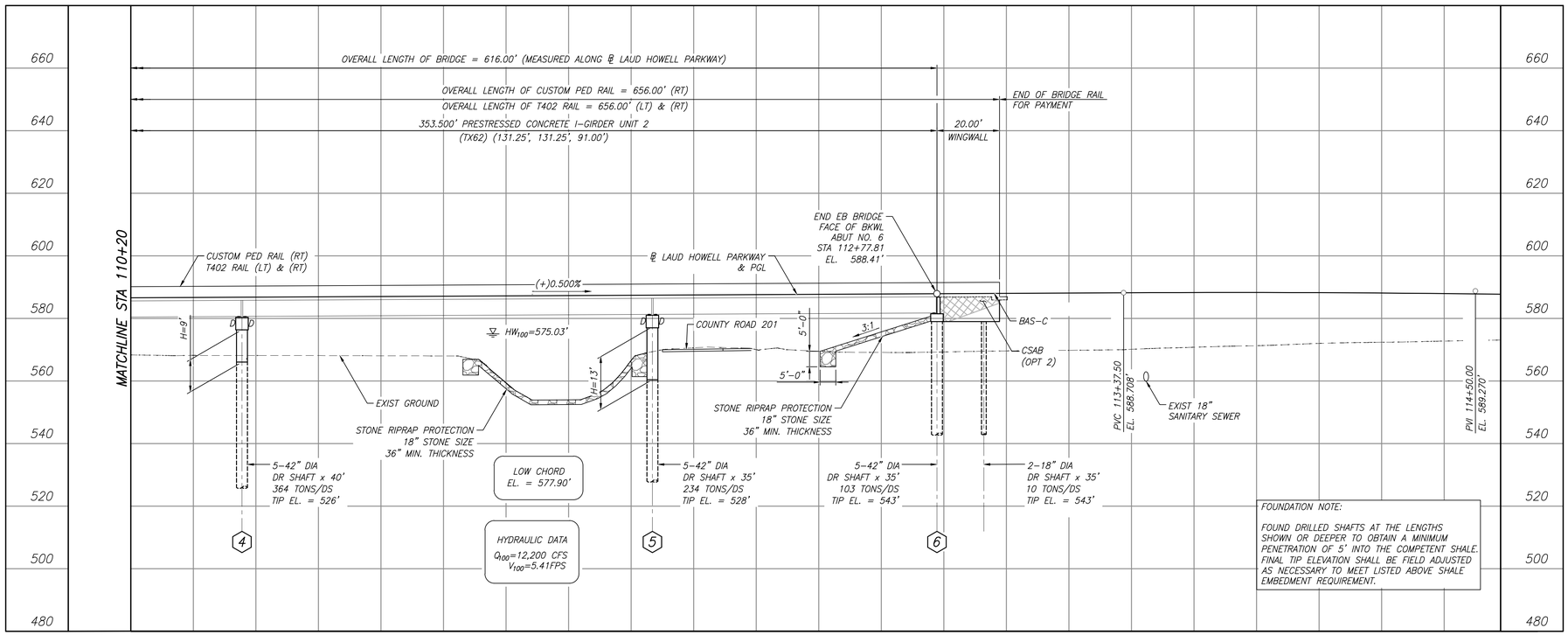
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:04pm\User Name : gihong
Path\Name : S:\WX-LJA\0285\400\425 Design Files\Laud Howell Parkway\Structures\Sheets\2 EB BRIDGE LAYOUT.dwg



PLAN



ELEVATION

LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

HONEY CREEK EB BRIDGE LAYOUT

SHEET 2 OF 2

Laud Howell Parkway

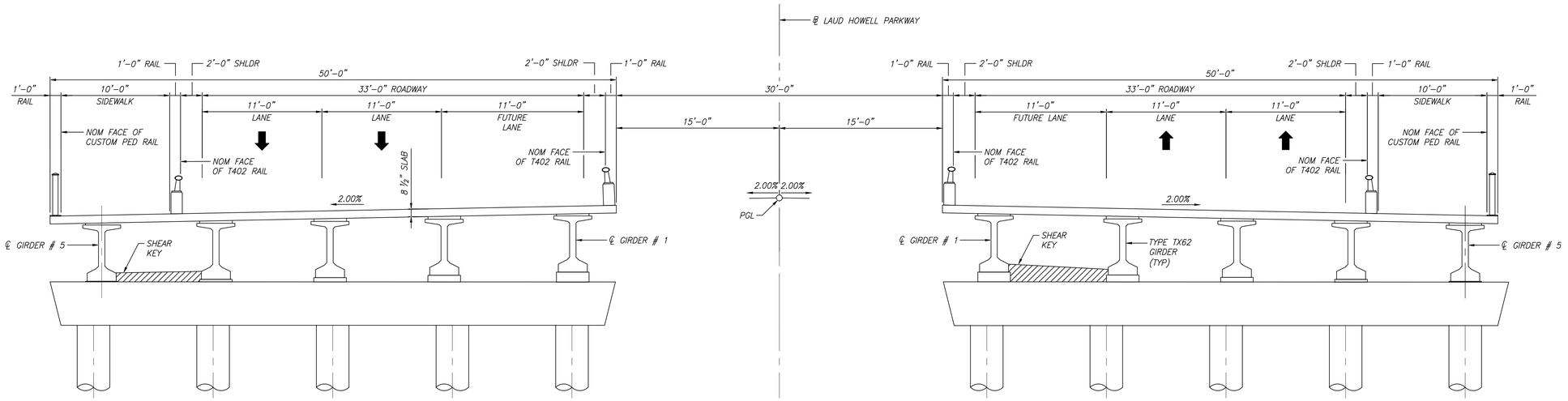
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID	NT852F-0285
DATE:	JULY 2026
DESIGN:	EH
DRAWN:	NC
SCALE HORZ:	1"=20'
SCALE VERT:	1"=20'
SHEET	B-2
OF	B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:04pm\User Name : gthorg
Path\Name : S:\STR_CAD\0285\CAD\425 Design Files\Laud Howell Parkway\Structures\Sheets\2 EB BRIDGE LAYOUT.dwg



WESTBOUND BRIDGE

EASTBOUND BRIDGE

TYPICAL COMPLETE SECTION

HL93 LOADING

DATE	REVISION	BY

EB & WB TYPICAL SECTION

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID
NT852F–0285

DATE: JULY 2026

DESIGN: EH

DRAWN: NC

SCALE
HORZ: 1/8" = 1'
VERT: 1/8" = 1'

SHEET
B–3
OF B–55 SHEETS

Date\Time : Thu, 20 Aug 2026 – 12:05pmUser Name : gzhong
Path\Name : S:\NT-LJA\0285\4400LAN\425 Design Files\Laud Howell Parkway\Structures\Sheets\EASTBOUND TYPICAL SECTION.dwg

SUMMARY OF BRIDGE QUANTITIES

ITEM	400	416	416	420	420	420	422	422	425	432	442	450		454
DESCRIPTION CODE	7010	7002	7007	7012	7022	7038	7001	7013	7006	7043	7007	7012		7004
ITEM DESCRIPTION	CEM STABIL BKFL	DRILL SHAFT (18 IN)	DRILL SHAFT (42 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COLUMN)	REINF CONC SLAB	APPROACH SLAB	PRESTR CONC GIRDER (TX62)	RIPRAP (STONE PROTECTION) (18 IN)	STR STEEL (MISC NON-BRIDGE) (1)	RAIL (TY T402)	PEDESTRIAN RAIL (CUSTOM) MOD	SEALED EXPANSION JOINT (4 IN) (SEJ - M)
	CY	LF	LF	CY	CY	CY	SF	CY	LF	CY	LB	LF	LF	LF
2 ~ ABUTMENTS	390	160	400	90.4				92.4		825	135			
4 ~ INTERIOR BENTS			774		116.8	58.2				362	269			
PRESTR CONC GIRDER UNIT 1							13,125		1,307.51			564.9	282.4	104
PRESTR CONC GIRDER UNIT 2							17,675		1,760.02			747.0	373.5	52
TOTAL	390	160	1,174	90.4	116.8	58.2	30,800	92.4	3,067.53	1,187	404	1,311.9	655.9	156

(1) FOR BRIDGE SIDEWALK EXPANSION JOINT COVER PLATES, SEE "BS-EJCP" STANDARD.

BEARING SEAT ELEVATIONS

		GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5
ABUT 1	(FWD)	578.529	578.315	578.100	577.885	577.671
BENT 2	(BK)	579.175	578.961	578.746	578.532	578.317
	(FWD)	579.185	578.971	578.756	578.542	578.327
BENT 3	(BK)	579.832	579.617	579.402	579.188	578.973
	(FWD)	579.842	579.627	579.412	579.198	578.983
BENT 4	(BK)	580.488	580.273	580.059	579.844	579.630
	(FWD)	580.498	580.283	580.069	579.854	579.639
BENT 5	(BK)	581.144	580.930	580.715	580.500	580.286
	(FWD)	581.154	580.940	580.725	580.510	580.296
ABUT 6	(BK)	581.599	581.385	581.170	580.955	580.741

HL93 LOADING

DATE	REVISION	BY

EB ESTIMATED QUANTITIES

Laud Howell Parkway

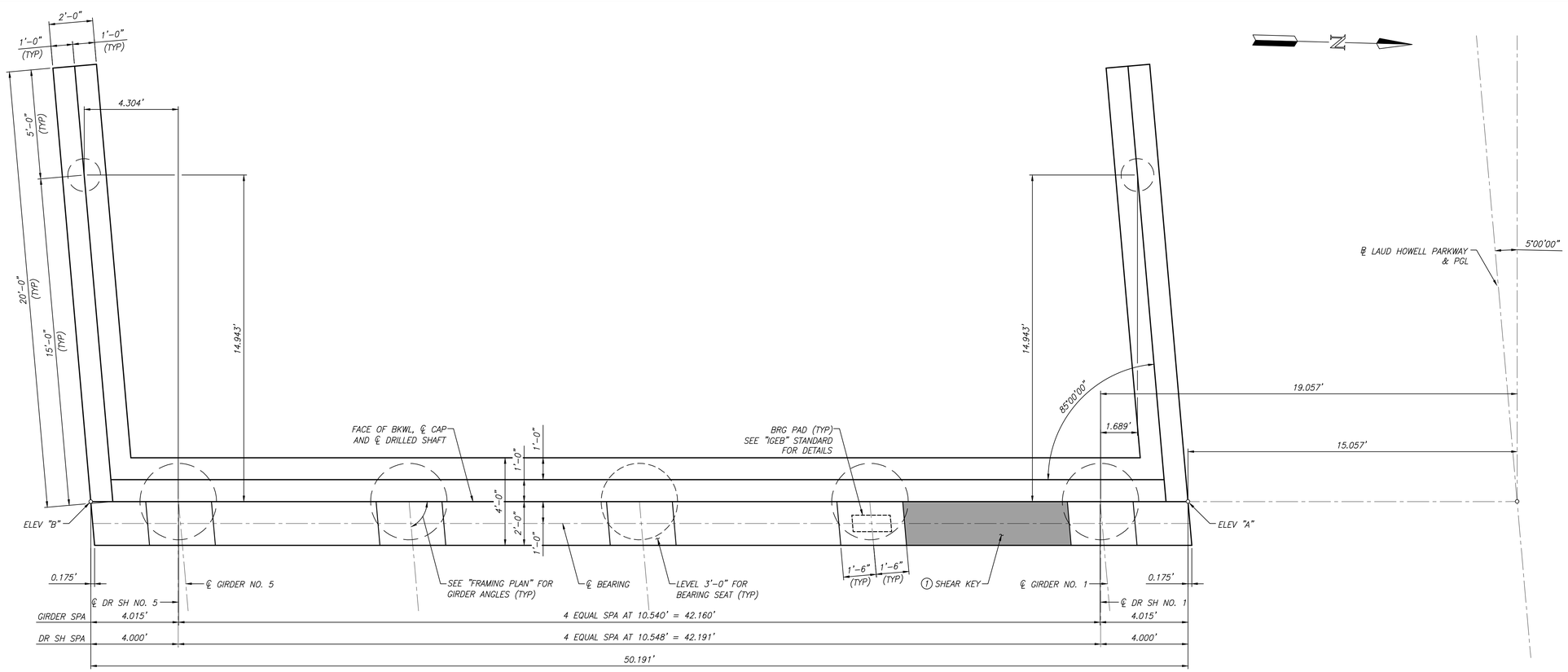
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: AS SHOWN
VERT: AS SHOWN
SHEET
B-4
OF B-55 SHEETS

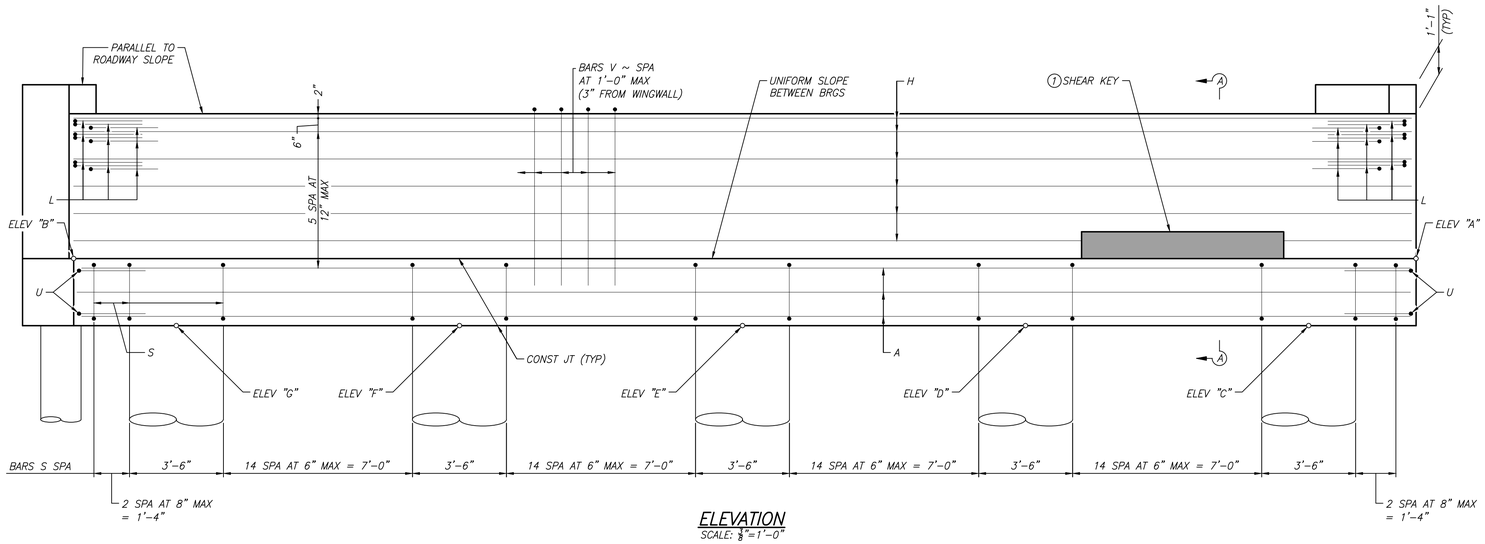
Date\Time : Fri, 21 Aug 2026 - 8:53am User Name : gzhong
Path\Name : S:\Wor-LJA0\0285\400\425 Design Files\Laud Howell Parkway\Structures\Sheets\4 honey creek eb quantities and bearing seat elevations.dwg



PLAN

ABUT 6 SYMMETRICAL BY OPPOSITE HAND
SCALE: $\frac{3}{8}$"=1'-0"

(1) SHEAR KEY BETWEEN GIRDER NO. 1 AND GIRDER NO. 2 ONLY. SEE "IGSK" STANDARD FOR DIMENSIONS, NOTES, AND DETAILS NOT SHOWN.



ELEVATION

SCALE: $\frac{3}{8}$"=1'-0"

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (SEP 2024).

SEE "EB BRIDGE LAYOUT" FOR DRILLED SHAFT SIZE AND LENGTH.

FOR BEARING SEAT ELEVATIONS, SEE "EB ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS" SHEET.

SEE "COMMON FOUNDATION DETAILS (FD)" STANDARD SHEET FOR ALL FOUNDATION DETAILS AND NOTES NOT SHOWN.

SEE "SHEAR KEY DETAILS (IGSK)" STANDARD SHEET FOR DIMENSIONS, NOTES, AND DETAILS NOT SHOWN.

SEE T402 RAIL STANDARD SHEET FOR RAIL ANCHORAGE IN WINGWALLS.

CALCULATED FOUNDATION LOAD =
- 42" DIA DR SH = 131 TONS/DR SH (ABUT 1)
- 42" DIA DR SH = 103 TONS/DR SH (ABUT 6)
- 18" DIA DR SH = 10 TONS/DR SH

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BARS DIMENSION SHOWN ARE OUT-TO-OUT OF BAR.

MATERIAL NOTES:

PROVIDE CLASS C CONCRETE (f'c = 3,600 PSI).

PROVIDE GRADE 60 REINFORCING STEEL.

TABLE OF WORKING POINT ELEVATIONS

	TOP OF CAP ELEVATIONS		TOP OF DRILLED SHAFT ELEVATIONS				
ABUT	ELEV "A"	ELEV "B"	ELEV "C"	ELEV "D"	ELEV "E"	ELEV "F"	ELEV "G"
1	578.485	577.462	575.902	575.686	575.470	575.253	575.037
6	581.541	580.909	578.960	578.749	578.538	578.328	578.117

HL93 LOADING

DATE	REVISION	BY

EB ABUTMENT NO. 1 & 6

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

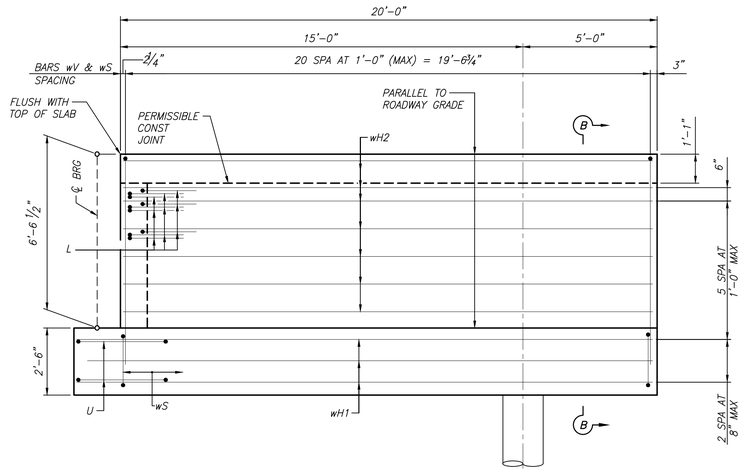
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: AS SHOWN VERT: AS SHOWN
SHEET B-5 OF B-55 SHEETS

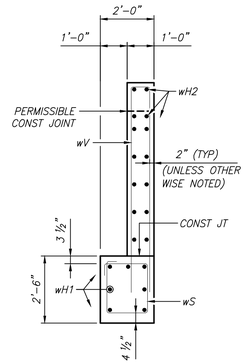
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LAUD HOWELL PARKWAY

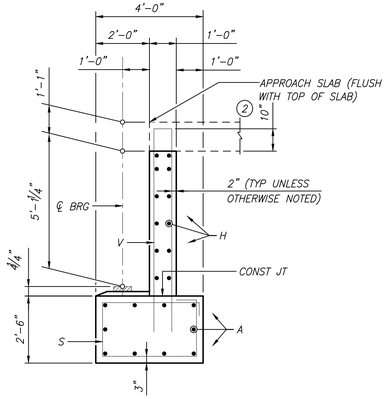
Date\Time : Thu, 20 Aug 2026 - 12:05pm User Name : gthong
Path\Name : S:\NT\CAD\0285\CAD\0285 Design Files\Laud Howell Parkway\Structures\Sheets\5 EB ABUTMENT NO. 1.dwg



WINGWALL ELEVATION



SECTION B–B



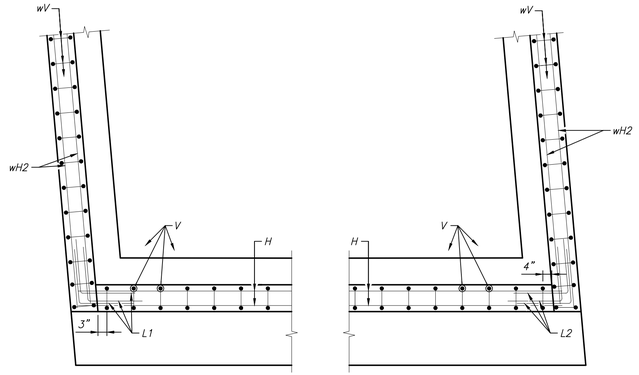
SECTION A–A

TABLE OF ESTIMATED QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	10	#11	49'-2"	2,613
H	12	#6	49'-10"	899
L	18	#6	4'-0"	109
S	66	#5	12'-8"	872
U	4	#6	8'-7"	52
V	49	#5	16'-11"	865
wH1	14	#6	21'-8"	456
wH2	28	#6	19'-8"	828
wS	42	#4	7'-10"	220
wV	42	#5	17'-1"	749
REINFORCING STEEL (LB) ③				7,663
CLASS "C" CONC (ABUT) (CY) ④				45.2

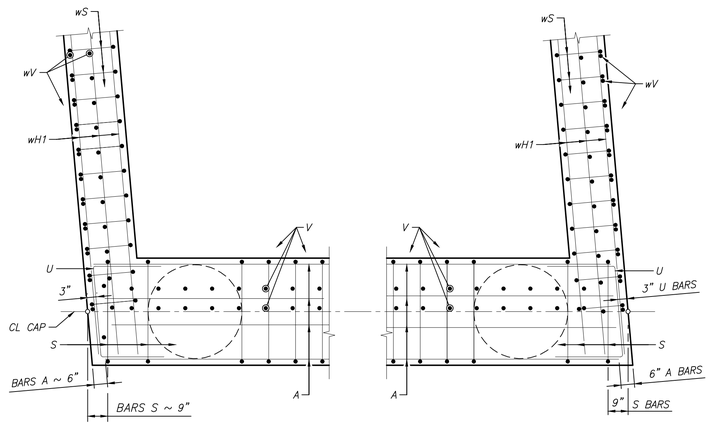
② INCREASE AS REQUIRED TO MAINTAIN 3" FROM FINISHED GRADE.

③ REINFORCING STEEL QUANTITIES ARE FOR CONTRACTOR'S INFORMATION ONLY.

④ QUANTITY INCLUDES SHEAR KEY VOLUME.

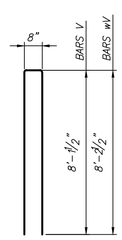


BACKWALL

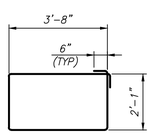


CAP

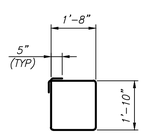
CORNER DETAILS



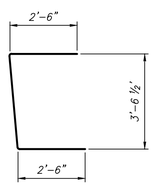
BARS V & wV



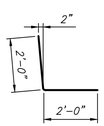
BARS S



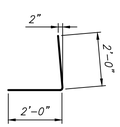
BARS wS



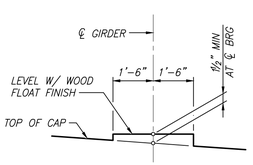
BARS U



BARS L1



BARS L2



BEARING SEAT DETAILS

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

HL93 LOADING

DATE	REVISION	BY

EB ABUTMENT NO. 1 & 6 DETAILS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: 3/8" = 1'
VERT: 3/8" = 1'
SHEET
B-6
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 – 12:06pm\User Name : gthong
Path\Name : S:\MTP-LAND\0285\4 WORK\125 Design Files\Laud Howell Parkway\Structures\Sheets\6 EB ABUTMENT NO. 1 & 6 DETAILS.dwg

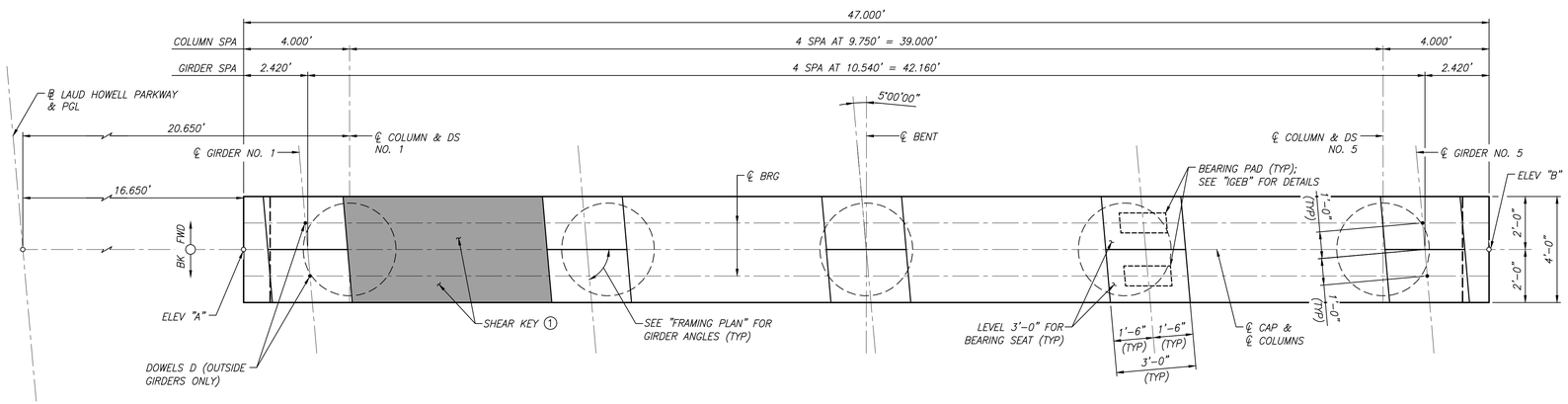
LAUD HOWELL PARKWAY

TOTAL OF COLUMN QUANTITIES ⑤

BENT NO.	COLUMN NO.	COLUMN HEIGHT "H"	CLASS "C" CONC (COLUMN)	BARS V 14 ~ #9		BARS Z 5 ~ #4		REINFORCING STEEL ④
		FT	CY	LENGTH	WEIGHT	LENGTH	WEIGHT	LB
2	1 & 5	8	5.7	11'-6"	1,095	659'-11"	441	1,536
	2 & 4	9	6.4	12'-6"	1,190	735'-4"	492	1,682
	3	10	3.6	13'-6"	643	405'-5"	271	914
3	1 & 2	9	6.4	12'-6"	1,190	735'-4"	492	1,682
	3-5	8	8.6	11'-6"	1,643	989'-11"	662	2,305
4	1-5	9	16	12'-6"	2,975	1838'-5"	1229	4,204
5	1 & 2	11	7.8	14'-6"	1,381	886'-3"	592	1,973
	3 & 4	10	7.1	13'-6"	1,286	810'-10"	542	1,828
	5	9	3.2	12'-6"	595	367'-8"	246	841

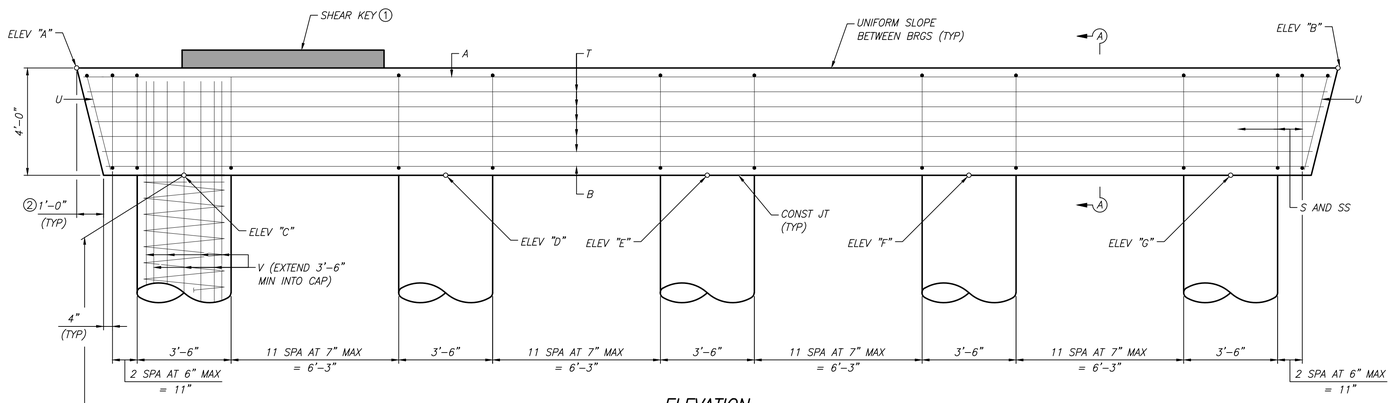
TABLE OF CAP QUANTITIES

BAR	NO.	SIZE	LENGTH	WEIGHT
A	8	#11	46'-6"	1,977
B	8	#11	44'-6"	1,892
D	4	#9	1'-8"	23
S	54	#6	16'-8"	1,352
SS	54	#6	13'-2"	1,068
T	10	#5	45'-6"AVG	475
U	2	#5	11'-2"	24
REINFORCING STEEL (LB) ④				6,811
CLASS "C" CONC (CAP) (CY) ③				29.2



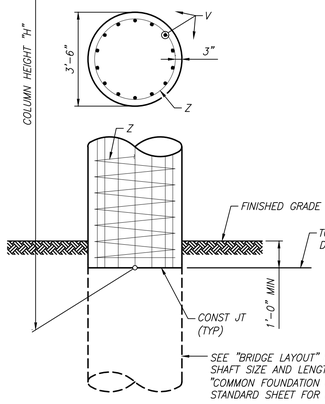
PLAN

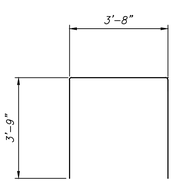
SCALE: $\frac{3}{8}$"=1'-0"



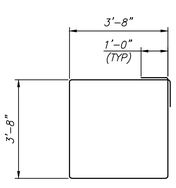
ELEVATION

SCALE: $\frac{3}{8}$"=1'-0"

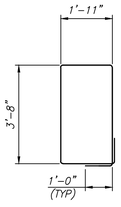




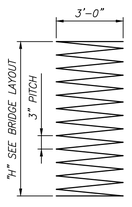
BARS U



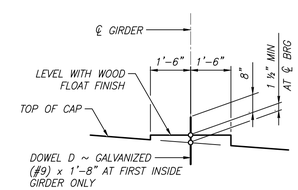
BARS S



BARS SS

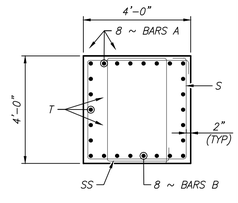


BARS Z



BEARING SEAT DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)



SECTION A-A

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (JAN 2024).

SEE "BRIDGE LAYOUT" FOR DRILLED SHAFT SIZE AND LENGTH.

FOR BEARING SEAT ELEVATIONS, SEE "ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS" SHEET.

SEE "SHEAR KEY DETAILS (IGSK)" STANDARD SHEET FOR DIMENSIONS, NOTES, AND DETAILS NOT SHOWN.

SEE "COMMON FOUNDATION DETAILS (FD)" STANDARD SHEETS FOR ALL FOUNDATION DETAILS AND NOTES NOT SHOWN.

CALCULATED FOUNDATION LOAD = 364 TONS/DR SH. (BENT 2 TO 4)
= 234 TONS/DR SH. (BENT 5)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BARS DIMENSION SHOWN ARE OUT-TO-OUT OF BAR.

MATERIAL NOTES:

PROVIDE CLASS C CONCRETE (f'c = 3,600 PSI).

PROVIDE GRADE 60 REINFORCING STEEL.

GALVANIZE DOWEL BARS D.

TABLE OF WORKING POINT ELEVATIONS

	TOP OF CAP ELEVATIONS		TOP OF COLUMN ELEVATIONS				
	ELEV "A"	ELEV "B"	ELEV "C"	ELEV "D"	ELEV "E"	ELEV "F"	ELEV "G"
BENT 2	579.082	578.142	575.001	574.806	574.611	574.416	574.221
BENT 3	579.738	578.798	575.657	575.462	575.267	575.072	574.877
BENT 4	580.394	579.454	576.314	576.119	575.924	575.729	575.534
BENT 5	581.051	580.111	576.970	576.775	576.580	576.385	576.190

HL93 LOADING

DATE	REVISION	BY

① A SHEAR KEY IS REQUIRED BETWEEN GIRDERS 1 & 2. SHEAR KEYS ARE TO BE CAST AFTER GIRDERS ARE SET. SEE "SHEAR KEY (IGSK)" STANDARD SHEET FOR MORE DETAILS.

② MEASURED PARALLEL TO TOP OF CAP CROSS-SLOPE.

③ INCLUDES SHEAR KEY VOLUME.

④ FOR CONTRACTOR'S INFORMATION ONLY.

⑤ FOR EACH LINEAR FOOT OF VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENTS:
BARS V: ±1'-0" LENGTH
BARS Z: ±37'-9" LENGTH
REINFORCED STEEL = ±55 LB
CLASS C CONCRETE (COLUMN) = ±0.26 CY PER BENT

EB INTERIOR BENTS NO. 2 – 5

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

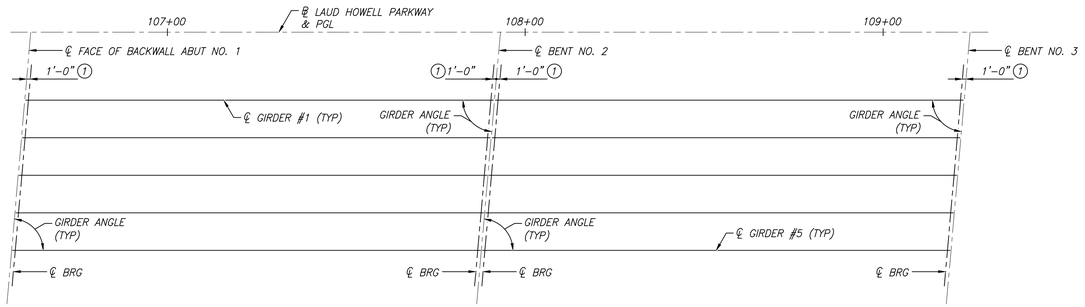
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
08 21 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: AS SHOWN VERT: AS SHOWN
SHEET B-7
OF B-55 SHEETS

Date\Time : Fri, 21 Aug 2026 - 2:35pm User Name : gthong
Path\Name : S:\NT-Data\0285\400Civil\425 Design Files\Laud Howell Parkway\Structures\Sheets\7 EB INTERIOR BENTS NO. 2 – 5.dwg

LAUD HOWELL PARKWAY

1. SEE IGEB STANDARD SHEET FOR ORIENTATION OF DIMENSION.
2. GIRDER LENGTHS SHOWN ARE FOR BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.



SPAN 1
(TX62 GIRDERS)

SPAN 2
(TX62 GIRDERS)

BENT REPORT

ABUT NO. 1 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 2 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 2 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 3 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

GIRDER REPORT

GIRDER REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	131.250	129.246	130.75	0.0050
GIRDER 2	131.250	129.246	130.75	0.0050
GIRDER 3	131.250	129.246	130.75	0.0050
GIRDER 4	131.250	129.246	130.75	0.0050
GIRDER 5	131.250	129.246	130.75	0.0050

GIRDER REPORT, SPAN 2

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	131.250	129.250	130.75	0.0050
GIRDER 2	131.250	129.250	130.75	0.0050
GIRDER 3	131.250	129.250	130.75	0.0050
GIRDER 4	131.250	129.250	130.75	0.0050
GIRDER 5	131.250	129.250	130.75	0.0050

HL93 LOADING

DATE	REVISION	BY

EB FRAMING PLAN

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

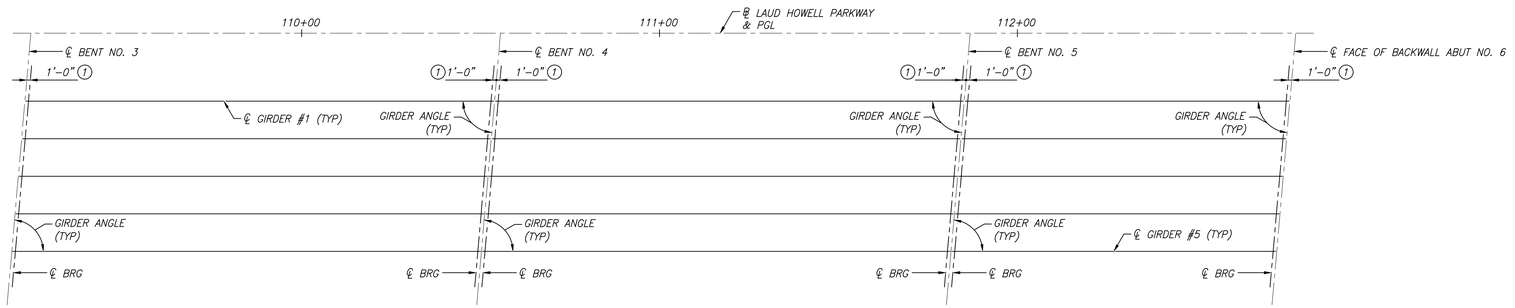
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: 1"=20'
VERT: 1"=20'
SHEET
B-8
OF B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:08pm\User Name : gzhong
Path\Name : S:\Work Jobs\025851400\425 Design Files\Laud Howell Parkway\Structures\Sheets\9 EB FRAMING PLAN.dwg

LAUD HOWELL PARKWAY

1. SEE IGEB STANDARD SHEET FOR ORIENTATION OF DIMENSION.
2. GIRDER LENGTHS SHOWN ARE FOR BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.



BENT REPORT

BENT NO. 3 (N 1 33 58.89 W)
DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 3	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 4 (N 1 33 58.89 W)
DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 3	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 4 (N 1 33 58.89 W)
DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 4	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 5 (N 1 33 58.89 W)
DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 4	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 5 (N 1 33 58.89 W)
DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 5	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

ABUT NO. 6 (N 1 33 58.89 W)
DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 R

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 5	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

GIRDER REPORT

GIRDER REPORT, SPAN 3

	HORIZONTAL DISTANCE C–C BENT	C–C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	131.250	129.250	130.75	0.0050
GIRDER 2	131.250	129.250	130.75	0.0050
GIRDER 3	131.250	129.250	130.75	0.0050
GIRDER 4	131.250	129.250	130.75	0.0050
GIRDER 5	131.250	129.250	130.75	0.0050

GIRDER REPORT, SPAN 4

	HORIZONTAL DISTANCE C–C BENT	C–C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	131.250	129.250	130.75	0.0050
GIRDER 2	131.250	129.250	130.75	0.0050
GIRDER 3	131.250	129.250	130.75	0.0050
GIRDER 4	131.250	129.250	130.75	0.0050
GIRDER 5	131.250	129.250	130.75	0.0050

GIRDER REPORT, SPAN 5

	HORIZONTAL DISTANCE C–C BENT	C–C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	91.000	88.996	90.50	0.0050
GIRDER 2	91.000	88.996	90.50	0.0050
GIRDER 3	91.000	88.996	90.50	0.0050
GIRDER 4	91.000	88.996	90.50	0.0050
GIRDER 5	91.000	88.996	90.50	0.0050

HL93 LOADING

DATE	REVISION	BY

EB FRAMING PLAN

SHEET 2 OF 2

Laud Howell Parkway

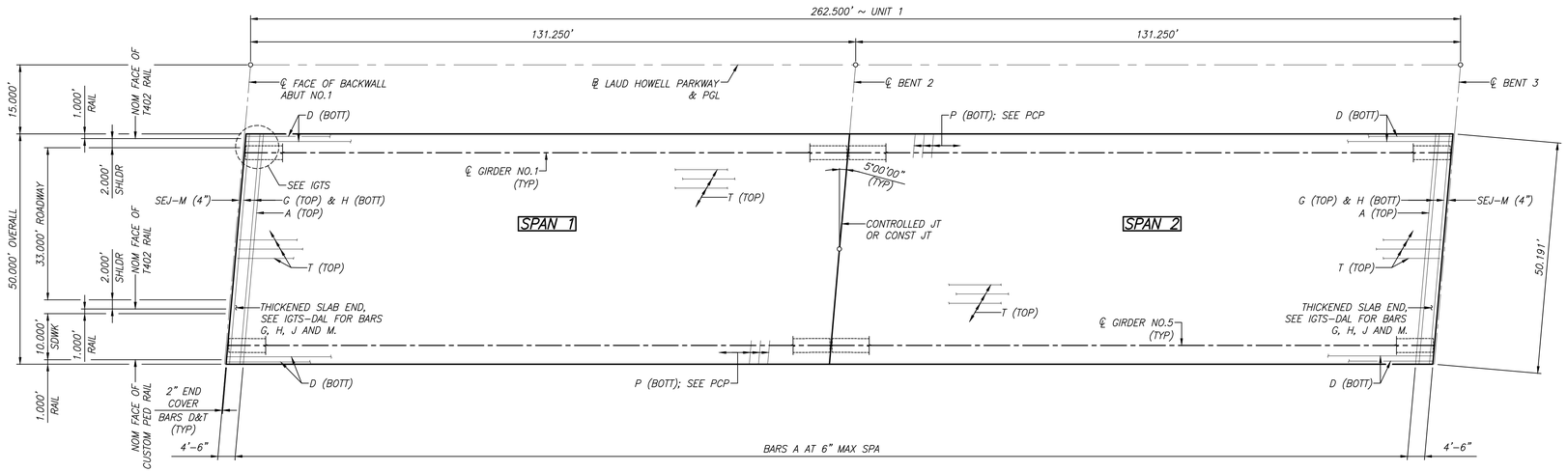
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: 1"=20' VERT: 1"=20'
SHEET B-9 OF B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:08pm\User Name : gzhong
Path\Name : S:\Work Jobs\02025\400&500\425 Design Files\Laud Howell Parkway\Structures\Sheets\9 EB FRAMING PLAN.dwg



PLAN
SCALE: 1"= 15'

N

GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN 2024).
2. SEE "PRESTRESSED CONCRETE PANELS (PCP-DAL)" AND "PRESTRESSED CONCRETE PANEL FABRICATION DETAILS (PCP-FAB)" STANDARD SHEETS FOR PANEL DETAILS NOT SHOWN.
3. SEE "THICKENED SLAB END DETAILS (IGTS-DAL)" STANDARD FOR THICKENED SLAB END DETAILS STANDARD SHEET AND QUANTITY ADJUSTMENTS.
4. SEE "MISCELLANEOUS SLAB DETAILS STANDARD (IGMS-DAL)" FOR ADDITIONAL DETAILS.
5. SEE "TRAFFIC RAIL (T402)" AND "PEDESTRIAN RAIL (XXX)" STANDARD SHEETS FOR RAIL ANCHORAGE IN SLAB.
6. SEE "PERMANENT METAL DECK FORMS (PMDF)" STANDARD SHEET FOR DETAILS AND QUANTITY ADJUSTMENTS IF THIS OPTION IS USED.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BARS DIMENSION SHOWN ARE OUT-TO-OUT OF BAR.

MATERIAL NOTES:

PROVIDE CLASS S CONCRETE (f'_c = 4,000 PSI).

PROVIDE GRADE 60 REINFORCING STEEL (EPOXY COATED).

BAR LAPS, WHERE REQUIRED, ARE AS FOLLOWS:

EPOXY COATED ~ #4 = 2'-5"
#5 = 3'-0"

(1) QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE "FRAMING PLAN SHEET" FOR GIRDER LENGTHS.

(2) FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 3.4 PSF.

(3) THEORETICAL DIMENSIONS.

(4) REFER TO IGMS-DAL STANDARD FOR CAST-IN-PLACE SLAB REINFORCING DETAILS.

TABLE OF ESTIMATED QUANTITIES

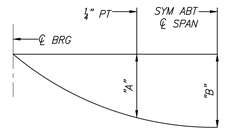
SPAN NO.	REINF CONC SLAB	PRESTRESSED CONC GIRDERS (Tx62) (1)	REINFORCING STEEL (SLAB) (2)
	SF	LF	LB
1	6,563	653.75	22,313
2	6,563	653.76	22,313
TOTAL	13,125	1,307.51	44,626

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ SPAN (3)
1, 2	1, 5	1'-0 1/4"	6'-2 1/4"	9 3/4"
	2-4			10"

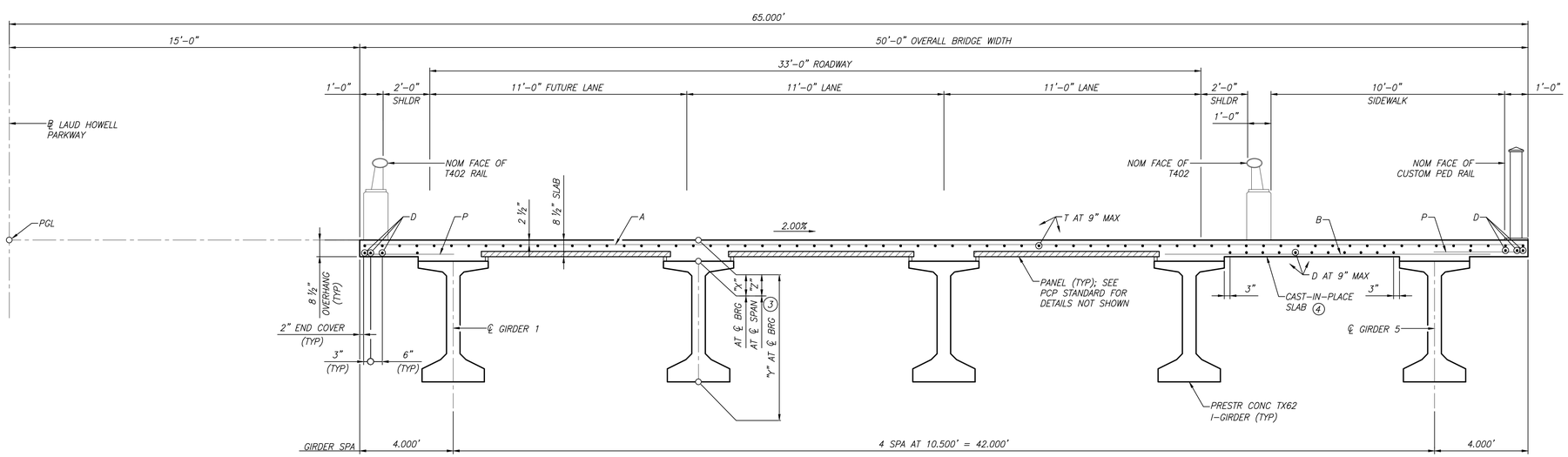
TABLE OF DEAD LOAD DEFLECTIONS

SPAN NO.	GIRDER NO.	"A"	"B"
		FT	FT
1, 2	1, 5	0.156	0.222
	2-4	0.177	0.252



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PRESTRESSED CONCRETE PANELS AND CAST-IN-PLACE SLAB ONLY (Ec=5,000 ksi). ADJUST DEFLECTIONS BASED ON FIELD OBSERVATIONS AS NEEDED.



TYPICAL TRANSVERSE SECTION
SCALE: ⅜"=1'-0"

BAR TABLE

BAR	SIZE
A	#5
B	#4
D	#5
G	#5
H	#5
J	#5
M	#5
P	#4

HL93 LOADING

DATE	REVISION	BY

EB PRESTRESSED CONCRETE GIRDER UNIT 1

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
08 21 2026

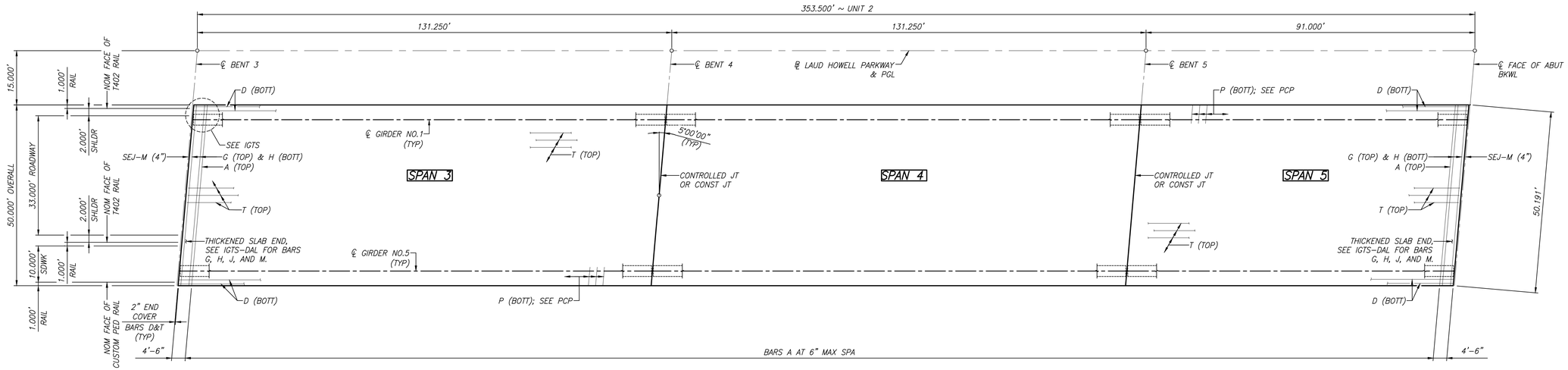
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: AS SHOWN VERT: AS SHOWN
SHEET B-10
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Fri, 21 Aug 2026 - 2:37pm User Name : gzhong
Path\Name : S:\NTP-LAUD\0285\400LAN\25 Design Files\Laud Howell Parkway\Structures\Sheets\10 EB PRESTRESSED CONCRETE GIRDER UNIT 1.dwg

GENERAL NOTES:

SEE SHEET 1 FOR GENERAL NOTES



PLAN

SCALE: 1"= 15'

1. QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE FRAMING PLAN SHEET FOR GIRDER LENGTHS.
2. FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 3.4 PSF.
3. THEORETICAL DIMENSIONS.
4. REFER TO IGMS-DAL STANDARD FOR CAST-IN-PLACE SLAB REINFORCING DETAILS.

TABLE OF ESTIMATED QUANTITIES

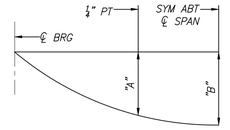
SPAN NO.	REINF CONC SLAB	PRESTRESSED CONC GIRDERS (Tx62) (1)	REINFORCING STEEL (SLAB) (2)
	SF	LF	LB
3	6,563	653.76	22,313
4	6,563	653.76	22,313
5	4,550	452.50	15,470
TOTAL	17,675	1,760.02	60,096

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ SPAN (3)
3, 4	1, 5	1'-0 1/4"	6'-2 1/4"	9 3/4"
	2-4			10"
5	1, 5			10"
	2-4			10 1/8"

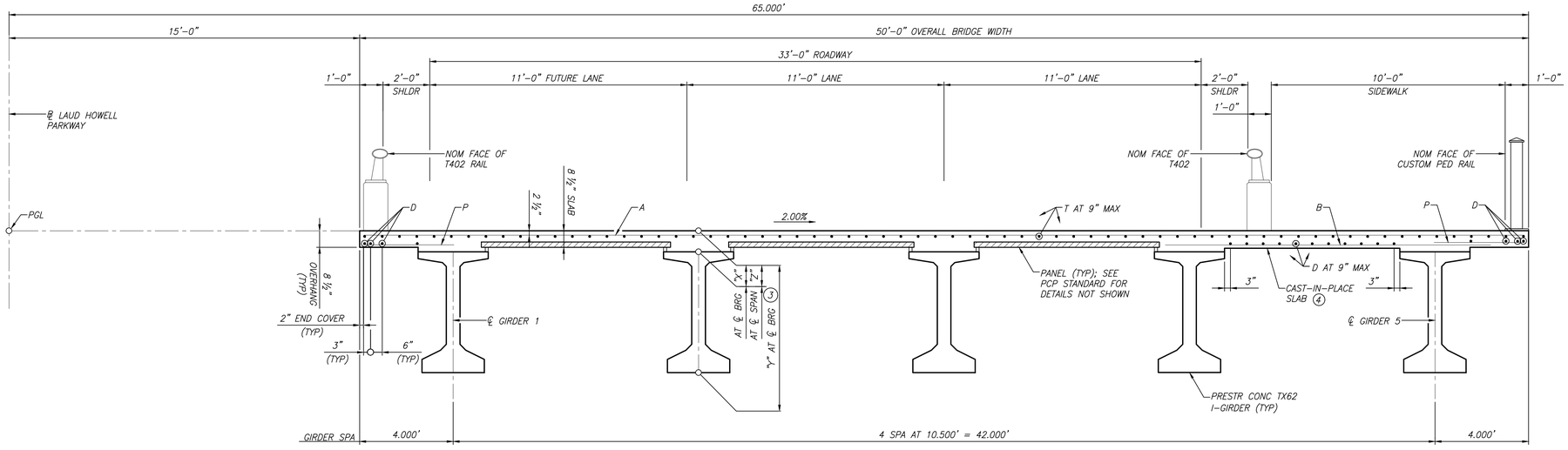
TABLE OF DEAD LOAD DEFLECTIONS

SPAN NO.	GIRDER NO.	"A"	"B"
		FT	FT
3, 4	1, 5	0.156	0.222
	2-4	0.177	0.252
5	1, 5	0.035	0.050
	2-4	0.040	0.057



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PRESTRESSED CONCRETE PANELS AND CAST-IN-PLACE SLAB ONLY (Ec=5,000 ksi). ADJUST DEFLECTIONS BASED ON FIELD OBSERVATIONS AS NEEDED.



TYPICAL TRANSVERSE SECTION

SCALE: ⅜"=1'-0"

BAR TABLE

BAR	SIZE
A	#5
B	#4
D	#5
G	#5
H	#5
J	#5
M	#5
P	#4

HL93 LOADING

DATE	REVISION	BY

EB PRESTRESSED CONCRETE GIRDER UNIT 2

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

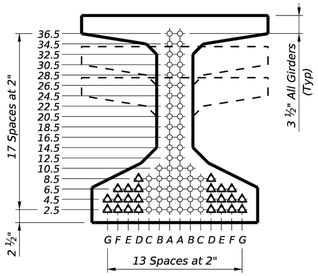
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
08 21 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: AS SHOWN VERT: AS SHOWN
SHEET B-11
OF B-55 SHEETS

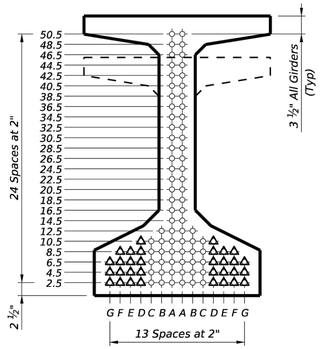
LAUD HOWELL PARKWAY

Date\Time : Fri, 21 Aug 2026 - 2:38pm User Name : gthong
Path\Name : S:\NT-Data\Data\400-Aids\425 Design Files\Laud Howell Parkway\Structures\Sheets\11 EB PRESTRESSED CONCRETE GIRDER UNIT 2.dwg

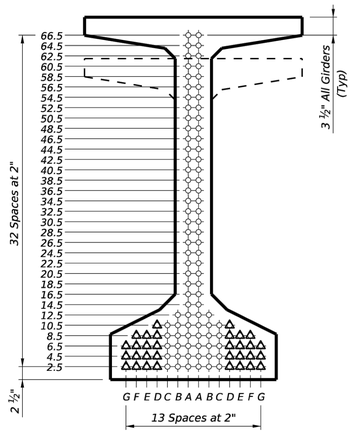
STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS		
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS						NO.	TO END (in)	RELEASE STRENGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRENGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTTOM ℄) (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
LAUD HOWELL PARKWAY; HONEY CREEK EB BRIDGE	1-4	ALL	Tx62	*	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.468	-4.834	11769	0.759	1.000			
	5	ALL	Tx62		42	0.6	270	23.78	16.49	6	57.5	6.000	8.500	2.197	-2.514	8708	0.840	0.985			



TYPE Tx28, Tx34 & Tx40



TYPE Tx46 & Tx54



TYPE Tx62 & Tx70

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER
*	2.5(ABCDEFG), 4.5(ABCDEFG), 6.5(ABCDEFG), 8.5(ABCD), 10.5(A), 12.5(A)

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = 0.24 $\sqrt{f'ci}$

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 __ 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.

To complete this sheet input the girder designs in the table and the relative humidity under Design Notes. In all cases, remove this block. This sheet must be signed, sealed, and dated by a registered Professional Engineer.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DESIGNS (NON-STANDARD SPANS)

IGND

FILE: IG-IGND-22 EB.dgn	DN: TxDOT	CK: TxDOT	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Modified for depressed strands only 03-22: Added load rating	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

EB BRIDGE
PRESTRESSED CONCRETE
I-GIRDER DESIGNS

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

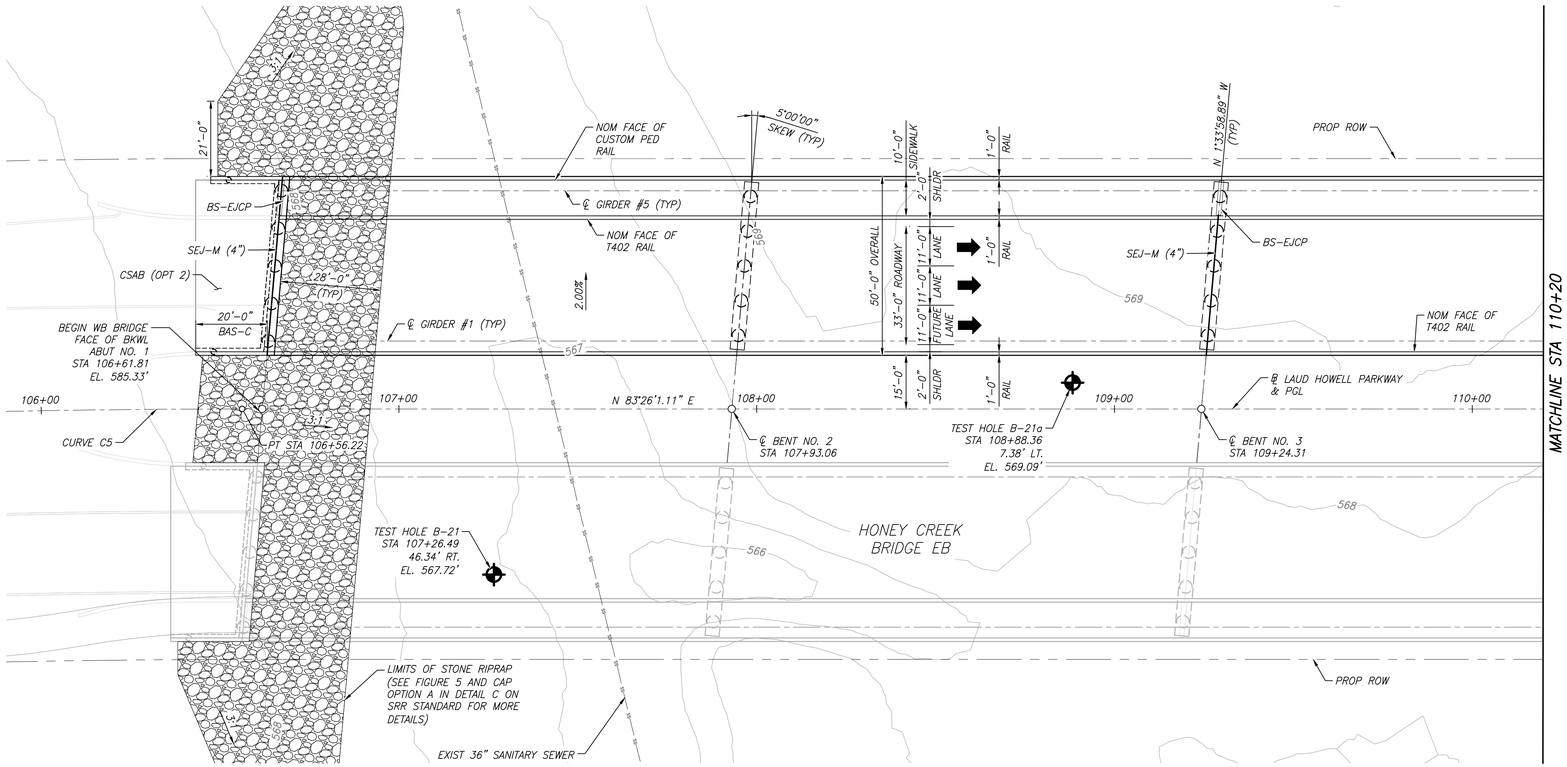
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
08 21 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: NTS
VERT: NTS
SHEET
B-12
OF B-55 SHEETS

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

Date\Time : Fri, 21 Aug 2026 - 2:39pm User Name : gzhong
Path\Name : S:\NTP-LAD\02EH\400LAD02EH_V25 Design Files\Laud Howell Parkway\Structures\Sheets\12 PRESTRESSED CONCRETE I-GIRDER DESIGNS.dwg



CURVE DATA

VPI STATION = 106+00.00
EL = 585.02'
EX = 0.25'
K = 80.00'
L = 100.00'

GENERAL NOTES:

DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020, (ENGLISH UNITS), AS MODIFIED BY THE TxDOT LRFD BRIDGE DESIGN MANUAL (2024).

ELEVATIONS AND VERTICAL PROFILE INFORMATION SHOWN ON THIS SHEET REPRESENT THE TOP OF DECK ELEVATION AT THE CENTERLINE ALIGNMENT RATHER THAN THE TOP OF THE CURB AS REFERENCED IN THE CIVIL PLANS. PGL ELEVATION IS 0.52' ABOVE TOP OF CURB ELEVATION.

"D" DENOTES DOWEL IN FIRST OUTSIDE GIRDER.

SEE TYPICAL SECTIONS SHEET FOR ADDITIONAL DETAILS.

DESIGN SPEED = 45 MPH.

ADT (2035): 16,500 VPD
ADT (2045): 32,500 VPD

FUNCTIONAL CLASSIFICATION: LOCAL ARTERIAL.

TERRAIN: ROLLING.

ALL UTILITIES, STRUCTURES, DIMENSIONS, AND ELEVATIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING ANY CONSTRUCTION WORK.

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

SEE BORING LOG SHEETS FOR TEST HOLE INFORMATION.

SAW-CUT GROOVING OF THE BRIDGE DECK AND APPROACH SLAB IS NOT REQUIRED.

IF THE TEMPORARY CASING CANNOT BE REMOVED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND TxDOT. ADDITIONAL ANALYSIS AND REMEDIATION BY THE ENGINEER IN CHARGE MAY BE REQUIRED.

SEE ILLUMINATION SHEET FOR LOCATIONS OF LIGHTPOLE BLISTERS.

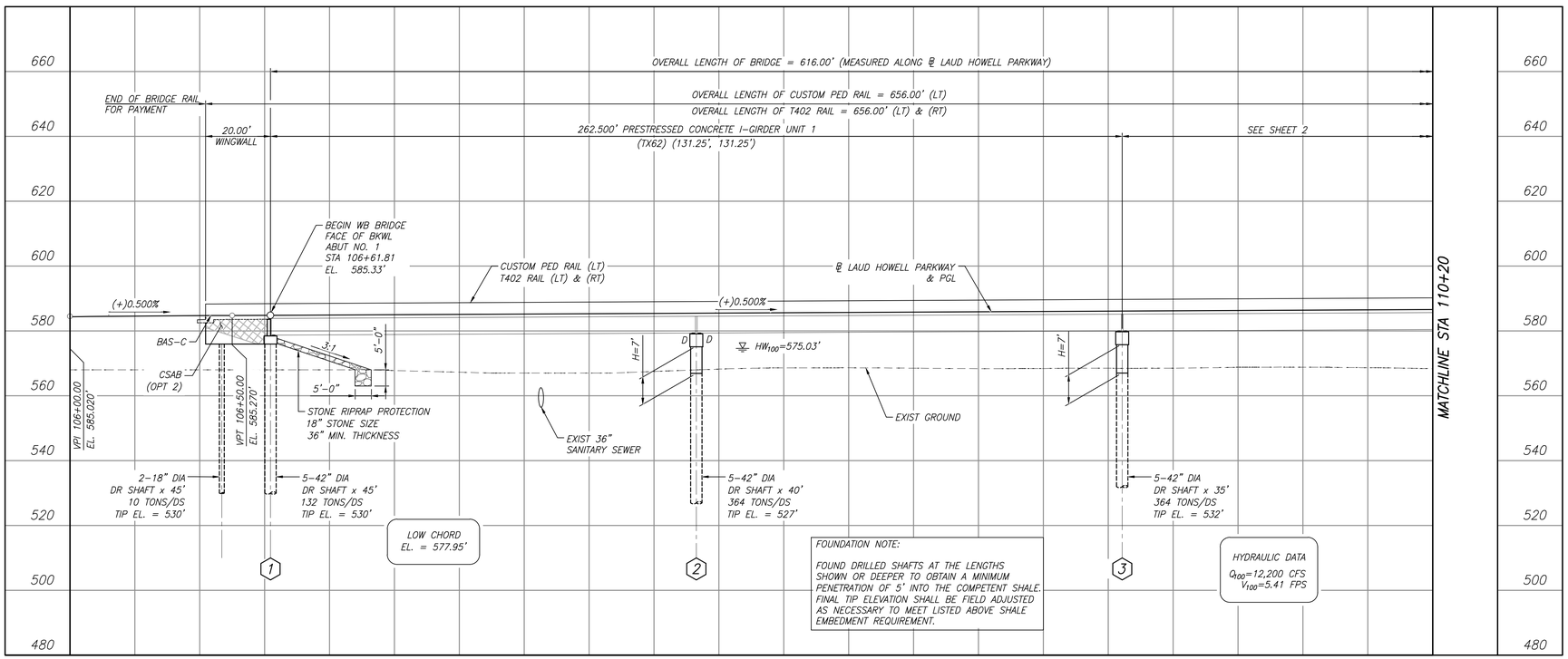
LEGEND:

RIPRAP

CURVE C5 DATA

PI STATION = 98+54.68
DELTA = 28° 25' 52.59"
DEGREE OF CURVE = 1° 44' 10"
TANGENT = 835.99
RADIUS = 3300
PC STATION = 90+18.69
PT STATION = 106+56.22

PLAN



FOUNDATION NOTE:

FOUND DRILLED SHAFTS AT THE LENGTHS SHOWN OR DEEPER TO OBTAIN A MINIMUM PENETRATION OF 5' INTO THE COMPETENT SHALE. FINAL TIP ELEVATION SHALL BE FIELD ADJUSTED AS NECESSARY TO MEET LISTED ABOVE SHALE EMBEDMENT REQUIREMENT.

HYDRAULIC DATA
Q_{100}=12,200 CFS
V_{100}=5.41 FPS

ELEVATION

HL93 LOADING

DATE	REVISION	BY

HONEY CREEK WB BRIDGE LAYOUT

SHEET 1 OF 2

Laud Howell Parkway

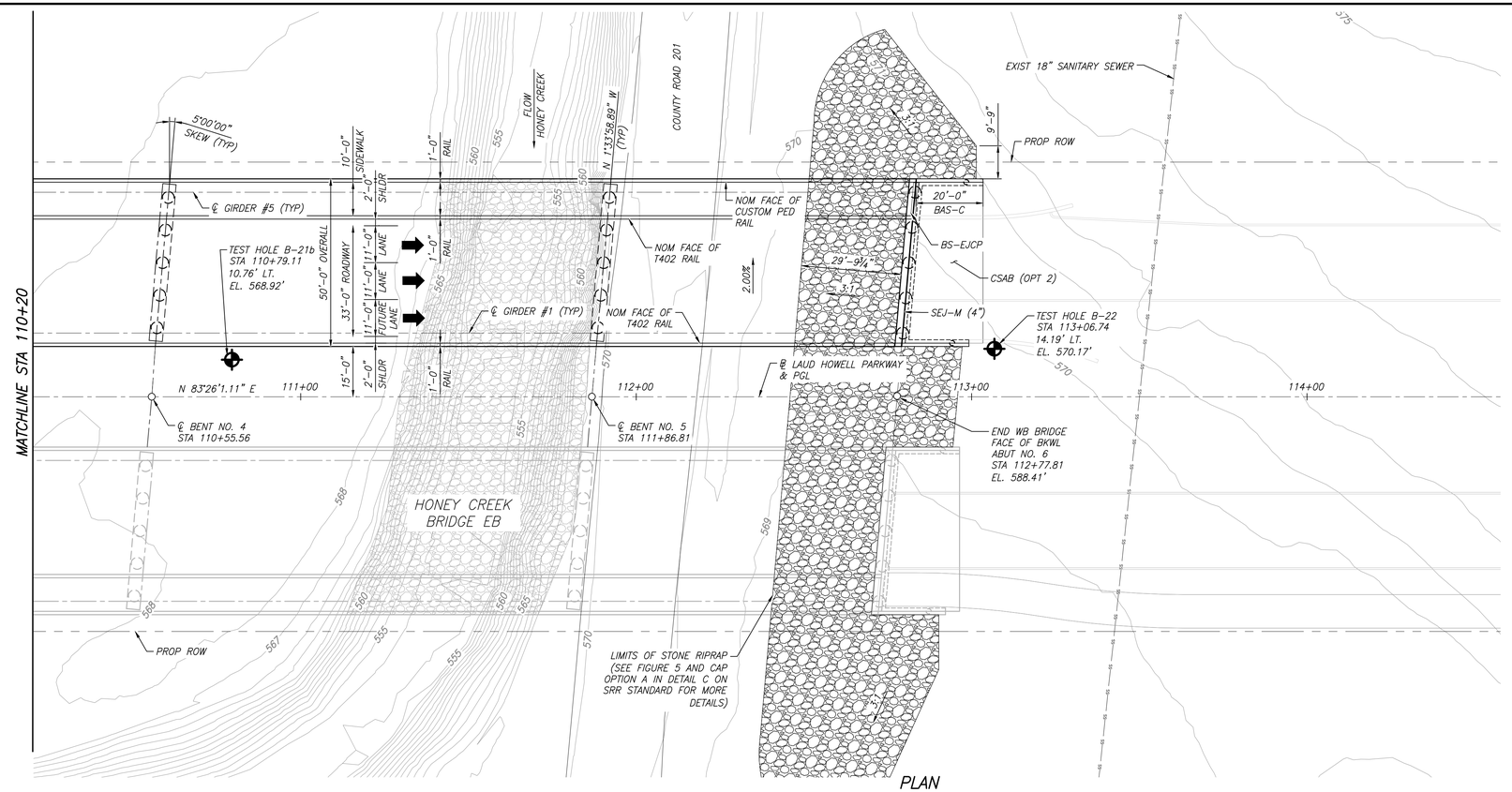
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: 1"=20'
VERT: 1"=20'
SHEET
B-13
OF B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:12pm\User Name : gshong
Path\Name : S:\WX-LJA0\0285\400&410\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\14 WB BRIDGE LAYOUT.dwg



LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

HONEY CREEK
WB BRIDGE LAYOUT

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID	NT852F-0285
DATE:	JULY 2026
DESIGN:	EH
DRAWN:	NC
SCALE HORZ:	1"=20'
SCALE VERT:	1"=20'
SHEET	B-14
OF	B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:12pm User Name : gthorg
Path\Name : S:\STR_CAD\0285\A0285A025 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\14 WB BRIDGE LAYOUT.dwg

SUMMARY OF BRIDGE QUANTITIES

ITEM	400	416	416	420	420	420	422	422	425	432	442	450		454
DESCRIPTION CODE	7010	7002	7007	7012	7022	7038	7001	7013	7006	7043	7007	7012		7004
ITEM DESCRIPTION	CEM STABIL BKFL	DRILL SHAFT (18 IN)	DRILL SHAFT (42 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COLUMN)	REINF CONC SLAB	APPROACH SLAB	PRESTR CONC GIRDER (TX62)	RIPRAP (STONE PROTECTION) (18 IN)	STR STEEL (MISC NON-BRIDGE) (1)	RAIL (TY T402)	PEDESTRIAN RAIL (CUSTOM) MOD	SEALED EXPANSION JOINT (4 IN) (SEJ - M)
	CY	LF	LF	CY	CY	CY	SF	CY	LF	CY	LB	LF	LF	LF
2 ~ ABUTMENTS	390	160	400	90.4				92.4		825	135			
4 ~ INTERIOR BENTS			750		116.8	53.2				408	269			
PRESTR CONC GIRDER UNIT 1							13,125		1,307.51			564.9	282.4	104
PRESTR CONC GIRDER UNIT 2							17,675		1,760.02			747.0	373.5	52
TOTAL	390	160	1,150	90.4	116.8	53.2	30,800	92.4	3,067.53	1,233	404	1,311.9	655.9	156

(1) FOR BRIDGE SIDEWALK EXPANSION JOINT COVER PLATES, SEE "BS-EJCP" STANDARD.

BEARING SEAT ELEVATIONS

		GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5
ABUT 1	(FWD)	578.546	578.340	578.135	577.930	577.724
BENT 2	(BK)	579.192	578.987	578.781	578.576	578.370
	(FWD)	579.202	578.997	578.791	578.586	578.380
BENT 3	(BK)	579.848	579.643	579.437	579.232	579.027
	(FWD)	579.858	579.653	579.447	579.242	579.037
BENT 4	(BK)	580.505	580.299	580.094	580.888	579.683
	(FWD)	580.514	580.309	580.104	579.898	579.693
BENT 5	(BK)	581.161	580.955	580.750	580.545	580.339
	(FWD)	581.171	580.965	580.760	580.555	580.349
ABUT 6	(BK)	581.616	581.410	581.205	581.000	580.794

HL93 LOADING

DATE	REVISION	BY

WB ESTIMATED QUANTITIES

Laud Howell Parkway

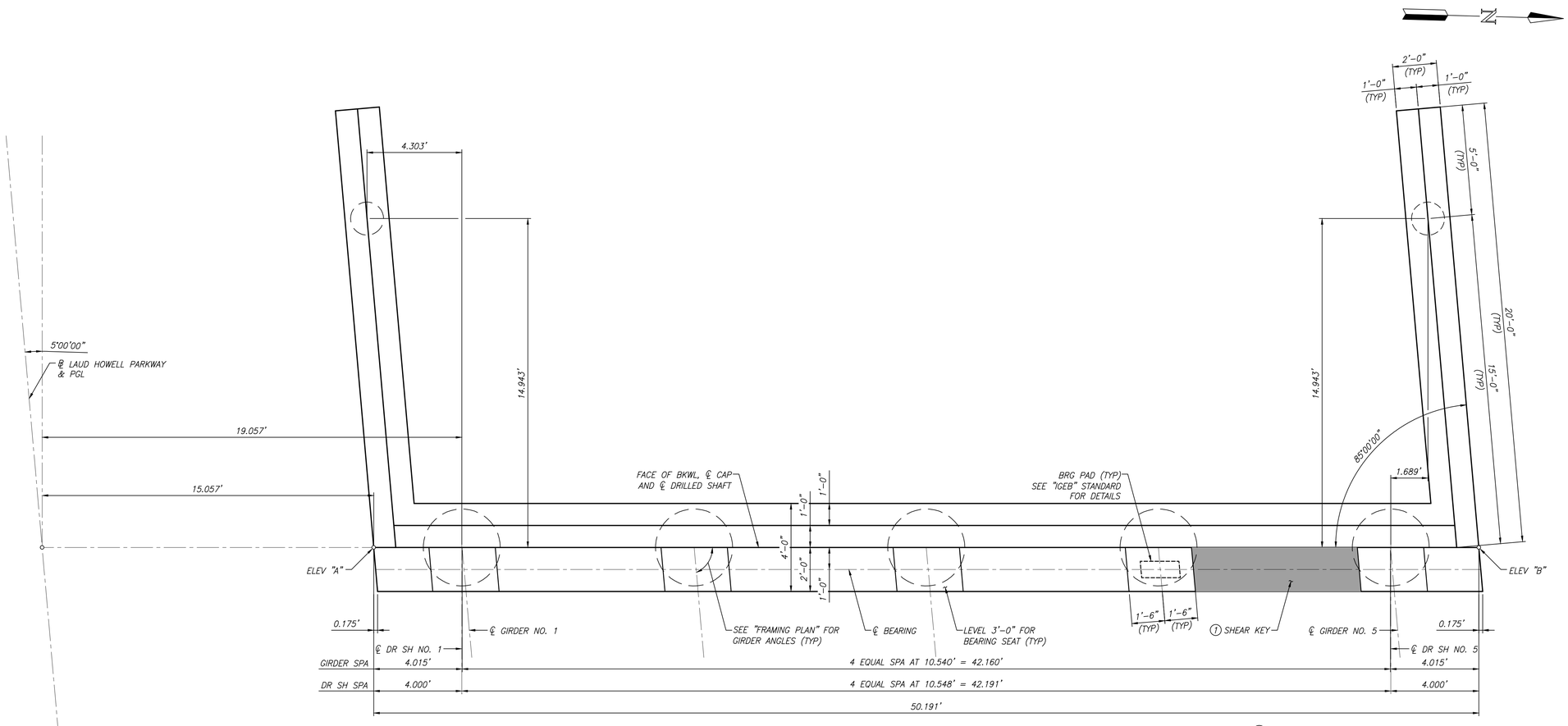
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ:
VERT:
SHEET
B-15
OF B-55 SHEETS

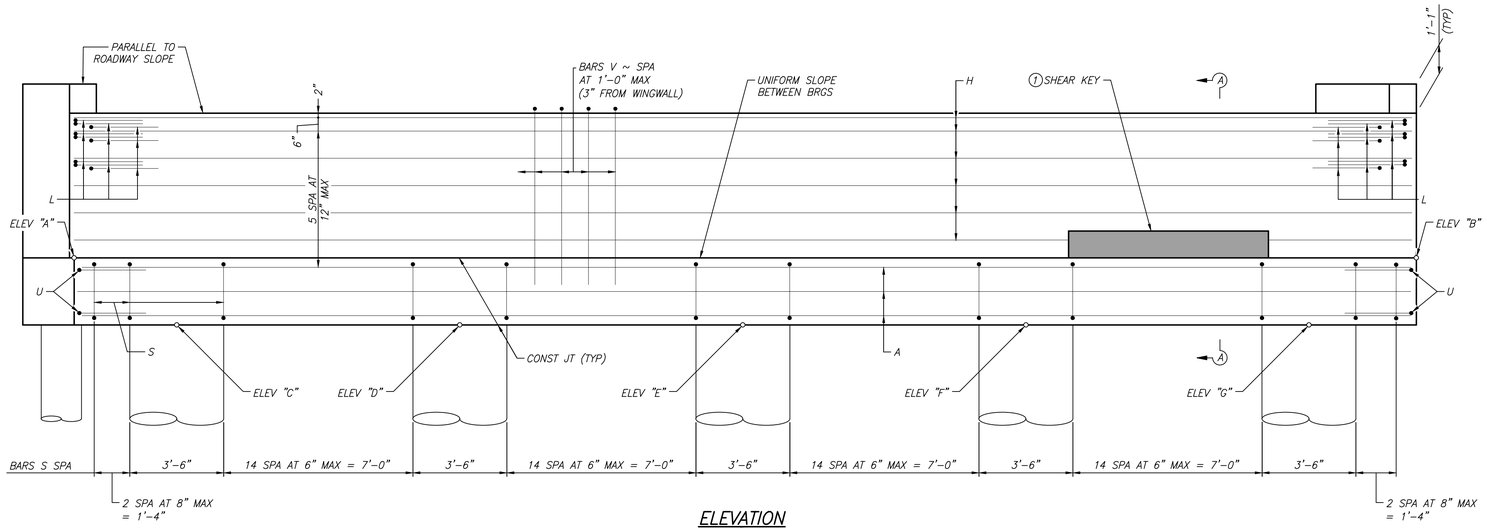
Date\Time : Fri, 21 Aug 2026 - 8:53am User Name : gzhong
Path\Name : S:\Wor-LJA0\0285\400AND\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\15 WB ESTIMATED QUANTITIES.dwg



PLAN

ABUT 6 SYMMETRICAL BY OPPOSITE HAND
SCALE: 3/8"=1'-0"

1 SHEAR KEY BETWEEN GIRDER NO. 1 AND GIRDER NO. 2 ONLY. SEE "IGSK" STANDARD FOR DIMENSIONS, NOTES, AND DETAILS NOT SHOWN.



ELEVATION

SCALE: 3/8"=1'-0"

TABLE OF WORKING POINT ELEVATIONS

	TOP OF CAP ELEVATIONS		TOP OF DRILLED SHAFT ELEVATIONS				
ABUT	ELEV "A"	ELEV "B"	ELEV "C"	ELEV "D"	ELEV "E"	ELEV "F"	ELEV "G"
1	578.503	577.521	575.922	575.711	575.500	575.289	575.078
6	581.569	580.957	578.989	578.778	578.567	578.356	578.145

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (SEP 2024).

SEE "WB BRIDGE LAYOUT" FOR DRILLED SHAFT SIZE AND LENGTH.

FOR BEARING SEAT ELEVATIONS, SEE "WB ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS" SHEET.

SEE "COMMON FOUNDATION DETAILS (FD)" STANDARD SHEET FOR ALL FOUNDATION DETAILS AND NOTES NOT SHOWN.

SEE "SHEAR KEY DETAILS (IGSK)" STANDARD SHEET FOR DIMENSIONS, NOTES, AND DETAILS NOT SHOWN.

SEE T402 RAIL STANDARD SHEET FOR RAIL ANCHORAGE IN WINGWALLS.

CALCULATED FOUNDATION LOAD =
- 42" DIA DR SH = 131 TONS/DR SH (ABUT 1)
- 42" DIA DR SH = 103 TONS/DR SH (ABUT 6)
- 18" DIA DR SH = 10 TONS/DR SH

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BARS DIMENSION SHOWN ARE OUT-TO-OUT OF BAR.

MATERIAL NOTES:

PROVIDE CLASS C CONCRETE (f'c = 3,600 PSI).

PROVIDE GRADE 60 REINFORCING STEEL.

LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

WB ABUTMENT NO. 1 & 6

SHEET 1 OF 2

Laud Howell Parkway

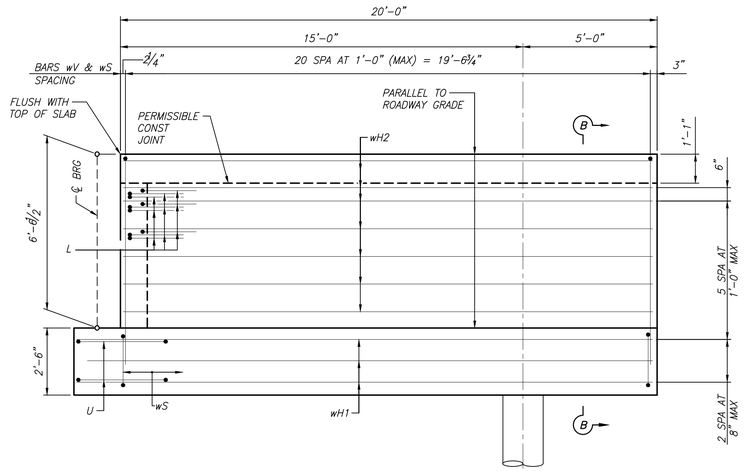
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

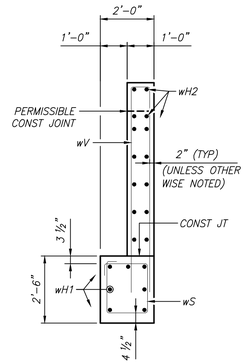
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: AS SHOWN VERT: AS SHOWN
SHEET B-16
OF B-55 SHEETS

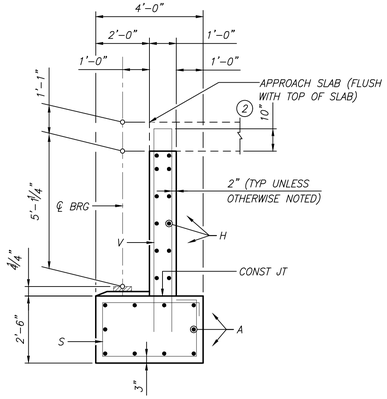
Date\Time : Thu, 20 Aug 2026 - 12:13pm User Name : gthorng
Path\Name : S:\XR-LAD\0285\LAND\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE_16 WB ABUTMENT NO. 1 & 6.dwg



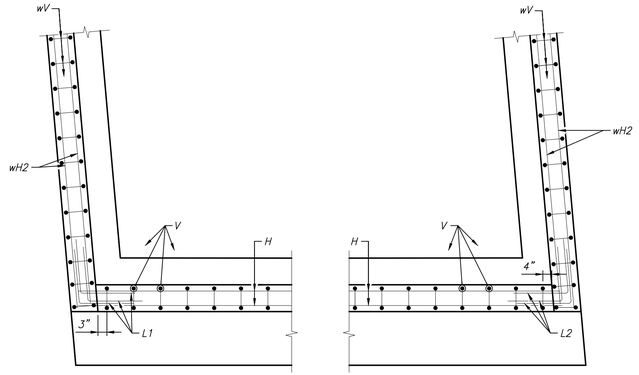
WINGWALL ELEVATION



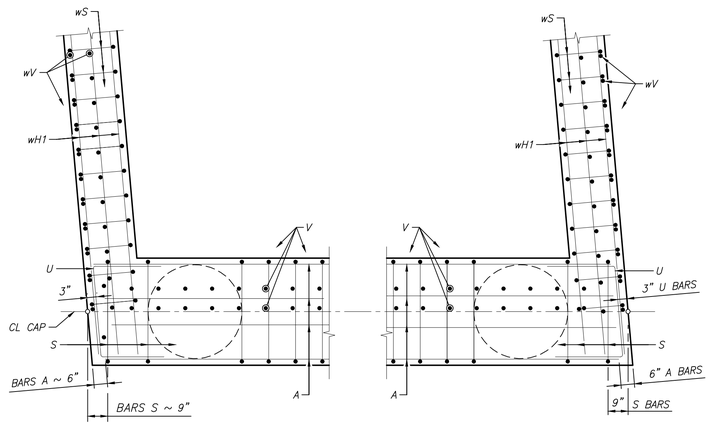
SECTION B–B



SECTION A–A

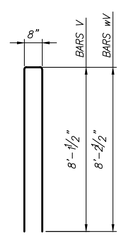


BACKWALL

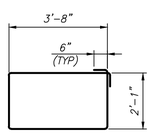


CAP

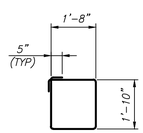
CORNER DETAILS



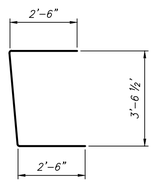
BARS V & wV



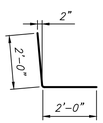
BARS S



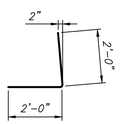
BARS wS



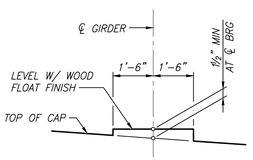
BARS U



BARS L1



BARS L2



BEARING SEAT DETAILS

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

TABLE OF ESTIMATED QUANTITIES

BAR	NO.	SIZE	LENGTH	WEIGHT
A	10	#11	49'-2"	2,613
H	12	#6	49'-10"	899
L	18	#6	4'-0"	109
S	66	#5	12'-8"	872
U	4	#6	8'-7"	52
V	49	#5	16'-11"	865
wH1	14	#6	21'-8"	456
wH2	28	#6	19'-8"	828
wS	42	#4	7'-10"	220
wV	42	#5	17'-1"	749
REINFORCING STEEL (LB) (3)				7,663
CLASS "C" CONC (ABUT) (CY) (4)				45.2

(2) INCREASE AS REQUIRED TO MAINTAIN 3" FROM FINISHED GRADE.

(3) REINFORCING STEEL QUANTITIES ARE FOR CONTRACTOR'S INFORMATION ONLY.

(4) QUANTITY INCLUDES SHEAR KEY VOLUME.

HL93 LOADING

DATE	REVISION	BY

WB ABUTMENT NO. 1 & 6 DETAILS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: 3/8" = 1'
VERT: 3/8" = 1'
SHEET
B-17
OF B-55 SHEETS

LAUD HOWELL PARKWAY

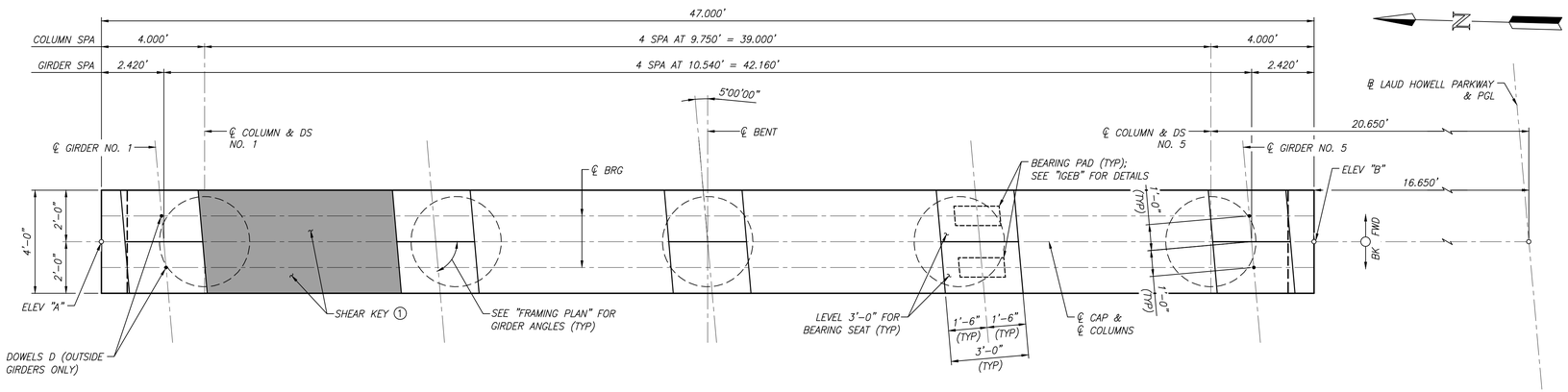
Date\Time : Thu, 20 Aug 2026 – 12:14pm\User Name : gthong
Path\Name : S:\MTP-LAND\0285\4 WORK\V25 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\17 WB ABUTMENT NO. 1 & 6 DETAILS.dwg

TOTAL OF COLUMN QUANTITIES (5)

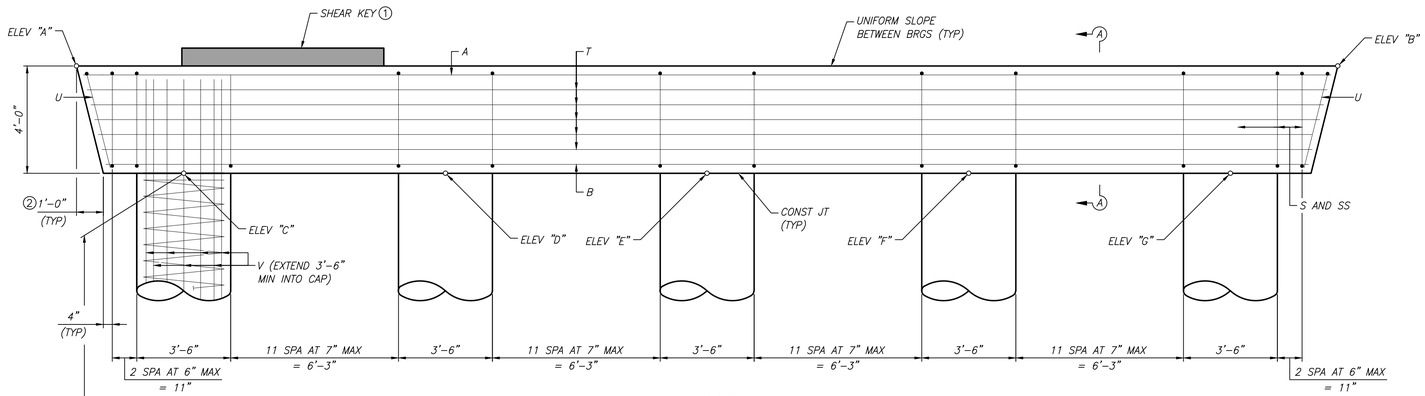
BENT NO.	COLUMN NO.	COLUMN HEIGHT "H"	CLASS "C" CONC (COLUMN)	BARS V 14 ~ #9		BARS Z 5 ~ #4		REINFORCING STEEL (4)
		FT	CY	LENGTH	WEIGHT	LENGTH	WEIGHT	LB
2	1	8	2.9	11'-6"	548	330'-0"	221	769
	2-4	7	7.5	10'-6"	1,500	876'-9"	586	2,086
	5	6	2.1	9'-6"	453	254'-7"	171	624
3	1	8	2.9	11'-6"	548	330'-0"	221	769
	2-4	7	7.5	10'-6"	1,500	876'-9"	586	2,086
	5	6	2.1	9'-6"	453	254'-7"	171	624
4	1 & 2	9	6.4	12'-6"	1,190	735'-4"	492	1,682
	3-5	8	8.6	11'-6"	1,643	989'-11"	662	2,305
5	1-3	11	11.8	14'-6"	2,071	1329'-4"	888	2,959
	4	10	3.6	13'-6"	643	405'-5"	271	914
	5	9	3.2	12'-6"	595	367'-8"	246	841

TABLE OF CAP QUANTITIES

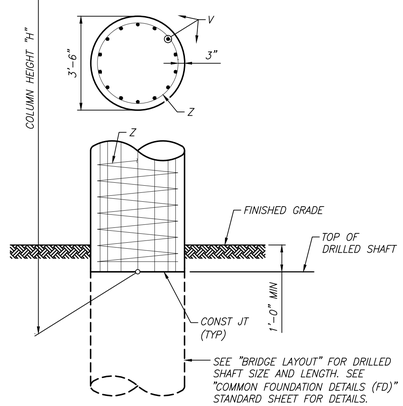
BAR	NO.	SIZE	LENGTH	WEIGHT
A	8	#11	46'-6"	1,977
B	8	#11	44'-6"	1,892
D	4	#9	1'-8"	23
S	54	#6	16'-8"	1,352
SS	54	#6	13'-2"	1,068
T	10	#5	45'-6" AVG	475
U	2	#5	11'-2"	24
REINFORCING STEEL (LB) (4)				6,811
CLASS "C" CONC (CAP) (CY) (3)				29.2

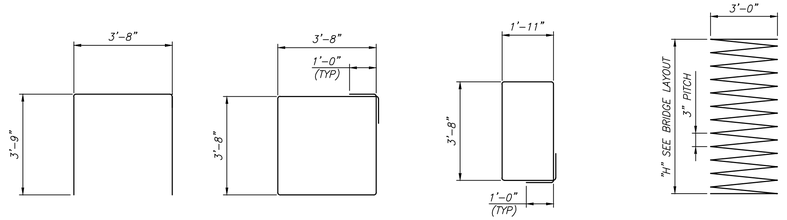


PLAN
SCALE: 1/8"=1'-0"

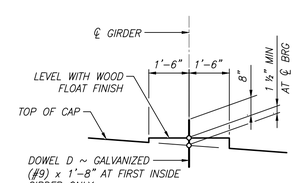


ELEVATION
SCALE: 1/8"=1'-0"

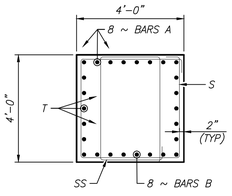




BARS U BARS S BARS SS BARS Z



BEARING SEAT DETAIL
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)



SECTION A-A

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (JAN 2024).

SEE "BRIDGE LAYOUT" FOR DRILLED SHAFT SIZE AND LENGTH.

FOR BEARING SEAT ELEVATIONS, SEE "ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS" SHEET.

SEE "SHEAR KEY DETAILS (IGSK)" STANDARD SHEET FOR DIMENSIONS, NOTES, AND DETAILS NOT SHOWN.

SEE "COMMON FOUNDATION DETAILS (FD)" STANDARD SHEETS FOR ALL FOUNDATION DETAILS AND NOTES NOT SHOWN.

CALCULATED FOUNDATION LOAD = 364 TONS/DR SH. (BENT 2 TO 4)
= 234 TONS/DR SH. (BENT 5)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BARS DIMENSION SHOWN ARE OUT-TO-OUT OF BAR.

MATERIAL NOTES:

PROVIDE CLASS C CONCRETE (f'c = 3,600 PSI).

PROVIDE GRADE 60 REINFORCING STEEL.

GALVANIZE DOWEL BARS D.

TABLE OF WORKING POINT ELEVATIONS

	TOP OF CAP ELEVATIONS		TOP OF COLUMN ELEVATIONS				
	ELEV "A"	ELEV "B"	ELEV "C"	ELEV "D"	ELEV "E"	ELEV "F"	ELEV "G"
BENT 2	579.114	578.195	575.033	574.838	574.643	574.448	574.253
BENT 3	579.770	578.851	575.689	575.494	575.299	575.104	574.909
BENT 4	580.426	579.508	576.345	576.150	575.955	575.760	575.565
BENT 5	581.082	580.164	577.002	576.807	576.612	576.417	576.222

HL93 LOADING

(1) A SHEAR KEY IS REQUIRED BETWEEN GIRDERS 1 & 2. SHEAR KEYS ARE TO BE CAST AFTER GIRDERS ARE SET. SEE "SHEAR KEY (IGSK)" STANDARD SHEET FOR MORE DETAILS.

(2) MEASURED PARALLEL TO TOP OF CAP CROSS-SLOPE.

(3) INCLUDES SHEAR KEY VOLUME.

(4) FOR CONTRACTOR'S INFORMATION ONLY.

(5) FOR EACH LINEAR FOOT OF VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENTS:
BARS V: ±1'-0" LENGTH
BARS Z: ±37'-9" LENGTH
REINFORCED STEEL = ±55 LB
CLASS C CONCRETE (COLUMN) = ±0.26 CY PER BENT

DATE	REVISION	BY

WB INTERIOR BENTS NO. 2 – 5

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
08 21 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: AS SHOWN
VERT: AS SHOWN
SHEET
B-18
OF B-55 SHEETS

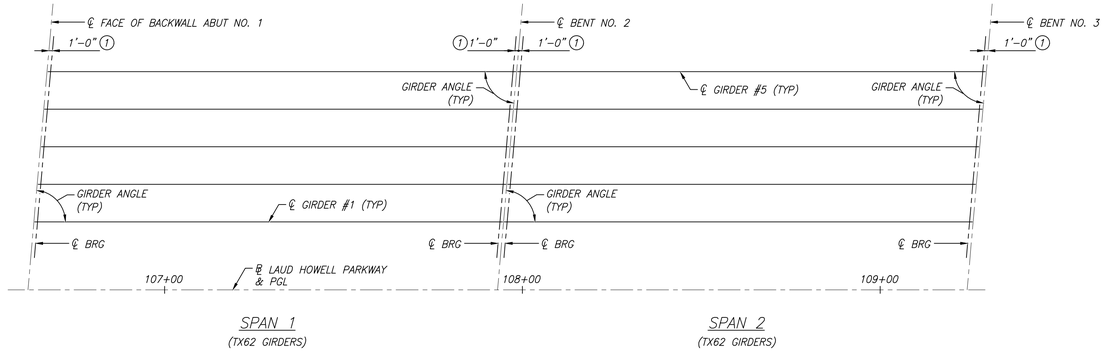
LAUD HOWELL PARKWAY

Date\Time : Fri, 21 Aug 2026 – 2:39pm User Name : gzhang
Path\Name : S:\Work Grp\0285\CAD\Civil\25 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\18 wb interior bents 2 – 5.dwg

LAUD HOWELL PARKWAY

① SEE IGEB STANDARD SHEET FOR ORIENTATION OF DIMENSION.

② GIRDER LENGTHS SHOWN ARE FOR BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.



BENT REPORT

ABUT NO. 1 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 2 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 2 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 3 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

GIRDER REPORT

GIRDER REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. ②	GIRDER SLOPE
GIRDER 1	131.250	129.246	130.75	0.0050
GIRDER 2	131.250	129.246	130.75	0.0050
GIRDER 3	131.250	129.246	130.75	0.0050
GIRDER 4	131.250	129.246	130.75	0.0050
GIRDER 5	131.250	129.246	130.75	0.0050

GIRDER REPORT, SPAN 2

	HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. ②	GIRDER SLOPE
GIRDER 1	131.250	129.250	130.75	0.0050
GIRDER 2	131.250	129.250	130.75	0.0050
GIRDER 3	131.250	129.250	130.75	0.0050
GIRDER 4	131.250	129.250	130.75	0.0050
GIRDER 5	131.250	129.250	130.75	0.0050

HL93 LOADING

DATE	REVISION	BY

WB FRAMING PLAN

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

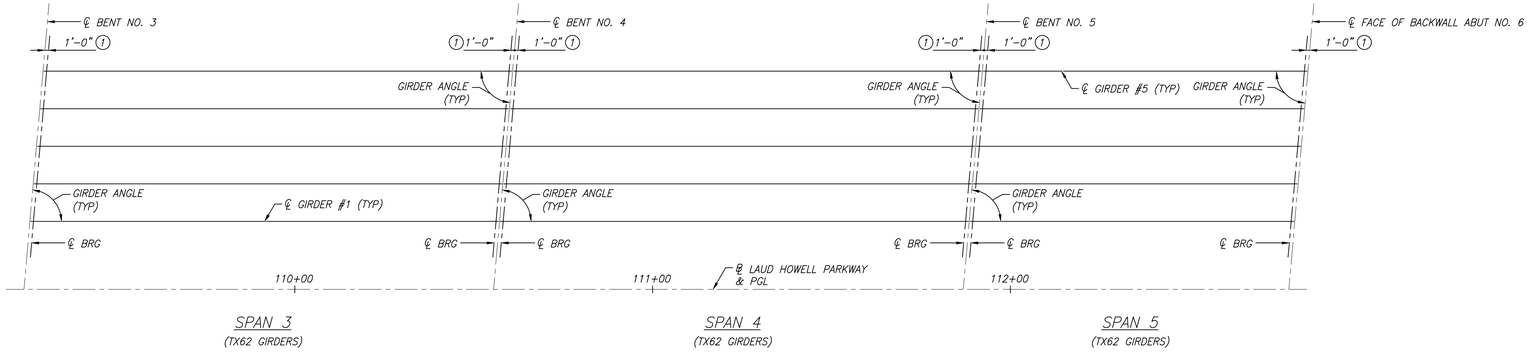
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: 1"=20'
VERT: 1"=20'
SHEET B-19
OF B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:18pm\User Name : gphong
Path\Name : S:\NTX-LAN\102851\400LAND\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\20 WB FRAMING PLAN.dwg

LAUD HOWELL PARKWAY

1. SEE IGEB STANDARD SHEET FOR ORIENTATION OF DIMENSION.
2. GIRDER LENGTHS SHOWN ARE FOR BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.



BENT REPORT

BENT NO. 3 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 3	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 4 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 3	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 4 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 4	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 5 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 4	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

BENT NO. 5 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 5	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

ABUT NO. 6 (N 1 33 58.89 W)

DISTANCE BETWEEN STATION LINE AND GIRDER 1, 19.073 L

		GIRDER SPAC. (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 5	GIRDER 1	0.000	85	0	0
	GIRDER 2	10.540	85	0	0
	GIRDER 3	10.540	85	0	0
	GIRDER 4	10.540	85	0	0
	GIRDER 5	10.540	85	0	0
	TOTAL	42.160			

GIRDER REPORT

GIRDER REPORT, SPAN 3

	HORIZONTAL DISTANCE C–C BENT	C–C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	131.250	129.250	130.75	0.0050
GIRDER 2	131.250	129.250	130.75	0.0050
GIRDER 3	131.250	129.250	130.75	0.0050
GIRDER 4	131.250	129.250	130.75	0.0050
GIRDER 5	131.250	129.250	130.75	0.0050

GIRDER REPORT, SPAN 4

	HORIZONTAL DISTANCE C–C BENT	C–C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	131.250	129.250	130.75	0.0050
GIRDER 2	131.250	129.250	130.75	0.0050
GIRDER 3	131.250	129.250	130.75	0.0050
GIRDER 4	131.250	129.250	130.75	0.0050
GIRDER 5	131.250	129.250	130.75	0.0050

GIRDER REPORT, SPAN 5

	HORIZONTAL DISTANCE C–C BENT	C–C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GIRDER SLOPE
GIRDER 1	91.000	88.996	90.50	0.0050
GIRDER 2	91.000	88.996	90.50	0.0050
GIRDER 3	91.000	88.996	90.50	0.0050
GIRDER 4	91.000	88.996	90.50	0.0050
GIRDER 5	91.000	88.996	90.50	0.0050

HL93 LOADING

DATE	REVISION	BY

WB FRAMING PLAN

SHEET 2 OF 2

Laud Howell Parkway

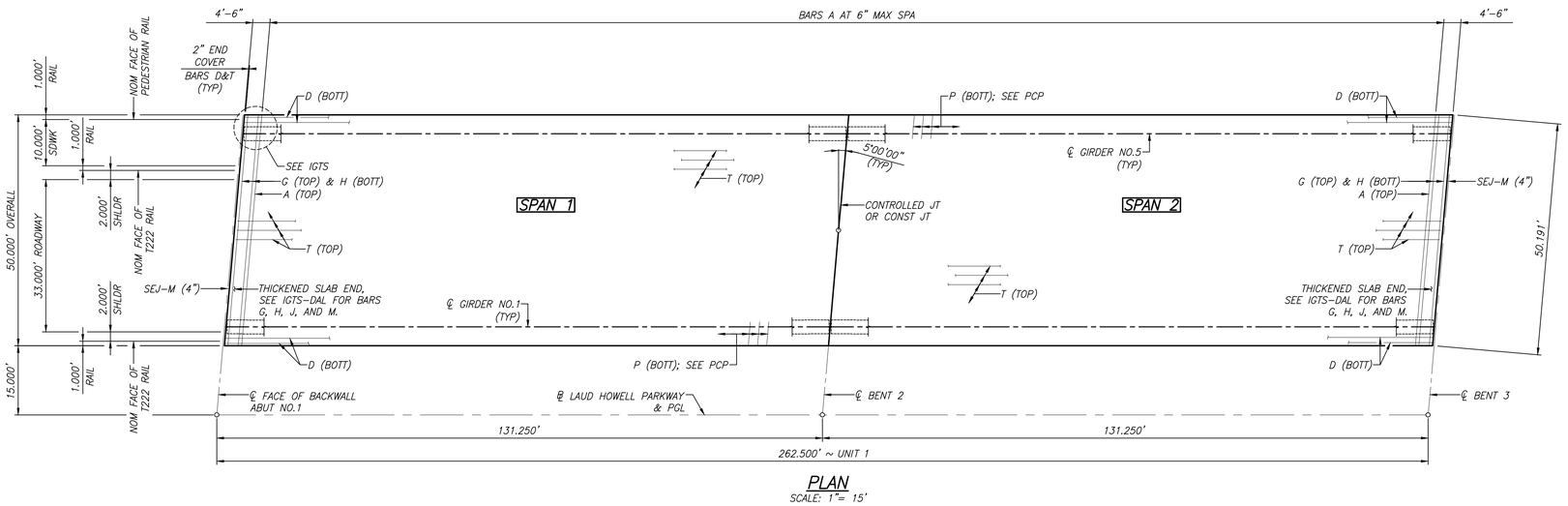
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F–0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: 1"=20'
VERT: 1"=20'
SHEET B–20
OF B–55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:19pm\User Name : gzhong
Path\Name : S:\NTX-LAD\025\LAD025A\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE_20 WB FRAMING PLAN.dwg



PLAN
SCALE: 1"= 15'

N

GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN 2024).
2. SEE "PRESTRESSED CONCRETE PANELS (PCP-DAL)" AND "PRESTRESSED CONCRETE PANEL FABRICATION DETAILS (PCP-FAB)" STANDARD SHEETS FOR PANEL DETAILS NOT SHOWN.
3. SEE "THICKENED SLAB END DETAILS (IGTS-DAL)" STANDARD FOR THICKENED SLAB END DETAILS STANDARD SHEET AND QUANTITY ADJUSTMENTS.
4. SEE "MISCELLANEOUS SLAB DETAILS STANDARD (IGMS-DAL)" FOR ADDITIONAL DETAILS.
5. SEE "TRAFFIC RAIL (T402)" AND "PEDESTRIAN RAIL (XXX)" STANDARD SHEETS FOR RAIL ANCHORAGE IN SLAB.
6. SEE "PERMANENT METAL DECK FORMS (PMDF)" STANDARD SHEET FOR DETAILS AND QUANTITY ADJUSTMENTS IF THIS OPTION IS USED.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BARS DIMENSION SHOWN ARE OUT-TO-OUT OF BAR.

MATERIAL NOTES:

PROVIDE CLASS S CONCRETE (f'_c = 4,000 PSI).

PROVIDE GRADE 60 REINFORCING STEEL (EPOXY COATED).

BAR LAPS, WHERE REQUIRED, ARE AS FOLLOWS:

EPOXY COATED ~ #4 = 2'-5"
#5 = 3'-0"

1. QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE "FRAMING PLAN SHEET" FOR GIRDER LENGTHS.
2. FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 3.4 PSF.
3. THEORETICAL DIMENSIONS.
4. REFER TO IGMS-DAL STANDARD FOR CAST-IN-PLACE SLAB REINFORCING DETAILS.

TABLE OF ESTIMATED QUANTITIES

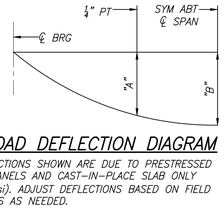
SPAN NO.	REINF CONC SLAB	PRESTRESSED CONC GIRDERS (Tx62) (1)	REINFORCING STEEL (SLAB) (2)
	SF	LF	LB
1	6,563	653.75	22,313
2	6,563	653.76	22,313
TOTAL	13,125	1,307.51	44,626

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ SPAN (3)
1, 2	1, 5	1'-0 1/4"	6'-2 1/4"	9 3/4"
	2-4			10"

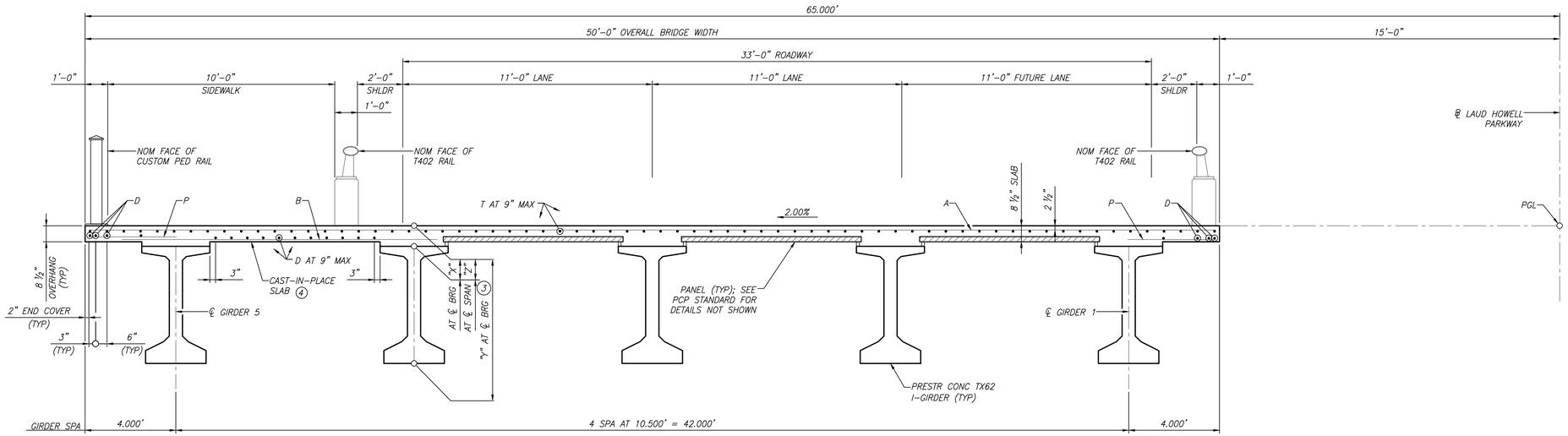
TABLE OF DEAD LOAD DEFLECTIONS

SPAN NO.	GIRDER NO.	"A"	"B"
		FT	FT
1 & 2	1, 5	0.156	0.222
	2-4	0.177	0.252



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PRESTRESSED CONCRETE PANELS AND CAST-IN-PLACE SLAB ONLY (Ec=5,000 ksi). ADJUST DEFLECTIONS BASED ON FIELD OBSERVATIONS AS NEEDED.



TYPICAL TRANSVERSE SECTION
SCALE: ⅜"=1'-0"

BAR TABLE

BAR	SIZE
A	#5
B	#4
D	#5
G	#5
H	#5
J	#5
M	#5
P	#4

HL93 LOADING

DATE	REVISION	BY

WB PRESTRESSED CONCRETE GIRDER UNIT 1

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

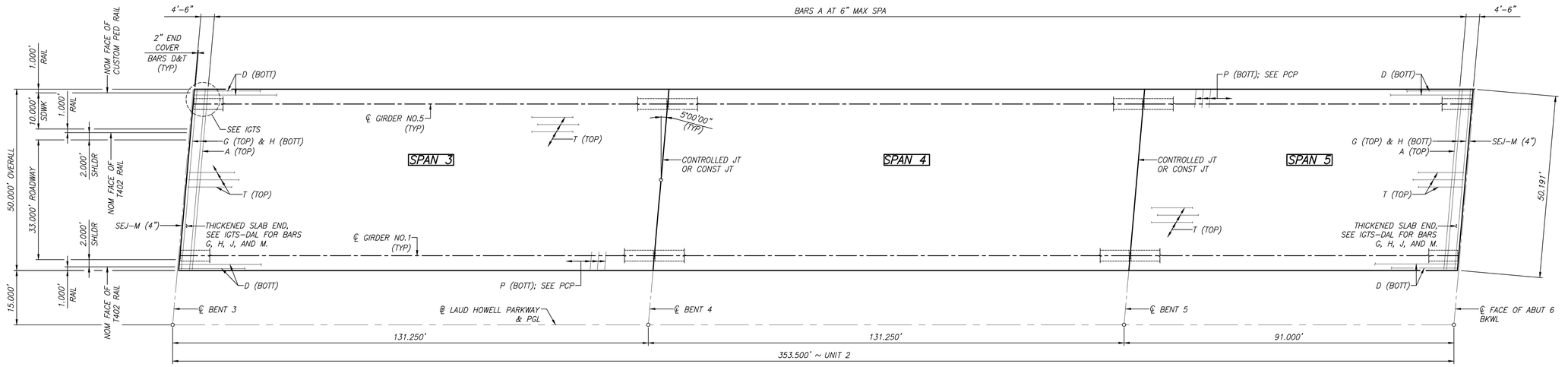
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
08 21 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: AS SHOWN
VERT: AS SHOWN
SHEET
B-21
OF B-55 SHEETS

Date\Time : Fri, 21 Aug 2026 - 2:40pm User Name : gthong
Path\Name : S:\NT-LAND\0285\400-ANG\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\21 WB PRESTRESSED CONCRETE GIRDER UNIT 1.dwg

GENERAL NOTES:

SEE SHEET 1 FOR GENERAL NOTES



PLAN

SCALE: 1"= 15'

1. QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE FRAMING PLAN SHEET FOR GIRDER LENGTHS.
2. FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 3.4 PSF.
3. THEORETICAL DIMENSIONS.
4. REFER TO IGMS-DAL STANDARD FOR CAST-IN-PLACE SLAB REINFORCING DETAILS.

TABLE OF ESTIMATED QUANTITIES

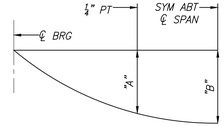
SPAN NO.	REINF CONC SLAB	PRESTRESSED CONC GIRDERS (Tx62) (1)	REINFORCING STEEL (SLAB) (2)
	SF	LF	LB
3	6,563	653.76	22,313
4	6,563	653.76	22,313
5	4,550	452.50	15,470
TOTAL	17,675	1,307.52	44,626

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ SPAN (3)
3, 4	1, 5	1'-0 1/4"	6'-2 1/4"	9 3/4"
	2-5			10"
5	1, 5			10"
	2-4			10 1/8"

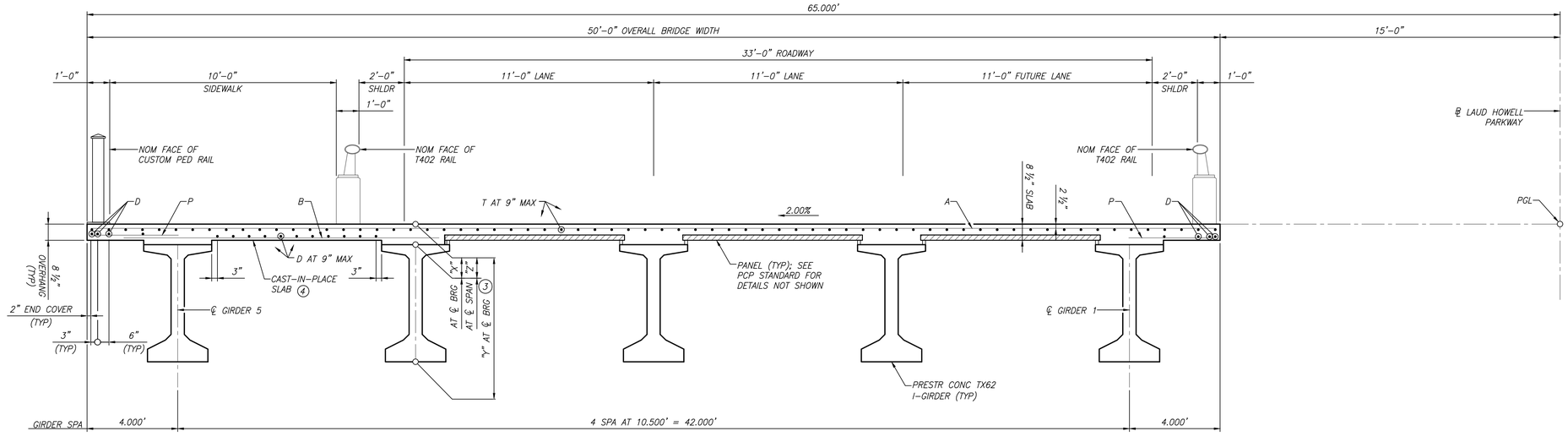
TABLE OF DEAD LOAD DEFLECTIONS

SPAN NO.	GIRDER NO.	"A" FT	"B" FT
3, 4	1, 5	0.156	0.222
	2-4	0.177	0.252
5	1, 5	0.035	0.050
	2-4	0.040	0.057



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PRESTRESSED CONCRETE PANELS AND CAST-IN-PLACE SLAB ONLY (Ec=5,000 ksi). ADJUST DEFLECTIONS BASED ON FIELD OBSERVATIONS AS NEEDED.



TYPICAL TRANSVERSE SECTION

SCALE: ⅜"=1'-0"

BAR TABLE

BAR	SIZE
A	#5
B	#4
D	#5
G	#5
H	#5
J	#5
M	#5
P	#4

HL93 LOADING

DATE	REVISION	BY

WB PRESTRESSED CONCRETE GIRDER UNIT 2

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
08 21 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE HORZ: AS SHOWN VERT: AS SHOWN
SHEET B-22
OF B-55 SHEETS

Date\Time : Fri, 21 Aug 2026 - 2:42pm User Name : gthong
Path\Name : S:\MK-Laud\0285\400-ANG\425 Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\WB PRESTRESSED CONCRETE GIRDER UNIT 2.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

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 STRENGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRENGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTTOM ℄) (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
LAUD HOWELL PARKWAY; HONEY CREEK WB BRIDGE	1-4	ALL	Tx62	*	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.468	-4.834	11769	0.759	1.000			
	5	ALL	Tx62		42	0.6	270	23.78	16.49	6	57.5	6.000	8.500	2.197	-2.514	8708	0.840	0.985			

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER
*	2.5(ABCDEFG), 4.5(ABCDEFG), 6.5(ABCDEFG), 8.5(ABCD), 10.5(A), 12.5(A)

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = 0.24 $\sqrt{f'ci}$

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 __ 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 Δ. Double wrap full-length debonded strands in outer most position of each row.

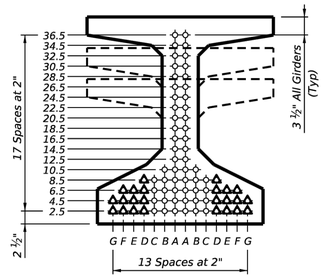
When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.

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.

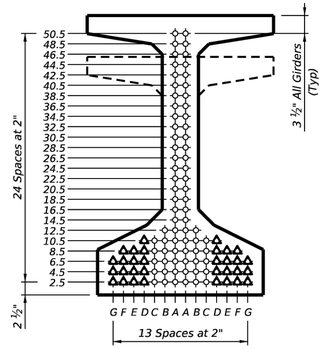
DEPRESSED STRAND DESIGNS:

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.

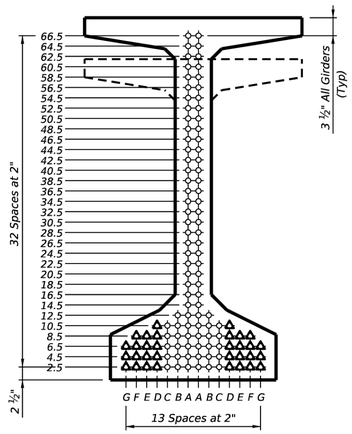
To complete this sheet input the girder designs in the table and the relative humidity under Design Notes. In all cases, remove this block. This sheet must be signed, sealed, and dated by a registered Professional Engineer.



TYPE Tx28, Tx34 & Tx40



TYPE Tx46 & Tx54



TYPE Tx62 & Tx70

DATE:
FILE:

HL93 LOADING

DATE	REVISION	BY

WB BRIDGE
PRESTRESSED CONCRETE
I–GIRDER DESIGNS

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DESIGNS
(NON-STANDARD SPANS)

IGND

FILE: IG-IGND-22 WB.dgn	DN: TxDOT	CK: TxDOT	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Modified for depressed strands only 03-22: Added load rating	DIST	COUNTY		SHEET NO.

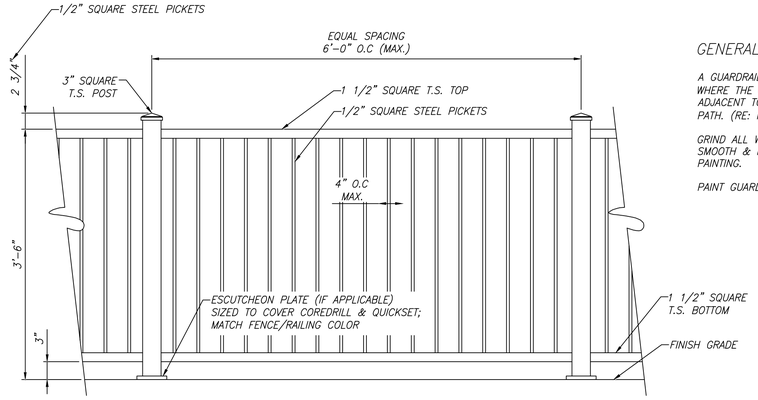
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F–0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NC
SCALE
HORZ: NTS
VERT: NTS
SHEET
B–23
OF B–55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 — 12:23pm\User Name : gshong
Path\Name : S:\WR-Jobs\0285\400s\0425\Design Files\Laud Howell Parkway\Structures\Sheets\WESTBOUND BRIDGE\23_PRESTRESSED CONCRETE I–GIRDER DESIGNS.dwg

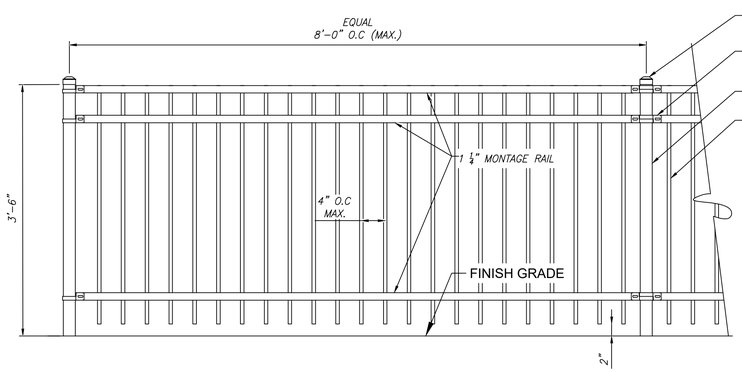


GENERAL NOTES:

A GUARDRAIL (≥42" HT.) IS REQUIRED WHERE THE GRADE DROP IS ≥30" ADJACENT TO PEDESTRIAN SIDEWALK OR PATH. (RE: PLANS FOR LOCATIONS)

GRIND ALL WELDS & SHARP EDGES SMOOTH & REMOVE RUST PRIOR TO PAINTING.

PAINT GUARDRAIL SEMI-GLOSS BLACK.



ELEVATION
SCALE: 1"=1'-0"

GENERAL NOTES:

RAILING TO BE AMERISTAR MONTAGE PLUS WITH MAJESTIC STYLE. (3 HORIZONTAL RAILS, NO FINALS)

RE: MATERIALS LEGEND/L1.00

GRIND ALL WELDS & SHARP EDGES SMOOTH & REMOVE RUST PRIOR TO PAINTING. PAINT GUARDRAIL SEMI-GLOSS BLACK.

HL93 LOADING

DATE	REVISION	BY

42" RAILING W/ THICKENED CONCRETE EDGE

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

PRELIMINARY

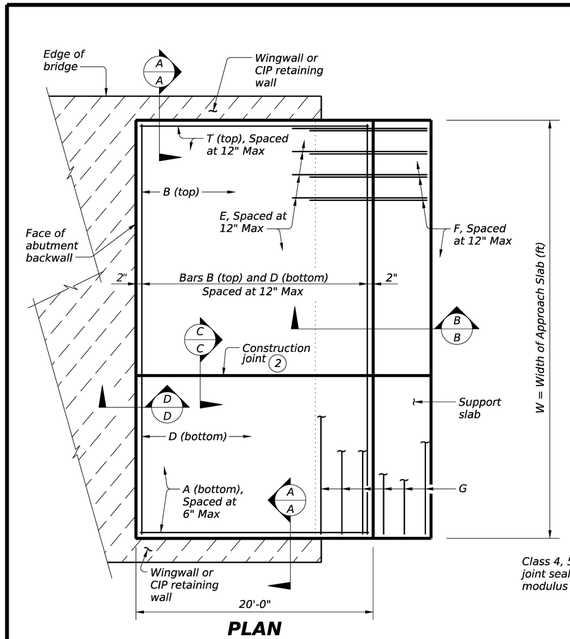
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF RONALD SALAMIE, TEXAS P.E.#82073 ON: 08/21/2026
THIS DOCUMENT IS NOT TO BE USED FOR THE PURPOSES OF CONSTRUCTION.

LJA PROJECT ID	NT852F-0285
DATE:	JULY 2026
DESIGN:	EH
DRAWN:	NC
SCALE	
HORZ:	AS SHOWN
VERT:	AS SHOWN
SHEET	B-24
OF	B-55 SHEETS

Date\Time : Thu, 20 Aug, 2026 - 12:24pm\User Name : gzhong
Path\Name : S:\NTX-LJA\0285\4084\NO285 Design Files\Laud Howell Parkway\Structures\Sheets\24 42in RAILING WITH THICKENED CONCRETE EDGE.dwg

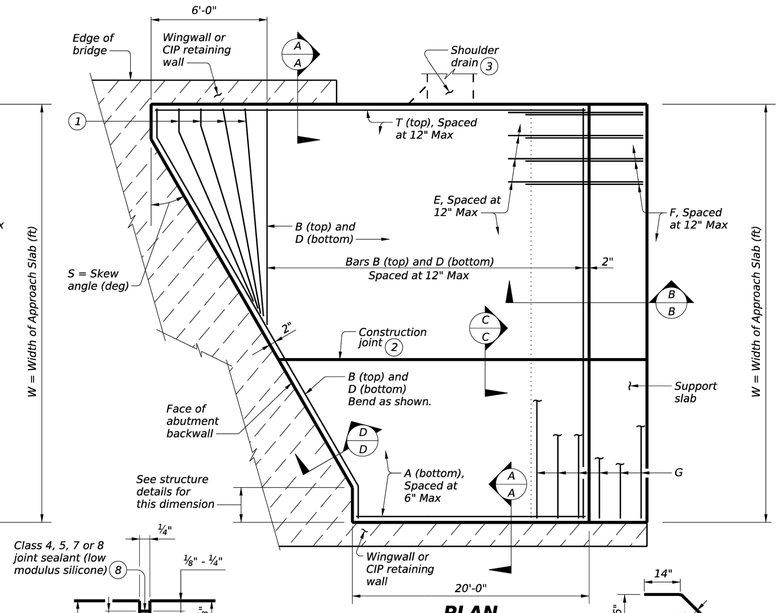
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



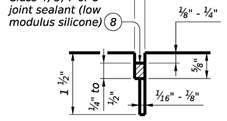
PLAN

(Showing non-skewed approach slab.)

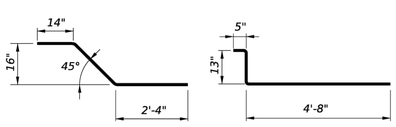


PLAN

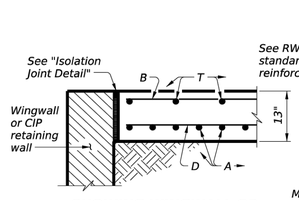
(Showing skewed approach slab.)



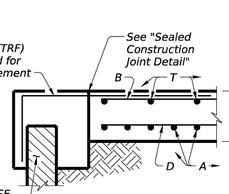
LONGITUDINAL SAW CUT JOINT DETAIL



BARS E (#5) **BARS F (#5)**

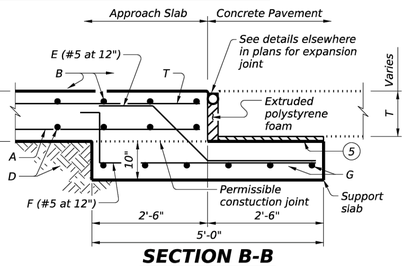


SHOWING WINGWALL OR CIP RETAINING WALL

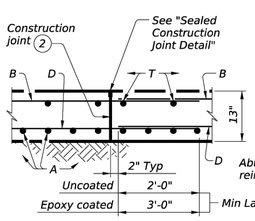


SHOWING MSE WALL

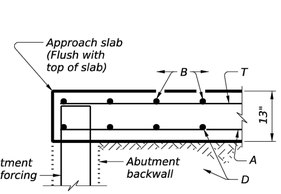
SECTION A-A



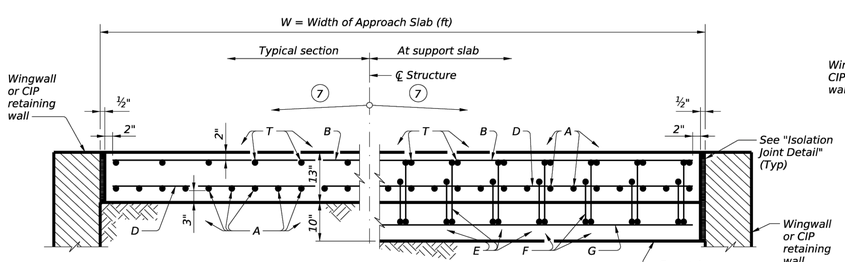
SECTION B-B



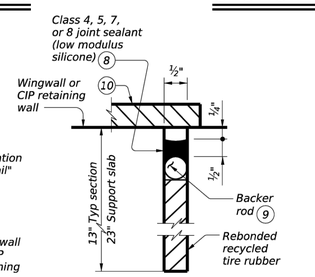
SECTION C-C 6



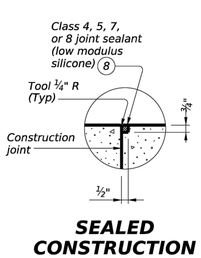
SECTION D-D



TRANSVERSE SECTION



ISOLATION JOINT DETAIL



SEALED CONSTRUCTION JOINT DETAIL

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 spacing, 3" Min spacing). 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. Place two layers 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.

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.

Texas Department of Transportation

Bridge Division Standard

BRIDGE APPROACH SLAB
CONCRETE PAVEMENT

BAS-C

FILE: MS-BAS-C-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

BRIDGE APPROACH SLAB

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID
NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

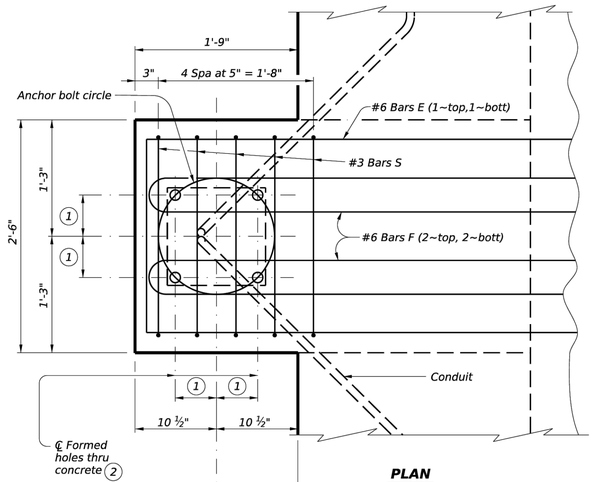
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

SHEET
B-25
OF B-55 SHEETS

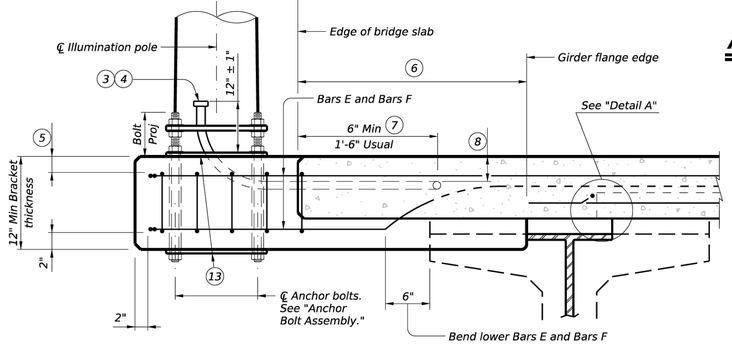
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:25pm\User Name : jgtong
Path\Name : S:\NTX-LJA0-02\BS\CAD\CAD\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\25 BRIDGE APPROACH SLAB.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



PLAN



ELEVATION

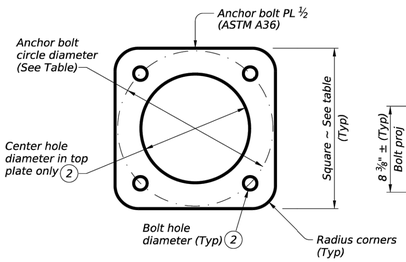
(Structures with overhanging slabs)

TABLE OF ANCHOR BOLT AND ANCHOR BOLT PLATE INFORMATION

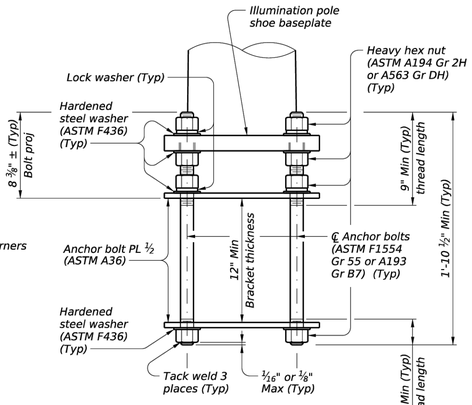
Anchor Bolt Circle Diameter	Anchor Bolt Offset	Anchor Bolt Diameter	Anchor Bolt Hole Size		Top And Bottom Anchor Bolt Plate Size	Center Hole Diameter In Top Anchor Bolt Plate
			Concrete	Steel		
IN	IN	IN	IN	IN	IN	IN
13	4 5/8	1	1 ¼	1 ¼	PL ½ X 13 X 1'-1"	9 ½
15	5 5/16	1 ¼	1 ½	1 ½	PL ½ X 15 ½ X 1'-3 ½"	10 ½

ESTIMATED QUANTITIES
(ONE BRACKET)

Item		Unit	Quantity
CONCRETE	(9) (10)	CY	0.2
REINFORCING STEEL	(10)	LB	146
STRUCTURAL STEEL	(10) (11)	LB	112
CONDUIT	(12)	LF	4

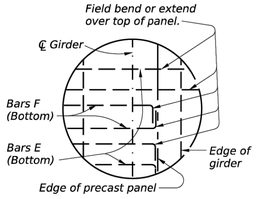


ANCHOR BOLT PLATE



ANCHOR BOLT ASSEMBLY

(See Table for anchor bolt diameter)



DETAIL A

1. See Table for anchor bolt offset dimension.
2. See Table for hole diameter size.
3. If lighting is to be placed on future contract, extend conduit only 6" and provide water tight cap.
4. Ream burrs and install bell ends or bushings on all conduit ends.
5. Provide same clear cover required for bridge slab. Place Bars E and F beneath top slab reinforcing only if necessary to provide this cover.
6. If slab edge to girder flange edge exceeds 3'-11", lengthen Bars E and F proportionally to ensure Bars E and F extend 1'-6" minimum beyond girder flange edge.
7. Clear rail anchors, drains, etc 1½" minimum.
8. 1½" Minimum cover placed beneath top layer slab reinforcing.
9. Variation due to slab thickness is insignificant.
10. For Contractor's information only.
11. Anchor bolts, nuts, washers, and 2 plates. Verify anchor bolt lengths prior to ordering.
12. Additional to main run (size and type as shown elsewhere on the plans).
13. See Anchor Bolt Assembly, Anchor Bolt Plate, and Table for anchor bolt and anchor bolt plate information.

MATERIAL NOTES:

Galvanize anchor bolts, nuts, washers, and anchor bolt plates. Repair galvanizing damage from tack welding per Item 445, "Galvanizing."

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Concrete for illumination pole brackets must be of the same type and placed monolithically with the bridge slab. The bracket quantity is considered subsidiary to the Item "Reinforced Concrete Slab."

GENERAL NOTES:

Designed for up to 50 ft light pole with one 12 ft arm, 60 lb luminaire with 1.6 sq ft EPA at maximum design wind speed of 110 mph (3 second gusts). A special design is required if luminaire mounting height exceeds 100 ft above average surrounding terrain.

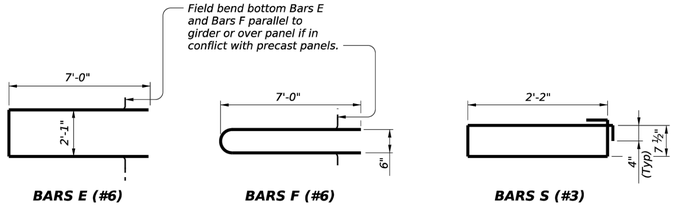
The anchor bolts, nuts, washers, and anchor bolt plates are subsidiary to the Item "Roadway Illumination Assemblies."

The type and size of conduit, the anchor bolt circle diameter, and the number and location of brackets is shown elsewhere on the plans. Brackets found to conflict with other components of the bridge may be relocated as necessary.

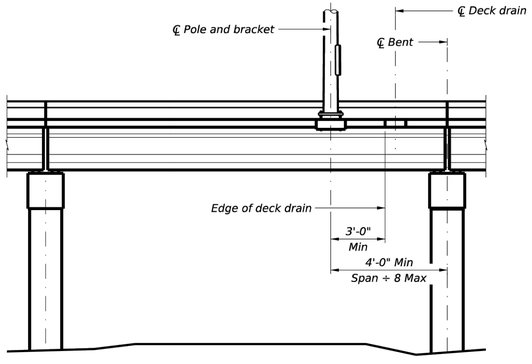
See Roadway Illumination Poles standard for details and notes not shown.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

ILLUMINATION POLE BRACKET LOCATION AND REINFORCING



BARS E (#6) **BARS F (#6)** **BARS S (#3)**



TYPICAL BRIDGE ELEVATION

DATE:
FILE:

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

BRIDGE LIGHTING DETAILS
DECK BLISTER

BL-D

FILE: MS-BL-D-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2025	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

BRIDGE LIGHTING DETAILS

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

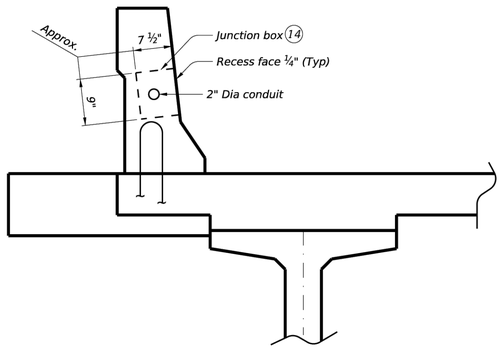
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET B-26
OF B-55 SHEETS

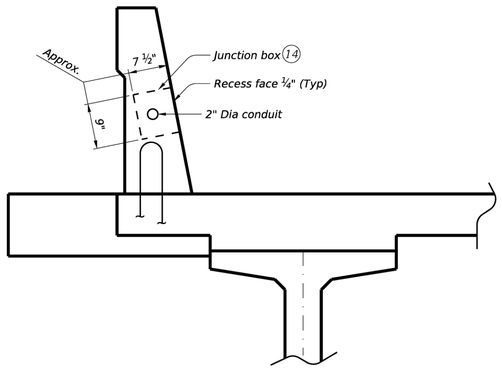
Date\Time : Thu, 20 Aug 2026 – 12:25pm\User Name : gchong
Path\Name : S:\KFA-LAN\0285\400LAN\025 Design Files\Laud Howell Parkway\Structures\TxDOT STD\26 BRIDGE LIGHTING DETAILS_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

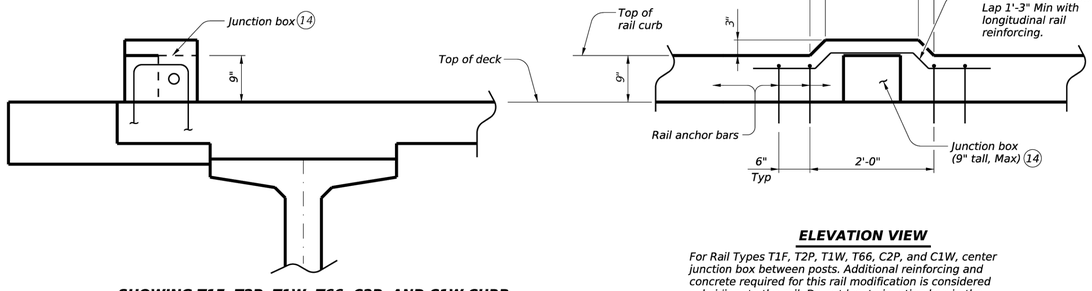
DATE:
FILE:



SHOWING T551, T552, AND T80HT



SHOWING SSTR AND T80SS



SHOWING T1F, T2P, T1W, T66, C2P, AND C1W CURB

See Elevation View for curb modifications

ELEVATION VIEW

For Rail Types T1F, T2P, T1W, T66, C2P, and C1W, center junction box between posts. Additional reinforcing and concrete required for this rail modification is considered subsidiary to the rail. Do not locate junction box in the same bay as a drain slot in rail curb.

JUNCTION BOX LOCATION

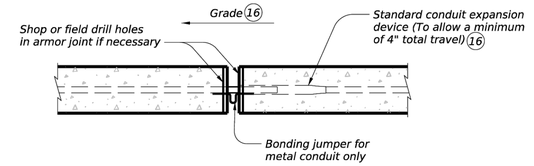
Use these details as a guide in locating junction boxes in rail types not shown.

(4) *Ream burrs and install bell ends or bushings on all conduit ends.*

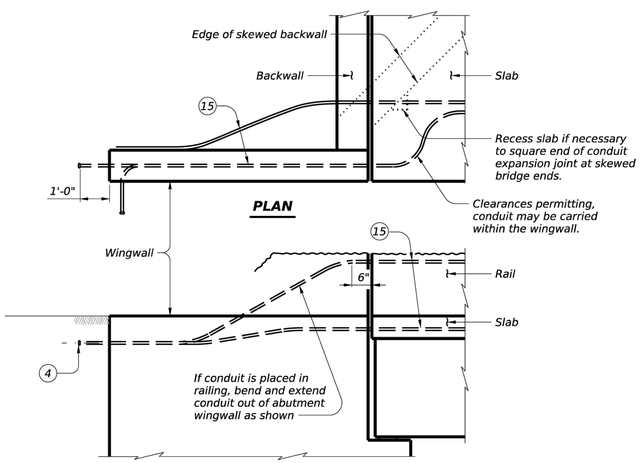
(14) *Provide polymer concrete junction boxes meeting the requirements of DMS 11030.*

(15) *Position of conduit shown elsewhere on the plans or as directed by the Engineer.*

(16) *Place conduit expansion device on high side of expansion joint.*



CONDUIT EXPANSION JOINT



PLAN

ELEVATION

TREATMENT AT END OF BRIDGE

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

BRIDGE LIGHTING DETAILS
DECK BLISTER

BL-D

FILE: MS-BL-D-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2025	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

BRIDGE LIGHTING DETAILS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

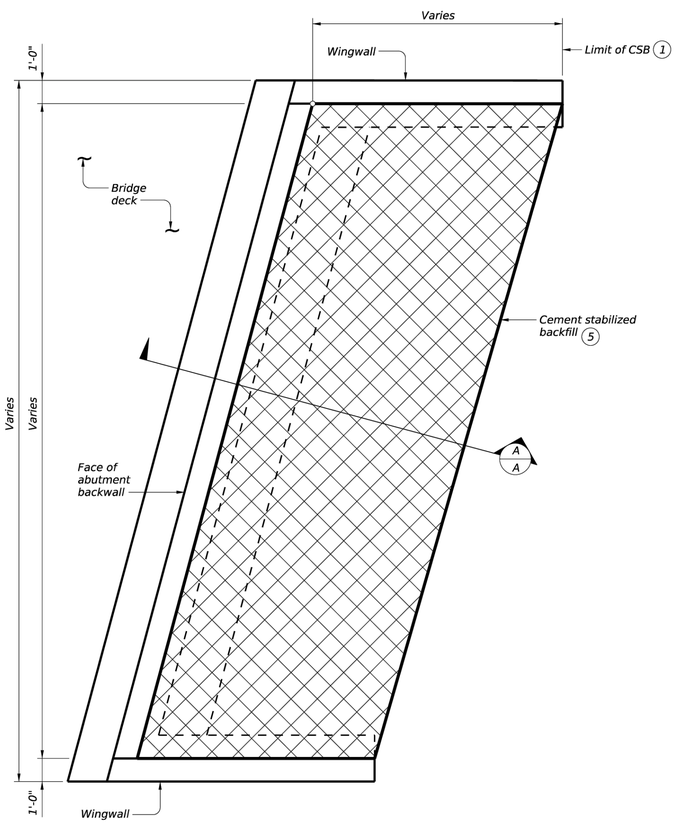
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET B-27
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 — 12:26pmUser Name : gzhong
Path\Name : S:\NT-LJA02\Q285\A400\A0\V25 Design Files\Laud Howell Parkway\Structures\TxDOT STD\27 BRIDGE LIGHTING DETAILS_2.dwg

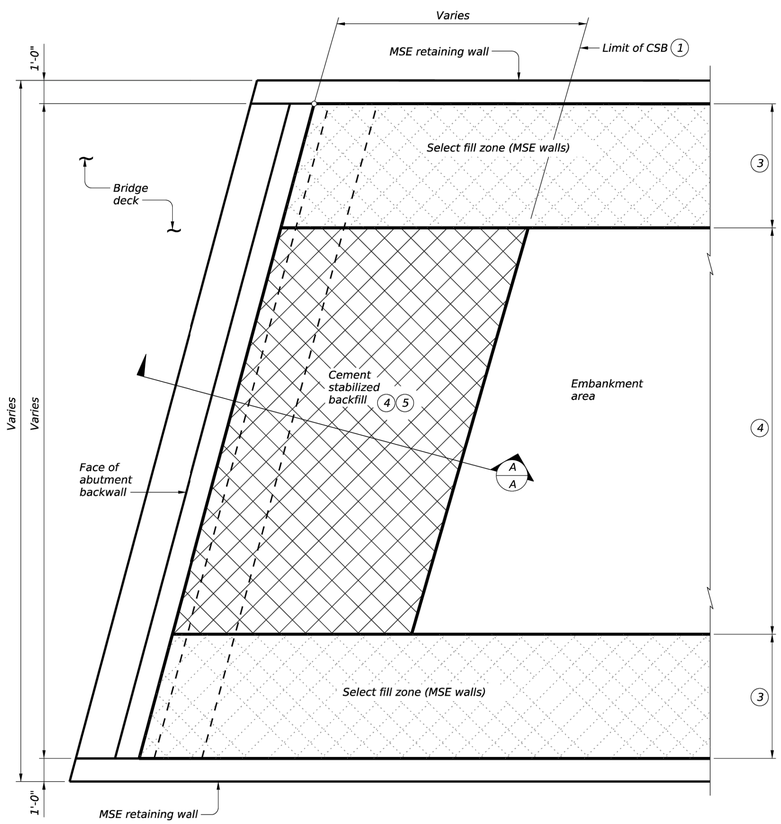
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

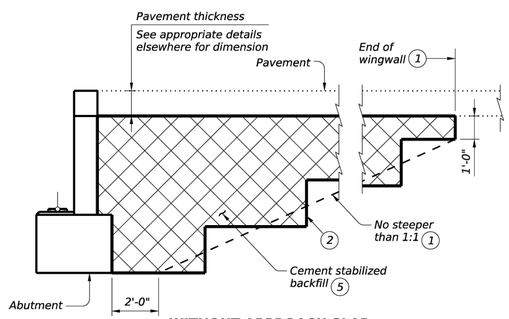


OPTION 1 ~ PLAN WITH WINGWALLS

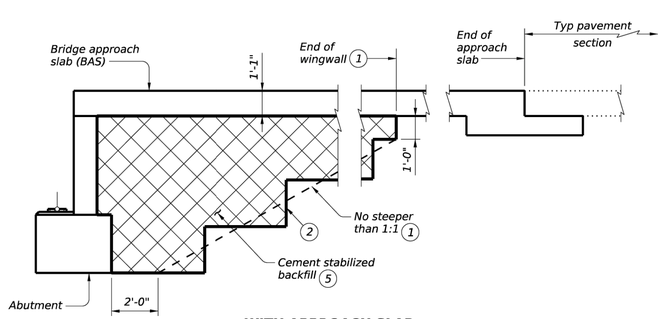
Cast-in-place retaining walls similar.



OPTION 1 ~ PLAN WITH MSE RETAINING WALLS



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION A-A

(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 1 is intended for construction only requiring plasticity index (PI) controlled embankment fill or excavation in competent soils/rocks in order to construct the abutment. Option 2 is intended for new construction requiring high plasticity embankment fill with a PI greater than 30 or pavement built in poor native soil. Poor soils are defined as high plasticity clays or expansive clays.

Construct abutment backfill in accordance with Item 400, "Excavation and Backfill for Structures."

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.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL
BRIDGE ABUTMENTS

CSAB

FILE: MS-CSAB-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

CEMENT STABILIZED ABUTMENT BACKFILL

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

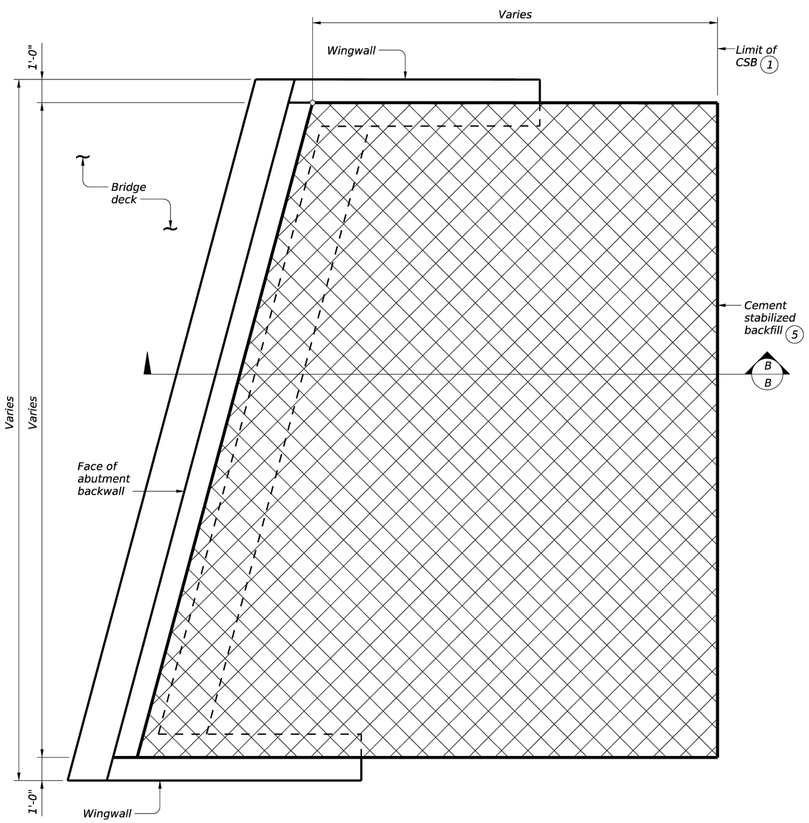
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET
B-28
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 – 12:26pm\User Name : gthong
Path\Name : S:\NTP_LAN\0285\400\400-05\Design Files\Laud Howell Parkway\Structures\TxDOT STD\28 CEMENT STABILIZED ABUTMENT BACKFILL_1.dwg

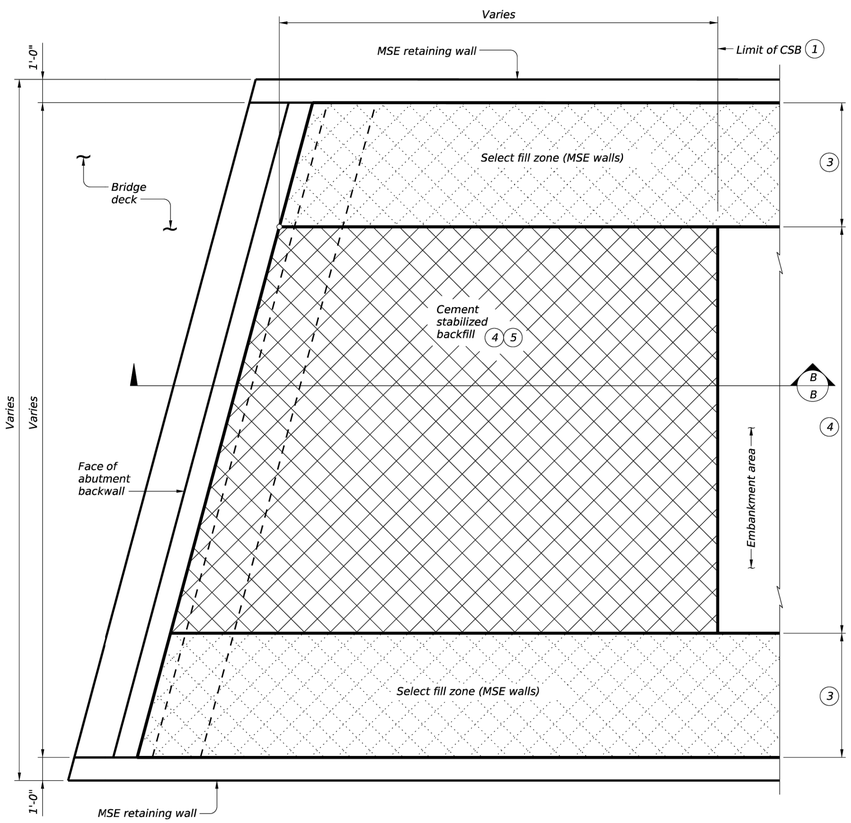
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

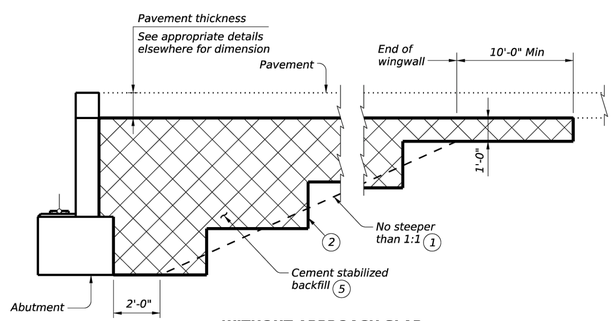


OPTION 2 ~ PLAN WITH WINGWALLS

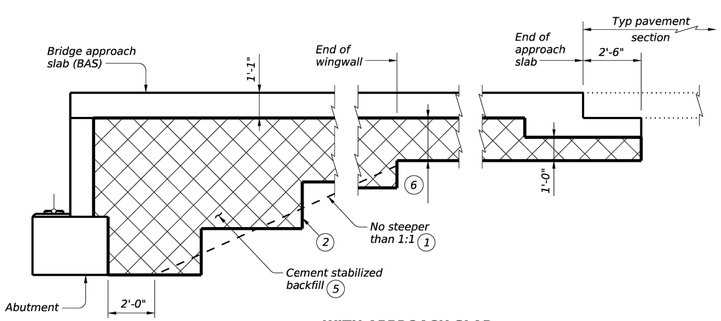
Cast-in-place retaining walls similar.



OPTION 2 ~ PLAN WITH MSE RETAINING WALLS



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION B-B

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).
6. 1'-0" for BAS-A
   1'-10" for BAS-C

SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL
BRIDGE ABUTMENTS

CSAB

FILE: MS-CSAB-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

CEMENT STABILIZED ABUTMENT BACKFILL

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285

DATE: JULY 2026

DESIGN: EH

DRAWN: MS

SCALE
HORZ:
VERT:

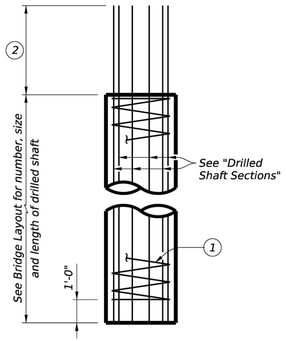
SHEET
B-29
OF B-55 SHEETS

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

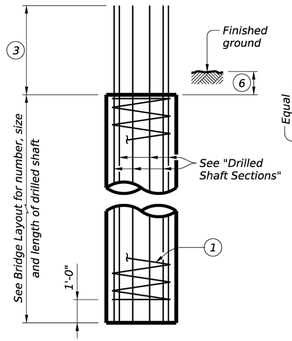
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:28pm\User Name : gshong
Path\Name : S:\TPP-LJA\0285\NOD\NOD\Design Files\Laud Howell Parkway\Structures\TxDOT STD\29_CEMENT STABILIZED ABUTMENT BACKFILL_2.dwg

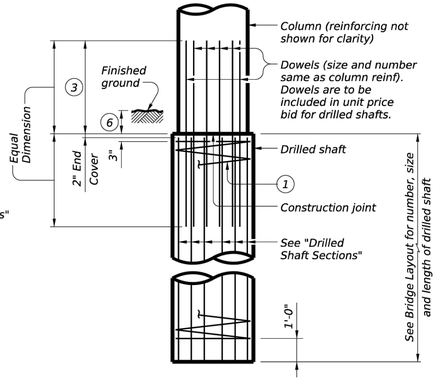
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



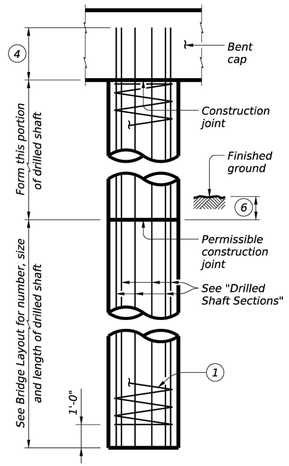
ABUTMENTS, WINGWALLS AND MULTI-DRILLED SHAFT FOOTINGS



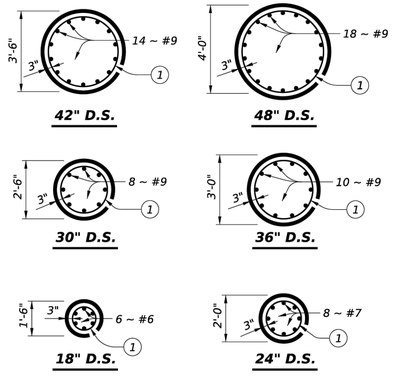
INTERIOR BENTS DRILLED SHAFT DIA EQUAL TO COLUMN DIA



INTERIOR BENTS DRILLED SHAFT DIA GREATER THAN COLUMN DIA



OPTIONAL INTERIOR BENT DRILLED SHAFT DETAIL (5)



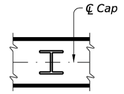
DRILLED SHAFT SECTIONS

DRILLED SHAFT DETAILS

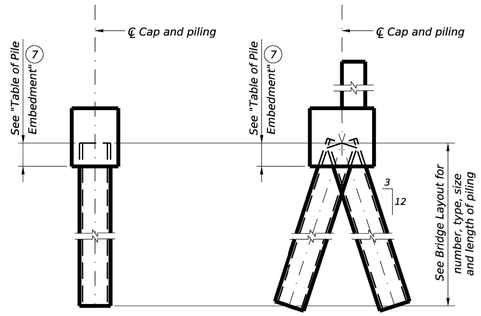
TABLE OF PILE EMBEDMENT

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.



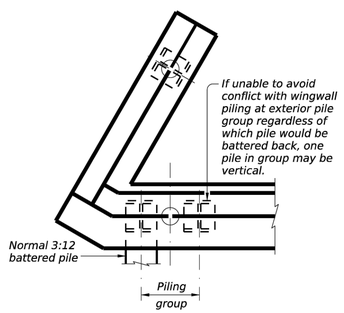
ORIENTATION OF STEEL H-PILING



VERTICAL PILE **BATTERED PILE**

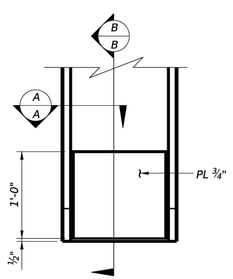
PILING DETAILS

(Concrete or steel H)

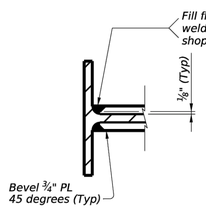


DETAIL A

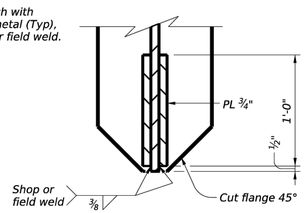
(Showing plan view of a 30° skewed abutment)



ELEVATION



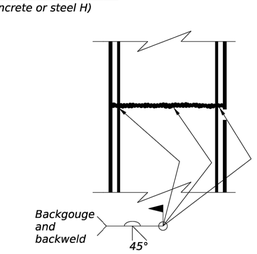
SECTION A-A



SECTION B-B

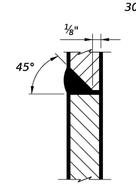
STEEL H-PILE TIP REINFORCEMENT

See Item 407, "Steel Piling" to determine when tip reinforcement is required and for options to the details shown.



STEEL H-PILE SPLICE DETAIL

Use when required.



SECTION THRU FLANGE OR WEB

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.

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: MS-FD-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
FILE:

LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

COMMON FOUNDATION DETAILS

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER

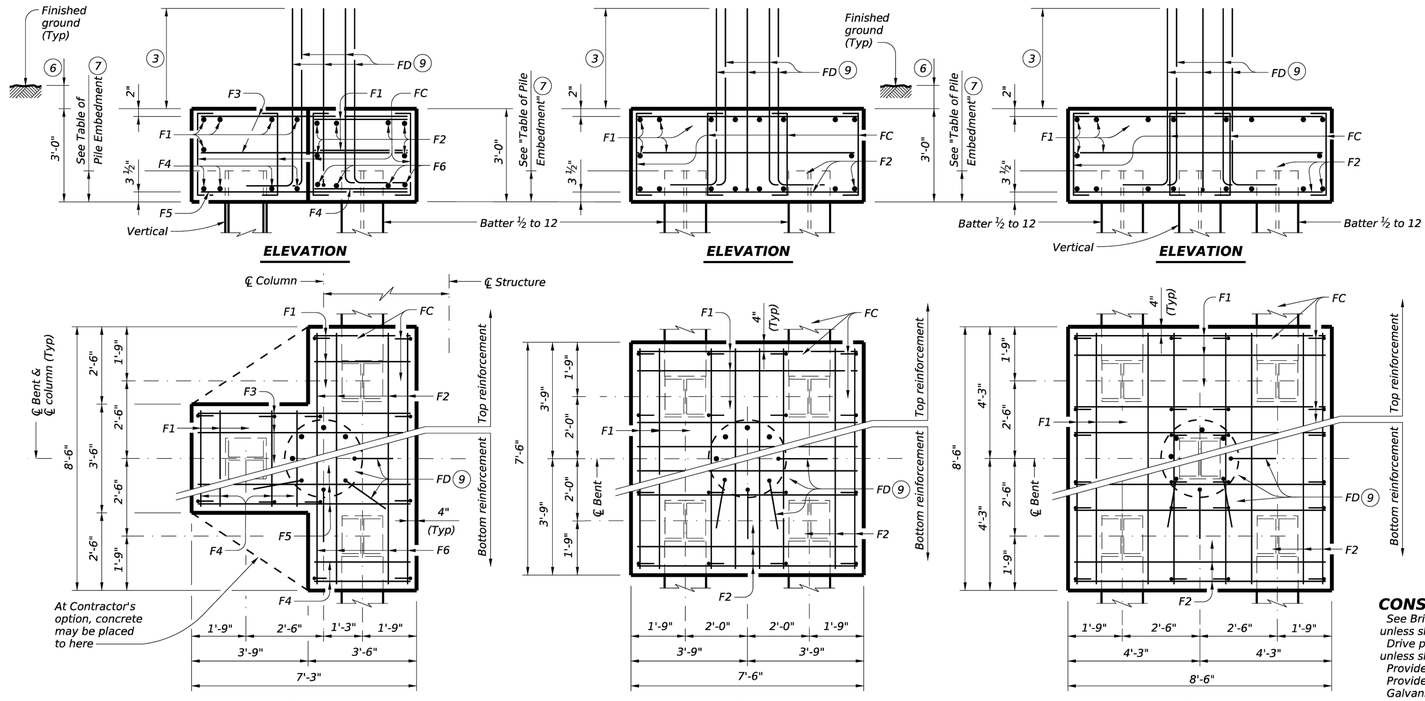
07 17 2026

SHEET B-30 OF B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:28pm User Name : gthong
Path\Name : S:\TPP-CAD\CAD\Laud Howell Parkway\Structures\TxDOT STD\30 COMMON FOUNDATION DETAILS_1.dwg
Design Files\Laud Howell Parkway\Structures\TxDOT STD\25

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



THREE PILE FOOTING (8)

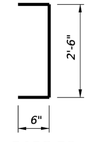
For 36" Dia and smaller columns.

FOUR PILE FOOTING (8)

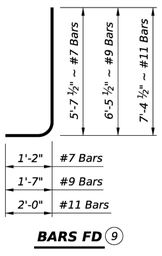
For 42" Dia and smaller columns.

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

SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: MS-FD-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

COMMON FOUNDATION DETAILS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: MS

SCALE
HORZ:
VERT:

SHEET
B-31
OF B-55 SHEETS

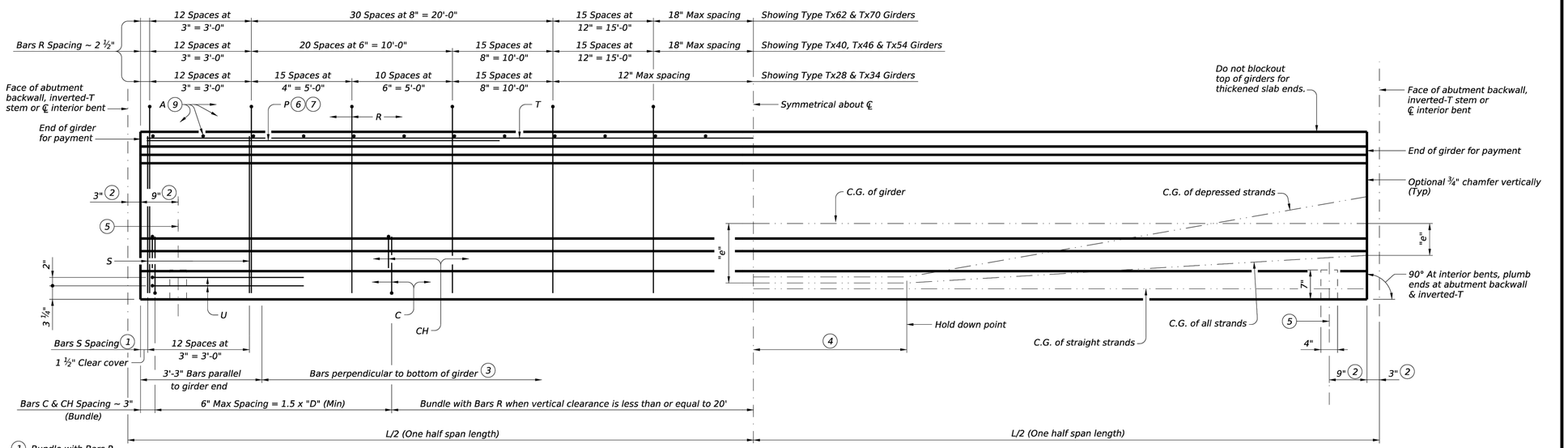
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug, 2026 - 12:29pm\User Name : gzhong
File\Name : S:\WX-LJA\0285\400\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\31 COMMON FOUNDATION DETAILS_2.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



GIRDER ELEVATION

(1) Bundle with Bars R.

(2) Measured along ℄ Girder at interior bents; perpendicular to abutment backwall 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 ⅜") at base. If holes are formed with sheet metal, forms may be left in place.

(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.

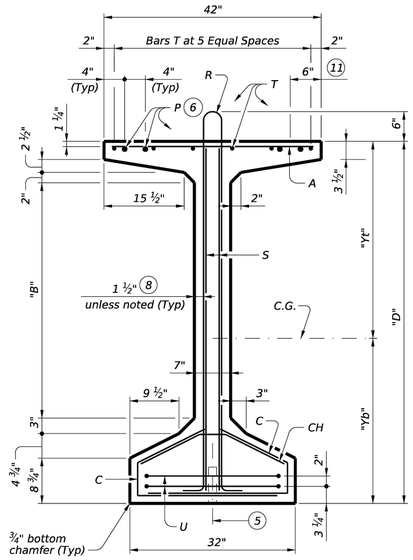
(7) Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the Fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

(8) 1 ⅜" Clear Cover to Bars S.

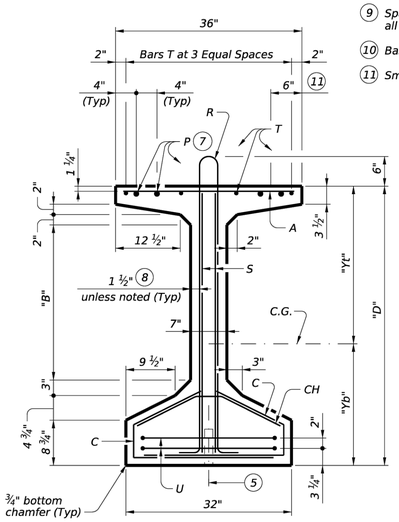
(9) Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes."

(10) Based on 155 pcf total weight of concrete and reinforcing steel.

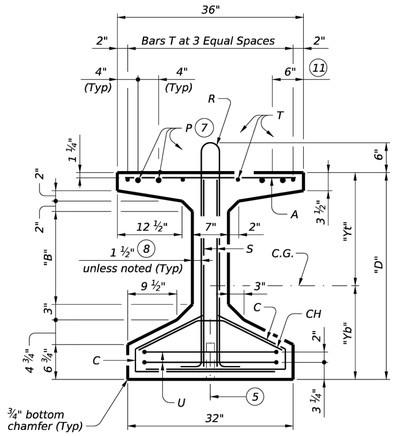
(11) Smooth trowel finish on the slab overhang side of exterior girder.



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.
When vertical clearance of the span is less than or equal to 20', provide additional Bars C and CH in every girder of that span.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING **SHEET 1 OF 2**

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: IG-IGD-23.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' 3-23: Clarified C and CH requirement	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONCRETE I-GIRDER DETAILS

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

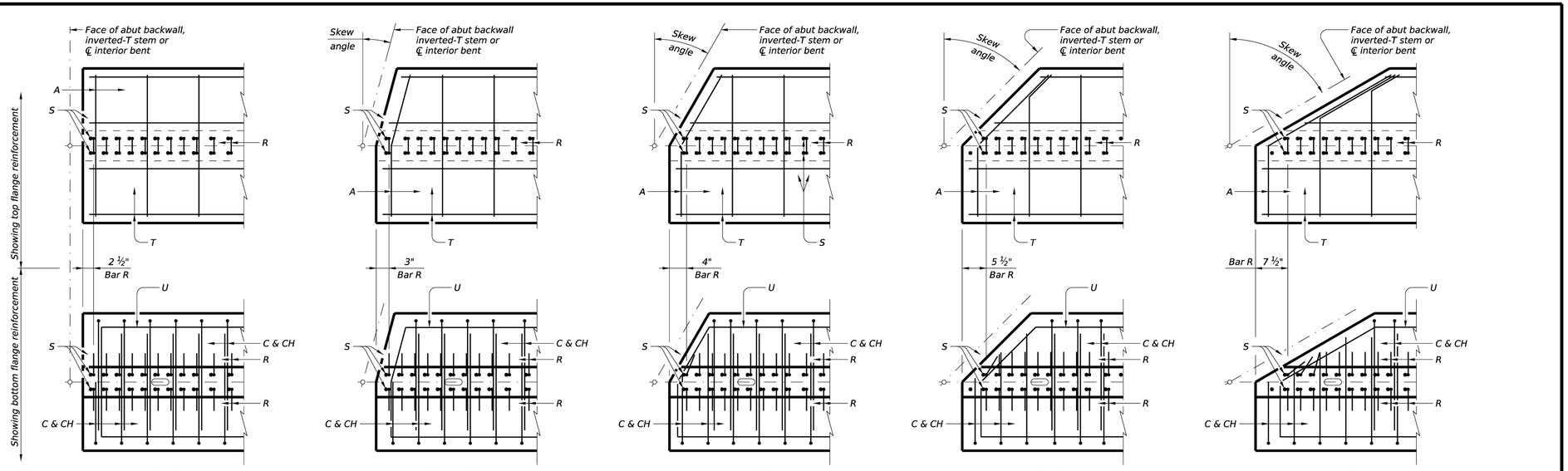
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET
B-32
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:29pm User Name : gzhong
Path\Name : S:\MT-LJA\Q2801\4000\400LAN\725 Design Files\Laud Howell Parkway\Structures\TxDOT STD\32 PRESTRESSED CONCRETE I-GIRDER DETAILS_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

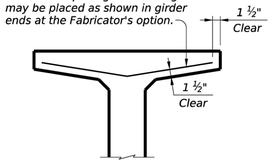
DATE:
FILE:



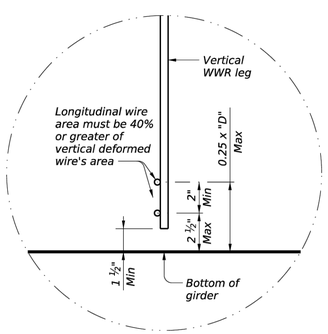
0° SKEW **15° SKEW** **30° SKEW** **45° SKEW** **60° SKEW**

PLAN OF GIRDER ENDS (12)

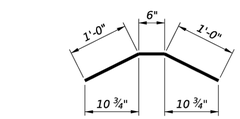
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



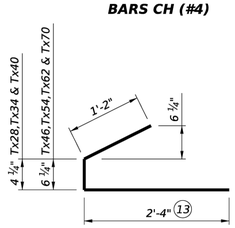
OPTIONAL TOP FLANGE REINFORCING DETAIL



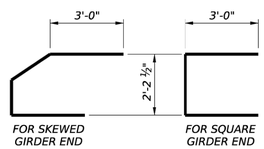
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



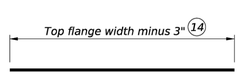
BARS CH (#4)



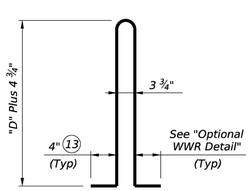
BARS C (#4)



BARS U (#5)



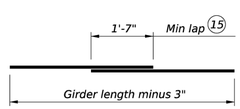
BARS A (#3)



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 **SHEET 2 OF 2**

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: IG-IGD-23.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' 3-23: Clarified C and CH requirement	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONCRETE I-GIRDER DETAILS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

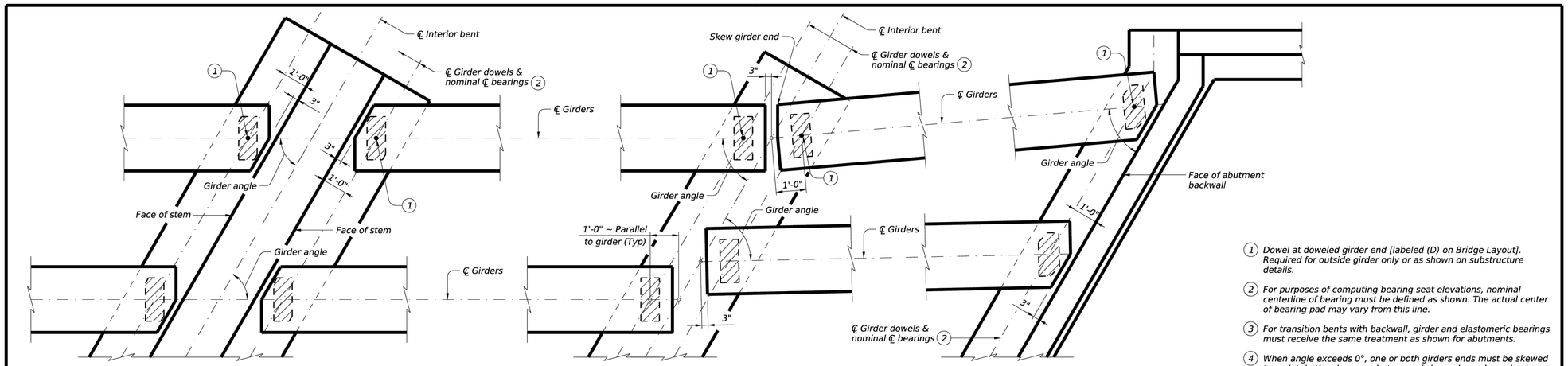
SHEET B-33
OF B-55 SHEETS

LAUD HOWELL PARKWAY

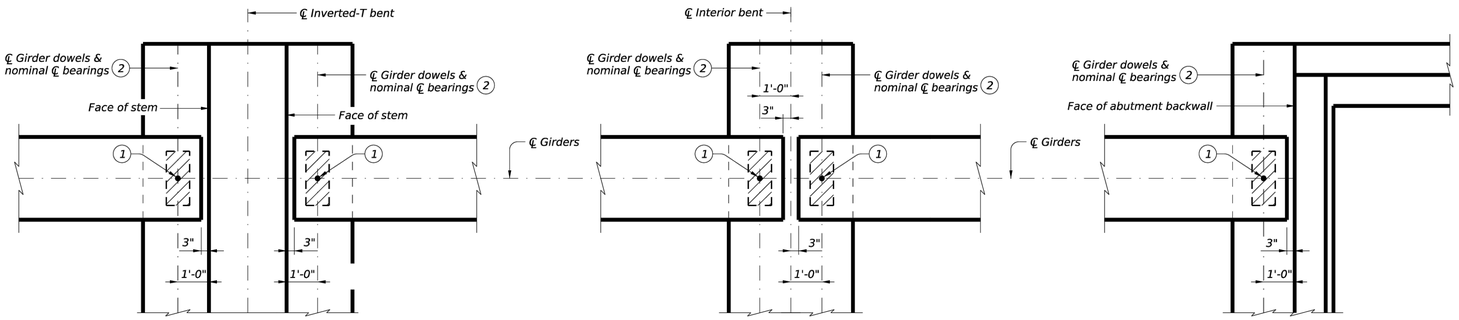
Date\Time : Thu, 20 Aug 2026 — 12:30pm User Name : gthong
Path\Name : S:\NTP_LAND\0285\LAND\0285 Design Files\Laud Howell Parkway\Structures\TxDOT STD\33_PRESTRESSED CONCRETE I-GIRDER DETAILS_2.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

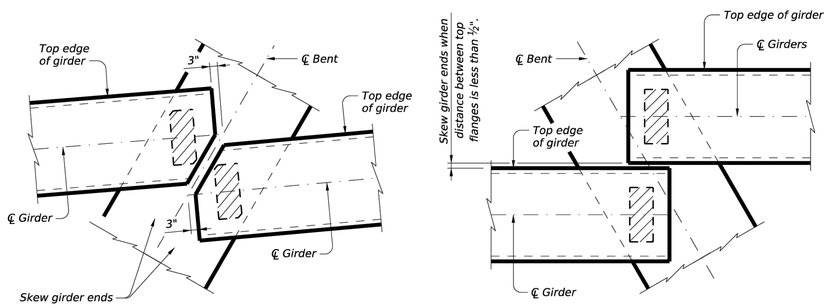


INVERTED-T BENT WITH SKEW | **CONVENTIONAL INTERIOR BENT WITH SKEW** | **ABUTMENT WITH SKEW** 3



INVERTED-T BENT | **CONVENTIONAL INTERIOR BENT** | **ABUTMENT** 3

GIRDER END DETAILS



GIRDER CONFLICT DETAILS

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.

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 **SHEET 1 OF 3**

Texas Department of Transportation — Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

FILE: IG-IGEB-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

ELASTOMERIC BEARING AND GIRDER END DETAILS
SHEET 1 OF 3

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

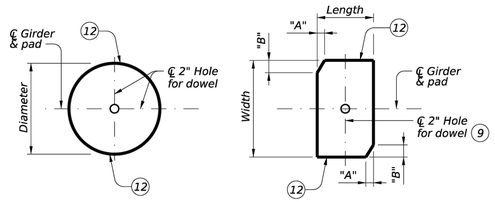
LAWRENCE DELK 157744 LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET B-34
OF B-55 SHEETS

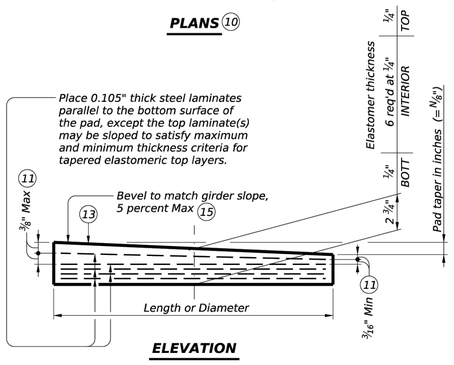
Date\Time : Thu, 20 Aug 2026 - 12:30pm\User Name : gzhong
Path\Name : S:\TX-DOT\0285\400-425\Design Files\Laud Howell Parkway\Structures\TxDOT STD\34 ELASTOMERIC BEARING AND GIRDER END DETAILS_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



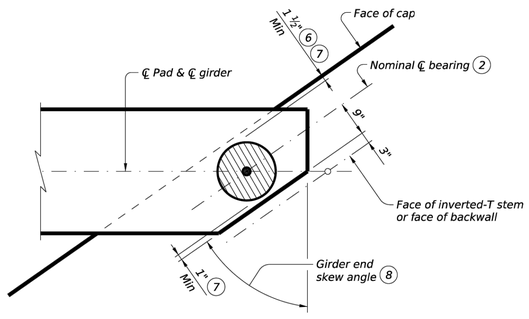
PLANS (10)



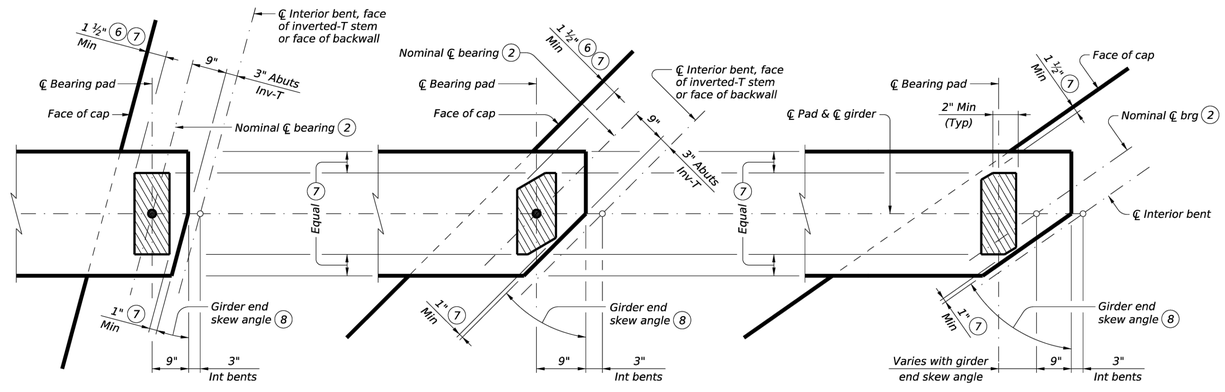
ELEVATION

LAMINATED ELASTOMERIC BEARING PAD

(50 DUROMETER)



ROUND BEARINGS FOR SKEWED GIRDER ENDS AT FACE OF INVERTED-T STEM OR FACE OF BACKWALL



SKEWED GIRDER ENDS AT INTERIOR BENTS, FACE OF INVERTED-T STEM OR FACE OF BACKWALL

SKEWED GIRDER ENDS AT CONVENTIONAL INTERIOR BENTS (16)

(NO GIRDER DOWELS)

BEARING PAD PLACEMENT DIAGRAMS

TABLE OF MINIMUM SUBSTRUCTURE DIMENSIONS (14)

Girder Type	Abutments	Interior Bents	Inv-T Bents
	Face of Backwall 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 Length x Width	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: IG-IGEB-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

ELASTOMERIC BEARING AND GIRDER END DETAILS

SHEET 2 OF 3

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

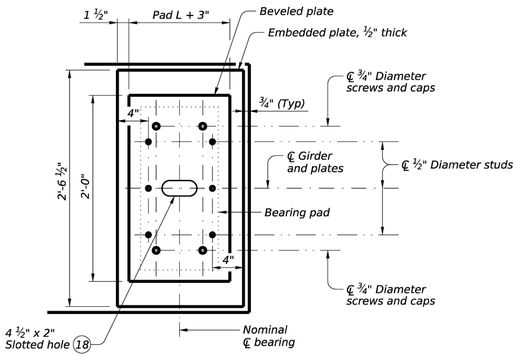
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET
B-35
OF B-55 SHEETS

LAUD HOWELL PARKWAY

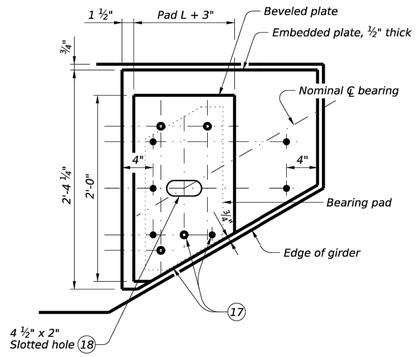
Date\Time : Thu, 20 Aug 2026 — 12:31pm\ser Name : gshong
Path\Name : S:\VER-LAN\0285\400LAN\0285_400LAN_Design Files\Laud Howell Parkway\Structures\TxDOT STD\35 ELASTOMERIC BEARING AND GIRDER END DETAILS_2.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

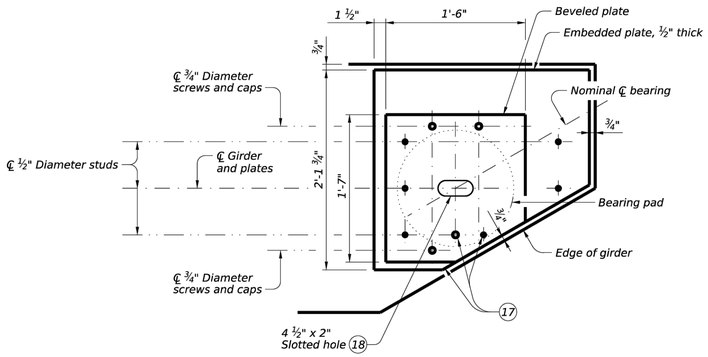
DATE:
FILE:



NORMAL GIRDER END
RECTANGULAR BEARING PAD

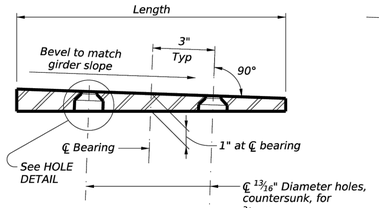


SKEWED GIRDER END
CLIPPED RECTANGULAR BEARING PAD

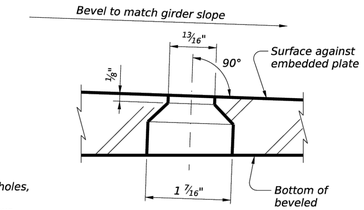


SKEWED GIRDER END
15" DIAMETER BEARING PAD

PLAN VIEW OF SOLE PLATE DETAILS



SECTION

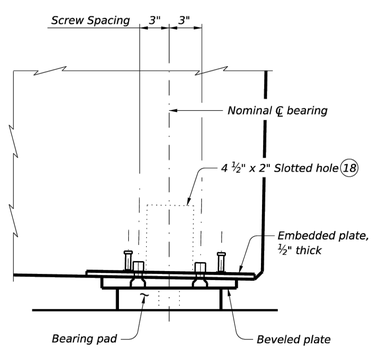


HOLE DETAIL

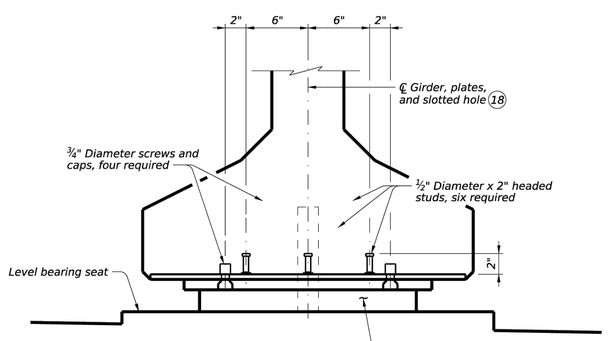
BEVELED PLATE DETAILS

(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.*



SIDE ELEVATION



END ELEVATION
Showing normal girder end.

GIRDER DETAILS

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, "Precast Concrete Structural Members (Fabrication)" 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" Diameter 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.

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: IG-IGEB-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

ELASTOMERIC BEARING AND GIRDER END DETAILS
SHEET 3 OF 3

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

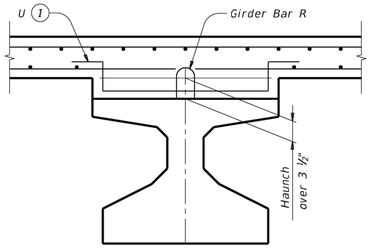
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET
B-36
OF B-55 SHEETS

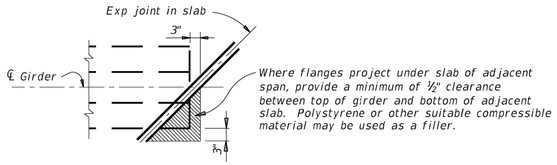
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:31pm\User Name : gzhong
Path\Name : S:\TX-LJA\0285\400\425 Design Files\Loud Howell Parkway\Structures\TxDOT STD\36 ELASTOMERIC BEARING AND GIRDER END DETAILS_3.dwg

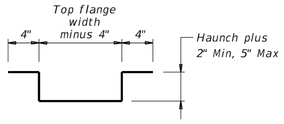
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



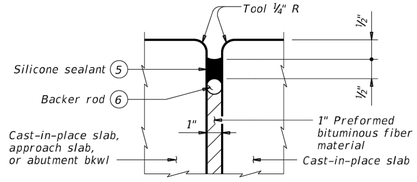
HAUNCH REINFORCING DETAIL



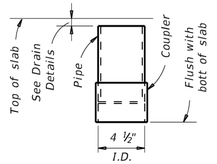
TREATMENT AT GIRDER END FOR SKEWED SPANS



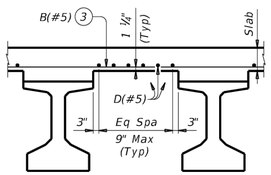
BARS U (#4)



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(#5) spaced at 6" Max with 2" end cover. Overhang option, Contractor's may end alternating bars B(#5) at centerline outside girder.

(4) Provide Grade 60 reinforcing steel. Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
~ #5 = 2'-0"
Epoxy coated ~ #4 = 2'-5"
~ #5 = 3'-0"

(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.

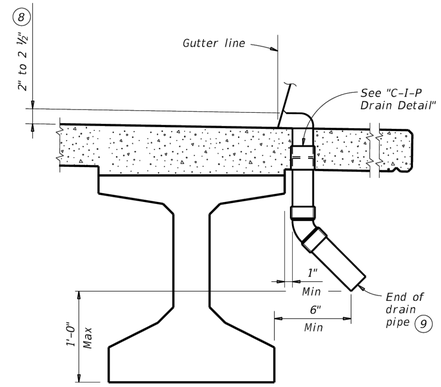
(6) 1 ¼" backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(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.



DRAIN DETAIL (10)

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.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

MISCELLANEOUS SLAB DETAILS
PRESTR CONCRETE I-GIRDERS

IGMS-DAL

FILE: igmssts1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0196	01	109	1H35E
05-22: Converts to Dallas District Standard	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		861

HL93 LOADING

DATE	REVISION	BY

MISCELLANEOUS SLAB DETAILS

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET
B-37
OF B-55 SHEETS

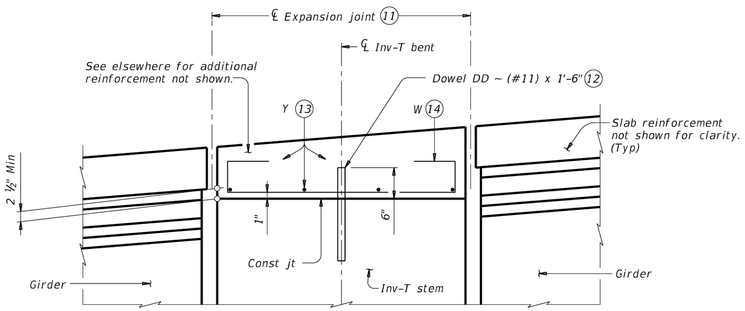
LAUD HOWELL PARKWAY

DATE:
FILE:

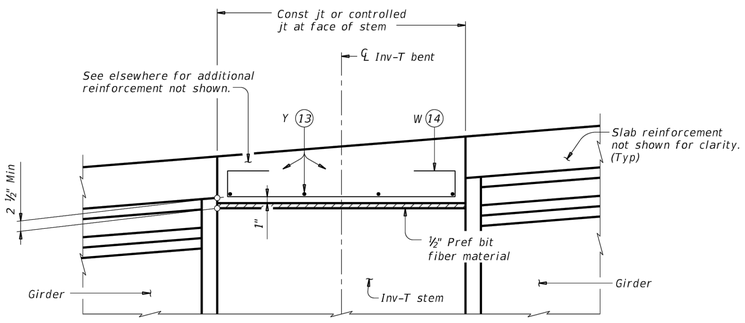
Date\Time : Thu, 20 Aug 2026 - 12:32pm\User Name : gthong
Path\Name : S:\NTP_Jobs\0285\400Jobs\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\37 MISCELLANEOUS SLAB DETAILS_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

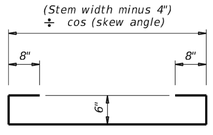


SHOWING EXPANSION JOINTS

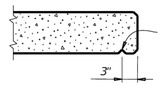


SHOWING CONST JTS OR CONTROLLED JTS

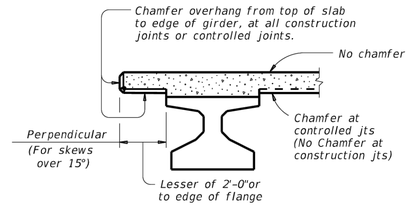
REINFORCEMENT OVER INV-T BENTS



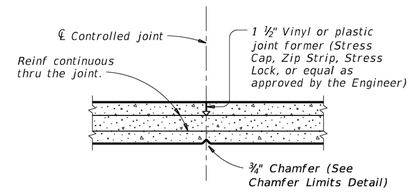
BARS W (#4)



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.

SHEET 2 OF 2

Texas Department of Transportation — Dallas District Bridge

MISCELLANEOUS SLAB DETAILS

PRESTR CONCRETE I-GIRDERS

IGMS-DAL

FILE: igmssts1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0196	01	109	1H35E
05-22: Converts to Dallas District Standard	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		862

HL93 LOADING

DATE	REVISION	BY

MISCELLANEOUS SLAB DETAILS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS · LAWRENCE DELK · 157744 · LICENSED PROFESSIONAL ENGINEER
07 17 2026

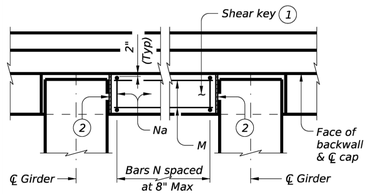
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET
B-38
OF B-55 SHEETS

LAUD HOWELL PARKWAY

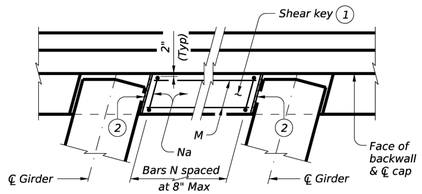
Date\Time : Thu, 20 Aug 2026 - 12:33pm\User Name : gzhang
Path\Name : S:\VA-LAN\0285\400LAND\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\38 MISCELLANEOUS SLAB DETAILS_2.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

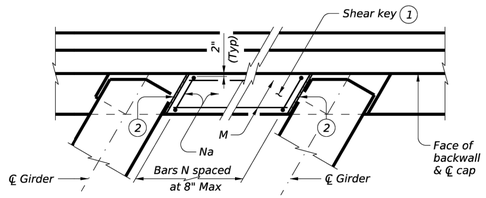
DATE:
FILE:



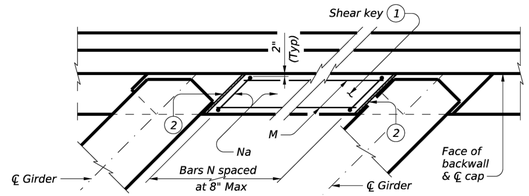
ABUTMENT



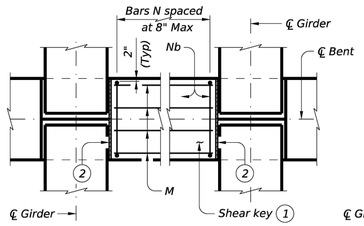
ABUTMENT



ABUTMENT



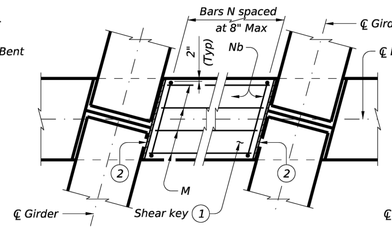
ABUTMENT



INTERIOR BENT

PARTIAL PLANS WITH NO SKEW

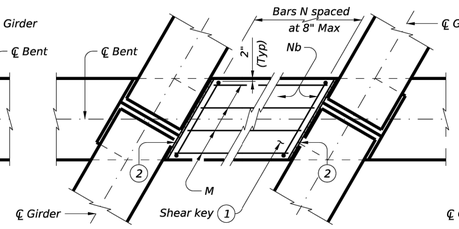
Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.



INTERIOR BENT

PARTIAL PLANS WITH 15° SKEW

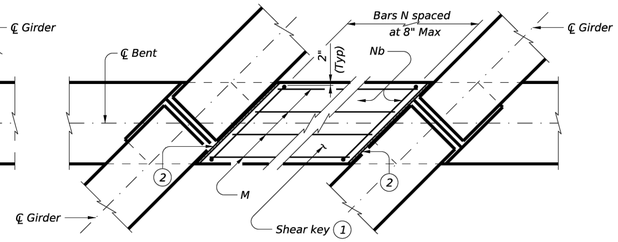
Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.



INTERIOR BENT

PARTIAL PLANS WITH 30° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

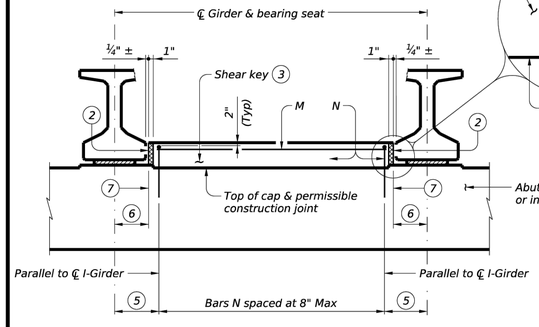


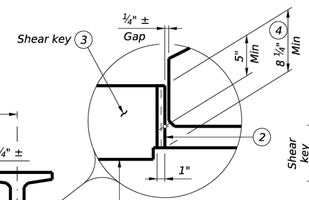
INTERIOR BENT

PARTIAL PLANS WITH 45° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

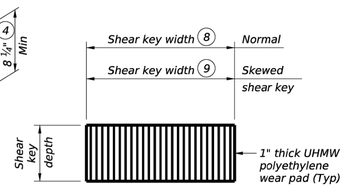
1. *Place shear keys on the upstream side of structure between outside girder and next adjacent girder, unless shown otherwise on plans.*
2. *UHMW polyethylene wear pad. (Typ)*
3. *Leave a ¼" gap plus or minus between girder and face of wear pad. Cast wear pad with shear key, smooth side facing girder. 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 ¾" ÷ 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.



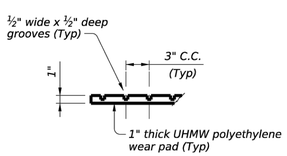


PARTIAL ELEVATION OF ABUTMENT OR INTERIOR BENT CAP (1)

Showing shear key with girder Type Tx46.
Other I-Girder types similar.

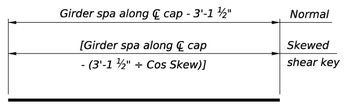


ELEVATION

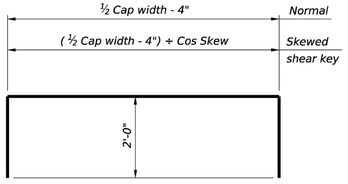


PART SECTION

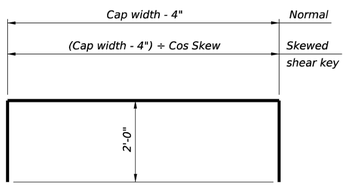
ULTRA HIGH MOLECULAR WEIGHT (UHMW) POLYETHYLENE WEAR PAD DETAILS



BARS M (#5)



BARS Na (#5)
(For abutments)



BARS Nb (#5)
(For interior bents)

MATERIAL 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.

Texas Department of Transportation — *Bridge Division Standard*

SHEAR KEY DETAILS
PRESTRESSED CONCRETE I-GIRDERS

IGSK

FILE: IG-IGSK-17.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: AES
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

SHEAR KEY DETAILS

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

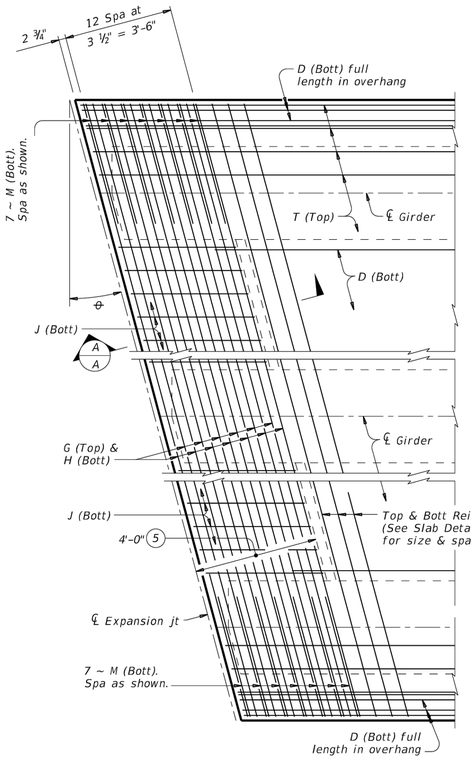
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET
B-39
OF B-55 SHEETS

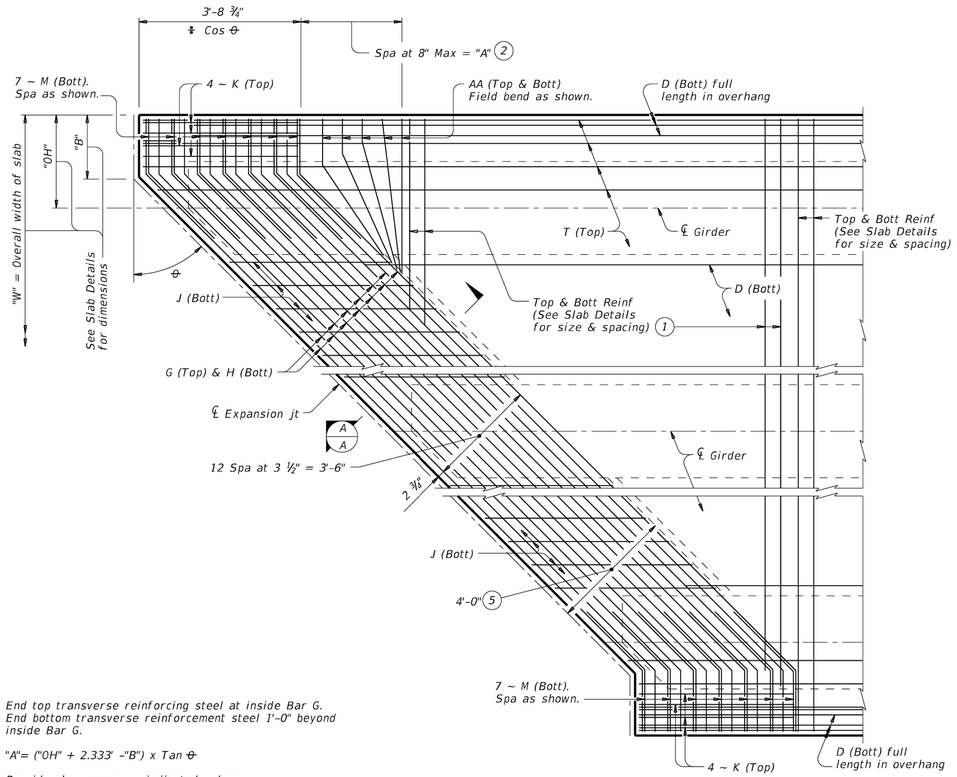
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:35pm\User Name : gzhong
Path\Name : S:\NTP-LAD\02801\4000\400AVE\25 Design Files\Laud Howell Parkway\Structures\TxDOT STD\39 SHEAR KEY DETAILS.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

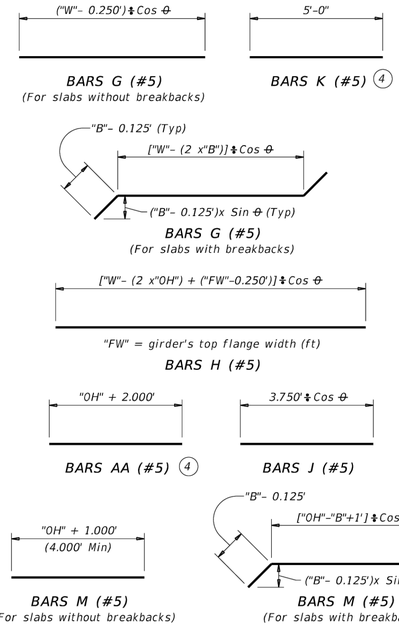


PARTIAL PLAN FOR SLABS WITHOUT BREAKBACK



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"= ("OH" + 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.



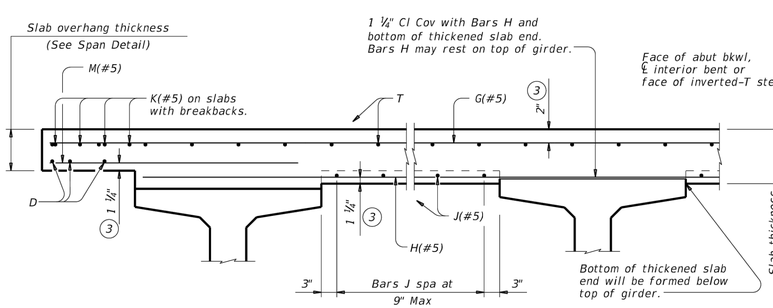
GENERAL NOTES:

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 and K 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:

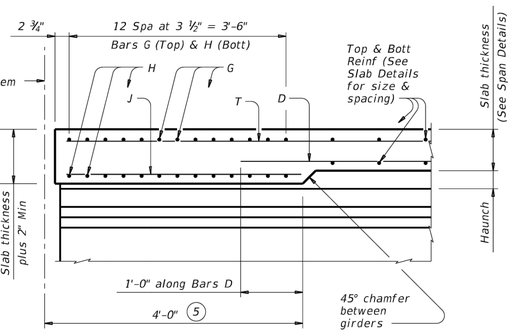
Uncoated	~ #4 = 1'-7"
	~ #5 = 2'-0"
Epoxy Coated	~ #4 = 2'-5"
	~ #5 = 3'-0"



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)

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

THICKENED SLAB END DETAILS

PRESTRESSED CONCRETE I-GIRDER SPANS

IGTS-DAL

FILE: igtssts1-17.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0196	01	109	IH35E
05-22: Converts to Dallas District Standard	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		863

HL93 LOADING

DATE	REVISION	BY

THICKENED SLAB END DETAILS

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

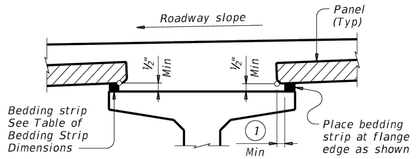
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET
B-40
OF B-55 SHEETS

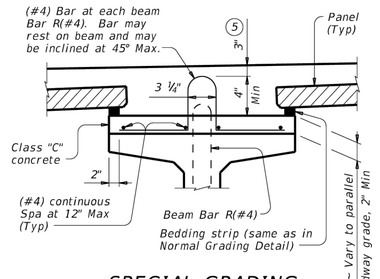
DATE:
FILE:

Date\Time : Thu, 20 Aug 2026 - 12:35m\User Name : gzhang
Path\Name : S:\TPP_LAUD\02854.4\800\ADM\PS Design Files\Laud Howell Parkway\Structures\TxDOT STD\40 THICKENED SLAB END DETAILS.dwg



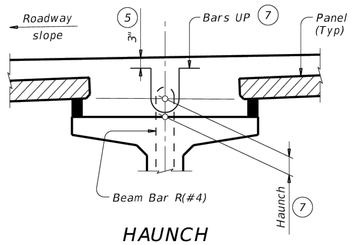
NORMAL GRADING DETAIL (3)

Showing prestressed concrete I-girders.
(Other beam types similar)



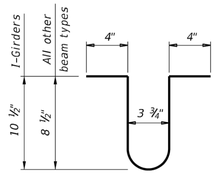
SPECIAL GRADING DETAIL FOR CONCRETE BEAMS

Showing prestressed concrete I-girders.
(Other beam types similar)

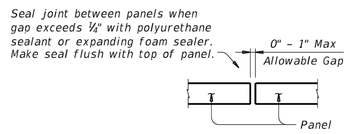


HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.
(Other beam types similar)

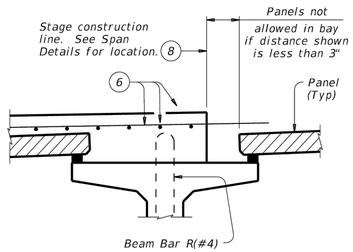


BARS UP (#4) (7)

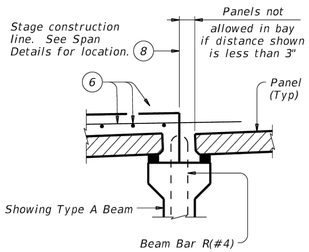


PANEL JOINTS

(Panel reinforcing not shown for clarity.
The gap cannot be considered as a panel fabrication tolerance. Adjust panel placement to minimize joint openings.)



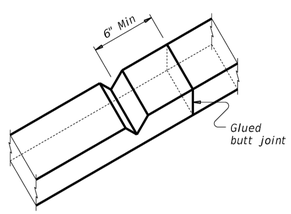
PRESTR CONC I-GIRDERS



PRESTR CONC I-BEAMS

STAGE CONSTRUCTION LIMITATIONS

(Other beam types similar)



BEDDING STRIP DETAIL (9)

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-girders, 1 ½" Min for all other beam types.

(2) Allowed for prestressed concrete 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. Longitudinal 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"
Uncoated ~ #5 = 2'-0"
Epoxy Coated ~ #5 = 3'-0"

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.

HL93 LOADING SHEET 1 OF 4

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP-DAL

FILE: DAL-MS-PCP-23.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS: 3-23: Removed top flange tension limit. 4-23: Revised reinforcement configuration and made District Standard. 6-23: Revised bars P and Z.	0196	01	109	IH35E
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		866

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONCRETE PANEL

SHEET 1 OF 4

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

SHEET B-41 OF B-55 SHEETS

LAUD HOWELL PARKWAY

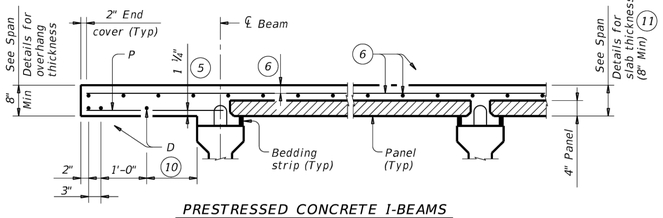
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

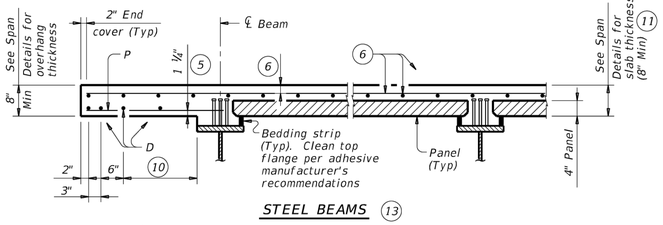
Date\Time : Thu, 20 Aug 2026 - 12:46pm User Name : gzhong
Path\Name : S:\TPP_LAD\0285\4-600\ADD\PS Design Files\Laud Howell Parkway\Structures\TxDOT STD\41 PRESTRESSED CONCRETE PANEL_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

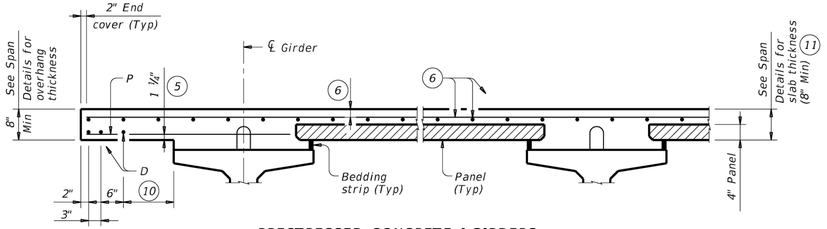
DATE:
FILE:



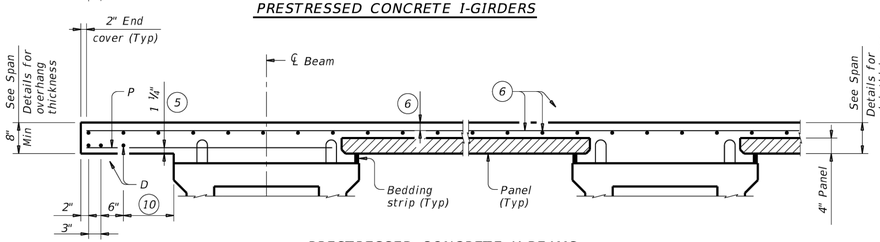
PRESTRESSED CONCRETE I-BEAMS



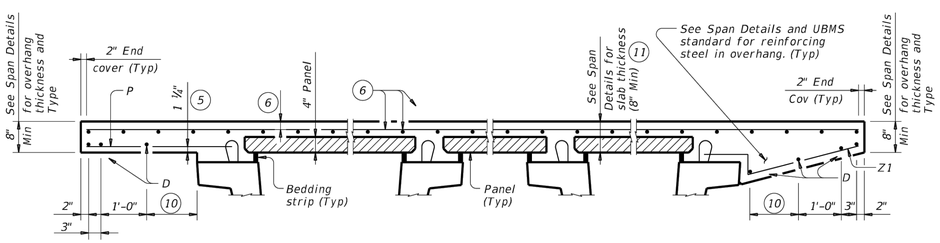
STEEL BEAMS (13)



PRESTRESSED CONCRETE I-GIRDERS



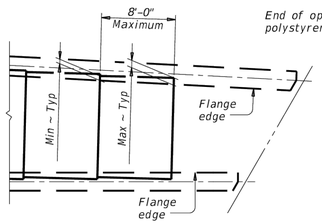
PRESTRESSED CONCRETE X-BEAMS



NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

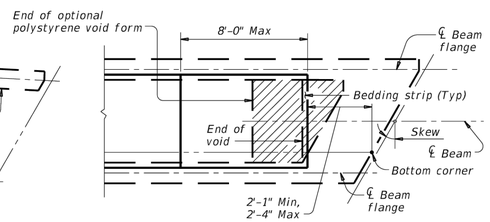
TYPICAL PART TRANSVERSE SECTIONS

SLOPED OVERHANG WITH PRESTR CONC U-BEAMS



AT FLARED BEAMS OR GIRDERS

See PCP-FAB standard for Min and Max dimensions based on beam/girder type.



OVER CONC U-BEAMS

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. Longitudinal top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

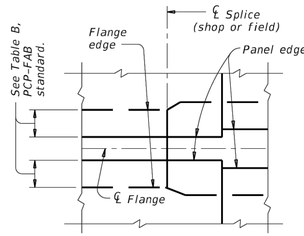
(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

(10) Equally space additional bar if more than 11" 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.

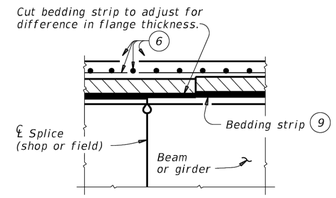
(12) Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.

(13) Panels are allowed over top tension flanges, as approved by Engineer. See Span Details for additional top mat reinforcement required in tension zones. Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



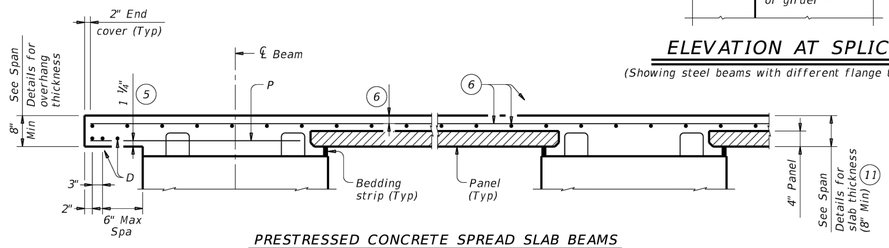
PLAN AT SPLICE

(Showing steel beams with flange width transition)



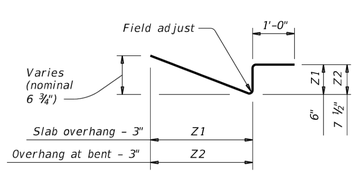
ELEVATION AT SPLICE

(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

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP-DAL

FILE: DAL-MS-PCP-23.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS: 3-23: Removed top flange tension limit. 4-23: Revised reinforcement configuration and made District Standard. 6-23: Revised bars P and Z. 8-03: Revised lap lengths, Bar E spacing, and updated notes.	0196	01	109	1H35E
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		867

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONCRETE PANEL

SHEET 2 OF 4

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

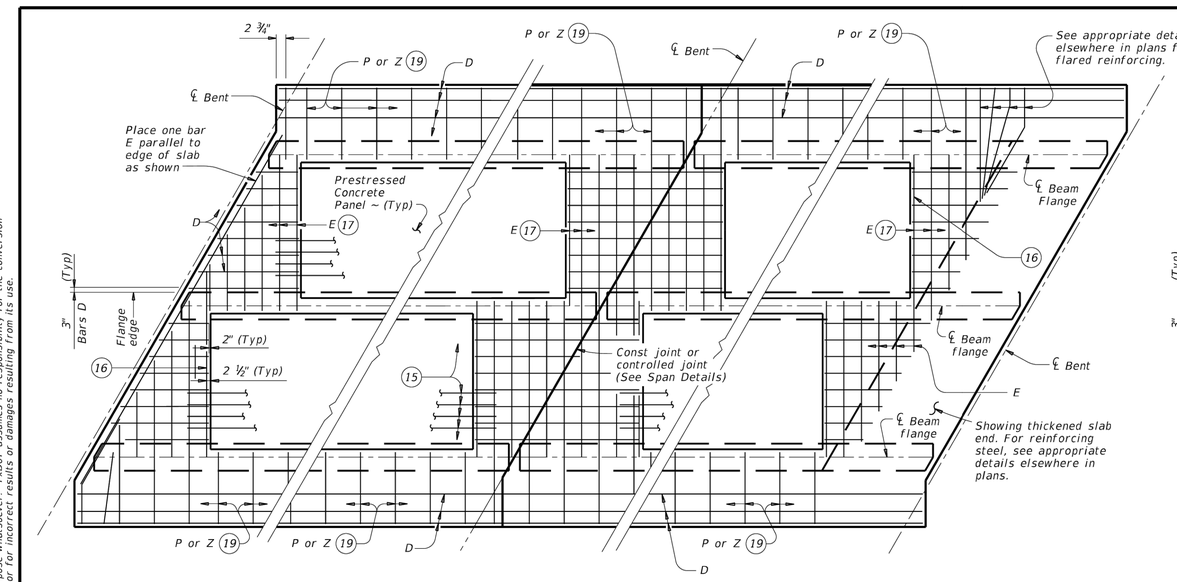
STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER

07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET
B-42
OF B-55 SHEETS

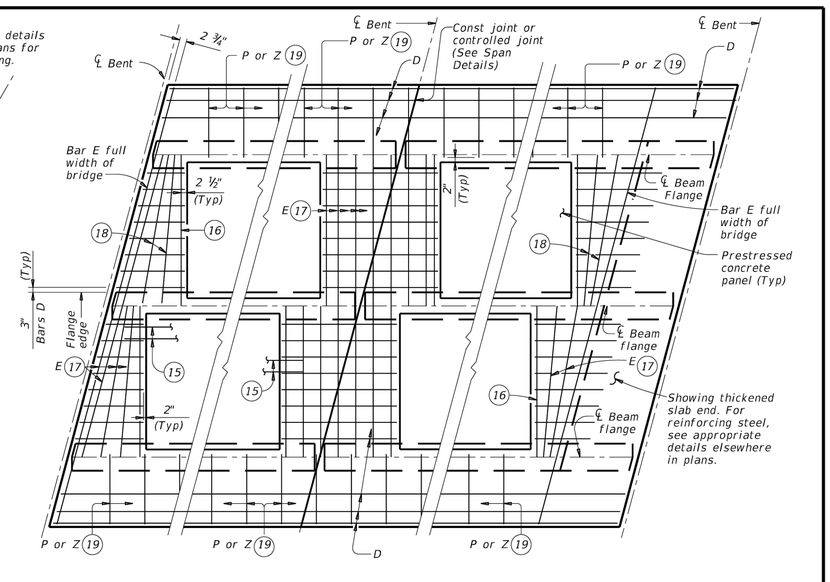
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 — 12:34pm User Name : gthong
Path\Name : S:\MTP_LAND\0285\400LAND\PS\Design Files\Laud Howell Parkway\Structures\TxDOT STD\42 PRESTRESSED CONCRETE PANEL_2.dwg



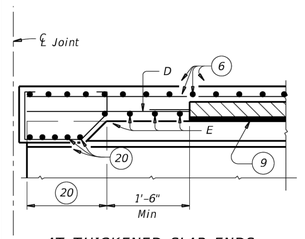
AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

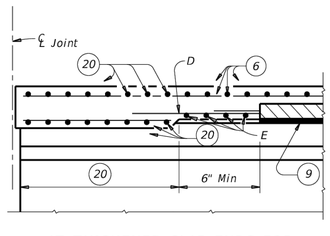


AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

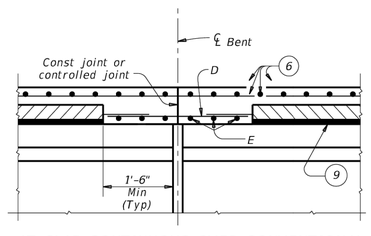
OPTION 1 ~ PLAN OF SLABS WITH SKEWED REINFORCEMENT



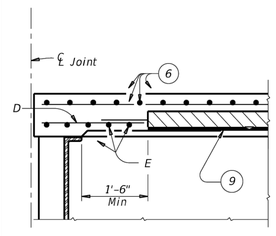
AT THICKENED SLAB ENDS FOR PRESTR CONC U-BMS



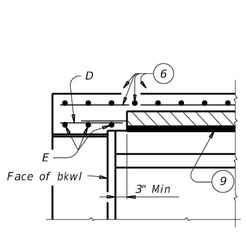
AT THICKENED SLAB ENDS FOR PRESTR CONC I-BMS AND STEEL BMS



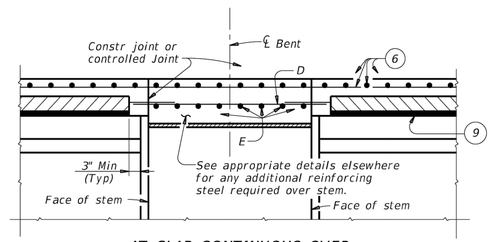
AT SLAB CONTINUOUS OVER CONVENTIONAL INTERIOR BENTS FOR ALL SIMPLE SPAN BMS



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. Longitudinal 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(#5) parallel to panel ends (Typ).

(17) Bars E(#5) not continuous over beam flanges must overlap beam flange 6" Min.

(18) Add flared Bars E(#5) (Min Spa = 2", Max Spa = 10") as required at panel ends.

(19) Where possible, Bars E(#5) 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	#5	9
E	#5	6
P	#4	18
UP	#4	~
Z	#4	18

HL93 LOADING SHEET 3 OF 4

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP-DAL

FILE: DAL-M5-PCP-23.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS: 3-23: Removed top flange tension limit. 4-23: Revised reinforcement configuration and made District Standard. 6-23: Revised bars P and Z.	0196	01	109	IH35E
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		868

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONCRETE PANEL

SHEET 3 OF 4

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

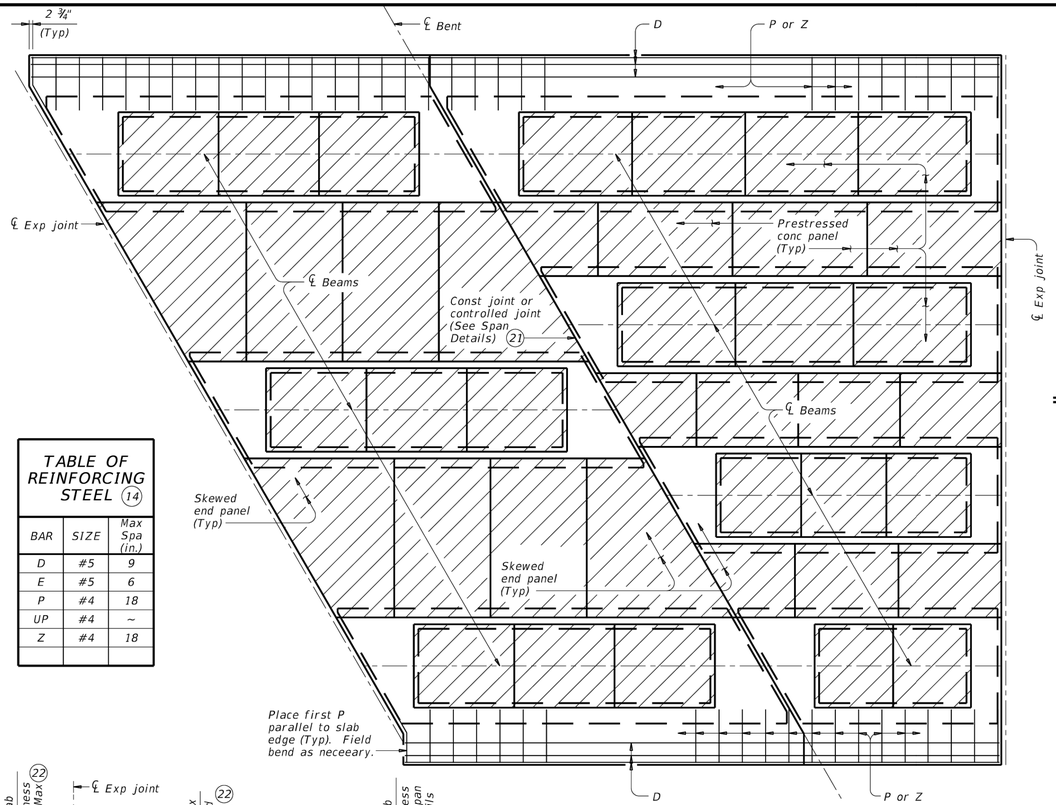
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:
SHEET B-43
OF B-55 SHEETS

LAUD HOWELL PARKWAY

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

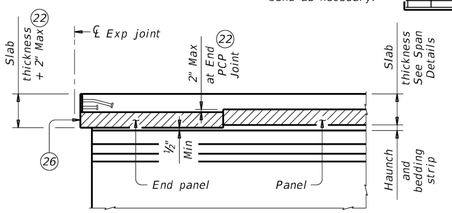
Date\Time : Thu, 20 Aug 2026 – 12:35pm\User Name : gthong
Path\Name : S:\NTP_LAN\Data\CAD\Design Files\Laud Howell Parkway\Structures\TxDOT STD\43_PRESTRESSED CONCRETE PANEL_3.dwg



OPTION 2 ~ PLAN OF SLAB

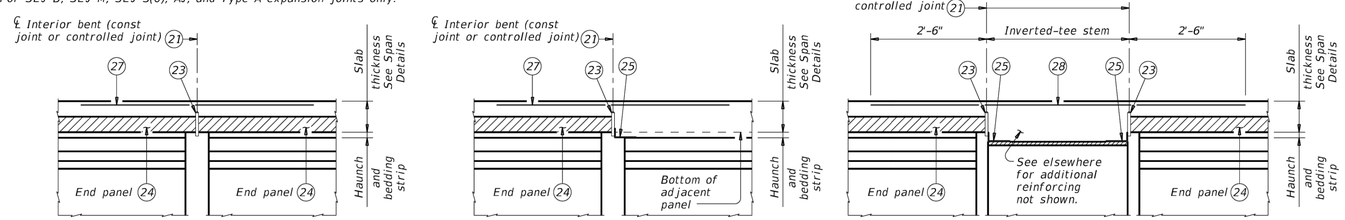
(Showing U-Beams; other beams similar)

TABLE OF REINFORCING STEEL (14)		
BAR	SIZE	Max Spa (in.)
D	#5	9
E	#5	6
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.

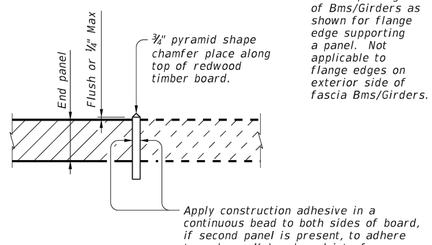


CONVENTIONAL INTERIOR BENT
Panel against panel between beams/girders.

CONVENTIONAL INTERIOR BENT
Panel against beam/girder end in adjacent span.

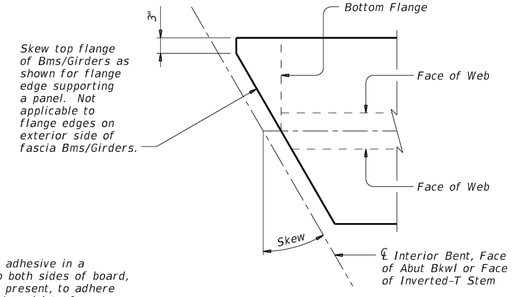
INVERTED-T BENT
Panels against inverted-tee stem

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-Beam/I-Girder, U-Beams and Steel Beams similar.

(6) *See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Longitudinal 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 and K from standard IGTS-DAL in the slab.

HL93 LOADING SHEET 4 OF 4

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP-DAL

FILE: DAL-MS-PCP-23.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS: 3-23: Removed top flange tension limit. 4-23: Revised reinforcement configuration and made District Standard. 6-23: Revised bars P and Z.	0196	01	109	IH35E
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		869

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONCRETE PANEL

SHEET 4 OF 4

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER

07 17 2026

SHEET B-44 OF B-55 SHEETS

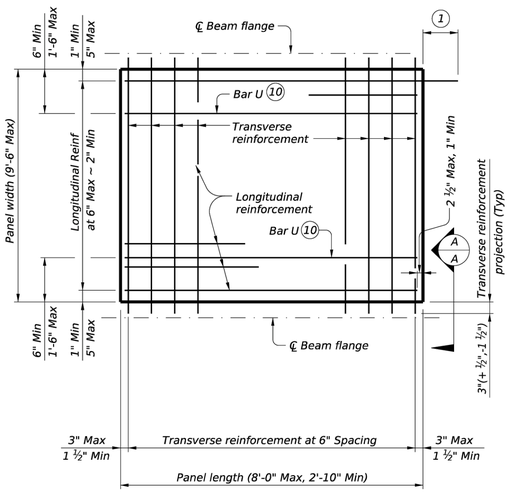
LAUD HOWELL PARKWAY

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

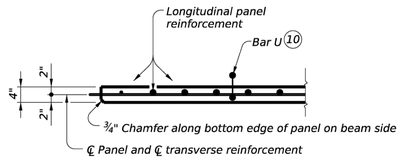
DATE:
FILE:

Date\Time : Thu, 20 Aug 2026 - 12:35pm User Name : gzhong
Path\Name : S:\SYS-LAD\ODES\450LAD\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\44 PRESTRESSED CONCRETE PANEL_4.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

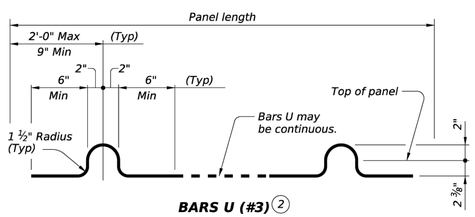


TYPICAL NON-SKEWED PANEL PLAN

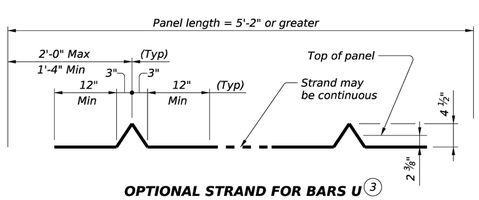


SECTION A-A

(Not showing supplemental #4 bars for skewed end panels)



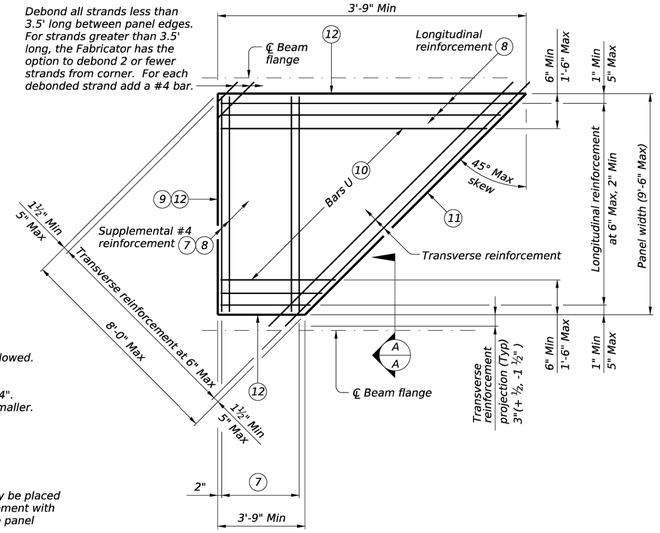
BARS U (#3) 2



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 reinforcement, 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 reinforcement with horizontal legs in plane of transverse panel reinforcement.
11. Use length of indicated panel edge as panel width for purpose of determining type of transverse reinforcement.
12. Timber form work permissible this edge.

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.

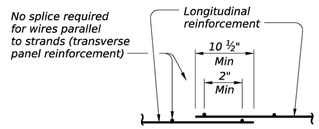


TYPICAL SKEWED END PANEL PLAN

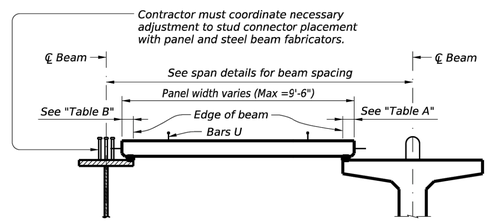
(Only to be used with details shown elsewhere in the plans.)

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



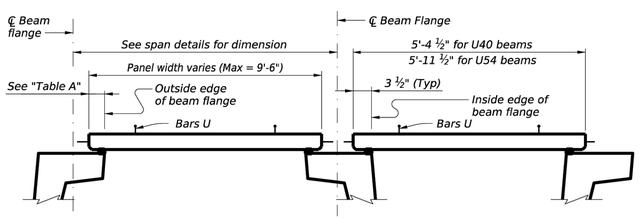
WELDED WIRE REINFORCEMENT (WWR) SPLICE DETAIL 6



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 reinforcing bars at least two bar diameters away from each prestressed strand.

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" or 0.6" 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 reinforcement. 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.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONC PANEL FABRICATION DETAILS

PCP-FAB

FILE: MS-PCP-FAB-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

PRESTRESSED CONC PANEL FABRICATION DETAILS

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET
B-45
OF B-55 SHEETS

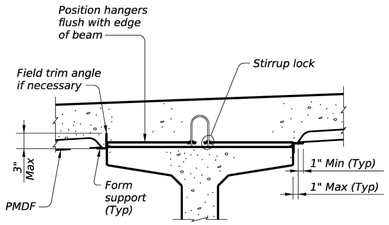
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:36pm User Name : gthorng
Path\Name : S:\STR\LJA\0285\LA\052\A\045 Design : Files\Laud Howell Parkway\Structures\TxDOT STD\A45_PRESTRESSED_CONC_PANEL_FABRICATION_DETAILS.dwg

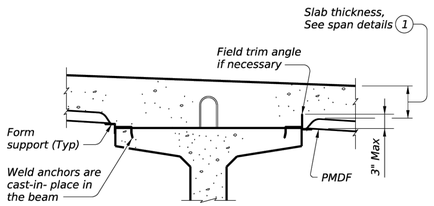
DATE:
FILE:

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

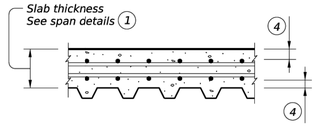
DATE:
FILE:



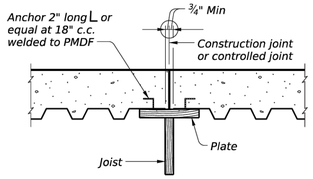
PRESTR CONC I-BEAMS AND I-GIRDERS WITH STIRRUP LOCKS



PRESTR CONC I-BEAMS AND I-GIRDERS WITH WELD ANCHORS

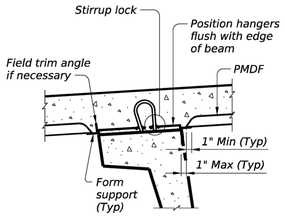


TYPICAL LONGITUDINAL SLAB SECTION

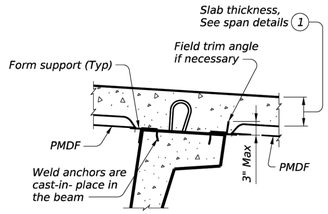


Note: In spans where PMD forms are used, timber forms must be used at construction joints. Adequate provision must be made to support edge of metal form and to provide anchorage of metal form to slab concrete where joined to wood forms.

SECTION THRU CONSTRUCTION JOINT



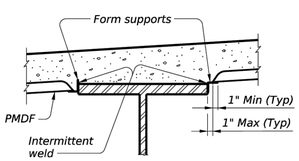
U-BEAMS WITH STIRRUP LOCKS



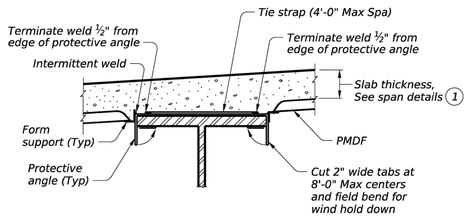
U-BEAMS WITH WELD ANCHORS

FOR PRESTR CONC U-BEAM AND STEEL GIRDER BRIDGES:
Unless shown elsewhere in the plans, size, spacing, and orientation of bottom mat of slab reinforcement must match the top mat of reinforcing shown on the span details except all bottom mat bars are to be #5. Bottom mat reinforcement and additional concrete is subsidiary to Item 422, "Concrete Superstructures."

FOR PRESTR CONC TX-GIRDER BRIDGES:
See Miscellaneous Slab Details, Prestressed Concrete I-Girders (IGMS) standard sheet for bottom mat reinforcing.

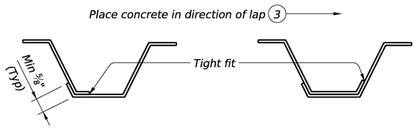


STEEL BEAMS AT COMPRESSION FLANGES



STEEL BEAMS AT TENSION FLANGES (2)

TYPICAL TRANSVERSE SECTIONS



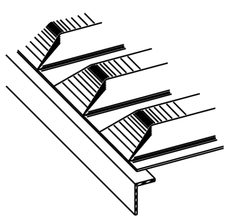
SIDE LAP DETAILS

(1) Slab thickness minus 5/8" if corrugations match reinforcing bars.

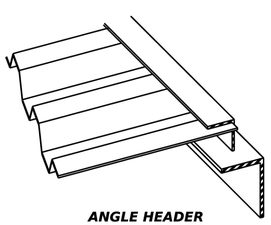
(2) Welding of form supports to tension flanges will not be permitted. Other methods of providing wind hold down resistance for PMDF in tension flange zones will be considered. At least one layer of sheet metal must be provided between the flange and the weld joint.

(3) The direction of concrete placement will be such that the upper layer of the form overlap is loaded first.

(4) See span details for cover requirements.



PRECLOSED



ANGLE HEADER

NOTE: This type is to be used for skewed ends only.

TYPES OF END CLOSURES

GENERAL NOTES:
Steel for Permanent Metal Deck Forms (PMDF) and support angles shall conform to ASTM A653, structural steel (SS), with coating designation G165. Steel must have a minimum yield strength of 33 ksi. Minimum thickness of PMDF is 20 gauge and that of support angles and protective angles is 12 gauge.
Submit two copies of forming plans for PMDF to the Engineer. These plans must show all essential details of proposed form sheets, closures, fasteners, supports, connectors, special conditions and size and location of welds. These plans must clearly show areas of tension flanges for steel beams and provisions for protecting the tension flanges from welding notch effects by inclusion of separating sheet metal or other positive method. These plans must be designed, signed, and sealed by a licensed professional engineer. Department approval of these plans is not required, but the Department reserves the right to require modifications to the plans. The Contractor is responsible for the adequacy of these plans.
The details and notes shown on this standard are to be used as a guide in preparation of the forming plans.
All material, labor, tools and incidentals necessary to form a bridge deck with Permanent Metal Deck Forms is considered subsidiary to Item 422, "Concrete Superstructures."

DESIGN NOTES:
As a minimum, PMDF and support angles must be designed for the dead load of the form, reinforcement and concrete plus 50 psf for construction loads. Flexural stresses due to these design loads must not exceed 75 percent of the yield strength of the steel. Allowable stress for weld metal must be 12,400 psi.
Maximum deflection under the weight of forms, reinforcement and concrete or 120 psf, whichever is greater, shall not exceed the following:

1/180 of the form design span, but not more than 0.50", for design spans of 10' or less.

1/240 of the form design span, but not more than 0.75", for design spans greater than 10'.

1/240 of the form design span, but not more than 0.75", for all design spans of railroad overpass bridge spans fully or partially over railroad right-of-way, and for all bridge spans of railroad underpass structures.

The form design span must not be less than the clear distance between beam flanges, measured parallel to the form flutes, minus 2".

CONSTRUCTION NOTES:
Form sheets must not be permitted to rest directly on the top of beam flanges. Form sheets must be securely fastened to form supports and must have a minimum bearing length of one inch at each end. Form supports must be placed in direct contact with beam flanges.
All attachments must be made by permissible welds, screws, bolts, clips or other means shown on the forming plans. All sheet metal assembly screws must be installed with torque-limiting devices to prevent stripping. Only welds or bolts must be used to support vertical loads.
Welding and welds must be in accordance with the provisions of Item 448, "Structural Field Welding," pertaining to fillet welds. All welds must be made by a qualified welder in accordance with Item 448.
All permanently exposed form metal, where the galvanized coating has been damaged, must be thoroughly cleaned and repaired in accordance with Item 445, "Galvanizing." Minor heat discoloration in areas of welds need not be touched up.
Flutes must line up uniformly across the entire width of the structure where main reinforcing steel is located in the flute.
Construction joints will not be permitted unless shown on the plans. The location of and forming details for any construction joint used must be shown on the forming plans. Forms below a construction joint must be removed after curing of the slab.
A sequence for uniform vibration of concrete must be approved by the Engineer prior to concrete placement. Attention must be given to prevent damage to the forms, yet provide proper vibration to prevent voids or honeycomb in the flutes and at headers and/or construction joints.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

PERMANENT METAL DECK FORMS

PMDF

FILE: MS-PMDF-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

PERMANENT METAL DECK FORMS

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS · LAWRENCE DELK · 157744 · LICENSED PROFESSIONAL ENGINEER

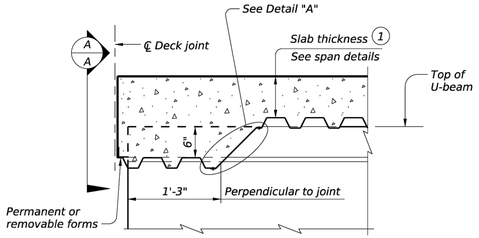
07 17 2026

SHEET
B-46
OF B-55 SHEETS

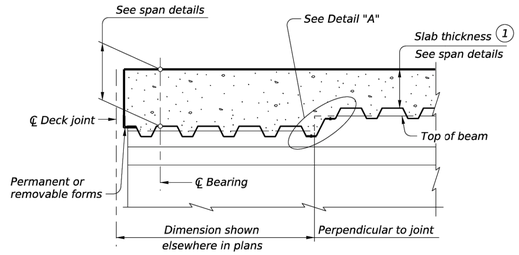
LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:36pm\User Name : gzhang
Path\Name : S:\TRF_LJA\0285\400\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\46 PERMANENT METAL DECK FORMS_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

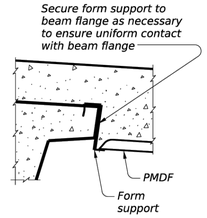


THICKENED SLAB END FOR U-BEAMS

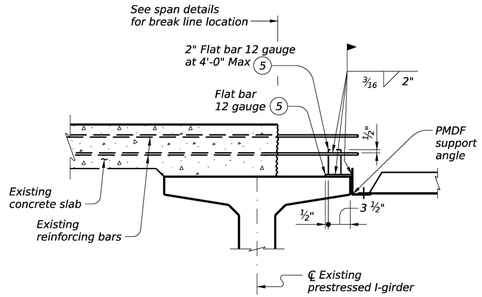


THICKENED SLAB END FOR PRESTRESSED I-BEAMS, I-GIRDERS AND STEEL BEAMS

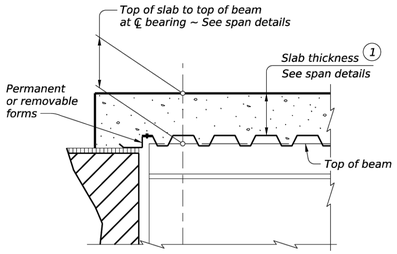
Showing I-beam block-out. No block-out for I-girders or steel beams.



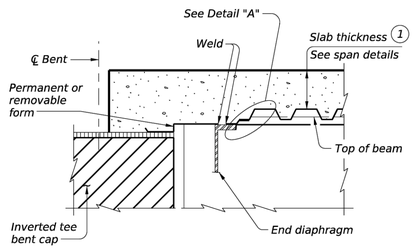
SECTION A-A



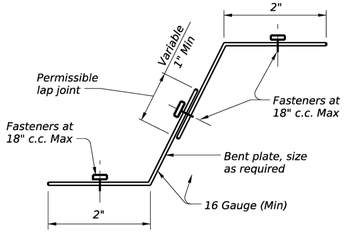
SHOWING PRESTRESSED CONCRETE I-BEAMS, I-GIRDERS AND U-BEAMS



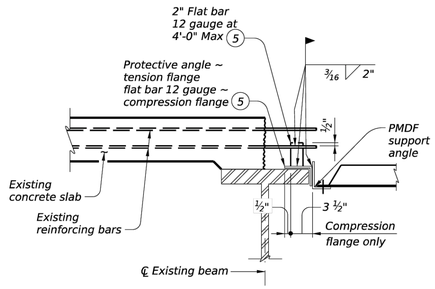
SLAB OVER ABUTMENT BACKWALL OR INVERTED-T STEM FOR CONCRETE BEAMS WITHOUT THICKENED SLAB END



SLAB OVER INVERTED-T STEM FOR STEEL BEAMS WITHOUT THICKENED SLAB END

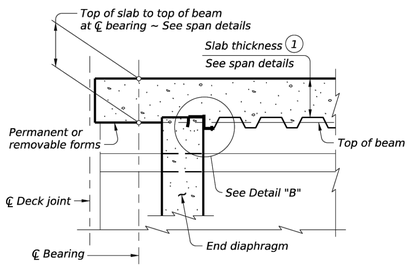


DETAIL A

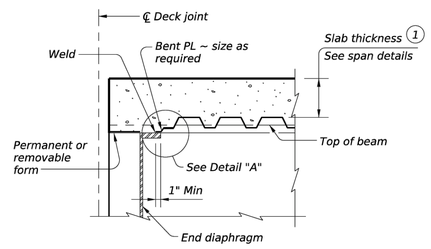


SHOWING STEEL BEAMS

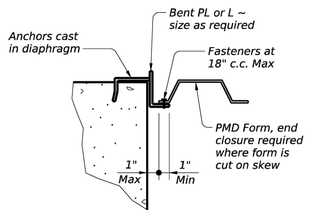
WIDENING DETAILS



CONCRETE END DIAPHRAGM FOR PRESTRESSED I-BEAMS AND STEEL BEAMS



END DIAPHRAGM FOR STEEL BEAMS WITHOUT THICKENED SLAB END



DETAIL B

(1) *Slab thickness minus 5/8" if corrugations match reinforcing bars.*

(5) *Provide 12 gauge bars with a minimum yield stress of 40 ksi.*

DETAILS AT ENDS OF BEAMS

DATE:
FILE:

Date\Time : Thu, 20 Aug, 2026 , 12:37pm\User Name : gzhong
Path\Name : S:\TRF_LJA00\0285\400\425 Design Files\Loud Howell Parkway\Structures\TxDOT STD\47 PERMANENT METAL DECK FORMS_2.dwg

LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

PERMANENT METAL DECK FORMS

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

PERMANENT METAL DECK FORMS

PMDF

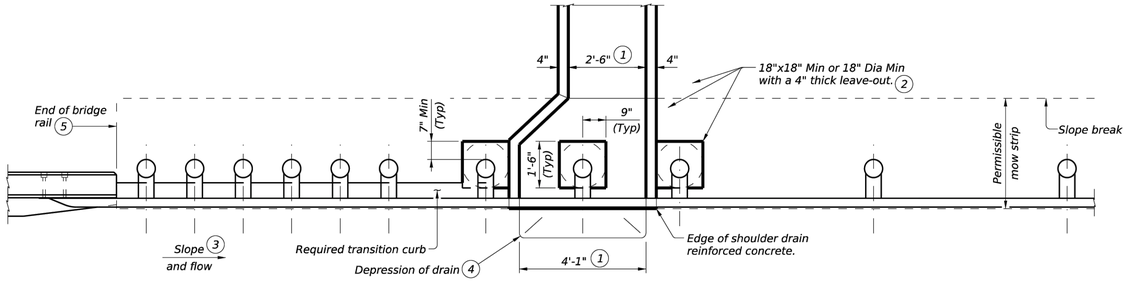
FILE: MS-PMDF-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

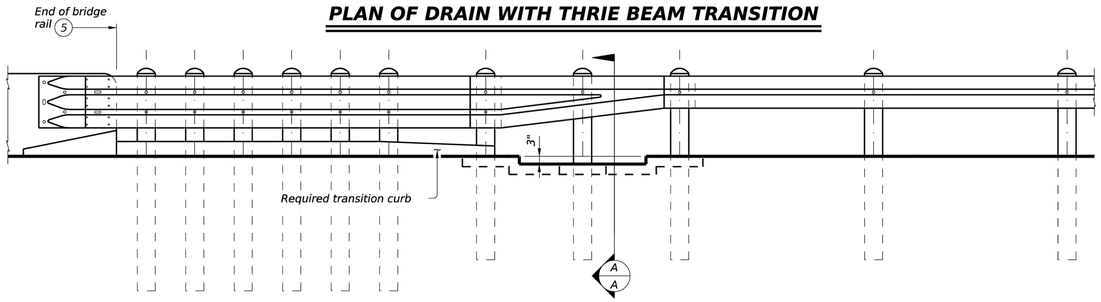
STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F--0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:
SHEET
B-47
OF B-55 SHEETS

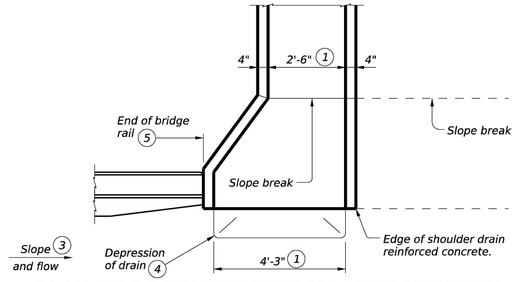
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



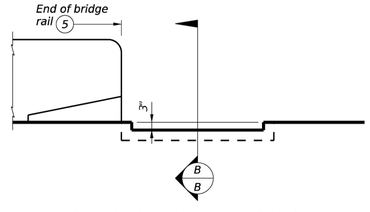
PLAN OF DRAIN WITH THRIE BEAM TRANSITION



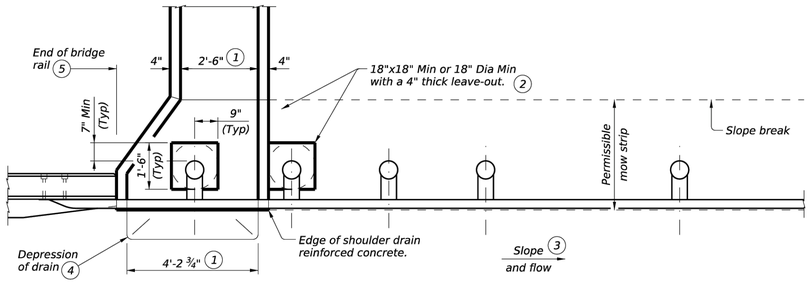
ROADWAY ELEVATION OF DRAIN WITH THRIE BEAM TRANSITION



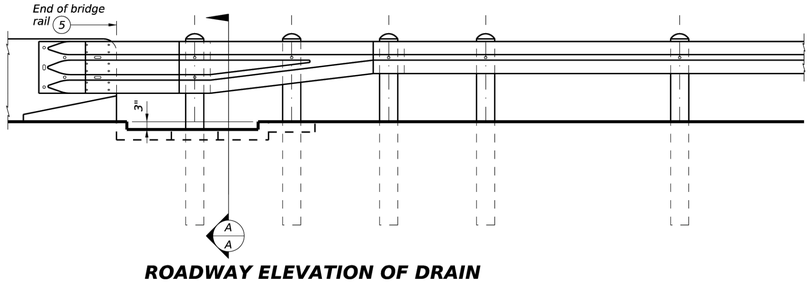
PLAN OF DRAIN WITHOUT MBGF TRANSITION



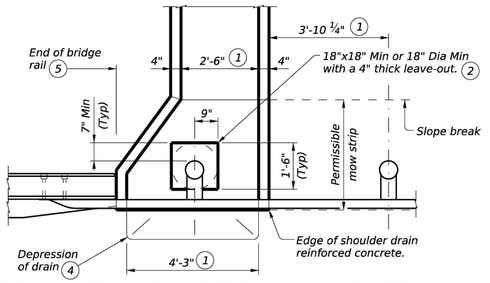
ROADWAY ELEVATION OF DRAIN WITHOUT MBGF TRANSITION



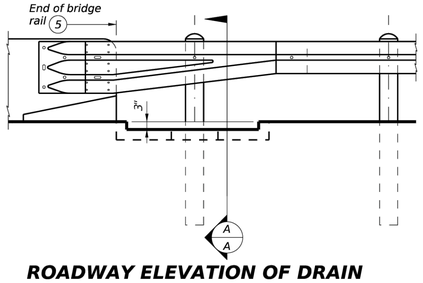
PLAN OF DRAIN WITH TL-2 (LOW SPEED) TRANSITION



ROADWAY ELEVATION OF DRAIN WITH TL-2 (LOW SPEED) TRANSITION



PLAN OF DRAIN WITH DOWNSTREAM ANCHOR TERMINAL



ROADWAY ELEVATION OF DRAIN WITH DOWNSTREAM ANCHOR TERMINAL

(1) Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer. Location of shoulder drain must consider limitation imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.

(2) Fill leave-outs with no more than a 2-sack grout mixture (1 part cement, 5 parts water, and 14 parts sand by volume) with a 28-day compressive strength of approximately 120 psi or less. Provide grout of a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (20" Max leave-out).

(3) For other slope and flow directions drain configuration may be mirrored wider or tapered wider if shown elsewhere in the plans or directed by the Engineer.

(4) Form depression into concrete, asphalt pavement, or approach slab.

(5) See Bridge Layout for rail type.

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SHOULDER DRAIN AT END OF BRIDGE RAIL

SD-EBR

FILE: MS-SD-EBR-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE:
FILE:

HL93 LOADING

DATE	REVISION	BY

SHOULDER DRAIN AT END OF BRIDGE RAIL

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

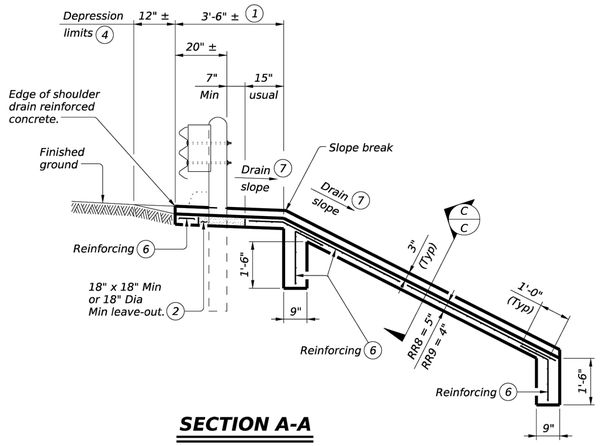
SHEET B-48
OF B-55 SHEETS

LAUD HOWELL PARKWAY

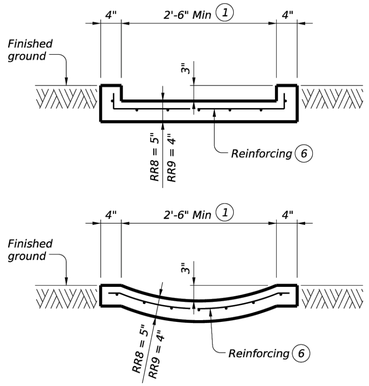
Date\Time : Thu, 20 Aug 2026 – 12:38pm\User Name : gshong
Path\Name : S:\Workarea\0285\400\400\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\48 SHOULDER DRAIN AT END OF BRIDGE RAIL_1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

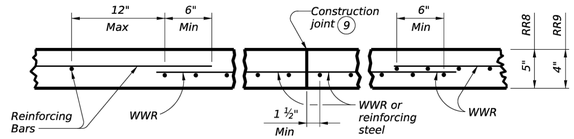


SECTION A-A



SECTION C-C

Sections shown without integrated riprap.



REINFORCEMENT DETAILS (6)

See General Notes for optional synthetic fiber reinforcement.

(1) *Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer. Location of shoulder drain must consider limitation imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.*

(2) *Fill leave-outs with no more than a 2-sack grout mixture (1 part cement, 5 parts water, and 14 parts sand by volume) with a 28-day compressive strength of approximately 120 psi or less. Provide grout of a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (20" Max leave-out).*

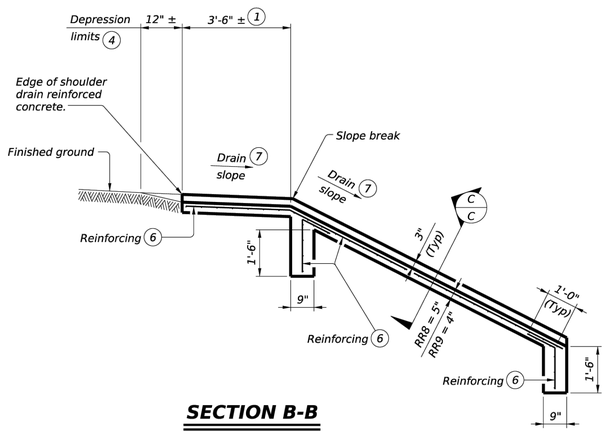
(4) *Form depression into concrete, asphalt pavement, or approach slab.*

(6) *Provide (#3) reinforcing bar at 18" spacing c-c or welded wire reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars, unless shown otherwise.*

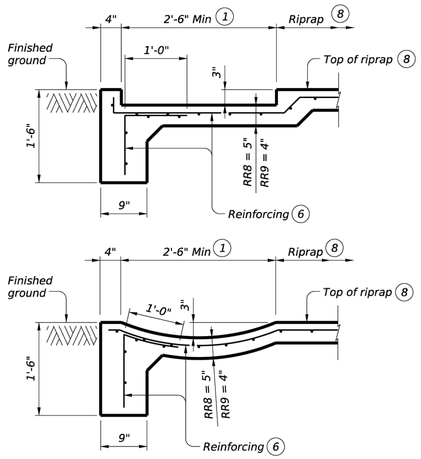
(7) *See elsewhere in plans or as directed by the Engineer.*

(8) *See CRR standard for details and notes not shown.*

(9) *WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic fiber is utilized.*



SECTION B-B



SECTION C-C

Sections shown with integrated riprap.

GENERAL NOTES:

Provide Class "B" concrete with a minimum compressive strength of 2,000 psi unless noted elsewhere in plans.
Provide Grade 60 reinforcing steel.
Provide deformed welded wire reinforcement (WWR) meeting ASTM A1064, unless otherwise shown.
Provide reinforcing bars, deformed WWR, or any suitable combination of both types for riprap reinforcing, unless specified elsewhere in the plans.
Optionally synthetic fibers may be used if approved by the Engineer. Provide synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.
See Metal Beam Guard Fence (Mow Strip) standard for details and notes not shown.
Payment for furnishing and placing 2-sack grout mixture will be subsidiary to shoulder drain.
Payment for shoulder drain will be as per Item 420, "Cl B Conc (Flume)." All details shown herein are subsidiary to shoulder drain.
See Layout for limits of shoulder drain.
RR8 is to be used on stream crossings.
RR9 is to be used on other embankments.

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SHOULDER DRAIN AT END OF BRIDGE RAIL

SD-EBR

FILE: MS-SD-EBR-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT.	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

SHOULDER DRAIN AT END OF BRIDGE RAIL

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:

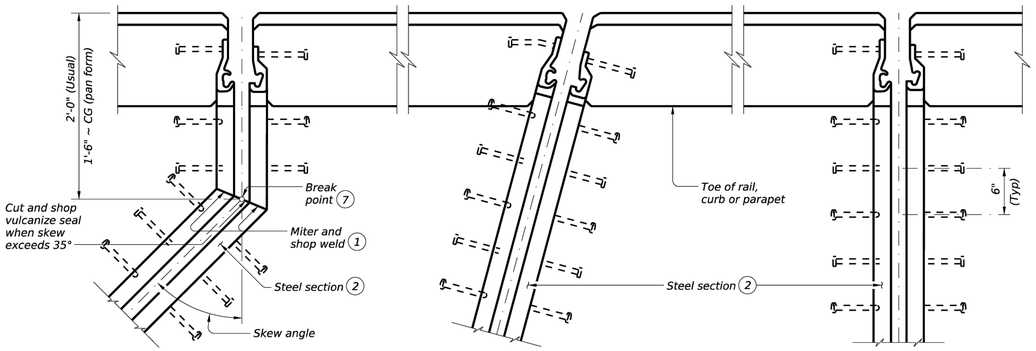
SHEET
B-49
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug 2026 - 12:38pm\User Name : gchong
Path\Name : S:\KFI-LJA\0285\NODAL\025 Design Files\Laud Howell Parkway\Structures\TxDOT STD\49 SHOULDER DRAIN AT END OF BRIDGE RAIL_2.dwg

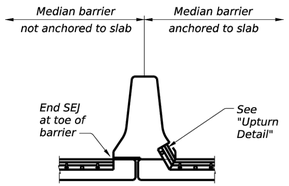
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

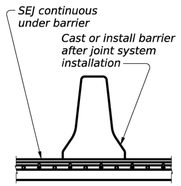


SHOWING SKEWS WITH SLAB BREAKBACKS | **SHOWING SKEWS WITHOUT SLAB BREAKBACKS** | **SHOWING WITHOUT SKEWS AND SLAB BREAKBACKS**

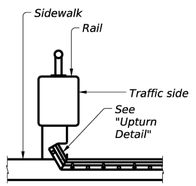
PLANS OF END CONDITIONS



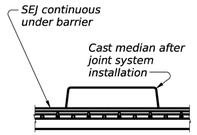
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



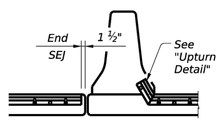
AT MEDIAN BARRIER



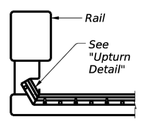
AT SIDEWALK BEHIND BRIDGE RAIL



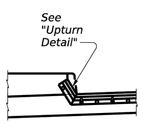
AT RAISED MEDIAN



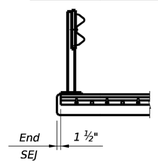
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL

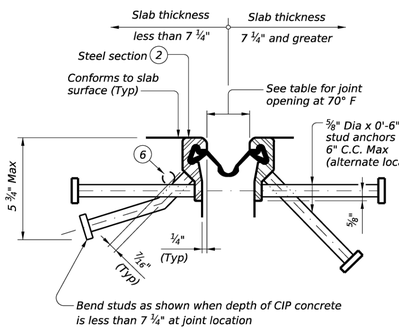


AT SIDEWALK

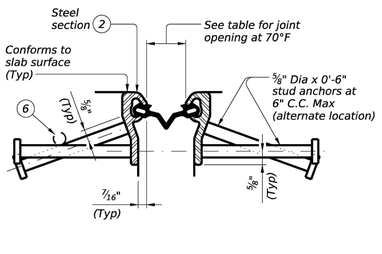


AT STEEL POST BRIDGE RAIL

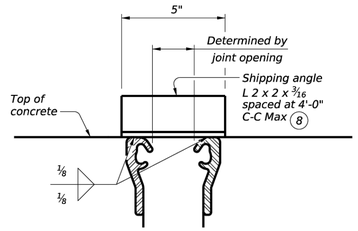
TYPICAL SECTIONS (5)



SECTION THRU WATSON BOWMAN ACME (SE-400 OR SE-500) JOINTS



SECTION THRU D.S. BROWN (A2R-400 OR A2R-XTRA) JOINTS



SHOWING D.S. BROWN (Ty SSCM2)

(All joints are similar.) (Studs are not shown for clarity.)

SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

TABLE OF SEALED EXPANSION JOINT INFORMATION

Manufacturer	Steel Section (2)	Strip Seal			
		4" Joint		5" Joint	
		Seal Type	Joint Opening (3)	Seal Type	Joint Opening (3)
D.S. Brown	Type SSCM2	A2R-400	1 ¾"	A2R-XTRA	2"
Watson Bowman Acme	Type R	SE-400	1 ¾"	SE-500	2"

REDUCED LONGITUDINAL MOVEMENT RANGE

Skew (deg)	Joint Size	
	4"	5"
0	4.0"	5.0"
15	4.0"	5.0"
30	3.5"	4.3"
45	2.8"	3.5"

DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations.

For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).

(1) Remove all burrs which will be in contact with seal prior to making splice.

(2) Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.

(3) These openings are also the recommended minimum installation openings.

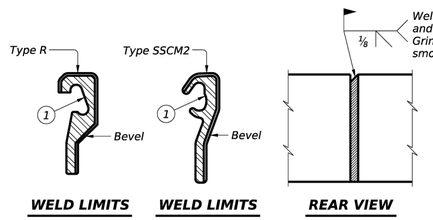
(4) Reduce for sidewalk or parapet heights less than 6".

(5) Other conditions affecting the joint profile should be noted elsewhere.

(6) Move transverse bars that are in conflict with SEJ studs, in either the bridge slab or approach slab, to rest at the junction of the studs.

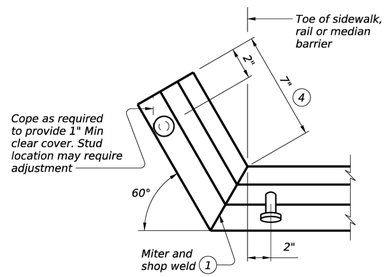
(7) See Span details for location of break point.

(8) Align shipping angle perpendicular to joint.



WELD LIMITS | **WELD LIMITS** | **REAR VIEW**

FIELD SPLICE DETAIL



UPTURN DETAIL

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged 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.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Galvanize the entire steel section in accordance with Item 445, "Galvanizing" unless required to paint elsewhere in the plans. If required, paint the entire steel section 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 Item 446.4.6.3 and 446.4.6.4.

Shop drawings for the fabrication of sealed expansion joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure the sealed expansion joint in position and place to the 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 sealed expansion joint.

Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-M is 6 ½".

HL93 LOADING

DATE	REVISION	BY

SEALED EXPANSION JOINT TYPE M

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

Texas Department of Transportation — Bridge Division Standard

SEALED EXPANSION JOINT TYPE M WITHOUT OVERLAY

SEJ-M

FILE: MS-SEJ-M-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

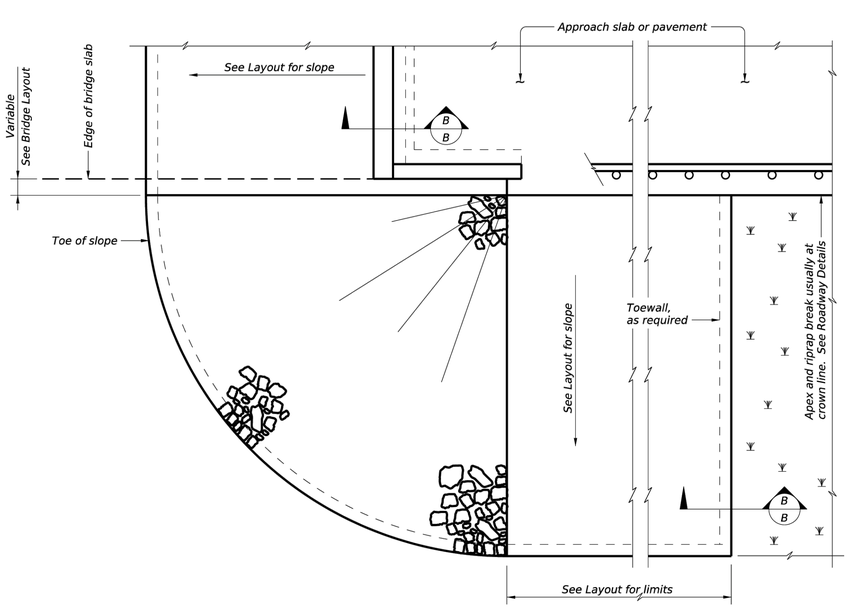
SHEET
B-50
OF B-55 SHEETS

LAUD HOWELL PARKWAY

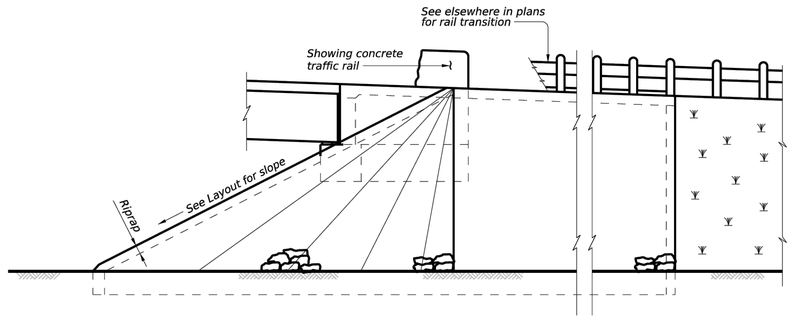
Date\Time : Thu, 20 Aug 2026 - 12:39pm User Name : gzhong
Path\Name : S:\NTP-LJA0285_v600\ANS\V25 Design Files\Laud Howell Parkway\Structures\TxDOT STD\SO SEALED EXPANSION JOINT TYPE M.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

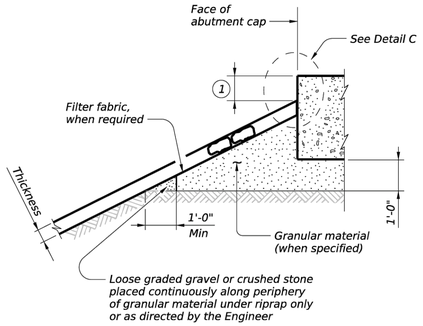
DATE:
FILE:



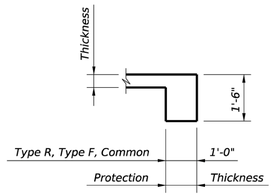
PLAN



ELEVATION



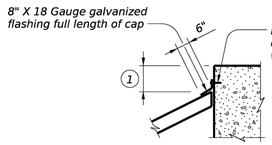
SECTION A-A AT CAP



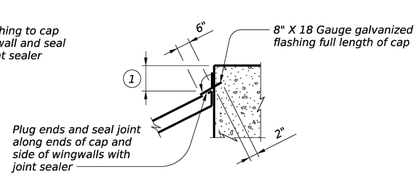
SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".

(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.*



CAP OPTION A



CAP OPTION B

DETAIL C

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.

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

LAUD HOWELL PARKWAY

HL93 LOADING

DATE	REVISION	BY

STONE RIPRAP

SHEET 1 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

LJA PROJECT ID
NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

SHEET
B-51
OF B-55 SHEETS

Date\Time : Thu, 20 Aug 2026 - 12:39pm\User Name : gzhong
Path\Name : S:\Work Jobs\0285\400&410\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\51 STONE RIPRAP _1.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

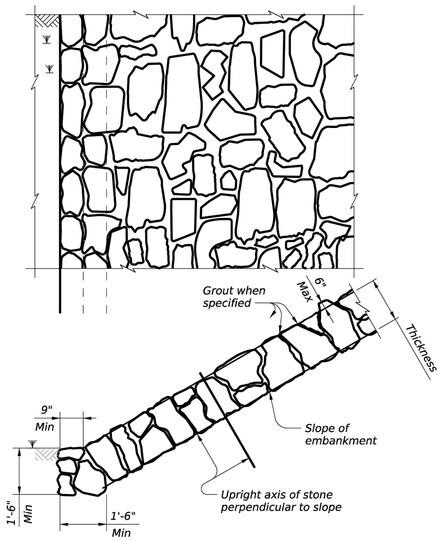


FIGURE 1 ~ TYPE R STONE RIPRAP

Dry or grouted

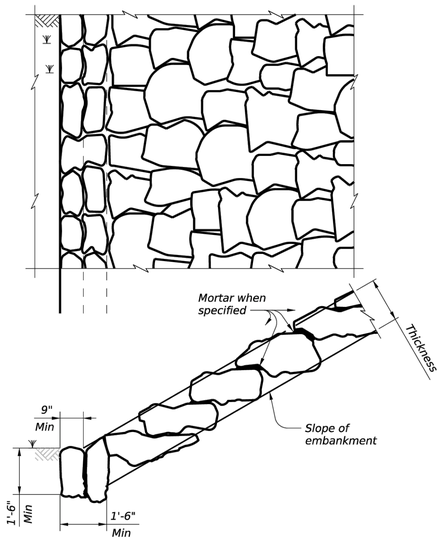


FIGURE 2 ~ TYPE F STONE RIPRAP

Dry or mortared

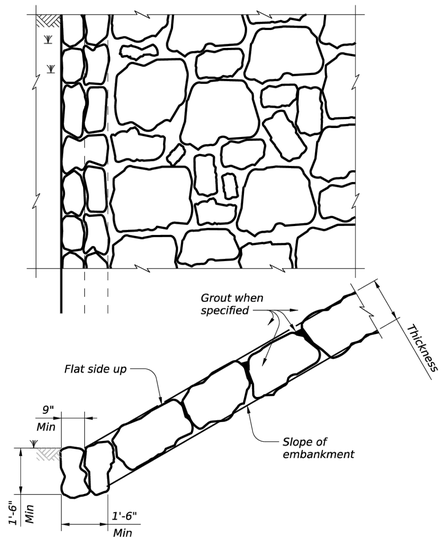


FIGURE 3 ~ TYPE F STONE RIPRAP

Grouted

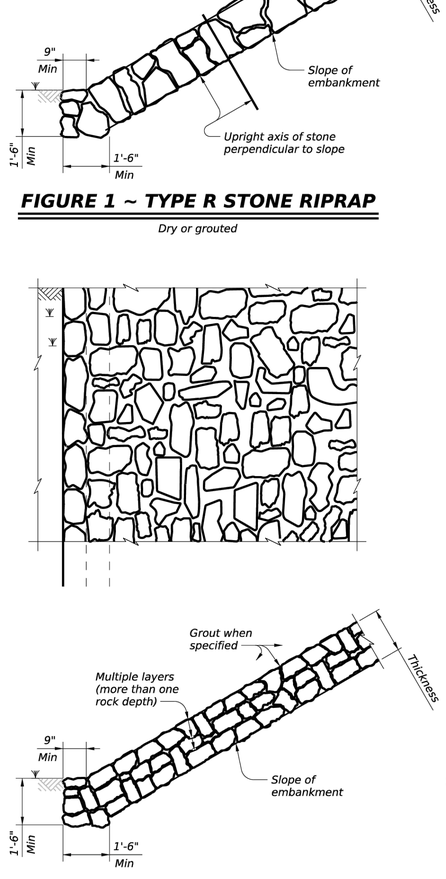


FIGURE 4 ~ COMMON STONE RIPRAP

Dry or grouted

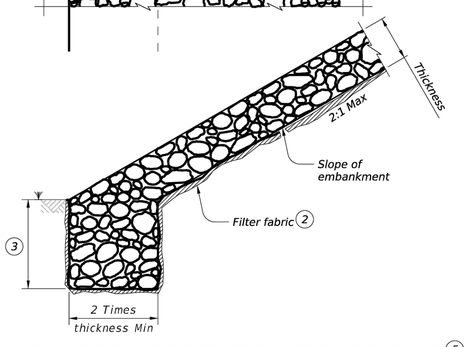


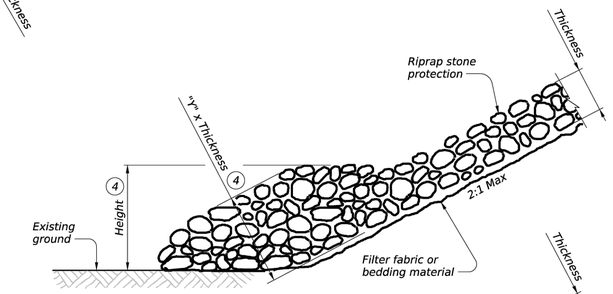
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

(2) *Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.*

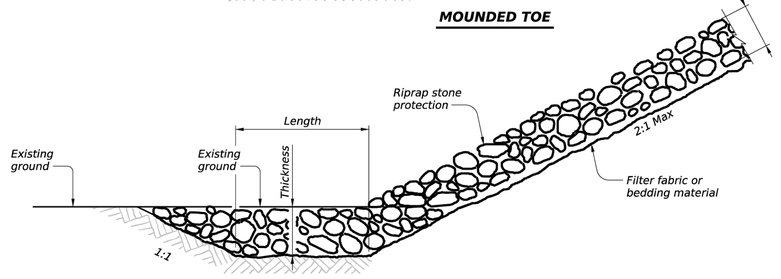
(3) *Minimum toe depth is 2 times the riprap thickness (typical) or as shown elsewhere in the plans.*

(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)

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

STONE RIPRAP

SHEET 2 OF 2

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID
NT852F-0285

DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS
LAWRENCE DELK
157744
LICENSED
PROFESSIONAL ENGINEER
07 17 2026

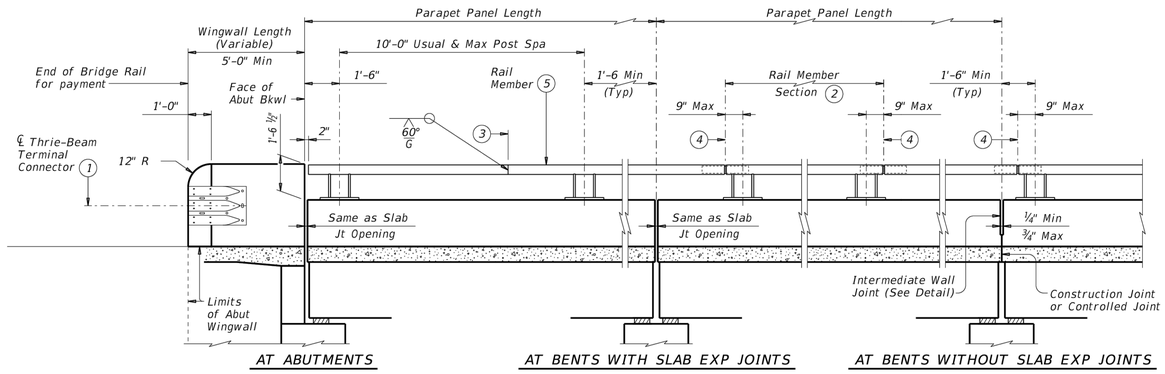
SHEET
B-52
OF B-55 SHEETS

LAUD HOWELL PARKWAY

Date\Time : Thu, 20 Aug, 2026 - 12:38pm\User Name : gzhong
Path\Name : S:\NTX-LJA00-0285\400-ANG\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\52 STONE RIPRAP_2.dwg

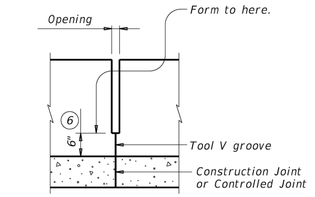
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



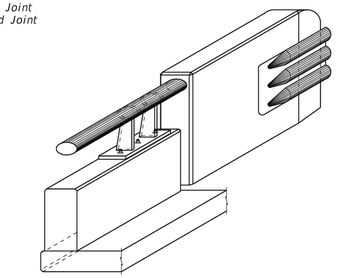
ROADWAY ELEVATION OF RAIL

(Rail Member showing Elliptical Tube Option, Rectangular Tube Option similar).



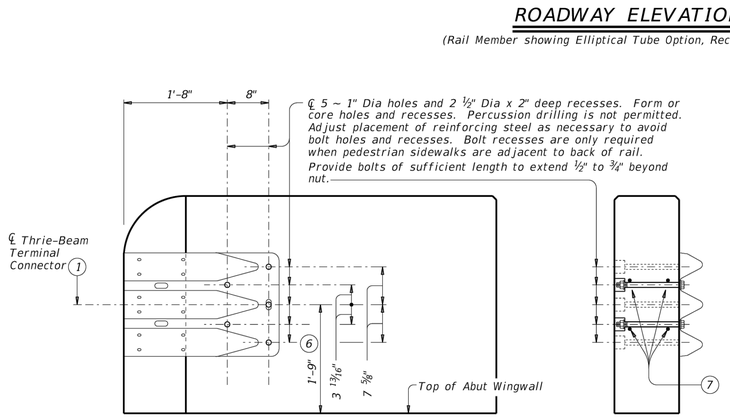
INTERMEDIATE WALL JOINT DETAIL

Provide at all interior bents without slab expansion joints.

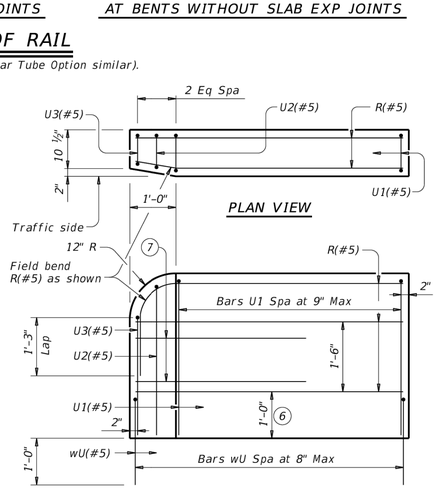


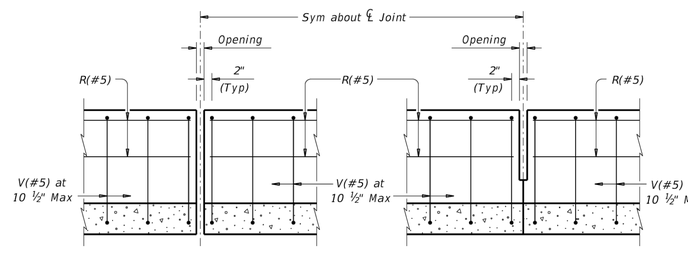
ISOMETRIC VIEW AT END OF BRIDGE

(Rail Member showing Elliptical Tube Option, Rectangular Tube Option similar).

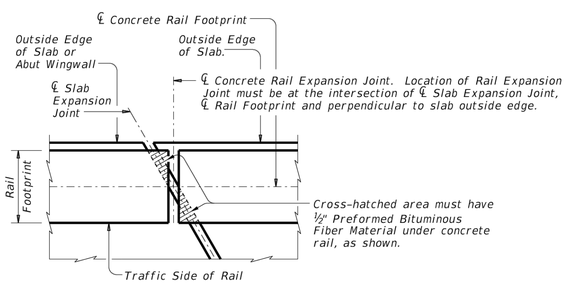


TERMINAL CONNECTION DETAILS





ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.

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. Rail member sections must have at least two posts but not more than four.
3. One shop splice per rail member section is permitted with minimum 85 percent penetration. The weld may be square groove or single V groove. Grind smooth.
4. ℄ Exp Jt or Splice Jt as required.
5. Unless directed otherwise by the Engineer, the Fabricator may use the rectangular tube in lieu of the elliptical tube for the rail member.
6. Increase 2" for structures with overlay.
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.

SHEET 1 OF 3

Texas Department of Transportation — Bridge Division Standard

TRAFFIC RAIL

TYPE T402

FILE: RL-T402-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

TRAFFIC RAIL

SHEET 1 OF 3

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

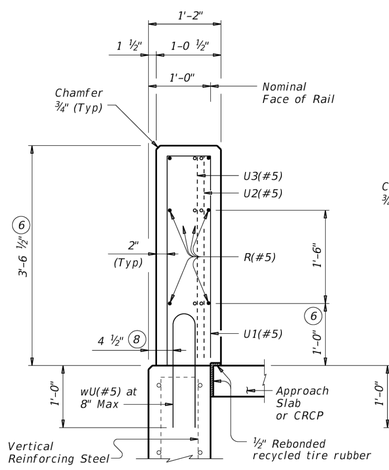
SHEET
B-53
OF B-55 SHEETS

LAUD HOWELL PARKWAY

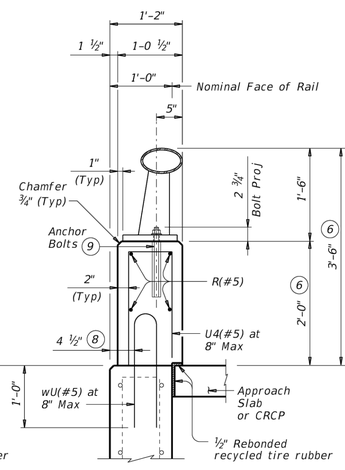
Date\Time : Thu, 20 Aug 2026 — 12:40pm\User Name : gshong
Path\Name : S:\NTX-LJA\0285\400-ENG\425 Design Files\Laud Howell Parkway\Structures\TxDOT STD\53_TRAFFIC RAIL.dwg

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

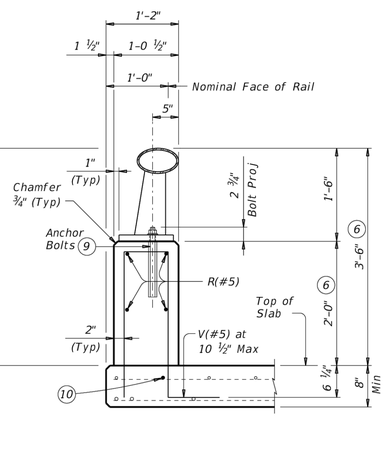
DATE:
FILE:



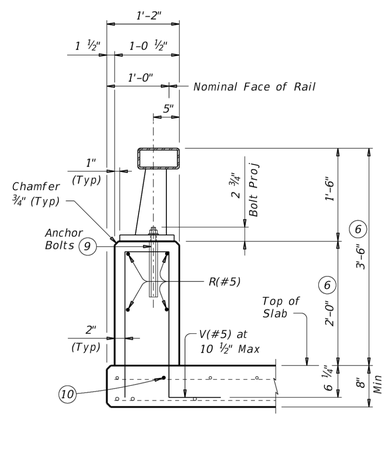
ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



ON CIP RETAINING WALLS
(Showing Elliptical Tube Option)

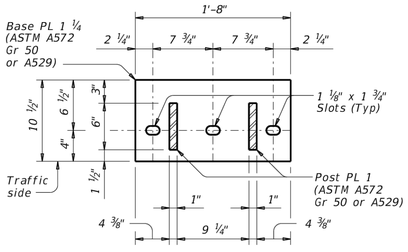


ON BRIDGE SLAB
(Showing Elliptical Tube Option)

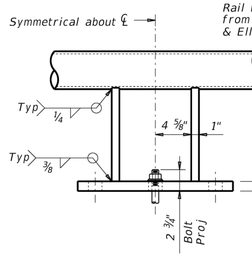


ON BRIDGE SLAB
(Showing Rectangular Tube Option)

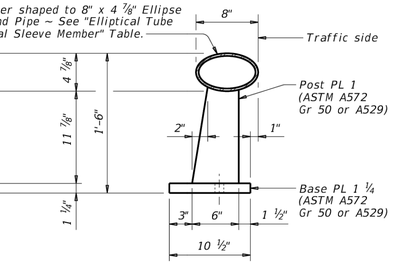
SECTIONS THRU RAIL (5)



SECTION THRU POST



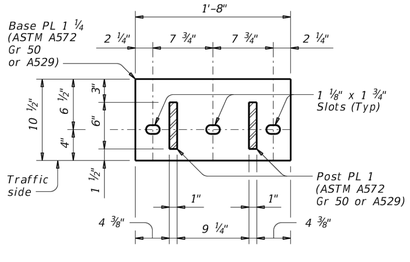
ELEVATION



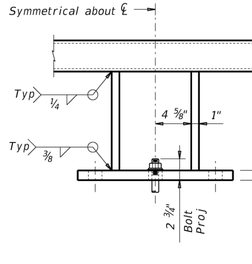
SECTION THRU RAIL

ELLIPTICAL TUBE WITH RAIL POST & ANCHORAGE DETAILS

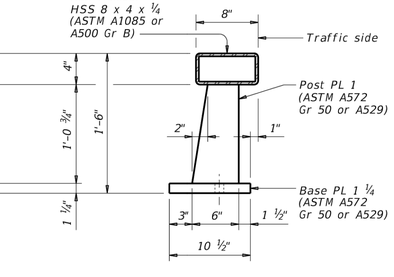
(Showing Elliptical Tube Option)



SECTION THRU POST



ELEVATION



SECTION THRU RAIL

RECTANGULAR TUBE WITH RAIL POST & ANCHORAGE DETAILS (5)

(Showing Rectangular Tube Option)

(5) Unless directed otherwise by the Engineer, the Fabricator may use the rectangular tube in lieu of the elliptical tube for the rail member.

(6) Increase 2" for structures with overlay.

(8) 5 ¼" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(9) See "Material Notes" for anchor bolt information.

(10) Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

SHEET 2 OF 3

Texas Department of Transportation — Bridge Division Standard

TRAFFIC RAIL

TYPE T402

FILE: RL-T402-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

HL93 LOADING

DATE	REVISION	BY

TRAFFIC RAIL

SHEET 2 OF 3

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

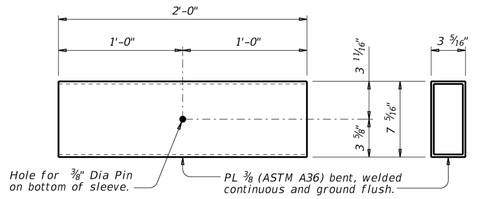
LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: NS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

SHEET
B-54
OF B-55 SHEETS

Date\Time : Thu, 20 Aug, 2026, 12:40pm\User Name : gzhong
Path\Name : S:\TRX-LJA00102851\400-Design Files\Laud Howell Parkway\Structures\TxDOT STD\54 TRAFFIC RAIL.dwg

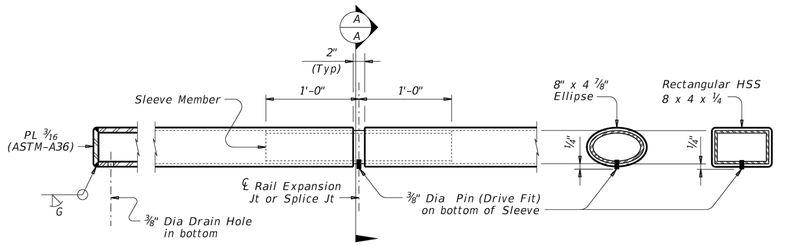
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



PLAN END VIEW

RECTANGULAR TUBE SLEEVE MEMBER DETAIL

(See Tube Fabrication Detail)



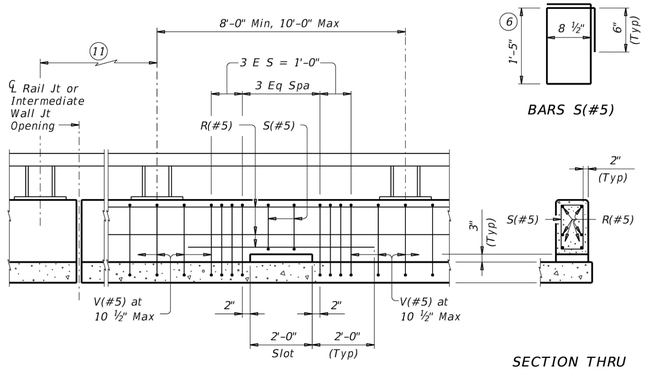
AT RAIL ENDS AT SPLICE OR EXP JTS SECTION A-A (Showing Ellipse Tube Option) SECTION A-A (Showing Rectangular Tube Option)

TUBE FABRICATION DETAILS (5)

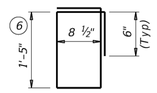
ELLIPTICAL TUBE & ELLIPTICAL SLEEVE MEMBER

8" x 4 7/8" Ellipse	Elliptical Sleeve Member	
Material	Material	Thickness
6" Dia Std Pipe ASTM A53 E or S Gr B)	ASTM A53 Gr B	0.353"
	ASTM A36 or A500 Gr B	0.339"
	API-5LX52	0.224"
6 5/8" O.D. Pipe x 0.188" API-5LX52	ASTM A53 Gr B	0.339"
	ASTM A36 or A500 Gr B	0.325"
	API-5LX52	0.188"

Notes: Other sections of equal or greater strength are acceptable for elliptical sleeves. The major and minor diameters of the rail member may vary +/- 0.1875" from plan dimension. However, the difference between the outside diameters of the elliptical sleeve and the inside diameters of the rail member must not exceed 0.25 inches.



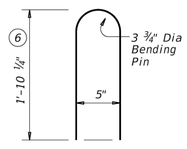
ELEVATION SECTION THRU SIDE SLOT DRAIN



BARS S(#5)

OPTIONAL SIDE SLOT DRAIN DETAILS

Note: Center Side Slot Drains between rail posts within the limits shown. 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 surface and a sidewalk surface, side drain slots will not be permitted.



BARS wU(#5)

(5) Unless directed otherwise by the Engineer, the Fabricator may use the rectangular tube in lieu of the elliptical tube for the rail member.

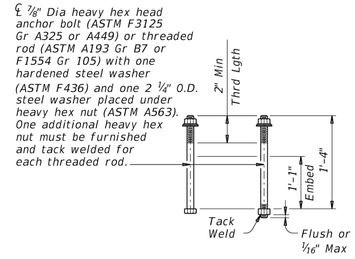
(6) Increase 2" for structures with overlay.

(9) See "Material Notes" for anchor bolt information.

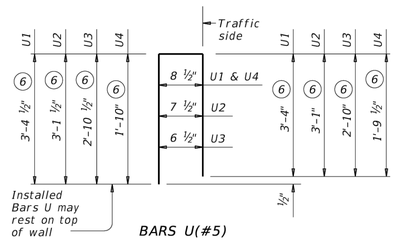
(11) Slots are not allowed in areas where there is a joint in the concrete parapet between rail post.

(12) Length shown for 6 1/4" Min bar embedment with no overlay. Adjust as required.

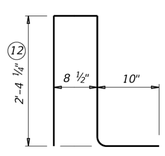
(13) Shop drawings for approval required for tubular steel sections.



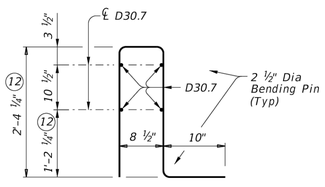
CAST-IN-PLACE ANCHOR BOLT OPTIONS (9)



BARS U(#5)



BARS V(#5)



OPTIONAL WELDED WIRE REINFORCING (WWR)

RAIL DATA FOR HORIZONTAL CURVES

	RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	CONSTRUCTION OR FABRICATE
Rail Members	Over 2800'	29'-0"	Straight rail sections
	Over 1400' thru 2800'	14'-6"	To required radius or to chords shown (13)
	Over 700' thru 1400'	7'-3"	
	Thru 700'	Zero	To required radius (13)

CONSTRUCTION NOTES:

This rail may be slipformed if approved by the Engineer when adhesive anchor bolts are used. At the Contractor's option anchor bolts may be cast with the parapet (See Cast-in-Place Anchor Bolt Options).

Slipforming parapet is not allowed if anchor bolts are cast with parapet wall.

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a 3/8" width x 1/4" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

Rail parapet must be plumb unless otherwise approved. Steel posts must be square to the top of parapet. Use Type VIII epoxy mortar under post base plates if gaps larger than 1/16" exist.

Cap all ends of tubular steel sections at parapet.

Rail member sections must have at least two posts but not more than four.

Round or chamfer all exposed edges of steel components 1/16" by grinding prior to galvanizing. Chamfer all exposed concrete corners.

MATERIAL NOTES:

Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, 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.

Anchor bolts must be 7/8" Dia ASTM A193 Gr B7 fully threaded rods with heavy hex nuts, one hardened steel washer (ASTM F436), and one (2 1/4" O.D.) steel washer each. Nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 8". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor, Na, of 17 kips (edge distance must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing."

Optional cast-in-place anchor bolts must be 7/8" Dia ASTM F3125 Gr A325 or A449 bolts (or A193 Gr B7 or F1554 Gr 105 threaded rods with one tack welded heavy hex nut each) with one heavy hex nut and one hardened steel washer (ASTM F436) plus one (2 1/4" O.D.) steel washer at each bolt. Nuts must conform to ASTM A563 requirements.

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Deformed Welded Wire Reinforcement (WWR) ASTM A1064 may be substituted for Bars R, and V, as shown. Provide the same laps as required for reinforcing bars.

Provide bar laps, where required, as follows: Uncoated or galvanized ~ #5 = 2'-0"
Epoxy coated ~ #5 = 3'-0"

GENERAL NOTES:

This rail has been evaluated and approved to be of equal strength to railing with like geometry, which have been crash tested 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.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

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: 343 plf total
313 plf (Conc)
30 plf (Steel).

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

SHEET 3 OF 3

Texas Department of Transportation — Bridge Division Standard

TRAFFIC RAIL

TYPE T402

FILE: RL-T402-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE	REVISION	BY
	HL93 LOADING	

TRAFFIC RAIL

SHEET 3 OF 3

Laud Howell Parkway

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

LJA PROJECT ID NT852F-0285
DATE: JULY 2026
DESIGN: EH
DRAWN: MS
SCALE
HORZ:
VERT:

STATE OF TEXAS — LAWRENCE DELK — 157744 — LICENSED PROFESSIONAL ENGINEER
07 17 2026

SHEET B-55
OF B-55 SHEETS

DATE:
FILE:

Date\Time : Thu, 20 Aug 2026 - 12:41pm User Name : gzhong
Path\Name : S:\NTP-CAD\CADD\ACAD\V26\ Design Files\Laud Howell Parkway\Structures\TxDOT STD\55 TRAFFIC RAIL.dwg

SHEET INDEX

1. COVER SHEET
2. SHEET INDEX
3. GENERAL NOTES
4. GENERAL NOTES
5. PROJECT LAYOUT
6. TYPICAL SECTIONS
7. TYPICAL SECTIONS – ROUNDABOUTS
8. REMOVAL PLAN – START – 21+00
9. REMOVAL PLAN – 21+00 – 43+00
10. REMOVAL PLAN – 43+00 – 65+00
11. REMOVAL PLAN – 65+00 – 87+00
12. REMOVAL PLAN – 87+00 – 109+00
13. REMOVAL PLAN – 109+00 – 131+00
14. REMOVAL PLAN – 131+00 – 142+00
15. TREE SURVEY PLAN – START – 21+00
16. TREE SURVEY PLAN – 21+00 – 43+00
17. TREE SURVEY PLAN – 43+00 – 65+00
18. TREE SURVEY PLAN – 65+00 – 87+00
19. TREE SURVEY PLAN – 87+00 – 109+00
20. TREE SURVEY PLAN – 109+00 – 131+00
21. TREE SURVEY PLAN – 131+11 – 142+00
22. TREE SURVEY TABLES
23. TREE SURVEY TABLES
24. TREE SURVEY TABLES
25. TREE SURVEY TABLES
26. TREE SURVEY TABLES
27. TREE SURVEY TABLES
28. TREE SURVEY TABLES
29. TREE SURVEY TABLES
30. TREE SURVEY TABLES
31. TREE SURVEY TABLES
32. TREE SURVEY TABLES
33. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
34. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
35. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
36. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
37. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
38. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
39. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
40. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
41. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
42. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
43. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
44. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
45. PAVING PLAN & PROFILE – LAUD HOWELL PARKWAY
46. PAVING PLAN & PROFILE – CR 1107 CONNECTIONS
47. PAVING PLAN & PROFILE – CR 201 CONNECTION
48. ROUNDABOUT AT TAYLOR BURK – PAVING PLAN
48A. ROUNDABOUT AT TAYLOR BURK – JOINTING PLAN
49. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB1A & RB1C
50. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB1B & RB1D
51. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB1E & RB1G
52. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB1F & RB1H
53. ROUNDABOUT AT TAYLOR BURK – GEOMETRIC CONTROL PLAN
54. ROUNDABOUT AT TAYLOR BURK – GEOMETRIC CONTROL PLAN
55. ROUNDABOUT AT TAYLOR BURK – CONTOUR MAP
56. ROUNDABOUT AT TAYLOR BURK – FASTEST PATH – INTERIM
57. ROUNDABOUT AT TAYLOR BURK – FASTEST PATH – THROUGH
58. ROUNDABOUT AT TAYLOR BURK – FASTEST PATH – RIGHT
59. ROUNDABOUT AT TAYLOR BURK – FASTEST PATH – LEFT
60. ROUNDABOUT AT TAYLOR BURK – INTERIM TURN PATHS
61. ROUNDABOUT AT TAYLOR BURK – TURN PATHS
62. ROUNDABOUT AT TAYLOR BURK – TURN PATHS
63. ROUNDABOUT AT TAYLOR BURK – SIGHT DISTANCE
64. ROUNDABOUT AT TAYLOR BURK – SIGHT DISTANCE
65. ROUNDABOUT AT TAYLOR BURK – SIGHT DISTANCE
66. ROUNDABOUT AT TAYLOR BURK – SIGHT DISTANCE
67. ROUNDABOUT AT TAYLOR BURK – SIGHT DISTANCE
68. ROUNDABOUT AT HARDIN – PAVING PLAN
68A. ROUNDABOUT AT HARDIN – JOINTING PLAN
69. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB2A & RB2C
70. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB2B & RB2D
71. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB2E & 2B2G
72. PAVING PLAN & PROFILE – ROUNDABOUT APPROACHES RB2F & RB2H
73. PAVING PROFILE – CENTRAL ISLANDS
74. ROUNDABOUT AT HARDIN – GEOMETRIC CONTROL PLAN
75. ROUNDABOUT AT HARDIN – GEOMETRIC CONTROL PLAN
76. ROUNDABOUT AT HARDIN – CONTOUR MAP
77. ROUNDABOUT AT HARDIN – FASTEST PATH – INTERIM
78. ROUNDABOUT AT HARDIN – FASTEST PATH – THROUGH
79. ROUNDABOUT AT HARDIN – FASTEST PATH – RIGHT
80. ROUNDABOUT AT HARDIN – FASTEST PATH – LEFT
81. ROUNDABOUT AT HARDIN – INTERIM TURN PATHS
82. ROUNDABOUT AT HARDIN – TURN PATHS
83. ROUNDABOUT AT HARDIN – TURN PATHS
84. ROUNDABOUT AT HARDIN – SIGHT DISTANCE
85. ROUNDABOUT AT HARDIN – SIGHT DISTANCE
86. ROUNDABOUT AT HARDIN – SIGHT DISTANCE
87. ROUNDABOUT AT HARDIN – SIGHT DISTANCE
88. ROUNDABOUT AT HARDIN – SIGHT DISTANCE
89. GRADING PLAN – START – 21+00
90. GRADING PLAN – 21+00 – 43+00
91. GRADING PLAN – 43+00 – 65+00
92. GRADING PLAN – 65+00 – 87+00
93. GRADING PLAN – 87+00 – 109+00
94. GRADING PLAN – 109+00 – 131+00
95. GRADING PLAN – 131+00 – 142+00
96. CROSS SECTIONS
97. CROSS SECTIONS
98. CROSS SECTIONS
99. CROSS SECTIONS
100. CROSS SECTIONS
101. CROSS SECTIONS
102. CROSS SECTIONS
103. CROSS SECTIONS
104. CROSS SECTIONS
105. CROSS SECTIONS
106. CROSS SECTIONS
107. CROSS SECTIONS
108. CROSS SECTIONS
109. CROSS SECTIONS
110. CROSS SECTIONS
111. CROSS SECTIONS
112. CROSS SECTIONS
113. CROSS SECTIONS
114. CROSS SECTIONS
115. CROSS SECTIONS
116. CROSS SECTIONS
117. CROSS SECTIONS
118. CROSS SECTIONS
119. CROSS SECTIONS
120. CROSS SECTIONS
121. CROSS SECTIONS
122. CROSS SECTIONS
123. CROSS SECTIONS
124. CROSS SECTIONS
125. CROSS SECTIONS
126. CROSS SECTIONS
127. EXISTING DRAINAGE AREA MAP
128. OVERALL INTERIM DRAINAGE AREA MAP
129. INTERIM DRAINAGE AREA MAP
130. INTERIM DRAINAGE AREA MAP
131. INTERIM DRAINAGE AREA MAP
132. OVERALL ULTIMATE DRAINAGE AREA MAP
133. ULTIMATE DRAINAGE AREA MAP
134. ULTIMATE DRAINAGE AREA MAP
135. ULTIMATE DRAINAGE AREA MAP
136. INTERIM DRAINAGE AREA SUMMARY
137. ULTIMATE DRAINAGE AREA SUMMARY
138. ULTIMATE DRAINAGE AREA SUMMARY
139. INLET & DITCH CALCULATIONS
140. STORM DRAIN CALCULATIONS
141. STORM DRAIN CALCULATIONS
142. STORM DRAIN CALCULATIONS
143. HYDRAULIC CALCS – RIPRAP CALCS
144. OVERALL STORM LAYOUT
145. STORM DRAIN PLAN & PROFILE – SD17 & LAT 17A4
146. STORM DRAIN PLAN & PROFILE – CULVERT 1
147. STORM DRAIN PLAN & PROFILE – SD1 – START – 10+50
148. STORM DRAIN PLAN & PROFILE – SD1 – 10+50 – END
149. STORM DRAIN PLAN & PROFILE – CULVERT 2
150. STORM DRAIN PLAN & PROFILE – LATS 2A1, 2B1, & 2C1
151. STORM DRAIN PLAN & PROFILE – CULVERT 3
152. STORM DRAIN PLAN & PROFILE – LATS 3A, 3B1, & 3B2
153. STORM DRAIN PLAN & PROFILE – CULVERT 4
154. STORM DRAIN PLAN & PROFILE – CULVERT 4A
155. PLAN & PROFILE – CULVERT 4 UPSTREAM STRUCTURAL WALL
156. PLAN & PROFILE – CULVERT 4 DOWNSTREAM STRUCTURAL WALL
157. STORM DRAIN PLAN & PROFILE – SD18 & SD4A
158. STORM DRAIN PLAN & PROFILE – SD4B, LAT 4B5, & LAT 4B6
159. STORM DRAIN PLAN & PROFILE – CULVERT 5
160. STORM DRAIN PLAN & PROFILE – LATS 5A1, 5A2, 5B1, & 5C1
161. STORM DRAIN PLAN & PROFILE – CULVERT 6
162. STORM DRAIN PLAN & PROFILE – SD6 & LAT 6A2
163. STORM DRAIN PLAN & PROFILE – SD15
164. STORM DRAIN PLAN & PROFILE – SD15
165. STORM DRAIN PLAN & PROFILE – SD15 & LAT OFF–15A
166. STORM DRAIN PLAN & PROFILE – CULVERT 15
167. STORM DRAIN PLAN & PROFILE – SD16
168. STORM DRAIN PLAN & PROFILE – CULVERT 7
169. STORM DRAIN PLAN & PROFILE – SD7
170. STORM DRAIN PLAN & PROFILE – SD8
171. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
172. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
173. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
174. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
175. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
176. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
177. STORM DRAIN PLAN & PROFILE – LATERAL PROFILES
178. WATER PLAN & PROFILE – WL1
179. WATER PLAN & PROFILE – WL1
180. WATER PLAN & PROFILE – WL1
181. WATER PLAN & PROFILE – WL SLEEVE 1, WL2, & WL6
182. WATER PLAN & PROFILE – WL3, WL4, & WL SLEEVE 5
183. PAVEMENT MARKING & SIGNAGE PLAN
184. PAVEMENT MARKING & SIGNAGE PLAN
185. PAVEMENT MARKING & SIGNAGE PLAN
186. PAVEMENT MARKING & SIGNAGE PLAN
187. PAVEMENT MARKING & SIGNAGE PLAN
188. PAVEMENT MARKING & SIGNAGE PLAN
189. PAVEMENT MARKING & SIGNAGE PLAN
190. ROUNDABOUT AT TAYLOR BURK – SIGNAGE PLAN
191. ROUNDABOUT AT TAYLOR BURK – STRIPING PLAN
192. ROUNDABOUT AT HARDIN – SIGNAGE PLAN
193. ROUNDABOUT AT HARDIN – STRIPING PLAN
194. ROUNDABOUTS AT LAUD HOWELL – SIGNAGE SCHEDULE
195. EROSION CONTROL PLAN – LAUD HOWELL PARKWAY
196. EROSION CONTROL PLAN – LAUD HOWELL PARKWAY
197. EROSION CONTROL PLAN – LAUD HOWELL PARKWAY
198. EROSION CONTROL DETAILS
199. EROSION CONTROL DETAILS
200. EROSION CONTROL DETAILS
201. PAVING DETAILS
202. PAVING DETAILS
203. PAVING DETAILS
204. TRENCH & EMBANKMENT DETAILS
205. WATER DETAILS
206. WATER DETAILS
207. WATER DETAILS
208. STORM DETAILS
209. STORM DETAILS
210. TXDOT DETAILS – FW–0, SW–0, & PW
211. TXDOT DETAILS – SCC–3 & 4 & SCC–5 & 6
212. TXDOT DETAILS – SCC–9 & MC–10–16
213. TXDOT DETAILS – SCC–MD, MCC–MD, & STACKED MANHOLE
214. TXDOT DETAILS – PRD–13
215. PAVEMENT MARKING & SIGNAGE DETAILS
216. PAVEMENT MARKING & SIGNAGE DETAILS
217. TXDOT DETAILS – BC(1)–21 & BC(2)–21
218. TXDOT DETAILS – BC(3)–21 & BC(4)–21
219. TXDOT DETAILS – BC(5)–21 & BC(6)–21
220. TXDOT DETAILS – BC(7)–21 & BC(8)–21
221. TXDOT DETAILS – BC(9)–21 & BC(10)–21
222. TXDOT DETAILS – BC(11)–21 & BC(12)–21
223. TXDOT DETAILS – TCP(1–1)–18 & TCP(1–2)–18
224. TXDOT DETAILS – TCP(1–3)–18 & TCP(1–4)–18
225. TXDOT DETAILS – TCP(1–5)–18 & TCP(1–6)–18
226. TXDOT DETAILS – TCP(2–1)–18 & TCP(2–2)–18
227. TXDOT DETAILS – TCP(2–3)–23 & TCP(2–4)–18
228. TXDOT DETAILS – TCP(2–5)–18 & TCP(2–6)–18
229. TXDOT DETAILS – TCP(2–7)–23 & TCP(2–8)–23
230. TXDOT DETAILS – TCP(3–1)–13 & TCP(3–2)–13
231. TXDOT DETAILS – TCP(3–3)–14 & TCP(3–4)–13
232. TXDOT DETAILS – TCP(3–5)–18
233. TXDOT DETAILS – WZ(RCD)–13 & WZ(TD)–17
234. TXDOT DETAILS – TRF & T222

B–1. HONEY CREEK EB BRIDGE LAYOUT (1 OF 2)
B–2. HONEY CREEK EB BRIDGE LAYOUT (2 OF 2)
B–3. EB & WB TYPICAL SECTION
B–4. EB ESTIMATED QUANTITIES
B–5. EB ABUTMENT NO. 1 & 6
B–6. EB ABUTMENT NO. 1 & 6 DETAILS
B–7. EB INTERIOR BENTS NO. 2 – 5
B–8. EB FRAMING PLAN (1 OF 2)
B–9. EB FRAMING PLAN (2 OF 2)
B–10. EB PRESTRESSED CONCRETE GIRDER UNIT 1
B–11. EB PRESTRESSED CONCRETE GIRDER UNIT 2
B–12. EB BRIDGE PRESTRESSED CONCRETE I–GIRDER DESIGNS
B–13. HONEY CREEK WB BRIDGE LAYOUT (1 OF 2)
B–14. HONEY CREEK WB BRIDGE LAYOUT (2 OF 2)
B–15. WB ESTIMATED QUANTITIES
B–16. WB ABUTMENT NO. 1 & 6
B–17. WB ABUTMENT NO. 1 & 6 DETAILS
B–18. WB INTERIOR BENTS 2 – 5
B–19. WB FRAMING PLAN (1 OF 2)
B–20. WB FRAMING PLAN (2 OF 2)
B–21. WB PRESTRESSED CONCRETE GIRDER UNIT 1
B–22. WB PRESTRESSED CONCRETE GIRDER UNIT 2
B–23. PRESTRESSED CONCRETE I–GIRDER DESIGNS
B–24. 42" RAILING W/ THICKENED CONCRETE EDGE
B–25. BRIDGE APPROACH SLAB
B–26. BRIDGE LIGHTING DETAILS (1 OF 2)
B–27. BRIDGE LIGHTING DETAILS (2 OF 2)
B–28. CEMENT STABILIZED ABUTMENT BACKFILL (1 OF 2)
B–29. CEMENT STABILIZED ABUTMENT BACKFILL (2 OF 2)
B–30. COMMON FOUNDATION DETAILS (1 OF 2)
B–31. COMMON FOUNDATION DETAILS (2 OF 2)
B–32. PRESTRESSED CONCRETE I–GIRDER DETAILS
B–33. PRESTRESSED CONCRETE I–GIRDER DETAILS
B–34. ELASTOMERIC BEARING AND GIRDER END DETAILS (1 OF 3)
B–35. ELASTOMERIC BEARING AND GIRDER END DETAILS (2 OF 3)
B–36. ELASTOMERIC BEARING AND GIRDER END DETAILS (3 OF 3)
B–37. MISCELLANEOUS SLAB DETAILS (1 OF 2)
B–38. MISCELLANEOUS SLAB DETAILS (2 OF 2)
B–39. SHEAR KEY DETAILS
B–40. THICKENED SLAB END DETAILS
B–41. PRESTRESSED CONCRETE PANEL (1 OF 4)
B–42. PRESTRESSED CONCRETE PANEL (2 OF 4)
B–43. PRESTRESSED CONCRETE PANEL (3 OF 4)
B–44. PRESTRESSED CONCRETE PANEL (4 OF 4)
B–45. PRESTRESSED CONC PANEL FABRICATION DETAILS
B–46. PERMANENT METAL DECK FORMS (1 OF 2)
B–47. PERMANENT METAL DECK FORMS (2 OF 2)
B–48. SHOULDER DRAIN AT END OF BRIDGE RAIL (1 OF 2)
B–49. SHOULDER DRAIN AT END OF BRIDGE RAIL (2 OF 2)
B–50. SEALED EXPANSION JOINT TYPE M
B–51. STONE RIPRAP (1 OF 2)
B–52. STONE RIPRAP (2 OF 2)
B–53. TRAFFIC RAIL (1 OF 3)
B–54. TRAFFIC RAIL (2 OF 3)
B–55. TRAFFIC RAIL (3 OF 3)

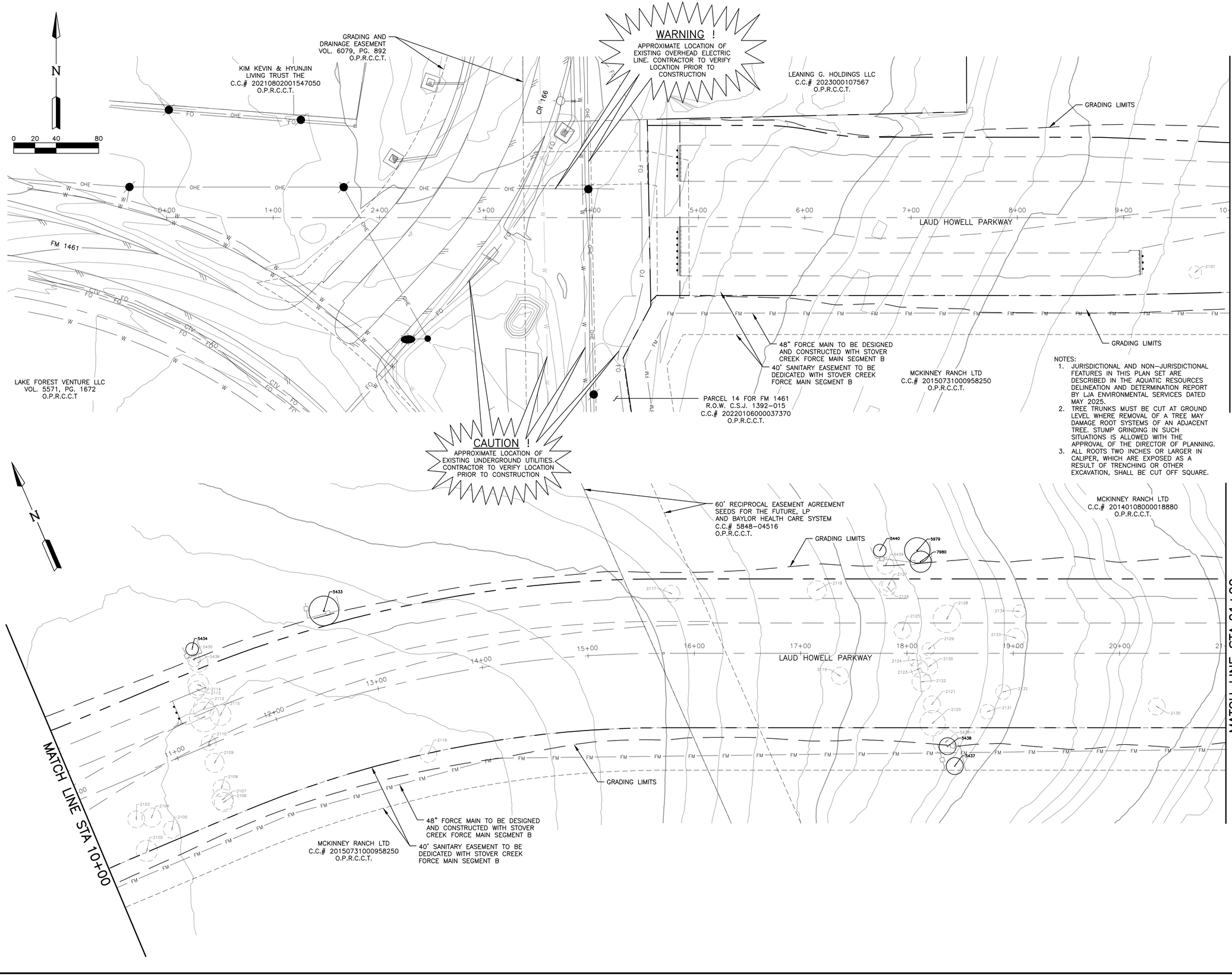
S–1. RETAINING WALL PLAN & PROFILE
S–2. RETAINING WALL DETAILS (1 OF 2)
S–3. RETAINING WALL DETAILS (2 OF 2)
S–4. CULVERT 4A DETAILS

L1. PROPOSED ILLUMINATION LAYOUT – LAUD HOWELL PWKY AT TAYLOR BURK DR
L2. PROPOSED ILLUMINATION LAYOUT – LAUD HOWELL PKWY BRIDGE
L3. PROPOSED ILLUMINATION LAYOUT – LAUD HOWELL PKWY AT HARDIN BLVD
L4. STANDARD DETAIL DRAWINGS – ED(1)–25
L5. STANDARD DETAIL DRAWINGS – ED(3)–25
L6. STANDARD DETAIL DRAWINGS – ED(4)–25
L7. STANDARD DETAIL DRAWINGS – ED(5)–25
L8. STANDARD DETAIL DRAWINGS – ED(6)–25
L9. STANDARD DETAIL DRAWINGS – ED(9)–25
L10. STANDARD DETAIL DRAWINGS – RID(1)–20
L11. STANDARD DETAIL DRAWINGS – RID(2)–20
L12. STANDARD DETAIL DRAWINGS – RIP(1)–20
L13. STANDARD DETAIL DRAWINGS – RIP(2)–19
L14. STANDARD DETAIL DRAWINGS – RIP(3)–19
L15. STANDARD DETAIL DRAWINGS – RIP(4)–19
L16. STANDARD DETAIL DRAWINGS – BL–D
L17. STANDARD DETAIL DRAWINGS – BL–D
L18. STANDARD DETAIL DRAWINGS – 7005M

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F–0285
DATE: AUGUST 2026
DESIGN: N/A
DRAWN: N/A
SCALE
HORZ: N/A
VERT: N/A
SHEET 2 OF 234 SHEETS

Date\Time : Fri, 21 Aug 2026 – 12:24pm User Name : nkennedy
Path\Name : S:\NX–LJA\0285\400\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2C001.dwg



NOTES:
1. JURISDICTIONAL AND NON-JURISDICTIONAL FEATURES IN THIS PLAN SET ARE DESCRIBED IN THE AQUATIC RESOURCES DELINEATION AND DETERMINATION REPORT BY LJA ENVIRONMENTAL SERVICES DATED MAY 2025.
2. TREE TRUNKS MUST BE CUT AT GROUND LEVEL WHERE REMOVAL OF A TREE MAY DAMAGE ROOT SYSTEMS OF AN ADJACENT TREE. STUMP GRINDING IN SUCH SITUATIONS IS ALLOWED WITH THE APPROVAL OF THE DIRECTOR OF PLANNING.
3. ALL ROOTS TWO INCHES OR LARGER IN CALIPER, WHICH ARE EXPOSED AS A RESULT OF TRENCHING OR OTHER EXCAVATION, SHALL BE CUT OFF SQUARE.

TREE SURVEY LEGEND

- PROPOSED ROW
- USACE NON-JURISDICTIONAL AQUATIC FEATURE
- POTENTIAL USACE JURISDICTIONAL AQUATIC FEATURE
- EXISTING TREE PROTECTION FENCING TO BE REMOVED
- EXISTING TREE PROTECTION FENCING TO REMAIN
- PROPOSED TREE PROTECTION FENCING WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO BE REMOVED WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO REMAIN
- 1111 CRITICAL ROOT ZONE — TREES REMOVED BY MASS GRADING
- PROPOSED PAVING/ SIDEWALK IMPROVEMENTS

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

TREE SURVEY PLAN
START - 21+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

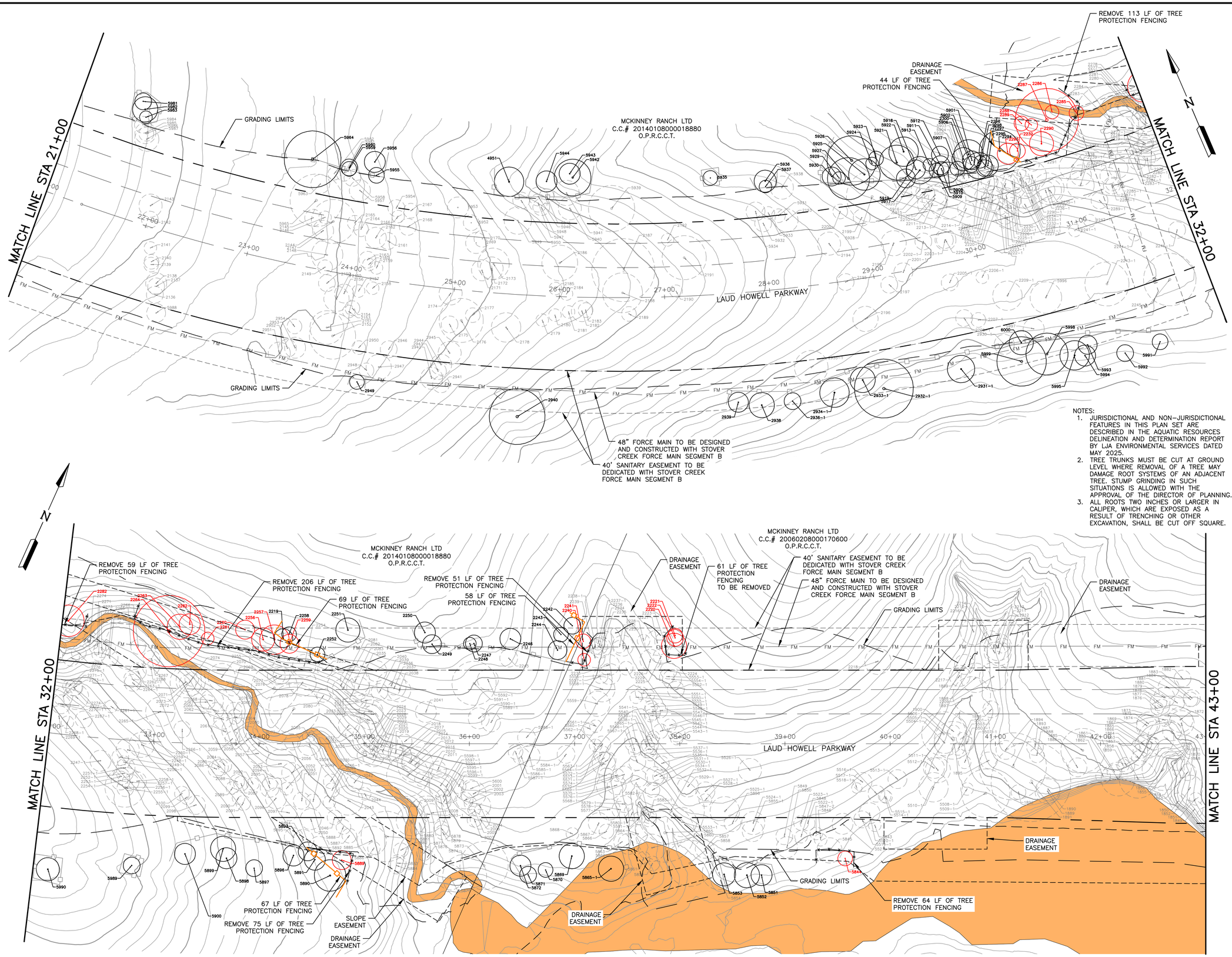
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
Ronald Salamie
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: KENNEDY
DRAWN: KENNEDY
SCALE
HORZ: 1" = 40'
VERT: N/A
SHEET
15
OF 234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:25pm User Name : nkennedy
path\name = S:\NT-Alloc\0285\1000Alloc\125 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg



TREE SURVEY LEGEND

- PROPOSED ROW
- USACE NON-JURISDICTIONAL AQUATIC FEATURE
- POTENTIAL USACE JURISDICTIONAL AQUATIC FEATURE
- EXISTING TREE PROTECTION FENCING TO BE REMOVED
- EXISTING TREE PROTECTION FENCING TO REMAIN
- PROPOSED TREE PROTECTION FENCING WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO BE REMOVED WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO REMAIN
- 1111 CRITICAL ROOT ZONE — TREES REMOVED BY MASS GRADING
- PROPOSED PAVING/ SIDEWALK IMPROVEMENTS

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201, APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD, APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233 EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166, APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

NOTES:
1. JURISDICTIONAL AND NON-JURISDICTIONAL FEATURES IN THIS PLAN SET ARE DESCRIBED IN THE AQUATIC RESOURCES DELINEATION AND DETERMINATION REPORT BY LJA ENVIRONMENTAL SERVICES DATED MAY 2025.
2. TREE TRUNKS MUST BE CUT AT GROUND LEVEL WHERE REMOVAL OF A TREE MAY DAMAGE ROOT SYSTEMS OF AN ADJACENT TREE. STUMP GRINDING IN SUCH SITUATIONS IS ALLOWED WITH THE APPROVAL OF THE DIRECTOR OF PLANNING.
3. ALL ROOTS TWO INCHES OR LARGER IN CALIPER, WHICH ARE EXPOSED AS A RESULT OF TRENCHING OR OTHER EXCAVATION, SHALL BE CUT OFF SQUARE.

DATE	REVISION	BY

TREE SURVEY PLAN
21+00 - 43+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

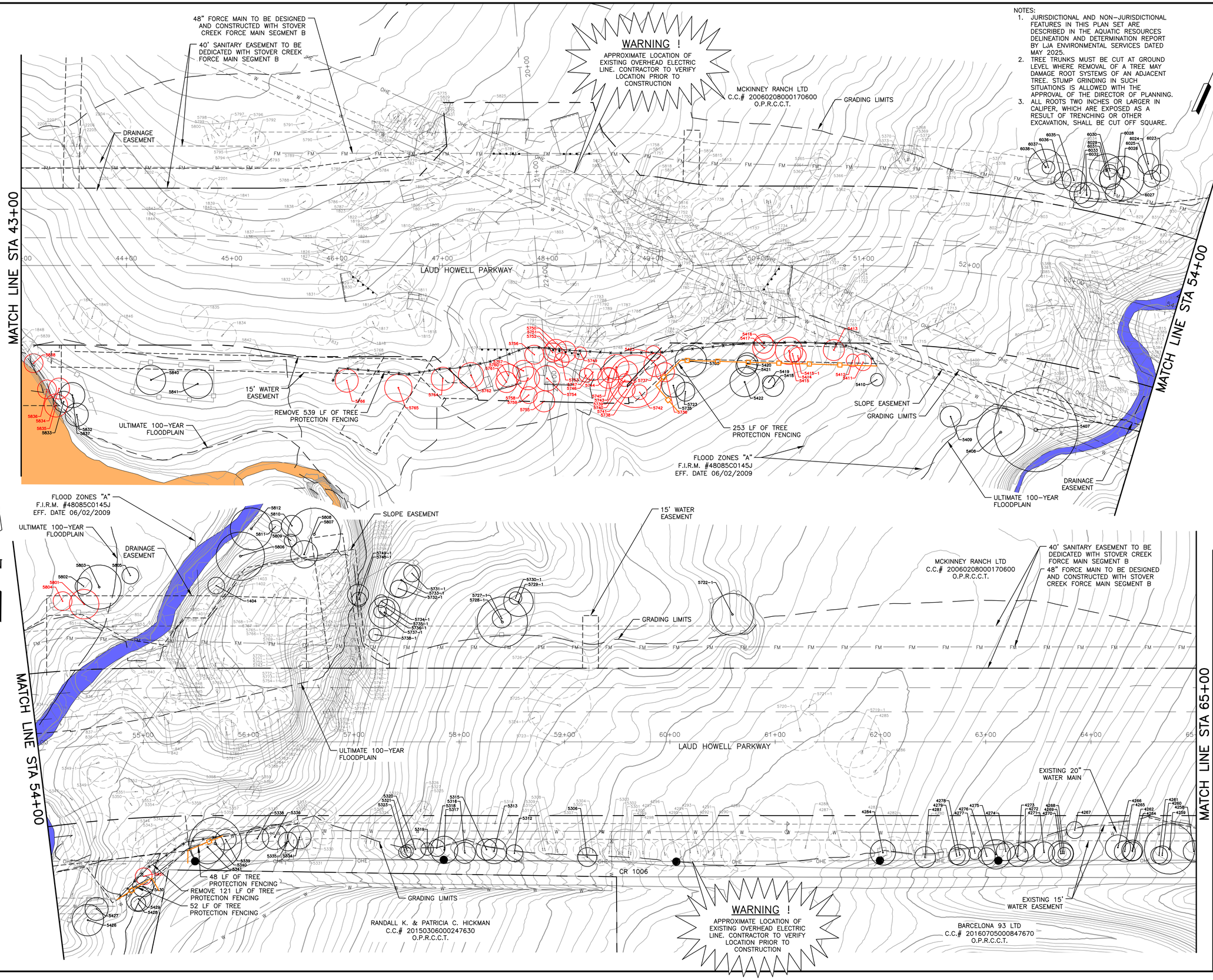
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID	NT852F-0285
DATE:	AUGUST 2026
DESIGN:	KENNEDY
DRAWN:	KENNEDY
SCALE HORZ:	1" = 40'
VERT:	N/A
SHEET	16
OF	234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:29pm User Name : nkennedy
Path\Name : S:\NT-Land\0285\100LAND\125 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg



NOTES:

1. JURISDICTIONAL AND NON-JURISDICTIONAL FEATURES IN THIS PLAN SET ARE DESCRIBED IN THE AQUATIC RESOURCES DELINEATION AND DETERMINATION REPORT BY LJA ENVIRONMENTAL SERVICES DATED MAY 2025.
2. TREE TRUNKS MUST BE CUT AT GROUND LEVEL WHERE REMOVAL OF A TREE MAY DAMAGE ROOT SYSTEMS OF AN ADJACENT TREE. STUMP GRINDING IN SUCH SITUATIONS IS ALLOWED WITH THE APPROVAL OF THE DIRECTOR OF PLANNING.
3. ALL ROOTS TWO INCHES OR LARGER IN CALIPER, WHICH ARE EXPOSED AS A RESULT OF TRENCHING OR OTHER EXCAVATION, SHALL BE CUT OFF SQUARE.

0 20 40 80

TREE SURVEY LEGEND

- PROPOSED ROW
- USACE NON-JURISDICTIONAL AQUATIC FEATURE
- POTENTIAL USACE JURISDICTIONAL AQUATIC FEATURE
- EXISTING TREE PROTECTION FENCING TO BE REMOVED
- EXISTING TREE PROTECTION FENCING TO REMAIN
- PROPOSED TREE PROTECTION FENCING WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO BE REMOVED WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO REMAIN
- 1111 CRITICAL ROOT ZONE — TREES REMOVED BY MASS GRADING
- PROPOSED PAVING/ SIDEWALK IMPROVEMENTS

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201, APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD, APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166, APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

TREE SURVEY PLAN
43+00 - 65+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

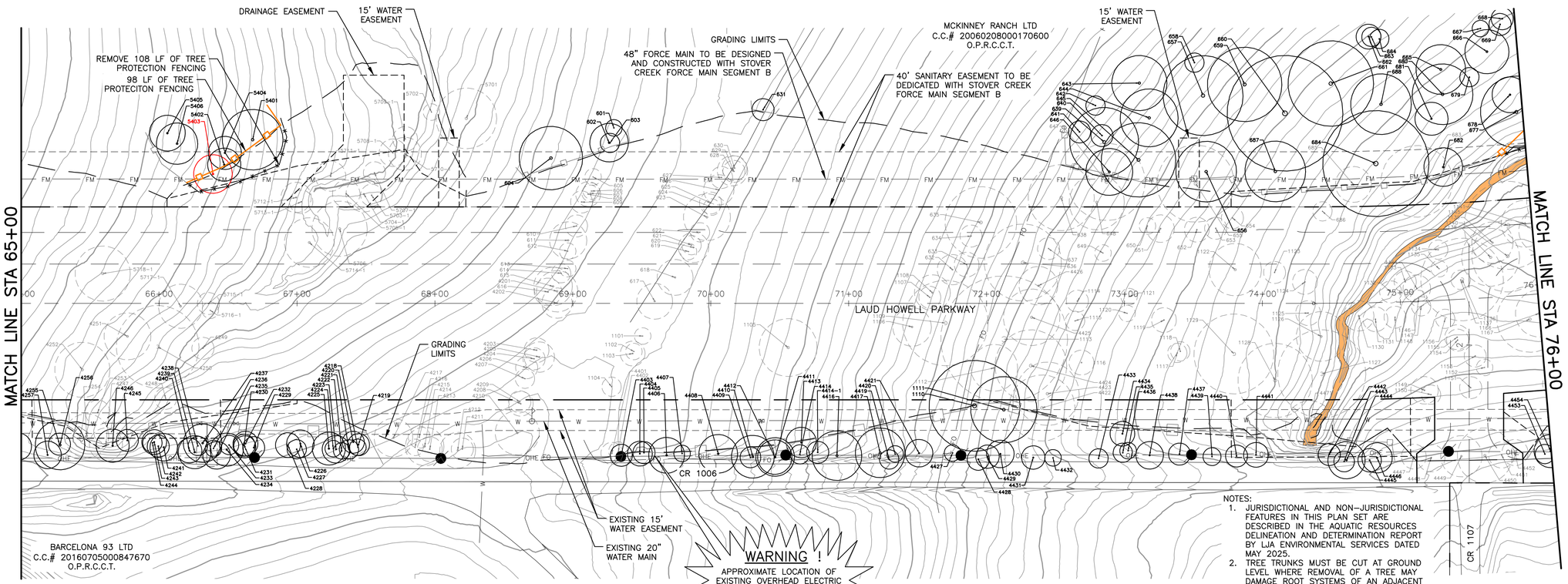
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: KENNEDY
DRAWN: KENNEDY
SCALE
HORZ: 1" = 40'
VERT: N/A
SHEET
17
OF 234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:26pm User Name : nkennedy
Path\Name : S:\NT-Data\0285\000\ACAD\PSD Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg



BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201, APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD, APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166, APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

TREE SURVEY PLAN
65+00 - 87+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID	NT852F-0285
DATE:	AUGUST 2026
DESIGN:	KENNEDY
DRAWN:	KENNEDY
SCALE HORZ:	1" = 40'
VERT:	N/A
SHEET	18
OF	234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:28pm User Name : nkennedy
Path\Name : S:\Work\LJA\0285\1400\1420 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg

NOTES:
1. JURISDICTIONAL AND NON-JURISDICTIONAL FEATURES IN THIS PLAN SET ARE DESCRIBED IN THE AQUATIC RESOURCES DELINEATION AND DETERMINATION REPORT BY LJA ENVIRONMENTAL SERVICES DATED MAY 2025.
2. TREE TRUNKS MUST BE CUT AT GROUND LEVEL WHERE REMOVAL OF A TREE MAY DAMAGE ROOT SYSTEMS OF AN ADJACENT TREE. STUMP GRINDING IN SUCH SITUATIONS IS ALLOWED WITH THE APPROVAL OF THE DIRECTOR OF PLANNING.
3. ALL ROOTS TWO INCHES OR LARGER IN CALIPER, WHICH ARE EXPOSED AS A RESULT OF TRENCHING OR OTHER EXCAVATION, SHALL BE CUT OFF SQUARE.

N

0 20 40 80

TREE SURVEY LEGEND

- PROPOSED ROW
- USACE NON-JURISDICTIONAL AQUATIC FEATURE
- POTENTIAL USACE JURISDICTIONAL AQUATIC FEATURE
- EXISTING TREE PROTECTION FENCING TO BE REMOVED
- EXISTING TREE PROTECTION FENCING TO REMAIN
- PROPOSED TREE PROTECTION FENCING WITH PHASE 2
- TREES TO BE REMOVED WITH PHASE 2 (CRITICAL ROOT ZONE)
- TREES TO REMAIN (CRITICAL ROOT ZONE)
- TREES REMOVED BY MASS GRADING (CRITICAL ROOT ZONE)
- PROPOSED PAVING/ SIDEWALK IMPROVEMENTS

MATCH LINE STA 87+00

MATCH LINE STA 98+00

MATCH LINE STA 98+00

MATCH LINE STA 109+00

MCKINNEY RANCH LTD
C.C.# 20060208000170600
O.P.R.C.C.T.

SLOPE EASEMENT

GRADING LIMITS

LAUD HOWELL PARKWAY

GRADING LIMITS

SLOPE EASEMENT

FLOOD ZONES "A"
F.I.R.M. #48085C0145J
EFF. DATE 06/02/2009

CAUTION !
APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. CONTRACTOR TO VERIFY LOCATION PRIOR TO CONSTRUCTION

MCKINNEY RANCH LTD
C.C.# 20060208000170600
O.P.R.C.C.T.

ULTIMATE 100-YEAR FLOODPLAIN

68 LF OF TREE PROTECTION FENCING

REMOVE 78 LF OF TREE PROTECTION FENCING

12 LF OF TREE PROTECTION FENCING

SLOPE EASEMENT

GRADING LIMITS

197 LF OF TREE PROTECTION FENCING

REMOVE 247 LF OF TREE PROTECTION FENCING

LAUD HOWELL PARKWAY

REMOVE 147 LF OF TREE PROTECTION FENCING

SLOPE EASEMENT

DRAINAGE EASEMENT

GRADING LIMITS

151 LF OF TREE PROTECTION FENCING

SANITARY SEWER EASEMENT

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201, APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD, APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166, APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 AND FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

TREE SURVEY PLAN
87+00 - 109+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

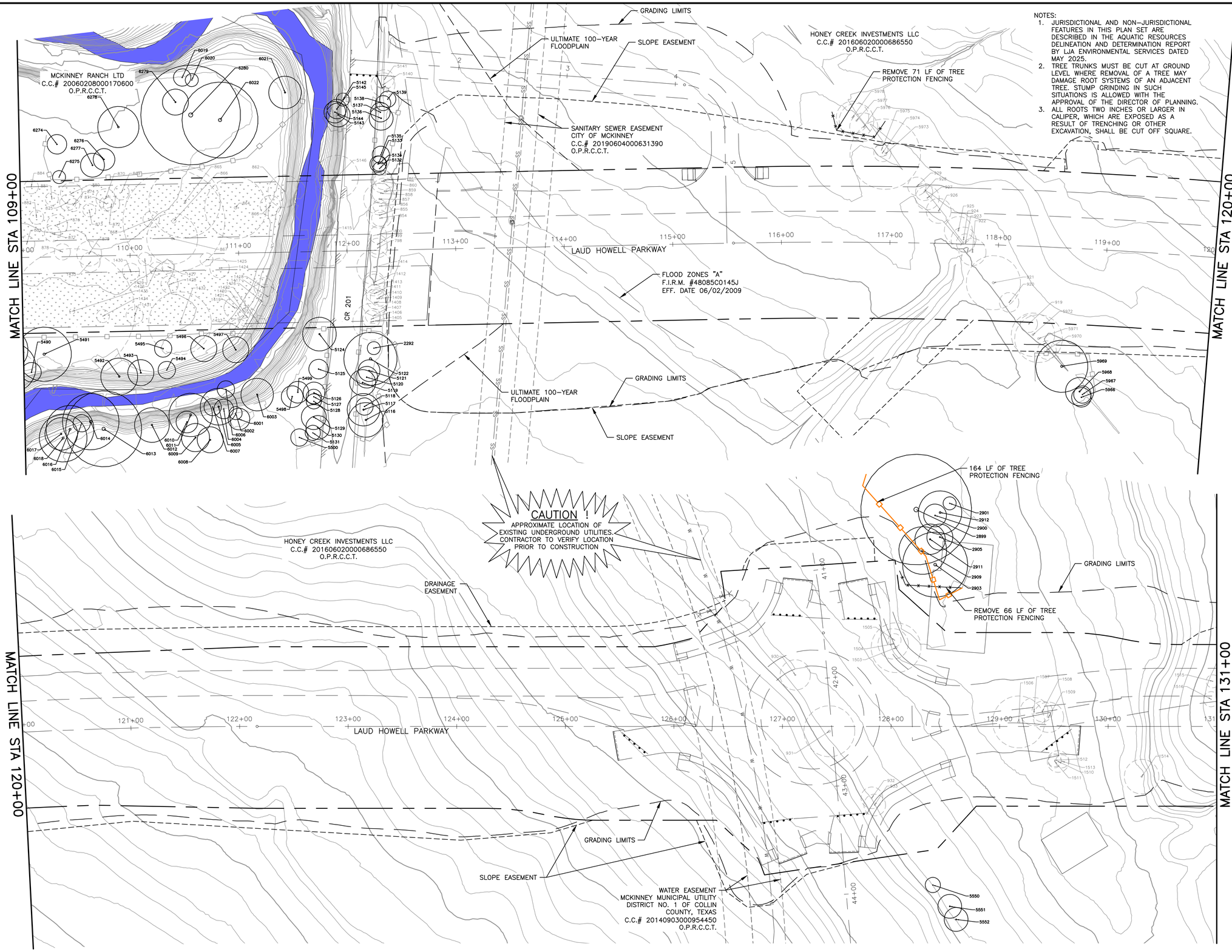
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: KENNEDY
DRAWN: KENNEDY
SCALE
HORZ: 1" = 40'
VERT: N/A

SHEET
19
OF 234 SHEETS

Date\Time : Fri, 21 Aug 2026 - 12:28pm User Name : rkennedy
Path\Name : S:\NT-LAUD\0285\CAD\0285LHP1P2TSP1.dwg Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg



NOTES:

1. JURISDICTIONAL AND NON-JURISDICTIONAL FEATURES IN THIS PLAN SET ARE DESCRIBED IN THE AQUATIC RESOURCES DELINEATION AND DETERMINATION REPORT BY LJA ENVIRONMENTAL SERVICES DATED MAY 2025.
2. TREE TRUNKS MUST BE CUT AT GROUND LEVEL WHERE REMOVAL OF A TREE MAY DAMAGE ROOT SYSTEMS OF AN ADJACENT TREE. STUMP GRINDING IN SUCH SITUATIONS IS ALLOWED WITH THE APPROVAL OF THE DIRECTOR OF PLANNING.
3. ALL ROOTS TWO INCHES OR LARGER IN CALIPER, WHICH ARE EXPOSED AS A RESULT OF TRENCHING OR OTHER EXCAVATION, SHALL BE CUT OFF SQUARE.

N

0 20 40 80

TREE SURVEY LEGEND

- PROPOSED ROW
- USACE NON-JURISDICTIONAL AQUATIC FEATURE
- POTENTIAL USACE JURISDICTIONAL AQUATIC FEATURE
- EXISTING TREE PROTECTION FENCING TO BE REMOVED
- EXISTING TREE PROTECTION FENCING TO REMAIN
- PROPOSED TREE PROTECTION FENCING WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO BE REMOVED WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO REMAIN
- 1111 CRITICAL ROOT ZONE — TREES REMOVED BY MASS GRADING
- PROPOSED PAVING/ SIDEWALK IMPROVEMENTS

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201, APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD, APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166, APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

TREE SURVEY PLAN
109+00 - 131+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

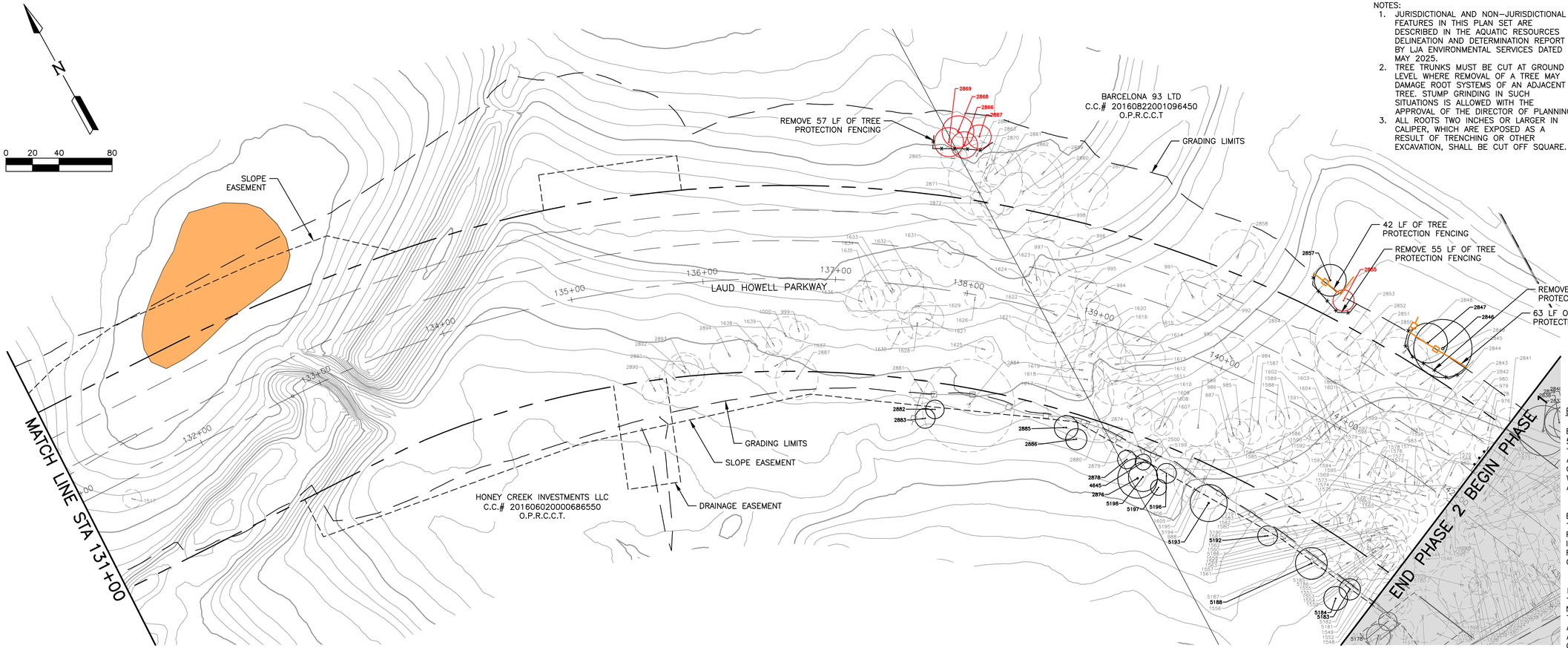
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF:
REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF:
CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: KENNEDY
DRAWN: KENNEDY
SCALE
HORZ: 1" = 40'
VERT: N/A
SHEET
20
OF 234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:25pm User Name : nkennedy
Point Name : S:\NT-LJA\0285\4062A00\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg



NOTES:

1. JURISDICTIONAL AND NON-JURISDICTIONAL FEATURES IN THIS PLAN SET ARE DESCRIBED IN THE AQUATIC RESOURCES DELINEATION AND DETERMINATION REPORT BY LJA ENVIRONMENTAL SERVICES DATED MAY 2025.
2. TREE TRUNKS MUST BE CUT AT GROUND LEVEL WHERE REMOVAL OF A TREE MAY DAMAGE ROOT SYSTEMS OF AN ADJACENT TREE. STUMP GRINDING IN SUCH SITUATIONS IS ALLOWED WITH THE APPROVAL OF THE DIRECTOR OF PLANNING.
3. ALL ROOTS TWO INCHES OR LARGER IN CALIPER, WHICH ARE EXPOSED AS A RESULT OF TRENCHING OR OTHER EXCAVATION, SHALL BE CUT OFF SQUARE.

TREE SURVEY LEGEND

- PROPOSED ROW
- USACE NON-JURISDICTIONAL AQUATIC FEATURE
- POTENTIAL USACE JURISDICTIONAL AQUATIC FEATURE
- EXISTING TREE PROTECTION FENCING TO BE REMOVED
- EXISTING TREE PROTECTION FENCING TO REMAIN
- PROPOSED TREE PROTECTION FENCING WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO BE REMOVED WITH PHASE 2
- 1111 CRITICAL ROOT ZONE — TREES TO REMAIN
- 1111 CRITICAL ROOT ZONE — TREES REMOVED BY MASS GRADING
- PROPOSED PAVING/ SIDEWALK IMPROVEMENTS

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

TREE SURVEY PLAN
131+11 - 142+00

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

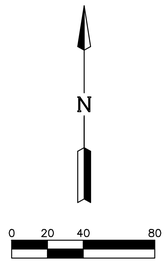
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

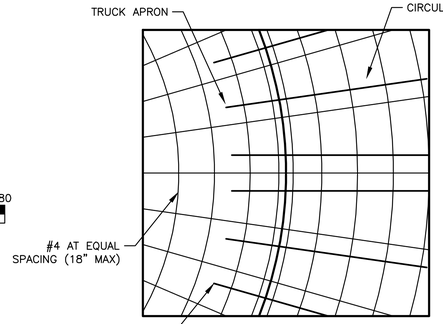
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
Ronald Salamie
08 21 2026
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: KENNEDY
DRAWN: KENNEDY
SCALE
HORZ: 1" = 40'
VERT: N/A
SHEET
21
OF 234 SHEETS

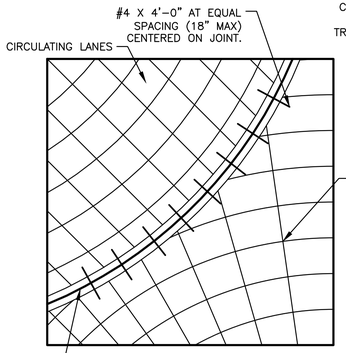
LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:29pm User Name : nkennedy
Path\Name : S:\NT-LJA\0285\400\400\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2TSP1.dwg

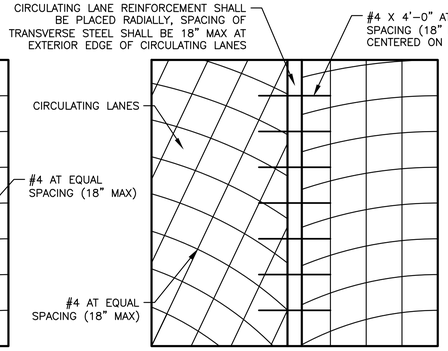




STEEL REINFORCEMENT DETAIL A



STEEL REINFORCEMENT DETAIL B



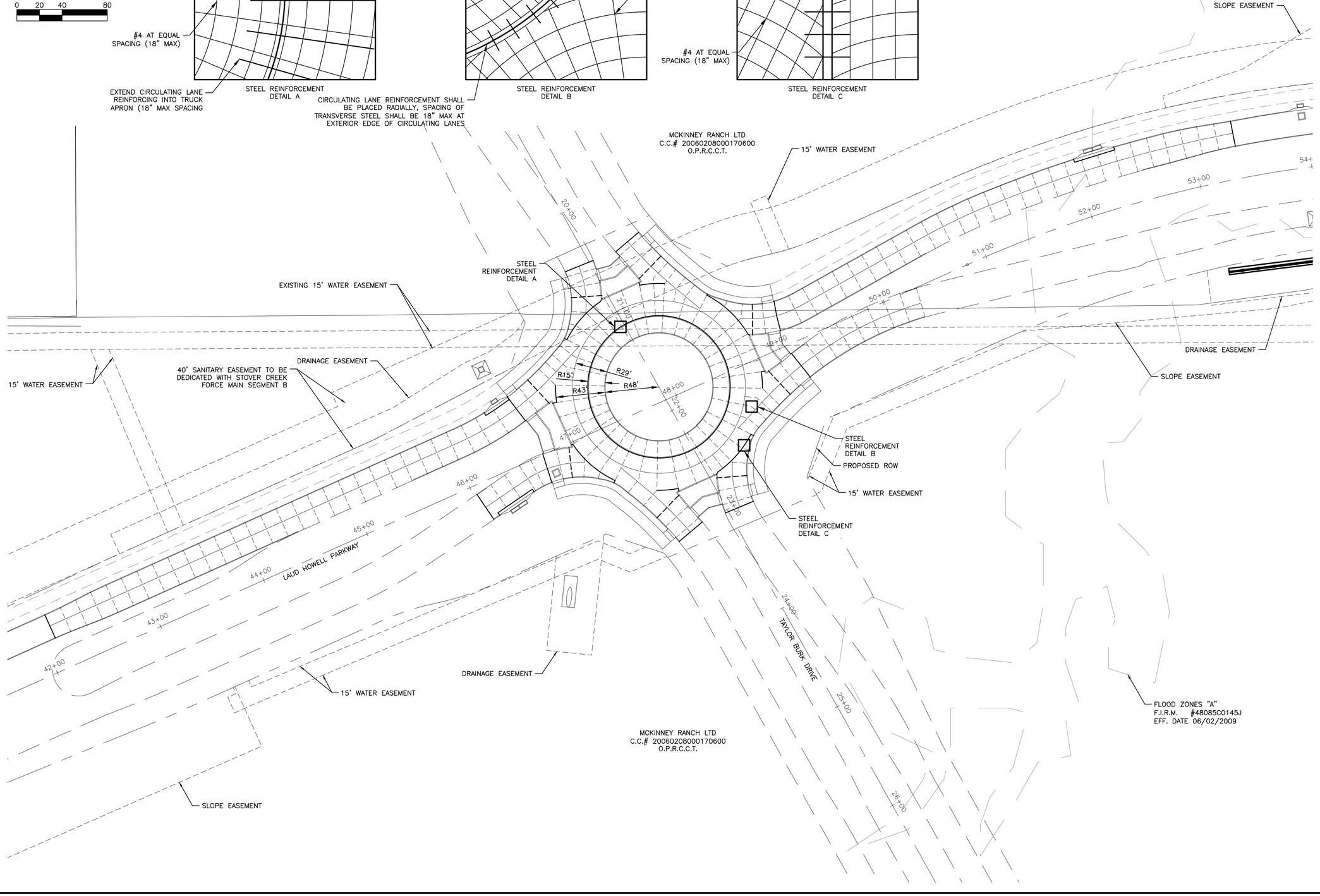
STEEL REINFORCEMENT DETAIL C

LEGEND

- PROPERTY LINE
- PROPOSED EASEMENT LANE
- LONGITUDINAL SAWED CONTRACTION JOINT
- TRANSVERSE SAWED CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT

NOTES:

1. CONTRACTOR SHALL PROVIDE JOINTING PER PLAN. ANY DEVIATION SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL.
2. CONTRACTOR SHALL SUBMIT PAVEMENT CONSTRUCTION SEQUENCING PLAN TO ENGINEER FOR APPROVAL.
3. ALL JOINTS HALL BE PROPERLY SEALED WITH SILICONE JOINT SEALING COMPOUND.
4. CURB SHALL BE POURED MONOLITHICALLY WHERE POSSIBLE.
5. LONGITUDINAL SAW JOINT REQUIRED FOR EACH LANE SEPARATION
6. STEEL SHALL BE SPACED RADIALLY WITHIN TRUCK APRON AND CIRCULATING LANES.
7. PROVIDE CONTINUOUS NO. 4 REBAR 2" OFF FACE AT ALL CONSTRUCTION JOINTS, ON BOTH SIDE OF THE JOINT.
8. ALL REBAR 18" MAXIMUM SPACING.



BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

ROUNDABOUT AT TAYLOR BURK JOINTING PLAN

Laud Howell Parkway Project 1 Phase 2

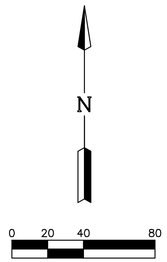
CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

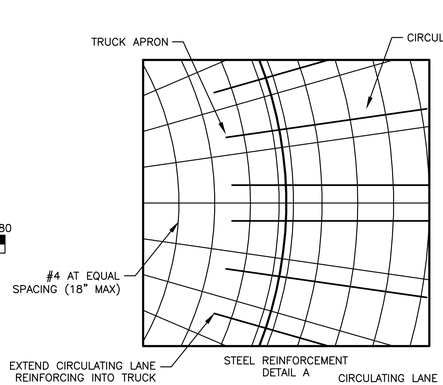
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

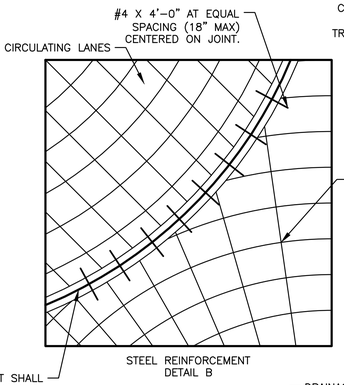
LJA PROJECT ID	NT852F-0285
DATE:	AUGUST 2026
DESIGN:	PIATT
DRAWN:	PIATT
SCALE	
HORZ:	1" = 40'
VERT:	N/A
SHEET	48A
OF	234 SHEETS

Date\Time : Fri, 21 Aug 2026 - 12:29pm User Name : nkennedy
Path\Name : S:\NT\LJA\0285\400\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2JN01.dwg

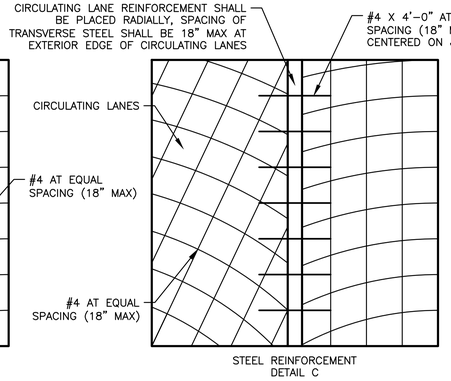




STEEL REINFORCEMENT DETAIL A



STEEL REINFORCEMENT DETAIL B



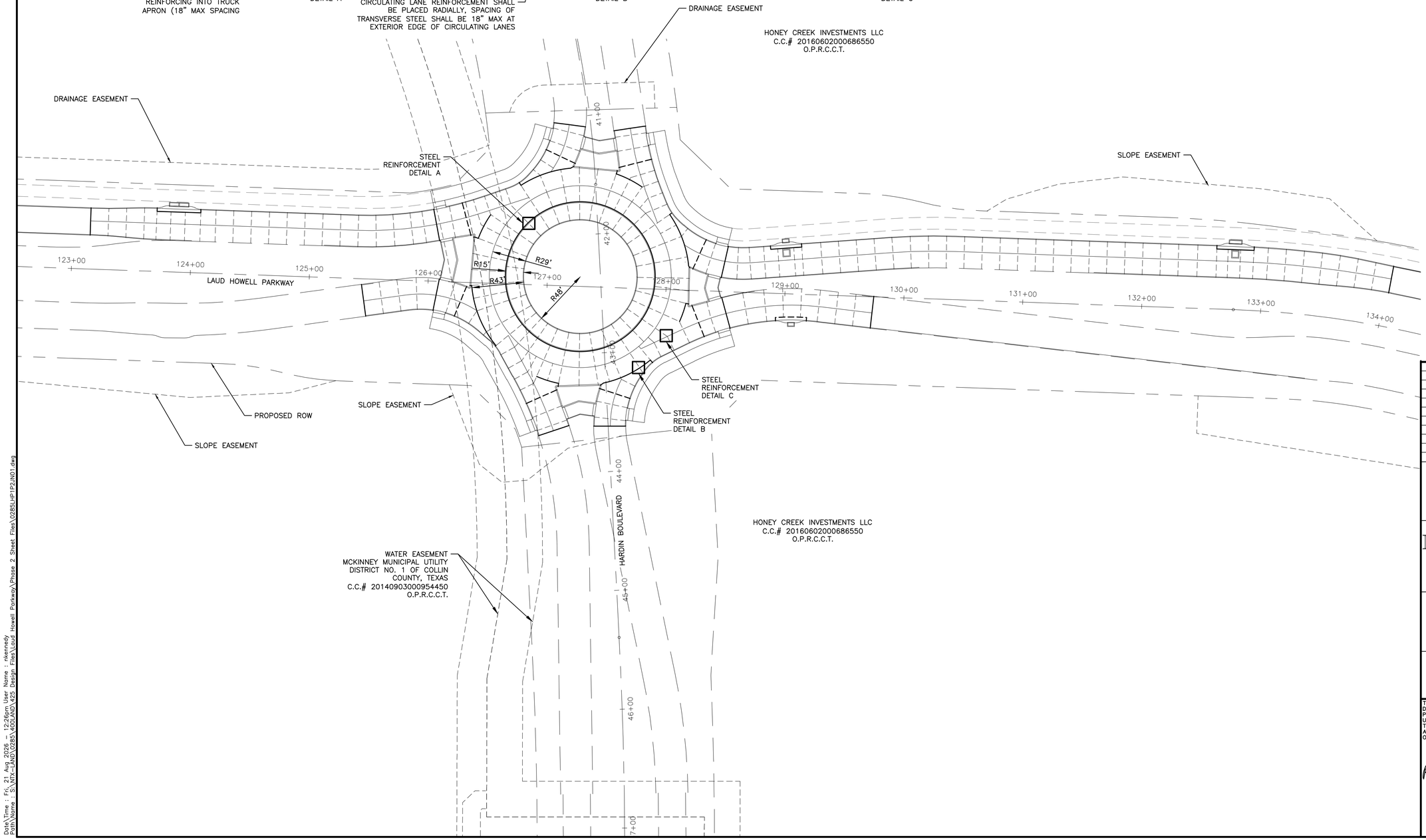
STEEL REINFORCEMENT DETAIL C

LEGEND

- PROPERTY LINE
- PROPOSED EASEMENT LANE
- LONGITUDINAL SAWED CONTRACTION JOINT
- TRANSVERSE SAWED CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT

NOTES:

1. CONTRACTOR SHALL PROVIDE JOINTING PER PLAN. ANY DEVIATION SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL.
2. CONTRACTOR SHALL SUBMIT PAVEMENT CONSTRUCTION SEQUENCING PLAN TO ENGINEER FOR APPROVAL.
3. ALL JOINTS HALL BE PROPERLY SEALED WITH SILICONE JOINT SEALING COMPOUND.
4. CURB SHALL BE POURED MONOLITHICALLY WHERE POSSIBLE.
5. LONGITUDINAL SAW JOINT REQUIRED FOR EACH LANE SEPARATION
6. STEEL SHALL BE SPACED RADIALLY WITHIN TRUCK APRON AND CIRCULATING LANES.
7. PROVIDE CONTINUOUS NO. 4 REBAR 2" OFF FACE AT ALL CONSTRUCTION JOINTS, ON BOTH SIDE OF THE JOINT.
8. ALL REBAR 18" MAXIMUM SPACING.



BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 AND FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

ROUNDABOUT AT HARDIN JOINTING PLAN

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

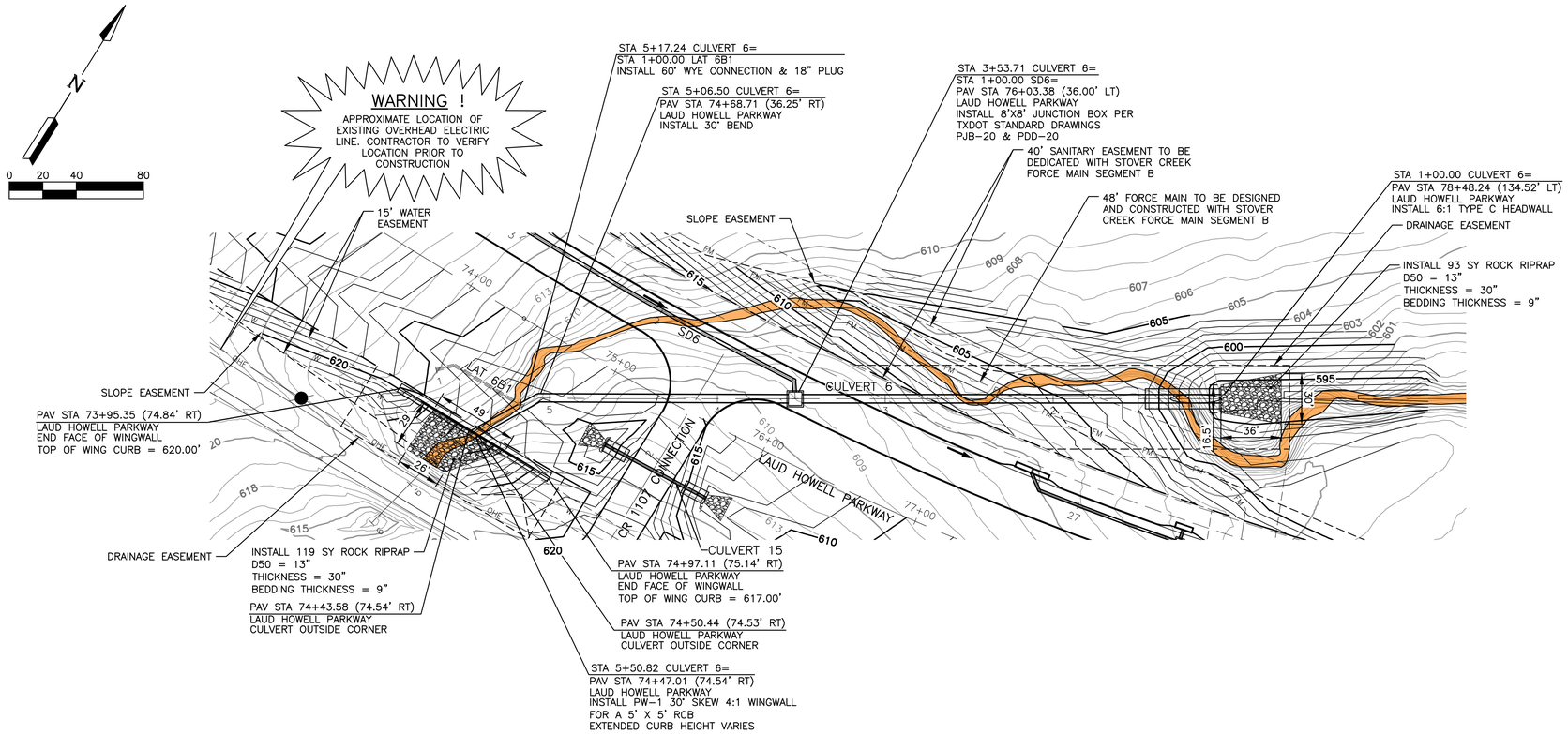
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID	NT852F-0285
DATE:	AUGUST 2026
DESIGN:	PIATT
DRAWN:	PIATT
SCALE HORZ:	1" = 40'
VERT:	N/A
SHEET	68A
OF	234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:26pm User Name : rkennedy
Path\Name : S:\NT-LAND\0285\LAND\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285-HP1P2JN01.dwg



STORM NOTES:

1. MINIMUM TWO FEET OF VERTICAL CLEARANCE BETWEEN STORM SEWER AND WATER/SEWER LINES. WHERE MINIMUM VERTICAL CLEARANCE CANNOT BE ACHIEVED, WATER/SEWER LINES SHALL BE CONCRETE ENCASED AT THE CROSSING (MINIMUM 10 LF, 6-INCH THICKNESS). WHERE WATER/SEWER LINES CROSS UNDERNEATH STORM SEWER, AND THE STORM SEWER PIPE IS 48 INCHES OR GREATER, WATER/SEWER LINES SHALL BE STEEL ENCASED.
2. MAX DEPTH OF INLETS SHALL BE 5'.
3. IF AN INLET IS IN SAG, THE BLOCKOUT SHALL EXTEND 10' ON EITHER SIDE OF THE INLET. IF NOT IN SAG, THEN THE BLOCKOUT SHALL EXTEND 10' UPSTREAM AND 5' DOWNSTREAM OF THE INLET.
4. ROCK RIPRAP SHALL BE DRY RIPRAP AS SPECIFIED IN TXDOT SPECIFICATION 432, INCLUDING THE FOLLOWING:
   - TYPE 2 FILTER FABRIC SHALL BE PROVIDED PER SECTION 2.3
   - PROTECTION STONE RIPRAP PER SECTION 2.3.4
   - BEDDING PER SECTION 2.3.4
   - DRY PLACEMENT PER SECTION 3.2.2.1
5. ALL BOX CULVERTS ARE DESIGNED AS CAST-IN-PLACE.
6. PEDESTRIAN HANDRAILS LOCATED ON PUBLIC SIDEWALKS SHALL BE THE TXDOT TYPE E RAILS, CONSTRUCTED IN ACCORDANCE WITH THE CURRENT PRD STANDARD.

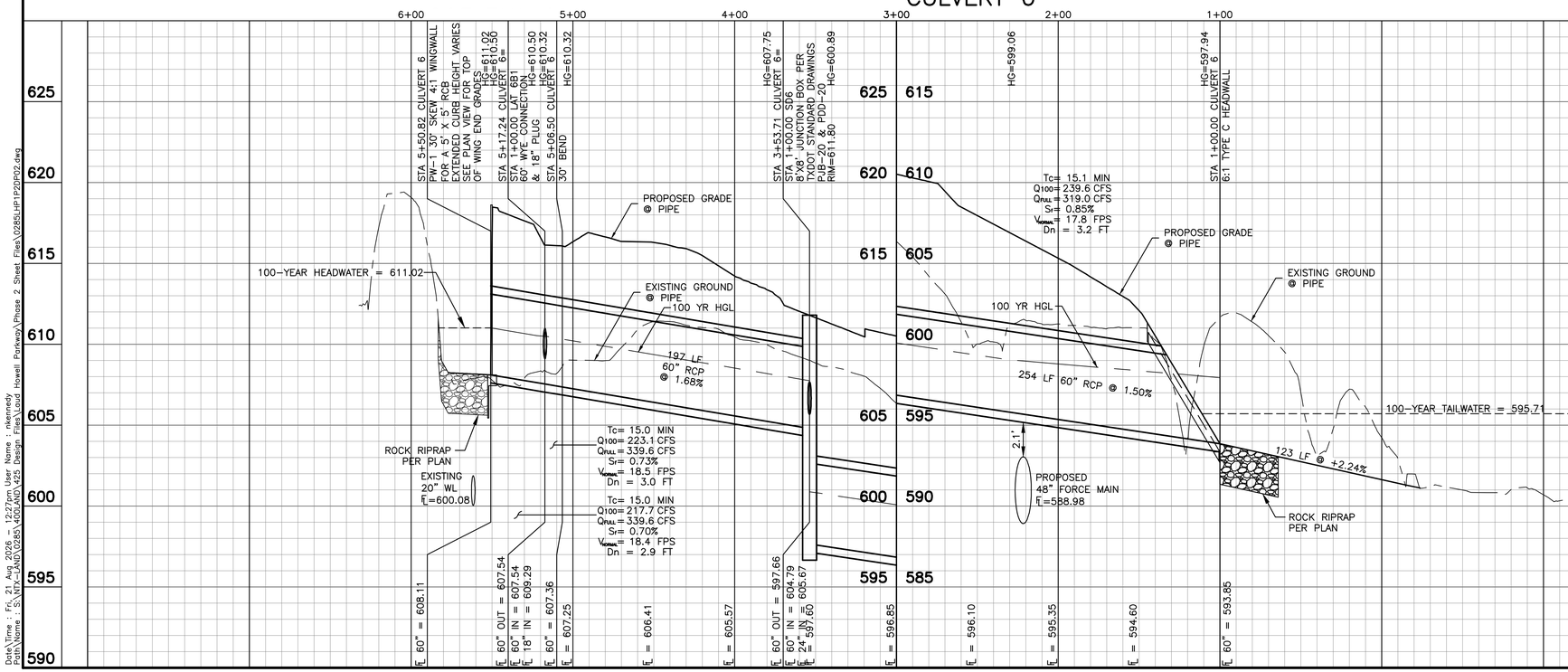
BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

CULVERT 6



DATE	REVISION	BY

STORM DRAIN PLAN & PROFILE
CULVERT 6

Laud Howell Parkway
Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

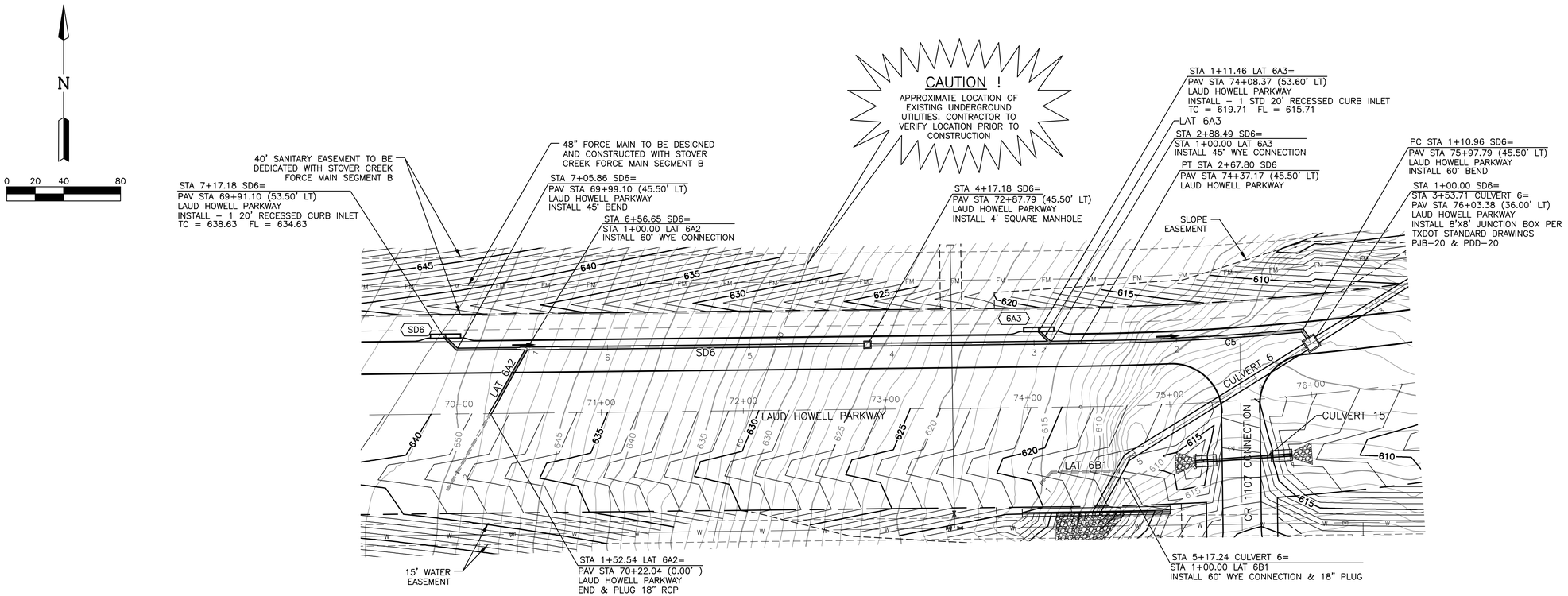
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED
PROFESSIONAL ENGINEER
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID
NT852F-0285
DATE: AUGUST 2026
DESIGN: LOPONI
DRAWN: PROM
SCALE
HORZ: 1" = 40'
VERT: 1" = 4'
SHEET
161
OF 234 SHEETS

Date\Time : Fri, 21 Aug 2026 - 12:27pm User Name : nkennedy
Plot Name : S:\NT-LAND\0285\4062\400\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\V0285LHP1P2P02.dwg



CENTERLINE CURVE DATA					
CV#	DELTA	RADIUS	LENGTH	CHORD	C–L
C5	4°46'07"	1884.50'	156.84'	S86°58'33"W	156.80'

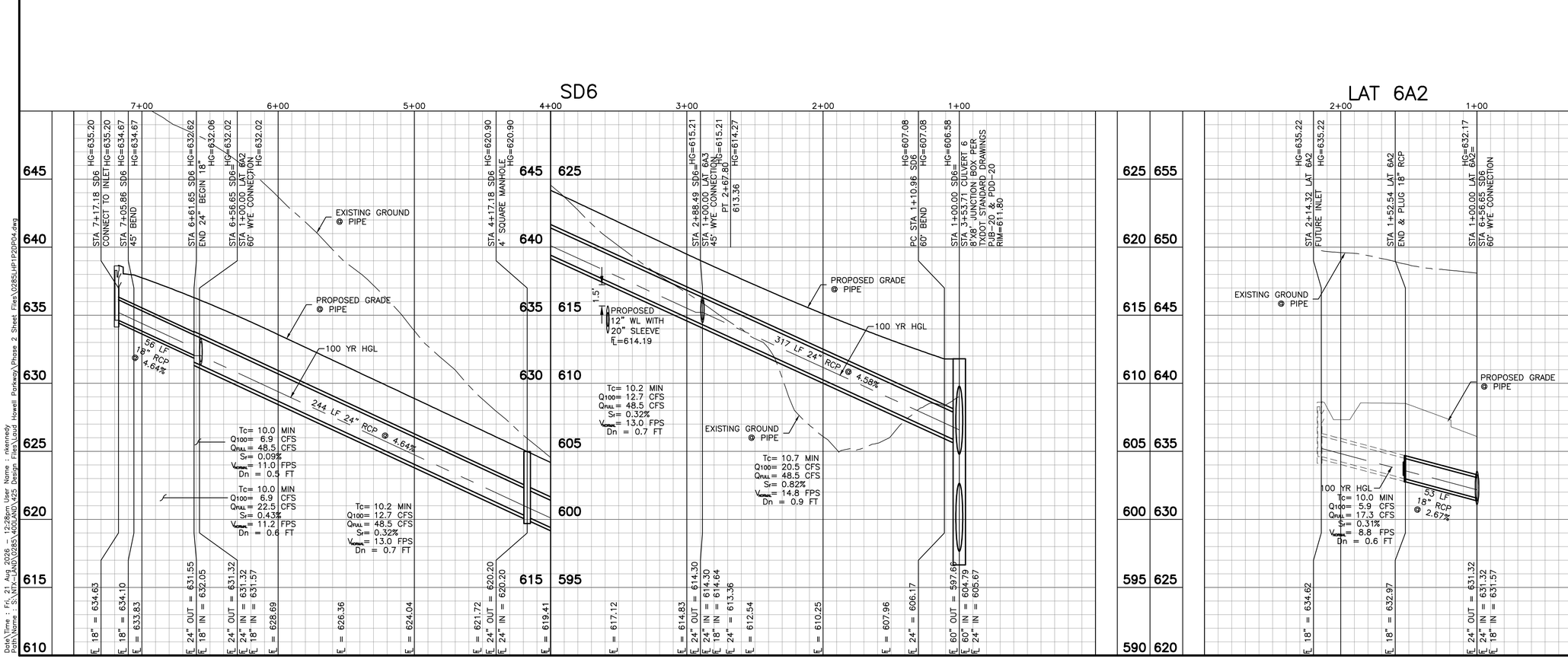
STORM NOTES:
1. MINIMUM TWO FEET OF VERTICAL CLEARANCE BETWEEN STORM SEWER AND WATER/SEWER LINES. WHERE MINIMUM VERTICAL CLEARANCE CANNOT BE ACHIEVED, WATER/SEWER LINES SHALL BE CONCRETE ENCASED AT THE CROSSING (MINIMUM 10 LF, 6–INCH THICKNESS). WHERE WATER/SEWER LINES CROSS UNDERNEATH STORM SEWER, AND THE STORM SEWER PIPE IS 48 INCHES OR GREATER, WATER/SEWER LINES SHALL BE STEEL ENCASED.
2. MAX DEPTH OF INLETS SHALL BE 5'.
3. IF AN INLET IS IN SAG, THE BLOCKOUT SHALL EXTEND 10' ON EITHER SIDE OF THE INLET. IF NOT IN SAG, THEN THE BLOCKOUT SHALL EXTEND 10' UPSTREAM AND 5' DOWNSTREAM OF THE INLET.
4. ROCK RIPRAP SHALL BE DRY RIPRAP AS SPECIFIED IN TXDOT SPECIFICATION 432, INCLUDING THE FOLLOWING:
   – TYPE 2 FILTER FABRIC SHALL BE PROVIDED PER SECTION 2.3
   – PROTECTION STONE RIPRAP PER SECTION 2.3.4
   – BEDDING PER SECTION 2.3.4
   – DRY PLACEMENT PER SECTION 3.2.2.1
5. ALL BOX CULVERTS ARE DESIGNED AS CAST–IN–PLACE
6. PEDESTRIAN HANDRAILS LOCATED ON PUBLIC SIDEWALKS SHALL BE THE TXDOT TYPE E RAILS, CONSTRUCTED IN ACCORDANCE WITH THE CURRENT PRD STANDARD.

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233 EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM–TO–MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM–TO–MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'



DATE	REVISION	BY

STORM DRAIN PLAN & PROFILE SD6 & LAT 6A2

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

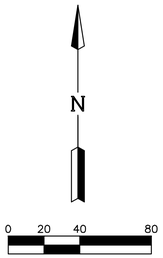
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

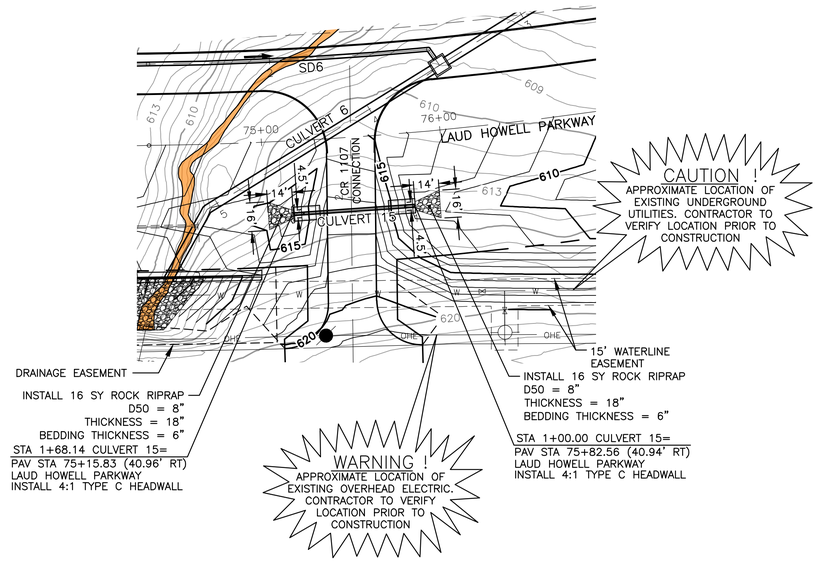
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF: STATE OF TEXAS RONALD SALAMIE 82073 LICENSED PROFESSIONAL ENGINEER
Ronald Salamie 08 21 2026
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F–0285
DATE: AUGUST 2026
DESIGN: KENNEDY
DRAWN: VILLALBA
SCALE HORZ: 1" = 40' VERT: 1" = 4'
SHEET 162 OF 234 SHEETS

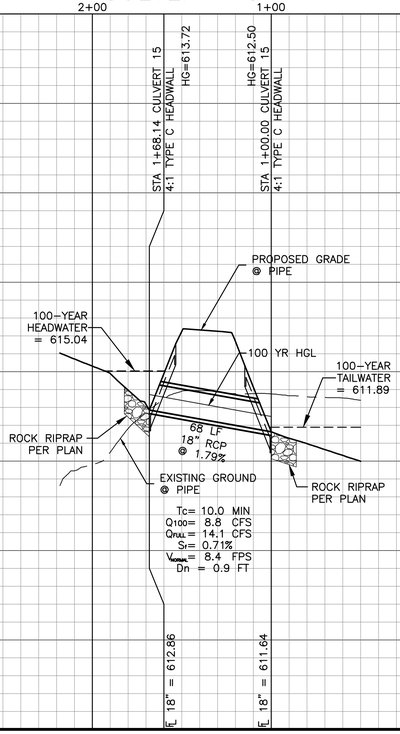
LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 – 12:28pm User Name : rkennedy
Plot\Name : S:\Work\LAND\0285\400\400\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2DP04.dwg





CULVERT 15



STORM NOTES:

1. MINIMUM TWO FEET OF VERTICAL CLEARANCE BETWEEN STORM SEWER AND WATER/SEWER LINES. WHERE MINIMUM VERTICAL CLEARANCE CANNOT BE ACHIEVED, WATER/SEWER LINES SHALL BE CONCRETE ENCASED AT THE CROSSING (MINIMUM 10 LF, 6-INCH THICKNESS). WHERE WATER/SEWER LINES CROSS UNDERNEATH STORM SEWER, AND THE STORM SEWER PIPE IS 48 INCHES OR GREATER, WATER/SEWER LINES SHALL BE STEEL ENCASED.
2. MAX DEPTH OF INLETS SHALL BE 5'.
3. IF AN INLET IS IN SAG, THE BLOCKOUT SHALL EXTEND 10' ON EITHER SIDE OF THE INLET. IF NOT IN SAG, THEN THE BLOCKOUT SHALL EXTEND 10' UPSTREAM AND 5' DOWNSTREAM OF THE INLET.
4. ROCK RIPRAP SHALL BE DRY RIPRAP AS SPECIFIED IN TXDOT SPECIFICATION 432, INCLUDING THE FOLLOWING:
   - TYPE 2 FILTER FABRIC SHALL BE PROVIDED PER SECTION 2.3
   - PROTECTION STONE RIPRAP PER SECTION 2.3.4
   - BEDDING PER SECTION 2.3.4
   - DRY PLACEMENT PER SECTION 3.2.2.1
5. ALL BOX CULVERTS ARE DESIGNED AS CAST-IN-PLACE.
6. PEDESTRIAN HANDRAILS LOCATED ON PUBLIC SIDEWALKS SHALL BE THE TXDOT TYPE E RAILS, CONSTRUCTED IN ACCORDANCE WITH THE CURRENT PRD STANDARD.

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'

DATE	REVISION	BY

STORM DRAIN PLAN & PROFILE

CULVERT 15

Laud Howell Parkway
Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

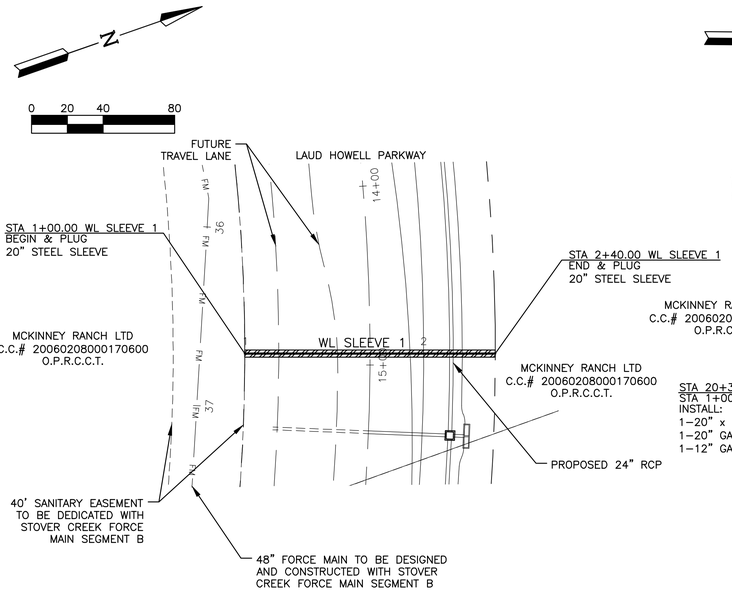
THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
08 21 2026

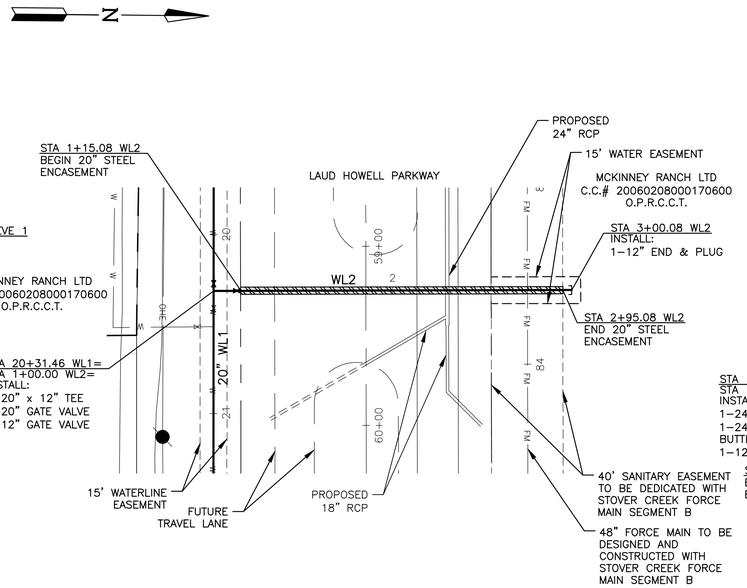
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

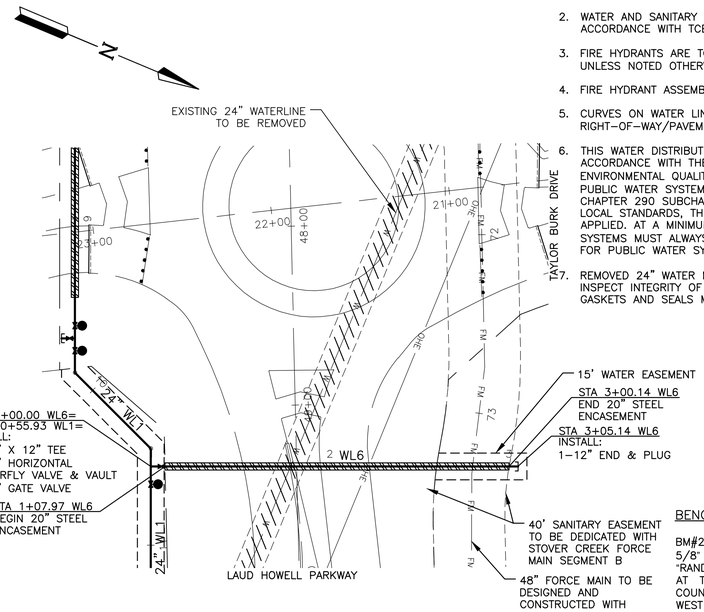
LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: LOPONI
DRAWN: PROM
SCALE
HORZ: 1" = 40'
VERT: 1" = 4'

SHEET
166
OF 234 SHEETS

Date\Time : Fri, 21 Aug, 2026 - 12:30pm User Name : rkennedy
path\Name : S:\NT\LAND\0285\CAD\Civil\425 Design Files\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2DP02.dwg







NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. WATER AND SANITARY SEWER SEPARATION SHALL BE MAINTAINED IN ACCORDANCE WITH TCEQ GUIDELINES.
3. FIRE HYDRANTS ARE TO BE LOCATED AT PCCR'S AND LOT LINES UNLESS NOTED OTHERWISE.
4. FIRE HYDRANT ASSEMBLY INCLUDES ALL FITTINGS TEES & VALVES.
5. CURVES ON WATER LINES ARE CONCENTRIC TO RIGHT-OF-WAY/PAVEMENT UNLESS RADIUS IS SHOWN ON PLANS.
6. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
7. REMOVED 24" WATER MAIN MAY BE REUSED. UPON REMOVAL, INSPECT INTEGRITY OF EACH SEGMENT OF PIPE. DAMAGED GASKETS AND SEALS MUST BE REPLACED.

LEGEND

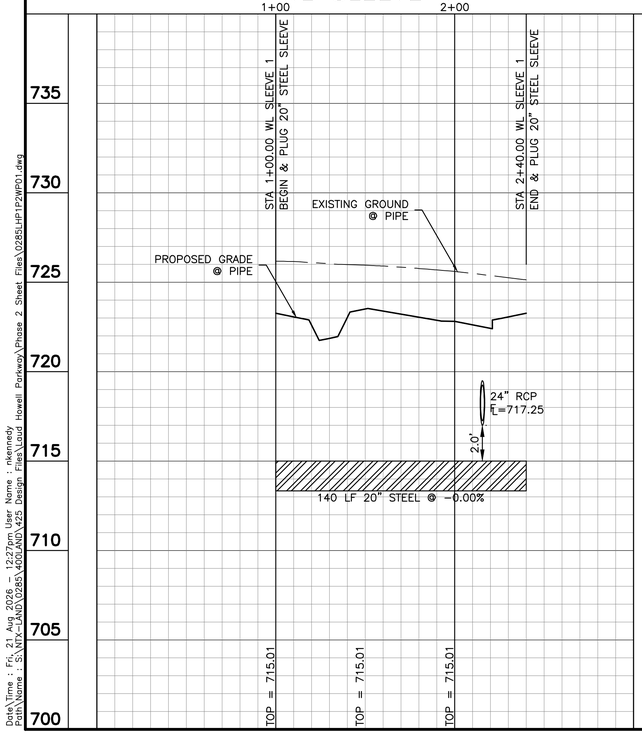
- PROPOSED SANITARY SEWER WITH MANHOLE
- EXISTING SANITARY SEWER WITH MANHOLE
- PROPOSED WATER LINE WITH FIRE HYDRANT
- EXISTING WATER LINE WITH FIRE HYDRANT
- STORM DRAIN SYSTEM WITH INLET

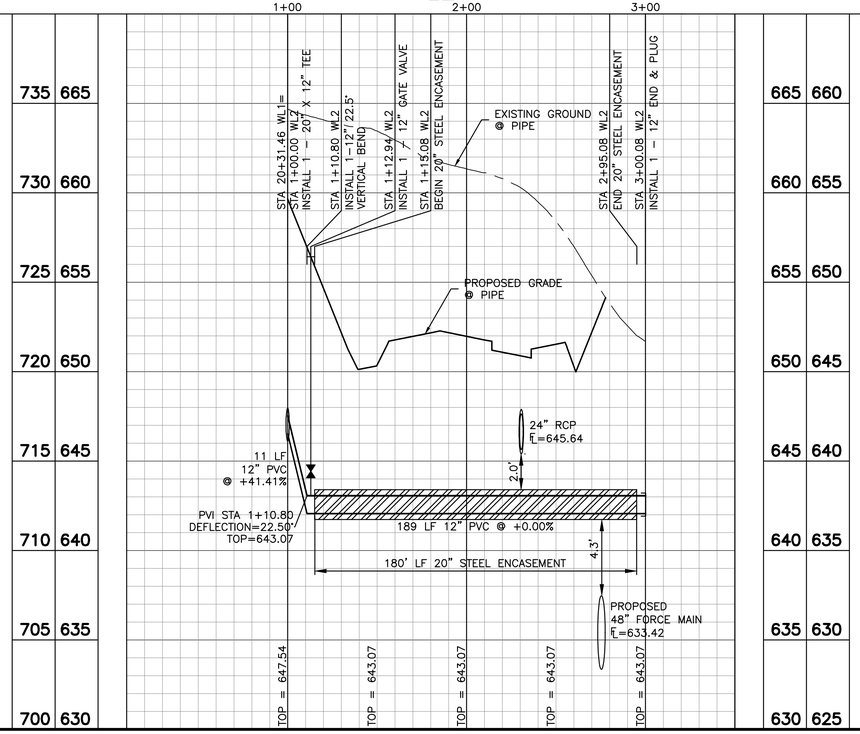
BENCHMARKS:

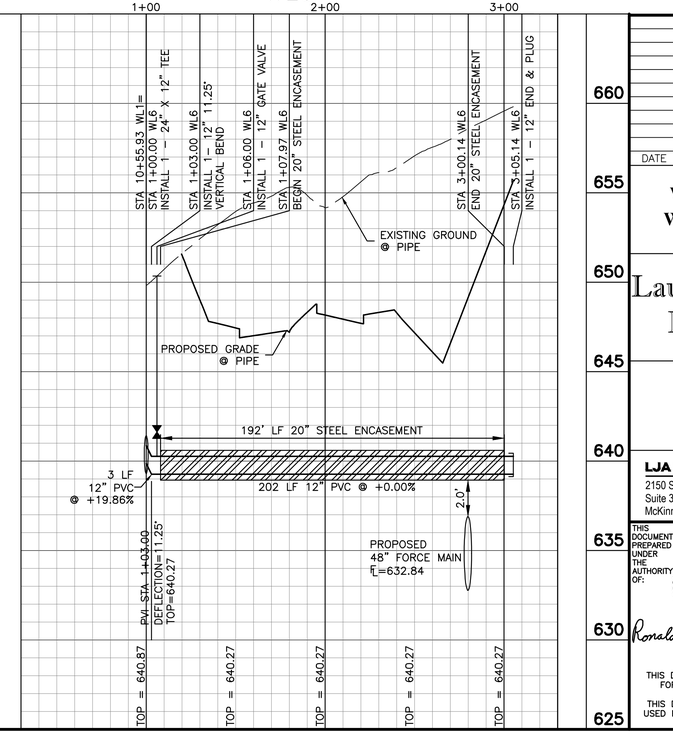
BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'







DATE	REVISION	BY

WATER PLAN & PROFILE
WL SLEEVE 1, WL2, & WL6

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

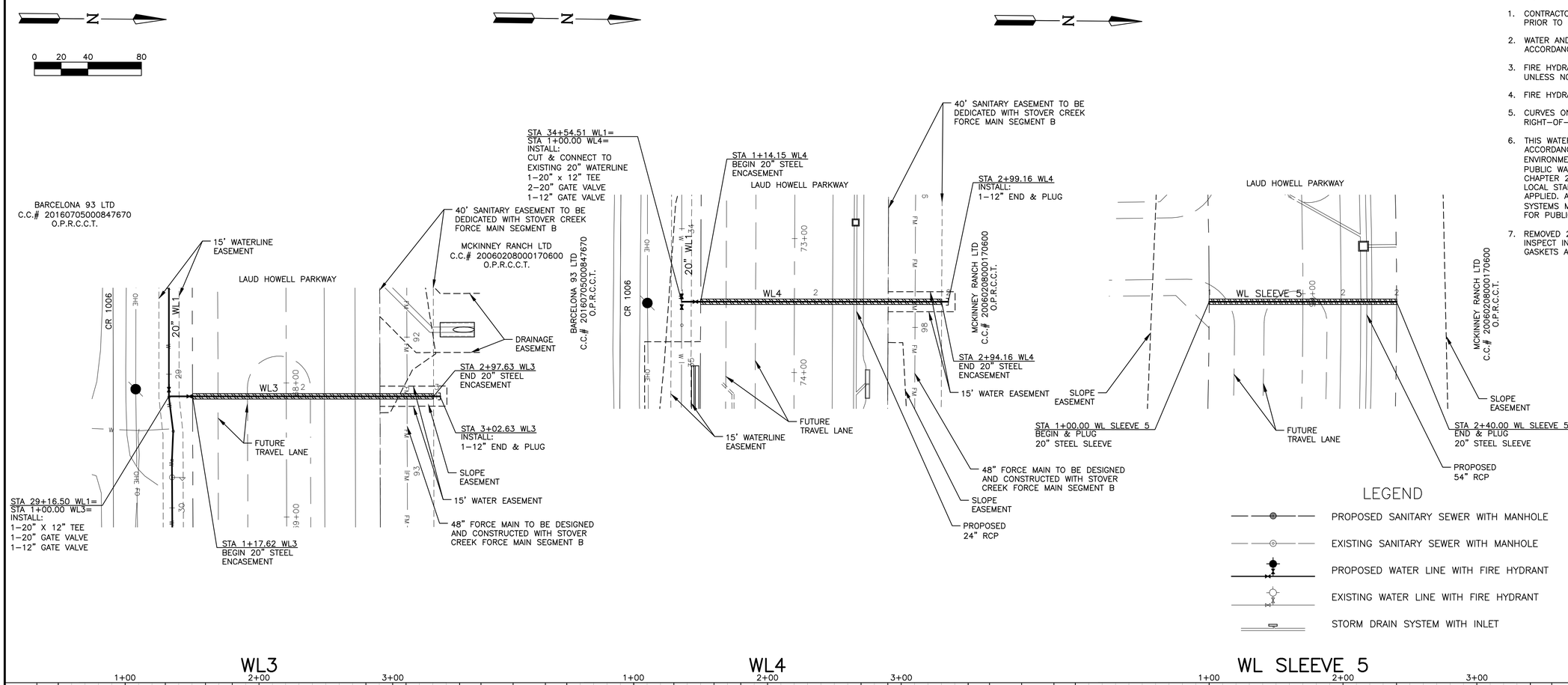
LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED
PROFESSIONAL ENGINEER
Ronald Salamie
08 21 2026
PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: PIATT
DRAWN: PIATT
SCALE
HORZ: 1" = 40'
VERT: 1" = 4'
SHEET
181
OF 234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:27pm User Name : nkennedy
File Name : S:\NT\0285\200\MAP\0285_Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2WP01.dwg



NOTES:

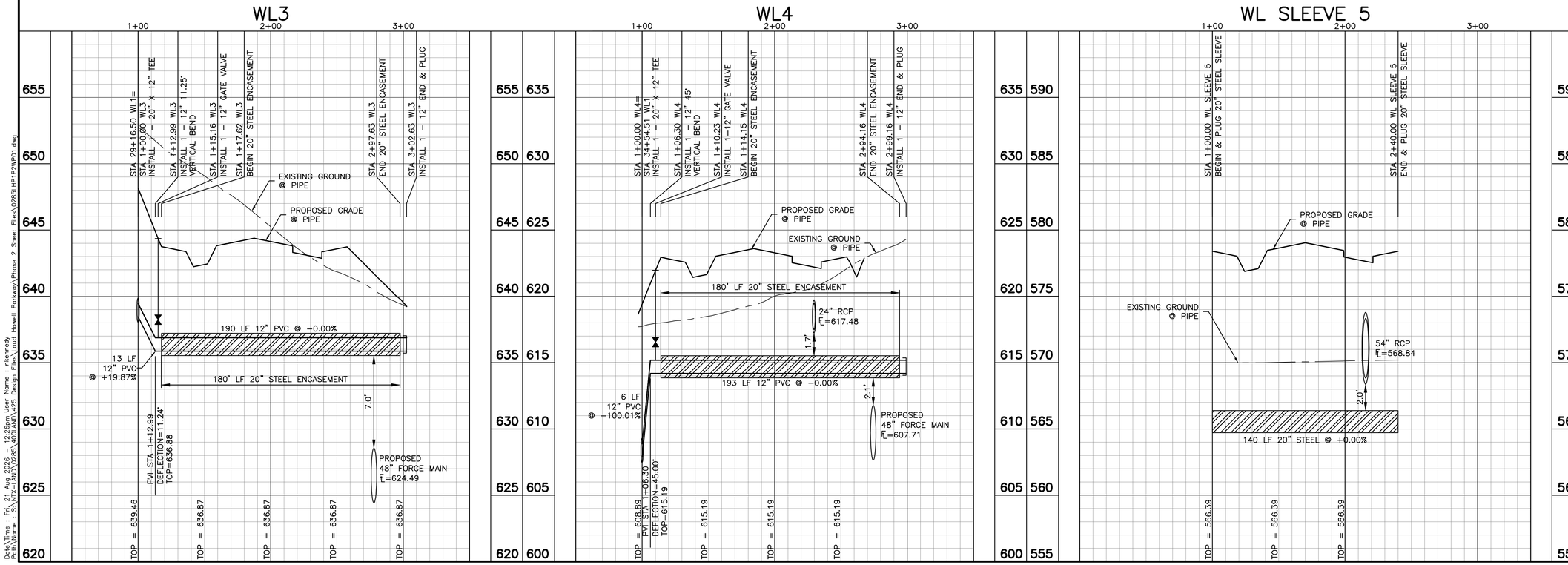
1. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. WATER AND SANITARY SEWER SEPARATION SHALL BE MAINTAINED IN ACCORDANCE WITH TCEQ GUIDELINES.
3. FIRE HYDRANTS ARE TO BE LOCATED AT PCCR'S AND LOT LINES UNLESS NOTED OTHERWISE.
4. FIRE HYDRANT ASSEMBLY INCLUDES ALL FITTINGS TEES & VALVES.
5. CURVES ON WATER LINES ARE CONCENTRIC TO RIGHT-OF-WAY/PAVEMENT UNLESS RADIUS IS SHOWN ON PLANS.
6. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
7. REMOVED 24" WATER MAIN MAY BE REUSED. UPON REMOVAL, INSPECT INTEGRITY OF EACH SEGMENT OF PIPE. DAMAGED GASKETS AND SEALS MUST BE REPLACED.

BENCHMARKS:

BM#2
5/8" IRON ROD WITH RED PLASTIC CAP STAMPED "RANDOM" SET ON THE SOUTH END OF AN ISLAND AT THE INTERSECTION OF WESTON ROAD AND COUNTY ROAD NO. 201. APPROXIMATELY 1455' WEST OF THE INTERSECTION OF WESTON ROAD AND NORTH HARDIN BOULEVARD.
ELEV 625.06'

BM#3
"X" CUT SET ON THE WEST SIDE OF PONDEROSA PINE ROAD. APPROXIMATELY 65' SOUTH OF THE INTERSECTION OF PONDEROSA PINE ROAD AND RUBBER FIG LANE AND APPROXIMATELY 233' EAST OF THE CENTERLINE OF COUNTY ROAD NO. 202.
ELEV 612.59'

BM#6
"X" CUT SET ON THE EAST SIDE OF COUNTY ROAD NO. 166. APPROXIMATELY 332' NORTHEAST OF THE INTERSECTION OF COUNTY ROAD NO. 166 AND FARM-TO-MARKET ROAD NO. 1461 AND APPROXIMATELY 1172' EAST OF THE INTERSECTION OF FARM-TO-MARKET ROAD NO. 1461 NAD FRANKLIN BRANCH ROAD.
ELEV 712.96'



DATE	REVISION	BY

WATER PLAN & PROFILE
WL3, WL4, & WL SLEEVE 5

Laud Howell Parkway Project 1 Phase 2

CITY OF MCKINNEY
COLLIN COUNTY, TEXAS

LJA Engineering, Inc.
2150 South Central Expressway
Suite 300
McKinney, Texas 75070
Phone 214.620.2800
FRN - F-1386

THIS DOCUMENT PREPARED UNDER THE AUTHORITY OF:
STATE OF TEXAS
RONALD SALAMIE
82073
LICENSED PROFESSIONAL ENGINEER
Ronald Salamie
08 21 2026

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF: REVIEW
THIS DRAWING IS NOT TO BE USED FOR THE PURPOSES OF: CONSTRUCTION.

LJA PROJECT ID NT852F-0285
DATE: AUGUST 2026
DESIGN: PIATT
DRAWN: PIATT
SCALE
HORZ: 1" = 40'
VERT: 1" = 4'
SHEET
182
OF 234 SHEETS

LAUD HOWELL PARKWAY PROJECT 1 PHASE 2

Date\Time : Fri, 21 Aug 2026 - 12:26pm User Name : nkennedy
P:\Projects\NT852F-0285\Design Phase\Civil\Laud Howell Parkway\Phase 2 Sheet Files\0285LHP1P2WP01.dwg