

June 7, 2022 Zoning and Platting Commission Question and Answer

B-08 SP-2021-0178C - Stillwater - Double Creek Phase 2; District 5

Commissioner Greenberg:

Did the applicant submit the bridge design and has the design been approved? It was not yet submitted at the time of the hearing at the Environmental Commission.

Staff:

Yes, the bridge design has been submitted and accepted by the relevant review disciplines. Please see the attached bridge design pages from the submitted site plan.

*Exhibits attached.*

NOTES

GENERAL NOTES:

1. THIS BRIDGE HAS BEEN DESIGNED FOR GENERAL SITE CONDITIONS. MALONE/ WHEELER SHALL BE RESPONSIBLE FOR THE STRUCTURE'S SUITABILITY TO THE EXISTING SITE CONDITIONS AND FOR THE HYDRAULIC EVALUATION -- INCLUDING SCOUR AND CONFIRMATION OF SOIL CONDITIONS.
2. PRIOR TO CONSTRUCTION, CONTRACTOR MUST VERIFY ALL ELEVATIONS SHOWN THROUGH MALONE/WHEELER.
3. ONLY CONTECH ENGINEERED SOLUTIONS LLC, THE CON/SPAN® APPROVED PRECASTER IN TEXAS MAY PROVIDE THE STRUCTURE DESIGNED IN ACCORDANCE WITH THESE PLANS.
4. THE USE OF ANOTHER PRECAST STRUCTURE WITH THE DESIGN ASSUMPTIONS USED FOR THE CON/SPAN® STRUCTURE MAY LEAD TO SERIOUS DESIGN ERRORS. USE OF ANY OTHER PRECAST STRUCTURE WITH THIS DESIGN AND DRAWINGS VOIDS ANY CERTIFICATION OF THIS DESIGN AND WARRANTY. CONTECH ENGINEERED SOLUTIONS LLC ASSUMES NO LIABILITY FOR DESIGN OF ANY ALTERNATE OR SIMILAR TYPE STRUCTURES.
5. ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF TEXAS, EMPLOYED BY THE PRECAST CONCRETE BRIDGE SUPPLIER, ARE SUBMITTED TO THE ENGINEER 2 WEEKS PRIOR TO THE BID DATE FOR REVIEW AND APPROVAL.
6. ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE ALTERNATE DESIGN DOES NOT REDUCE THE HYDRAULIC OPENING OF THE STRUCTURE AS SHOWN ON THE DRAWINGS. AT A MINIMUM THE ALTERNATE STRUCTURE MUST PROVIDE THE SAME OR LARGER SPAN AND RISE AS THE STRUCTURE SHOWN ON THE DRAWINGS.
7. THE PRECAST ARCH SUPPLIER MUST ATTEND THE PRE-BID MEETING, IF ONE IS HELD.
8. SUPPLIER OF PROPOSED ALTERNATES TO A CON/SPAN® BRIDGE SYSTEM MUST SUBMIT AT LEAST TWO (2) INDEPENDENTLY VERIFIED FULL SCALE LOAD TESTS THAT CONFIRM THE PROPOSED DESIGN METHODOLOGY OF THE THREE SIDED/ARCH STRUCTURE(S). THE PROPOSED ALTERNATE, UPON SATISFACTORY CONFIRMATION OF DESIGN METHODOLOGY, MAY BE CONSIDERED AN ACCEPTABLE ALTERNATE.
9. PROPOSED ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE PRECAST CONCRETE BRIDGE STRUCTURES ARE PROVIDED BY A SUPPLIER THAT HAS A MINIMUM OF TWO (2) REGISTERED PROFESSIONAL ENGINEERS ON STAFF THAT ARE DEDICATED TO THE DESIGN OF THESE TYPES OF STRUCTURES. SUPPLIER MUST PROVIDE THESE NAMES, P.E. LICENSE NUMBERS AND DATES OF HIRE AT TIME OF ALTERNATE SUBMITTAL.

DESIGN DATA

DESIGN LOADING:

BRIDGE UNITS: HL-93 TRUCK, HL-93 TANDEM & AUSTIN FIRETRUCK (80 KIPS, 2 AXELS, 14' SPACING)  
HEADWALLS: EARTH PRESSURE + LIVE LOAD SURCHARGE + IMPACT (TL-2)  
WINGWALLS: EARTH PRESSURE + LIVE LOAD SURCHARGE  
DESIGN FILL HEIGHT: 1'-0" MIN. TO 2'-6" MAX.  
FROM TOP OF CROWN TO TOP OF PAVEMENT.  
DESIGN METHOD (ARCHES, HEADWALLS & WINGWALLS): LOAD AND RESISTANCE FACTOR  
DESIGN PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017.  
DESIGN METHOD (FOUNDATION): LOAD FACTOR DESIGN PER AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, 2002.  
ALLOWABLE SOIL BEARING PRESSURE: 3000 PSF\*

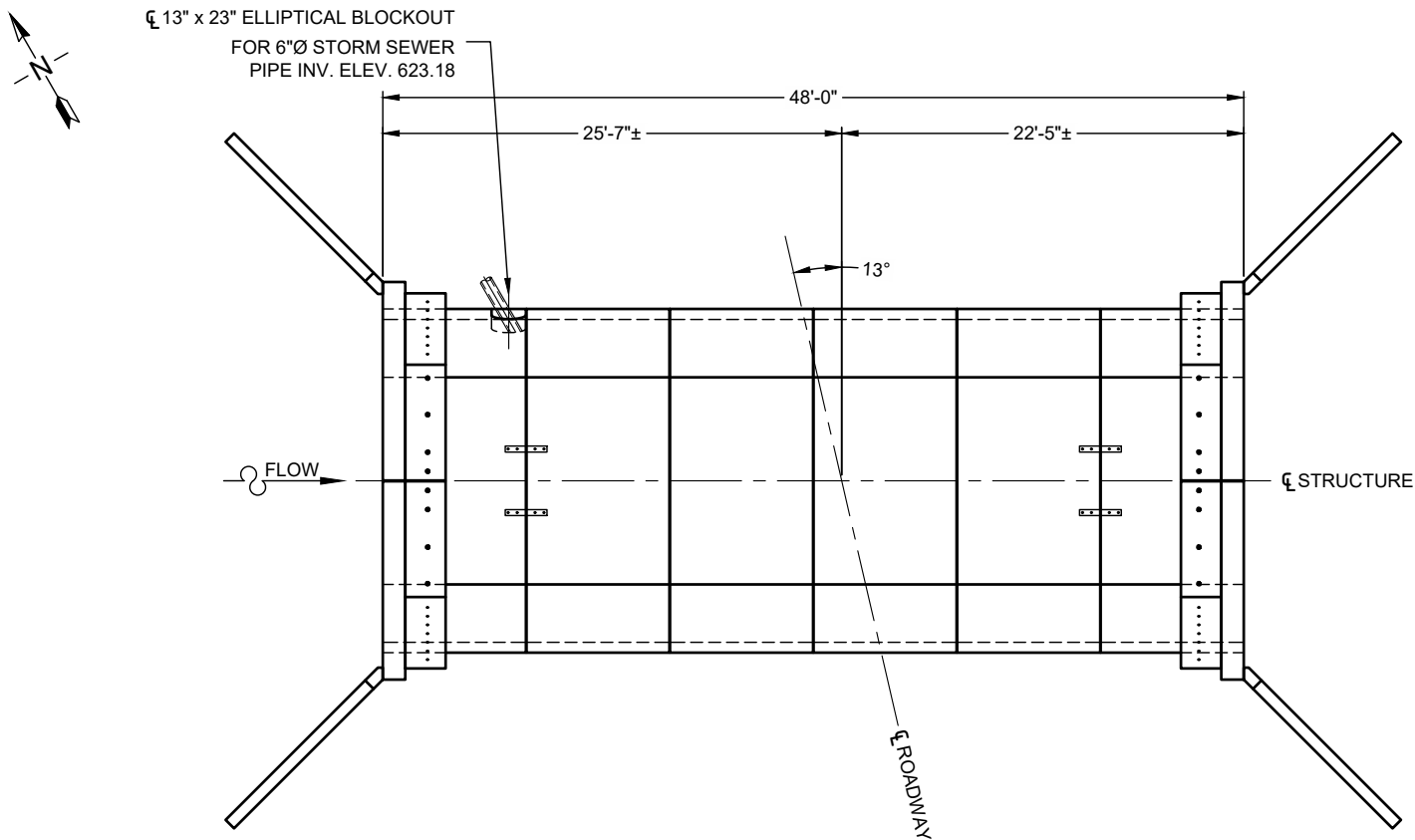
\*FOUNDATION EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THIS PROJECT PREPARED BY RABA KISTNER DATED 5/7/2021 AND ADDENDUM DATED 11/11/2021.

MATERIALS

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.

STILLWATER CAPITAL  
DOUBLE CREEK PHASE 2

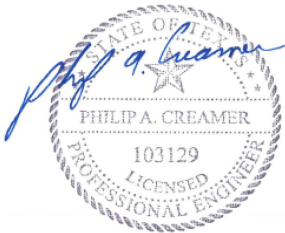
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LOCATION PLAN

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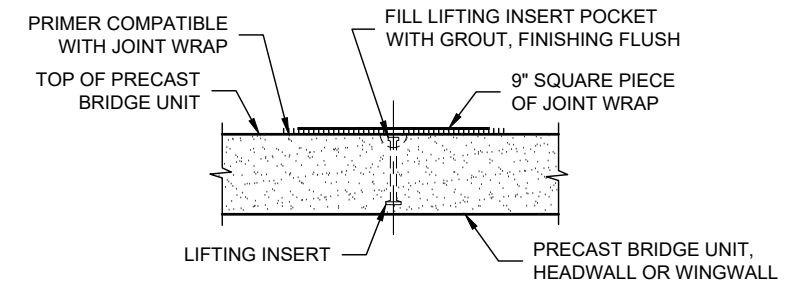
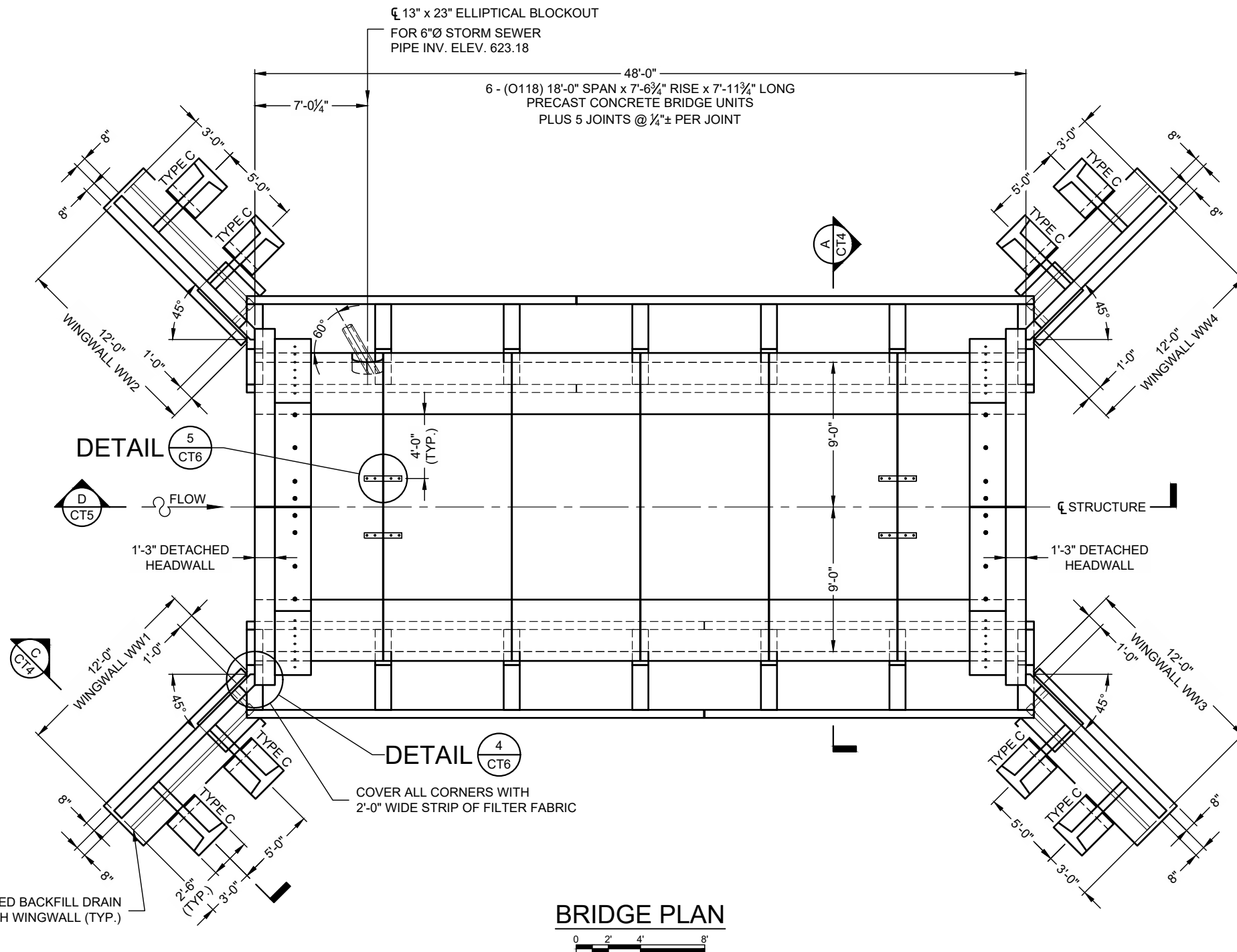
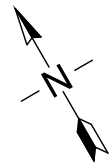
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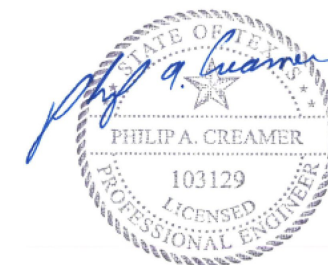
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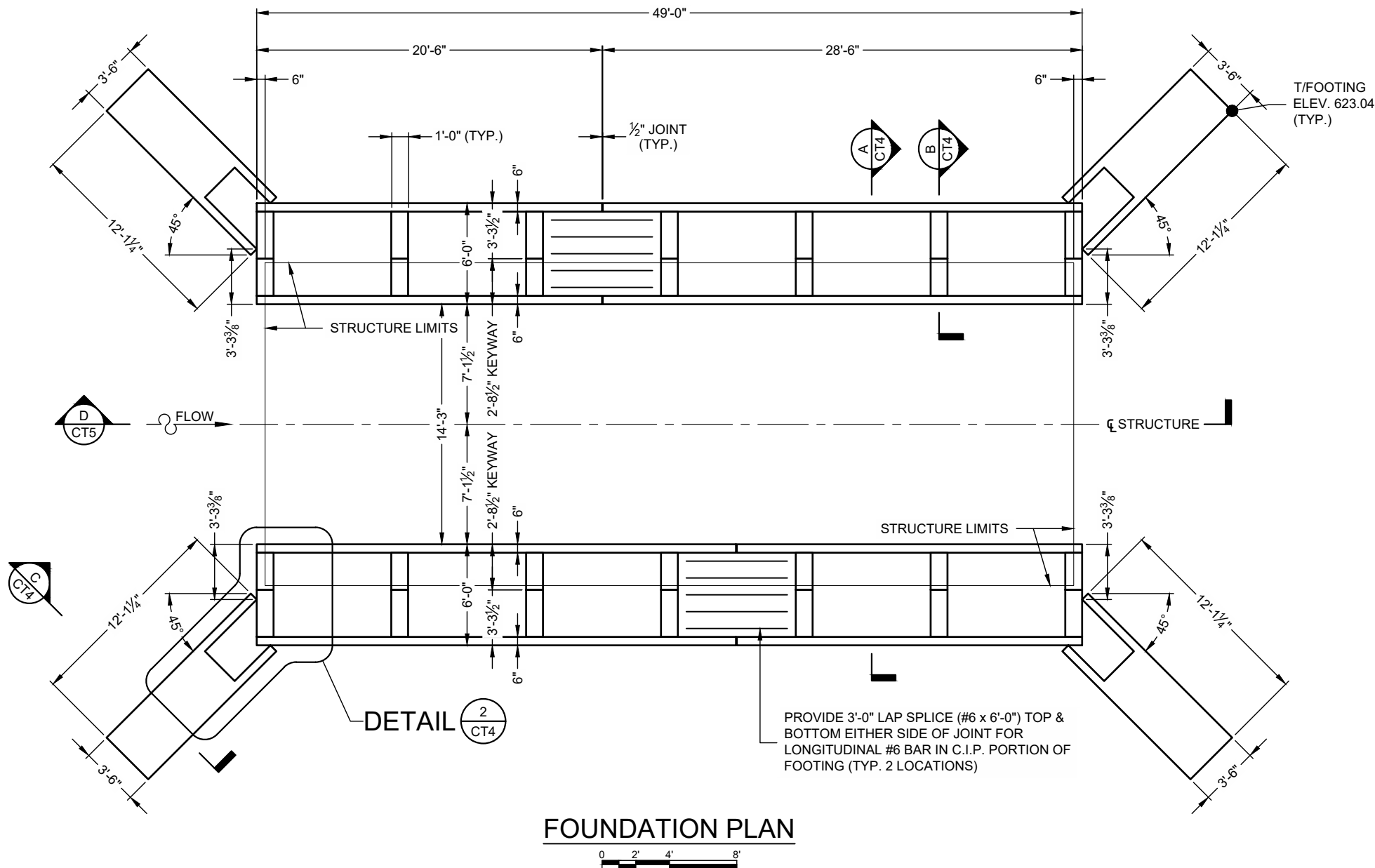
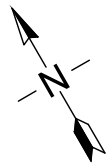
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FOUNDATION PLAN

- PRECAST REINFORCED CONCRETE EXPRESS™ FOUNDATION NOTES:**
1. PRECAST FOUNDATION UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN BRIDGE SYSTEMS.
  2. PRECAST AND CAST-IN-PLACE CONCRETE FOR EXPRESS FOUNDATIONS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOUNDATIONS SHALL CONFORM TO ASTM A615 OR A996, GRADE 60.
  3. PRECAST FOUNDATION UNITS SHALL BE SET ON A MINIMUM 4-INCH THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOUNDATION.
  4. COMPACTED BACKFILL MATERIAL MUST BE PLACED UP TO THE TOP OF THE PRECAST FOUNDATION UNITS ON BOTH SIDES PRIOR TO PLACING CAST-IN-PLACE CONCRETE PORTION OF FOUNDATIONS.
  5. CONCRETE SURFACES WHICH CAST-IN-PLACE CONCRETE WILL BE PLACED AGAINST SHALL BE CLEAN, FREE OF LAITANCE, DIRT, STANDING WATER AND ANY OTHER MATERIAL THAT MAY IMPAIR THE BOND BETWEEN THE PRECAST CONCRETE AND CAST-IN-PLACE CONCRETE.
  6. CAST-IN-PLACE CONCRETE MIX USED TO FILL FOUNDATION SHALL BE ABLE TO FLOW INTO ARCH SHIM SPACE OR NON-SHRINK GROUT SHALL BE PLACED UNDER ARCH UNIT LEG AT FOUNDATION CROSS MEMBERS PRIOR TO PLACEMENT OF CAST-IN-PLACE PORTION OF FOUNDATION.
  7. IF THE AMBIENT TEMPERATURE AT THE TIME OF PLACEMENT OF CAST-IN-PLACE CONCRETE IS ABOVE 90°F OR EXPECTED TO GO BELOW 35°F DURING THE CURE PERIOD, THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, SECTION 8.6.2 HOT WEATHER PROTECTION OR SECTION 8.6.4 COLD WEATHER PROTECTION.
  8. IF PRECAST ARCH UNITS ARE TO BE ERECTED ON PRECAST FOUNDATION UNITS PRIOR TO PLACEMENT OF CAST-IN-PLACE CONCRETE, THE CABLE TIES/RODS (SHIPPED WITH LONG-SPAN STRUCTURES) MUST REMAIN IN PLACE AND MAY NOT BE REMOVED UNTIL CAST-IN-PLACE CONCRETE HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
  9. IF CABLE TIES/RODS (SHIPPED WITH LONG-SPAN STRUCTURES) MUST BE REMOVED PRIOR TO SETTING OF ARCH UNITS, CAST-IN-PLACE CONCRETE PORTION OF FOUNDATIONS MUST BE PLACED AND ALLOWED TO REACH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI BEFORE PLACEMENT OF PRECAST ARCH UNITS, HEADWALLS AND WINGWALLS. CONTRACTOR MUST FOLLOW SPECIFICATION SECTION 13.4 AND NOTIFY CONTECH ENGINEER PRIOR TO REMOVING CABLES TIES/RODS.
  10. IF CAST-IN-PLACE CONCRETE PORTION OF FOUNDATION IS TO BE PLACED PRIOR TO SETTING OF ARCH UNITS, HEADWALLS OR WINGWALLS, CAST-IN-PLACE CONCRETE SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI BEFORE PRECAST ARCH UNITS, HEADWALLS AND WINGWALLS ARE SET.
  11. FOUNDATION CONCRETE SHALL REACH ITS FULL DESIGN STRENGTH BEFORE BACKFILLING OF ARCH UNITS MAY COMMENCE.

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CAST IN PLACE CONCRETE VOLUME: 34.1 CUBIC YARDS  
CONCRETE VOLUME IS ACTUAL REQUIRED AMOUNT AND SHOULD BE INCREASED FOR ANTICIPATED LEAKAGE, WASTE, ETC.

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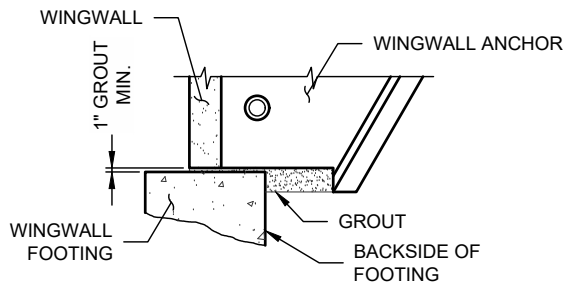
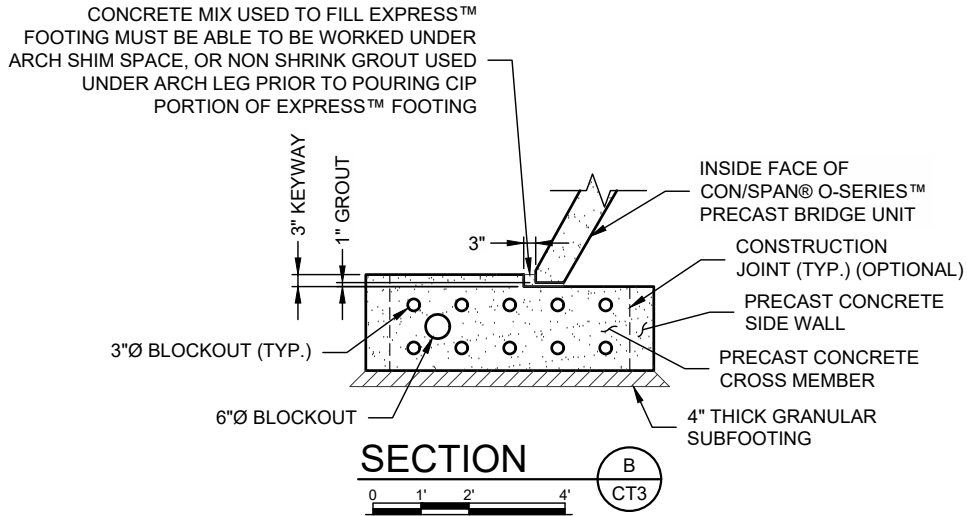
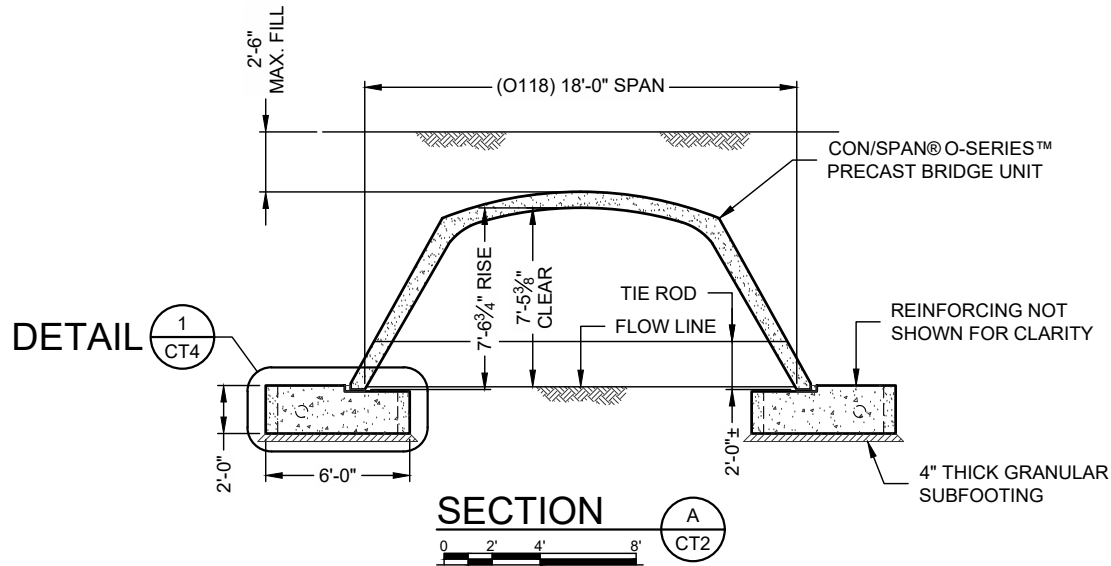
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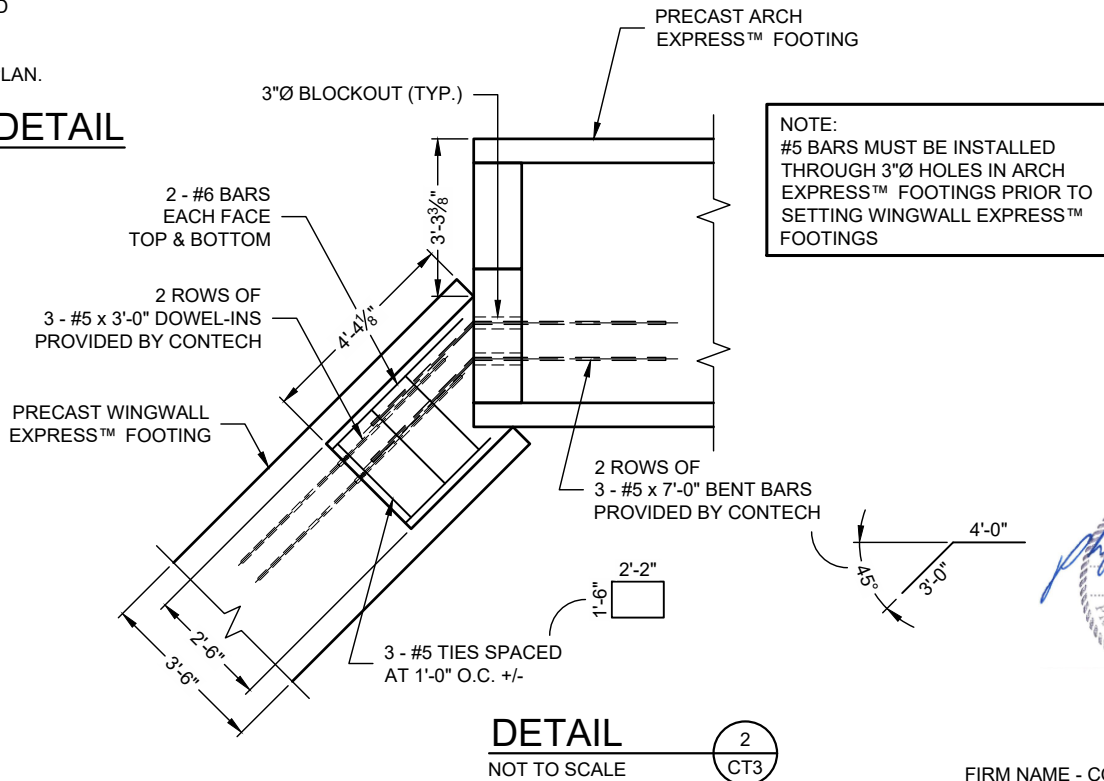
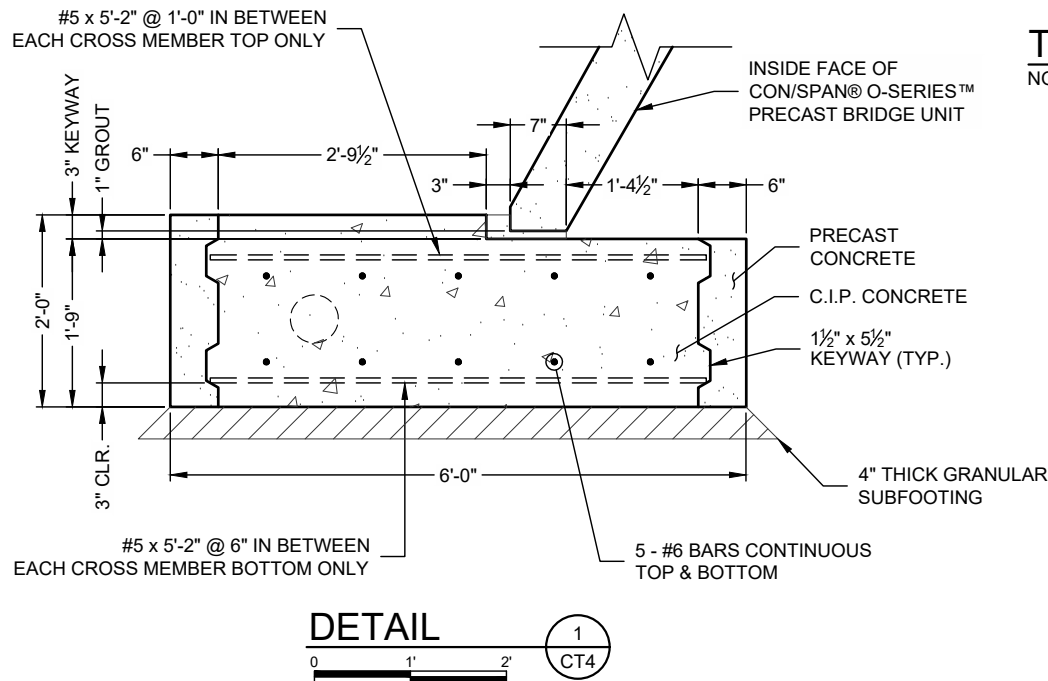
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- NOTES:
- MINIMUM 1" GROUT UNDER WINGWALL LEG & ANCHOR STEM.
  - AREA BETWEEN WINGWALL FOOTING AND WINGWALL ANCHOR SHALL BE GROUTED SOLID BEFORE BACKFILL.
  - FORM BACKSIDE OF FOOTING TO DIMENSIONS SHOWN ON FOUNDATION PLAN.

### TYPICAL WINGWALL GROUT DETAIL

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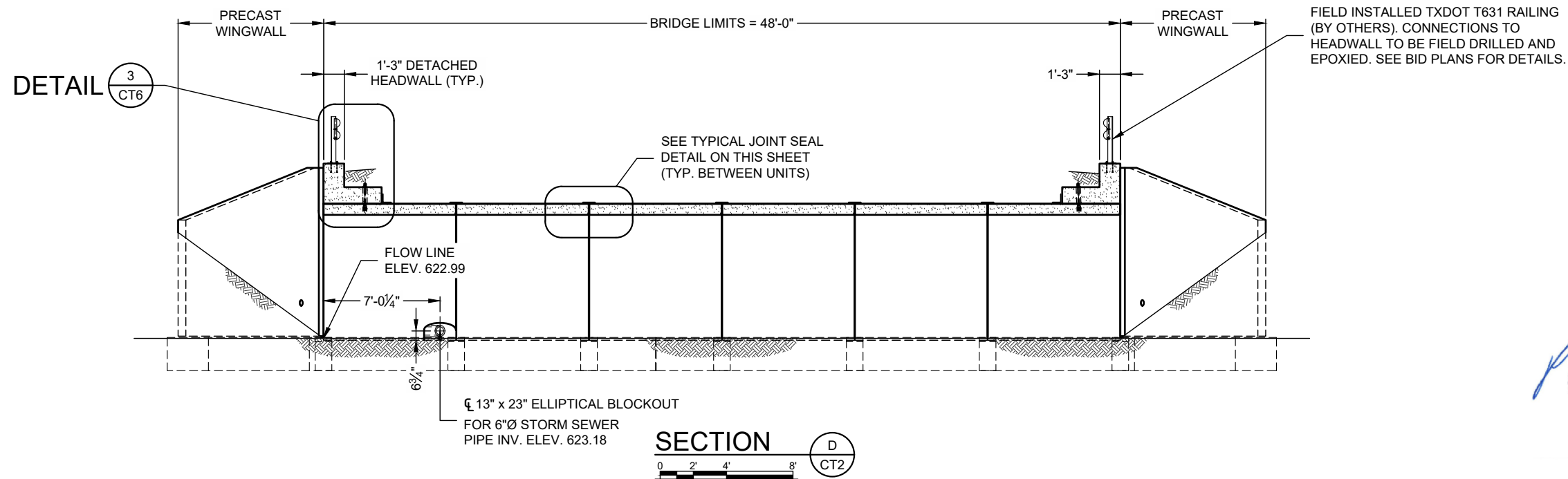
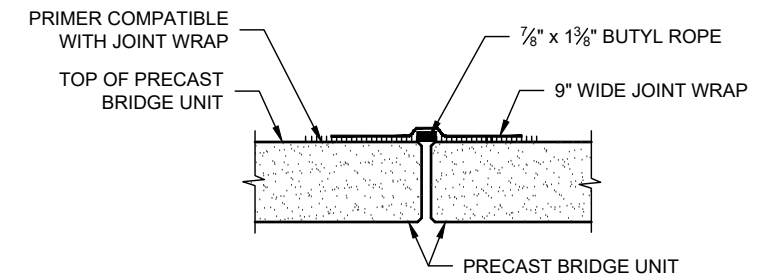
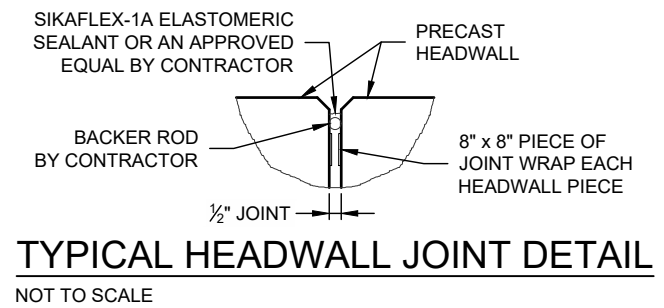
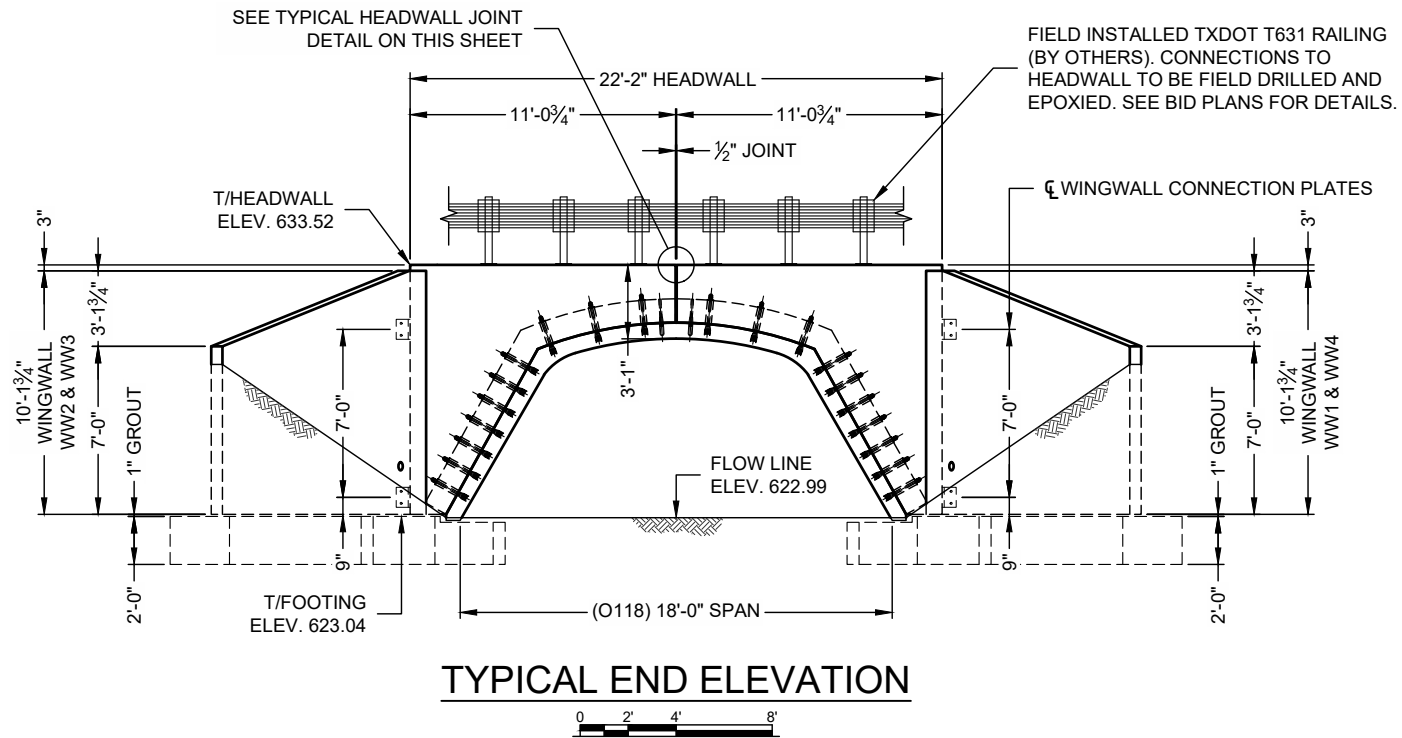
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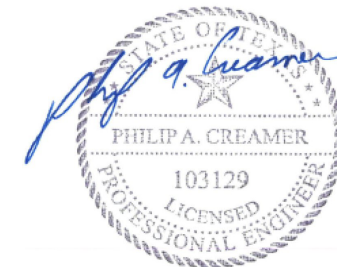
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FIELD INSTALLED TXDOT T631 RAILING  
(BY OTHERS). CONNECTIONS TO  
HEADWALL TO BE FIELD DRILLED AND  
EPOXIED. SEE BID PLANS FOR DETAILS.

LIMITS OF BACKER ROD &  
CAULK IN HEADWALL  
JOINT BY CONTRACTOR

PRECAST HEADWALL

PRECAST BRIDGE UNIT

1'-3" 2'-3" 1'-3"

1"Ø x 5½" F-56 EC INSERT (STAINLESS)  
1"Ø x 1'-6" COIL ROD (STAINLESS)  
W/ DOUBLE NUT (STAINLESS)  
WASHER (GALVANIZED)  
SPACING TO BE DETERMINED  
AT SHOP DRAWING STAGE

9" WIDE SEALWRAP OR EZ-WRAP  
RUBBER AT HEADWALL JOINT FROM  
TOP OF ARCH TO FINISH GRADE

JOINT WRAP W/PRIMER

3"Ø HOLE GROUT SOLID AFTER  
INSTALLATION OF COIL ROD

2'-6"

DETAIL

3  
CT5

BUTYL ROPE, PRIMER &  
JOINT WRAP INSTALLED  
UNDER TIE PLATE

2'-4" 2" 1'-0" 2" 6" 6"

4 - 1½"Ø HOLES

5/8" x 4" x 2'-4"  
GALVANIZED P(P-2)

DETAIL

NOT TO SCALE

5  
CT2

JOINT WRAP &  
PRIMER INSTALLED  
UNDER TIE PLATE

(PW-1) 9"

BRIDGE END UNIT

BRIDGE INTERIOR UNIT

1"Ø x 7½" LONG HILTI KWIK BOLT 3  
EXPANSION ANCHOR OR APPROVED EQUAL.  
INSTALL IN FIELD DRILLED HOLES W/ MINIMUM  
4½" EMBEDMENT, AS PER MANUFACTURER'S  
INSTALLATION INSTRUCTIONS (TYP.)

1"Ø x 2¾" BOLTS, (6" PITCH)  
W/ ROUND WASHERS

4" DAYTON SUPERIOR TWO  
BOLT PRESET ANCHOR FOR

BUTYL ROPE

JOINT

SECTION

NOT TO SCALE

E  
CT6

6" DAYTON SUPERIOR TWO BOLT  
PRESET ANCHOR FOR 1"Ø x 6"  
THREADED ROD (2) WITH DOUBLE NUTS  
[ALT. 1"Ø x 2¾" BOLTS, (6" PITCH)]

PRECAST  
WINGWALL

DETAIL @ HEADWALL

0 1' 2'

NOTE:  
CONNECTION P'S (P-1) MUST BE  
POSITIONED WITH SMALL Ø HOLES  
TOWARD PRECAST HEADWALL

8" DAYTON SUPERIOR TWO BOLT  
PRESET ANCHOR FOR 1"Ø x 6"  
THREADED ROD (2) WITH DOUBLE NUTS  
[ALT. 1"Ø x 2¾" BOLTS, (6" PITCH)]

PRECAST  
HEADWALL

1" x 14" x 10" GALV. P(P-1)  
P WASHER 4" x 4" x ½"  
GALV. (PW-1)

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800-338-1122 513-645-7000 513-645-7993 FAX

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O-SERIES  
EXPRESS Foundations

CONTRACT  
DRAWING

STILLWATER CAPITAL  
DOUBLE CREEK PHASE 2

AUSTIN, TEXAS

|                          |                      |                    |
|--------------------------|----------------------|--------------------|
| PROJECT No.:<br>688751   | SEQ. No.:<br>010/020 | DATE:<br>5/17/2022 |
| DESIGNED:<br>JAL         | DRAWN:<br>PJW        |                    |
| CHECKED:<br>DM           | APPROVED:<br>PAC     |                    |
| SHEET NO.:<br>CT6 OF CT8 |                      |                    |

**QMD Reviewed**  
05/31/2022 12:14:00 PM  
Ben Sanders, EIT

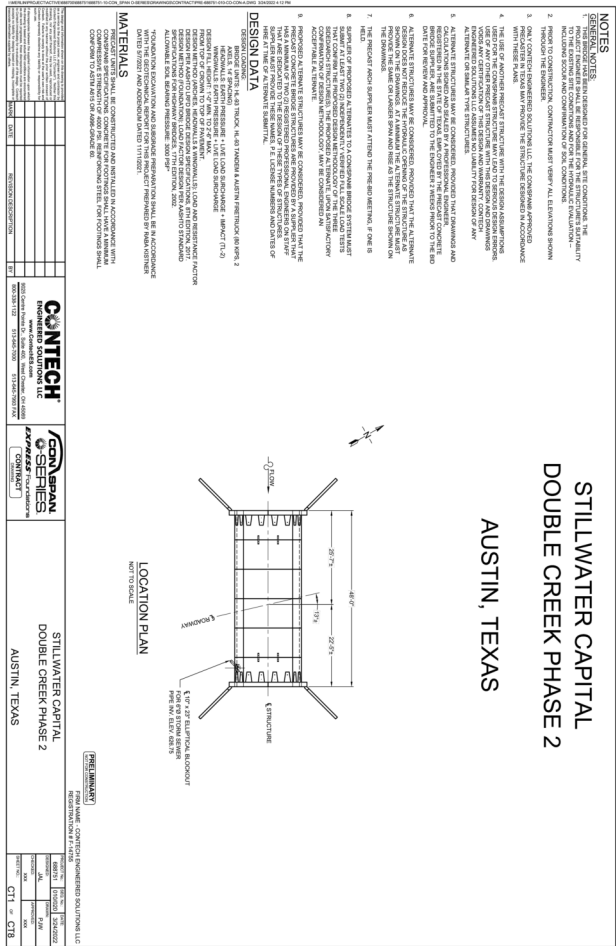
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| PROJECT No.:<br>688751   | SEQ. No.:<br>010/020 | DATE:<br>5/17/2022 |
| DESIGNED:<br>JAL         |                      | DRAWN:<br>PJW      |
| CHECKED:<br>DM           |                      | APPROVED:<br>PAC   |
| SHEET NO.:<br>CT7 OF CT8 |                      |                    |

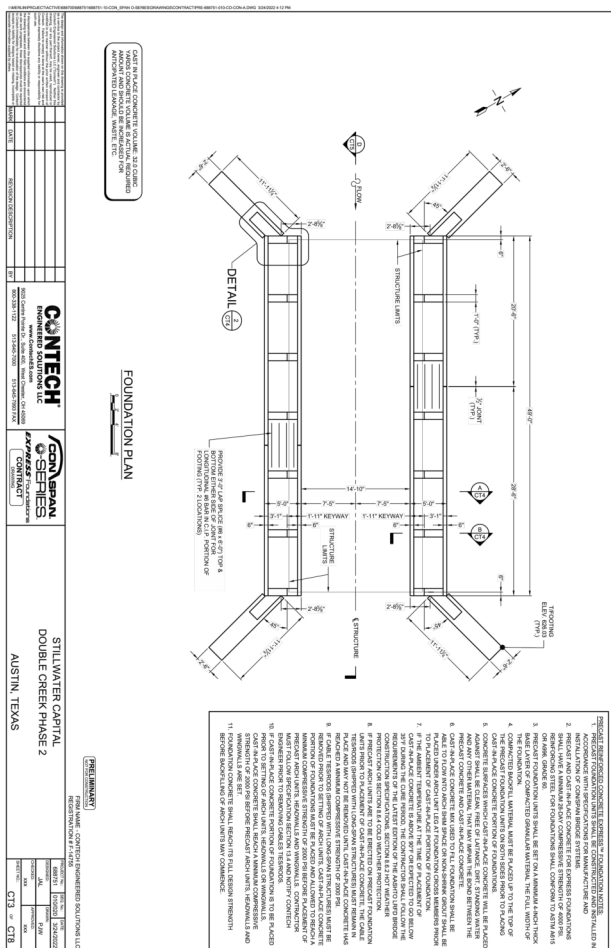
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[illegible]

BRIDGE PLAN

STILLWATER-DOUBLE CREEK PHASE 2  
10801 BREZZA LN. AUSTIN, TX 78748

**MALONE★WHEELER**  
SINCE INC. 1995

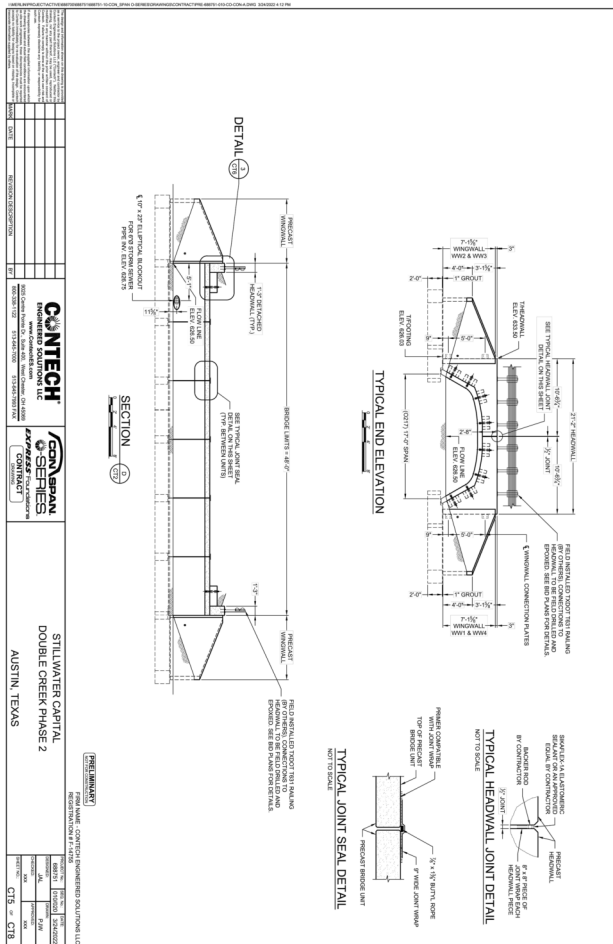
CIVIL ENGINEERING★DEVELOPMENT CONSULTING★PROJECT MANAGEMENT

5113 Southwest Pkwy, Suite 260  
Austin, Texas 78735  
Phone: (512) 899-0601 Fax: (512) 899-0655  
Firm Registration No. F-786

|               |           |
|---------------|-----------|
| DESIGN BY :   | AGIUM     |
| CHECKED BY :  | AGIUM     |
| APPROVED BY : | LAR       |
| DATE :        | 3/30/2022 |

**SHEET 54**

**OF 71**

[illegible]

BRIDGE PLAN

STILLWATER-DOUBLE CREEK PHASE 2  
10801 BREZZA LN. AUSTIN, TX 78748

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Firm Registration No. F-786

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| DESIGN BY:   | AQUAM     |
| CHECKED BY:  | AQUAM     |
| APPROVED BY: | LAR       |
| DATE:        | 3/30/2022 |

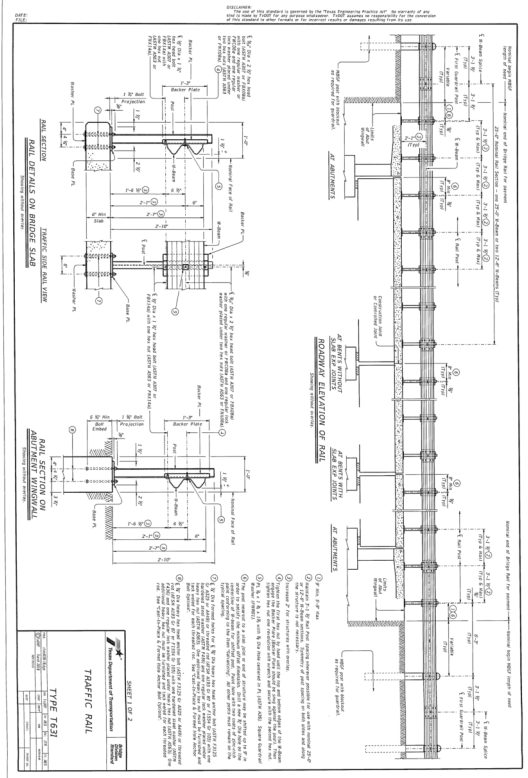
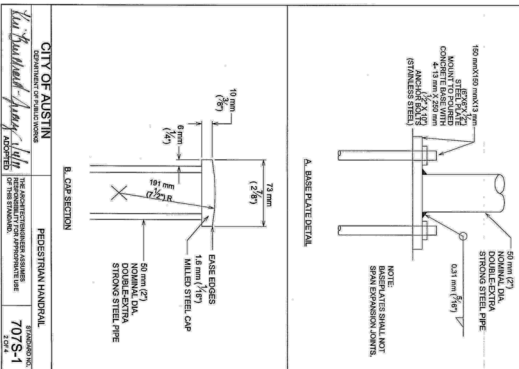
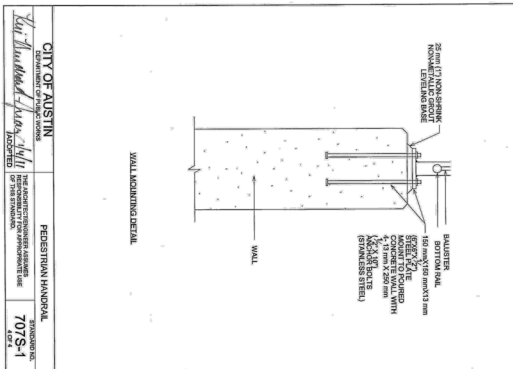


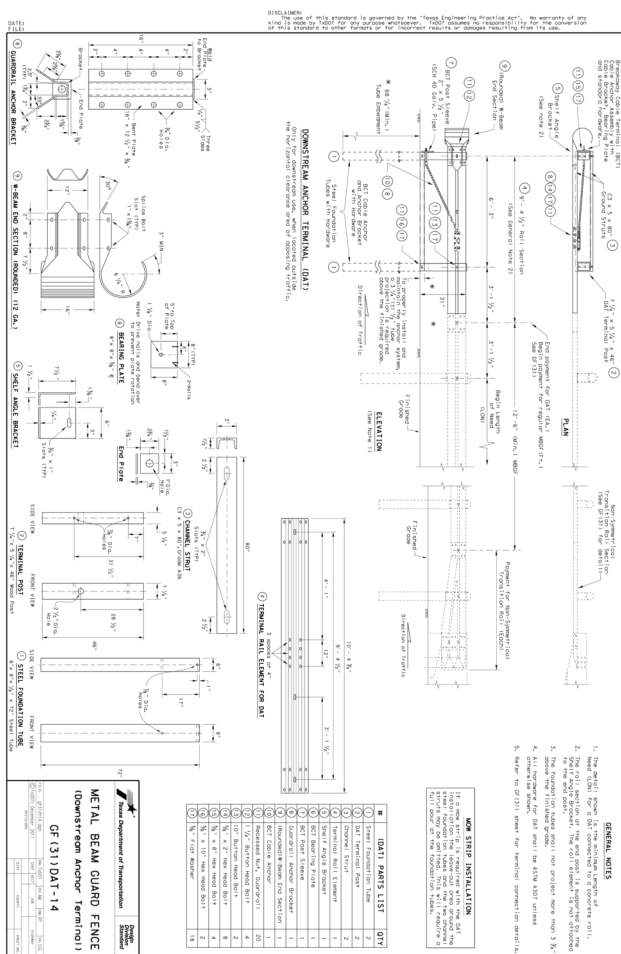
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