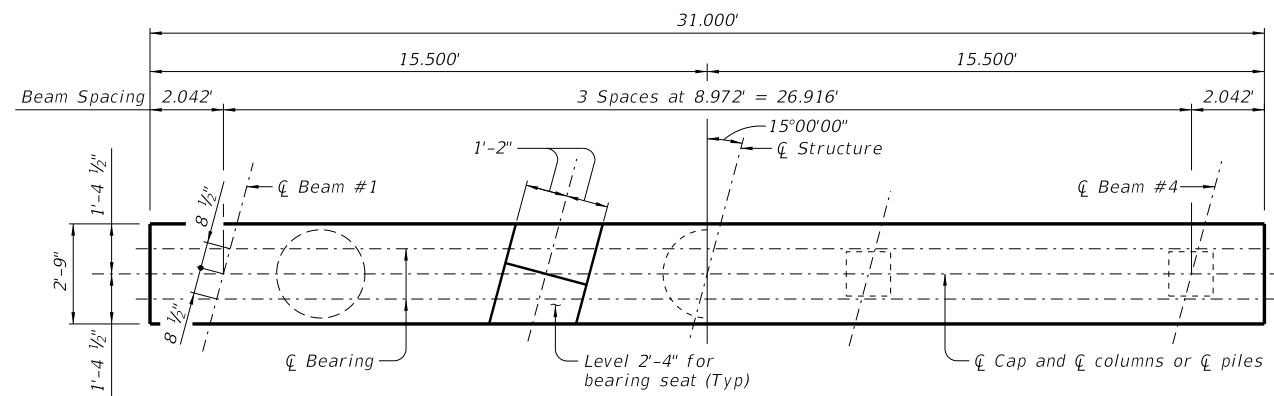
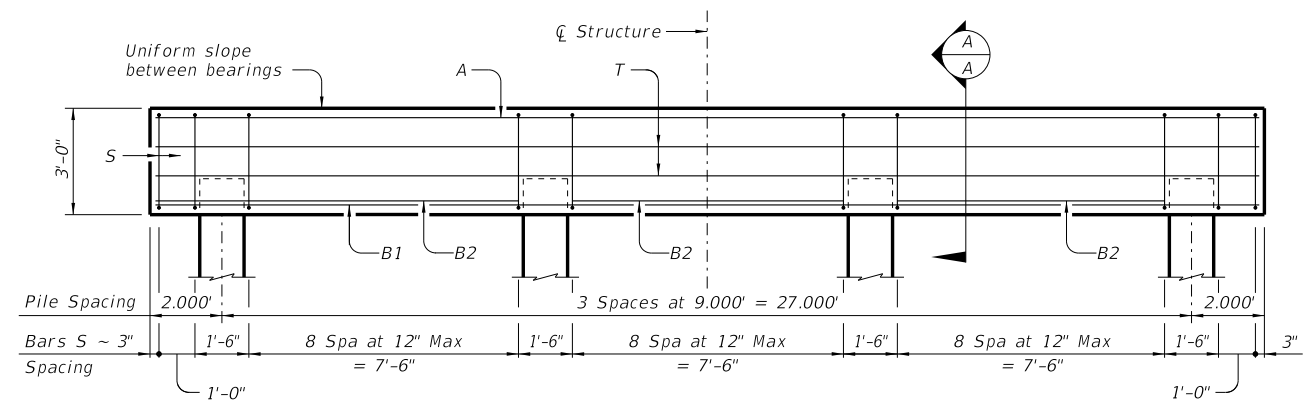


DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



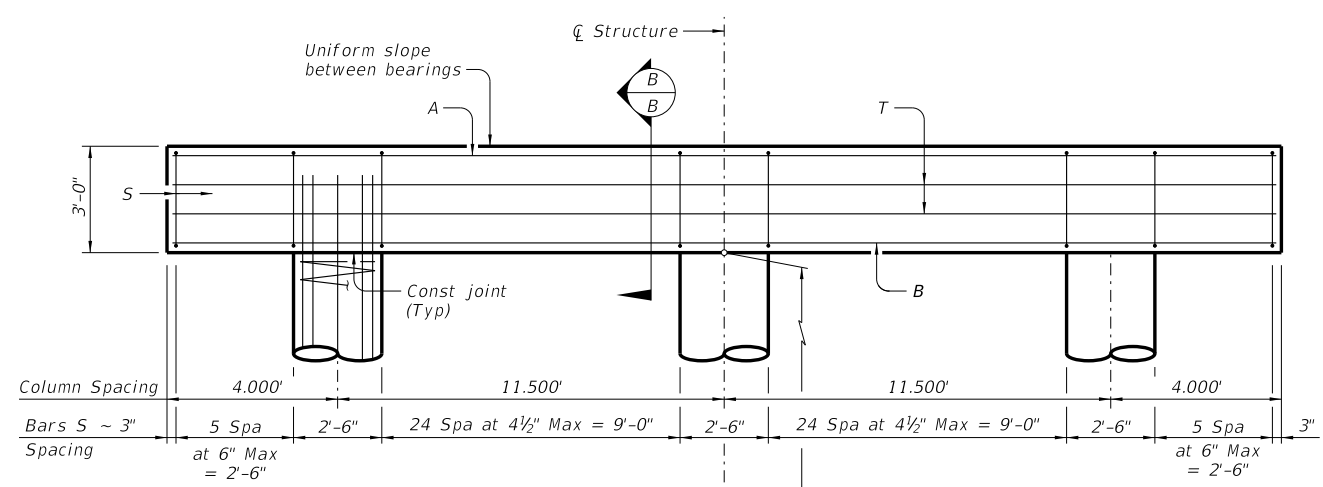
**HALF PLAN**  
(3 Column/Dr shaft bent)

**HALF PLAN**  
(4 Pile bent)

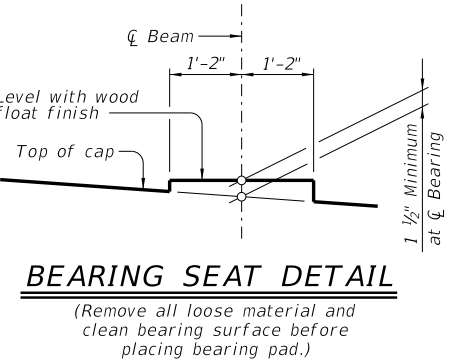
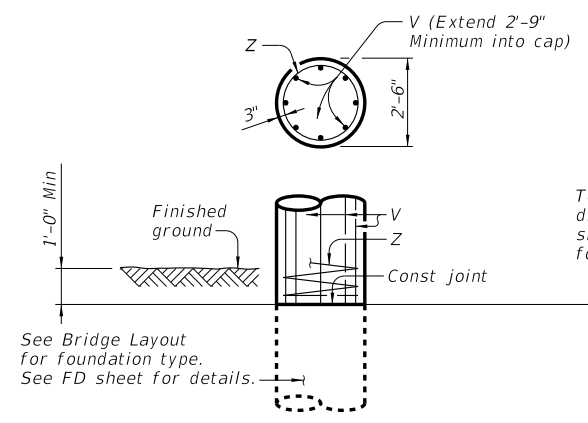


**ELEVATION** ③ ⑤  
(4 Pile bent)

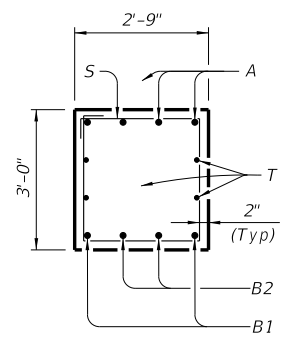
Note: For piling larger than 16", adjust Bars S spacing as required to avoid piling.



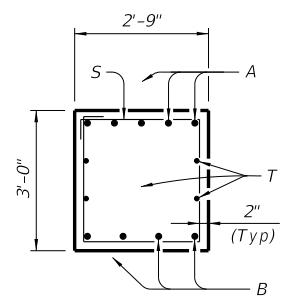
**ELEVATION**  
(3 Column/Dr shaft bent)



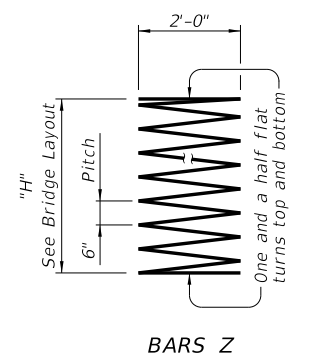
**BEARING SEAT DETAIL**  
(Remove all loose material and clean bearing surface before placing bearing pad.)



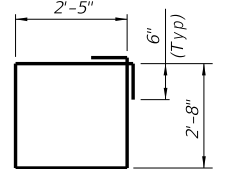
**SECTION A-A**



**SECTION B-B**



**BARS Z**



**BARS S**

**TABLE OF MAXIMUM ALLOWABLE EXPOSED PILE HEIGHTS AND PILE LOADS**

| Pile Type |            | Max Ht | Max Load  |
|-----------|------------|--------|-----------|
| Concrete  | Steel      | Ft     | Tons/Pile |
| 16" Sq    | HP14x73    | 16     | 75        |
| 18" Sq    | HP14x117 ④ | 20     | 90        |
| 20" Sq    | HP18x135   | 24     | 110       |

**TABLE OF ESTIMATED QUANTITIES 4 PILE BENT**

| Bar                    | No. | Size | Length  | Weight |
|------------------------|-----|------|---------|--------|
| A                      | 4   | #9   | 30'- 8" | 417    |
| B1                     | 2   | #9   | 30'- 8" | 209    |
| B2                     | 6   | #9   | 7'- 6"  | 153    |
| S                      | 31  | #5   | 11'- 2" | 361    |
| T                      | 4   | #5   | 30'- 8" | 128    |
| Reinforcing Steel      |     |      | Lb      | 1,268  |
| Class C Concrete (Cap) |     |      | CY      | 9.6    |

**TABLE OF ESTIMATED QUANTITIES FOR 3 COLUMN BENT** ①

| Bar                     | No. | Size | Length   | Weight |
|-------------------------|-----|------|----------|--------|
| A                       | 5   | #11  | 30'- 8"  | 815    |
| B                       | 4   | #11  | 30'- 8"  | 652    |
| S                       | 62  | #5   | 11'- 2"  | 722    |
| T                       | 4   | #5   | 30'- 8"  | 128    |
| V                       | 24  | #9   | 32'- 9"  | 2,672  |
| Z                       | 3   | #3   | 397'- 0" | 448    |
| Reinforcing Steel       |     |      | Lb       | 5,437  |
| Class C Concrete (Cap)  |     |      | CY       | 9.6    |
| Class C Concrete (Cols) |     |      | CY       | 16.4   |

**TABLE OF FOUNDATION LOADS** ②

| Span Length | Shaft Load | Pile Load |
|-------------|------------|-----------|
| Ft          | Tons/Shaft | Tons/Pile |
| 30          | 70         | 44        |
| 35          | 75         | 48        |
| 40          | 81         | 52        |
| 45          | 87         | 57        |
| 50          | 93         | 61        |
| 55          | 99         | 66        |
| 60          | 104        | 70        |
| 65          | 110        | 74        |
| 70          | 116        | 79        |
| 75          | 123        | 83        |
| 80          | 130        | 89        |
| 85          | 136        | 93        |
| 90          | 144        | 100       |
| 95          | 149        | 104       |
| 100         | 157        | 109       |
| 105         | 162        | ⑤         |
| 110         | 173        | ⑤         |
| 115         | 179        | ⑤         |
| 120         | 188        | ⑤         |

- ① Quantities shown are based on an "H" value of 30'-0". For each linear foot variation in "H" value, make the following adjustments:  
Bars V length ~ 1'-0"  
Bars Z length ~ 12'-7"  
Reinforcing Steel ~ 96 Lbs  
Class C Concrete (Columns) ~ 0.55 CY
- ② Foundation Loads based on "H"=30'.
- ③ This standard may not be used for "H" heights exceeding 30' or exposed pile heights exceeding the values shown in the table. In areas of very soft soil or where scour is anticipated, maximum allowable "H" heights or exposed pile heights must be evaluated by the Engineer prior to the use of this standard.
- ④ When HP14x117 steel piling is specified in the plans, the Contractor has the option of furnishing either HP14x117 or HP16x101 steel piling.
- ⑤ Maximum average span length allowed for 4 pile bent is 100'.

**MATERIAL NOTES:**

Provide Class C concrete (f'c = 3,600 psi).  
Provide Class C (HPC) concrete if shown elsewhere in the plans.  
Provide Grade 60 reinforcing steel.

**GENERAL NOTES:**

Designed according to AASHTO LRFD Bridge Design Specifications.  
Bent selected must be based on the average span length rounded up to the next 5 ft increment.  
For pile bents supporting unequal spans, the shorter span cannot be less than 80 percent of the longer span.  
See Bridge Layout for foundation type, size, and length.  
See Common Foundation Details (FD) standard sheet for all foundation details and notes.  
These bent details do not support the use of multi-pile footings as shown on the FD Standard.  
See Standard Erection and Bracing Requirements (SBBR) standard sheet for location and size of anchor bolt required for erection bracing.  
Details are drawn showing right forward skew. See Bridge Layout for actual skew direction.  
These bent details may be used for the beam types and span lengths shown on the standard SSB-28-15 only.

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

**INTERIOR BENTS**  
**STEEL BEAM SPANS**  
**28' ROADWAY 15° SKEW**

**BSB-28-15**

|                      |           |           |           |           |
|----------------------|-----------|-----------|-----------|-----------|
| FILE: sbstd20-21.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| ©TxDOT November 2021 | CONT      | SECT      | JOB       | HIGHWAY   |
| REVISIONS            |           |           |           |           |
| DIST                 | COUNTY    |           |           | SHEET NO. |

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