

## STANDARD SPECIFICATIONS

ALL REFERENCES MADE TO THE STANDARD SPECIFICATIONS CONTAINED IN THE COUNTY BRIDGE STANDARD DRAWINGS INCLUDING THE GENERAL INFORMATION AND DESIGN INFORMATION SHEETS SHALL BE EQUIVALENT TO MAKING REFERENCE TO THE "1999 OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" - ENGLISH GOVERN. APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, SEPTEMBER 21, 1999.

## DISCLAIMER AND APPLICATION OF THE COUNTY BRIDGE STANDARD DRAWINGS

THE COUNTY BRIDGE STANDARD DRAWINGS ARE TO BE USED FOR ODOT "STANDARD" TYPE COUNTY BRIDGES ONLY. EACH INDIVIDUAL DESIGN, DETAIL, NOTE, TABLE OR PART OF INFORMATION CONTAINED IN THE COUNTY BRIDGE STANDARD DRAWINGS IS ONLY APPLICABLE TO A BRIDGE CONSTRUCTED IN STRICT CONFORMANCE TO ALL RELEVANT DESIGNS, DETAILS, NOTES, TABLES AND INFORMATION CONTAINED IN THE COMPLETE SET OF COUNTY BRIDGE STANDARD DRAWINGS AND THE ODOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION UNLESS SPECIFICALLY NOTED OTHERWISE IN THE COUNTY BRIDGE STANDARD DRAWINGS. BRIDGES WITH PROPERTIES THAT DO NOT CONFORM TO THE SCOPE OF THE COUNTY BRIDGE STANDARD DRAWINGS SHALL BE CONSIDERED "SPECIAL" OR "NON-STANDARD." SELECTING DESIGNS, DETAILS, NOTES, TABLES AND INFORMATION FROM THE COUNTY BRIDGE STANDARD DRAWINGS FOR USE IN DESIGNING, DETAILING, CONSTRUCTING, FABRICATING OR ERECTING "SPECIAL" OR "NON-STANDARD" BRIDGES IS STRICTLY PROHIBITED. USE OF THE COUNTY BRIDGE STANDARD DRAWINGS SHALL BE AT THE DIRECTION AND SUPERVISION OF A "DESIGN ENGINEER." THE DESIGN ENGINEER SHALL BE A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OKLAHOMA. WHEN EMPLOYING ANY PART OF THE COUNTY BRIDGE STANDARD DRAWINGS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR ENSURING THE COUNTY BRIDGE STANDARD DRAWINGS ARE USED IN A PROPER MANNER AND APPLIED ONLY TO BRIDGES HAVING PROPERTIES THAT CONFORM TO THE SCOPE OF THE COUNTY BRIDGE STANDARD DRAWINGS.

## SCOPE OF THE COUNTY BRIDGE STANDARD DRAWINGS

THE COUNTY BRIDGE STANDARD DRAWINGS INCLUDE DESIGNS, DETAILS, NOTES, TABLES AND INFORMATION FOR DECK SLAB ON BEAM TYPE BRIDGES. ALL DECK SLABS ARE REINFORCED CONCRETE, AND ALL BEAMS ARE AASHTO OR TEXAS TYPE PRESTRESSED CONCRETE (P.C.) BEAMS OR STEEL ROLLED BEAMS UP TO W40 IN SIZE. ONLY TANGENT BRIDGES WITH 26' AND 32' CLEAR ROADWAYS AND SKEWS OF 0° AND 30° ARE INCLUDED IN THE COUNTY BRIDGE STANDARD DRAWINGS. THE COUNTY BRIDGE STANDARD DRAWINGS INCLUDE DETAILS FOR CONVENTIONAL ABUTMENTS, INTEGRAL ABUTMENTS AND SUPERSTRUCTURE ONLY. NO PIER DETAILS ARE INCLUDED. ALL PIER DESIGNS AND DETAILS SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER. ALL PIER DESIGNS AND DETAILS USED IN CONJUNCTION WITH THE COUNTY BRIDGE STANDARD DRAWINGS SHALL MAINTAIN THE CLEARANCES FROM END OF BEAM TO CENTERLINE PIER SHOWN ON THE LONGITUDINAL SECTION SHEETS GIVEN IN THE COUNTY BRIDGE STANDARD DRAWINGS. THE COUNTY BRIDGE STANDARD DRAWINGS CONTAIN OPTIONAL APPROACH SLAB DETAILS FOR INTEGRAL ABUTMENT BRIDGES ONLY. NO APPROACH SLAB DETAILS ARE INCLUDED FOR CONVENTIONAL ABUTMENT BRIDGES.

ALL THE DETAILS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS AND CONTAINED ON THE SHEETS HAVING THE CB26 DESIGN NO. DESIGNATION SHALL APPLY ONLY TO BRIDGES HAVING THE FOLLOWING PROPERTIES:

- ALONG TANGENT ALIGNMENT
- TYPICAL SECTION AS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS
- LONGITUDINAL SECTION AS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS
- 26' CLEAR ROADWAY
- INTEGRAL OR CONVENTIONAL ABUTMENTS AS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS
- SKEWED 0° OR 30°
- TR3 CONCRETE TRAFFIC RAILS AT EDGES OF DECK SLAB
- 8" THICK REINFORCED CONCRETE DECK SLAB
- THREE (3) LINES OF BEAMS EVENLY SPACED AT 10'-3"
- DECK SLAB OVERHANG OF 3'-10"
- SPANS LENGTHS BETWEEN 30' AND 135' FOR P.C. BEAM BRIDGES
- SPANS LENGTHS BETWEEN 30' AND 100' FOR STEEL ROLLED BEAM BRIDGES

ALL THE DETAILS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS AND CONTAINED ON THE SHEETS HAVING THE CB32 DESIGN NO. DESIGNATION SHALL APPLY ONLY TO BRIDGES HAVING THE FOLLOWING PROPERTIES:

- ALONG TANGENT ALIGNMENT
- TYPICAL SECTION AS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS
- LONGITUDINAL SECTION AS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS
- 32' CLEAR ROADWAY
- INTEGRAL OR CONVENTIONAL ABUTMENTS AS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS
- SKEWED 0° OR 30°
- TR3 CONCRETE TRAFFIC RAILS AT EDGES OF DECK SLAB
- 8" THICK REINFORCED CONCRETE DECK SLAB
- FOUR (4) LINES OF BEAMS EVENLY SPACED AT 9'-2"
- DECK SLAB OVERHANG OF 3'-4"
- SPANS LENGTHS BETWEEN 30' AND 145' FOR P.C. BEAM BRIDGES
- SPANS LENGTHS BETWEEN 30' AND 100' FOR STEEL ROLLED BEAM BRIDGES

ALL THE DETAILS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS AND CONTAINED ON THE SHEETS HAVING THE CB26.32 DESIGN NO. DESIGNATION SHALL APPLY ONLY TO BRIDGES HAVING PROPERTIES AS SHOWN ABOVE FOR BOTH 26' AND 32' CLEAR ROADWAYS.

## PROFILE GRADE LINE ON COUNTY BRIDGES

THE COUNTY BRIDGE STANDARD DRAWINGS APPLY TO BRIDGES HAVING A PROFILE GRADE LINE WITH A 0.0% (LEVEL) LONGITUDINAL SLOPE ALONG THE FULL BRIDGE LENGTH AND WING LENGTHS.

## BEVELED ANCHOR PLATES

ALL BEARINGS SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS WERE DESIGNED TO ALLOW UP TO A 1.0% ANGLE BETWEEN THE UNDERSIDE OF THE BEAM AND A HORIZONTAL WITHOUT REQUIRING BEVELED ANCHOR PLATES. FOR P.C. BEAM BRIDGES, THE 1.0% ALLOWANCE IS IN ADDITION TO ANY FINAL CAMBER IN THE BEAMS. FOR STEEL ROLLED BEAM BRIDGES, THE 1.0% ALLOWANCE ASSUMES THE BEAMS HAVE SUFFICIENT SHOP CAMBER TO ACCOUNT FOR THE FULL DEAD LOAD DEFLECTION. WHEN THE ANGLE BETWEEN THE UNDERSIDE OF THE BEAM AND A HORIZONTAL EXCEEDS 1.0%, BEVELED ANCHOR PLATES SHALL BE REQUIRED. FOR ADDITIONAL INFORMATION, SEE THE BEARING DETAIL SHEETS.

## REQUIRED ULTIMATE PILE CAPACITY

ALL ABUTMENT PILING SHOWN IN THE COUNTY BRIDGE STANDARD DRAWINGS SHALL BE DRIVEN THROUGH COMPACTED FILL TO POINT BEARING ON SOLID FOUNDATION MATERIAL AND TO THE REQUIRED ULTIMATE PILE CAPACITY. THE REQUIRED ULTIMATE PILE CAPACITY SHALL BE NO LESS THAN THE PILE'S MAXIMUM FACTORED PILE LOAD DIVIDED BY 0.7. THE MAXIMUM FACTORED PILE LOADS ARE SHOWN ON THE ABUTMENT DETAIL SHEETS OF THE COUNTY BRIDGE STANDARD DRAWINGS. THE DESIGN ENGINEER SHALL CLEARLY SHOW THE REQUIRED ULTIMATE PILE CAPACITY SEPARATELY IN THE COUNTY BRIDGE PLANS. ALL ABUTMENT PILING SHALL EXTEND BELOW THE FLOW LINE OF THE BRIDGE CHANNEL AND HAVE A LENGTH OF NO LESS THAN 15'-0".

## BRIDGE EXPANSION

THE COUNTY BRIDGE STANDARD DRAWINGS INCLUDE DETAILS FOR BOTH CONVENTIONAL ABUTMENT AND INTEGRAL ABUTMENT BRIDGES. FOR INTEGRAL ABUTMENT BRIDGES, THE TOTAL BRIDGE LENGTH SHALL NOT EXCEED 400'-0". FOR CONVENTIONAL ABUTMENT BRIDGES THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE NUMBER AND LOCATION OF ALL EXPANSION JOINTS, EXPANSION BEARINGS AND FIXED BEARINGS ON THE BRIDGE. FOR ALL BRIDGES, THE NUMBER AND LOCATION OF ALL EXPANSION BEARINGS SHALL TAKE INTO ACCOUNT THE MAXIMUM EXPANSION LENGTH ALLOWED AT THE BEARING AS SHOWN ON THE BEARING DETAIL SHEETS OF THE COUNTY BRIDGE STANDARD DRAWINGS. THE DESIGN ENGINEER SHALL CLEARLY DESIGNATE ALL FIXED AND EXPANSION BEARINGS SEPARATELY IN THE COUNTY BRIDGE PLANS.

ADDITIONALLY FOR CONVENTIONAL ABUTMENT BRIDGES, THE DESIGN ENGINEER SHALL SHOW SEPARATELY IN THE COUNTY BRIDGE PLANS A SCHEDULE OF EXPANSION JOINT OPENING SIZE CORRESPONDING TO THE AMBIENT AIR TEMPERATURE AT THE TIME OF SETTING THE JOINT. THE SCHEDULE SHALL INCLUDE THE JOINT OPENING SIZE CORRESPONDING TO INCREMENTS OF AMBIENT AIR TEMPERATURE AT THE TIME OF SETTING THE JOINT. THE INCREMENTS OF AMBIENT AIR TEMPERATURE SHOWN IN THE SCHEDULE SHALL RANGE FROM 0° TO 120° FAHRENHEIT. A NOMINAL 2" OPENING SHALL CORRESPOND TO 43° FAHRENHEIT FOR P.C. BEAM BRIDGES AND 60° FAHRENHEIT FOR STEEL ROLLED BEAM BRIDGES.

## LAYOUT OF CONCRETE TRAFFIC RAIL (TR3)

THE DESIGN ENGINEER SHALL SHOW A LAYOUT OF THE CONCRETE TRAFFIC RAIL (TR3) SEPARATELY IN THE COUNTY BRIDGE PLANS. THE DESIGN ENGINEER SHALL REFER TO THE DECK SLAB BAR LIST SHEETS IN THE COUNTY BRIDGE STANDARD DRAWINGS FOR THE NUMBER OF INTERIOR POST AND LENGTH OF END POSTS CONTAINED IN THE CONCRETE TRAFFIC RAIL (TR3).

## ADDITIONAL SHEETS REQUIRED IN THE COUNTY BRIDGE PLANS

COUNTY BRIDGE PLAN SHEETS REQUIRED IN ADDITION TO THE COUNTY BRIDGE STANDARD DRAWINGS MAY INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- TITLE SHEET
- BRIDGE GENERAL NOTES
- SUMMARY OF BRIDGE QUANTITIES
- GENERAL PLAN AND ELEVATION
- SUBSTRUCTURE STAKING DIAGRAM
- FOUNDATION REPORT AND BORING LOGS
- RIPRAP OR SLOPEWALL DETAILS
- PIER DETAILS

OTHER STANDARD DRAWINGS REQUIRED IN ADDITION TO THE COUNTY BRIDGE STANDARD DRAWINGS MAY INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- ODOT BRIDGE STANDARDS
- TR3-1
- E-J-SQ
- E-J-SK
- E-J-DTL
- HP1-1

- ODOT ROADWAY STANDARDS
- PUD-2
- GRAU1-1
- GRH-3
- GET-2

## SHEET DESIGN NO. DESIGNATION

EACH SHEET OF THE COUNTY BRIDGE STANDARD DRAWINGS CONTAINS A DESIGN NO. THE DESIGN NO. IS SHOWN IN THE BOTTOM RIGHT CORNER OF THE TITLE BLOCK ON EACH SHEET. THE DESIGN NO. IS COMPRISED OF SEVERAL AFFIXES WITH EACH AFFIX INDICATING THE TYPE OF DETAILS CONTAINED ON THE SHEET OR THE TYPE OF BRIDGE FOR WHICH THE DETAILS CONTAINED ON THE SHEET APPLY. THE AFFIXES ARE DEFINED IN THE TABLE BELOW.

DESIGN NO. DESIGNATION	
AFFIX	TYPE OF BRIDGE OR DETAIL
CB	COUNTY BRIDGE
INFO	INFORMATION
GENERAL	GENERAL
DESIGN	DESIGN
CB26	COUNTY BRIDGE WITH 26' CLEAR ROADWAY
CB32	COUNTY BRIDGE WITH 32' CLEAR ROADWAY
CB26..32	COUNTY BRIDGE WITH 26' AND 32' CLEAR ROADWAYS
C	CONVENTIONAL ABUTMENT
I	INTEGRAL ABUTMENT
C..I	CONVENTIONAL AND INTEGRAL ABUTMENTS
SK0	0° SKEW
SK30	30° SKEW
SK0..30	0° AND 30° SKEWS
ABUT	ABUTMENT
XSECT	TYPICAL CROSS SECTION
LSECT	LONGITUDINAL SECTION
DKSLB	DECK SLAB
BLIST	BAR LIST
PCB	P.C. BEAM
PC2	TYPE II AND TYPE B P.C. BEAMS
PC3	TYPE III AND TYPE C P.C. BEAMS
PC4	TYPE IV P.C. BEAM OR TYPE V AND TYPE BT-72 P.C. BEAMS
PC5	TYPE BT-72 AND TYPE J P.C. BEAMS OR TYPE J P.C. BEAM
PC234	TYPE II, TYPE III AND TYPE IV P.C. BEAMS
II	TYPE II P.C. BEAM
B	TYPE B P.C. BEAM
III	TYPE III P.C. BEAM
C	TYPE C P.C. BEAM
IV	TYPE IV P.C. BEAM
BT	TYPE BT-72 P.C. BEAM
J	TYPE J P.C. BEAM
75	75' SPAN
RB	ROLLED BEAM
3050	30' THRU 50' SPANS
5575	55' THRU 75' SPANS
80100	80' THRU 100' SPANS
55100	55' THRU 100' SPANS
DIA	DIAPHRAGM
END	END
INT	INTERMEDIATE
INTPR	INTERMEDIATE AND PIER
PR	PIER
BRG	BEARING
SPR	SUPERSTRUCTURE
QUAN	QUANTITIES
WING	WING
AS	APPROACH SLAB
MISC	MISCELLANEOUS
DTL	DETAILS
1	SHEET NO. 1 OF 2
2	SHEET NO. 2 OF 2

① 75' SPAN SHOWN FOR EXAMPLE ONLY. SPANS VARY FROM 30' THRU 145' IN 5' INCREMENTS.

APPROVED BY BRIDGE ENGINEER <i>Robert J. Nease</i>	DATE <i>10/16/08</i>	
OKLAHOMA DEPARTMENT OF TRANSPORTATION COUNTY BRIDGE STANDARD (ENGLISH)		
GENERAL INFORMATION FOR COUNTY BRIDGE STANDARD DRAWINGS (SHEET NO. 1 OF 2)		
1999 STANDARD SPECIFICATIONS	CB-INFO-GENERAL-1	00E
CB-109E		