

COLORADO DEPARTMENT OF TRANSPORTATION STAFF BRIDGE BRIDGE DETAIL MANUAL	Chapter: 5 Effective: July 29, 2011 Supersedes: October 1, 1999
GENERAL INFORMATION - SUMMARY OF QUANTITIES	

5.1 PURPOSE

The purpose of this drawing is to present complete and accurate general information and summary of quantities.

5.2 RESPONSIBILITY

This drawing shall be prepared and checked in the design unit. The graphic presentation of information on this drawing shall be the responsibility of the individual preparing the drawing.

5.3 GENERAL NOTES AND DESIGN DATA

The Designer and Detailer shall prepare this data for each project. Structural Worksheet B-100-1 shall be used as a guide. Only those notes and data which are applicable to the project shall be used. The section cut symbol as described in Chapter 2 should be shown on this drawing.

5.4 SUMMARY OF QUANTITIES

A complete summary of quantities with appropriate sub-notes shall be placed on the drawing. The item numbers, descriptions, units, quantities, and totals shall be verified from the summary sheet and shall be given in the order shown in the Colorado Department of Transportation Item Book. These quantities shall be prepared as outlined in the Colorado Department of Transportation Bridge Design Manual Subsection 18.2 Computation of Quantities and Subsection 18.3 Bid Items and Quantities. In the past only 3 digit item codes were used, but for all current projects the full eight digit cost item code shall be used. Each bridge shall have its own total column. When this table becomes too big to fit on a sheet with the notes and index of drawings it may be placed on a sheet by itself.

Spreadsheet versions of this table that are embedded, linked or pasted as a picture into the sheet are acceptable. See Appendix B - Microstation Configuration Details for additional information.

The following guidelines as shown in Fig. 5.4-1 are suggested starting points when constructing the Summary of Quantities table:

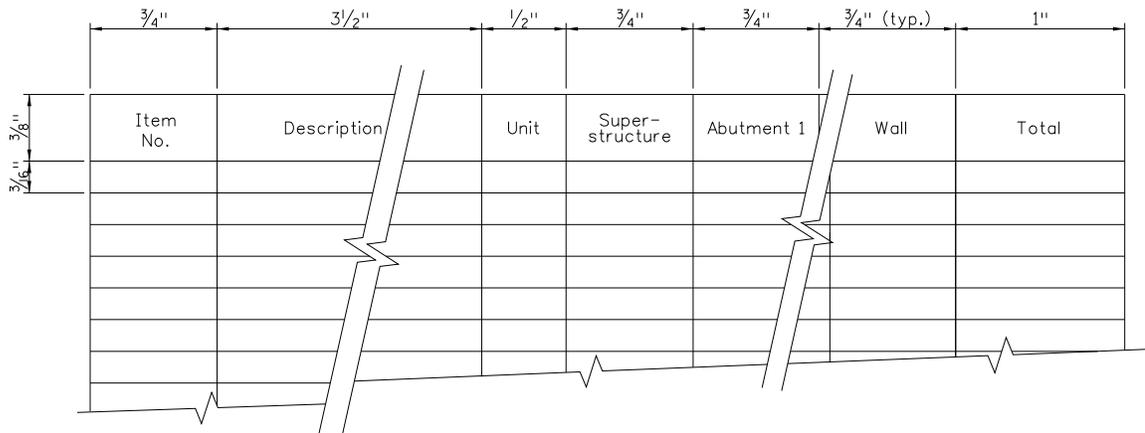


Figure 5.4-1

The sample column headings pertain to a new bridge project. For repair work, walls, etc. the column headings would be changed to fit the specific job. Substructure elements are to be numbered as follows: Abutment 1, Pier 2, Pier 3, ..., Pier n-1, Abutment n.

There should be a minimum of 6 blank lines left at the bottom of the table. There should be a blank line left between each "Item" and two blank lines should be left after the last 403 and 502 cost items. These extra lines are left for the Region to use as needed.

5.5 INDEX OF DRAWINGS

A complete index of drawings, in sequence, shall appear on the drawing with the appropriate reference drawing number. The title in the index shall be the same as the title given in the title block of each drawing.

Drawings for new bridges or structures should be generally arranged in the following sequence as applicable. This sequence provides the information to approximate the construction sequence. See specific chapters for additional drawing details.

GENERAL INFORMATION & SUMMARY OF QUANTITIES
 GENERAL LAYOUT
 ENGINEERING GEOLOGY
 BRIDGE HYDRAULIC INFORMATION
 CONSTRUCTION LAYOUT
 CONSTRUCTION PHASING
 FOOTING, PILING AND CAISSON LAYOUT
 ABUTMENT DETAILS
 WINGWALL DETAILS
 PIER DETAILS
 BEARING DETAILS
 GIRDER LAYOUT (if required)
 GIRDER DETAILS (Precast or Steel)
 SUPERSTRUCTURE DETAILS
 GIRDER DETAILS (Cast-in-Place)
 EXPANSION DEVICE DETAILS (if in the superstructure)
 PRECAST PANEL DECK FORMS
 DRAIN DETAILS (if in the superstructure)
 BRIDGE RAIL DETAILS
 LIGHTING DETAILS
 FENCE DETAILS
 APPROACH SLAB DETAILS
 EXPANSION DEVICE DETAILS (if in the approach slab)
 DRAIN DETAILS (if in the approach slab)
 EXCAVATION AND BACKFILL DETAILS (if different than M-standards)
 STRUCTURE BACKFILL DETAILS (as appropriate)
 SLOPE PAVING DETAILS
 BRIDGE DECK ELEVATIONS

For repair plans, the index should include sheets for General Information, Summary of Quantities, Layouts and details as required.

5.6 BRIDGE DESCRIPTION

The area reserved for the bridge description contains room for approximately six (6) lines of notes using 0.07 inch text height. Lines one (1) through three (3) shall be used for the bridge description which should include the number of spans, span type, span

lengths and bridge type. Following is a list of the more commonly used bridge descriptions as they are to appear on the drawing. Often it shall become necessary to describe special designs not listed below; the special descriptions shall be verified from Appendix "C" of the Colorado Department of Transportation Structure Inventory Coding Guide or the Field Log of Structures books. Span is defined as span perpendicular to centerline of box, for concrete box culverts.

SAMPLE DESCRIPTIONS:

3 Span (40'-0", 60'-0", 40'-0") Bridge, Concrete slab and Girder.

1-Simple Span (65'-0") Bridge, Concrete Slab and Girder Prestressed.

3 Span (43'-0", 129'-0", 43'-0") Bridge, Concrete Slab and Prestressed Concrete I Girder.

3 Span (74'-6", 125'-0", 122'-6") Bridge, Concrete Slab and Prestressed Concrete U Girder.

3 Span (42'-6", 50'-0", 42'-6") Bridge, Concrete Slab and Prestressed Concrete Box Girder, side by side.

2-Span (75'-0", 75'-0") Bridge, CIP Concrete Box Girder, Multiple.

4-Span (40'-0", 70'-0", 70'-0", 40'-0") Bridge, Welded Girder, Composite.

2-Cell (18'-0" X 7'-0" X 200'-0") Concrete Box Culvert.

Lines four (4) through six (6) shall complete the bridge description as follows:

Line (4) Over or Under _____
 Line (5) _____ Roadway Curb to Curb _____ Skew.
 Line (6) _____ Curbs or Walks. Type _____ Bridge Rail.

Line 4

- Show proper notation in regard to structure being "over" or "under" a crossing.
- If the bridge is on the project line and goes over a crossroad, then the word "over" is correct.
- If the project line goes under a bridge or a crossroad, the word "under" shall be used.

Examples:

- 1) If the project line is on I 25 going under 86th Avenue, the correct notation would be "under 86th Avenue".
- 2) If the project line is on 86th Avenue going over I 25, the correct notation would be "over I 25" or "over S. H. 25" since they are one and the same.

Line 5

- Give "Roadway curb-to-curb" dimension in feet and inches 40'-6".
- Give "Skew Angle" as detailed on the plans.

Line 6

- Give "Curb" or "Walk" dimensions in feet and inches 1'-3", 5'-0".

5.7 WORK DESCRIPTION

For repair projects a description shall describe what work is being done, e.g. type and length of rail replacement; length of joint replacement; etc.

5.8 TITLE BLOCK

This drawing is titled "GENERAL INFORMATION & SUMMARY OF QUANTITIES" and shall be so indicated in the title block.

The stationing in the title block should always be at the point where the back face of the abutment intersects the project station line or bridge control line.

For a bridge over the project line, there shall be only one station shown. This station shall be the project station where it intersects with the crossroad station line.

- Stationing shown in the title block shall be to the nearest 0.01 feet.
- Give the name of the nearest town.
- Give the proper section, township, and range.

Item	Description	Unit	Super-Structure	Abut. 1	Pier 2	Pier 3	Abut. 4	Approach Slabs	Total
202-00026	Removal of Slope and Ditch Paving	SY		1,088			770		1,858
202-00400	Removal of Bridge	EACH	1						1
① 203-00060	Embankment Material (Complete in Place)	CY		30			28		58
① 206-00000	Structure Excavation	CY		130	220	220	90		660
② 206-00065	Structure Backfill (Flow-Fill)	CY		2,250			2,250		4,500
① 206-00100	Structure Backfill (Class 1)	CY			10	10			20
403-09221	Stone Matrix Asphalt (Fibers) (Asphalt)	TDN	1,356					131	1,487
503-00030	Drilled Caisson (30 Inch)	LF		817			773		1,590
503-00054	Drilled Caisson (54 Inch)	LF			411	389			800
① 507-00100	Concrete Slope and Ditch Paving (Reinforced)	CY		100			62		162
509-00001	Structural Steel (Galvanized)	LB		5,236	6,244	6,244	5,236		22,960
512-00101	Bearing Device (Type 1)	EACH			16	16			32
513-00690	Bridge Drain (Special)	EACH	4						4
515-00120	Waterproofing (Membrane)	SY	7,972					816	8,788
518-01004	Bridge Expansion Device (0-4 Inch)	LF						468	468
601-03040	Concrete Class D (Bridge)	CY	437	118	462	462	117	399	1,995
601-06400	Grout (Bridge) (Special)	CF		11,925					11,925
601-40300	Structural Concrete Coating	SY	8,425	190	924	924	190	132	10,785
602-00000	Reinforcing Steel	LB			93,250	93,250			186,500

① Abutment quantities include all slope paving and Bridge Drain system quantities.

② Structure Backfill (Flow-Fill) may be replaced by equivalent quantities of Structure Backfill (Class 1) and Mechanical Reinforcement of Soil by approval of the Engineer.

* Includes both approach slabs.

Print Date: 6/21/2011		Project No./Code	
File Name: Fig5_4-3.dgn		BR R600-297	
Horiz. Scale: None		Vert. Scale: As Noted	
Staff: Bridge Branch - Unit 0224		Unit Leader: MH	
Date: _____		Designer: A. Post	
Comments: _____		Detailer: S. Fusancker	
Init.: _____		Structure Numbers	
		F-16-XB	
		Sheet Subst: B02 of 79	
		Bridge Subst: _____	
		Sheet Number	

Colorado Department of Transportation

 425 B Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6954 FAX: 720-497-6951

Region 6
RSF

SUMMARY OF QUANTITIES
 (1 of 2)

No. Revisions:	
Revised:	
Void:	

Design	DATE	INITIAL
Checked By	DATE	INITIAL
Designed By	DATE	INITIAL
Quantity By	DATE	INITIAL
Checked By	DATE	INITIAL

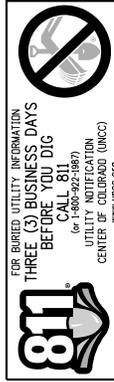
GENERAL NOTES

All work shall be done in accordance with the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction and as noted in the drawing.
 The following table gives the minimum lap splice length for epoxy coated reinforcing bars placed in accordance with subsection 602.06, these splice lengths shall be increased by 25% for bars spaced at less than 6" on center.
 Bar size #4 #5 #6 #7 #8 #9 #10 #11
 Splice length for Class D concrete 1'-3" 1'-7" 2'-5" 2'-10" 3'-8" 4'-8" 5'-11" 7'-3"
 All reinforcing steel shall be epoxy coated unless otherwise noted.
 Grade 60 reinforcing steels required.
 The Contractor shall be responsible for the stability of the structure during the repair.
 Dimensions contained in these plans are approximate. These dimensions may be adjusted to meet the existing structure. The Contractor shall verify all dependent dimensions in the field before ordering or fabricating any material.
 All falsework shall conform to the requirements of Subsection 601.11 of the 2005 CDOT Standard Specifications for Road and Bridge Construction.
 The information shown on these plans concerning the type and location of the utilities on the existing structure is not guaranteed to be accurate or all inclusive. The Contractor shall contact the utility owners in advance of construction to determine the location of all utilities. All work shall be done in advance not including the day of notification prior to any removal, excavation or other earthwork.
 Deck rehabilitation locations and quantities shown are approximate. Final locations shall be determined by the Engineer. Payment will be for the actual area repaired and material used as approved by the Engineer.
 The Contractor shall sawcut existing asphalt or concrete prior to removal operations as directed by the Engineer.
 All asphalt material shall be removed from the surface of the concrete deck prior to concrete removal in accordance with the Special Provisions (Removal of Asphalt Mat)(Planning)(Special).
 The Contractor shall protect pedestrians and traveling public from any falling debris during the construction work. Any debris which falls on the paths shall be removed immediately. This work will not be measured and paid for separately, but shall be included in the cost of the work.
 The Contractor shall start and complete one structure at a time unless otherwise approved by the Engineer.
 If the deck concrete is protected with waterproofing membrane as identified under "existing condition" notes for each structure, removal of waterproofing membrane to expose the deck concrete, will not be measured and paid for separately, but will be included in the work.
 Expansion joint material shall meet AASHTO Specification M213.
 Shoring and forming may be required.
 A colored structural concrete coating finish will be required on exposed concrete surfaces. The color shall be equivalent to Federal standards, and is to be selected from test panels provided by the contractor.
 All saw water, spring water, concrete washout and any other construction debris shall be collected and disposed of off site in accordance with applicable federal, state, and local regulations at no additional cost to the project. Under no circumstances shall such materials be allowed to enter any natural or manmade waterway or storm sewer.

DESIGN DATA

Reinforced Concrete:
 Class D Concrete: $f'c = 4,500$ psi
 Concrete (Patching): $f'c = 4,500$ psi
 Reinforcing Steel: $f_y = 60,000$ psi
 Live Load: AASHTO LRFD HL-93
 Dead Load: Assumes 36 lbs per sq. ft. for 3" bituminous pavement

Print Date: 6/21/2011	Sheet Revisions	Int.
File Name: Fig5_4-4.dgn	Comments	Int.
Horiz. Scale: None	Date:	
Staff Bridge Branch - Unit 0224	Unit Leader: A/JP	



INDEX OF DRAWINGS

STRUCTURE NO. & SH 8 MP	DIRECTION	WORK DESCRIPTION
F-16-FB - SH 8 OVER MP 0.001	EB/WB	REHAB PORTIONS OF DECK AND OVERLAY
F-16-AW - SH 8 OVER MP 1.065	EB/WB	REHAB PORTIONS OF DECK AND OVERLAY
F-16-AW - SH 8 OVER MP 1.185	EB/WB	REHAB PORTIONS OF DECK AND OVERLAY
F-16-BREEK - SH 8 OVER MP 99.8	EB/WB	REHAB PORTIONS OF DECK AND OVERLAY

SUMMARY OF QUANTITIES

Item No.	Description	Unit	F-16-FB	F-16-AW	F-16-SR	Total
202-00246	Removal of Asphalt Mat (Planning) (Special)	SY	963	101	139	1,203
202-00453	Removal of Portions of Present Structure (Class 2)	SY	378	41	50	469
202-00460	Removal of Portions of Present Structure (Class 3)	SY	38	4	5	47
210-00425	Reset Bridge Railing	LF	554			554
403-02000	Hot Mix Asphalt (Special)	TON	260	33	38	331
515-00120	Waterproofing (Membrane)	SY	963	101	139	1,203
518-00000	Bridge Compression Joint Sealer	LF	92	69		200
519-03000	Thin Bonded Epoxy Overlay	SY				897
601-03041	Concrete Class D (Bridge)(Special)	CY	55	6	8	69
601-06150	Concrete (Patching)	SF	150	50	150	400
602-00000	Reinforcing Steel	LB	500	500		1,500

WORK DESCRIPTION

The work consists of rehabilitating bridge decks for the listed structures located in portions of present structures, sandblasting and replacement of reinforcing steels as needed, replacement of concrete, waterproofing membrane and hot mix asphalt.

GENERAL INFORMATION & SUMMARY OF QUANTITIES		Project No./Code
Designer:	N. Alam	STA 008A-007
Dataller:	S. Fussencker	17902
Sheet Subsets:	Bridge	Sheet Number
	Subsets:	B01 of 03

As Constructed	
No Revisions:	
Revised:	
Void:	

Colorado Department of Transportation	
8833 South Wadsworth Court	
Littleton, CO 80128	
Phone: 303-972-9112	FAX: 303-972-9114
TC	
Region 6	

Design		Quantity	
Designed By:	NAJ	Checked By:	SJF
Checked By:	AP	Checked By:	NAJ
Designed By:	NAJ	Checked By:	SJF
Checked By:	AP	Checked By:	NAJ