Florida Department of Transportation

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STRUCTURES DESIGN BULLETIN 17-09
PRODUCTION SUPPORT BULLETIN 17-01
(FHWA Approved: July 18, 2017)

DATE: July 19, 2017

TO: District Directors of Transportation Operations, District Directors of Transportation Development, District Design Engineers, District Construction Engineers, District Structures Design Engineers, District Roadway Design Engineers, District Traffic Operations Engineers

FROM: Robert V. Robertson, P.E., State Structures Design Engineer
Daniel Scheer, P.E. State Production Support Engineer

COPIES: Brian Blanchard, Courtney Drummond, Tim Lattner, David Sadler, Rudy Powell, Amy Tootle, Michael Shepard, Gregory Schiess, Trey Tillander, Stephanie Maxwell, Jeffrey Ger (FHWA)

SUBJECT: Inclusion of FDOT Standard Plans for Bridge Construction in Contract Plans

This Structures Design Bulletin/Production Support Bulletin provides supplemental information for the implementation of the Department's ***Standard Plans for Road and Bridge Construction (Standard Plans)*** as referenced in Roadway Design Bulletin 17-06/Structures Design Bulletin 17-05. It is written for the January 2018 ***Structures Detailing Manual*** and ***FDOT CADD Manual*** and is mandatory for all projects with lettings on or after July 1, 2018.

REQUIREMENTS

1. Replace ***Structures Detailing Manual*** Section 3.7 with the following:

3.7 USE OF FDOT STANDARD PLANS

A. The current FDOT ***Standard Plans*** comprise the best practices of the FDOT in design code compliance, pay item consistency, and Specification coordination. See the ***Standard Plans Instructions (SPI)*** for additional information.

Modification for Non-Conventional Projects:
Delete ***SDM*** 3.7.A and insert the following: A. The current FDOT ***Standard Plans*** comprise the best practices of the FDOT in design code compliance and Specification coordination. See the ***Standard Plans Instructions (SPI)*** for additional information.

B. In structures and wall plans, reference the applicable FDOT ***Standard Plans*** by general description and index number. Place the reference on the primary drawings depicting the component. In many instances, several plan references are appropriate (e.g. beam index number references on framing plan and cross section sheets). Provide at least one index number for each of the ***Standard Plans*** used. Note the governing Standards and revised Index drawings on the lead project Key Sheet (see ***FDM 302***). Do not include a list of ***Standard Plans for Road Construction*** (non-bridge) on the "Index of Structure Plans". Include a list of relevant ***Standard Plans for Bridge Construction*** on the "Index of Structure Plans" behind the bridge sheets (B#-##), but before the existing bridge sheets (BX#-##). Attach the associated PDF files in the Structure Component Plans for each bridge number following the sequence of the "Index of Structure Plans".

C. Some ***Standard Plans*** for structural components, e.g. prestressed beams, approach slabs, bearing pads, etc., require supplemental tables, notes and or graphics to be completed and included in the plans by the designer. Select the appropriate tables, notes and or graphics using the FDOT CADD software. For the latest version of the FDOT CADD software, go to: http://www.fdot.gov/cadd/. For the latest version of the Structures ***Standard Plans*** Data Table cell library (TTF_StdDataTables.cel) and an INDEX CROSSWALK for ***Design Standards*** vs. ***Standard Plans for Bridge Construction***, (PDF file) go to: http://www.fdot.gov/structures/CADD/standards/CurrentStandards/MicrostationDrawings.shtm

D. For the ***Standard Plans***, see the Office of Design's web site [after October 31, 2017] at: http://www.fdot.gov/design/standardplans/

Commentary: Specific references to the appropriate ***Standard Plans*** *are necessary to clarify the Designer's intent to the Contractor. Only bridge related* ***Standard Plans (for Bridge Construction)*** *are required to be included in the Structure Plans Component set. Any modified indexes are required to be included in the discipline specific Plans Component set.*

E. For project lettings prior to July 2020, when approved by the District, Contract Plans may show the previous ***Design Standards*** index numbers for references within the plans sheets. In such cases, include an INDEX CROSSWALK which shows the ***Design Standard*** index numbers vs. ***Standard Plans*** index numbers in the "Index of Structure Plans" and append this INDEX CROSSWALK.PDF file to the Structure Component Plans as the first item listed in the ***Standard Plans for Bridge Construction*** for each bridge number.

2. Add the following to ***FDOT CADD Manual*** Section 3.8 table of Standard Cell Libraries and Block Drawings:

TTF_StdDataTables.cel	StdDataTables.dwg	Structures Standard Plans Data Tables

3. Add the following to the ***FDOT CADD Manual*** Section 4.13.8:

4.13.8.12 Standard Plans for Bridge Constructions, Developmental Standard Plans/Developmental Design Standards

Standard Plans for Bridge Construction and ***Developmental Standard Plans/Developmental Design Standards*** must be included in PDF format, not DGN, and manually inserted into the plans without plan sheet numbers. The ***Structures Manual Volume 2 - Structures Detailing Manual*** Section 3.7 B states the following:

> *"…Include a list of relevant* ***Standard Plans for Bridge Construction*** *on the "Index of Structure Plans" and include the associated PDF files in the Structure Component Plans for each bridge number."*

Prior to 2006 ***Structures Standard Drawings*** were physically included in the Bridge Plans. With the combining of the ***Structures Standard Drawings*** into the ***Design Standards*** (January 2006 edition), these drawings where included in the contract documents by reference on the lead Key Sheet. Beginning with the implementation of the ***Developmental Design Standards*** process these standards were made part of the contract documents by inclusion in the plans set. Similarly with the implementation of the ***FY 2018-19 Standard Plans*** the bridge related standards ***(Standard Plans for Bridge Construction)***, are made part of the contract documents by inclusion in the plans set. Likewise the PDF file(s) representing these ***Standard Plans for Bridge Construction*** will reside in the *\struct* project folder.

COMMENTARY

Beginning with the ***FY 2018-19 Standard Plans for Road and Bridge Construction***, the relevant ***Standard Plans for Bridge Construction*** are required to be inserted into the Structure Component Plan Set and referenced on the "Index of Structure Plans" for each bridge.

Standard Plans for Bridge Construction are to be included in the Bridge Plans to ensure that the District Bridge Maintenance Offices have a complete set of drawings for archival purposes and future inspection and maintenance activities. It is also envisioned that this will simplify the review process for Shop Drawings and other contractor submittals, ensuring that the correct version of the ***Standard Plans*** are being referenced.

A decision was made to not duplicate ***Standard Plans*** that may be relevant to both road construction and bridge construction. Therefore it will occasionally be necessary create a Structure Plans Component set to include ***Standard Plans for Bridge Construction*** in the Contract Plans, even when there is no bridge in the project.

Examples of Structure Component Key Sheets with the completed "Index of Structure Plans" are included as attachments to this bulletin:

- **Attachment A** shows an example Structures Key Sheet with an "Index of Structure Plans" for a single bridge project, and assuming that ***Design Standards*** Index numbers are referenced in the Contract Plans (selectively allowed until June 30, 2020);
- **Attachment B** shows an example Structures Key Sheet with "Index of Structure Plans" for a multiple bridge project, and assuming that only ***Standard Plans*** Index numbers are referenced in the Contract Plans.

A software tool (***StdPlansPackager***) is currently being developed to streamline the plans assembly process for inclusion of the relevant Indexes from the ***Standard Plans for Bridge Construction*** in the Contract Plans. This software tool will utilize the summary of pay items .XML file from the AASHTOWare Project™ Designer Interface (previously TRNS*PORT) to generate a list of relevant Indexes. The Designer will then confirm using check boxes in the dialog box, whether to include the PDF file for each displayed Index. The PDF files will be bundled and then exported for the Designer's use and inclusion in the ***project.pdf*** file. A text file will also be generated for use in developing the "Index of Structure Plans" project list of ***Standard Plans for Bridge Construction***, on either the Structures Key Sheet or a separate plan sheet as necessary.

Inclusion of the PDF files can also be performed manually by downloading from the ***Standard Plans*** website, when it is published on November 1, 2017.

The software tool (***StdPlansPackager***) will be released in October, but will not be able to generate the bridge Indexes package until the ***Standard Plans*** are published on November 1, 2017.

The INDEX CROSSWALK for ***Design Standards*** vs. ***Standard Plans for Bridge Construction*** (PDF file) will also be released in October, available on the Structures Standards support webpage at: http://www.fdot.gov/structures/CADD/standards/CurrentStandards/MicrostationDrawings.shtm

BACKGROUND

Structures related standard drawings were traditionally included in the Structure Plans Component prior to the inclusion of these standards into the ***Design Standards 2006***. This change reinstates this favorable practice for bridge plans only, but keeps all the ***Standard Plans*** available for viewing on the same webpage.

IMPLEMENTATION

All projects beginning with lettings in July 2018 must include the relevant ***Standard Plans for Bridge Construction*** in the Contract Plans by 90% Phase submittals.

CONTACTS

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RVR/SJN

Attachment A

Example Structures Key Sheet with an “Index of Structure Plans” for a single bridge project, and assuming that ***Design Standards*** Index numbers are referenced in the Contract Plans

INDEX OF STRUCTURE PLANS

SHEET NO.	SHEET DESCRIPTION
	GENERAL SHEETS
B-1	Key Sheet
B-2	Signature Sheet
BQ-1	Summary of Structure Quantities
B-3	General Notes
	BRIDGE NO. 52XXXX
B1-1	Plan and Elevation
B1-2	Bridge Hydraulics Recommendations
B1-3	Report of Core Borings (1 of 2)
B1-4	Report of Core Borings (2 of 2)
B1-5	RipRap Plan
B1-6	RipRap Details
B1-7	Foundation Layout
B1-8	Pile Data Table
B1-9	End Bent 1
B1-10	End Bent 3
B1-11	Wingwall Details
B1-12	Intermediate Bent
B1-13	Bent Details
B1-14	Finish Grade Elevations
B1-15	Superstructure
B1-16	Superstructure Details
B1-17	Florida Slab Beam – Table of Variables
B1-18	Approach Slab Details
B1-19	Reinforcing Bar List
B1-20	Load Rating Summary
	STANDARD PLANS (DESIGN STANDARDS) FOR BRIDGE CONSTRUCTION
	Index Crosswalk for Standard Plans for Bridge Construction
400-090 (20900)	Approach Slabs (Flexible Pavement Approaches)
415-001 (21300)	Standard Bar Bending Details (Steel)
455-001 (20600)	Square Prestressed Concrete Piles – Typical Notes and Details
455-002 (20601)	Square Prestressed Concrete Pile Splices
455-003 (20603)	Square Prestressed Concrete Piles – EDC Instrumentation
455-018 (20618)	18" Square Prestressed Concrete Pile
458-110 (21210)	Poured Joint with Backer Rod Expansion Joint System
521-427 (427)	Traffic Railing – (36" Single-Slope)
	DEVELOPMENTAL STANDARD PLANS/DEVELOPMENTAL DESIGN STANDARDS
D20450	Typical Florida Slab Beam Details and Notes
D20452	15" Florida Slab Beam
	WALLS
BW-1	Bulkhead General Notes
BW-2	Bulkhead Data Table
BW-3	Bulkhead Plan
BW-4	Bulkhead Elevation
BW-5	Bulkhead Details
BW-6	Reinforcing Bar List
	EXISTING PLANS
BX1-1 ~ BX1-8	Existing Bridge Plans

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

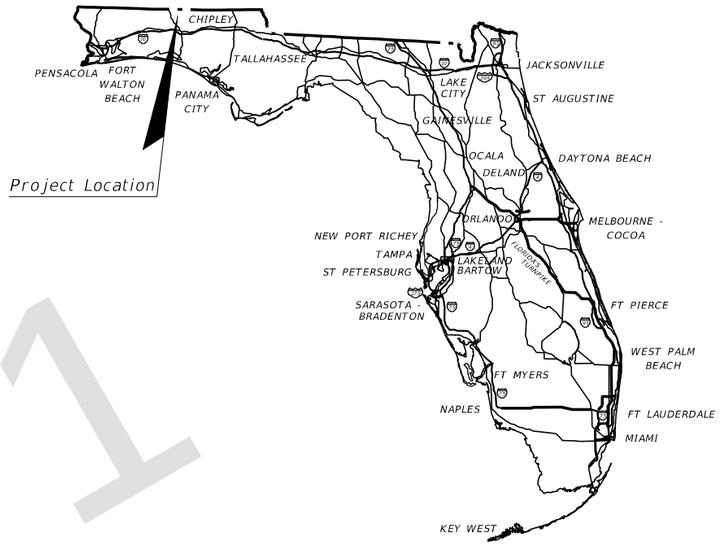
FINANCIAL PROJECT ID 433XXX-1-52-01

HOLMES COUNTY (52000)

SAMPLE ROAD

STRUCTURE PLANS

BRIDGE NO. 52XXXX



PLANS PREPARED BY:
Florida Department of Transportation
Structures Design Office
605 Suwannee St., MS 33
Tallahassee, FL. 32399-0450
Phone (850) 414-4255
Fax (850) 414-4955

NOTES: THIS PROJECT TO BE LET TO CONTRACT WITH FINANCIAL PROJECT ID(S) 433XXX-1-52-01.

THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

STRUCTURE PLANS ENGINEER OF RECORD: Jane Smith, P.E.

P.E. NO.: XXXXX

FDOT PROJECT MANAGER: Joe Smith

Structures Design Bulletin 17-09
Production Support Bulletin 17-01
Inclusion of FDOT Standard Plans for Bridge Construction in Contract Plans
Page 7 of 9

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
XXXXXX	XX	B-1

Attachment B

Example Structures Key Sheet with “Index of Structure Plans” for a multiple bridge project, and assuming that only ***Standard Plans*** Index numbers are referenced in the Contract Plans

INDEX OF STRUCTURE PLANS

SHEET NO.	SHEET DESCRIPTION
	GENERAL SHEETS
B-1	Key Sheet
B-2	Signature Sheet
BQ-1	Summary of Structure Quantities (Bridge No. 52XXX1)
BQ-2	Summary of Structure Quantities (Bridge No. 52XXX2)
B-3	General Notes
	BRIDGE NO. 52XXX1
B1-1	Plan and Elevation
B1-2	Bridge Hydraulics Recommendations
B1-3	Report of Core Borings (1 of 2)
B1-4	Report of Core Borings (2 of 2)
B1-5	RipRap Plan
B1-6	RipRap Details
B1-7	Foundation Layout
B1-8	Pile Data Table
B1-9	End Bent 1
B1-10	End Bent 3
B1-11	Wingwall Details
B1-12	Intermediate Bent
B1-13	Bent Details
B1-14	Finish Grade Elevations
B1-15	Superstructure
B1-16	Superstructure Details
B1-17	Florida Slab Beam - Table of Variables
B1-18	Approach Slab Details
B1-19	Reinforcing Bar List
B1-20	Load Rating Summary
	STANDARD PLANS FOR BRIDGE CONSTRUCTION (Bridge No. 52XXX1)
400-090	Approach Slabs (Flexible Pavement Approaches)
415-001	Standard Bar Bending Details (Steel)
455-001	Square Prestressed Concrete Piles - Typical Notes and Details
455-002	Square Prestressed Concrete Pile Splices
455-003	Square Prestressed Concrete Piles - EDC Instrumentation
455-018	18" Square Prestressed Concrete Pile
458-110	Expansion Joint System - Poured Joint with Backer Rod
521-427	Traffic Railing - (36" Single-Slope)
	DEVELOPMENTAL STANDARD PLANS/DEVELOPMENTAL DESIGN STANDARDS (Bridge No. 52XXX1)
D20450	Typical Florida Slab Beam Details and Notes
D20452	15" Florida Slab Beam
	BRIDGE NO. 52XXX2
B2-1	Plan and Elevation
B2-2	Bridge Hydraulics Recommendations
B2-3	Report of Core Borings (1 of 2)
B2-4	Report of Core Borings (2 of 2)
B2-5	RipRap Plan
B2-6	RipRap Details
B2-7	Foundation Layout
B2-8	Pile Data Table
B2-9	End Bent 1
B2-10	End Bent 3
B2-11	Wingwall Details
B2-12	Intermediate Bent
B2-13	Bent Details
B2-14	Finish Grade Elevations
B2-15	Superstructure
B2-16	Superstructure Details
B2-17	Florida Slab Beam - Table of Variables

STATE OF FLORIDA
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CONTRACT PLANS

FINANCIAL PROJECT ID 433XXX-1-52-01

HOLMES COUNTY (52000)

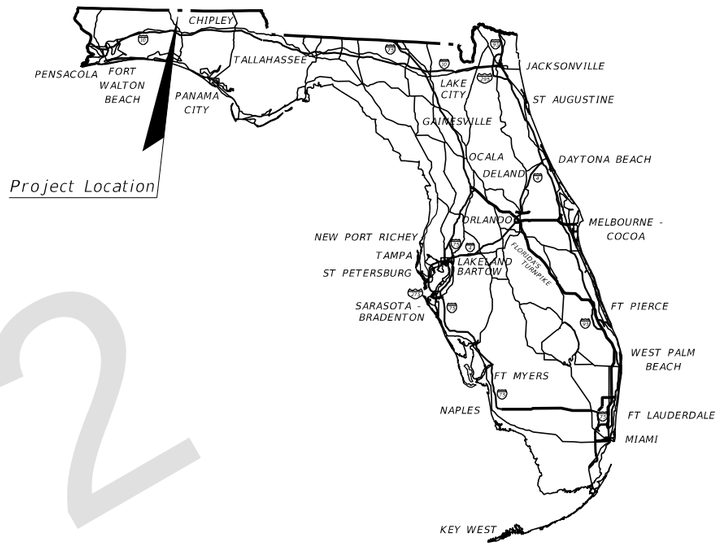
SAMPLE ROAD

STRUCTURE PLANS

BRIDGE NO. 52XXXX

INDEX OF STRUCTURE PLANS

SHEET NO.	SHEET DESCRIPTION
	BRIDGE NO. 52XXX2
B2-18	Approach Slab Details
B2-19	Reinforcing Bar List
B2-20	Load Rating Summary
	STANDARD PLANS FOR BRIDGE CONSTRUCTION (Bridge No. 52XXX2)
400-090	Approach Slabs (Flexible Pavement Approaches)
415-001	Standard Bar Bending Details (Steel)
455-001	Square Prestressed Concrete Piles - Typical Notes and Details
455-002	Square Prestressed Concrete Pile Splices
455-003	Square Prestressed Concrete Piles - EDC Instrumentation
455-018	18" Square Prestressed Concrete Pile
458-110	Expansion Joint System - Poured Joint with Backer Rod
521-427	Traffic Railing - (36" Single-Slope)
	DEVELOPMENTAL STANDARD PLANS/DEVELOPMENTAL DESIGN STANDARDS (Bridge No. 52XXX2)
D20450	Typical Florida Slab Beam Details and Notes
D20452	15" Florida Slab Beam
	WALLS
BW-1	Bulkhead General Notes
BW-2	Bulkhead Data Table
BW-3	Bulkhead Plan
BW-4	Bulkhead Elevation
BW-5	Bulkhead Details
BW-6	Reinforcing Bar List
	EXISTING PLANS
BX1-1 ~ BX1-8	Existing Bridge Plans



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Structures Design Bulletin 17-09
Production Support Bulletin 17-01
Inclusion of FDOT Standard Plans for Bridge Construction in Contract Plans
Page 9 of 9

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
XXXXXX	XX	B-1