



Florida Department of Transportation

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ROADWAY DESIGN BULLETIN 15-11

MATERIALS BULLETIN 11-15

STRUCTURES DESIGN BULLETIN 15-05

ESTIMATES BULLETIN 15-04

(FHWA Approved: June 29, 2015)

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TO: District Directors of Transportation Operations, District Directors of Transportation Development, District Design Engineers, District Consultant Project Management Engineers, District Construction Engineers, District Maintenance Engineers, District Geotechnical Engineers, District Structures Design Engineers, District Roadway Design Engineers, District Traffic Operations Engineers, Program Management Engineers

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SUBJECT: Monitor Existing Structures

This bulletin rescinds Roadway Design Bulletin 15-04, Materials Bulletin 04-15, Structures Design Bulletin 15-02 and Estimates Bulletin 15-03, dated February 6, 2015.

REQUIREMENTS

1. Add the following new chapter to the *Plans Preparation Manual, Volume 1*.

Chapter 34

Monitor Existing Structures

34.1 General

Monitor Existing Structures includes settlement, vibration, and groundwater monitoring of existing structures during construction as described in **Section 108** of the **FDOT Specifications**. In general, structures requiring consideration for monitoring include buildings, bridges and retaining walls which are adjacent to construction activities. When there is a concern regarding vibration, structures to be monitored may also include historic features and buildings in which sensitive business operations are conducted such as eye surgery, medical treatments, rehabilitation operations, recording and broadcasting operations, places of worship, antique shops, or museums.

34.2 Inspection and Settlement Monitoring

34.2.1 Miscellaneous Structures

In general, activities that may cause harm to existing structures include the construction of foundations for mast arm signal poles, strain poles, cantilever signs, overhead truss signs, high mast light poles and ITS.

Based on field observations, the EOR will identify existing structures that are recommended to be monitored during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include pay item 108-1 in the Summary of Monitor Existing Structures summary box and list the structure as shown in **Table 34.5.1**.

34.2.2 Structures other than Miscellaneous Structures

In general, activities that may cause harm to existing structures include the construction of retaining walls, noise walls, sheet pile walls, deep excavations and foundations for bridges and other structures.

- a. If any existing structure is within the distances specified in **Article 108-2** of the **FDOT Specifications**, include pay item 108-1 in the Summary of Monitor Existing Structures summary box. Use 250 feet as the distance limit for pile driving. Do not list or identify these structures in the Contract Plans.
- b. Based on field observations, the EOR will identify existing structures located beyond the distances specified in **Article 108-2** that are recommended to be monitored during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include pay item 108-1 in

the Summary of Monitor Existing Structures summary box and list the structure as shown in **Table 34.5.1**.

34.2.3 Roadway Compaction Operations

In general, activities that may cause harm to existing structures include embankment and asphalt vibratory compaction.

- a. If an existing structure is within the limits or distances specified in **Article 108-2** of the **FDOT Specifications**, include pay item 108-1 in the Summary of Monitor Existing Structures summary box. Do not list or identify these structures in the Contract Plans.
- b. Based on field observations, the the EOR will identify existing structures located beyond the distances specified in **Article 108-2** that are recommended to be monitored during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include pay item 108-1 in the Summary of Monitor Existing Structures summary box and list the structure as shown in **Table 34.5.1**.

34.3 Vibration Monitoring

In general, activities that may cause harm to existing structures include pile driving, sheet pile and casing installation and embankment and asphalt vibratory compaction.

Based on field observations, the EOR will identify existing structures that are recommended to be monitored during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include pay item 108-2 in the Summary of Monitor Existing Structures summary box and list the structure as shown in **Table 34.5.1**.

34.4 Groundwater Monitoring

Based on field observations, the EOR will identify existing structures that are recommended to be monitored during anticipated dewatering operations. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include pay item 108-3 in the Summary of Monitor Existing Structures summary box and list the structure as shown in **Table 34.5.1**.

34.5 Required Information in Contract Plans Set

When contract plans include monitoring of existing structures, include the Monitor Existing Structures summary box shown in **Table 34.5.1** on the Summary of Quantities Sheet.

When appropriate, include a Project Note on the Project Notes Sheet that:

- Restricts hours of construction operations.
- Restricts the type of construction equipment to be used.

Table 34.5.1 Monitor Existing Structures Summary Box

SUMMARY OF MONITOR EXISTING STRUCTURES										
SITE NO.	LOCATION ADDRESS (or Station)	STRUCTURE USAGE	INSPECTION & SETTLEMENT MONITORING		VIBRATION MONITORING		GROUND-WATER MONITORING		DESIGN NOTES	CONSTRUCTION REMARKS
			0108 1		0108 2		0108 3			
			LS		LS		LS			
			P	F	P	F	P	F		
1	230 WALNUT ST	MUSEUM					X		CULVERT EXTENTION	
2	744 PINE CIRCLE	HISTORIC CEMETERY WALL	X						SHEET PILE INSTALLATION	
3	624 OAK DRIVE	ANTIQUA SHOP			X				MILLING AND RESURFACING	
4	888 OAK DRIVE	LASIK EYE SURGERY			X				PILE DRIVING OPERATIONS	
5	648 OAK DRIVE	BED & BREAKFAST	X		X				MILLING AND RESURFACING	
TOTAL:			1		1		1			
<p>This list includes existing structures (as determined by the Department) located outside the limits specified in Article 108-2 of the FDOT Specifications that are required to be monitored. This list should not be considered all inclusive and does not contain existing structures to be monitored that are located within the distances specified in Article 108-2.</p>										

Modification for Non-Conventional Projects:

Delete *PPM* 34.2 through 34.5 and see RFP for requirements.

2. Include in the Contract Plans Set the pay items below as needed:

The following pay item is valid through 6-30-2015:

455-18 Protection of Existing Structures, LS

The following pay items are effective 7-1-2015:

108-1- Monitor Existing Structures –Inspection and Settlement Monitoring, LS

108-2- Monitor Existing Structures –Vibration Monitoring, LS

108-3- Monitor Existing Structures –Groundwater Monitoring, LS

3. Section 9.2.4 of FDOT's *Soils and Foundations Handbook* is deleted and replaced with the following:

9.2.4 Existing Structures Survey and Evaluation

Structures in close proximity to construction activities should be evaluated for potential damages caused by these activities. The usage of the structures should also be included in this evaluation. This needs to happen early in the design process. Vibration, settlement, noise and any other damaging results of these construction activities should be considered in the evaluation. When warranted, the recommendations should include possible means of reducing the damaging effects of the construction activity, such as time restraints on certain operations, underpinning, monitoring, or even purchasing of the property.

Existing structures to be protected may include sensitive sites, such as those listed in PPM Chapter 34. The geotechnical design effort should evaluate these structures and confirm monitoring during construction is warranted based on the anticipated soil type, proximity and the proposed construction operations.

Use Table 34.5.1 found in Chapter 34 of the Plans Preparation Manual to present your recommendations in the Geotechnical Report.

Where there is a potential impact on existing structures in the surrounding area, the report should include the structure's address, type of construction, the estimated vibration level that may cause damage, the usage (storage building, hospital, etc.), what the potential problem may be and what actions are recommended to minimize the impact.

Where construction dewatering may create a potential impact on existing structures in the surrounding area, the report should include the structure's address, type of construction, the degree of dewatering that may cause damage, the usage, what the potential problem may be and what actions are recommended to minimize the impact.

BACKGROUND

Roadway Design Bulletin 15-04, Materials Bulletin 04-15, Structures Design Bulletin 15-02 and Estimates Bulletin 15-03, dated February 6, 2015 contains procedures and requirements that needed correction and clarification. Below are the significant changes to the previous bulletin that are included in this bulletin:

- The Department will make the final determination on the structures to be monitored.
- The Protection of Existing Structures (LS/EA) pay items are deleted and pay items Monitor Existing Structures (LS/LS) are added.
- Structures to be monitored that are located within limits specified by Article 108-2 of the FDOT Specifications will not be identified.

IMPLEMENTATION

The requirements of this bulletin are mandatory for all design-bid-build projects beginning with the January 2016 Letting. These requirements should be fulfilled on projects that will Let prior to January 2016 where implementation will not adversely impact the production schedule.

The requirements of this bulletin do not apply to non-conventional projects.

Plans: For applicable projects, update the plans and Proposal Summary of Quantities (TRNS•PORT report).

Specifications: *Section 108* of the *FDOT Specifications* had been updated with the January 2016 Workbook and eBook. For projects Let prior to January 2016 that will fulfill the requirements of this bulletin, a pre-approved *Section 108* Modified Special Provision must be obtained through the State Specifications Office and included in the final Specifications Package.

Basis of Estimates (BOE) Manual: The BOE Manual has been updated to include the new pay items in *Section 108* of the *FDOT Specifications*.

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