

**INDIANA DEPARTMENT OF TRANSPORTATION**  
*Driving Indiana's Economic Growth*

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**Michael R. Pence, Governor**  
**Michael B. Cline, Commissioner**

April 19, 2013

**CONSTRUCTION MEMORANDUM**  
**13-01**  
**REVISED**

TO: District Deputy Commissioners  
District Construction Directors  
District Testing Engineers  
District Area Engineers  
District LPA Coordinators  
Field Engineers  
Technical Service Directors  
Project Engineers/Supervisors  
Office of Materials Management

FROM: Mark A. Miller, Director *Mark Miller*  
Division of Construction Management and District Support

SUBJECT: Field Adjustments to Three-sided Structure and Box Culvert Sump

**This memo has been revised to add clarification and direction to get the project manager and designer of record involved in the process.**

Due to natural changes in channel flowline elevation between the time of project survey and the start of construction, some structures are not being sumped to the required depth. In order to maintain the plan sump depth, the contractor shall obtain the flowline elevation near the time that work is beginning on the structure so that the structure may be set to the appropriate sump depth. (The plan sump depth is defined as the difference between the natural flowline elevation and the structure invert elevation for a box culvert or top of riprap for a three-sided structure. See Figure 1(A) or 2(A). Both of these elevations should be shown on the plans.)

If the difference (shown as  $d$  in Figure 1(B) or 2(B)) between the natural flowline elevation shown on the plans and the field-obtained flowline elevation by the contractor is half of the plan sump depth shown on the plans or greater, the **PE/S will send the field-obtained flowline elevation to the designer of record (and copy the project manager) for a determination on whether the structure needs to be lowered. If an adjustment to the structure is necessary, the designer of record will notify the PE/S and copy the project manager. The PE/S will inform the contractor of the necessary adjustment and request that the contractor contact his structure designer to determine if any changes are**

**necessary to the structure design based on lowering the structure. The PE/S will then direct the contractor to lower the structure invert elevation accordingly to provide the intended sump depth shown on the plans. When a change to the structure elevation shown on the plans is directed, the designer of record will provide any corresponding changes in quantities to the PE/S who will make the corresponding quantity adjustments to the items affected by this change.**

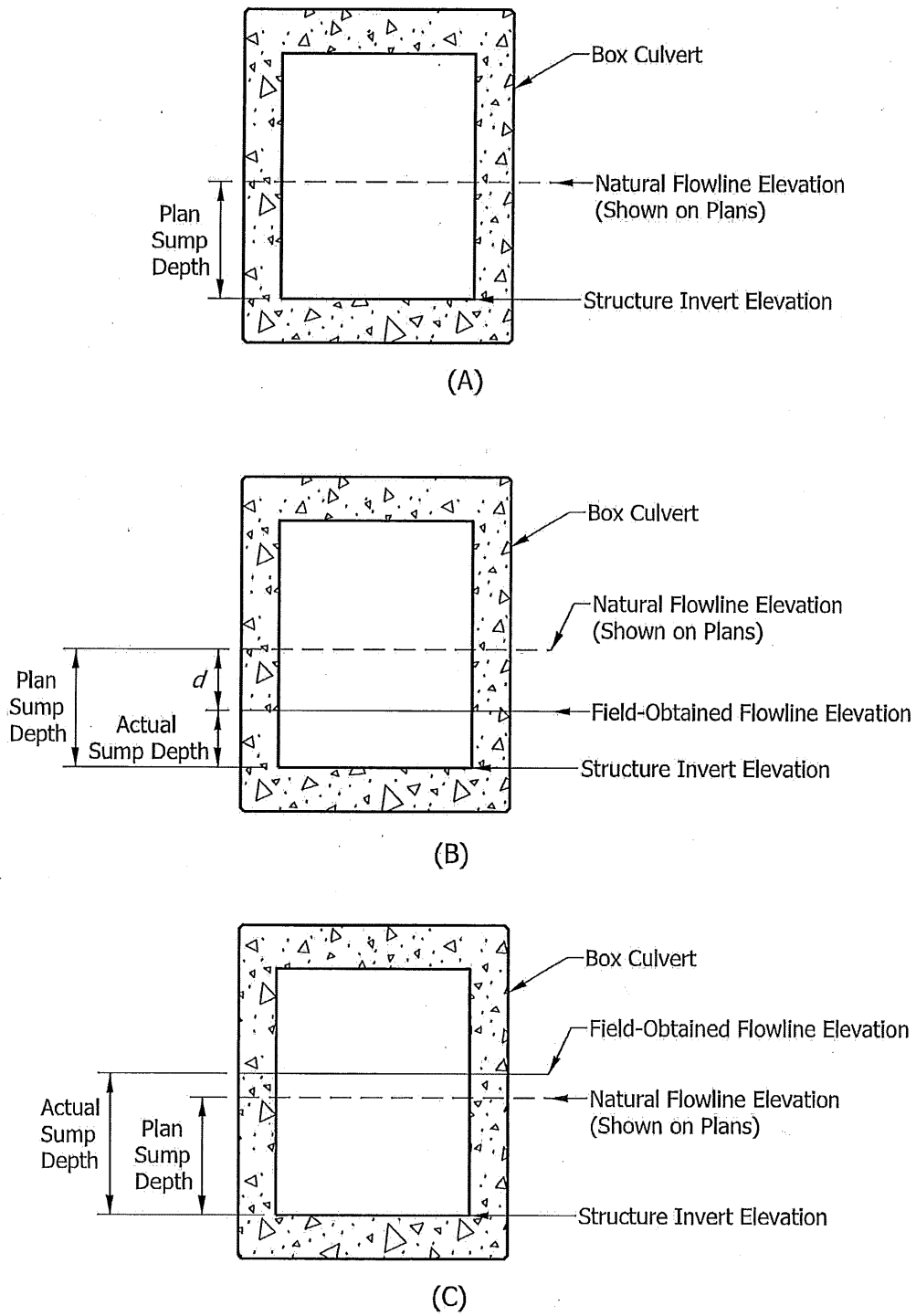
If the difference (shown as  $d$  in Figure 1(B) or 2(B)) between the natural flowline elevation shown on the plans and the field-obtained flowline elevation is less than half of the plan sump depth shown on the plans, no changes are required to the box culvert or three-sided structure invert elevations.

If the field-obtained flowline elevation is the same or higher than the natural flowline elevation shown on the plans (see Figure 1(C) or 2(C)), no changes are required to the structure invert elevation, even though the resulting sump depth is more than that shown on the plans.

**If after comparing the field-obtained flowline elevation to the natural flowline elevation shown on the plans, no changes are required, the PE/S is not required to contact the designer of record.**

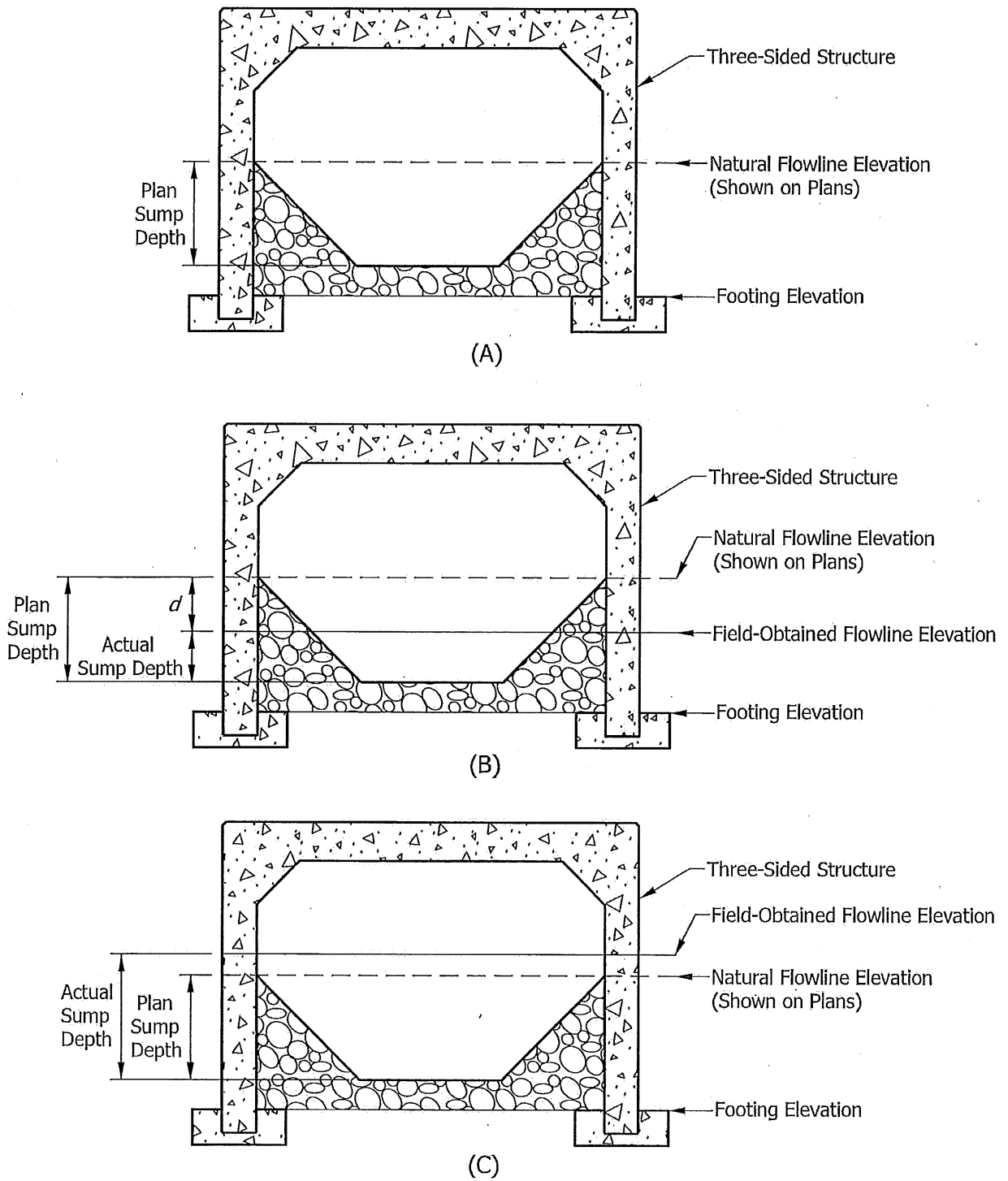
Please consult the Division of Construction Management field engineer assigned to your district or the Hydraulics Office for any assistance with this item.

MAM/jer



FIELD ADJUSTMENTS FOR CULVERT SUMP  
Box Culvert

Figure 1



FIELD ADJUSTMENTS FOR CULVERT SUMP  
Three-Sided Structure

Figure 2