

# MAJOR STRUCTURE AND PILING ITEMS

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## OVERVIEW

Structure and Piling Items have different documentation requirements for each unit of measure (UOM). All Structure and Piling Items must be counted, measured and/or calculated. Documentation examples for a few selected Structure and Piling Items are illustrated in this chapter. Some minor modifications may be required to show the unusual circumstances that may occur with different items, but the general format should be followed. If there are items which cannot be documented according to the following examples, contact the Construction Admin Services Section for assistance.

NOTE: Forms change periodically; go to the Construction SharePoint Forms, [Quality Assurance](#) Area for the latest version. Forms can be completed by hand or electronically.

Per Subsection 200.01.01, (*Construction Stakeout*) General, of the Standard Specifications, the Contractor will be responsible for stakeout data on major structures. The Contractor's stakeout information must be given to the Resident Engineer.

## INSPECTOR'S RESPONSIBILITIES – MAJOR STRUCTURE AND PILING ITEMS

- Use the Agreement Estimate report as a reference to ensure that items and quantities are paid in the correct category (AEB).
- Use the Geometrics, General Notes and Quantities Sheet (Figure 13-1), located in the Contract plans, to help identify items, quantities, descriptions and locations.

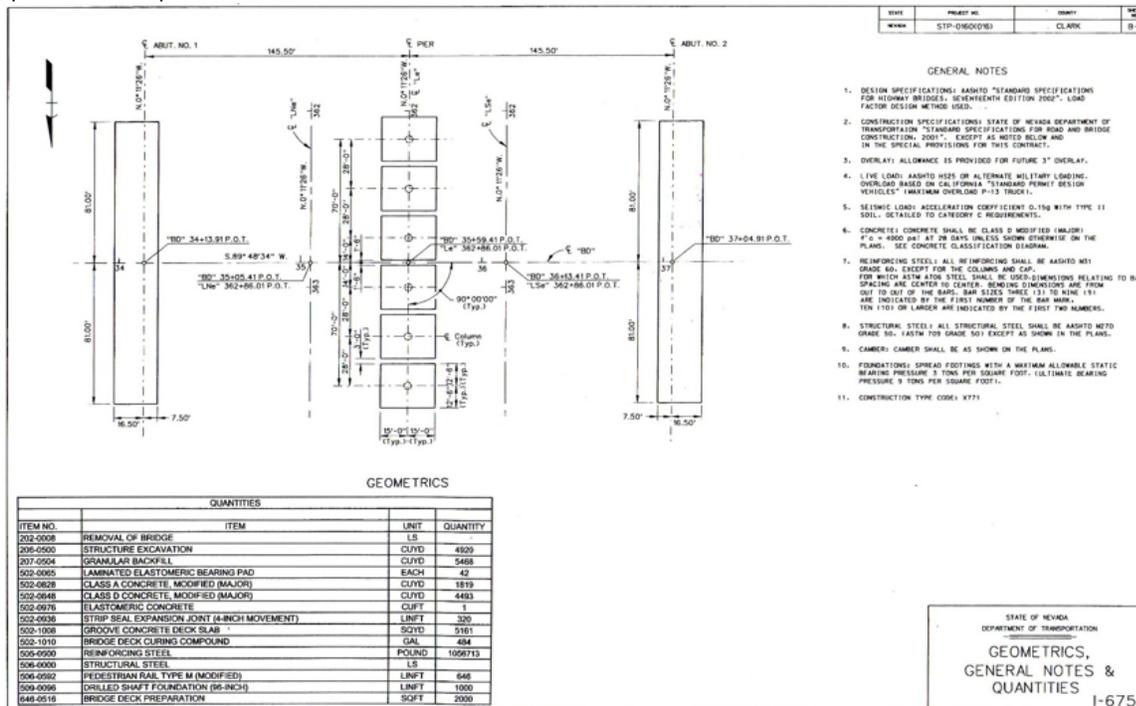


Figure 13-1: Example of a Geometrics, General Notes and Quantities Sheet

- Review the following for accuracy:
  - Special Provisions
  - Supplemental Notices

- Contract Modifications

**Note:** When any changes are made to an item, reference the Contract Modification number in the IDR item posting remarks.

- Turn in ALL structure item calculation sheets to the Office Engineer.

## INSPECTOR DAILY REPORT (IDR) – MOBILE INSPECTOR

1. Create an IDR in Mobile Inspector daily to document the activity being monitored. Refer to the [Mobile Inspector User Guide](#) for details on using this application.
  - Report Details – daily activities
  - Item Postings – item(s) and quantity(s)
  - Equipment – type and hours
  - Personnel – title and hours
2. Record the following required information in the Report Details window (Figure 13-2):
  - Date
  - Weather
  - Low and high temperature
  - Attachments (N/A) – Send ALL photos via email.
  - Remarks – Verify with the Resident Engineer on what information is required.

**Figure 13-2: IDR Report Detail Window**

3. Record the following required information in the New Item Postings window:
  - Item
  - Proj/Catg – Refer to the AEB report.
  - Contractor – ALWAYS the Prime Contractor (Subs are not allowed).
  - Qty – Based on measurements, calculations and/or counts.
  - Location – Must show line designation, LT, RT or CL and offset if known.
  - Station From/To – Refer to Contract plans.
  - Attention Flag – Use to bring attention to Resident Engineer and Office Engineer for overruns and plan errors.
  - Remarks – Must show calculations when appropriate, refer to Calculation Sheet when appropriate (Refer to Appendix B, Calculation Formulas, in this Manual for a Calculation Sheet example), other information relevant to item posting, and explanations when Attention Flag is checked.

NOTES for Major Structure and Piling item postings:

- If there are questions on whether an EACH item can be listed separately or combined, contact the Construction Admin Services Section for assistance.
- Refer to Figure 13-3 through Figure 13-10 for examples of Structure and Piling Item postings with different UOM.
- If a gallon item does not come in small size containers use the application and surface area to calculate the gallons applied.

The following calculation will be documented in the IDR posting:

- $Vol(gas) = W \times L \times App\ Rate$
- $Pay = \# \text{ gallons}$
- $W = \#$
- $L = \#$
- $App\ Rate = 1gal/150\ SQFT$  (Per Subsection 409.03.13, (*Portland Cement Concrete Pavement*) *Construction – Curing*, of the Standard Specifications.
- The Inspector will visually make sure the coverage of the cure compound was satisfactory.

**New Item Posting**

<b>Item:</b>	<input type="text" value="CLASS D CONCRETE, M..."/>
<b>Proj/Catg:</b>	<input ..."="" type="text" value="60638C2C, 02, New " ws"=""/>
<b>Contractor:</b>	<input type="text" value="LAS VEGAS PAVING CORP..."/>
<b>Qty:</b>	<input type="text" value="960.06"/> CUYD
<b>Location:</b>	<input type="text" value="Abut. # 1 (Str. I-675)"/>
<b>Station From:</b>	<input type="text"/> + <input type="text"/>
<b>Station To:</b>	<input type="text"/> + <input type="text"/>
<b>Materials:</b>	<input type="text"/>
<b>Attention Flag:</b>	<input type="text"/>
<b>Remarks:</b>	<input type="text" value="Per Bill of Materials, plan sheet B-44"/>

217 remaining

NOTES for Structure CUYD/CUFT (Figure 13-3):

- Payment for CUYD items will be based on plan quantity or field measurements and calculations if different than plan. Payment for CUFT items will be based on field measurements and calculations.
- Calculations for CUYD =  $L \times W \times D \div 27$
- Calculations for CUFT =  $L \times W \times D$
- Sig. Fig. = .01
- In no case will the payment for any area exceed the net amount without authorized changes and/or final measurement. When paying for concrete, payment will be paid according to the Bill of Materials (Figure 1-6). If the quantity is different, then calculations are needed.

**Figure 13-3: IDR Item Posting - Structure CUYD**

**New Item Posting**

Item: BRIDGE DECK CURING ...

Proj/Catg: 60638C2C, 02, New "WS" Bri...

Contractor: LAS VEGAS PAVING CORP...

Qty: 110 GAL

Location: Approach Slab # 1

Station From: [ ] + [ ]

Station To: [ ] + [ ]

Materials: 

Attention Flag:

Remarks:  
2 Drums @ 55 gal. = 110 gal.  
See email: IDR 2016-12-10 CAW for container label.

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Figure 13-4: IDR Item Posting - Structure GAL

NOTES for Structure GAL (Figure 13-4):

- Payment for GAL items will be based on field measurements and calculations.
- Calculations will consist of counting the drums used or measuring the container and calculating the quantity when a full drum is not used. If measured by another device show the calculations on how gallons were derived.
- A picture of a label must be taken and email to your Office Engineer for backup to confirm the quantity of the container.
- Check the Attention Flag to notify the Office Engineer there's email that belong with this Item Posting
- Sig. Fig. = 1

**New Item Posting**

Item: REINFORCING STEEL

Proj/Catg: 60638C2C, 01, (Construct ...

Contractor: LAS VEGAS PAVING CORP...

Qty: 45757 LB

Location: Str. I-675 Abut. 2

Station From: [ ] + [ ]

Station To: [ ] + [ ]

Materials: 

Attention Flag:

Remarks:  
Bill of Materials pg. B44  
35% completed  
130734 x .35 = 45756.90

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Figure 13-5: IDR Item Posting - Structure LB

NOTES for Structure LB (Figure 13-5):

- Payment for POUND (LB) for Reinforcing Steel is based on the Bill of Materials (Figure 13-6). If plan quantity is different, field measurements and calculations (per Subsection 505.04.01, *(Reinforcing Steel) Measurement*, of the Standard Specifications) are required.
- Sig. Fig. = 1



**New Item Posting**

**Item:** DRIVE STEEL PILES

**Proj/Catg:** 60638C2C, 02, New "WS" Bri...

**Contractor:** LAS VEGAS PAVING CORP...

**Qty:** 1 EACH

**Location:** Abut. 1 (Str. I-675)

**Station From:** [ ] + [ ]

**Station To:** [ ] + [ ]

**Attention Flag:** [ ]

**Remarks:**  
 Pile # 2  
 See Foundation Pile Drive Record form dated 12/10/16

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Figure 13-8: IDR Item Posting – Piling EACH

NOTES for Piling EACH (Figure 13-8):

- Prepare the Foundation Piling Driving Record (Form 040-058).
- Payment for EACH item will be based on the Total Number Placed value from the 040-058 form.
- Sig. Fig. = 1
- If there are any questions concerning the Foundation Piling Driving Record (Form No. 040-058), contact Materials Division, Geotechnical Section for assistance.

**New Item Posting**

**Item:** FURNISH STEEL PILES (...)

**Proj/Catg:** 60638C2C, 02, New "WS" Bri...

**Contractor:** LAS VEGAS PAVING CORP...

**Qty:** 82 LFT

**Location:** Abut. 1 (Str. I-675)

**Station From:** [ ] + [ ]

**Station To:** [ ] + [ ]

**Attention Flag:** [ ]

**Remarks:**  
 Pile # 4  
 Verified by the Geotechnical section to keep driving until min. blows per foot are reached.  
 See Foundation Pile Driving Record form dated 1/9/2017.

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Figure 13-9: IDR Item Posting – Piling LFT

NOTES for Piling LFT (Figure 13-9):

- Prepare the Foundation Piling Driving Record (Form 040-058).
- Payment for LFT item will be based on the Total Length for Payment value from the 040-058 form.
- Sig. Fig. = 1
- If there are any questions concerning the Foundation Piling Driving Record (Form No. 040-058), contact Materials Division, Geotechnical Section for assistance.

**NOTES for Drill Shaft LFT (Figure 13-10):**

- Prepare the Drilled Shaft Inspection Report (Form 040-060)
- The LFT for payment is from the Total Length Paid value that is shown on the 040-060 form.
- Sig. Fig. = 1
- If there are any questions concerning the Foundation Piling Driving Record (Form No. 040-058), contact Materials Division, Geotechnical Section for assistance.

**Figure 13-10: IDR Item Posting – Drill Shaft LFT**

- Record the following required information in the New Equipment window (Figure 13-11 and Figure 13-12):
  - Contractor – Actual contractor performing the work (include subs).
  - Type – Detailed description of the equipment (e.g., diesel, HP, model, make).
  - Number – How many of each type.
  - Hours – Total hours in use.

**Note:** An attachment to an equipment's base configuration must have its own record.

**Figure 13-11: IDR Equipment Entry**

**Figure 13-12: IDR Equipment List**

- Record the following required information in the New Personnel window (Figure 13-13 and Figure 13-14):

- Contractor – Actual contractor performing the work (include subs).
- Type – Details of personnel type (e.g., foreman, laborer, truck driver).
- Number – How many of each title.
- Hours – Total hours worked.

**New Personnel**

Contractor: LAS VEGAS PAVING CO...  
 Type: Foreman - Donald Driver  
 Number: 1  
 Hours: 8

Figure 13-13: IDR Personnel Entry

Add Personnel	
LAS VEGAS PAVING CORPORATION Foreman - Donald Driver Number: 1.00      Hours: 8.00	<input type="checkbox"/> <input type="checkbox"/>
LAS VEGAS PAVING CORPORATION Laborer Number: 3.00      Hours: 8.00	<input type="checkbox"/> <input type="checkbox"/>
LAS VEGAS PAVING CORPORATION Operator Number: 2.00      Hours: 8.00	<input type="checkbox"/> <input type="checkbox"/>

Figure 13-14: IDR Personnel List

6. Complete a final review of the IDR and lock it.

**Note:** When a Mobile Inspector IDR is completed and locked the information is uploaded into a FieldManager IDR, where it is reviewed and generated for processing progress payments.

## OFFICE ENGINEER'S RESPONSIBILITIES – MAJOR STRUCTURE AND PILING ITEMS

- Save all contractor's survey stakeout data in the EDOC Contract Files\Contract Files\Division No 12 - Miscellaneous\12.# Stakeout Data directory.
- Collect all Material Certifications. Scan and save them to the EDOC Contract Files\Material and Testing Files\Division No. 4 – Materials Division Certs and Test Reports\4.# directory. Send original certifications to the Materials Division for approval.
- Save structure item photos in the appropriate EDOC Contract Files\Contract Files\Division No. 3 - Multimedia Records\3.# Photographs with Descriptions directory.
- Review structure item calculation sheets for accuracy and save electronically in the appropriate EDOC Contract Files\Contract Files\Division No. 7 - Construction Pay Estimate and Related Data\7.# IDR Calculation Sheets directory using this naming convention: IDR YYYY-MM-DD Inspectors Initials, (e.g. IDR 2016-03-19 KMM).
- Review the Foundation Piling Driving Records and Drilled Shaft Inspection Reports for accuracy and save electronically in the appropriate EDOC Contract Files\Contract Files\Division No. 7 - Construction Pay Estimate and Related Data\7.# Drill Shaft and Piling Forms directory.

- Approve materials in FieldManager when the approved material certifications are received from the Materials Division. Refer to Chapter 6, Working with Materials, in the [FieldManager User Guide](#), for details.
- Distribute executed copies of Contract Modifications to Inspectors.

## INSPECTOR DAILY REPORT (IDR) – FIELDMANAGER

When a Mobile Inspector IDR is locked by an Inspector, the information is uploaded into a FieldManager IDR. Refer to Chapter 7, Inspector Daily Report, in the [FieldManager User Guide](#) for details.

1. Verify the following:
  - Information in Comments and Remarks
  - Information in the Contractor tab (Personnel and Equipment)
  - Items are paid correctly according to the contract documents (e.g., plans, supplemental notices, Contract Modifications).
  - Item quantities
  - Quantities in postings are documented to the correct Significant Figure.
  - Stations and Line Designations in the Locations
  - Calculations are correct.
  - Remarks reference calculation sheets, if applicable.

**Note:** Length does not always equal the difference between the beginning and ending station. Sometimes there is a curve or an obstacle that will affect the distance. Always check with the Inspector before assuming the calculations are incorrect.

2. Generate the IDR.

