

# **GUARDRAIL ITEMS**

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## OVERVIEW

Guardrail Items have different documentation requirements for each unit of measure (UOM). All Guardrail Items must be counted or measured and calculated. Documentation examples for a few selected Guardrail 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.

When material samples are taken for the Materials Division labs, refer to the [AWP Sample Records](#) document for details.

## SURVEY CREW CHIEF'S RESPONSIBILITIES – GUARDRAIL ITEMS

- When survey data is used as support for payment, any survey data output/reports from Trimble Business Center (TBC) should be formatted to accurately represent the points (data) collected and a description of what the data represents.
- Email ALL TBC survey data output/reports to the Office Engineer. Use the naming convention: Stakeout Data YYYY-MM-DD Inspectors Initials, (e.g. Stakeout Data 2017-03-19 BLF) in the email subject line.

## DAILY WORK REPORT (DWR) – AWP

1. Create a DWR in AWP daily to document the survey activity. Refer to Chapter 5, Daily Work Reports, in the [AWP User Guide With Materials](#) for details.
2. Record the following required information in the General tab (Figure 17-1).
  - **DWR Date**
  - **Inspector**
  - **Weather**
  - **Low Temp and High Temp**
  - **Remarks:** Select the General Remark Type and enter an overview of survey activities for the day (Figure 17-2).

Contract: 03779 - CHIP SEAL WITH SEAL COAT Save ?

General

**DWR Date \***  
07/05/2019

**Inspector \***  
KMcDaniel2@dot.nv.gov  
McDaniel Kristen

**Weather**  
01 - Clear

**Rainfall Amount**  
-

**Low Temperature**  
68

**High Temperature**  
87

**Number of Remarks**  
0

**Federal Project Number**  
-

**State Project Number**  
-

**Entered By**  
-

**Entered Date**  
-

**Approval Date**  
-

**Approved By**  
-

**Remarks**

Type *	Remarks *
01 - GENERAL	"CW" 45+29.66 to "CW" 61+79.66 RT. Install Galvanized Guardrail with Trailing End Anchor. For data see email: stakeout data 7/5/19.

Figure 17-1: Survey Crew Chief DWR General Tab

"CW" 45+29.66 to "CW" 61+79.66 RT. Install Galvanized Guardrail with Trailing End Anchor. For data see email: stakeout data 7/5/19.

Apply

Figure 17-2: Survey Crew Chief General Remarks Expanded

- Complete a final review of the DWR, lock the report, and Sync Data.

## INSPECTOR'S RESPONSIBILITIES – GUARDRAIL ITEMS

- Use the Agreement Estimate report as a reference to ensure that items and quantities are paid in the correct category (AEB).
- Use the Structure List (Figure 17-3), located in the Contract plans and the Standard Plans, to help identify items, quantities, descriptions and locations.



Figure 17-4: DWR Report Detail Window

3. Record the following required information in the New Item Postings window:
  - **Item:** Select the appropriate Project/Catg., if item is in more than one Project/Catg. – Refer to the AEB report.
  - **Contractor:** ALWAYS the Prime Contractor (Subs are not allowed).
  - **Qty:** Based on plan, measurements and calculations
  - **Material Set:** Select appropriate value (if applicable)
  - **Location:** Line Designation
  - **Station From/To:** Refer to Contract plans.
  - **Offset Type:** Enter the LT, RT, or CL.
  - **Offset Dist.:** Enter if known.
  - **Comments:** 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.
  - **Attention Flag:** Use to bring attention to Resident Engineer and Office Engineer for overruns and plan errors. Must enter Attention Comments.

NOTES for Guardrail Item postings:

- If an each item has a specific location/station callout in the plans, then a separate posting will be done. It should NOT be grouped in a posting.
- If each items do NOT have a location/station callout but are grouped in a table or structure list, then they can be combined in one posting.
- The Design Division's Standards and Compliance Section shall review the guardrail once it is staked and prior to the Contractor ordering the material and starting the installation. This will allow changes to be made to the guardrail if the Contract plans are incorrect for the actual field conditions. On current and future contracts, contact the Standards and Compliance Section to schedule a review.
- The Resident Engineer will contact the Maintenance and Asset Division at the completion of every contract to see if a Guardrail Inventory Data sheet is required. If the data sheet is required, it will be completed by the Resident Engineer and sent to the Safety Division, with a copy sent to the Construction Admin Services Section. If there are any questions, contact Maintenance and Asset Division for assistance.
- Per subsection 109.06, (*Measurement and Payment*) *Partial Payment*, of the Standard Specifications, partial payment may be made for guardrail when only the posts have been put in. Therefore, when the guardrail posts are installed, 50% of the guardrail quantity shall be allowed for payment. The remaining 50% will be paid when the guardrail is complete.

- After each section of guardrail has been completed the final in-place measurement will be documented.
- Refer to Figure 17-5 through Figure 17-9 for examples of guardrail item postings with different UOM.

**New Item Posting**

**Item:** TRAILING END ANCHOR

**Contractor:** Q&D CONSTRUCTION INC

**Qty:** 2.00 EACH  
 Authorized: 6.000 EACH  
 Total Posted: 0.000 EACH

**Location:** "CW"

**Station From:** 45 + 29.66  
**Offset Type:** RT.  
**Offset Dist:**

**Station To:** 61 + 76.66  
**Offset Type:** RT.  
**Offset Dist:**

**Measured:**

**Comments:**  
 Counted  
 Item complete for this installation

3955 remaining

Figure 17-5: DWR Item Posting - Guardrail EACH

**NOTES for Guardrail EACH (Figure 17-5):**

- Payment for EACH items will be based on field count.
- Location: Enter the Line Designation
- Station From/To: Refer to Contract plans
- Offset Type: Enter the LT, RT, or CL.
- Offset Dist: Enter if known
- Sig. Fig. = .01

**New Item Posting**

**Item:** GALVANIZED GUARDRAIL

**Contractor:** Q&D CONSTRUCTION INC

**Qty:** 525.00 LFT  
 Authorized: 3,214.000 LFT  
 Total Posted: 0.000 LFT

**Location:** "CW"

**Station From:** 45 + 29.66  
**Offset Type:** RT  
**Offset Dist:**

**Station To:** 61 + 76.66  
**Offset Type:** RT  
**Offset Dist:**

**Measured:**

**Comments:**  
 1050 LFT for this section  
 Paid 50% for Posts only

3949 remaining

Figure 17-6: DWR Item Posting - Guardrail LFT

**NOTES for Guardrail LFT (Figure 17-6):**

- Payment for LFT items will be based on field measurements.
- Pay 50% of the measured length (section) when the Posts are complete.
- Location: Enter the Line Designation
- Station From/To: Refer to Contract plans
- Offset Type: Enter the LT, RT, or CL.
- Offset Dist: Enter if known
- Sig. Fig. = .01

**New Item Posting**

**Item:** GALVANIZED GUARDRAIL

**Contractor:** Q&D CONSTRUCTION INC

**Qty:** 525.00 LFT  
 Authorized: 3,214.000 LFT  
 Total Posted: 525.000 LFT

**Location:** "CW"

**Station From:** 45 + 29.66  
**Offset Type:** RT.  
**Offset Dist:**

**Station To:** 61 + 76.66  
**Offset Type:** RT.  
**Offset Dist:**

**Measured:**

**Comments:**  
 For this section = 1050 LFT  
 Paid 50% for Rail only

3948 remaining

Figure 17-7: DWR Item Posting - Guardrail LFT

NOTES for Guardrail LFT (Figure 17-7):

- Payment for LFT items will be based on field measurements
- Pay 50% of the measured length (section) when the Rail are complete
- After each length (section) of guardrail has been completed, the final in-place measurement shall be documented
- Location: Enter the Line Designation
- Station From/To: Refer to Contract plans
- Offset Type: Enter the LT, RT, or CL.
- Offset Dist: Enter if known
- Sig. Fig. = .01

**New Item Posting**

**Item:** REMOVE AND RESET G...

**Contractor:** Q&D CONSTRUCTION INC

**Qty:** 300.00 LFT  
 Authorized: 2,391.000 LFT  
 Total Posted: 0.000 LFT

**Location:** "CW"

**Station From:** 370 + 50  
**Offset Type:** RT.  
**Offset Dist:**

**Station To:** 376 + 50  
**Offset Type:** RT.  
**Offset Dist:**

**Measured:**

**Comments:**  
 For this section = 600 LFT  
 paid 50% for removal only

3946 remaining

Figure 17-8: DWR Item Posting – Guardrail Remove and Reset LFT

NOTES for Guardrail Remove and Reset LFT (Figure 17-8):

- Payment for LFT items will be based on field measurements.
- Guardrail must be Measured before removed
- Pay 50% for removal of the measured length (section) when completed.
- Location: Enter the Line Designation
- Station From/To: Refer to Contract plans
- Offset Type: Enter the LT, RT, or CL.
- Offset Dist: Enter if known
- Sig. Fig. = .01



**New Item Posting**

**Item:** REMOVE AND RESET G... LFT

**Contractor:** Q&D CONSTRUCTION INC LFT

**Qty:** 300.00 2,391.000 LFT

**Authorized:** 300.000 LFT

**Total Posted:** 300.000 LFT

**Location:** "CW"

**Station From:** 370 + 50

**Offset Type:** RT

**Offset Dist:**

**Station To:** 376 + 50

**Offset Type:** RT

**Offset Dist:**

**Measured:**

**Comments:**

600 LFT for this section  
 Paid 50% for reset only

3950 remaining

NOTES for Guardrail Remove and Reset LFT (Figure 17-9):

- Payment for LFT items will be based on field measurements.
- Pay 50% for reset of the measured length (section) when completed.
- Location: Enter the Line Designation
- Station From/To: Refer to Contract plans
- Offset Type: Enter the LT, RT, or CL.
- Offset Dist: Enter if known
- Sig. Fig. = .01

**Figure 17-9: Item Posting – Guardrail Remove and Reset LFT**

4. Record the following required information in the New Equipment window (Figure 17-10 and Figure 17-11):
  - **Contractor:** Actual contractor performing the work (include subs).
  - **Type:** Select from the Equipment list
  - **Used:** How many of each type.
  - **Hours Used:** Total hours in use.
  - **Comments:** Details of the type of equipment (e.g., diesel, HP, model, make). Include equipment attachment information if applicable.

**New Equipment**

**Contractor:** LAS VEGAS PAVING C... LFT

**Type:** LOADER / BACKHOE / ... LFT

**Used:** 1 LFT

**On Site:**

**Hours Used:** 8 LFT

**Hours Idle:**

**Comments:**

Bobcat 256C, Skid Steer, Diesel, 82HP, 1350lbs with an Auger Loader, attachment, 15C w/12" bit

506 remaining

**Figure 17-10: DWR Equipment Entry**

Add Equipment	
<b>Contractor:</b>	LAS VEGAS PAVING CORPORATION
<b>Type:</b>	LOADER / BACKHOE / WHEEL LOADER / SKID STEER
<b>Used:</b>	1
<b>Hours Used:</b>	8.000
<b>Comments:</b>	Bobcat 256C, Skid Steer, Diesel, 82HP, 1350lbs with an Auger Loader, attachment, 15C w/12" bit
 	

Figure 17-11: DWR Equipment List

5. Record the following required information in the New Personnel window (Figure 17-12 and Figure 17-13):
- **Contractor:** Actual contractor performing the work (include subs).
  - **Type:** Select from the Personnel list.
  - **Number:** How many of each title.
  - **Total Hours:** Total hours worked.
  - **Comments:** Details of personnel type (e.g., foreman w/name, laborer, truck driver).



New Personnel	
<b>Contractor:</b>	LAS VEGAS PAVING C... ▼
<b>Personnel:</b>	LABORER FOREMAN ▼
<b>Employee:</b>	N/A
<b>Decision Class:</b>	Select ▼
<b>Number:</b>	<input type="text" value="1"/>
<b>Total Hours:</b>	<input type="text" value="8"/>
<b>Comments:</b>	<input type="text" value="Foreman - Cody Bellinger"/>
3975 remaining	
 	

Figure 17-12: DWR Personnel Entry







Add Personnel	
<b>Contractor:</b> LAS VEGAS PAVING CORPORATION <b>Description:</b> LABORER <b>Number:</b> 3 <b>Total Hours:</b> 8.000	 
<b>Contractor:</b> LAS VEGAS PAVING CORPORATION <b>Description:</b> OPERATING ENGINEER <b>Number:</b> 2 <b>Total Hours:</b> 8.000	 
<b>Contractor:</b> LAS VEGAS PAVING CORPORATION <b>Description:</b> LABORER FOREMAN <b>Number:</b> 1 <b>Total Hours:</b> 8.000 <b>Comments:</b> Foreman - Cody Bellinger	 

Figure 17-13: DWR Personnel List

- Complete a final review of the DWR, lock the report, and Sync Data.

**Note:** When a Mobile Inspector DWR is completed, locked and Synd Data is completed, the information is uploaded into an AWP DWR, where it is reviewed and Approved for processing progress payments.

## DAILY WORK REPORT (DWR) – AWP EDITS

The Officer Engineer reviews each Inspector's DWRs for required entries and accuracy. If edits are needed on a DWR, the Inspector who created it may be required to log into the AWP program on a computer (not the iPad) and complete the edits. Refer to Chapter 5, Daily Work Reports, Section, Editing a Mobile Inspector DWR, in the [AWP User Guide With Materials](#) for details.

## OFFICE ENGINEER'S RESPONSIBILITIES – GUARDRAIL ITEMS

- Collect all Material Certifications. Scan and save them to the Contract Files\Materials\03 Cert & Test Reports\3.# directory. Each Material Certification must have the contract ID, bid item and represented quantity entered. Hand-written entries are acceptable for the contract ID, bid item and quantity.
  - Name the scanned certificate file(s) with the contract ID, Material Code Name & description - CERT (e.g., 03904 M6180001 Guardrail - CERT.pdf) The Material Code Name and description is found in the NDOT Power BI, AWP Reports, Certification Tracking report.
- Create an AWP Materials Cert Sample Record for each Material Certification received. Refer to the [AWP Cert Sample Record Creation](#) document and Chapter 24, Progress Payments, in this Manual for details.
- Save emails containing TBC survey stakeout report/data in the appropriate Contract Files\Contract\09 Survey directory.
- Save Guardrail Items photos in the appropriate Contract Files\Contract\03 Multimedia\3.# Photos directory.
- Review guardrail item calculation sheets for accuracy and save electronically in the appropriate Contract Files\Contract\07 Estimates\7.# Calc Sheets directory using this naming convention: DWR YYYY-MM-DD Inspectors Initials, (e.g. DWR 2017-03-19 KMM).
- Distribute executed copies of Change Orders to Inspectors.

## DAILY WORK REPORT (DWR) – AWP

When a Mobile Inspector DWR is locked by an Inspector, the information is uploaded into an AWP DWR. Refer to Chapter 5, Daily Work Reports, in the [AWP User Guide With Materials](#) for details.

- Verify the following:
  - Information in the Remarks
  - Information in the Contractor On Site tab
  - Information in the Contractor Equipment tab
  - Information in the Contractor Personnel tab
  - Items are paid correctly according to the contract documents (e.g., plans, supplemental notices, Change Orders).
  - Item quantities
  - Quantities in postings are documented to the correct Significant Figure (.01)
  - Material Set is correct.
  - Stations and Line Designations in the Locations
  - Calculations are correct.
  - Comments 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.

- Approve the DWR if everything is correct.
- If there are edits required, the Office Engineer may complete them and add a DWR Note with their name, date, and details of the correction. The DWR can then be Approved.
- If there are edits which need to be completed by the Inspector who created the DWR, the Inspector will be required to log into the AWP program on a computer (not the iPad) to complete the edits.
- Review the edited DWR and Approve.