

SDDOT CONSTRUCTION MANUAL
PROJECT MANAGEMENT SECTION
CHAPTER 7 – DOCUMENTING CONTRACT ITEM QUANTITIES AND PAYMENT AMOUNTS

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GENERAL

RECORD KEEPING

Keeping accurate and complete records of contract work quantities is an important responsibility of SDDOT project engineers and inspectors. Contract work is measured and paid for as contract items. Contract items are measured for payment as units of count, length, area, volume, weight or lump sum. Project engineers and inspectors determine, by measurement and calculation, the quantities of the various contract items actually performed by the contractor. In doing so, they must create a clear and easily followed trail back to the original measurement or calculation for each contract item.

CONSTRUCTION MANAGEMENT SYSTEM

Each contract can be comprised of multiple projects and numerous contract items, with a complex array of tiered components, project specifications, material requirements, schedules and deadlines, and financial information. The Construction Management System (CMS) was developed to assist SDDOT personnel with managing this information. It is made up of two sub-systems: the Construction Measurement and Payment (CM&P) System and the Material Sampling and Testing (MS&T) System. The DOT offers a training course for each of the systems. User guides are provided at the time of training.

RECORDING WORK AS ITEM INSTALLATIONS

Each contract item is identified with a line number that is specific to its order on the contract, and a Standard Bid Item Number that is specific to the type of work included in that item. As work progresses on a project, DOT personnel inspect and measure the accomplished work and record the measurements and observations in the CMS. Quantities of work that are accomplished for each contract item are recorded in the CM&P System as Item Installations. For most contract items, Item Installations should be recorded daily, although it may be more efficient to record quantities for certain items on a less frequent basis, or as segments of plan work are completed. Some contract items normally require many days for completion and will require many Item Installations.

The *Construction Measurement and Payment System User Guide* provides instructions for recording work as Item Installations. The following is an example of the *Item Installation* panel of the *Record Work* window in the CM&P System.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
127P	18" CMP Safety End, Install	Each	\$50.000	52.000	52.000	52.000	52.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 04/16/2004

Install Qty: 2.000 Accomplished Date: 04/16/2004

Authorize Qty: 2.000 Recorder: Wenisch, Brian

Closed: Source Doc: DOT-214

Location Description
 Sta. 341+70 - 60' Lt
 Total = 2 ends

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 1. Item Installation panel of the Record Work window in the CM&P System

This example is one of seventeen Item Installations for this contract item. Please note that the quantities displayed at the top of the panel to the right of the Unit Price are system-calculated cumulative totals as of the time that the information is being viewed.

All applicable fields on the *Item Installation* panel should be completed for each Item Installation. The **Install Qty** is the item quantity measured or estimated for that given Item Installation. The **Accomplished Date** is the actual date that the measured or estimated quantity of work was accomplished. The **Source Doc** field identifies the electronic or paper record of the measurement or calculation. The **Location Description** field provides location information that is appropriate for the specific contract item, such as a station or structure. This field may also include other information or comments that are tied to the specific location. The **Comment** field should include any other details that explain or affect the installation quantity, and clarify whether the quantity is the result of a field measurement, scale weights, a count, estimate, survey or a calculation based on measured dimensions.

Certain items will be impractical to measure accurately as the work progresses, so the quantities recorded in progress Item Installations must be based on estimates. Excavation items generally fit this category. The method used for estimating should be noted in the **Comment** field. The final Item Installation quantity will be the difference between the previously

installed quantities and the final measured quantity, with an explanation in the **Comment** field.

For other contract items, such as pipe culvert, flagging, and pilot car, a discrete quantity is associated with a specific location or installation date, and each Item Installation represents an accurate measurement. If a specific Item Installation quantity is later found to be incorrect, an additional Item Installation with the same **Accomplished Date** should be created. The quantity for this additional installation will be the difference between the actual and incorrect quantity, and the reason for and date of the change should be stated in the **Comment** field.

If plan quantity is the basis of payment, the final Item Installation should indicate whether this was specified by plan note, special provision or *Standard Specifications for Roads and Bridges* (Standard Specifications.) The final Item Installation quantity will be the difference between the previously installed quantities and plan quantity. The final Item Installation should include a statement that the work was satisfactorily completed in accordance with the plans.

If changes are required for contract items where plan quantity is the specified basis of payment, measurements made to document changes that increase or decrease quantities should be recorded in the Item Installations and identified as changed quantities. (The reason for the ordered change must be described in the applicable change order; “As-built” or “Normal variation” are not appropriate reasons.)

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
002N	Unclassified Excavation	CuYd	\$6,480	6,852,000	7,179,000	7,179,000	7,179,000

Item Install

Project: IM 90-9(00)390 011J Measured Date: 09/12/2006

Install Qty: 63.500 Accomplished Date: 09/11/2006

Authorize Qty: 63.500 Recorder: Odens, Harvey

Closed: Source Doc: Field Note

Location Description
 Extra undercut for soft areas 12' x 77' x 1' = 924/27 = 34.2 and 12' x 66' x 1' = 792/27 = 29.3, Total 63.5 cuyd

Comment

Figure 2. Item Installation documenting quantity change from original plan quantity

For the contract item in this example, there are five Item Installations documenting quantities where extra depth of excavation was required. The total of these Item Installations accounts for the difference between original plan quantity and final pay quantity.

Overall, information in the Item Installations should be sufficiently complete to enable a person unfamiliar with the details of the project to understand how the installed quantity was arrived at.

SOURCE DOCUMENTS

A **source document** is a permanent electronic or paper record of measurements and calculations of contract item quantities. Each source document should include the contract item description, the location of installation (if applicable), the necessary measurements and calculations, the date, and the name of the person preparing the record.

If a source document is a paper record such as a pipe note, weight ticket, cross section, field note, or an annotated copy of a plan sheet, the document shall be described in the **Source Doc** field of the Item Installation. Paper source documents shall be signed and dated by the person making the measurements. Erasures and white out shall not be used on source documents. Corrections shall be clearly noted as such.

If the Item Installation in the CM&P System is the source document, “CMP” should be entered into the **Source Doc** field. The **Location Description** and/or **Comment** fields must include all measurements, calculations and sufficient detail to show how the installation quantity was arrived at. As with paper source documents, corrections shall be clearly noted as such.

Source documents are to be retained by the Area Office in accordance with the DOT *Construction Project Filing* policy. Copies of certain source documents shall be submitted to the Finals Engineer in accordance with the *Final Quantity and Payment Review* chapter of this manual, or upon request of the Finals Engineer.

QUANTITY CHECKING

The Contractor is paid for work as it is performed. Progress payments are typically based on unpaid quantities of work recorded as Item Installations as of the date that a pay estimate is prepared. Quantity calculations or estimates should be checked independently before the quantity is paid on a progress pay estimate. The **Authorize Qty** checkbox on the Item Installation panel indicates that the Project Engineer has agreed with the recorded quantities. (However, it is important to remember that recording accomplished work as Item Installations and making payments by pay estimate are separate actions.)

Final total quantities for each contract item should be checked by Area staff before preparation of the final contract change order. It is highly recommended that a project engineer who is not assigned to the project double check source documentation and final pay quantities. The Item Installation *Detail* report, which tabulates and summarizes project work recorded as Item Installations, should be printed and reviewed as part of the Area’s finaling process. The report

is found by following this menu path in the CM&P System: **Reports, Record Work, Item Install Detail**. Click **OK** to generate the report for the entire contract.

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Item Installation Detail
 SD19 N Grade 15-25 with Foothills Contracting, Inc.

Main Project # P-BRF 0019(15)15 **Main PCN** 3731 Yankton Area -> Heiman, Kevin
 SD19 FROM SD46 SOUTH

Line No	Units	Description	Unit Price	Contract Qty	Installed Qty	Authorized Qty
127P	Each	18" CMP Safety End, Install	\$50.000	52.000	52.000	52.000
	PCN	Inspector	Accomplished	Installed	Authorized	Location
	3731	Wenisch, Brian	04/16/2004	2.000	2.000	Sta. 341+70 - 60' Lt
						Total = 2 ends
		Wenisch, Brian	04/17/2004	2.000	2.000	Sta. 355+40 - 49' Rt
						Total = 2 ends
		Wenisch, Brian	04/21/2004	2.000	2.000	Sta. 357+40 - 56' Lt
						Total = 2 ends
		Wenisch, Brian	04/23/2004	2.000	2.000	Sta. 367+40 - 49' Lt"
						Total = 2 ends
		Wenisch, Brian	04/27/2004	4.000	4.000	Sta. 408+14 - 49' Lt = 2 ends Sta. 408+14 - 45' Rt = 2 ends
						Total = 4 end sections
		Wenisch, Brian	04/30/2004	2.000	2.000	Sta. 428+40 - 49' Rt:
						Total = 2 ends
		Wenisch, Brian	05/08/2004	4.000	4.000	Sta. 474+90 - 49' Rt = 2 ends Sta. 474+90 - 49' Lt = 2 ends
						Total = 4 ends
		Wenisch, Brian	06/02/2004	4.000	4.000	Sta. 186+16 - 43' Rt = 2 ends

Figure 3. Excerpt from an Item Installation Detail report, page 90 of 106 total pages

The first installation displayed in the preceding example is the Item Installation shown in Figure 1. Please note that the *Contract Qty* displayed near the top of the report is the contract quantity as of the most recently-approved change order.

The report can also be generated for selected single or multiple contract items.

STANDARD BID ITEM GROUPS

Measurement and payment for contract items shall be made in accordance with the project plans, Section 9 of the *Standard Specifications*, and the methods of measurement and payment set forth in the *Standard Specifications* for each Standard Bid Item Group. Project personnel should check the plan notes, special provisions and *Standard Specifications* for the required method of measurement for each contract item and use the specified method to measure quantities. A change in the unit or the method of measurement changes the contract and must be provided for in a contract change order.

Each contract item is identified with a Standard Bid Item Number that is specific to the type of work included in that item. There are currently 4,240 Standard Bid Item Numbers. What follows is additional guidance for documenting quantities of specific types of contract items, organized by Standard Bid Item (SBI) Groups. This is intended to provide guidance only. Please refer to the *Standard Specifications*, special provisions, and plans for project requirements.

SBI GROUP 100: CLEARING AND GRUBBING

If the contract includes an item for clearing and grubbing trees and stumps on a unit price per each basis, the actual count of such trees and stumps removed and disposed of shall be recorded as Item Installations.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
013P	Clear and Grub Tree	Each	\$265.000	48.000	51.000	51.000	51.000

Item Install

Project: P-PH 0042(10)363 4458 Measured Date: 07/15/2006

Install Qty: 3.000 Accomplished Date: 07/15/2006

Authorize Qty: 3.000 Recorder: Dressen, Travis

Closed: Source Doc: field verify

Location Description
 Runge - ADDITIONAL QUANTITY - trees removed from Paradise Casino upon settling off-street restoration agreement

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 4. Daily Item Installation for Clear and Grub Trees item

When the contract stipulates that payment will be made for “Clearing” on a lump sum basis, a statement shall be made in the final Item Installation **Comment** field that the work was satisfactorily completed in accordance with plans.

SBI GROUP 110: REMOVAL OF STRUCTURES AND OBSTRUCTIONS

When the contract stipulates that payment will be made for removal of obstructions on a lump sum basis, a statement shall be made in the final Item Installation that the work was satisfactorily completed in accordance with plans.

When the contract stipulates that payment will be made for the removal of other items on a unit basis, measurements or counts will be recorded as Item Installations.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
004P	Remove Asphalt Concrete Pavement	SqYd	\$3.200	8,020.000	8,020.000	8,020.000	8,020.000

Item Install

Project: IM 29-1(38)12 5881 Measured Date: 08/08/2003

Install Qty: 5,079.000 Accomplished Date: 08/08/2003

Authorize Qty: 5,079.000 Recorder: Huber, Brian

Closed: Source Doc: _____

Location Description

SBL of I-29:

Sta. 0+00 to Sta. 9+87 - 11.5' wide = 1261.2 sq. yds.
 Sta. 43+56 to Sta. 73+44 - 11.5' wide = 3818 sq. yds.

Total = 5079.2 sq. yds.

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 5. Daily Item Installation for pavement removal

SBI GROUP 120: ROADWAY AND DRAINAGE EXCAVATION AND EMBANKMENT CONSTRUCTION

Unclassified Excavation: If final cross sections are taken in the field, the source documentation for excavation will be cross sections and volume computations. The final quantity for the bid item Unclassified Excavation will be determined as described in the plans and the *Earthwork Manual*. The final Item Installation should provide a breakout of quantities that have been added together to arrive at the final total unclassified excavation quantity. The following is an example of a final Unclassified Excavation Item Installation.

The screenshot shows a software window titled "Item Installation" with a table and a form below it.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
008P	Unclassified Excavation	CuYd	\$1.020	1,083,158.000	1,083,158.000	1,083,158.000	,083,158.000

Item Install

Project: P 0011(8)39 5960 Measured Date: 11/04/2005
 Install Qty: 113,600.000 Accomplished Date: 11/04/2005
 Authorize Qty: 113,600.000 Recorder: Putnam, Greg
 Closed: Source Doc:

Location Description
 Final excavation quantities = 783497 cu. yds.
 Undercut quantities = 163384 cu. yds. (plans quantity)
 Unstable material quantities = 3864 cu. yds. (plans quantity)
 Topsoil quantities = 118253 cu. yds.
 Salvage Material quantities = 14160 cu. yds. (plans quantity)

Comment
 The unclassified excavation quantity was calculated using Microstation Inroads.
 The topsoil quantity was calculated using ROADCALC by the Contract Staker and checked by the Engineer.

Buttons: Add, Delete, Save, Print, Close, Help

Figure 6. Final Item Installation for Unclassified Excavation, final cross sections taken

If specified by plan note or written agreement, plan quantity will be the measurement for payment. If plan quantity is paid for Unclassified Excavation in accordance with a plan note or written agreement, this should be stated in the final Item Installation. An example follows. Measurements made to document changes that increase or decrease quantities should be recorded in the Item Installations and identified as changed quantities.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
002N	Unclassified Excavation	CuYd	\$3,500	2,840.000	2,840.000	2,840.000	2,840.000

Item Install

Project: 029 N-291 IONR Measured Date: 07/19/2007
 Install Qty: 1,060.000 Accomplished Date: 07/19/2007
 Authorize Qty: 1,060.000 Recorder: Putnam, Greg
 Closed: Source Doc:

Location Description
 Sta. 0+00 to Sta. 9+00 - Main Ditch
 Sta. 101+00 to Sta. 106+39 - Drainage Ditch
 Per plan notes, plans quantity was paid.

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 7. Final Item Installation for Unclassified Excavation, plans quantity paid in accordance with plan note

If alternative methods involving three-dimensional measurements or measurement in the hauling vehicle are accepted by the Engineer, the methods will be described and the calculations shown in the Item Installation.

Undercutting: Plan quantity will be the basis of payment unless changes are ordered by the Engineer. Measurements and calculations made to document increased or decreased quantities should be recorded in the Item Installation for the Undercutting item as well as Unclassified Excavation item, if applicable, and identified as changed quantities.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
017P	Undercutting	CuYd	\$.250	131,837.000	131,837.000	131,837.000	131,837.000

Item Install

Project: P-PH 3052(4)332 6239 Measured Date: 08/19/2005

Install Qty: 222.000 Accomplished Date: 08/19/2005

Authorize Qty: 222.000 Recorder: Arens, James

Closed: Source Doc:

Location Description

Additional undercut:
 Sta. 247+90 to Sta. 248+90 - Rt. - 40' wide x 1.5' deep = 222 cy

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 8. Daily Item Installation for Undercutting Item documenting quantity in excess of plan quantity

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
014P	Unclassified Excavation	CuYd	\$1.450	316,434.000	316,434.000	316,434.000	316,434.000

Item Install

Project: P-PH 3052(4)332 6239 Measured Date: 08/19/2005

Install Qty: 222.000 Accomplished Date: 08/19/2005

Authorize Qty: 222.000 Recorder: Arens, James

Closed: Source Doc: _____

Location Description

Additional undercut:
 Sta. 247+90 to Sta. 248+90 - Rt. - 40' wide x 1.5' deep = 222 cy

Comment

Figure 9. Daily Item Installation for Unclassified Excavation item, documenting undercut quantity in excess of plan quantity

Select Subgrade Topping: Plan quantity will be the basis of payment and the source document shall be the plans. Measurements and calculations made to document increased or decreased quantities should be recorded in the Item Installation and identified as changed quantities.

Option Borrow Excavation: Cross Sections and volume computations are the source documentation. For quantities of topsoil stockpiled and respread on optioned borrow, the stockpile cross sections are the source documentation. The final Item Installation should provide a breakout of total excavation and topsoil quantities for each pit.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
012P	Option Borrow Excavation	CuYd	\$1.880	374,714.000	374,714.000	374,714.000	374,714.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 05/24/2004

Install Qty: 31,018.000 Accomplished Date: 05/24/2004

Authorize Qty: 31,018.000 Recorder: Wenisch, Brian

Closed: Source Doc: estimated

Location Description

Sta. 488+35 to 520+87 = 25260 CY
 Sta. 520+87 to 536+00 = 5758 CY
 Total = 31018 CY

Comment

Figure 10. Daily Item Installation for Option Borrow Excavation, quantities estimated.

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Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
012P	Option Borrow Excavation	CuYd	\$1.880	374,714.000	374,714.000	374,714.000	374,714.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 01/24/2005

Install Qty: 63,669.000 Accomplished Date: 01/24/2005

Authorize Qty: 63,669.000 Recorder: Heiman, Kevin

Closed: Source Doc: field measured

Location Description

Final Borrow Quantities:
 Borrow #1 = 44362.4 CY
 Borrow #2 = 115866.4 CY
 Borrow #3 = 31357.7 CY
 Borrow #6 = 70002.9 CY
 Borrow #7 = 70223.8 CY

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 11. Final Item Installation for Option Borrow Excavation with breakdown by pit

Contractor Furnished Borrow: Cross Sections and volume computations are the source documentation.

Extra Haul: If the contractor is required to haul material from another balance into the balance where work is taking place, the necessary extra haul will be paid at the unit price established in the applicable *Special Provision for Price Schedule for Miscellaneous Items*. Extra haul quantity is computed as the required distance less the average project haul distance shown in the plans, multiplied by the quantity of material hauled. Records must be kept of where the material is obtained and where it is placed and how the material quantities were tracked. An example extra haul computation follows.

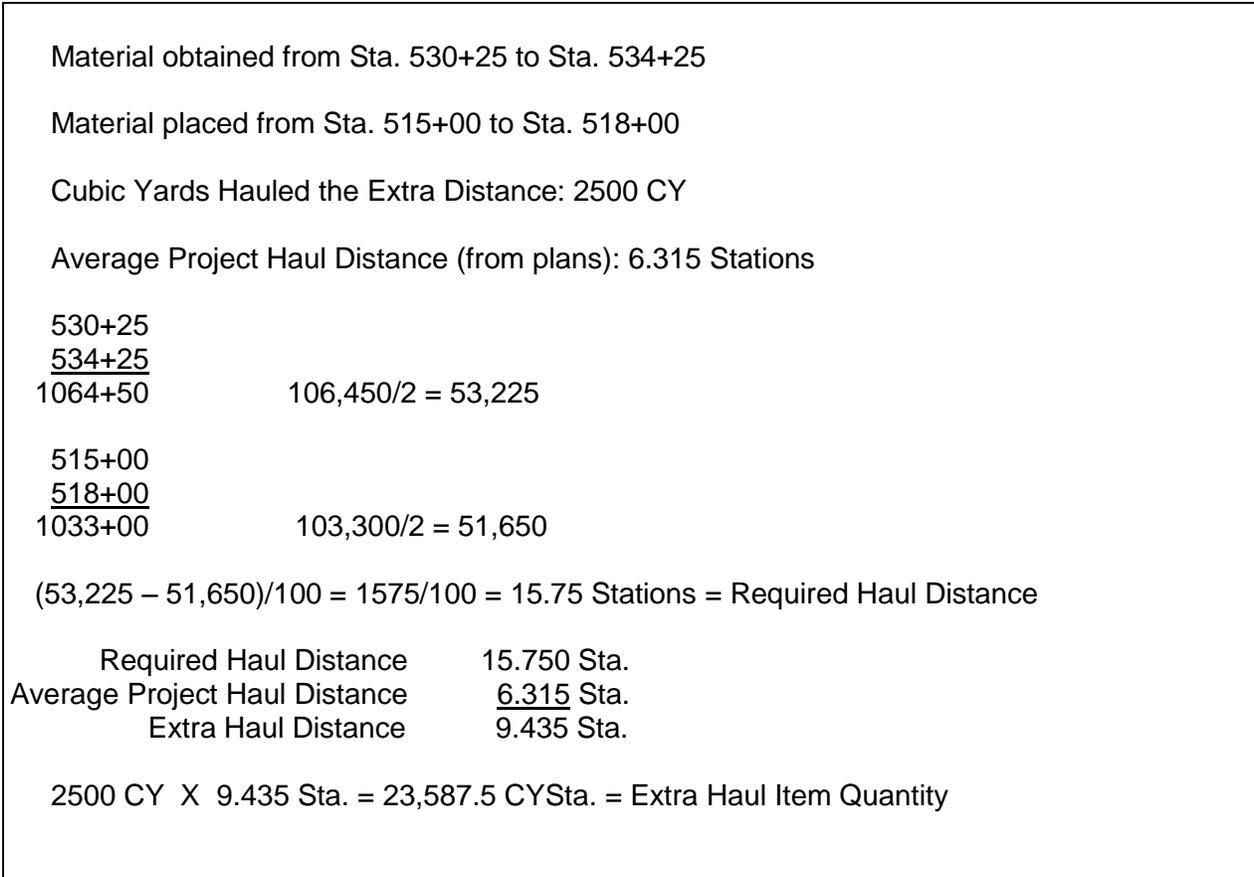


Figure 12. Extra Haul item quantity calculation

Water: Detailed guidance on measuring and recording water used on a project is provided in the SDDOT Earthwork Manual, beginning on page 2-49, or page 49 of the PDF file. The number of tank loads of water hauled and the volume per load should be recorded in the daily Item Installations. An example of an Item Installation for water follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
009P	Water for Granular Material	MGal	\$40.000	107.900	107.900	107.900	107.900

Item Install

Project: P 0034(66)141 6942 Measured Date: 06/24/2006

Install Qty: 49.800 Accomplished Date: 06/24/2006

Authorize Qty: 49.800 Recorder: Larson, Rodney

Closed: Source Doc: Book 1 DOT 75

Location Description
 Sta. 745+00 to 325+00 LT & RT shoulders (Section 1, 1st Sta.)

Comment
 6 loads * 8.3 M Gal = 49.8 M Gal

Buttons: Add, Delete, Save, Print, Close, Help

Figure 13. Item Installation for Water for Granular Material

If the CM&P System is the source document for water, the Item Installation must also include the Water Tank Stamp ID number. DOT field personnel can provide a printout of the Item Installation *Detail Report* for the contract item at a frequency to be agreed upon by DOT personnel and the contractor.

If the South Dakota Materials and Weight Tickets (DOT 75) are the source documentation, a ticket is made for all water used each day. The Water Tank Stamp ID number and capacity must be included on the ticket. The original ticket is retained as source documentation and a duplicate is given to the contractor. An example follows.

DOT 75
(1-84)

SOUTH DAKOTA

MATERIALS AND WEIGHT TICKETS

PROJECT NH 0014 (47) 254
 MATERIAL WATER
 DATE 7-11, 1999 SAMPLE NO. _____
 TANK OR CAR NO. 402 M. GALS. 35.7
 TRUCK NO. _____ LANE _____
 GROSS WT _____ SECTION _____
 TARE WT _____ STATION _____
 NET WT _____ SPREAD _____
 TONS _____ END STA _____
 WEIGHER _____ CHECKER Jc. Hess

CONCRETE MIX (TREATED MAT'LS) WATER: MAX _____ ACTUAL _____
 TIME START MIX _____ BATCH DISCHARGED _____ SIZE _____
 REVOLUTIONS: RATE _____ INSPECTORS: _____
 FINAL _____ INITIAL _____ PLANT _____
 NET _____ PLACING _____

REMARKS: 444 11 @ 5.1 MGAL FOR PAD

No. D **931467** BOOK QUANTITY
 PREV. TICKET 324.1
 THIS TICKET 35.7
 TOTAL 359.8

LEAVE THIS SLIP IN BOOK

Figure 14. Example of DOT 75 ticket for water

If water is applied by irrigation sprinklers, the quantity of water applied will usually be measured by a meter. Daily meter readings should be recorded in the Item Installation.

SBI GROUP 205: DUST CONTROL

Dust Control Chlorides: For each load, the concentration as determined by the Central Testing Laboratory and the actual weight of the solution applied should be documented in the Item Installations. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
140P	Dust Control Chloride	Lb	\$.300	4,883.000	4,883.000	4,883.000	4,883.000

Item Install

Project: IM 29-1(38)12 5881 Measured Date: 08/08/2003

Install Qty: 4,883.000 Accomplished Date: 08/08/2003

Authorize Qty: 4,883.000 Recorder: Huber, Brian

Closed: Source Doc: Ticket 17017

Location Description

Total material used = 15600 lbs.
 Percent Magnesium Chloride = 31.3%

Total = 4883 lbs.

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 15. Item Installation for Dust Control Chloride

Water: See SBI Group 120.

SBI GROUP 210: ROADWAY SHAPING

The Item Installation should state the work was completed in accordance with the plans. If changes are ordered, measurements/beginning and ending stations should be entered into the Item Installation.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
010P	Ordinary Roadway Shaping	Ft	\$2,650	770,000	770,000	770,000	770,000

Item Install

Project: IM 29-1(38)12 5881 Measured Date: 11/07/2003
Install Qty: 770,000 Accomplished Date: 11/07/2003
Authorize Qty: 770,000 Recorder: Huber, Brian
Closed: Source Doc:

Location Description
Completed the roadway shaping as per plan notes. Plans quantity paid.

Comment

Add Delete Save Print Close Help

Figure 16. Item Installation for Roadway Shaping

SBI GROUP 230: SALVAGING, STOCKPILING AND PLACING TOPSOIL

Salvaged Topsoil: If such removal is designated on the plans or directed by the Engineer, the stockpile cross sections and volume computations will be the source documentation. Topsoil salvaged from contractor furnished borrow sources will be incidental to the unit price for Contractor Furnished Borrow. Topsoil salvaged from option borrow sources will be paid for as Option Borrow Excavation (SBI Group 120). All other salvaged topsoil will be paid as Unclassified Excavation (SBI Group 120). Quantities of salvaged topsoil recorded under these bid items should be identified on the Item Installations.

Placing Topsoil: The source documentation will be the cross sections and volume computations for material removed from the stockpiles and placed on designated areas. An example of a final Item Installation for Placing Topsoil follows.

The screenshot shows a software window titled "Item Installation" with a table and a form below it.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
025P	Placing Topsoil	CuYd	\$.800	151,007.000	151,007.000	151,007.000	151,007.000

Item Install

Project: P 0011(8)39 5960 Measured Date: 11/04/2005
 Install Qty: 76,379.000 Accomplished Date: 11/04/2005
 Authorize Qty: 76,379.000 Recorder: Putnam, Greg
 Closed: Source Doc:

Location Description
 Final Topsoil Quantities for Mainline = 118,253 cu. yds.
 Final Topsoil Quantities for Borrow Sites = 32,754 cu. yds.
 Total = 151,007 cu. yds.

Comment
 All topsoil piles were calculated using ROADCALC by the Contractor Staker and check by the Engineer.

Buttons: Add, Delete, Save, Print, Close, Help

Figure 17. Item Installation for Placing Topsoil

SBI GROUP 240: OBLITERATING OLD ROADS

Daily measurements/ beginning and ending stations should be entered into the Item Installation.

SBI GROUP 250: INCIDENTAL WORK

A description of the work and a statement that the work was completed in accordance with the plan shall be entered in the Item Installation.

SBI GROUP 260: GRANULAR BASES AND SURFACING

Weight tickets are the source documentation. Daily totals should be recorded in the Item Installations.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
111P	Gravel Cushion, Salvaged	Ton	\$1.250	108,513.400	108,513.400	108,513.400	108,513.400

Item Install

Project: P-PH 3052(4)332 6239 Measured Date: 06/30/2005

Install Qty: 3,263.700 Accomplished Date: 06/30/2005

Authorize Qty: 3,263.700 Recorder: Huber, Brian

Closed: Source Doc: Tickets

Location Description

Sta. 62+00 to Sta. 70+65 (Bottom Lift)
 Sta. 78+00 to Sta. 93+80 (Top Lift)
 Sta. 98+00 to Sta. 108+00 (Top Lift)
 Approach Sta. 40+00 (Top & Bottom Lifts)

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 18. Daily Item Installation for Gravel Cushion, Salvaged

SBI GROUP 270: SALVAGING, PROCESSING AND STOCKPILING GRANULAR BASE AND ASPHALT CONCRETE MIX MATERIALS

Salvage and stockpile asphalt concrete mix and granular material will be measured at the time it is hauled to the road. Weight tickets are the source documentation. Daily totals should be recorded in Item Installations.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
021P	Salv and Stockpile Asph Mix and Granular Base Iv	Ton	\$4.000	113,047.800	113,047.800	113,047.800	113,047.800

Item Install

Project: P-PH 3052(4)332 6239 Measured Date: 06/30/2005

Install Qty: 3,263.700 Accomplished Date: 06/30/2005

Authorize Qty: 3,263.700 Recorder: Huber, Brian

Closed: Source Doc: Tickets

Location Description

Sta. 62+00 to Sta. 70+65 - Rt. (Bottom Lift)
 Sta. 78+00 to Sta. 93+80 - Rt. (Top Lift)
 Sta. 98+00 to Sta. 108+00 - Rt. (Top Lift)
 Approach Sta. 40+00 - Rt. (Top & Bottom Lifts)

Comment

Figure 19. Daily Item Installation for Salvage and Stockpile Asphalt Mix and Granular Base Material (also installed as Gravel Cushion, Salvaged, Figure 18)

Material stockpiled for future use will be measured in the stockpile and converted to tons using a factor of 1.50 tons per Cu. Yd. The stockpile cross sections and computations will be the source documentation

(Note regarding calculation of Unclassified Excavation quantities when finaling a project: When final cross sections are taken in the field, the plans estimate quantity in cubic yards of Salvaged Asphalt Mix and Granular Base Material from fill sections only shall be added to the Unclassified Excavation quantity for final payment. The quantity of Salvaged Asphalt Mix and Granular Base Material from fill sections added to the Unclassified Excavation quantity shall be plans quantity and will not be adjusted according to field measurements. The quantity of Salvaged Asphalt Mix

and Granular Base Material from cut sections will not be added to the Unclassified Excavation quantity because it is already in the cuts on the final cross sections.)

SBI GROUP 280: PROCESS IN PLACE SURFACING

Plans quantity will be the basis of payment, unless changes are ordered by the Engineer. A statement should be made in the Item Installation that the work was satisfactorily completed in accordance with plans. If changes are ordered by the Engineer, dimensions of added areas should be included in the Item Installation.

SBI GROUP 320: ASPHALT CONCRETE - GENERAL

SBI GROUP 321: ASPHALT CONCRETE - CLASS D, E, G

SBI GROUP 325: ASPHALT CONCRETE - CLASS S

SBI GROUP 326: ASPHALT CONCRETE – CLASS HR

ASPHALT CONCRETE

DOT 89 Forms: The source documentation for asphalt concrete produced at mobile plants shall be weight tickets in combination with information recorded on the **Bitumen Content Determination** (DOT 89) form in the MS&T System. Instructions for completing the DOT 89 are included in Section 314 of the DOT Materials Manual, which is located at the following address:
<http://www.sddot.com/pe/materials/docs/matlsman/sd314.doc>

An example of the DOT 89 form in the MS&T System is included on the following page. The form includes a **Road Waste** field. If there is road waste, the road waste quantity must be entered into this field in order for the system to calculate the asphalt binder content of the road waste and generate a valid *Project Summary of Bitumen Applied* (DOT 74) report as described later in this chapter. If a quantity is entered into the **Road Waste** field, the final quantity to be entered into the **To Road** field must be the to road ticket total minus the **Road Waste** quantity. It is important to check the final **To Road** and **Produced** entries to assure that they are correct after entering **Road Waste**.

The DOT 89 form also includes a checkbox for “Gallons at Start” under Item E and another checkbox for “Left in Storage” under Item M. These boxes must be checked at the beginning and end respectively of each uninterrupted use of the storage tank. This is also necessary for the system to generate a valid DOT 74; if asphalt production is interrupted and the tank is used elsewhere, asphalt binder in the tank at the beginning of the interruption and at the time of work resumption must be taken into account. It is not necessary to unprepare the DOT 89 in order to add these check marks.

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Sample ID 1068625	BITUMEN CONTENT DETERMINATION	DOT-89
File No.		11-97
Report No. 001		
County Sanborn	PCN/PROJECT 5837 NH-BRF0034(20)331	
Test Date 10/09/2003	Inspector Brandner, Rick	Contractor LOISEAU CONSTRUCTION INC
Percent Bitumen Desired 6.2 - 6.8	Percent Used by Test 6.4	
Bitumen Type 320E0008 - PG 64-34 Asphalt Binder		

TANK METHOD

A. Beginning Specific Gravity of Bitumen @ 60 F	1.023
B. Beginning Weight Per Gallon @ 60 F	8.529
C. Temperature of Bitumen in Tank When Check Starts	310
D. Weight Per Gallon of Bitumen at Temperature (*)	<u>7.807</u>
E. Gallons in Tank When Check Starts (calibrated stick)	1447
<input checked="" type="checkbox"/> Gallons at Start (at start of tank use)	
F. Weight of Bitumen in Tank (start check) (D x E / 2000)	<u>5.65</u>
G. Weight of Bitumen Added to Tank	<u>153.79</u>
H. Temperature of Bitumen in Tank When Check Ends	310
I. Gallons in Tank When Check Ends (calibrated stick)	25228
J. Ending Specific Gravity of Bitumen @ 60 F	1.023
K. Ending Weight Per Gallon @ 60 F	8.529
L. Weight Per Gallon at Temperature (*)	<u>7.807</u>
M. Weight of Bitumen in Tank (end check) (I x L / 2000)	<u>98.48</u>
<input type="checkbox"/> Left in Storage (at end of tank use)	
N. Weight of Bitumen Used (F + G - M)	<u>60.96</u>
O. Weight of Mix Produced (Tons)	<u>950.09</u>
P. Percent Bitumen in Mix (N / O x 100)	<u>6.42</u>

G.	Load #	Invoice #	Tons	Summary of Mix Produced	
	1	598894	27.05	To Road	944.59 Tons
	2	598914	25.13	Plant Waste	Tons
	3	598916	25.05	Road Waste	Tons
	4	598972	25.45	To Others	5.50 Tons
	5	598981	25.23	Produced	<u>950.09</u> Tons
	6	598990	25.88		

REMARKS Mainline in James River Valley

Figure 20. Example of DOT 89 form

DOT 89 Summary Report: A report summarizing the information on the DOT 89s is available in the MS&T System and is found by following the menu path: **Reports, Test, Bitumen Content Summary (DOT 89)**. This report also shows the calculated asphalt binder quantities for each day, as well as the calculated number of tons of asphalt binder present in the storage tank at the beginning and end of each day.

SD Department of Transportation Bitumen Content Summary (DOT-89)										
Contract: 1134										Date Let: 1/22/2003
PCN: 5837 (Main)										
Project(s): NH-BRF0034(2)0331 (Main)										
County: Sanborn										
Location: SD84 FROM END OF DIVIDED EAST OF WOONSOCKET TO THE S JCT OF SD37										
Type of Work: GRDGS, STR, PART PCOP & PART CONC SURF (2-332' 7/8" PREST. GRDR BRDG & 7' X 3' BOX										
Contractor: LOISEAU CONSTRUCTION INC										Length: 9.882 miles
Engineer: Rick Bandner										Area: Mitchell Area
<hr/>										
Bitumen Type: 320E0008 - PG 64-34 Asphalt Binder										
Material: Asphalt Concrete Class E										
Report No.	Test Date	Pot Bit	Mix/Bit	To Road	Plant Waste	Road Waste	To Others	Mix Produced	Bitumen In Tank Start Check	Bitumen In Tank End Check
001	10/09/2003	6.42	Mix: 944.59 Bit: 80.61	0.00	0.00	0.00	5.50	950.09 60.96	6.65 ✓	68.48
002	10/10/2003	6.48	Mix: 1,078.76 Bit: 69.92	0.00	0.00	0.00	0.00	1,078.76 69.92	68.48	78.86
003	10/13/2003	6.61	Mix: 983.32 Bit: 64.99	0.00	0.00	0.00	0.00	983.32 64.99	78.86	82.70
004	10/14/2003	6.63	Mix: 1,258.12 Bit: 83.38	0.00	0.00	0.00	5.69	1,263.81 83.74	82.70	34.49
005	10/15/2003	6.65	Mix: 555.65 Bit: 36.95	0.00	0.00	0.00	0.00	555.65 36.95	34.49	12.73 ✓
006	01/09/2004	6.65	Mix: 438.35 Bit: 28.18	3.00	0.00	0.00	0.00	441.35 28.36	43.89 ✓	64.93
007	11/13/2003	6.29	Mix: 985.23 Bit: 43.12	0.00	0.00	0.00	1.51	986.74 43.22	64.93	74.21
008	11/14/2003	6.63	Mix: 912.61 Bit: 60.48	0.00	0.00	0.00	0.00	912.61 60.48	74.21	39.07
009	11/17/2003	6.61	Mix: 291.74 Bit: 19.29	3.00	0.00	0.00	0.00	294.74 19.49	39.07	45.32 ✓
				Total Mix:	6.00	0.00	12.70	7,167.07		
				Total Bit:	0.40	0.00	0.82	468.12		

Figure 21. Bitumen Content Summary (DOT-89) report generated in the MS&T System; note checkmarks at the beginning and end of each continuous use of the tank.

Please note that if the tank is in continuous, uninterrupted use, the actual total number of tons of bitumen in the storage tank will remain constant from the end of one day to the beginning of the next, regardless of changes in temperature, volume and specific gravity. Therefore, the calculated number of tons of bitumen shown in the **Bitumen in Tank End Check** column of this report should be the same as the calculated number of tons of bitumen shown in the **Bitumen in Tank Start Check** column for the next day. Differences between the end and beginning weight of bitumen in the tank on consecutive days of uninterrupted use are indicative of errors

on the DOT 89. Such errors may affect the calculation of bitumen content and asphalt binder pay quantities. The project engineer should contact the Bituminous Engineer for assistance with finding and correcting these errors.

Daily Item Installations: The daily Item Installation for an asphalt concrete item should be the **To Road** quantity for that item recorded on the DOT 89, which is the final quantity of asphalt concrete placed on the road after deduction of road waste. The Item Installation should include an explanation for any asphalt concrete quantities that differ from the DOT 89 for that day or that are not documented on a *DOT 89*. An example of a daily Item Installation follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
139P	Asphalt Concrete Class E	Ton	\$26.250	8,474.100	8,474.100	8,474.100	8,474.100

Item Install

Project: NH-BRF0034(20)331 5837 Measured Date: 10/09/2003

Install Qty: 944.590 Accomplished Date: 10/09/2003

Authorize Qty: 944.590 Recorder: Brandner, Rick

Closed: Source Doc: _____

Location Description
 James River Valley -- Bottom Lift

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 22. Daily Item Installation for Asphalt Concrete Class E corresponding to DOT 89 Report Number 001 in the two previous figures

Total asphalt concrete and asphalt binder payment quantities must be re-evaluated after any changes or corrections to the DOT 89s.

QC/QA Price Adjustments: Price adjustments made in accordance with the pay factor calculations in Section 320.4 of the *Special Provision for Quality Control/Quality Assurance Specifications for Asphalt Concrete Pavement* shall be made on the *Price Adjustment Maintenance Panel* of the *Pay Estimate Window* by selecting the radio button for **Incentive/Disincentive** and choosing **QC/QA** from the drop-down table. An example follows. The **Detailed Explanation** field should indicate the lot or lots for which the incentive is calculated.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
013 N	Class Q-LVT Asphalt Concrete	Ton	22.700	36,306.400	36,306.400	36,306.400	36,306.400

Adjust Using: Lump Sum Amount: 18,766.07
 Percent Percent: .000% Quantity: .00

Type: Actual Approval Date: 10/24/2006
 Project: P 0027(00)212 Approved By: Hinds, Josh
 Reason: QC/QA Incentive Disincentive

Choose a Reason:

- Incentive / Disincentive Choose a Incentive/Disincentive reason: QC/QA
- Specification Deviation (DOT-18)
- Piling Underrun/Overrun

Detailed Explanation to Appear as the "Reason for Adjustment" on the Applicable Change Order
 Incentives of \$3405.00 for Lot #1, \$5675.00 for Lot #4 & #5, and \$9686.77 for Lot#6. Disincentives for -\$5675.00 for Lot #2.

Print History Close

Figure 23. Price Adjustment for pay factor calculations

As with all price adjustments, information entered into the **Reason** field will appear on the pay estimate, and information entered into the **Detailed Explanation** field will appear on the change order to which the adjustment is assigned.

Price Adjustments for Flexible Pavement Smoothness: Price adjustments made in accordance with the *Special Provision for Flexible Pavement Smoothness* are calculated and provided to the Project Engineer by the Pavement Engineer in the Office of Materials and Surfacing. These adjustments are made on the *Price Adjustment Maintenance Panel* of the *Pay Estimate Window* by selecting the radio button for **Incentive/Disincentive** and choosing **Smoothness** from the drop-down table. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
016 P	Class Q-MVT Asphalt Concrete	Ton	25.000	75,101.800	75,101.800	75,101.800	75,101.800

Adjust Using: Lump Sum Amount: 19,760.00
 Percent Percent: .000% Quantity: .00

Type: Actual Approval Date: 01/13/2006
 Project: NH 0018(97)286 Approved By: Long, Keith

Reason: Bonus for smooth ride

Choose a Reason:

- Incentive / Disincentive Choose a Incentive/Disincentive reason: Smoothness
- Specification Deviation (DOT-18)
- Piling Underrun/Overrun

Detailed Explanation to Appear as the "Reason for Adjustment" on the Applicable Change Order

Bonus for smooth ride.

Print History Close

Figure 24. Price Adjustment for flexible pavement smoothness incentive

As with all price adjustments, information entered into the **Reason** field will appear on the pay estimate, and information entered into the **Detailed Explanation** field will appear on the change order to which the adjustment is assigned.

ASPHALT BINDER (MOBILE PLANTS)

Daily Item Installations: Daily Item Installation quantities should be calculated based on the quantity of asphalt concrete installed on the project that day, multiplied by the total quantity of asphalt binder used that day, and divided by the total quantity of asphalt concrete produced that day. The *Bitumen Content Summary Report* shown in Figure 21 displays the system-calculated quantity of asphalt binder for each DOT 89. The final Item Installation should correct the total quantities based on the *Project Summary of Bitumen Applied* (DOT 74) report described later in this chapter. Additional Item Installations for quantities of asphalt concrete (and associated asphalt binder) that are not documented on a DOT 89 should be clearly identified, since these quantities will not be included on the DOT 74 or DOT 89 Summary.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
138P	PG 64-34 Asphalt Binder	Ton	\$273.500	467.900	467.900	467.900	467.900

Item Install Bitumen Load

Project: NH-BRF0034(20)331 5837 Measured Date: 10/09/2003

Install Qty: 60.610 Accomplished Date: 10/09/2003

Authorize Qty: 60.610 Recorder: Brandner, Rick

Closed: Source Doc: _____

Location Description
James River Valley -- Bottom Lift

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 25. Daily Item Installation for Asphalt Binder.

In the preceding example, the installed quantity is equal to the calculated Bitumen “To Road” quantity shown in Figure 21 for DOT 89 Report Number 001.

Final Quantity Calculation: The source documentation for asphalt binder quantities will be asphalt binder weight tickets in combination with information recorded on the DOT 89 forms. The final total asphalt binder quantity is calculated as the sum of weight tickets for all loads of asphalt binder brought to the asphalt plant, plus asphalt binder present in the storage tank at the

beginning of the project, minus quantities that are wasted, used off-contract or left in the tank at the end of the project. If asphalt production is interrupted and the tank used elsewhere, asphalt binder in the tank at the beginning of the interruption and at the time of work resumption is also taken into account.

Final total asphalt binder quantities are calculated on the ***Project Summary of Bitumen Applied*** (DOT 74) report. The DOT 74 report is compiled by the MS&T System using information entered onto the DOT 89s, and is found by following the menu path: **Reports, Test, Project Summary of Bitumen/Lime Applied (DOT 74)**. A copy of the DOT 74 report generated by the MS&T System is shown on the next page. (Additional Item Installations for quantities of asphalt concrete and associated asphalt binder that are not documented on a DOT 89 should be clearly identified, since these quantities will not be included on the DOT 74 or DOT 89 Summary.)

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9/14/2007	SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION			DOT-74 (10/2002)
PROJECT SUMMARY OF BITUMEN APPLIED				
PROJECT NH-BRF0034(20)331		COUNTY Sanborn	PCN	5837
SUPPLIER(S)		CONTRACTOR LOISEAU CONSTRUCTION INC, FLANDREAU SD		
STARTING DATE		10/09/2003	COMPLETION DATE	01/09/2004
BITUMEN TYPE PG 64-34 ASPHALT BINDER		AREA ENGINEER Gustafson, P.E., Jeff C.		
Weigh Ticket No. *		NET TONS BY GRADE		
Date	Commerical Carrier	Load #	Load Qty	Running Total
			49.34	49.34
				At Start of Tank Use
				Asphalt Concrete Class E
10/09/2003	598894	1	27.05	76.39
10/09/2003	598914	2	25.13	101.52
10/09/2003	598916	3	25.05	126.57
10/09/2003	598972	4	25.45	152.02
10/09/2003	598981	5	25.23	177.25
10/09/2003	598990	6	25.88	203.13
10/10/2003	599042	7	25.63	228.76
10/10/2003	599055	8	25.67	254.43
10/13/2003	599097	9	25.20	279.63
10/13/2003	599160	10	27.30	306.93
10/13/2003	599112	11	25.33	332.26
10/14/2003	599139	12	25.53	357.79
10/15/2003	599165	13	15.19	372.98
01/09/2004	582864	14	25.07	398.05
01/09/2004	582865	15	25.53	423.58
11/13/2003	582877	16	25.51	449.09
11/13/2003	582942	17	26.99	476.08
11/14/2003	582948	18	25.35	501.43
11/17/2003	736128	19	25.74	527.17
Sub-Total (Tons)				527.17
Plant Waste				0.40
Road Waste				0.00
To Others				0.82
Left In Storage				58.05
Net Total Tons				467.90
Inspector				Date

Figure 26. Project Summary of Bitumen Applied (DOT 74) report generated in the MS&T System for PG 64-34 Asphalt Binder.

The load information is compiled by the MS&T System from the loads entered on the DOT 89s. The **Plant Waste**, **Road Waste** and **To Others** are calculated and totaled by the system based on quantities and bitumen percentages on each DOT 89. The number of tons **At Start of Tank Use** and **Left In Storage** are the system calculated totals for all continuous uses of the tank. For the final amount remaining in the tank at the end of the project, see the final DOT 89 or the *DOT 89 Summary Report*.

Note that the final Running Total of load quantities (527.17 tons) in the preceding example is equal to the Sub-Total immediately below it. The DOT 74 is valid only if these numbers are equal when rounded to the nearest tenth of a ton. If they are not, the **Net Total Tons** on the DOT 74 may not be correct. The engineer should review the DOT 89s to make sure that the “Gallons at Start” and “Left in Storage” boxes are checked at the beginning and end respectively of each uninterrupted use of the tank. The Project Engineer should also review the *Bitumen Content Summary* report for differences between the end and beginning weight of bitumen in the tank on consecutive days as described previously.

Asphalt binder is included in the unit price per ton for Asphalt Concrete for Haul Road Restoration and Asphalt Concrete Composite. If Asphalt Concrete for Haul Road Restoration or Asphalt Concrete Composite are contract items and are produced concurrently with a mix for which DOT 89s are required, these quantities should be clearly identified on the DOT 89s and care should be taken not to pay for the asphalt binder. The mix quantities can be included in the **To Other** field on the DOT 89 to avoid including the asphalt binder in the **Net Total Tons** on the DOT 74.

Excess Asphalt Binder: Quantities of asphalt binder in excess of the asphalt content listed on the job mix formula plus 0.3% tolerance will not be accepted for payment. Quantities on the DOT 74 are actual quantities of asphalt binder used, and have not been reduced for excess asphalt binder. Excess quantities can be deducted from the individual Item Installation quantity or can be recorded as negative Item Installations with an explanation of how the quantity was arrived at. This is a quantity issue and is treated separately from and in addition to a price adjustment for the specification deviation.

LIME

DOT 74 and DOT 33Q summary reports are generated by the MS&T System based on the DOT 33Q forms and are comparable to the DOT 74 for asphalt binder. They are found by following the same menu path. Alternate methods to accurately determine the amount of lime used must be approved by the Engineer.

SBI GROUP 324: ASPHALT CONCRETE COMPOSITE

The source documentation for asphalt concrete composite shall be weight tickets in combination with records of quantities wasted or used off-contract. The daily ticket totals should be recorded in the Item Installations.

Asphalt binder is included in the unit price per ton for asphalt concrete composite. If asphalt concrete composite is produced concurrently with a mix for which DOT 89s are required, these quantities should be clearly identified on the DOT 89s and care should be taken not to pay for the asphalt binder.

SBI GROUP 330: PRIME, TACK, FOG, AND FLUSH SEAL COATS

The source documentation for asphalt items in this group shall be weight tickets in combination with records of quantities wasted, left over, and used off-contract. This information should be entered in the *Bitumen Load* tab of the Item Installation panel. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
015N	MC-70 Asphalt for Prime	Ton	\$460.000	111.700	111.700	111.700	111.700

Load #	Date Delivered	Ticket #	Load Lbs	Project Lbs	Wasted	Left In Storage	Used Off Project	Load Desc
1	08/08/2006	58916997	52,920	52,920				Flint Hills Resources
2	08/16/2006	58917036	49,580	49,580				Flint Hills Resources

Total Install Qty (Tons): 51.25

Figure 27. Bitumen Load tab of the Item Installation panel for MC-70 Asphalt for Prime.

A DOT 74 report is generated in the CM&P System using this information. The report can be viewed by single clicking the applicable contract item in the *Record Work* window and then following the menu path: **Reports, Summary of Bitumen Applied (DOT 74)**. The following is an example of the report.

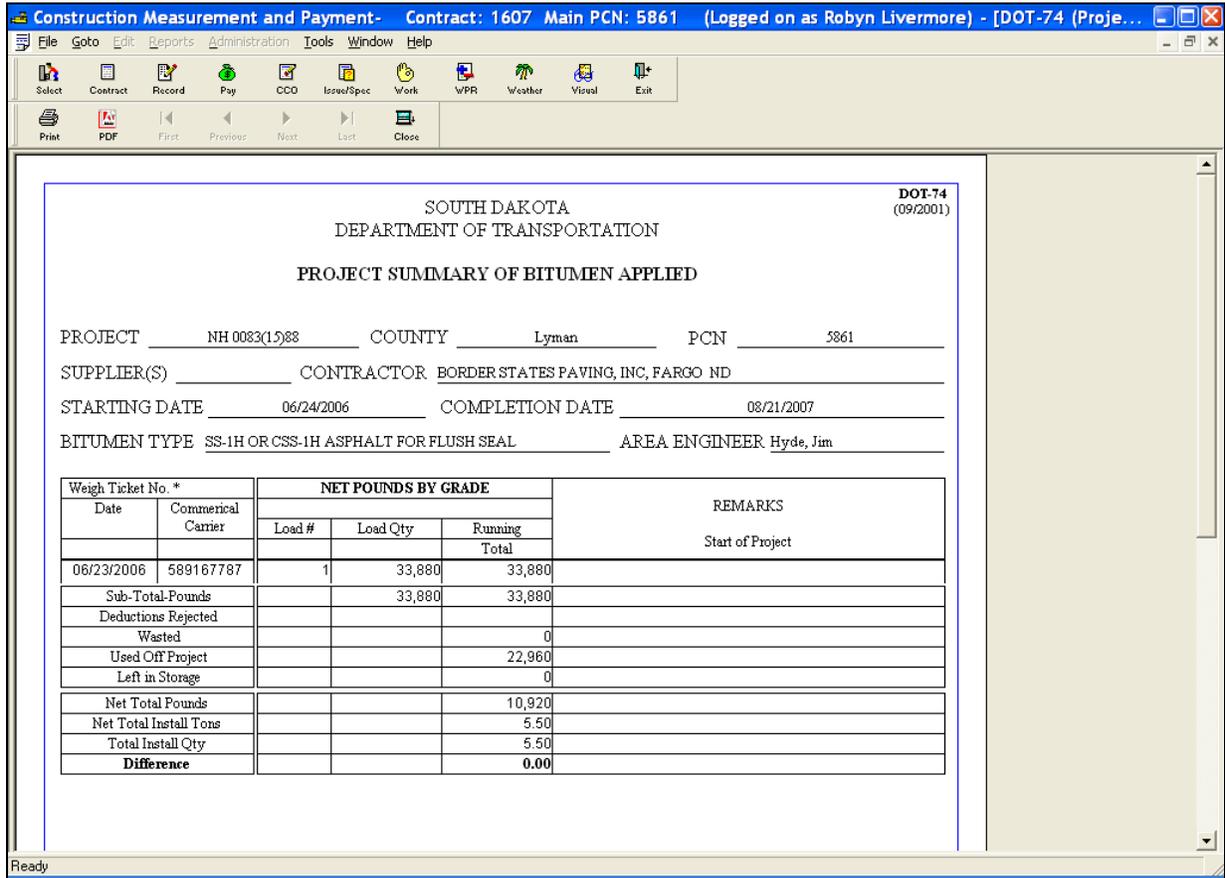


Figure 28. DOT 74 report generated in the CM&P System for SS-1H Asphalt for Flush Seal

Please note that the **Difference** of 0.00 at the end of the report indicates that the total installed quantity and quantity calculated on the DOT 74 are the same. Differences of .05 ton or greater must be resolved in order for the DOT 74 to be valid.

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Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
039P	SS-1h or CSS-1h Asphalt for Flush Seal	Ton	\$427.610	5.500	5.500	5.500	5.500

Item Install | Bitumen Load

Project: NH 0083(15)88 5861 Measured Date: 01/24/2007
 Install Qty: .660 Accomplished Date: 01/24/2007
 Authorize Qty: .660 Recorder: Larson, Rodney
 Closed: Source Doc:

Location Description
 This is a correction of plus 0.66 tons added to installed quantity after final calculations

Comment

Figure 29. Final Item Installation for Asphalt for Flush Seal (see preceding DOT 74)

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
038P	SS-1h or CSS-1h Asphalt for Tack	Ton	\$313.340	509.800	509.800	509.800	509.800

Item Install Bitumen Load

Project: NH 0083(15)88 5861 Measured Date: 01/25/2007
 Install Qty: -71.948 Accomplished Date: 01/25/2007
 Authorize Qty: -71.948 Recorder: Falcon, Elodio
 Closed: Source Doc:

Location Description
 All of the above installations are based on shot records and were for estimate payments only. The Actual and Final payment for Asphalt for Tack is 509.8 Tons, this install will match that quantity.

Comment

Add Delete Save Print Close Help

Figure 30. Final Item Installation for Asphalt for Tack

The source documentation for blotting sand and sand for flush seal shall be weight tickets, and daily totals should be entered as Item Installations.

SBI GROUP 332: COLD MILLING ASPHALT CONCRETE

Cold milled asphalt concrete is not measured for payment unless changes are ordered. Plan quantity will be used and a statement shall be made in the Item Installation that the work was satisfactorily completed in accordance with plans. If changes from the plan quantity are ordered, these areas will be measured and the measurements entered in *the* Item Installation.

SBI GROUP 350: ASPHALT CONCRETE CRACK SEALING

The manufacturer's weights of the sealant will be accepted as the basis for measurement and payment, and the weights should be entered in the Item Installation.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
002N	Asphalt Concrete Crack Sealing	Lb	\$.980	229,570.000	254,600.000	254,600.000	254,600.000

Item Install

Project: 081-272 016F Measured Date: 07/27/2007
 Install Qty: 10,000.000 Accomplished Date: 07/27/2007
 Authorize Qty: 10,000.000 Recorder: Heiman, Kevin
 Closed: Source Doc: tags

Location Description
 081-272, PCN 016F:
 MRM 78.20 to MRM 81.65
 5 pallets @ 2000 lbs = 10000lbs

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 31. Item Installation for Asphalt Concrete Crack Sealing

SBI GROUP 360: ASPHALT SURFACE TREATMENT

The source documentation for asphalt items shall be weight tickets in combination with records of quantities wasted, left over, and used off-contract. This information should be entered in the Bitumen Load tab of the Item *Installation Panel*. A DOT 74 report is generated in the CM&P System using this information. The report can be viewed by single clicking the applicable contract item in the *Record Work Window* and then following the menu path: **Reports, Summary of Bitumen Applied (DOT 74)**. See examples under SBI GROUP 330.

The source documentation for Cover Aggregate shall be weight tickets. Daily totals should be entered into *the* Item Installation.

SBI GROUP 370: COLD RECYCLING OF ASPHALT CONCRETE

Plan quantity will be the basis of payment for cold recycling unless changes are ordered by the Engineer, and a statement shall be made in the Item Installation that the work was satisfactorily completed in accordance with plans. If changes from the plan quantity are ordered in writing by the Engineer, these areas will be measured and the measurements entered into *the* Item Installation.

The source documentation for Asphalt for Cold Recycling shall be weight tickets in combination with records of quantities wasted, left over, and used off-contract. This information should be entered in the Bitumen Load tab of the Item Installation panel. A DOT 74 report is generated in the CM&P System using this information. The report can be viewed by single clicking the applicable contract item in the Record Work Window and then following the menu path: Reports, Summary of Bitumen Applied (DOT 74). See examples under SBI group 330.

SBI GROUP 380: PORTLAND CEMENT CONCRETE PAVEMENT

Daily Paving Reports: The source documentation for Portland Cement Concrete Pavement (PCCP) shall be the Daily Paving Report (DOT 98), which must be completed at the end of each day's paving. Instructions for completing the Daily Paving Reports are included in the SDDOT Concrete Paving Manual beginning on page 7-115. The form is available for electronic completion in the MS&T System.

Daily Item Installations: Daily quantities shall be recorded as Item Installations. The pavement width and start and stop stations should be provided. If there are differences between an Item Installation quantity and the daily quantity on the corresponding DOT 98, the reason for the difference should be provided in the Item Installation.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
166P	Fast Track Concrete	SqYd	\$42.500	4,913.500	4,913.500	4,913.500	4,913.500

Item Install

Project: P-PH 3052(4)332 6239 Measured Date: 07/20/2005

Install Qty: 126.000 Accomplished Date: 07/20/2005

Authorize Qty: 126.000 Recorder: Huber, Brian

Closed: Source Doc: DOT-98 RPT 01

Location Description:
 Eastbound Lane
 Sta. 5+79 to Sta. 6+60 - 14' wide = 126.0 SY

Comment:

Buttons: Add, Delete, Save, Print, Close, Help

Figure 32. Item Installation for PCCP

Price Adjustments for Smoothness: If specified by plan note, PCC Pavement prices will be adjusted for smoothness. Price adjustments must be calculated in accordance with the applicable *Special Provision for PCC Pavement Smoothness* and/or *Standard Specification Section 380.3.O.2*. The plan note will specify the locations to be profiled and the method. An example follows.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0909(69)390	F5	F115

PAVEMENT SMOOTHNESS

Interstate 90 West Bound Lanes from Sta. 49+70 (1st) through Sta. 114+20.7 (3rd) shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with Section 380.3 O 2 of the Standard Specifications.

Exit 396 Ramps H and B shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with the Special Provision for PCC Pavement.

Figure 33. Plan note specifying location and method of PCCP smoothness testing

In the preceding example, a portion of the project is to be profiled in accordance with the *Standard Specifications* and a portion is to be profiled in accordance with the *Special Provision for Pavement Smoothness*. The price adjustments must be calculated using an appropriate spreadsheet for each. Spreadsheet templates for calculating the price adjustments are available at M:\DOT\Common\All DOT Forms\ DOT Forms 201-300\Spread Sheets. These spreadsheets were developed assuming that the entered profile indices are in inches per mile, and that adjustments were made by the profilograph software for segments greater or less than a tenth of a mile. If this is not the case, the formulas in the lane average column will need to be changed to interpolate/extrapolate so that the calculated lane average will be in inches per mile.

Price adjustments for PCC Pavement smoothness shall be made to the appropriate contract item using the *Price Adjustment Maintenance Panel* of the *Pay Estimate Window*. An example follows.

The screenshot shows a software window titled "Price Adjustment Maintenance". At the top, there is a table with the following data:

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
084 P	10" Nonreinforced PCC Pavement	SqYd	36.130	25,578.400	25,578.400	25,578.400	25,578.400

Below the table, the "Adjust Using" section has "Lump Sum" selected. The "Amount" field contains "-1,522.44". The "Type" dropdown is set to "Actual". The "Project" dropdown shows "NH-PH0014(116)228". The "Reason" field contains "PCCP Smoothness". Under "Choose a Reason", "Incentive / Disincentive" is selected, and the "Choose a Incentive/Disincentive reason:" dropdown is set to "Smoothness". The "Approval Date" is "01/09/2007" and "Approved By" is "Peppel, Mark". A text box at the bottom contains the "Detailed Explanation to Appear as the 'Reason for Adjustment' on the Applicable Change Order": "This price adjustment is for the PCCP Smoothness Special Provision for this project. A copy of the profilograph smoothness summary is on file in the Pierre Area Office of the SDDOT." Buttons for "Print", "History", and "Close" are at the bottom.

Figure 34. Price Adjustment for PCCP Smoothness.

As with all price adjustments, text information entered into the **Reason** text field will appear on the pay estimate, and information entered into the **Detailed Explanation...** field will appear on the change order to which the adjustment is assigned.

Dowel Bar Assemblies: Payment will be based on plan quantity unless changes are ordered in writing. A statement shall be made in the Item Installation that the work was satisfactorily completed in accordance with plans. If changes are ordered, the changed quantities should be noted in the Item Installation.

SBI GROUP 390: CONCRETE SPALL REPAIR

Measurements should be entered into the Item Installation.

SBI GROUP 391: UNDERSEALING

PCC Drill Holes: The count should be included in the Item Installation.

PCC Pavement Undersealing: Portland cement will be the only material measured for payment. One bag of cement (94 Pounds) shall equal one cubic foot. The count should be entered in the Item Installation.

Deflection Testing: The test locations (before and after undersealing) should be included in the Item Installation.

SBI GROUP 392: PAVEMENT JACKING

PCC Pavement Jacking Slurry: Portland cement will be the only material measured for payment. One bag of cement (94 Pounds) shall equal one cubic foot. The count should be entered in the Item Installation.

PCC Pavement Jacking Foam: Weights should be entered into the *Item Installation*.

SBI GROUP 393: CRACKING AND SEATING OF PCC PAVEMENT

PCC Cracking and Seating: Dimensions and area calculations shall be entered in the Item Installation.

Cored or sawed samples: The count should be entered in the Item Installation.

SBI GROUP 410: STEEL STRUCTURES

Structural steel is paid for at the lump sum contract price. A statement should be entered into the Item Installation that the work was completed in accordance with plans. If changes in the work are ordered, the payment shall be adjusted as set forth in the Standard Specifications, and the calculations should be entered into the Item Installation for the changed quantity.

SBI GROUP 411: SHOP PAINTING

Measurement will not be made. Plan quantity will be the basis of payment and a statement should be entered into the Item Installation that the work was completed in accordance with plans.

SBI GROUP 412: BRIDGE FIELD PAINTING, REPAINTING, AND PAINT RESIDUE CONTAINMENT

Measurement will not be made. Plan quantity will be the basis of payment and a statement should be entered into the Item Installation that the work was completed in accordance with plans.

SBI GROUP 420: STRUCTURE EXCAVATION

Field measurement for structure excavation quantities will not be made unless the Department determines that measurement is warranted. A statement should be entered into the Item Installation that the work was completed in accordance with plans. If the Engineer orders changes that require measurement, measurements of the changed areas should be entered into the Item Installation for the appropriate contract item as set forth in the Standard Specifications.

SBI GROUP 421: BOX, PIPE AND PLATE PIPE CULVERT UNDERCUTTING

Plans quantity will be the basis of payment unless additional undercutting is directed by the Engineer. A statement should be entered into the Item Installation that the work was completed in accordance with plans. When additional undercutting is required, measurements of the changed areas should be entered into the Item Installation.

SBI GROUP 430: BRIDGE END BACKFILL

Plans quantity will be the basis of payment and a statement should be entered into the Item Installation that the work was completed in accordance with plans.

SBI GROUP 440: STRUCTURAL PLATE PIPE AND PIPE ARCHES

Measurements shall be entered into the Item Installation.

SBI GROUP 450: PIPE CULVERTS

Pipe Notes: The source document for pipe culvert is the pipe note (DOT 214 form). A separate pipe note is completed for each pipe. It is important that information on the pipe note be complete. The size and type of pipe and the installation location must be clearly shown on each note. Instructions for filling out and using pipe notes are included on page 2-7 of the *Pipe Installation Manual*.

Details about the pipe quantities delivered and installed are documented on the fourth page of the pipe note, which includes separate columns for section length and the number of sections. Pay quantities for pipe culvert are calculated by multiplying the nominal length of the sections by the number of sections used. Pipe ends, elbows and Tees are also documented on the pipe note. An example of the fourth page of a pipe note follows.

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HEAT NO. OR DATE	CLASS OR GAUGE	NUMBER OF SECTIONS	LENGTH OF SECTIONS	DATE RELEASED	DATE INSTALLED
7/05/06	CL 4	11	8'	7/07/06	8/21/06
7/06/06	CL 4	1	8'	7/07/06	8/21/06
6/29/06	CL 4	1	8"	7/07/06	8/21/06
7/07/06	CL 4	11	8"	7/07/06	8/22/06
6/29/06	CL 4	1	8"	7/07/06	8/22/06
7/06/06	CL 4	1	8"	7/07/06	8/22/06
6/29/06	CL 4	1	4"	7/07/06	8/23/06

PIPE COMPANY Hanson
 COMPANY LOCATION Sioux Falls
 TOTAL INSTALLED 68' X 18" RCP ARCH
 INSTALLATION COMPLETE 8/23/06
Ken E. Plutsky
 PIPE INSPECTOR

Figure 35. Fourth page of pipe note

Other Documentation: Alternative documentation in spreadsheet format will be acceptable for pipe extensions on slope flattening projects if the lengths of pipe sections and number of sections for each location are recorded either on the spreadsheet or in the Item Installation in the CM&P System. Manufacture and release dates for reinforced concrete pipe, heat numbers for corrugated metal pipe, and pipe company must still be documented and retained in the project file, as well as any other relevant information that would have otherwise been included on the pipe note.

Item Installations: The Item Installations should clearly show the quantity of pipe at each location. An example follows.

The screenshot shows a software window titled "Item Installation". At the top, there is a table with the following columns: Line #, Item Description, Unit, Unit Price, Current Contract Qty, Installed Qty, Authorized Qty, and Paid Qty. The table contains one row of data:

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
100P	30" RCP Class 2, Furnish	Ft	\$30.880	836.000	836.000	836.000	836.000

Below the table is a section titled "Item Install" containing a form with the following fields:

- Project: P-BRF 0019(15)15 3731
- Measured Date: 04/08/2004
- Install Qty: 172.000
- Accomplished Date: 04/08/2004
- Authorize Qty: 172.000
- Recorder: Wenisch, Brian
- Closed:
- Source Doc: DOT-214

Below the form is a "Location Description" field containing the text:

Sta. 336+00:
 20 sections @ 8'
 2 sections @ 6'
 Total = 172 ft

Below the location description is a "Comment" field which is currently empty.

At the bottom of the window are several buttons: Add, Delete, Save, Print, Close, and Help.

Figure 36. Item Installation for pipe culvert

SBI GROUP 460: STRUCTURAL CONCRETE

Structural concrete will be measured in accordance with the neat line dimensions shown on the plans unless changes are ordered in writing. If changes are ordered, computations of the changed quantities should be included in *the* Item Installation.

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Item Installation Detail
Hwy52-Lake. with Upper Plains Contracting, Inc.

Main Project # P-PH 3052(4)332 Main PCN 6239 Yankton Area -> Rothschild, Greg
SD52 FM SD50 TO YANKTON

Line No	Units	Description	Unit Price	Contract Qty	Installed Qty	Authorized Qty
208P	CuYd	Class A45 Concrete, Box Culvert	\$314.830	272.300	272.300	272.300
PCII Inspector Accomplished Installed Authorized Location						
6239	Huber, Brian	05/19/2005	45.400	45.400	45.400	Sta. 20+92.0 Str. No. 68-061-206 Estimated for the Floor of Outlet Barrel Section = 45.4 cv
	Huber, Brian	05/25/2005	45.400	45.400	45.400	Sta. 20+92.0 Str. No. 68-061-206 Estimated for the Floor of Middle Barrel Section = 45.4 cv
	Huber, Brian	06/02/2005	45.400	45.400	45.400	Sta. 20+92.0 Str. No. 68-061-206 Estimated for the Wall & Lid of Outlet Barrel Section = 45.4 cv
	Huber, Brian	06/10/2005	45.400	45.400	45.400	Sta. 20+92.0 Str. No. 68-061-206 Estimated for the Wall & Lid of Middle Barrel Section = 45.4 cv
	Huber, Brian	09/08/2005	45.400	45.400	45.400	Sta. 20+92.0 Str. No. 68-061-206 Estimated for the Floor of Inlet Barrel Section = 45.4 cv
	Huber, Brian	09/16/2005	45.300	45.300	45.300	Sta. 20+92.0 Str. No. 68-061-206 Estimated for the Wall & Lid of Inlet Barrel Section = 45.3 cv <small>Plans quantity has been paid for this item</small>
Subtotal:				272.300	272.300	

Ready

Figure 37. Item Installation Detail report for structural concrete, summarizing six Item Installations

SBI GROUP 462: CONCRETE FOR INCIDENTAL CONSTRUCTION – CLASS M(I)

Class M (I) concrete will be measured in accordance with the neat line dimensions shown on the plans unless changes are ordered in writing. A statement should be entered into the Item Installation that the work was completed in accordance with the plans. If changes are ordered, computations of the changed quantities should be included in the Item Installation.

SBI GROUP 463: POLYMER MODIFIED ASPHALT GROWTH JOINT AND ASPHALT BRIDGE JOINT

Measurements should be entered into the Item Installation.

SBI GROUP 465: DRILLED SHAFT CONSTRUCTION

Class A45 (A31) Concrete, Drilled Shaft and Drilled-In-Foundation Excavation: The plan quantity shall be the basis of payment unless a change is ordered in writing. If a change is ordered, measurement will be according to neat line dimensions specified in the change and the calculation should be entered into the Item Installation.

Permanent Casing: Measurements should be entered into the Item Installation.

Crosshole Sonic Log (CSL) Test: The count should be entered into the Item Installation.

SBI GROUP 470: RAILING

Plans quantity will be the basis of payment. A statement should be entered into the Item Installation that the work was completed in accordance with the plans.

SBI GROUP 480: REINFORCING STEEL

Plan quantity will be the basis of payment unless there are revisions to the plans. The source document for reinforcing steel will be the shipping documents in conjunction with the inspector's observations in the Item Installations that bars were placed in accordance with the plans.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
166P	Reinforcing Steel	Lb	\$.720	22,490.000	22,490.000	22,490.000	22,490.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 06/07/2004

Install Qty: 22,490.000 Accomplished Date: 06/07/2004

Authorize Qty: 22,490.000 Recorder: Soukup, Jeremy

Closed: Source Doc: plans qty

Location Description

Str 14-100-058 = 22490 lbs
Cutoff Walls = 5/20/04
Floor = 5/26/04
Aprons = 5/27/04
Left 1/2 barrel = 6/2/03
Right 1/2 barrel = 6/3/03

Comment

Figure 38. Item Installation for Reinforcing Steel

SBI GROUP 491: EPOXY CHIP SEAL

Remove Rubberized Asphalt Chip Seal, Bridge Deck Grinding, Abrasive Blasting of Bridge Deck, Epoxy Chip Seal: Measurement will not be made for these items. The plan quantity will be the basis of payment. A statement should be entered into the Item Installation that the work was completed in accordance with the plans.

Remove and Replace Deteriorated Concrete: Measurements and area calculations should be recorded in the Item Installation.

SBI GROUP 510: TIMBER, PRESTRESSED AND STEEL PILES

Pile Reports: The source documentation for test pile quantity is the Inspector’s Test Pile Report (DOT 203). The source documentation for bearing pile quantity is the Pile Inspector’s Report (DOT 204). Instructions for completing pile reports are included in Chapter 5 of the SDDOT Structures Construction Manual.

Test Piles: The Item Installation should list the total footage for each unit of the structure. The pay quantity for each test pile will be either the actual length of test pile remaining in the completed structure or plan quantity, whichever is greater. Percentage price adjustments are not made for underrun or overrun of test pile.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
068P	HP 10x42 Steel Test Pile, Furnish and Drive	Ft	\$25.000	1,101.000	1,101.000	1,101.000	1,101.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 04/12/2004

Install Qty: 164.000 Accomplished Date: 04/12/2004

Authorize Qty: 164.000 Recorder: Heiman, Kevin

Closed: Source Doc: DOT-203

Location Description

Str # 14-100-061; Abut #1:
 Driven = 153.3 LF
 Plan length = 164.0 LF
 Pay Per Spec = 164 LF

Comment

Figure 39. Item Installation for Test Pile

Bearing Piles: The Item Installations should list the total footage for each unit of the structure. The pay quantity will be the actual length of bearing pile remaining in the completed structure.

The screenshot shows a software window titled "Item Installation". At the top, there is a table with the following columns: Line #, Item Description, Unit, Unit Price, Current Contract Qty, Installed Qty, Authorized Qty, and Paid Qty. The table contains one row of data:

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
069P	HP 10x42 Steel Bearing Pile, Furnish and Drive	Ft	\$16.000	5,547.000	5,547.000	5,547.000	5,547.000

Below the table is a tab labeled "Item Install". The form contains the following fields:

- Project: P-BRF 0019(15)15 3731 (dropdown)
- Measured Date: 03/29/2004 (dropdown)
- Install Qty: 610.000 (text input)
- Accomplished Date: 03/29/2004 (dropdown)
- Authorize Qty: 610.000 (text input)
- Recorder: Heiman, Kevin (dropdown)
- Closed: (checkbox)
- Source Doc: DOT-204 (text input)
- Location Description: Str # 14-100-061 Abut #4 = 610.0 LF (text area)
- Comment: (empty text area)

At the bottom of the window are buttons for Add, Delete, Save, Print, Close, and Help.

Figure 40. Item Installation for Bearing Pile

If the Contractor is entitled to receive compensation for bearing pile underrun or overrun in accordance with Section 510.5.B of the Standard Specifications, price adjustments shall be made using the radio button for **Piling Underrun/Overrun** the *Price Adjustment Maintenance Panel* of the *Pay Estimate Window*. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
021 P	HP 10x42 Steel Bearing Pile, Furnish - Ft		32.000	148.000	148.000	148.000	148.000

Adjust Using: Lump Sum Amount: 435.20
 Percent Percent: 20.000% Quantity: 68.00

Type: Actual Approval Date: 04/24/2007
Project: BR0 8052(14) Approved By: Gerlach, John
Reason: Bearing Pile Underrun

Choose a Reason:
 Incentive / Disincentive
 Specification Deviation (DOT-18)
 Piling Underrun/Overrun

Detailed Explanation to Appear as the "Reason for Adjustment" on the Applicable Change Order
There was less pile quantity required than was estimated in order to achieve bearing on the piles.

Print History Close

Figure 41. Price adjustment for bearing pile underrun

Preboring Piling: The source documentation will be the DOT 203 and DOT 204. The Item Installation should list the total footage for each particular unit of the structure.

SBI GROUP 530: GALVANIZED METAL BIN-TYPE RETAINING WALLS

Plan quantity will be the basis of payment unless changes are ordered by the Engineer. A statement should be entered into the Item Installation that the work was completed in accordance with plans. If the Engineer orders changes, measurements of the changed areas should be entered into the Item Installation

SBI GROUP 550: BRIDGE DECK PREPARATION AND RESURFACING

Type 1A Type 2A Type 1B Type 1C Type 1D and Type B Removal: Measurements should be entered into the Item Installation.

Class A45 (A31) Concrete Fill: Source documents will be ticket batch printouts, cross sections or net truck weight tickets (theoretical volume based upon 150 pounds per cubic foot). Daily totals should be entered into the Item Installation.

Latex Modified Bridge Deck Overlay: Source documents will be batch ticket printouts of the cement used and the yield tests performed. Daily totals should be entered into the Item Installation.

Low Slump Dense Concrete Bridge Deck Overlay: Source documents will be mixer cement meter readings supported by yield tests. Daily totals should be entered into the Item Installation.

Finishing and Curing: Measurements should be entered into the Item Installation.

SBI GROUP 560: PRECAST/PRESTRESSED CONCRETE

Prestressed Concrete Beam, Furnishing Precast Box Culvert, and Installing Precast Box Culvert: Measurement will not be made. Plan quantity will be the basis of payment. A statement should be entered into the Item Installation that the work was completed in accordance with plans.

Furnishing and Installing Precast Box Culvert End Sections: The number and location shall be entered into the Item Installation. One end section will be considered to be all of the individual pieces required to construct one end of the box culvert.

SBI GROUP 570: DRAINAGE STRUCTURE OPTIONS

The Drainage Structure Site A, B, etc. will be paid for at the contract lump sum price and will not be measured. Option items that comprise the drainage structure site will be measured and documented according to the related plan and specification requirements. The individual items and unit prices contained in the structures options bid schedule sheets will be used to adjust the lump sum contract unit price for each drainage structure when there are underruns or overruns and such adjustment explained in the Item Installation.

SBI GROUP 600: FIELD LABORATORY

The source document will be the Field Laboratory Inspection Record (DOT 50). The Item Installation should include a statement regarding completion of inspections and acceptance for payment.

SBI GROUP 601: HAUL ROADS

Haul road repair items shall be reimbursed at the unit prices contained in the applicable Special Provision Regarding Price Schedule for Miscellaneous Items. For items other than dust control, the Item Installation should state whether the quantity paid is the state's 50% share, or if the haul road is a state road.

The source documentation for Asphalt Concrete, Haul Road Restoration, shall be weight tickets

in combination with records of quantities wasted and used off-contract. Asphalt binder is included in the unit price per ton for Asphalt Concrete, Haul Road Restoration. If Asphalt Concrete, Haul Road Restoration, is produced concurrently with a mix for which DOT 89s are required, these quantities should be clearly identified on the DOT 89s and care should be taken not to pay for the asphalt binder.

SBI GROUP 610: CATTLE GUARDS

The count for each location should be entered into *the* Item Installation.

SBI GROUP 620: RIGHT-OF-WAY FENCING

Measurements or counts by location should be entered in the Item Installation.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
100P	Type 2 Right-of-Way Fence	Ft	\$1.250	1,130.000	1,130.000	1,130.000	1,130.000

Item Install

Project: P-PH 3052(4)332 6239 Measured Date: 06/15/2006

Install Qty: 1,130.000 Accomplished Date: 06/15/2006

Authorize Qty: 1,130.000 Recorder: Arens, James

Closed: Source Doc: Fence Diagram

Location Description
 Sta. 68+33 to 73+45 Lt. = 652' (includes back fence at Sta. 73+45)
 Sta. 193+16 to Sta. 197+94 · Lt. = 478'

Total = 1130'
 (measured quantity)

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 42. Item Installation for Right-of-Way Fence.

The “Fence Diagram” source document in this case was an annotated sheet from the grading plans.

SBI GROUP 621: CHAIN LINK FENCING

Measurements by location should be entered in the Item Installation.

SBI GROUP 629: THREE CABLE GUARDRAIL

Measurements or counts for each location should be entered in the Item Installation.

SBI GROUP 630: STEEL BEAM GUARDRAIL

Measurements or counts for each location should be entered in the Item Installations.

SBI GROUP 631: RIGHT OF WAY MONUMENTS

The count for each location should be entered in the Item Installations.

SBI GROUP 632: HIGHWAY SIGNS AND DELINEATORS

Measurements or counts should be entered in the Item Installations.

SBI GROUP 633: PAVEMENT MARKING

Measurements or counts should be entered in the Item Installations. An example follows.

The screenshot shows a software window titled "Item Installation". At the top, there is a table with the following columns: Line #, Item Description, Unit, Unit Price, Current Contract Qty, Installed Qty, Authorized Qty, and Paid Qty. The table contains one row of data:

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
017N	Cold Applied Plastic Pavement Marking, 24"	Ft	\$17.000	325.000	251.500	251.500	251.500

Below the table is a section titled "Item Install" with a sub-form. The form includes the following fields:

- Project: P 0018(00)332 00MG (dropdown)
- Measured Date: 07/10/2007 (dropdown)
- Install Qty: 53.000 (text input)
- Accomplished Date: 07/10/2007 (dropdown)
- Authorize Qty: 53.000 (text input)
- Recorder: Huber, Paulette (dropdown)
- Closed: (checkbox)
- Source Doc: CMP entries (text input)

Below these fields is a "Location Description" text area containing the text: "P 0018(00)332 Stop Bar North Point Road EB - 30' and Stop Bar SD 46 Intersection SB- 23'".

At the bottom of the form is a "Comment" text area, which is currently empty.

At the very bottom of the window are several buttons: Add, Delete, Save, Print, Close, and Help.

Figure 43. Daily Item Installation for Pavement Marking

Incentive/disincentive payments made in accordance with a *Special Provision for Durable Pavement Markings* shall be made on the *Price Adjustment Maintenance* panel of the *Pay Estimate* window. Select the radio button for **Incentive/Disincentive** and choose **Retroreflectivity** from the drop-down table. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
007 P	Epoxy Pavement Marking Paint, Whit	Gal	45.300	1,148.000	1,148.000	1,148.000	1,148.000

Adjust Using: Lump Sum Amount: 402.26
 Percent Percent: 4.000% Quantity: 222.00

Type: Actual Approval Date: 10/02/2007
 Project: PH 000S(157) Approved By: Pfaff, Jared
 Reason: Lot #1 (East bound edge line Hwy 14)

Choose a Reason:

- Incentive / Disincentive Choose a Incentive/Disincentive reason: Retroreflectivity
- Specification Deviation (DOT-18)
- Piling Underrun/O verrun

Detailed Explanation to Appear as the "Reason for Adjustment" on the Applicable Change Order
 Retro-Reflectivity Lot Average = 368mcd/m2/lux and in accordance with special provisions a incentive of 104% will be paid. Test performed by Alan Petrich.

Print History Close

Figure 44. Price adjustment for incentive/disincentive for retro-reflectivity

SBI GROUP 634: TRAFFIC CONTROL

Traffic control will be inventoried throughout the duration of the project and the inventory entered into the Item Installations. The inventory shall include a record of the number, type and unit value of signs and channelizing devices. The inventory for flagging shall include the start and stop times and the number of flaggers for each day. The inventory for pilot car hours shall include the start and stop times each day.

11/01/2007 Page 1 of 1

Str & Appr Grading (Prstr Bulb Tee) with Heavy Constructors, Inc.

Main Project # BRO 8052(37) **Main PCI** 6365 Rapid City Area -> Reimann, Kent
In Owanka Over Box Elder Creek

Line No	Units	Description	Unit Price	Contract Qty	Installed Qty	Authorized Qty
019P	Unit	Traffic Control	\$4.600	876.000	510.000	510.000
	PCI	Inspector	Accomplished	Installed	Authorized	Location
	6365	vWege, Steve	10/18/2006	510.000	510.000	R11-2 2@27 = 54 W1-3 2@34 = 68 W1-6 2@24 = 48 W1-3-1 2@16 = 32 W20-1 2@34 = 68 6 - barricades @40 = 240
				Subtotal:	510.000	510.000

No object markers, end road works used. Large arrows and reverse

Figure 45. Item Installation Detail report for Traffic Control Item (Signs)

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Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
036N	Flagging	Hour	\$20.520	1,680.000	1,072.500	1,072.500	1,072.500

Item Install

Project: 050-253 00N1 Measured Date: 08/30/2006

Install Qty: 6.000 Accomplished Date: 08/30/2006

Authorize Qty: 6.000 Recorder: Mentele, Rick

Closed: Source Doc: Ticket Book

Location Description
 050-253, 00N1, 2 @ 5:30 PM to 8:30 PM, 2 x 3.0 = 6.0 Hrs. (Back Broom)

Comment

Add Delete Save Print Close Help

Figure 46. Daily Item Installation for Flagging

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
054P	Pilot Car	Hour	\$30.200	527.000	527.000	527.000	527.000

Item Install

Project: P 0034{66}141 6942 Measured Date: 06/05/2006

Install Qty: 6.500 Accomplished Date: 06/05/2006

Authorize Qty: 6.500 Recorder: Larson, Rodney

Closed: Source Doc: Book 1 DOT 75

Location Description:
Cold Milling (Anderson Western)

Comment:
1:00 PM to 7:30 PM = 6.5 hours

Add Delete Save Print Close Help

Figure 47. Daily Item Installation for Pilot Car

If the CM&P System is the source document for flagging and pilot car, DOT field personnel can provide a printout of the Item Installation *Detail Report* for the contract item at a frequency to be agreed upon by DOT personnel and the contractor. If the South Dakota Materials and Weight Ticket (DOT 75) is the source document, this is typically provided to the contractor at the end of each day.

Measurement for temporary traffic signal systems will be made and entered as Item Installations on a per site basis.

SBI GROUP 635: TRAFFIC SIGNALS AND ROADWAY LIGHTING

Electrical conduit, Electrical Power Cable, and Traffic Signal Control Cable: Plan quantity will be the basis of payment unless changes are ordered by the Engineer. A statement should be entered into the Item Installation that the work was completed in accordance with the plans. An example of an *Item Installation Detail* report for an electrical conduit contract item follows.

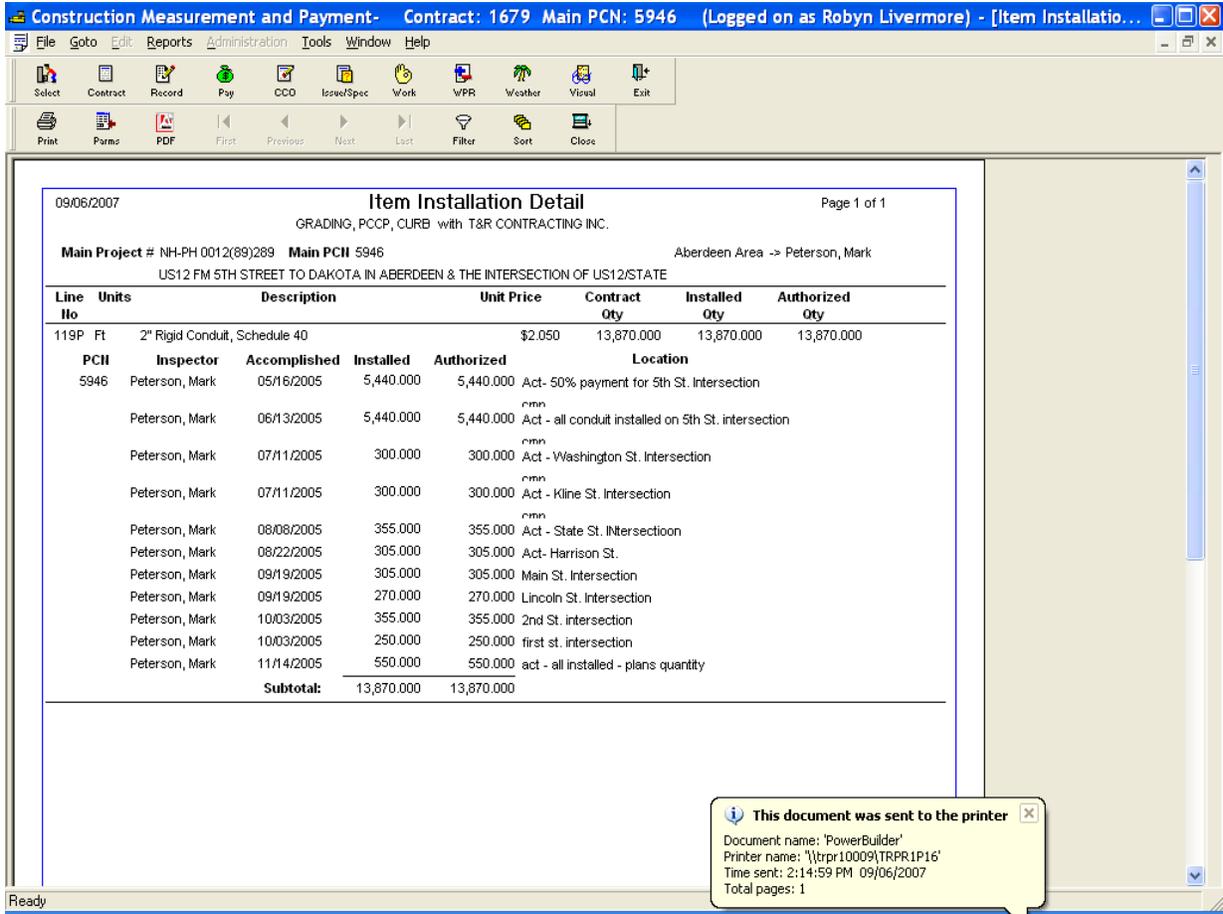


Figure 48. Item Installation Detail report for electrical conduit item

Concrete footings: Measurements shall be entered into the Item Installations.

Junction Boxes, Electrical Service Cabinets, Traffic Signal Poles, Roadway Lighting Poles, Luminaries, Traffic Signal Controllers, Detector Units, Detector Loops and Traffic Signal Heads: Actual counts shall be entered into the Item Installations.

SBI GROUP 650: CONCRETE CURB AND GUTTER

Measurements should be entered into the Item Installations. An example follows.

The screenshot shows a software window titled "Item Installation". At the top, there is a table with the following columns: Line #, Item Description, Unit, Unit Price, Current Contract Qty, Installed Qty, Authorized Qty, and Paid Qty. The table contains one row of data:

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
033P	Type B610 Concrete Curb and Gutter	Ft	\$15.040	5,630.000	5,630.000	5,630.000	5,630.000

Below the table is a section titled "Item Install" containing a form with the following fields:

- Project: NH-PH0014(116)228 5573
- Measured Date: 07/07/2005
- Install Qty: 256.000
- Accomplished Date: 07/07/2005
- Authorize Qty: 256.000
- Recorder: Berheim, Alan
- Closed:
- Source Doc: quantity sheet

Below the form are two text areas:

- Location Description:** 19+64 - 23+02 30.0' Lt.
- Comment:**

19+64 - 19+81 = 17.0'
 20+23 - 21+72 = 149.0'
 22+12 - 23+02 = 90.0'
 Total..... 256.0'

At the bottom of the window are buttons for Add, Delete, Save, Print, Close, and Help.

Figure 49. Example of Item Installation for Concrete Curb and Gutter.

SBI GROUP 651: CONCRETE SIDEWALK

Dimensions and area computations shall be entered into the daily Item Installations. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
013P	6" Concrete Sidewalk	SqFt	\$4.000	805.800	805.800	805.800	805.800

Item Install

Project: IM 29-1(38)12 5881 Measured Date: 05/20/2004

Install Qty: 750.000 Accomplished Date: 05/20/2004

Authorize Qty: 750.000 Recorder: Putnam, Greg

Closed: Source Doc: _____

Location Description
 Between Main Parking Lot and Scale Office Building:
 75' x 10' = 750 sq. ft.

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 50. Daily Item Installation for concrete sidewalk item

SBI GROUP 670: DROP INLETS

The counts should be entered in the Item Installation for each location.

The screenshot shows the 'Item Installation' window for item 028P, 'Precast Drop Inlet Collar'. The window has a blue title bar and a table at the top with columns: Line #, Item Description, Unit, Unit Price, Current Contract Qty, Installed Qty, Authorized Qty, and Paid Qty. Below the table is an 'Item Install' section with various input fields: Project (P-BRF 0019(15)15 3731), Measured Date (07/29/2004), Install Qty (4.000), Accomplished Date (07/29/2004), Authorize Qty (4.000), Recorder (Soukup, Jeremy), Closed (checked), and Source Doc (plan qty). A 'Location Description' text area contains: 'Sta 200+70.75 L = 1 ea', 'Sta 200+70.75 R = 1 ea', 'Sta 78+99 L = 1ea', 'Sta 78+99 R = 1 ea', '=====', and 'Total = 4 ea'. A 'Comment' text area is empty. At the bottom are buttons for Add, Delete, Save, Print, Close, and Help.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
028P	Precast Drop Inlet Collar	Each	\$150.000	6.000	6.000	6.000	6.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 07/29/2004
 Install Qty: 4.000 Accomplished Date: 07/29/2004
 Authorize Qty: 4.000 Recorder: Soukup, Jeremy
 Closed: Source Doc: plan qty

Location Description
 Sta 200+70.75 L = 1 ea
 Sta 200+70.75 R = 1 ea
 Sta 78+99 L = 1ea
 Sta 78+99 R = 1 ea
 =====
 Total = 4 ea

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 51. Item Installation for drop inlet item

SBI GROUP 671: MANHOLES

The counts should be entered in the Item Installation for each location.

SBI GROUP 680: UNDERDRAINS

Porous Backfill: The source document will be the weight ticket and the daily totals entered in the Item Installations.

Underdrain Pipe: Measurements for each location should be entered in the Item Installations.

Concrete Outlet Headwall: The count for each location should be entered in the Item Installation.

SBI GROUP 700: RIPRAP

Riprap: The source document will be the weight tickets. Daily totals should be entered into the Item Installations.

When the quantity calls for cubic yards, the daily Item Installations should show the number of truck loads and capacity per truck. Truck box measurements and capacity computation should be entered into the Item Installation for the date on which that truck was first used.

Drainage Fabric: Plans quantity will be the basis of payment unless changes are ordered in writing. Dimensions for changed areas should be entered in the Item Installations.

SBI GROUP 720: BANK AND CHANNEL PROTECTION GABIONS

Payment will be based on plans quantity, unless changes are ordered in writing by the Engineer.

SBI GROUP 730: SEEDING

Refer to Chapter 1 of the *SDDOT Erosion Control Manual* for detailed guidance on documenting and measuring quantities of seed.

Normally the seed will be furnished in bags and several bags of seed will be used each day. The quantity of seed to be paid for should be documented daily on the Item Installation. Bag tags, commercial weigh tickets, and DOT 75 tickets shall be retained as source documentation as applicable. An example of a DOT 75 follows.

SOUTH DAKOTA	
MATERIALS AND WEIGHT TICKETS	
PROJECT	I 90-5(4) 247
MATERIAL	Perm. Seed
DATE	July 22, 1999
TANK OR CAR NO.	
TRUCK NO.	
GROSS WT.	
TARE WT.	
NET WT.	343#
TONS	
WEIGHER	
SAMPLE NO.	
M. GALS.	
LANE	
SECTION	
STATION	
SPREAD	
END STA.	
CHECKER	CC
CONCRETE MIX (TREATED MAT'LS)	WATER: MAX. ACTUAL
TIME START MIX DISCHARGED	BATCH SIZE
REVOLUTIONS: RATE	INSPECTORS
FINAL	PLANT
INITIAL	PLACING
NET	
REMARKS:	#111 @ 42.89# each 150# Sec 3 - 219# Sec 4
No. D 617601	BOOK QUANTITY
	PREV. TICKET
	THIS TICKET
	TOTAL

Figure 52. Materials and Weight Ticket (DOT 75) for permanent seed

Permanent seed is measured and paid for in pounds of pure live seed to the nearest whole pound. Pure Live Seed quantities based on information shown on the bag tag shall be entered into the Item Installation. Calculation due to re-testing should be noted.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
044P	Permanent Seed Mixture No.1	Lb	\$7.500	2,493.000	2,493.000	2,493.000	2,493.000

Item Install

Project: P-BRF 0019(15)15 3731 Measured Date: 11/08/2004

Install Qty: 491.030 Accomplished Date: 11/08/2004

Authorize Qty: 491.030 Recorder: Heiman, Kevin

Closed: Source Doc: seed tags

Location Description

Sta 330+00 to Sta 375+00
 Sta 223+25 to Sta 240+00
 Sta 205+00 to Sta 223+25

8 bags @ 44.59 lbs = 356.72 lbs
 3 bags @ 44.77 lbs = 134.31 lbs

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 53. Item Installation for Permanent Seed

Cover crop seeding is measured per bushel of bulk seed. If seed is delivered in one-bushel sacks, the count should be entered into the Item Installation. If the seed is delivered in bulk quantities, the bulk weight and conversion should be entered into the Item Installation.

SBI GROUP 731: FERTILIZING

Bag tags, commercial weight tickets, and DOT 75 Forms shall be retained as source documentation. The daily total quantities should be recorded as Item Installations.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
023P	Fertilizing	Ton	\$583.000	3.930	3.930	3.930	3.930

Item Install

Project: IM 29-1(38)12 5881 Measured Date: 12/05/2003
Install Qty: 1.050 Accomplished Date: 12/05/2003
Authorize Qty: 1.050 Recorder: Putnam, Greg
Closed: Source Doc: Fertilizer Bags

Location Description
Ramp 2:
42 bags @ 50 lbs ea. = 1.05 tons

Comment

Add Delete Save Print Close Help

Figure 54. Item Installation for Fertilizing

SBI GROUP 732: MULCHING

Refer to the *SDDOT Erosion Control Manual* for detailed guidance on measuring and documenting quantities of mulch. The weight tickets are the source documentation for the payment of the mulch. Daily quantities shall be entered in the Item Installations.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
024P	Mulching	Ton	\$107.060	145.000	145.000	145.000	145.000

Item Install

Project: IM 29-1(38)12 5881 Measured Date: 12/05/2003

Install Qty: 40.000 Accomplished Date: 12/05/2003

Authorize Qty: 40.000 Recorder: Putnam, Greg

Closed: Source Doc: Tickets

Location Description

Ramp 2:
 82 bales @ 976 lbs. ea. = 40.01 tons
 Pay = 40.0 tons

Comment

Buttons: Add, Delete, Save, Print, Close, Help

Figure 55. Item Installation for mulching

DOT 75 (1-84)	
SOUTH DAKOTA	
MATERIALS AND WEIGHT TICKETS	
PROJECT <u>I 90-5(41)247</u>	SAMPLE NO. _____
MATERIAL <u>Hay Mulch</u>	
DATE <u>July 22, 1999</u>	
TANK OR CAR NO. _____	M. GALS. _____
TRUCK NO. <u>67</u>	LANE _____
GROSS WT. <u>29920</u>	SECTION <u>3</u>
TARE WT. <u>12640</u>	STATION _____
NET WT. <u>17280</u>	SPREAD _____
TONS. <u>8.64</u>	END STA _____
WEIGHER <u>AP</u>	CHECKER <u>CC</u>
No. D 617603	BOOK QUANTITY _____
	PREV TICKET _____
	THIS TICKET _____
	TOTAL _____

Figure 56. Materials and Weight Ticket for Hay Mulch

SBI GROUP 733: SODDING

Measurements should be entered into the Item Installations.

SBI GROUP 734: EROSION CONTROL AND WATER POLLUTION CONTROL

Measurements and/or counts should be entered into the Item Installations.

The screenshot shows a software window titled "Item Installation" with a table and a form below it.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Installed Qty	Authorized Qty	Paid Qty
048P	Standard Erosion Control Blanket	SqYd	\$1.350	16,175.000	16,175.000	16,175.000	16,175.000

Below the table is a form titled "Item Install" with the following fields:

- Project: P-BRF 0019(15)15 3731
- Measured Date: 05/10/2006
- Install Qty: 189.000
- Accomplished Date: 05/10/2006
- Authorize Qty: 189.000
- Recorder: Heiman, Kevin
- Closed:
- Source Doc: field measured

Location Description:

```

Sta 198+00-RT to 198+70-rt = 80 x 7.5 = 600 SF
Sta 197+00 to Sta 198+05 = 105 x 10.5 = 1102.5 SF
=====
total = 1702.5 SF = 189.2 SY
pay = 189 SY
    
```

Comment:

At the bottom of the window are buttons for Add, Delete, Save, Print, Close, and Help.

Figure 57. Item Installation for erosion control blanket

SBI GROUP 740: CRUSHED AGGREGATE FOR MAINTENANCE STOCKPILES

The source document will be the weight tickets. Daily totals should be entered into the Item Installations.

FORCE ACCOUNT

RECORD KEEPING

When the state and the contractor cannot agree upon a price for performing extra work, the work must be measured and paid on a Force Account basis. Force Account work shall be measured and documented in accordance with Standard Specifications Section 9.5 and the DOT *Force Account* policy. Force account work is paid using SBI Number 009E0710.

If force account work is performed, the following items must be documented:

- All contractor employees working on the Force Account work item by name, classification, pay rate and exact number of hours worked (must be supported by payrolls for the time period that covers the Force Account work)
- All contractor-owned equipment used for the Force Account work (actual use and standby time)
- All rented equipment required for Force Account work (must be support by invoices)
- All materials incorporated into the Force Account work (must be supported by invoices or affidavits as described in the Force Account policy)

The requirements for record keeping will vary with the type of work being completed. The inspector needs to keep accurate, informative and complete records. Forms required for documenting labor, materials, and equipment costs are included in the Force Account policy. In accordance with the policy, the following forms shall be used to document the work and calculate payment:

- Form DOT210 - Daily Labor Record
- Form DOT210A - Weekly Labor Record
- Form DOT211 - Daily Equipment
- Form DOT212 - Daily Material Record
- Force Account Summary

The numbered forms can be found in Word format at M:\DOT\Common\All DOT Forms\DOT Forms 201-300. The forms are also available in Excel spreadsheet format at M:\DOT\Common\All DOT Forms\ DOT Forms 201-300\Spread Sheets.

Other required documentation will be certified payrolls and receipts for material purchases and equipment rental. An example of required record keeping for Force Account work is found on page 2-13 of the *Earthwork Manual*.

The Project Engineer should confirm that the number of hours entered into the Form DOT210 for each employee each day is supported by the pay roll record for that day.

EQUIPMENT RATES

Equipment rates to be used in the DOT 211 form for construction equipment owned by the contractor are obtained from the Equipment Watch Rental Rate Blue Book, to which the DOT

subscribes as an on-line service.

Because the DOT pays for only one registered user, only the Finals Engineer can obtain rental rates. However, the Project Engineer can use the on-line Blue Book to locate the correct configuration for each piece of equipment and provide this information to the Finals Engineer, along with the Model Year and the project and PC number.

The Project Engineer can access the on-line Blue Book and initiate an equipment search at the following address:

<http://www3.equipmentwatch.com/Navigation.do?product=home>

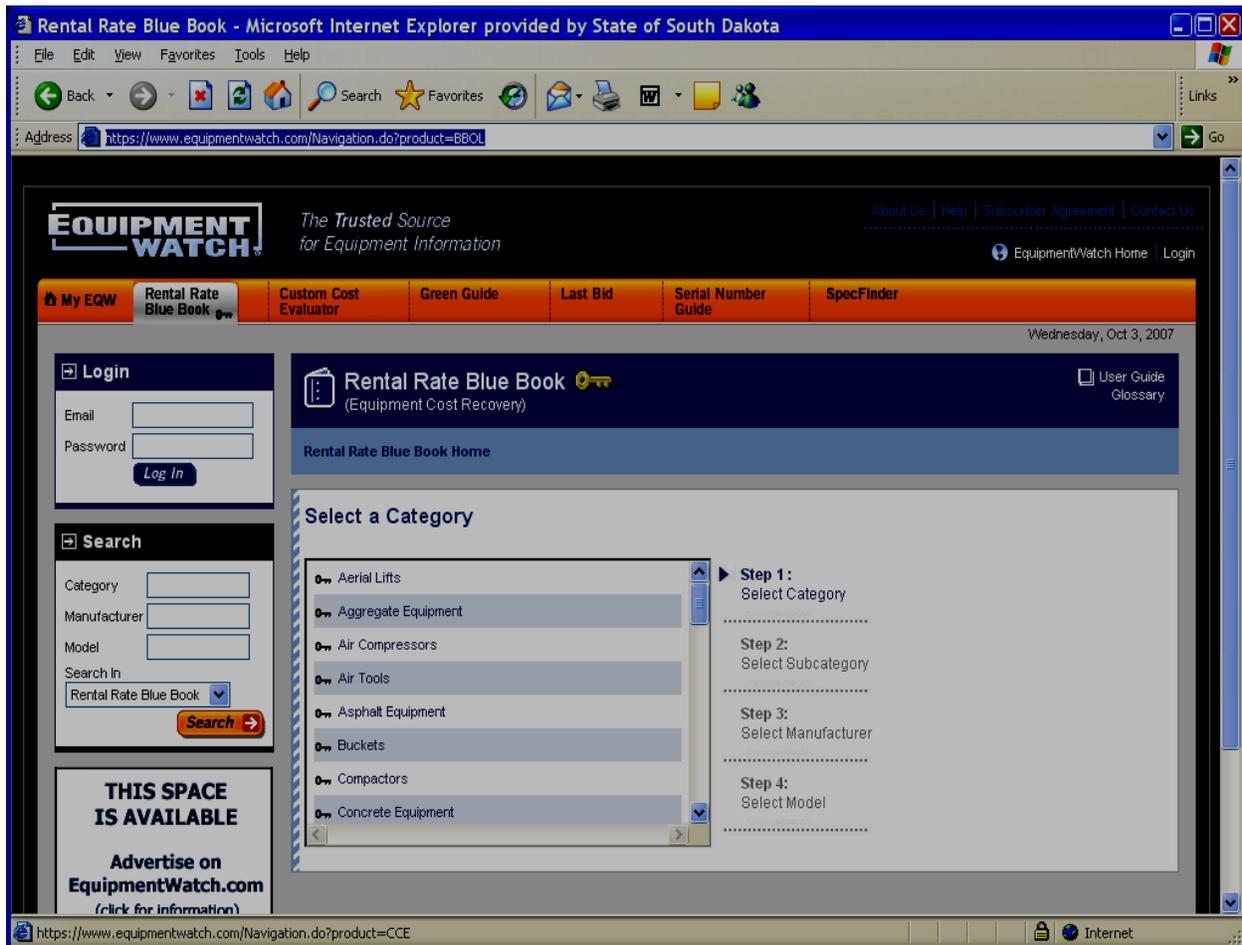


Figure 58. Rental Rate Blue Book Home Page

The equipment configuration is found by either:

- entering search criteria in any or all search fields in the **Search** box located on the left side of the page or
- making successive selections starting in the **Select a Category** area on the right side of this page until the configuration is found that most closely matches the specifications of the equipment.

For the following types of equipment, the search is most efficiently performed by using the **Search** box and entering the manufacturer and complete model number. If there is more than one configuration for that model, it will then be necessary to select a configuration.

- earthmoving (graders, loaders, bare industrial tractors, backhoes, scrapers, dozers)
- excavators
- compactors (except hand-held)
- self-propelled aerial lifts
- cranes
- pile driving hammers/extractors
- self-propelled pavement brooms, pavement sweepers and pavement breakers
- mechanical drive, electric drive and articulated rear dump trucks
- prime movers
- wheel mounted and crawler mounted asphalt pavers, wheel mounted and crawler mounted pavement millers, asphalt pickup machines, reclaimers/stabilizers and road wideners

For most other equipment, information is not manufacturer and model specific. The search can be accomplished by selecting successive categories and subcategories until the configuration is found that most closely matches the specifications of the equipment. The information needed to complete this search depends upon the equipment type. Some common examples are:

- For pickup trucks:
 - fuel type (gasoline or diesel),
 - axle configuration (2 WD or 4 WD),
 - cab type (conventional or crew),
 - ton rating
 - horsepower
- For truck tractors and flatbed trucks:
 - fuel type (gasoline or diesel)
 - axle configuration (count of all wheels on the truck “X” count of only those wheels that are driven by engine power; duals count as one wheel)
Example: 4 X 2 = Four wheels, two driven by the engine
 - gross vehicle weight rating in pounds (manufacturer’s number)
 - horsepower
- For on-highway rear dump trucks:
 - fuel type (gasoline or diesel)
 - axle configuration (see truck tractors)
 - gross vehicle weight rating in pounds (manufacturer’s number)
 - struck capacity in cubic yards
 - horsepower
- For on-highway water tankers:
 - fuel type (gasoline or diesel)
 - tank capacity in gallons
 - horsepower

- For portable rotary screw air compressors:
 - fuel type (gasoline or diesel)
 - air delivery rate in cubic feet per minute
- For generator sets:
 - fuel type (gasoline or diesel)
 - prime output in KW
 - enclosure (open or closed)—only if output is greater than 17 KW

Because of the numerous combinations of equipment categories and subcategories, it is not possible to provide a comprehensive list. For example, equipment rates for trailers are not manufacturer and model specific. The selections necessary to arrive at a configuration for a hydraulic removable gooseneck equipment trailer are illustrated on the following pages:

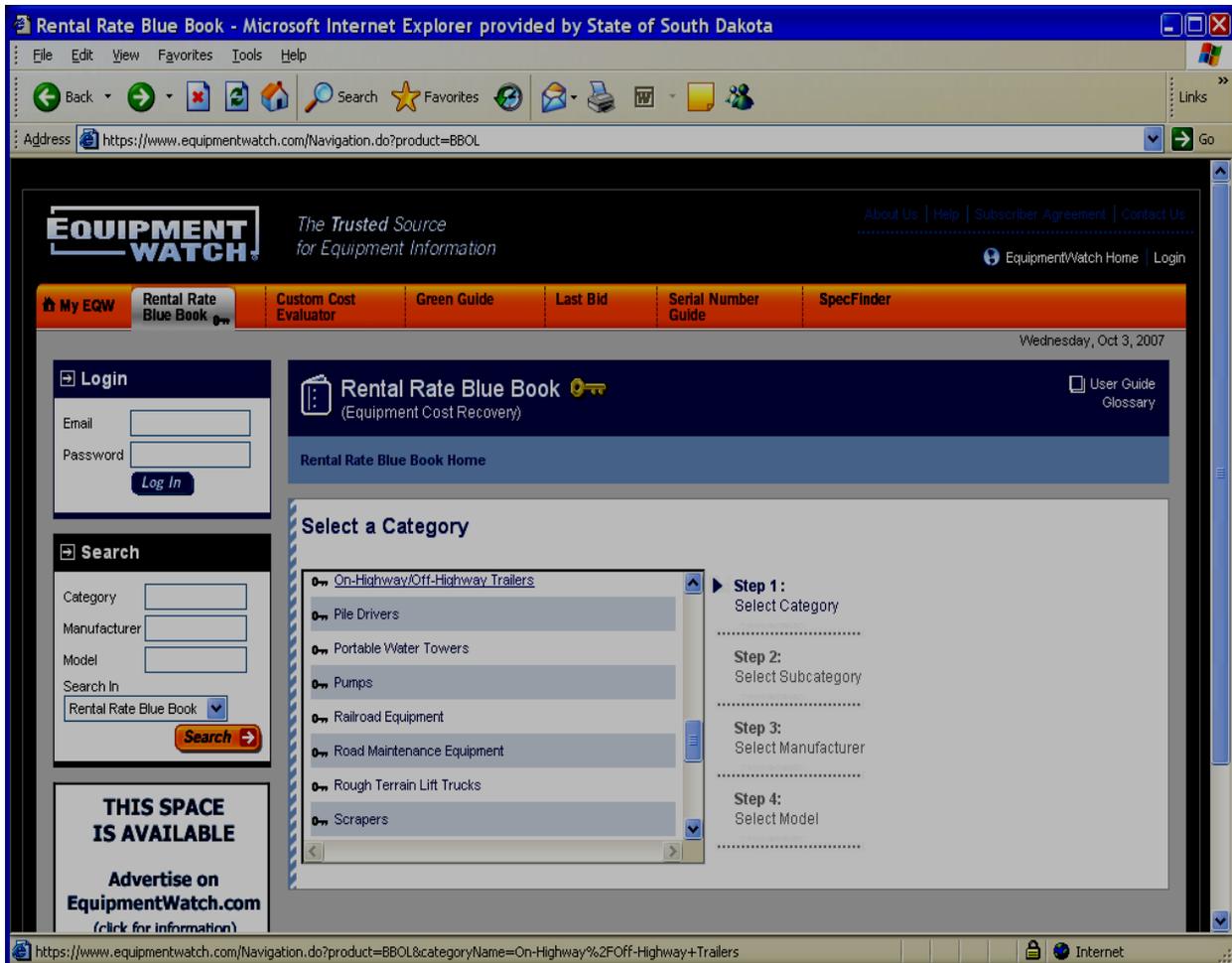


Figure 59. Select a Category

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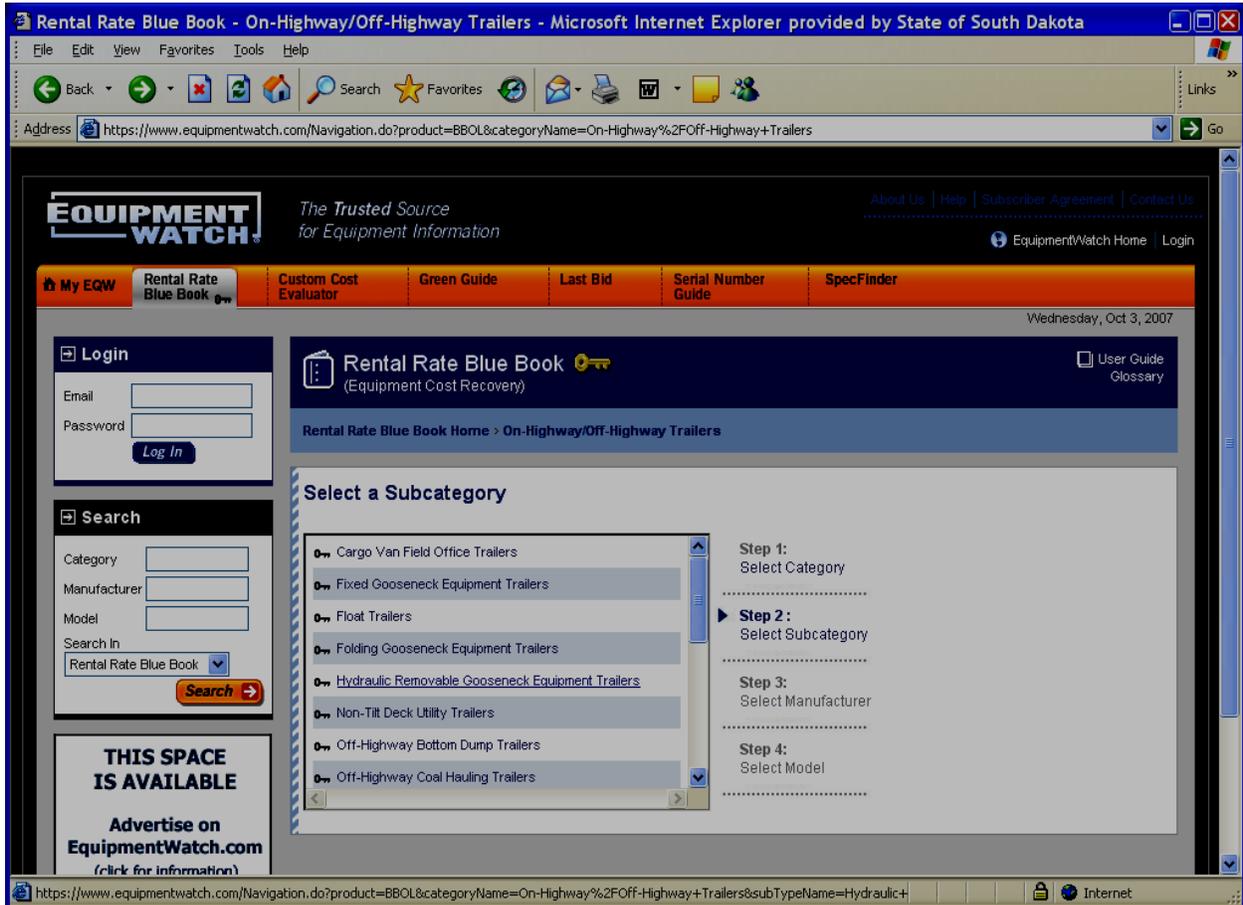


Figure 60. Select a Subcategory

SDDOT CONSTRUCTION MANUAL
 PROJECT MANAGEMENT SECTION
 CHAPTER 7 – DOCUMENTING CONTRACT ITEM QUANTITIES AND PAYMENT AMOUNTS

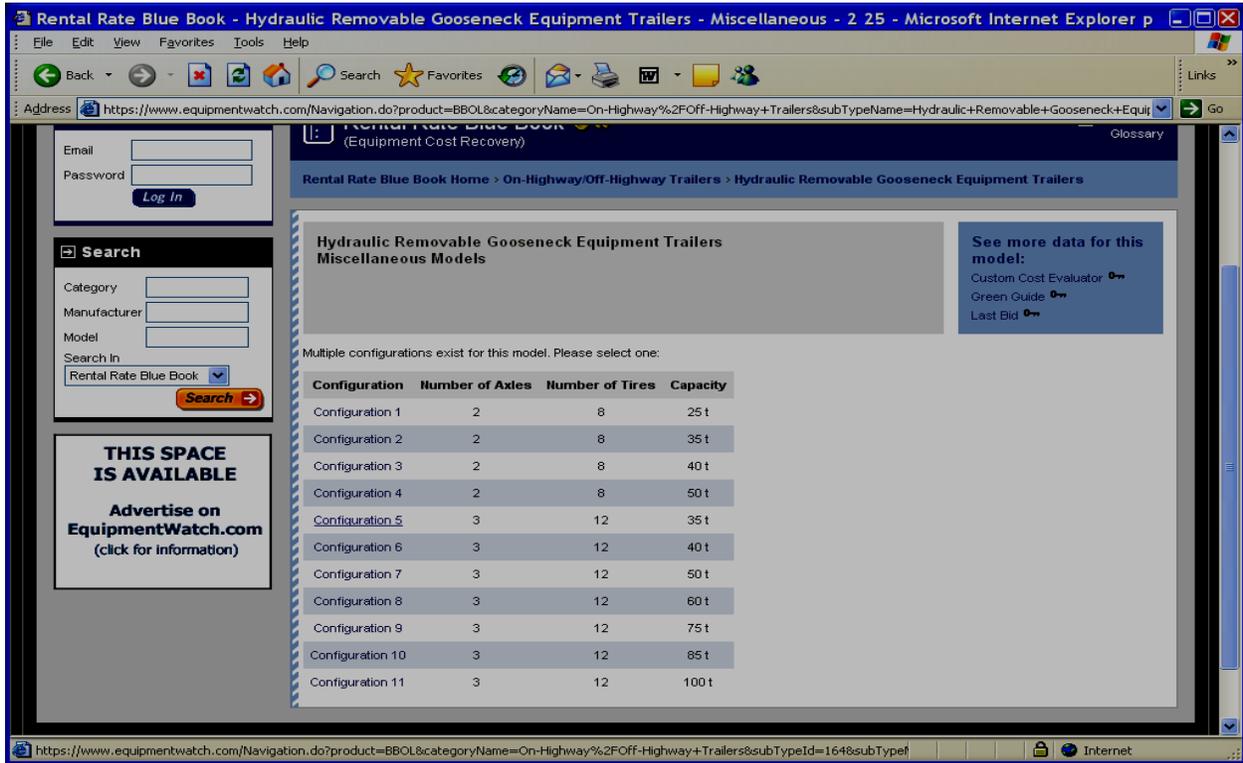


Figure 61. Select a Configuration

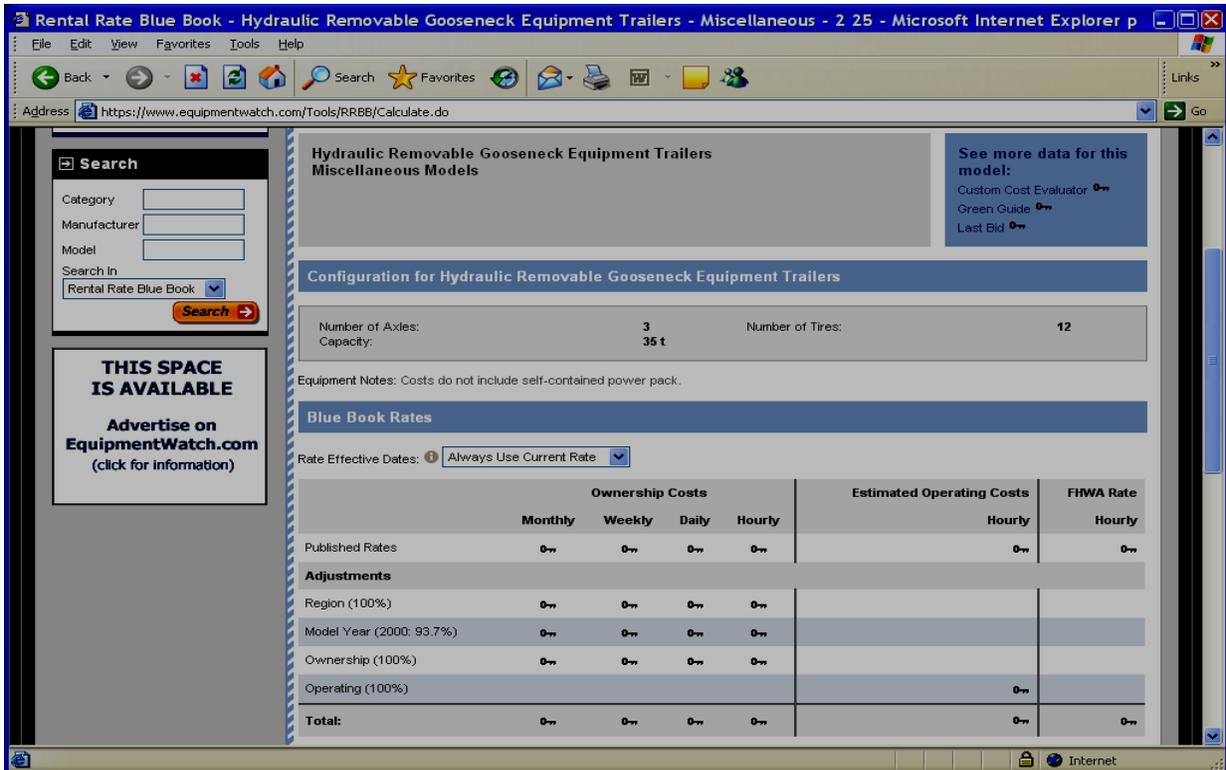


Figure 62. Final Configuration

This page would also be the final result for model-specific searches. The Project Engineer can print this page and send it to the Finals Engineer with the request for equipment rental rates. The following is an example of the printout.

Rental Rate Blue Book - Hydraulic Removable Gooseneck Equipment Trailers - Miscellaneous - 2 25 Page 1 of 2



Wednesday, Oct 3, 2007

Hydraulic Removable Gooseneck Equipment Trailers
Miscellaneous Models

Configuration for Hydraulic Removable Gooseneck Equipment Trailers

Number of Axles: **3** Number of Tires: **12**
Capacity: **35 t**

Equipment Notes: Costs do not include self-contained power pack.

Blue Book Rates

Rate Effective Dates: Always Use Current Rate

	Ownership Costs				Estimated Operating Costs	FHWA Rate
	Monthly	Weekly	Daily	Hourly		
Published Rates	0.00	0.00	0.00	0.00	0.00	0.00
Adjustments						
Region (100%)	0.00	0.00	0.00	0.00		
Model Year (2000: 93.7%)	0.00	0.00	0.00	0.00		
Ownership (100%)	0.00	0.00	0.00	0.00		
Operating (100%)					0.00	
Total:	0.00	0.00	0.00	0.00	0.00	0.00

For details, see Rate Element Allocation

To see the actual values, you must subscribe to this product. [Subscribe](#) [View Demo](#)

Adjustments

Model Year: ← *select from drop down*

Region:
Canadian Regions Alaskan Regions

User Defined

Ownership: %

Operating: %

[Adjust Rates](#)

Rate Element Allocation

Element	Percentage	Value

https://www.equipmentwatch.com/Tools/RRBB/Calculate.do 10/03/2007

Figure 63. Printout with equipment configuration

The Finals Engineer will provide a memo to the Project Engineer listing the force account rates for each piece of equipment.

ROYALTY PAYMENTS

REQUESTING PAYMENTS TO LANDOWNERS

If the contract proposal includes an *Agreement to Sell Materials* (DOT 44B), the DOT will pay the landowner for borrow removed from the property, loss of use, re-vegetation and crop damage at the rates stipulated in the agreement. The Project Engineer initiates payment to a landowner by sending an E-mail to the Finals Engineer, copied to the Engineering Supervisor, requesting that a payment be made. The following completed form should be attached.

REQUEST TO FINALS ENGINEER FOR ROYALTY PAYMENT				
I am requesting that the following payment be made now in accordance with an Agreement to Sell Materials:				
Main Project and PC Number	<input style="width: 100%;" type="text"/>			
Pit # <input style="width: 20px;" type="text"/>	PLSS Description <input style="width: 100%;" type="text"/>			
Owner	<input style="width: 100%;" type="text"/>			
Address	<input style="width: 100%;" type="text"/>			
Cumulative figures for this agreement only:				
Borrow	<input style="width: 40px;" type="text"/> cy @	<input style="width: 40px;" type="text"/> \$0.00	\$ -
Borrow	<input style="width: 40px;" type="text"/> cy @	<input style="width: 40px;" type="text"/> \$0.00	\$ -
Borrow	<input style="width: 40px;" type="text"/> cy @	<input style="width: 40px;" type="text"/> \$0.00	\$ -
Loss of Use	<input style="width: 40px;" type="text"/> acres @	<input style="width: 40px;" type="text"/> \$0 *	\$ -
Re-vegetation	<input style="width: 40px;" type="text"/> acres @	<input style="width: 40px;" type="text"/> \$0	\$ -
Crop Damage	<input style="width: 40px;" type="text"/> acres @	<input style="width: 40px;" type="text"/> \$0	\$ -
Cumulative total for this agreement.....			\$ -	
Less previous payments.....			\$ -	
Requested payment amount.....			\$ -	
* <input style="width: 20px;" type="text"/> years @ <input style="width: 40px;" type="text"/> \$0 per acre per year				
This is a: Final <input style="width: 20px;" type="text"/> Interim <input style="width: 20px;" type="text"/> payment for this agreement.				
This is a: Final <input style="width: 20px;" type="text"/> Interim <input style="width: 20px;" type="text"/> payment for this project.				
Project Engineer requesting payment	<input style="width: 100%;" type="text"/>			
Date	<input style="width: 100%;" type="text"/>			
Comments				
<input style="width: 100%; height: 40px;" type="text"/>				
Calculated total cubic yards from lines 12, 13 and 14: 0				
M:\DOT\Common\All DOT Forms\DOT Forms 201-300\Spread Sheets\Royalty_request.xls				

Figure 64. Request for royalty payment

When requesting a progress payment, the Project Engineer must take care that cumulative progress payments do not exceed the anticipated final cumulative payment for each landowner.

MATERIAL REPORTS

The Finals Engineer will verify that the payment amounts are calculated in accordance with the applicable *Agreement to Sell Materials*, and prepare a voucher for the current payment amount and a *Material Report to Accounting Section*. An example of a Material Report follows. Payment information for the project as a whole is tracked in the top portion of the Material Report. The **State Cost** is the cumulative amount that is the DOT's portion of the payments. The **Contractor** amount is the cumulative amount to be withheld from the contractor. Payment information for the specific borrow pit is tracked in the lower portion of the Material Report.

MATERIAL REPORT TO ACCOUNTING SECTION			
DATE: March 13, 2007			
This is a final record of payment made in accordance with an Agreement to Sell Materials (DOT-44B).			
PROJECT & PCN	<u>NH 0083(21)228 5893</u>	COUNTY	<u>Campbell</u>
TYPE OF WORK	<u>Grading, Structures & Interim Surfacing</u>	CONTRACTOR	<u>Foothills Contracting, Inc.</u>
TOTAL THIS REPORT	\$ 27,467.20	STATE COST	\$ 18,430.00 *
PLUS PREV. REPORTS	\$ 45,463.00	CONTRACTOR	\$ 54,500.20 *
CUMULATIVE TOTAL	\$ 72,930.20 *	TOTAL	\$ 72,930.20 *
*Cumulative total payments, all landowners			
Previous report: March 13, 2007			

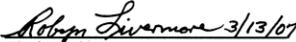
Pit #	4 E 1/2 NE 1/4 Sec. 7 T128N R76W	<u>Campbell</u> County	
Owner:	John Doe		
	111 SD Highway 1		
	Herreid, SD 57632		
Agreement approval date:	June 24, 2005		
Borrow	10,000 cy @ \$0.25		\$ 2,500.00
Borrow	89,836 cy @ \$0.20		\$ 17,967.20
Loss of Use	20.0 acres@ \$200.00 **		\$ 4,000.00
Crop Damage	20.0 acres@ \$150.00		\$ 3,000.00
	Final total for this agreement		\$ 27,467.20
	Less previous payments		\$ -
	Final payment amount		\$ 27,467.20
**2 years @\$100.00/acre/year			
			3/13/07
		Finals Engineer	Date
cc:	John Forman, Pierre Region Engineer		
	John Villbrandt, Mobridge Area Engineer		
	Tim Brown, Accounting Assistant - (4 copies w/3 vouchers)	Rpt. #4	

Figure 65. Material Report to Accounting Section

PAYMENT PROCESS

The Finals Engineer will deliver the Material Report and voucher to the DOT Finance Office. Personnel in the DOT Finance Office process the payment and send the paperwork to the State Auditor’s Office for approval. A check is generated by the Auditor’s Office and mailed to the landowner by the DOT Finance Office, along with a copy of the Material Report and voucher.

Please note that the DOT Finance Office cannot process the payment unless the landowner is listed as a vendor in the MSA accounting system. If the landowner is not on the vendor list, DOT Finance personnel will mail him or her a blank W-9 form and place the payment on hold until the form is completed and returned.

Payment status can be tracked by anyone with access to the MSA system. Each DOT Area Office has at least one staff member with access to the system.

WITHHOLDING ROYALTIES FROM PAY ESTIMATES

Payments made for loss of use, re-vegetation and crop damage are borne by the DOT. Payments for borrow material are withheld from the contractor using the *Pay Estimate Maintenance* Panel of the *Pay Estimate* Window.

Pay Estimate Maintenance

Pay Estimate # Final? Period Ending Authorized Pay Amount
 Amount Due This Estimate

Liq Damage Days Prepared? Prepared By
 Liq Damage Per Day Amount On

Liq Damages this Estimate Approved? Approved By
 Liq Damages to Date On

Royalty This Period Approval Logged By
 Royalty To Date

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Paid To Date Qty	Qty This Estimate
003 P	Mobilization	LS	1.000	226,600.000	226,600.000	

Figure 66. Royalty withheld on *Pay Estimate Maintenance* panel of the *Pay Estimate* window

The Project Engineer enters the amount to be withheld on the pay estimate into the **Royalty This Period** field. In the example above, royalties in the amount \$25,512.50 were withheld on Pay Estimate #20, and a total \$101,985.75 had been withheld up to and including that pay estimate. Royalties should be withheld over the course of the project.

When finaling the project, please note that the **Royalty To Date** amount on the *Pay Estimate Maintenance* panel for the final pay estimate must be equal to the **Contractor** amount on the final *Material Report* for the project.

LIQUIDATED DAMAGES

FAILURE TO COMPLETE ON TIME

Liquidated damages must be withheld in accordance with Standard Specifications Sections 8.6 and 8.7, applicable special provisions for contract time and plan notes. Liquidated damages are withheld from a pay estimate using the *Pay Estimate Maintenance* panel of the *Pay Estimate* window in the CM&P System, as shown below:

The screenshot shows the 'Pay Estimate Maintenance' window with the following data:

Pay Estimate #	14	Final?	<input type="checkbox"/>	Period Ending	08/19/2006	Authorized Pay Amount	176,029.74
						Amount Due This Estimate	148,479.74
Liq Damage Days	19.000	Prepared?	<input checked="" type="checkbox"/>	Prepared By	Gerlach, John		
Liq Damage Per Day Amount	1,450.00			On	8/21/2006		
Liq Damages this Estimate	27,550.00	Approved?	<input checked="" type="checkbox"/>	Approved By	Engel, Gary		
Liq Damages to Date	27,550.00			On	8/22/2006		
Royalty This Period	.00	Approval Logged By			Engel, Gary		
Royalty To Date	6,893.25						

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Paid To Date Qty	Qty This Estimate
002 P	Mobilization	LS	1.000	70,000.000	70,000.000	

Buttons: Print Estimate, Close, Help

Figure 67. Liquidated damages for failure to complete on time withheld on the *Pay Estimate Maintenance* panel of the *Pay Estimate* window

The number of days of liquidated damages to be withheld from a pay estimate is entered by the Project Engineer into the **Liq Damage Days** field. The system will calculate the **Liq Damages this Estimate** by multiplying **Liq Damage Days** by the **Liq Damage Per Day Amount**. In the example above, 19 days of liquidated damages were withheld on Pay Estimate #14.

The **Liq Damage Per Day Amount** field will default to the per day amount established in the Standard Specifications, but it can be adjusted on a pay estimate-by-pay estimate basis for those projects where multiple per day amounts have been established by plan note or special provision. The CM&P System tracks the number of days of liquidated damages, and it is important that the count be accurate. Only the actual number of days and exact established per day amounts shall be used. The number of liquidated damage days and per day amount shall not be averaged or weighted. Because only one per day amount can be used on any given estimate, it will be necessary to create multiple pay estimates to withhold liquidated damages at different per day amounts during the same time period.

The final total number of days of liquidated damages withheld on the contract must be supported

by the day count in the Bi-weekly Progress Reports and extensions of contract time by Change Order. See the DOT *Uniform Count of Contract Time* policy for detailed guidance on counting and tracking project time.

If a *Special Provision for Contract Time* provides for incentive/distinctive for contract time, the distinctive is addressed using SBI number 009E1000, and is not withheld as a liquidated damage.

FAILURE TO COMPLY WITH ON-THE-JOB TRAINING (OJT) REQUIREMENTS

See Chapter 6 for details regarding the On-the-job training (OJT) program requirements and the basis for withholding liquidated damages. Liquidated damages for failure to comply with OJT program requirements are withheld as a price adjustment to the Training Program contract item. An example follows.

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
030 P	Training Program	Hour	5.580	0.000	.000	0.000	0.000

Adjust Using: Lump Sum Amount: -3,510.00
 Percent Percent: .000% Quantity: .00

Type: Actual Approval Date: 04/11/2005
 Project: NH 0212(63)178 Approved By: Stroeder, Eric
 Reason: Did not fulfill OJT requirement

Choose a Reason:
 Incentive / Disincentive
 Specification Deviation (DOT-18)
 Piling Underrun/Overrun

Choose a Specification Deviation if available:

Detailed Explanation to Appear as the "Reason for Adjustment" on the Applicable Change Order
 The contractor did not fulfill OJT requirement. See June Hansens letter dated 2/14/2005

Buttons: Print, History, Close

Figure 68. Liquidated damages for failure to comply with OJT requirements withheld as a price adjustment to the Training Program item

FAILURE TO PROPERLY UTILIZE DISADVANTAGED BUSINESS ENTERPRISES (DBE)

See Chapter 5 for details regarding DBE program requirements and the basis for withholding liquidated damages. Liquidated damages for failure to properly utilize disadvantaged business enterprises are withheld as a price adjustment to the Mobilization contract item. An example follows.

The screenshot shows a software window titled "Price Adjustment Maintenance". At the top, there is a table with the following data:

Line #	Item Description	Unit	Unit Price	Current Contract Qty	Authorized Qty	Requested Pay Qty	Paid Qty
002 P	Mobilization	LS	1.000	21,000.000	.000	21,000.000	21,000.000

Below the table, the "Adjust Using" section is set to "Lump Sum" with an "Amount" of -2,000.00. The "Type" is "Estimate", "Project" is "BRF 6414(04)", and "Reason" is "Withholding for failing to meet DBE requirement". A list of reasons includes "Incentive / Disincentive", "Specification Deviation (DOT-18)", and "Piling Underrun/Overrun". A detailed explanation states: "Contractor failed to meet the 2,21% DBE commitment to Anderson Fence for this contract." Buttons for "Print", "History", and "Close" are at the bottom.

Figure 69. Liquidated damages for failure to comply with DBE requirements withheld as a price adjustment to the Mobilization item

APPLICABLE DOT PUBLICATIONS

Guidance for measuring and documenting project work is also provided in these SDDOT publications:

- *Concrete Paving Manual* at the following address:
<http://www.sddot.com/docs/manuals/Concrete%20paving.pdf>
- *Earthwork Manual* at the following address:
<http://www.sddot.com/docs/manuals/EarthworkManual.pdf>
- *Pipe Installation Manual* beginning at page 91 of the pdf file at the following address:
<http://www.sddot.com/docs/manuals/EarthworkManual.pdf>
- *Erosion Control Manual* beginning at page 157 of the pdf file at the following address:
<http://www.sddot.com/docs/manuals/EarthworkManual.pdf>
- *Materials Manual* at the following address:
http://www.sddot.com/pe/materials/materials_manual.asp
- *Structures Construction Manual* at the following address:
<http://www.sddot.com/docs/manuals/StructuresManual2007.pdf>
- Survey Manual at the following address:
http://www.sddot.com/pe/roaddesign/survey_manual.asp
- Construction Measurement & Payment System User Guide
- Material Sampling & Testing System User Guide
- DOT forms located at M:\DOT\Common\All DOT Forms.
- DOT policies located at <http://intranet.state.sd.us/dot/policy>.