# Workflow IR 11 - Calculating Quantities With InRoads and Quantity Manager

This document guides you through the use of InRoads and Quantity Manager to calculate and extract quantities from InRoads data. The processes included in this document cover:

- Editing the Pay Item database to calculate quantities for materials that use the same pay item code but use different variables or formulas to compute the quantity
- Importing MicroStation graphic elements into a surface (DTM) so that they can be quantified
- Using the Shapes Tool to create surface features from closed areas
- Using the Compute Quantities tool to calculate quantities and store the output to a database
- Working with Quantity Manager to input quantities that were not calculated and create various reports on the quantity data

# **CDOT Customizing the Pay Items Database**

When figuring quantities, it is possible that two or more features will use the same pay item code but require different values for some formula variables. For example, the same paving material may be used for both the roadway and driveways but the thickness of that material can vary. Pay Item Manager will be used to copy a pay item and edit that copy for use with different variables or formulas.

# Copying The CDOT Pay-Items.mdb:

Because the changes made to the pay items database will be unique to the project, a copy of the CDOT Pay-Items.mdb should be placed in the project directory.

## Making The Copy

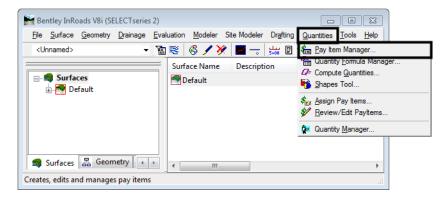
1. Open an Explore window to the C:\Program Files\Workspace-CDOT\Standards-Global\InRoads directory and Copy the entire CDOT Pay Items folder.

- InRoads \_ D × File Edit View Favorites Tools Help G Back 🔹 🕥 1 🔎 Search 🛛 🍋 Folders 🛛 🛄 🔻 Addr C:\Program Files\Workspace-CDOT\Standards-Global\InRoad 🕶 🛃 Go Size Type Date Modified Fold CDOT P File Folder 9/6/2006 9:39 AM 🖃 🧰 Standards-Global 🖲 🧰 CFG Files File Folder 7/5/2006 4:18 PM Notes Open File Folder 7/5/2006 4:18 PM 😑 🚞 InRoads Search.. File Folder 7/10/2006 2:23 PM CDOT Pay Items Design Checks C Supere Sharing and Security. File Folder 7/5/2006 4:18 PM Templa File Folder 7/5/2006 4:18 PM Scan for Viruses. 7/5/2006 4:18 PM XML Sty File Folder Preferences Guperelevation Tables
   Templates Send To 🗉 🚞 MicroStation 😂 InRoads \_ 🗆 🛛 File Edit View Favorites Tools Help 🔇 Back 🔹 🕥 - 🎓 🔎 Search 📂 Folders ..... C:\Projects\13606\Design\InRoads Addre 👻 🛃 Go Folders Size Type Date Modified Name BTP Phase II Design Log.doo 21 KB Microsoft Word Doc... 8/23/2006 4:08 PM 표 🚞 i386 ~ 🗈 🫅 plotwork Decision Table Guardrail.txt 2 KB Text Document 8/23/2006 4:10 PM Decision Table.txt 2 KB Text Document 8/23/2006 4:10 PM 🗄 🚞 Program Files Design Schedule Jan 06.mpp 276 KB MPP File 8/23/2006 4:10 PM Projects 🗉 🧰 11111 🖃 🚞 13606 🗄 🧰 Bridge Construction
   Consultants View 🗉 🦳 Design Arrange Icons By Calculations Refresh Correspondence Customize This Folder 🗄 🧰 Drawings DinRoads Paste C Reports Undo Delete Ctrl+Z ⊕ Working
   ⊕ Hydraulics
   New Environmental Properties Materials Gentechnical Miscellaneous
- 2. Change the directory to C:\Projects\JPC#\Design\InRoads and Paste.

## **Copying A Pay Item**

Now that a copy of the master database has been made, customizing the copy for the particular project can be accomplished.

- 1. Start InRoads (and MicroStation), opening the; C:\Projects\JPC#\Design\Working\XXXJPC#Quantity-Model##.dgn file.
- From the InRoads menu, select Quantities > Pay Item Manager. This displays the Pay Item Manager dialog box.



3. From the *Pay Item Manager* dialog box, select **File > Open**.

- 4. In the Open dialog box, Set the directory path to: C:\Projects\JPC#\Design\InRoads\CDOT Pay Items\.
- 5. Select CDOT Pay-Items.mdb and Open.

🗖 Pay Item Manager					
File Edit Help					
Open Close Exit	Name	Description	Unit Name	Formula	
	🛣 Open	CDOT Pay Items	_ ← € (	? 🔀	
		-Items.mdb			
	File name:	CDOT_Pay-Items.mdb		<u>O</u> pen	
	- Files of type:	Access Files (".mdb)		Cancel	
				Help	

## Locate The Pay Item To Be Copied

- 1. Select Edit > Find from the Pay Item Manager dialog box. This displays the Find dialog box.
- 2. In the **Find What** field of the *Find* dialog box, **key in** the desired *Pay Item Code*. And select **Find Next**. The desired pay item will be displayed, highlighted in the right pane of the *Pay Item Manager* dialog box.

Pay Item Manager			
File Edit Help Find ts\13606\Design\InRoad	Name 1401 Plant Mix Pavement	Description	Unit Name Formula
	403 Hot Mix Asphalt 405 Heating and Scarify 406 Cold Bituminous Pa		
	407 Prime Coat, Tack C     408 Joint and Crack Se     409 Seal Coat		
900 Added Item	410     411 Bituminous Material     412 Portland Cement Co		
	420 Geosynthetics		
	Find what: 403-326	21	Find Next
	<	<ul> <li>Name</li> <li>Code</li> </ul>	Help
		C Description	

3. Select **Close** from the *Find* dialog box.

## Making The Copy

1. In the right pane of the *Pay Item Manager* window, *<***R***>* on the desired Pay Item Name. **Note:** be sure that the cursor is in the *Name* column. Select **Copy** from the menu that is displayed.

e Edit Help					
= 📋 C:\Projects\13606\Design\InR 💉	Name		Description	Unit Name	Form ^
- 📋 000 Design and Constructic	100 400 00C01		Hot Bituminous Pavement (Grading G) (50)	TON	TON
🗈 🧰 200 Earthwork	\$ 403-32621	er la	"of Bituminous Pavement (Grading G) (50) (PG 58-28.	TON	TON
🗄 🚊 300 Bases 🛛 📕	403-32631	Edit	Bituminous Pavement (Grading G) (50) (PG 58-34.	. TON	TON
😑 🧰 400 Pavements	<b>3</b> 403-32641	Сору	Bituminous Pavement (Grading G) (50) (PG 64-22.	TON	TON
401 Plant Mix Pavemer	8 403-32651		Bituminous Pavement (Grading G) (50) (PG 64-28.	TON	TON
403 Hot Mix Asphalt	<b>8</b> 403-32671	Delete	at Bituminous Pavement (Grading G) (50) (PG 76-28.		TON U
- in the string and Scarify	<b>8</b> 403-32701		Hot Bituminous Pavement (Grading G) (75)	TON	TON
	S 403-32721		Hot Bituminous Pavement (Grading G) (75) (PG 58-28.	TON	TON
407 Prime Coat, Tack C	<b>3</b> 403-32731		Hot Bituminous Pavement (Grading G) (75) (PG 58-34.		TON
400 Joint and Clack Se	<b>S</b> 403-32741		Hot Bituminous Pavement (Grading G) (75) (PG 64-22.		TON
	<b>3</b> 403-32751		Hot Bituminous Pavement (Grading G) (75) (PG 64-28.		TON
🛁 411 Bituminous Materia	<b>S</b> 403-32771		Hot Bituminous Pavement (Grading G) (75) (PG 76-28.		TON
412 Portland Cement Cu	<b>3</b> 403-32801		Hot Bituminous Pavement (Grading G) (100)	TON	TON
420 Geosynthetics	<b>S</b> 1403-32821		Hot Bituminous Pavement (Grading G) (100) (PG 58-2.	TON	TON
🛨 🧰 500 Structures	<b>3</b> 403-32831		Hot Bituminous Pavement (Grading G) (100) (PG 58-3.		TON
🕂 🫅 600 Miscellaneous Construc	<b>S</b> 403-32841		Hot Bituminous Pavement (Grading G) (100) (PG 64-2.		
	< 100 020 III		nor skalling al (nos) (na o nz.		>

2. Move the cursor to the *Description* column, <**R**> and select **Paste**. A copy of the pay item with (2) appended to the name is placed under the original.

## Editing The Pay Item:

1. In the right pane of the *Pay Item Manager* window, *<D>* on the copied Pay Item Name.

*Note:* be sure that the cursor is in the Name column. This will highlight the copied Pay Item.

2. **<R>** on the Pay Item Name and select **Edit**. This displays the *Edit Pay Item* dialog box.

e Edit Help					
C:\Projects\13606\Design\InR 🔺	Name	Description		Unit Name	Form
000 Design and Constructic	403-32601	Hot Bituminous Pavemer	nt (Grading G) (50)	TON	TON
🗄 🧰 200 Earthwork	403-32621	Hot Bituminous Pavemer	nt (Grading G) (50) (PG 58-28	TON	TON
⊞	S 403-32 Edit	Hot Bituminous Pavemer	nt (Grading G) (50) (PG 58-28	TON	TON
	<b>5</b> 403-32	Hot Bituminous Pavemen	nt (Grading G) (50) (PG 58-34	TON	TON
102 Hat Min Apphalt	3 403-32 Copy	Hot Bituminous Pavemer	nt (Grading G) (50) (PG 64-22.	. TON	TON
A05 Heating and Scarify	6 403-321 Delete		nt (Grading G) (50) (PG 64-28		TON
ADE Cold Bituminous Pa	<b>35</b> 403-32L	Hot Bituminous Pavemer	nt (Grading G) (50) (PG 76-28.	TON	TON
407 Prime Coat, Tack C	🔊 4 🔊 4 🛣 Edit Pay Iten	1			
409 Seal Coat		403-32621 (2)		Apply	N
6 410 6 411 Bituminous Materia	S 4 Pay Item Code:	403-32621			
- 12 Portland Cement C	4 Description:	Hot Bituminous Paven	nent (Grading G) (50		N
- 📋 420 Geosynthetics	5 4 Unit Name:	TON		Help	N
500 Structures	<b>S</b> 4	1			N
	3 4 Quantity Calculat	on	Deduct from Pay Item Pay Items:		NN
	Formula: TON	<b>•</b>			1 2
	Variables:		Pay Item De	duction 📗 🏪	
	Name	Value		*	
	Thickness	1.00			
	WeightCFT	150.00			
			-		
	Value: 0.00		Value: 0.00		
	Measurement				
	Mode: 📀 Pla	anarized	Apply Quantity Factor:	0.00	
	C Sk	ре	F Apply Rounding Factor:	0.00	1
			Round Up C F	Round Down	

3. **<D>** just to the left of the '(2)' in the *Pay Item Name* field. Key in a brief, descriptive addition to the name. **Delete** the '(2)'.

4. For Example, if pay item 403-32621 is to be laid down 6" thick, the name could read, 403-32621 – 6 Thick.

🛣 Edit Pay Ite	n	
Pay Item Name:	< 403-32621 - 6" Thick	oply
Pay Item Code:	403-32621	ose
Description:		elp
Unit Name:	TON	

- 5. Do not change the **Pay Item Code**, **Description**, or **Unit Name**. Doing so will result in errors in the pay quantity calculations.
- 6. A different formula may be selected from the **Formula** pull-down in the **Quantity Calculation** area.
- 7. For example, there are two formulas for computing tons; 'Ton' and 'Ton L'. 'Ton' uses the area of a feature and the variables Thickness and WeightCFT. 'Ton L' uses the length of the feature and the variables Width, Thickness, and WeightCFT.

🛣 Edit Pay Item	$\sim$
Pay Item Name: < 403-32621 6" Thick	
Pay Item Code: 403-32621	
Description: Hot Bituminous Paver	nent (Grading G) (50 Help
Unit Name: TON	
Quantit <u>u Calculation</u> Formula TON Variables: Name Value Thickness 1.00 WeightCFT 150.00	Deduct from Pay Item Pay Items: Pay Item Deduction 6
Value: 1.00	Value: 0.00
Measurement	
Mode: 💽 Planarized	Apply Quantity Factor: 0.00
C Slope	Apply Rounding Factor: 0.00
	Round Up C Round Down

## **Editing Formula Variables**

1. **<D>** on the desired variable from the *Variables* list in the *Quantity Calculation* area.

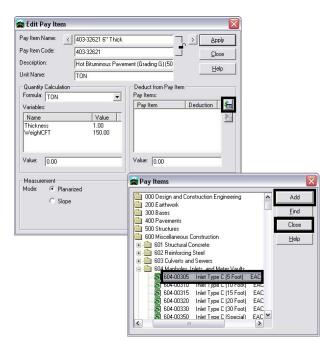
2. *Highlight* the data in the *Value* field directly below the *Variables* list and *key in* the desired value. Press the Tab key to accept the value.

Quantity Calculation	Deduct from Pay Item Pay Items:
Variables:	Pay Item Deduction 👘
Name Velue	
Thickness 0.50	
Weightern 130.00	
Value: 0.50	Value: 0.00

## Deduction From Pay Items

This option is used when two features occupy the same location (are coincident) and one of those features can reduce the quantity of the other. For example, suppose a curb feature is stored as a continuous Breakline and inlet features are stored as random points on the curb Breakline. For each occurrence of an inlet on the curb, the quantity of the curb can be reduced by a defined value.

- 1. To add a pay item for deduction **<D>** on the **Pay Item Browser** button. This displays the **Pay Item** browser dialog box.
- 2. **<D>** on the desired pay item and select **Add**. The **Pay Item** is add to the **Deduct From Pay Items** list. **<D>** on the **Close** button to dismiss the **Pay Item** browser dialog box.



3. **<D>** on the desired pay item from the list in the **Deduct From Pay Items** area.

4. **Highlight** the data in the *Value* field directly below the *Pay Items* list and *key in* the desired value. Press the **Tab** key to accept the value.

Quantity Calculation Formula: TON	Deduct from Pay Item Pay Items:
Variables:	Pav Item Deduction 604-00305 5.00
Thickness 1.00 WeightCFT 150.00	
Value: 0.00	Value: 5.00

## The Measurement Area

The options in this area are used to determine how areas and lines are measured. It is also used to specify quantity factors and rounding.

- 1. There are two mode of measurement; Planarized and Slope. Planarized projects the shape to a flat (2D) plane for measurement. Slope measures the actual (3D) shape.
- 2. **<D>** on the desired radio button to select the measurement **Mode**.

🛣 Edit Pay Item	
Pay Item Name: < 403-32621 6" Thick	> Apply
Pay Item Code: 403-32621	
Description: Hot Bituminous Paver	nent (Grading G) (50
Unit Name: TON	
Quantity Calculation       Formula:     TON       Variables:	Deduct from Pay Item       Pay Items:       Pay Item       604-00305       5.00
Measurement Mode:	Apply Quantity Factor: 0.00     Apply Rounding Factor: 0.00     Round Up C Round Down

- 3. A *Quantity Factor* is a multiplier applied to the calculated quantity.
- 4. If a *Quantity Factor* is to be used, *<D>* the check box to the left of **Apply Quantity Factor**.

5. **Highlight** the data in the field to the right of **Apply Quantity Factor** and *key in* the desired value. Press the **Tab** key to exit the field.



- 6. A *Rounding Factor* is used to modify the computed value to the nearest specified increment. There is also the option to round up or down.
- 7. If a *Rounding Factor* is to be used, *<D>* the check box to the left of **Apply Rounding Factor**.
- 8. **Highlight** the data in the field to the right of **Apply Rounding Factor** and *key in* the desired value. Press the **Tab** key to exit the field.
- 9. Select the desired rounding option from the two radio buttons below Apply Rounding Factor.

– Measure	ement	
Mode:	Planarized	Apply Quantity Factor: 0.00
	C Slope	Apply Rounding Factor: 1.00
		Round Up     C     Round Down

- 10. **<D>** the **Apply** button to accept all of the changes made to the pay item.
- 11. **<D>** the **Close** button to dismiss the **Edit Pay Item** dialog box.

🛣 Edit Pay Item	
Pay Item Name: < 403-32621 6" Thick	
Pay Item Code: 403-32621	
Description: Hot Bituminous Paver	nent (Grading G) (50 Help
Unit Name: TON	
Quantity Calculation       Formula:     TON       Variables:       Name     Value       Thickness     1.00       Weight/FT     150.00       Value:     0.00	Deduct from Pay Item       Pay Items:       Pay Item       604-00305       5.00       Value:       5.00
Measurement Mode: • Planarized C Slope	Apply Quantity Factor: 0.00     Apply Rounding Factor: 1.00     Round Up    Round Down

12. This completes the edit.

🖃 🧰 C:\Projects\13606\Design\InR 🔺	Name	Description	Unit Name	Form 🖍
- 📋 000 Design and Constructic	<b>3</b> 403-32601	Hot Bituminous Pavement (Grading G) (50)	TON	TON
🗄 🧰 200 Earthwork	<b>3</b> 403-32621	Hot Bituminous Pavement (Grading G) (50) (PG 58-28	TON	TON
🕀 🧰 300 Bases	8 403-32621 6" Thick	Hot Bituminous Pavement (Grading G) (50) (PG 58-28	TON	TON
E (1) 400 Pavements	<b>3</b> 403-32631	Hot Bituminous Pavement (Grading G) (50) (PG 58-34	TON	TON
- 102 Hant Mix Pavemer	8 403-32641	Hot Bituminous Pavement (Grading G) (50) (PG 64-22	TON	TON
403 Hot Mix Asphalt	<b>3</b> 403-32651	Hot Bituminous Pavement (Grading G) (50) (PG 64-28	TON	TON
405 Heating and Scall	403-32671	Hot Bituminous Pavement (Grading G) (50) (PG 76-28	TON	TON
400 Cold Bitanii Ibasi i e	403-32701	Hot Bituminous Pavement (Grading G) (75)	TON	TON
409 I fine Coat, Fack C	<b>3</b> 403-32721	Hot Bituminous Pavement (Grading G) (75) (PG 58-28	TON	TON
409 Seal Coat	8 403-32731	Hot Bituminous Pavement (Grading G) (75) (PG 58-34	TON	TON
410	8 403-32741	Hot Bituminous Pavement (Grading G) (75) (PG 64-22	TON	TON
🛁 411 Bituminous Materia	8 403-32751	Hot Bituminous Pavement (Grading G) (75) (PG 64-28	TON	TON
412 Portland Cement C	8 403-32771	Hot Bituminous Pavement (Grading G) (75) (PG 76-28	TON	TON
420 Geosynthetics	8 403-32801	Hot Bituminous Pavement (Grading G) (100)	TON	TON
😟 🚞 500 Structures	403-32821	Hot Bituminous Pavement (Grading G) (100) (PG 58-2	TON	TON
😟 🔃 600 Miscellaneous Construc 🗸	403-32831	Hot Bituminous Pavement (Grading G) (100) (PG 58-3	TON	TON N
	<li></li>			>

# **Importing Graphics To surface**

This command takes the X, Y, and Z coordinate information from a MicroStation element and stores it in a DTM file. This command will be primarily used for creating pay quantity data. Because of the high level of data control required, the *Load From Fence* option is inappropriate and will not be described.

## **Creating Or Opening The Surface**

Data imported from graphics can be either loaded into a new or existing surface.

## **Creating A Surface**

1. In the InRoads menu, **<D>** on the bottom **Surfaces** tab. **<R>** on the word '**Surfaces**' at the top of the left pane then select **New** from the menu.

🚔 Bentley InRoads V8i	(SELECTseries 2)				×
<u>File S</u> urface <u>G</u> eome	try <u>D</u> rainage <u>E</u> va	luation <u>M</u> odeler Sit	e Modeler Dr <u>a</u> fting	<u>Q</u> uantities <u>T</u> ools	<u>H</u> elp
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😂 Surfaces 🔠 Ge	eometry 🛛 🔹 🕨	<			Þ
ile 'C:\Projects\InRoa	ads\SH 86.dtm' Op	ened			

- 2. Set the *Type* to **Ignore**.
- 3. In the Name field of the New window, key in the desired name.
- 4. In the **Description** field, *key in* the desired description.

5. **<D>** the **Apply** button then **<D>** Close.

Geometry	Site Modele	r	
Туре:	Ignore	+	Apply
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Description:	For Pay Quan	tity Features	
Maximum Length:	0.00		
Preference:	Default	-	
Name		Description	n
Default			
	und	Existing Gro	ound from m roadway

## **Opening An Existing Surface**

1. In the InRoads menu, **<D>** on the bottom **Surfaces** tab. **<R>** on the word '**Surfaces**' at the top of the left pane then select **Open** from the menu.

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<u>F</u> ile	<u>S</u> urface	<u>G</u> eometry	<u>D</u> rainage	<u>E</u> val	luation	<u>M</u> odele	r Sit	e Modeler	Dr <u>a</u> fting	<u>Q</u> uantities	<u>T</u> ools	<u>H</u> elp
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- 2. In the *Open* dialog box, use the Look In pull down menu to select the desired directory path.
- 3. **<D>** on the desired file name.

4. **<D>** on the **Open** button, then **<D>** on the **Cancel** button to dismiss the **Open** dialog box.

Open			? 🔀
Look jn: 🗀	InRoads		* 💷 •
COOT Pay	Items Quantity,dtm		
File <u>n</u> ame:	13606 Pay Quantity.dtm		<u>O</u> pen
Files of type:	Surfaces (*.dtm)	•	Cancel
		-	<u>H</u> elp

## Importing Graphic Data

1. In the InRoads menu, select File > Import > Surface. The Import Surface dialog box will be displayed.

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File	<u>S</u> urface	<u>G</u> eometry	<u>D</u> rainage	Evaluation	Modeler	Site Modeler	Dr <u>a</u> fting	<u>Q</u> uantities	<u>T</u> ools	Help
	New						Ctrl+N	5		
	Open						Ctrl+O	le Name		By WI
	<u>S</u> ave Save <u>A</u> s									cferre
_	Close							•		cferre
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	1 C:\Projec	cts\12345\E	)esign\InRa	ads\SH 86.d	tm					H

- 2. Using the **Surface** pull down menu, select the desired surface.
- 3. With the Load From pull down menu, select the desired method.

*Note:* If all of the elements on a particular level are to be imported, select Level.

- 4. If some elements on a level are to be imported and others are not, then select Single Element.
- 5. If **Load From** is set to **Level**, then with the **Level** pull down menu select the desired level. If **Load From** is set to **Single Element** this field is inactive.
- 6. In the **Seed Name** field, *key in* the desired name. This will be used to name the features imported from the graphic elements.

*Note:* this field may be populated if an existing surface is being used.

- 7. Use the **Feature Style** pull down menu to select the desired feature style.
- 8. Select the desired **Point Type** from the pull down menu. **Note:** when importing graphics for pay quantities, **Random** should be used for items paid for as each. **Breakline** is used for items whose quantity is figured from a linear measurement.
- 9. **<D>** the **Apply** button.

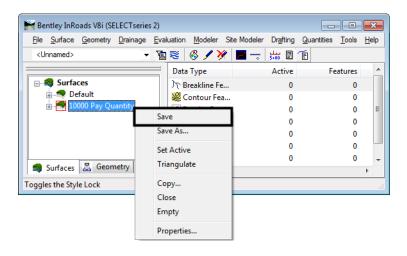
- a. If the Load From is set to Level, all elements on the selected level are imported.
- b. If Load From is set to Single Element, then *<*D*>* on the desired element. *<*D*>* a second time to Accept the selection.

Import Surface		_ 🗆 🔀
From Graphics ASC	II DEM IGRDS	
S <u>u</u> rface:	13606 Pay Quantity 📃 💌	Apply
Loa <u>d</u> From:	Level	
<u>L</u> evel:	TOPO_ROADWAY_Sing -	
Ele <u>v</u> ations:	Use Element Elevations 💌	Filter
Intercept Surface:	Default 🔽	
🔲 <u>T</u> hin Surface		<u>R</u> esults
Toler <u>a</u> nce:	5.00	Preferences
		Help
Point Densit	agment Length: 0.00 y Interval: 0.00 C Replace C Rename	
	Close	

10. After all Levels and Elements are imported, **<D>** the **Close** button.

## Saving The Surface

1. In the InRoads menu, **<R>** on the surface name in the left pane then select **Save** from the menu. If the file existed prior to importing data then the data is saved to that file and no further action is required.



- 2. If the file was new then the **Save As** dialog box will appear. Select the directory path using the **Save In** pull down menu.
- 3. In the **File Name** field, *key in* the desired name.
- 4. **<D>** on the **Save** button, then **<D>** on the **Cancel** button.

Save As			? 🗙
Save jn: 🗀	InRoads 🗾 🗲	🗈 💣	<b>.</b>
CDOT Pay 1 13606 Pay			
File <u>n</u> ame:	13606 Pay Quantity.dtm	ĮĽ	<u>S</u> ave
Save as <u>t</u> ype:	Surfaces (*.dtm)	<u> </u>	Cancel <u>H</u> elp
<u>A</u> ctive:	13606 Pay Quantity	-	Options

## **Using The Shapes Tool**

The Shapes Tool is used to create dtm features that define an area. The advantage of this tool is that it does not affect the graphic elements used to create the features. So, some of the same elements used to define an area feature can also be used to define linear features as well.

## **Creating A Working DGN file:**

Because the *Shapes Tool* may require additional graphic elements to be added to the model file, or existing elements to be modified, a copy of this file should be used.

## Creating A Copy of the DGN File

1. Start InRoads (and MicroStation). Set the directory path and highlight the desired file. Select OK.

<u>File Directory H</u> elp		
Files:	_ Directories:	
13606DesignModel01.dgn	\Design\Drawings\Reference_Files\	3D - V8 DGN
19606_DR 258 dgn 13606_DR 273 dgn 13606_DR 288 dgn 13606DR 288 dgn 13606DR 288 dgn 13606DesignModel01.dgn 13606E arthwork Quantiles.dgn 13606E arthwork Quantiles.dgn 13606EradingPlan1.dgn 13606EradingPlan3.dgn 13606EradingPlan3.dgn	C:\ C:\ C:N ISO6 C:Design C:Drawings C:Reference_Files D:BLM C:PDF	
List Files of <u>Type:</u> MicroStation DGN Files [*.dgn]		<u> </u>
<u>R</u> ead-Only     Show File Icons		Cancel
Workspace	Leer: [cferree] jeet: [11111] ace: [CD0T]	

2. Select **File > Save As** from the MicroStation Menu.

🔭 c	:\Proj	ects\136	06\Desig	gn\Dra•	wings\R	eference_F	iles\136	06Des	signModel01.d	gn, C
Eile	e <u>E</u> dit	Element	<u>S</u> ettings	<u>T</u> ools	<u>U</u> tilities	Wor <u>k</u> space	<u>Wi</u> ndow	<u>H</u> elp		
٦J	<u>N</u> ew								Ctrl+N	
∦≌	Open.								Ctrl+O	F
g -	<u>⊂</u> lose								Ctrl+W	
	<u>S</u> ave								Ctrl+S	
	Save <u>A</u>	<u> 4</u> s								
	Compr	ess								•
[	Sa <u>v</u> e S	Settings							Ctrl+F	
	<u>R</u> efere	ence								

- 3. In the Save As dialog box, set the directory to the Working directory.
- 4. Key in the new name for the copied file and select **OK**. The copied file is now open in MicroStation.

rectory		
les:	Directories:	
CDF13606QuantityModel01.dgn	C:\Projects\13606\Design\Working\	
DF13606QuantityModel01.dgn	C:\	
	🗁 13606	
	📂 Working	
	Uesign_Data	
	<u>K</u>	
	Cance	

## **Preparations For Using The Shapes Tool:**

## Creating A surface For Quantity Data

The design DTM will contain a large number of features that will not be used for quantity calculation. Using this surface could produce unwanted or erroneous quantity data. To avoid this problem a surface will be created to contain only pay quantity data.

1. In the InRoads menu, **<D>** on the bottom **Surfaces** tab. **<R>** on the word '**Surfaces**' at the top of the left pane then select **New** from the menu.



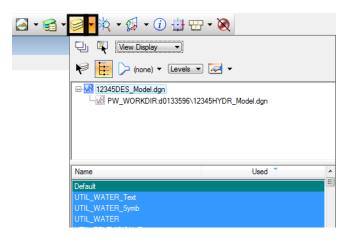
- 2. In the Name field of the New window, key in the desired name.
- 3. In the **Description** field, *key in* the desired description.
- 4. **<D>** the **Apply** button then **<D>** Close.

Surface Geometr Type:	Ignore	•	Apply	
Name:	10000 Pay Quar	itity Shapes	Help	
Description:	For Pay Quantity	/ Features		
Maximum Length:	0.00			
Preference:	Default 👻			
Name		Descriptio	n	
Name Default		Descriptio	n	
	lity		n antity Feat	
Default	tity			

## Setting The Level Display

- 1. The *Shapes Tool* works with all of the visible graphic elements. Therefore, it is necessary to turn off those levels that do not contain elements that will be used define the area feature.
- 2. Select the Level Display.

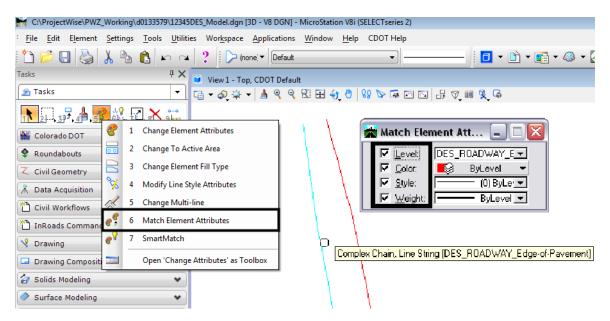
**Note:** if the down arrow next to the *Level Display* button is selected, the *Level Display* menu will be automatically dismissed when the cursor is moved off the menu.



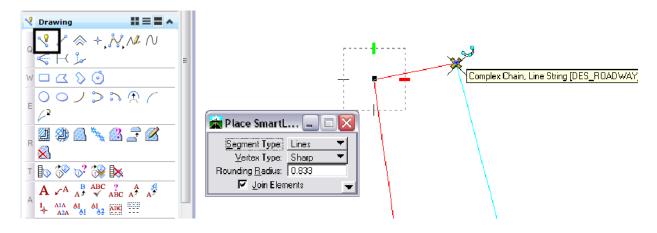
- 3. **<R>** on the desired level and select **Set Active** from the menu.
- 4. **<R>** on the *Level Display* and select **All Off** from the menu. This will leave only the desired elements displayed.

Name		Used 🔺
DES_REMOVALS		•
DES_ROADWAY_	Approach	• –
DES_ROADWAY_	Edge-of-Pavement	•
DES_ROADWAY	Lane-Line	•
DES_ROADWAY	Set <u>A</u> ctive	•
DES_ROADWAY	All 0-	ection •
DES_ROADWAY	All On	•
DES_ROADWAY	All Off	•
DES_ROADWAY	Invert Selection	•
DES_SURFACE_	Off By Element	•
DES_SURFACE_		•
DES_SURFACE_	All Except Element	•
DES_TEMP_DTN	Save Filter	•
DES_TEMP_InR <sub>1</sub>	20101100	•
DES_XSEC_Misc	Level <u>M</u> anager	•
ENVI_Brush-Laye	Duranaukina	•
GEN_MISC_1	Properties	•
GEN_QUANTITIE		•
GEN_QUANTITIE	S_2	• •

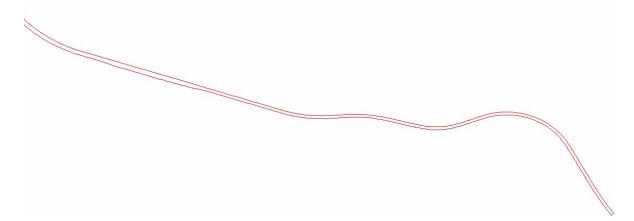
5. Use the Match Element Attributes command. Turn on all of the check boxes. <D> on the desired element to match its attributes.



- 6. Select the **Place Smartline** (or **Place Line**) command. **<T>** to the end of one of the elements that will form the area then **<D>**.
- 7.  $\langle T \rangle$  to the end of the next element that will form the area then  $\langle D \rangle$ .



8. Repeat this process until all of the gaps in the area are filled. Below is an example of a closed area.



## Creating The Area Feature

1. From the InRoads menu, select **Quantities > Shapes Tool**. The *Shapes Tool* dialog box will be displayed.

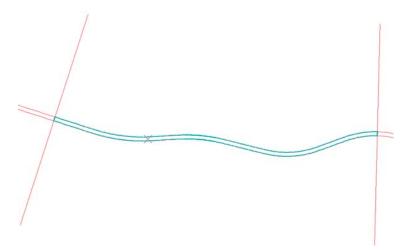
Bentley InRoads V8i (SELECTseries 2)		
<u>File</u> <u>Surface</u> <u>Geometry</u> <u>Drainage</u> <u>Ev</u>	valuation <u>M</u> odeler Site Modeler Dr <u>a</u> fting	Quantities Tools Help
	Surface Name   Surface Name   Description	♣ Pay Item Manager ♣ Quantity Formula Manager Q= Compute Quantities
□ <b>■ Surfaces</b> 	n Default	Shapes Tool
		Review/Edit Payltems
Surfaces 믎 Geometry ↔		Quantity Manager
Creates, edits, and manages quantity for	_	land and a second seco

- 2. On the Shapes Tool dialog box, select Fill for the Shape entry.
- 3. Using the **Surface** pull down menu, select the surface created above.
- 4. In the **Feature Name** field, *key in* the desired feature name.
- 5. In the **Description** field, *key in* the desired text.
- 6. Using the Feature Style pull down menu, select the desired feature style.
- 7. Select Rename for the Duplicate Names setting.

🛣 Shapes To	ol	_ 🗆 🔀
Shape:	• Fill C Union	Apply
Surface:	13606 Pay Quantity 💌	Close
Feature Name:	2''_HBP_Top_Mat 🛛 🕂	<u>H</u> elp
Description:	(GR SX 100) PG 58-34	
Feature Style:	D_HMA_Pvmt_(GR	
Maximum Gap:	0.00	
Duplicate Name	es: 🔿 Replace 💿 Rename	
Use Dynam		-
	m Triangulation	
Limits		
St <u>a</u> rt:	0+00.00 +	
Stop:	0+00.00 +	

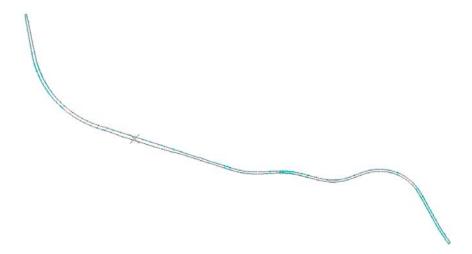
8. Toggle on Use Dynamics and Exclude From Triangulation.

- 9. In the *Limits* area, toggle **Station** on if desired. If used, *key in* the **Start** and **Stop** stations in their respective fields.
  - **Note:** If station limits are used, temporary lines extending perpendicular to the active alignment 1,000 feet in either direction will be placed at the Start and Stop stations. These will be used to define areas both inside and outside the station limits.



- 10. Select the **Apply** button.
- 11. Move the cursor inside the desired area. Closed areas will highlight as the cursor is moved through them.

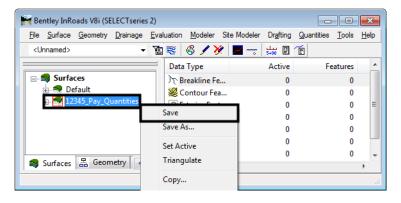
12. **<D>** inside the area to create the feature. **<D>** a second time to accept. If additional features are to be created using the same settings, these can be selected at this time. The first additional feature will have a '1' appended to its name. This will be incremented by 1 for each additional feature thereafter.



After the desired areas have been selected, **<R>** to re-display the *Shapes Tool* dialog box and then select **Close**.

## Saving The Surface

1. In the InRoads menu, **<R>** on the surface name in the left pane then select **Save** from the menu. If the file existed prior to importing data then the data is saved to that file and no further action is required.



- 2. If the file was new then the **Save As** dialog box will appear. Select the directory path using the **Save In** pull down menu.
- 3. In the **File Name** field, *key in* the desired name.

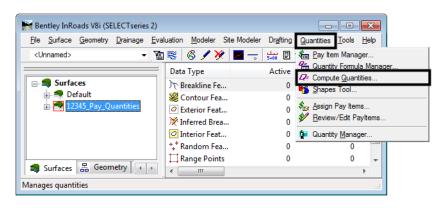
4. **<D>** on the **Save** button, then **<D>** on the **Cancel** button.

Save As	? 🔀
Save in: 🧀 InRoads 💽 🗲 🛍	r 🖬 🕶
CDOT Pay Items	
🖾 13606 Pay Quantity.dtm	
File <u>n</u> ame: 13606 Pay Quantity.dtm	<u>S</u> ave
Save as type: Surfaces (*,dtm)	Cancel
	Help
Active: 13606 Pay Quantity	Options

## **InRoads Compute Quantities**

The compute Quantities command collects pay quantity data from a DTM and stores it in a database to be used with Quantity Manager. This command requires a surface with pay items assigned to the features and a geometry project with a horizontal alignment.

1. From the InRoads menu, select **Quantities > Compute Quantities**. This will display the **Compute Quan***tities* dialog box.



2. Select the desired alignment using the **Alignment** pull down menu. Quantities will only be calculated for features within the station range of the specified alignment.

3. Using the **Mode** pull down menu, select either **All** or **Fence**. The **All** mode uses all features within the alignment, the **Fence** mode uses only those features that are within a defined fence.

🖬 Compute Quantities 💿 💼 💌			
Main Payltems Features Sheet			
Alignment: SH 86			
Mode: All	Help		
Pay Items: <ul> <li>All</li> <li>Selected</li> </ul>			
Features:   All  Selected			
Graphic Elements: (a) All (C) Selection Set			
Output Database:			
Mode:  O Create			
Phase: Design 👻			
Run:			
Deduction Tolerance: 5.00			
Sheet Number:			
Purge			
Symbology:			
Object Name			
Highlight Elements			
Apply Preferences Clo	se		

4. In the **Include** area, **<D>** either the **All** or **Selected** radio button for **Pay Items**, **Features**, and **Graphic Elements**.

🗑 Compute	Quantities	_ 0
Main Pay	Items Features Sheet	
Alignment:	SH 86	•
Mode:	All	▼ Help
Include		- <u></u>
Pay Items	0	
Features:	All Selected	
Graphic E	ements: <ul> <li>All</li> <li>Selection S</li> </ul>	et
Output -		
Database		
Mode:		
	Create O Append	
Phase:	Design	•
Run:		
Deduc	tion Tolerance: 5.00	
Sheet	Number:	
Purge		
Symbology:		
Objec		
U Highlig	ht Elements	
	Apply Preferences	Close
	Preferences	Close

- **Note:** If the **Selected** radio button is chosen, then the items to be processed must be identified on their respective tab. If the **All** radio button is selected all data of that type is processed and its tab is not used.
- 5. In the **Output** area, **<D>** on the browser button next to the **Database** field. This will display the **Browse** window.

🕌 Compute	Quantities	- • 💌		
Main Pay	Items Features Sheet			
Alignment:	SH 86 🔹			
Mode:	All	Help		
Include				
Pay Items:	All  Selected			
Features:	All Selected			
Graphic El	ements: <ul> <li>All</li> <li>Selection Set</li> </ul>			
Output Database:				
C:\Project	s\12345\Design\InRoads\12345 Pay Quna	tities.mdb		
Mode:	Oreate O Append	_		
Phase:	Design 👻			
Run:				
Deduct	ion Tolerance: 5.00			
Sheet 1	Number:			
Purge				
Symbology:				
Object	Name			
	Highlight Elements			
-	Apply Preferences Clo	se		

- 6. Select the desired directory path from the **Save In** pull down menu.
- 7. In the **File Name** field, *key in* the desired filename or select an available one from those listed.
- 8. **<D>** on the **Save** button. This will dismiss the **Browse** window and fill in the **Database** field.

Browse	? 🔀
Save in 🗁 InRoads 📃 🖛 🔁	r 🖬
CDOT Pay Items	
File name: 13606 Pay Quantity	
File <u>n</u> ame: 13606_Pay_Quantity	<u>S</u> ave
Save as type: Access Files (*.mdb)	Cancel
	Help

9. Select a **Mode**. Choose **Create** to make new file or to overwrite an existing file. Choose **Append** if adding additional data to an existing file.

Compute	Quantities	
Main Payl	tems Features Sheet	
Alignment:	SH 86 🔻	
Mode:	All	Help
Include -		
Pay Items:	All Selected	
Features:	All O Selected	
Graphic Ele	ements: <ul> <li>All</li> <li>Selection Set</li> </ul>	
Output Database:		
C:\Project: Mode:	s\12345\Design\InRoads\12345 Pay Qunat © Create  © Append	tities.mdb
Phase:		
Run:	Design -	
Deducti	ion Tolerance: 5.00	
Sheet N	lumber:	
Purge		
Symbology:		
Object		
	it Elements	
	Apply Preferences Clo	se

- 10. Select a **Phase** from the combo box to the right. A new **Phase** can be created by *keying in* a name in the combo box. Phases are used to group quantities.
- 11. The **Run** field is another method of grouping quantities. If desired, *key in* a **Run** name in the field to the right.
- 12. <D> in the Deduction Tolerance check box to turn it on or off. The field to the right is used to define the distance at which features are considered coincident. *Key in* the desired value. For more information on pay item deductions see the "*Customizing The Pay Items Database*" workflow.
- 13. **<D>** in the **Sheet Number** check box to turn it on or off. When on, the field to the right is made active and a **Sheet Number** can be *keyed in*. This field is for informational purposes when quantities are tabulated on a per sheet basis.

14. **<D>** in the **Purge** check box to turn it on or off. When on, this option deletes pay quantities from the database if the feature used to calculate the quantity has been deleted from the DTM.

🖌 Compute	Quantities	
Main Payl	ems Features Sheet	
Alignment:	SH 86 🔹	
Mode:	All	Help
Include		
Pay Items:	All Selected	
Features:	All     Selected	
Graphic Ele	ments:      All     Selection Set	
Output Database:		
	s\12345\Design\InRoads\12345 Pay Qunati	ties.mdb
Mode:	Oreate Append	
Phase: Run:	Design 👻	
_	on Tolerance: 5.00	
Sheet N	lumber:	
Symbology:		
Object	Name	
Highligh	t Elements	
	Apply Preferences Clos	e

15. The **Symbology** area is used to set the parameters for highlighting elements that quantities were computed for. **<D>** on the check box in the **Display** column to turn the highlight on or off.

## The Pay Items Tab

This tab is used if **Pay Items** in the **Include** area is set to **Selected**.

1. **<D>** on the **Pay Items** tab to bring it to the front.

2. Select the **Pay Items** to be computed by clicking in the check box to its left.

Kompute Quantities	- • <b>×</b>
Main Payltems Features Sheet	
Pay Items:	Find
C:\Workspace\Workspace-CDOT_V&\Sta	Find
	Help
200 Earthwork	
400 Pavements	
500 Structures	
600 Miscellaneous Construction	
G01 Structural Concrete	
602 Reinforcing Steel	
Old Culverts and Sewers	
604 Manholes, Inlets, and Meter V:     605 Subsurface Drains	
⊕	
606-00301 Guardrail Type 3	
606-00305 Guardrail Type 3	
606-00310 Guardrail Type 3	
606-00355 Guardrail Type 3	
606-00360 Guardrail Type 3	
606-00405 Guardrail Type 4	
606-00410 Guardrail Type 4 -	
4	
Apply Preferences Close	

**Note:** All of the pay items in the list can be selected by selecting the 'Root' directory at the top of the list. If a Category is selected ('300 Bases' in the example above) then all of the items in that category and its sub-categories are selected. If a Sub-Category is selected ('603 Culverts and Sewers 'above) then all of the items in that sub-category are selected. Finally, individual pay items can be selected ('606-00350 Guardrail Type 3 above).

## The Features Tab

- 1. This tab is used if **Features** in the **Include** area is set to **Selected**.
- 2. **<D>** on the **Features** tab to bring it to the front.
- 3. In the **Surface** area, **<D>** on the desired surface. Multiple surfaces can be selected by holding the **Shift** or **Ctrl** key and then clicking on the desired surfaces.
- 4. In the **Features** area, **<D>** on the desired **Feature**. A consecutive range of features can be selected by holding the **Shift** key then clicking on the first and last feature in the range. A number of individual features can be selected by holding the **Ctrl** key then clicking on the desired features.

5. The **Locator** button can be used to identify features from the graphic elements displayed. The **Ctrl** key can be used with this option, however, the **Shift** key can not. To use it, **<D>** on the **Locator** button then **<D>** on the desired graphic element.

🕌 Compute Quanti	ties			- • •
Main Payltems	Features St	heet		
Surfaces:				
Name		Description		Filter
Default		Description		Help
12345_Pay_Quant	ities			
Features:				<b>1</b>
Name	Style	Description		<u>+</u>
2"_HBP_Top 36" MES 36" MES1 36" RCP Direction Arrow Double Yellow Double Yellow Double Yellow Double Yellow Double Yellow Double Yellow Double Yellow	H_P_W\$F H_P_W\$F H_P_RCP, T_Traffic 0 T_Traffic 0 T_Traffic 0 T_Traffic 0 T_Traffic 0 T_Traffic 0 T_Traffic 0	N3 36" MES E N3 36" MES E Jo Do Do Do Do Do Do Do Do	nd T	
Ap	pply Pr	references	Close	

6. **<D>** the **Apply** button to calculate the quantities.

🐂 Compute	Quantities	- • <b>×</b>
Main Payl	tems Features Sheet	
Alignment:	SH 86 🔹	
Mode:	All	Help
Pay Items: Features:	All     Selected	
	All     Selected ements:     All     Selection Set	
Graphic Ex	anients. I All U Selection Set	]
Output Database:		
C:\Project	s\12345\Design\InRoads\12345 Pay Quna	tities.mdb
Mode:	Create O Append	
Phase:	Design 👻	
Run:		
Deduct	on Tolerance: 5.00	
Sheet N	lumber:	
Purge		
Symbology:		
Object		
Highligh	t Elements	
	Apply Preferences Clo	se

7. When processing is completed, a message stating that the \*.mdb file has been created will appear in the lower left corner of the InRoads interface.

<u>File</u>	urface	Geometry	<u>D</u> rainage	<u>E</u> val	uatior	n <u>M</u> odel	ler Sit	e Modeler	Dr <u>a</u> fting	<u>Q</u> uantities	<u>T</u> ools	<u>H</u> elp				
<unn< td=""><td>amed&gt;</td><td></td><td>•</td><td>T</td><td>8</td><td>8 /</td><td>8</td><td></td><td>يبك 5+00</td><td>Ē</td><td></td><td></td></unn<>	amed>		•	T	8	8 /	8		يبك 5+00	Ē						
					Dat	a Type			Active	Fe	atures					
	Surfa	ces			$\mathcal{T}$	Breakline	e Fe		0		0					
	🖶 🥌 Default								2	Contour	Fea		0		0	
÷	12	345_Pay_Q	Quantities	_Pay_Quantities		0	Exterior F	Feat		0		0				
					淤	Inferred	Brea		0		0					
					0	Interior F	eat		0		0					
								Random	Fea		0		0			
		_				Range P	oints		0		0					
📾 Su	rfaces	금 Geon	netry 🔒	F	4							P.				

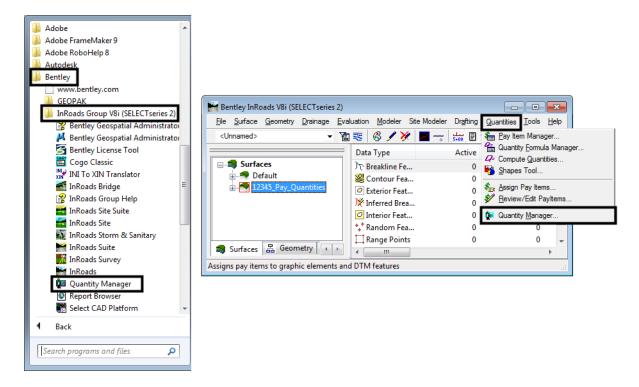
8. **<D>** the **Close** button to dismiss the **Compute Quantities** dialog box.

## Working With Quantity Manager

Quantity Manager is a "Stand Alone" interface with the pay quantity database created by the InRoads **Compute Quantities** command. It is used to update the database with quantities not computed by InRoads and to create reports on the quantity data.

#### **Opening Quantity Manager**

Quantity Manager can be started from the InRoads menu by selecting Quantities > Quantity Manager. It can also be started from the Start menu by selecting Start > All Programs > Bentley > InRoads Group V8i (SELECTseries 2) > Quantity Manager. MicroStation and InRoads do not have to be running for Quantity Manager to work.



2. Select **Project > Open**. This option is used to load the database created by the InRoads **Compute Quantities** command. The **Connect to Database** window will appear.

💯 Quantity Manager	
Project Edit View Insert Tools Help	
🗋 New C 😅 Open	×
Close	
New Phase	
Import  Export	
Properties	
Preferences	
Exit	

- 3. Set the **Database** pull down to: **MS Access 2000**. This is the format used by the **Compute Quantities** command (SQL Server 2000 and Oracle formats can also be used by Quantity Manager).
- 4. In the **File** box, type in the directory path and file name of the desired file. The **Browse** button to the right of the field can be used to locate and select the desired file.
- 5. **<D>** the **Connect** button. (unless otherwise noted, the **User Name** and **Password** fields are left blank.) The database is now loaded into Quantity Manager and editing can begin.

Connect To D	atabase 🛛 🔀
Databas	se: MS Access 2000 💌
File:	45DES_Quantities.mdb
User Name:	43DE3_@dantities.indb
Password:	
	Connect

#### **Properties And Preferences**

Information about the project that is used by Trns\*port is stored in the **Project Properties**. A data file that facilitates the manual entry of quantities is attached to through the **Project Preferences**. This information should be filled in after the project is opened the first time.

## **Properties Data**

1. Select **Project > Properties** from the menu bar.

Quantity Manager - C:\Projects\12345\Design\InRoads\1	2345DES_Q	uantities.m	ıdb
roject Edit View Insert Tools Help			
🗅 New	ASES	~	
😅 Open			
Close	Payitem	Phase	
	04-05000	Design	_
New Phase	03-34731	Design	
Import	03-01425	Design	
Export	03-05042	Design	_
,	03-05042	Design	_
Properties	06-00350	Design	_
Preferences	06-00350	Design	_
OVErsisetsV42245/Design/In Deside/42245DES_Outertities with	07-32200	Design	
C:\Projects\12345\Design\InRoads\12345DES_Quantities.mdb	07-32200	Design	_
Exit	27-00005	Design	_

 In the Project Properties dialog box, fill in the desired information for: Project Number (JPC Code), Description (optional), Unit System, and Spec. Year. This information is used when creating a data file to be used with Trns\*port. After the data is entered, <D> the OK button.

Project Properti	es 🛛 🛛
Project	
Project Informatio	n
Project Number:	12345
Description:	JS 40 Reconstruction
Unit System:	ENGLISH 🗸
Spec Year:	2007
	OK Cancel

## Preference Data

1. Select **Project > Preferences** from the menu bar.

🚇 Quantity Manager - C:\Projects\12345\Design\InRoads\12	345DES_0	Quantities.mdb
Project Edit View Insert Tools Help		
D New	ASES	~
Close	Payitem	Phase
New Phase	04-05000	Design Design
Import •	03-01425	Design
Export +	03-05042	Design Design
Properties	06-00350	Design
Preferences	06-00350	Design
C:\Projects\12345\Design\InRoads\12345DES_Quantities.mdb	07-32200	Design
	07-32200	Design
Exit	27.00005	Design

From the Project Preferences dialog box, <D> the Browse icon for the Payitem field. Navigate to the C:\Projects\JPC#\Design\InRoads\CDOT Pay Items\ directory and select the CDOOT\_Payitem\_Reference\_v33.xml file. <D> the Open button.

Project Prefer	ences	×	3		
🗌 Ena	ible Adhoc Attribute	Editing			
aecXML Import	Documents				
Payitem:		2			
Payer:		8			
	ОК	Cancel	]		
	🚇 Open				
	Look in:	눱 CDOT Pay It	ems	~	🥼 📁 📰 🚍
	My Recent Documents Desktop	-	vyttem_Reference_v33.xml		
	My Network Places	File name: Files of type:	CDOT_PayItem_Reference_v33.x	cml	Open Cancel

- **Note:** This file contains a searchable pay item code list that will allow users to select pay item data from the file instead of manually keying in the information.
- 3. **<D>** the **OK** button from the **Project Preferences** dialog box. This will dismiss the **Project Preferences** dialog box.

Project P	references 🛛 🔀									
Enable Adhoc Attribute Editing										
-aecXML Ir	nport Documents									
Payitem:	)T_PayItem_Reference_v33.xml									
Payer:	<u>Q</u>									
	OK Cancel									

4. The data stored in the pay quantity database is now displayed in the Quantity Manager window. The window is divided into three parts; the Pay Items Table, the Quantities Table, and the Elements Table. The Pay Items table is used to add, edit, and delete Pay Items and Categories within the database. It is also used to add additional quantities. The Quantities Table is used to add, edit, and delete specific quantities within the database. The Elements Table is for informational purposes only.

🖉 Quantity Manager - C:\Projects\12345\	Docion\InPoa	de\12345DF	S Quantitio	mdh						_ 🗆 🗙
Project Edit View Insert Tools Help	Designativo	0311234301	3_Quantitie	sinub						
	A 3 4		-	-						
🗋 🗅 🖨 👔 🖪 🖬 🔚 🛗 🕞 🏠	hase Phase	: ALL PHASE	S	•						
Payitem Tree Payitem Table	Category	Payitem	Phase	Chain	Net Value	Measurem	Remarks	Description	Extended	Computati
Caroot	root\600 Mi		Design	SH52-H (SH5	400	Linear	1	606-00350	1	[ELEMENT
🗉 🧰 300 Bases	root\600 Mi	606-00350	Design	SH52-H (SH5	400	Linear		606-00350		[ELEMENT
<ul> <li>a) 400 Pavements</li> <li>a) 600 Secolarous Construction</li> <li>a) 603 Culvents and Sewers</li> <li>a) 603 Culvents and Sewers</li> <li>a) 603 Culvents and Severs</li> <li>a) 603 Culvents and Severs</li> <li>a) 605 Culvents and Severs</li> <li>a) 606 Culvents</li> <li>a) 606 Culvents</li> <li>a) 606 Culvents</li> <li>b) 607 Fences</li> <li>b) 627 Pavement Marking</li> <li>Pay Items Table</li> </ul>				Quanti	ties Tal	ble				
	<									
	鴙 Elemen	ts 🚿 Adhoc	Attributes	🍃 Payer Partic	ipation 🄀 F	unding Partic	ipation 🚯 F	unding Rules		
	Туре	Name	Radius	Delta	Length	Direction	Native Id	Document	Begin X	Begin Y
	Line	SH119_Guar			400	49.95	3 (8 B09 17 FF-C	. 12345_Quan	. 134314.2430.	291186.524
		E	lement	s Table						
<	<						]			>

## The Pay Item Table

The majority of the work done in **Quantity Manager** will be accomplished through the **Pay Item Table**. It is used to add or delete categories and pay items and can also be used to add quantity data to new or existing pay items within the pay quantity database.

The **Pay Item Table** is broken down into two basic types of data; **Categories** and **Pay Items**. **Categories** (and **Sub-Categories**) are used to divide the pay item data up into manageable pieces. They work much like the folders in the project directory structure, with the pay items organized by the first three digits of the pay item code. **Sub-Categories** are used to further divide pay items.

The pay item contains data on each element that had a quantity calculated for it using its pay item code. It also contains quantity data that was added manually to the database.

The illustration below identifies **Categories**, **Sub-Categories**, and **Pay Items** within the **Pay Item Table's** tree view.

🚇 Quantity Manager - C:\Projects\12345\Design\InRoads\12345DES_Quan	tities.mdb								
Project Edit View Insert Tools Help									
🗋 🗅 😅 😰 🖪 🖶 🕌 🏪 😭 🏤 🐂 Phase: ALL PHASES									
Payitem Tree Payitem Table	Category	Payitem	Phase	Chain	Net Value	Measurem	Remarks	Di	
root     Job Bases     Job Bases     Job Aggregate Base Course     Job Job Aggregate Base Course     Job Job Job Mark Asphalt     Job Job Mark Asphalt     Bob Miscellaneous Construction     Bob Okisellaneous Construction     Bob Goudratal     Do Goudratal     Go Courbers and Severs     Job Goudratal     Go 27 Powement Marking     Job 27 Powement Marking     Job 27-00005 Epoxy Pavement Marking     Job C27-00005 Epoxy Pavement Marking		Categor – Sub – Pay	-	жу					
	<							>	
	Pav	er Participatio 触 Elements		📮 Funding Pa		8 Fu oc Attributes	nding Rules		
	Туре	Name	Radius	Delta	Length	Direction	Native Id	C	
	<							>	
, 									

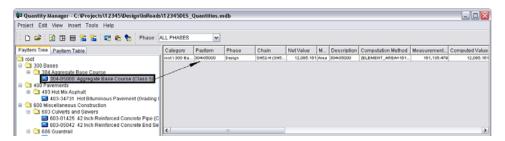
Information can be displayed within the **Pay Item Table** in two ways; the **Payitem Tree** and the **Payitem Table**. The **Payitem Tree** (illustrated above) shows only the **Category** and **Pay Item** names. The **Payitem Table** displays data specific to each pay item code used in the database. Below is an illustration of a sample **Payitem Table**:

Paytem Tree Paytem Table											
Category	Total Cost	Total Net	Payitem	Description	Unit	Unit Cost	Total Rounding	Lump Sum	Document	DEFAULT PAYER	DEFAULT FUNDING
root\300 Bases\304 Aggregate Base Course	0.0	12,085.161	304-05000	Aggregate B	TON	0	0		Í	C	0
root \ 400 Pavements \ 403 Hot Mix Asphalt	0.0	12,085.161	403-34731	Hot Bitumino	TON	0	0			0	0
root \ 600 Miscellaneous Construction \ 603 Culverts and Servers	0.0	120	603-01425	42 Inch Rein	LF	0	0			C	0
root \ 600 Miscellaneous Construction \ 603 Culverts and Seivers	0.0	2	603-05042	42 Inch Rein	EACH	0	0			C	0
root \ 600 Miscellaneous Construction \ 606 Guardrail	0.0	800	606-00350	Guardrail Ty	LF	0	0			C	0
root \ 600 Miscellaneous Construction \ 607 Fences	0.0	5,159.491	607-32200	Fence Wood	LF	0	0			0	0
root \600 Miscellaneous Construction \627 Pavement Marking \	0.0	41.107	627-00005	Epoxy Pave	GAL	0	0			0	0

Because the **Payitem Tree** is generally easier to work with, it will be used throughout this workflow.

#### **Displaying Pay Item Information**

1. Expand the **Pay Item Tree** to show the desired pay item. **<D>** on the desired pay item. The data for that pay item is displayed in the quantity table.



2. To show all of the items within a category or sub-category, **<D>** on the category in the pay item tree. All items within the category are displayed. In the example below, by selecting category 600, the pay items in subcategories 603,606,607,and 627 are displayed.

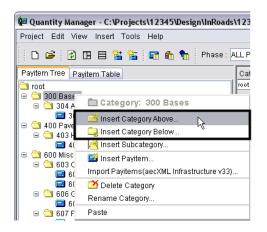
🕶 Quantity Manager - C:\Projects\12345\Design\InRoad	12345DES_	Quantities.m	db								_ 0 🛛
Project Edit View Insert Tools Help											
🗅 🈅 🖄 🖪 🖶 🎦 🏪 📾 🍖 Phase :	ALL PHASES	¥									
Payitem Tree Payitem Table	Category	Payitem	Phase	Chain	Net Value	M	Description	Computati	on Method	Measurement	Computed Value
root	root1000 Mi	003-05042	Hesign	SH52-H (SH5	1	Each	003-05042	[ELEMENT	COUNT=1	1	
🖃 🗀 300 Bases	root1600 Mi	603-05042	resign	SH52-H (SH5	1	Each	603-05042	IELEMENT,	COUNT=1	1	
E Cl 304 Aggregate Base Course	reat \ 600 Mi	603-01-925	resign	SH52-H (SH5	120	Lin	603-01425	[ELEMENT_	LENGTH=1	120	12
304-05000 Aggregate Base Course (Class 5)	root1000 Mi	606-00350	Pesign	SH52-H (SH5	400	Lin	008-00350	[ELEMENT_	LENGTH=4.	400	40
= 1400 Pavements	100t1600 Mi	606-00350	resign .	SH52-H (SH5	400	Lin	606-00350	DUEMENT_	LENGTH#4.	400	4
403 Hot Mix Asphalt	reat \ 600 Mi	607-32200	resign	SH52-H (SH5	2,435.515	Lin	607-32200	[ELEMENT_	LENGTH=2	2,435.516	2,435.5
403-34731 Hot Bituminous Pavement (Grading S	root1.600 Mi	607-32200	Pesign	SH52-H (SH5	2,723.976	Lin	607-32200	[ELEMENT_	LENGTH=2.	2,723.976	2,723.07
E 3 600 Miscellaneous Construction		627-00005	Pazign	SH52-H (SH5			627-00005 1	[ELEMENT_		6,765	10.2
G G03 Culverts and Sewers	root1600 Mi	627-00005	resign	SH52-H (SH5	4.567	Lin	627-00005 1	[ELEMENT_	LENGTH=5.	5,754.007	4.50
603-01425 42 Inch Reinforced Concrete Pipe (C	reat 1600 Mi	627-00005	resign	SH52-H (SH5	18.200	Lin	627-00006 1	[ELEMENT_	LENGTH#5	6,764.613	18.20
603-05042 42 Inch Reinforced Concrete End Se 605 Guardrail	•										
606-00350 Guardrail Type 3 (Double) (6-3 Post 5 607 Fences	触 Elemen	Is 🥥 Adhoc	Attributes 0	Payer Partic	ipation 🚺 🕩 F	undir	ng Participatio	in 😫 Funi	ding Rules		
607-32200 Fence Wood Snow	Туре	Name	Radius	Delta	Length	Dire	ction Nat	ive Id D	ocument	Begin X Be	gin Y Begin
<ul> <li>27 Pavement Marking</li> <li>2627-00005 Epoxy Pavement Marking</li> <li>2627-00005 Epoxy Pavement Marking</li> </ul>		1			,						

3. Items from multiple categories can be displayed by holding the **Shift** or **Ctrl** key and selecting the desired categories or items.

🛛 Quantity Manager - C: \Projects\12345\Design\InRoads\12345DES_Quantities.mdb										
Project Edit View Insert Tools Help										
🗅 🖙 🕐 🖽 🖶 🕌 🏪 🖬 🆍 Phase:	ULL PHASES	¥								
Payitem Tree Payitem Table	Category	Payitem	Phase	Chain	Net Value	М	Description	Computation Method	Measurement	Computed Value
C3 root	10-011600 Mi	603-05042	Design	SH52-H (SH5	1	Each	603-05042	[ELEMENT_COUNT=1	1	
😑 🗀 300 Bases	reat1600 Mi	603-060-42	Design	SH52-H (SH5	4	Each	603-05042	[ELEMENT_COUNT=1	1	
B 304 Aggregate Base Course	reot\300 Ba	304-05000	Design	SH52-H (SH5	12,085.101	Area	304-05000	(ELEMENT_AREA=101	101,135.479	12,085.10
304-05000 Aggregate Base Course (Class 5)	Not1400 Pa	403-34731	Design	SH52-H (SH5	12,005.161	Area	403-34731	[ELEMENT_AREA=161	161,135.479	12,005.16
= 1400 Pavements										
😑 🔁 403 Hot Mix Asphalt										
403-34731 Hot Bituminous Pavement (Grading §										
😑 🛄 600 Miscellaneous Construction										
🗏 🔁 603 Culverts and Sewers										
603-01425 42 Inch Reinforced Concrete Pipe (C										
603-05042 42 Inch Reinforced Concrete End Se										
😑 🛄 606 Guardrail	<									3

## Adding Data To The Database

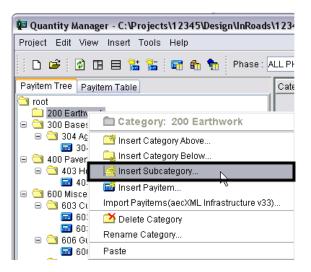
- 1. Quantities for earthwork and many lump sum items will not be included in the dtm and, therefore, not incorporated into the database by the **Compute Quantities** command. To include these additional **Categories**, **Sub-Categories**, and **Pay Items** may need to be added to the database.
- 2. To add a new category **<D>** on the category next in sequence to the one to be added.
- 3. Right Click and select Insert Category Above... or Insert Category Below... This displays the New Category Properties dialog box.



4. In the **New Category Properties** dialog box, *key in* the desired category name. Select **OK** to create the new category.

New Category Properties - Inserting Above: 30 🔀	🚇 Quantity Manager - C:\Projects\12345\Design\InRoads\
Category Name: 200 Earthwork	Project Edit View Insert Tools Help
OK Cancel	📄 🗅 🗃 😰 🖪 🖶 🔚 🔚 🖬 👘 👫 🐂 Phase: A
	Payitem Tree Payitem Table
	🔁 root
	200 Earthwork
	🖃 🔤 300 Bases 🛛
	🖃 🔤 304 Aggregate Base Course
	🔜 304-05000 Aggregate Base Course (Class 5)
	🖃 🖻 😂 400 Pavements
	🖃 🔤 403 Hot Mix Asphalt
	🔜 403-34731 Hot Bituminous Pavement (Grading 🗧
	🛛 🖃 🛅 600 Miscellaneous Construction

- 5. Note: A new category can not be placed above or below the **Root** category they must be placed as subcategories.
- 6. To add a new sub-category **<D>** on the category that will contain the new sub-category.
- 7. Right Click and select **Insert Subcategory...** This displays the *New Category Properties* dialog box.



8. In the **New Category Properties** dialog box, *key in* the desired category name. Select **OK** to create the new category.

New Category Properties - Inserting Subcatego 🔀	🚇 Quantity Manager - C:\Projects\12345\Design\InRoads\
Category Name: 203 Excavation and Embankment OK Cancel	W <sup>III</sup> Quantity Manager - C: VProjects V1 2345 Upstign (InKoads)         Project Edit View Insert Tools Help         Image: Imag
	<ul> <li>□ 100 Pavements</li> <li>□ 103 Hot Mix Asphalt</li> <li>□ 103 Hot Mix Asphalt</li> <li>□ 100 Miscellaneous Construction</li> <li>□ 100 Miscellaneous Construction</li> <li>□ 100 Cliverts and Sewers</li> </ul>

- 9. To add a new pay item **<D>** on the pay item next in sequence to the one to be added (or **<D>** on the category the pay item is to be added to).
- 10. Right Click and select Insert Payitem Above... or Insert Payitem Below... (or Insert Payitem... if a category was selected above). The New Payitem Properties dialog box appears.
- 11. Select the **Search** icon next to the **Payitem Name** field. This displays the **Select Payitem** dialog box.

New Payitem Properties - Inserting in Category: 🔀							
Payitem Name:							
Description:							
Unit Cost:	0.0 🗌 Lump Sum						
Unit:	~						
Total Rounding:	0.0						
	OK Cancel						

- 12. *Key in* the desired value in the **Payitem Filter**. This will greatly reduce the number of items that will have to be scrolled through.
- 13. **<D>** on the pay item to be used, then select the **Import** icon.

🗑 Select Payitem 📃 🔀					
🗹 Payitem Filt	Payitem Filter: 203				
Description	*				
Payitem	Desc	ription			
203-00000	Uncla	assified Excavation	~		
203-00010	Uncla	assified Excavation (Complete In Place)			
203-00012	Uncla	Unclassified Excavation (Complete In Place) (Spec			
203-00040	Uncla	Unclassified Excavation (Special)			
203-00060	Emb	Embankment Material (Complete In Place)			
203-00061	Embankment Material (Complete In Place)				
203-00062	Emb	ankment Material (Complete In Place) (Special)			
203-00100	Muck	Excavation	~		
Import					

14. The *Select Payitem* dialog box is dismissed and the *New Payitems Properties* dialog is populated with the selected data. Select the **OK** icon and the pay item is added to the **Pay Item Tree**.

New Payitem Properties - Inserting in Category: 🔀	🖗 Quantity Manager - C:\Projects\12345\Design\InRoads
Payitem Name: 203-00000	Project Edit View Insert Tools Help
Description: Unclassified Excavation	🗅 😅 😰 🖪 🖶 🕌 🔚 🖬 🏠 🖬 🖍
Unit Cost: 0.0	Payitem Tree Payitem Table
Unit CY	Troot
Total Rounding: 0.0	300 Bases     302 Carthwork     320 Earthwork     3203 Excavation and Embankment     3203 Concerning 203-00000 Unclassified Excavation
	<ul> <li></li></ul>

- 15. To add a **Quantity** to a pay item **<D>** on the pay item then **Right Click**.
- 16. From the **Right Click** menu select **Insert Quantity**... The **New Quantity Properties** dialog box is displayed.

🕮 Quantity Manager - C:\Projects\12	345\Design\InRoads\	12345DES_	Quantities.m	ndb
Project Edit View Insert Tools Hel	p			
D 📽   🕑 🗉 🖶 🔚 📼	🏤 🐀 🛛 Phase : A	LL PHASES	~	
Payitem Tree Payitem Table		Category	Payitem	Pha
Contemporal and the set of the s				
🕀 🧰 400 Pavements	Payitem: 203	3-00000 Un	classified .	
⊕	🖼 Insert Payitem A	lbove		
	🔜 Insert Payitem E	Below		
	😰 Insert Quantity			
	🗾 Edit		.0	
	醚 Delete			
	Rename			
	Cut			
	Review Fund Partici	ipation		
	📑 Customize View	/		

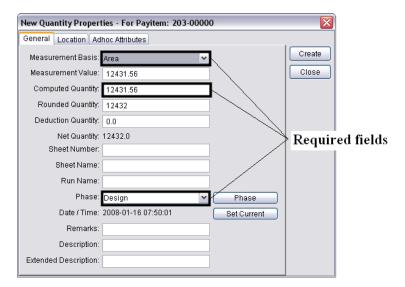
Only the **Measurement Basis**, **Computed Quantity**, and **Phase** are required fields. The others may be filled in as desired so that the data included with the manually entered quantity will match those of the ones imported from InRoads.

- 17. Select the desired Measurement Basis. This is how the feature would have been measured if there was one. There are three options; Area, Linear, and Each. Items measured by volume (Tons, Gallons, Cubic Yards, etc.) or area (Square Feet or Square Yards) should be set to Area. Those measured in Linear Feet or Linear Yards should be set to Linear. Items listed as Each or Lump Sum should use Each. Use the pull down menu to select the desired entry.
- 18. Select the desired **Measurement Value**. This equates to the area of a shape feature, the length of a line feature, and the number of points in a random feature. For a Lump Sum payitem this should be 1. This number is not used for any calculation. It is here to make this payitem record consistent with those imported from the DTM. *Key in* the desired value.

- 19. Key in the desired Computed Quantity. If a formula was utilized, this field is the result of the computation. Using a pavement quantity example, a formula computing tons from square feet could be utilized. In this case, the tonnage is the Computed Quantity. Entering data into this field auto-fills the Rounded Quantity with the same value. Key in the desired value.
- 20. *Key in* the desired **Rounded Quantity**. Some payitems use a **Rounding Factor** which is applied to the **Computed Quantity**. If the quantity being entered uses a rounding factor, change the number in this field to the rounded computed quantity. For example, concrete pipe is rounded to 2 foot increments. An 83 foot long pipe would be rounded to 84 feet. *Key in* the desired value.
- 21. Select the desired **Deduction Quantity**. The quantity of some payitems may be reduced by the presence of another payitem. While the payitem causing the reduction is not listed here, the amount of the reduction is. *Key in* the desired value.
- 22. *Key in* the desired **Sheet Number**. This is the name of the sheet upon which the quantities are located. This can be useful when computations are tabulated for individual sheets.
- 23. *Key in* the desired **Run Name**. This is a user-defined name. The run name is a grouping mechanism to permit segregation of quantities under the same payitem. It could be used to represent quantities of different stages or different alternatives.
- 24. Select the desired **Phase**. To assign the quantity to a particular phase.

*Note:* If this data is to be exported to Trns\*port the **Phase** must be set to **Design**.

- 25. Key in the desired Remarks. Key-in field for remarks is limited to 256 characters.
- 26. Key in the desired Description. Key-in field for the Description is limited to 256 characters.
- 27. *Key in* the desired **Extended Description**. Key-in field for the Extended Descriptionis limited to 256 characters.



**Note:** It is not required to enter location data. However, this information may be used when generating some reports.

- 28. Select the Location tab. This tab is used to identify the location of the quantity in relation to an alignment.
- 29. Select the desired **Baseline Chain** from the pull down menu. This is the alignment to be measured from.
  - **Note:** Minimum and Maximum Stations are used to set a boundary around the quantity. The station numbers do not represent the beginning or end of a feature, but the lowest and highest station at which the quantity would occur. The same can be said about the offsets, they represent denote the furthest distance to the left and right of the alignment that the quantity occurs.
- 30. Key in the desired Minimum Station number.

*Note:* Station numbers should be computed as if there is no station equation.

- 31. Key in the desired Minimum Offset. Left of the alignment is negative, right of the alignment is positive.
- 32. Select the desired **Region**. This is used if the alignment has a station equation. This option is usually selected automatically when the station number is entered.
- 33. Key in the desired Maximum Station number.
- 34. Key in the desired Maximum Offset.

New Quantity Properties For Payitem: 203-00000	
General Location Adhoc Attributes	
Baseline Chain: SH52-H (SH52-H)	Create
Minimum Station	Close
Station: 984.255870064615 Region: 1	
Offset:	
Maximum Station	
Station: 13500.0 Region: 1	
Offset:	

35. Select the **Create** icon to complete the quantity.

#### **Editing Quantities**

*Note:* The quantity value of pay items imported from InRoads can not be changed in **Quantity Manager** only those entered manually can.

1. To edit a quantity, **<D>** on the quantity in the *Quantities Table*, then **Right Click** and select **Edit** from the menu.

elect Edit View Insert Tools Help										
🗅 🧀 🖻 🗏 🐮 🐮 🏠 🏷 Phase	ALL PHASES	Y								
yttem Tree Paytem Table	Category	Paytem	Phase	Chain	Net Value	M	Description	Computation Methor	Measurement	Computed Valu
root	rest1200 Ea	203-00000	DEFAULT P.	EH52.H (EH5	12,431.66	5 Ares		1	0 1	12.431
300 Bases								Payitem: 203-00	000-Computer	Quantity: 12
200 Earthwork     203 Excavation and Embankment							6	Insert		
203-00000 Unclassified Excavation								Edit		
400 Pavements								Delete %		
600 Miscellaneous Construction     603 Culverts and Servers							Ap	ply Funding Rule		
605 Controls and Sewers     606 Guardrail								Customize View		
😑 🛄 607 Fences							-			
607-32200 Fence Wood Snow © 627 Pavement Marking	e		- 25.)							
a bzr r arendes mansing										

2. This displays the *Edit Quantity Properties* dialog box. This dialog box is the same as the *New Quantity Properties* dialog box. The illustration on the left shows the fields that can be edited for a quantity imported from InRoads. The illustration on the right shows fields that can be edited for a quantity that is manually entered.

Edit Quantity Properties - Payitem: 607-32200- Computed Quantity: 2	2723.9 🔀	Edit Quantity Propert	ies - Payitem: 203-00000- C	omputed Quantity:	12431.56 🔀
General Location Adhoc Attributes		General Location Ad	hoc Attributes		-
Measurement Basis: Linear	Update	Measurement Basis:	Area 💌		Update
Measurement Value: 2723.976325507437	Close	Measurement Value:	0.0		Close
Computed Quantity: 2723.9763255074		Computed Quantity:	12431.56		
Rounded Quantity: 2723.9763255074		Rounded Quantity:	12431.56		
Deduction Quantity: 0.0		Deduction Quantity:	0.0		
Net Quantity: 2723.9763255074		Net Quantity:	12431.56		
Sheet Number:		Sheet Number:			
Sheet Name:		Sheet Name:			
Run Name:		Run Name:			
Phase: Design 💌 Phase		Phase:	DEFAULT PHASE	Phase	
Date / Time: 2007-12-31 09:26:22 Set Current		Date / Time:	2008-01-16 08:55:17	Set Current	
Remarks:		Remarks:			
Description: 607-32200		Description:			
Extended Description:		Extended Description:			

## **Creating A Report**

Reports are used to display the quantity data in a meaningful way.

- 1. Display the quantities to be reported on in the *Quantities Table*. This can be done by selecting pay items from the *Pay Item Table* (hold the **Shift** or **Ctrl** to select multiple pay items) or **Select Edit > Select All**.
- 2. Highlight the desired quantities in the *Quantities Table*.

Project Edit View Insert	Tools Help										
B Select All	🕻 🖀 💼 🏠 Phase:	ALL PHASES	~								
Payitem Delete	0	Category	Payitem	Phase	Chain	Net Value	M	Description	Computation Method	Measurement	Computed Va
E en et		root \ 300 Da	30405000	Design	SH52-H (SH5.	12,005.18	Area	30405000	ELEMENT_AREA+161.	101,135.479	12,005
Rename		reet \ 200 Ea	203-00000	DEFAULT P	SH52-H (SH5.,	12,431.50	Ana		a financia di serie a con O	0	12,43
	se Course	10411400 Pa	403-34731	Design	\$H52-H (\$H5	12,085.10	Area	403-34731	ELEMENT AREA- 101.	101,135.470	12,095
Funding +	gregate Base Course (Class 5)	10-011-000 Mi	603-01425	Design	SH52-H (SH5.	120	Lin_	603-01425	IELEMENT_LENOTH#1	120	
a Car 2 Punding		rost\000 Mi	603-060-12	Design	SH52-H (SH5		Each	603-060-42	[ELEMENT_COUNT=1	1	
a 203 Excavation and	d Embankment	root \ 000 Mi	003-05042	Design	SH52-H (SH5		Each	603-05042	[ELEMENT_COUNT=1		
203-00000 Un	classified Excavation	root \ 000 Mi	605-00350	Design	SH52-H (SH5	400	Lin	606-00350	IELEMENT_LENGTH#4	400	
400 Pavements		met\600 Mi	606-00360	Design	SH52-H (SH5.	400	Un	606.00350	ELEMENT_LENGTHed	400	
E 3 403 Hot Mix Aspha		reat1000 Mi	607-32200	Design	SH02-H (SH0	2,435.515	Lin	607-32200	ELEMENT_LENGTH-2	2,435.515	2,430
E 403-34731 Ho	t Bituminous Pavement (Grading 1	10411000 Mi	007-32200	Design	\$H52-H (\$H5	2,723.970	Lin	007-32200	IELEMENT_LENOTH=2	2,723.970	2.72
E GOO Miscellaneous Co		10-011-000 Mi	627-00005	Design	SH52-H (SH5	10.23	Lin_	827-00005 1	ELEMENT_LENOTHIS	5,755	3
E 3 603 Culverts and S		4		10.							>

- 3. Select Tools > Reports > Create to open the Create Report window.
- 4. Select the desired **Report Style** from the pull down menu. The **Style** name describes the type of information to be contained in the report.

5. *Key in* the directory path and filename for the **Report File Name**. The 'search' button can be used to select the directory path and filename if desired.

Some report styles use the **Starting Page Number** to automatically number the pages of the report. If this field is active, the desired page number can be keyed in.

6. The three buttons at the bottom of the window determine how the information will be stored. Select **Append** to add the data to an existing file.

*Note:* This button is not available if the report type is PDF.

7. Select **Create** to create a new file or overwrite an existing file. **Cancel** closes the Create Report window without processing any data. No report is created.

Create Report								
Active Phase: No Phase Selected								
Report Style: Trns*prt PES Worksheet ( 💌								
Reposit Type: CSV								
Report File Name: NnRoads\12345_Trnsport.csv 🛛 🕰								
Starting Page Number: 1								
Append	Create	Cancel						