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Earthwork and Harvesting Quantities from InRoads V8*i*

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InRoads Quantity Manager

- 2 Parts to Quantity Management
 - InRoads Quantity Tools
 - No longer an Add-in Application



- Quantity Manager
 - External Application

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Payitem Tree Payitem Table	Category	Payitem	Phase	Chain	NetValue	Remarks	Description	Exte
noot	root(201-209	201 A000	Preliminary	Centerline	2.000		201 A000	
201-209 CLEARING, GRUBBING AND REMOVAL	root(201-209	201 A000	Preliminary	Centerline	2.000		201 A000	
210-214 EXCAVATION AND BACKFILL	root(201-209	201 A000	Preliminary	Centerline	2.000		201 A000	
301-315 BASE COURSE AND AGGREGATE MATERIALS	root(201-209	201 A000	Preliminary	Centerline	2.000		201 A000	
🗄 🧰 401-405 BITUMINOUS TREATMENT, SLURRY SEAL AND	root(201-209	201 A000	Preliminary	Centerline	9.000		201 A000	
11-429 ASPHALT PAVING, LEVELING, BINDER AND WE	root(201-209	205A001	Preliminary	Centerline	1.000		205A001	
E 🛅 530-538 DRAINAGE PIPE	root(201-209	2060009	Preliminary	Centerline	11,011.000		2060009	
590-603 MOBILIZATION, RAW MARKERS AND FIELD OFFI	root(201-209	2060000	Preliminary	Centerline	36.595		2060000	
E C 612-617 MASONRY AND FIBER FLUMES	root(201-209	206E000	Preliminary	Centerline	1.000		206E000	
618 CONCRETE SIDEWALK AND DRIVEWAY	root(201-209	206E000	Preliminary	Centerline	1.000		206E000	
B- 619 PIPE END TREATMENTS	•							•
226222 MINOR STIC OF CONC., SONOTION BOXES, 22623-229 CURB AND GUTTER, MEDIAN SAFTEY BARRIEF 22623 AND GATES	Paver Participation			Funding Participation Section Section				tules
600-669 TOPSOIL SEEDING AND EROSION CONTROL NE	Name	Type	Radius	Delta	Lenath	Direction	Native Id	Doc



Functions of InRoads Quantity Tools

- Define Payitems
- Manage Quantity Formulas
- Assign Payitems to design data
- Compute Quantities
- Create a Quantities ` Database



The Quantities Database is created in the Compute Quantities process



InRoads Quantity Tools

- What can be computed?
 - Linear Elements
 - Area (Polygon/Shapes)
 - Each (Points, cells, etc.)
 - Graphic or "drawn" data not the result of Roadway Designer
 - DTM Features from Roadway Designer

🕌 Compute Quanti	tie <i>s</i>		_ 🗆 ×
Main Payltems F	eatures S	heet	
Alignment: Default		•	
Mode: All		•	Help
_ Include			
Pay Items:	• All	C Selected	
Features:	• All	C Selected	
Graphic Elements:	👁 All	C Selection Set	
Database:			
Mode: 💽 Cre	eate C .	Append	_
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Functions of Quantity Manager

- Read Quantities
 Database
- Create Funding and Payer Rules/Splits
- Export to external applications (ex:Trns*Port)
- Create Quantity Reports



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New! End Area Volumes in QM

- After Cross sections have been extracted and displayed, Calculate End Area Volumes.
- Note new item in list

End-Area Volumes

Cut, Fill, Borrow, and Waste objects can be linked to Payitem Database

File				
Cross Section Set:	🔽 Output Qu	iantities		Database
Hemfield Road Option 2 Hemfield Road Option 2 End-Area Volumes General Compute Quantities Unsuitable Materials by Feature. Unsuitable Materials by Station Classifications Compaction/Expansion	Output Database: C:\InRoads Tode: (*) Phase: Des Run:	Training\InRoads 101\EA_Vol_Q Create C Append ign	M.mdb	
Added Quantit Forced Bat	Pay Items:	Name	Description	
As Built	Cut	210A000 - CUT 210A000c - FUL	CUT	<u>**</u>
	Borrow	210A0006 - BORROW	BORROW	
Specify	🛛 Waste	210A000w - Waste	Waste	
Quantities			A	Apply Preferences Close Help
Database				

End Area Volumes and QM

- Borrow and Waste
 - If the Mass Ordinate value is negative when completing the End Area Volumes, the Borrow field will be populated with the quantity required to balance the earthwork.
 - If the value is positive, then the Waste field will be populated with the quantity of extra materials.

Object	Name	Description	
🛛 Cut	210A000 - CUT	CUT	
🛛 Fill	210A000c - FILL	FILL	
Borrow	210A0006 - BORROW	BORROW	
🛛 Waste	210A000w - Waste	Waste	



Calculating End Area Volumes

- Select "Create XML Report"
 - Verify Quantities DB info

ioss Se	ection Set	Surface	Туре	Method		
	d Road Option 2 💌 🛨	Hemfield Existin	ng Existing Design	Standard Correct for Curvature		
*	General Compute Quantities Unsuitable Materials by Feature Unsuitable Materials by Station Classifications Compaction/Expansion Volume Exceptions			Station Limits Use Station Limits Start Station 23+45.78 Stop Station 23+45.78		
	Added Quantities Forced Balance As Built Annotation	Imperial Units Cubic Yards Create XML Repr	C Cubic Feet	Ignore Areas Smaller Than: 0.00		



End Area Volumes Results

active distant stractic dire

• InRoads Report Browser (XML data)

\Program Files\Bentley\InRoads Group V8.11\XML Data\	63+04.92	1.00	0.00	0.0	0.0	1.00	242.26	44.5	44.
Evaluation	63+35.63	1.00	0.00	0.0	0.0	1.00	211.87	258.2	258.2
- An AverageCrossSlopeArea.xsl	63+50.00	1.00	0.00	0.0	0.0	1.00	196.29	108.6	108.6
BasicEndAreaVolumeBalanceStation.xsl	64+00.00	1.00	0.00	0.0	0.0	1.00	149.36	320.0	320.0
	64+50.00	1.00	0.00	0.0	0.0	1.00	112.72	242.7	242
A CrossSection.xsl	65+00.00	1.00	0.00	0.0	0.0	1 00	93 47	190.9	190 0
-A: CrossSectionAllFeatures.xsl	65+50.00	1.00	0.00	0.0	0.0	1.00	56 73	130 1	130
CrossSectionASUIInputFormat.xsi	65+50.00	1.00	0.00	0.0	0.0	1.00	02 70	74.5	741
ClossSectionASCIIInputFormatWithPencodes vsl	00+00.00	1.00	0.29	0.5	0.5	1.00	23.70	74.5	14.:
All CrossSectionDesignSurfaceFeatures xsl	66+50.00	1.00	13.63	12.9	12.9	1.00	3.70	25.4	25.4
AT CrossSectionGradebook.xsl	67+00.00	1.00	33.76	43.9	43.9	1.00	1.11	4.5	4.
CrossSectionGradebookNE.xsl	67+50.00	1.00	51.87	79.3	79.3	1.00	0.01	1.0	1.0
- 🚮 CrossSectionGradebookWide.xsl	68+00.00	1.00	63.95	107.2	107.2	1.00	0.00	0.0	0.0
-A: CrossSectionPoints.xsl	68+04.29	1.00	64.72	10.2	10.2	1.00	0.00	0.0	0.0
A CrossSectionPointsList.xsl	68+50.00	1 00	67 66	112.0	112.0	1 00	0 00	0.0	0.0
All CrossSectionProfileList.xsl	68+88.55	1.00	62.89	03.2	03.2	1.00	0.00	0.0	0.0
CrossSectionStaking.xsi	60:00.00	1.00	60.24	00.4	00.2	1.00	0.00	0.0	0.0
	69+00.00	1.00	00.31	20.1	20.1	1.00	0.00	0.0	0.0
All CrossSectionSurveyFormat xsl	69+50.00	1.00	48.27	100.5	100.5	1.00	0.00	0.0	0.0
AT CrossSectionWide.xsl	70+00.00	1.00	38.09	80.0	80.0	1.00	0.04	0.0	0.0
A CrossSectionXYZ.xsl	70+33.21	1.00	33.67	× 44.1	44.1	1.00	0.24	0.2	0.2
- 🚮 EarthworkQuantities.xsl	70+50.00	1.00	0.00	10.5	10.5	1.00	0.00	0.1	0.*
-A: EndAreaVolume.xsl	70+57.54	1.00	0.00	0.0	0.0	1.00	0.00	0.0	0.0
-A] EndAreaVolumePageTotals.xsl		1	<u></u>			V.			× ×
-A] EndAreaVolumeStationRange.xsl	Gran	d Total		0243.8	0943.9			7913 6	7913 (
A MultipleMaterialVolumes.xsi	Gran	u Totai	\sim	3043.0	3043.0			1013.0	1015.0
A: Trianglevioumes.xsi		\sim	V	VV	N/N			$\sim \sim$	
Al Volumes vsl						-0			

End Area Volumes and QM

- Open Quantity Manager
- Connect to Quantities Database specified when computing End Area Volumes

🛊 Quantity Manager - C:\InRoads Training\InRoads 1	01\EA_Vol_QN	1.mdb			
Project Edit View Insert Tools Help					
	Phase : Desig	n	T		
Payitem Tree Payitem Table	Category	Payitem	Phase	Chain	Net Valu
I root 210-214 EXCAVATION AND BACKFILL 210A000 - CUT CUT 210A000 - FILL FILL 210A000 - Waste Waste 210A000 - Waste Waste					
	Pav	ver Participatic Strategy Elements	on Í	🕩 Funding	Participa {
	Name	Туре	Radius	Delta	Length

End Area Volumes with QM

- Operates as any other Quantities Database
 - Reports, etc.

		(0003 101(EA_*	or_dianam		
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€C:\InRoads Training\I	nRoads 101\EA V	ol QM.html			
- I					
Name	Description	Unit	Unit Cost	Total Quantity	Total Cost
Name 210A000 - CUT	Description CUT	Unit Cubic Yard	Unit Cost 0.0	Total Quantity 9843.75	Total Cost 0.00
Name 210A000 - CUT 210A000 - FILL	Description CUT FILL	Unit Cubic Yard Cubic Yard	Unit Cost 0.0 0.0	Total Quantity 9843.75 7813.61	Total Cost 0.00 0.00



Important info

- End Area Volumes create a SEPARATE Database
- NOT included when executing Compute Quantities

🛎 Quantity Manager - C:\InRoads Training\Inf	Roads 101\QM-all	l.mdb					
Project Edit View Insert Tools Help 🛛	C:\InRoads Training	\InRoads 101\EA_Vol_QM.html - Windows Internet Explorer					_0
	🔾 💽 🖉 🖉 C:\InR	Roads Training\InRoads 101\EA_Vol_QM.html	• +7 ×	bing			2
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Payitem Tree Payitem Table	🍃 Favorites 🛛 👍 🏉 :	Suggested Sites 🔻 📶 Free Hotmail 🙋 Get More Add-ons 🔹					
noot 1 - Content - Clearing, GRUBBING AND -	🖉 C:\InRoads Training\Ir	nRoads 101\EA_Vol_QM.html	谷	• 🗟 • 🗆	💮 🔹 Page 🕶 Sa	fety 🔹 Tools 🕶	0 -
301-315 BASE COURSE AND AGGRE	Name	Description	Unit	Unit Cost	Total Quantity	Total Cost	1
411-429 ASPRALL PAVING, LEVELING 450-490 CONRETE PAVING AND ASS	201B000	Clearing	Acre	0.0	6.00	0.00	
	301A000	Crushed Aggregate Base Course, Type B, Plant Mixed, 3" Compacted Thickness	Cubic Yard	0.0	3446.76	0.00	
	411A020 - ASPH	Hot Bituminous Pavement, Mix 1	Ton(s)	0.0	191.30	0.00	1
	450C00-Curb	Integral Curb	Linear Feet	0.0	9306.24	0.00	1
	450D00-JTSeal	1 1/4" Preformed Elastomeric Joint Seal	Linear Feet	0.0	9306.24	0.00	

Including End Area Volumes in QM

- Easiest method
 - Append Database

File		
Cross Section Set: Hemfield Road Option 2 End-Area Volumes General Compute Quantities Unsuitable Materials by Feature Unsuitable Materials by Station Classifications Compaction/Expansion Volume Exceptions	Output Quantities Output Database: C:\InRoads Training\InRoads 101\QM-all Mode: O Create O Append Phase: Design Run:	
Added Quantities Forced Balance As Built	Dbject Name Image: Cut 210A000 - CUT	Description CUT
Annotation	➢ Fill 210A000c - FILL ➢ Borrow 210A000b - BORROW ➢ Waste 210A000w - Waste	FILL BORROW Waste
		Apply Preferences





Quantity Manager

- Open Appended Quantities Database
- End Area Volumes are displayed





Quantity Manager

Quantities Database operates normally
 – Reports, etc.

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🍘 🗧 :\InRoads Training\InRoads 101\EA_Vol_QM.html									
ſ									
	Name	Description	Unit	Unit Cost	Total Quantity	Total Cost			
	201B000	Clearing	Acre	0.0	6.00	0.00			
	301A000	Crushed Aggregate Base Course, Type B, Plant Mixed, 3" Compacted Thickness	Cubic Yard	0.0	3446.76	0.00			
	411A020 - ASPH	Hot Bituminous Pavement, Mix 1	Ton(s)	0.0	191.30	0.00			
	450C00-Curb	Integral Curb	Linear Feet	0.0	9306.24	0.00			
	450D00-JTSeal	1 1/4" Preformed Elastomeric Joint Seal	Linear Feet	0.0	9306.24	0.00			
	210A000 - CUT	CUT	Cubic Yard	0.0	9843.75	0.00			
	210A000 - FILL	FILL	Cubic Yard	0.0	7813.61	0.00			
	210A000 - Waste	Waste	Cubic Yard	0.0	2030.14	0.00			



Questions?

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