

Full Contents

Section 1: Overview Essentials

1.1	Introduction	3
	Learning InRoads Survey	3
	Basic Rules	3
	How to Use This Guide	4
	Section Breakdown	5
	<i>Section 1: Overview Essentials</i>	5
	<i>Section 2: Production Essentials</i>	5
	<i>Appendices and Glossary</i>	5
	<i>Index</i>	5
	What's in a Chapter?	5
	Font Conventions	6
	<i>Italic</i>	6
	<i>Bold</i>	7
	<i>Bold and Italic</i>	7
	<i>Small Caps</i>	7
	<i>Underlined Small Caps</i>	7
	How to Use the CD	7
	Files on CD-ROM	7
	<i>Training Folders</i>	8
	<i>Training Files</i>	8
	<i>Chapter Files</i>	9
	Other CD Content	9
	Software Information	9
	AutoCAD versus MicroStation	9
	Version Compatibility	10
	There are also intermediate releases that have not been listed here.	10
	Software File Paths	11
1.2	Orientation to InRoads Survey	13
	Chapter Prerequisites	14
	The Bigger Picture	14
	InRoads Survey vs. InRoads	14
	<i>The Purpose of InRoads Survey</i>	14
	InRoads Survey versus CAD	15
	<i>The CAD Platform</i>	16
	<i>File Types</i>	16
	<i>InRoads and CAD</i>	17
	Toolbars	18
	The Fieldbook	19
	The Style Manager	20
	The Surface Model	20
	Surface Origins	21
	Intelligent Models	22
	Surface Display	23

Geometry	.....	24
COGO Points	.....	25
Horizontal Alignments	.....	25
Vertical Alignments	.....	26
Event Points	.....	26
Profiles	.....	27
Volumes	.....	28
Grid Volume	.....	28
Reporting	.....	29
XML Reporting	.....	29
Preferences	.....	30
Tools> Options	.....	31
Tools> Survey Options	.....	32
The Managers	.....	32
Symbology Manager	.....	32
Style Manager - Surfaces	.....	34
Style Manager - Geometry	.....	35
Preference Manager	.....	35
The Locks	.....	36
The Locks and InRoads Survey	.....	36
<i>Pen and Pencil</i>	.....	36
<i>Report Lock</i>	.....	37
InRoads Survey Support	.....	37
InRoads Help File	.....	38
Training	.....	38
Bentley	.....	39
Consultants	.....	39
Chapter Challenge	.....	39
Quiz Questions	.....	40
Chapter As-Builts	.....	41
Quick Review	.....	41
1.3 Sample Project Defined	.....	43
Preliminary Design Statement	.....	43
Project Design Criteria	.....	43
Scope of Work Details	.....	44
<i>Concept Sketches</i>	.....	45
<i>Project Vicinity Map</i>	.....	47
1.4 Getting an Overall Picture	.....	49
Chapter Prerequisites	.....	49
Knowledge Prerequisites	.....	49
Data Prerequisites	.....	50
Files Needed	.....	50
Hands On—Getting an Overall Picture	.....	50
Loading the Training Files	.....	51
Preparing and Opening InRoads Survey	.....	51
<i>The SelectCAD Platform</i>	.....	51
<i>Starting InRoads Survey</i>	.....	52
Preparing to Run InRoads Survey	.....	53
<i>Project Defaults</i>	.....	53
<i>Creating a New Project Default Configuration</i>	.....	55
The InRoads Survey Interface	.....	56
<i>The Menu Bar</i>	.....	56
<i>The Workspace Bar</i>	.....	56

<i>The Feedback Pane</i>	57
<i>Status Bar</i>	57
New InRoads Survey Fieldbook	58
Raw Data	59
<i>Sample raw data</i>	59
<i>Loading a raw data file</i>	59
<i>Target Height Alert</i>	60
Viewing the Collected Data	61
<i>Toolbar</i>	61
<i>CAD Viewing</i>	61
<i>InRoads Survey Viewing</i>	62
The InRoads Survey Fieldbook	63
<i>Stations</i>	64
<i>Observations</i>	65
Importing Additional Raw Data	66
<i>Viewing Imported RAW data</i>	68
Multiple InRoads Survey Fieldbooks	69
<i>Deleting an InRoads Survey Fieldbook</i>	70
The Fieldbook Revisited	71
<i>Importing Additional Raw Data</i>	72
<i>More Fieldbook Work</i>	73
Survey Code Styles	73
<i>Fieldbook Point Select</i>	74
<i>Style Entries</i>	75
<i>Feature Codes</i>	76
<i>Feature Symbology</i>	77
Saving the InRoads Survey Fieldbook	80
The Purposes of InRoads Survey	81
Exporting a Surface Model	81
<i>Surface Coding</i>	81
<i>Survey Data to Surface</i>	83
<i>Triangulating the Surface Data</i>	84
<i>Viewing the Exported Surface</i>	85
<i>Saving the Surface</i>	87
Exporting the Geometry Project	88
<i>Survey Data to Geometry</i>	89
<i>Reviewing the Geometry</i>	89
<i>Saving the Geometry Project</i>	91
Ending off	92
Chapter Challenge	93
Additional Exercises	93
<i>The Fieldbook Data</i>	93
<i>The Surface Data</i>	93
<i>The Geometry Data</i>	93
Quiz Questions	94
Chapter As-Builts	95
Quick Review	95

Section 2: Production Essentials

2.1 Getting Started	99
Chapter Prerequisites	99
Knowledge Prerequisites	99

Data Prerequisites	99
Files Needed	99
Hands On—Getting Started	100
Loading the Training Files	100
Starting Foundations	100
Selecting a CAD Platform	100
Starting InRoads	101
<i>InRoads Survey Versus CAD</i>	102
Preparing to Run InRoads Survey	103
Project Defaults	104
<i>Creating a New Configuration</i>	105
The InRoads Survey Interface	107
<i>The Menu Bar</i>	107
<i>The Workspace Bar</i>	109
Opening InRoads Survey Files	110
<i>Workspace Bar Shortcuts</i>	111
<i>Active Data</i>	113
<i>Repositioning</i>	114
<i>The Feedback Pane</i>	115
Toolbars	117
<i>Standard Issue Toolbars</i>	117
<i>Modifying a Toolbar</i>	119
<i>Restoring Toolbar Defaults</i>	120
<i>Building a Custom Toolbar</i>	120
<i>Exporting and Importing Toolbars</i>	122
Application Add-ins	123
Saving InRoads Data	124
Bentley Embedded Help	125
Survey Options	127
InRoads Options	128
Exiting InRoads	129
Chapter Challenge	130
Additional Exercises	130
Quiz Questions	131
Chapter As-Builts	132
Quick Review	132
2.2 The Style Manager	133
Chapter Prerequisites	133
Knowledge Prerequisites	133
Data Prerequisites	133
Files Needed	133
Hands On—The Feature Table	134
Starting InRoads Survey	134
Opening Previously Created Data	134
The Style Manager	135
Feature Codes	135
<i>Feature Description</i>	135
<i>Feature Codes</i>	137
<i>Code Symbology</i>	138
<i>Coding Options</i>	139
Feature Coding - Attributes	140
<i>Looking at the Raw Data</i>	140
<i>Looking at the Fieldbook</i>	141

<i>Feature Code Attributes</i>	142
<i>Adding Fieldbook Attribute Values</i>	143
Custom Operations	145
<i>Survey Options</i>	146
<i>Style Manager</i>	147
Control Codes	151
Importing Survey Data	153
<i>Resolving Field Coding Errors</i>	153
<i>Creating a New Fieldbook</i>	153
<i>Importing Field Data</i>	154
<i>Resolving Code Errors</i>	155
<i>Logging Code Errors</i>	158
Continuing to Resolve Code Errors	160
<i>Copying a Style</i>	161
Deleting a Fieldbook	165
Ending Off	166
Chapter Challenge	166
Additional Exercises	166
<i>Reviewing Feature Codes</i>	166
<i>Attribute Creation</i>	166
<i>Custom Operations</i>	166
<i>Fieldbook Work</i>	167
Quiz Questions	167
Chapter As-Builts	168
Quick Review	168
2.3 The Fieldbook	169
Chapter Prerequisites	169
Knowledge Prerequisites	169
Data Prerequisites	169
Files Needed	169
Hands On—The Fieldbook	170
Starting InRoads Survey	170
Opening Previously Created Data	170
The InRoads Survey Fieldbook	171
<i>The Fieldbook Interface</i>	171
<i>Fieldbook Editing Overview</i>	173
Importing Multiple Raw Data Files	174
Fieldbook Editing	178
<i>Moving Code Info to Notes</i>	178
<i>Deleting Extraneous Coding Entries</i>	183
<i>Additional Fieldbook Editing</i>	183
Control Code Edits	184
<i>View Settings</i>	184
<i>Editing Start Codes</i>	186
<i>Adding a Start Code</i>	189
<i>NT Coding</i>	192
<i>JPT Coding - Type 1</i>	195
<i>JPT Coding - Type 2</i>	196
<i>V8.02 Versus V8.05 Versus V8.09 Versus V8.11 Editing</i>	199
Chapter Challenge	199
Additional Exercises	199
Quiz Questions	201

Chapter As-Builts	202
Quick Review	202
2.4 Exporting the Fieldbook	203
Chapter Prerequisites	203
Knowledge Prerequisites	203
Data Prerequisites	203
Files Needed	203
Hands On—Exporting the Fieldbook	204
Starting InRoads Survey	204
Opening Previously Created Data	204
Exporting Geometry	205
<i>Survey Data to Geometry</i>	205
<i>Reviewing the Geometry</i>	206
<i>Saving the Geometry Project</i>	208
Selectively Exporting Geometry	209
<i>The Survey Style Filter</i>	210
<i>Activating a Survey Style Filter</i>	211
<i>Exporting Geometry with a Filter</i>	212
Exporting a Surface Model	213
<i>Surface Point Type Coding</i>	213
<i>Survey Data to Surface</i>	215
<i>Triangulating the Surface Data</i>	217
<i>Surface Exporting Discussion</i>	218
<i>Viewing the Exported Surface</i>	219
Locating Problem Areas	220
Potential Problem #1	220
Potential Problem #2	221
<i>Redisplaying the Surface Triangles</i>	223
<i>Viewing Surface Contours</i>	223
Potential Problem #3	224
<i>Exporting the Surface</i>	227
<i>Viewing the Surface</i>	227
Potential Problem #4	228
View Crossing Segments	230
Saving the Surface	232
Fieldbook to Graphics	233
<i>View Settings</i>	233
<i>Writing the Graphics to CAD</i>	235
Chapter Challenge	236
Additional Exercises	236
<i>Exporting Geometry</i>	236
<i>Exporting the Surface</i>	236
<i>Survey Data to Graphics</i>	236
Quiz Questions	237
Chapter As-Builts	238
Quick Review	238

Appendices

A: Exterior Boundary Creation	241
Chapter Prerequisites	241
Knowledge Prerequisites	241
Data Prerequisites	241

Files Needed	241
Hands On—Creating an Exterior Boundary	242
Starting InRoads Survey	242
Opening Previously Created Data	242
CAD File Preparation	243
DTM Review	243
Reviewing Surface Triangles	245
The Surface Perimeter	250
CAD Clean-up	251
Working with the Delete Triangle Tool	252
<i>Basic Procedure</i>	252
<i>Deleting Triangles - Setup</i>	253
<i>Deleting Triangles</i>	254
View Perimeter	257
Re-Triangulation	258
Deleting Triangles	260
Viewing the Final Perimeter	261
Import Surface From Graphics	262
Surface Properties	264
Triangulate the Surface	265
Save the Surface	266
B: The InRoads Locks	267
Introduction	267
The Toolbar	267
Activation Timing	268
Lock Types	268
Lock Categories	269
<i>Viewing and CAD-Related</i>	269
<i>Accessibility and InRoads-Related</i>	269
Lock Presentation	269
InRoads Tagging	270
<i>Ignoring</i>	270
<i>Removing</i>	271
The Locks	272
Pen/Pencil Overview	272
The Pencil Setting	273
<i>Usage Notes</i>	273
The Pen Setting	274
<i>Usage Notes</i>	274
Delete Ink Lock	275
<i>Usage Notes</i>	275
Style Lock	276
<i>Usage Notes</i>	277
Locate Lock	278
<i>Usage Notes</i>	279
Snap Lock	280
<i>Usage Notes</i>	281
Station Lock	281
<i>Usage Notes</i>	282
Report Lock	282
<i>Usage Notes</i>	282
Feature Filter	283
<i>Usage Notes</i>	286

Full Contents

Cogo Audit Trail Lock	286
Top Ten Rules of the Locks	288
Glossary	289