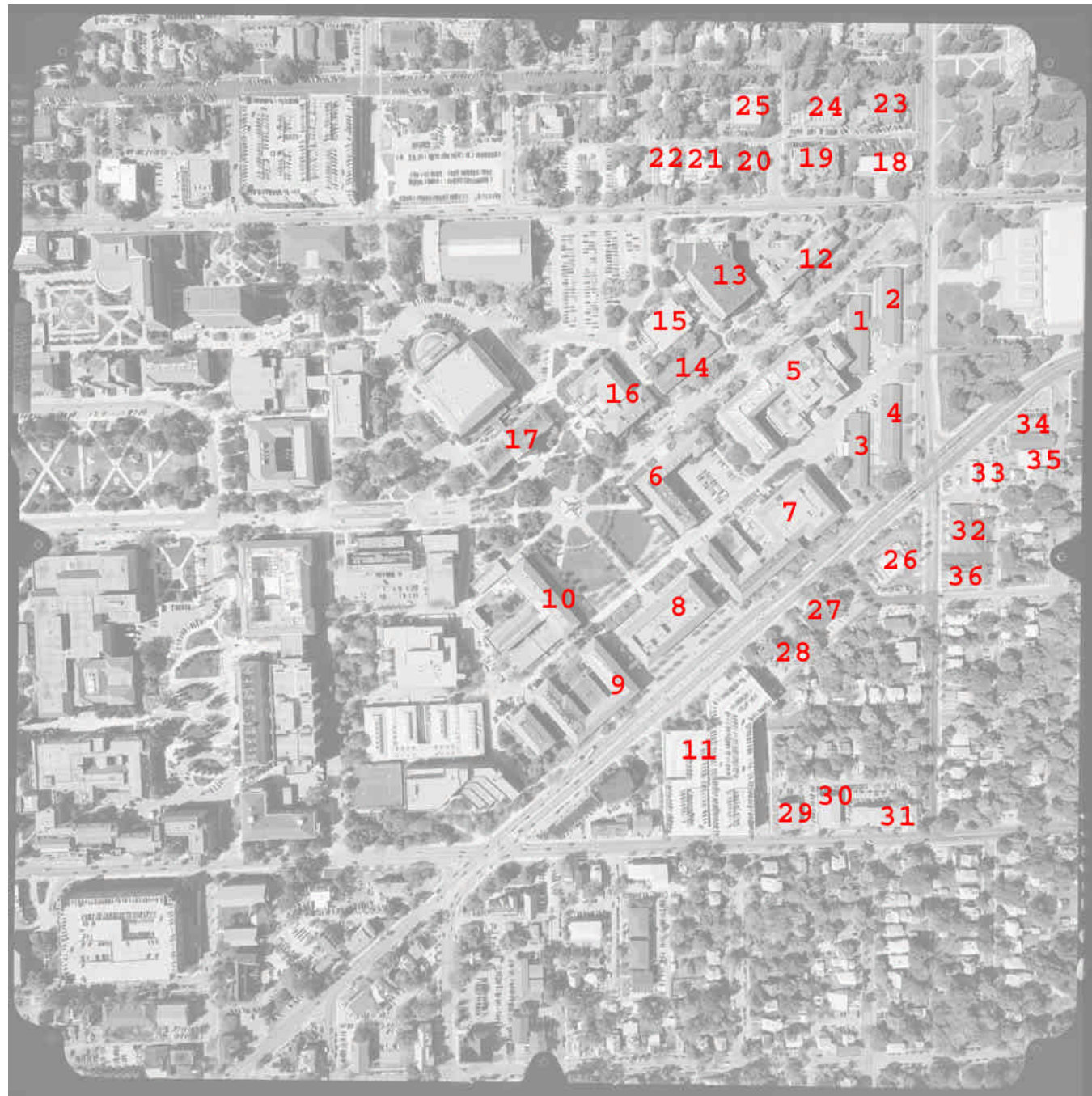


Homework 5. Stereo 3D Extraction of Buildings

From model 3-6, 3-8 in
blockfile403.blk



Building Names and Assignments

Buildings

1 CA1	13 PHARM	25 RES8
2 CA2	14 THEA	26 MCD
3 CA3	15 NURS	27 PEFCU
4 CA4	16 SCHL	28 RES9
5 CIVL	17 HOVDE	29 RES10
6 CHME	18 RES1	30 RES11
7 PHYS	19 RES2	31 RES12
8 MSEE	20 RES3	32 FOLL
9 ECE	21 RES4	33 BP
10 ME	22 RES5	34 SPIR
11 NWPKG	23 RES6	35 FLOW
12 PSHC	24 RES7	36 GARR

Building Assignments

Wasin	5,29
Okutu	1,2,30
Rura	3,4,31
Lenihan	7,32
Reed	6,33
Jeong	8,12
Galloza	9,34
Quansah	10,35
Wang	11,36
Luo	13,14
Alkheder	15,16
Gungor	17,18
Sui	19,20
Hottel	21,22
Ng	23,24
Beal	25,26
Wrathell	27,28

File Format: ascii text
for example CIVL.TXT
polygons: clockwise vertex order, do not duplicate
the first point as the last
text after semicolon is comment, not in file

=====

Building Name CIVL

Total Polygons 20

Polygon 1

Color 120 83 150 ; (R,G,B)

Count 4

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

Polygon 2

Color 120 83 150

Count 3

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

Polygon 3

Color 120 83 150

Count 5

507178.234 4475120.367 189.012

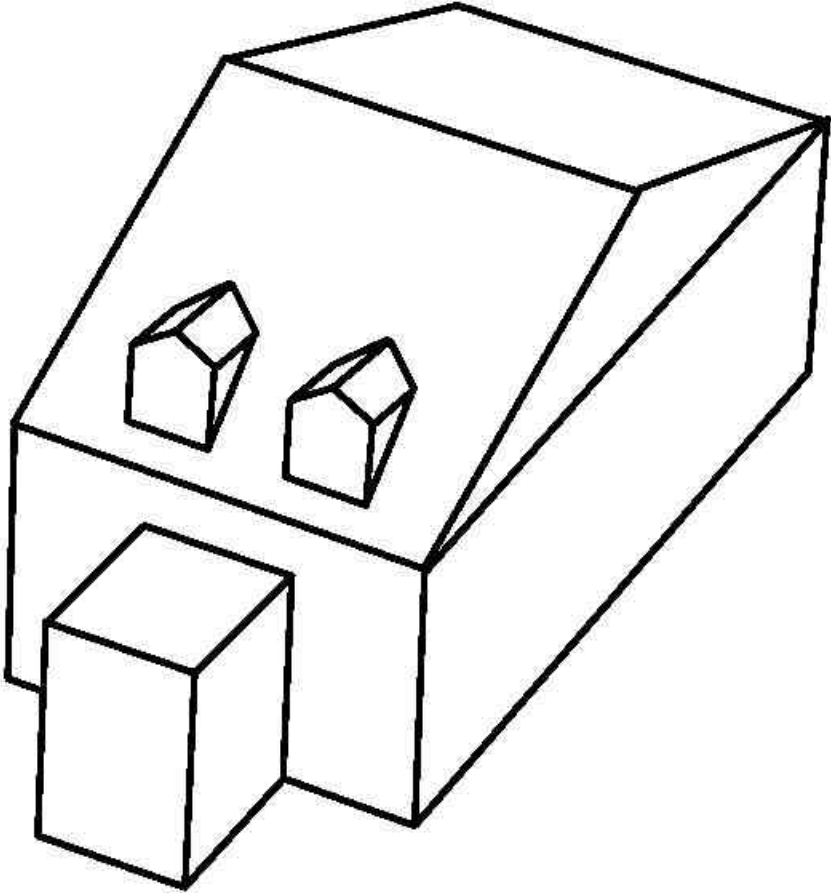
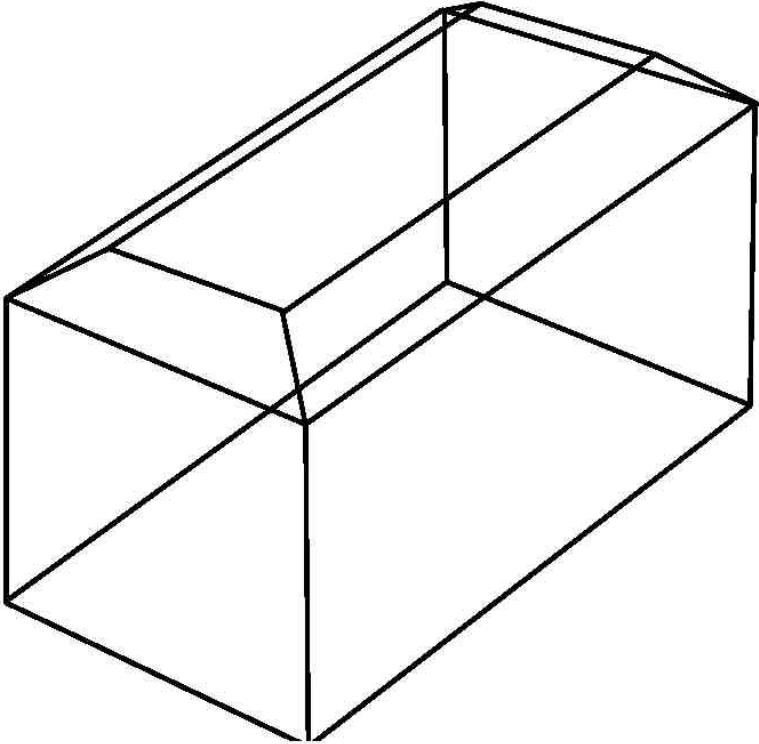
507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

507178.234 4475120.367 189.012

Examples of Face Topology Needed



2 approaches to data collection: (1) collect and label the vertices, then build the faces manually off-line, or (2) collect the faces directly. Approach 1 is probably easier and guarantees that the topology will be consistent. Approach 2 would be faster but how do you guarantee unique vertices? Also you will have to build manually any faces that you cannot see. Measure the terrain elevation in the vicinity of the building and make sure that the side faces go down that far. Burying is preferable to floating.

You will be evaluated on (1) accuracy, (2) completeness, and (3) topology (i.e. no gaps or holes), and (4) appearance.

You may reformat your data for your own quality check using Autocad and the 3dface command, or VRML, or

Do not try to “cookie cut” features into a face. Just make the whole face and the renderer will only display what is in front and it will “look” correct.

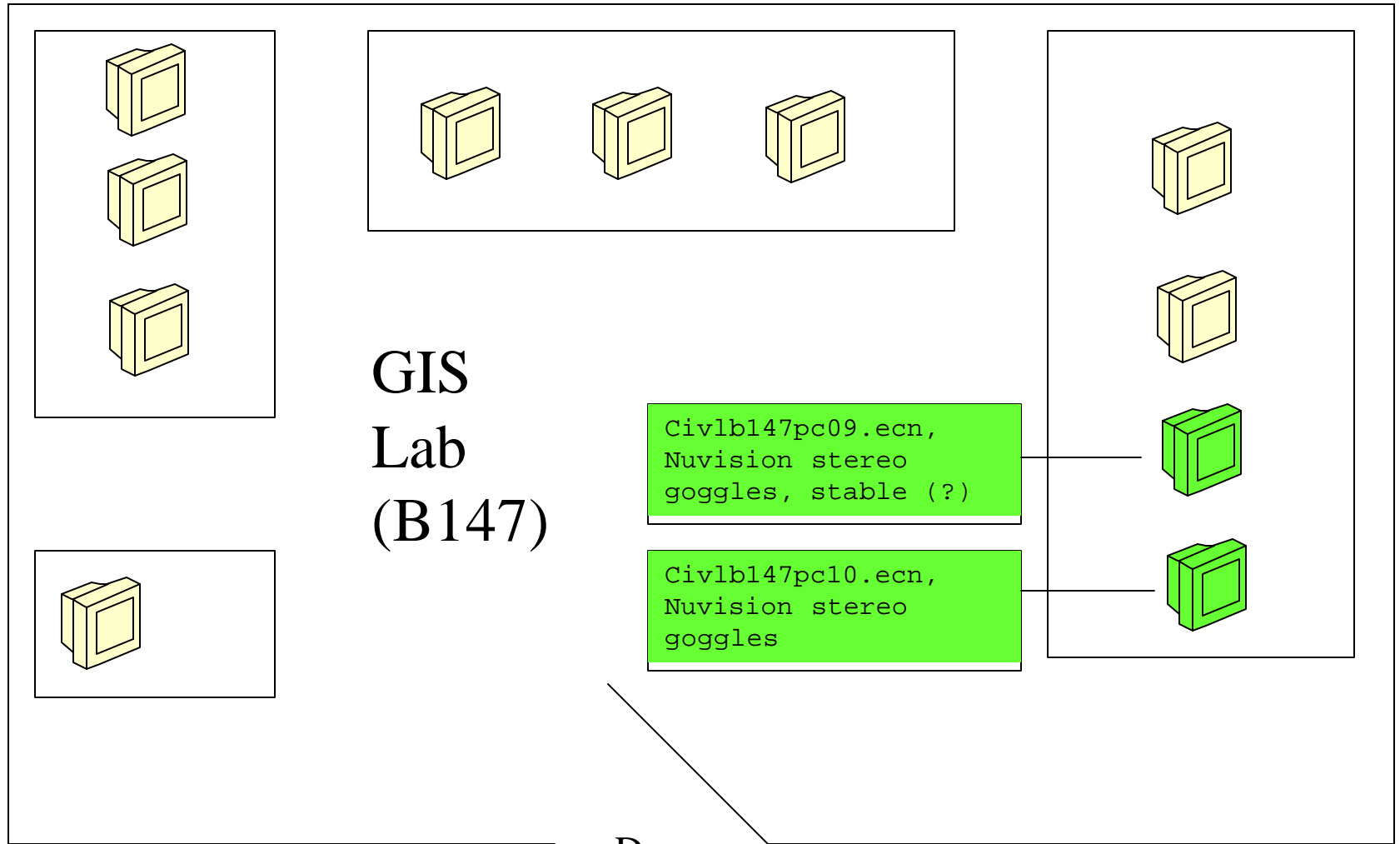
Estimate the “average” color for a face. Similar faces should all have the same color. Let the renderer take care of shadows, illumination effects, etc. An ambitious class member may suggest a color for commonly occurring materials: red clay tile roofs, red bricks, etc.

How do you render a 4(+)-sided face if the vertices are not coplanar? See lecture material

Computers which will run Erdas Imagine / Stereo Analyst with reasonable performance

All of the new (black) machines in room 1212. These are Dell optiplex G260 machines. They only work in the anaglyph mode, so you have to borrow some red/blue glasses from g144. The older machines in 1212 are not fast enough to keep up with all of the image resampling that Erdas is doing. If you work on one of the machines with the active goggles, then you must remember to select “quad buffered stereo” from the option menu.

Continued,



Hall

Continued,

G144 Photogrammetry Lab

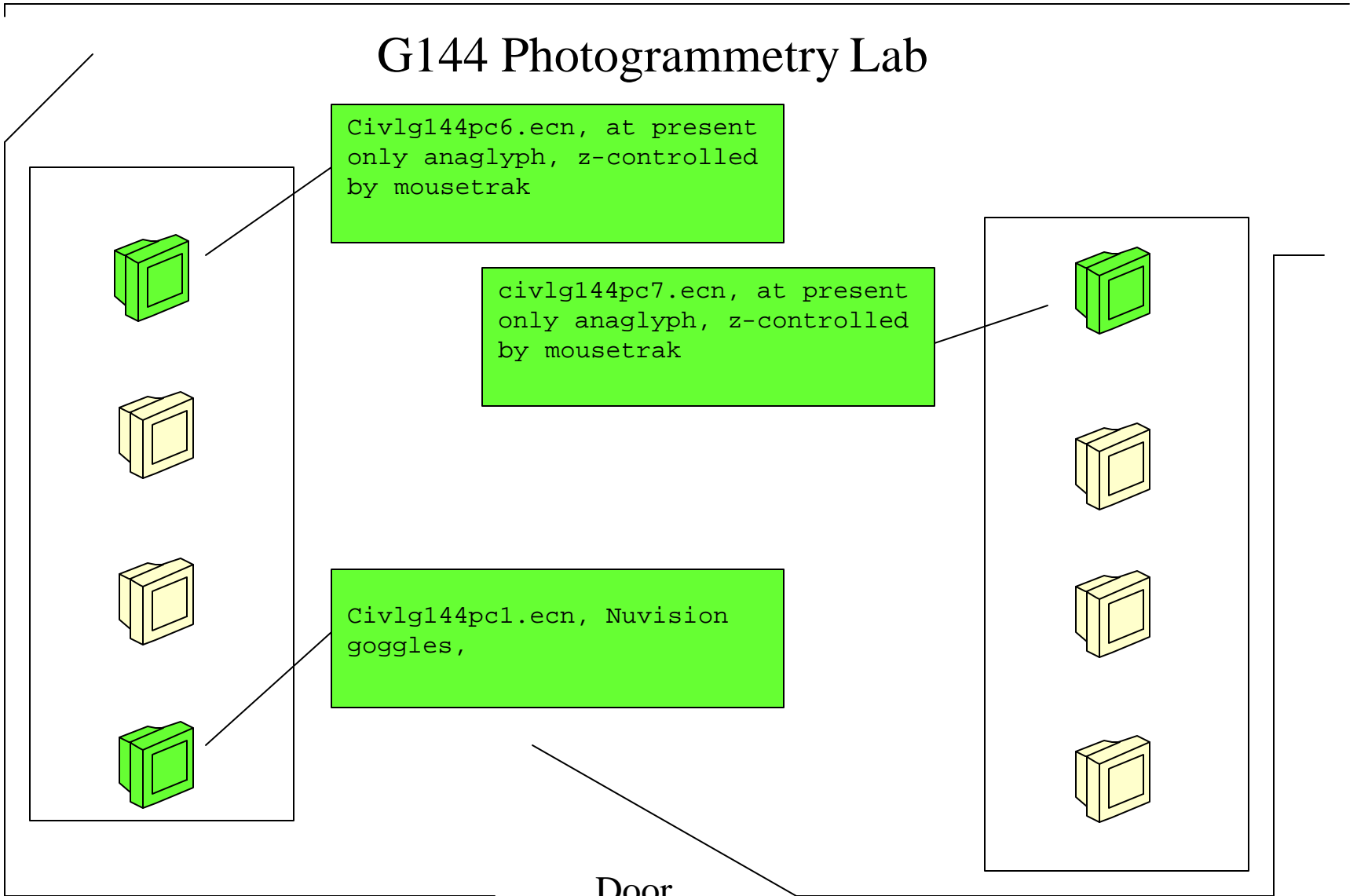
Civlg144pc6.ecn, at present
only anaglyph, z-controlled
by mousetrak

civlg144pc7.ecn, at present
only anaglyph, z-controlled
by mousetrak

Civlg144pc1.ecn, Nuvision
goggles,

Door

Hall



Erdas Imagine – Stereo Analyst

Locations

- 1212 – new machines only
- 1115 (undergrad lab) (1)
(installation still in progress)
- GIS lab (2)
- g144 – photogrammetry lab (3)

Programs

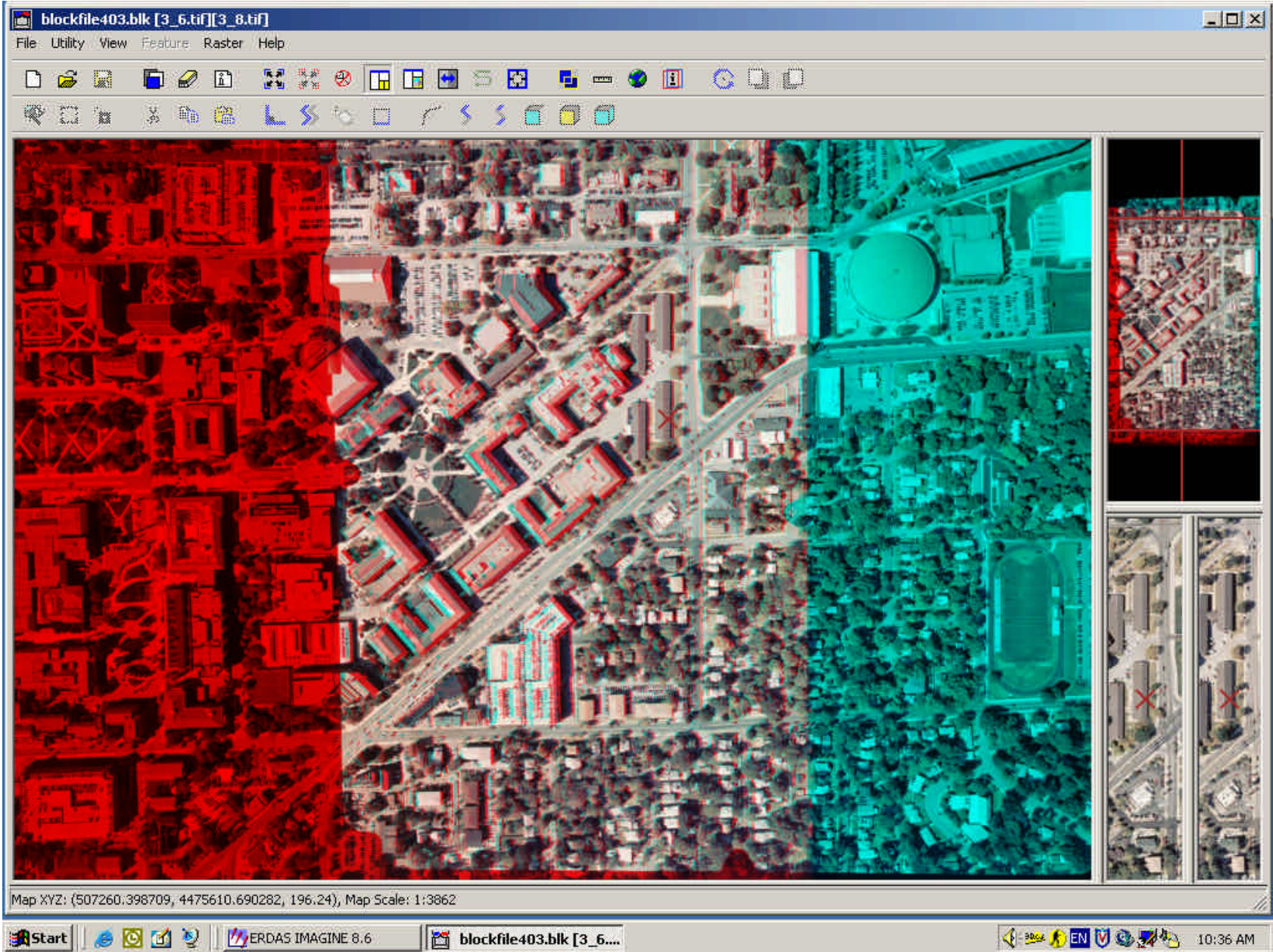
- ECN Programs
- CE Programs
 - Erdas Imagine v8.6
 - many module options

Stereo Analyst

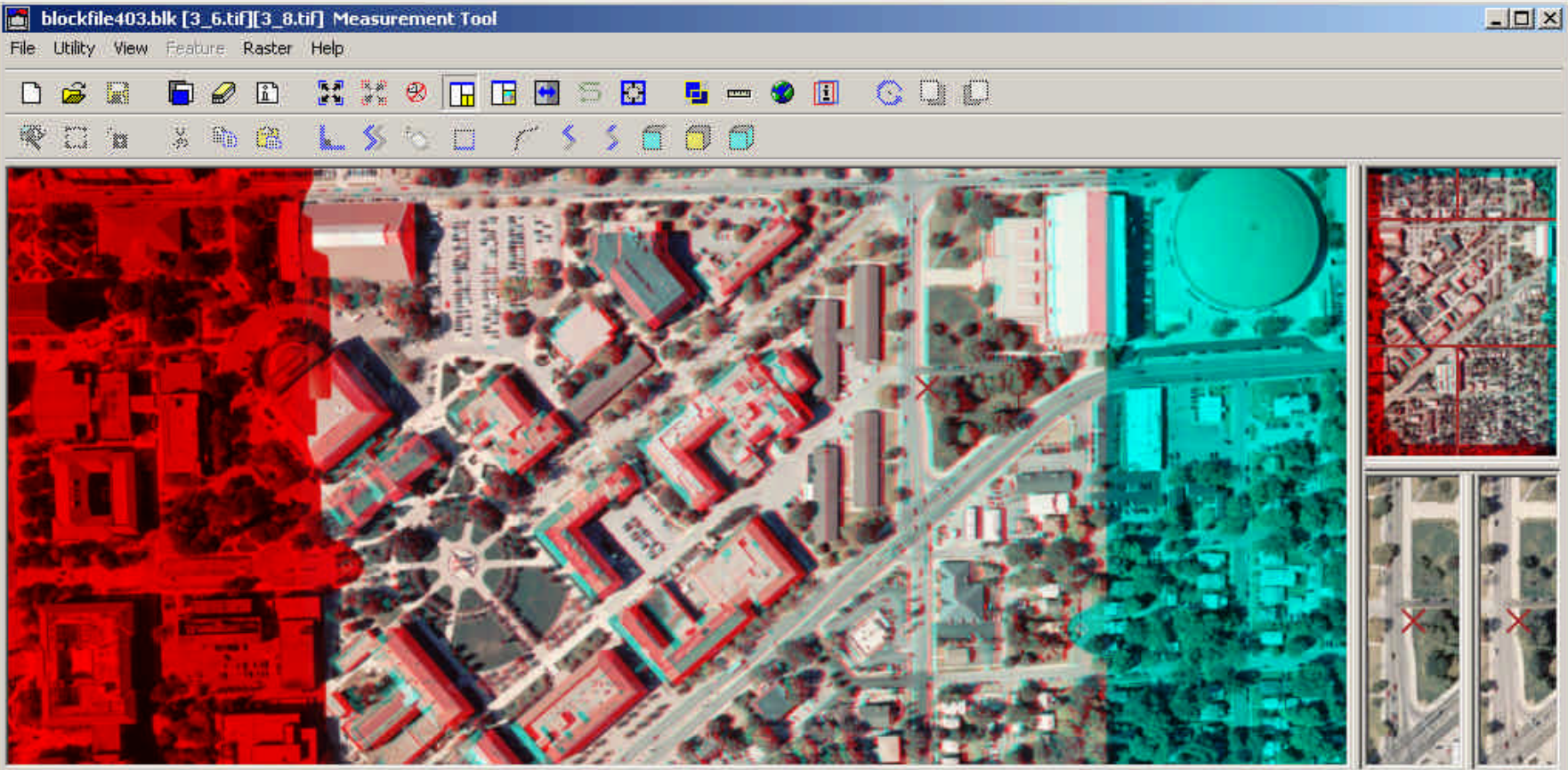
- File
 - Open
 - Imagine Orthobase Block File

[\\geomatics\data\bethel\ce503\](#)

purdue1\blockfile403.blk



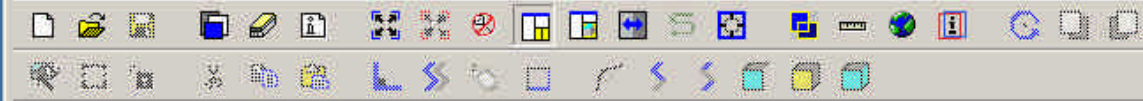
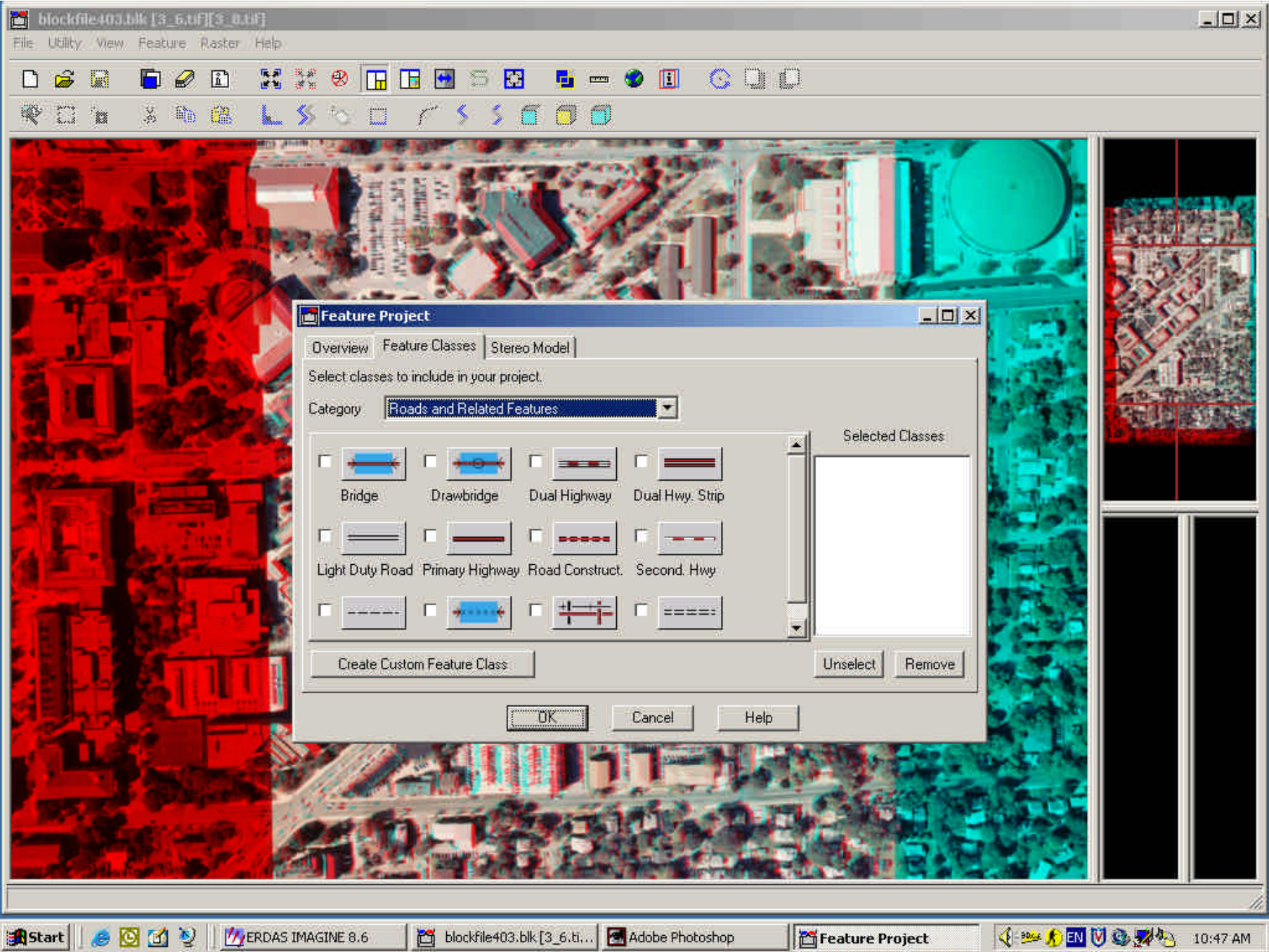
Mouse: XY, Mouse Wheel: Z, Left Button: Pan, Control-Left Button: Zoom, Viewing: Anaglyph or Active Glasses (120Hz flicker)



3D Measure Tool

Point 2. 507174.104476 4475414.221903 meters, 191.6211 meters.
Point 3. 507303.241805 4475578.163615 meters, 194.0615 meters.
Point 4. 507204.042662 4475646.696091 meters, 195.0818 meters.

Map XYZ: (507204.042662, 4475646.696091, 195.08), Map Scale: 1:2896















Feature Project

Overview | Feature Classes | Stereo Model

Select classes to include in your project.

Category: Roads and Related Features

<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
Bridge	Drawbridge	Dual Highway	Dual Hwy. Strip
<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
Light Duty Road	Primary Highway	Road Construct.	Second. Hwy
<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 

Selected Classes

Create Custom Feature Class | Unselect | Remove

OK | Cancel | Help