

Explanation of the shapefile accompanying the NAIP CCM image, and how to access the image date information (ArcGIS 9.x Version)

Introduction

These instructions explain the shapefiles which accompany NAIP Compressed County Mosaics (CCM). The shapefiles are provided with the imagery, and include fields describing the image.

Image dates provided in the shapefile are for the majority date of the image. A given Digital Ortho Quarter Quad (DOQQ) may contain portions of several different exposures, possibly from different flying dates, or different times within the same day. Processing methods vary between image contractors, and the date given to a polygon may not be correct for all parts of the image.

Locating the Image Date

The imagery dates can be found easily. They are listed in a field called “*IDAT*” in the attribute table of the shapefile provided with the Compressed County Mosaic. The shapefile should have the same name as the CCM, but with different extensions. Both of these files should be in the same projection: Universal Transverse Mercator (UTM), for their appropriate zone.

The image itself will have the extension *.sid*, and the icon looks like a small yellow grid. This indicates that it is a raster image, comprised of individual pixels.

The shapefile has the extension *.shp*, and the icon has a green border with a small “map” of three polygons. This is a vector file, a series of areas backed by an *Attribute Table*.

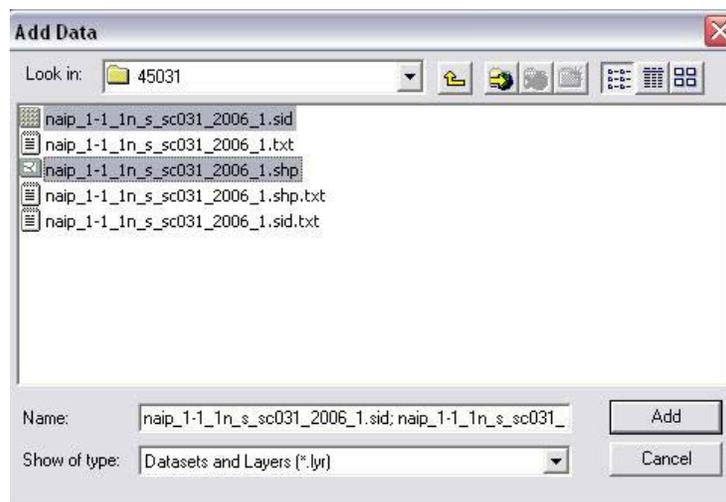


Figure 1: The Add Data window, with the CCM (.sid) and shapefile (.shp) selected.

FID	Shape	Q0Name	BCOH	IDAT	DOQQ	OKEY
0	Polygon	CASH SW	NC	2006-06-16	n3407925.sw	343000N0795615W
1	Polygon	CASH SE	NC	2006-06-16	n3407925.se	343000N0795230W
2	Polygon	SOCIETY HILL SW	NC	2006-06-16	n3407926.sw	343000N0794845W
3	Polygon	SOCIETY HILL SE	NC	2006-06-16	n3407926.se	343000N0794500W
4	Polygon	BENNETTSVILLE SOUTH SW	NC	2006-06-16	n3407927.sw	343000N0794115W
5	Polygon	BETHUNE SE	NC	2006-06-15	n3408038.se	342230N0801500W
6	Polygon	LAKE ROBINSON SW	NC	2006-06-15	n3408039.sw	342230N0801115W
7	Polygon	LAKE ROBINSON NE	NC	2006-06-15	n3408039.ne	342615N0800730W
8	Polygon	LAKE ROBINSON SE	NC	2006-06-15	n3408039.se	342230N0800730W
9	Polygon	HARTSVILLE NORTH NW	NC	2006-06-15	n3408040.nw	342615N0800345W
10	Polygon	HARTSVILLE NORTH SW	NC	2006-06-15	n3408040.sw	342230N0800345W

Figure 2: The Attribute Table, with the IDAT field circled.

Steps for finding the dates

1. Loading the Data

- 1) Open ArcMap
- 2) Add Data by clicking on the *Add Data* button. This is the plus sign with a yellow background, found on the Standard toolbar.



Figure 3: The Add Data button in ArcMap.

- 3) Navigate to the directory where the data is stored. Select the image (.sid) and the shapefile (.shp), as shown in Figure 1. Click *Add*. The shapefile will display above the image.

2. Finding the Image Date Information

Method 1: Identify Tool

Using the *Identify* tool, click on a polygon, and read the date in the "IDAT" field.

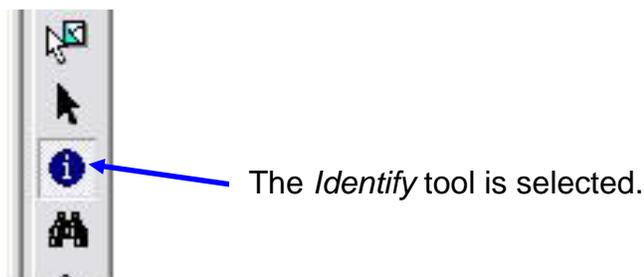


Figure 4: The identify tool is the letter "i" within a blue circle.

Select the shapefile name from the *Layers* dropdown menu in the *Identify Results* window. The shapefile will not have an extension after the name; the

CCM will have .sid after the name. In the Identify Results window, the date will be displayed after the field heading *IDAT* (Image Date). The date may be written in the format 20060616 in some files.

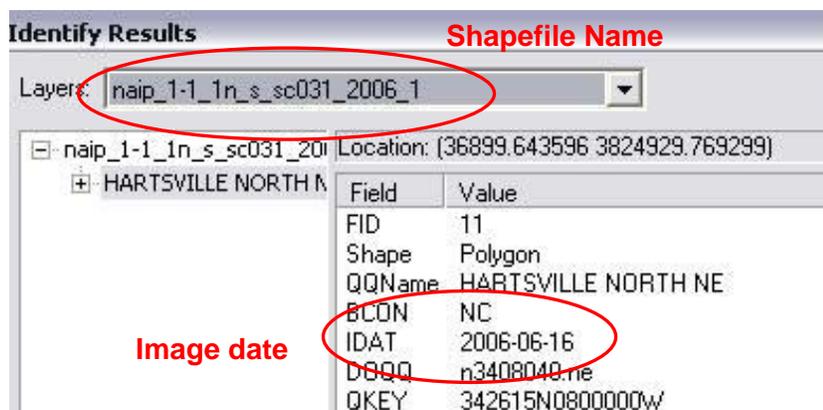


Figure 5: Finding the *IDAT* field from the shapefile's Attribute Table in the Identify Results window.

Method 2: Open the Attribute Table

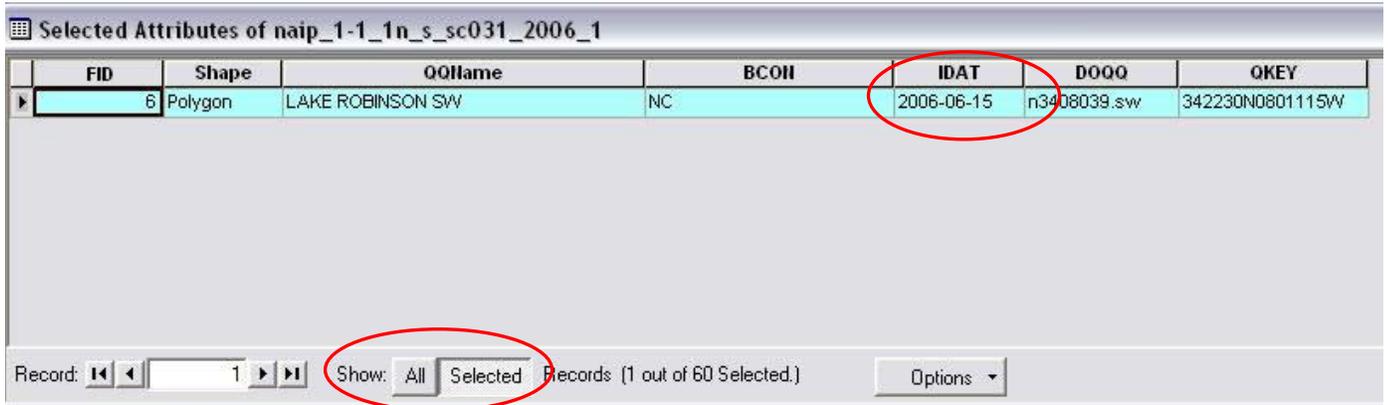
Use the *Select Features* tool in ArcMap, select a polygon (or polygons), and read the results in the *Attribute Table*.



Figure 6: In ArcMap, use the *Select Features* tool, the white arrow with the "selection color" displayed next to it. Click on a polygon, or hold down the *Shift* key and click to select several polygons.

Open the Attribute Table by right-clicking on the layer name in the Table of Contents, and selecting *Open Attribute Table*. At the bottom of the window, change *Show* from *All* to *Selected*. The date is under the column heading *IDAT*.

The other fields in the Attribute Table are explained in the last section of this document.



FID	Shape	QQName	BCOH	IDAT	DOQQ	OKEY
6	Polygon	LAKE ROBINSON SW	NC	2006-06-15	n3908039.sw	342230ND801115W

Record: 1 Show: All Selected Records (1 out of 60 Selected.) Options

Figure 8: The Attribute Table with “Show: Selected” and the IDAT field circled.

Method 3: Label the DOQQ Polygons

Use the “IDAT” field as a label for the polygons, and view all the dates for the entire CCM overlaid on the image.

Layer Properties in ArcMap is accessed by right-clicking on the layer name in the *Table of Contents*, selecting the last option on the list, *Properties*, and clicking on the *Labels* tab.

Check next to *Label features in this layer*, and accept the default *Method*. Under *Text String*, make *IDAT* the *Label Field*. Adjust the font, style, and size if you want. Experiment to find a color that will show up well!

The other buttons can be left at the default settings.

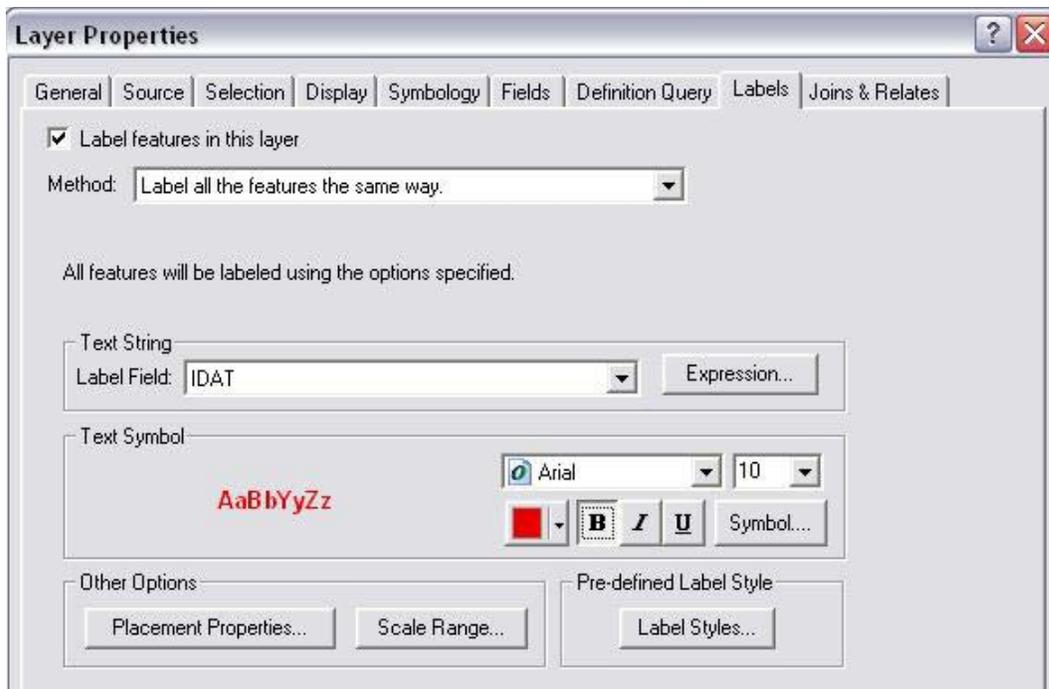


Figure 9: In the view window, set the image dates as the label to be displayed.



Figure 10: A CCM with each DOQQ labeled by date.

In *Figure 11*, below, you will see that the polygon boundaries from the shapefile and the actual DOQQ (Digital Ortho Quarter Quads) areas displayed in the CCM are not identical. When looking inside the blue rectangle, there is a noticeable tonal difference between the image outlined and the ones next to it. There is also a definite image boundary, visible outside of the DOQQ polygon area. This is because each Quarter Quad has a buffer that overlaps the adjacent images. The input order of the DOQQs in the compression process will determine which image is displayed above another.

The image dates given in the attribute table are for a majority date of flying, and apply to the individual tiles making up the CCM. They will need to be used carefully when looking at the entire county mosaic.

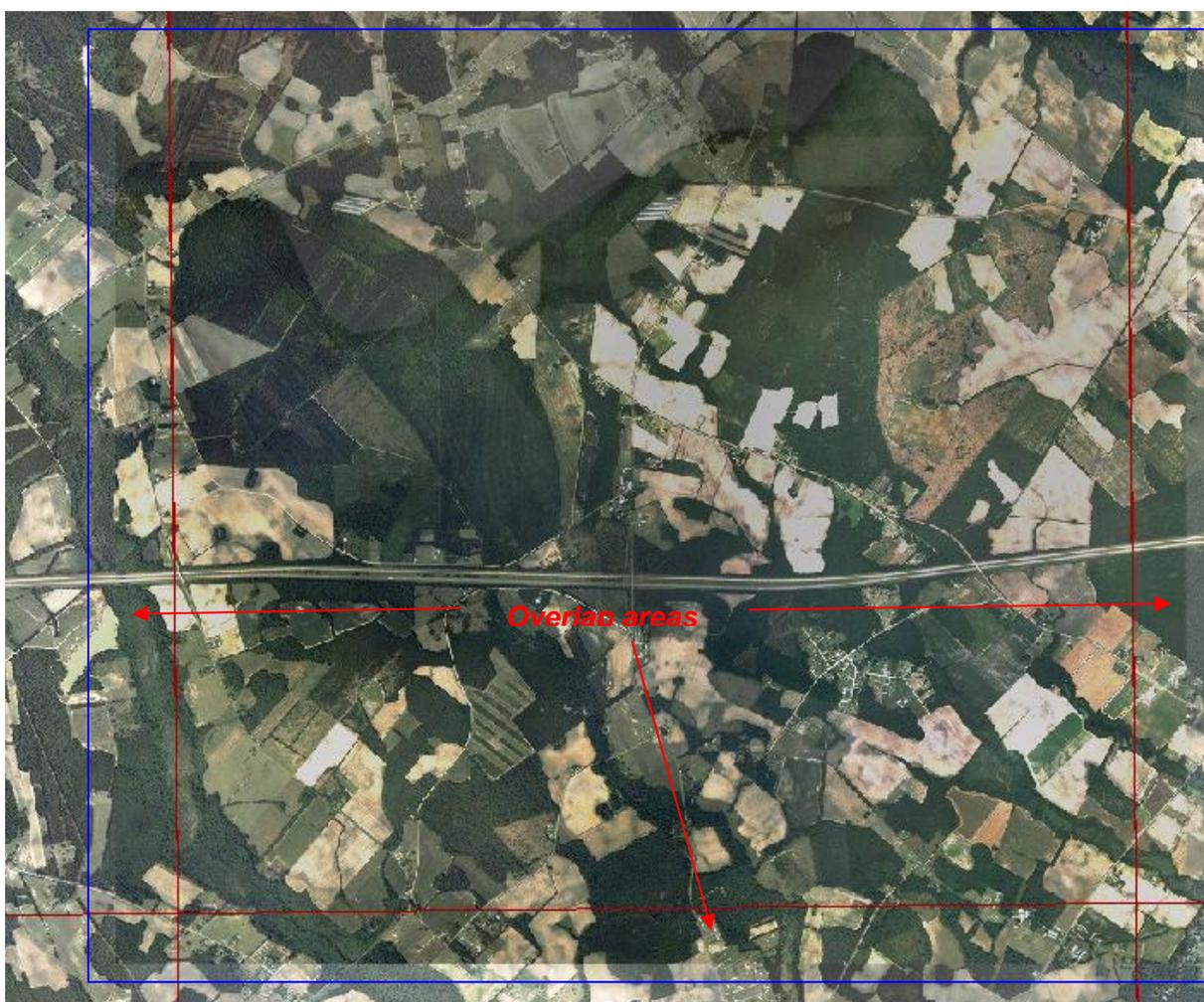


Figure 11: An area displaying image overlap, extending beyond the polygon area.

Other Fields in the Shapefile's Attribute Table.

The Attribute Table describing a CCM is rather small, containing seven fields. Two of these are standard ESRI fields, created by the program. These are FID (feature ID) and Shape, in this case, Polygon. The other five fields are populated by the contractor providing the imagery, and describe each individual DOQQ in the CCM.

FID	Shape	QNAME	BCON	IDAT	DOQQ	QKEY
0	Polygon	CASH SW	NC	2006-06-16	n3407925.sw	343000N0795615W
1	Polygon	CASH SE	NC	2006-06-16	n3407925.se	343000N0795230W
2	Polygon	SOCIETY HILL SW	NC	2006-06-16	n3407926.sw	343000N0794845W
3	Polygon	SOCIETY HILL SE	NC	2006-06-16	n3407926.se	343000N0794500W
4	Polygon	BENNETTSVILLE SOUTH SW	NC	2006-06-16	n3407927.sw	343000N0794115W
5	Polygon	BETHUNE SE	NC	2006-06-15	n3408038.se	342230N0801500W
6	Polygon	LAKE ROBINSON SW	NC	2006-06-15	n3408039.sw	342230N0801115W
7	Polygon	LAKE ROBINSON NE	NC	2006-06-15	n3408039.ne	342615N0800730W
8	Polygon	LAKE ROBINSON SE	NC	2006-06-15	n3408039.se	342230N0800730W
9	Polygon	HARTSVILLE NORTH NW	NC	2006-06-15	n3408040.nw	342615N0800345W
10	Polygon	HARTSVILLE NORTH SW	NC	2006-06-15	n3408040.sw	342230N0800345W

Figure 12: The Attribute Table for the descriptive shapefile accompanying a CCM.

The **QNAME** is the same name as the USGS topographic quadrangle map for that area. In this case, the quadrangle has been divided into four quarters, NE, NW, SE and SW. The image *Hartsville North NW* would cover the area in the northwest portion of the USGS map of the same name, in South Carolina.

BCON stands for “Band Content” (also defined as “acquisition collection medium”); in this case the “NC” indicates Natural Color. “CIR” would be Color Infrared.

IDAT, as discussed above, is the majority image date for each DOQQ.

DOQQ is the unique image name for each DOQQ, or Digital Ortho Quarter Quad. The elements of the name are (as defined in the metadata): image type, latitude, longitude, quadrangle number, and quadrant.

For the quadrangle *Hartsville North NW*, the image name is *n3408040.nw*. The single letter “n” indicates a Natural Color image; “c” would indicate a Color Infrared image. “34” is the degree of Latitude, and “080” is the degree of Longitude for the image. “40” indicates the quadrangle’s 7.5’ x 7.5’ locator within a 1 degree block. This system, devised by USGS, divides each one degree block into 64 cells (8 cells x 8 cells.) The numbering begins in the upper left corner, with 1 – 8 on the first row, 9 – 16 on the second, etc. Block 40 is on the eastern edge of the 5th row. The quadrant is the section within the quadrangle that the image represents (NE, NW, SE, or SW.)

QKEY is a more detailed locator for the image, and is unique to each DOQQ. It is formed by joining the Latitude and Longitude positions of the lower right hand corner. For the image used as the example above, *n3408040.nw*, the QKEY is

342615N0800345W. This concatenation of numbers and letters means that the lower right corner is at 34°26'15" North Latitude and 80°3'45" West Longitude.

The QKEY can be verified in ArcMap. First change the image display to *Degrees Minutes Seconds*. Right click on the *Layers* name in the *Table of Contents*, and select *Properties*. In the *Data Frame Properties* box, select the *General* tab, and change the *Display* to *Degrees Minutes Seconds*

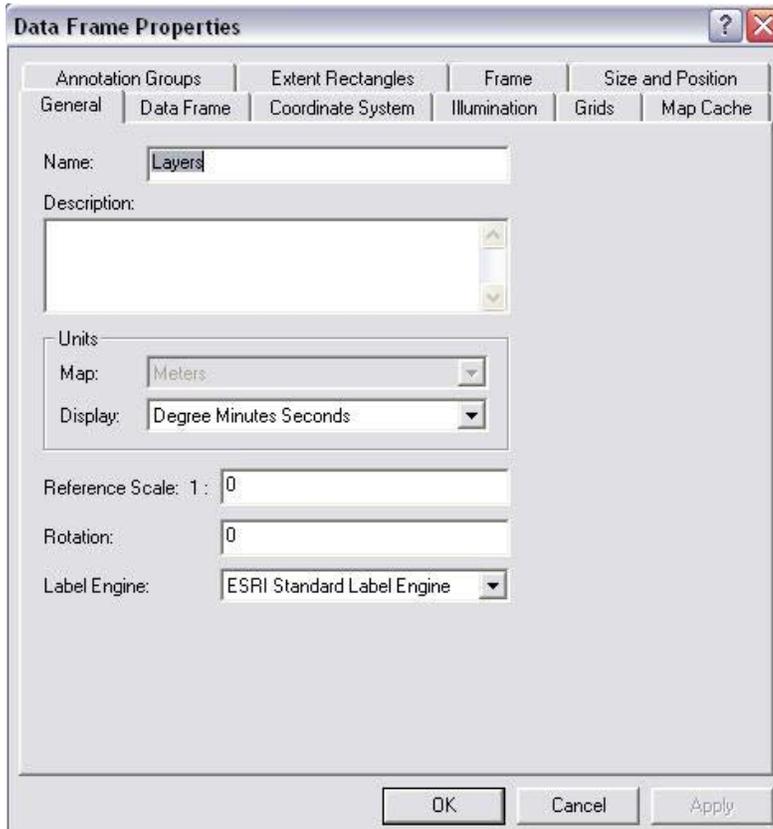


Figure 15: Set the Display to Degrees Minutes Seconds.

Zoom in to the lower right hand corner of the polygon, and place the cursor exactly on the corner (or as close to it as possible). The location shown in the lower right of the screen should match the QKEY. (Notice that the Latitude and Longitude are reversed in the QKEY and the GIS window). Editing the QKEY will not change the DOQQ's location, but if the two numbers disagree there may be a mistake somewhere.

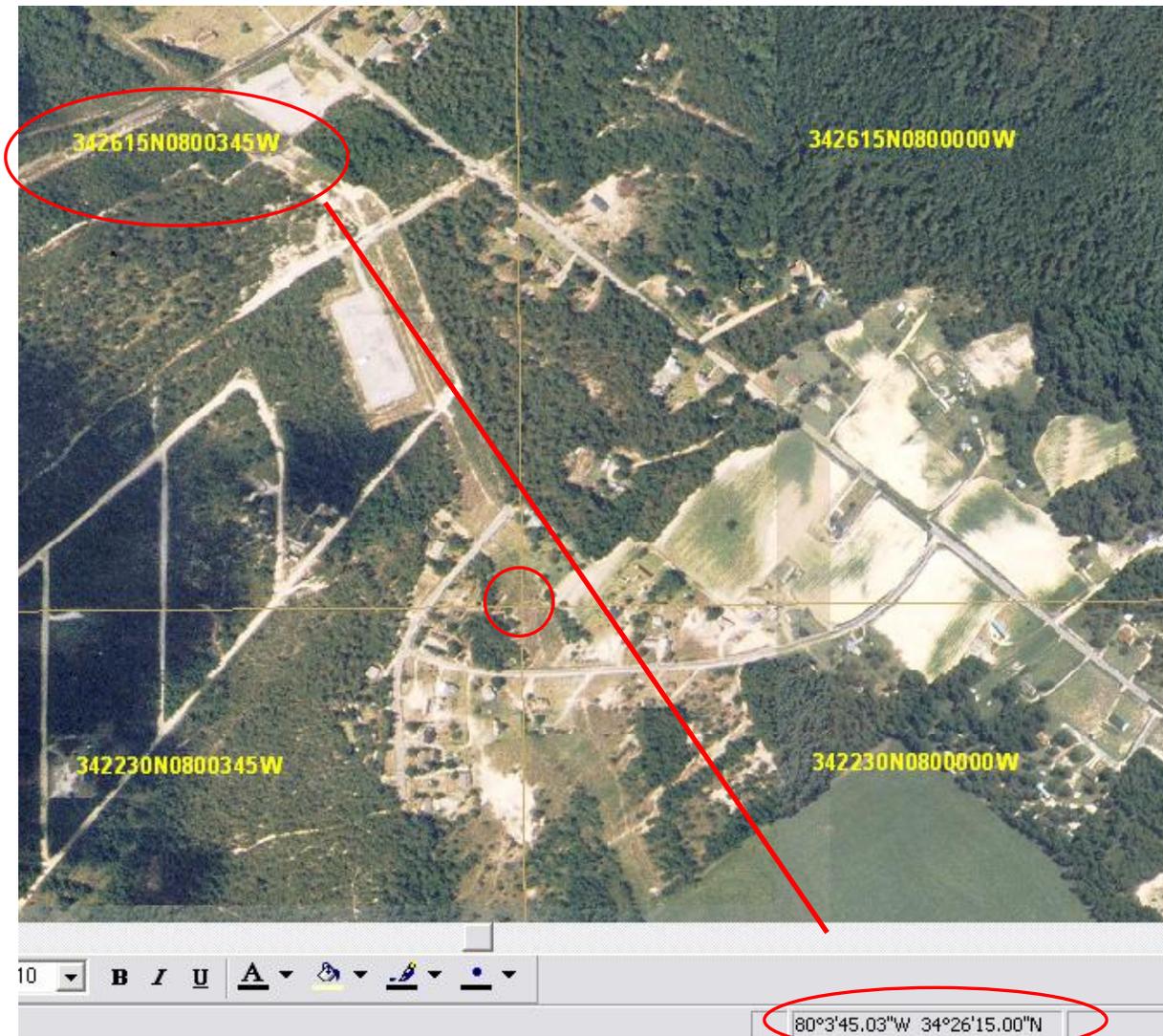


Figure 16: The QKEY locates the lower right corner of a DOQQ.



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