



BEST PRACTICES COURSE – WEEK 12 – PART 3 Site Survey and Topography Modeling - Placing a PDF Survey Drawing to Scale, Setting North Orientation

Hello, this is Eric Bobrow. We'll continue this lesson from the previous one where we had created the property lines based on the survey that we had in a PDF file. We'll now place the actual survey file into our ArchiCAD project, because it has a lot more information that we'll find useful when we build up the actual site model. [0:00:24]

To place a PDF, we go to the File menu, External Content, Place External Drawing. And go select this PDF that I was just looking at. And when I do that, we may wonder what size it's going to come in. Well, I'm going to click and we'll take a look. We'll place it, and when I zoom out, we'll see that hey, actually it looks pretty good. Why is that? Because the scale factor that it was planned for is 1 inch equals 30 feet and if I select it, when you place one of these, it will automatically come in at 100% scale. [0:1:10]

So basically, if you have the scale factor here, the 1 inch equals 30 or matching, then when you place it at 100% it should work perfectly. And to verify that it is, I'll just select this and drag it from this corner and snap it into position, and you can see how beautifully that aligns. If I zoom in on it and move these around a little bit further, I can say drag this point up there, and you can see how beautifully that aligns there. And if I go to any other corner, we'll see how it's lining up very cleanly. [0:01:47]

Now sometimes you can't get it at 100%. In other words, the PDF is not actually set up properly or for some other reason it isn't working. Let's look at how you can manually resize it and get it within a fraction of a percent of actual accuracy. So to manually resize it to get it in this case out of scale, I'll press down on the corner and use the pet palette option to resize, which is different than the cropping one. This one that resizes will actually change its percentage. [0:02:22]

So I've now made it noticeably smaller. And if you look at the percentage here, you will see it's about 60% of real size. So how would we get it from some arbitrary size to the exact right size or very close to the exact right size? Well what I'll do is select it, and I'll go to the Edit, Reshape, Resize, or use the keyboard shortcut Command or CTRL+K. and then I'll say that I'd like to resize it graphically. So I'm going to go and tell ArchiCAD by zooming in on it that the distance from two points that I'm going to click on, say from this point that I am indicating at one corner of the boundary, and then I'll zoom out and pan and zoom in on the other corner of the boundary here. [0:03:10]

So that distance, instead of being what it is right now which is 89 ft, it should be 132 ft. So I'll type in 132.6. So that's saying that the distance that I clicked on should not be what it currently is, it should be 132.6, and I hit Enter or Return. You can see how it's gotten bigger, and if I were to now measure this, we can find it very close to being accurate. And in fact, just to see how close we got, you can see it's now

showing 100.36%, so in other words, I'm within 1/3 of a percent by doing a very quick measurement like that. So you can get it very close, certainly as close as you need to if you just zoom in very carefully on this. [0:03:59]

And so let me just drag this again on top of it and you can see how beautifully that aligns there. And I'll just, knowing that it should be 100%, I'll just type in 100% and get this accurate. And we'll drag this now exactly on top of that. So that is about as good as we're going to get. So now we have the question of if we wanted to put this on a layout sheet, could we do it. Of course we can do that, but one thing we'll need to look at is the view. [0:04:33]

So in other words, in the View Map, is there a view of this worksheet to place on a layout? In this case, in this particular template, there is a clone folder for worksheets. And so the survey already has a view all set up to go. And I can drag it onto a sheet. However, this clone folder is set up for a particular scale, in this case, 1/4 inch to a foot. And the survey inherited that when it was created as a view. What we want to do is adjust this view, say that the settings for it should match the scale, and perhaps the layer combination. In this case, I want to make sure that all the layers are showing because in the worksheet, I'm not worried about turning on and off information. [0:05:21]

So you may need to adjust the layer combination and definitely will need to check the scale. And when I say OK and double click on it, we should see no change in terms of the view, because this scale of the view should match. Now I'm going to go to the Layout sheet and just drag this view onto it. So I'll go open up the sheet, drag the view onto it, and we can see that it comes on very nicely at that scale and orientation. [0:05:56]

Now suppose that we wanted to actually work with the building. Instead of having the building on an angle like this, we wanted to rotate it around so that we can see it square. Well, obviously this drawing here looks good in this orientation, but when we're working on the building, how would we get it so that the survey information was square? Well, there are different ways that you could do it. I'll show you two that I think both are legitimate and there are pros and cons to each one of them. [0:06:24]

I go back to the survey here by double clicking it in the Project Map or the View Map. I could rotate the whole thing. That would mean the PDF file and the boundary lines until they were in their right orientation or the preferred orientation. So when I zoom in on this, I use the option to rotate this, I might say that the snap point here from this vector line - and I'll just go along it. You can just barely see the little Mercedes. And then I can take it to be horizontal. And you can see the snap on the axis there. [0:07:06]

So now that back property line is horizontal, and perhaps the building design would be on the axis. Having done that, we would see the north arrow on the survey rotate. But we don't really know quite how many degrees we rotated it initially. So what I need to do is just select only the PDF file and look at its rotation. And we can see when I rotated that, it went 4.43°. Now let's put in a north arrow and talk about the north arrow object and how it's able to pay attention to the north position on this. [0:07:49]

So let me undo the rotation here, put it back to straight up and down. So with the north arrow object, so if I go to the Object tool and double click on it, and then go Find Library Parts from the popup, I'll pick north and click on Find or hit the Enter key, we'll see that there are two north symbols in my currently library. I'll pick the one that is sort of a standard, more international one as opposed to the U.S. based National CAD Standards or NCS. And you can see that it has a certain appearance, but I could change it to a different style perhaps using one of the other ones. [0:08:26]

Here's one I like. So this arrow will look a certain way, and I can change its size in terms of the letter and the length of all of these things to suit my needs. But there's also a checkbox that says "Follow Project North". So if I click on that, then what will happen is it will rotate as I might adjust or coordinate with the project north that is set in our project preferences. So let me say OK, and just click to place it. [0:08:55]

Now it is straight up and down, because in this new project, I haven't set the project north in a rotated position. So it matches of course this orientation. But let's say that I wanted to rotate everything by that 4.43° or whatever that happened to be. So let me go now and select everything, and I'll deliberately not select the north arrow here, and we'll see how we can make it automatically adjust. So I'll go now and say that I'd like to rotate this. Snap to one end and the other end of the property line, and then take it to the guideline which you can barely see the orange guideline and click on that. [0:09:38]

So now this is horizontal, and again if I select just the PDF, I can verify that the angle that it was set was 4.43° rotated around. So in order to modify this, instead of rotating the north arrow manually, what I'll do is say that I'm going to work with the project preferences where the project north is rotated. And here when I open this up, I can type it at an angle, but I always like moving it just to see what the numbers say, so I can tell that I've got it in the right thing. So it started at 90, and basically to get it to 4.43, I would need to just type in 94.43, and that would give me the correct bearing that I want. [0:10:26]

Now the Project North is set here in decimal degrees. But you can also do degrees, minutes, seconds if you need to. This is where we see it in ArchiCAD 15 and 14; but for many years before that, this would be available and controlled under the View menu, 3D view, in a very funny place called 3D Projection Settings. And in the 3D projection settings, there's an option to set the sun position based on the north direction. So obviously, when you're saying that the sun should position itself based on a date and time, it has to know which way is north. And in earlier versions of ArchiCAD, you would set the project north here to adjust the sun. [0:11:16]

And as a secondary effect, it would affect the bearings, the measurements that we see for these survey lines. But in later versions of ArchiCAD, more recent ones, you would set this in the Options, Project Preferences, Levels and Project North where we can then edit it. You can see it reflected in both, but it's now controlled in this one. Now if I look at this, if I measure here going along, you can see that it's still showing the 84, 34, and 12. So it's actually just a hair off, because of me doing only two decimal places. [0:12:04]

But it's basically still giving me the correct readout, even though it's been rotated horizontal. And that's because it's paying attention to the north position. If I hadn't adjusted it in that dialog box, then this north arrow would not rotate, and the bearings would show a different value. So at this point, I can go to the plan and start to draw my building. So we'll go to First Floor plan here, and I'll show with the Virtual Trace that I would like to see the survey underneath that. [0:12:41]

And perhaps I want to see all of this information a little bit more clearly, so I'll open up the Trace and Reference palette, and I'll change the color to a red so we can see it more easily. Fade it out a little bit, just so it's not quite so prominent. So you can adjust that as you wish. So now, I could draw walls along here, and I can actually snap to this. And you can see perhaps that I could have these walls on the axis like that. Now instead of rotating it like I did here, what we might want to do is instead leave this as it was. So I just undid it back there. [0:13:33]

And when I go back to the plan view, I can go in, and since I undid the rotation, I can instead rotate the trace. So I can say that I'd like to rotate this trace reference. And you can see I have the snap points to the lines that I had drawn, not the PDF but the lines themselves and rotate this down. So now, I've got the Trace Reference rotated, but in the actual worksheet. It is in its original orientation here. So basically, that would be probably the preferred choice that I would use would be to leave the worksheet alone, but in the Trace and Reference rotate it as needed to suit the plan representation. [0:14:24]

This allows you to work in plan, perhaps with the axis of the building on the natural X and Y axis for simplicity, but to have the original survey drawing in its original or proper orientation for placing onto a layout sheet. So that's probably the best compromise, at least what I think works best in general. But both options can be valid. So this has been Eric Bobrow, and this completes our lesson on creating a site survey drawing from a paper land survey or a PDF version. And it included placing the PDF file as well and using that as a Trace and Reference underneath the floor plan. So I look forward to getting your comments and questions on the page down below. Thanks for watching.

[END OF AUDIO 0:15:19]