

Comprehensive Breakdown Of My Survey Drafting Process

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https://www.reddit.com/r/Surveying/comments/etx0dk/a_somewhat_comprehensive_breakdown_of_my_survey/

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A lot of thought and effort goes into drafting even a simple plat. It might seem simple, but drafting an informative plat is an art form. You can have all the necessary information in the plat, but if it's not intuitively readable, it could be misinterpreted.

Here is a detailed breakdown of my general workflow for drafting a plat (although it can vary depending on the type of job and the complexity involved):

1. Import and draw survey points. I'm not too familiar with Civil 3D, but we use Carlson Survey, which has a feature called "draw by layer" when drawing the points. It essentially places points on various layers based on their point description. So, for example, when using the draw by layer feature, all points with the description "EOP" (edge of pavement), will be drawn on a layer named "PT_EOP". This makes it trivial to isolate all "EOP" points and draw your pavement, since all the EOP points are on the same layer. The way we have it set up, the surveyor can use a forward slash in their point description to add additional information about the point. So, for example, the description for a power pole with a transformer might be "PP/TRANS/NC", with the "TRANS" indicating that it has a transformer, and "NC" meaning "no contour" (meaning it's a reflectorless shot). When we draw this point using the draw by layer option, Carlson ignores anything in the description after the first forward slash. So a point called "PP" will go on the "PT_PP" layer, and a point called "PP/TRANS/NC" will also go on the "PT_PP" layer. This keeps our power pole points on the same layer, while retaining the additional information about the different poles.
2. Import aerial imagery/orthophotos (optional). I like to use aerial imagery to help me connect the dots between points and check the survey points for errors. An example would be if I see a single EOP point in the middle of an empty field, I know that it's either a) a bad point, or b) the surveyor used the wrong description. Usually this situation results in me contacting the surveyor and asking them if they can remember what description they meant to use for that point, or trying to determine if they had a bad backsight or missed a reflectorless shot. Keep in mind that it's generally not a good idea to use aerial imagery to "trace" features, unless you can vouch for the accuracy of the imagery (i.e. your company flew the site with a drone and created an orthophoto on or near the same date the survey was performed)
3. Draw linework. Using the isolate command, I isolate one layer at a time, let's say "PT_EOP" for example. I can isolate the "PT_EOP" layer, so that only the EOP points are displayed, and then draft the edge of pavement on the layer "X-EOP", which is a layer solely intended for edge of pavement linework. Once I have all of the edge of pavement drafted, I then freeze the "PT_EOP" layer, effectively hiding the EOP points. Since the EOP points are now represented by linework, I don't have to worry about them anymore, and I can now proceed to isolate a different point layer, say, "PT_BLDG", and go through the same process, drafting

all the buildings using the "X-BLDG" layer for the linework. This process is repeated until all the points are now represented by linework or symbols, which is what will appear on the final plat. I find it very advantageous to keep things organized by layers, ESPECIALLY if the linework/points in your CAD file are going to be viewed by anyone else, e.g. used by an engineer to create construction plans. But it is also a good way to ensure that you don't miss anything as you're working your way through the points.

4. Turn all the points back on, draw 3D breaklines where necessary, and generate a surface/contours (optional). If you need to show contours on your plat, or have to generate a surface for any other reason, it's best to do so after your linework is all drafted, so that you can easily see where you may need to draw 3D breaklines, draw exclusion areas around buildings, etc. Keep in mind that, depending on your settings, contours will be generated using the elevations associated with the objects you select, whether they be points or linework. So if the surveyor shot a building corner using reflectorless mode, you generally do NOT want to include that point when generating your surface.
5. Plot boundaries from deeds and/or plats. I like to plot my deeds and make each of them into Blocks on the "DEED" layer, so that they can be shifted and rotated without accidentally altering the lines. Then I can isolate the "DEED" layer, and the layer(s) containing boundary corner points, which for us is "PT_BNDY", and now I can try to solve the boundary. Sometimes this means plotting deeds for adjoining properties if your property has a vague or otherwise insufficient legal description. Once I'm happy with the boundary placement, I trace over my "DEED" blocks, using the "X-BNDY" layer, and freeze/turn off the "DEED" layer. This way, anyone who views your CAD file later can simply thaw the "DEED" layer, and see how you solved the boundary and make an adjustment if necessary. Any relevant easements are handled in a similar fashion.
6. Get into paperspace, set up a viewport, and choose an appropriate scale at which to show your survey. Adjust linetype scale accordingly, and make sure symbols are the appropriate scale. We typically put notes, title blocks, stamp/signature blocks, and vicinity maps in paper space, and labels/symbols go in model space.
7. Start labeling: bearings and distances (differentiating between measured and recorded if necessary), describe monuments in as much detail as possible, label properties with Parcel ID, ownership information, source of the title (deed/plat), acreage/square footage (if required). Label streets and right of way widths, easements, as well as any features that don't have a distinct symbol described in the legend.
8. Set up your legend. This will include any special linetypes used for fences, overhead or underground utilities, etc. It should also describe any symbols used. If you have a large amount of text labels describing the same type of feature, sometimes it's better to use a symbol or linetype instead, and include it in the legend; this helps reduce clutter on the survey plat.
9. Check to make sure any and all notes are correct, as well as verifying the accuracy of information in the title block. We use the same notes often, so we just copy notes from previous surveys and edit the details. Sometimes it's easy to forget to change the information in these notes to reflect the current survey, so I always double/triple check these.
10. Plot a PDF/paper copy as a test. Make sure all the linework and labels are clearly visible and legible, and that the most important information is prominent. Sometimes this means adjusting the placement or color of text labels and symbols.
11. Plot it again and double check everything.
12. Give it to the surveyor for review and stamping/signing.

This covers most of the basic techniques and methods I use. I skipped a lot of other things like setting up plot styles etc., but I don't have to worry about that stuff too much since we pretty much always use the same settings. I tried to cover just the basics of the process I use for every plat. I don't always follow the exact order of steps as listed here, but generally this is my workflow. I just realized how much I've written and now I'm a bit embarrassed lol. If any other drafters read this, I'd be interested in hearing if any of these techniques sound helpful, or if you have any suggestions or tips. I know some of these techniques might not translate perfectly to Civil 3D or other software, and that there might actually be more efficient ways of doing things in other software, but this is how we do it where I work.