



CITY OF GREATER SUDBURY  
ENGINEERING SERVICES

**PROCEDURE DOCUMENT**  
**FOR THE PREPARATION OF**  
**AUTOCAD DRAWINGS**

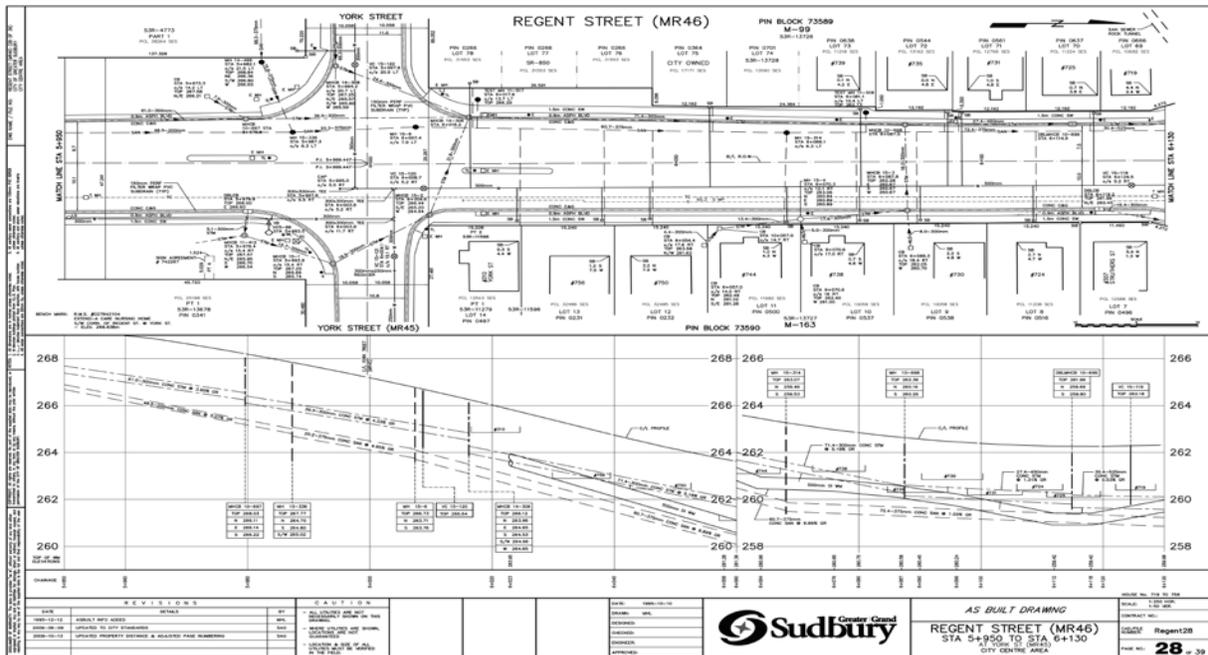
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**Note:** This procedural booklet is a companion document to be read with the **AutoCad Civil 3D Training Manual and Drafting Standards Manual**.

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Typical Plan and Profile drawing

## Introduction

The purpose of this document is to provide the end user instructions necessary to prepare 1:250 / 1:500 scale Plan and Profile drawings. In addition to this document, training sessions will be offered to help with understanding the process.

Plan and Profile drawings are used for the following types of projects:

- Road
- Watermain
- Sanitary Sewer
- Storm Sewer

This document is divided into seven (7) sections. The intent of each section is to provide specific details associated with the preparation of plan and profile drawings.

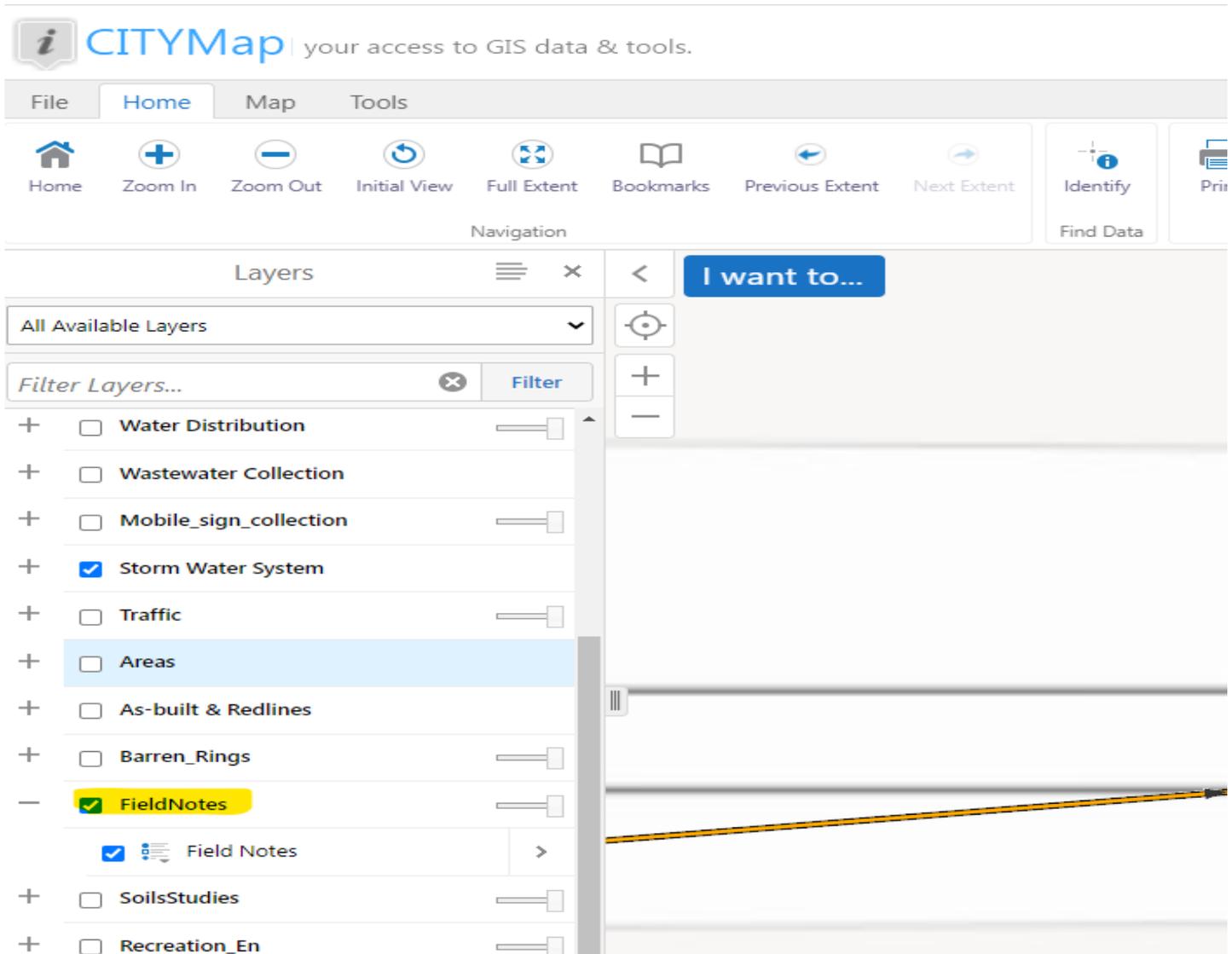
## The Sections Include:

1. Surveys
2. Property Plans
3. Detail Plans
4. Preliminary Base Plan Drawings
5. Construction Drawings
6. As Built Drawings
7. Key Plan of Services

## Surveys

In-house Survey Requests can be submitted through CityWorks. For instructions on how to submit a survey request, refer to the “how to” video in S:\draftpub\AutoCAD Drafting Resources\‘How To’ Documents\_Videos. Once a survey is complete, the person who initiated the work order will be notified via email. The CADD Technician will archive the survey files in Draftpub. The survey files can also be obtained directly from the work order.

**Note:** For Surveys completed after January 2021, the field note data can be found in CityMaps, under the layer called FieldNotes. (See below)



**Note:** For Surveys completed before January 2021, the fieldnotes can be found in draftpub\EDS-DAT under the appropriate folder (i.e., Prelim or As Built) or by using the Field Notes indexing software.

(Older surveys predating 2004 may be located on a Field Notes Index Card. Index cards have been scanned and are located here: draftpub\Field Notes Index Cards)

To create the Plan and Profile Drawing the Drafter must compile all survey data. Survey can be from Aerial Surveys and In-house surveys. For detailed design (i.e., road construction or new sidewalk construction) it is recommended that In-House survey data be used. The degree of accuracy for Aerial data is +/- 200 mm and in-house can be +/- 75 mm in the x, y direction. Aerial Survey Data can be obtained in J:\SM\_Data\_Vault2. Drafting resources can be found in S:\draftpub\AutoCAD, on how to use this data. If using Aerial Data, a survey request work order must be issued to pick up property bars, structure/pipe inverts and surface elevations of structures. The Drafter can begin the property plan before any survey files have been received. This enables work to commence for drawing preparation before any survey work has been performed.

### 1.1 Electronic Surveys

Most surveys completed today are electronic. Our survey crews use GPS equipment to accurately survey specified project limits. Surveys provided to drafting are typically integrated into a common network.

The co-ordinate system previously used (before 2014) was called Zone 53 MTM (Modified Transverse Mercator). Zone 53 MTM is a **Ground-Based** measure system that is directly translatable to Zone 17 UTM (Universal Transverse Mercator) co-ordinates. Zone 17 UTM on the other hand, is a **Grid-Based** measurement system and as the title suggests is universal. (Worldwide)

We currently use the co-ordinate system called CSRS Zone 81 MTM. Coordinate Systems are typically comprised of a specific Datum and Projection. Surveys and Mapping have adopted a File Naming Convention that appends this necessary information to file names with underscores between file name, datum and projection using "codes" to reduce the length of file names. This system will now be adopted by the Drafting Department, Construction Services, and the GIS Section. We will not at this time go back and rename all NAD 27 Zone 53 drawings, however, all CSRS Zone 81 MTM files, will be renamed. All new files will be named accordingly.

### 1.2 Coordinate Systems – File Naming Conventions

**Naming Format** (As appended to a file name): `_Datum_Projection`

See the following designation codes to be attached to file names;

**Codes:**

<b>For Datum</b>	<b>Use Code</b>
NAD27-197627-76	
NAD83CSRS CSRS	

<b>For Projection</b>	<b>Use Code</b>
MTM Zone53	z53
MTM Zone81	z81
UTM Zone 17	z17

## **For Non-Referenced Files (Arbitrary Coordinates)**

Use Code: **NRef** (In lieu of both Datum and Projection)

### **Typical Examples:**

Drawing1\_27-76\_z53.dwg

Drawing1\_CSRS\_z81.dwg

Drawing1\_NRef.dwg

When the drawing contains Civil 3D components, add C3D after the drawing name.

Example: Drawing1\_C3D\_CSRS\_z81.dwg

For additional codes, contact Surveys and Mapping. If necessary, a survey can be converted from one coordinate system to another. The Drawing Conversion Tool can be found in the following folder: J:\S\_Drafting\Drawing Conversion Tool.

**Note:** If unsure which zone a particular drawing is in you can copy and paste the file into the corresponding Geocode Mapbook, located in S:\draftpub\Geocode Map Books.

### **1.3 X-Refs and Raster Images – File Naming Conventions**

External references and raster images are not commonly used in typical Plan and Profile drawings. If they are necessary, the following naming conventions shall apply:

Assume you have a C series such as:

C6000-1 to 4.dwg.

When using an external reference or image file, we require the following file naming conventions:

#### **Scenario 1**

Use the following format for unique files referenced into only one drawing:

Cad file C6000-1.dwg, may contain a reference by the name of C6000-1\_xref1.dwg, C6000-1\_xref2.dwg, or C6000-1\_raster1.tif, C6000-1\_raster2.jpeg, etc.

The above file has multiple x-refs and raster images but are all unique to that particular drawing. They are linked by the C number and will be grouped alphanumerically in the same folder.

Keep the x-ref or raster linked along with the parent cad file to keep the files organized together in a common archive folder.

## **Scenario 2**

If the x-ref or raster is a common reference used among many cad files in a project, eliminate the page number (-1, -2) to keep it universal.

Use the following format:

Cad file C6000-1.dwg and C6000-2.dwg may contain a reference by the name of C6000\_xref1.dwg, C6000\_xref2.dwg, or C6000\_raster1.tif, C6000\_raster2.jpeg.

The files will all be archived in a single common folder. The links and file paths need to be maintained and functional. The naming convention will keep them grouped and organized in alphanumerical order.

## **Property Plans**

The first step in Plan and Profile drawing preparation is to create a compiled property plan. A compiled property plan is comprised of the electronic location of survey monuments (Bars) combined with the property plan information (M-Plans, 53R Plans, etc.). Previously, the property plan information for each area was compiled by the Property Draftsperson and provided to the Draftsperson for individual use. Currently, it is the Draftsperson's responsibility to assemble all pertinent property information. The Property Draftsperson shall review all property once drawn and be consulted on any issues that arise. Typically, this review takes place upon completion of the Preliminary Base Plans. When the Property Draftsperson is not available a peer review can be completed.

**The following are the steps necessary to create a compiled property plan:**

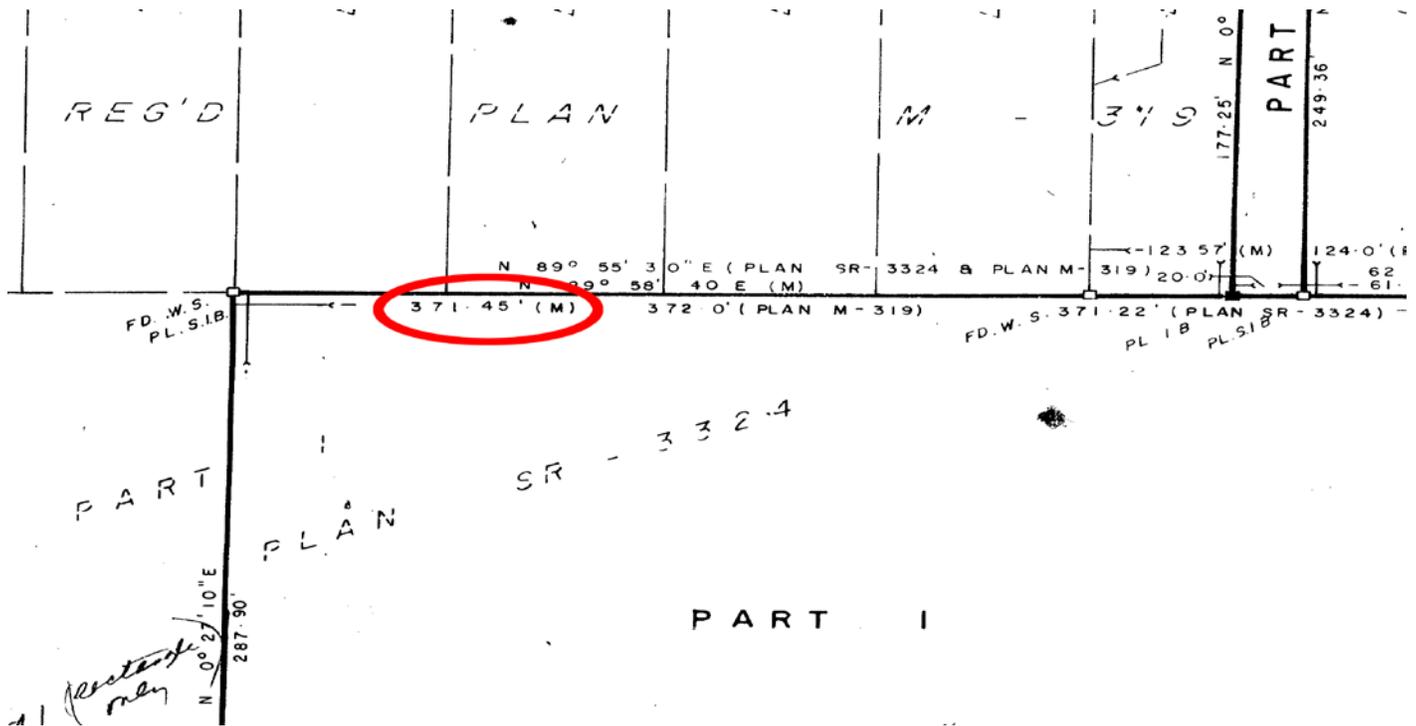
### **2.1 Create a Drawing With all Property Plan Information Assembled**

It is often necessary to resolve conflicts with the various plan sources with the Property Draftsperson during this process. At times, when assembling the property fabric, the plan data doesn't always align or agree with adjacent plans. The main reason for this problem is that each survey uses different reference lines. The Property Draftsperson can provide insight into the order of precedence for the plan survey information.

The following list represents common internal resources for Property Plans and Property information:

S:\draftpub\Property, Pin Block Maps, Info File, Geocortex (GIS), Assessment Maps, and the Property Draftsperson.

(The Draftsperson should always prepare the plan following the order of precedence suggested by the Property Draftsperson. When drafting the property plan data use the measured distance information rather than the plan distance information. The distance shown on the plan however shall always be the plan distance.)



(Property plan highlighting the measured distance next to the plan distance)

The drawing should be compiled using Surveyors angular units (North orientation along the “Y” axis). The Draftsperson should add all property information (lines and text) using the layers and text styles outlined in the **Drafting Standards Manual**. The property text information added to the drawing should be the plan information indicated on the registered plans.

**Note:** When creating compiled property plans in imperial scale, only convert to metric once all plans have been added to the property composite. This helps minimize margin of error when making the conversion.

**Note:** Property information such as SSIB’s, IB’s Underlying Reference Plans, (i.e., 53R Plans etc.) including, Part Number’s, Distances along property lines etc., shall be on a frozen Reference Layer (PRO\_REF) and shall not be displayed on the final drawing.

## 2.2 Create A Compiled, Integrated Property Plan

The compiled, integrated property plan is created by taking the assembled property plan and inserting it into the property survey data file. This will be an iterative process that will involve holding a property bar and checking all others to see how they fit. Do not forget to place the plan data at elevation zero during this process. It should be noted, a perfect mesh will likely never occur. **Never adjust any of the survey data during this process.** The survey data is field confirmed and assumed correct.

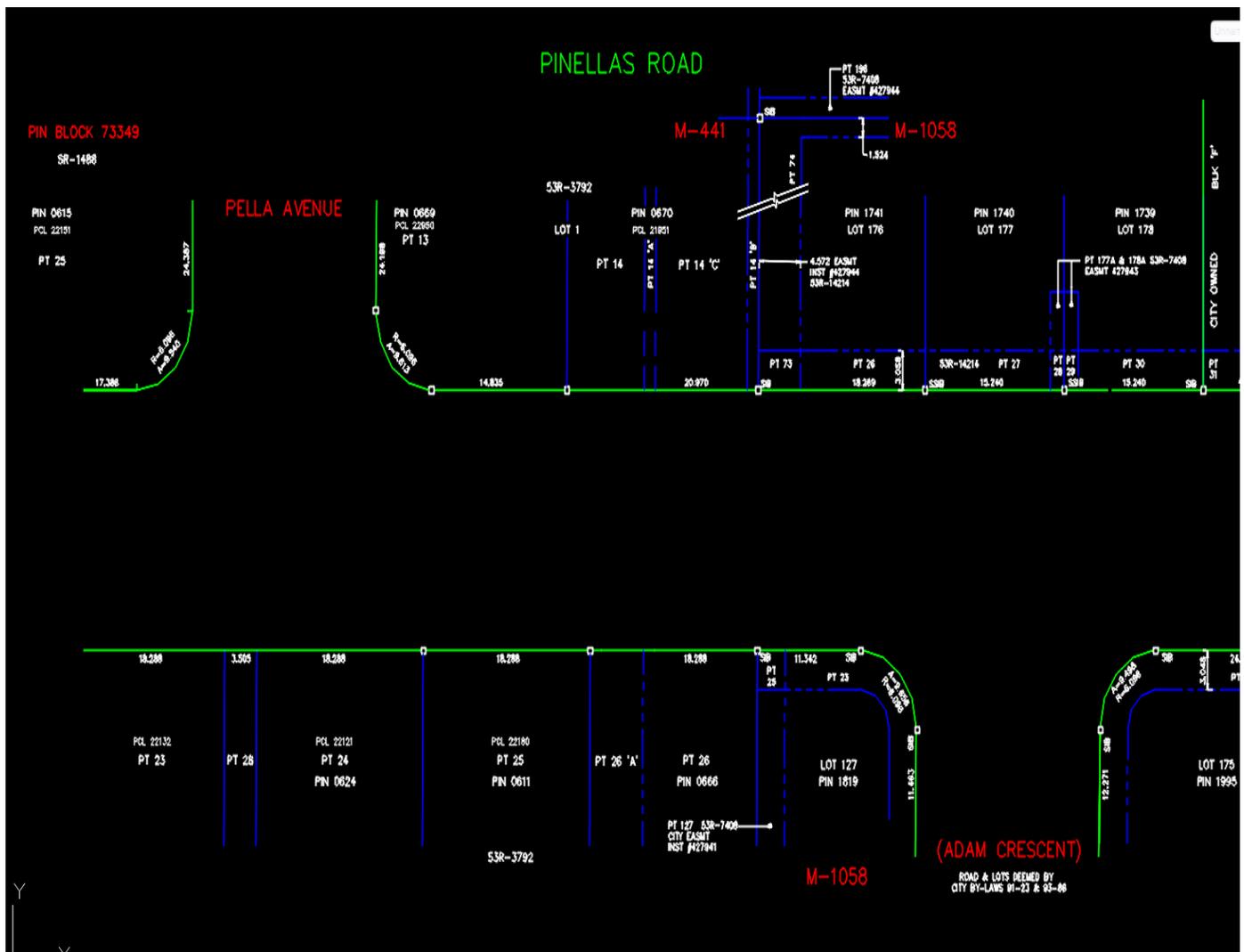
This places the new property composite into our current zone (as previously discussed).

### 2.3 Have Another Draftsperson Review the Compiled, Integrated Plan as Required

This is a very important step that shouldn't be omitted. Discuss any assumptions made during the process.

### 2.4 Finalize the Compiled Property Plan

This step involves converting the survey symbols into symbols set out in the **Drafting Standards Manual**. Once again, never move a symbol in the final plan. It is understood that a perfect fit between the survey and plan data does not exist. After all symbols and text have been added, the survey data can be erased. *NEVER USE THE SURVEY SYMBOLS IN THE CREATION OF THE FINAL PLAN.* Convert all property plans to CGS text and layering standards. Refer to the **Drafting Standards Manual** and Example drawings for CGS layering conventions. Clean up the line work and align text.



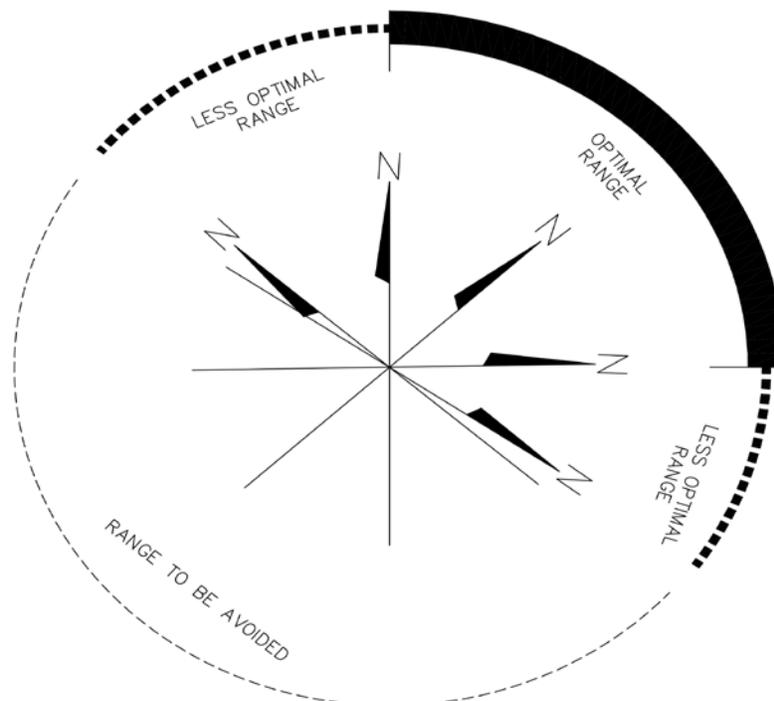
(Property lines and text using CGS layering conventions)

## 2.5 Create an Alignment Based on the Centreline of Right of Way (C/L R.O.W.)

Resolve the centreline with other Drafters if required. The line should contain text highlighting all stations, (fifty (50) meter intervals) points of intersection, as well as beginning and end of curves. Refer to the **AutoCad Civil 3D Training Manual** and review chapter with regards to alignment creation.

**Note:** the alignment direction is important as it impacts several components including North arrow positioning, profile, and the associated chainage of the road as well as drawing presentation. It should also be noted that the chainage in the profile is illustrated at every 15-meter interval.

**Always ensure North is in optimal position when laying out project sheets. North should typically be pointing in the upwards direction as per the following image. Chainage/Stationing should run from South to North or West to East direction.**



Optimal North Orientation

Consideration should always be made to the current As Built layout (if it exists) for the street and how your updated As Built will integrate in sequence. North should align with the existing layout unless the new sheet sequence rectifies an inferior North alignment and replaces the total sheet sequence in its entirety.

## Notes on C/L (Centreline) and C/R (Crown) Alignment and Road Profile

The C/L Road Profile or C/R Road Profile is generated using the electronic survey or from the surface model if it exists. (Refer to the **AutoCad Civil 3D Training Manual** and review the chapter on alignment creation) When using the surface model to create the C/L or C/R Road Profile, it should be recognized that a separate secondary alignment should be created to follow the center of the road as surveyed. The C/L of R.O.W. is not always the same as the C/L or C/R of road. The C/L alignment on an As Built drawing should represent the C/L of R.O.W. If using the C/L of R.O.W. is not an option, then the Draftsperson shall create a Survey Baseline. This Survey Baseline shall be based on a constant relative offset to the property fabric or best-case scenario. (Not the exact C/L or C/R of Road)

In a construction drawing the C/L of Construction is most often the C/L of the proposed road but in some cases may be the C/R of road. A surface model can be created by following the steps outlined in the **AutoCad Civil 3D training Manual**. Currently, it is not standard practice for CGS to use xref's in the creation of Plan and Profile drawings. If required, refer to the **Drafting Standards Manual** for proper naming conventions. If an additional survey detail update is later provided, the Draftsperson can simply set the World Co-ordinate System (WCS) as current and insert the new data. When this happens, the Draftsperson should make sure they eliminate the information that has changed. The final Plan and Profile drawing should only contain layers defined in the CGS template. See Division 8 in the **Drafting Standards Manual** for predefined layering conventions. If additional layers are required, please indicate to the CADD Technician.

## Detail Plan

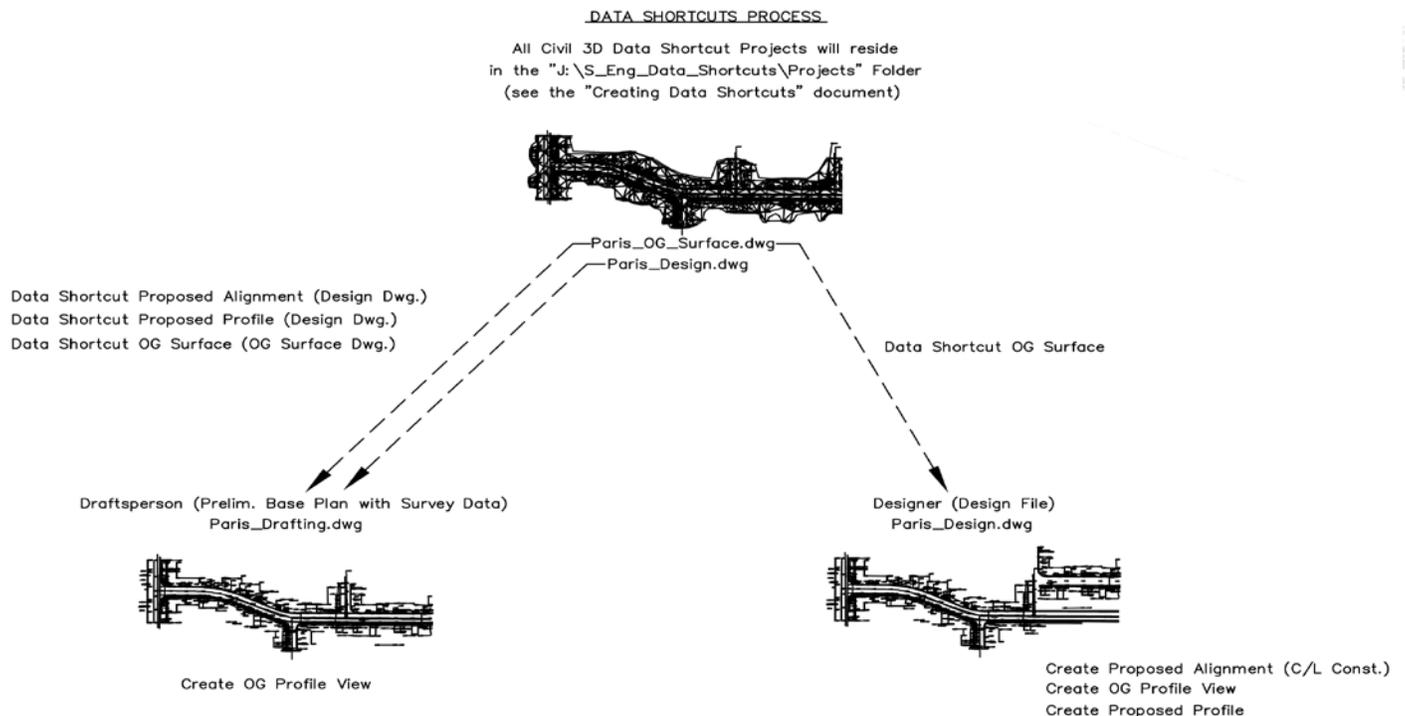
The next step in the preparation of Plan and Profile drawings is to create the detail plan. This is the most time-consuming process because it involves a lot of data.

The following are procedures necessary to create a detail plan:

- **Create a Compiled Integrated Detail Plan.** The compiled, integrated detail plan is created by taking the compiled detail survey and adding symbols and text on layers as per our **Drafting Standards Manual**. This survey typically contains all kinds of information about topo, private property detail, infrastructure, etc.
- The compiled property plan should be inserted into the detailed survey. Templates can be found in: S:\draftpub\AutoCAD Drafting Resources\Templates\Civil 3D Templates. This template enables the use of custom blocks, linetypes, layers, Civil 3D label styles etc., and is set up for 1:250 drawing creation.
- As with the property plan, the Draftsperson should never move any survey data because it is field confirmed and assumed correct. The symbols in the survey file are provided to help the Draftsperson in locating the various items necessary in our final plans and should be replaced with the symbols preloaded within the CGS CAD file template.

- The Draftsperson can now choose between using a 2D or 3D survey provided by Construction Services survey department. The 2D plan includes curves and arcs automatically generated by the surveyor which can help save time when refining the Preliminary Base Plan. **The Draftsperson also has an option to use a CAD function / command called “Layer Translator” (Command: “Laytrans”) to import the survey file and transfer it directly to the appropriate layers.**
- “Laytrans” command can be initiated, and the current translator file imported and run to quickly convert lines to our layering standard. Confirm with the CADD Technician where the latest Layer translator file can be found. It is always important to maintain a separate survey file for layer control and reference.
- The 3D survey file is used by the Designer for design purposes. The 3D survey is also used to generate an Original Ground (O.G.) surface as outlined in the **AutoCAD Civil 3D Training Manual**. The O.G. surface can be created by either the Draftsperson or the Designer. The purpose of the Draftsperson creating the O.G. Surface model is to complete the Preliminary Base Plan O.G. profile. It should be noted that the Designer should further modify/review the model for spikes or irregularities. It is then saved in a shared file location. Information using Civil 3D components is shared between the Designer and the Drafter using a process called “Data Shortcuts.” This is outlined in the **AutoCAD Civil 3D Training Manual**.

See folder structure outlined in the following image.



The detailed base plan once again should be created at an elevation of zero. The “Z” factor has been collected for the Designers use in the final design and won’t be required by Drafting as it relates to property and site details. The Drafter can however generate the O.G. surface and make it available to the designer in the above noted Data Shortcut folder.

It should be noted, the text contained in the detailed preliminary base plan should be oriented based on the orientation of the final plan within the Plan and Profile sheet. Most often the C/L of R.O.W., can be used as a guide in plan orientation. (See previous comments on optimal North orientation). All lines that highlight items such as curb and gutter, sidewalks, etc., should be parallel and therefore drawn accordingly. Once the “Laytrans” command has been used, and all line work has been confirmed at elevation zero, the Draftsperson shall clean up the details to ensure consistent line work and text labels.

**Note:** Elevation zero is important as it applies to property and detailed private property info. If the drawing is using Civil 3D pipe networks, then those networks will be in 3D. 3D pipe networks use civil 3D entities to create pipes and therefore rely on the template for proper presentation.

Delete survey detail as you add it to the composite. This helps to clean up the workspace as you progress. Ensure not to delete any data before you have added it.

The Draftsperson should make sure that the drawing file contains all the pertinent data contained in the detailed survey (**\_det**) file including gas and hydro underground plant. This info is often provided in a separate survey file or update. The Draftsperson shall review the **Plan Development Checklist** to ensure all sources of data and procedures have been considered. Review old As Builts to ensure all information has been transferred to new plans. (See draftpub/example drawings/plan development checklist.dwg)

**Note:** Google Street view is an excellent resource when survey data is unclear.

**Review the completed preliminary base plan with another Draftsperson.**

## **Preliminary Base Plan Drawings**

This is the final step in the drawing process prior to adding the construction / design information. It is important the Draftsperson follows all steps outlined in this section of the procedure, failure to do so will impact future use of the drawing. The procedures are as follows:

### **4.1 Create a Compiled Detail Drawing**

The Draftsperson should insert the compiled property plan inside of the detail drawing to create the compiled, integrated property / detail drawing. Create existing pipe networks following the **AutoCAD Civil 3D Training Manual**. After the plan is created, the Draftsperson should thoroughly review the drawing.

**At this stage the Draftsperson should get a sense of how the project will be laid out.**

**Composite drawings can be used to illustrate the project limits with paper space tabs used to separate the sheets.**

## 4.2 Create Preliminary Plan and Profile sheets

The Draftsperson shall follow procedures defined in the **AutoCAD Civil 3D Training Manual** to “Create view frames” and then “Create Sheets.” This process relies on both the alignment and the O.G. surface to quickly cut drawing sheets and generate road profile and profile view grid. The sheets and profile view grids are generated based on the C/L R.O.W. or Survey Baseline Alignment. The road profile is created using the C/L of ROAD or C/R of Road Alignment and then Superimposed into the profile view. To create a superimposed road profile, see how-to video in S:\draftpub\AutoCAD Drafting Resources.

This process will automatically generate the paper space layouts to coincide with each sheet layout. Typically, the average sheet can allow for 140-160 m max of roadway length.

The drawing can be kept in a composite format. Paper space tabs are used to create the drawing series. In the past CGS did not rely on composite drawings and all sheets were cut and saved as separate files. Now drawings are saved in segments of road to allow for efficiencies.

- 4.3** If extensive property has been drawn beyond the limits of the scope of work, the Draftsperson can archive the property composite in the composite folder found here: S:\draftpub\Composite Plans. This compiled plan should be saved using the naming convention outlined in the **Drafting Standards Manual** and saved in our Network (Draftpub) drawing archive.

## 4.4 Submit Final Drawings for Peer Review

This step is the final check the drawings will receive prior to them being archived.

## 4.5 Archive the Drawings

This step is necessary only if there is an anticipated delay between the time the preliminary plans are completed, and the construction data is added. If so, the files should be archived using the naming convention outlined in the **Drafting Standards Manual**. Before archiving be sure to purge any unnecessary data and “PROMOTE” any Civil 3D entities. (i.e., any data shortcuts) By promoting the alignment and surface models into the drawing, it eliminates any file path issues that may arise due to Civil 3D data shortcuts.

## Construction Drawings

After a Preliminary base plan has been completed and the project is assigned to a Designer, a Construction drawing should be prepared containing all proposed work. To complete the Construction drawing, the Draftsperson will be expected to start with a copy of the preliminary base plan archived in Draftpub and save it as a new file. (Naming convention could be CXXXX-X\_C3D\_CSRS\_z81 or CXXXX-STREET NAME\_C3D\_CSRS\_z81 etc.)

## 5.1 Create Construction Drawing Sheets

The first step in preparing the drawings is to flip the script from preliminary layers to construction layers using command: “\_Script” and selecting S-COLOR.SCR. Although some preparation of the drawing can be done beforehand, to create the drawing sheets the Designer **must** provide the Draftsperson with the Proposed C/L Alignment (C/L CONST) via data shortcuts. Like the Preliminary Base Plan, the Draftsperson shall follow procedures defined in the **AutoCAD Civil 3D Training Manual** to “Create view frames” and then “Create Sheets”. This step is crucial and will create new profile grids and sheets based on the Proposed C/L Alignment rather than the existing C/L or C/R Alignment, even if they are the exact same. The existing OG profile should be based on the Proposed C/L CONST provided by the Designer.

**At this stage the Draftsperson can adjust View Frames and Match Lines to obtain the best sheet layout for the project.**

**All existing Pipe Network data must be re-added to the profile grids.**

## 5.2 Transfer Proposed Work onto Plan

Work with the Designer to create the proposed construction layers and labels on the plan. Add the proposed profile provided by the Designer via data shortcuts. The Designer may choose to mark up a paper copy, provide a CAD file with linework, or use data shortcuts to give the Draftsperson their proposed design. Refer to example drawings in Draftpub for standards such as layering, labels, wording etc.

**If the Designer uses Civil 3D components such as pipe networks in their design drawing, it is important to use either data shortcuts or re-create the pipe networks in your own drawing. Never copy and paste C3D components from one drawing to another. This causes duplicates of the surfaces and alignments and can create many problems within the drawing.**

**5.3** When all pages including the Cover Page and any extra detail or notes pages are complete, the Draftsperson can consult with the Drafting Technician for a C-plan number. Provide the contract number, street name, project limits and type of project so that it can be properly input into Plan Index.

## 5.4 Submit for Review

Review with the Designer at 30%, 60% and 90%. The Designer will submit the drawing for initial review at 30% or 60% to the Project Engineer, and for final review at 90%. The Draftsperson can submit for a peer review at this time as well. There will most likely be more changes before it is finalized. When all parties are satisfied with the drawing it can be stamped and issued for tender. (As noted in the revision block)

## 5.5 Archive the Drawing

This function shall be completed by the Drafting Clerk. The files should be archived using the naming convention outlined in the **Drafting Standards Manual**. Before archiving be sure to purge any unnecessary data and “PROMOTE” any Civil 3D entities. Before deleting the drawing from your C Drive, make sure it has been archived in the correct location. **Never archive a drawing with the Engineer’s stamp. Always delete and purge first.**

## As Built Drawings

Upon completion of a construction project, an As Built drawing of the work shall be prepared using the current version of the AutoCAD construction drawing (i.e., C-Plan). The As Built drawing should contain the final location of all features added/changed during construction. If the construction drawing is created from an old As Built Tif (i.e., Watermain Lining) and the updates are minor, the existing As Built Tif can be updated using Raster Image editing. If the updates are more significant, consider creating a new AutoCAD As Built drawing using aerial data along with the Tif Drawing. The aerial data can be used for the above ground features and the Tif Drawing can be used for all underground data. Should any data need to be verified, (i.e., New CB location), a survey request can be submitted as required.

The Drafting Clerk will receive Construction Record Data from Construction Services or from a Consultant and archive the data in, S:\draftpub\Eds-dat\Red Line Drawings. Construction Record Data can be provided on marked up Construction Drawings (Redlines), field notes, or digital survey.

As Built information from utility companies must also be incorporated into the As Built drawing. This information can be obtained from the Municipal Consent files (S:\draftpub\Municipal Consents).

The Engineering Street files, ([J:\S Eng Street Files](#)) should also be reviewed to ensure all related data is incorporated into the As Built drawing. Typically, this step should be done when creating the Base Plan drawing. The Street File may contain, service connection tie-ins, water service disconnects, miscellaneous field notes etc.

As Built digital surveys are completed in CSRS Zone 81 MTM which is the same system used in the preliminary survey process. For this reason, it will be simple to add the information to our plans. In order to insert the survey file and the data correctly, the Draftsperson will need to set the UCS to World. Flip the script back to As Built layers using command “\_Script” and selecting R-COLOR.SCR. The Draftsperson will have to revise the plan accordingly and follow the As Built Example Drawing ([S:\draftpub\AutoCAD Drafting Resources\Example Drawings](#)). As with preliminary drawings, the Draftsperson should replace all survey symbols and lines with new symbols and lines contained within the various prototypes.

Once, all structures are moved according to the redline or survey. Adjust station & offset to match the centerline of ROW alignment. Update length, size of pipes, grades and inverts in the plan and profile. Change the new top of asphalt from const cl to the existing layer in the profile. Add top of watermain at each 15m interval from redlines. Remove all construction vertical curves and grade notes (labels) and all construction notes. Note if as-built is in 3d, you will noticed all structure are dynamic and the information will update automatically. Also, this is important that each structures reference the existing CL of ROW for as-builts. Once,

all changes are completed make sure you go through the as-built checklist to complete all the steps and then have the drawings to be peer reviewed. Before archiving be sure to purge any unnecessary data and layers. Run an Audit to check for any errors. Once approved, the file can be archived by the Drafting Clerk. After the changes are made, the drawings should be peer reviewed. Before archiving be sure to purge any unnecessary data and layers. Run an Audit to check for any errors. Once approved, the file can be archived by the Drafting Clerk.

**Note:** When starting a new project, ensure that all As Built reference material has been converted to current zone CSRS Zone 81 MTM so it can integrate with any new surveys received.

Ensure final naming conventions have been followed to include the coordinate system. In addition to the coordinate system, if a drawing has been created using Civil 3D entities please add \_C3D to the name. Example: Drawing1\_C3D\_CSRS\_Z81.dwg. Check existing As Builts for page numbering and sequence. There may be quite a bit of work involved in integrating a new As Built into the existing drawings. This could mean re-numbering multiple existing pages (and adding to the revision block), combining or re-arranging CAD files for optimal views, or modifying match lines in either a CAD file or a Tif. Consult with other Drafters for assistance if needed. Do not forget to have the Drafting Clerk supersede old As Builts the new As Builts are replacing and delete the preliminary base plan as it should no longer be needed.

### **Key Plan of Services**

Key plans show sanitary sewers, storm sewers, watermains and structures for the entire City of Greater Sudbury. These plans will need to be updated to show the addition of the new assets. (Structures and pipes) New assets shall be drawn and labelled accordingly, and old assets removed. All structures (valves, hydrants, manholes, catch basins etc.) will be numbered using the next available legacy number from the numbering system on the plans (refer to title block) or any available number to be reused. Hydrants on private property are also to be numbered and the suffix "P" to be added i.e., H15-014. (P) Test manholes shall also be labelled with appropriate number and the suffix "P" if on private property i.e., 5-509. (P)

Key Plans shall be updated by each Draftsperson, up to December 31<sup>st</sup> of each year, during January and February of the following year. The updates should be based on the redline drawings. If redline drawings are not available, the updates should be done from the construction drawings. Updates should only reflect new assets that were constructed up to December 31<sup>st</sup> of the previous year. The Drafting Clerk shall issue new drawing prints to Distribution and Collection, by March 1<sup>st</sup> of each year.