

ISSUE NO. 0001
ISSUED BY: PW Engineering Services
SUBJECT: Draft Engineering Checklists

DEVELOPED BY: E2K Standards Team
DATE: March 10, 2003

BACKGROUND

Presently the standards team is working on a draft design guideline. Part of this guide includes engineering checklists to assist with preliminary layout development and final plan review. The attached document, Chapter 22, is the draft version of the checklist.

ACTION REQUESTED

Please review the attached checklists and make corrections and suggestions. Please return your comments to Don Elwood to be incorporated into the final document.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0002
ISSUED BY: Don Elwood
SUBJECT: 2003 CBR Estimate Forms & Instructions

DEVELOPED BY: CBR Team
DATE: March 13, 2003

1. CIP project estimate forms need to be started as soon as possible. The NEW ESTIMATE form is (will be) located on the Engineering Server in the espublic/2004-2008 CBR info directory. Do not use the old form from last year as the form has errors which will be corrected in the new version.
2. Informational meetings will be held in COL room 300A. This “how to” meeting will walk through the pieces, the POC’s and general questions about landscape and O&M.
 - Session 1 – Friday March 14, 9:00
 - Session 2 – Tuesday March 18, 1:00
3. All CBRs should be in ProjectWise in the project folders.
4. Target dates for CBR’s will be provided at the informational meeting and via email.
5. Current project assignments and project years will be placed on the espublic directory with the new estimate forms.
6. At this time save all your work on the espublic directory.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0003
ISSUED BY: Don Elwood
SUBJECT: Design File Level Info Table

DEVELOPED BY: E2K Standards Team
DATE: March 18, 2003

BACKGROUND

At the February 2003 Engineering 2000 Owners Group meeting the need for engineering standards and procedures was discussed. The initial design teams headed by Tara Mugane, Lisa Cerney and Jeni Betcher have developed the Design File Level info file. This file takes the first steps at developing the standards needed by the new system to ensure a consistent quality product.

OVERVIEW

This file contains names, document types, design layers, and database export specifications for the new systems. Specific tab structure includes:

- EXTOPO1 – Planimetric extract layer definitions and destinations.
- EXTOPO2 – Survey feature layer definitions.
- EXROW – Existing R.O.W. from Hennepin County. (.DGN import file)
- EXTRAFFIC – Existing Traffic utility layer definition
- EXUTIL – Existing Private, Storm, Sanitary, Water layer definitions.
- Design – There are several design tabs which are the basis for layer definitions.
- Profile – Profile tabs for plan profile generator.

FILE LOCATION

The Design file is located in ProjectWise in the project resources vault under guidelines.

CURRENT STATUS

This file is currently being used by Bentley staff to synchronize our CAD standards, Cell library, Survey features, IPLOT features, and Inroads features.

FILE UPDATE PROCEDURE

Many teams are using this file as a base line but have made additions to meet the demands of their project. When your team requires a change to this table or needs additional cells created, complete the CAD REQUEST FORM located in the ProjectWise resource vault under "FORMS". Send the completed form to Steve Hoium.

WHERE TO FIND OUT MORE INFORMATION

Attend the Bi-Weekly Design Team Lead meeting on Wednesday 3/19 @ 10:30, 203 COL

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0004
ISSUED BY: Rhonda Rae
SUBJECT: Plan Set Distribution

DEVELOPED BY: CPTF
DATE: March 19, 2003
REVISION 1.2: October 16, 2015

The CPTF group has developed the following list for plan set distribution within the Public Works Division. Historically multiple copies of plans were sent to different Divisions for review and comment. Typically, this was done at completion of the plan set.

Presently the CPTF group is reviewing plans at the 30%, 60%, and 90% completion point. Peer review is an essential step to producing a quality product with minimal defects. To assist with this review process the “plan set distribution list” was developed.

One of the goals is to reduce the number of copies needed to be sent around to the various Public Works facilities. Please review the list and make sure all the requested copies are needed. If you are on the list, you are also responsible to review and provide feedback to the design crews.

Please send changes to this list to Jim Cleary.

LINK

[Mpls Plan Review and Distribution Form](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0005
ISSUED BY: Don Elwood
SUBJECT: Project Checklist

DEVELOPED BY: E2K Standards Team
DATE: March 21, 2003

I have started using the new design checklist to assist with the review of plans. This checklist has several sections which include layouts, ROW, final design as well as construction. Design teams are encouraged to use this checklist or develop their own to assist with the process of design.

I hope to add new sections to this document to include other design procedures we encounter such as State Aid Variances, Construction proceeds, and Special Assessments.

If there are corrections or changes you would like added to this document, please redline and return to me.

LINK
[Chapter 22 Checklists](#)

COMMUNICATION
PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0006
ISSUED BY: Larry Veek
SUBJECT: Transport (BAMS) List

DEVELOPED BY: CIP Team
DATE: March 20, 2003
REVISION 0.1: January 11, 2019

The Transport (BAMS) List can be found in the following location:
0000-Project_Resource\CADD\CADD_Standards\Excel_Workbooks\Transport_List

Questions about the transport list should be directed to Larry Veek.

LINK
[Mpls PW Construction Items and Prices 2018](#)

COMMUNICATION
PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0007
ISSUED BY: Steve Hoium
SUBJECT: MicroStation User Configuration File

DEVELOPED BY: E2K Standards Team
DATE: April 14, 2003

BACKGROUND

Originally there was one standard user configuration file (examples.ucf). Over time, many different .ucf files have been created so that now it is unclear which file is the "standard".

In addition, a user's user preference file (.upf) might be overwritten by the standard .ucf file without warning.

MICROSTATION USER CONFIGURATION FILE (.ucf) & USER PREFERENCE FILE (.upf) OVERVIEW:

The user configuration file (.ucf) contains the standard user preferences (the "look" of MicroStation, i.e. toolbars, menus, background color, etc.).

The user preference file (.upf) allows users the ability to set personal user preferences without affecting anyone else. This is because the .upf file is saved on the client machine in the default directory Bentley\home\prefs.

FILE LOCATION

Mpls.ucf is located in L:\Enterprise Engineering\Bentley\Workspace\Users.

WHAT IS GOING TO OCCUR

Presently there exists over 20 different user configuration files. The new standard user configuration file will be Mpls.ucf. This new file will replace all other user configuration files. ALL other user configuration files will be moved. When this happens ALL USERS will not be connected to the new standard configuration file.

HOW THE NEW USER CONFIGURATION FILE WILL WORK

The first time you login to your computer, you will see the default MicroStation preferences.

Subsequently, when you login to your computer, you will see the user preferences that you choose to establish.

These preferences will remain the same for every design file that you open, on your computer only.

When you login to someone else's computer, however, you will see the user preferences that they choose to establish.

WHEN WILL THIS OCCUR

At 5pm on Friday, April 18, 2003, Mpls.ucf will be the only user configuration file available. ALL other user configuration files will be removed.

WHAT TO DO WHEN THIS OCCURS

1. Select *Start > Programs > MicroStation V7.1 > MicroStation*.
 - a. Click the dropdown for *User* and choose *Mpls.ucf*.
 - b. Navigate to the design file of your choice and open it.

You need to do this only once - From this point forward you may open design files as you normally would.

If desired, you may now re-establish your own user preferences which will be saved to *your* computer only.

LINK

P:\Workspace\users\Mpls.ucf

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0008
ISSUED BY: Don Pflaum
SUBJECT: Traffic Calming for Neighborhoods

DEVELOPED BY: Transportation & Parking Services
DATE: April 11, 2003

Here is the City of Minneapolis Traffic Calming Manual. Please contact Jon Wertjes – Transportation and Parking Services (673-2411) with any traffic calming requests or questions you may have. All Capital projects involving traffic calming must be reviewed by Transportation and Parking Services staff.

LINK
[Traffic Calming](#)

COMMUNICATION
PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0009
ISSUED BY: Jim Cleary
SUBJECT: New Location for Transport List

DEVELOPED BY: E2K Standards Team
DATE: April 18, 2003
REVISION 0.2: January 11, 2019

The Mpls_PW_Construction_Items_and_Prices.xls file has been moved to the following "Read Only" folder:

- [0000-Project Resource\CADD\CADD Standards\Excel Workbooks\Transport List](#)

The name of the file is:

- Mpls_PW_Construction_Items_and_Prices 2018.xls

The person responsible for updating the file is:

- Larry Veek

The file consists of the following:

1. The MNDOT Transport List
 - Item Numbers (including extensions), Item Descriptions, Units, and MNDOT average bid prices.
 - The Transport list is available on-line and will be updated once a year.
2. Prices
 - MNDOT average bid price (part of Transport list)
 - City approved MSA price
 - City Commercial price
 - City Residential price
 - City Renovation price
 - City Sewer price
 - City Transportation price
 - City Water price
 - City Structures price
 - City Bridge Rehab Price
 - City modular walls price (field services)
 - City special price 1
 - City special price 2

LINK

[Mpls PW Construction Items and Prices 2018](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0010
ISSUED BY: Jim Cleary
SUBJECT: MicroStation mslocal.cfg &
zMpls.cfg Files

DEVELOPED BY: CADD Standards Team
DATE: May 12, 2003

BACKGROUND

At 5pm on April 18, 2003, we planned to replace all other user configuration files with Mpls.ucf. This procedure was halted due to the discovery of two different mslocal.cfg files.

MICROSTATION MSLOCAL.CFG OVERVIEW

Currently, some users have the mslocal.cfg file that places the User Preference File on C:\Bentley\Home\prefs. Others have the mslocal.cfg file that places the User Preference File on P:\Workspace\Prefs. The mslocal.cfg file was customized by Bentley to determine where the User Preference File is stored. If the User Preference File is stored on the C: drive, then the user's personal preferences affect no one else. If, however, the User Preference File is stored on the P: drive, then it is possible to modify the standard user preference file and to overwrite the preferences of other users.

FILE LOCATION

mslocal.cfg is located in C:\Bentley\Program\MicroStation\config.
zMpls.cfg will be located in C:\Bentley\Program\MicroStation\config\system.

WHAT IS GOING TO OCCUR

Prior to us replacing all other user configuration files with Mpls.ucf, we need to protect Mpls.ucf from being modified, therefore users will no longer have write access to P:\Workspace\Prefs. This means that users who have the mslocal.cfg file that points to the P: drive may not be able to open MicroStation. To solve this problem, we need to restore the default mslocal.cfg file as well as install a new configuration file (zMpls.cfg) that places the User Preference File on the user's local C: drive. Both files are included with this transmittal.

NOTE: THOSE OF YOU WHO RECEIVE THIS TRANSMITTAL WILL BE RESPONSIBLE FOR DISTRIBUTING THE **mslocal.cfg** AND **zMpls.cfg** FILES TO YOUR STAFF.

FAILURE TO INSTALL THESE FILES MAY RESULT IN USERS BEING UNABLE TO OPEN MICROSTATION WHEN ACCESS TO P:\WORKSPACE\PREFS IS CHANGED TO READ-ONLY.

WHAT TO DO

1. Navigate to **C:\Bentley\Program\MicroStation\config**.
2. Right-click on the existing **mslocal.cfg** file and select **Rename**.
 - a. Rename the old mslocal.cfg file to **mslocal.cfg.old**.
3. Right-click on the **mslocal.cfg** file included with this transmittal and select **Copy**.
4. Right-click in the **config** folder and select **Paste**.
5. Right-click on the **zMpls.cfg** file included with this transmittal and select **Copy**.
6. Navigate to **C:\Bentley\Program\MicroStation\config\system**.
7. Right-click in the **system** folder and select **Paste**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. 0011
ISSUED BY: Jim Cleary
SUBJECT: New IPLOT Configuration Files

DEVELOPED BY: CADD Standards Team
DATE: May 16, 2003

BACKGROUND

- When MicroStation plan sheets are printed using IPLOT, features do not always print with the correct symbology.
- In addition, IPLOT attempts to process the MicroStation design file on the ACTIONCENTER print server. Since this server does not have MicroStation installed, IPLOT sends the file back to the user's local computer to be processed, which may contribute to slower printing times.

OVERVIEW

Currently,

- iplot.cfg points to the default MicroStation user configuration file (examples.ucf) on the C: drive. It determines *if* IPLOT should use the same user configuration file as MicroStation.
- iplotsrv.cfg points to the default MicroStation user configuration file (examples.ucf) on the C: drive. It determines *where* IPLOT points to for the user configuration file.
- ip.cfg points to the ACTIONCENTER print server. It determines *where* IPLOT processes the MicroStation design file.
- Mpls.ucf does not exist on the C: drive.

FILE LOCATION

- iplot.cfg is located in C:\Program Files\Common Files\InterPlot\Iplot\config.
- iplotsrv.cfg is located in C:\Program Files\Common Files\InterPlot\Iplot\config.
- ip.cfg is located in C:\Program Files\InterPlot Client\config.
- Mpls.ucf is located in C:\Bentley\Workspace\users.

WHAT IS GOING TO OCCUR

A zip file and instructions are included with this transmittal. When the user opens this file, new iplot.cfg, iplotsrv.cfg, ip.cfg and Mpls.ucf files will automatically be installed in their proper locations on their computer. After this takes place, features will print with the correct symbology when MicroStation design files are printed using IPLOT. In addition, IPLOT will now immediately process MicroStation design files on the user's local computer.

NOTE: THOSE OF YOU WHO RECEIVE THIS TRANSMITTAL WILL BE RESPONSIBLE FOR DISTRIBUTING THE I_PlotUpdate.exe ZIP FILE TO YOUR STAFF.

FAILURE TO OPEN THIS FILE WILL RESULT IN INCORRECT FEATURE SYMBOLOGY WHEN MICROSTATION DESIGN FILES ARE PRINTED WITH IPLOT.

WHAT TO DO

Open the [Transmittal 0011 I_PlotUpdate Instructions](#) document and follow the directions.

LINK

[I_PlotUpdate.exe](#)

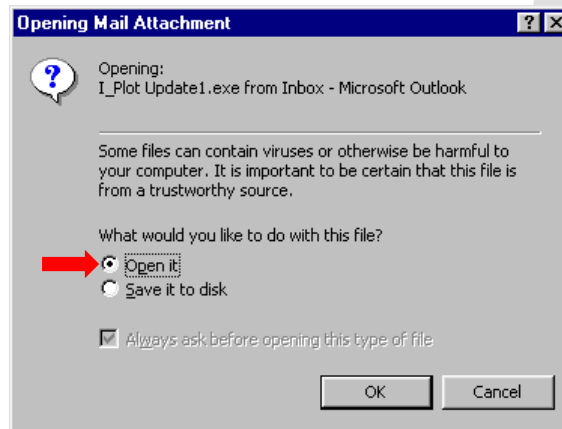
COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

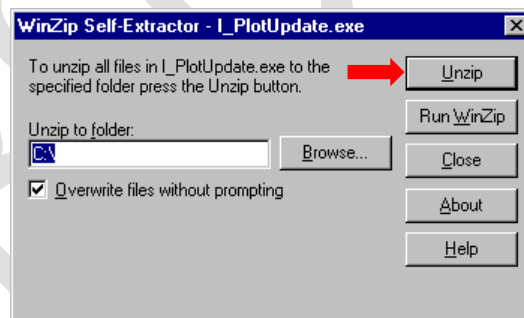
ISSUE NO. 0011
ISSUED BY: Jim Cleary
SUBJECT: I_PlotUpdate.exe Instructions

DEVELOPED BY: CADD Standards Team
DATE: May 16, 2003

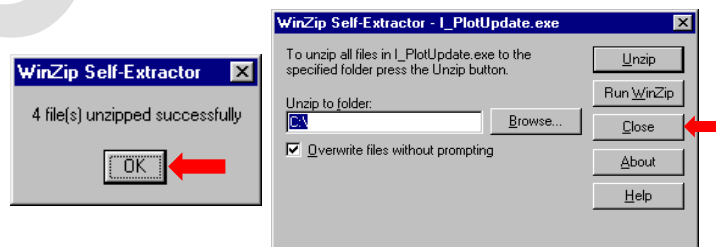
1. Double-click on the attached **I_PlotUpdate.exe** file.
2. In the *Opening Mail Attachment* dialog box select **Open it**, then click **OK**.



3. In the *WinZip Self-Extractor* dialog box click **Unzip**. This automatically places the new IPLOT configuration files in their proper locations.

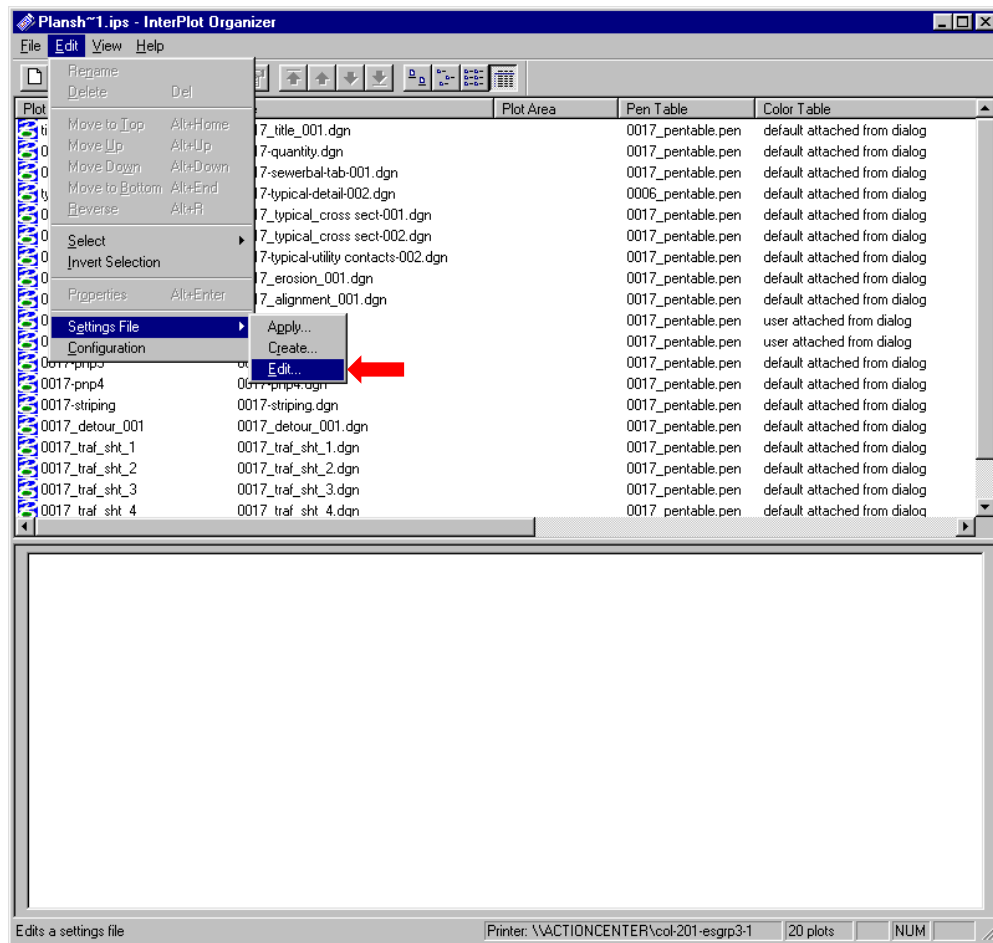


4. After the files are extracted, click **OK**, then click **Close**.

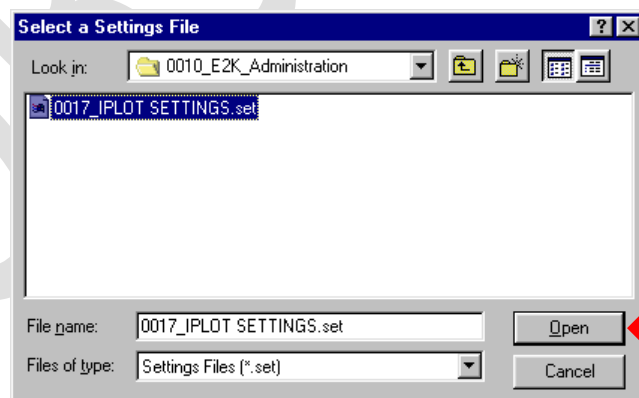


5. Before you print with IPLOT, you will need to update your existing IPS file by entering **Mpls** in the *Workspace* field, as shown in the example. This will need to be done from now on with any new IPS files that you create as well.

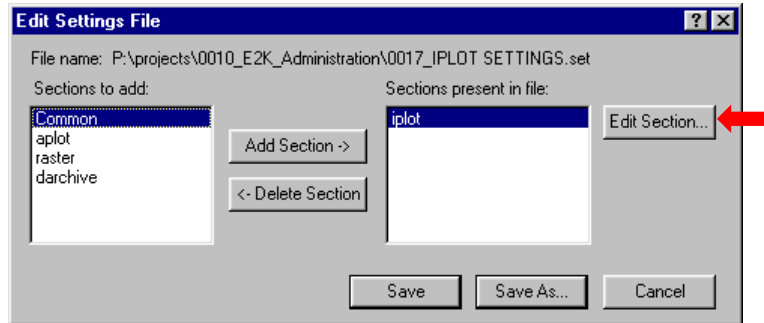
- a. Open a new or existing IPS file.
- b. Select **Edit > Settings File > Edit**.



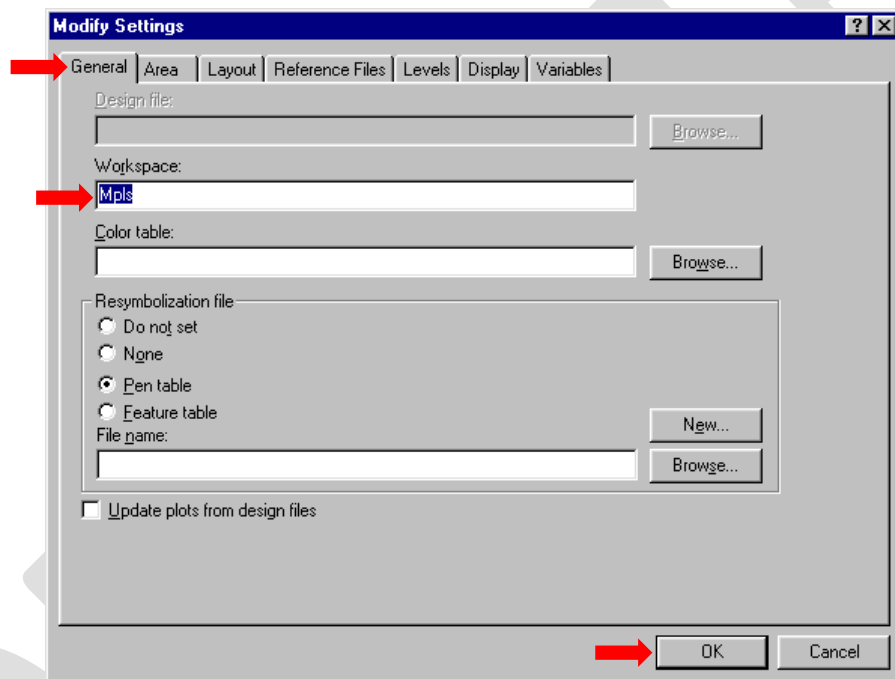
- c. In the **Select a Settings File** dialog box, navigate to the settings file that is used for your project and click **Open** (if you don't know what settings file to use, ask the Project Engineer).



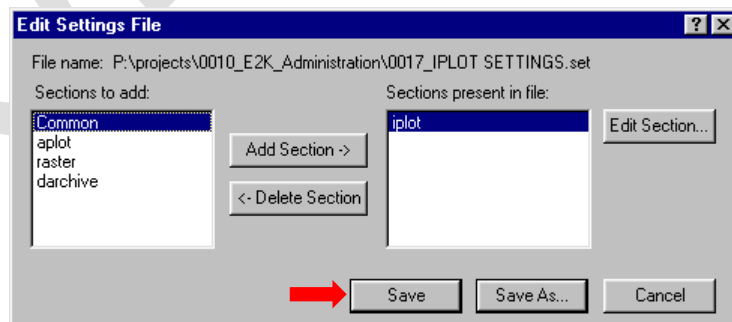
- d. In the *Edit Settings File* dialog box click **Edit Section....**



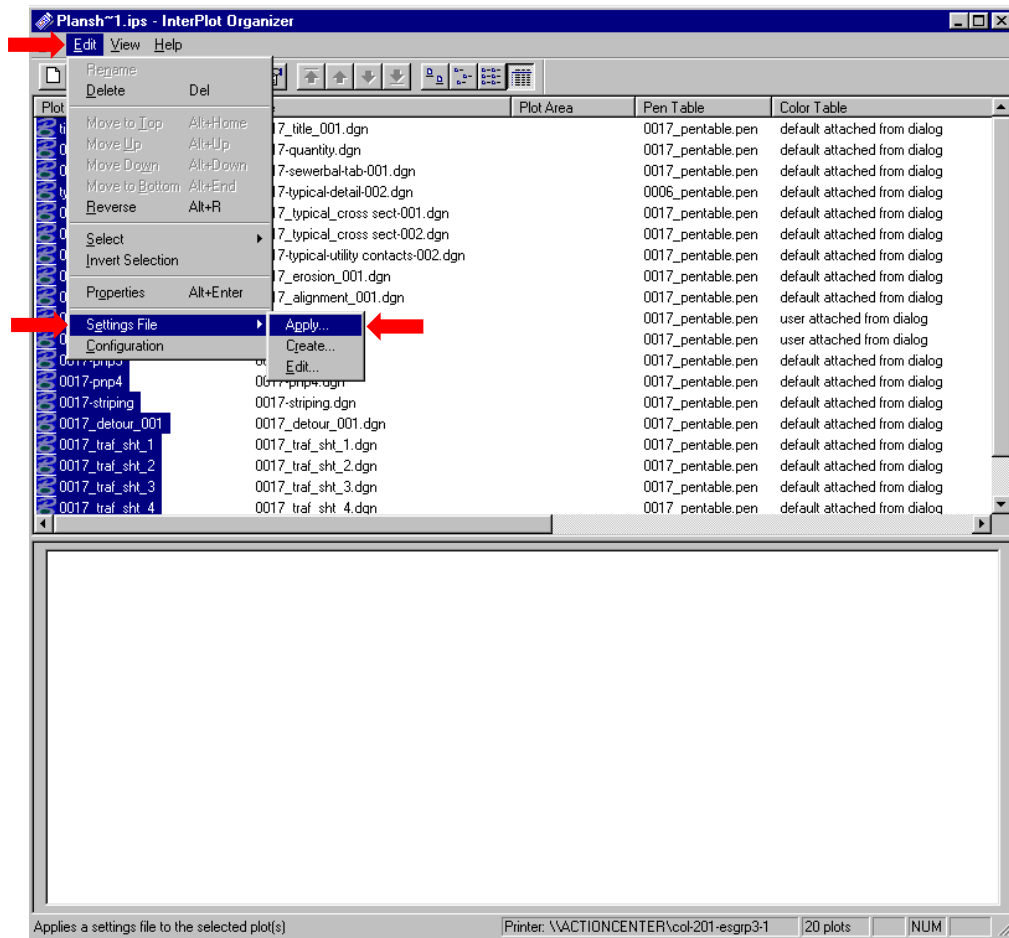
- e. In the *Modify Settings* dialog box select the **General** tab, then enter **Mpls** in the *Workspace* field, as shown in the example below.
- f. Click **OK**.



- g. In the *Edit Settings File* dialog box click **Save**.



- h. Highlight the drawings in your IPS file, then click **Edit > Settings File > Apply**.



- i. You may now print using IPLOT as you normally would.

ISSUE NO. 0012
ISSUED BY: Jim Cleary
SUBJECT: New P Drive Structure & Permissions

DEVELOPED BY: CADD Standards Team
DATE: June 18, 2003

BACKGROUND

The P Drive was originally setup as a place to store the standard files that the E2K programs need to run (i.e. cell libraries, line style libraries, civil.ini, etc.). In addition, because InRoads Plan and Profile Generator would not run within ProjectWise, the projects folder on the P Drive was setup as a temporary place where users could run the InRoads Plan and Profile Generator. Once plan sheets were created, users were supposed to move the files back to their project folders in ProjectWise.

OVERVIEW

Currently, the P Drive has a large number of folders & files that are not necessary to run the E2K programs. In addition, users are using the projects folder on the P Drive as a place to permanently store project files. This is not a good idea, because all E2K users have read/write access to the projects folder, therefore files stored there may be deleted or overwritten by any E2K user.

DRIVE LOCATION

E2KprojectData on 'ppwise01' (P:)

WHAT IS GOING TO OCCUR

There will be two groups of users on the P Drive:

- **ProjectWise Users** will have read/write access to the projects folder; all other folders will be read only.
- **ProjectWise Administrators** will have read/write access to all folders.

The following folders and their contents will be removed from the P Drive after 5pm on Wednesday, June 25, 2003:

- **City Workflows**
- **Raster Manager**
- **SelectCAD**
- **Warehouses**

The following folders will remain on the P Drive. (Unnecessary files will be removed over time):

- **BentleyGIS**
- **projects** (All files stored outside of the individual project folders will be removed after 5pm on Wednesday, June 25, 2003.)
- **Workspace**
- **XML Data**

NOTE: IF THERE ARE FILES WITHIN THESE FOLDERS THAT YOU WANT TO KEEP, YOU MUST MOVE THEM TO ANOTHER DIRECTORY BEFORE 5PM WEDNESDAY, JUNE 25, 2003.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0001
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 7/16/03

DEVELOPED BY: CADD Management Team
DATE: July 18, 2003

ATTENDEES

Unknown

OLD ITEMS

CADD Standards

1. The Design Team Leads have begun the process to determine how Plan Sheets should look.
 - A *Plan Sheet Template* using the 38th St. E. project (created with E2K tools) and the 10th St. S. project (created with Ultimap tools) is in the process of being created.
2. As of 7/2/03 there is now only one user configuration file (*Mpls.ucf*).

ProjectWise

1. A transmittal outlining what ProjectWise is and how it should be used is being created and will be distributed when finished.
2. The files in datasource 0004-35th and 36th St. have been migrated to the E2K Projects datasource.
3. Datasources 0004-35th and 36th St. & 0021-SME Training are in the process of being deleted.
4. BIS is working on the ProjectWise backup/restore procedure.
5. ProjectWise datasources have been renamed with their original names. (Their original names were removed during the ProjectWise server software update).

P Drive

1. New groups and permissions for the P Drive were implemented on 6/25/03.
2. The file structure of the P Drive has been reduced to 4 folders: *projects*, *SelectCAD*, *Workspace* & *XML Data*.
 - We are in the process of determining what files need to be in the *SelectCAD* folder. Once this is determined, this folder will be moved to the *Workspace* folder.
 - Ultimately the P Drive will be reduced to just the *projects* & *Workspace* folders.

Feature Synchronization

1. Features (111 total) from the feature table (P:\SelectCAD\data\CityofMinnMASTER.fwf) are in the process of being recorded in the *Draft Design File Level Info.xls* document.

NEW ITEMS

CADD Change Requests

1. Dave Stoppelman would like to have font 199 made a part of the standard font resource library. He would like this because MicroStation design files created prior to E2K used this font.
Determine if it is possible for him to use the standard E2K Font(s).
2. Bob Ervin has created a standard text size document.
This standard would require the user to know in advance the scale at which plots are to be made, then change text sizes based on that scale. Have Bentley investigate the possibility of using one set of text sizes that can be scaled up or down.
 - Plan Sheet boundaries should be based on the length of the project.
Have Bentley document how to scale Plan Sheets up or down.
3. Bob Ervin has created 2 new XML style sheets (cityofminnhorizontalcurveformat.xml & cityofminnhorizontalcurveformat2.xml).
These are part of the Alignment Tabulation creation process, which he is currently documenting and testing.

4. Design Teams will need to have a *Project Configuration File* created so that reference files will remain attached to master design files when plan sheets are cut on the P Drive. This is a result of making the users folder (where Mpls.ucf is located) read-only.
Have Edmundo Herrera diagram how the Project Configuration File works.
5. Use the *Project Process Manual* as a guide to create a "How-To Project Process Manual" manual. (List the project process steps and then document how to carry-out those steps.)
Robb Urquhart will bring the manual to show at the next CADD Standards Team meeting on 7/30/03.
 - Once this manual is created, a "hard copy" would then be made available to users.
6. At the end of August, we need to determine the status of all of the SME manuals.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0002
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 7/30/03

DEVELOPED BY: CADD Management Team
DATE: August 1, 2003

OLD ITEMS

CADD Standards

1. Plan Sheet Template:
Our goal is to have something to show by the end of August.
2. Feature Synchronization:
A sample survey feature file (.fwf) that contains one of every feature has been created to aid synchronization.
3. Software:
As decided in the Design Team Lead Meeting on 6/25/03, Mark Chellsen will load Trimble Geomatics on laptops.

ProjectWise

1. We're still waiting to find out if BIS has developed a backup procedure for ProjectWise. Once this is done, BIS will be able to remove datasources 0004 & 0021.
Bill Beck has "Red-carded" this.

P Drive

1. A transmittal that informs users where to find project resource files is being prepared. As of now, resource files are in ProjectWise *and* on the P Drive.
2. Unnecessary files in the SelectCAD folder on the P Drive need to be removed. Bentley has gone through a list of the files and has indicated what needs to stay and what can be removed.
The files will be copied onto CD, and then removed.

NEW ITEMS

CADD Standards

1. Do we want to adopt the MnDOT Standard for Ped Ramps?
 - Lisa Cerney is also interested in other standard plates from MnDOT, however they use a font that we don't have - can we add their font to our font resource library?
This item was deferred to the Design Team Lead Meeting on 8/6/03.

ProjectWise

1. Discuss the Capital Project Vault Structure.xls document.
This item was deferred to the Design Team Lead Meeting on 8/6/03.

Demonstration

1. Robb Urquhart demonstrated the Microsoft Project version of the Minneapolis Project Process Manual.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0003
ISSUED BY: Jim Cleary
SUBJECT: Project Resource Files

DEVELOPED BY: CADD Standards Team
DATE: August 21, 2003

BACKGROUND

Project resource files have been located in ProjectWise and on the P Drive.

OVERVIEW

Project resource files are border sheets, cell libraries, GeoMedia workspaces, seed files, line style libraries, and font libraries.

WHAT IS GOING TO OCCUR

To eliminate confusion as to where resource files are located, the CADD Management Team will remove all project resource files from ProjectWise. The files will exist only on the P Drive in P:\Workspace\standards, in their respective folders (i.e. border, cell, seed, symbol).

The following project resource files will exist only on the P Drive in the following locations after 5pm on Friday, August 22, 2003:

- P:\Workspace\standards**border** (old border sheets will be placed in a folder named Border Archive; all other files will be removed):
 - Detail Border Sheet Non-InRoads.dgn
 - Detail Border Sheet PNP-InRoads.dgn
 - Title Border Sheet.dgn
- P:\Workspace\standards**cell** (old cell libraries will be placed in a folder named Cell Archive; all other files will be removed):
 - Master.cel
- P:\Workspace\standards**GeoMedia**:
 - Project GeoWorkspace.gws
- P:\Workspace\standards**seed** (all other files will be removed):
 - Cty2Dseed.dgn
 - Cty3Dseed.dgn
- P:\Workspace\standards**symbol** (all other files will be removed):
 - Minn_font.rsc
 - Minn_linestyles.rsc
 - Mpls_Linestyles.rsc
 - MplsFont.rsc
 - sewer.rsc
 - traffic line styles.rsc

The following ProjectWise vaults (in **bold**) and their files will be removed:

- E2K Projects\Vaults\0000-Project Resource**CADD Standards** (CADD Design Team Meeting.doc will move to FAQ)
- **Border**
- **Cell**
- **GeoMedia**
- **Resource Files**

- **Seed**

LINK

P:\Workspace\standards

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

OBSOLETE

ISSUE NO. CADD-0004
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 8/27/03

DEVELOPED BY: CADD Management Team
DATE: August 28, 2003

OLD ITEMS

CADD Standards

1. A letter was drafted from the Design Team Leads to Rhonda Rae requesting a meeting with Rhonda, Rick Kreuser, the survey crew chiefs and the Design Team Leads to discuss survey procedures.
2. Borders with the re-created City Logo (no longer a jpeg) are in the border folder.

ProjectWise

1. The CADD Standards vault was removed from 0000-Project Resource in ProjectWise.

P Drive

1. Transmittal CADD-003 was sent. The following folders were organized in P:\Workspace\standards: border, cell, seed and symbol; the GeoMedia folder was removed.

NEW ITEMS

CADD Standards

1. What are the responsibilities of the CADD Management Team? What are the priority tasks that need to be accomplished?
A list of the top 10 items that need to be accomplished will be created. This list will be discussed to determine responsibilities & priorities.
2. At the next Design Team Lead Meeting we will determine who should be receiving transmittal letters so that CADD information is distributed effectively.

ProjectWise

1. A transmittal that informs users where to store standard plates will be sent.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0005
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 9/10/03

DEVELOPED BY: CADD Management Team
DATE: September 10, 2003

OLD ITEMS

CADD Standards

1. What are the responsibilities of the CADD Management Team? We need to divide up some of the work that is waiting to be done.
What are the priority tasks that need to be accomplished?
A list of the top items that need to be accomplished has been created. They are:
 - ***Manage ProjectWise***
 - ***Manage CADD Problems***
 - ***Manage CADD Resources***
 - ***Maintain CADD Standards***
 - ***CADD Documentation***
 - ***CADD Change Requests***
2. We need to send a transmittal letting everyone know that there is a location for people to store standard plates.
A draft transmittal has been created – it is currently being revised.
3. At the next Design Team Lead Meeting we need to ask if there are other people who should be getting the transmittal letters sent to them (i.e. design team “crew chiefs”).
Lane Christianson, Mike Leopold & Jamar Whitlock were identified.
4. What is the status of “dynamic text scaling”? Bentley was supposed to investigate this.
Ideally, text sizes should be changed by using a pen table and plotting with IPLOT.
Brian Cobb will investigate this.
5. What is the status of the “plan sheet template”?
Jamar Whitlock will begin working on this.

NEW ITEMS

CADD Standards

1. There is a need to create a civil.ini file to help solve problems with the roadway modeler. This needs to be discussed at the Design Team Lead Meeting.
There may also need to be civil.ini files created for specific project types (i.e. MSA projects, residential projects, sewer projects).
Bill Cherrier and Ahmed Omar will work on this.
2. The various linestyle libraries (MplsLinestyles.rsc, MplsLinestyles2.rsc, MplsTrafficLinestyles.rsc, sewer.rsc) should be combined into one library.
Brian Cobb will assist Jim Cleary with this.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0006
ISSUED BY: Jim Cleary
SUBJECT: Standard Plates

DEVELOPED BY: CADD Management Team
DATE: September 12, 2003
REVISION 0.2: July 30, 2019

BACKGROUND

Currently, standard plates are stored in a variety of locations throughout Public Works. Standard plates will now be kept in one location to ensure that the most current standard plates are available to all users. This location will be read-only so that the plates cannot be modified except by authorized users.

OVERVIEW

Standard plates are drawings that can stand alone, requiring little or no modification.

LOCATION

City of Minneapolis Standard Plates are available in Portable Document Format (.pdf) on the web at [Mpls Standard Plates](#), and in ProjectWise at *ProjectWise\CIP Projects\Documents\0000-Project_Resource\Standard_Plates\Mpls Standard Plates.pdf*.

MnDOT Standard Plates are available in Portable Document Format (.pdf) on the web at [MnDOT Standard Plates](#).

WHAT TO DO

To grant an individual permission to create and/or update standard plates, or to add a new standard plate, see [Transmittal Procedure-0013 Standard Plate Creation Update and Approval Procedure.pdf](#), or contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0007
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 9/24/03

DEVELOPED BY: CADD Management Team
DATE: September 24, 2003

OLD ITEMS

CADD Standards

1. What are the responsibilities of the CADD Management Team? We need to divide up some of the work that is waiting to be done.
What are the priority tasks that need to be accomplished?
Nothing to report at this time.
2. We need to send a transmittal letting everyone know that there is a location for people to store standard plates.
Transmittal CADD-0006_Standard_Plates was sent 9/12/03.
3. What is the status of "dynamic text scaling"? Bentley was supposed to investigate this.
Brian Cobb and Jamar Whitlock investigated trying to change text sizes by using a pen table and plotting with IPLOT. Jamar is still testing to see if this works.
4. What is the status of the "plan sheet template"?
Jamar Whitlock has begun working on this.
5. There is a need to create a civil.ini file to help solve problems with the roadway modeler. This needs to be discussed at the Design Team Lead Meeting.
There may also need to be civil.ini files created for specific project types (i.e. MSA projects, residential projects, sewer projects).
No progress to report at this time.
6. The various line style libraries (MplsLinestyles.rsc, MplsLinestyles2.rsc, MplsTrafficLinestyles.rsc, sewer.rsc) should be combined into one library.
Jim Cleary was unable to do this following the procedures that Brian Cobb developed. This will be discussed when Bentley returns the week of 9/29/03.

NEW ITEMS

CADD Standards

1. There are some new formulas in the manual "A Policy on Geometric Design of Highways and Streets 2001" by AASHTO (American Association of State Highway and Transportation Offices). Some of the data that is used in the new formulas is not in the *Horizontal Design Checks.txt* and *Vertical Design Checks.txt* files. Who is responsible for updating these files?
Jim Cleary will e-mail Bentley Support.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0008

ISSUED BY: Jim Cleary

SUBJECT: Revised Procedure: How to Revise
Existing Topo Data Based on Survey
Data

DEVELOPED BY: CADD Management Team

DATE: October 24, 2003

BACKGROUND

Previously, the procedure instructed the user to update one design file that contained all the topo data. The revised procedure instructs the user to update 4 design files that divide the topo data into 4 areas:

- Existing Right of Way
- Existing Utilities
- Existing Topographic
- Existing Traffic

OVERVIEW

When a project is set up, Planimetric/topographic data for the project area is extracted to a design file from the Enterprise Spatial Database (ESD). The topo data is subsequently updated and supplemented using field collected survey data. The *How to Revise Existing Topo Data Based on Survey Data* section of the *MicroStation SME Manual* describes the procedure used to update the topographic data for design.

LINK

[MicroStation SME Manual.pdf](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0009
ISSUED BY: Jim Cleary
SUBJECT: Project Cell Library Names

DEVELOPED BY: CADD Management Team
DATE: October 27, 2003

BACKGROUND

Users have been creating project cell libraries with names longer than 9 characters. When running Inroads Plan and Profile Generator, the cell library will detach if the cell library name exceeds 9 characters.

OVERVIEW

The standard naming convention for project cell library names is to use the ProjectWise project folder number as the name (i.e. 0014.cel). The *How to Add Project Specific Cells* section of the *MicroStation SME Manual* describes the procedure for creating project cell libraries.

LINK

[MicroStation SME Manual.pdf](#)

NOTE

Previous CADD transmittals can be found in the [Transmittals](#) folder in ProjectWise.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0010
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 10/22/03

DEVELOPED BY: CADD Management Team
DATE: October 24, 2003

OLD ITEMS

CADD Standards

1. What is the status of "dynamic text scaling"? Bentley was supposed to investigate this.
Brian Cobb is testing the procedure – he will e-mail Jamar Whitlock when he is finished.
2. What is the status of the "plan sheet template"?
Members of Lisa Cerney's team are currently working on it.
3. Projects 0004 - 35th and 36th Street, 0006 - Logan Pond, 0008 – SEMI, & 0021 - SME Training have been migrated to E2K Projects and their datasources have been deleted. E2K Projects is the only remaining datasource.
4. There are some new formulas in the manual "A Policy on Geometric Design of Highways and Streets 2001" by AASHTO (American Association of State Highway and Transportation Offices). Some of the data that is used in the new formulas is not in the *Horizontal Design Checks.txt* and *Vertical Design Checks.txt* files. Who is responsible for updating these files?
The new files will be delivered with MicroStation V8. In the meantime, Bentley has e-mailed the files to Jim Cleary. Ahmed Omar has tested the files and has reported that they work well.
A transmittal and the new files will be sent to the design teams.
5. The various line style libraries (MplsLinestyles.rsc, MplsLinestyles2.rsc, MplsTrafficLinestyles.rsc, sewer.rsc) should be combined into one library.
The files have been combined into one file named MplsLineStyle.rsc. The old files have been placed in a folder called Line Style Archive (P; \Workspace\standards\symb).
A transmittal will be sent to the design teams.

NEW ITEMS

CADD Standards

1. A transmittal needs to be created to inform users what the ProjectWise Organizer is for and how to use it.
A ProjectWise demonstration will be given at the next Design Team Lead Meeting (10/29/03).
A transmittal will be sent when more space is made available for ProjectWise files.
2. A CADD Manager SME Manual is being created to collect all of the currently known procedures.
3. A revised CADD Change Request Form is being created so that users are required to provide all of the necessary information to create features.
The new form will be presented at the next CADD Management Meeting (11/5/03).
4. We may want to change the following user settings in ProjectWise:
 - Use up to date copy on check out.
 - Leave local copy on check in.
 - Leave local copy on free.
 - Use up to date copy on copy out.

It appears that when these options are checked, *and* the user still has a copy of the file on their local drive, ProjectWise opens the most up to date copy (it could be the file on the user's local drive). Even though ProjectWise frees a file and the server copy is *not* updated, what the user *sees* when they open the file is the updated version on their local drive. The user *thinks* that they are looking at the server copy however.

If the user purges the file from their local drive *or* if the settings are *unchecked*, then ProjectWise *has* to

open the server copy of the file.

This issue will be discussed at the next Design Team Lead Meeting (10/29/03).

5. Where do we want to keep our forms and SME manuals?

- The forms are currently in [Forms](#) and the SME Manuals are currently in [Guides How-To's Manuals Templates](#).
- Some of the forms & SME manuals are also available on the ES website. This creates a problem if the most up-to-date documents are not on the website: In some instances, this is the case.

The forms and manuals will be kept in ProjectWise. When ProjectWise V8 is delivered, a link will be created on the Engineering Services website to link to these documents.

6. A definition of the word "feature" needs to be agreed upon.

Investigate if the Utah DOT definition is usable.

7. We need to create a checklist of the files that a project needs (i.e. civil.ini, pen table, borders, cell library, etc.). These files will be delivered with every new project.

Ahmed Omar will create a project checklist by the next CADD Management Meeting (11/5/03).

8. We need to create a CADD Standards Manual.

Use the CADD Standards Manual developed by Property Services as a template.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0011
ISSUED BY: Jim Cleary
SUBJECT: Standard Line Style and Font Libraries

DEVELOPED BY: CADD Management Team
DATE: October 29, 2003

BACKGROUND

The following line style and font libraries were located in P:\Workspace\standards\symp:

Line Style Library

- Minn_linestyles.rsc
- Mpls_Linestyles.rsc
- sewer.rsc
- traffic line styles.rsc

Font Library

- Minn_font.rsc
- MplsFont.rsc

OVERVIEW

Line Style Library

A line style library is where line styles used by MicroStation and InRoads are stored.

Font Library

A font library is where fonts used by MicroStation and InRoads are stored.

LOCATION

Line Style Library

- All line styles have been consolidated into the following line style library in P:\Workspace\standards\symp: **MplsLineStyle.rsc**.
- All previous line style libraries have been moved to the following location: P:\Workspace\standards\symp\Line Style Library Archive.
- In the future, when changes are made to MplsLineStyle.rsc, the file will be versioned and the old line style library will be moved to Line Style Library Archive.

Font Library

- All fonts have been consolidated into the following font library in P:\Workspace\standards\symp: **MplsFont.rsc**.
- All previous font libraries have been deleted.
- In the future, when changes are made to MplsFont.rsc, the file will be versioned and the old font library will be moved to Font Library Archive.

NOTE

Previous CADD transmittals can be found in ProjectWise\E2KProjects\Vaults\0000-Project Resource\Transmittals\CADD_Transmittals.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0012
ISSUED BY: Jim Cleary
SUBJECT: New Horizontal and Vertical Alignment Files

DEVELOPED BY: CADD Management Team
DATE: November 13, 2003

BACKGROUND

InRoads is currently calculating and drawing horizontal and vertical alignments for curves using standards from *A Policy on Geometric Design of Highways and Streets 1990*. Updated files are now available based on *A Policy on Geometric Design of Highways and Streets 2001*.

OVERVIEW

InRoads uses the following two files to automatically calculate and draw horizontal and vertical alignments for curves:

- Horizontal Design Checks.txt
- Vertical Design Checks.txt

These files contain tables extracted from *A Policy on Geometric Design of Highways and Streets* published by AASHTO (American Association of State Highway and Transportation Officials).

These files are accessed within InRoads by selecting **Geometry > Horizontal Curve Set** (or **Vertical Curve Set**) > **Define Curve > Design Calc.**

LOCATION

C:\Bentley>SelectCAD\data\imperial

The files included with this transmittal were produced using *A Policy on Geometric Design of Highways and Streets 2001*, and are, therefore, the most up-to-date files.

NOTE

THOSE OF YOU WHO RECEIVE THIS TRANSMITTAL WILL BE RESPONSIBLE FOR DISTRIBUTING THE **Horizontal Design Checks.txt** AND **Vertical Design Checks.txt** FILES TO YOUR STAFF.

WHAT TO DO

1. Navigate to **C:\Bentley>SelectCAD\data\imperial**.
2. **Right-click** on the existing **Horizontal Design Checks.txt** file and select **Rename**.
 - a. Rename the old Horizontal Design Checks.txt file to **Horizontal Design Checks.txt.old**.
3. **Right-click** on the existing **Vertical Design Checks.txt** file and select **Rename**.
 - a. Rename the old Vertical Design Checks.txt file to **Vertical Design Checks.txt.old**.
4. **Right-click** on the **Horizontal Design Checks.txt** file included with this transmittal and select **Copy**.
 - a. **Right-click** in the **imperial** folder and select **Paste**.
5. **Right-click** on the **Vertical Design Checks.txt** file included with this transmittal and select **Copy**.
 - a. **Right-click** in the **imperial** folder and select **Paste**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0013
ISSUED BY: Jim Cleary
SUBJECT: T&PW Letter and Attachment Samples

DEVELOPED BY: CADD Management Team
DATE: November 13, 2003

BACKGROUND

Project Engineers have requested a sample T&PW letter.

OVERVIEW

The T&PW (Transportation & Public Works) letter is a request for City Council Committee Action. The sample letter and sample attachment are from the 15th Ave. SE project.

LINK

- [T&PW Letter Sample](#)
- [T&PW Letter Attachment Sample](#)

NOTE

Previous CADD transmittals can be found in ProjectWise at [Transmittals](#).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0014
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 11/5/03

DEVELOPED BY: CADD Management Team
DATE: December 18, 2003

ATTENDEES

Jim Cleary, Ron Davidson, Steve Hoium, Ahmed Omar, Matt Sandell, Robb Urquhart, Jamar Whitlock

OLD ITEMS

CADD Standards

1. What is the status of "dynamic text scaling"?
Waiting to hear from Brian Cobb.
2. What is the status of the "plan sheet template"?
Members of Lisa Cerney's team are currently working on it.
3. What is the status of the transmittal and new horizontal & vertical alignment files?
A transmittal has been created and is waiting to be approved.
4. What is the status of the "checklist of files that a project needs"?
Ahmed Omar completed the list.
5. What is the status of the "CADD Standards Manual"?
We are considering using the New Mexico DOT standards manual as a template.

ProjectWise

1. A ProjectWise demonstration has been created and is being reviewed and revised. It will be presented at a Design Team Lead Meeting when it is ready.
2. The following user settings were toggled off for all ProjectWise users:
 - ***Use up to date copy on check out.***
 - ***Leave local copy on check in.***
 - ***Leave local copy on free.***
 - ***Use up to date copy on copy out.***

NEW ITEMS

CADD Standards

1. What should the standard TML (typical sections, decision tables) file be?
This will be discussed at the next Design Team Lead Meeting.
2. What is the procedure for as-builts? Who is responsible?
This will be discussed at the next Design Team Lead Meeting.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0015
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 12/3/03

DEVELOPED BY: CADD Management Team
DATE: December 18, 2003

ATTENDEES

Mark Chellsen, Jim Cleary, Steve Hoium, Richard Morrow, Matt Sandell

OLD ITEMS

CADD Standards

1. What is the status of "dynamic text scaling"?
Nothing to report at this time.
2. What is the status of the "plan sheet template"?
Nothing to report at this time.
3. What is the status of the transmittal and new horizontal & vertical alignment files?
The transmittal and files were sent 11/13/03.
4. A T&PW letter and attachments sample based on the one created for 15th Ave. S is now in ProjectWise\0000-Project Resource\Guides.
A transmittal was sent 11/13/03.

NEW ITEMS

CADD Standards

1. Users who do not work in the City of Lakes building needs to print using IPLOT.
To enable a printer to use IPLOT, a queue has to be created on the server where the IPLOT Server program is installed. Currently IPLOT Server is installed on the ACTIONCENTER server. If IPLOT Server were installed on the pprint03 server, all of the printers on that server would be able to use IPLOT, and the ACTIONCENTER server could be eliminated. (Exception: HP LaserJet 5000DN printers need a separate queue created for them so that they can use IPLOT.)
 - Have BIS install IPLOT Server on the pprint03 server.
2. Richard Morrow has created a new procedure for using sewer balls.
The CADD Manager will add the new procedure to the InRoads Manual.

ProjectWise

1. The current procedure for modifying the pw.brg file doesn't work. This may be because the login script has been modified.
Mark Chellsen will request to see a copy of the login script from BIS.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0016
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 12/17/03

DEVELOPED BY: CADD Management Team
DATE: December 18, 2003

ATTENDEES

Jim Cleary, Don Elwood, Steve Hoium, Matt Sandell, Mark Soderberg

OLD ITEMS

CADD Standards

1. What is the status of "dynamic text scaling"?
*Brian Cobb gave Jamar Whitlock example pen files containing scaling by defining the scale and desired text size or defining the text size by size = ((ip_scale_num/40)*5).
Informed that we cannot define this value by sheet size so we will need a different pen table for different sheet sizes.*
2. What is the status of the "plan sheet template"?
Nothing to report at this time.

NEW ITEMS

CADD Standards

1. Users who do not work in the City of Lakes building needs to print using IPLOT.
A Change Request Form requesting that IPLOT Server be installed on the pprint03 print server (eliminating the need for the ACTIONCENTER print server) was sent to BIS on 12/16/03. We will contact BIS to determine if it makes more sense to only add the printers we need as users request them.
2. Richard Morrow has created a new procedure for using sewer balls.
There is no agreement with Bentley to develop this procedure.

ProjectWise

1. The current procedure for modifying the pw.brg file doesn't work. This may be because the login script has been modified.
The procedure works and the login script is OK. The reason that some programs may not be "associated" for some people in ProjectWise is because the pw.brg file is designed to "look" in a specific location for specific programs. If programs are not installed in the same location on every computer, the pw.brg file cannot associate programs consistently. It is important that every E2K computer share the same image. We will contact BIS to reemphasize the need for consistent imaging on all E2K computers.

P Drive

1. There is currently only 583MB of space left on ppwise01 (this is the where the P Drive and ProjectWise data is stored).
An IMAC requesting 75GB additional storage space was sent to BIS on 12/16/03. We will contact BIS to make sure that they understand the urgency of this issue.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0017
ISSUED BY: Jim Cleary
SUBJECT: InterPlot (IPLOT) Printers

DEVELOPED BY: CADD Management Team
DATE: January 15, 2004

BACKGROUND

Users at the 300 Border Ave. location were unable to print to their printers using IPLOT.
Users at the City of Lakes location were unable to print to their large-format plotters using IPLOT.

OVERVIEW

InterPlot (IPLOT) is a network production plotting system designed to submit plots and plot sets to a plot server for printing and/or archiving. These plots and plot sets can consist of MicroStation design files, AutoCAD drawing files, Digital Archive data, and many types of raster data.

To be able to use IPLOT, a printer or plotter needs to have a queue on the ACTIONCENTER print server. The following printers are currently available for use with IPLOT, on the ACTIONCENTER print server:

- | | |
|--|--------------------------|
| • BOR-300-PLOT (HP DesignJet 750C) | 300 Border Ave. |
| • BOR-300-PW3 (HP LaserJet 5000 Series PCL 6) | 300 Border Ave. |
| • col-201-esgrp3-1 (HP LaserJet 5000 Series PCL 6) | City of Lakes, 2nd Floor |
| • col-300-grp1acbw (HP LaserJet 5000 Series PCL 6) | City of Lakes, 3rd Floor |
| • col-300-grp1bdbw (HP LaserJet 5000 Series PCL 6) | City of Lakes, 3rd Floor |
| • col-300-grp1plt (HP DesignJet 1055CM) | City of Lakes, 3rd Floor |
| • col-300-grp2ghbw (HP LaserJet 5000 Series PCL 6) | City of Lakes, 3rd Floor |
| • col-300-grp2ijbw (HP LaserJet 5000 Series PCL 6) | City of Lakes, 3rd Floor |
| • col-300-sewer3-pcl (HP DesignJet 1055CM) | City of Lakes, 3rd Floor |
| • col-300-street3 (HP DesignJet 1050C) | City of Lakes, 2nd Floor |

WHAT TO DO

To add an IPLOT printer to your list of printers, do the following:

1. Select **Start > Run**.
2. In the *Run* box, enter **\\ACTIONCENTER**, and then click **OK**.
3. In the *Actioncenter* window, double-click on the printer you want to add.
4. Click **Yes** on the *Printers* box.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0018
ISSUED BY: Jim Cleary
SUBJECT: CADD Management Team Meeting
Results 1/14/04

DEVELOPED BY: CADD Management Team
DATE: January 15, 2004

ATTENDEES

Bill Cherrier, Jim Cleary, Steve Hoium, Matt Sandell, Robb Urquhart, Meseret Wolana

OLD ITEMS

CADD Standards

1. What is the status of "dynamic text scaling"?

According to Jamar Whitlock, the following needs to be added to the standard City of Minneapolis pen table for each font type:

```
else if ((level == 1) and (color == 0) and (type == 17))  
then  
    size = ((ip_scale_num/40)*5)
```

The "ip_scale_num" is the scale of the sheet to be printed, assuming that the standard scale for plan sheets is 1" = 40' on an 11" x 17" sheet.

Different paper sizes would require separate pen tables.

Still to be determined is the text size of different text types at a 40 scale.

Create a pen table based on project 0014-Richfield Rd, and add the above code to it.

2. It was decided that project 0014-Richfield Rd. would be used as the template for plan sheets. How is this to be implemented?

Place project 0014-Richfield Rd. plan sheet files in ProjectWise\0000-Project Resource; rename the files (i.e. Title Sheet Template, etc.) and as time permits, add explanatory notes to the template files.

NEW ITEMS

CADD Standards

1. Discuss the *MplsSurveyPreferences.fxp* transmittal.

Add the following note: "This needs to be done for each project and for each Team Member."

2. Discuss the *Revised Capital Project Vault Structure Document* transmittal.

Kent Peterson would like to make further changes to the structure – Discuss this at the next Design Team Lead Meeting.

3. Discuss the plans for the XP/Bentley V8/Oracle9i Rollout.

The initial installation will occur in the Computer Lab from 1/12 to 2/13. Jeni Loritz's Team will be the first group to receive XP.

P Drive/ProjectWise

1. What is the status of the request for 75GB additional storage space for ppwise01 (this is the where the P Drive and ProjectWise data is stored)?

As of 8AM today, we have 825MB free space. BIS will provide additional space.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0019
ISSUED BY: Jim Cleary
SUBJECT: MplsSurveyPreferences.fxp

DEVELOPED BY: CADD Management Team
DATE: January 19, 2004
REVISION 2.0: April 26, 2006

BACKGROUND

Some users have noticed that the raw survey data for their project did not match the InRoads Survey fieldbook data for their project.

OVERVIEW

When loading raw survey data (.csv file) into InRoads Survey, users need to use the MplsSurveyPreferences.fxp file so that the fieldbook data (.fwd file) is created correctly. The MplsSurveyPreferences.fxp file contains the standard City of Minneapolis preferences that InRoads Survey uses to load raw survey data. Along with other preferences, this file ensures that the units are set to US Feet and the vertical observation is set to Zenith.

LOCATION

L:\Enterprise Engineering\Bentley\Civil\MplsSurveyV8_01.fxp.

WHAT IS GOING TO OCCUR

Currently, the file is named survey.fxp. After January 23, 2004 the file will be renamed **MplsSurveyPreferences.fxp**.

On October 22, 2004 the file was renamed to **MplsSurveyV8_01.fxp**.

WHAT TO DO

1. To see if your project's fieldbook data matches your project's raw survey data, do the following:
Note: It is important to always check your project's fieldbook data against your project's .csv file to ensure that the data matches before starting to work.
 - a. Open InRoads Survey.
 - b. Load the fieldbook data file (.fwd) for your project.
 - c. Open the field book.
 - d. Open the raw survey data file (.csv) for your project in Microsoft Excel.
 - e. Compare the data in the fieldbook with the data in the raw survey data file.
2. If the data in the two files do not match, then do the following:
 - a. Open InRoads Survey.
 - b. Reload the raw survey data.
 - c. Save the fieldbook data.
3. To attach the MplsSurveyPreferences.fxp file so that the fieldbook data file is created correctly, do the following:
Note: This needs to be done for each project and for each team member.
 - a. Open InRoads Survey.
 - b. In the *SelectCAD* box, select **File > Project Defaults...**
 - c. In the *Select Project Defaults* box, choose a project configuration from the *Configuration Name* dropdown list, or create a new configuration.
 - d. In the *Survey Preference (*.fxp)* field, enter the following path: **L:\Enterprise Engineering\Bentley\Civil\MplsSurveyV8_01.fxp**.
 - e. In the *Select Project Defaults* box, click **Apply**, and then click **Close**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0020
ISSUED BY: Jim Cleary
SUBJECT: Mpls Capital Project Vault Structure v.1.02

DEVELOPED BY: CADD Management Team
DATE: February 13, 2004

BACKGROUND

Users have requested the following changes:

- Under the Construction vault, the following subvaults were added: Construction Records, SAs & COs.
- Under the Construction Records subvault, the following sub-subvault was added: CRS Backup.
- The following document types will no longer be available after February 13, 2004: ALIGN, CAPBDGRQ, CONLAY, CONST, CONSTDET, CONSTPRO, DRAINPL, EARTHSUM, ENGEST, EST, EXSECT, GENLAY, GEOMEDIA, GRDPLAN, HYDRO, IMAGES, INTERSEC, IRRIG, LETTER, LIGHT, NOTUSED, PEROSION, PLANT, RECPATH, RENPLAN, RETWALL, SANSEWPR, SECT, SIGN, SPEC, SPECPRO, STANDARD, STGTMPTR, STRIP, SUPAGRE, SURFACES, SURV, TEROSION, TMPSIG, TMPTR, UTIL.
- The following document types will be added after February 13, 2004: CBR, EROSION, ESTIMATE, GRADING, IMAGE, LAYOUT, LIGHTING, POND, PROCEED, SA, SIGNING, SPECS, STRIPING, SURFACE, SURVEY, TYPSECT, WALL.

BACKGROUND

The Mpls Capital Project Vault Structure documents the standard vault structure that is used for capital projects in ProjectWise and on the P Drive. The purpose of the document is to promote the use of standard file names, descriptions, and locations in an effort to improve the delivery of capital projects. The document contains the following information:

- Vault Name
- Subvault Name
- Sub-Subvault Name
- Document Type
- Document Description
- Document Location

LOCATION

ProjectWise\E2K Projects\Vaults\0000-Project Resource\Guides\ Mpls Capital Project Vault Structure v.1.02.xls.
(The previous version of this document is located in ProjectWise\E2K Projects\Vaults\0000-Project Resource\Guides\Guides Archive.)

WHAT TO DO

The revised Mpls Capital Project Vault Structure will be used for all projects created after February 13, 2004. Project Managers who have projects created before this date may choose to follow the revised structure if they desire, however it is not required.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0021
ISSUED BY: Jim Cleary
SUBJECT: ProjectWise User Settings

DEVELOPED BY: CADD Management Team
DATE: February 10, 2004

BACKGROUND

At the Design Team Lead meeting on 10/29/03, it was agreed that the following user settings would be toggled off for all ProjectWise users:

- Use up to date copy on check out
- Leave local copy on check in
- Leave local copy on free
- Use up to date copy on copy out

After the settings were changed, users noticed the following:

- InterPlot plot sets (IPS files) take a long time to open.
- There is no opportunity to recover lost work from a copy on the user's local drive.

OVERVIEW

When a file is opened in ProjectWise, the file is copied from the server to the user's local drive. Changes that a user saves are saved to the copy on the local drive.

When a file is closed in ProjectWise, the user can either check in the file (changes from the file on the user's local drive are saved to the copy on the server), or the user can free the file (changes are not saved to the copy on the server).

LOCATION

These settings apply only to files stored in ProjectWise.

WHAT IS GOING TO OCCUR

After February 13, 2004, the following user settings will be toggled back on:

Use up to date copy on check out:

- ProjectWise opens the most up-to-date file on check out (the file could be from the server or from the user's local drive).

Leave local copy on check in:

- When a file is checked in to the server, a copy will be left on the user's local drive.

Leave local copy on free:

- When a file is freed, a copy will be left on the user's local drive.

Use up to date copy on copy out:

- ProjectWise copies the most up-to-date file on copy out (the file could be from the server or from the user's local drive).

WHAT TO DO

Users need to purge the copies on their local drive whenever a file is checked in or freed. This may be easily accomplished by using the Organizer tool in ProjectWise (see the attached document *How to use ProjectWise Organizer*).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

PROJECTWISE ORGANIZER OVERVIEW

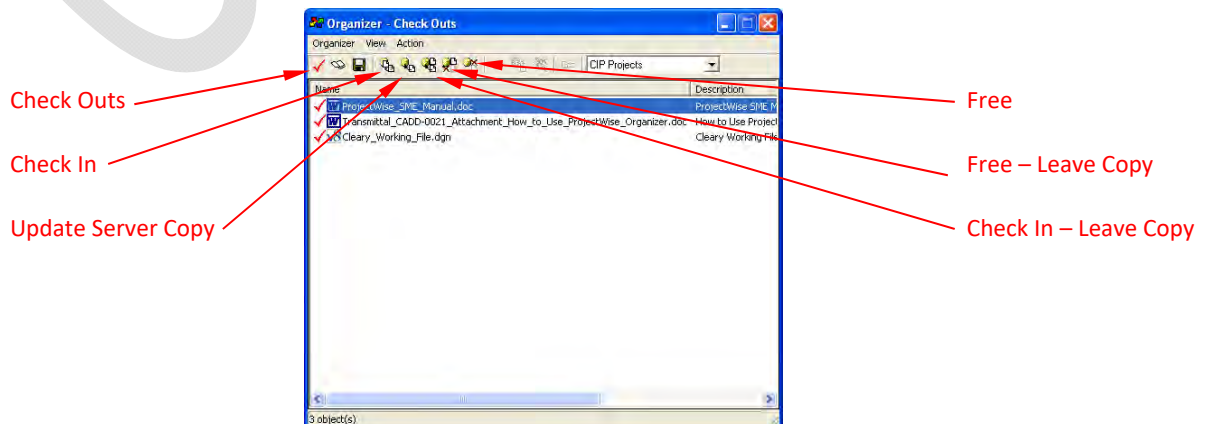
ProjectWise Organizer lists and manages the documents that you currently have checked out, copied out, or exported. The Organizer dialog box opens when you choose Organizer from the Tools menu, or it opens automatically when you log out of a datasource if there are still documents checked out, copied out, or exported.

HOW TO USE PROJECTWISE ORGANIZER

Check-Outs:

This view displays a list of checked-out documents in the organizer window.

1. In the *Organizer* dialog box select the *Check Outs* button or *View > Check Outs*.
2. Highlight the document and select one of the following choices:
 - **Update Server Copy**
This command updates the copy of the document on the ProjectWise server with the current copy on your computer. The status of the document does not change, it remains checked out.
 - **Check-In**
This command copies the document back to the ProjectWise server and makes it available to other users. You can either delete the copy on your computer or retain it. When you close a document that you have checked out, you are prompted to check it in. You can either check it in at that point or choose to check it in later. Checking in a document replaces the document's check mark icon (or to other users, the lock icon) with its read/write (pencil) icon. When you proceed with check in you are required to specify the changes you made to the document in the Check In dialog box.
 - **Check-In Leave Copy**
This command copies the document back to the ProjectWise server and makes it available to other users. A copy is left on your computer (C:\pw_working\user name).
 - **Free Leave Copy**
This command frees the document (see below). A copy is left on your computer.
When you check out or export a document, the document becomes locked, and no other user can modify the document until the document is unlocked. One way to unlock a document that you have checked out is simply to check it back in. However, you may have made changes to the document that you do not want to check in. In this case, you would probably rather unlock the file by undoing the check out. This is called freeing a document.
 - **Free**
This command frees the document (see above). A copy is left on your computer.



Copies:

This view displays a list of the copies on your computer (C:\pw_working\user name) in the organizer window.

1. In the *Organizer* dialog box select the *Copies* button or *View > Copies*.

2. Highlight the copy and select one of the following choices:

- **Lock**

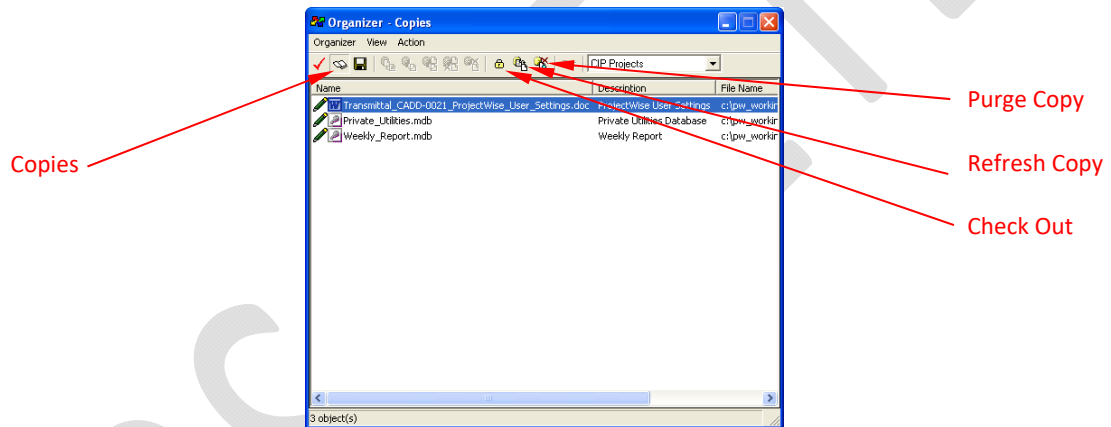
This command changes the status of a copied-out document to checked out without copying the document from the ProjectWise server. You can use this while the document is open in an application, as no files are transferred, and the status of the document is only altered in the database. Use this function if you have accidentally made changes to a document which is not checked out. You will not be able to lock a document which is currently checked out to another user, or one which has been checked in by another user since you copied the document out (i.e. if the copy on the ProjectWise server is more recent than the copy on your computer.)

- **Refresh Copy**

This command refreshes the copy on your computer with the copy of the document on the ProjectWise server.

- **Purge Copy**

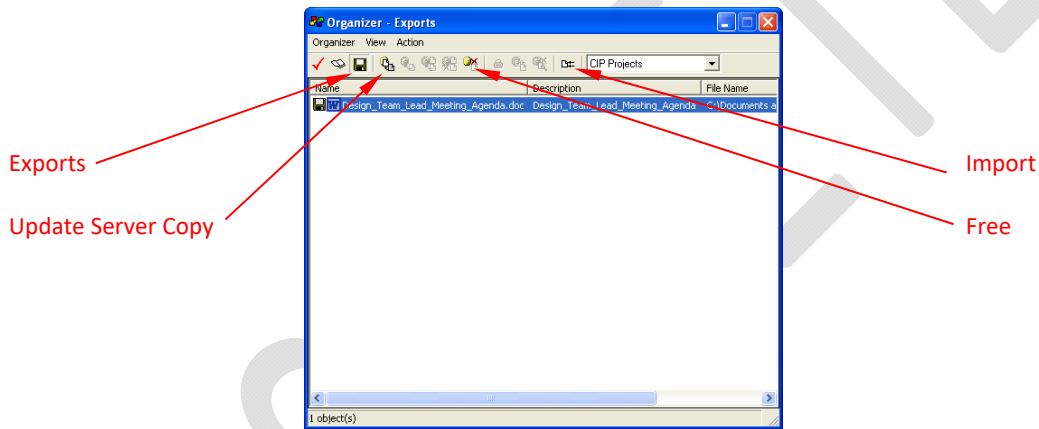
This command deletes the copy on your computer.



Exports:

This command displays a list of exported documents in the organizer window.

1. In the *Organizer* dialog box select the *Exports* button or *View > Exports*.
2. Highlight the export and select one of the following choices:
 - **Update Server Copy**
This command updates the copy of the document on the ProjectWise server with the current copy on your computer. The status of the document does not change, it remains exported.
 - **Free**
This command frees the document. A copy is left on your computer.
 - **Import**
This command imports the document. A copy is left on your computer.
When you check in a document that you have previously exported (using either *Folder > Export* or *Document > Export*), it is referred to as an import. Importing an exported document is similar to checking in a checked-out document, except you use *Document > Import* instead of *Document > Check In*. Before importing, make sure the documents you are importing are returned to the same folder to which they were originally exported, otherwise ProjectWise does not know where to look for those documents to import them.



ISSUE NO. CADD-0022
ISSUED BY: Jim Cleary
SUBJECT: MplsCivil_v.1.02.ini

DEVELOPED BY: CADD Management Team
DATE: February 11, 2004

BACKGROUND

The Design Team Leads requested that a new City of Minneapolis Standard civil.ini file be created that combines preferences, symbology and features from the following files:

- Default Bentley civil.ini
- City of Minneapolis Standard civil.ini
- Project 0007-Flood Area 12 civil.ini
- Project 0011-Nicollet Ave. S. civil.ini

OVERVIEW

The civil.ini is the file where InRoads stores preferences, named symbology and feature styles.

Preference: A group of settings that control various commands.

Named Symbology: Parameters that define how a point, line, or text will appear in plan, profile, and cross section (i.e. color, layer/level, line weight, line style, text height, text justification, text font, rotation angle, etc.).

Feature Style: Controls whether points, lines or annotation are displayed in plan, profile or cross section, and what the features will look like when they are displayed.

LOCATION

P:\SelectCAD\data\MplsCivil_v.1.02.ini

WHAT IS GOING TO OCCUR

After February 13, 2004 the current City of Minneapolis Standard civil.ini (civil.ini) will be renamed to MplsCivil_v.1.01.ini and moved to P:\SelectCAD\data\Civil Archive. The new City of Minneapolis Standard civil.ini (MplsCivil_v.1.02.ini) will be placed in P:\SelectCAD\data.

WHAT TO DO

- If you are in the middle of a project, continue to use the civil.ini that you are currently using.
- If you are beginning a new project, use MplsCivil_v.1.02.ini.

If you notice any problems with MplsCivil_v.1.02.ini, or if you would like to make any changes to it, please fill out a CADD Change Request Form (ProjectWise\Vaults\0000-Project Resource\Forms) and send it to the CADD Manager (jim.cleary@minneapolismn.gov).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0023

ISSUED BY: Jim Cleary

SUBJECT: CADD Management Team Meeting Results 2/11/04

DEVELOPED BY: CADD Management Team

DATE: February 12, 2004

ATTENDEES

Mark Chellsen, Jim Cleary, Mauricio Colmenares, Don Elwood, Steve Hoium, Robb Urquhart

OLD ITEMS

CADD Standards

1. To implement dynamic text scaling, code needs to be added to our standard pen table. Because project 0014-Richfield Rd. has recently been chosen as the plan sheet template, it might be a good idea to start with this project's pen table as the basis for our standard pen table, and add the code to this.
Ask this question at the next Design Team Lead Meeting.
2. What file format should be used to implement project 0014-Richfield Rd. as the template for plan sheets? Should the files be saved as PDFs?
The files should be saved as PDFs.
3. A transmittal has been sent to inform users about the new civil.ini file.
4. Discuss the plans for the XP Rollout.
A list of project engineers and their projects will be created to determine when a project team moves to XP/V8.

P Drive\ProjectWise

1. BIS has created additional storage space for project data. We now have a total of 110GB, of which approximately 83GB is free space.
2. A transmittal has been sent to inform users about the Capital Project Vault Structure and to inform users how to use ProjectWise Organizer.
3. A transmittal has been sent to inform users about the change in user settings for ProjectWise.

NEW ITEMS

CADD Standards

1. A link has been provided to Bentley's manuals in the following location in ProjectWise 0000-Project Resource\How Tos\Bentley Documentation Link.doc. Ultimately, we want to develop a series of documents that link to one another by task throughout the project process:
 - ***CAE Matrix.pdf - task within CAE Matrix links to task within Project Process Manual***
 - ***Project Process Manual.pdf - task within Project Process Manual links to task within Project.mpp***
 - ***Project.mpp - task within Project.mpp links to task How-To document(s)***
 - ***How-To document(s) - created by users as procedures are developed***

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0024
ISSUED BY: Jim Cleary
SUBJECT: Truncated Domes

DEVELOPED BY: CADD Management Team
DATE: February 20, 2004

BACKGROUND

Public Works Directors are in agreement to follow MnDOT's ADA Requirements for the Use of Truncated Domes/Detectable Warning System of Pedestrian Curb Ramps.

Please see the attached memo for further information about this requirement.

To see MnDOT Technical Memorandum No. 03-19-TS-02, click on the following link:
<http://www.dot.state.mn.us/tecsup/tmemo/active/tm03/19ts02.pdf>

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

Memo

To: Directors of Public Works
From: Rhonda Rae, P.E.
CC: John Hotvet, Dan Bauer, Don Pflaum, Marie Asgian, and Howard Verson
Date: 1/22/2020
Re: MnDOT Technical Memorandum No. 03-19-TS-02
ADA Requirements for the Use of Truncated Domes/Detectable Warning System of
Pedestrian Curb Ramps.

Overview:

Engineering Services was asked to form a committee to review the Minnesota Department of Transportation Technical Memorandum No. 03-19-TS-02, dated July 1, 2003 (See Attachment 1). This MnDOT Technical Memorandum addresses the new American Disabilities Act (ADA) Requirements for the Use of Truncated Domes/Detectable Warning System of Pedestrian Curb Ramps.

The review committee was asked to review the specifications for the Truncated Domes for material type, color and cost. The review committee consisted of John Hotvet, Dan Bauer, Don Pflaum, Marie Asgian, Howard Verson and Rhonda Rae.

Material Type:

To date, MnDOT has approved the two options for material Type. The first option is granite panels and the second option is stamped concrete. MnDOT has approved the following suppliers:

1. Cold Spring Granite Company to supply the Truncated Dome Granite Panels.
2. Increte Systems, Inc. and Stampcrete International to supply the concrete stamp.

Material Color

The requirement for material color is for the entire ramp area (2ft x 4ft typically) to contrast visually from the adjacent walking surfaces. The American Disabilities Act Accessibility Guidelines (ADAAG) Appendix, Section A20.2 recommends that the material used should provide at least a 70 percent contrast in color.

MnDOT Specification S-1.3, states that the entire truncated dome area shall be a light color (white or yellow) when the adjacent sidewalk is a dark color. The truncated dome area shall be a dark color (red, black, dark gray or bright yellow) when the adjacent sidewalk is a white or light gray in color.

Cold Spring Granite Truncated Dome Panels are available in nine contrasting colors and offer a full range of custom colors to meet design challenges. Gunderson Brothers Cement Contractors and Standard Sidewalk Inc. provided us a color pigment chart with twenty different pigments available.

To meet the color-contrasting requirement based on the City's existing concrete walk color of light gray reduces the available pigments to nine possibilities. These colors range from red, brown, green and gray. Our recommendation for truncated concrete truncated dome color based on concrete colors available and to provide for consistency across Minneapolis is dark gray (P9140 GunMetal).

Material Cost

Cold Spring Granite Company unit prices range from \$520.00/each to \$266.00/each based on volume of granite pavers purchases. This price does not include sales tax and labor to install.

Standard Sidewalk Inc. estimated that the cost of the sidewalk intersection (SI) would increase \$500.000 to \$600.00 above their current cost.

Gunderson Brothers Cement quoted us five items they would add as up charges for the SI and suggested that the City consider bidding the ramps separately. Gunderson Brothers also indicated that the City would have to order a minimum of eight sidewalk intersection corners at a time to ensure that concrete could be purchased by the truckload vs. hand mixing.

Applicability

Construction Projects & Reconstruction Projects

The types of work that are considered construction and reconstruction projects are listed on the MnDOT Technical Memorandum.

Mill and Overlay Projects

The MnDOT Technical Memorandum states that the new ADA requirement only applies to mill and overlay projects where greater than 2-inches of pavement is milled.

This would not effect most of the City's mill and overlay project since most of them are designed at 2-inches or less.

The Street Renovation Program as approved by City Council in 1998 was a Street Management approach. The Street Management approach would acknowledge residents concerns for livability issues such as lighting, traffic calming, landscaping, and street signage. Based on this approach, it is our opinion that all renovation projects should comply with the ADA requirements for the use of truncated domes on pedestrian curb ramps.

Recommendations

It is our recommendation that Minneapolis Public Works comply with Technical Memorandum No. 03-19-TS-02, by installing truncated stamped concrete domes that are dark gray (P9140 Gun Metal) in color on all Construction, Reconstruction, and Mill & Overlay Projects.

For plaza and other special sidewalk designs in the City of Minneapolis, the construction of pedestrian curb ramps should be consistent with MnDOT Specifications and will require approval of the City Engineer or designated representative.

ISSUE NO. CADD-0025
ISSUED BY: Jim Cleary
SUBJECT: Server Time Problem

DEVELOPED BY: CADD Management Team
DATE: February 26, 2004

BACKGROUND

A user exported a file out of ProjectWise, saved some changes, then imported the file back into ProjectWise. When the user checked-out the file again, the saved changes were not there. **The cause of the problem appears to be a difference between the clock time on the user's computer and the clock time on the server.** The following is an example of what can happen:

The user exports the file from the ProjectWise server at 12:00PM (ProjectWise server time), but the clock time on the user's computer is actually 11:50AM. The change the user makes takes only two minutes, so the file is saved with a clock time of 11:52AM, set from the user's computer. The ProjectWise server has recorded the file time at check-out to be 12:00PM, so when the user attempts to import the file back into the ProjectWise server, the file is actually older than the file that was exported out, and therefore the file is not imported.

OVERVIEW

When a file is exported (or checked-out) out of ProjectWise, a time from the server (i.e. 12:00PM) is assigned to the file on the server. When a file is imported (or checked-in) into ProjectWise, a time from the user's computer (i.e. 11:52AM) is assigned to the file on the user's computer. These times are used by ProjectWise to determine which copy of the file is the most up-to-date. If the user's file has a later clock time than the file on the server, then the server copy is updated. However, if the user's file has an earlier clock time than the file on the server, then the server copy is not updated.

LOCATION

ProjectWise.

WHAT IS GOING TO OCCUR

A ticket has been created with BIS to resolve this problem.

WHAT TO DO

If the clock time on your computer is not correct, then follow the steps below when working with files in ProjectWise:

1. When you export (or check-out) a file from ProjectWise, make a note of the clock time on a clock that you know to be accurate.
2. Make and save changes in the file as you normally would.
3. Wait until the clock time on your computer is later than the clock time that you noted in step 1 before you check-in the file.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0026
ISSUED BY: Jim Cleary
SUBJECT: InterPlot Organizer Licenses

DEVELOPED BY: CADD Management Team
DATE: April 13, 2004

BACKGROUND

While plotting using InterPlot Organizer, a user received the following error message: ***CLS, Unable to obtain a usage license for InterPlot Client - Usage found but no usage available (all usages exhausted)***. When the user examined their plots, they noticed a watermark that said, ***The following products are not registered: InterPlot Client Please use the appropriate product configuration utility to register the license(s) for the product(s)*** etc..... This problem occurred because all 31 InterPlot licenses were checked-out.

OVERVIEW

When a user opens *InterPlot Organizer* a license is checked-out for a *minimum of 1 hour, even if the program is closed immediately*. For example:

If the program is open for 1 minute, then the license will be checked-out for 1 hour. If the program is open for 1 hour and 1 minute, then the license will be checked-out for another hour (2 hours total). If the program is open for 2 hours and 1 minute, then the license will be checked-out for another hour (3 hours total), and so on.

When InterPlot is used to plot *within MicroStation*, the license is immediately checked-in when the user closes the program.

WHAT IS GOING TO OCCUR

Users who receive a watermark when trying to plot using InterPlot Organizer should contact the CADD Manager (Jim Cleary, (612) 673-3623, jim.cleary@minneapolismn.gov). Users that have had the program open for more than one day will be asked to close it so that others can plot.

WHAT TO DO

- Users need to close InterPlot Organizer if they are not actively using it.
- Users should log off at the end of each workday (this will ensure that all programs are closed). This is part of the City of Minneapolis Electronic Communication Policy. If you would like to see the policy click on the link <http://citytalk/policies/electronic-communications-policy.asp#TopOfPage> and scroll down to *Logging Off*.
- If you are in the middle of a process that needs to continue running after you leave for the day, you may want to "lock" your workstation. To lock your workstation, do the following:
 1. **Right-click** on your desktop and select **Properties**.
 2. On the *Display Properties* dialog box click the **Screen Saver** tab.
 3. In the *Screen Saver* section check the box **Password protected**.
 4. In the *Screen Saver* section, in the *Wait* field, choose the number of minutes you want the computer to wait before it is locked.
 5. To unlock your computer, press **Ctrl + Alt + Delete** and enter your **user name** and **password**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0027
ISSUED BY: Jim Cleary
SUBJECT: Mpls PW Sample Plan Set

DEVELOPED BY: CADD Management Team
DATE: April 13, 2004
REVISION 0.2: January 16, 2020

BACKGROUND

Project 6754-Minnehaha Ave. 26th to 24th has been selected as the sample plan set for the City of Minneapolis Public Works department.

OVERVIEW

The sample plan set establishes the standard appearance for plan sheets created for the City of Minneapolis Public Works department.

LOCATION

[Mpls PW Sample Plan Set](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0028
ISSUED BY: Jim Cleary
SUBJECT: UPDATE: Server Time Problem

DEVELOPED BY: CADD Management Team
DATE: April 26, 2004

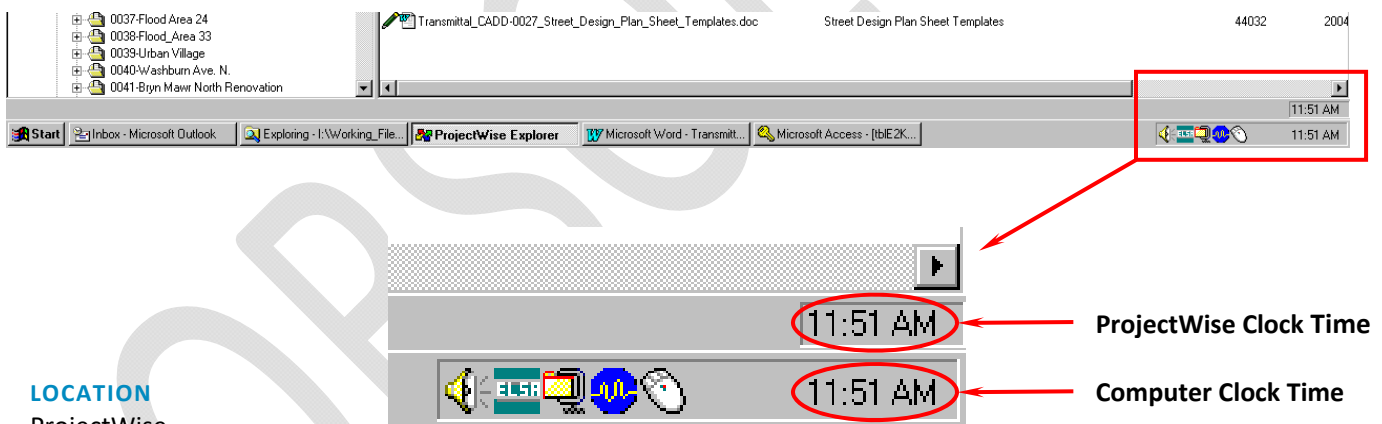
BACKGROUND

On February 26, 2004, Transmittal CADD-0025 was sent to inform users of a problem that can occur because of a difference between the clock time on the user's computer and the clock time on the ProjectWise server (see below):

When a file is exported (or checked-out) out of ProjectWise, a time from the ProjectWise server (e.g. 12:00PM) is assigned to the file on the server. When a file is imported (or checked-in) into ProjectWise, a time from the user's computer (i.e. 11:52AM) is assigned to the file on the user's computer. These times are used by ProjectWise to determine which copy of the file is the most up-to-date. If the user's file has a later clock time than the file on the server, then the server copy is updated. However, if the user's file has an earlier clock time than the file on the server, then the server copy is not updated.

OVERVIEW

The clock time on the ProjectWise server and the clock time on the user's computer need to display the same time to ensure that file updates will be saved to the server copy when files are checked-in to ProjectWise.



LOCATION

ProjectWise.

WHAT TO DO

If the clock time on your computer does not match the clock time on the ProjectWise server contact the **City of Minneapolis Service Desk at (800) 262-3112**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0029

ISSUED BY: Jim Cleary

SUBJECT: Mpls Capital Project Vault Structure v.1.03

DEVELOPED BY: CADD Management Team

DATE: May 10, 2004

BACKGROUND

The following changes to the Capital Project Vault Structure were requested:

- A standard location for Special Assessments files.
- A standard location for project teams to store the ASCII files that are created from alignment files.

OVERVIEW

Currently, there is no standard location for Special Assessments files or for project teams to store the ASCII files that are created from alignment files.

LOCATION

ProjectWise\E2K Projects\Vaults\0000-Project Resource\Guides\Mpls Capital Project Vault Structure v.1.03.xls.
(The previous version of this document is in *ProjectWise\E2K Projects\Vaults\0000-Project Resource\Guides\Guides Archive.*)

WHAT IS GOING TO OCCUR

A sub vault named **Special Assessments** will be added under the *Budgeting* vault. Special Assessments will store project files here.

A sub vault named **Survey** will be added under the *Construction* vault. Project teams should store the ASCII output files that are created from alignment files here.

WHAT TO DO

Mpls_Capital_Project_Vault_Structure_v.1.03 will be used for all projects created after May 10, 2004. Project Managers who have projects created before this date may choose to follow the revised structure if they desire, however it is not required.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0030

ISSUED BY: Jim Cleary

SUBJECT: Mpls Capital Project Vault Structure v.1.04

DEVELOPED BY: CADD Management Team

DATE: May 21, 2004

BACKGROUND

The Design Team Leads requested that a standard location for the Engineering Lab to store project specific materials testing files be added to the Capital Project Vault Structure.

OVERVIEW

Currently, there is no standard location for the Engineering Lab to store project specific materials testing files.

LOCATION

ProjectWise\E2K Projects\Vaults\0000-Project Resource\Guides\Mpls Capital Project Vault Structure v.1.04.xls.
(The previous version of this document is in *ProjectWise\E2K Projects\Vaults\0000-Project Resource\Guides\Guides Archive.*)

WHAT IS GOING TO OCCUR

A sub vault named **Materials Testing** and sub-sub vaults named **Asphalt**, **Concrete** and **Soils** will be added to all existing projects under the *Construction* vault.

These vaults will be read-only to everyone, except for the Engineering Lab, who will store project specific materials testing files here.

Mpls_Capital_Project_Vault_Structure_v.1.04 will be used for all projects created after May 21, 2004.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0031
ISSUED BY: Jim Cleary
SUBJECT: Windows XP and Bentley V8 Upgrade

DEVELOPED BY: CADD Management Team
DATE: June 29, 2004

BACKGROUND

After July 14, 2004 Engineering Services users in the City of Lakes building will begin using Windows XP with Bentley V8 software.

OVERVIEW

Currently, Engineering Services users in the City of Lakes building are using Windows NT with the following Bentley software versions:

- InRoads SelectCAD 08.02.00.00 (Service Pack 6)
- InterPlot Organizer 10.02.00.09
- MicroStation/J 07.01.04.16 Windows x86
- ProjectWise 3.08.01.50

WHAT IS GOING TO OCCUR

ProjectWise

- After July 14, 2004 the following changes will take place:
 - Projects in the current version of ProjectWise will begin being migrated to ProjectWise V8. (**Note:** Project Files will not be accessible until after they have been migrated.) Project managers will be informed when their projects have been migrated.
 - The current version of ProjectWise will be available only on computers in the Computer Lab.
 - After all Engineering Services users have been migrated to Windows XP with Bentley V8 software, ProjectWise V7 will be disabled.
 - Users will no longer have to log in separately to ProjectWise V8 - When the user logs in to the CITY domain, they will automatically be logged into ProjectWise.

PROJECTS THAT ARE NEARING COMPLETION AT THE TIME OF THE MOVE TO V8 MAY CONTINUE TO BE WORKED ON IN V7 IN THE COMPUTER LAB.

P: Drive

- After July 14, 2004 the following changes will take place:
 - Folders and files on the P: drive will be copied to **M:\ES_Public\E2K_Project_Data_on_P_Drive**. This folder will be read only.
 - The P: drive in its current location will be available only on computers in the Computer Lab.
 - After 1 month the **E2K_Project_Data_on_P_Drive** folder will be disabled.
 - After all Engineering Services users have been migrated to Windows XP with Bentley V8 software, the P: drive will be disabled.

WHAT TO DO

ProjectWise

- Project teams need to check-in all files before a project can be migrated. Failure to do this will delay the migration process.

P: Drive

- Prior to July 14, 2004 project teams are requested to move their project files from the project folder on the P: drive to the corresponding project location in ProjectWise. (The project folder on the P: drive will no longer be necessary - all Bentley software is integrated with ProjectWise V8.)

- After July 14, 2004 it will still be possible to move files to ProjectWise, however files will be read only until they are moved.

InterPlot

- The first-time users open an InterPlot Organizer file they should select **File > Save**. This will save the file as a version V8 file.

MicroStation and InRoads

- Both MicroStation and InRoads will automatically be converted to V8 the first time they are opened.

Exchanging files with Engineering Services Users *not* in the City of Lakes Building

These users will continue to use current software versions until they are upgraded to Windows XP with Bentley V8 software. MicroStation design files that need to be exchanged with these users must be converted from V8 to V7 before they are sent to the user.

- To convert design files from V8 to V7, do the following:
 1. Within the design file select **File > Save As**.
 2. In the *Save As* dialog box, in the *Select Format to Save* dropdown choose **MicroStation V7 Files (*.dgn)**.
 3. Click **OK**.
- To convert design files from V7 to V8 simply double-click on the file and it will automatically be converted to a MicroStation V8 file.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0032

ISSUED BY: Jim Cleary

SUBJECT: UPDATE: Windows XP and Bentley V8 Upgrade

DEVELOPED BY: CADD Management Team

DATE: September 2, 2004

BACKGROUND

On June 29, 2004 a transmittal was sent notifying Enterprise Engineering (E2K) users in the City of Lakes building about the Windows XP and Bentley V8 upgrade. The issues that delayed the upgrade have been resolved and we are now ready to proceed with the installation.

OVERVIEW

This transmittal informs users what to do the first time they begin using the new Bentley V8 products.

WHAT TO DO

ProjectWise

Important!

- After 4pm September 8, 2004 the current version of ProjectWise will no longer be available except on computers in the Computer Lab at the City of Lakes building.
 - Enterprise Engineering users outside the City of Lakes building will not be able to access ProjectWise until their area has been migrated to Windows XP/Bentley V8.
 - Please check-in all files by 4pm September 8, 2004. Files not checked-in will be freed by the ProjectWise Administrator and any changes to the file will be lost.
 - Users who need to access files in the old version of ProjectWise will have to contact Jim Cleary (612-673-3623, jim.cleary@ci.minneapolis.mn.us) or Mark Chellsen (612-673-3646, mark.chellsen@ci.minneapolis.mn.us) before they can access their files.
 - Before 4pm September 8, 2004 Enterprise Engineering users not in the City of Lakes building will need to move their files outside of ProjectWise if they want to be able to access them. These users will be able to access ProjectWise 2004 after they have been migrated to Windows XP/Bentley V8.
1. Users will no longer have to log in separately to ProjectWise. When the user logs in to the CITY domain, they will automatically be logged into ProjectWise.
 - a. Select **Start > All Programs > Enterprise Engineering > ProjectWise Explorer**.
 - b. Double-click on **CIP Projects**.

Note: Projects will begin being migrated from the current version of ProjectWise to ProjectWise 2004 on the first day of the upgrade, therefore your project(s) may not be immediately available. Project managers will be informed when their projects have been migrated.
 2. MicroStation: You will need to use the **Scan References...** command for any design file that has reference files attached. (For information on how to use the *Scan References* command, search the *Help* file for *References, scan for*.)
 3. Title Block Integration: This no longer works with our border reference files. To use Titleblock Integration, use one of the following new border cells:
 - DEBOSH Detail Border Sheet
 - TIBOSH Title Border Sheet
 4. InterPlot Organizer: These files check themselves in automatically without asking you to check the file in.
 5. PowerPoint: These files will have to be checked-in manually.

MicroStation GeoGraphics

Important!

- The current Oracle 8i database will be migrated to Oracle 9i. After 4pm Friday, September 3, 2004 GeoGraphics users will not be able to access the database. Users will be notified when the database is available again.

Screen Resolution

1. By default, the screen resolution on your computer will be set to 800 by 600 pixels. It is recommended that users change the resolution on their screen to the Enterprise Engineering standard of 1280 by 1024 pixels.
 - a. Right-click on your *Desktop* and select **Properties**.
 - b. Click the *Settings* tab, move the *Screen resolution* slide to **1280 by 1024 pixels** and click **OK**.
 - c. Restart your computer (**Start > Shutdown > Restart**).

Bentley Program Location

1. All the Bentley V8 programs are in a folder called **Enterprise Engineering**.
 - a. Select **Start > All Programs > Enterprise Engineering**. The following programs are contained within this folder (selected users will also see MicroStation GeoGraphics):

Note: The InRoads program should be opened first before you open any of the other Bentley products. (This places files on your computer that the custom InRoads menu bar in MicroStation needs.)

- **Bentley Descartes**
- **Bentley InRoads**
- **Bentley InRoads Bridge**
- **Bentley InRoads Cogo Classic**
- **Bentley InRoads Storm & Sanitary**
- **Bentley InRoads Survey**
- **InterPlot Organizer**
- **MicroStation**
- **ProjectWise Explorer**

Bentley System Files Location

1. All the Bentley system files (.ini files, border files, cell libraries, line style libraries, etc.) are in the following location: **Applications on 'City' (L:)\Enterprise Engineering\Bentley**. All these files are *read-only*. Within the Bentley folder are the following folders:

1. **Civil** (Files for InRoads users)
2. **GeoGraphics** (Files for GeoGraphics users)
3. **InterPlot** (Files for InterPlot users)
4. **ProjectWise** (System file; not for users)
5. **Workspace** (Files for MicroStation users)

Note: Existing projects should continue to use the same system files that they have been using. These should be used throughout the life of the project. New projects will be delivered with the new system files.

Project Files on the "P" Drive

1. All the files in the projects folder on the "P" drive may be accessed from the following location: **Common on 'Cmeav503' (M:)\Enterprise Engineering\Projects**. These files are not copies but are the actual files still on the "P" drive and are *read-only*. Project teams have been requested to move their project files from the project folder on the P: drive to the corresponding project location in ProjectWise.

MicroStation

1. The first time you open MicroStation or InRoads a dialog box will open called *MicroStation on the Web Registration*.
 - a. Enter your first name, last name, e-mail address and company name (City of Minneapolis).

For more information about MicroStation on the Web Registration click on the following link:

<http://selectservices.bentley.com/technotes/fags/6227.htm>

Digital InterPlot

1. Existing InterPlot Organizer files will need to be recreated.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

OBSOLETE

ISSUE NO. CADD-0033
ISSUED BY: Jim Cleary
SUBJECT: Projects by Outside Agencies

DEVELOPED BY: CADD Management Team
DATE: January 11, 2005
REVISION 0.1: January 17, 2020

BACKGROUND

There is a need for a way to differentiate “projects by outside agencies” from “CIP projects”.

OVERVIEW

A custom folder in ProjectWise named “Projects_by_Outside_Agencies” has been created to organize projects by outside agencies.

LOCATION

ProjectWise Explorer\CIP Projects\Documents\Custom Folders\Global Folders**Projects_by_Outside_Agencies**.

WHAT IS A CUSTOM FOLDER?

A *Custom Folder* is an alternative view of the folders in ProjectWise. There are two types of Custom Folder:

- *Global Folders* are visible to all users, however only a ProjectWise Administrator can create, modify or delete them.
- *Personal Folders* can be created by any user; however, they are visible only to the user who created them.

If other Global Folders are desired or if changes need to be made to existing folders, contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623.

HOW DO I CREATE A PERSONAL FOLDER?

1. Expand *Custom Folders*, **right-click** on *Personal Folders* and select **Create...**
 - a. In the *Create Custom Folder* box enter a **Name** and a **Description**.

HOW DO I ADD FOLDERS OR DOCUMENTS TO A PERSONAL FOLDER?

1. **Right-click** on the folder and select either **Add Folder...** or **Add Document...**
 - a. Browse to the folder or document you want to add and click **OK**.

HOW DO I DELETE FOLDERS FROM A PERSONAL FOLDER?

1. **Right-click** on the folder and select **Delete**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0034
ISSUED BY: Jim Cleary
SUBJECT: Completed CADD Change Requests

DEVELOPED BY: CADD Management Team
DATE: January 25, 2005

BACKGROUND

The following CADD Change Requests were approved by the Design Team Leads:

- **CCR0004** Change CB1 Cell
- **CCR0007A** Add Letters to Utility Manhole Cells
- **CCR0028** Create Unknown Manhole Cell

OVERVIEW

The following changes were made to cells in Mpls.cel on 1/13/05:

- | | |
|--|--|
| • CB1 (Replace with R3252A) | The diagonal lines were removed from within the cell. |
| • IMGGM (Gas Manhole) | A capital letter "G" was added to the center of the cell. |
| • ISAM (Existing Sanitary Manhole) | The capital letters "SA" were added to the center of the cell. |
| • ISDM (Existing Storm Drain) | The capital letters "ST" were added to the center of the cell. |
| • NSPM (Electrical Manhole) | The capital letter "E" was added to the center of the cell. |
| • NWBM (Telephone Manhole) | The capital letter "T" was added to the center of the cell. |
| • PRSAMA (Proposed Sanitary Manhole) | The capital letters "SA" were added to the center of the cell. |
| • PRSTMA (Proposed Storm Drain Manhole) | The capital letters "ST" were added to the center of the cell. |
| • UNKMAN (Unknown Manhole) | This is a new cell. |

LOCATION

L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell\Mpls.cel

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0035
ISSUED BY: Jim Cleary
SUBJECT: CADD Resources

DEVELOPED BY: CADD Management Team
DATE: April 7, 2005
REVISION 0.3: January 22, 2020

BACKGROUND

Users may not be aware of the resources available to them for answering questions or solving problems with CADD software.

OVERVIEW

CADD software consists of the following: *Bentley Map, InRoads, MicroStation, ProjectWise.*

RESOURCES

1. Yourself

There are several places on the Internet where users can search for answers on their own:

[CADD Software Problems](#)

Database of problems and solutions encountered by Enterprise Engineering users at The City of Minneapolis where users may search for solutions by application and/or by user.

[Bentley Support](#)

Bentley Technical Support website where users may download Bentley product manuals and TechNotes/FAQs that deal with common problems.

[Bentley Communities](#)

Bentley product support website where users can find how-to tips, best practices, opinions and advice from peers and Bentley subject matter experts.

2. Your Colleagues

Several of our users have become subject matter experts in a variety of design tasks, so don't be afraid to ask the person sitting next to you for help! If they can't help, try asking one of the following people:

- **Bentley Map:** Sam Dry
- **InRoads:** Ron Davidson, Hassan Hussein, Howard Verson, Jamar Whitlock
- **MicroStation:** Ron Davidson, Hassan Hussein, Howard Verson, Jamar Whitlock
- **ProjectWise:** Jim Cleary

3. PW CADD Standards Meeting (meetings are scheduled as needed)

The PW CADD Standards Meeting is the forum where users can share their knowledge, discuss ideas for improvement and help develop standards. To see what's on the current agenda, and to view items on past agendas, click on the following link: [PW CADD Standards Meeting Agenda](#).

- To add items to the current agenda, contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623.
- PW CADD Standards Team Members:
 - **PW CADD Manager:** Jim Cleary
 - **SW&S Division Representative:** Jamar Whitlock, Ron Davidson
 - **T&PS Division Representative:** TBD
 - **TE&D Division Representative:** Hassan Hussein
 - **WT&D Division Representative:** TBD

4. The PW CADD Manager (Jim Cleary, (612) 673-3623, jim.cleary@minneapolismn.gov)

The PW CADD Manager is responsible for the following:

- Primary support of Bentley products

- Maintenance of the Software Problem Database
- Initiation, development and enforcement of CADD standards and procedures
- Documentation of CADD standards and procedures
- Testing and configuration of Bentley software prior to upgrade and installation

5. Bentley Support

If none of the sources listed above can help you, contact [Bentley Support](#) and create a Service Request.

WHAT TO DO

When you discover a solution or a procedure that you believe could benefit everyone, please share it with your colleagues and the CADD Manager.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0036
ISSUED BY: Jim Cleary
SUBJECT: CADD Standards Manual

DEVELOPED BY: CADD Management Team
DATE: April 25, 2005
REVISION 0.2: January 22, 2020

BACKGROUND

There is a need for a document that both internal users and consultants doing business with the City of Minneapolis can refer to when there are questions about CADD standards.

OVERVIEW

The purpose of the *CADD Standards Manual* is to provide uniform standards for the computer aided design and drafting of Capital Improvement Projects. The manual is to be used in the generation of electronic plans by both internal users and consultants doing business with the City of Minneapolis.

The *CADD Standards Manual* is intended to be as complete as possible; however, it is not a textbook and does not exempt the user from performing responsible engineering and/or surveying. The user shall have final responsibility for the accuracy of all input and output of computer-based applications.

The documentation and use of CADD standards have the following benefits and results:

| Benefit | Result |
|--|------------------------|
| Consistent appearance of plan sheets | Ease of understanding |
| Data can be shared easily between projects | Increased productivity |
| Technicians can easily move between design teams | Efficient use of labor |

The result of these benefits is the improved delivery of Capital Improvement Projects.

LOCATION

[Mpls PW CADD Standards Manual](#)

ASSOCIATED DOCUMENTS

The City of Minneapolis *CADD Standards Manual* is one of several documents created to facilitate the implementation and integration of CADD software into a complete, efficient design solution. The other documents involved in this plan are as follows:

- [Project Process Manual](#)
- [InRoads SME Manual](#)
- [MicroStation SME Manual](#)
- [ProjectWise SME Manual](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0037
ISSUED BY: Jim Cleary
SUBJECT: ProjectWise Explorer

DEVELOPED BY: CADD Management Team
DATE: May 24, 2005
REVISION 0.5: April 25, 2022

BACKGROUND

One of the four goals of Enterprise Engineering is "full deployment of concurrent engineering" (all phases of engineering projects occur simultaneously, with all project data shared among the project team). To achieve this goal, ProjectWise Explorer was selected as the location for design teams to store and work on Capital Improvement Project files. Since 2001, project teams have been designing and storing project files in this location (as of March 2018 there are 415 projects in ProjectWise).

OVERVIEW

ProjectWise Explorer supports concurrent engineering by allowing project team members in different areas of Public Works, and in different locations, to work on separate project tasks simultaneously.

FEATURES

Concurrent Engineering

- Project files are visible to all Enterprise Engineering users in one central location, eliminating the need to create and send copies of files to project team members.
- Write access is limited to one user at a time, ensuring team members that they are always working on the latest version of a file.
- Files may be versioned, however only the most current version can be edited.
- Users are able to identify the team member who is currently editing a file.
- Data may be shared with users who do not have ProjectWise Explorer by using the *Document Export Wizard*.

Standards

- Users are able to move easily from one project to another because projects share a consistent data structure and file naming convention.
- Consistent project data structures are maintained by limiting the creation of subfolders to Project Engineers only.
- Consistent file names are promoted through the use of the *Advanced Document Creation Wizard*.

Security

- The ProjectWise Administrator can add or remove users quickly and easily to project teams.
- Actions the user may perform are controlled via the access they are granted. Four levels of access have been established:
 - Non-Enterprise Engineering Users:** *Cannot access files in ProjectWise Explorer.*
 - Enterprise Engineering Users:** *Read permission to all files.*
 - Project Team Members:** *Create, delete, read and write to their project files only; cannot create subfolders.*
 - Project Engineers:** *Create, delete, read and write to their project files only; can create subfolders.*
- Workflows allow file permissions to be changed as the file passes through various stages of the project. (Currently, no workflows have been defined for the City of Minneapolis.)
- The *Set Final Status* feature allows users to prevent further modifications to a document by any user, regardless of privileges.

Communication

- *ProjectWise Messenger* allows ProjectWise users to communicate with one another without leaving the ProjectWise environment. This feature may be used to send files along with your message for review.
- Messages may be sent automatically via *Microsoft Outlook* or *ProjectWise Messenger* when a file is moved to another state in a workflow.

History

- The *Audit Trail* feature allows users the ability to document changes and to see who has created, edited, or deleted a file.

Attributes

- File attributes such as *Project Name*, *Project Number*, *Sheet Title*, *Sheet Number*, *Drawn By*, *Checked By*, *Approved By*, *P.E. Number*, etc. can be maintained for each file.

Queries

- Users can search for files across projects based on any combination of file properties and attributes (e.g. *File Name*, *Description*, *Size*, *Project Name*, *Drawn By*, *Approved By*, *Revision Date*, etc.).
- Queries can be saved for future use.

Custom Views

- Custom views of folders can be organized in a variety of ways (i.e. *Final Signed Plan Sets*, *Project Archive*, *Project Resource*, *Project Studies*, *Projects by Outside Agencies*, etc.).
- Views can be made visible to everyone by the ProjectWise Administrator or users can create their own views that are visible only to them.

Custom File Sets

- Any combination of files from any project can be grouped together into a set for a particular purpose (i.e. for printing or to simplify the viewing of files across projects). The file in a set doesn't actually move nor is it copied, and a single file may be part of multiple sets.

Local File Caching

- Users work on project files locally on their computer, enabling faster response times when working with large files. File caching occurs automatically when the user checks-out a file; the file is then automatically returned to the ProjectWise server when the file is checked-in.

MicroStation

- Design files with reference files have a hierarchical tree symbol in the lower right corner of the document icon. Users can see a list of the files that are referenced to a particular design file and a list of the design files that reference a particular file.
- Reference files remain attached to the master design file regardless of where the master or reference files are moved.
- Attributes may be used to automatically fill-in title block information for plan sheets.

WHAT TO DO

To have a new project created in ProjectWise and/or request to have data extracted for your project complete the [Mpls ProjectWise Project and Data Request Form](#).

For more information about ProjectWise Explorer consult the following resources:

- [ProjectWise SME Manual](#)
- [ProjectWise](#)
- [Bentley Institute](#)

ISSUE NO. CADD-0038
ISSUED BY: Jim Cleary
SUBJECT: CADD Changes

DEVELOPED BY: CADD Management Team
DATE: August 17, 2005

BACKGROUND

The following CADD changes (as noted in the *Overview* section) have recently been made in accordance with the *Levels & Symbology* chapter in the *Mpls CADD Standards Manual* (ProjectWise\CIP Projects\Documents\0000-Project_Resource\Guides**Mpls_CADD_Standards_Manual.doc**):

- CADD Change Request CCR0007B Add Symbology to Manhole Cells to Distinguish Proposed from Existing was completed.
- All circles within existing cells were changed to arcs so that the *Set Elevation* tool on the *Civil/Site Tools* toolbar will work properly. (Circles will not change elevation, but arcs will when using this tool.)
- Features have been created, deleted or modified as required.

OVERVIEW

The following changes were made to the standard Cell Library (L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell**Mpls.cel**):

3/2/05

- **LDLRTR** (LOOP DETECTOR LRT) was moved from level 1 to level **12**. The description was changed to **Loop Detector LRT**.
- **PM** (PARKING METER) was moved from level 35 to level **3**. The color was changed from 26 to **18**. The description was changed to **Parking Meter**.

5/9/05

- **LGND1** (LEGEND PART 1) "EXISTING STORM DRAIN MANHOLE" appeared twice; one instance was removed. All of the colors were changed to **0**. The description was changed to **Legend Part 1**.
- **LGND2** (LEGEND PART 2) everything was changed to color **0**. The description was changed to **Legend Part 2**.
- **PROHYD** (PROPOSED HYDRANT) was moved from level 46 to level **47**. The description was changed to **Proposed Hydrant**.
- **SEVPRE** (EMERG VEHICLE PRE SIGNAL) was moved from level 1 to level **2**. The description was changed to **Emergency Vehicle Pre-Signal**.
- **SIGBAS** (SIGNAL BASE) was moved from level 1 to level **2**. The description was changed to **Signal Base**.
- **SIMAST** (SIGNAL MASTARM STANDARD 18) was moved from level 1 to level **2**. The description was changed to **Signal Mastarm Standard 18'**.
- **TISF** (INPLACE SIGNAL FACE) was moved from level 3 to level **2**. The description was changed to **Signal Face**.
- CCR0007B Add Symbology to Manhole Cells to Distinguish Proposed from Existing:
 - **IMGGM** (GAS MANHOLE) The description was changed to **Existing Gas Manhole**.
 - **ISAM** (EXISTING SANITARY MANHOLE) The description was changed to **Existing Sanitary Manhole**.
 - **ISDM** (EXISTING STORM DRAIN MANHOLE) The description was changed to **Existing Storm Drain Manhole**.
 - **NSPM** (ELECTRICAL MANHOLE) The description was changed to **Existing Electrical Manhole**.
 - **NWBM** (TELEPHONE MANHOLE) The description was changed to **Existing Telephone Manhole**.
 - **Proposed Electrical Manhole** (Proposed Electrical Manhole) was created.
 - **Proposed Gas Manhole** (Proposed Gas Manhole) was created.
 - **PRSAMA** (PROPOSED SANITARY MANHOLE) The description was changed to **Proposed Sanitary Manhole**.
 - **PRSTMA** (PROPOSED STRM DRN MANHOLE) The description was changed to **Proposed Storm Drain**

Manhole.

- **Proposed Telephone Manhole** (Proposed Telephone Manhole) was created.
- **Proposed Water Manhole** (Proposed Water Manhole) was created.
- **Proposed Water Gate Valve Manhole** (Proposed Water Gate Valve Manhole) was created.
- **UNKMAN** (UNKNOWN MANHOLE) The description was changed to **Unknown Manhole**.
- **WATMAN** (WATER MANHOLE) The description was changed to **Existing Water Manhole**.
- **WGVMH** (WATER GMANHOLE) The description was changed to **Existing Water Manhole**.
- **TISP** (INPLACE SIGNAL PEDESTAL) was moved from level 3 to level **2**. The description was changed to **Signal Pedestal**.
- **ISTL** (INPLACE STREETLIGHT) was moved from level 35 to level **3**. The color was changed from 131 to **18**. The description was changed to **Streetlight**.
- **LIMIBO** (LIGHTING MPLS BOLLARD) was moved from level 1 to level **3**. The description was changed to **Streetlight Mpls Bollard**.
- **LMHLTW** (LIGHT MPLS HIGH LEVEL TWIN) was moved from level 1 to level **3**. The description was changed to **Streetlight Mpls High-Level Twin**.
- **LMLLTW** (LIGHT MPLS LOW LEVEL TWIN) was moved from level 1 to level **3**. The description was changed to **Streetlight Mpls Low-Level Twin**.
- **LMLSIG** (LIGHT MPLS LUMINARY SIGNAL) was moved from level 1 to level **3**. The description was changed to **Streetlight Mpls Luminaire Signal**.
- **OCSPOL** (OCS POL LAT) was moved from level 1 to level **3**. The color was changed from 19 to **18**. The description was changed to **Pole LRT Overhead Catenary System**.

5/10/05

- **LDLRTR** (LOOP DETECTOR LRT) The description was changed to **Loop Detector Lrt**.
- **WACMAN** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WBEND** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WCHKV** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WCROSS** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WISOCP** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WMH** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WPITOT** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.

5/12/05

- **WPLUG** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WREDUC** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WSLEEV** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.

5/13/05

- **WTEE** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **WWYE** (PIPE CONNECTOR) was moved from level 46 to level **47**. The description was changed to **Pipe Connector**.
- **EROCO** (EROSION CONTROL LOC) was moved from level 45 to level **40**. The description was changed to **Erosion Control Locator**.

- *30MPH* (SPEED LIMIT 30 MPH SIGN) was moved from level 1 to level **17**. The color was changed from 0 to **4**. The description was changed to **Sign 30MPH Speed Limit**.

5/16/05

- *NARROW* (NORTH ARROW) was recreated to work on plan sheets at a scale of 1" = 1'. The description was changed to North **Arrow 1"=1'**.
- *HOSCFE* (HORIZONTAL SCALE FEET) was recreated to work on plan sheets at a scale of 1" = 1'. The description was changed to Horizontal **Scale 1"=1'**.
- **Vertical Scale** was created.
- *AH1* (ARROWHEAD) was deleted.
- *DISLOG* (DISCLAIMER LOGO) was recreated to work on plan sheets at a scale of 1" = 1'. The description was changed to **Engineering Services Logo with Disclaimer 1"=1'**.
- *ENSELO* (ENGINEERING SERVICES LOGO) was recreated to work on plan sheets at a scale of 1" = 1'. The description was changed to **Engineering Services Logo 1"=1'**.
- *EROLEG* (EROSION CONTROL LEGEND) was moved from level 57 to level **1**. The word LOCATION in the phrase "RISER STANDPIPE (MINIMUM LOCATION FOR EROSION CONTROL)" was changed to "**LOCATIONS**". The description was changed to **Erosion Control Legend**.

5/17/05

- *ALYSEC* (TYPICAL ALLEY SECTION) was moved from level 1 to level **2**. The description was changed to **Typical Alley Section**.

5/20/05

- *BNOTE* (B NOTE) was moved from level 1 to level **57**. The description was changed to **B Note**.

6/23/05

- *ADSTBO* (ADJUSTABLE STOP BOX) Circle(s) was/were changed to arc(s). The description was changed to **Adjustable Stop Box**.
- *CB2* (PROPOSED CIRCULAR CB) Circle(s) was/were changed to arc(s). The description was changed to **Proposed Circular Catch Basin**.
- *DISTBO* (DISCONTINUE STOP BOX) Circle(s) was/were changed to arc(s). The description was changed to **Discontinue Stop Box**.
- *DORSHT* (DOOR SHOT) Circle(s) was/were changed to arc(s). Lines were extended to intersect the arc(s). The description was changed to **Door Shot**.
- *EROCO* (EROSION CONTROL LOCATOR) Circle(s) was/were changed to arc(s).
- *EXIHYD* (EXISTING HYDRANT) Circle(s) was/were changed to arc(s). All the elements were centered. The description was changed to **Existing Hydrant**.
- *HALP* (HORIZONTAL ALIGNMENT POINT) Circle(s) was/were changed to arc(s). The description was changed to **Horizontal Alignment Point**.
- *HLLWBL* (HIGH LEVEL STLIGHT W BLUM) Circle(s) was/were changed to arc(s). The description was changed to **High-Level Streetlight with Backside Luminaire**.
- *ICCB* (INPLACE CIRCULAR CATCHBASIN) Circle(s) was/were changed to arc(s). The description was changed to **Existing Circular Catch Basin**.
- *IMGG* (GAS GATE) Circle(s) was/were changed to arc(s). The description was changed to **Existing Gas Gate**.
- *IMGM* (Existing Gas Manhole) Circle(s) was/were changed to arc(s).

6/27/05

- *ISADS* (INPLACE STORM DRAIN) Circle(s) was/were changed to arc(s). The description was changed to **Existing Storm Sewer**.
- *ISAM* (Existing Sanitary Manhole) Circle(s) was/were changed to arc(s). The description was changed to **Existing Sanitary Sewer Manhole**.
- *ISAPT* (INPLACE SANITARY POINT) Circle(s) was/were changed to arc(s). The description was changed to **Existing Sanitary Sewer Point**.
- *ISDDS* (INPLACE STORM DRAIN DROP STRUCTURE) Circle(s) was/were changed to arc(s). The description was changed to **Existing Storm Sewer Drop Structure**.

- *ISDM* (EXISTING STORM DRAIN MANHOLE) Circle(s) was/were changed to arc(s). The description was changed to **Existing Storm Sewer Manhole**.
- **State County Map Block** (State County Map Block) was created.
- *ISDPT* (INPLACE STORM DRAIN POINT) Circle(s) was/were changed to arc(s). The description was changed to **Existing Storm Sewer Point**.
- *ISTL* (Streetlight) Circle(s) was/were changed to arc(s).

6/28/05

- *IWLP* (INPLACE WOOD LAMPPOST) was moved from level 35 to level **3**. The color was changed from 131 to **18**. Circle(s) was/were changed to arc(s). The description was changed to **Existing Wood Lamppost**.
- *LDLRT* (Loop Detector LRT) Circle(s) was/were changed to arc(s).
- *LH* (INPLACE LAMPHOLE) Circle(s) was/were changed to arc(s). The description was changed to **Existing Lamphole**.
- *LIMIBO* (Streetlight Mpls Bollard) Circle(s) was/were changed to arc(s).
- *LMHLTW* (Streetlight Mpls High-Level Twin) Circle(s) was/were changed to arc(s).
- *LMLLTW* (Streetlight Mpls Low-Level Twin) Circle(s) was/were changed to arc(s).
- *LMLSIG* (Streetlight Mpls Luminaire Signal) Circle(s) was/were changed to arc(s).

6/29/05

- *MOSTBO* (Move Stop Box) Circle(s) was/were changed to arc(s).
- *UNKMAN* (Unknown Manhole) Circle(s) was/were changed to arc(s).
- *NSPM* (Existing Electrical Manhole) Circle(s) was/were changed to arc(s).
- *NWBM* (Existing Telephone Manhole) Circle(s) was/were changed to arc(s).
- *OCSPOL* (Pole LRT Overhead Catenary System) Circle(s) was/were changed to arc(s).
- *PBHOOP* (PARK BOARD HOOP) Circle(s) was/were changed to arc(s). The description was changed to **Park Board Hoop**.
- *PCORN* (PROPERTY CORNER) The color was changed from 4 to **10**. Circle(s) was/were changed to arc(s). The description was changed to **Property Corner**.
- *PM* (Parking Meter) Circle(s) was/were changed to arc(s).
- *POST* (IRON POST) The color was changed from 26 to **9**. Circle(s) was/were changed to arc(s). The description was changed to **Iron Post**.
- *PP* (POWER POLE) Circle(s) was/were changed to arc(s). The description was changed to **Power Pole**.
- *PROHYD* (Proposed Hydrant) Circle(s) was/were changed to arc(s). Solid areas are now filled.
- *PRSAMA* (Proposed Sanitary Manhole) Circle(s) was/were changed to arc(s). The text was moved slightly. The description was changed to **Proposed Sanitary Sewer Manhole**.
- *PRSTMA* (Proposed Sanitary Manhole) Circle(s) was/were changed to arc(s). The text was moved slightly. The description was changed to **Proposed Storm Sewer Manhole**.
- *Proposed Electrical Manhole* (Proposed Electrical Manhole) Circle(s) was/were changed to arc(s).
- *Proposed Gas Manhole* (Proposed Gas Manhole) Circle(s) was/were changed to arc(s).
- *Proposed Telephone Manhole* (Proposed Telephone Manhole) Circle(s) was/were changed to arc(s).
- *Proposed Water Gate Manhole* (Proposed Water Gate Manhole) Circle(s) was/were changed to arc(s). The description was changed to **Proposed Water Gate Valve Manhole**.
- *Proposed Water Manhole* (Proposed Water Manhole) Circle(s) was/were changed to arc(s).
- *SB* (STOP BOX) Circle(s) was/were changed to arc(s). The description was changed to **Stop Box**.
- *SICARO* (SIGNAL CAMERA ROTATING) Circle(s) was/were changed to arc(s). The description was changed to **Signal Camera Rotating**.
- *SOIBOR* (SOIL BORING) Circle(s) was/were changed to arc(s). Solid areas are now filled. The description was changed to **Soil Boring**.

6/30/05

- *TILITE* (HIGH LEVEL STREETLIGHT) Circle(s) was/were changed to arc(s). The description was changed to **High-Level Streetlight**.

- *TILSFB* (SIGNAL FACE W BSHIELD) was moved from level 3 to level **2**. Circle(s) was/were changed to arc(s). The description was changed to **Signal Face with Backshield**.
- *TILUM* (LOW LEVEL STREETLIGHT) Circle(s) was/were changed to arc(s). The description was changed to **Low-Level Streetlight**.
- *TIPPB* (PPED PUSHBUTTON FREESTANDIN) Circle(s) was/were changed to arc(s). The description was changed to **Pedestrian Pushbutton - Freestanding**.
- *TISPMB* (SIG POLE MAST BSHIELD) was moved from level 3 to level **2**. The color was changed from 19 to **18**. Circle(s) was/were changed to arc(s). The description was changed to **Signal Pole Mastarm with Backshield**.
- *WATMAN* (Existing Water Manhole) Circle(s) was/were changed to arc(s).
- *WGVC* (WATER GATE) Circle(s) was/were changed to arc(s). The description was changed to **Water Gate Valve**.
- *WGVMMH* (Existing Water Gate Valve Manhole) Circle(s) was/were changed to arc(s).
- *WMH* (Pipe Connector) Circle(s) was/were changed to arc(s).
- *WPITOT* (Pipe Connector) Circle(s) was/were changed to arc(s).
- *10PVC9* (CON 10 PVC TO 9 REPLACE CB) Circle(s) was/were changed to arc(s). The description was changed to **Typical Connection of 10" PVC to 9" VCP for Replacement of CB**.
- *3.5WLK* (3.5 IN SIDEWALK) Circle(s) was/were changed to arc(s). The description was changed to **3.5" Sidewalk**.
- *ADJMON* (ADJUST SURVEY MONUMENT) The color was changed from 15 to **0**. The origin was moved from top center to **bottom left**. Circle(s) was/were changed to arc(s). The description was changed to **Adjust Survey Monument Cover**.
- *CBCURB* (CATCH BASIN AT CURB) The origin was moved from top center to **bottom left**. Circle(s) was/were changed to arc(s). The description was changed to **Reinforcing at Curb Outlet**.
- *COSUMO* (CONSTRUCT SURVEY MONUMENT) The colors were changed from 0 & 4 to **5**. Circle(s) was/were changed to arc(s). Solid areas are now filled. The description was changed to **Construct Survey Monument**.

7/1/05

- *D412M* (D412M CURB AND GUTTER) was moved from level 10 to level **2**. The color was changed from 129 to **0**. The description was changed to **Curb & Gutter D-412M**.
- *EROLEG* (Erosion Control Legend) Circle(s) was/were changed to arc(s).

7/5/05

- *LGND1* (Legend Part 1) New symbols were added to the cell. The text and symbol sizes were changed to work at a 1"=1' scale. The description was changed to **Legend Part One 1"=1'**.

7/6/05

- *LGND2* (Legend Part 2) New symbols were added to the cell. The text and symbol sizes were changed to work at a 1"=1' scale. The description was changed to **Legend Part Two 1"=1'**.

7/8/05

- *REBRQD* (REBAR REQUIRED) Circle(s) was/were changed to arc(s). The description was changed to **Reinforcing Bar Required**.
- *SCTSB* (SHORT CONE TOPSLAB) Circle(s) was/were changed to arc(s). The description was changed to **Short Cone Topslab**.
- *STDMH* (STD MH W MPLS LOGO) Circle(s) was/were changed to arc(s). The description was changed to **Standard Manhole Cover with Mpls Logo**.

7/11/05

- *STDPMH* (STD PRECAST MANHOLE) Circle(s) was/were changed to arc(s). The description was changed to **Standard Precast Manhole**.
- *TCCJ* (TRANS CRACK CTRL JOINTS) Circle(s) was/were changed to arc(s). The description was changed to **Transverse Crack Control Joints**.
- *4BLWE* (4 BROKEN LINE WHITE EPOXY) The description was changed to **4" Broken Line White - Epoxy**.

The following changes were made to the standard Line Style Library (L:\Enterprise Engineering\Bentley\Workspace\Standards\Symb\MplsLineStyleV8_01.rsc):

4/12/05

- *Curb and Gutter* was deleted.
- **Curb/Gutter Left** was created.
- *Curb & Gutter R* was deleted.
- **Curb/Gutter Right** was created.
- *Proposed C&G* was deleted
- **Proposed Curb/Gutter Left** was created.
- **Proposed Curb/Gutter Right** was created.
- *Renovation C&G* was deleted
- **Renovation Curb/Gutter Left** was created.
- **Renovation Curb/Gutter Right** was created.

5/6/05

- *Removal C&G* was deleted.
- **Removal Curb/Gutter Left** was created.
- **Removal Curb/Gutter Right** was created.
- *fence* was deleted.
- *Hedges* was renamed to *Hedge*.
- *treeli* was renamed to *Tree Line*.
- *{Rail Road}* was deleted.
- *{Tree Line}* was deleted.

7/6/05

- **Electric Line** was created.
- **Gas Line** was created.

The following changes were made to the standard InRoads Named Symbolologies (L:\Enterprise Engineering\Bentley\Civil\MplsCivilV8_01.ini):

4/12/05

- **PROPOSED CURB AND GUTTER L** was created.
- **PROPOSED CURB AND GUTTER R** was created.
- **RENOVATION CURB AND GUTTER L** was created.
- **RENOVATION CURB AND GUTTER R** was created.

The following changes were made to the standard InRoads InRoads Features (L:\Enterprise Engineering\Bentley\Civil\MplsCivilV8_01.ini):

4/12/05

- **B424 CURB AND GUTTER L** was created.
- **B424 CURB AND GUTTER R** was created.
- **B612 CURB AND GUTTER L** was created.
- **B612 CURB AND GUTTER R** was created.
- **B612 MOD CURB AND GUTTER L** was created.
- **B612 MOD CURB AND GUTTER R** was created.
- **B624 MOD CURB AND GUTTER L** was created.
- **B624 MOD CURB AND GUTTER R** was created.
- **B824 CURB AND GUTTER L** was created.
- **B824 CURB AND GUTTER R** was created.
- **D412 CURB AND GUTTER L** was created.
- **D412 CURB AND GUTTER R** was created.
- **B6 CURB AND GUTTER L** was created.
- **B6 CURB AND GUTTER R** was created.
- **RENOVATION CURB AND GUTTER L** was created.
- **RENOVATION CURB AND GUTTER R** was created.

The following changes were made to the standard Survey Feature Table (L:\Enterprise

Engineering\Bentley\Civil\Mpls.fwf):

2/17/05

- *Sanitary Manhole* (Alpha Code ISAM or SAM) was changed from *Random* to **Do Not Contour**.

5/13/05

- *Paths/Trails* (Alpha Code PATH or PTH) was changed from *Do Not Contour* to **Breakline**.

The following changes were made to the standard Storm & Sanitary structures file (L:\Enterprise

Engineering\Bentley\Civil\Mpls.dat):

1/11/05

- Changed the name of the file from *MplsStructuresV8_01.dat* to **Mpls.dat**.

Manholes

Material

- **Block (6" Thick)** was added.

- **Block (8" Thick)** was added.

Precast

- *2.50 x 8.0000* was deleted.
- *24.00 3.00 x 8.0000* was deleted.
- *24.00 4.00 x 8.0000* was deleted.
- *36.00 5.00 x 8.0000* was deleted.
- *48.00 6.00 x 8.0000* was changed to **48.00 4.50 x 6.0000**.
- *60.00 6.00 x 8.0000* was changed to **60.00 5.50 x 6.0000**.
- **60.00 6.00 x 7.0000** was added.
- **72.00 6.50 x 8.0000** was added.
- **78.00 7.00 x 8.0000** was added.
- **84.00 7.50 x 8.0000** was added.
- **90.00 8.00 x 9.0000** was added.
- **96.00 8.50 x 8.0000** was added.
- **102.00 9.00 x 10.0000** was added.
- **114.00 10.00 x 11.0000** was added.

Block (6" Thick)

- **30.00 2.50 x 6.0000** was added.
- **48.00 4.00 x 6.0000** was added.
- **48.00 4.50 x 6.0000** was added.
- **54.00 5.00 x 6.0000** was added.
- **60.00 5.50 x 6.0000** was added.
- **66.00 6.00 x 6.0000** was added.
- **72.00 6.50 x 6.0000** was added.
- **78.00 7.00 x 6.0000** was added.
- **84.00 7.50 x 6.0000** was added.
- **84.00 8.00 x 6.0000** was added.
- **90.00 8.50 x 6.0000** was added.
- **96.00 9.00 x 6.0000** was added.
- **108.00 10.00 x 6.0000** was added.

Block (8" Thick)

- **36.00 2.50 x 8.0000** was added.
- **48.00 4.00 x 8.0000** was added.
- **54.00 4.50 x 8.0000** was added.
- **60.00 5.00 x 8.0000** was added.
- **66.00 5.50 x 8.0000** was added.
- **72.00 6.00 x 8.0000** was added.

- **72.00** **6.50 x 8.0000** was added.
- **78.00** **7.00 x 8.0000** was added.
- **84.00** **7.50 x 8.0000** was added.
- **90.00** **8.00 x 8.0000** was added.
- **96.00** **8.50 x 8.0000** was added.
- **102.00** **9.00 x 8.0000** was added.
- **114.00** **10.00 x 8.0000** was added.

Inlets

Classes

- **Alley CB** was added.
- **Jake Grate** was added.
- **Mpls Std CB** was added.

Grate

- **Jake Grate 6.00 x 4.00 Box 6.00 x 4.80 x 8.0000 0.00 0.00 0.00 0.00** was added.

OVERVIEW

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0039
ISSUED BY: Jim Cleary
SUBJECT: Standard Text Sizes for Plan Sheets

DEVELOPED BY: CADD Management Team
DATE: September 22, 2005
REVISION 0.1: January 23, 2020

BACKGROUND

The Design Team Leads have requested that a standard be established for plan sheet text sizes.

OVERVIEW

Standard text sizes ensure that a uniform appearance for plan sheets is maintained.

WHAT TO DO

- Text is to be placed in the design file at the font, level, weight, color and line style in which it will be plotted.
- Text properties are not to be altered using a pen table.
- Line Spacing is to be used when placing notes that require multiple lines of text.
- These are the only text sizes permitted for use.
- If it is necessary to create plan sheets at a scale not shown, users must use a multiple of the values in this table.
- All text shall be capitalized.
- All Excel spreadsheet quantities text shall be 7-point Arial.

The values in this table are subject to revision by the CADD Management Team.

| TEXT STYLE | DESCRIPTION | TEXT SIZE | FONT | HEIGHT (1"=40') | WIDTH (1"=40') | LINE SPACING (1"=40') | JUST | CLR |
|----------------|---|-----------|-----------------------|-----------------|----------------|-----------------------|------------------|-----|
| .0625 | .0625" Text Use with Annotation Scale only! | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | Center Center | N/A |
| .078125 | .078125" Text Use with Annotation Scale only! | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Center Center | N/A |
| .09375 | .09375" Text Use with Annotation Scale only! | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Center Center | N/A |
| .109375 | .109375" Text Use with Annotation Scale only! | 7/64" | True Type Arial | 4.375' | 4.375' | 0.5 | Center Center | N/A |
| .125 | .125" Text Use with Annotation Scale only! | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Center | N/A |
| .25 | .25" Text Use with Annotation Scale only! | 1/4" | True Type Arial | 10' | 10' | 0.5 | Center Center | N/A |
| .375 | .125" Text Use with Annotation Scale only! | 3/8" | True Type Arial | 15' | 15' | 0.5 | Center Center | N/A |
| 1/16 | 1/16" Text | 1/16" | True | 2.5' | 2.5' | 0.5 | Center | N/A |

| TEXT STYLE | DESCRIPTION | TEXT SIZE | FONT | HEIGHT (1"=40') | WIDTH (1"=40') | LINE SPACING (1"=40') | JUST | CLR |
|---------------------|--|-----------|-----------------|-----------------|----------------|-----------------------|---------------|-----|
| | | | Type Arial | | | | Center | |
| 5/64 | 5/64" Text | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Center Center | N/A |
| 3/32 | 3/32" Text | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Center Center | N/A |
| 7/64 | 7/64" Text | 7/64" | True Type Arial | 4.375' | 4.375' | 0.5 | Center Center | N/A |
| 1/8 | 1/8" Text | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Center | N/A |
| 1/4 | 1/4" Text | 1/4" | True Type Arial | 10' | 10' | 0.5 | Center Center | N/A |
| 3/8 | 3/8" Text | 3/8" | True Type Arial | 15' | 15' | 0.5 | Center Center | N/A |
| A-LegendText | Bentley Default Text DO NOT USE! | 0.410105" | True Type Arial | 16.4042' | 16.4042' | 0.5 | Left Top | N/A |
| ALN_NAME | Alignment Name (Used for Dimension Style ALN_NAME -- Use with Place Note tool) | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Left Center | N/A |
| ALN_NAME_ANOT | Alignment Name Annotation (Used for Dimension Style ALN_NAME_ANOT -- Use with Place Note tool) | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Left Center | N/A |
| Coordinate | Bentley Default Text DO NOT USE! | 0.000205" | True Type Arial | 0.0082' | 0.0082' | 1 | Center Top | N/A |
| Detail Marker Label | Bentley Default Text DO NOT USE! | 0.00041" | True Type Arial | 0.0164' | 0.0164' | 2.5 | Left Bottom | N/A |
| DFTG_TXT_MTCH_LI | Drafting Text Match Line | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Center Center | N/A |
| DFTG_TXT_PLAN | Drafting Text Plan | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Center | N/A |
| DIM_DRIV | Dimension Driveway (Used for Dimension Style DIM_DRIV -- Terminators Inside/Text Above) | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Center Center | N/A |
| DIM_DRIV_ANOT | Dimension Driveway Annotation (Used for | 5/64" | True Type | 3.125' | 3.125' | 0.5 | Center Center | N/A |

| TEXT STYLE | DESCRIPTION | TEXT SIZE | FONT | HEIGHT (1"=40') | WIDTH (1"=40') | LINE SPACING (1"=40') | JUST | CLR |
|--------------------|--|-----------|----------------------------|-----------------|----------------|-----------------------|------------------|-----|
| | Dimension Style DIM_DRIV_ANOT -- Terminators Inside/Text Above) | | Arial | | | | | |
| E_DIM_ST | Existing Dimension Street (Used for Dimension Style E_DIM_ST -- Terminators Inside/Text Inline) | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | Center Center | N/A |
| E_DIM_ST_ANOT | Existing Dimension Street Annotation (Used for Dimension Style E_DIM_ST_ANOT -- Terminators Inside/Text Inline) | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | Center Center | N/A |
| E_SURV_BM | Existing Benchmark Text | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Left Center | N/A |
| E_TEXT | Existing Text | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | N/A | N/A |
| E_TEXT_ANOT | Existing Text Annotation | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | N/A | N/A |
| E_TEXT_MASK | Existing Text Mask | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | N/A | N/A |
| E_XSEC_TEXT | Existing Cross Section Text | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | Left Center | N/A |
| EXTRACT_TEXT | Extraction Text | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Bottom | 12 |
| HIGHWAYCPLUS | SignCAD Text USED FOR SIGNS ONLY! | 0.0000" | Highway C Plus | 0.0000' | 0.0000' | 1 | Left Top | N/A |
| HIGHWAYDPLUS | SignCAD Text USED FOR SIGNS ONLY! | 0.0000" | Highway D Plus | 0.0000' | 0.0000' | 1 | Left Top | N/A |
| HIGHWAYEPLUS | SignCAD Text USED FOR SIGNS ONLY! | 0.0000" | Highway E Plus | 0.0000' | 0.0000' | 1 | Left Top | N/A |
| HIGHWAYSIGNCADPLUS | SignCAD Text USED FOR SIGNS ONLY! | 0.0000" | Highway SignCAD Plus | 0.0000' | 0.0000' | 1 | Left Top | N/A |
| NOTE | Note Text | 1/16" | True Type Arial | 2.5' | 2.5' | 0.5 | Left Center | N/A |
| NOTE_HORZ | Note Horizontal (Used for Dimension Style NOTE_HORZ -- Use | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Left Center | N/A |

| TEXT STYLE | DESCRIPTION | TEXT SIZE | FONT | HEIGHT (1"=40') | WIDTH (1"=40') | LINE SPACING (1"=40') | JUST | CLR |
|------------------------|---|-----------|-----------------|-----------------|----------------|-----------------------|---------------|-----|
| | with Place Note tool) | | | | | | | |
| NOTE_HORZ_ANOT | Note Horizontal Annotation (Used for Dimension Style NOTE_HORZ_ANOT -- Use with Place Note tool) | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Left Center | N/A |
| NOTE_VERT | Note Vertical (Used for Dimension Style NOTE_VERT -- Use with Place Note tool) | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Left Center | N/A |
| NOTE_VERT_ANOT | Note Vertical Annotation (Used for Dimension Style NOTE_VERT_ANOT -- Use with Place Note tool) | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Left Center | N/A |
| P_DIM_ST | Proposed Dimension Street (Used for Dimension Style P_DIM_ST -- Terminators Inside/Text Inline) | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Center Center | N/A |
| P_DIM_ST_ANOT | Proposed Dimension Street Annotation (Used for Dimension Style P_DIM_ST_ANOT -- Terminators Inside/Text Inline) | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Center Center | N/A |
| P_TEXT | Proposed Text | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | N/A | N/A |
| P_TEXT_ANOT | Proposed Text Annotation | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | N/A | N/A |
| P_TEXT_MASK | Proposed Text Mask | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | N/A | N/A |
| P_XSEC_TEXT | Proposed Cross Section Text | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Left Center | N/A |
| PLAN_TITLE | Plan View Title | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Bottom | N/A |
| Print Preparation Text | Bentley Default Text DO NOT USE! | 0.000205" | True Type Arial | 0.0082' | 0.0082' | 1 | Left Top | N/A |
| PROF_TEXT | Proposed Profile Text | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Left Center | N/A |
| PROF_TITLE | Profile View Title | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Bottom | N/A |

| TEXT STYLE | DESCRIPTION | TEXT SIZE | FONT | HEIGHT (1"=40') | WIDTH (1"=40') | LINE SPACING (1"=40') | JUST | CLR |
|----------------|---|-----------|-------------------------------|-----------------|----------------|-----------------------|---------------|-----|
| RD_TEXT | Record Drawing Text | 3/32" | True Type Arial, Bold Italics | 3.75' | 3.75' | 0.5 | Center Bottom | 13 |
| ST_NAME | Street Name | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Center | N/A |
| START_END_PROJ | | 1/8" | True Type Arial | 5' | 5' | 0.5 | Center Center | N/A |
| SURF_NAME | Surface Name (Used for Dimension Style SURF_NAME -- Use with Place Note tool) | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Left Center | N/A |
| SURF_NAME_ANOT | Surface Name Annotation (Used for Dimension Style SURF_NAME_ANOT -- Use with Place Note tool) | 3/32" | True Type Arial | 3.75' | 3.75' | 0.5 | Left Center | N/A |
| TEXT_10 | Text 10'H x 10'W | 1/4" | True Type Arial | 10' | 10' | 0.5 | Center Center | N/A |
| TEXT_15 | Text 15'H x 15'W | 3/8" | True Type Arial | 15' | 15' | 0.5 | Center Center | N/A |
| Title Block | Bentley Default Text DO NOT USE! | 0.000205" | True Type Arial | 0.0082' | 0.0082' | 0 | Left Top | N/A |
| TRAF_NOTE_1/16 | Traffic Notes | 1/16" | True Type Arial | 2.5' | 2.5' | 0.50 | Left Center | 4 |
| TRAF_NOTE_5/64 | Traffic Notes | 5/64" | True Type Arial | 3.125' | 3.125' | 0.50 | Left Center | 4 |
| TRAFFIC | Traffic Text for Conduit Notes, General Notes, Leader Notes, Revision Notes | 5/64" | True Type Arial | 3.125' | 3.125' | 0.5 | Left Center | N/A |
| Viewport Label | Bentley Default Text DO NOT USE! | 0.00041" | True Type Arial | 0.0164' | 0.0164' | 1 | Left Bottom | 129 |

LOCATION

[Mpls PW CADD Standards Manual](#) (see *Text/Dimension Styles*).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0040
ISSUED BY: Jim Cleary
SUBJECT: ProjectWise Explorer

DEVELOPED BY: CADD Management Team
DATE: October 3, 2005
REVISION 0.2: January 23, 2020

BACKGROUND

There is a need for a standard numbering system for utility callouts ("sewer balls") used on plans.

OVERVIEW

Utility callouts are used to identify utility structures on plan sheets.

WHAT TO DO

The following number ranges must be used for utility callouts on all plans:

Note: The use of 4-digit numbers requires the use of ellipses.

| NUMBER | | DESCRIPTION |
|---------------------|-----------|--|
| Use Monument Number | | Monuments |
| 1-499 | | Control Points |
| 500-999 | | Unknown Features |
| 1000-1999 | | Existing Sanitary Sewer Features |
| 2000-2999 | | Existing Storm Sewer Features |
| 3000-3999 | | Existing Water Features |
| 4000-4999 | | Existing Traffic Features |
| 5000-5999 | 5000-5299 | Existing Private Utility Features |
| | 5300-5499 | Existing Private Communication Features |
| | 5500-5699 | Existing Private Gas Features |
| | 5700-5799 | Existing Private Power Features |
| | 5800-5899 | Existing Private Sanitary Sewer Features |
| | 5900-5999 | Existing Private Storm Sewer Features |
| 6000-6999 | | Existing Private Steam Features |
| 7000-7999 | | Proposed Sanitary Sewer Features |
| 8000-8999 | | Proposed Storm Sewer Features |
| 9000-9999 | | Proposed Water Features |
| | | Proposed Traffic Features |

LOCATION

The utility callouts standards can be viewed in the [Mpls PW CADD Standards Manual](#) (see *Utility Callouts*).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0041
ISSUED BY: Jim Cleary
SUBJECT: CADD Change Requests

DEVELOPED BY: CADD Management Team
DATE: October 4, 2005
REVISION 0.2: January 24, 2020

BACKGROUND

Users need a way to request changes or additions to the existing Public Works CADD standards.

WHAT TO DO

To request changes or additions to the existing Public Works CADD standards, contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623. The CADD Manager will consult with the PW CADD Standards Team Members to evaluate the request and decide whether to make the changes.

PW CADD STANDARDS TEAM MEMBERS

- PW CADD Manager: Jim Cleary
- SW&S Division Representative: Jamar Whitlock, Ron Davidson
- T&PS Division Representative: TBD
- TE&D Division Representative: Hassan Hussein
- WT&D Division Representative: TBD

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0042

ISSUED BY: Jim Cleary

SUBJECT: Mpls Capital Project Folder Structure Changes

DEVELOPED BY: CADD Management Team

DATE: March 7, 2006

BACKGROUND

- The Traffic division does not have a location to place project specific design files within the Capital Project Folder Structure.
- Project teams are currently able to write to the *Survey* subfolder.
- The project civil.ini and wysiwyg.ini files are currently stored in the *Preferences* subfolder under the *Design* folder.
- Revisions and additions to document types are needed to support using standard file names in ProjectWise.

OVERVIEW

- The *Mpls Capital Project Folder Structure* is the standard folder structure used for capital projects. The purpose of the structure is to promote the use of standard file names, descriptions, and locations to improve the delivery of capital projects.
- To maintain the integrity of existing data, folders where this data is stored should be read-only to project teams.
- All standard project files should be stored under the *Standards* folder in subfolders that conform to the Bentley naming convention.
- Document Types* are the standard file names that design teams should use to name CIP project files in ProjectWise.

FURTHER INFORMATION

- For a complete list of folders, folder security, and document types see the [Mpls PW CADD Standards Manual](#) (see *Capital Project Folder Structure*, *Capital Project Folder Structure Security*, and *Document Types*).

WHAT IS GOING TO OCCUR

The following table lists the changes that will be made to the folder structure in ProjectWise:

| FOLDER | SUBFOLDER | SUB-SUBFOLDER | CHANGE | TEAM PERMISSION | DOCUMENT TYPE | DOCUMENT DESCRIPTION | FILE TYPE |
|----------|-------------|---------------|-----------------|-----------------|---------------|----------------------|-----------|
| Design | | | No change | Read/Write | N/A | N/A | N/A |
| | Preferences | | Will be deleted | N/A | N/A | N/A | N/A |
| | Traffic | | New | Read Only | TRAF | Traffic Plan Sheet | .dgn |
| | | Lighting | New | Read Only | LTNG | Lighting Plan Sheet | .dgn |
| | | Signal | New | Read Only | SIGNAL | Signal Plan Sheet | .dgn |
| Existing | | | No change | Read/Write | BLDGNUMBER | Building Numbers | .dgn |
| | | | | | EXTOPO | Existing Merged | .dgn |

| FOLDER | SUBFOLDER | SUB-SUBFOLDER | CHANGE | TEAM PERMISSION | DOCUMENT TYPE | DOCUMENT DESCRIPTION | FILE TYPE |
|--------|------------------|---------------|----------------|-------------------|---------------|-------------------------------|-----------|
| | | | | | | Topographic Data | |
| | | | | | IMAGE | Images | .jpg |
| | | | | | STNAME | Street Names | .dgn |
| | Private_Uilities | | New | Read Only | EXUTIL | Existing Private Utility Data | .dgn |
| | Right_of_Way | | New | Read Only | EXRWAY | Existing Right-of-Way Data | .dgn |
| | Sewer | | New | Read Only | EXSEWR | Existing Sewer Data | .dgn |
| | Survey | | Was Read/Write | Will be Read Only | EXMON | Existing Monument Data | .dgn |
| | | | | | EXSURV | Existing Survey Data | .fwd |
| | Topographic | | New | Read Only | EXTOPO | Existing Topographic Data | .dwg |
| | Traffic | | New | Read Only | EXTRAF | Existing Traffic Data | .dgn |
| | Water | | New | Read Only | EXWATR | Existing Water Data | .dgn |

| Standards | | | No change | Read/Write | CELLIB | Cell Library | .cel |
|-----------|--|--|-----------------|------------|----------|--------------------------------|------|
| Civil | | | New | Read/Write | CIVIL | Civil Features & Preferences | .ini |
| | | | | | HYDRO | Intensity Duration Frequencies | .idf |
| | | | | | SEWRSTRC | Sewer Structures | .dat |
| | | | | | SURVFEAT | Survey Features | .fwf |
| | | | | | SURVPREF | Survey Preferences | .fxp |
| | | | | | WYSIWYG | Alignment Preferences | .ini |
| InterPlot | | | Was named lplot | Read/Write | PEN | Pen Table | .pen |
| | | | | | PLOT | Plotter Settings File | .set |
| | | | | | PRINT | Printer Settings File | .set |
| Symb | | | New | Read/Write | FONTLIB | Font Library | .rsc |
| | | | | | LINELIB | Line Style Library | .rsc |

The following additions and changes have been made to document types in ProjectWise:

| OLD DOCUMENT TYPE | NEW DOCUMENT TYPE | DESCRIPTION |
|-------------------|-------------------|--|
| N/A | ASBUILT | As-Built Plan Sheet |
| N/A | BLDGNUMBER | Building Numbers |
| N/A | CELLIB | Cell Library |
| N/A | CIVIL | Civil Features & Preferences |
| EROSION | EROS | Temporary Or Permanent Erosion Control |
| N/A | EXMON | Existing Monument Data |
| EXROW | EXRWAY | Existing Right-of-Way |
| N/A | EXSEWR | Existing Sewer Data |
| N/A | EXSURV | Existing Survey Data |
| EXTRAFF | EXTRAF | Existing Traffic |
| N/A | EXWATR | Existing Water Data |
| N/A | FINAL | Final Signed Plan Set |
| N/A | FONTLIB | Font Library |
| N/A | HYDRO | Intensity Duration Frequencies |
| N/A | LINELIB | Line Style Library |
| LIGHTING | LTNG | Lighting Plan Sheet |
| STRIPING | PAINT | Striping Plan Sheet |
| N/A | PEN | Pen Table |
| N/A | PLAN | Standard Plan Sheet |
| N/A | PLOT | Plotter Settings File |
| N/A | PRINT | Printer Settings File |
| PROFILE | PROF | Profiles |
| N/A | PROJMGMT | Project Schedule |
| N/A | ROADLIB | Roadway Library |
| ROW | RWAY | Right-of-Way Plan Sheet |
| N/A | SEWRSTRC | Sewer Structures |
| N/A | SIGNAL | Signal Plan Sheet |
| N/A | SPASSESS | Special Assessments Documentation |
| SEWER | SSWR | Sanitary Sewer Plan Sheet |
| STORM | STRM | Storm Sewer Plan Sheet |
| N/A | STNAME | Street Names |
| SURFACE | SURF | Surface |
| SURVEY | SURV | Survey Data |
| N/A | SURVFEAT | Survey Features |
| N/A | SURVPREF | Survey Preferences |
| TRAFFIC | TRAF | Traffic Plan Sheet |
| TYPSECT | TYPSEC | Typical Section Plan Sheet |
| N/A | TYPSECLIB | Typical Section Library |
| WATER | WATR | Water Plan Sheet |
| N/A | WYSIWYG | Alignment Preferences |
| CROSECT | XSEC | Cross Section Plan Sheet |

WHAT TO DO

- Project teams should move the **Civil.ini** and **Wysiwyg.ini** files (InRoads preference file, InRoads alignment file) from the *Preferences* folder to the **Civil** folder. *Project Defaults* should be changed to reflect this. Two weeks after the date of this transmittal, any remaining files will be moved by the CADD Manager to the **Civil** folder, and the *Preferences* folder will be deleted.

- Project teams should move any existing files that need to be edited from the *Survey* folder to the *Existing* folder.
Two weeks after the date of this transmittal, any remaining files will be moved by the CADD Manager to the *Existing* folder.
- Project teams should move the *Survey.fwf* and *Survey.fxp* files (survey feature table, survey preference file) from the *Survey* folder to the *Civil* folder. *Project Defaults* should be changed to reflect this.
Two weeks after the date of this transmittal, any remaining files will be moved by the CADD Manager to the *Civil* folder and the *Survey* folder will be made read-only to everyone, except for the *Survey* team.
- When there are requests for existing data for projects, users who extract data should follow the [Transmittal Procedure-0007 How to Extract Project Data from the Enterprise Spatial Database](#) (see *Moving Files into ProjectWise*).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0043
ISSUED BY: Jim Cleary
SUBJECT: ProjectWise Explorer

DEVELOPED BY: CADD Management Team
DATE: January 23, 2007
REVISION 0.2: January 27, 2020

BACKGROUND

The Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design ([AELSLAGID](#)) have changed the certification stamp wording for Professional Engineers.

OVERVIEW

The new certification stamp wording is as follows:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

The portion of the signature block on the plan sheet borders reserved for the Professional Engineer's number is now labeled **LIC. NO.**

LOCATION

The cell library containing plan sheet borders with the new certification stamp is in the following location:
L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell\DFTG.cel.

WHAT TO DO

Use the following border cells as noted below:

- Details:
 - **DFTG_BRDR_17X11**
 - **DFTG_BRDR_CONSLT_17X11** (for consultants only)
- General Notes:
 - **DFTG_BRDR_GEN_NOTES_17X11**
 - **DFTG_BRDR_GEN_NOTES_CONSLT_17X11** (for consultants only)
 - **DFTG_BRDR_GEN_NOTES_TED_17X11** (for TE&D only)
 - **DFTG_BRDR_GEN_NOTES_TED_CONSLT_17X11** (for TE&D consultants only)
- Record Drawings:
 - **DFTG_BRDR_RD_17X11**
- Storm Water Pollution Prevention Plan Narratives (SWPPP):
 - **DFTG_BRDR_SWPPP_1_17X11** (sheet 1 of 3)
 - **DFTG_BRDR_SWPPP_1_CONSLT_17X11** (sheet 1 of 3, consultants only)
 - **DFTG_BRDR_SWPPP_2_17X11** (sheet 2 of 3)
 - **DFTG_BRDR_SWPPP_2_CONSLT_17X11** (sheet 2 of 3, consultants only)
 - **DFTG_BRDR_SWPPP_3_17X11** (sheet 3 of 3)
 - **DFTG_BRDR_SWPPP_3_CONSLT_17X11** (sheet 3 of 3, consultants only)
- Title Sheets:
 - **DFTG_BRDR_TITLE_17X11**
 - **DFTG_BRDR_TITLE_CONSLT_17X11** (for consultants only)
- Traffic Sheets:
 - **DFTG_BRDR_TRAF_17X11** (for T&PS only)
 - **DFTG_BRDR_TRAF_ASBUILT_B** (for T&PS only)
 - **DFTG_BRDR_TRAF_ASBUILT_D** (for T&PS only)
- Cross Sections:
 - **DFTG_BRDR_XSEC_11X17** (portrait)

- **DFTG_BRDR_XSEC_17X11** (landscape)
- **DFTG_BRDR_XSEC_CONSLT_11X17** (portrait, consultants only)
- **DFTG_BRDR_XSEC_CONSLT_17X11** (landscape, consultants only)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0044
ISSUED BY: Jim Cleary
SUBJECT: Standard Plates Webpage

DEVELOPED BY: CADD Management Team
DATE: May 4, 2007
REVISION 0.1: January 27, 2020

BACKGROUND

For more information about standard plates please refer to the following transmittals:

- [Transmittal Procedure-0013 Standard Plate Creation Update and Approval Procedure](#)
- [Transmittal Procedure-0014 How to Use Standard Plates in Plan Sheets](#)

OVERVIEW

Standard plates are available in PDF format on the *Standard Specifications & Detail Plates* webpage.

LOCATION

[Standard Specifications & Detail Plates](#)

WHAT TO DO

Please refer requests for standard plates to the *Standard Specifications & Detail Plates* webpage.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0045

ISSUED BY: Jim Cleary

SUBJECT: Plan Review and Distribution Form

DEVELOPED BY: CADD Management Team

DATE: May 29, 2007

REVISION 0.1: February 9, 2016

BACKGROUND

The existing form *Preliminary Review and Construction Plan Distribution List* has been revised, renamed and moved to a new location.

OVERVIEW

The new *Mpls_Plan_Review_and_Distribution_Form.xls* shall be used as the cover sheet for plan sets when distributing them for review.

WHAT TO DO

1. Save a copy of the form:
 - a. Click on [Mpls Plan Review and Distribution Form](#).
 - b. Open *Mpls_Plan_Review_and_Distribution_Form.xls*.
 - c. Select **File > Save As...**
 - d. In the *Save Document As* dialog box for Folder click **Select**.
 - e. In the *Select Folder* dialog box navigate to the *SHT* folder in your project and click **OK**.
 - f. In the *Save Document As* dialog box for *Name, Description, and File Name* add your project number at the front of the existing text (e.g. for project 0000 add **0000-** to the existing text *Plan_Review_and_Distribution_Form.xls*) and click **Save**.
2. Print the form and attach it to the front of the plan for each person you send the plan to.

Note: Maintain the data in the form as a permanent record of who reviewed the plan and on what date.

LOCATION

[Mpls Plan Review and Distribution Form](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0046
ISSUED BY: Jim Cleary
SUBJECT: Roadway Standard Plates

DEVELOPED BY: CADD Management Team
DATE: May 29, 2008

BACKGROUND

For more information about standard plates please refer to the following transmittals:

- [Transmittal Procedure-0013 Standard Plate Creation Update and Approval Procedure](#)
- [Transmittal Procedure-0014 How to Use Standard Plates in Plan Sheets](#)

OVERVIEW

Roadway standard plates are available in PDF format on the *Standard Specifications & Detail Plates* webpage.

LOCATION

[Standard Specifications & Detail Plates](#)

WHAT TO DO

Please refer requests for standard plates to the *Standard Specifications & Detail Plates* webpage.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0047
ISSUED BY: Jim Cleary
SUBJECT: Bentley V8 Upgrade

DEVELOPED BY: CADD Management Team
DATE: June 3, 2008

BACKGROUND

On June 14, 2007 Microsoft Office 2003 was installed on users' computers in the City of Lakes building causing a variety of problems with Bentley products. To solve these problems new versions of the Bentley products as well as Microsoft Office 2003 will be installed on all Enterprise Engineering users' computers.

WHAT IS GOING TO OCCUR

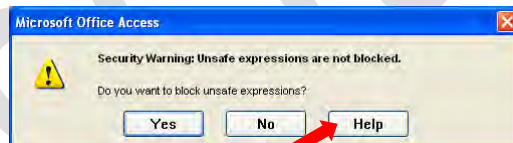
All Enterprise Engineering users will be upgraded to Microsoft Office 2003 and new versions of Bentley software.

WHAT TO DO

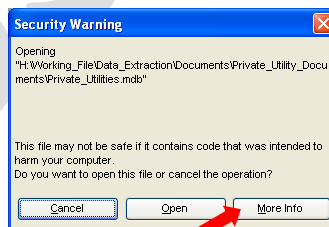
If you encounter problems not covered in this transmittal contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623.

Microsoft Office 2003

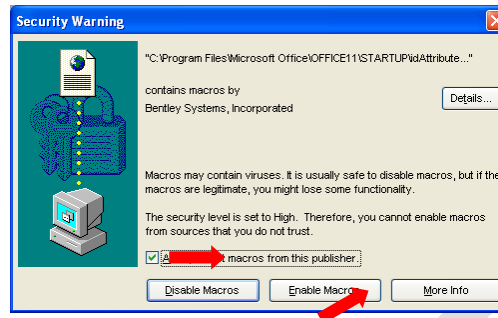
1. To open Access files do the following:
 - a. Double-click on the file.
 - b. In the *Microsoft Office Access* dialog box click **No** to *Do you want to block unsafe expressions?*



- c. In the *Security Warning* dialog box click **Open** to *Do you want to open this file or cancel the operation?*



2. To open Outlook or Word files do the following:
 - a. Double-click on the file (you will see the following dialog box the first time you open either Outlook or Word).
 - b. In the *Security Warning* dialog box click ***Always trust macros from this publisher***, then click ***Enable Macros***.



Bentley Descartes

This application adds additional raster operations to MicroStation, including the ability to warp, reference, resample, mosaic, or re-project images or create image scenes. In addition, Bentley Descartes allows users to convert, repair and enhance legacy documents.

Note: There is only one license for Descartes. Please close the application as soon as you have finished using it.

1. To open Descartes files do the following:
 - a. Open a MicroStation design file.
 - b. Select ***Descartes > Descartes***.

INI to XIN Translator

This application converts civil preference files (Civil.ini), alignment preference files (Wysiwyg.ini), survey feature tables (Survey.fwf), survey preference files (Survey.fxp), the TIW.ini file, and the IMPEXP.ini file from their original format into the new XIN preference format.

Note: Users will need to convert their project specific InRoads files before using InRoads.

InRoads, InRoads Bridge, InRoads Storm & Sanitary, InRoads Survey

The InRoads menu within MicroStation will not function until everyone is upgraded. In the interim, users should start all InRoads products from the Programs list (e.g. *Start > All Programs > Enterprise Engineering > InRoads, InRoads Bridge, InRoads Storm & Sanitary, InRoads Survey*).

MicroStation GeoGraphics

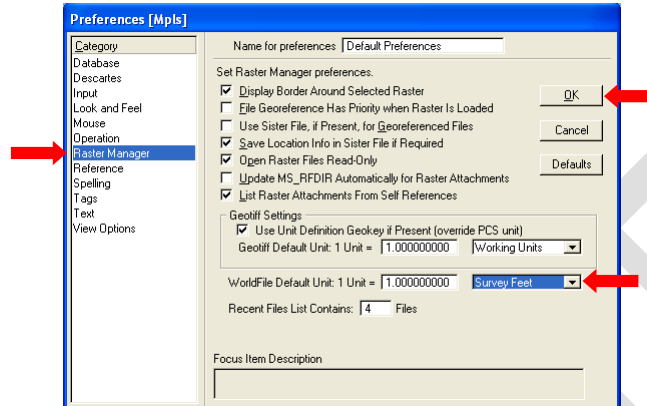
This application adds geospatial capabilities to MicroStation, including tools for mapping, analysis, presentation, project management, coordinate transformation, data creation, validation, and cleanup.

Note: At the current time only selected users will be able to access the Enterprise Spatial Database using the MicroStation GeoGraphics tools.

MicroStation Raster Manager

To setup Raster Manager in MicroStation so that orthophotos will be attached correctly do the following:

1. Select **Workspace > Preferences....**
 - a. In the *Preferences* dialog box under *Category* select **Raster Manager**.
 - b. For *WorldFile Default Unit 1 Unit* = **1.000000000 Survey Feet**.
 - c. Click **OK**.



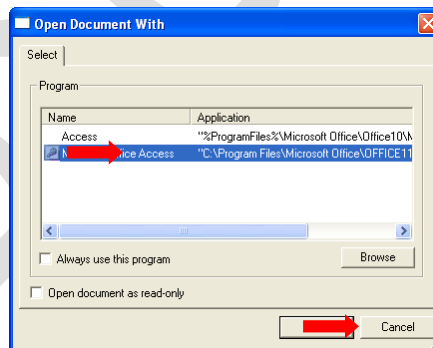
ProjectWise

Microsoft Access, Excel, Project and Visio files within ProjectWise will not open with a double-click until everyone is upgraded to Microsoft Office 2003. In addition, *InRoads*, *InRoads Bridge*, *InRoads Storm & Sanitary* and *InRoads Survey* files within ProjectWise will not open in the usual manner until everyone is upgraded to the new Bentley software. In the interim, users will need to use the following procedures:

1. To open Access files in ProjectWise do the following:

Note: For Access files that are read only, right-click on the file and select **View**.

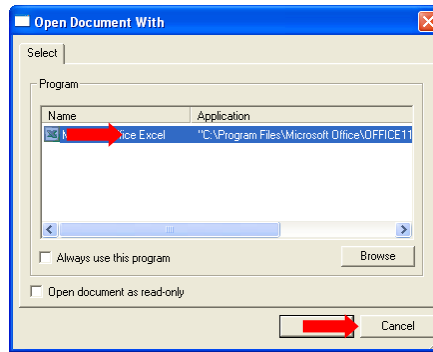
- a. Right-click on the file and select **Open With....**
- b. In the *Open Document With* dialog box highlight **Microsoft Office Access "C:\Program Files\Microsoft Office\Office\OFFICE11\MSACCESS.EXE" /NOSTARTUP "%1"** and click **OK**.



2. To open Excel files in ProjectWise do the following:

Note: For Excel files that are read only, right-click on the file and select **View**.

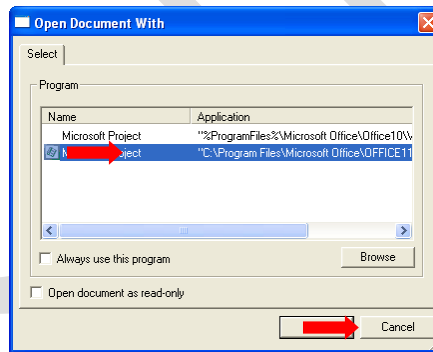
- Right-click on the file and select **Open With....**
- In the *Open Document With* dialog box highlight **Microsoft Office Excel "C:\Program Files\Microsoft Office\OFFICE11\EXCEL.EXE"** /e and click **OK**.



3. To open Project files in ProjectWise do the following:

Note: For Project files that are read only, right-click on the file and select **View**.

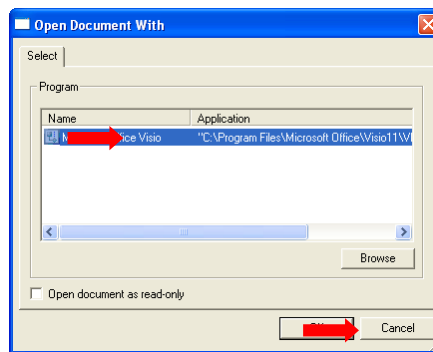
- Right-click on the file and select **Open With....**
- In the *Open Document With* dialog box highlight **Microsoft Project "C:\Program Files\Microsoft Office\OFFICE11\WINPROJ.EXE" "%1"** and click **OK**.



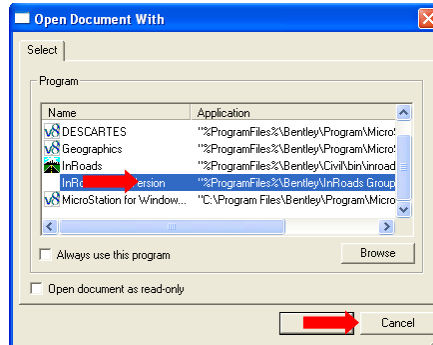
4. To open Visio files in ProjectWise do the following:

Note: For Visio files that are read only, right-click on the file and select **View**.

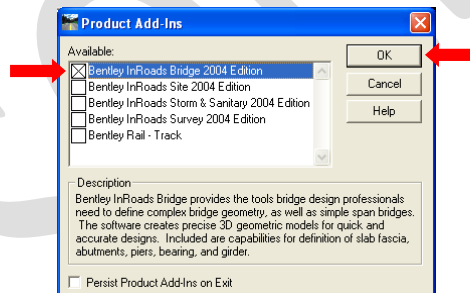
- Right-click on the file and select **Open With....**
- In the *Open Document With* dialog box highlight **Microsoft Office Visio "C:\Program Files\Microsoft Office\Visio11\VISIO.EXE" "%1"** and click **OK**.



5. InRoads, InRoads Bridge, InRoads Storm & Sanitary and InRoads Survey files within ProjectWise will not open in the usual manner until everyone is upgraded to the new Bentley software. In the interim, users will need to use the following procedures:
 - a. Right-click on the file and select **Open With....**
 - b. In the *Open Document With* dialog box highlight **InRoads New Version** “%ProgramFiles%\Bentley\InRoads Group” and click **OK**.

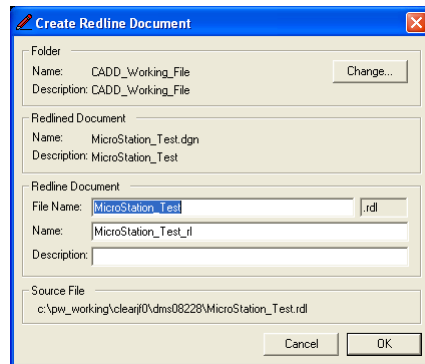


- c. In the *Bentley InRoads 2004 Edition* dialog box select **Tools > Product Add-Ins....**
- d. In the *Product Add-Ins* dialog box check the box next to one of the following InRoads products:
 - **Bentley InRoads Bridge 2004 Edition**
 - **Bentley InRoads Storm & Sanitary 2004 Edition**
 - **Bentley InRoads Survey 2004 Edition**
 - Click **OK**.

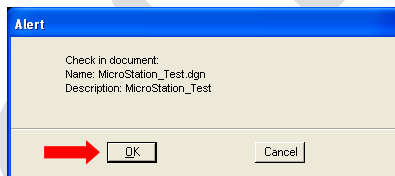


6. To create an InterPlot Organizer file in ProjectWise do the following:
 - a. Right-click in the ProjectWise document window and select **New > Document....**
 - b. In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.
 - c. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - d. In the *Advanced Document Creation Wizard* dialog box under *Select Target Folder* highlight the **Standards > InterPlot** folder for your project and click **Next**.
 - e. In the *Advanced Document Creation Wizard* dialog box under *Select a Template* click the **Use ProjectWise document as a template** radio button and click **Select....**
 - In the *Select Template Document* dialog box browse to **0000-Project_Resource/CADD_Standards/InterPlot_Organizer_Template**, highlight **InterPlot_Organizer_Template.ips** and click **Open**.
 - f. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - g. In the *Advanced Document Creation Wizard* dialog box do the following:
 - Under *Define Document Code*, for **DOCUMENT TYPE** select **IPLLOT** from the list.
 - Click the **Generate** button, then click **Next**.
 - h. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.
 - i. In the *Advanced Document Creation Wizard* dialog box under *Define Secondary Document Attributes* click **Next**.

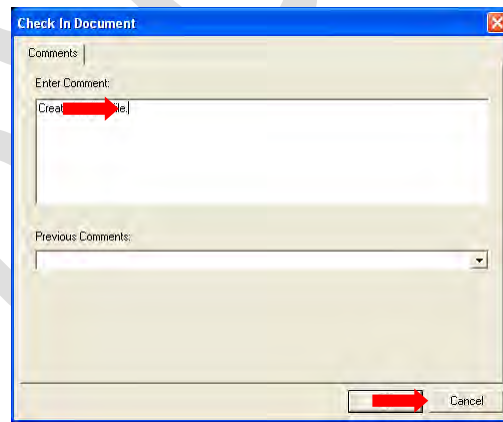
- j. In the *Advanced Document Creation Wizard* dialog box under *Document Properties*, for *Description for the new document* enter **InterPlot Organizer** and click **Next**.
 - k. In the *Advanced Document Creation Wizard* dialog box under *Create a Document* click **Next**.
 - l. In the *Advanced Document Creation Wizard* dialog box click **Finish**.
7. To create a Redline file in ProjectWise do the following:
- a. Right-click on the MicroStation file you want to redline and select **Redline**.
 - b. In the *Create Redline Document* dialog box click **OK**.



- c. In the *Alert* dialog box click **OK**.



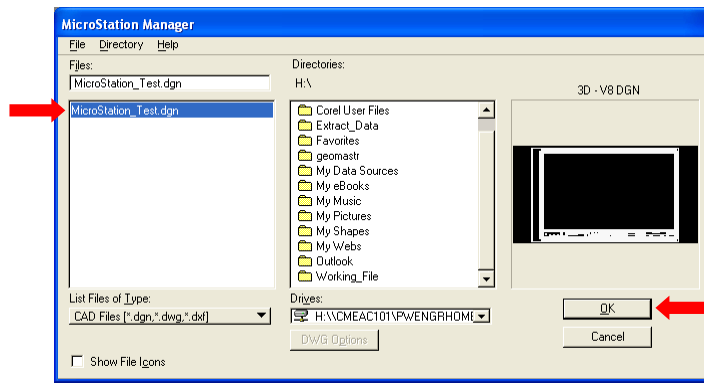
- d. In the *Check In Document* dialog box enter **"Created redline file."** and click **OK**.



Redline

This application enables users to note comments and changes, including additions and deletions. It employs an “overlay” technique, which places all redline information in a separate file that references the original data. This ensures the integrity of the original DGN file. By default, Bentley Redline creates a redline file (named MasterFileName.rdl) that references the original DGN file. All redlines are made to the .rdl file and no changes are made to the original DGN file.

1. To create a Redline file do the following:
 - a. Select **Start >All Programs >Enterprise Engineering > Bentley Redline**.
 - b. Browse to the location where the file you want to redline resides.
 - c. In the *MicroStation Manager* dialog box highlight the file you want to redline and click **OK**.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0048 **DEVELOPED BY:** CADD Management Team
ISSUED BY: Greg Schroeder, Larry Veek **DATE:** August 12, 2009
SUBJECT: Mpls PW Construction Items and Prices **REVISION 0.1:** February 9, 2016

BACKGROUND

The *Mpls PW Construction Items and Prices* file has been moved from M:\PWTPE\TPE Common\Public Works Estimating to ProjectWise.

OVERVIEW

The *Mpls PW Construction Items and Prices* file is a compilation of available unit prices from MnDOT (average bid for the prior year) and current city unit prices for specific line items. The line items are provided by MnDOT and are item number/extension specific. If you have any questions about a line item or can't find what you are looking for please contact Larry Veek at larry.veek@minneapolismn.gov or call (612) 673-2462.

LOCATION

[Mpls PW Construction Items and Prices](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0049
ISSUED BY: Jim Cleary
SUBJECT: New CADD Standards

DEVELOPED BY: CADD Management Team
DATE: January 21, 2010
REVISION 0.3: January 28, 2020

WHAT'S HAPPENING

MicroStation *By Level* symbology is being implemented to establish consistent CADD standards for the creation of plan sets for Capital Improvement Projects. *By Level* symbology uses one level for each feature and each level has *color*, *line style* and *line weight* assigned automatically. Level names are based on the name of the feature. Feature names and symbology have been synchronized for all other Bentley applications as well.

OVERVIEW

The following files have been revised:

MicroStation

- **Seed File** (L:\Enterprise Engineering\Bentley\Workspace\Standards\Seed\MplsSeed.dgn)
 - **Levels:** The new seed file uses *By Level* symbology to establish consistent standards. There is now one level for each feature and each level has *color*, *line style* and *line weight* assigned automatically. Level names are based on the name of the feature and follow *U.S. National CAD Standard* level names where possible. Numbered levels 0-63 are no longer available for old projects (see [Mpls PW CADD Levels & Symbology](#)).
 - **Color:** In general, custom colors have been revised so that there is now one color assigned to each category (e.g. *Roadway*, *Sanitary Sewer*, *Traffic*, *Water*, etc.). Colors for utility features follow the *APWA Uniform Color Code* (see *Standard Colors* in [Mpls PW CADD Standards Manual](#)).
 - **Line Style:** Most custom line styles have been created at a scale of 1" = 1' to allow them to be scaled easily (curb & gutter line styles have been created at 1:1). Line style names and colors have been revised to follow *By Level* symbology standards.
 - **Line Weight:** In general, standard line weights are now determined by the status of the feature (e.g. *Existing* = 1, *Remove* = 2, *Proposed* = 3).
 - **Level Filters:** Level filters have been added to allow users to view levels by feature category (e.g. *Roadway*, *Sanitary Sewer*, *Traffic*, *Water*, etc.), and by status (e.g. *Existing*, *Proposed*, *Remove*).
 - **Text Styles:** Standard text styles have been added to promote the use of consistent font styles and text sizes (see *Text Styles* in [Mpls PW CADD Standards Manual](#)).
 - **Dimension Styles:** Dimension Styles have been added to promote the use of consistent font styles and text sizes for placing dimensions (see *Dimension Styles* in [Mpls PW CADD Standards Manual](#)).
- **Cell Libraries** (L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell\DFTG.cel, EROS.cel, PKBD.cel, RWAY.cel, SSWR.cel, STRC.cel, STRM.cel, SURF.cel, SURV.cel, TRAF.cel, TRAN.cel, UTIL.cel, VEG.cel, WATR.cel)

Most cells have been created at a scale of 1" = 1' to allow them to be scaled easily (utility cross section cells have been created at 1:1). Cell names and colors have also been revised to follow *By Level* symbology standards.
- **Fonts**

True Type fonts **Arial** and **Arial Narrow** are the City of Minneapolis PW CADD standard fonts (see *Standard Fonts* in [Mpls PW CADD Standards Manual](#)).
- **Pen Tables** (L:\Enterprise Engineering\Bentley\Workspace\Standards\tables\Pen)

The standard pen tables remap City of Minneapolis PW CADD standard design symbology to City of Minneapolis PW CADD standard print symbology:

 - **MplsColor.tbl** used for printing plan sets in color
 - **MplsSewer.tbl** used for printing SW&S plan sets
 - **MplsStreet.tbl** used for printing TE&D plan sets
 - **MplsWater.tbl** used for WT&D plan sets

The pen tables control the following:

- Prints the date and time on the left edge of the plan sheet.
- Resymbolizes MicroStation line weights to ISO standard metric line widths (units = mm): (e.g. *weight 1 = 0.18mm, weight 2 = 0.25mm, weight 3 = 0.35mm, etc.*).
- Resymbolizes MicroStation color, weight, and display priority by level name including:
 - Pattern features
 - Drafting features
 - Surface features
 - Survey features
 - Roadway features
 - Utility features
 - Sanitary Sewer features
 - Storm Sewer features

- **Print Styles**

The standard print styles remap City of Minneapolis PW CADD *standard design symbology* to City of Minneapolis PW CADD *standard print symbology*:

- **MplsColor_COL_201_3505AC** used for printing plan sets to the COL_201_3505AC printer in color
- **MplsColor_PDF** used for printing plan sets to PDF in color
- **MplsSewer_COL_201_3505AC** used for printing SW&S plan sets to the COL_201_3505AC printer
- **MplsSewer_COL_300_4505AC** used for printing SW&S plan sets to the COL_300_4505AC printer
- **MplsSewer_PDF** used for printing SW&S plan sets to PDF
- **MplsStreet_COL_201_3505AC** used for printing TE&D plan sets to the COL_201_3505AC printer
- **MplsStreet_COL_300_4505AC** used for printing TE&D plan sets to the COL_300_4505AC printer
- **MplsStreet_PDF** used for printing TE&D plan sets to PDF
- **MplsStreetXSEC_COL_201_3505AC** used for printing TE&D cross sections to the COL_201_3505AC printer
- **MplsStreetXSEC_COL_300_4505AC** used for printing TE&D cross sections to the COL_300_4505AC printer
- **MplsStreetXSEC_PDF** used for printing TE&D cross sections to PDF
- **MplsTraffic_BOR-100-TRAF355** used for printing T&PS plan sets to the BOR-100-TRAF355 printer
- **MplsTraffic_PDF** used for printing T&PS plan sets to PDF
- **MplsWater_PDF** used for printing WT&D plan sets to PDF
- **MplsWater_PDF_1** used for printing WT&D plan sets that don't use the DFT_NON_PRT1 level

InRoads

- **Storm & Sanitary Structures:** (L:\Enterprise Engineering\Bentley\Civil\Mpls.dat)
- **Civil:** (L:\Enterprise Engineering\Bentley\Civil\Mpls.xin)
 - **Named Symbology & Feature Styles:** There is one named symbology for each feature style. Names, colors, line styles and line weights have been revised to follow *By Level* symbology standards.
 - **Survey Feature Codes:** Colors, line styles and line weights have been revised to follow *By Level* symbology standards.

WHAT IS GOING TO OCCUR

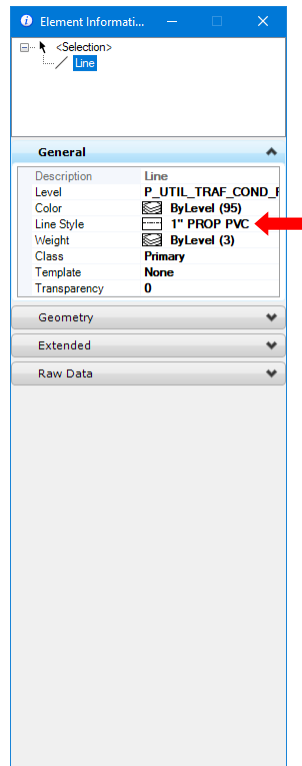
After January 25, 2010 new Capital & Non-Capital Improvement projects shall use the revised standard CADD files listed above.

WHAT TO DO

Existing projects may continue to use the files that were delivered with the project with one exception:

- **MicroStation**
 - **Line Styles:**
Old line styles will no longer be available! Old line styles will need to be replaced in any design files that use them. Once the old line styles are no longer available they will be displayed as if they were the standard MicroStation line style 0. The line will still retain its original line style name however (see

below), facilitating its replacement. To determine which new line styles to use see *OBSOLETE LINE STYLES* in [Mpls PW CADD Standards Manual](#).



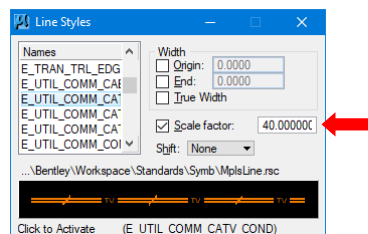
Line styles need to be placed at the scale that the plan sheet will be printed (e.g. 1" = 40').

Note: Line styles labeled (1:1) in the description do not need to be scaled!

1. Select **Element > Line Styles > Custom**.

a. In the *Line Styles* dialog box check the **Scale factor** box and enter the scale (e.g. 40).

Note: This must be done at the beginning of every design session or whenever a design file is opened for the first time.



2. Select the *Active Level* you want (e.g. *E_UTIL_COMM_CATV_COND*). The correct standard color, line style and line weight will automatically be selected (see below).



a. Select the *Place Line* or *Place Smart Line* tool and place the line.

- **Cells:**

Cells need to be placed at the scale that the plan sheet will be printed (e.g. 1" = 40').

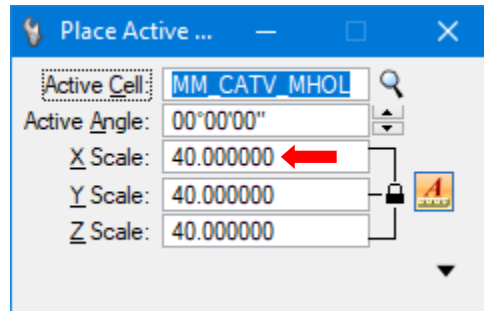
Note 1: Cells labeled (1:1) in the description do not need to be scaled!

Note 2: Cells have been created on the *Default* level and therefore need to be placed on the appropriate level (see [Mpls PW CADD Levels & Symbolology](#)).

1. Select the Active Level you want (e.g. *E_UTIL_COMM_CATV_MHOL*).



2. Select **Element > Cells**.
 - a. In the *Cell Library* double-click on the cell you want to place.
 - b. In the *Place Active Cell* dialog box enter the scale (e.g. 40) and place the cell.



- **InRoads Survey**
 - Users must attach the cell library before the survey data is imported or survey point data will not display properly.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0050
ISSUED BY: Steve Hoium, Jim Cleary
SUBJECT: Mpls PW CADD Standards

DEVELOPED BY: CADD Management Team
DATE: February 2, 2010
REVISION 0.3: October 19, 2017

BACKGROUND

The establishment of CADD standards is to ensure uniform standards for the computer aided design and drafting of Capital & Non-Capital Improvement Projects. These standards are to be used in the generation of electronic plans by both internal users and consultants doing business with the City of Minneapolis. The establishment of CADD standards effectively enables:

- Project data to be shared easily between functional areas (bridge, sewer, street, traffic, and water) in an integrated manner throughout the project design process.
- Integration of consultant electronic deliverables with City of Minneapolis Capital & Non-Capital Improvement Projects.

OVERVIEW

The following is a list of CADD applications and their intended use:

(To access the applications select **Start > All Programs > Bentley**)

- **Bentley Descartes**..... Used to manipulate raster images
- **Bentley InRoads**..... Used to design the *Roadway* component of projects
- **Bentley InRoads Bridge**..... Used to design the *Bridge* component of projects
- **Bentley InRoads Storm & Sanitary**..... Used to display the *Sanitary and Storm Sewer* component of projects
- **Bentley InRoads Survey**..... Used to display the *Survey* component of projects
- **Bentley Map**..... Used to extract, input and maintain data in the *Enterprise Spatial Database*
- **Bentley MicroStation**..... The CADD platform for *InRoads* designed projects
- **Bentley MicroStation Print Organizer**... Used to print plan sheets singly or in batches
- **Bentley ProjectWise**..... Used to manage & store Capital & Non-Capital Improvement Project files
- **Microsoft SQL Server**..... The *Enterprise Spatial Database*

WHAT TO DO

The following standards shall be used for plan sets:

- **Scale:** The standard design scale shall be 1" = 40'.
- **Plan Sheet Size:** The standard plan sheet size shall be 11" x 17".
- **Alignments:** Primary alignment: **Street Centerline**
 Secondary alignments: **Utility Centerline**
 Secondary alignments shall be related to the primary alignment via equivalency points between the alignments

BENTLEY INROADS STANDARD FILES

(Location: L:\Enterprise Engineering\Bentley\Civil)

- Drafting Notes: **Mpls.dft**
- Feature Code and Attribute Library: **Mpls.fxl**
- Rainfall Intensity-Duration-Frequency File: **Mpls.idf**
- Preference File: **Mpls.xin**
- Project Defaults: **Mpls_Standard_Project_Defaults.reg**

- Structures File: ***Mpls.dat***
- Template Library: ***Mpls.itl***

BENTLEY MICROSTATION STANDARD FILES

(Location: L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell, Seed, Symb, Tables\Pen)

- Cell Library: ***DFTG.cel, EROS.cel, PKBD.cel, RWAY.cel, SSWR.cel, STRC.cel, STRM.cel, SURF.cel, SURV.cel, TRAF.cel, TRAN.cel, UTIL.cel, VEG.cel, WATR.cel***
- Color Table: ***MplsColor.tbl***
- Dgn Library: ***Mpls.dgnlib***
- Pen Table: ***MplsColor.tbl, MplsSewer.tbl, MplsStreet.tbl, MplsWater.tbl***
- Line Style Library: ***MplsLine.rsc***
- Seed File: ***MplsSeed.dgn***

ISSUE NO. CADD-0051

ISSUED BY: Stephanie Malmberg, Steve Hoium,
Jim Cleary

SUBJECT: Standard Specifications & Detail Plates

DEVELOPED BY: CADD Management Team

DATE: March 2, 2010

REVISION 0.3: January 29, 2020

OVERVIEW

Standard Supplemental Specifications for the Construction of Public Infrastructure has been published on the City's *Standard Specifications & Detail Plates* web page. These standard supplemental specifications along with the Minneapolis standard detail plates are specific to the City of Minneapolis' construction and design requirements and are intended to be used by contractors, consultants and City divisions for plan and specification preparation as well as for construction of public infrastructure projects located in the right of way. *MnDOT Standard Specifications for Construction* will apply except where modified or amended by the City of Minneapolis.

LOCATION

The supplemental standard specifications & detail plates can be viewed at: [Standard Specifications & Detail Plates](#).

WHAT TO DO

If you have comments, changes or additions regarding the supplemental standard specifications, contact Chris DeDene at chris.dedene@minneapolismn.gov, (612) 673-2823.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0052
ISSUED BY: Mark Chellsen
SUBJECT: ProjectWise Thumbnail Images

DEVELOPED BY: CADD Management Team
DATE: September 20, 2010
REVISION 0.1: January 29, 2020

BACKGROUND

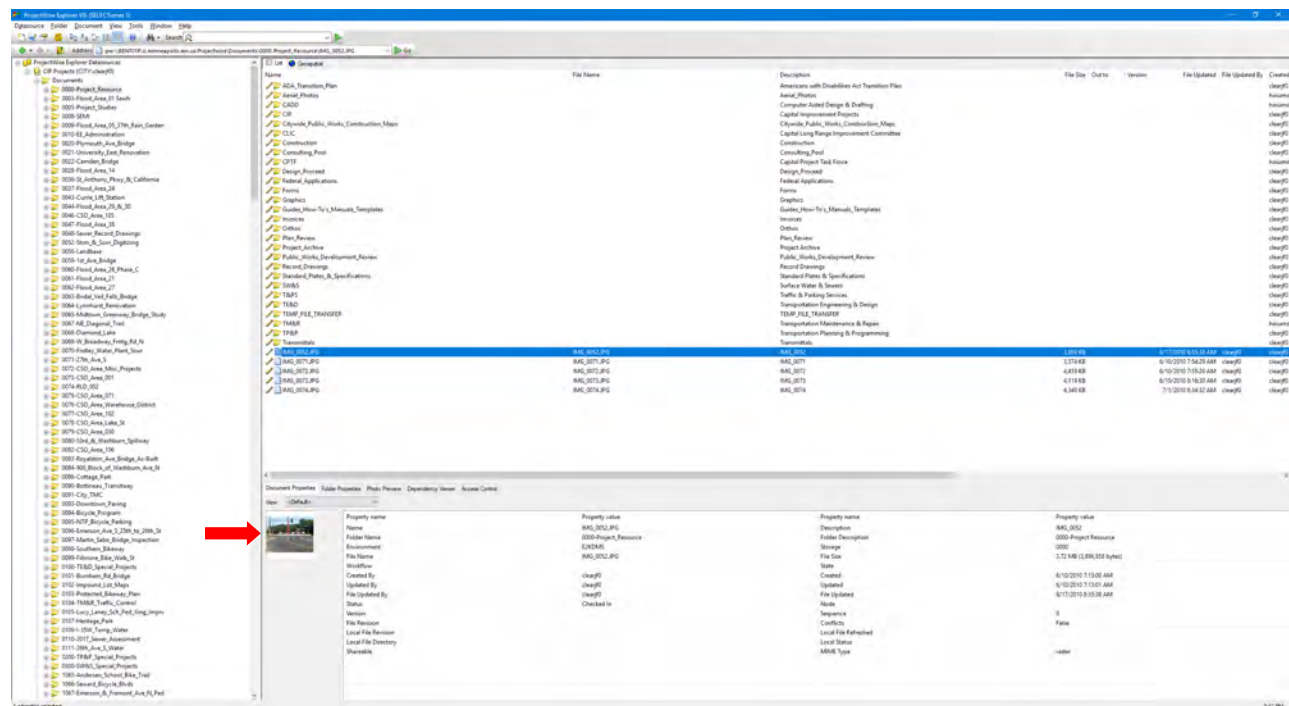
Thumbnail preview images are now available in ProjectWise.

OVERVIEW

Thumbnail images display on the *Preview Pane* when a document is selected in *ProjectWise Explorer*. When the selected document's file does not have a thumbnail image, a default image will display in its place. Thumbnails are typically used for previewing DGN and DWG documents, but can also display other file types (e.g. BMP, GIF, HTML, JPG, PDF, PPT, TIF, etc.).

WHAT TO DO

- If the *Preview Pane* is not on, select **View > Preview Pane**.
- Select the **Document Properties** tab.
- Select the document you want to view.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0053
ISSUED BY: Darryn Proch, Jim Cleary
SUBJECT: Traffic Standard Plates

DEVELOPED BY: CADD Management Team
DATE: July 15, 2011
REVISION 0.1: February 10, 2016

BACKGROUND

For more information about standard plates please refer to the following transmittals:

- [Transmittal Procedure-0013 Standard Plate Creation Update and Approval Procedure](#)
- [Transmittal Procedure-0014 How to Use Standard Plates in Plan Sheets](#)

OVERVIEW

Traffic standard plates are available in PDF format on the *Standard Specifications & Detail Plates* webpage.

LOCATION

[Standard Specifications & Detail Plates](#)

WHAT TO DO

Please refer requests for standard plates to the *Standard Specifications & Detail Plates* webpage.

For more information about Traffic standard plates contact Darryn Proch at darryn.proch@minneapolismn.gov, (612) 673-5516.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0054

ISSUED BY: Bob Ervin, Jack Yuzna, Jim Cleary

SUBJECT: Bridge & Water Standard Plates

DEVELOPED BY: CADD Management Team

DATE: March 16, 2012

REVISION 0.1: February 3, 2020

BACKGROUND

For more information about standard plates please refer to the following transmittals:

- [Transmittal Procedure-0013 Standard Plate Creation Update and Approval Procedure](#)
- [Transmittal Procedure-0014 How to Use Standard Plates in Plan Sheets](#)

OVERVIEW

Bridge and Water standard plates are available in PDF format on the *Standard Specifications & Detail Plates* webpage.

LOCATION

[Standard Specifications & Detail Plates](#)

WHAT TO DO

Please refer requests for standard plates to the *Standard Specifications & Detail Plates* webpage.

For more information about Bridge standard plates contact TBD.

For more information about Water standard plates contact Chad Donnelly at chad.donnelly@minneapolismn.gov, (612) 673-4903.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0055
ISSUED BY: Jim Cleary
SUBJECT: Bentley V8i Upgrade

DEVELOPED BY: CADD Management Team
DATE: December 10, 2012
REVISION 0.3: February 3, 2020

WHAT IS GOING TO OCCUR

On December 7, 2012 Enterprise Engineering users will be upgraded to the following new versions of Bentley software:

- **Bentley Descartes V8i** (SELECT series 2) 08.11.07.427
- **Bentley Map V8i** (SELECT series 2) 08.11.07.434
- **Bentley Navigator V8i** (SELECT series 3) 08.11.08.43
- **InRoads Group V8i** (SELECT series 2) 08.11.07.566
- **MicroStation V8i** (SELECT series 2) 08.11.07.443
- **ProjectWise InterPlot Organizer V8i** (SELECT series 2) 08.11.07.420
- **ProjectWise V8i** (SELECT series 3) 08.11.09.129

WHAT TO DO

Note: If you encounter problems not covered in this transmittal contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623.

New Bentley Software

Previously the Bentley software was installed in a custom folder named *Enterprise Engineering* (Start > All Programs > Enterprise Engineering). The Bentley software is now installed “out of the box” as-delivered from Bentley in a folder named *Bentley* (Start > All Programs > Bentley).

Note: If Bentley software is not found in the Bentley folder please contact the IT Service Desk at 800-262-3112. To enable users to easily access the programs they use most often it is recommended that the following procedure is used to “pin” the program to the user’s Start menu:

1. Select **Start > All Programs > Bentley > ProjectWise V8i (SELECT series 3)**.
 - a. Press and hold the **Shift** key while you right-click on **ProjectWise Explorer**.
 - Select **Pin to Start menu**.

The *ProjectWise Explorer* icon will appear in the *Start* menu from now on. Icons in the *Start* menu can be arranged within the menu so that they appear in the order you prefer. Left-click on the icon and drag it either up or down to the desired position.

Note: If you need to remove a program from the *Start* menu right-click on it and select **Remove from This List**.
 - Continue adding programs to the *Start* menu following the steps above. It is recommended that users add the following programs:
 - ProjectWise Explorer V8i (SELECT series 3) > **ProjectWise Explorer**
 - MicroStation V8i (SELECT series 2) > **MicroStation V8i (SELECT series 2)**
 - InRoads Group V8i (SELECT series 2) > **InRoads**
 - InRoads Group V8i (SELECT series 2) > **InRoads Storm & Sanitary**
 - InRoads Group V8i (SELECT series 2) > **InRoads Survey**

Bentley Descartes V8i

This application adds additional raster operations to MicroStation, including the ability to enhance, transform, mosaic, color mask, edit, vectorize, drape, and add texture to images. In addition, Bentley Descartes V8i allows users to convert text and cells from raster to vector and register images and vector data.

Note: There is only one license for Bentley Descartes V8i. Please close the application as soon as you have finished using it.

- **How to start Descartes inside ProjectWise**
Right-click on a MicroStation file and select **Open With....** In the *Open document with* dialog box highlight **Descartes** and click **OK**.
- **How to open Descartes outside ProjectWise**
Select **Start > All Programs > Bentley > Bentley Descartes V8i (SELECT series 2) > Bentley Descartes V8i (SELECT series 2)**.

Bentley Map V8i

Bentley Map V8i replaces MicroStation GeoGraphics. It is a fully featured GIS (geographic information system) that is 3D by nature. It supports the creation, persistence, maintenance, analysis, and sharing of 2D/3D geospatial information.

To start Bentley Map, do the following:

1. Open an InRoads file.
 - a. Select **Applications > Map > Activate Map**.

Bentley Navigator V8i

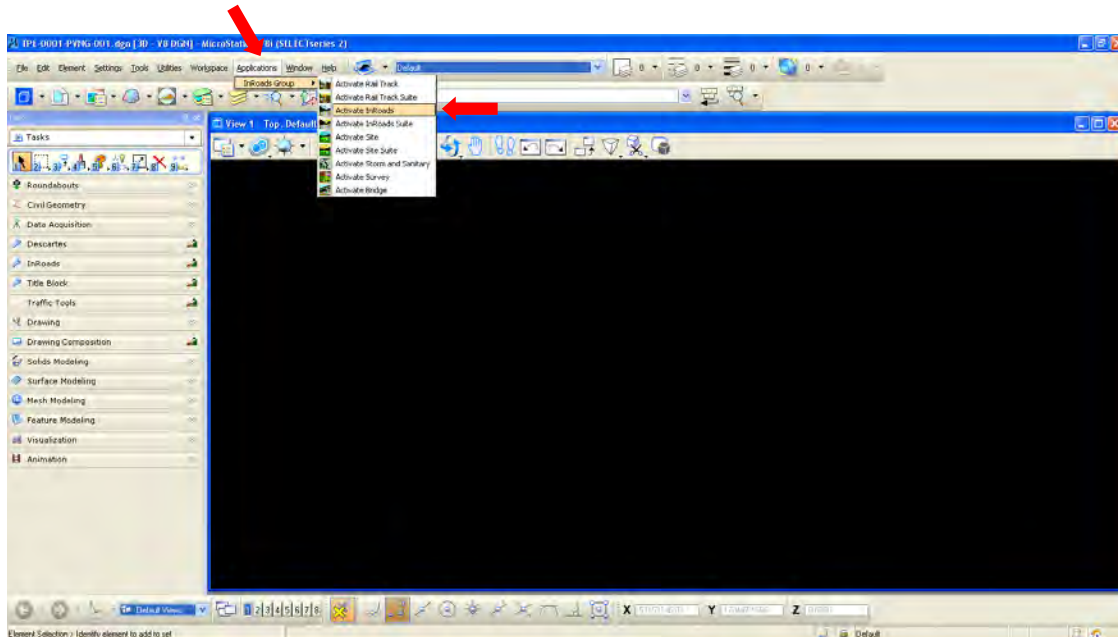
Bentley Navigator V8i replaces MicroStation Redline. Bentley Navigator is used to add comments, suggest changes, and mark up a document, without altering the original document's content (the markup is stored in a new document, called the overlay document, while the original document is referred to as the reviewed document).

To create a Bentley Navigator file, do the following:

1. Right-click on a DGN or DWG document in ProjectWise and select **Markup**.
A new overlay document is created for the selected document and is opened in Bentley Navigator. The reviewed document is attached as a reference to the overlay document.
2. Use the tools in Bentley Navigator to markup the new overlay document as needed.
3. To save the new overlay document to ProjectWise, select **File > Save As**.
The new overlay document is added to ProjectWise, is checked out, and remains open in Bentley Navigator.
4. When you have finished marking up the overlay document, exit Bentley Navigator and click **Check In** when the *Check In* dialog box opens.

InRoads Group V8i

- **How to open InRoads inside ProjectWise**
Right-click on a MicroStation file and select **Open With....** In the *Open document with* dialog box highlight **InRoads** and click **OK**.
- **How to open InRoads from an open MicroStation file in ProjectWise**
Select **Applications > InRoads Group > Activate InRoads**.



- **How to open InRoads outside ProjectWise**

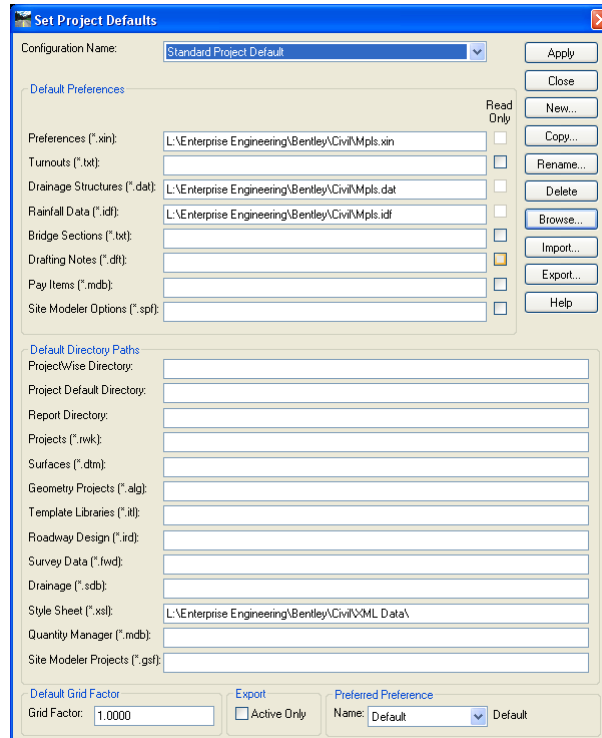
Select **Start > All Programs > Bentley > InRoads Group V8i (SELECT series 2) > InRoads** (or *InRoads Storm & Sanitary, InRoads Survey, etc.*).

- **How to Change the Style Root Directory for the Bentley Civil Report Browser**

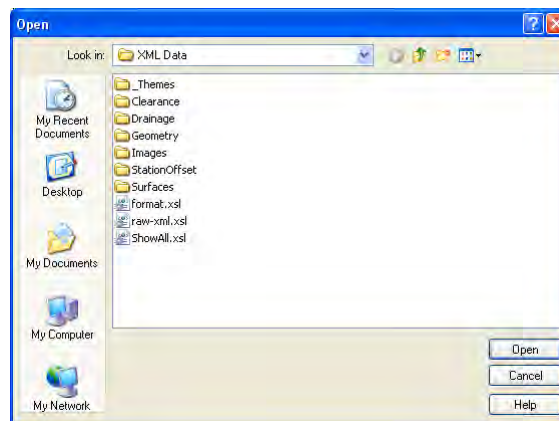
1. In the InRoads dialog box select **File > Project Defaults...**

a. In the *Set Project Defaults* dialog box select the project default for your project (or create a new project default).

- Left-click in the *Style Sheet* field and click **Browse...**



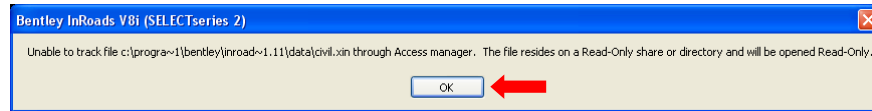
- In the *Open* dialog box browse to **L:\Enterprise Engineering\Bentley\Civil\XML Data** and click **Open**.



- In the *Set Project Defaults* dialog box select **Apply**, and then **Close**.

- **Error Message**

The following error message will appear when users start InRoads. When this occurs, click **OK** and the error message will disappear.



MicroStation V8i

- **Cell Libraries**

Cell libraries have been created for each feature category (DFTG, EROS, PKBD, RWAY, SSWR, STRC, STRM, SURF, SURV, TRAF, TRAN, UTIL, VEG, and WATR). Users can attach one library at a time or they can see all of the contents of all of the libraries if they choose.

- To open a single cell library, do the following:

1. In MicroStation select **Element > Cells**.

- a. In the *Cell Library* dialog box select **File > Attach File....**

- b. In the *Attach Cell Library* dialog box navigate to *L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell*, select the cell library you want (e.g. *DFTG.cel*) then click **Open**.

The cells in the cell library you selected will now be available for placing in the design file.

- To access all the cells in all of the cell libraries do the following:

1. In MicroStation select **Element > Cells**.

- a. In the *Cell Library* dialog box click the **Display All Cells In Path** check box.

All the cells in all the cell libraries will now be available for placing in the design file.

- **Print Organizer**

Print Organizer should be used instead of InterPlot Organizer for printing plan sheets. Print Organizer should provide improved performance for plotting plan sets because it doesn't run on the ProjectWise server (as does InterPlot Organizer). InterPlot Organizer will remain available for printing if necessary.

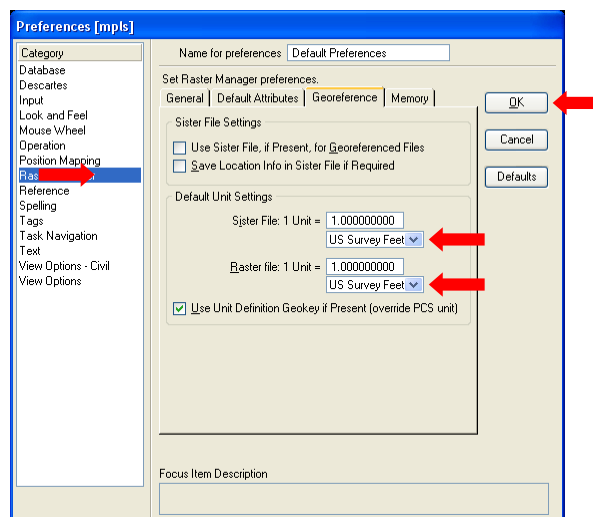
- **Raster Manager**

To setup Raster Manager in MicroStation so that orthophotos will be attached correctly do the following:

1. Select **Workspace > Preferences....**

- a. In the *Preferences* dialog box under *Category* select **Raster Manager**.

- Click the **Georeference** tab.
- For Sister File: 1 Unit = **1.000000000 US Survey Feet**.
- For Raster File: 1 Unit = **1.000000000 US Survey Feet**.
- Click **OK**.



- **Roadway Modeler**

In Roadway Designer under Template Drops uncheck the Enable box. This box should only be checked if transitions have been set up.

ProjectWise V8i

- **Active ProjectWise Projects**

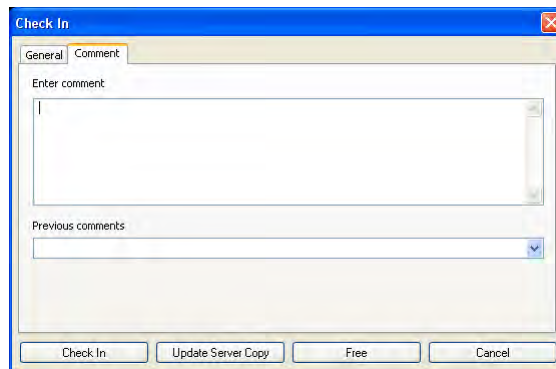
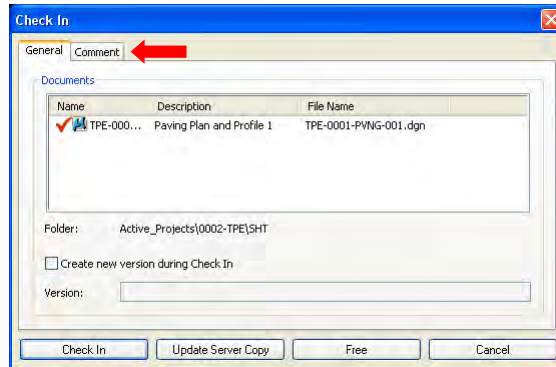
Active ProjectWise projects are now contained in a folder named Active.

- **Archived ProjectWise Projects**

Archived ProjectWise projects are now contained in a folder named Archive.

- **Check In**

The *Comment* box is now a tab in the *Check In* dialog box (see below):



- **User Management**

All ProjectWise users are now able to see who is in the groups that are assigned to their projects. Select users may be allowed to manage the members assigned to their project groups using the new *User/Group Management* dialog box that opens when you select **Tools > User Management**. (Previously the membership of groups could only be managed by the ProjectWise Administrator.)

- **Photo Preview**

The *Photo Preview* tab in the *Preview Pane* allows you to preview image documents (e.g. digital photographs) in ProjectWise Explorer without having to open a new window. When you select an image document in the document list and then select the *Photo Preview* tab, a copy of the document is downloaded to your working directory, and a preview of the image displays in the Preview Pane.

- **Dependency Viewer**

The *Dependency Viewer* tab in the *Preview Pane* allows you to view the relationships that exist between documents in ProjectWise (e.g. master and reference documents).

- **Access Control**

The *Access Control* tab in the *Preview Pane* allows you to instantly see the security permissions on documents, folders, and projects.

- **Spatial Location**

Documents and folders can be associated with a spatial location that is displayed on a map in ProjectWise.

- **Error Message**

The following error message will appear if users open and then close ProjectWise without expanding the CIP Projects datasource. When this occurs, click **OK** and the error message will disappear.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Landbase-0001
ISSUED BY: Steve Hoiium
SUBJECT: 2003 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: September 16, 2003
REVISION 0.1: April 1, 2020

UPDATE

The 2003 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2003 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/8/2003
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

FLIGHT YEAR

2003 ORTHOPHOTOS (154)

CITY BOUNDARY

SE031821_00 NW021821_00 SE021821_00 SW011821_00 SW273024_00 SE273024_00

NE011821_00 NW111821_00 NE111821_00 NW121821_00 NW343024_00 NE343024_00

SE101821_00 SW111821_00 SE111821_00 SW121821_00 SW343024_00 SE343024_00 SW353024_00 SE353024_00 SW363024_00 SE363024_00 SW313023_00

NW052924_00 NE052924_00 NW042924_00 NE042924_00 NW032924_00 NE032924_00 NW022924_00 NE022924_00 NW012924_00 NE012924_00 NW062923_00

SW052924_00 SE052924_00 SW042924_00 SE042924_00 SW032924_00 SE032924_00 SW022924_00 SE022924_00 SW012924_00 SE012924_00 SW062923_00

NW082924_00 NE082924_00 NW092924_00 NE092924_00 NW102924_00 NE102924_00 NW112924_00 NE112924_00 NW122924_00 NE122924_00 NW072923_00 NE072923_00

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NW202924_00 NE202924_00 NW212924_00 NE212924_00 NW222924_00 NE222924_00 NW232924_00 NE232924_00 NW242924_00 NE242924_00 NW192923_00 NE192923_00 NW202923_00

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SW122924_01 SE122924_01 SW132924_01 SE132924_01 SW142924_01 SE142924_01 SW152924_01 SE152924_01 SW162924_01 SE162924_01 SW172923_01 SE172923_01 SW182923_01

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NW082924_01 NE082924_01 NW092924_01 NE092924_01 NW102924_01 NE102924_01 NW112924_01 NE112924_01 NW122924_01 NE122924_01 NW072923_01 NE072923_01 NW082923_01

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NW292924_01 NE292924_01 NW282924_01 NE282924_01 NW272924_01 NE272924_01 NW262924_01 NE262924_01 NW252924_01 NE252924_01 NW302923_01 NE302923_01 NW292923_01

ISSUE NO. Landbase-0002
ISSUED BY: Steve Hoiium
SUBJECT: 2002 Planimetric Update

DEVELOPED BY: Landbase Update Team
DATE: October 20, 2003
REVISION 0.1: April 2, 2020

UPDATE

The first phase of planimetric updates for the north half of the City have been completed using MicroStation GeoGraphics and the 2002 orthophotos.

ABSTRACT

The City of Minneapolis planimetric data set was originally collected by photogrammetry using 1500-foot stereo aerial photography taken between 1989-1991. It has subsequently been updated using digital orthophotos from 1996-2000 flight years. The updating temporarily ceased after 2001 as the data was migrated off the Ultimap system to an Enterprise Oracle Spatial Database. Updating has resumed with MicroStation GeoGraphics utilizing heads-up digitizing. The goal of the first phase was to update 50 quarter sections in 90 days. Using the 2002 orthophotos over 60,000 updates have been made to 50 quarter sections.

PURPOSE

Planimetric data shows horizontal positions of features visible from aerial photos (e.g. buildings, roads, trees, etc.) and is used for planning, design and analysis.

SPATIAL EXTENTS

The first phase extends from Franklin Ave. on the south to E. Hennepin Ave. on the north and to the City limits on the east and west (see the map below).

- **Source Information:**
 - **Source:** 2002 Color Digital Orthophotos
 - **Date of Photography:** 4/12/02

LOCATION

MSPRO schema in the Enterprise Spatial Database (ESD).

DATA USE CONSTRAINTS

Planimetric data is for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization, fill out the [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

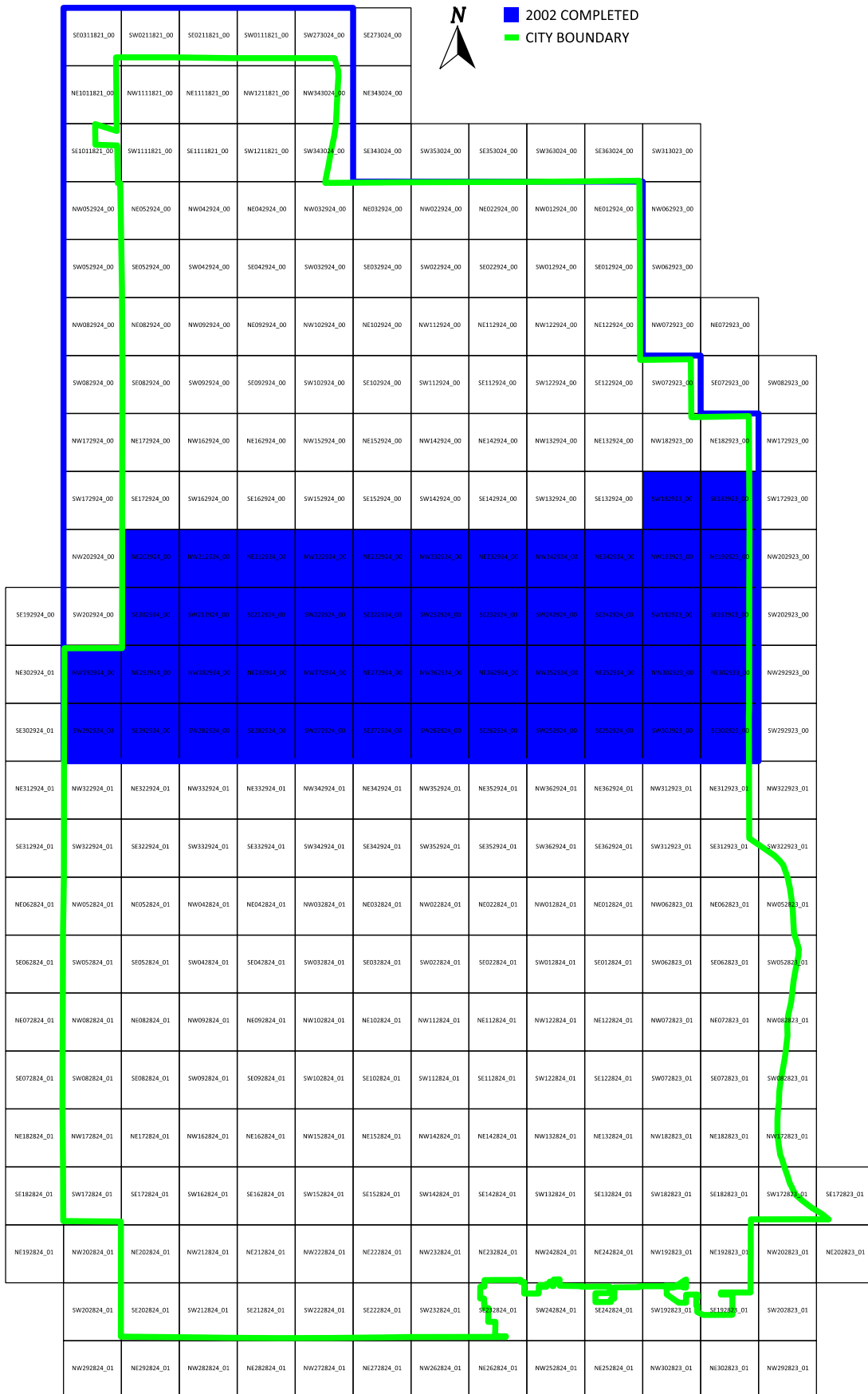
DGN

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2002 PLANIMETRIC UPDATE MAP



ISSUE NO. Landbase-0003
ISSUED BY: Steve Hoiium
SUBJECT: 2003 Planimetric Update

DEVELOPED BY: Landbase Update Team
DATE: October 4, 2004
REVISION 0.1: April 2, 2020

UPDATE

Planimetric updates for the south half of the City have been completed using MicroStation GeoGraphics and the 2003 orthophotos.

ABSTRACT

The City of Minneapolis planimetric data set was originally collected by photogrammetry using 1500-foot stereo aerial photography taken between 1989-1991. It has subsequently been updated using digital orthophotos from 1996-2000 flight years. The updating temporarily ceased after 2001 as the data was migrated off the Ultimap system to an Enterprise Oracle Spatial Database. Updating has resumed with MicroStation GeoGraphics utilizing heads-up digitizing. The goal of this phase was to update the south half of the City by the end of the year. Using the 2003 orthophotos over 280,000 updates have been made to 127 quarter sections.

PURPOSE

Planimetric data shows horizontal positions of features visible from aerial photos (e.g. buildings, roads, trees, etc.) and is used for planning, design and analysis.

SPATIAL EXTENTS

The 2003 phase extends from Franklin Ave. on the north to the City limits on the south, east and west (see the map below).

- **Source Information:**
 - **Source:** 2003 Color Digital Orthophotos
 - **Date of Photography:** 04/08/03

LOCATION

MSPRO schema in the Enterprise Spatial Database (ESD).

DATA USE CONSTRAINTS

Planimetric data is for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization, fill out the [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

DGN

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

FLIGHT YEAR

- 2002 COMPLETED
- 2003 COMPLETED
- CITY BOUNDARY

The map displays a grid of flight years. The cells are color-coded based on the completion status of the flight year. Blue cells indicate that the flight year was completed in 2002, while red cells indicate that the flight year was completed in 2003. A green line represents the city boundary. The map shows a complex pattern of completed flight years, with a significant portion of the grid being completed in 2002 (blue) and a smaller portion completed in 2003 (red). The city boundary (green line) is irregular and follows the edges of the grid cells.

ISSUE NO. Landbase-0004
ISSUED BY: Steve Hoiium
SUBJECT: LiDAR Bare Earth

DEVELOPED BY: Landbase Update Team
DATE: October 7, 2004
REVISION 0.1: April 2, 2020

UPDATE

The LiDAR bare earth digital elevation model (DEM) is now available.

ABSTRACT

Horizons was contracted to update the City's digital terrain model (DTM). The current accuracy of the DTM is approximately +/- 2 feet. The LiDAR captured by Horizons has 2 components, bare earth and first return. This provides information on true ground and building tops.

PURPOSE

The LiDAR DEM was generated with general map accuracy specifications. It can be used for general planning purposes and initial grades. The information will also be used for analysis purposes; to determine changes in elevation from our DTM data and to help locate changes to our planimetric data. LiDAR is not a substitute for field survey.

SPATIAL EXTENTS

The LiDAR data encompasses the entire City of Minneapolis.

- **Horizontal Accuracy:**
 - Meets [National Map Accuracy Standards](#) for 1"=100' mapping.
- **Vertical Accuracy:**
 - +/- 15 centimeters or about 0.5 feet.
- **Source Information:**
 - **Source:** Horizons used City provided survey data to correct the LiDAR data.
 - **Date of flight:** 4/2003

LOCATION

MSPRO schema in the Enterprise Spatial Database (ESD).

DATA USE CONSTRAINTS

The LiDAR DEM is for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization, fill out the [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

DGN

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Landbase-0005
ISSUED BY: Steve Hoiium
SUBJECT: 2004 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: February 1, 2005
REVISION 0.1: April 3, 2020

UPDATE

The 2004 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 151 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2004 flight year extends from Franklin Ave. on the south to approximately one quarter section beyond the city limits on the north, east & west (see the map below).

- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/14/2004
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

[illegible]

ISSUE NO. Landbase-0006
ISSUED BY: Steve Hoiium
SUBJECT: 2004 Planimetric Update

DEVELOPED BY: Landbase Update Team
DATE: May 16, 2005
REVISION 0.1: April 5, 2020

UPDATE

Planimetric updates for the north half of the City have been completed using MicroStation GeoGraphics and the 2004 orthophotos.

ABSTRACT

The City of Minneapolis planimetric data set was originally collected by photogrammetry using 1500-foot stereo aerial photography taken between 1989-1991. It has subsequently been updated using digital orthophotos from 1996-2000 flight years. The updating temporarily ceased after 2001 as the data was migrated off the Ultimap system to an Enterprise Oracle Spatial Database. Updating has resumed with MicroStation GeoGraphics utilizing heads-up digitizing. The goal of this phase was to update the south half of the City. Using the 2005 orthophotos over 350,000 updates have been made to 110 quarter sections.

PURPOSE

Planimetric data shows horizontal positions of features visible from aerial photos (e.g. buildings, roads, trees, etc.) and is used for planning, design and analysis.

SPATIAL EXTENTS

The 2004 phase extends from Franklin Ave. on the south to the City limits on the north, east and west (see the map below).

- **Source Information:**
 - **Source:** 2004 Color Digital Orthophotos
 - **Date of Photography:** 04/08/04

LOCATION

MSPRO schema in the Enterprise Spatial Database (ESD).

DATA USE CONSTRAINTS

Planimetric data is for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization, fill out the [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

DGN

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

[illegible]

ISSUE NO. Landbase-0007
ISSUED BY: Steve Hoium
SUBJECT: 2005 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: November 2, 2005
REVISION 0.1: April 7, 2020

UPDATE

The 2005 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2005 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/14/2005
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

FLIGHT YEAR

- 2004 ORTHOPHOTOS (147)
- 2004 TRUE ORTHOPHOTOS (4)
- 2005 ORTHOPHOTOS (154)
- CITY BOUNDARY

The map displays a grid of colored squares representing different areas. The colors correspond to the flight year of the orthophotos: Blue for 2004 Orthophotos (147), Hatched for 2004 True Orthophotos (4), Red for 2005 Orthophotos (154), and Green for City Boundary. The map shows a large area of 2004 Orthophotos (blue) in the center, surrounded by 2005 Orthophotos (red). A green line indicates the city boundary. A north arrow is located in the top left corner.



ISSUE NO. Landbase-0008
ISSUED BY: Steve Hoiium
SUBJECT: 2006 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: December 14, 2006
REVISION 0.1: April 7, 2020

UPDATE

The 2006 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 151 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2006 flight year extends from Franklin Ave. on the south to approximately one quarter section beyond the city limits on the north, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/8/2006
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

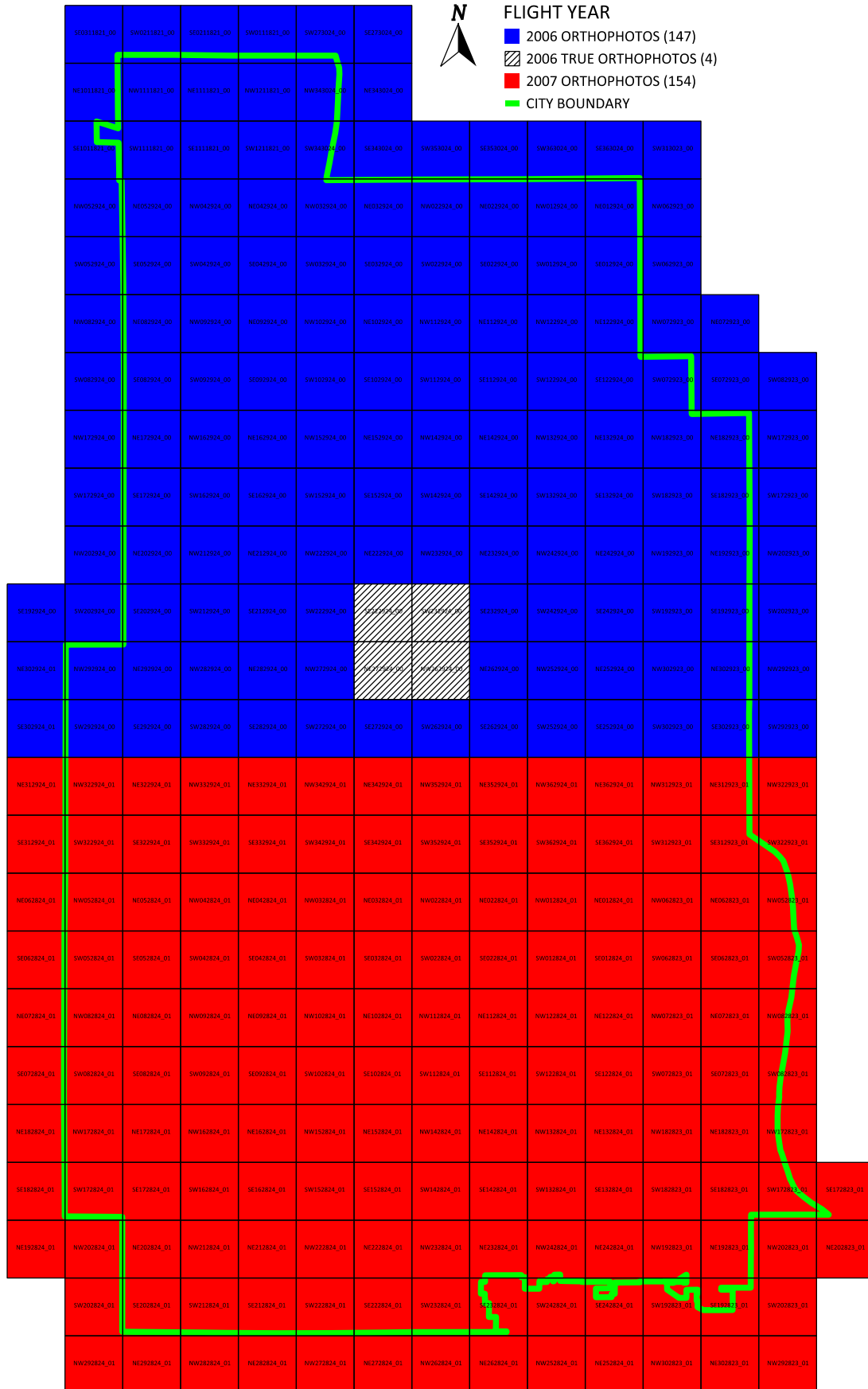
TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2006 & 2007 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0009
ISSUED BY: Steve Hoiium
SUBJECT: 2005 Planimetric Update

DEVELOPED BY: Landbase Update Team
DATE: July 31, 2007
REVISION 0.1: April 8, 2020

UPDATE

Planimetric updates for the south half of the City have been completed using MicroStation GeoGraphics and the 2005 orthophotos.

ABSTRACT

The City of Minneapolis planimetric data set was originally collected by photogrammetry using 1500-foot stereo aerial photography taken between 1989-1991. It has subsequently been updated using digital orthophotos from 1996-2000 flight years. The updating temporarily ceased after 2001 as the data was migrated off the Ultimap system to an Enterprise Oracle Spatial Database. Updating has resumed with MicroStation GeoGraphics utilizing heads-up digitizing. The goal of this phase was to update the south half of the City. Using the 2005 orthophotos over 165,000 updates have been made to 126 quarter sections.

PURPOSE

Planimetric data shows horizontal positions of features visible from aerial photos (e.g. buildings, roads, trees, etc.) and is used for planning, design and analysis.

SPATIAL EXTENTS

The 2005 phase extends from Franklin Ave. on the north to the City limits on the south, east and west (see the map below).

- **Source Information:**
 - **Source:** 2005 Color Digital Orthophotos
 - **Date of Photography:** 04/15/05

LOCATION

MSPRO schema in the Enterprise Spatial Database (ESD).

DATA USE CONSTRAINTS

Planimetric data is for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization, fill out the [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

DGN

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| FLIGHT YEAR | | | | | | | | | |
| <div><div><div></div><div>2004 COMPLETED</div></div><div><div></div><div>2005 COMPLETED</div></div><div><div></div><div>CITY BOUNDARY</div></div></div> | | | | | | | | | |
| <div><div><div></div><div>N</div></div></div> | | | | | | | | | |
| <div><div><div><div><div>SE011821_00</div><div>SW011821_00</div><div>SE011821_00</div><div>SW011821_00</div><div>SW272024_00</div></div><div>SE272024_00</div></div><div><div><div>NE011821_00</div><div>NW111821_00</div><div>NE111821_00</div><div>NW121821_00</div><div>NW034024_00</div></div><div>NE343024_00</div></div></div></div> | | | | | | | | | |
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ISSUE NO. Landbase-0010
ISSUED BY: Steve Hoium
SUBJECT: 2007 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: September 19, 2007
REVISION 0.1: April 9, 2020

UPDATE

The 2007 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2007 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 0.5 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/14/2007
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

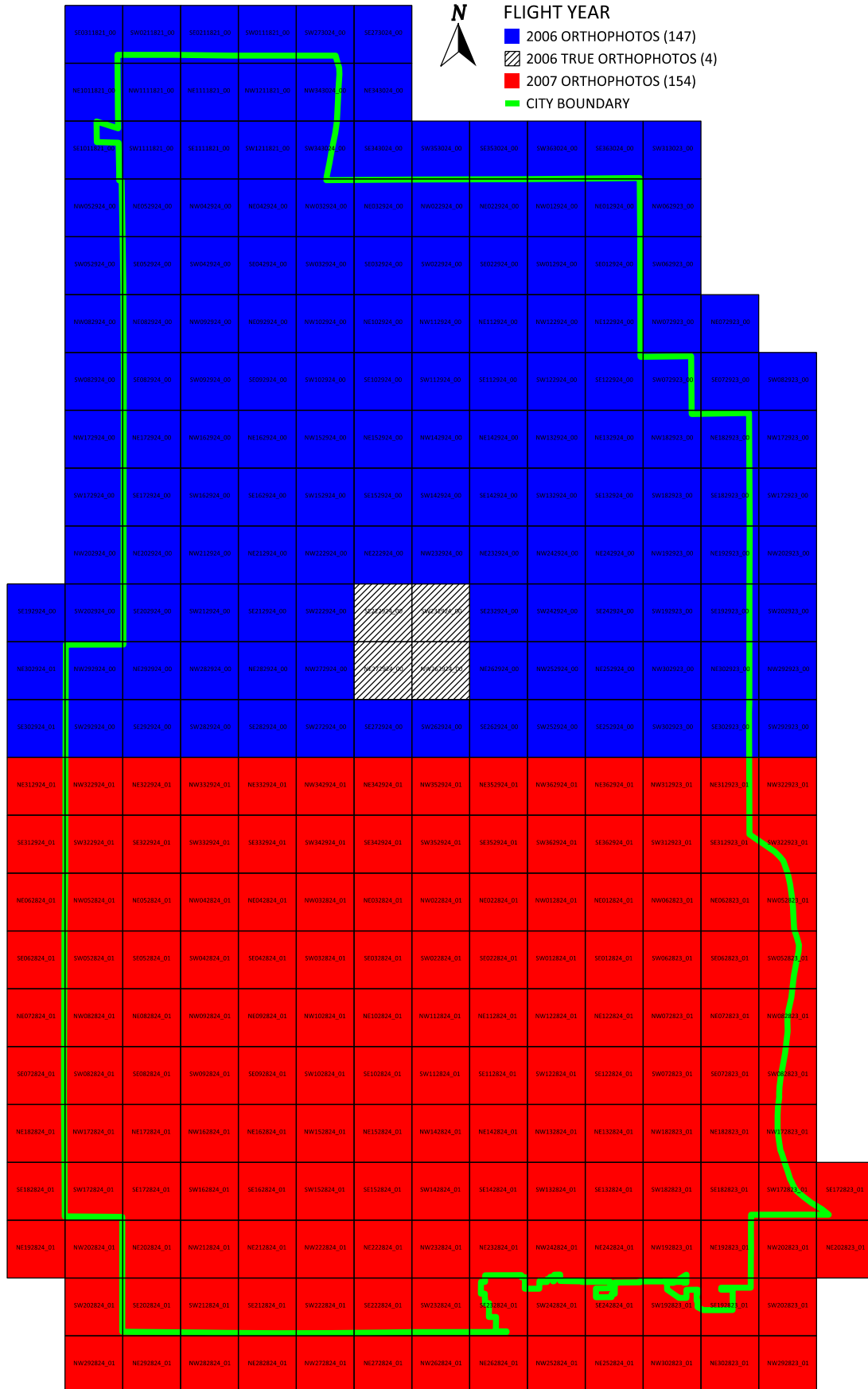
TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2006 & 2007 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0011
ISSUED BY: Steve Hoiium
SUBJECT: 2008 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: October 9, 2008
REVISION 0.1: April 9, 2020

UPDATE

The 2008 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 151 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2008 flight year extends from Franklin Ave. on the south to approximately one quarter section beyond the city limits on the north, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/23/2008
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

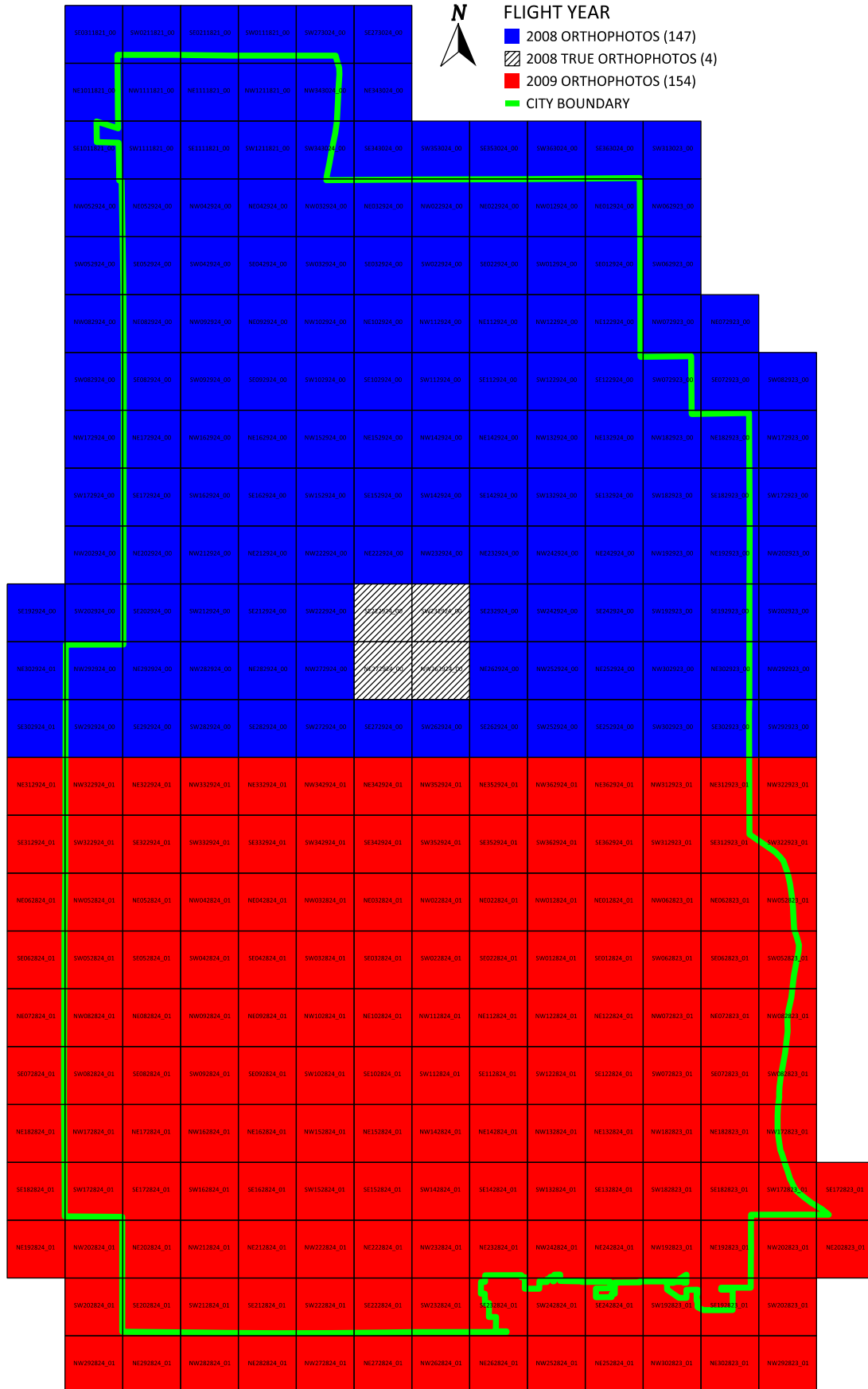
TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2008 & 2009 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0012
ISSUED BY: Steve Hoium
SUBJECT: 2009 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: October 2, 2009
REVISION 0.1: April 9, 2020

UPDATE

The 2009 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2009 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/9/2009
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

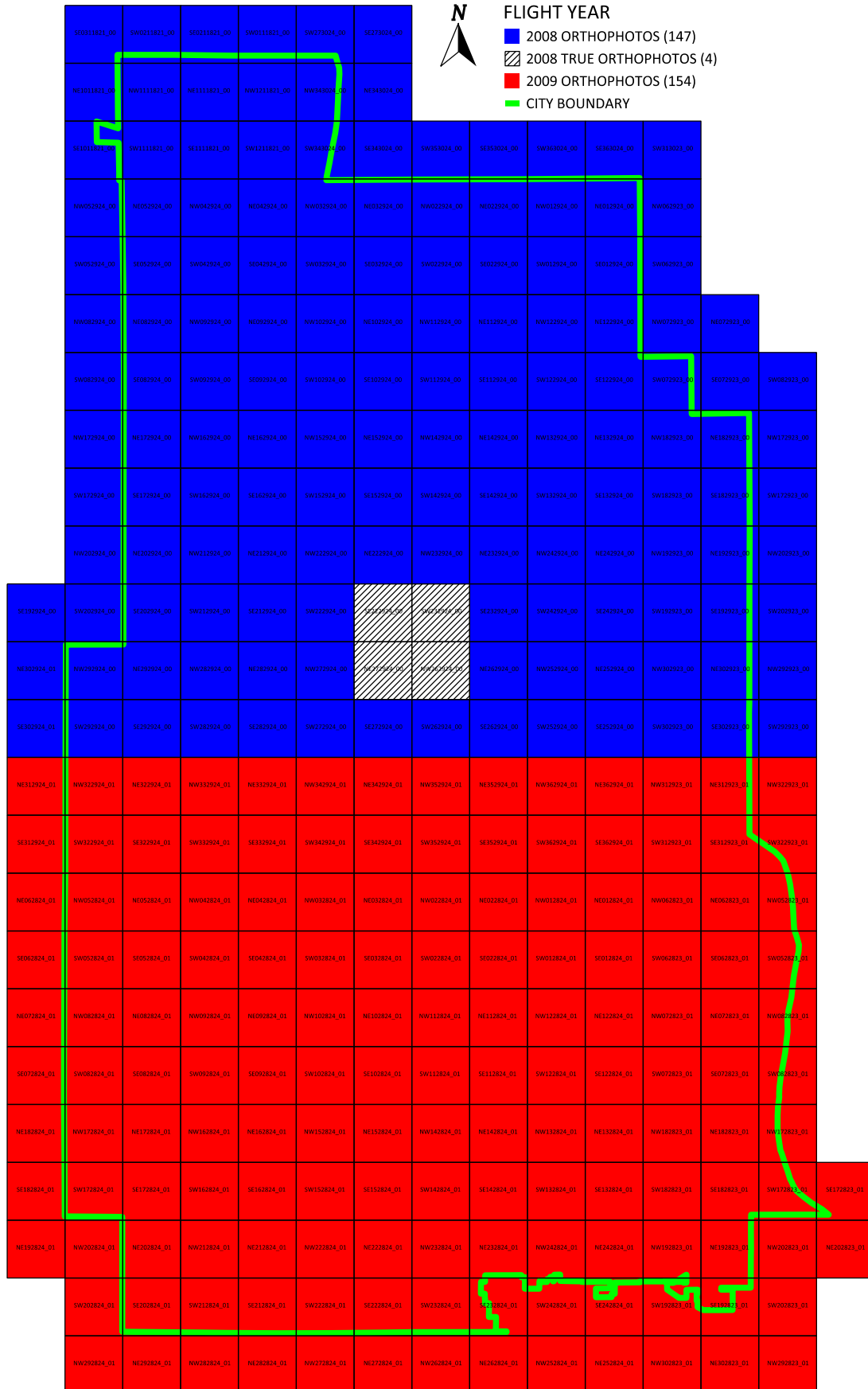
TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2008 & 2009 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0013
ISSUED BY: Steve Hoium
SUBJECT: 2010 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: August 10, 2010
REVISION 0.1: April 9, 2020

UPDATE

The 2010 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 151 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2010 flight year extends from Franklin Ave. on the south to approximately one quarter section beyond the city limits on the north, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/11/2010
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

[illegible]

ISSUE NO. Landbase-0014
ISSUED BY: Steve Hoium
SUBJECT: Integrated and Enhanced LiDAR
DTM/TIN Model

DEVELOPED BY: Landbase Update Team
DATE: October 7, 2009
REVISION 0.2: April 14, 2020

UPDATE

The integrated and enhanced LiDAR DTM/TIN model is now available.

ABSTRACT

LiDAR

LiDAR (light detection and ranging) is an established method for collecting very dense and accurate elevation values. LiDAR is an active remote sensing technique, analogous to radar, but using laser light. Aerial LiDAR instruments, usually on board a fixed wing aircraft, measure the roundtrip time for a pulse of laser light to travel between the sensor and a target. This pulse of light reflects off structures and ground features and back to the instrument where it is collected by a telescope. The travel time of the pulse, from initiation until it returns to the sensor, provides a distance or range from the instrument to the object.

LiDAR Integration and Enhancement with Photogrammetry

Airborne LiDAR technology offers one of the most accurate, expedient and cost-effective ways to capture elevation information; however, it does have limitations when used to depict the ground surface. Lidar ground points are determined using automated filters, so while there are significantly more points, they can sometimes fall on non-ground objects or features. Photogrammetric digital elevation model (DEM) data provide a higher level of confidence because the elevation points are measuring the ground surface.

Aerial photogrammetric data combined with dense LiDAR range data complement each other. Aerial photogrammetry is generally more accurate horizontally while LiDAR data is generally more accurate vertically. Photos can clearly define the edges of buildings when the LiDAR point cloud footprint cannot. In addition, LiDAR data although very dense provides almost no information along breaklines (e.g. places where there are sharp changes in the direction of slope). Therefore, it is beneficial to incorporate the advantages of both systems and integrate them to create a better product.

The City contracted with Martinez Geospatial to use photogrammetric techniques in conjunction with aerial photography to integrate and enhance the City's original LiDAR bare earth data which was collected in April of 2003. Using stereo imagery, breaklines were added at retaining walls, curbs, streams, road centerlines and other features. LiDAR data that does not accurately depict the bare ground surface or that is redundant were removed. Mass points from void areas such as lakes and buildings were also removed. The DTM that has been developed through the combination of LiDAR data and photogrammetry provides a more accurate surface representation.

The project was completed in three phases. Phase I extends from the southern city limit to Franklin Ave. Phase II extends from Franklin Ave to 12th Ave. N. Phase III extends from 12th Ave. N. to the northern city limit.

PURPOSE

The integrated and enhanced LiDAR DTM is intended to be used for planning & preliminary engineering applications. It is useful for 3D visualization as well as flood or drainage modeling, land-use studies and geological applications. It can also be used for change detection applications for updating other mapping layers. It is designed for generating a 2-foot elevation contour data layer for cartographic map production and for increased image feature interpretation at 1"=100' viewing scale. It is not intended to be used in actual engineering design work and should not replace a field survey.

SPATIAL EXTENTS

The integrated LiDAR data covers the entire City of Minneapolis extending beyond the city limits 200' to 1320' depending on the area.

- **Map Accuracy:**
 - **Horizontal Positional Accuracy:** +/- 3.33 feet at 90% confidence level ([National Map Accuracy Standards](#))
 - **Vertical Positional Accuracy:** +/- 1.0 feet ([National Map Accuracy Standards](#))
- **Source Information:**
 - **Date of LiDAR:** 4/2003
 - **Date of Photography:**
 - **Phase I:** 4/2005
 - **Phase II & Phase III:** 4/2006

FORMAT

- TIN (Triangulated Irregular Network)
- DGN (MicroStation)

DATA USE CONSTRAINTS

LiDAR data is for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Landbase-0015
ISSUED BY: Steve Hoium
SUBJECT: 2011 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: August 31, 2011
REVISION 0.1: April 14, 2020

BACKGROUND

The 2011 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2011 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/24/2011, 4/25/2011
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

[illegible]

ISSUE NO. Landbase-0016
ISSUED BY: Steve Hoium
SUBJECT: 2012 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: November 20, 2012
REVISION 0.1: April 14, 2020

UPDATE

The 2012 digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.5-foot ground resolution from digital aerial photography. The 151 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions.

SPATIAL EXTENTS

The 2012 flight year extends from Franklin Ave. on the south to approximately one quarter section beyond the city limits on the north, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/3/2012
 - **Flight Height:** 2550 feet AMT (Above Mean Terrain)
 - **Photo Scale:** 1:5100

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (82MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

[illegible]

ISSUE NO. Landbase-0017
ISSUED BY: Steve Hoium
SUBJECT: 2013 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: December 30, 2013
REVISION 0.1: April 14, 2020

UPDATE

The 2013 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 3-inch ground pixel resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2013 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 5/10/2013
 - **Flight Height:** 3464 feet AGL (Above Ground Level)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

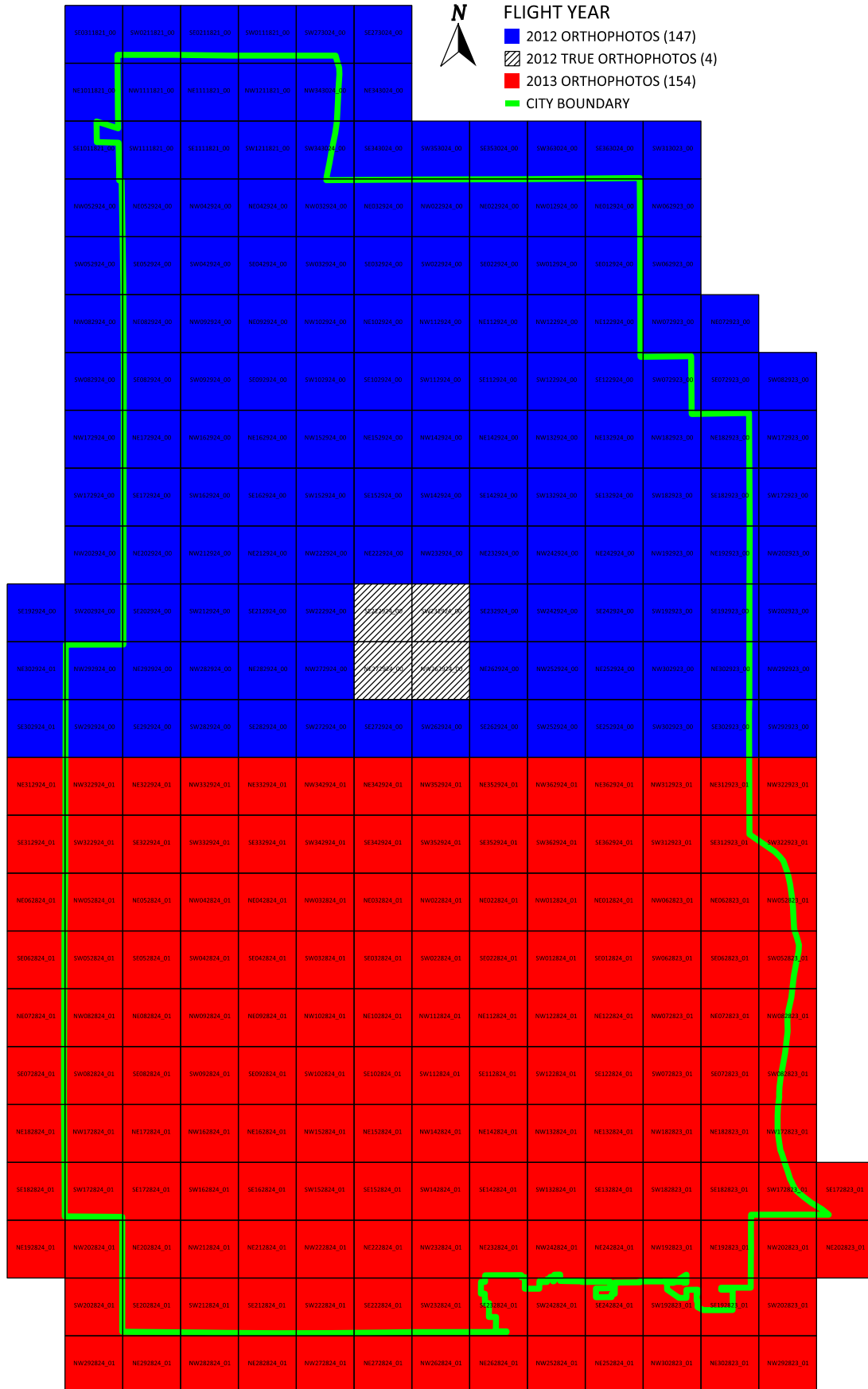
TIF (439MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2012 & 2013 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0018
ISSUED BY: Steve Hoium
SUBJECT: 2014 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: October 1, 2014
REVISION 0.1: April 14, 2020

UPDATE

The 2014 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 3-inch ground pixel resolution from digital aerial photography. The 151 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2014 flight year extends from Franklin Ave. on the south to approximately one quarter section beyond the city limits on the north, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/15/2014
 - **Flight Height:** 2934 feet AMT (Above Mean Terrain)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

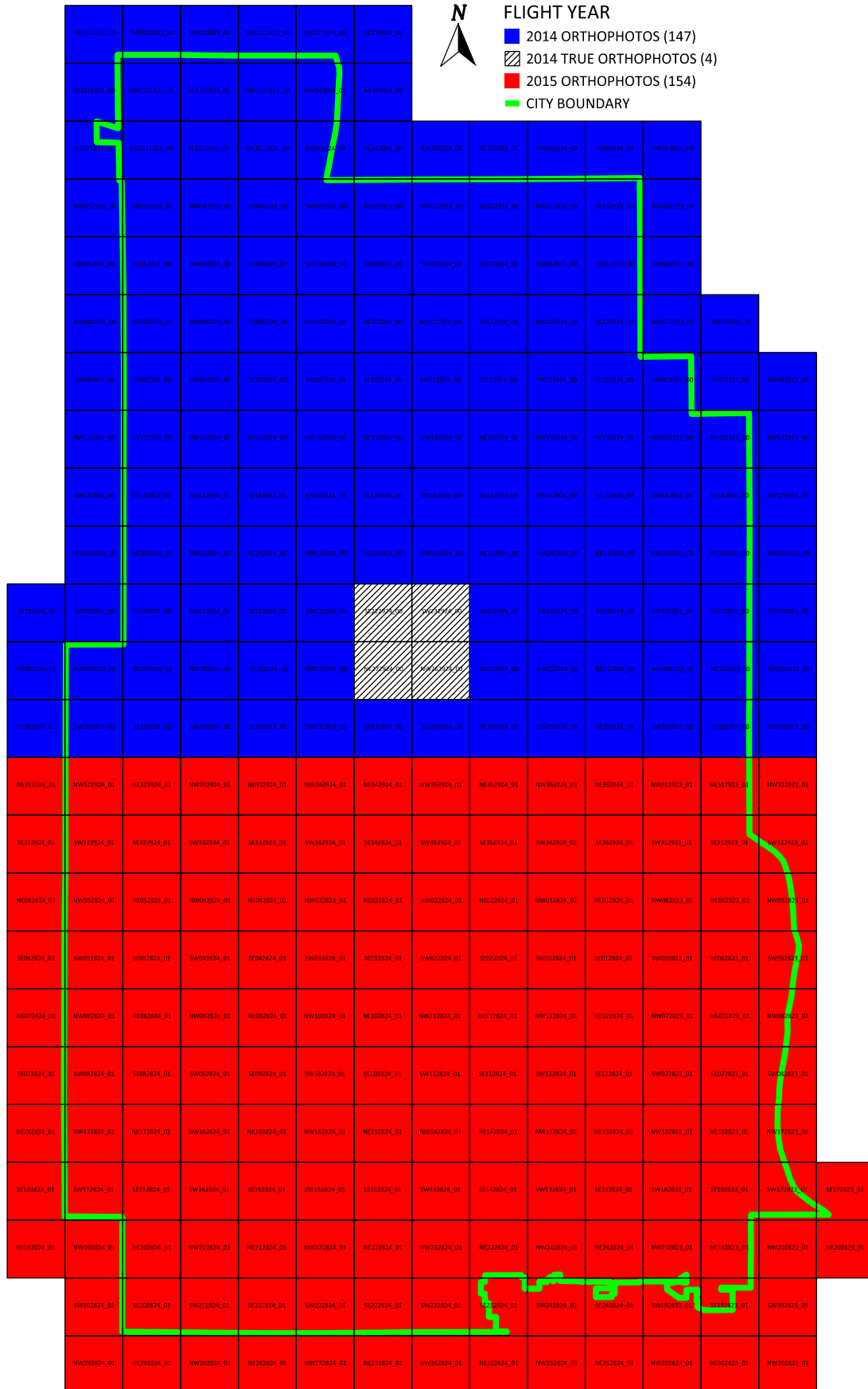
TIF (439MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2014 & 2015 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0019
ISSUED BY: Steve Hoiium
SUBJECT: 2015 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: November 9, 2015
REVISION 0.2: April 14, 2020

UPDATE

The 2015 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 3-inch ground pixel resolution from digital aerial photography. The 154 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2015 flight year extends from Franklin Ave. on the north to approximately one quarter section beyond the city limits on the south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 1 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/17/2015
 - **Flight Height:** 3000 feet AGL (Above Ground Level)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

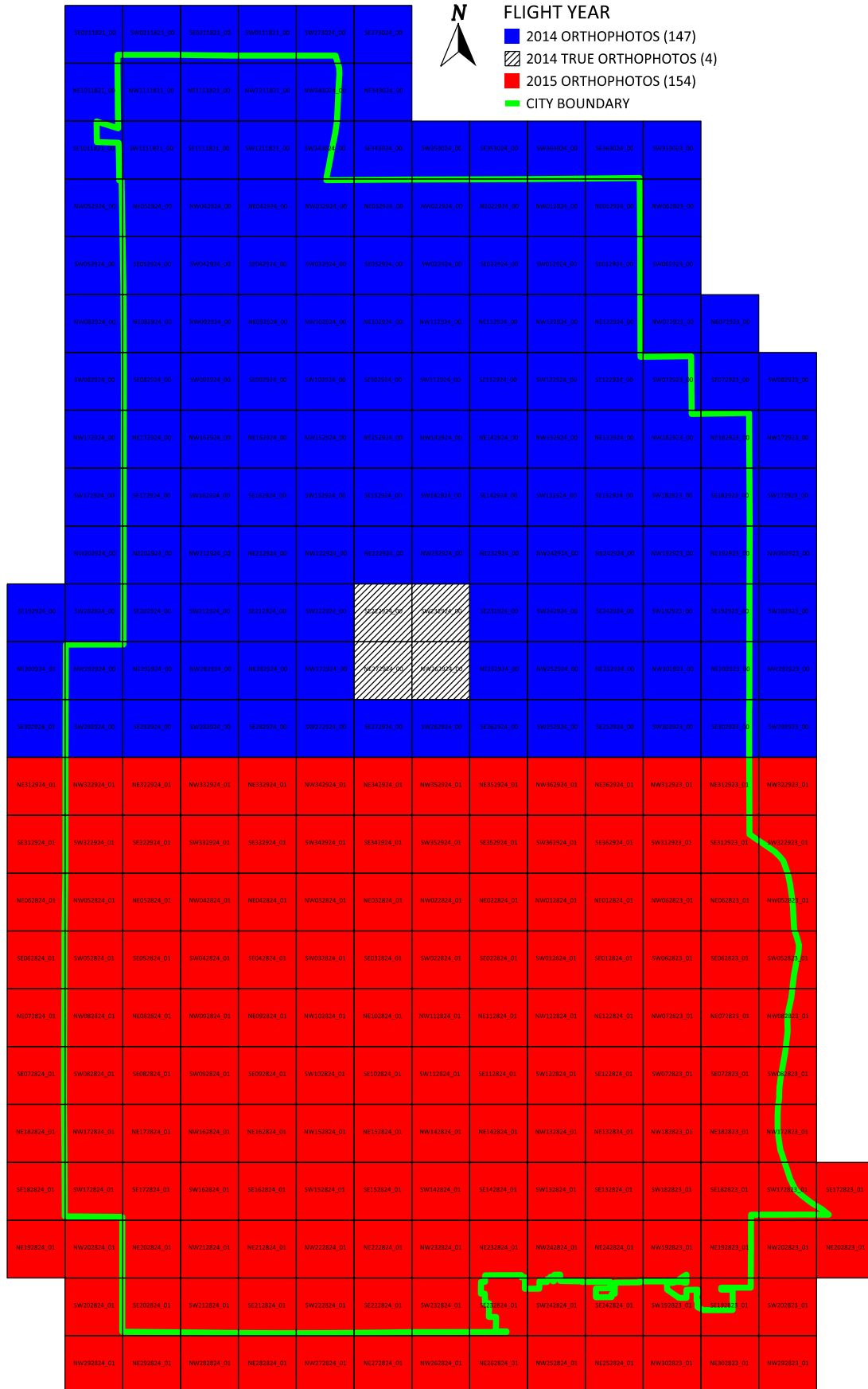
TIF (439MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2014 & 2015 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0020
ISSUED BY: Steve Hoium
SUBJECT: 2016 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: May 17, 2019
REVISION 0.1: April 14, 2020

UPDATE

The 2016 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 3-inch ground pixel resolution from digital aerial photography. The 305 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2016 flight year extends approximately one quarter section beyond the city limits on the north, south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - N/A
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/13/2016
 - **Flight Height:** N/A

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

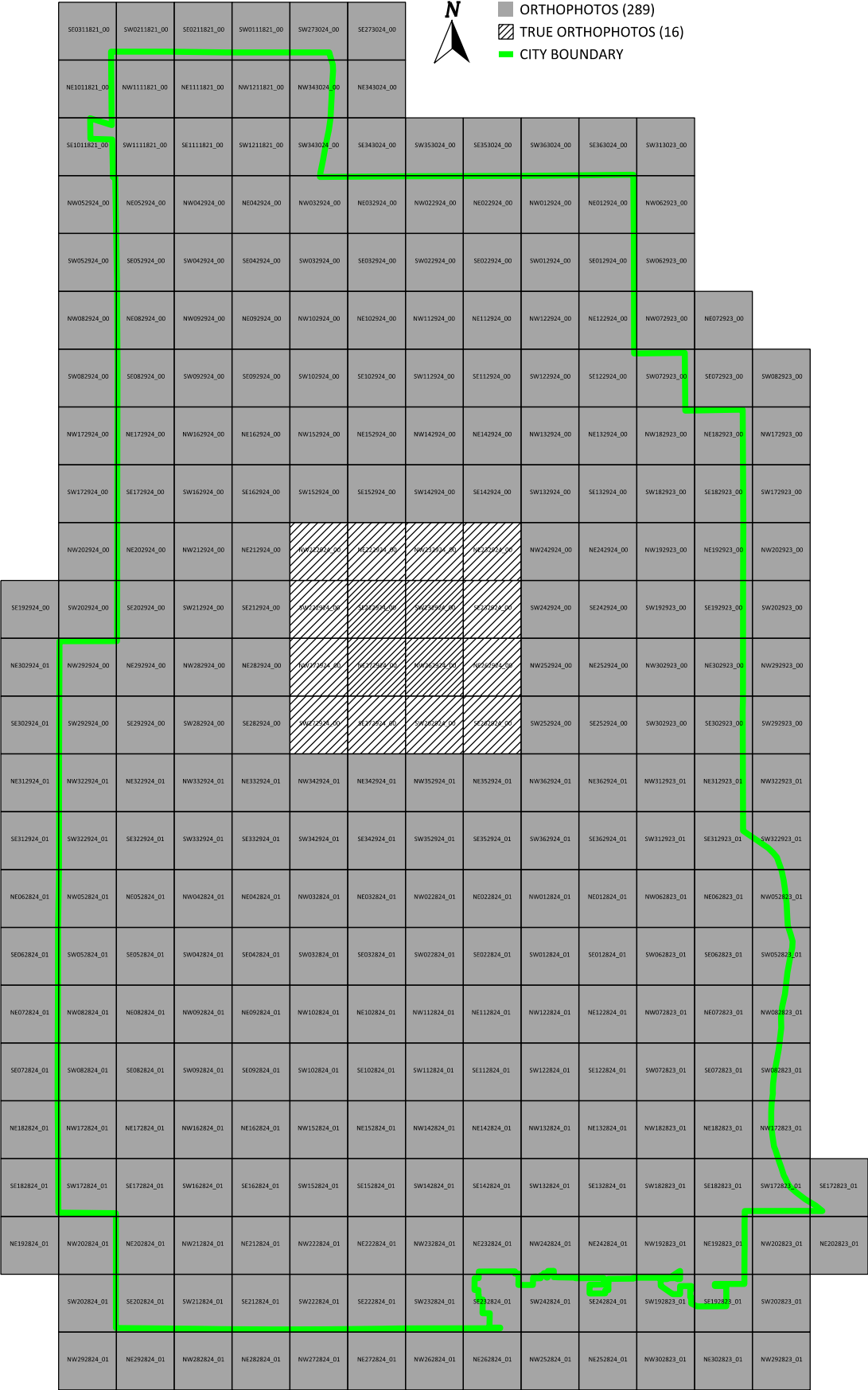
TIF (439MB each)

COMMUNICATION

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CITY OF MINNEAPOLIS

2016 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0021
ISSUED BY: Steve Hoium
SUBJECT: 2017 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: May 17, 2019
REVISION 0.1: April 15, 2020

UPDATE

The 2017 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.25-foot ground sample distance resolution from digital aerial photography. The 305 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2017 flight year extends approximately one quarter section beyond the city limits on the north, south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 0.24 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/6/2017
 - **Flight Height:** 4700 feet AMT (Above Mean Terrain)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

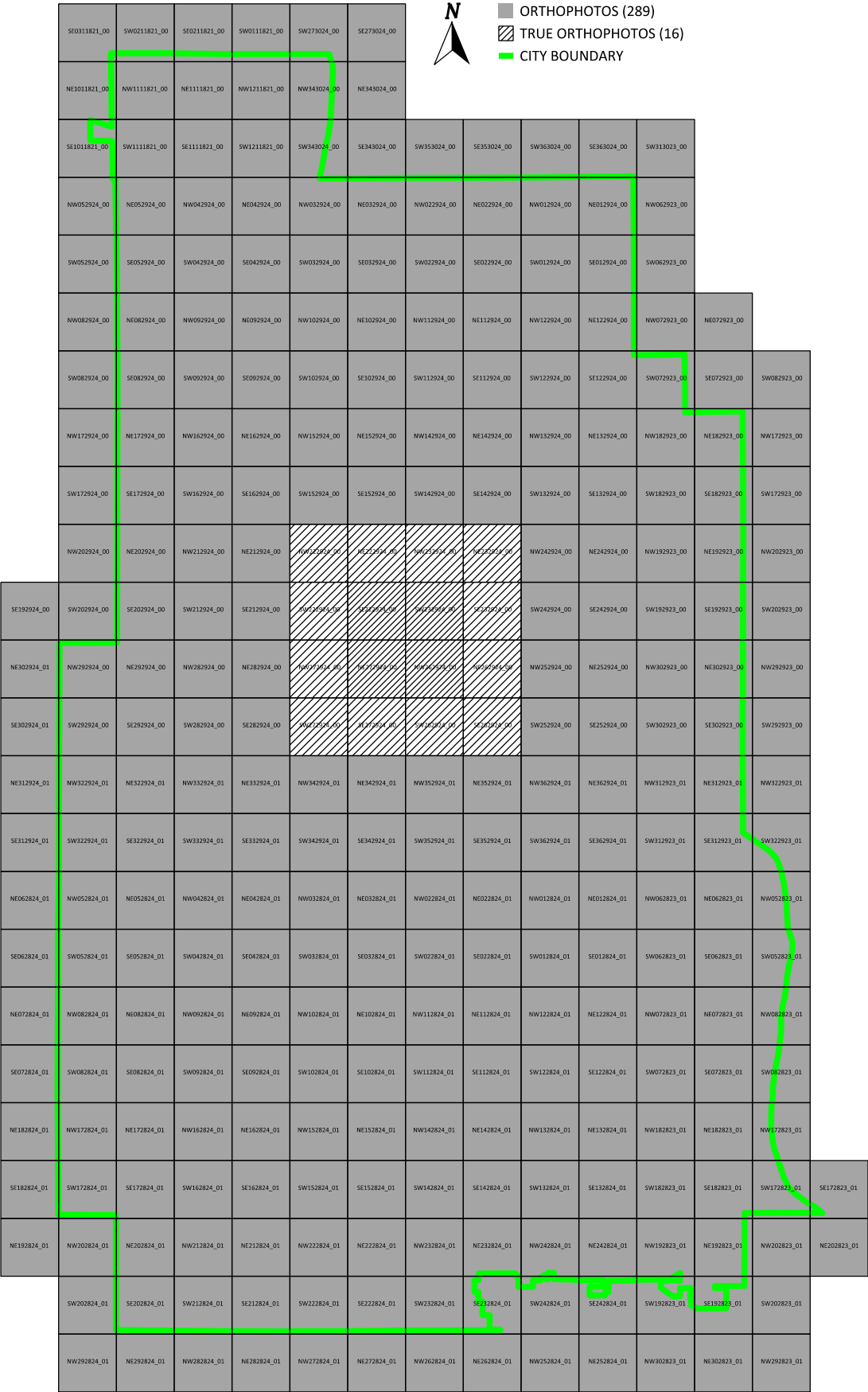
TIF (329MB each)

COMMUNICATION

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CITY OF MINNEAPOLIS

2017 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0022
ISSUED BY: Steve Hoium
SUBJECT: 2018 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: May 17, 2019
REVISION 0.1: April 15, 2020

UPDATE

The 2018 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.25-foot ground sample distance resolution from digital aerial photography. The 305 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2018 flight year extends approximately one quarter section beyond the city limits on the north, south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 0.28 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 5/4/2018, 5/6/2018
 - **Flight Height:** 4700 feet AMT (Above Mean Terrain)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

TIF (439MB each)

COMMUNICATION

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This figure is an aerial orthophoto map of a city grid. The map is overlaid with a grid of 100x100 cells, each representing a 1/4 section of a 360-acre parcel. The cells are labeled with their respective section numbers (e.g., SE031821_00, NW011821_00, etc.). A green line outlines the city boundary, which follows the grid lines and includes a small loop on the left side. A legend in the top right corner identifies the symbols: a gray square for 'ORTHOPHOTOS (289)', a hatched square for 'TRUE ORTHOPHOTOS (16)', and a green line for 'CITY BOUNDARY'. A north arrow is located in the top left corner.

ISSUE NO. Landbase-0023
ISSUED BY: Steve Hoium
SUBJECT: 2019 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: September 25, 2019
REVISION 0.1: April 15, 2020

UPDATE

The 2019 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.25-foot ground sample distance resolution from digital aerial photography. The 305 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2019 flight year extends approximately one quarter section beyond the city limits on the north, south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 0.16 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/20/2019
 - **Flight Height:** 4700 feet AMT (Above Mean Terrain)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

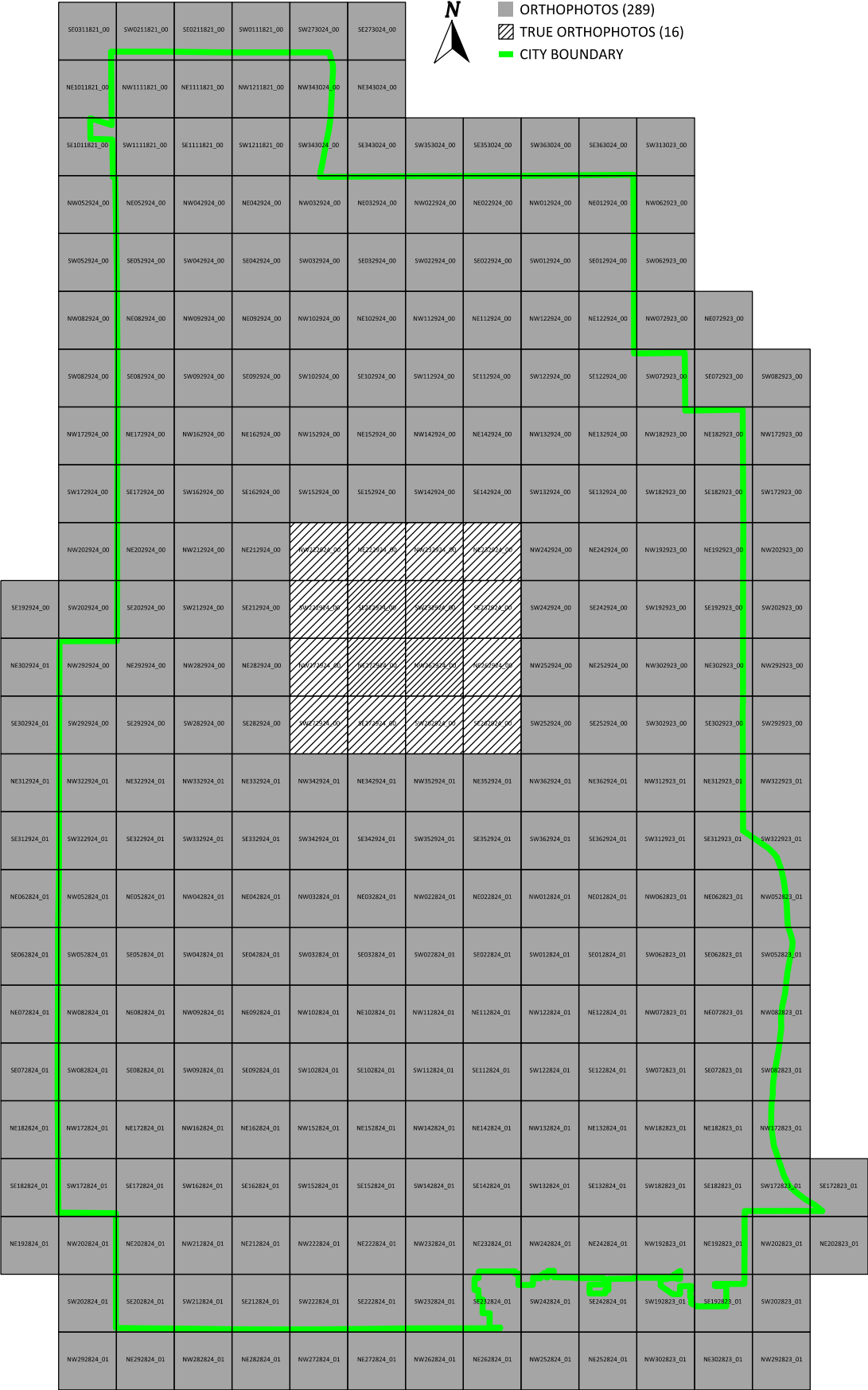
TIF (439MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2019 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0024
ISSUED BY: Steve Hoium
SUBJECT: 2020 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: February 11, 2021

UPDATE

The 2020 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.25-foot ground sample distance resolution from digital aerial photography. The 305 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2020 flight year extends approximately one quarter section beyond the city limits on the north, south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 0.2017 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/19/2020
 - **Flight Height:** 4700 feet AMT (Above Mean Terrain)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

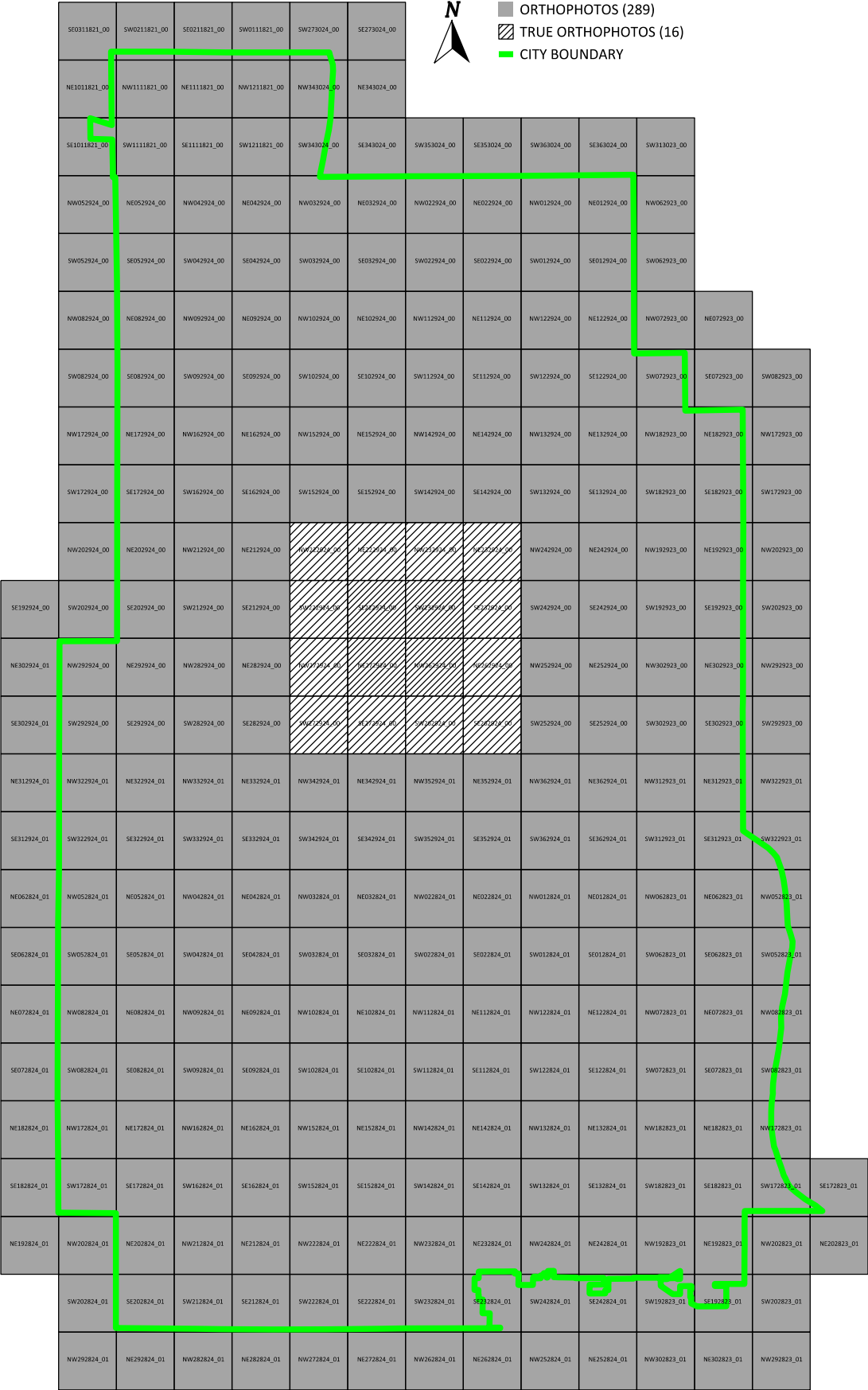
TIF (439MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2020 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Landbase-0025
ISSUED BY: Steve Hoium
SUBJECT: 2021 Digital Orthophotos

DEVELOPED BY: Landbase Update Team
DATE: November 19, 2021

UPDATE

The 2021 high resolution 4-band color infrared digital orthophotos are now available.

ABSTRACT

A digital orthophoto is an aerial photograph that is corrected for distortion caused by tilt of the camera, curvature of the earth, and the ground's vertical relief. This rectification process allows for consistent measurements in all parts of the photo. The orthophotos in this series have a 0.25-foot ground sample distance resolution from digital aerial photography. The 305 images are tiled by quarter section. Each image has a geographic extent of 2650 x 2650 feet, with zero overlap between images. Each orthophoto has a companion world file. The coordinates in the world file refer to the coordinates of the center of the uppermost, leftmost pixel in the image. True orthophotos are produced for buildings over 3 stories in the downtown area. This process removes building lean and adjusts the building rooftop to its true horizontal and vertical position.

PURPOSE

Digital orthophotos serve a wide variety of uses such as planimetric mapping, utility data capture, correcting digital elevation models, and quality control. Digital orthophotos can also be used to explain projects and issues to the public because real-world pictures are easier for the untrained eye to understand. By overlaying proposed plans on an orthophoto an audience can visualize the changes to existing conditions. Color infrared orthophotos (CIR) may be used for impervious surface extraction, tree canopy cover mapping, and land cover classification.

SPATIAL EXTENTS

The 2020 flight year extends approximately one quarter section beyond the city limits on the north, south, east & west (see the map below).

- **Horizontal Positional Accuracy:**
 - 0.1014 foot horizontal at 95% confidence level ([National Standard for Spatial Data Accuracy](#))
- **Spatial Reference Information:**
 - **Horizontal Coordinate Scheme:** Hennepin County Coordinates ([Minnesota County Coordinate System](#))
 - **Map Projection:** Lambert Conic Conformal
 - **Horizontal Datum:** NAD83, 1986 Adjustment (Non HARN)
 - **Horizontal Units:** Feet
- **Source Information:**
 - **Source:** Color Aerial Photography
 - **Date of Photography:** 4/22/2021
 - **Flight Height:** 4700 feet AMT (Above Mean Terrain)

LOCATION

[Orthos](#)

DATA USE CONSTRAINTS

Digital orthophotos are for internal City use only and should not be distributed to third parties without written authorization. To obtain authorization fill out [Mpls ProjectWise Project and Data Request Form](#).

FORMAT

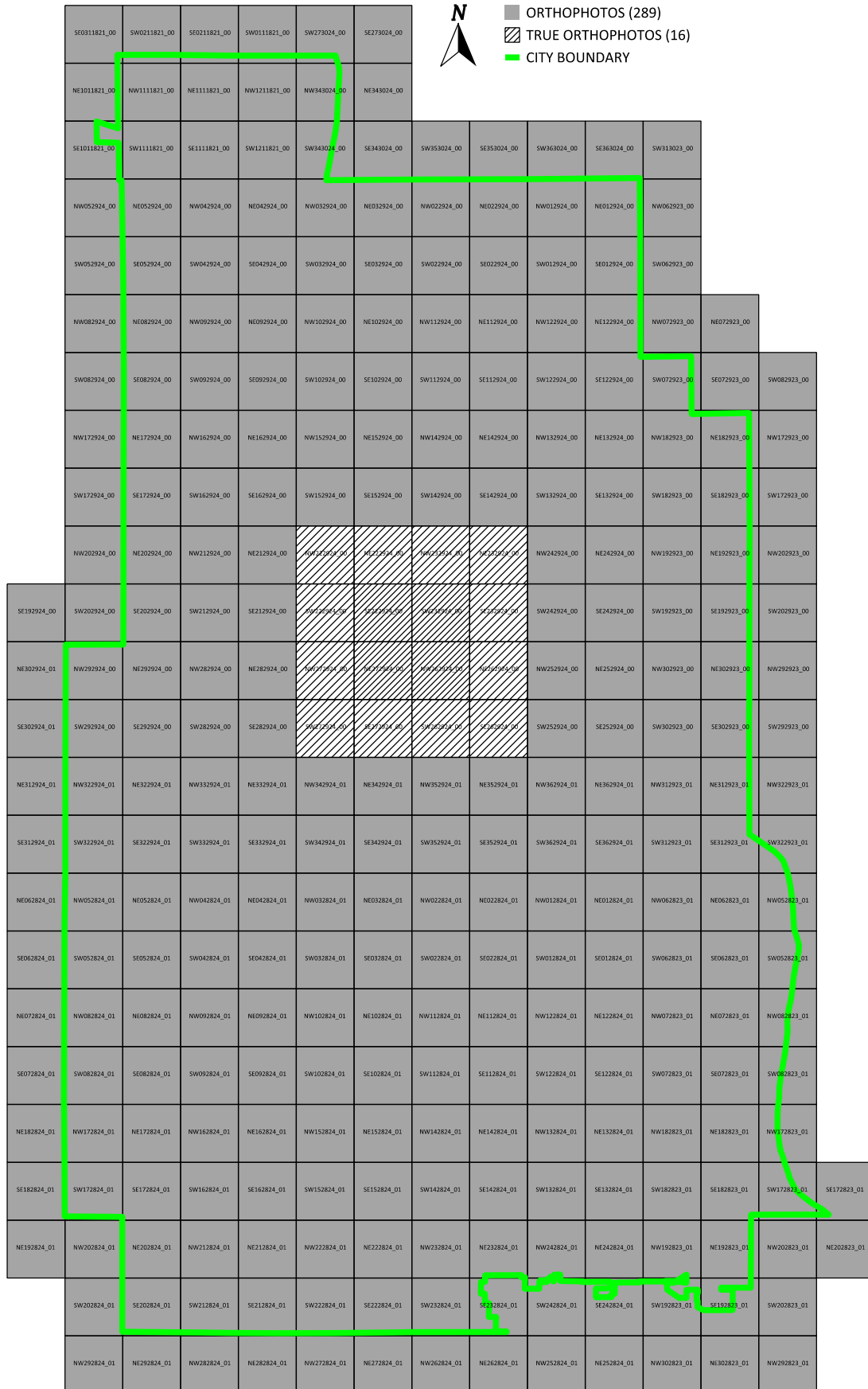
TIF (439MB each)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

CITY OF MINNEAPOLIS

2021 ORTHOPHOTO FLIGHT MAP



ISSUE NO. Procedure-0001
ISSUED BY: Jim Cleary
SUBJECT: New Curb Cut Requests

DEVELOPED BY: CADD Management Team
DATE: April 26, 2004
REVISION 0.2: July 8, 2009

OVERVIEW

Curb cuts in the City of Minneapolis are regulated by zoning codes and Public Works requirements. These codes and regulations are to be used as guidelines for street design by property owners and project engineers.

WHAT TO DO

Property owners who are requesting a new curb cut should be advised to do the following:

- Submit four copies of a **scaled and dimensioned** drawing of their entire property, including all structures and boulevard trees, and showing both existing conditions and proposed changes, to *CPED, Planning Division, Zoning Office*, 612-673-5836.
- Make a note of the project and the project engineer that they would like to work with.

The *Zoning Office* will review the plan, stamp it, and then send it *for final approval* to *Patty Murzyn* at *Regulatory Services-Development Review*, 612-673-5827. *Patty Murzyn* will send the plan to *Shane Morton* at *Public Works-Traffic* and *Dan Bauer* at *Public Works-Sidewalk*.

If approved one copy of the plan will be kept on file in *Public Works-Traffic*, one will be kept on file in *Public Works-Sidewalk*, one will go to the property owner, and the final copy will be given to the project engineer to coordinate the construction plans.

Shane Morton will notify the project engineer to coordinate construction plans.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0002
ISSUED BY: Steve Hoiuum, Gayle Litchy
SUBJECT: New Mpls CIP Web Pages

DEVELOPED BY: CADD Management Team
DATE: May 4, 2004
REVISION 0.2: February 12, 2016

OVERVIEW

The purpose of the Capital Improvement Project (CIP) web page is to keep the public informed about the progress of Public Works CIP projects. Every year, new projects will be added to the map and existing projects will continue to be updated until complete. To access the CIP web page, click on the following link:

<http://www.minneapolismn.gov/cip/index.htm>.

HOW TO CREATE A NEW PROJECT WEB PAGE

Generally, if your project is in the approved CLIC program, you should have a project web page. In addition, if you have any work being done in the field that is visible to the public for any length of time you should also have a project web page.

Note: The information on this page should be updated on a regular basis to keep the public informed about your project.

1. Gather the information about your project.
2. Email the following information at least a week in advance to Anna Holtman at anna.holtman@minneapolismn.gov, (612) 673-3613:
 - Location Map (provide boundary descriptions)
 - Project Name (enter the name exactly as you want it to appear on the web page)
 - Project Type (e.g. Paving Reconstruction)
 - Project Limits
 - Construction Start Date
 - Duration of Construction
 - Traffic Impact
 - Project Photos
 - Public Meetings
 - Project Layout
 - Contact Information

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0003

ISSUED BY: Jim Cleary

SUBJECT: ProjectWise Project Archive Procedure

DEVELOPED BY: CADD Management Team

DATE: November 8, 2004

REVISION 0.6: February 6, 2020

BACKGROUND

There is currently no procedure for archiving capital projects in ProjectWise after they have been completed.

OVERVIEW

Records provide comprehensive documentation of City transactions and affairs and they are the foundation for government accountability. Departments need to maintain adequate documentation of transactions and activities to meet internal administrative needs, for legal purposes and for program and government compliance requirements.

WHAT TO DO

1. Collect the electronic records:
 - a. The *Engineering Technician Supervisor* creates PDFs of the final signed construction plan sheets and final record drawing plan sheets.
2. Archive the electronic records:
 - a. The *Engineering Technician Supervisor* copies PDFs of the final signed construction plan sheets into the project's **Plan_Sets > 5-Final_Signed** folder in ProjectWise.
 - b. The *Engineering Technician Supervisor* copies PDFs of the final record drawing plan sheets into the project's **Record_Drawings > Record_Drawing_SHT** folder in ProjectWise.
 - c. The *Project Manager* fills out the [Mpls Project Archive Form](#) with all pertinent data about the project and emails it to the *ProjectWise Administrator*.
 - d. The *ProjectWise Administrator* moves the project's folders and files along with the Mpls Project Archive Form to the ProjectWise [Project Archive](#).

Note: If the folders and/or files to be archived are outside of ProjectWise contact the ProjectWise Administrator at jim.cleary@minneapolismn.gov, (612) 673-3623.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0004
ISSUED BY: Jim Cleary
SUBJECT: How to Download Survey Data

DEVELOPED BY: CADD Management Team
DATE: November 8, 2004
REVISION 3.2: May 18, 2016

BACKGROUND

The procedure to download survey data has been modified to accommodate the upgrade to InRoads V08.08.00.46.

OVERVIEW

The following survey data shall be delivered to each project:

- Control Points (.csv & .xls files)
- Existing Raw Survey Data (.dc file)
- Fieldbook (.fwd file)
- Surface (.dtm file)

WHAT TO DO

Note: This procedure requires the installation of *Microsoft ActiveSync 4.5.0*, *Trimble Geomatics Office 1.62* and *Trimble Data Transfer 1.43*.

The following procedures are presented in 2 different formats:

An abbreviated version *for users already familiar with the procedure*.

Page 2-3 [Quick Steps for Downloading Survey Data](#)

Pages 4-5 [Quick Steps for Downloading GPS Survey Data](#)

Pages 6-7 [Quick Steps for Creating a Surface from Survey Data](#)

Page 8 [Quick Steps for Moving Files into ProjectWise](#)

The complete procedure *with* screen shots.

Pages 9-23 [Detailed Steps for Downloading Survey Data](#)

Pages 24-31 [Detailed Steps for Downloading GPS Survey Data](#)

Pages 32-42 [Detailed Steps for Creating a Surface from Survey Data](#)

Pages 43-47 [Detailed Steps for Moving Files into ProjectWise](#)

Quick Steps for Downloading Survey Data:

This procedure assumes that you will be working in the following location: *H:\Survey Data*. If this folder does not already exist, please do the following:

- Right-click on the **Start** button and select **Explore**.
 - Browse to the *H: drive*, right-click and select **New > Folder**.
 - Name the folder **Survey Data**.
1. Create the survey design file for the project:
 - a. Select **Start > All Programs > Enterprise Engineering > Bentley InRoads Survey**.
 - b. In the *MicroStation Manager* dialog box select the *H: drive* and browse to **Survey Data**.
 - Select **File > New**.
 - c. In the *New* dialog box enter a name for the project survey design file (e.g. *0000-PROJECT_NAME*) and click **OK**.
 - d. In the *MicroStation Manager* dialog box highlight the file you just created and click **OK**.
 2. Import the Mpls Standard Project Defaults:
 - a. In the *InRoads* dialog box select **File > Project Defaults....**
 - b. In the *Set Project Defaults* dialog box click **Import....**
 - c. In the *Open* dialog box browse to *L:\Enterprise Engineering\Bentley\Civil*.
 - d. Highlight **Mpls_Standard_Project_Defaults.reg** and click **Open**.
 - e. In the *Set Project Defaults* dialog box click the dropdown for *Configuration Name* select **Mpls Standard Project Defaults**.
 - f. Click **Apply**, and then click **Close**.
 3. Download the raw survey data from the data collector (revised 5/18/16):
 - a. Export the survey data to a comma delimited file:
 - Tap on **Jobs**.
 - Tap on **Import / Export**.
 - Tap on **Export fixed format**.
 - Select **Trimble DC v10.7** from the dropdown for total station gathered data.
 - Tap **Accept**.
 - Select **Comma Delimited** from the dropdown for GPS gathered data.
 - Tap **Accept**.
 - For a **Comma Delimited** file, you will be prompted to select which point you would like to transfer.
 - Select **All points** and then tap **Enter**.
 - b. Download the comma delimited file to the computer:
 - Turn the data collector on.
 - Plug the data collector into the computer using the appropriate USB cable. *Windows Mobile Device Center* should open automatically.
 - Click **Connect without setting up your device**.
 - In the *Windows Mobile Device Center* dialog box click **File Management**, and then click **Browse Contents**.
 - Click on the icon.
 - Click on the *Trimble Data* folder.
 - Click on the appropriate folder (e.g. *Minneapolis1*, *Minneapolis2*, *Minneapolis3*, or *Minneapolis4*) depending on which data collector you are using.
 - Click on the job folder (e.g. *SAMATAR CROSSING*).
 - Click on the **Export** folder.
 - Drag and drop the *Data Collector (.dc)* file into the **Existing > Survey > Survey_Read_Only** folder in the project in ProjectWise. The file is now ready to be imported into InRoads.
 4. Create a fieldbook:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box right-click on *Survey Data* and select **New....**
 - b. In the *New* dialog box in the *Name* field enter a name for the survey Fieldbook that will contain your survey data (e.g. *0000-PROJECT_NAME*), click **Apply**, and then click **Close**.
 5. Import the raw survey data into the Fieldbook:

- a. Highlight the Fieldbook you just created, right-click on it and select **Import....**
 - b. In the *Import* dialog box in the *Files of Type* field select **Sokkia SDR (*.sdr;*.dc)**.
 - Highlight the raw survey data file (e.g. 0000-SURVEY.dc) and click **Import**.
 - After the file has finished importing click **Close**.
6. Save the fieldbook:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box select **File >Save As....**
 - b. In the *Save As* dialog box in the *Active* field click the dropdown and highlight your fieldbook (this will automatically fill-in the *File name* field), click **Save**, then click "**X**" in the upper right-hand corner.
7. To import additional survey data to an existing fieldbook, repeat *Step 5*.

Note: The point IDs in the .dc file that you are adding must be unique (there can be no point IDs in the new .dc file that are the same as in the existing .dc file).
8. Proceed to [Quick Steps for Moving Files into ProjectWise](#).

Quick Steps for Downloading GPS Survey Data

Note: GPS survey data is used to set control for the project.

1. Import the raw survey data into Trimble GeoMatics Office:
 - a. Select **Start > All Programs > Trimble Geomatics Office > Trimble Geomatics Office**.
 - In *Trimble Geomatics Office* select **File > New Project...**
 - b. In the *New Project* dialog box in the *Name* field enter the project name (e.g. 0000-PROJECT_NAME).
 - In the *Template* field highlight **US Feet**.
 - For *New* click the **Project** radio button.
 - Click **Folder...**
 - In the *Browse for Folder* dialog box browse to **H:\Survey Data** and click **OK**.
 - In the *New Project* dialog box click **OK**.
 - c. In the *Project Properties* dialog box click **OK**.
 - d. In the *Trimble GeoMatics Office – 0000-PROJECT_NAME – [Survey]* dialog box click **Import**, then click **Survey Device**.
 - e. In the *Open* dialog box in the *Look in* field select **Devices**.
 - Highlight **Survey Controller (ACU) on ActiveSync** and click **Open**.
 - f. In the *Open* dialog box highlight the survey job you want to download (e.g. 0000-PROJECT_NAME.dc).
 - For *Look in* select **Survey Controller (ACU) on ActiveSync**.
 - For *Files of type* select **Survey Controller Files**.
 - For *File format* select **SDR33 Format DC File**.
 - Click in the *Destination* field and then click **Browse...**
 - Browse to the **Survey Data** folder on your **H: drive**.
 - Highlight the file you want to import and click **Open**.
2. Export the survey data from Trimble GeoMatics Office:
 - a. In the *Trimble GeoMatics Office – 0000-PROJECT_NAME – [Survey]* dialog box click **Export**, then click **GIS file**.
 - b. In the *Export* dialog box click the **Custom** tab.
 - Highlight **Name,North,East,Elevation,Code** and click **OK**.
 - c. In the *Save As* dialog box, in the *Save in* field browse to the **Export** folder for the project.
 - In the *Save in* field browse to **H:\Survey Data\0000-PROJECT_NAME\Export**.
 - Enter a name in the *File name* field (e.g. 0000-PROJECT_NAME).
 - Select **Name,North,East,Elevation,Code (*.CSV)** in the *Save as type* dropdown list and click **Save**.
3. Save the Excel.csv file as an Excel.xls file:
 - a. Browse to **H:\Survey Data\0000-PROJECT_NAME\Export**.
 - b. Double-click on the Excel.csv file (e.g. 0000-PROJECT_NAME.csv).
 - c. In the Excel.csv file select **File > Save As...**
 - In the *Save As* dialog box in the *Save as type* field select **Microsoft Excel 97 – Excel 2003 & 5.0/95 Workbook (*.xls)** and click **Save**.
4. Proceed to [Quick Steps for Moving Files into ProjectWise](#).

Note: The following procedure is for informational use only. It is not necessary to import GPS survey data into InRoads at this time.

1. Create a fieldbook:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box right-click on *Survey Data* and select **New...**
 - b. In the *New* dialog box in the *Name* field enter a name for the survey fieldbook that will contain your survey data (e.g. *0000-PROJECT_NAME*), click **Apply**, and then click **Close**.
2. Import the raw survey data into the fieldbook:
 - a. Highlight the fieldbook you just created right-click on it and select **Import...**
 - b. In the *Import* dialog box in the *Files of Type* field select **Text File (*.*)**.
 - Highlight the Excel.csv data file (e.g. *0000-SURVEY.csv*) and click **Import**.
 - After the file has finished importing click **Close**.
 - c. In the *Text Import Wizard – Step 1 of 3* dialog box click **Next >**.
 - d. In the *Text Import Wizard – Step 2 of 3* dialog box for *Delimiters* check the **Comma** box (make sure that *Tab*, *Space*, *Semicolon* and *Other* are unchecked) and click **Next**.
 - e. In the *Text Import Wizard – Step 3 of 3* dialog box do the following:
 - Highlight the *first* column and select **Point Name** from the *Column Data Format* dropdown list.
 - Highlight the *second* column and select **Nothing** from the *Column Data Format* dropdown list.
 - Highlight the *third* column and select **Easting** from the *Column Data Format* dropdown list.
 - Highlight the *fourth* column and select **Elevation** from the *Column Data Format* dropdown list.
 - Highlight the *fifth* column and select **Code** from the *Column Data Format* dropdown list.
 - Click **Finish**.
 - f. In the *Import* dialog box click **Close**.
3. Save the fieldbook:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box select **File >Save As...**
 - b. In the *Save As* dialog box in the *Active* field click the dropdown and highlight your fieldbook (this will automatically fill-in the *File name* field) click **Save**, then click "X" in the upper right-hand corner.
4. Proceed to [Quick Steps for Moving Files into ProjectWise](#).

Quick Steps for Creating a Surface from Survey Data:

1. Open the existing survey design file for the project:
 - a. Select **Start > All Programs > Enterprise Engineering > Bentley InRoads Survey**.
 - b. In the *MicroStation Manager* dialog box select the H: drive and browse to **Survey Data**.
 - c. In the *MicroStation Manager* dialog box highlight the existing survey design file for the project and click **OK**.
2. Import the Mpls Standard Project Defaults:
 - a. In the *InRoads* dialog box select **File > Project Defaults...**
 - b. In the *Set Project Defaults* dialog box click **Import...**
 - c. In the *Open* dialog box browse to **L:\Enterprise Engineering\Bentley\Civil**.
 - d. Highlight **Mpls_Standard_Project_Defaults.reg** and click **Open**.
 - e. In the *Set Project Defaults* dialog box click the dropdown for *Configuration Name* select **Mpls Standard Project Defaults**.
 - f. Click **Apply**, and then click **Close**.
3. Create the surface:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box select **File > Open...**
 - b. In the *Open* dialog box highlight the existing project fieldbook (e.g. 0000-PROJECT_NAME.fwd) click **Open**, and then click the "X" in the upper right-hand corner.
 - c. In the *Bentley InRoads 2004 Edition* dialog box select **Survey > Survey Data to Surface...**
 - d. In the *Survey Data to Surface* dialog box do the following:
 - For *Surface Name* enter the name of the project (e.g. 0000-PROJECT_NAME).
 - For *Description* select one of the following: **Use Feature Definition**, **Use Attributes** or **Use Codes** (see below).

Description

Specifies the source for the description given to each feature in the surface.

- **Use Style Description** The description comes from the definition given to the feature style in the Civil Preference file (*Mpls.xin*).
 - **Use Attributes** The description comes from the attribute value in the fieldbook. Note that the description does not come from the name(s) of the attribute(s) but from the actual value(s) when any are specified.
 - **Use Codes** The description comes from the feature code used in the fieldbook to represent the survey feature.
-
- For *Tolerance* enter a value (if necessary).
 - For *Maximum Segment Length* enter a value (if necessary).
 - Check the *Triangulate Surface* checkbox to create the DTM.
 - Click **OK**.
- e. In the *Triangulate Surface* dialog box click **More**.
 - In the *Surface Properties* dialog box check the following:
 - Examine the **Data Range** to see if the *Northing*, *Easting* & *Elevation* numbers are within the expected range.
 - Examine the **Data Totals** to see if the number and type of points are what you expect.

If the data is accurate, triangulate the surface:

 - In the *Surface Properties* dialog box click **Close**.
 - In the *Triangulate Surface* dialog box uncheck all of the checkboxes (**Use Extended Data Checks**, **Lock Triangulation**, **Load Tagged Graphics**, **Delete Surface Contents**) click **Apply**, then click **Close**.

If the data is not accurate, edit the fieldbook:

 - In the *Surface Properties* dialog box click **Close**.
 - In the *Bentley InRoads 2004 Edition* dialog box select **Survey > Fieldbook Data...**
 - In the *Fieldbook Data* dialog box review and edit the necessary survey data, then click the "X" when you are finished.

- In the *Bentley InRoads 2004 Edition* dialog box click the *Surfaces* tab, right click on the surface and click **Empty**.
 - Go back to **Step 3c**.
4. Save the surface:
- a. In the *Bentley InRoads 2004 Edition* dialog box select **File > Save > Surface**.
 - In the *Save As* dialog box select the *H:* drive and browse to **Survey Data**.
 - In the *File name* field enter a name for the surface (e.g. 0000-PROJECT_NAME) click **Save**, then click the "X" in the upper right-hand corner.
5. Review the surface and edit it if necessary:
- a. Review and edit the Feature Properties:
 - In the *Bentley InRoads 2004 Edition* dialog box select **Surface > Feature > Feature Properties....**
 - In the *Feature Properties* dialog box check the following:

Feature Type: Check to make sure that the correct Feature Type (e.g. *Random*, *Breakline*, *Contour*, *Interior* or *Exterior*) is assigned to the Feature Name. If not, select the correct feature from the **Feature Type** dropdown list in the *Triangulation* section.

Triangulation: Check to see if a feature should be excluded from triangulation. If the feature should be excluded, check the **Exclude From Triangulation** checkbox in the *Triangulation* section.

Feature Style: Check to make sure that the correct Feature Style is assigned to the Feature Name. If not, highlight the correct Feature Style in the *Available* column in the *Style* section and click **Add**. Highlight the incorrect Feature Style from the *Selected* column and click **Remove**.

Note: If you want to keep more than one Feature Style for a feature, make sure that the order of the Feature Styles is set correctly. (How and where the feature is displayed is based on the order of the Feature Styles assigned to it, with the first Feature Style displayed being first. Use the **Move Up** button to rearrange the order.)

Breaklines: Check the length of breakline features. To do this highlight the feature and click **List Points**. All the points in the breakline as well as the accumulative distance (3D) along the feature will be listed. Click **Close** in the *Results* dialog box when you are finished checking the points.
 - After everything has been checked click **Apply**, then click **Close**.
 - b. Review and edit the contours, triangles and perimeter:

Contours:

 - In the *Bentley InRoads 2004 Edition* dialog box select **Surface > View Surface > Contours....**
 - In the *View Contours* dialog box click **Apply**, then click **Close**.

Look for any sudden drops or rise in elevation. If these are not expected, then there are errors in the surface.

Triangles:

 - In the *Bentley InRoads 2004 Edition* dialog box select **Surface > View Surface > Triangles....**
 - In the *View Triangles* dialog box click **Apply**, then click **Close**.

Look for triangles that extend beyond the area where data was collected. If you find triangles that need to be corrected, do the following:

 - In the *Bentley InRoads 2004 Edition* dialog box select **Surface > Edit Surface > Delete Triangles**.
 - In the *Delete Triangle* dialog box click **Apply**.
 - Identify triangle.
 - Identify end triangle.
 - Left-click to accept.

Continue to delete triangles as necessary. **Do not re-triangulate** at this point or the triangles you deleted will reappear.

Note: This command does not modify the graphics file. To view the edited surface (with deleted triangles), delete the triangles and redisplay them using the *View Triangles* command.

Perimeters:

 - In the *Bentley InRoads 2004 Edition* dialog box select **Surface > View Surface > Perimeter....**

- In the *View Perimeter* dialog box click **Apply**.
- Look at the perimeter to see if it is beyond the limits of the survey. If the perimeter needs to be corrected, do the following:
- In the *Bentley InRoads 2004 Edition* dialog box select **File > Import Surface**.
 - In the *Import Surface* dialog box do the following:
 - For *Surface Name* select the name of the project (e.g. 0000-SURFACE_NAME).
 - For *Load From* select **Single Element**.
 - For *Elevations* select **Use Element Elevations**.
 - For *Seed Name* enter **Perimeter**.
 - For *Feature Style* select **EXTERIOR BOUNDARY**.
 - For *Point Type* select **Exterior (This is important!)**
 - For *Duplicate Names* click the **Rename** radio button.
 - Uncheck the **Exclude from Triangulation** checkbox and click **Apply**.
 - Left-click on the perimeter, then left-click to accept.
 - c. Re-triangulate the surface:
 - In the *Bentley InRoads 2004 Edition* dialog box select **Surface > Triangulate Surface**.
 - In the *Triangulate Surface* dialog box uncheck all of the checkboxes (**Extended Data Checks, Lock Triangulation, Load Tagged Graphics, Delete Surface Contents**) and click **Apply**.
6. Save the surface:
- a. In the *Bentley InRoads 2004 Edition* dialog box select **File > Save > Surface**.
7. Proceed to [Quick Steps for Moving Files into ProjectWise](#).

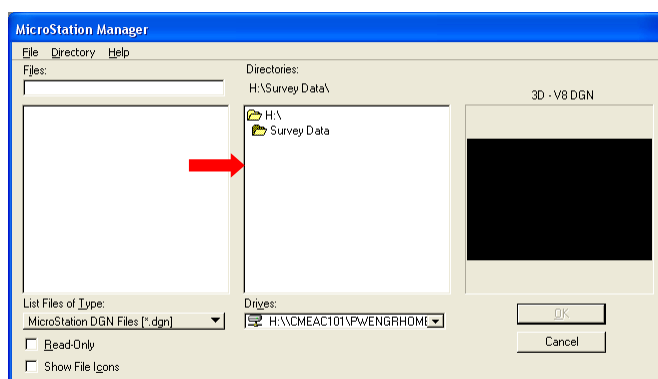
Quick Steps for Moving Files into ProjectWise

1. Move the survey data files to the project in ProjectWise:
 - a. Select **Start >All Programs >Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Survey_Read_Only* folder in the project (e.g. *0000-Project Name\Existing\Survey\Survey_Read_Only*).
 - c. Open the *Survey Data* folder on your *H:* drive and shrink it so that you can see the *Survey_Read_Only* folder in ProjectWise.
 - d. Highlight one of the survey data files (e.g. *raw survey data, fieldbook, surface, control points*), left-click on it and drag it into the *Survey_Read_Only* folder in ProjectWise.
 - e. In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.
 - f. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - g. In the *Advanced Document Creation Wizard* dialog box under *Select Target Folder* highlight the ***Survey_Read_Only*** folder and click **Next**.
 - h. In the *Advanced Document Creation Wizard* dialog box under *Select a Template* click the ***Use external file as a template*** radio button and click **Next**.
 - i. In the *Advanced Document Creation Wizard* dialog box under *Define Document Code*, for *DOCUMENT TYPE* choose one of the following from the list below:
 - For ***Control Points*** (.csv, .xls files) choose ***CTRL***.
 - For ***Existing Raw Survey Data*** (.dc files) choose ***EXSURV***.
 - For ***Fieldbooks*** (.fwd files) choose ***FIELDBOOK***.
 - For ***Proposed Raw Survey Data*** (.dc files) choose ***SURV***.
 - For ***Surfaces*** (.dtm files) choose ***EXSURF***.
 - Click the ***Generate*** button, then click ***Next***.
 - j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.
 - k. In the *Advanced Document Creation Wizard* dialog box under *Define Secondary Document Attributes* click **Next**.
 - l. In the *Advanced Document Creation Wizard* dialog box under *Document Properties*, for *Description for the new document* enter the appropriate description (see below) and click **Next**.
 - For ***Control Points*** (.csv, .xls files) enter ***Control Points***.
 - For ***Existing Raw Survey Data*** (.dc files) enter ***Existing Raw Survey Data***.
 - For ***Fieldbooks*** (.fwd files) enter ***Fieldbook***.
 - For ***Proposed Raw Survey Data*** (.dc files) enter ***Proposed Raw Survey Data***.
 - For ***Surfaces*** (.dtm files) enter ***Surface***.
 - m. In the *Advanced Document Creation Wizard* dialog box under *Create a Document* click **Next**.
 - n. In the *Advanced Document Creation Wizard* dialog box click **Finish**.
 - o. Delete the survey data files on your *H:* drive.
 - p. Notify the person who requested the survey via email that it has been completed and is ready to be used.

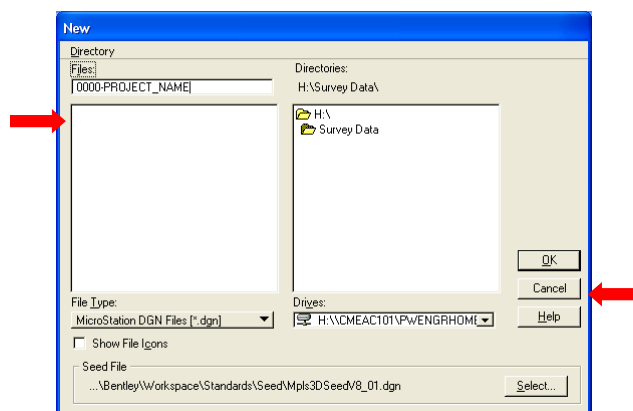
Detailed Steps for Downloading Survey Data:

This procedure assumes that you will be working in the following location: **H:\Survey Data**. If this folder does not already exist, please do the following:

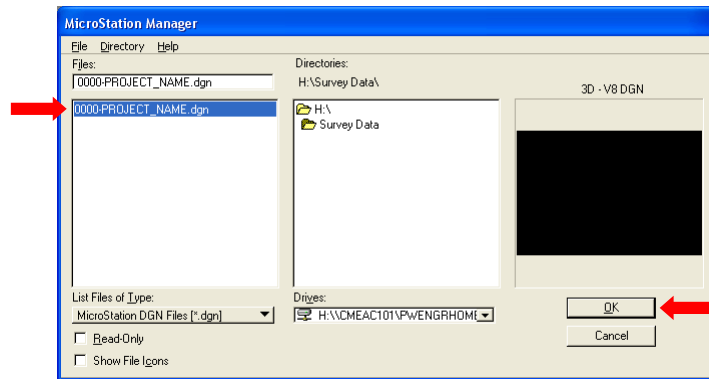
- Right-click on the **Start** button and select **Explore**.
 - Browse to the **H: drive**, right-click and select **New > Folder**.
 - Name the folder **Survey Data**.
1. Create the survey design file for the project:
 - a. Select **Start > All Programs > Enterprise Engineering > Bentley InRoads Survey**.
 - b. In the **MicroStation Manager** dialog box select the **H: drive** and browse to **Survey Data**.



- Select **File > New**.
- c. In the **New** dialog box enter a name for the project survey design file (e.g. **0000-PROJECT_NAME**) and click **OK**.

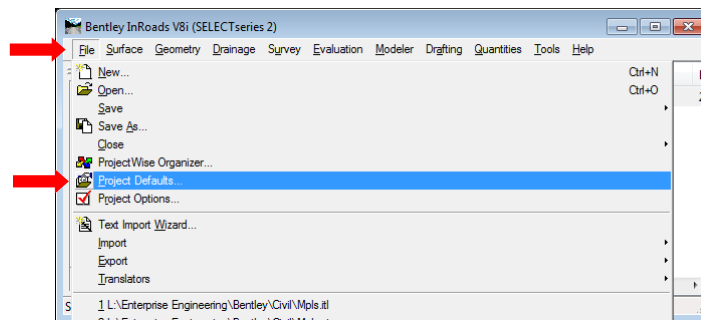


- d. In the *MicroStation Manager* dialog box highlight the file you just created and click **OK**.

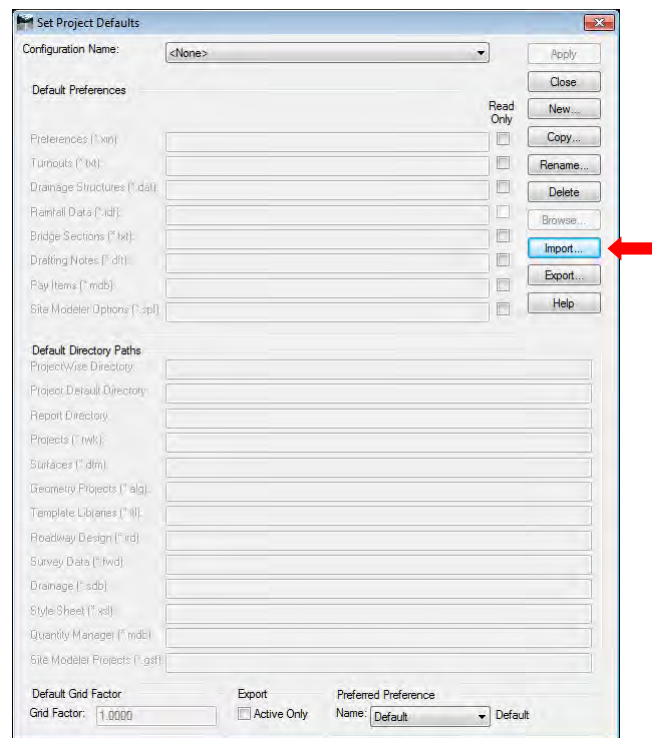


2. Import the Mpls Standard Project Defaults:

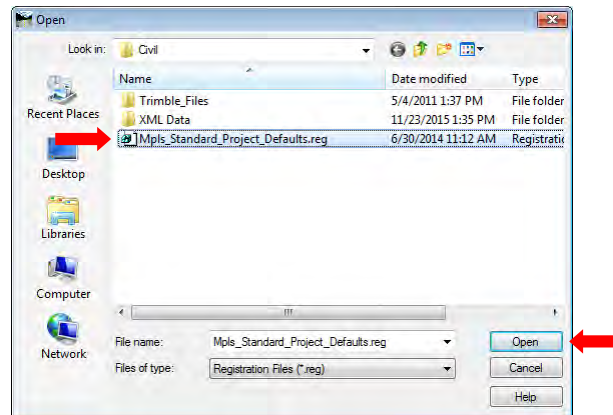
- a. In the *InRoads* dialog box select **File > Project Defaults...**



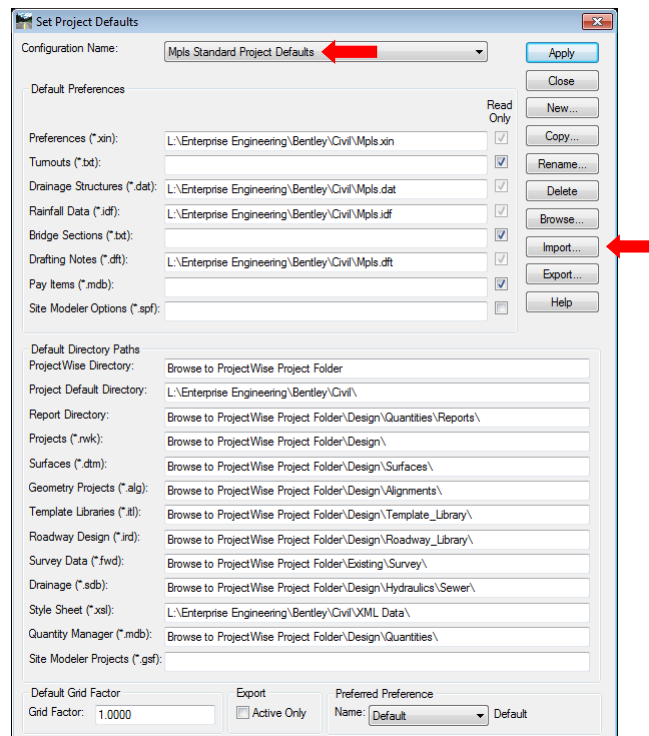
- b. In the *Set Project Defaults* dialog box click **Import...**



- c. In the *Open* dialog box browse to **L:\Enterprise Engineering\Bentley\Civil**.
- d. Highlight **Mpls_Standard_Project_Defaults.reg** and click **Open**.



- e. In the *Set Project Defaults* dialog box click the dropdown for *Configuration Name* select **Mpls Standard Project Defaults**.



- f. Click **Apply**, and then click **Close**.

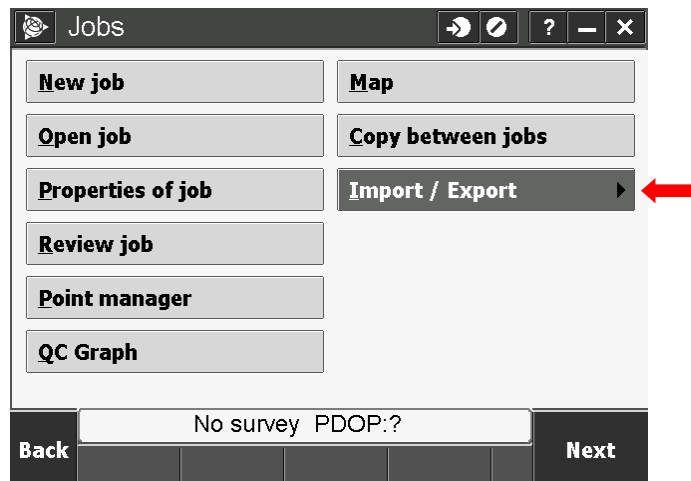
3. Download the raw survey data from the data collector (revised 5/18/16):

a. Export the survey data to a comma delimited file:

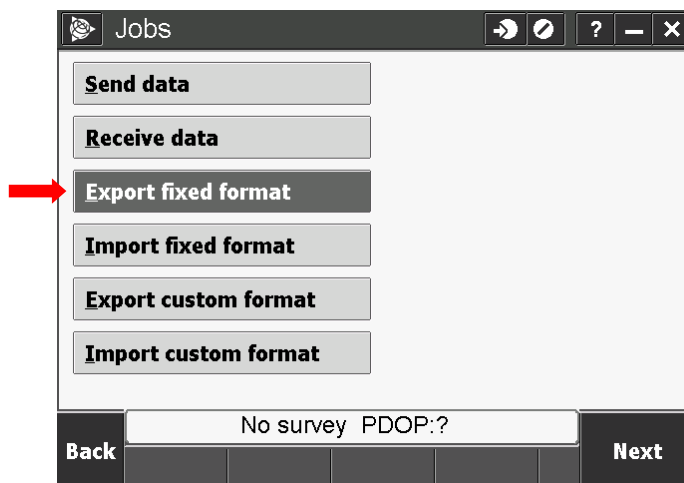
- Tap on **Jobs**.



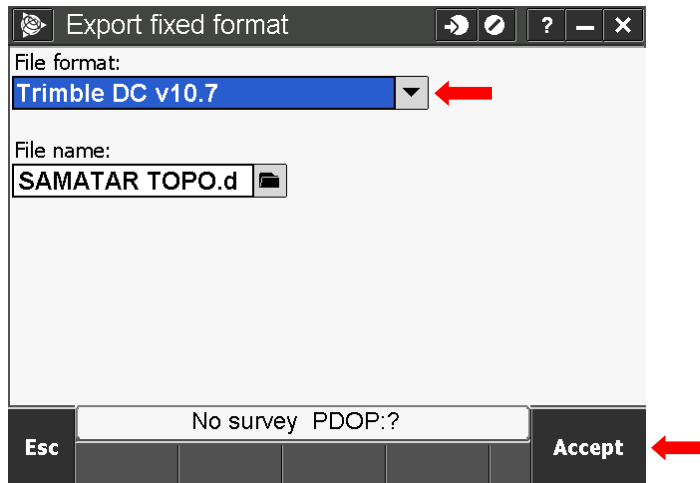
- Tap on **Import / Export**.



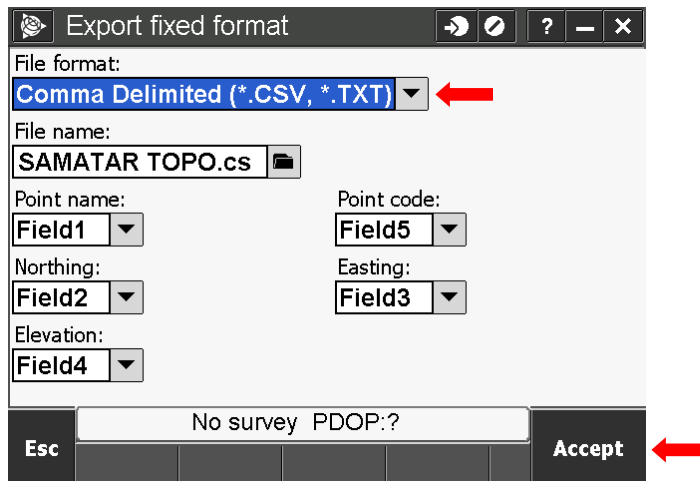
- Tap on **Export fixed format**.



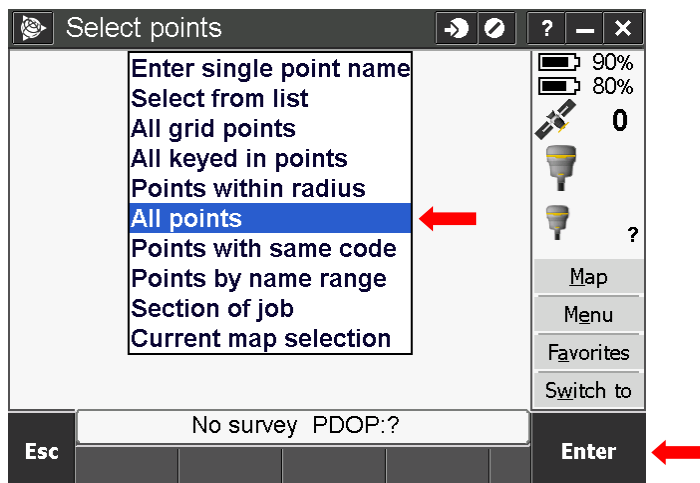
- Select **Trimble DC v10.7** from the dropdown for total station gathered data.
 - Tap **Accept**.



- Select **Comma Delimited** from the dropdown for GPS gathered data.
 - Tap **Accept**.

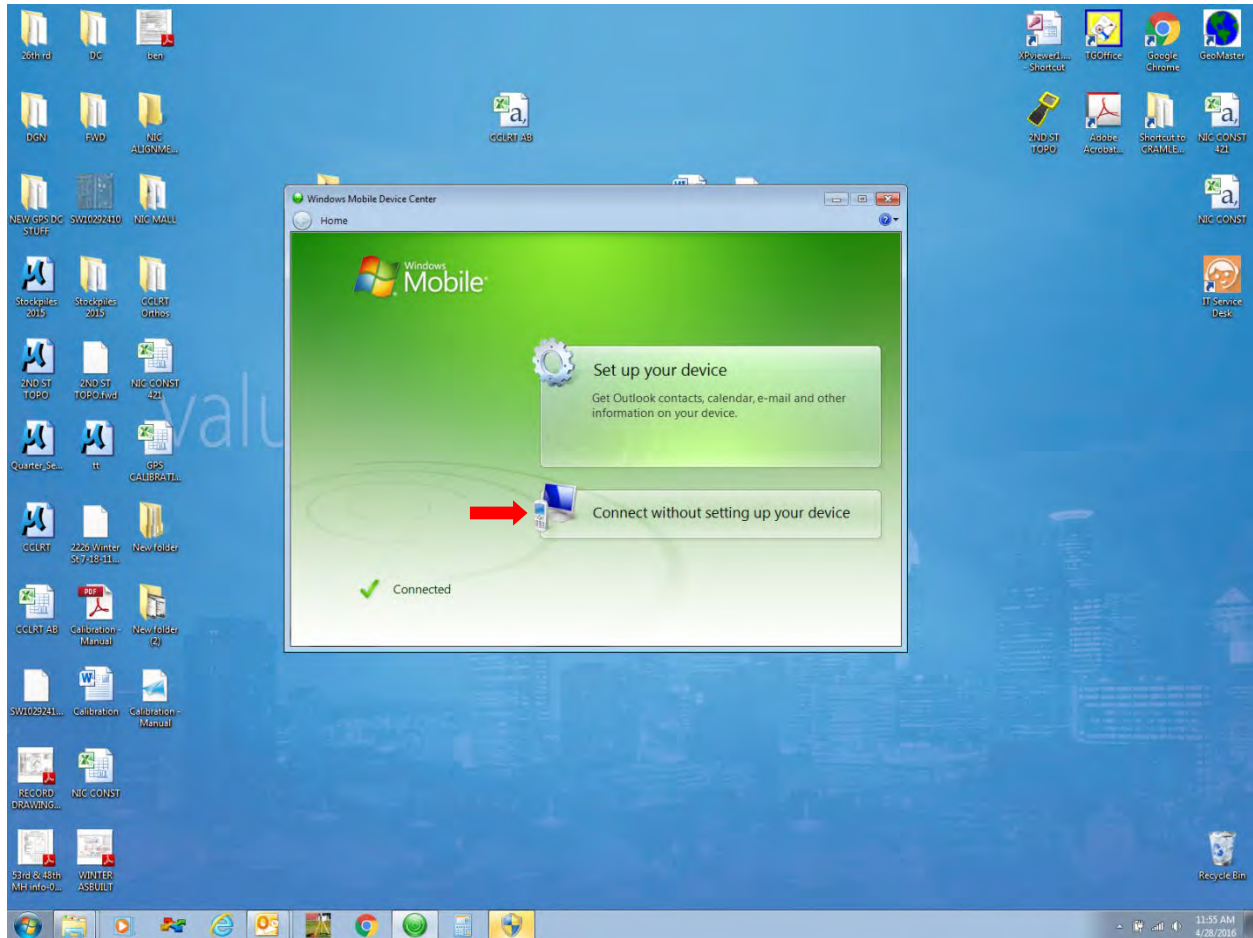


- For a **Comma Delimited** file, you will be prompted to select which point you would like to transfer.
 - Select **All points** and then tap **Enter**.

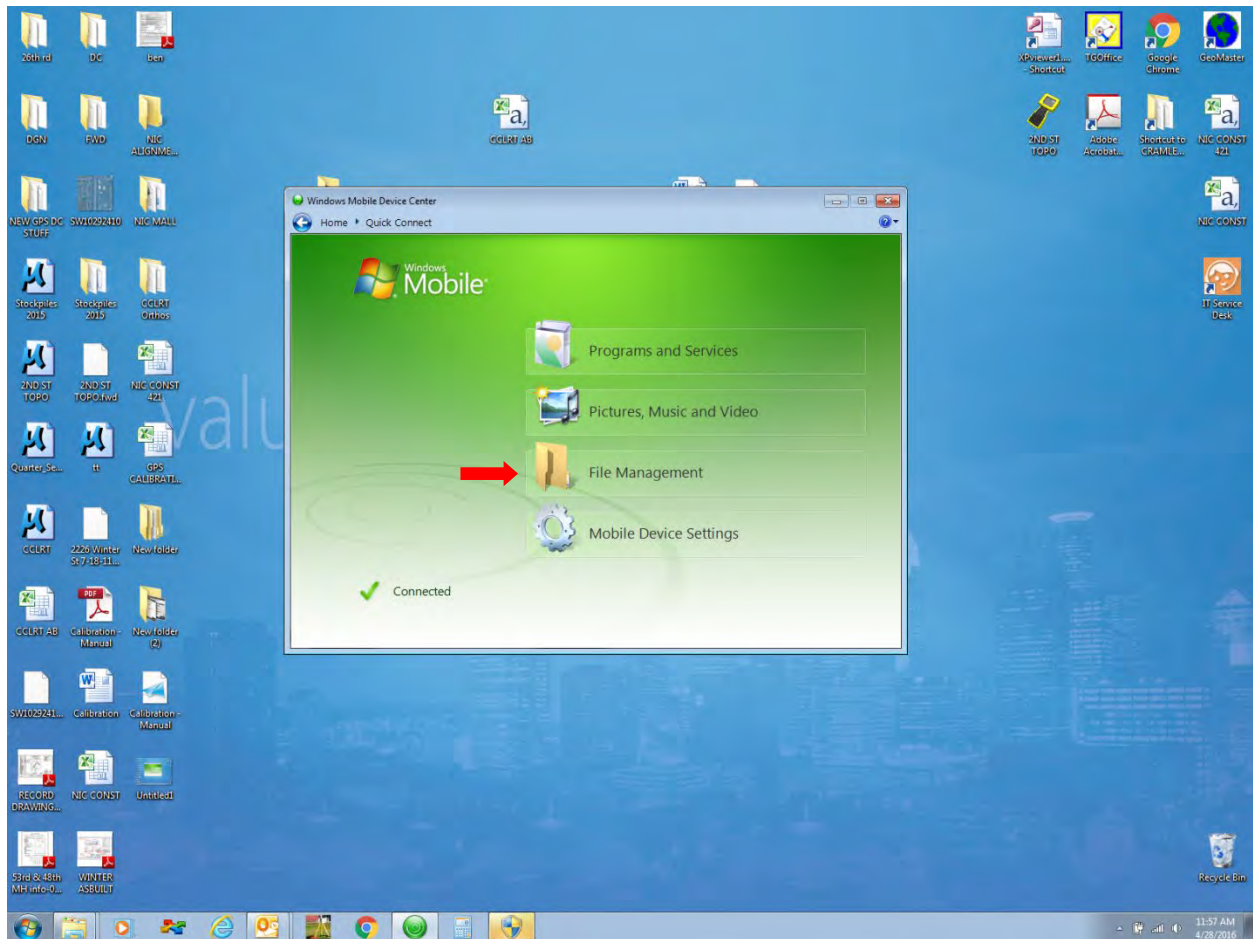


- Download the comma delimited file to the computer:
 - Turn the data collector on.

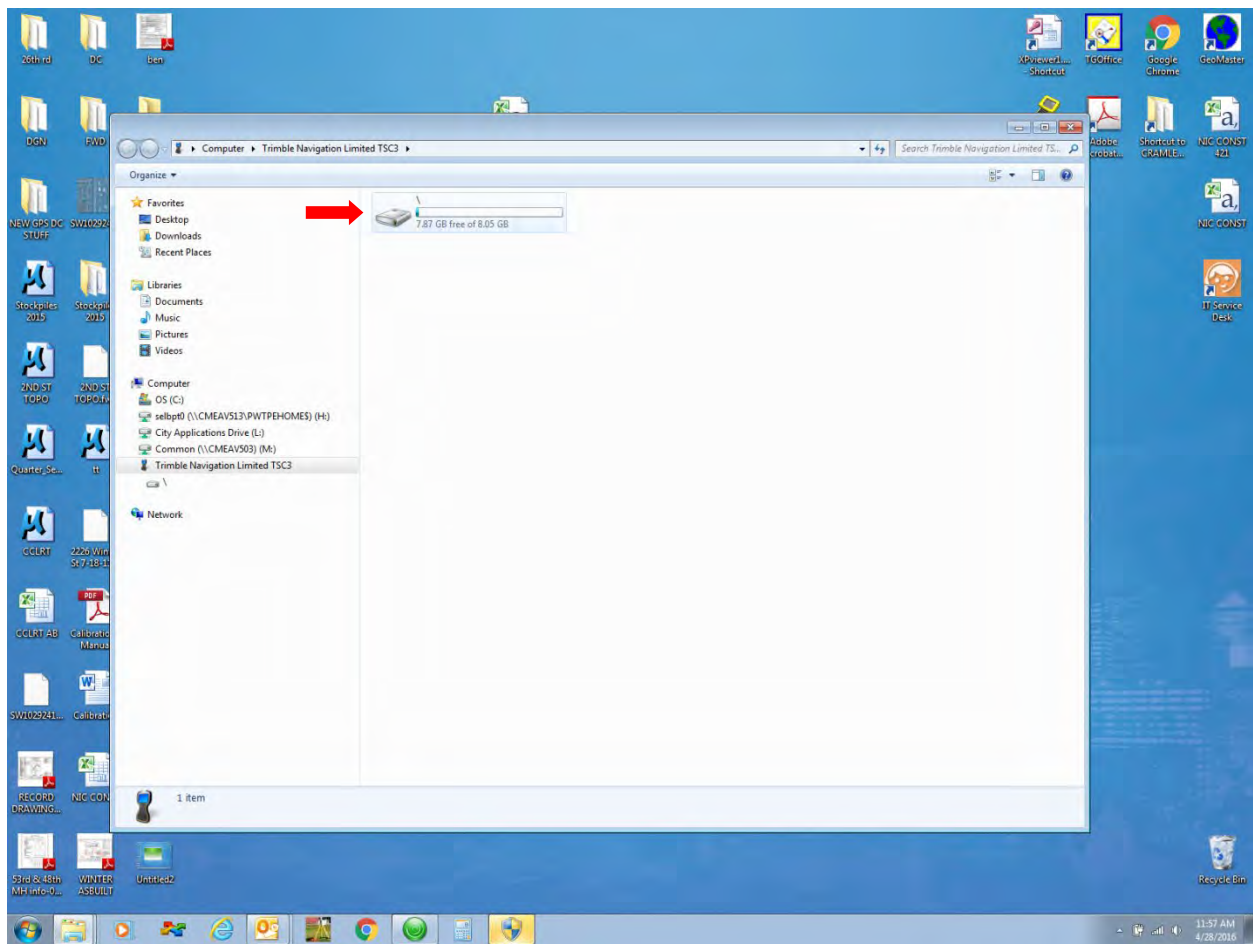
- Plug the data collector into the computer using the appropriate USB cable. *Windows Mobile Device Center* should open automatically.
- Click **Connect without setting up your device**.



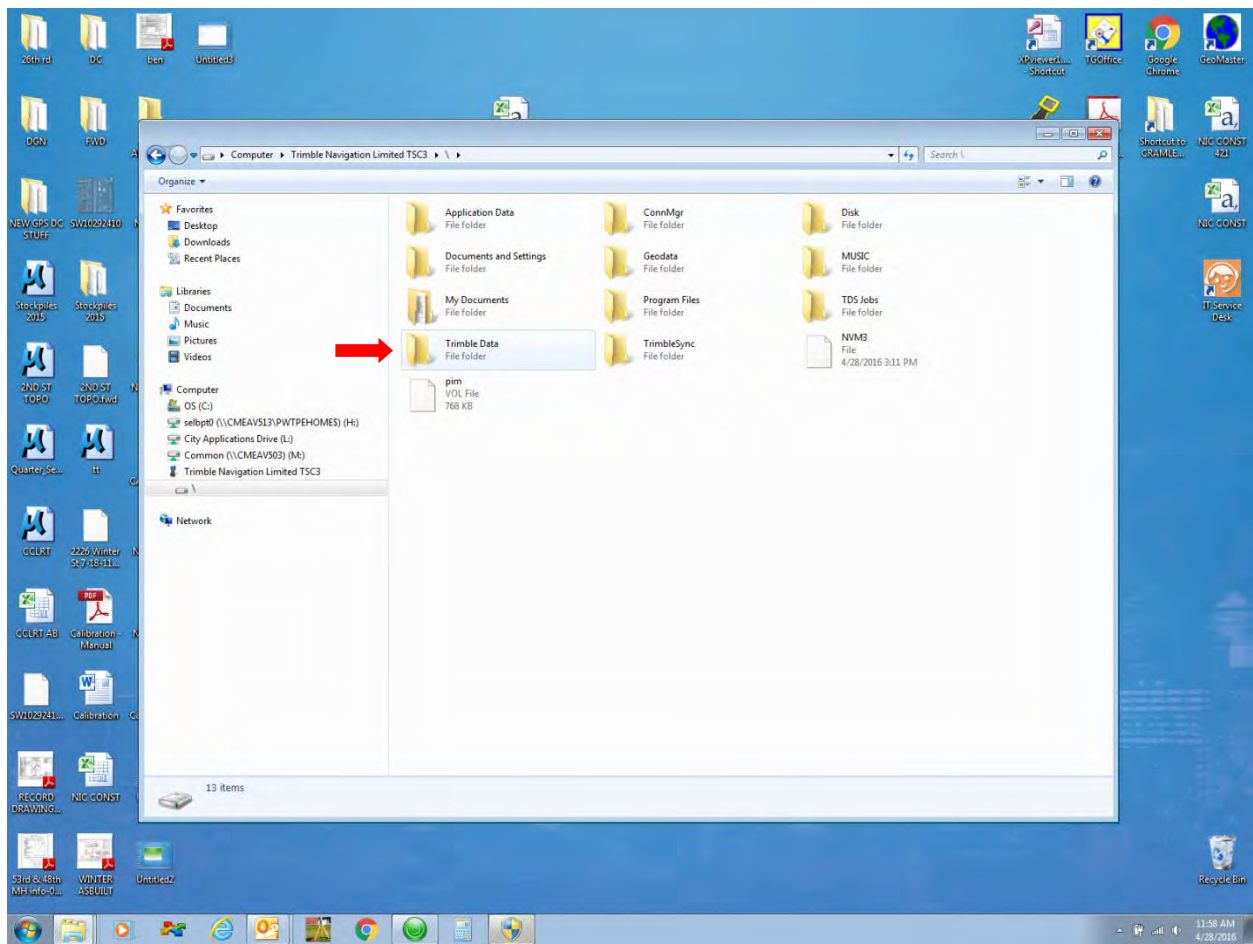
- In the *Windows Mobile Device Center* dialog box click **File Management**, and then click **Browse Contents**.



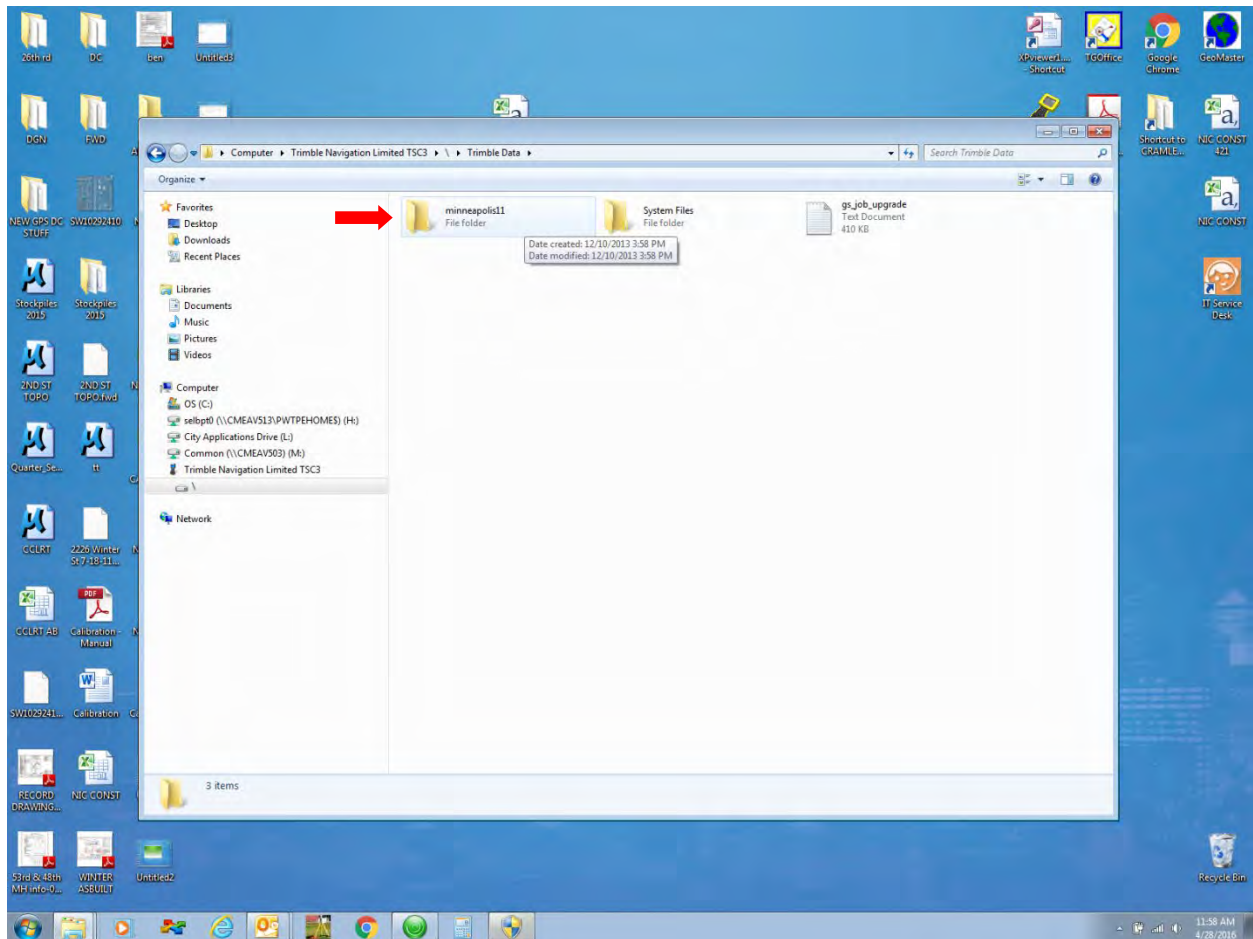
- Click on the icon.



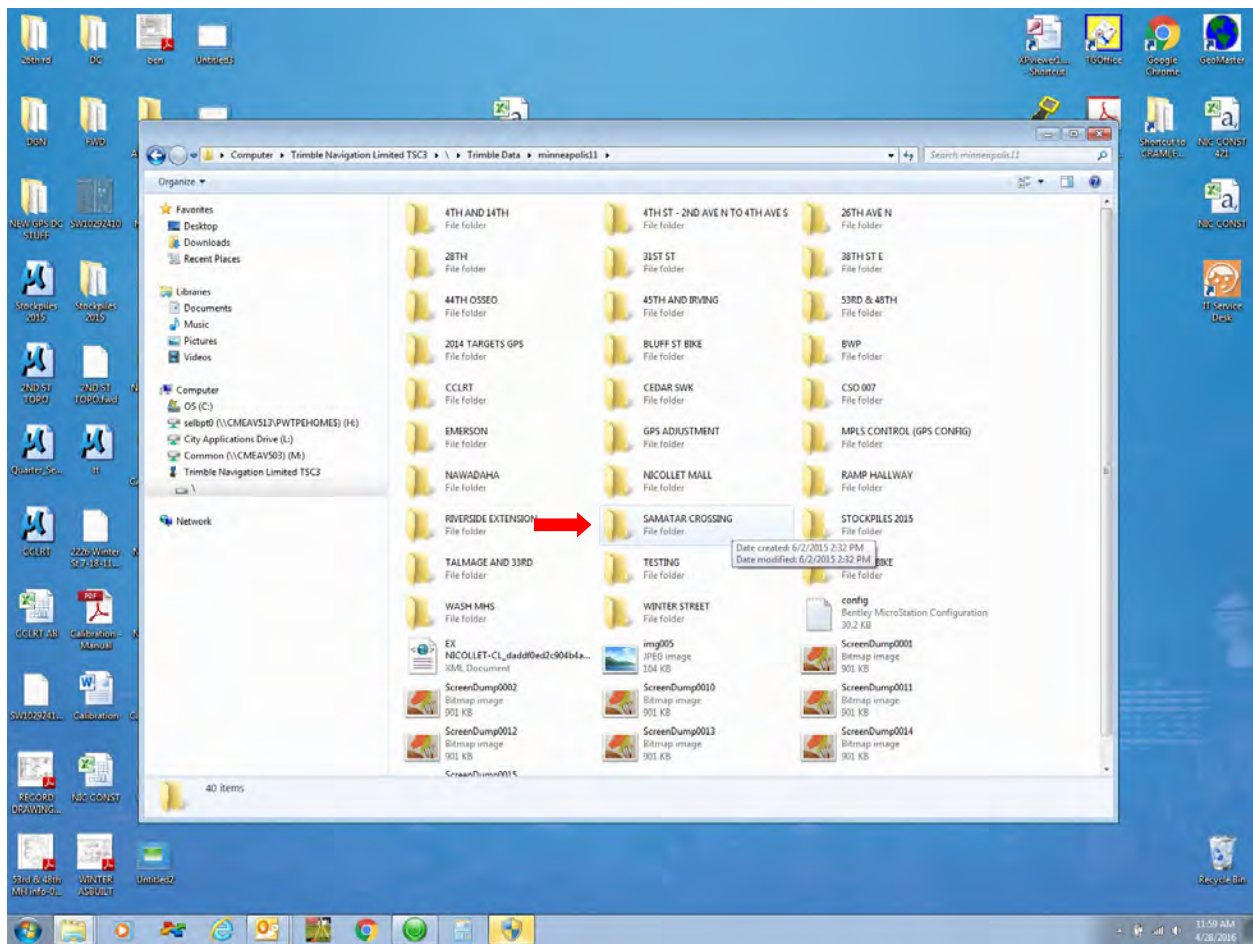
- Click on the *Trimble Data* folder.



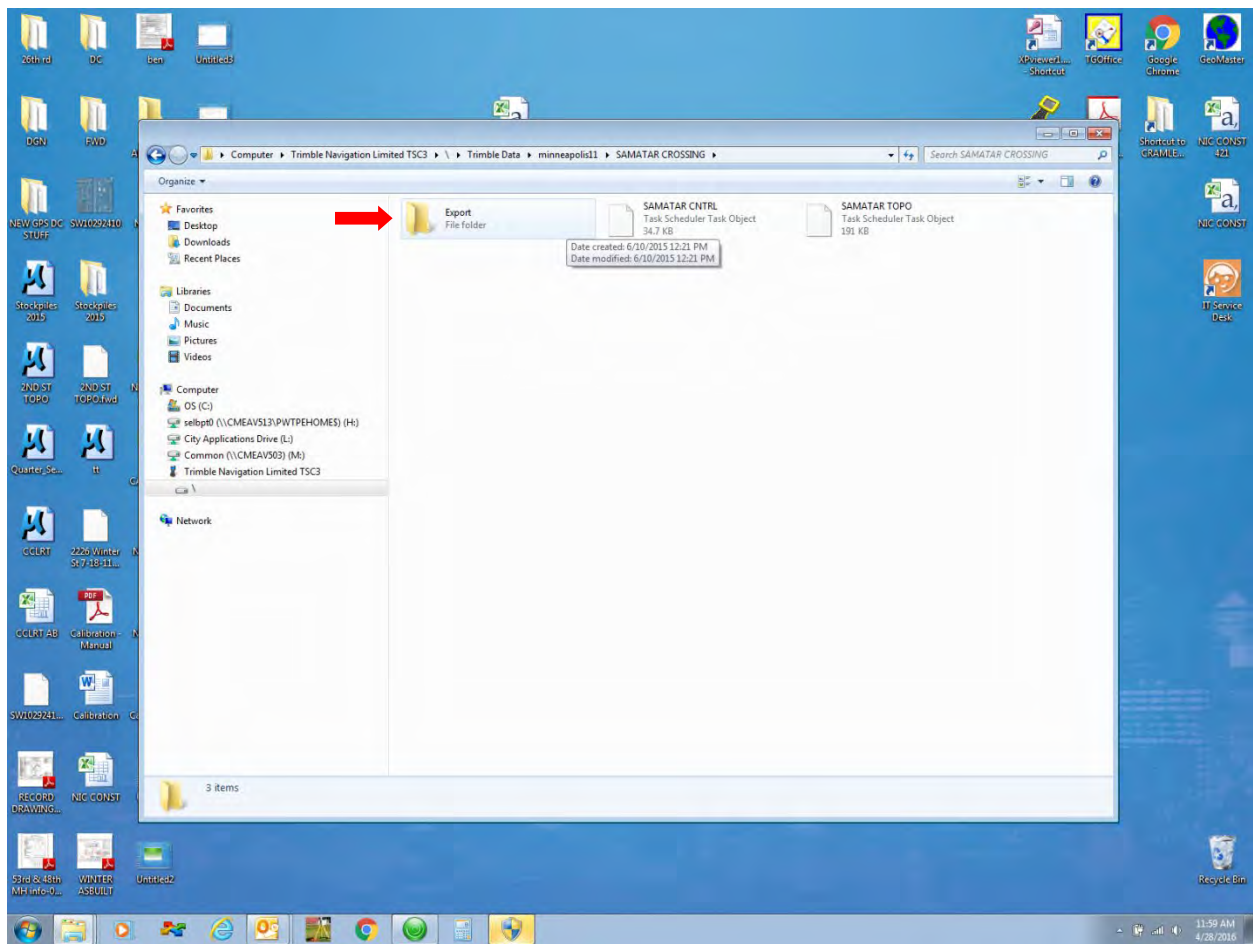
- Click on the appropriate folder (e.g. *Minneapolis1*, *Minneapolis2*, *Minneapolis3*, or *Minneapolis4*) depending on which data collector you are using.



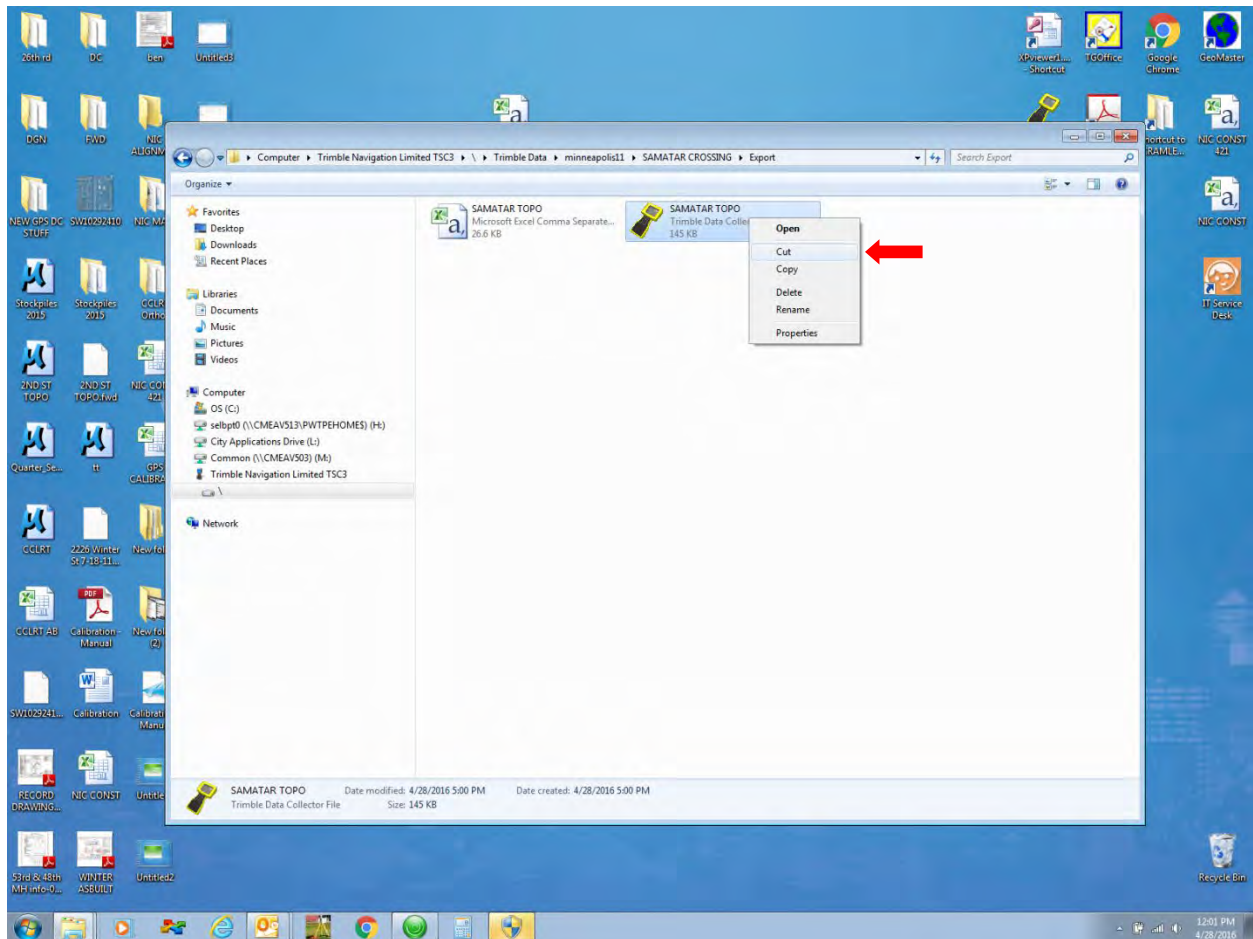
- Click on the job folder (e.g. *SAMATAR CROSSING*).



- Click on the **Export** folder.

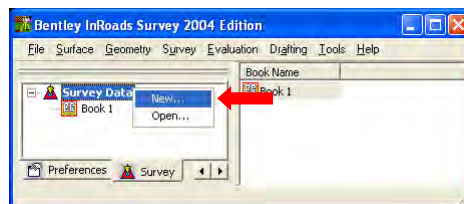


- Drag and drop the *Data Collector (.dc)* file into the **Existing > Survey > Survey_Read_Only** folder in the project in ProjectWise. The file is now ready to be imported into InRoads.

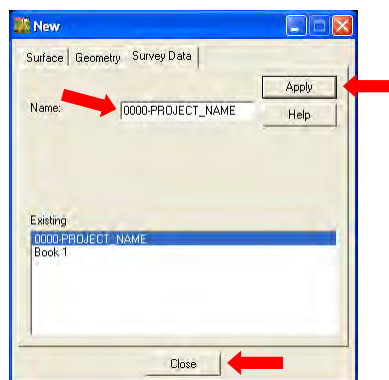


4. Create a fieldbook:

- In the *Bentley InRoads Survey 2004 Edition* dialog box right-click on *Survey Data* and select **New...**

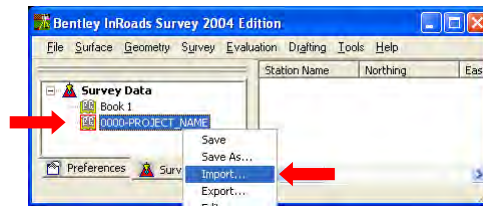


- In the *New* dialog box in the *Name* field enter a name for the survey fieldbook that will contain your survey data (e.g. *0000-PROJECT_NAME*), click **Apply**, and then click **Close**.



5. Import the raw survey data into the fieldbook:

- a. Highlight the fieldbook you just created, right-click on it and select **Import...**



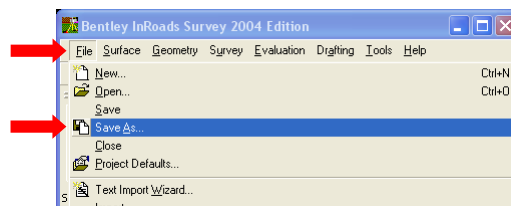
- b. In the *Import* dialog box in the *Files of Type* field select **Sokkia SDR (*.sdr;*.dc)**.

- Highlight the raw survey data file (e.g. 0000-SURVEY.dc) and click **Import**.
- After the file has finished importing click **Close**.



6. Save the fieldbook:

- a. In the *Bentley InRoads Survey 2004 Edition* dialog box select **File > Save As...**



- b. In the *Save As* dialog box in the *Active* field click the dropdown and highlight your fieldbook (this will automatically fill-in the *File name* field), click **Save**, then click “X” in the upper right-hand corner.

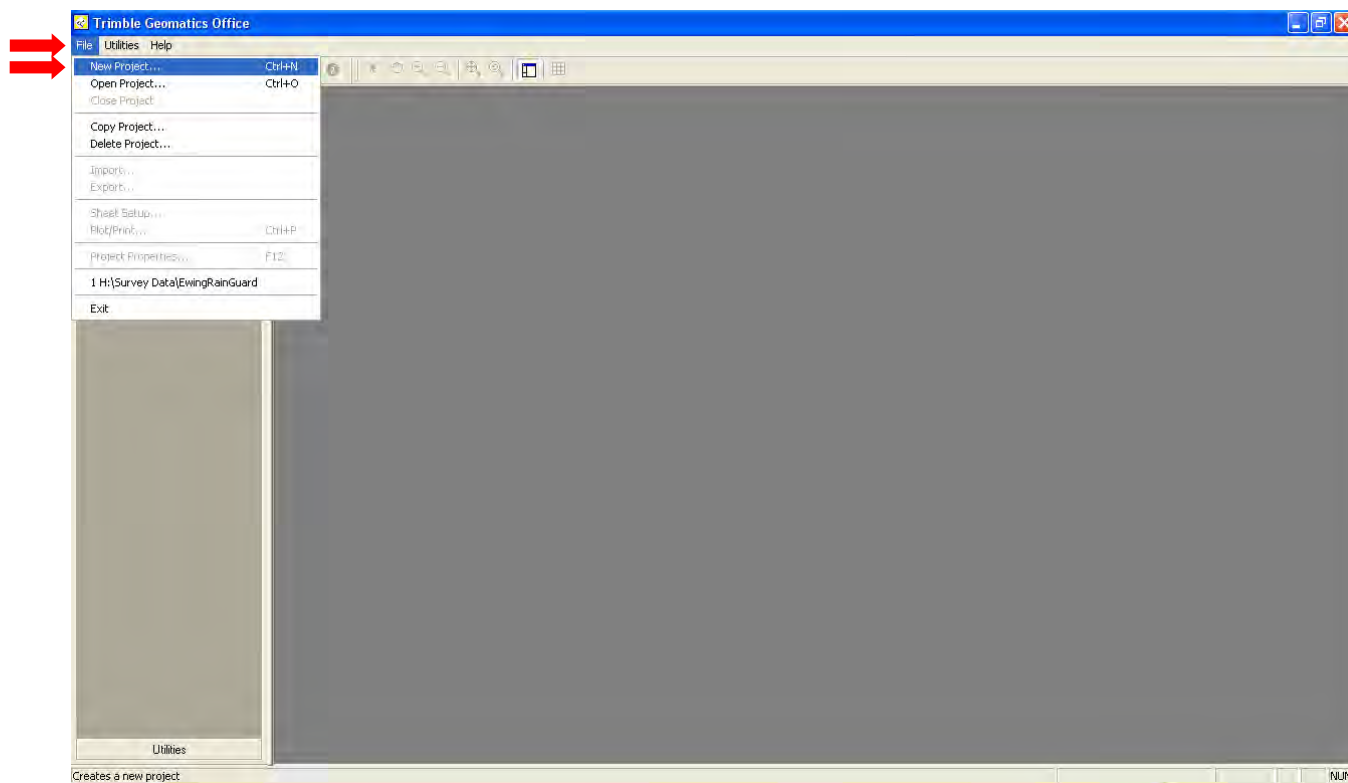


7. To import additional survey data to an existing fieldbook, repeat *Step 5*.
Note: The point IDs in the .dc file that you are adding must be unique (there can be no point IDs in the new .dc file that are the same as in the existing .dc file).
8. Proceed to [Detailed Steps for Moving Files into ProjectWise](#).

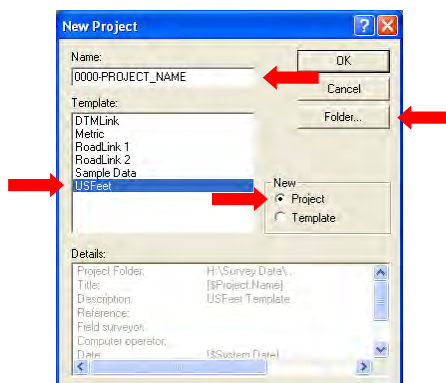
Detailed Steps for Downloading GPS Survey Data

Note: GPS survey data is used to set control for the project.

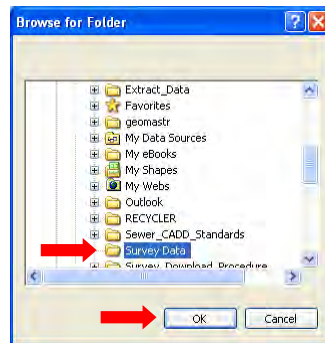
1. Import the raw survey data into Trimble GeoMatics Office:
 - a. Select **Start > All Programs > Trimble Geomatics Office > Trimble Geomatics Office**.
 - In *Trimble Geomatics Office* select **File > New Project...**



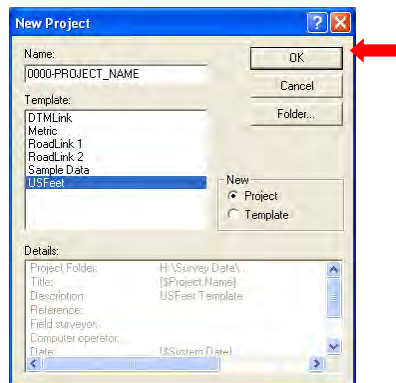
- b. In the *New Project* dialog box in the *Name* field enter the project name (e.g. 0000-PROJECT_NAME).
 - In the *Template* field highlight **US Feet**.
 - For *New* click the **Project** radio button.
 - Click **Folder...**



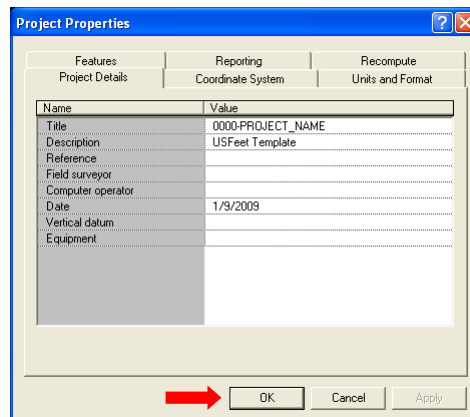
- In the *Browse for Folder* dialog box browse to **H:\Survey Data** and click **OK**.



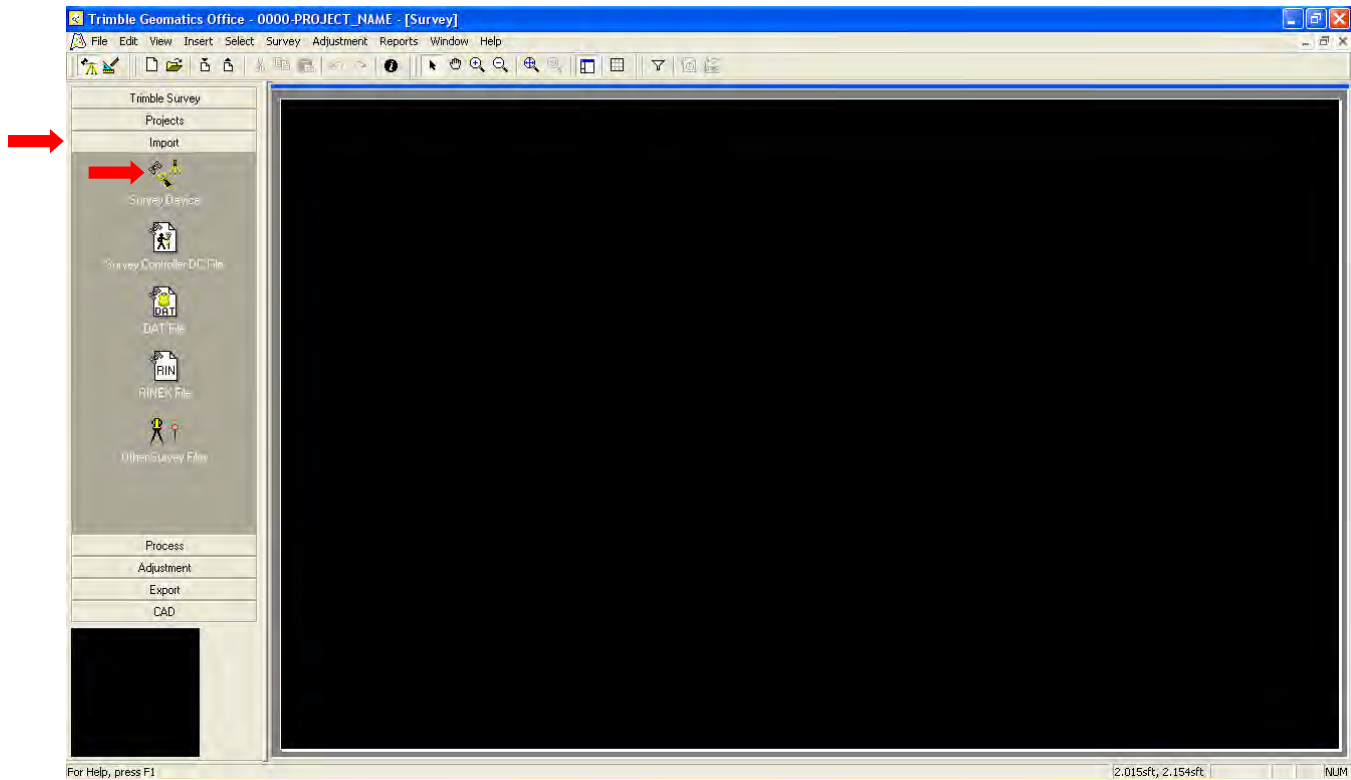
- In the *New Project* dialog box click **OK**.



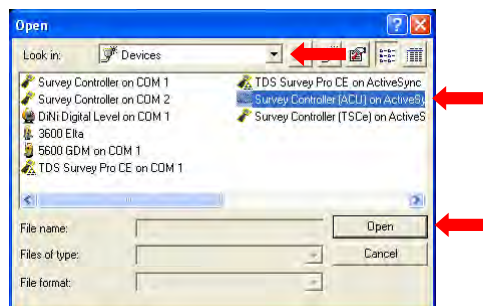
- c. In the *Project Properties* dialog box click **OK**.



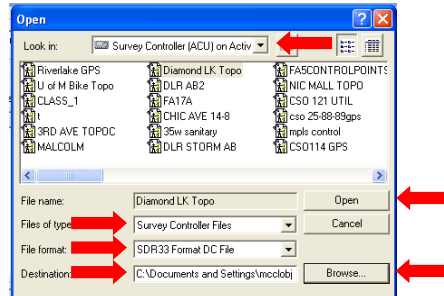
- d. In the *Trimble GeoMatics Office – 0000-PROJECT_NAME – [Survey]* dialog box click **Import**, then click **Survey Device**.



- e. In the *Open* dialog box in the *Look in* field select **Devices**.
- Highlight **Survey Controller (ACU) on ActiveSync** and click **Open**.

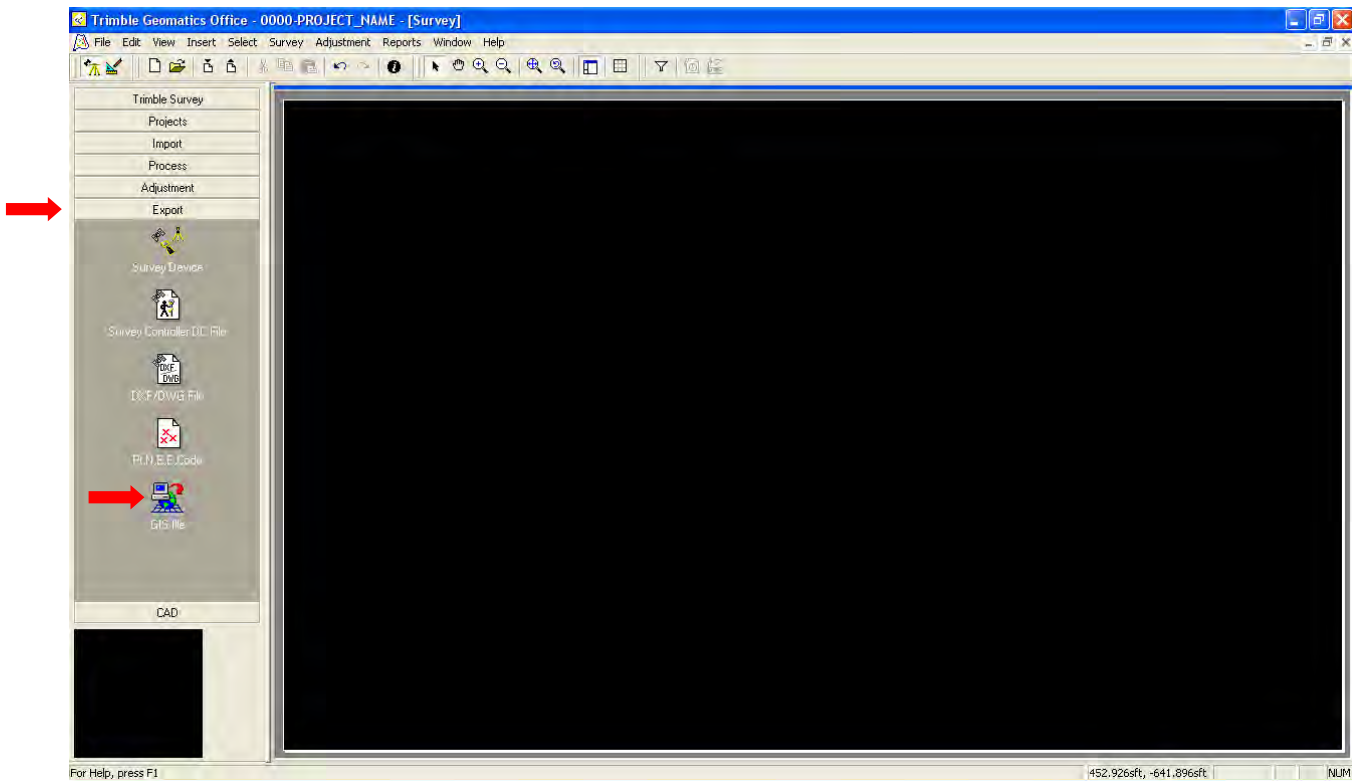


- f. In the *Open* dialog box highlight the survey job you want to download (e.g. 0000-PROJECT_NAME.dc).
 - For *Look in* select **Survey Controller (ACU) on ActiveSync**.
 - For *Files of type* select **Survey Controller Files**.
 - For *File format* select **SDR33 Format DC File**.
 - Click in the *Destination* field and then click **Browse....**
 - Browse to the **Survey Data** folder on your **H: drive**.
 - Highlight the file you want to import and click **Open**.

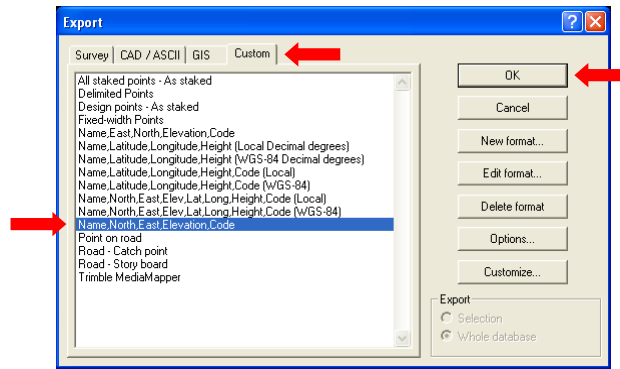


2. Export the survey data from Trimble GeoMatics Office:

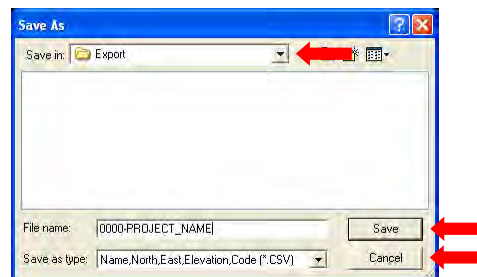
- a. In the *Trimble GeoMatics Office – 0000-PROJECT_NAME – [Survey]* dialog box click **Export**, then click **GIS file**.



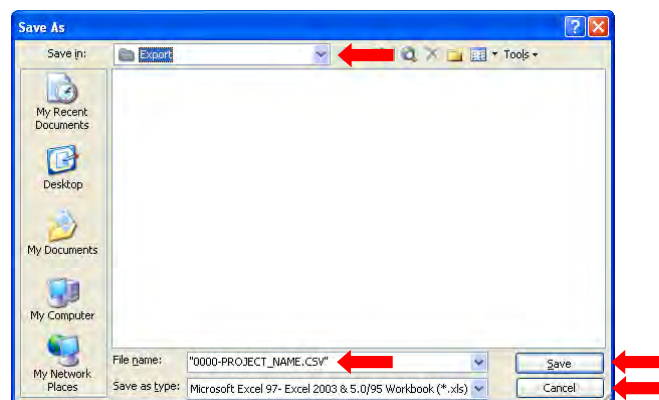
- b. In the *Export* dialog box click the **Custom** tab.
 - Highlight **Name,North,East,Elevation,Code** and click **OK**.



- c. In the *Save As* dialog box, in the *Save in* field browse to the **Export** folder for the project.
 - In the *Save in* field browse to *H:\Survey Data\0000-PROJECT_NAME\Export*.
 - Enter a name in the *File name* field (e.g. *0000-PROJECT_NAME*).
 - Select **Name,North,East,Elevation,Code (*.CSV)** in the *Save as type* dropdown list and click **Save**.



3. Save the Excel.csv file as an Excel.xls file:
 - a. Browse to *H:\Survey Data\0000-PROJECT_NAME\Export*.
 - b. Double-click on the Excel.csv file (e.g. *0000-PROJECT_NAME.csv*).
 - c. In the Excel.csv file select **File > Save As...**
 - In the *Save As* dialog box in the *Save as type* field select **Microsoft Excel 97 – Excel 2003 & 5.0/95 Workbook (*.xls)** and click **Save**.

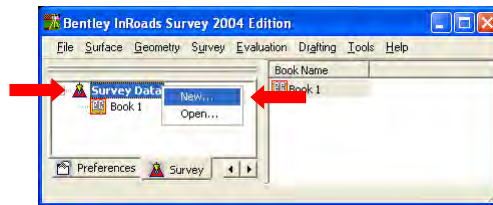


4. Proceed to [Detailed Steps for Moving Files into ProjectWise](#).

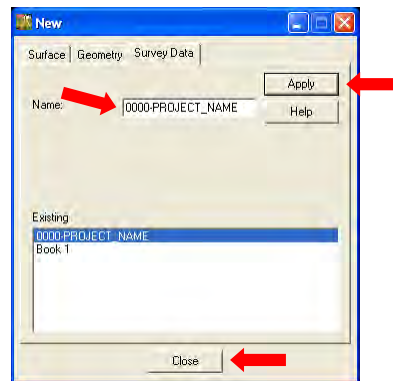
Note: The following procedure is for informational use only. It is not necessary to import GPS survey data into InRoads at this time.

1. Create a fieldbook:

- a. In the *Bentley InRoads Survey 2004 Edition* dialog box right-click on *Survey Data* and select **New...**

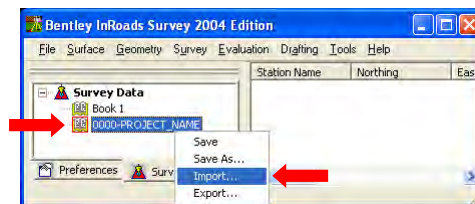


- b. In the *New* dialog box in the *Name* field enter a name for the survey fieldbook that will contain your survey data (e.g. *0000-PROJECT_NAME*), click **Apply**, and then click **Close**.

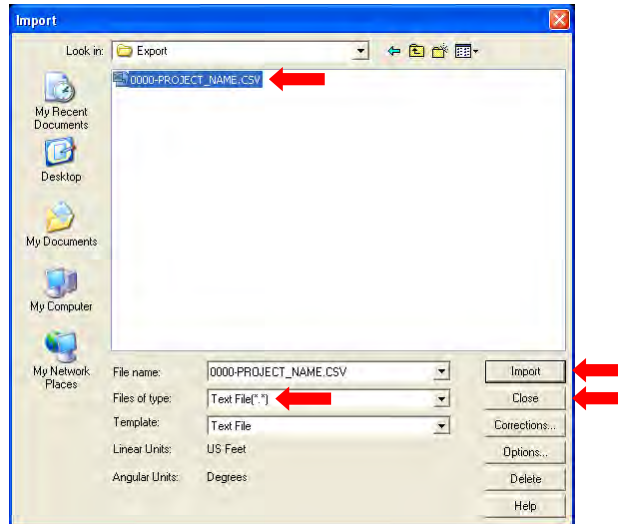


2. Import the raw survey data into the fieldbook:

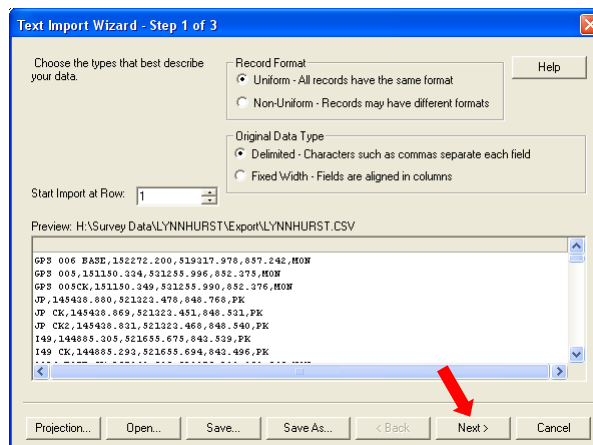
- a. Highlight the fieldbook you just created right-click on it and select **Import...**



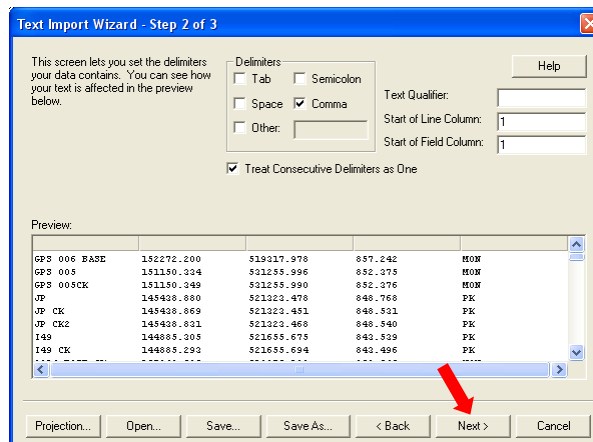
- b. In the *Import* dialog box in the *Files of Type* field select **Text File (*.*)**.
- Highlight the Excel.csv data file (e.g. 0000-SURVEY.csv) and click **Import**.
 - After the file has finished importing click **Close**.



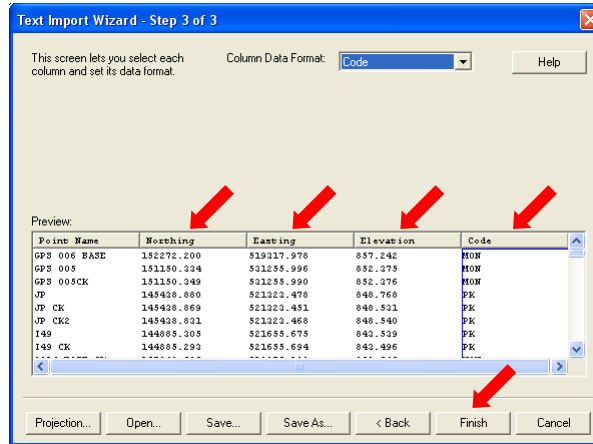
- c. In the *Text Import Wizard – Step 1 of 3* dialog box click **Next >**.



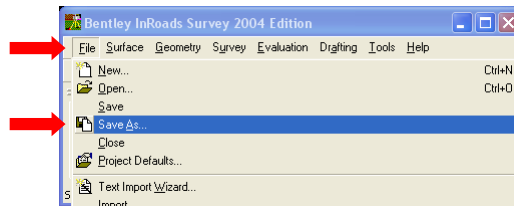
- d. In the *Text Import Wizard – Step 2 of 3* dialog box for *Delimiters* check the **Comma** box (make sure that *Tab*, *Space*, *Semicolon* and *Other* are unchecked) and click **Next**.



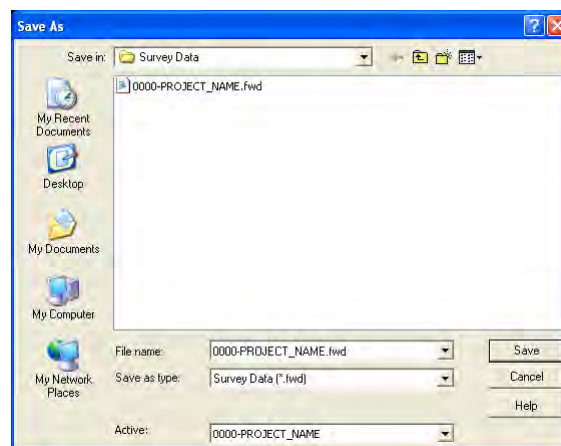
- e. In the *Text Import Wizard – Step 3 of 3* dialog box do the following:
 - Highlight the *first* column and select **Point Name** from the *Column Data Format* dropdown list.
 - Highlight the *second* column and select **Nothing** from the *Column Data Format* dropdown list.
 - Highlight the *third* column and select **Easting** from the *Column Data Format* dropdown list.
 - Highlight the *fourth* column and select **Elevation** from the *Column Data Format* dropdown list.
 - Highlight the *fifth* column and select **Code** from the *Column Data Format* dropdown list.
 - Click **Finish**.



- f. In the *Import* dialog box click **Close**.
3. Save the fieldbook:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box select **File > Save As...**



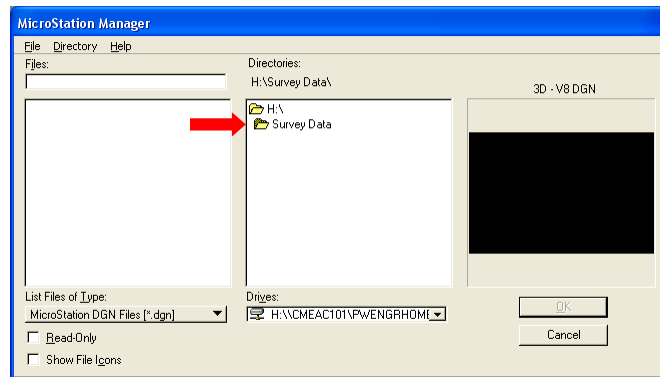
- b. In the *Save As* dialog box in the *Active* field click the dropdown and highlight your fieldbook (this will automatically fill-in the *File name* field) click **Save**, then click "X" in the upper right-hand corner.



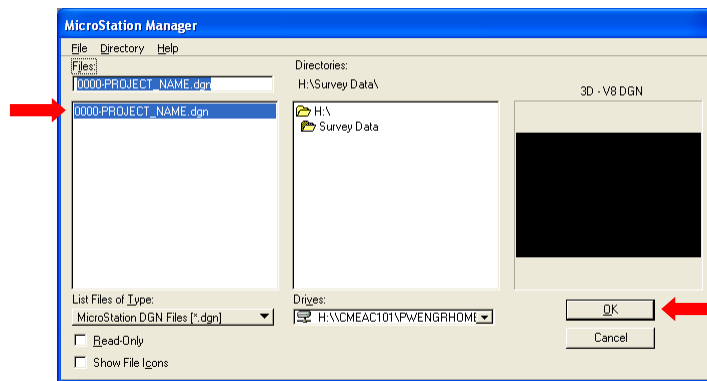
4. Proceed to [Detailed Steps for Moving Files into ProjectWise](#).

Detailed Steps for Creating a Surface from Survey Data:

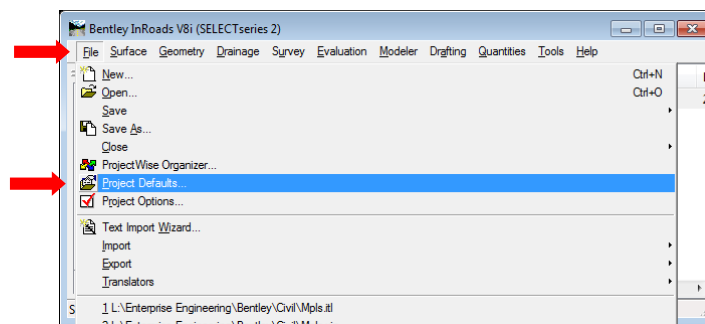
1. Open the existing survey design file for the project:
 - a. Select **Start > All Programs > Enterprise Engineering > Bentley InRoads Survey**.
 - b. In the *MicroStation Manager* dialog box select the **H:** drive and browse to **Survey Data**.



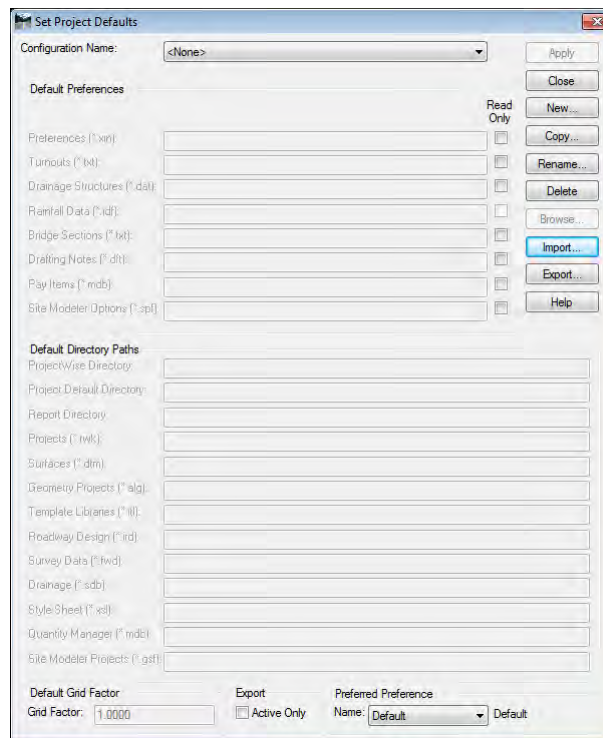
- c. In the *MicroStation Manager* dialog box highlight the existing survey design file for the project and click **OK**.



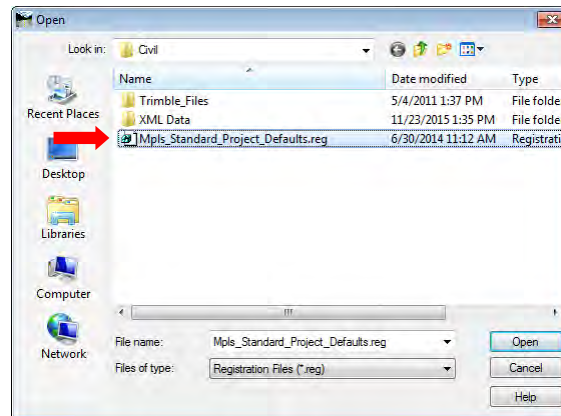
2. Import the Mpls Standard Project Defaults:
 - a. In the *InRoads* dialog box select **File > Project Defaults...**



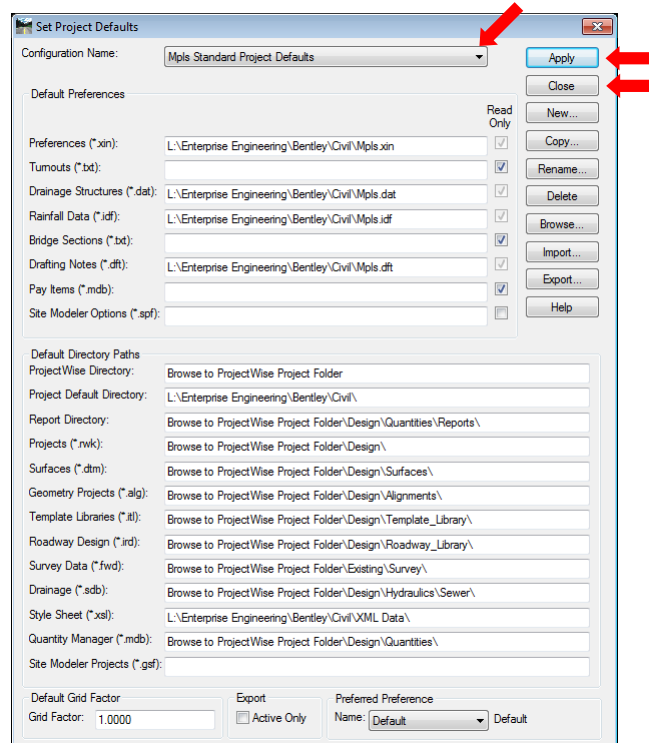
- b. In the *Set Project Defaults* dialog box click **Import...**



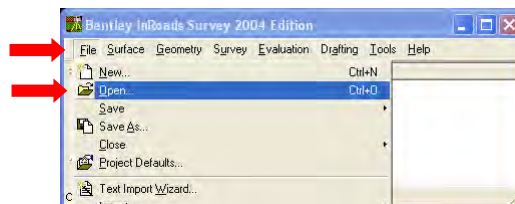
- c. In the *Open* dialog box browse to **L:\Enterprise Engineering\Bentley\Civil**.
d. Highlight **Mpls_Standard_Project_Defaults.reg** and click **Open**.



- e. In the *Set Project Defaults* dialog box click the dropdown for *Configuration Name* select **Mpls Standard Project Defaults**.



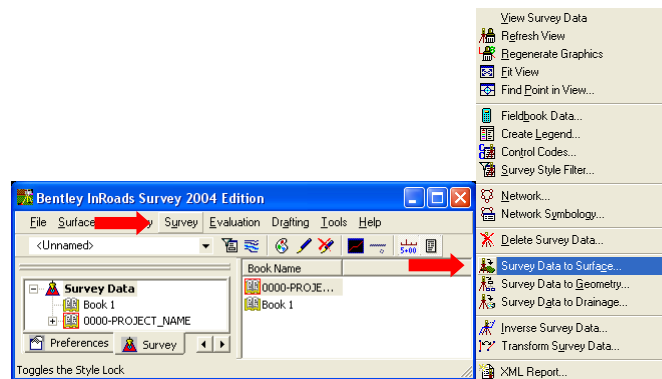
- f. Click **Apply**, and then click **Close**.
3. Create the surface:
 - a. In the *Bentley InRoads Survey 2004 Edition* dialog box select **File > Open....**



- b. In the *Open* dialog box highlight the existing project fieldbook (e.g. 0000-PROJECT_NAME.fwd) click **Open**, then click the "X" in the upper right-hand corner.



- c. In the *Bentley InRoads 2004 Edition* dialog box select **Survey > Survey Data to Surface....**



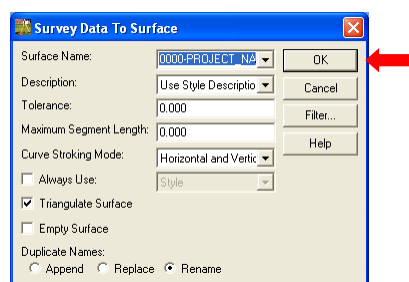
- d. In the *Survey Data to Surface* dialog box do the following:

- For *Surface Name* enter the name of the project (e.g. *0000-PROJECT_NAME*).
- For *Description* select one of the following: **Use Feature Definition**, **Use Attributes** or **Use Codes**. (See below.)

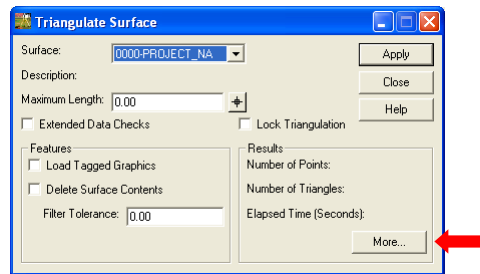
Description

Specifies the source for the description given to each feature in the surface.

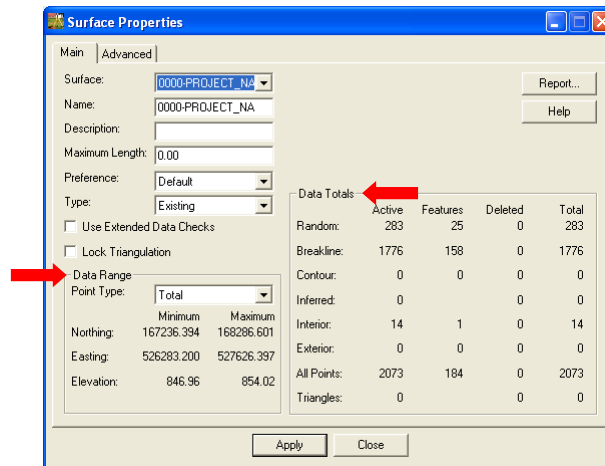
- **Use Style Description** The description comes from the definition given to the feature style in the Civil
Preference file (*Mpls.xin*).
 - **Use Attributes** The description comes from the attribute value in the fieldbook. Note that the
description does not come from the name(s) of the attribute(s) but
from the actual value(s) when any are specified.
 - **Use Codes** The description comes from the feature code used in the fieldbook to represent the
survey feature.
- For *Tolerance* enter a value (if necessary).
 - For *Maximum Segment Length* enter a value (if necessary).
 - Check the *Triangulate Surface* checkbox to create the DTM.
 - Click **OK**.



- e. In the *Triangulate Surface* dialog box click **More**.

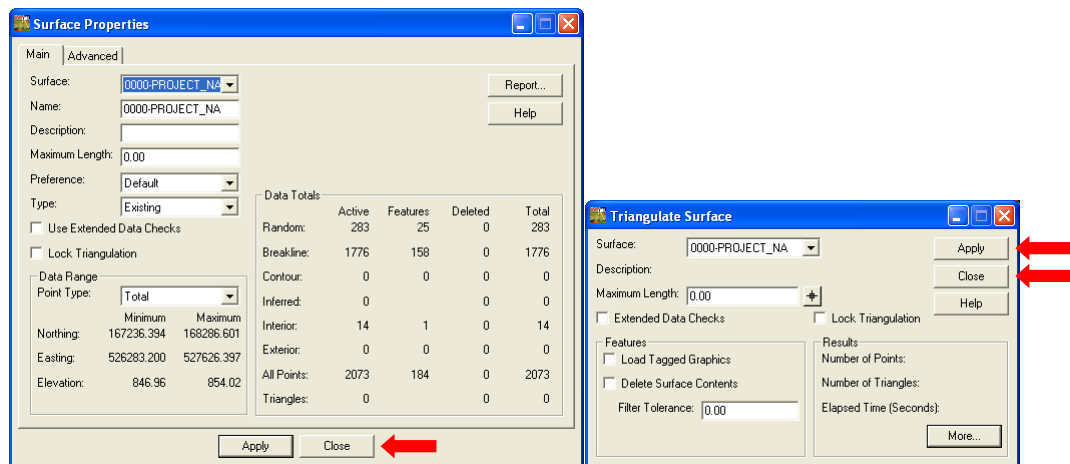


- In the *Surface Properties* dialog box check the following:
 - Examine the **Data Range** to see if the *Northing*, *Easting* & *Elevation* numbers are within the expected range.
 - Examine the **Data Totals** to see if the number and type of points are what you expect.



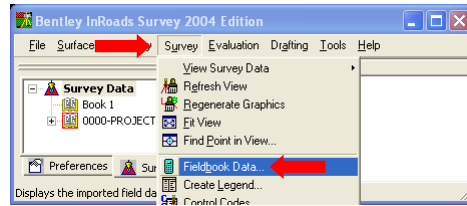
If the data is accurate, triangulate the surface:

- In the *Surface Properties* dialog box click **Close**.
- In the *Triangulate Surface* dialog box uncheck all of the checkboxes (**Use Extended Data Checks**, **Lock Triangulation**, **Load Tagged Graphics**, **Delete Surface Contents**) click **Apply**, then click **Close**.

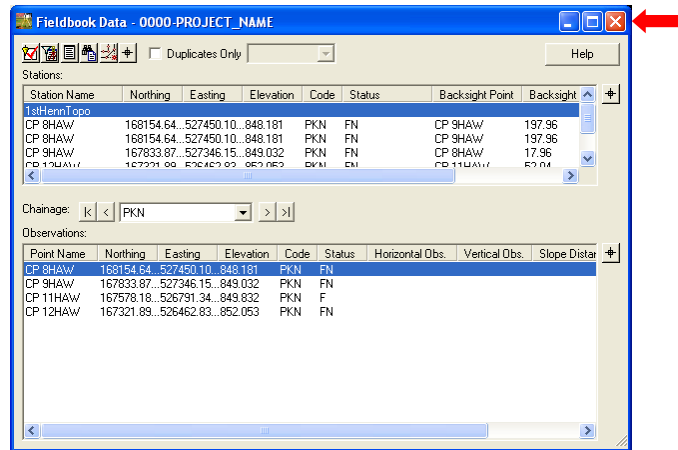


If the data is ***not*** accurate, edit the fieldbook:

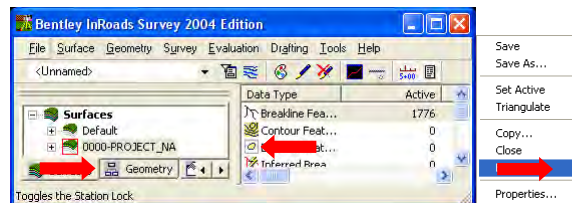
- In the *Surface Properties* dialog box click **Close**.
- In the *Bentley InRoads 2004 Edition* dialog box select **Survey > Fieldbook Data...**



- In the *Fieldbook Data* dialog box review and edit the necessary survey data, then click the "X" when you are finished.



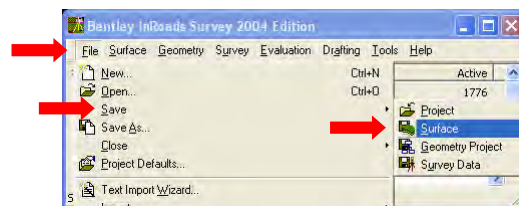
- In the *Bentley InRoads 2004 Edition* dialog box click the *Surfaces* tab, right click on the surface and click **Empty**.



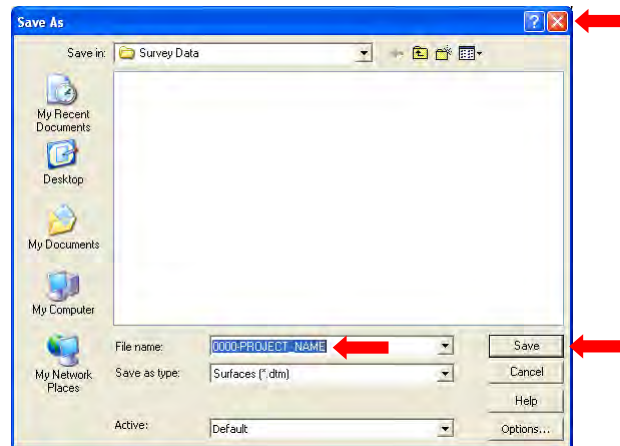
- Go back to **Step 3c**.

4. Save the surface:

- In the *Bentley InRoads 2004 Edition* dialog box select **File > Save > Surface**.



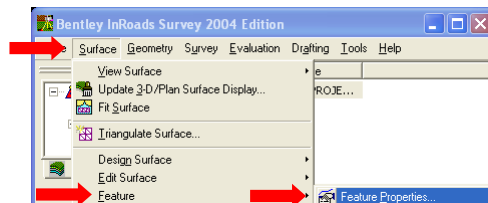
- In the *Save As* dialog box select the *H:* drive and browse to ***Survey Data***.
- In the *File name* field enter a name for the surface (e.g. *0000-PROJECT_NAME*) click ***Save***, then click the ***"X"*** in the upper right-hand corner.



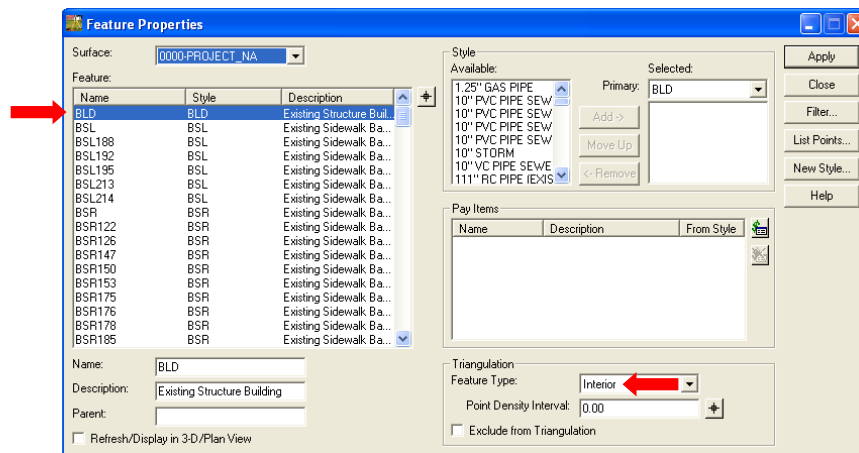
5. Review the surface and edit it if necessary:

a. Review and edit the Feature Properties:

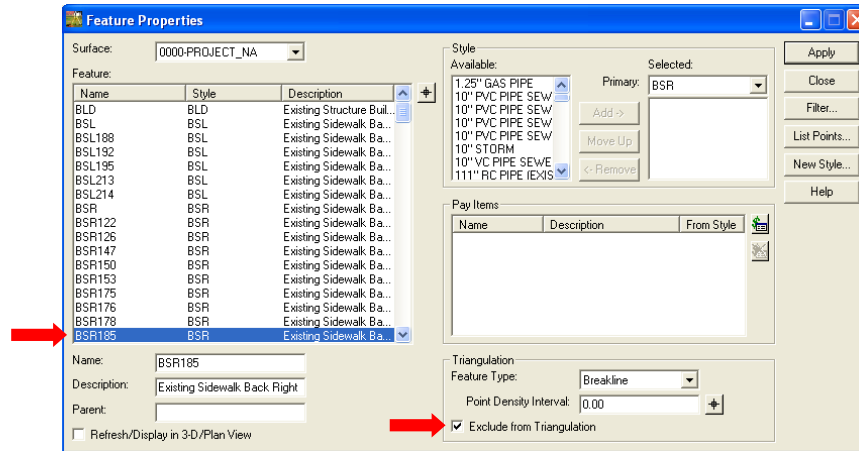
- In the *Bentley InRoads 2004 Edition* dialog box select ***Surface > Feature > Feature Properties....***



- In the *Feature Properties* dialog box check the following:
Feature Type: Check to make sure that the correct Feature Type (e.g. *Random*, *Breakline*, *Contour*, *Interior* or *Exterior*) is assigned to the Feature Name. If not, select the correct feature from the ***Feature Type*** dropdown list in the ***Triangulation*** section.



Triangulation: Check to see if a feature should be excluded from triangulation. If the feature should be excluded, check the **Exclude From Triangulation** checkbox in the *Triangulation* section.

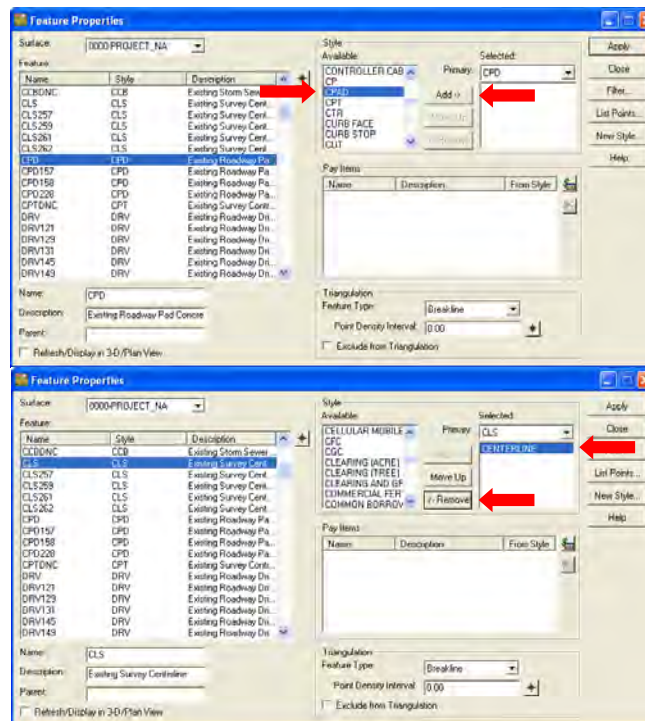


Feature Style: Check to make sure that the correct Feature Style is assigned to the Feature Name. If not,

highlight the correct Feature Style in the *Available* column in the Style section and click **Add**.

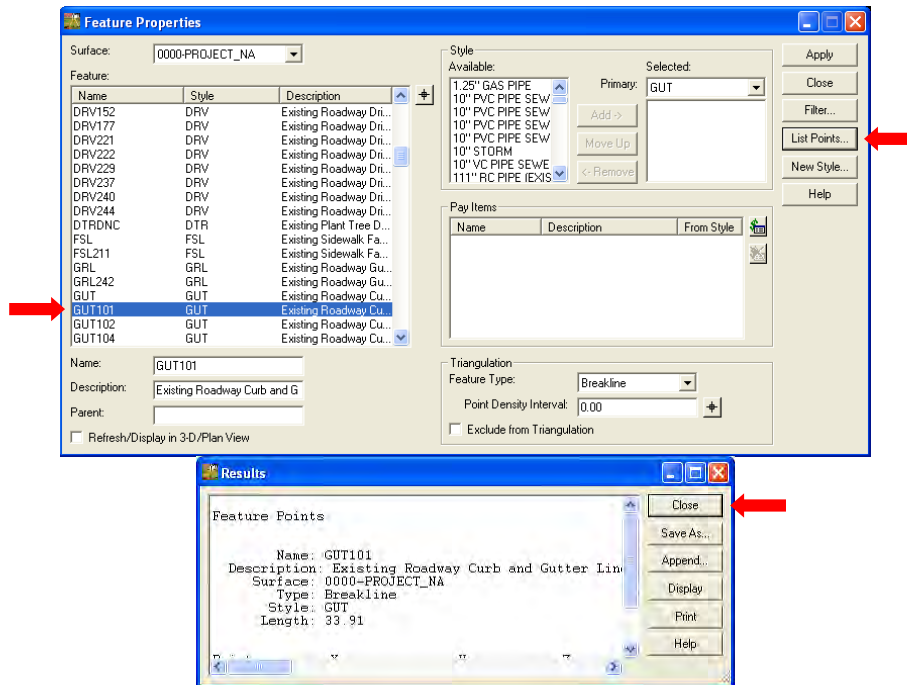
Highlight the incorrect Feature Style from the *Selected* column and click **Remove**.

Note: If you want to keep more than one Feature Style for a feature, make sure that the order of the Feature Styles is set correctly. (How and where the feature is displayed is based on the order of the Feature Styles assigned to it, with the first Feature Style displayed being first. Use the **Move Up** button to rearrange the order.)

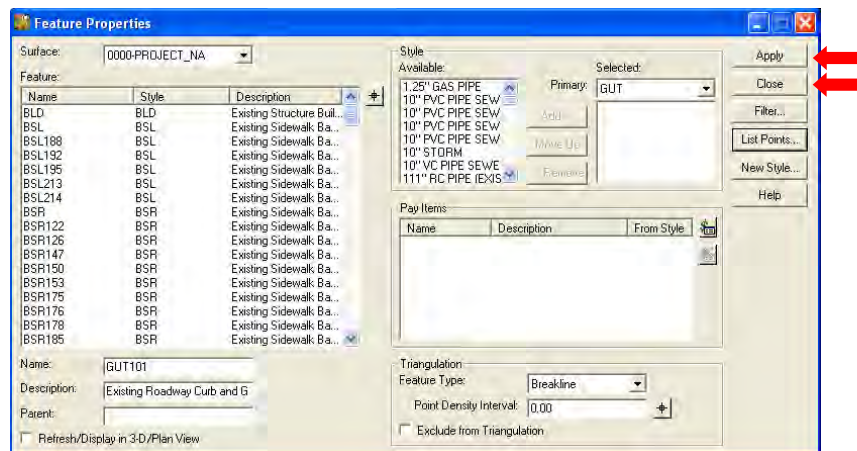


Breaklines: Check the length of breakline features. To do this highlight the feature and click **List Points**.

All the points in the breakline as well as the accumulative distance (3D) along the feature will be listed. Click **Close** in the **Results** dialog box when you are finished checking the points.



- After everything has been checked click **Apply**, then click **Close**.

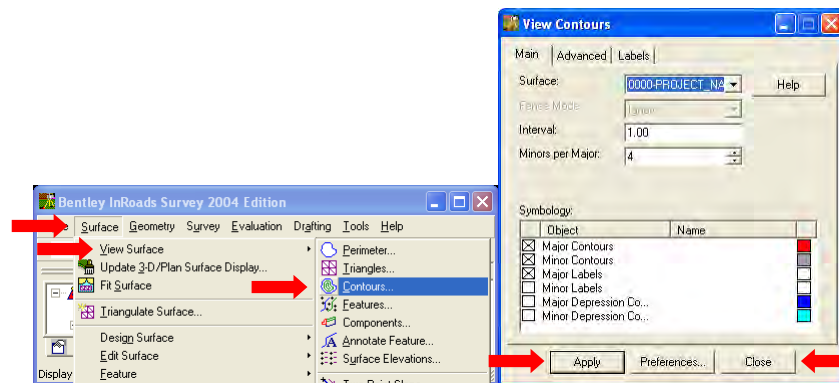


b. Review and edit the contours, triangles and perimeter:

Contours:

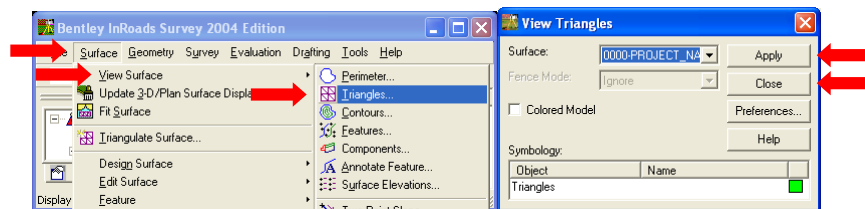
- In the *Bentley InRoads 2004 Edition* dialog box select **Surface > View Surface > Contours...**
- In the *View Contours* dialog box click **Apply**, then click **Close**.

Look for any sudden drops or rise in elevation. If these are not expected, then there are errors in the surface.



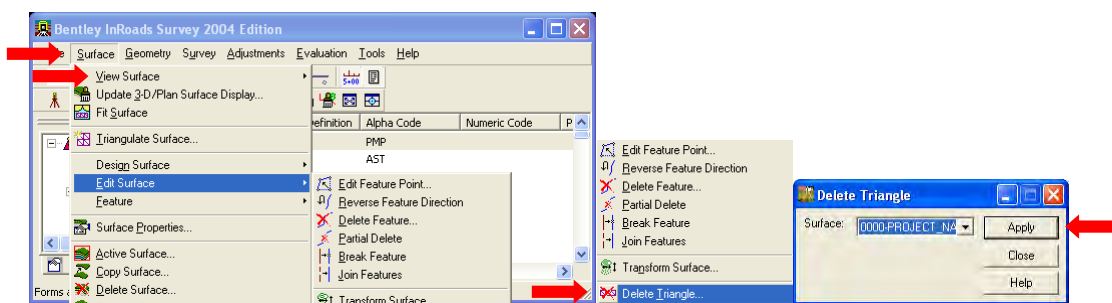
Triangles:

- In the *Bentley InRoads 2004 Edition* dialog box select **Surface > View Surface > Triangles...**
- In the *View Triangles* dialog box click **Apply**, then click **Close**.



Look for triangles that extend beyond the area where data was collected. If you find triangles that need to be corrected, do the following:

- In the *Bentley InRoads 2004 Edition* dialog box select **Surface > Edit Surface > Delete Triangles**.
- In the *Delete Triangle* dialog box click **Apply**.



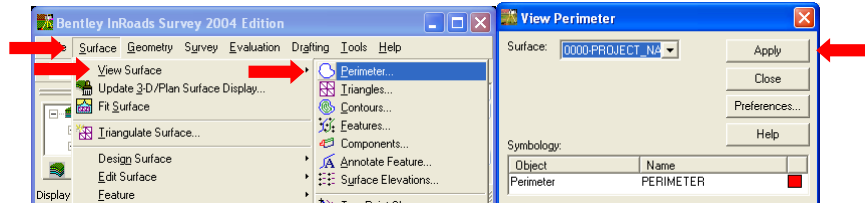
- Identify triangle.
- Identify end triangle.
- Left-click to accept.

Continue to delete triangles as necessary. **Do not re-triangulate** at this point or the triangles you deleted will reappear.

Note: This command does not modify the graphics file. To view the edited surface (with deleted triangles), delete the triangles and redisplay them using the *View Triangles* command.

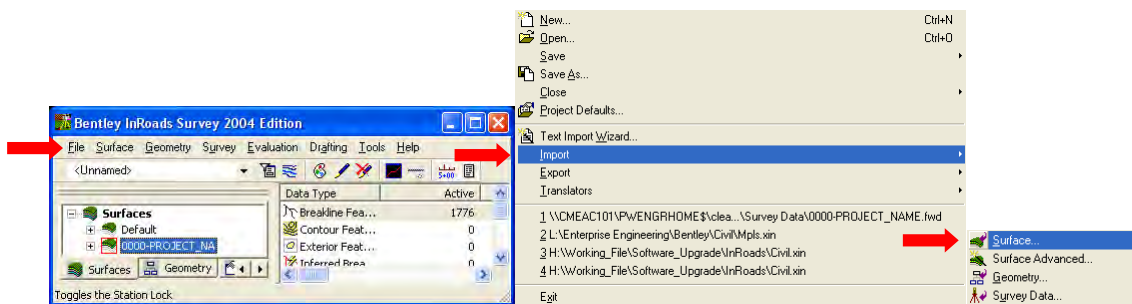
Perimeters:

- In the *Bentley InRoads 2004 Edition* dialog box select **Surface > View Surface > Perimeter...**
- In the *View Perimeter* dialog box click **Apply**.

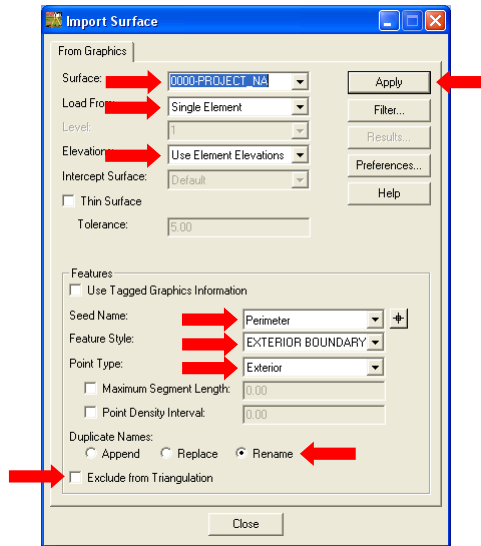


Look at the perimeter to see if it is beyond the limits of the survey. If the perimeter needs to be corrected, do the following:

- In the *Bentley InRoads 2004 Edition* dialog box select **File > Import Surface**.

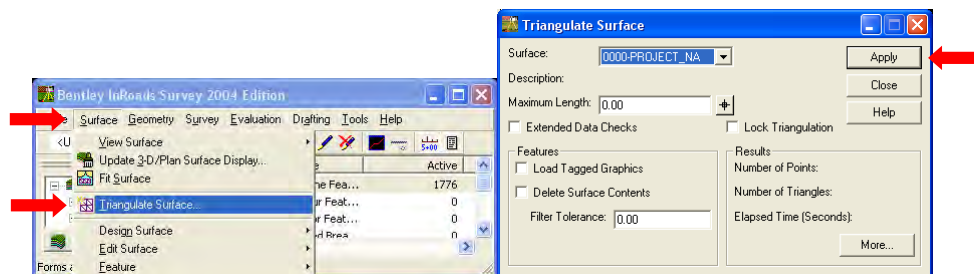


- In the *Import Surface* dialog box do the following:
 - For *Surface Name* select the name of the project (e.g. 0000-SURFACE_NAME).
 - For *Load From* select **Single Element**.
 - For *Elevations* select **Use Element Elevations**.
 - For *Seed Name* enter **Perimeter**.
 - For *Feature Style* select **EXTERIOR BOUNDARY**.
 - For *Point Type* select **Exterior (This is important!)**
 - For *Duplicate Names* click the **Rename** radio button.
 - Uncheck the **Exclude from Triangulation** checkbox and click **Apply**.
 - Left-click on the perimeter, then left-click to accept.



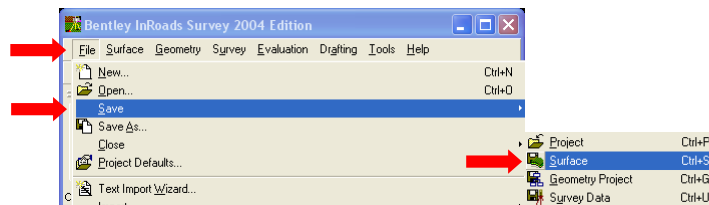
c. Re-triangulate the surface:

- In the *Bentley InRoads 2004 Edition* dialog box select **Surface > Triangulate Surface**.
- In the *Triangulate Surface* dialog box uncheck all the checkboxes (**Extended Data Checks**, **Lock Triangulation**, **Load Tagged Graphics**, **Delete Surface Contents**) and click **Apply**.



6. Save the surface:

- a. In the *Bentley InRoads 2004 Edition* dialog box select **File > Save > Surface**.



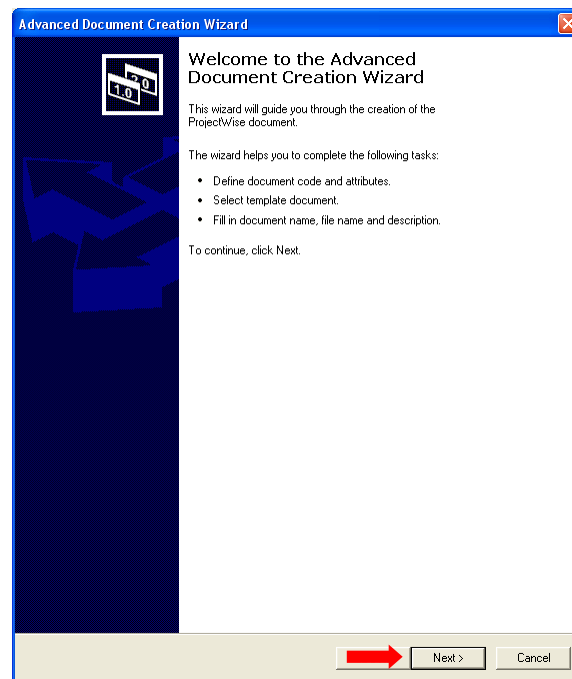
7. Proceed to [Detailed Steps for Moving Files into ProjectWise](#).

Detailed Steps for Moving Files into ProjectWise:

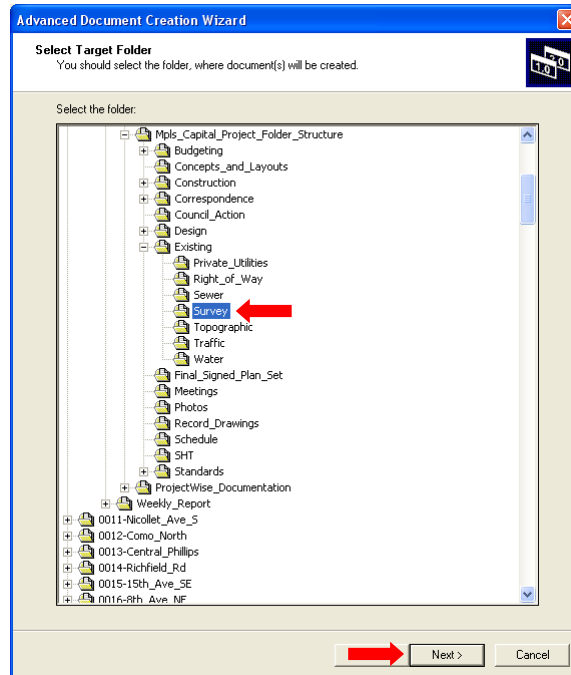
1. Move the survey data files to the project in ProjectWise:
 - a. Select **Start >All Programs >Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Survey* folder in the project (e.g. *0000-Project Name\Existing\Survey*).
 - c. Open the *Survey Data* folder on your *H:* drive and shrink it so that you can see the *Survey* folder in ProjectWise.
 - d. Highlight one of the survey data files (e.g. *raw survey data, fieldbook, surface, control points*), left-click on it and drag it into the *Survey* folder in ProjectWise.
 - e. In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.



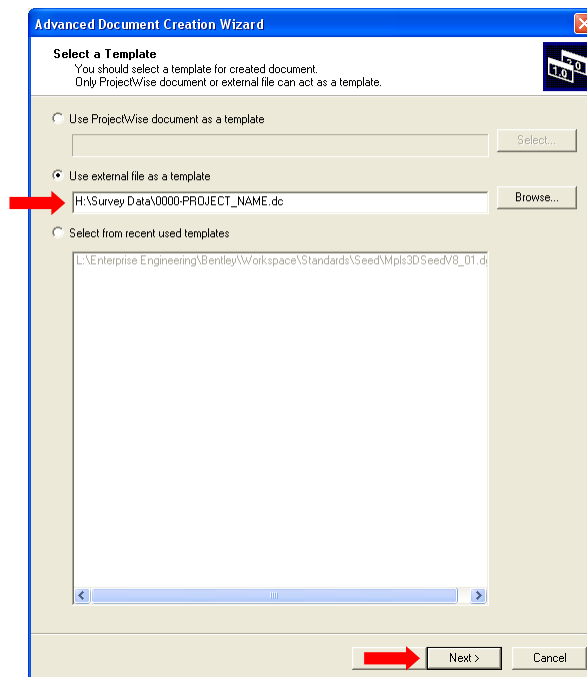
- f. In the *Advanced Document Creation Wizard* dialog box click **Next**.



- g. In the *Advanced Document Creation Wizard* dialog box under *Select Target Folder* highlight the **Survey** folder and click **Next**.



- h. In the *Advanced Document Creation Wizard* dialog box under *Select a Template* click the **Use external file as a template** radio button and click **Next**.



- i. In the *Advanced Document Creation Wizard* dialog box under *Define Document Code*, for *DOCUMENT TYPE* choose one of the following from the list below:
- For **Control Points** (.csv, .xls files) choose **CTRL**.
 - For **Existing Raw Survey Data** (.dc files) choose **EXSURV**.
 - For **Fieldbooks** (.fwd files) choose **FIELDBOOK**.
 - For **Proposed Raw Survey Data** (.dc files) choose **SURV**.
 - For **Surfaces** (.dtm files) choose **EXSURF**.
 - Click the **Generate** button, then click **Next**.

Advanced Document Creation Wizard

Define Document Code
You should define (generate) unique document code.

Document Unique Identifier

PROJECT NUMBER: 0010

DOCUMENT TYPE: EXSURV

ALIGNMENT:

DOCUMENT NUMBER: 001

Generate

Next available

0010-EXSURV-001

☐ Show Advanced Generate Options

Next > Cancel

- j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.

Advanced Document Creation Wizard

Define Document Attributes
You should define environment specific document attributes.

PROJECT OWNER: CITY OF MINNEAPOLIS

SECONDARY PROJECT OWNER:

PROJECT NAME:

SHEET TITLE:

DRAWN: [] DRAW DATE: []

CHECKED: [] CHK DATE: []

APPROVED: [] APP DATE: []

PROJECT NO. 1: [] PROJECT NO. 2: []

PROJECT NO. 3: [] PROJECT NO. 4: []

FILE NAME: 0010-EXSURV-001

VERSION DESCRIPTION: [] VER DATE: []

REVISION DESCRIPTION: [] REV DATE: [] REV: []

SHEET: [] OF SHT: []

SIGNED BY: []

PE NUMBER: [] SEAL DATE: []

Next > Cancel

- k. In the *Advanced Document Creation Wizard* dialog box under *Define Secondary Document Attributes* click **Next**.

The screenshot shows the 'Advanced Document Creation Wizard' dialog box, specifically the 'Define Secondary Document Attributes' step. The title bar reads 'Advanced Document Creation Wizard'. Below the title bar, the section is 'Define Secondary Document Attributes' with a subtitle 'You should define secondary document attributes.' The form contains several fields: 'NOTES' (text input), 'DIVISION' (dropdown), 'TITLESHEET PROJECT NO.' (text input), 'WARD' (dropdown), 'PROJECT TYPE' (dropdown), 'NORTH' (dropdown), 'SOUTH' (dropdown), 'EAST' (dropdown), 'WEST' (dropdown), 'PROJECT NUMBER' (dropdown with '0010' selected), 'DOCUMENT TYPE' (dropdown with 'EXSURV' selected), and 'ALIGNMENT' (dropdown). At the bottom right, there are 'Next >' and 'Cancel' buttons, with a red arrow pointing to the 'Next >' button.

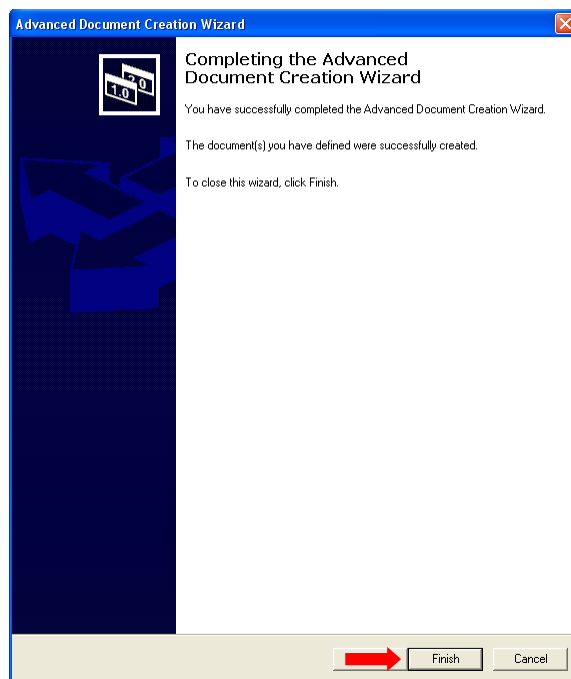
- l. In the *Advanced Document Creation Wizard* dialog box under *Document Properties*, for *Description for the new document* enter the appropriate description (see below) and click **Next**.
- For **Control Points** (.csv, .xls files) enter **Control Points**.
 - For **Existing Raw Survey Data** (.dc files) enter **Existing Raw Survey Data**.
 - For **Fieldbooks** (.fwd files) enter **Fieldbook**.
 - For **Proposed Raw Survey Data** (.dc files) enter **Proposed Raw Survey Data**.
 - For **Surfaces** (.dtm files) enter **Surface**.

The screenshot shows the 'Advanced Document Creation Wizard' dialog box, specifically the 'Document Properties' step. The title bar reads 'Advanced Document Creation Wizard'. Below the title bar, the section is 'Document Properties' with a subtitle 'Define required document properties - the name and the file name. Optionally, you can also define document description and version string.' The form contains four fields: 'New document name' (text input with '0010-EXSURV-001' and a browse button), 'Description for the new document' (text input with 'Existing Raw Survey Data' and a browse button), 'New document file name' (text input with '0010-EXSURV-001.dc' and a browse button), and 'Version' (text input). At the bottom right, there are 'Next >' and 'Cancel' buttons, with a red arrow pointing to the 'Next >' button.

m. In the *Advanced Document Creation Wizard* dialog box under *Create a Document* click **Next**.



n. In the *Advanced Document Creation Wizard* dialog box click **Finish**.



o. Delete the survey data files on your *H:* drive.

p. Notify the person who requested the survey via email that it has been completed and is ready to be used.

BACKGROUND

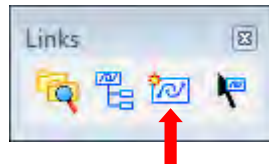
PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0005
ISSUED BY: Jim Cleary
SUBJECT: How to Create Links to Files
from MicroStation

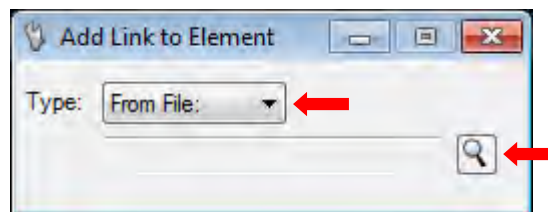
DEVELOPED BY: CADD Management Team
DATE: November 8, 2004
REVISION 0.2: February 14, 2020

WHAT TO DO

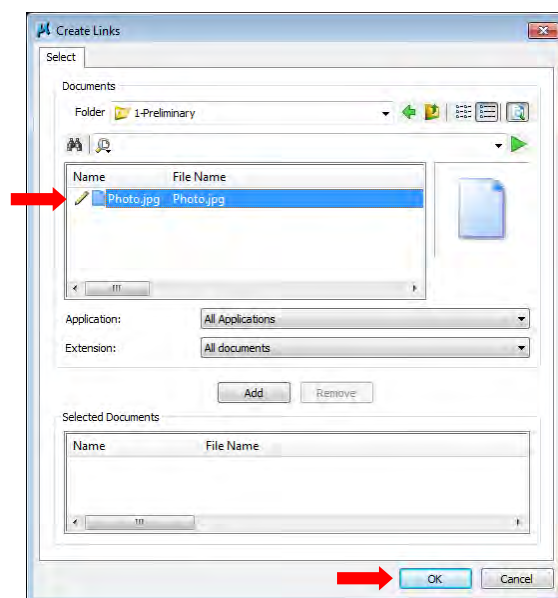
1. Create the link:
 - a. Select **Tools > Project Navigation > Links**.
 - b. In the *Links* toolbox click **Add a Link to an Element**.



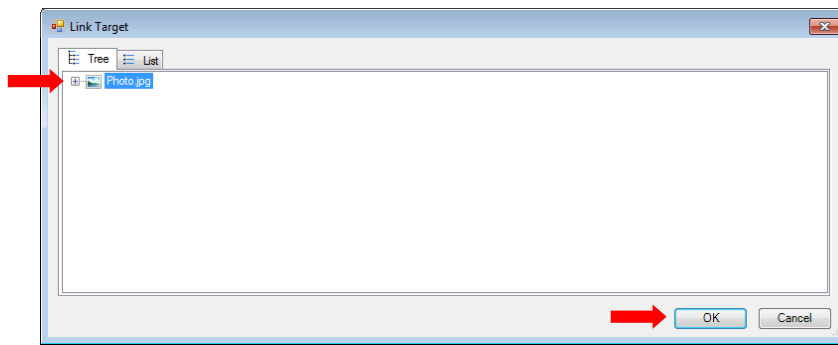
- c. In the *Add Link to Element* dialog box do the following:
 - For *Type* select **From File** from the dropdown list.
 - Click *Select link from file* (magnifying glass symbol).



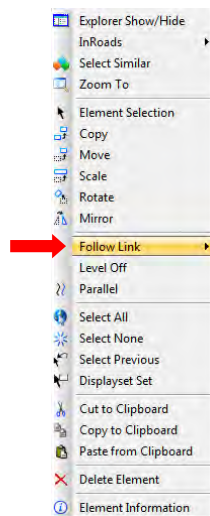
- d. In the *Create Links* dialog box browse to the location where the file you want to link to is located.
 - Highlight the file (i.e. *Photo.jpg*) and click **OK**.



- e. In the *Link Target* dialog box highlight the linked file and click **OK**.



- f. Left-click on the element you want to attach the link.
2. Display the file:
- a. Right-click and hold on the element that the linked file is attached to.
- Select **Follow Link > File Name** (i.e. *Photo.jpg*). The photo will now appear.



WHAT TO DO

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0006
ISSUED BY: Jim Cleary
SUBJECT: Orthophoto Attachment Procedure

DEVELOPED BY: CADD Management Team
DATE: November 8, 2004
REVISION 1.4: February 18, 2020

BACKGROUND

The M: drive has run out of space.

OVERVIEW

To increase the space available on the M: drive, and to take advantage of ProjectWise's file management and performance improving file caching capabilities (which reduces the amount of time it takes for orthophotos to open) all orthophotos have been moved into ProjectWise.

LOCATION

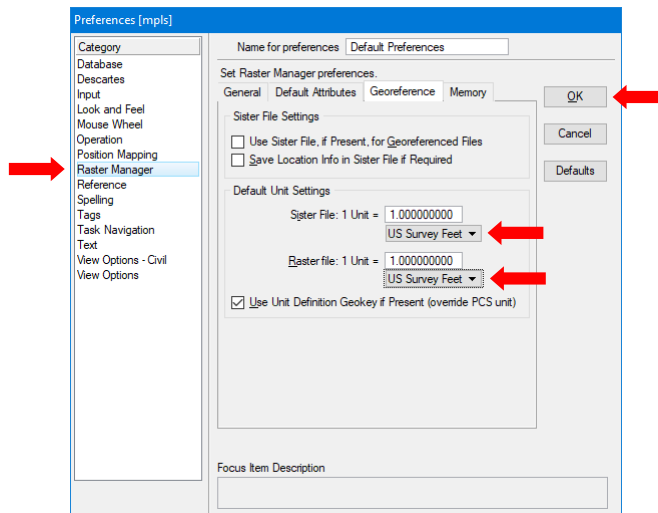
Orthos

WHAT TO DO

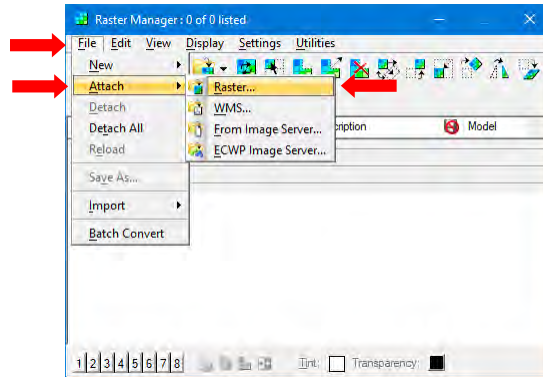
Note: It is no longer necessary to copy orthophotos to your project!

To attach orthophotos do the following:

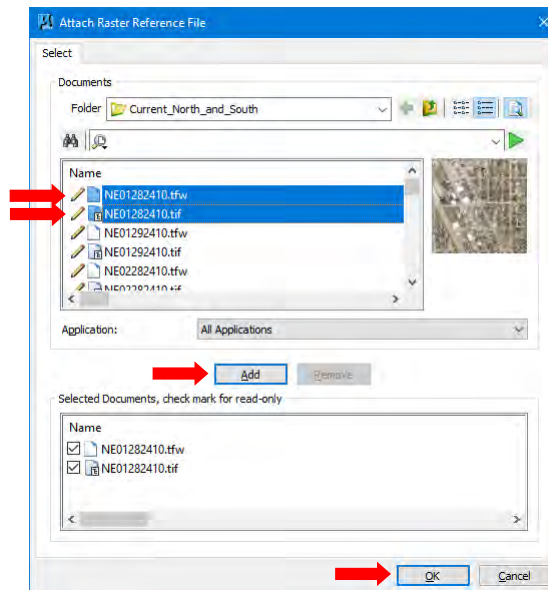
1. Open the MicroStation design file in ProjectWise that you want to attach orthophotos to.
2. Make sure that the *Default Unit Settings* are set to survey feet:
 - a. Select **Workspace > Preferences....**
 - b. In the *Preferences [mpls]* dialog box for *Category* highlight **Raster Manager**.
 - c. Check that *Sister File* is set as follows: **1 Unit = 1.000000000 US Survey Feet**.
 - d. Check that *Raster File* is set as follows: **1 Unit = 1.000000000 US Survey Feet**.
 - e. Click **OK**.



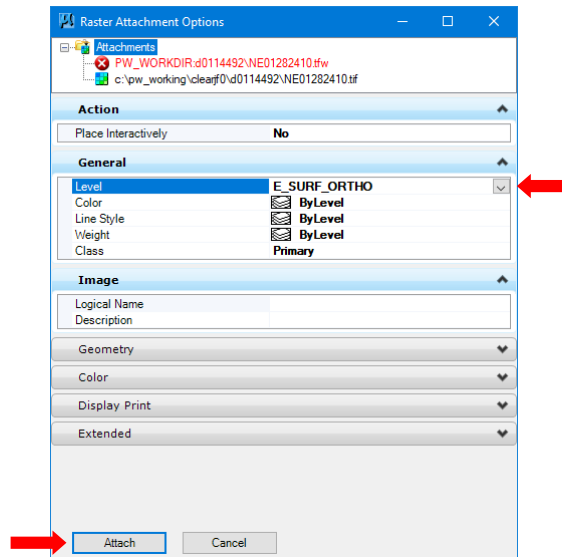
3. Attach the orthophoto to your design file:
 - a. Select **File > Raster Manager**.
 - b. In the *Raster Manager* dialog box select **File > Attach > Raster...**



- c. In the *Attach Raster Reference File* dialog box browse to *0000-Project_Resource\Orthos*. Open the folder with the orthophotos:
 - [Current North and South](#)
- d. Highlight the orthophoto (.tif) and its associated World file (.tfw), click **Add** and then click **OK**.



- e. In the *Raster Attachment Options* dialog box, for *Level* select **E_SURF_ORTHO** from the dropdown list, then click **Attach**.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0007
ISSUED BY: Matt Sandell, Jim Cleary
SUBJECT: How to Extract Project Data from the
Enterprise Spatial Database

DEVELOPED BY: CADD Management Team
DATE: March 16, 2005
REVISION 12.3: March 4, 2020

WHAT TO DO

The following procedures are presented in 2 different formats:

Quick Steps (an abbreviated version for users already familiar with the procedure)

| | |
|-------------|--|
| Page 2 | Centerline, County, LIDAR, Planimetric, and Sewer Data |
| Page 3 | Determine the X and Y Coordinates for the Lower Left and the Upper Right Corners of the Project Area |
| Page 4 | Annotating Centerline Data |
| Pages 5-6 | Annotating Sewer Data |
| Pages 7-8 | Exporting Geodatabases and Shapefiles from ArcGIS |
| Page 9 | Exporting Shapefiles from MicroStation |
| Page 10-11 | Contours |
| Page 12-13 | Orthophotos |
| Page 14 | Draping Orthophotos on a Surface |
| Pages 15 | Requesting Non-Excavation Utility Data |
| Pages 16-17 | Moving Files into ProjectWise |

Detailed Steps for extracting Data (the complete procedure *with* screen shots)

| | |
|-------------|--|
| Pages 18-21 | Centerline, County, LIDAR, Planimetric, and Sewer Data |
| Page 22 | Determine the X and Y Coordinates for the Lower Left and the Upper Right Corners of the Project Area |
| Pages 23-25 | Annotating Centerline Data |
| Pages 26-33 | Annotating Sewer Data |
| Pages 34-42 | Exporting Geodatabases and Shapefiles from ArcGIS |
| Pages 43-44 | Exporting Shapefiles from MicroStation |
| Pages 45-49 | Contours |
| Pages 50-59 | Orthophotos |
| Pages 60-62 | Draping Orthophotos on a Surface |
| Pages 63-66 | Requesting Non-Excavation Utility Data |
| Pages 67-72 | Moving Files into ProjectWise |

Quick Steps for Extracting Centerline, County, LIDAR, Planimetric, and Sewer Data:

1. Extract the project data:
 - a. Open ProjectWise.
 - b. Right-click on the *Data_Extraction_Projects* folder (0010-EE_Administration\Data_Extraction\Data_Extraction_Projects) and select **Spatial Database > New Spatial Database**.
Note: This procedure will work in any folder in ProjectWise.
 - c. In the *New Spatial Database Connection* dialog box click **Next**.
 - d. In the *New Spatial Database Connection* dialog box click the dropdown for *Spatial database* and select one of the following and click **Next**:
 - For Centerline, LIDAR, and Planimetric data select **dbtgis_pwTPE@PWTED_ALL**
 - For County data select **dbtgis_pwTPE@EDGIS_COUNTY**
Note: **County data is provided for internal users only!**
 - For Sewer data select **dbtgis_pwTPE@EDGIS_SWS**
 - e. In the *New Spatial Database Connection* dialog box click the feature(s) that you want to extract and click **Next**.
 - f. In the *New Spatial Database Connection* dialog box click the dropdown for *Coordinate System*, select **Local**, and click **Edit Geometry**.
Note: If you know the X and Y coordinates of the lower left and upper right corners of the area you want to extract data for, you may enter them in the appropriate fields in the *New Spatial Database Connection* dialog box. See [Quick Steps to Determine the X and Y Coordinates for the Lower Left and the Upper Right Corners of the Project Area](#).
 - g. In the *Extract/Post Properties Wizard* dialog box click the **Window Area** icon and zoom in to the area that you want to extract data for.
 - h. In the *Extract/Post Properties Wizard* dialog box click the **Edit Polygon Geometry**, **Edit Rectangle Geometry**, or **Edit Rotated Rectangle Geometry** and select the area that you want to extract data for.
 - Click **OK**.
 - i. In the *New Spatial Database Connection* dialog box in the *Document Name* field enter the appropriate name (see below) and click **Next**.
 - For **Centerline** data enter “project number-CLINE” (e.g. 0000-CLINE).
 - For **County** data enter “project number-EXRWAY” (e.g. 0000-EXRWAY).
 - For **LIDAR** data enter “project number-LIDAR” (e.g. 0000-LIDAR).
 - For **Planimetric** data enter “project number-EXTPOPO” (e.g. 0000-EXTPOPO).
 - For **Sewer** data enter “project number-EXSEWR” (e.g. 0000-EXSEWR).
 - j. In the *New Spatial Database Connection* dialog box click the **Extract All Documents** radio button and click **Finish**.
 - k. For *Centerline* data, proceed to [Quick Steps for Annotating Centerline Data](#).
 - l. For *Sewer* data, proceed to [Quick Steps for Annotating Sewer Data](#).
2. Proceed to [Quick Steps for Moving Files into ProjectWise](#).

Quick Steps to Determine the X and Y Coordinates for the Lower Left and the Upper Right Corners of the Project Area:

1. Open **GeoMaster**.
2. Zoom-in to the project area and allow the cursor to hover over one the lower left corner of the project area.
 - In the lower portion of the *GeoMaster* window, next to *County (Feet)* will be the Easting (X) and Northing (Y) locations (e.g. *530,122.31E, 168,374.48N*). Remember these numbers or write them down.
Note: It is not necessary to remember the whole number, only the portion *before* the decimal point (e.g. for the number *530,122.31E* you only need to remember *530,122*).
 - Repeat the above step for the upper right corner of the project area.

Quick Steps for Annotating Centerline Data:

1. Label the data:
 - a. Open the design file with the extracted Centerline data.
 - b. Select **Applications > InRoads Group > Activate InRoads**.
 - c. Select **Applications > Map > Activate Map**.
 - d. Select **File > Map Manager**.
 - In the *Create Map Model* dialog box click **OK**.
 - e. Select **File > Map Manager**.
 - In the *Map Manager* dialog box right-click on **Dbtgis_Pwtpe_Pwtpe_Street_Cline** and select **Labeling...**
 - f. In the *Labeling* dialog box for *Labeling Style* select **By Layer**.
 - In the *General* section do the following:
 - For *Color* select **12** from the color palette in the drop-down list.
 - For *Weight* select **1** from the drop-down list.
 - In the *Labeling* section do the following:
 - For *Text String* select **[Street_O_Name]** from the drop-down list.
 - For *Offset X* enter **2.5**.
 - For *Offset Y* enter **2.5**.
 - In the *Text* section do the following:
 - For *Text Style* select **EXTRACT_TEXT** from the drop-down list.
 - In the *Labeling* dialog box click **Ok**.
2. Annotate the data:
 - a. In the *Map Manager* dialog box highlight **Dbtgis_Pwtpe_Pwtpe_Street_Cline** and select **Annotation....**
 - In the *Select Annotation Destination* dialog box for **Select the Annotation Destination Model** click the **Existing Model** radio button and click **OK**.
3. Delete the Map Model:
 - a. Select **File > Models**.
 - In the *Models* dialog box right-click on **MapModel1** and click **Delete**.
 - Close the *Models* dialog box..
4. Move the annotations to the correct level:
 - a. Select **Edit > Select By Attributes**.
 - In the *Select By Attributes* dialog box highlight **Default** and click **Execute**.
 - b. Click **Change Attributes**.
 - In the *Change Attributes* dialog box check the box next to *Level* and select **E_RWAY_ST_NAME** from the drop-down list.
 - Left-click anywhere in the design file.
 - Close the *Change Attributes* dialog box.
 - Close the *Select By Attributes* dialog box.
 - In the *Alert* dialog box click **OK**.

Quick Steps for Annotating Sewer Data:

1. Label the data:
 - a. Open the design file with the extracted Sewer data.
 - b. Select **Applications > InRoads Group > Activate InRoads**.
 - c. Select **Applications > Map > Activate Map**.
 - d. Select **File > Map Manager**.
 - In the *Create Map Model* dialog box click **OK**.
 - e. Select **File > Map Manager**.
 - In the *Map Manager* dialog box right-click on a *Sanitary Sewer* line feature (e.g. *Public_Works_San_Connection_Aband*) and select **Labeling...**
 - In the *Labeling* dialog box for *Labeling Style* select **Thematic**.
 - Click the **Open a theme file** icon.
 - In the *Open* dialog box navigate to **L:\Enterprise Engineering\Bentley\Workspace\Standards\dgnlib**.
 - Highlight **Sanitary_Sewer_Extraction.label** and click **Open**.
 - In the *Labeling* dialog box click **OK**.

Note: Repeat these steps for every *Sanitary Sewer* line feature.

 - In the *Map Manager* dialog box right-click on a *Storm Sewer* line feature (e.g. *Public_Works_Storm_Cb_Run*) and select **Labeling...**
 - In the *Labeling* dialog box for *Labeling Style* select **Thematic**.
 - Click the **Open a theme file** icon.
 - In the *Open* dialog box navigate to **L:\Enterprise Engineering\Bentley\Workspace\Standards\dgnlib**.
 - Highlight **Sanitary_Sewer_Extraction.label** and click **Open**.
 - In the *Labeling* dialog box click **OK**.

Note: Repeat these steps for every *Storm Sewer* line feature.
2. Annotate the Sanitary Sewer data:
 - a. In the *Map Manager* dialog box right-click on a Sanitary Sewer line feature (e.g. *Public_Works_San_Connection_Aband*) and select **Annotation...**.
 - In the *Select Annotation Destination* dialog box for **Select the Annotation Destination Model** click the **Existing Model** radio button and click **OK**.

Note: Repeat **Step 2** for each Sanitary Sewer line feature.
3. Move the Sanitary Sewer annotations to the correct level:
 - a. Select **File > Models**.
 - In the *Models* dialog box double-click on **Default**.
 - b. Select **Edit > Select By Attributes**.
 - In the *Select By Attributes* dialog box highlight **Default** and click **Execute**.
 - c. Click **Change Attributes**.
 - In the *Change Attributes* dialog box check the box next to Level and select **E_UTIL_SSWR_TXT** from the drop-down list.
 - Left-click anywhere in the design file.
4. Annotate the Storm Sewer data:
 - a. Select **File > Models**.
 - In the *Models* dialog box double-click on **MapModel1**.
 - b. In the *Map Manager* dialog box right-click on a Storm Sewer line feature (e.g. *Public_Works_Storm_Cb_Run*) and select **Annotation...**.
 - In the *Select Annotation Destination* dialog box for **Select the Annotation Destination Model** click the **Existing Model** radio button and click **OK**.

Note: Repeat **Step 4b** for each Storm Sewer line feature.
5. Move the Storm Sewer annotations to the correct level:
 - a. Select **File > Models**.

- In the *Models* dialog box double-click on **Default**.
- b. Select **Edit > Select By Attributes**.
 - In the *Select By Attributes* dialog box highlight **Default** and click **Execute**.
- c. Click **Change Attributes**.
 - In the *Change Attributes* dialog box check the box next to Level and select **E_UTIL_STRM_TXT** from the drop-down list.
 - Left-click anywhere in the design file.
- 6. Delete the map model:
 - a. Select **File > Models**.
 - In the *Models* dialog box right-click on **MapModel1** and click **Delete**.
 - In the *Alert* dialog box click **Yes**.
 - Close the *Models* dialog box..
 - Close the *Change Attributes* dialog box.
 - Close the *Select By Attributes* dialog box.
 - In the *Alert* dialog box click **OK**.

Quick Steps for Exporting Geodatabases and Shapefiles from ArcGIS:

1. Open ArcCatalog:
 - a. Select **Start > All Programs > ArcGIS > ArcCatalog 10.6.1**.
2. Add a Spatial Database Connection:

Note: This only needs to be done once.

 - a. Select **Database Connections > Add Database Connection**.
 - b. Double-click on **Add Database Connection**.
 - In the *Database Connection* dialog box do the following:
 - For *Database Platform* select **SQL Server**.
 - In the *Instance* field enter **dbgisprod**.
 - For *Authentication Type* select **Operating system authentication**.
 - For *Database* select **edgis**.
 - Click **OK**.
3. Create the folder connection:
 - a. Right-click on *Folder Connections* and select **Connect Folder...**.
 - In the *Connect to Folder* dialog box browse to the location where you want to extract the data to and click **OK**.
 - **Note:** If the data is to be used for GeoMaster do the following:
 - Browse to **L:\GEOMas\DataXfer**.
 - Right-click on *DataXfer* and select **New > Folder**.
 - Name the folder:
 - For *County* data name it **County_MM_YYYY** (e.g. **County_01_2020**).
 - For *Planimetric* data name it **Planimetric_MM_YYYY** (e.g. **Planimetric_01_2020**).
 - For *Sewer* data name it **Sewer_MM_YYYY** (e.g. **Sewer_01_2020**).
 - For *Water* data name it **Water_MM_YYYY** (e.g. **Water_01_2020**).
 - **Note:** For centerline data a new folder is not necessary. The geodatabase may be placed directly in the **DataXfer** folder.
4. Create the geodatabase:
 - a. Right-click on the folder connection you made and select **New > File Geodatabase**.
 - b. Name the new geodatabase.
 - **Note:** If the data is to be used for GeoMaster do the following:
 - For *Alley Centerline* data create one database:
 - Name the database **ALLEY_CLINE_MM_YYYY** (e.g. **ALLEY_CLINE_01_2020**).
 - For *County* data create two databases:
 - Name the first database **County_MM_YYYY** (e.g. **County_01_2020**).
 - Name the second database **Zoning_MM_YYYY** (e.g. **Zoning_01_2020**).
 - For *Planimetric* data create three databases:
 - Name the first database **PLAN_LN_MM_YYYY** (e.g. **PLAN_LN_01_2020**).
 - Name the second database **PLAN_POLY_MM_YYYY** (e.g. **PLAN_POLY_01_2020**).
 - Name the third database **PLAN_PT_MM_YYYY** (e.g. **PLAN_PT_01_2020**).
 - For *Rail Centerline* data create one database:
 - Name the database **RAIL_CLINE_MM_YYYY** (e.g. **RAIL_CLINE_01_2020**).
 - For *Sewer* data create two databases:
 - Name the first database **Sanitary_MM_YYYY** (e.g. **Sanitary_LN_01_2020**).
 - Name the second database **Storm_MM_YYYY** (e.g. **Storm_01_2020**).
 - For *Water* data create one database:
 - Name the first database **Water_MM_YYYY** (e.g. **Water_01_2020**).
5. Export the data to the new personal geodatabase:
 - a. Expand the database connection, right-click on the feature, and select **Export > To Geodatabase (multiple)...**.
 - **Note:** If the data is to be used for GeoMaster do the following:

- For *Alley Centerline* data highlight the following data:
 - TBD
 - For *County* data highlight the following data:
 - TBD
 - For *Planimetric* data highlight the following data:
 - TBD
 - For *Rail Centerline* data highlight the following data:
 - TBD
 - For *Sanitary Sewer* data highlight the following data:
 - TBD
 - For *Storm Sewer* data highlight the following data:
 - TBD
 - For *Water* data highlight the following data:
 - TBD
- b. In the *Feature Class to Geodatabase (multiple)* dialog box click the button next to the *Output Geodatabase* field.
- In the *Output Geodatabase* dialog box double-click on **Folder Connections**.
 - In the *Output Geodatabase* dialog box double-click on the folder connection you made (e.g. **H:\Working_File\Data_Extraction_Projects\Test_Project**).
 - In the *Output Geodatabase* dialog box highlight the geodatabase you created (e.g. **Test_Project.gdb**) and click **Add**.
- c. In the *Feature Class to Geodatabase (multiple)* dialog box click **OK**.
Note: If the data is to be used for **GeoMaster** click **Environments...** instead of **OK**, then continue to the next step.
- d. In the *Environment Settings* dialog box click **Output Coordinates**.
- In the *Environment Settings* dialog box for *Output Coordinate System* select **As Specified Below** from the dropdown list.
 - Click the button next to the blank field.
 - In the *Spatial Reference Properties* dialog box expand **Geographic Coordinate Systems**.
 - In the *Spatial Reference Properties* dialog box expand **North America**.
 - In the *Spatial Reference Properties* dialog box expand **USA and territories**.
 - In the *Spatial Reference Properties* dialog box highlight **NAD 1983** and click **OK**.
 - In the *Environment Settings* dialog box click **OK**.
 - In the *Feature Class to Geodatabase (multiple)* dialog box click **OK**.

Quick Steps for Exporting Shapefiles from MicroStation:

1. Extract the data that you want to create the shapefile from:
Note: Shapefiles use stroked arcs!
 - a. Follow the steps as described in [Quick Steps for Extracting Centerline, County, LIDAR, Planimetric, and Sewer Data](#).
2. Export the shapefile:
 - a. Open the design file with the extracted data.
 - b. Select **Applications > InRoads Group > Activate InRoads**.
 - c. Select **Applications > Map > Activate Map**.
 - d. Select **File > Export > GIS Data Types...**
 - In the *Interoperability* dialog box right-click on *Export* and select **New Export**.
 - e. Right-click on *Export1* and select **Add Shapefile...**
 - In the *Create Shapefile* dialog box do the following:
 - Navigate to the folder where you want to save the shapefile.
 - Enter a name (e.g. *0000-Existing_Planimetric_Lines*) in the *File name* field and click **Save**.
Note: The file name should include the following:
 - Project Number
 - Data Type (assessment, centerline, county, LIDAR, monument, planimetric, sewer)
 - Element Type (lines, polygons, points)
 - f. In the *Interoperability* dialog box do the following:
 - Expand the folder below the file you just created and check the box next to the feature(s) you want in the shapefile.
 - Right-click on the file you just created and select **Export**.

Quick Steps for Creating Contours:

Note: This procedure is for information only. We do not provide contours!

1. Extract the LIDAR data (see [Quick steps for extracting Centerline, County, LIDAR, Planimetric, and Sewer Data](#)).
2. Open a design file with InRoads.
3. Import the LIDAR data:
 - a. In *MicroStation V8i (SELECTseries 2)* select **File > References**.
 - b. In the *References* dialog box select **Tools > Attach**.
 - In the *Attach Reference* dialog box navigate to the location where the LIDAR data is located, highlight the file, click **Add**, and click **OK**.
 - c. In the *Reference Attachment Settings* dialog box click **OK**.
 - d. In the *References* dialog box click select **Tools > Merge Into Master**.
 - Left-click anywhere in the design file.
 - In the *Alert* dialog box click **OK**.
 - Close the *References* dialog box.
 - Click **Fit View** so you can see the LIDAR data.
4. Create the surface:
 - a. In the *InRoads V8i (SELECTseries 2)* dialog box select **File > New....**
 - In the *New* dialog box do the following:
 - For *Type* select **Existing** from the dropdown.
 - For *Name* enter a name for the surface (e.g. LIDAR Surface).
 - For *Description* enter a description for the surface (e.g. LIDAR Surface).
 - For *Preference* select **Default** from the dropdown.
 - Click **Apply**, then click **Close**.
5. Import the LIDAR lines into the surface:
 - a. In the *InRoads V8i (SELECTseries 2)* dialog box select **File > Import > Surface** and do the following:
 - For *Surface* select the surface you created (e.g. LIDAR Surface) from the dropdown list.
 - For *Load From* select **Level** from the dropdown list.
 - For *Level* select **E_SURF_LIDAR_LI**.
 - For *Elevations* select **Use Element Elevations** from the dropdown list.
 - For *Seed Name* enter **LIDAR Lines**.
 - For *Feature Style* select **Default** from the dropdown list.
 - For *Point Type* select **Breakline** from the dropdown list.
 - Click **Apply**.
6. Import the LIDAR points into the surface:
 - a. In the *InRoads V8i (SELECTseries 2)* dialog box do the following:
 - For *Surface* select the surface you created (e.g. LIDAR Surface) from the dropdown list.
 - For *Load From* select **Level** from the dropdown list.
 - For *Level* select **E_SURF_LIDAR_PT**.
 - For *Elevations* select **Use Element Elevations** from the dropdown list.
 - For *Seed Name* enter **LIDAR Points**.
 - For *Feature Style* select **Default** from the dropdown list.
 - For *Point Type* select **Random** from the dropdown list.
 - Click **Apply**, then click **Close**.
7. Triangulate the surface:
 - a. In the *InRoads V8i (SELECTseries 2)* dialog box select **Surface > Triangulate Surface....**
 - b. In the *Triangulate Surface* dialog box click **Apply**, then click **Close**.
8. Create the contours:
 - a. In the *InRoads V8i (SELECTseries 2)* dialog box select **Surface > View Surface > Contours....**
 - In the *View Contours* dialog box click the **Main** tab and do the following:
 - For *Surface* select the surface you created (e.g. LIDAR Surface) from the dropdown list.

- For *Interval* enter the difference in elevation you want between each consecutive contour line (e.g. enter 1 if you want to display contour lines at 1-foot intervals).
Note: The interval must be greater than 0.
 - For *Minors per Major* enter the number of minor contours that you want to display between neighboring major contours (e.g. enter 4 if you want to display 4 minor contour lines between each major contour line). Note: If you enter 0, no minor contours will display.
 - Click **Apply**.
 - When the contours have been created click **Close**.
9. Proceed to [Quick steps for moving files into ProjectWise](#).

Quick Steps for Providing Orthophotos:

1. Create the orthophoto design file for the project:
 - a. Right-click in the **Existing > Topographic > Topographic Read_Only** folder and select **New > Advanced Wizard...**
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box click the **Use external file as a template** radio button and click **Browse...**
 - In the *Open* window browse to *L:\Enterprise Engineering\Bentley\Workspace\Standards\seed*, highlight **MplsSeed.dgn** and click **Open**.
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box do the following:
 - For *CM_DOCTYP* select **ORTHO** from the dropdown list.
 - Click **Generate**, then click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - In the *Advanced Document Creation Wizard* dialog box click **Finish**.
2. Ensure that the Worldfile default unit is set to survey feet:
 - a. Select **Workspace > Preferences**.
 - In the *Preferences [mpls]* dialog box for *Category* highlight **Raster Manager**, click the **Georeference** tab, and check that the settings are as follows:
 - Sister File: 1 Unit = 1.000000000.
US Survey Feet
 - Raster file: 1 Unit = 1.000000000.
US Survey Feet
 - Click **OK**.
3. Determine the orthophotos you need:

Note: You will need to use the coordinates you determined in [Quick steps for determining the X and Y locations for the lower left and the upper right corners of the project area](#).

 - a. Click the **Place Block** tool.
 - Click the *Active Color* tool and select **3**.
 - Click the *Active Line Style* tool and select **0**.
 - Click the *Active Line Weight* tool and select **6**.
 - Click the **Place Block** tool.
 - Place the cursor in the *Key-in* field and enter the easting and northing numbers for one of the corners of the project area (e.g. *xy=533448, 164270*) and press the **Enter** key.
 - Place the cursor in the *Key-in* field and enter the easting and northing numbers for the other corner of the project area (e.g. *xy=535312, 166540*) and press the **Enter** key.
 - Click the **Fit View** tool to see the block.
 - b. Select **File > References**.
 - In the *References* dialog box select **Tools > Attach...**
 - In the *Attach Reference* dialog box navigate to **ProjectWise\Documents\0000-Project_Resource\Orthos\Quarter_Section_Grid.dgn**.
 - Highlight **Quarter_Section_Grid.dgn**, click **Add**, then click **OK**.
 - Record the orthophotos you need (e.g. *NE262924_00, SE262924_00*).
 - In the *References* dialog box select **Tools > Detach All**.
 - Close the *References* dialog box by clicking the "X" in the upper right-hand corner.
4. Attach the orthophotos to your design file:
 - a. Select **E_SURF_ORTHO** as the active level.

- b. Select **File > Raster Manager**.
- c. In the *Raster Manager* dialog box select **File > Attach > Raster...**.
- d. In the *Attach Raster Reference File* dialog box browse to 0000-Project_Resource\Orthos.
 - Using the information you gathered in *Step 4*, open **Current_North_and_South**.
 - Highlight the worldfile (**NE26292410.tfw**) and its associated orthophoto (e.g. **NE26292410.tif**), click **Add** and then click **OK**.
- e. In the *Raster Attachment Options* dialog box click **Attach**.
 - Close the *Raster Manager* dialog box by clicking the “X” in the upper right-hand corner.
 - Repeat *Step 5* for each of the remaining orthophotos.

Note: Multiple orthophotos may be attached at one time if desired.
Delete the block placed in **Step 4**.
Close the design file by clicking the “X” in the upper right-hand corner.

Quick Steps for Draping Orthophotos on a Surface:

Prerequisite: A MicroStation design file with a triangulated surface.

1. Attach the orthophoto(s) to your design file (see [Quick Steps for Providing Orthophotos](#)).
2. Assign the material to the surface feature:
 - a. Select **Settings > Rendering > Materials**.
 - In the *Material Editor* dialog box select **Palette > Open...**
 - In the *Open Palette* dialog box highlight **dcdrape.pal** and click **OK**.
 - In the *Material Editor* dialog box right-click on *dcdrape* and select **Assign**.
 - In *MicroStation* left-click on one of the triangles in the surface.
 - Left-click again to accept the feature you selected.
3. Display the draped photos:
 - a. In the *Raster Manager* dialog box right-click on the column headings and select **Draping**.
 - In the *Raster Manager* dialog box ensure that there is a check mark in the *Draping* column next to the orthophotos you want to drape.
 - b. In the *View Attributes* dialog box for *Display Style* select **Smooth with Shadows** from the dropdown list, then click the "X" in the upper right-hand corner.

Quick Steps for Requesting Non-Excavation Utility Data:

Note: Design teams are responsible for submitting utility data requests.

1. Submit a *Non-Excavation* ticket to *Gopher State One Call* (<http://www.gopherstateonecall.org/>).

- a. Click **Submit & Manage Tickets**.
- b. On the *Ticketing* page click **Industry Professionals**.
- c. On the *iSite* page do the following:

- For *USERNAME* enter your email address.
- For *PASSWORD* enter your password.
- Click **Login**.

Note: If you do not have an account click *NEED TO REGISTER?*

- d. On the next page enter the following information:

- **CALLER INFORMATION:**

Note: This information will be entered automatically.

- EXCAVATION COMPANY: **CITY OF MINNEAPOLIS**
- ITIC USER NAME: **JIM CLEARY**
- ADDRESS: **309**
- STREET: **2ND AVE. S., ROOM 201**
- CITY: **MINNEAPOLIS**
- STATE: **MN**
- ZIP: **55401**
- PHONE NO: **612-673-3623**
- FAX: **612-673-2048**
- EMAIL ADDRESS: **JIM.CLEARY@CI.MINNEAPOLIS.MN.US**

- **PROFILE INFORMATION:**

- FIELD CONTACT: **JIM CLEARY**
- FIELD PHONE: **612-673-3623**
- TYPE OF WORK: **DESIGN FOR ROAD CONSTRUCTION**
- DURATION: **6 MONTHS**
- WORK DONE FOR: **CITY OF MINNEAPOLIS**
- TUNNEL BORE: **N**
- EXPLOSIVES: **N**
- AREA MARKED IN WHITE: **Y**
- RIGHT OF WAY: **Y**

- Click **NON-EXCAV TKT**.

- e. On the next page do the following:

- Enter the address of the excavation area (e.g. 1st Ave NE, Minneapolis, MN, USA).
- Click the method you want to use to define the excavation area (e.g. **Create Route**).
- Digitize the excavation area, and then click **End Route**.
- Click **NEXT**.

- f. On the next page enter the following information:

- LOCATION INFORMATION: **A ROUTE ALONG 1ST AVE. NE FROM 1ST ST NE TO 2ND ST NE.**
- REMARKS: **WE NEED PLANS, NOT FIELD MARKINGS!**
SEND PLANS TO (enter your email address)
- Click **NEXT**.

- g. On the next page click **SUBMIT**.

- h. On the next page click **LOGOUT**.

2. Proceed to [Quick steps for moving files into ProjectWise](#).

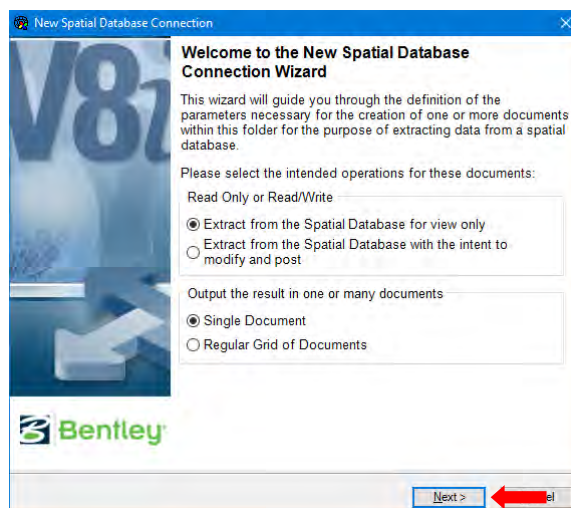
Quick Steps for Moving Files into ProjectWise:

1. Move the extract design file to the project in ProjectWise:
 - a. Select **Start >All Programs >Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to one of the following folders in the project:
 - For **Centerline/Street Name, Contour, LiDAR, Orthophoto, & Planimetric** data select the Existing\Topographic\Topographic_Read_Only folder.
 - For **Private Utility** data select the Existing\Private_Uilities\Private_Uilities_Read_Only folder.
 - For **Right-of-Way/Building Number** data select the Existing\Right-of-Way\Right-of-Way_Read_Only folder.
 - For **Sewer or Watershed Drainage Area** data select the Existing\Sewer\Sewer_Read_Only folder.
 - For **Traffic** data select the Existing\Traffic\Traffic_Read_Only folder.
 - For **Water** data select the Existing\Water\Water_Read_Only folder.
 - c. Open the *Extract Data* folder on your *H:* drive and shrink it so that you can see the folder in ProjectWise.
 - d. Highlight the extract data file (e.g. 0000-EXTOPO.dgn), left-click on it and drag it into the folder in ProjectWise.
 - e. In the *Select a Wizard* dialog box highlight *Advanced Wizard* and click **OK**.
 - f. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - g. In the *Advanced Document Creation Wizard/Select Target Folder* dialog box highlight the appropriate folder and click **Next**.
 - h. In the *Advanced Document Creation Wizard/Select a Template* dialog box click the **Use external file as a template** radio button and click **Next**.
 - i. In the *Advanced Document Creation Wizard/Define Document Code* dialog box, for *CM_DOCTYP* choose one of the following from the dropdown list:
 - For **Centerline/Street Name** data choose **CLINE**.
 - For **Contour** data choose **CONTOUR**.
 - For **LiDAR** data choose **LIDAR**.
 - For **Orthophoto** data choose **ORTHO**.
 - For **Planimetric** data choose **EXTOPO**.
 - For **Private Utility** data choose **EXUTIL**.
 - For **Right-of-Way/Building Number** data choose **EXRWAY**.
 - For **Sewer** data choose **EXSEWR**.
 - For **Shapefile** data choose **SHPPFILE**.
 - For **Traffic** data choose **EXTRAF**.
 - For **Water** data choose **EXWATR**.
 - For **Watershed Drainage Area** data choose **WATRSHD**.Click the **Generate** button, then click **Next**.
 - j. In the *Advanced Document Creation Wizard/Define Document Attributes* dialog box click **Next**.
 - k. In the *Advanced Document Creation Wizard/Document Properties* dialog box, for *Description for the new document* enter the appropriate description (see below) and click **Next**.
 - For **Centerline/Street Names** enter **Centerlines/Street Names**.
 - For **Contour** enter **Contours**
 - For **LiDAR** data enter **LiDAR Data**.
 - For **Orthophoto** data enter **Orthophotos**.
 - For **Planimetric** data enter **Existing Planimetric Data**.
 - For **Private Utility** data enter **Existing Private Utility Data**.
 - For **Right-of-Way/Building Number** data enter **Existing Right-of-Way Data/Building Numbers**.
 - For **Sewer** data enter **Existing Sewer Data**.
 - For **Shapefile** data enter the data type associated with the data that was extracted, plus the word **Shapefile** (e.g. *Sewer Attributes Shapefile*).

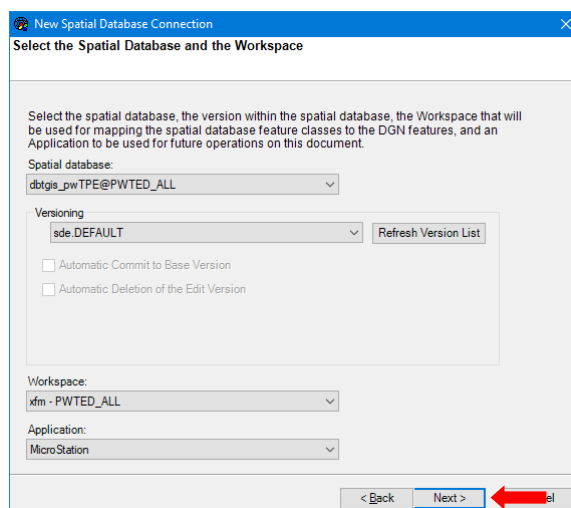
- For **Traffic** data enter **Existing Traffic Data**.
 - For **Water** data enter **Existing Water Data**.
- l. In the *Advanced Document Creation Wizard/Create a Document* dialog box click **Next**.
 - m. In the *Advanced Document Creation Wizard* dialog box click **Finish**.
 - n. Delete the extract data file on your *H:* drive.
 - o. Notify the person who requested the extraction via email that it has been completed and is ready to be used.

Detailed Steps for Extracting Centerline, County, LIDAR, Planimetric, and Sewer Data:

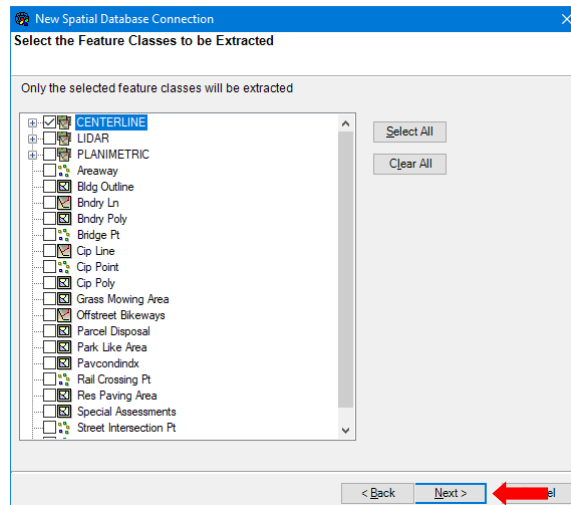
1. Extract the project data:
 - a. Open ProjectWise.
 - b. Right-click on the *Data_Extraction_Projects* folder (*0010-EE_Administration\Data_Extraction\Data_Extraction_Projects*) and select ***Spatial Database > New Spatial Database***.
Note: This procedure will work in any folder in ProjectWise.
 - c. In the *New Spatial Database Connection* dialog box click ***Next***.



- d. In the *New Spatial Database Connection* dialog box click the dropdown for *Spatial database* and select one of the following and click ***Next***:
 - For Centerline, LIDAR, and Planimetric data select ***dbtgis_pwTPE@PWTED_ALL***
 - For County data select ***dbtgis_pwTPE@EDGIS_COUNTY*****Note: County data is provided for internal users only!**
 - For Sewer data select ***dbtgis_pwTPE@EDGIS_SWS***

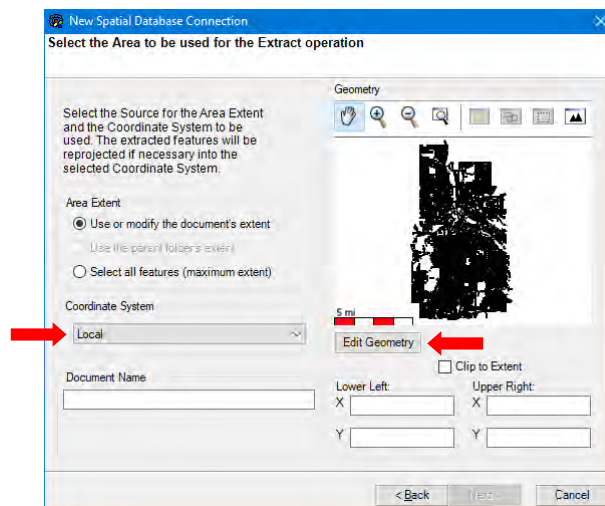


- e. In the *New Spatial Database Connection* dialog box click the feature(s) that you want to extract and click **Next**.

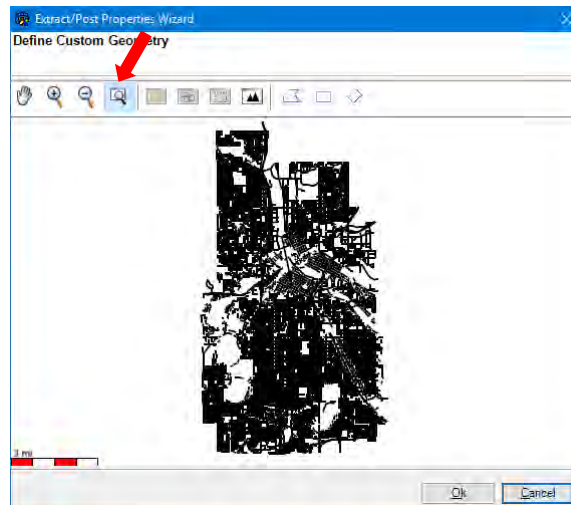


- f. In the *New Spatial Database Connection* dialog box click the dropdown for *Coordinate System*, select **Local**, and click **Edit Geometry**.

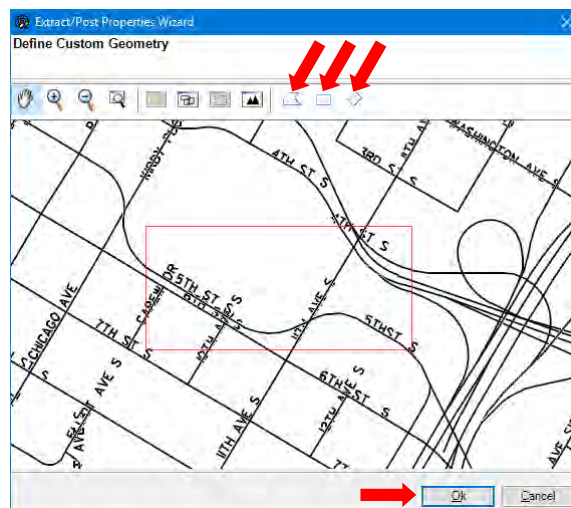
Note: If you know the X and Y coordinates of the lower left and upper right corners of the area you want to extract data for, you may enter them in the appropriate fields in the *New Spatial Database Connection* dialog box. See [Detailed Steps to Determine the X and Y Coordinates for the Lower Left and the Upper Right Corners of the Project Area](#).



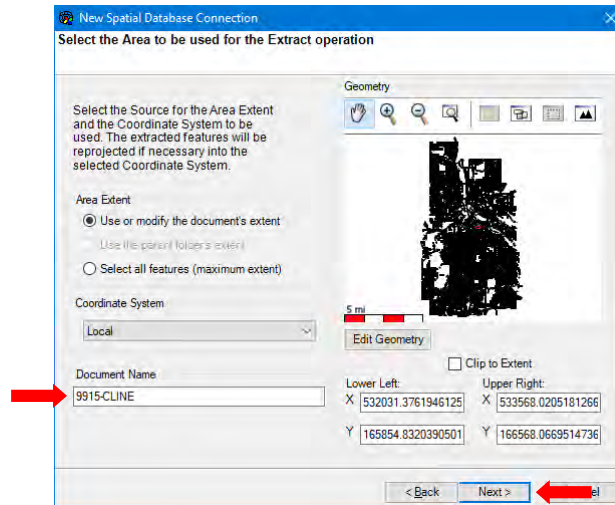
- g. In the *Extract/Post Properties Wizard* dialog box click the **Window Area** icon and zoom in to the area that you want to extract data for.



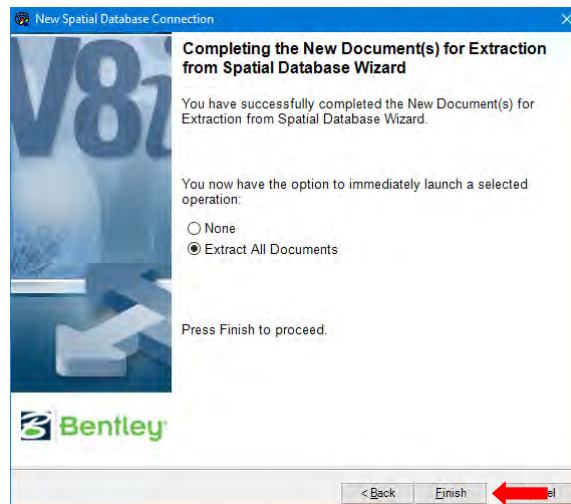
- h. In the *Extract/Post Properties Wizard* dialog box click the **Edit Polygon Geometry**, **Edit Rectangle Geometry**, or **Edit Rotated Rectangle Geometry** and select the area that you want to extract data for.
- Click **OK**.



- i. In the *New Spatial Database Connection* dialog box in the *Document Name* field enter the appropriate name (see below) and click **Next**.
 - For **Centerline** data enter “project number-CLINE” (e.g. 0000-CLINE).
 - For **County** data enter “project number-EXRWAY” (e.g. 0000-EXRWAY).
 - For **LIDAR** data enter “project number-LIDAR” (e.g. 0000-LIDAR).
 - For **Planimetric** data enter “project number-EXTPO” (e.g. 0000-EXTPO).
 - For **Sewer** data enter “project number-EXSEWR” (e.g. 0000-EXSEWR).



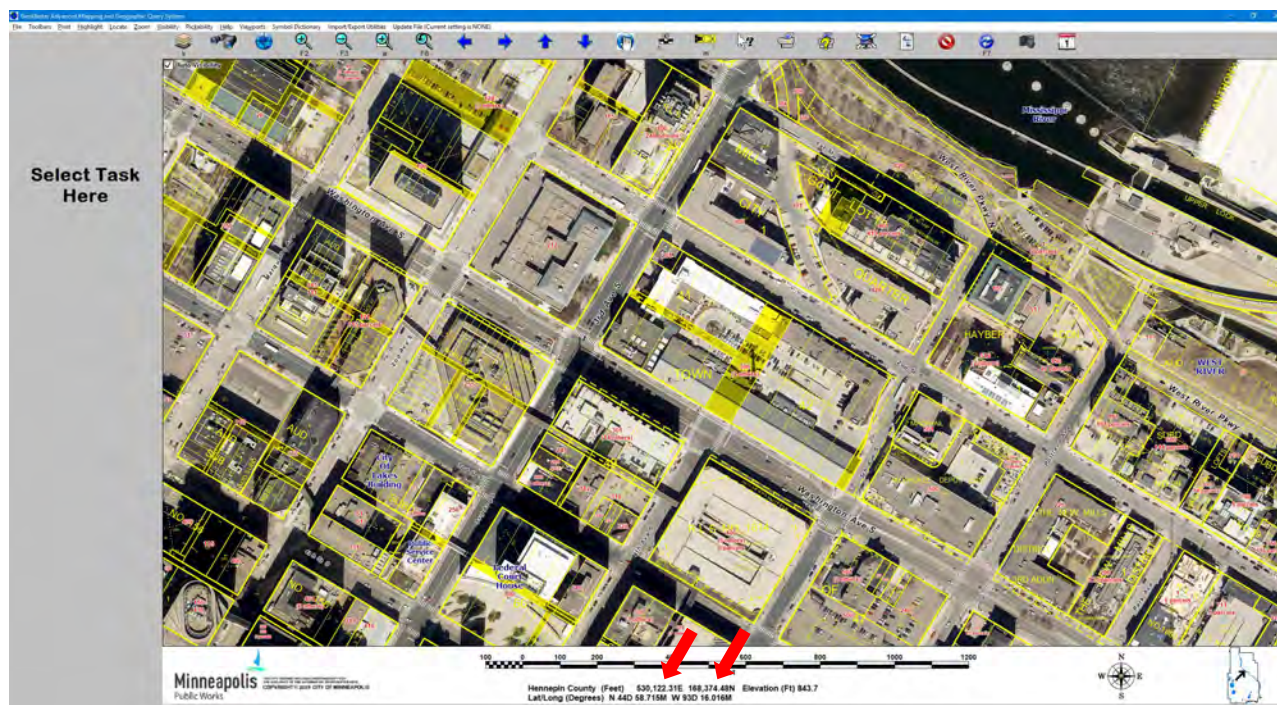
- j. In the *New Spatial Database Connection* dialog box click the Extract All Documents radio button and click **Finish**.



- k. For *Centerline* data, proceed to [Detailed Steps for Annotating Centerline Data](#).
- l. For *Sewer* data, proceed to [Detailed Steps for Annotating Sewer Data](#).
2. Proceed to [Detailed Steps for Moving Files into ProjectWise](#).

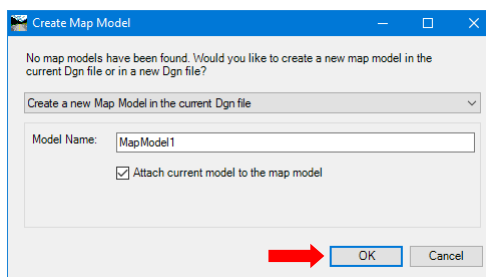
Detailed Steps to Determine the X and Y Coordinates for the Lower Left and the Upper Right Corners of the Project Area:

1. Open **GeoMaster**.
2. Zoom-in to the project area and allow the cursor to hover over one the lower left corner of the project area.
 - In the lower portion of the *GeoMaster* window, next to *County (Feet)* will be the Easting (X) and Northing (Y) locations (e.g. 530,122.31E, 168,374.48N). Remember these numbers or write them down.
Note: It is not necessary to remember the whole number, only the portion *before* the decimal point (e.g. for the number 530,122.31E you only need to remember 530,122).
 - Repeat the above step for the upper right corner of the project area.

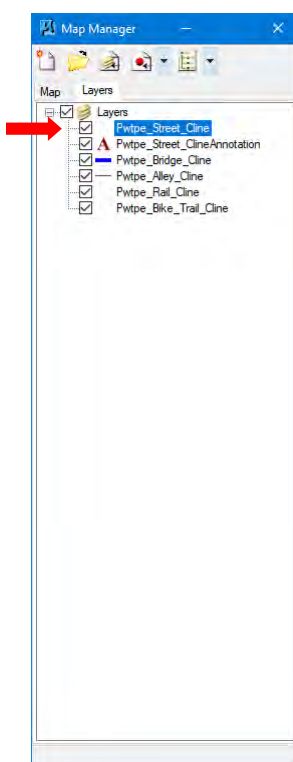


Detailed Steps for Annotating Centerline Data:

1. Label the data:
 - a. Open the design file with the extracted Centerline data.
 - b. Select **Applications > InRoads Group > Activate InRoads**.
 - c. Select **Applications > Map > Activate Map**.
 - d. Select **File > Map Manager**.
 - In the *Create Map Model* dialog box click **OK**.

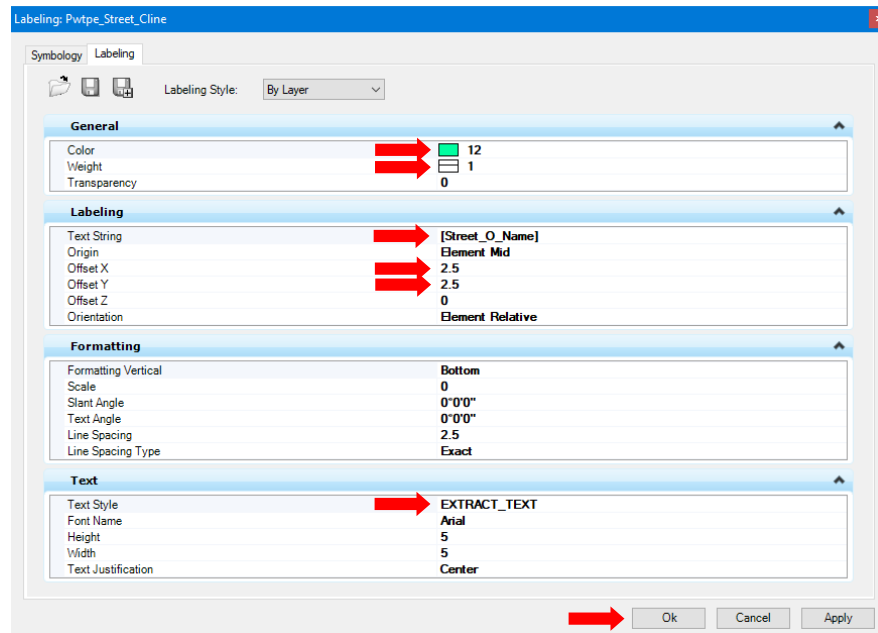


- e. Select **File > Map Manager**.
 - In the *Map Manager* dialog box right-click on **Dbtgis_Pwtpe_Pwtpe_Street_Cline** and select **Labeling....**



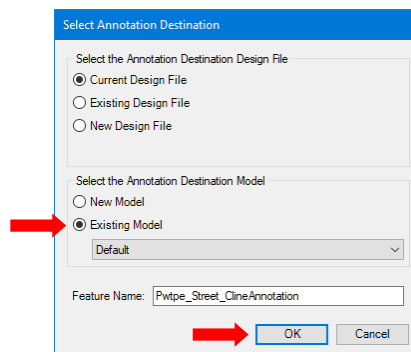
- f. In the *Labeling* dialog box for *Labeling Style* select **By Layer**.
 - In the *General* section do the following:
 - For *Color* select **12** from the color palette in the drop-down list.
 - For *Weight* select **1** from the drop-down list.
 - In the *Labeling* section do the following:
 - For *Text String* select **[Street_O_Name]** from the drop-down list.
 - For *Offset X* enter **2.5**.
 - For *Offset Y* enter **2.5**.
 - In the *Text* section do the following:

- For *Text Style* select **EXTRACT_TEXT** from the drop-down list.
- In the *Labeling* dialog box click **Ok**.



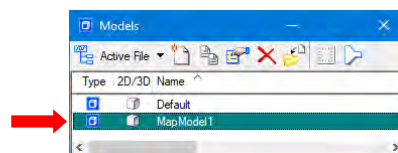
2. Annotate the data:

- In the *Map Manager* dialog box highlight **Dbtgis_Pwtpe_Pwtpe_Street_Cline** and select **Annotation....**
 - In the *Select Annotation Destination* dialog box for **Select the Annotation Destination Model** click the **Existing Model** radio button and click **OK**.

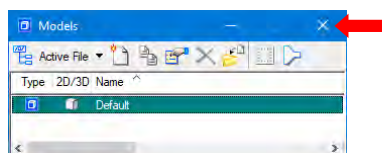


3. Delete the Map Model:

- Select **File > Models**.
 - In the *Models* dialog box right-click on **MapModel1** and click **Delete**.



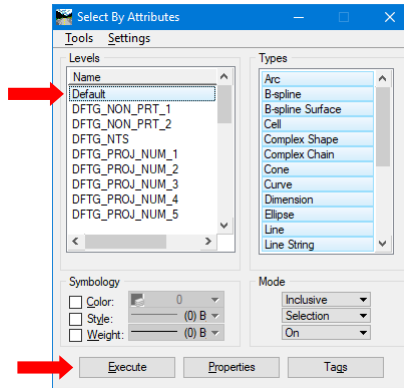
- Close the *Models* dialog box..



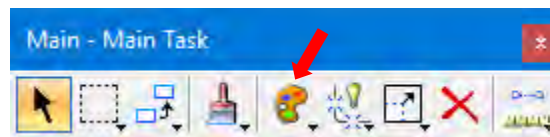
4. Move the annotations to the correct level:

a. Select **Edit > Select By Attributes**.

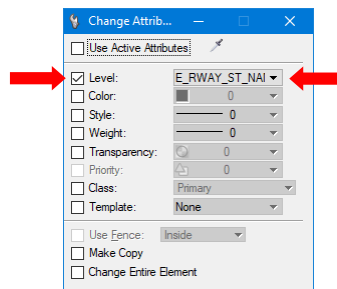
- In the *Select By Attributes* dialog box highlight **Default** and click **Execute**.



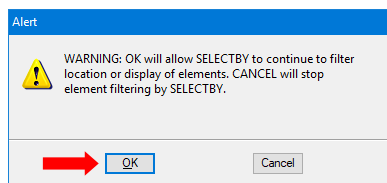
b. Click **Change Attributes**.



- In the *Change Attributes* dialog box check the box next to Level and select **E_RWAY_ST_NAME** from the drop-down list.

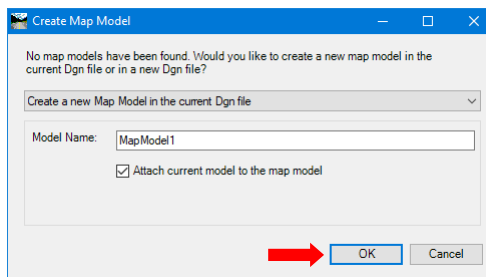


- Left-click anywhere in the design file.
- Close the *Change Attributes* dialog box.
- Close the *Select By Attributes* dialog box.
- In the *Alert* dialog box click **OK**.

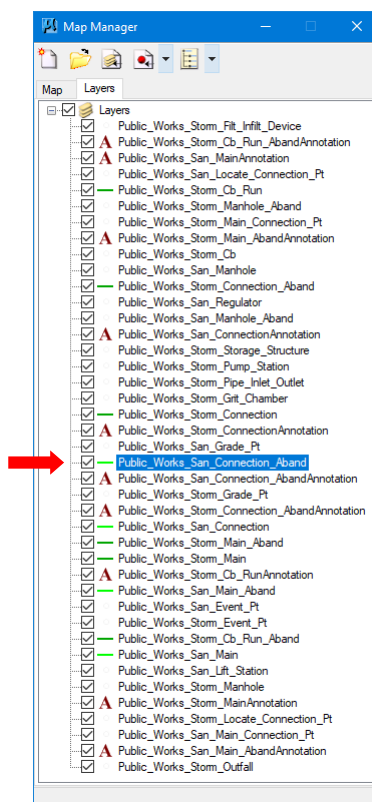


Detailed Steps for Annotating Sewer Data:

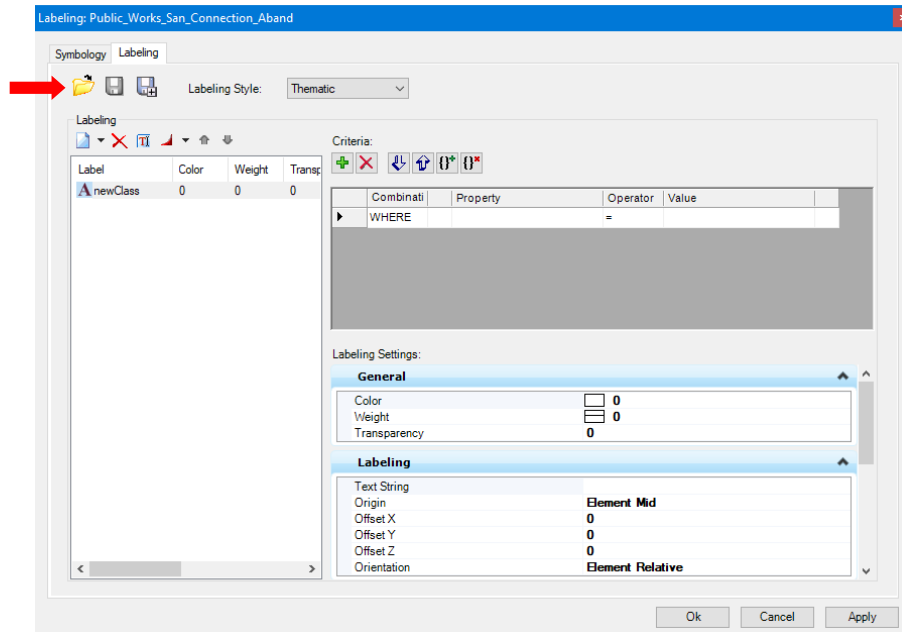
1. Label the data:
 - a. Open the design file with the extracted Sewer data.
 - b. Select **Applications > InRoads Group > Activate InRoads**.
 - c. Select **Applications > Map > Activate Map**.
 - d. Select **File > Map Manager**.
 - In the *Create Map Model* dialog box click **OK**.



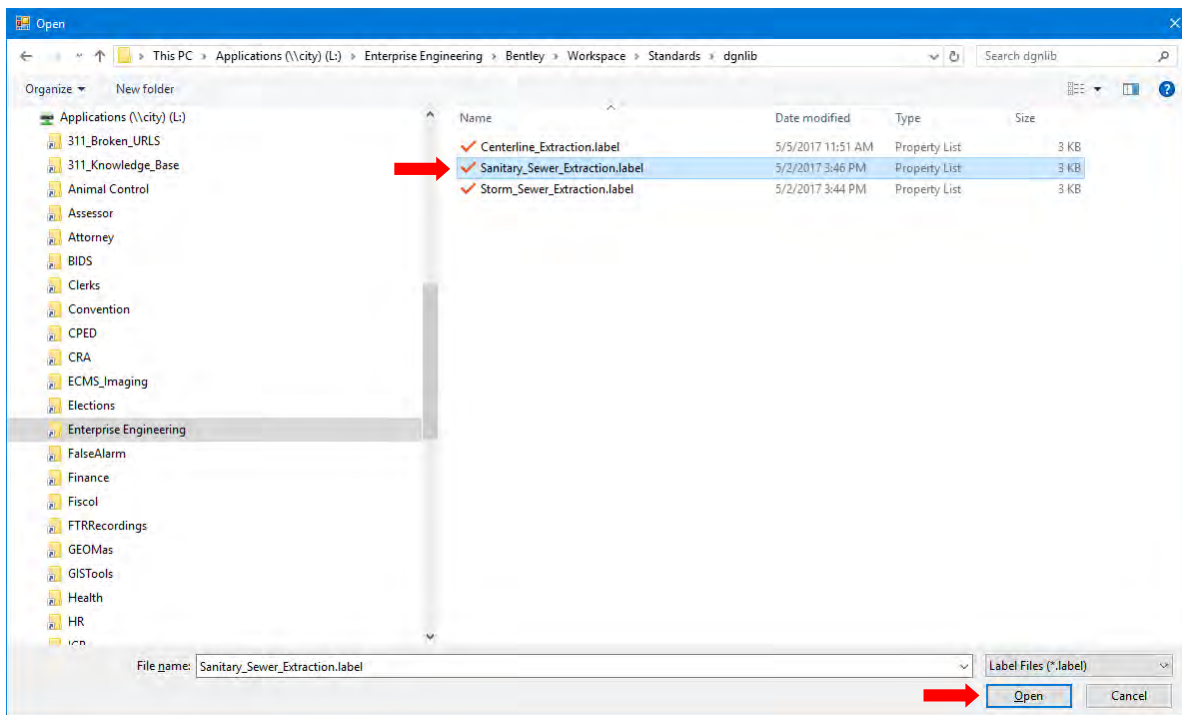
- e. Select **File > Map Manager**.
 - In the *Map Manager* dialog box right-click on a *Sanitary Sewer* line feature (e.g. *Public_Works_San_Connection_Aband*) and select **Labeling...**.



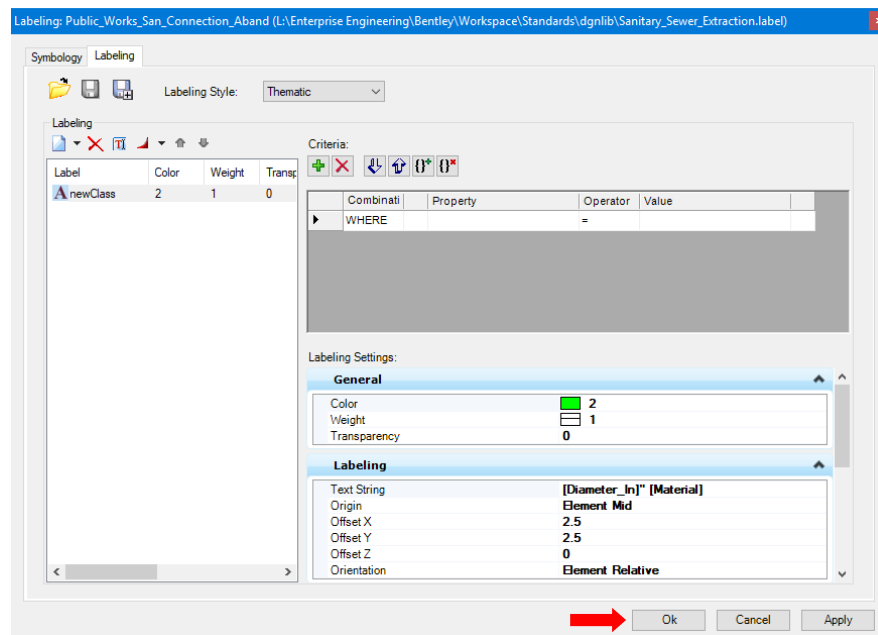
- In the *Labeling* dialog box for *Labeling Style* select **Thematic**.
- Click the **Open a theme file** icon.



- In the *Open* dialog box navigate to **L:\Enterprise Engineering\Bentley\Workspace\Standards\dgnlib**.
- Highlight **Sanitary_Sewer_Extraction.label** and click **Open**.

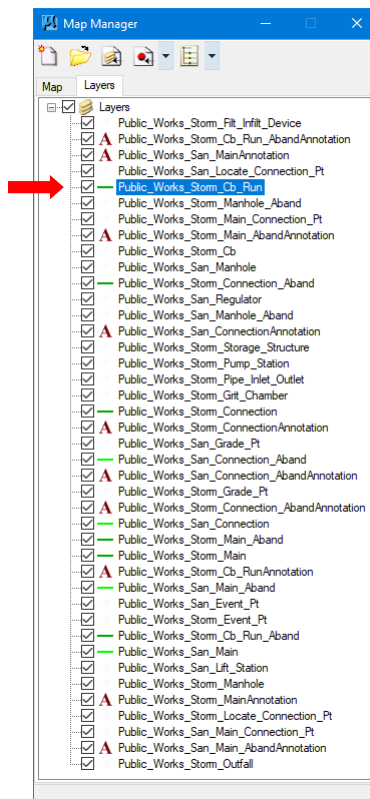


- In the *Labeling* dialog box click **OK**.

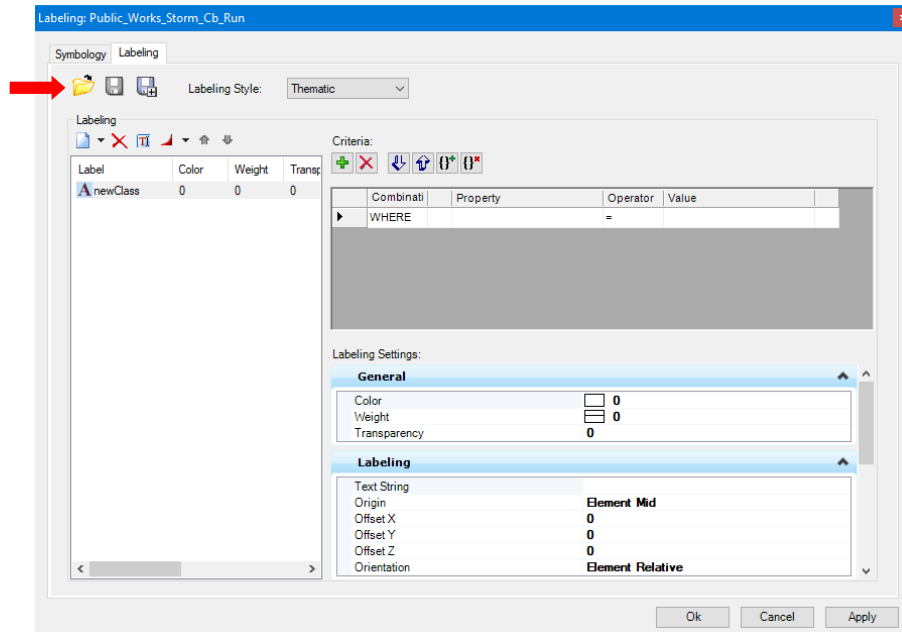


Note: Repeat these steps for every *Sanitary Sewer* line feature.

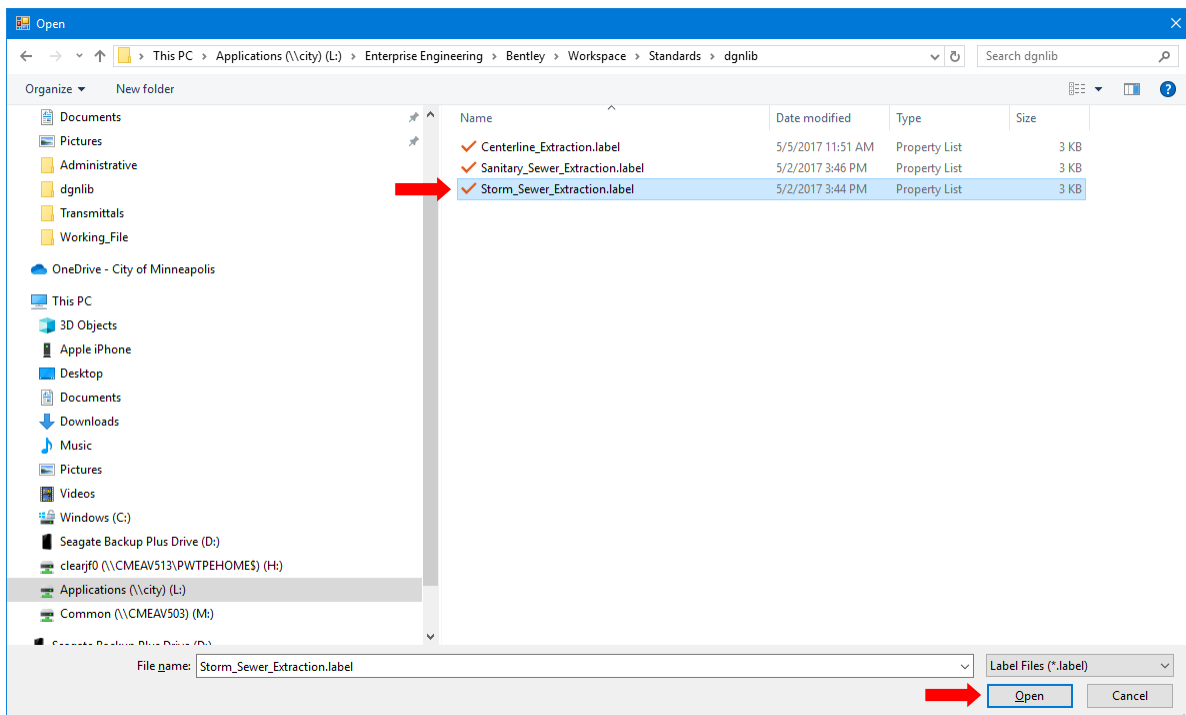
- In the *Map Manager* dialog box right-click on a *Storm Sewer* line feature (e.g. *Public_Works_Storm_Cb_Run*) and select **Labeling...**



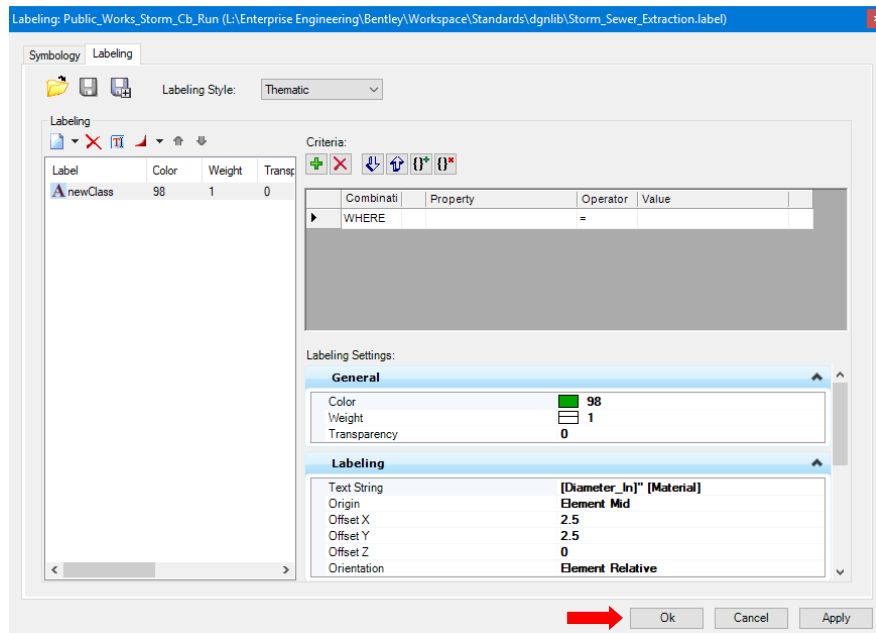
- In the *Labeling* dialog box for *Labeling Style* select **Thematic**.
- Click the **Open a theme file** icon.



- In the *Open* dialog box navigate to **L:\Enterprise Engineering\Bentley\Workspace\Standards\dgnlib**.
- Highlight **Sanitary_Sewer_Extraction.label** and click **Open**.



- In the *Labeling* dialog box click **OK**.



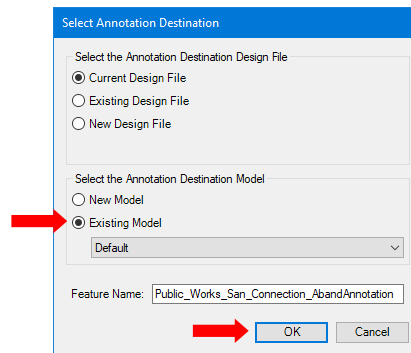
Note: Repeat these steps for every *Storm Sewer* line feature.

2. Annotate the Sanitary Sewer data:

- In the *Map Manager* dialog box right-click on a *Sanitary Sewer* line feature (e.g. *Public_Works_San_Connection_Aband*) and select **Annotation....**

- In the *Select Annotation Destination* dialog box for **Select the Annotation Destination Model** click the **Existing Model** radio button and click **OK**.

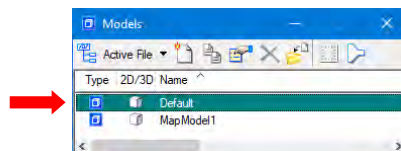
Note: Repeat **Step 2** for each *Sanitary Sewer* line feature.



3. Move the *Sanitary Sewer* annotations to the correct level:

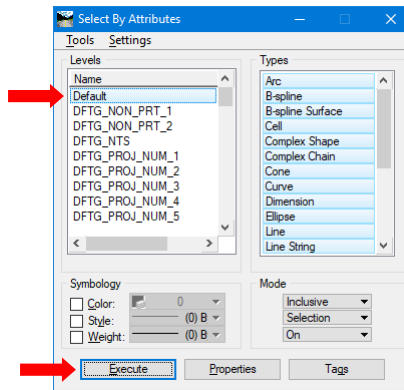
- Select **File > Models**.

- In the *Models* dialog box double-click on **Default**.

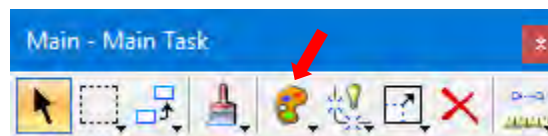


b. Select **Edit > Select By Attributes**.

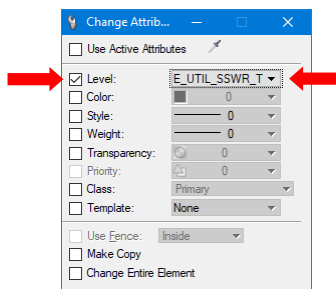
- In the *Select By Attributes* dialog box highlight **Default** and click **Execute**.



c. Click **Change Attributes**.



- In the *Change Attributes* dialog box check the box next to Level and select **E_UTIL_SSWR_TXT** from the drop-down list.

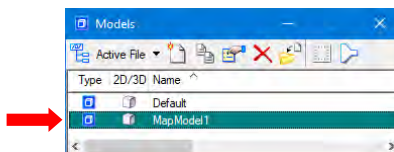


- Left-click anywhere in the design file.

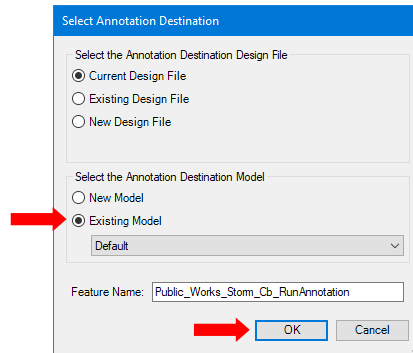
4. Annotate the Storm Sewer data:

a. Select **File > Models**.

- In the *Models* dialog box double-click on **MapModel1**.

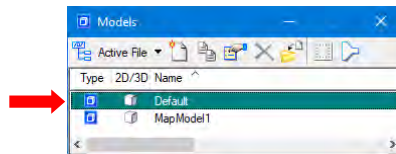


- b. In the *Map Manager* dialog box right-click on a *Storm Sewer* line feature (e.g. *Public_Works_Storm_Cb_Run*) and select ***Annotation....***
- In the *Select Annotation Destination* dialog box for ***Select the Annotation Destination Model*** click the ***Existing Model*** radio button and click ***OK***.
- Note:** Repeat ***Step 4b*** for each *Storm Sewer* line feature.



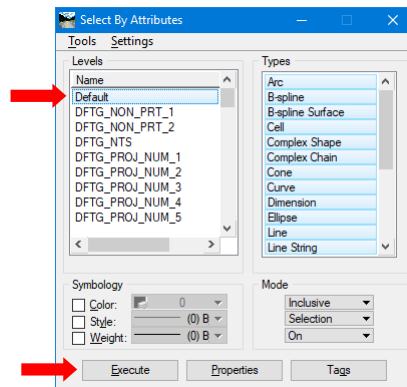
5. Move the *Storm Sewer* annotations to the correct level:

- a. Select ***File > Models***.
- In the *Models* dialog box double-click on ***Default***.

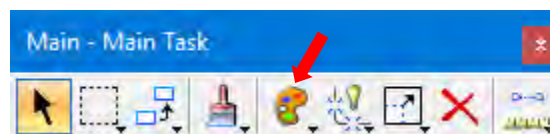


- b. Select ***Edit > Select By Attributes***.

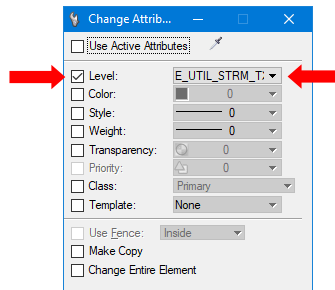
- In the *Select By Attributes* dialog box highlight ***Default*** and click ***Execute***.



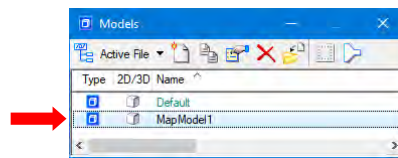
- c. Click ***Change Attributes***.



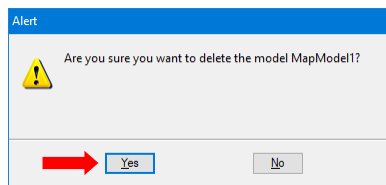
- In the *Change Attributes* dialog box check the box next to Level and select **E_UTIL_STRM_TXT** from the drop-down list.



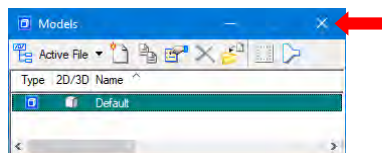
- Left-click anywhere in the design file.
6. Delete the map model:
- a. Select **File > Models**.
 - In the *Models* dialog box right-click on **MapModel1** and click **Delete**.



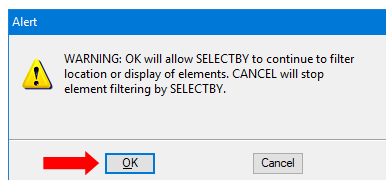
- In the *Alert* dialog box click **Yes**.



- Close the *Models* dialog box..



- Close the *Change Attributes* dialog box.
- Close the *Select By Attributes* dialog box.
- In the *Alert* dialog box click **OK**.

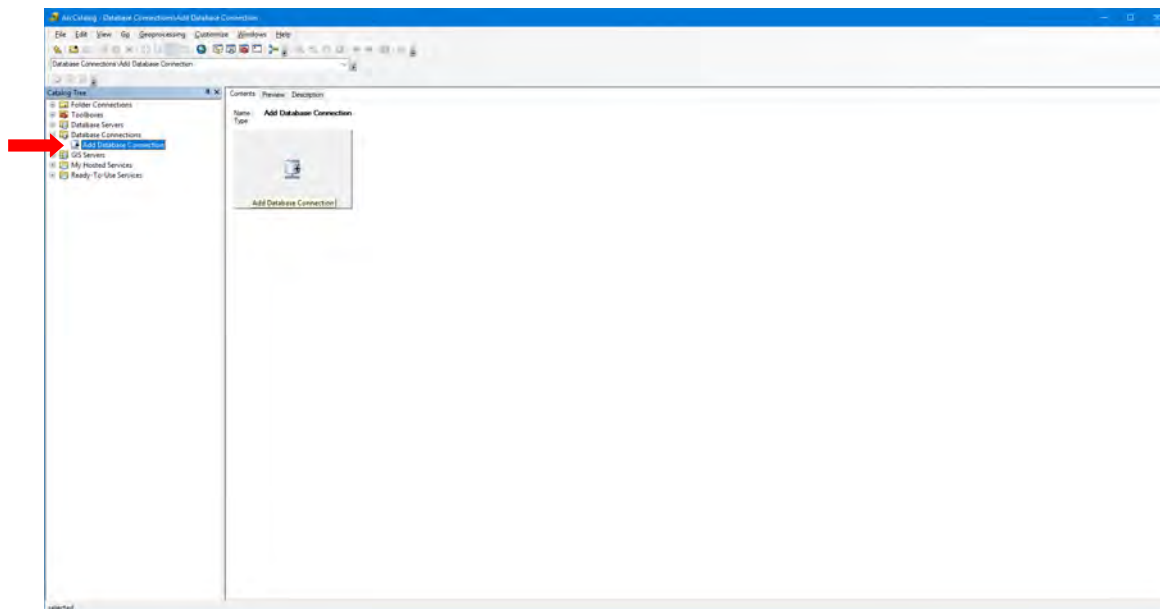


Detailed Steps for Exporting Geodatabases and Shapefiles from ArcGIS:

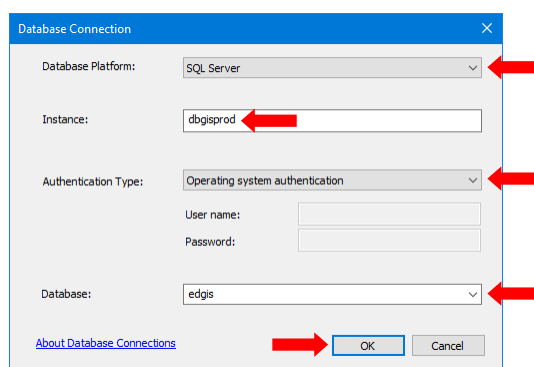
1. Open ArcCatalog:
 - a. Select **Start > All Programs > ArcGIS > ArcCatalog 10.6.1**.
2. Add a Spatial Database Connection:

Note: This only needs to be done once.

 - a. Select **Database Connections > Add Database Connection**.

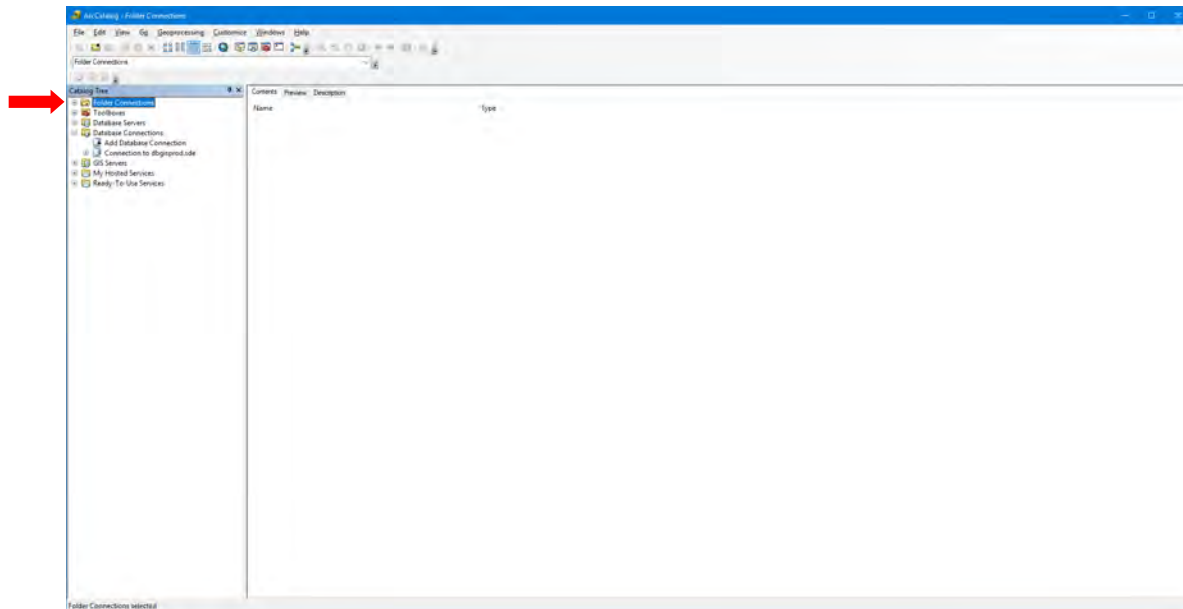


- b. Double-click on **Add Database Connection**.
 - In the *Database Connection* dialog box do the following:
 - For *Database Platform* select **SQL Server**.
 - In the *Instance* field enter **dbgisprod**.
 - For *Authentication Type* select **Operating system authentication**.
 - For *Database* select **edgis**.
 - Click **OK**.

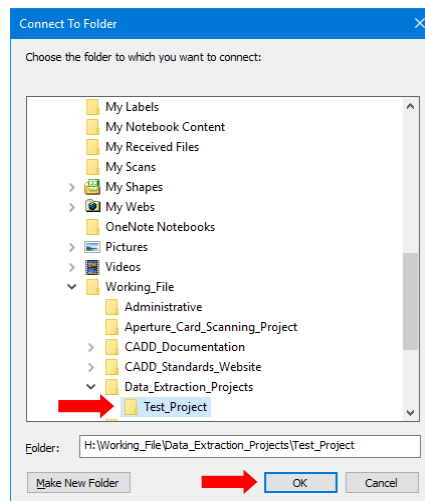


3. Create the folder connection:

- a. Right-click on *Folder Connections* and select **Connect Folder...**



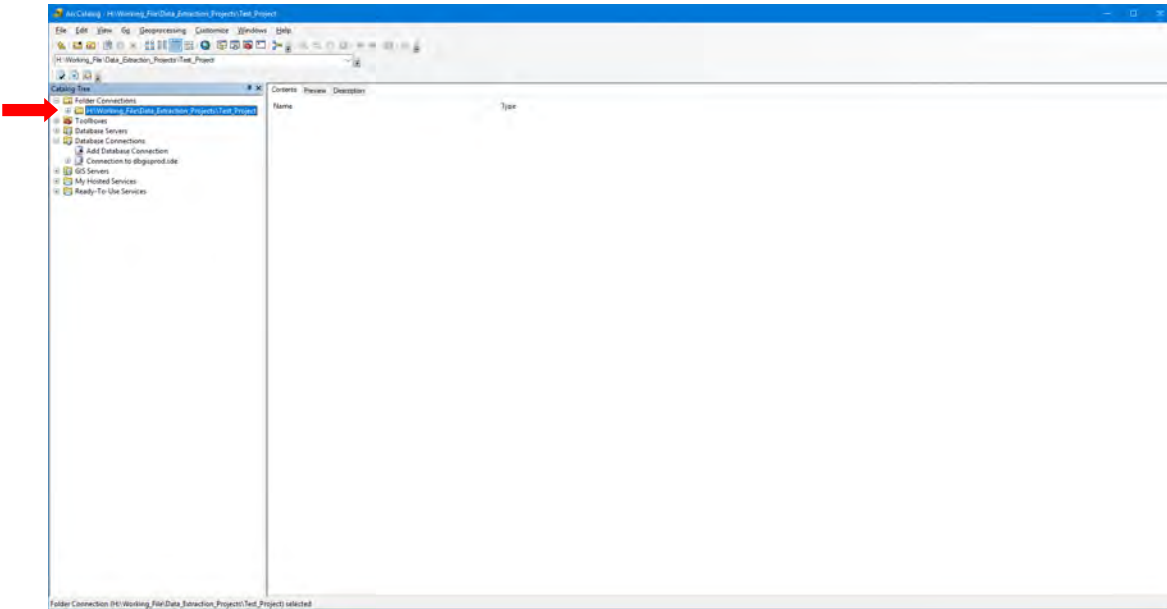
- In the *Connect to Folder* dialog box browse to the location where you want to extract the data to and click **OK**.



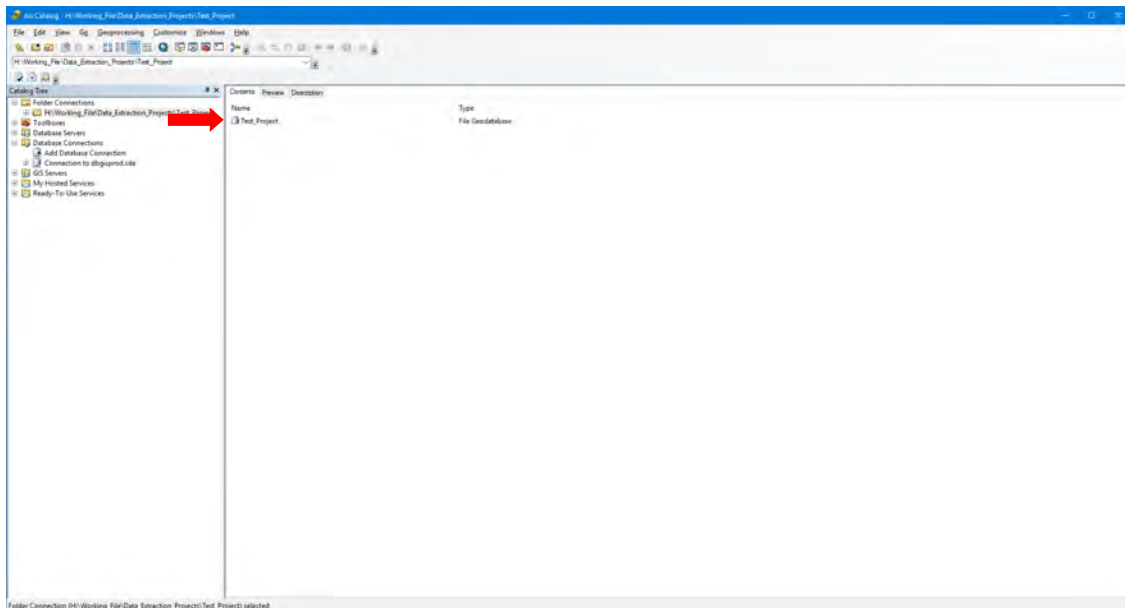
- **Note:** If the data is to be used for **GeoMaster** do the following:
 - Browse to **L:\GEMas\DataXfer**.
 - Right-click on *DataXfer* and select **New > Folder**.
 - Name the folder:
 - For *County* data name it **County_MM_YYYY** (e.g. **County_01_2020**).
 - For *Planimetric* data name it **Planimetric_MM_YYYY** (e.g. **Planimetric_01_2020**).
 - For *Sewer* data name it **Sewer_MM_YYYY** (e.g. **Sewer_01_2020**).
 - For *Water* data name it **Water_MM_YYYY** (e.g. **Water_01_2020**).
- Note:** For centerline data a new folder is not necessary. The geodatabase may be placed directly in the **DataXfer** folder.

4. Create the geodatabase:

- a. Right-click on the folder connection you made and select **New > File Geodatabase**.

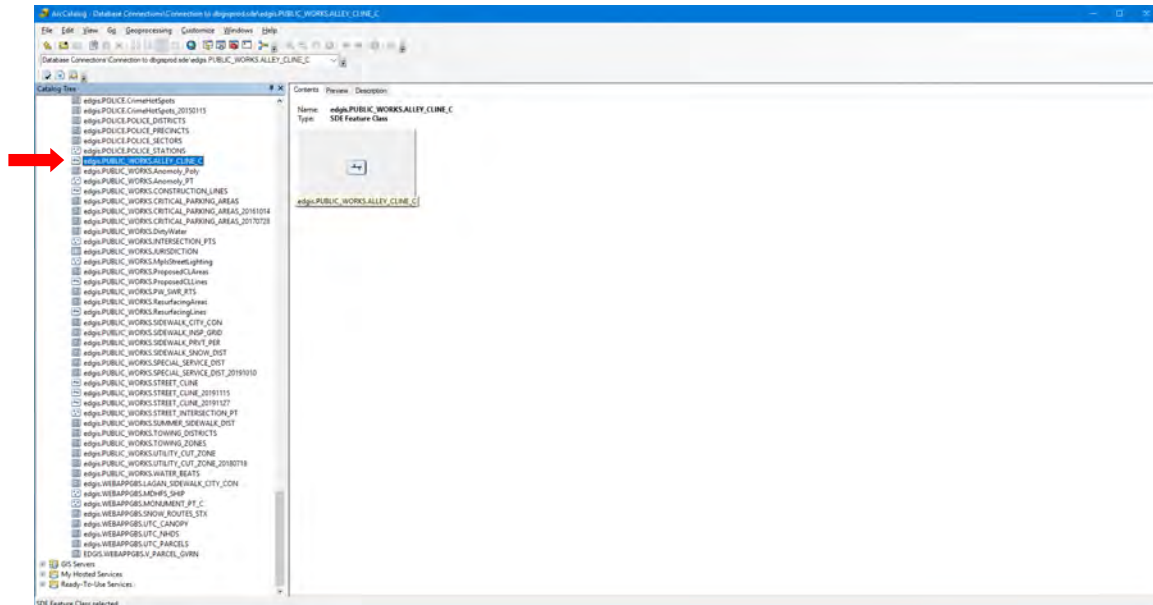


- b. Name the new geodatabase.



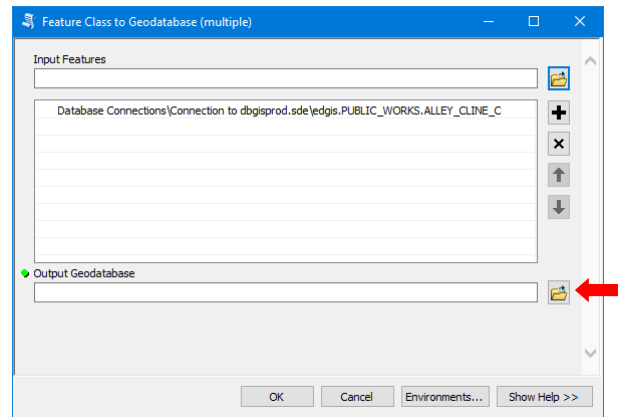
- **Note:** If the data is to be used for **GeoMaster** do the following:
 - For **Alley Centerline** data create one database:
 - Name the database **ALLEY_CLINE_MM_YYYY** (e.g. **ALLEY_CLINE_01_2020**).
 - For **County** data create two databases:
 - Name the first database **County_MM_YYYY** (e.g. **County_01_2020**).
 - Name the second database **Zoning_MM_YYYY** (e.g. **Zoning_01_2020**).
 - For **Planimetric** data create three databases:
 - Name the first database **PLAN_LN_MM_YYYY** (e.g. **PLAN_LN_01_2020**).
 - Name the second database **PLAN_POLY_MM_YYYY** (e.g. **PLAN_POLY_01_2020**).
 - Name the third database **PLAN_PT_MM_YYYY** (e.g. **PLAN_PT_01_2020**).
 - For **Rail Centerline** data create one database:
 - Name the database **RAIL_CLINE_MM_YYYY** (e.g. **RAIL_CLINE_01_2020**).

- For *Sewer* data create two databases:
 - Name the first database **Sanitary_MM_YYYY** (e.g. **Sanitary_LN_01_2020**).
 - Name the second database **Storm_MM_YYYY** (e.g. **Storm_01_2020**).
 - For *Water* data create one database:
 - Name the first database **Water_MM_YYYY** (e.g. **Water_01_2020**).
5. Export the data to the new personal geodatabase:
- a. Expand the database connection, right-click on the feature, and select **Export > To Geodatabase (multiple)**...

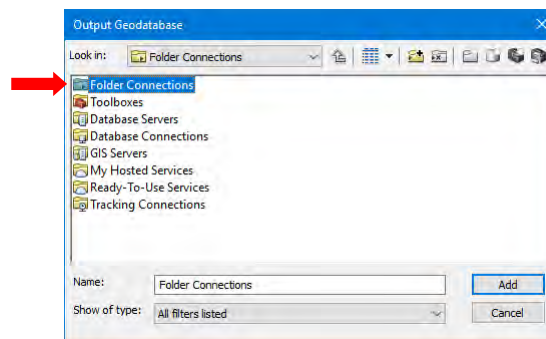


- **Note:** If the data is to be used for **GeoMaster** do the following:
 - For *Alley Centerline* data highlight the following data:
 - TBD
 - For *County* data highlight the following data:
 - TBD
 - For *Planimetric* data highlight the following data:
 - TBD
 - For *Rail Centerline* data highlight the following data:
 - TBD
 - For *Sanitary Sewer* data highlight the following data:
 - TBD
 - For *Storm Sewer* data highlight the following data:
 - TBD
 - For *Water* data highlight the following data:
 - TBD

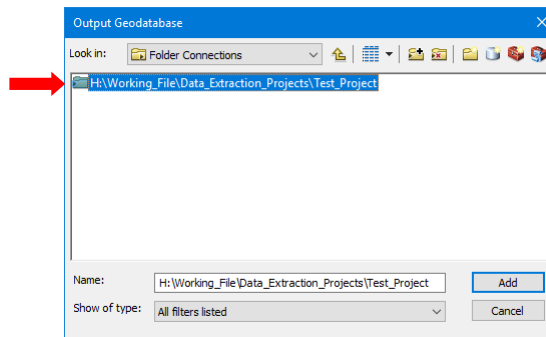
- b. In the *Feature Class to Geodatabase (multiple)* dialog box click the button next to the *Output Geodatabase* field.



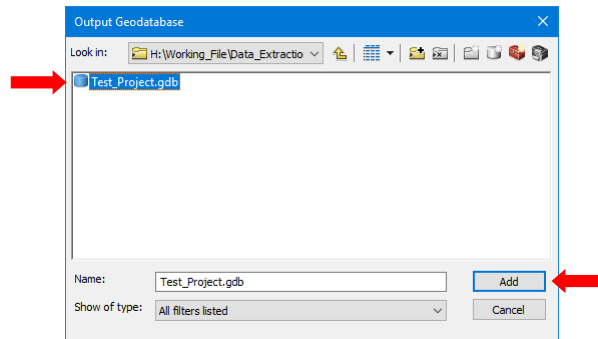
- In the *Output Geodatabase* dialog box double-click on **Folder Connections**.



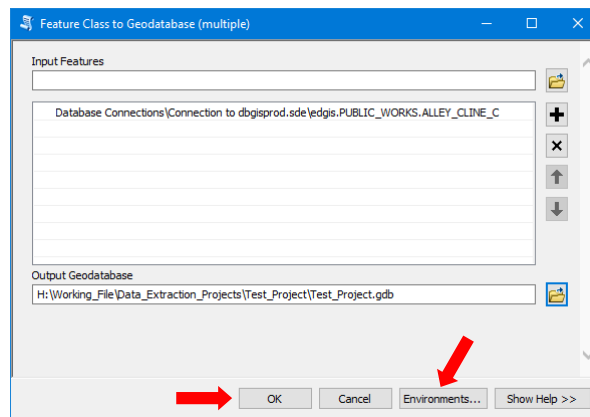
- In the *Output Geodatabase* dialog box double-click on the folder connection you made (e.g. **H:\Working_File\Data_Extraction_Projects\Test_Project**).



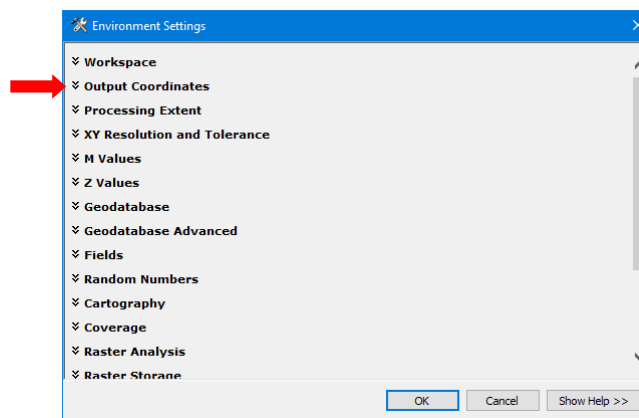
- In the *Output Geodatabase* dialog box highlight the geodatabase you created (e.g. **Test_Project.gdb**) and click **Add**.



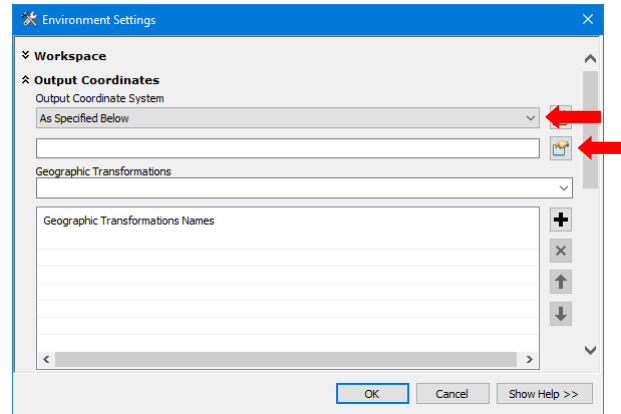
- c. In the *Feature Class to Geodatabase (multiple)* dialog box click **OK**.
Note: If the data is to be used for **GeoMaster** click **Environments...** instead of **OK**, then continue to the next step.



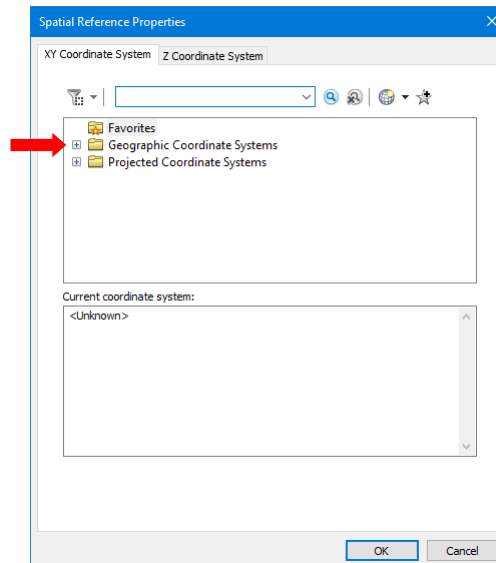
- d. In the *Environment Settings* dialog box click **Output Coordinates**.



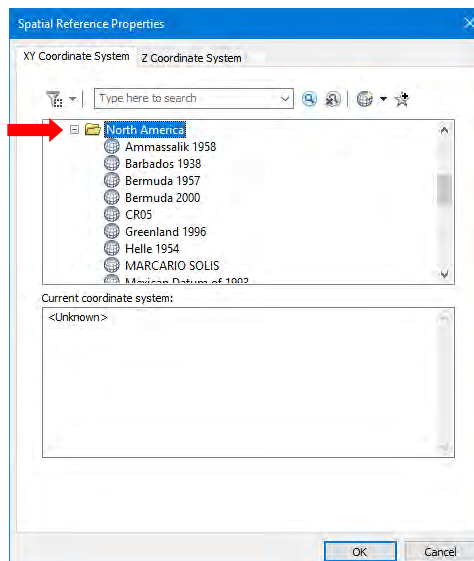
- In the *Environment Settings* dialog box for *Output Coordinate System* select **As Specified Below** from the dropdown list.
- Click the button next to the blank field.



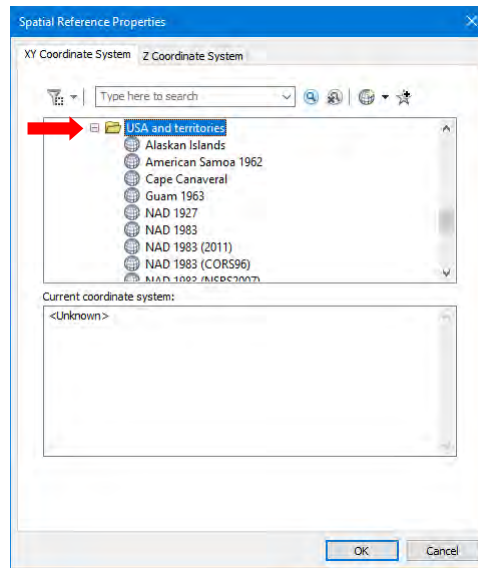
- In the *Spatial Reference Properties* dialog box expand **Geographic Coordinate Systems**.



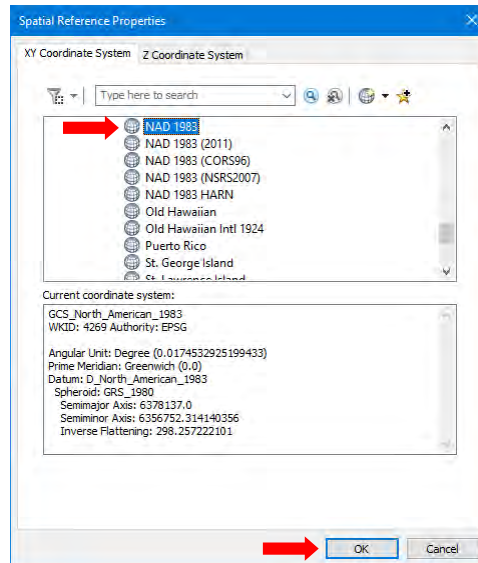
- In the *Spatial Reference Properties* dialog box expand **North America**.



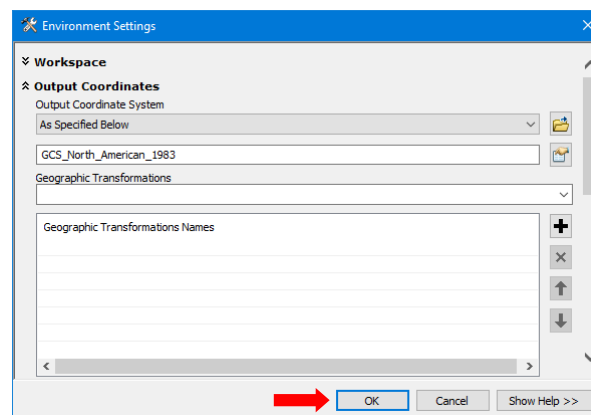
- In the *Spatial Reference Properties* dialog box expand **USA and territories**.



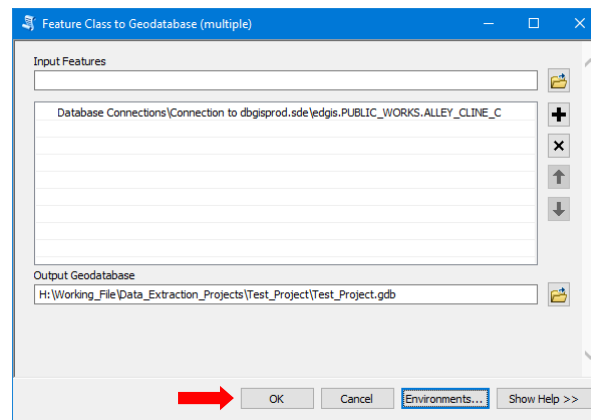
- In the *Spatial Reference Properties* dialog box highlight **NAD 1983** and click **OK**.



- In the *Environment Settings* dialog box click **OK**.



- In the *Feature Class to Geodatabase (multiple)* dialog box click **OK**.

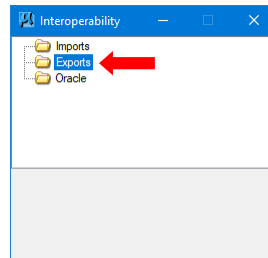


Detailed Steps for Exporting Shapefiles from MicroStation:

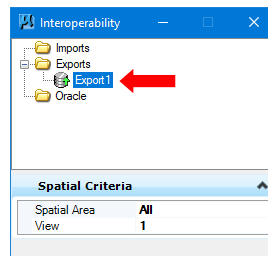
1. Extract the data that you want to create the shapefile from:

Note: Shapefiles use stroked arcs!

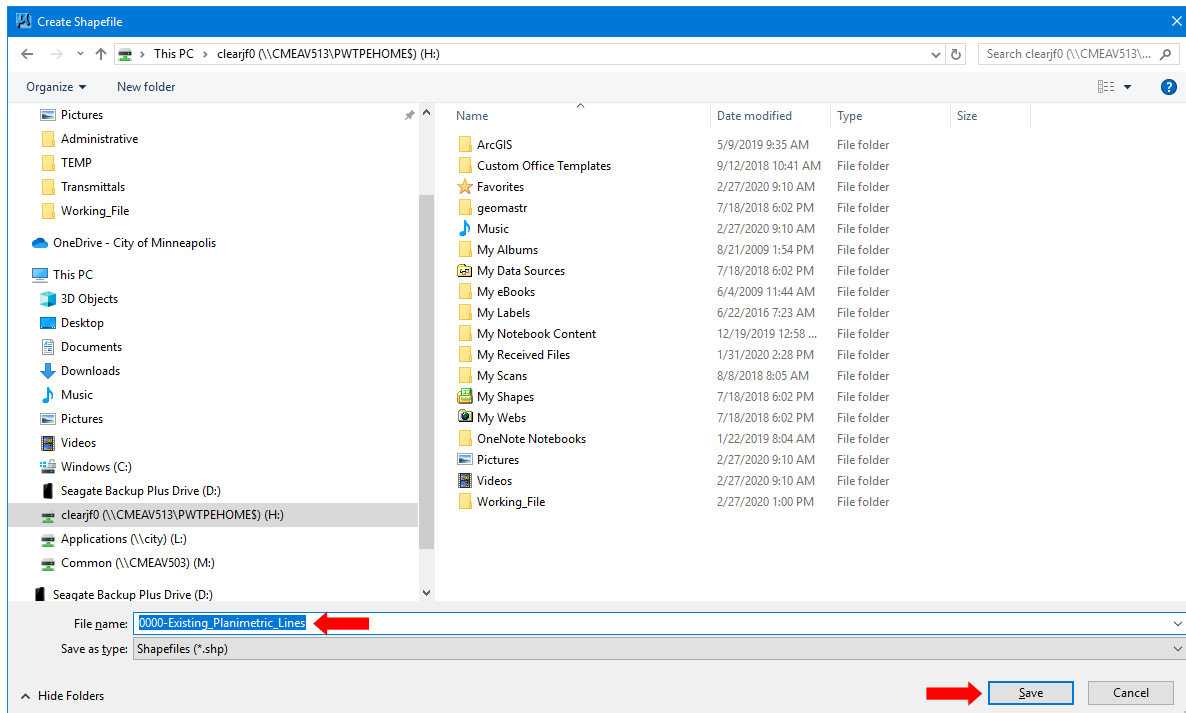
- a. Follow the steps as described in [Detailed Steps for Extracting Centerline, County, LIDAR, Planimetric, and Sewer Data](#).
2. Export the shapefile:
 - a. Open the design file with the extracted data.
 - b. Select **Applications > InRoads Group > Activate InRoads**.
 - c. Select **Applications > Map > Activate Map**.
 - d. Select **File > Export > GIS Data Types...**
 - In the *Interoperability* dialog box right-click on *Export* and select **New Export**.



- e. Right-click on *Export1* and select **Add Shapefile...**

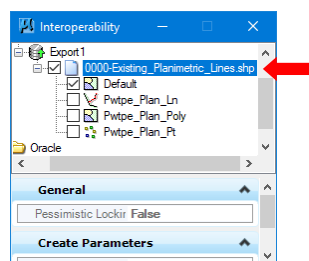


- In the *Create Shapefile* dialog box do the following:
 - Navigate to the folder where you want to save the shapefile.
 - Enter a name (e.g. *0000-Existing_Planimetric_Lines*) in the *File name* field and click **Save**.
Note: The file name should include the following:
 - Project Number
 - Data Type (assessment, centerline, county, LIDAR, monument, planimetric, sewer)
 - Element Type (lines, polygons, points)



f. In the *Interoperability* dialog box do the following:

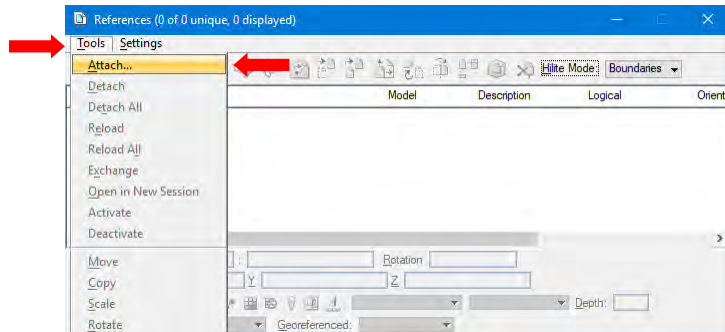
- Expand the folder below the file you just created and check the box next to the feature(s) you want in the shapefile.
- Right-click on the file you just created and select **Export**.



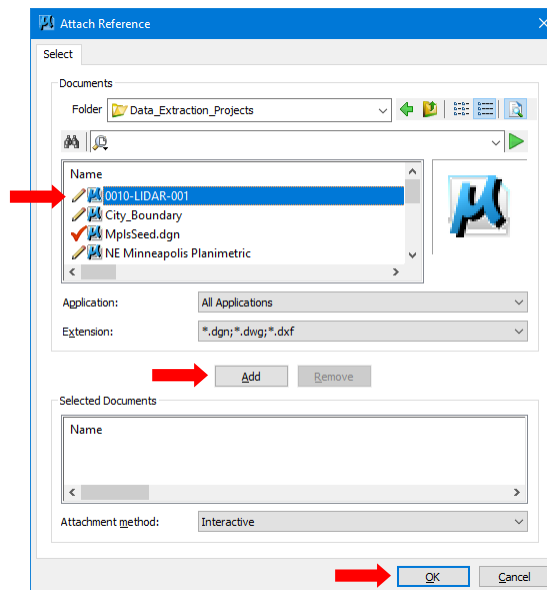
Detailed Steps for Creating Contours:

Note: This procedure is for information only. We do not provide contours!

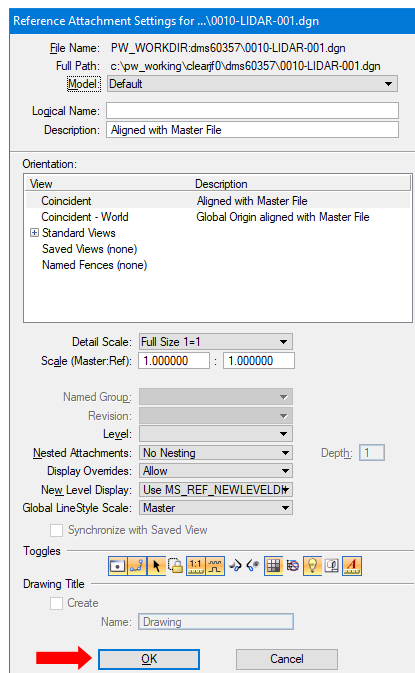
1. Extract the LIDAR data (see [Detailed steps for extracting Centerline, County, LIDAR, Planimetric, and Sewer Data](#)).
2. Open a design file with InRoads.
3. Import the LIDAR data:
 - a. In *MicroStation V8i (SELECTseries 2)* select **File > References**.
 - b. In the *References* dialog box select **Tools > Attach**.



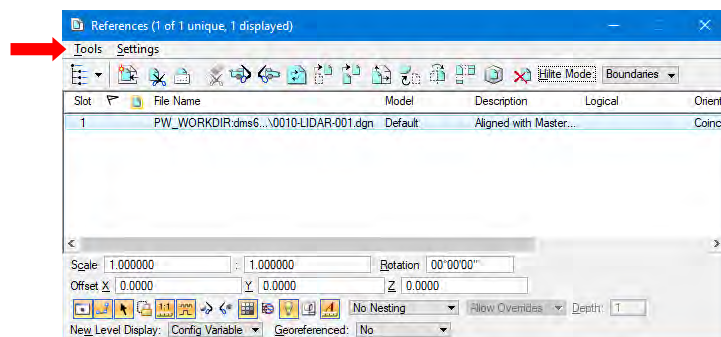
- In the *Attach Reference* dialog box navigate to the location where the LIDAR data is located, highlight the file, click **Add**, and click **OK**.



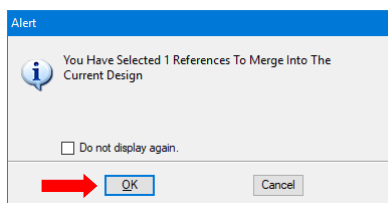
- c. In the *Reference Attachment Settings* dialog box click **OK**.



- d. In the *References* dialog box click select **Tools > Merge Into Master**.



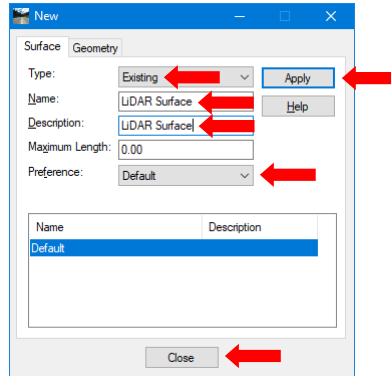
- Left-click anywhere in the design file.
- In the *Alert* dialog box click **OK**.



- Close the *References* dialog box.
- Click **Fit View** so you can see the LIDAR data.

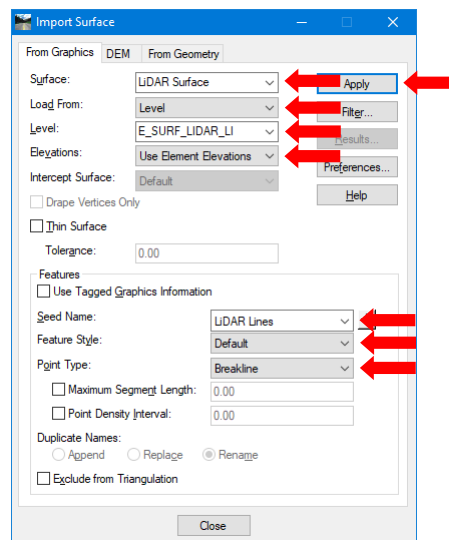
4. Create the surface:

- a. In the *InRoads V8i (SELECTseries 2)* dialog box select **File > New....**
- In the *New* dialog box do the following:
 - For *Type* select **Existing** from the dropdown.
 - For *Name* enter a name for the surface (e.g. LIDAR Surface).
 - For *Description* enter a description for the surface (e.g. LIDAR Surface).
 - For *Preference* select **Default** from the dropdown.
 - Click **Apply**, then click **Close**.



5. Import the LIDAR lines into the surface:

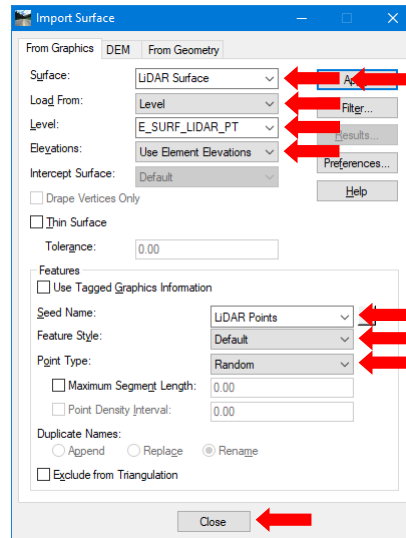
- a. In the *InRoads V8i (SELECTseries 2)* dialog box select **File > Import > Surface** and do the following:
- For *Surface* select the surface you created (e.g. *LIDAR Surface*) from the dropdown list.
 - For *Load From* select **Level** from the dropdown list.
 - For *Level* select **E_SURF_LIDAR_LI**.
 - For *Elevations* select **Use Element Elevations** from the dropdown list.
 - For *Seed Name* enter **LIDAR Lines**.
 - For *Feature Style* select **Default** from the dropdown list.
 - For *Point Type* select **Breakline** from the dropdown list.
 - Click **Apply**.



6. Import the LIDAR points into the surface:

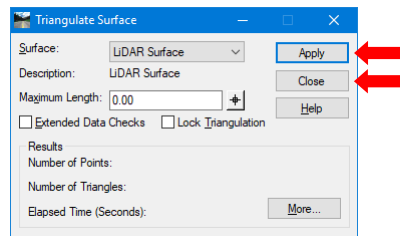
a. In the *InRoads V8i (SELECTseries 2)* dialog box do the following:

- For *Surface* select the surface you created (e.g. *LIDAR Surface*) from the dropdown list.
- For *Load From* select **Level** from the dropdown list.
- For *Level* select **E_SURF_LIDAR_PT**.
- For *Elevations* select **Use Element Elevations** from the dropdown list.
- For *Seed Name* enter **LIDAR Points**.
- For *Feature Style* select **Default** from the dropdown list.
- For *Point Type* select **Random** from the dropdown list.
- Click **Apply**, then click **Close**.



7. Triangulate the surface:

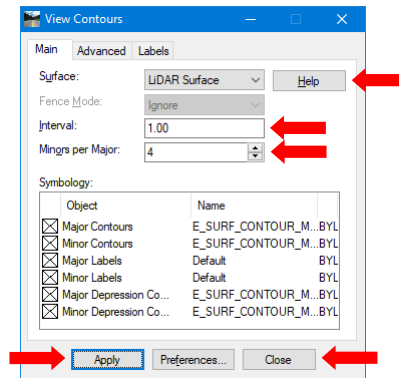
- a. In the *InRoads V8i (SELECTseries 2)* dialog box select **Surface** > **Triangulate Surface...**
- b. In the *Triangulate Surface* dialog box click **Apply**, then click **Close**.



8. Create the contours:

a. In the *InRoads V8i (SELECTseries 2)* dialog box select **Surface** > **View Surface** > **Contours...**.

- In the *View Contours* dialog box click the **Main** tab and do the following:
 - For *Surface* select the surface you created (e.g. *LIDAR Surface*) from the dropdown list.
 - For *Interval* enter the difference in elevation you want between each consecutive contour line (e.g. enter 1 if you want to display contour lines at 1-foot intervals).
Note: The interval must be greater than 0.
 - For *Minors per Major* enter the number of minor contours that you want to display between neighboring major contours (e.g. enter 4 if you want to display 4 minor contour lines between each major contour line). Note: If you enter 0, no minor contours will display.
 - Click **Apply**.
 - When the contours have been created click **Close**.

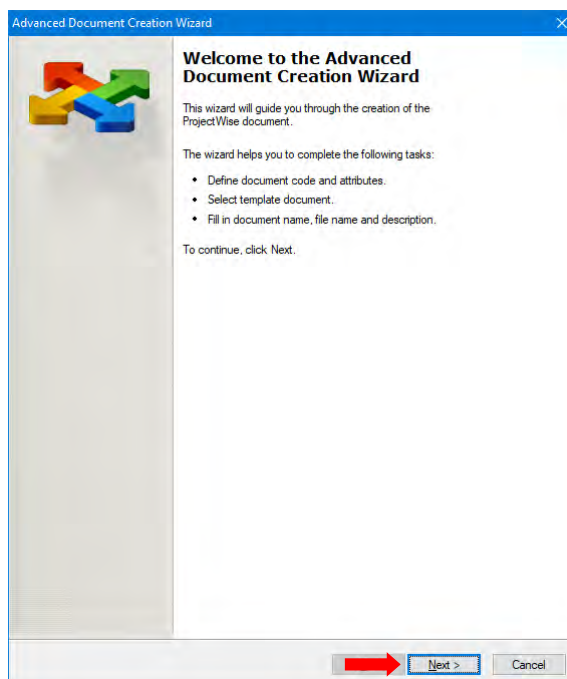


9. Proceed to [Detailed steps for moving files into ProjectWise](#).

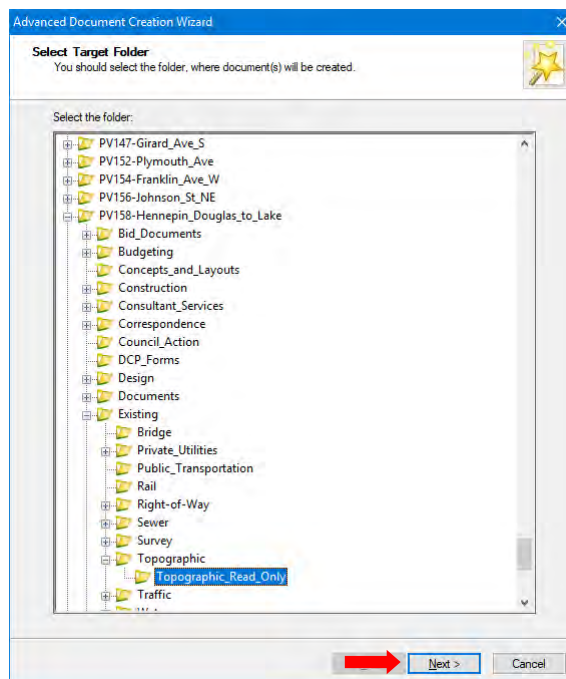
Detailed Steps for Providing Orthophotos:

1. Create the orthophoto design file for the project:

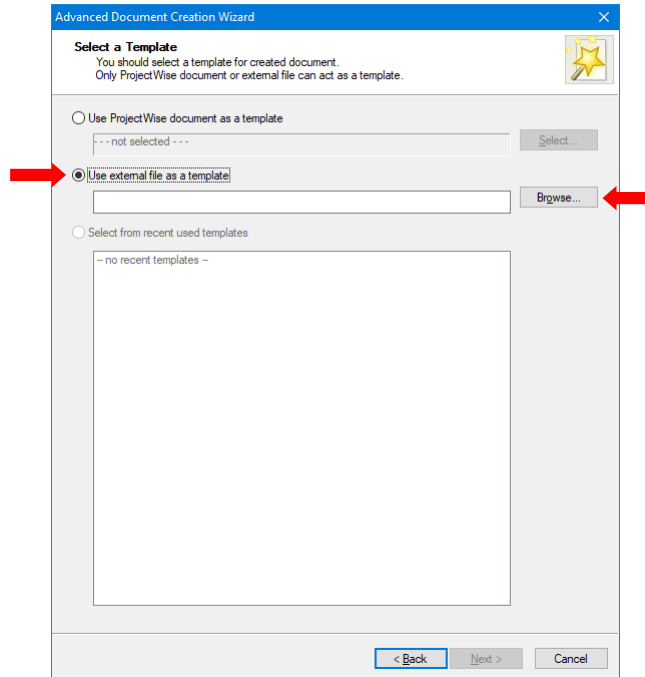
- a. Right-click in the **Existing > Topographic > Topographic Read_Only** folder and select **New > Advanced Wizard...**
 - In the *Advanced Document Creation Wizard* dialog box click **Next**.



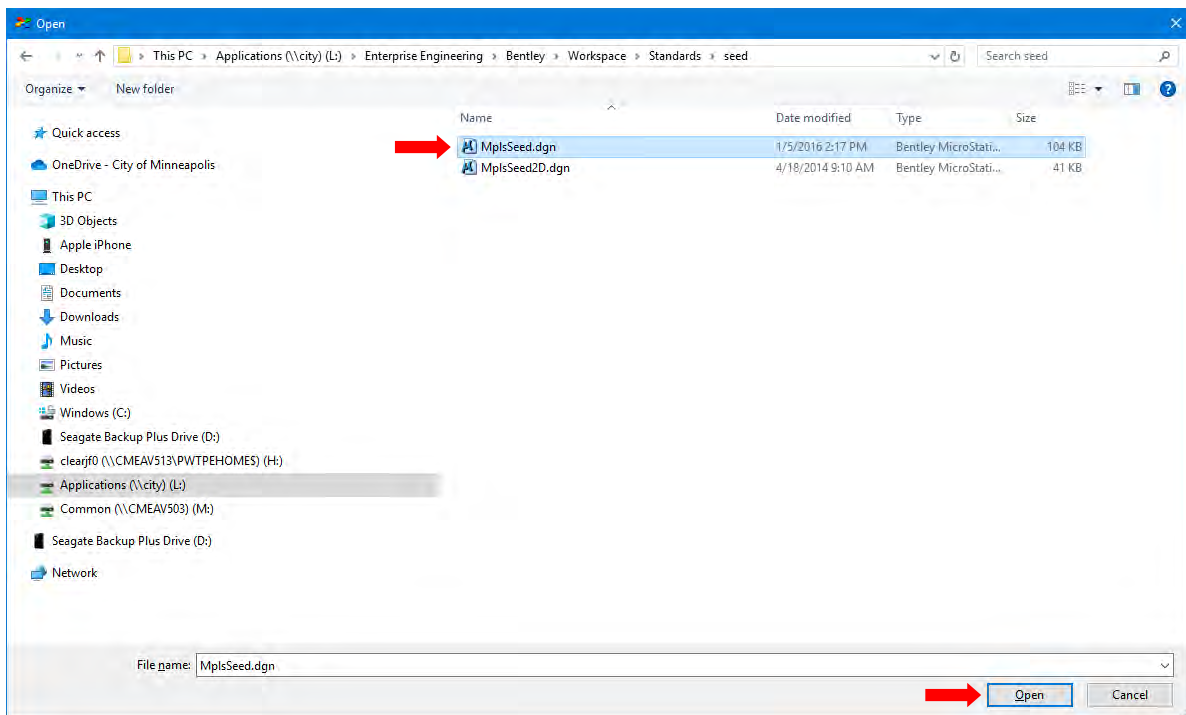
- In the *Advanced Document Creation Wizard* dialog box click **Next**.



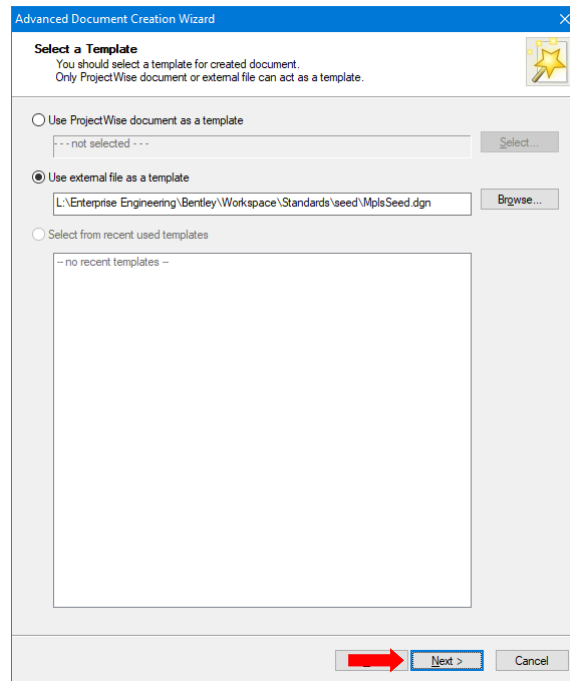
- In the *Advanced Document Creation Wizard* dialog box click the **Use external file as a template** radio button and click **Browse...**.



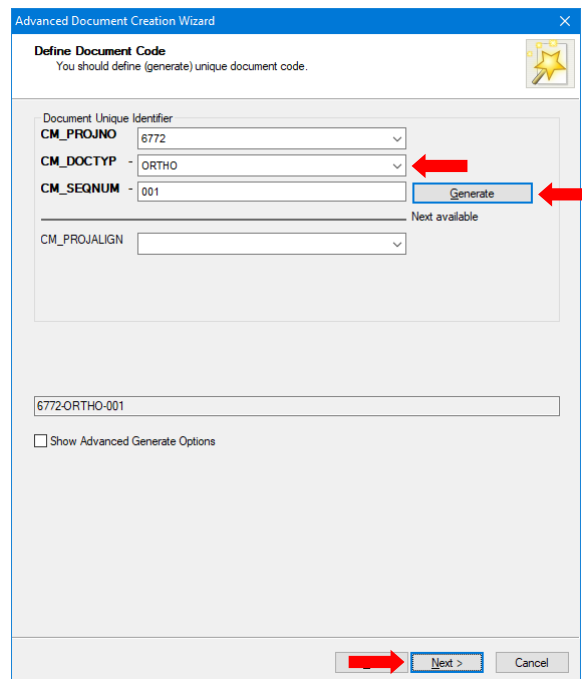
- In the *Open* window browse to *L:\Enterprise Engineering\Bentley\Workspace\Standards\seed*, highlight **MplsSeed.dgn** and click **Open**.



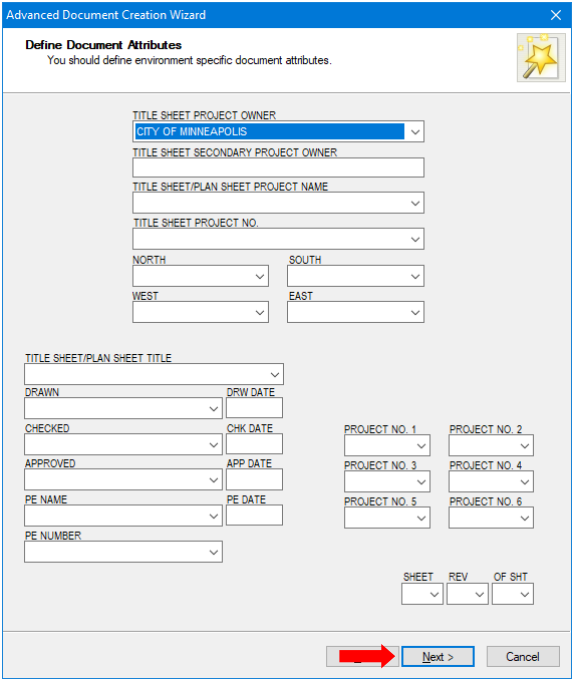
- In the *Advanced Document Creation Wizard* dialog box click **Next**.



- In the *Advanced Document Creation Wizard* dialog box do the following:
 - For **CM_DOCTYP** select **ORTHO** from the dropdown list.
 - Click **Generate**, then click **Next**.



- In the *Advanced Document Creation Wizard* dialog box click **Next**.



Advanced Document Creation Wizard

Define Document Attributes
You should define environment specific document attributes.

TITLE SHEET PROJECT OWNER
CITY OF MINNEAPOLIS

TITLE SHEET SECONDARY PROJECT OWNER

TITLE SHEET/PLAN SHEET PROJECT NAME

TITLE SHEET PROJECT NO.


NORTH SOUTH
WEST EAST

TITLE SHEET/PLAN SHEET TITLE

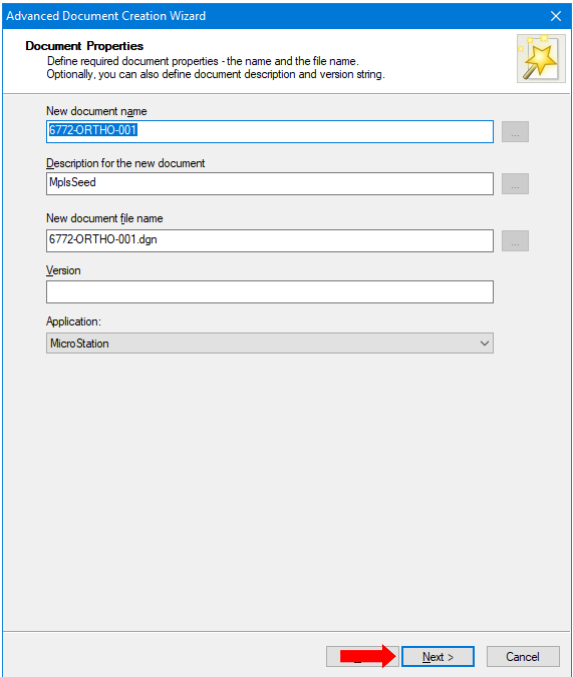
DRAWN DRW DATE
CHECKED CHK DATE
APPROVED APP DATE
PE NAME PE DATE
PE NUMBER

PROJECT NO. 1 PROJECT NO. 2
PROJECT NO. 3 PROJECT NO. 4
PROJECT NO. 5 PROJECT NO. 6

SHEET REV OF SHT

 **Next >** Cancel

- In the *Advanced Document Creation Wizard* dialog box click **Next**.



Advanced Document Creation Wizard

Document Properties
Define required document properties - the name and the file name.
Optionally, you can also define document description and version string.


New document name
6772-ORTHO-001

Description for the new document
MplsSeed

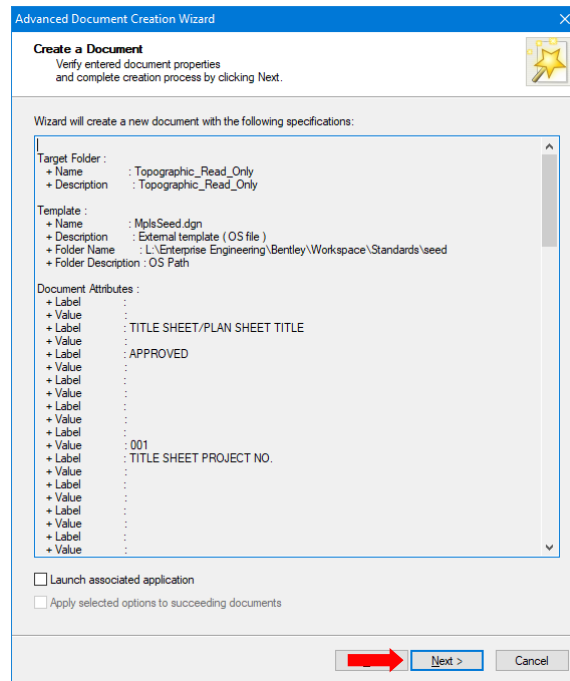
New document file name
6772-ORTHO-001.dgn

Version

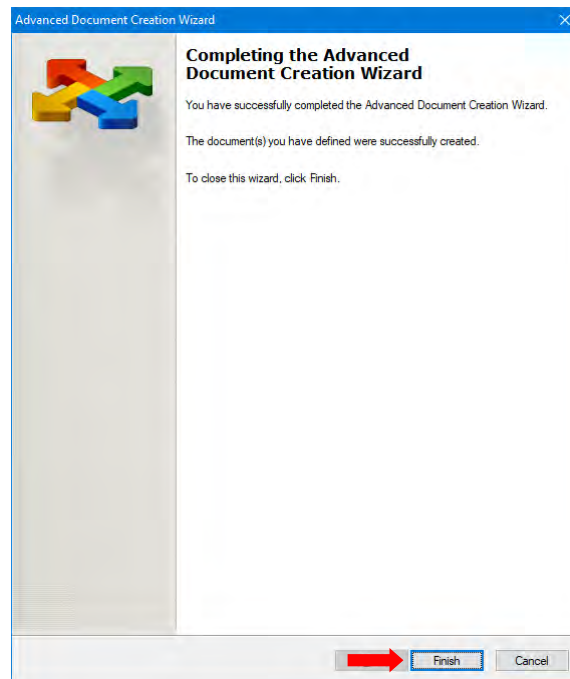
Application:
MicroStation

 **Next >** Cancel

- In the *Advanced Document Creation Wizard* dialog box click **Next**.



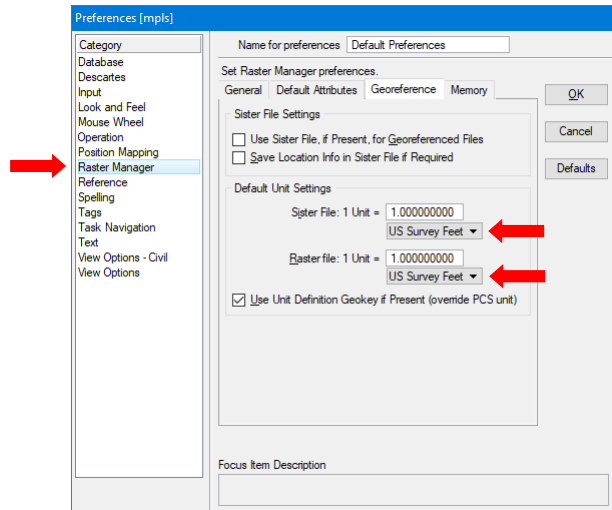
- In the *Advanced Document Creation Wizard* dialog box click **Finish**.



2. Ensure that the Worldfile default unit is set to survey feet:

a. Select **Workspace > Preferences**.

- In the *Preferences [mpis]* dialog box for *Category* highlight **Raster Manager**, click the **Georeference** tab, and check that the settings are as follows:
 - Sister File: 1 Unit = 1.000000000.
US Survey Feet
 - Raster file: 1 Unit = 1.000000000.
US Survey Feet
- Click **OK**.

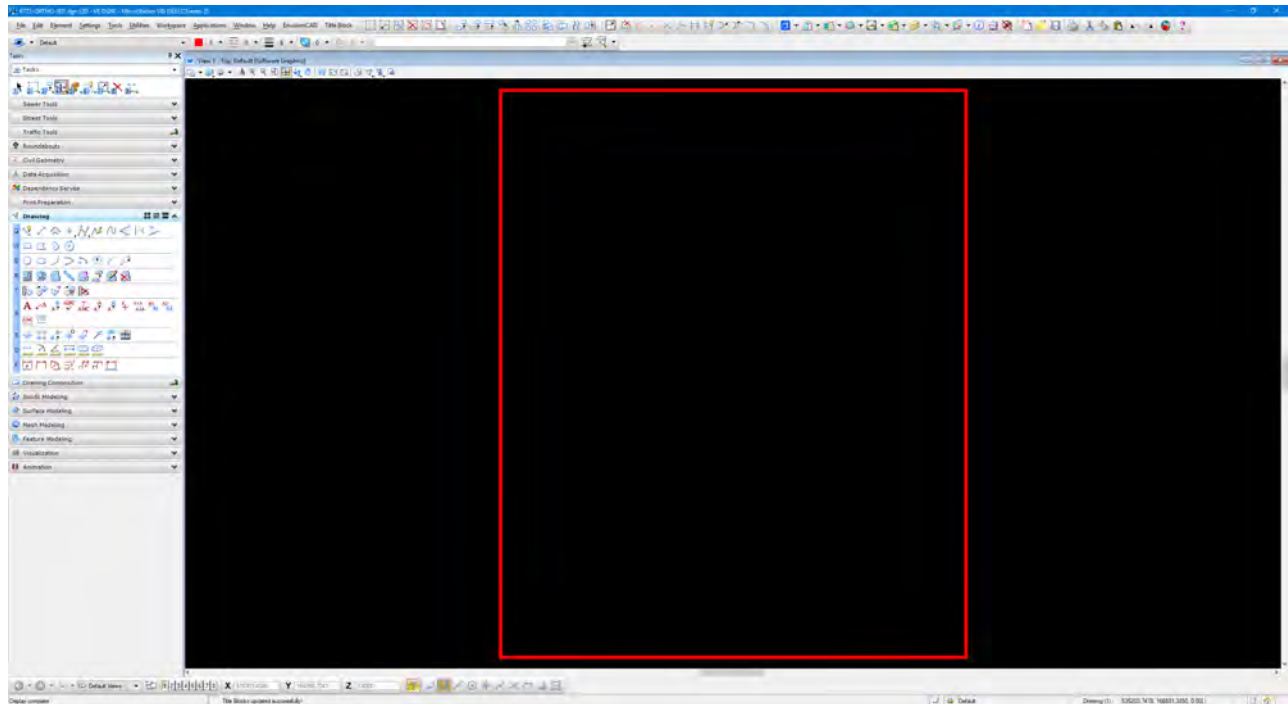


3. Determine the orthophotos you need:

Note: You will need to use the coordinates you determined in [Detailed steps for determining the X and Y locations for the lower left and the upper right corners of the project area](#).

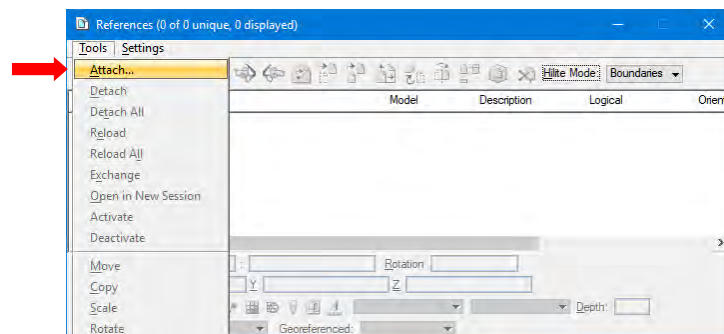
a. Click the **Place Block** tool.

- Click the *Active Color* tool and select **3**.
- Click the *Active Line Style* tool and select **0**.
- Click the *Active Line Weight* tool and select **6**.
- Click the Place Block tool.
- Place the cursor in the *Key-in* field and enter the easting and northing numbers for one of the corners of the project area (e.g. xy=533448, 164270) and press the **Enter** key.
- Place the cursor in the *Key-in* field and enter the easting and northing numbers for the other corner of the project area (e.g. xy=535312, 166540) and press the **Enter** key.
- Click the **Fit View** tool to see the block.

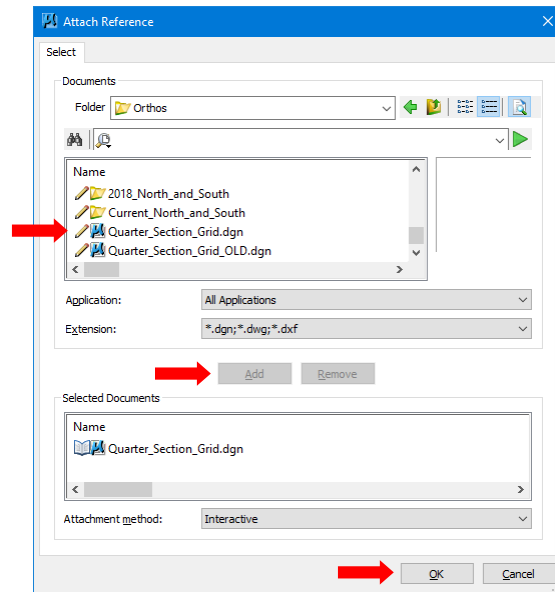


b. Select **File > References**.

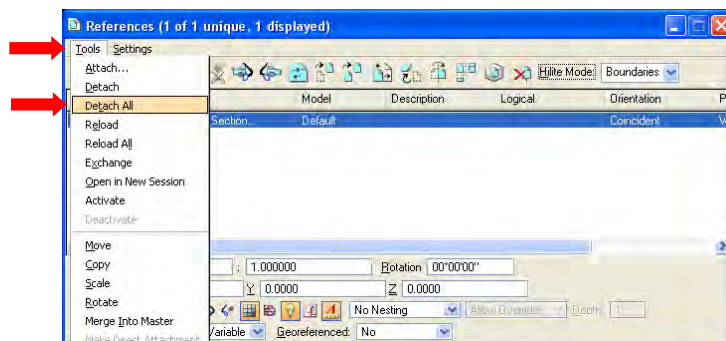
- In the *References* dialog box select **Tools > Attach...**



- In the *Attach Reference* dialog box navigate to **ProjectWise\Documents\0000-Project_Resource\Orthos\Quarter_Section_Grid.dgn**.
- Highlight **Quarter_Section_Grid.dgn**, click **Add**, then click **OK**.



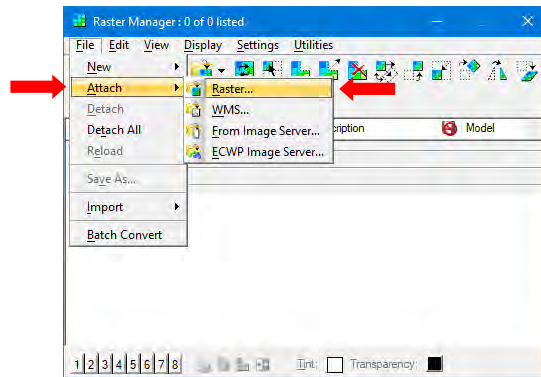
- Record the orthophotos you need (e.g. **NE262924_00**, **SE262924_00**).
- In the *References* dialog box select **Tools > Detach All**.



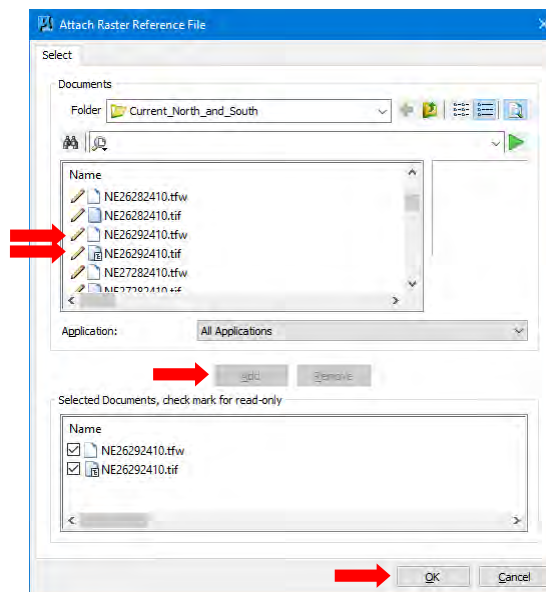
- Close the *References* dialog box by clicking the “X” in the upper right-hand corner.
4. Attach the orthophotos to your design file:
 - a. Select **E_SURF_ORTHO** as the active level.



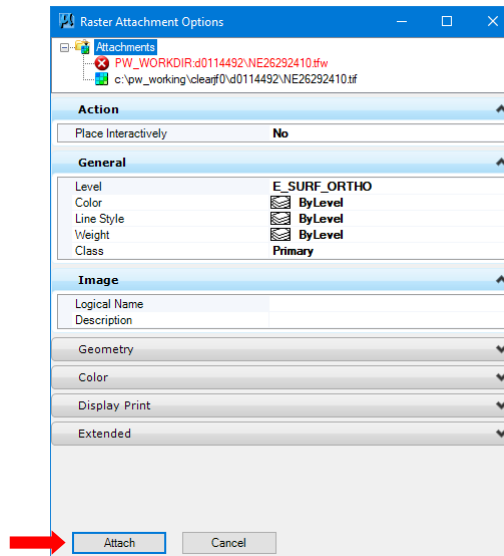
- b. Select **File > Raster Manager**.
- c. In the **Raster Manager** dialog box select **File > Attach > Raster...**



- d. In the **Attach Raster Reference File** dialog box browse to **0000-Project_Resource\Orthos**.
 - Using the information you gathered in **Step 4**, open **Current_North_and_South**.
 - Highlight the worldfile (**NE26292410.tfw**) and its associated orthophoto (e.g. **NE26292410.tif**), click **Add** and then click **OK**.



- e. In the *Raster Attachment Options* dialog box click **Attach**.



- Close the *Raster Manager* dialog box by clicking the “X” in the upper right-hand corner.
- Repeat *Step 5* for each of the remaining orthophotos.

Note: Multiple orthophotos may be attached at one time if desired.

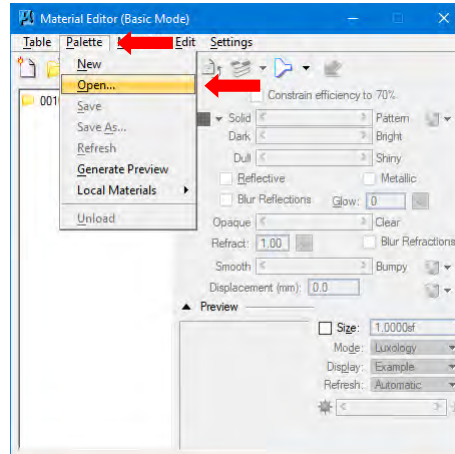
Delete the block placed in **Step 4**.

Close the design file by clicking the “X” in the upper right-hand corner.

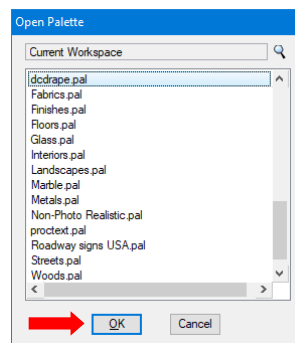
Detailed Steps for Draping Orthophotos on a Surface:

Prerequisite: A MicroStation design file with a triangulated surface.

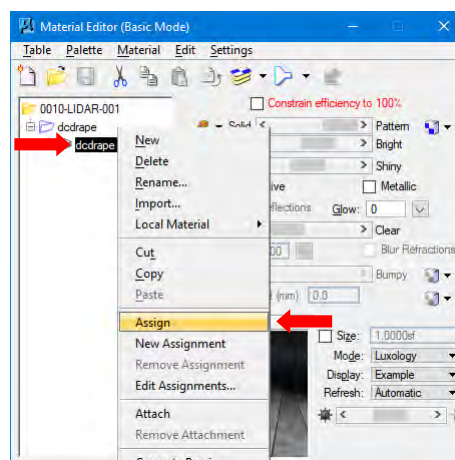
1. Attach the orthophoto(s) to your design file (see [Detailed Steps for Providing Orthophotos](#)).
2. Assign the material to the surface feature:
 - a. Select **Settings > Rendering > Materials**.
 - In the *Material Editor* dialog box select **Palette > Open....**



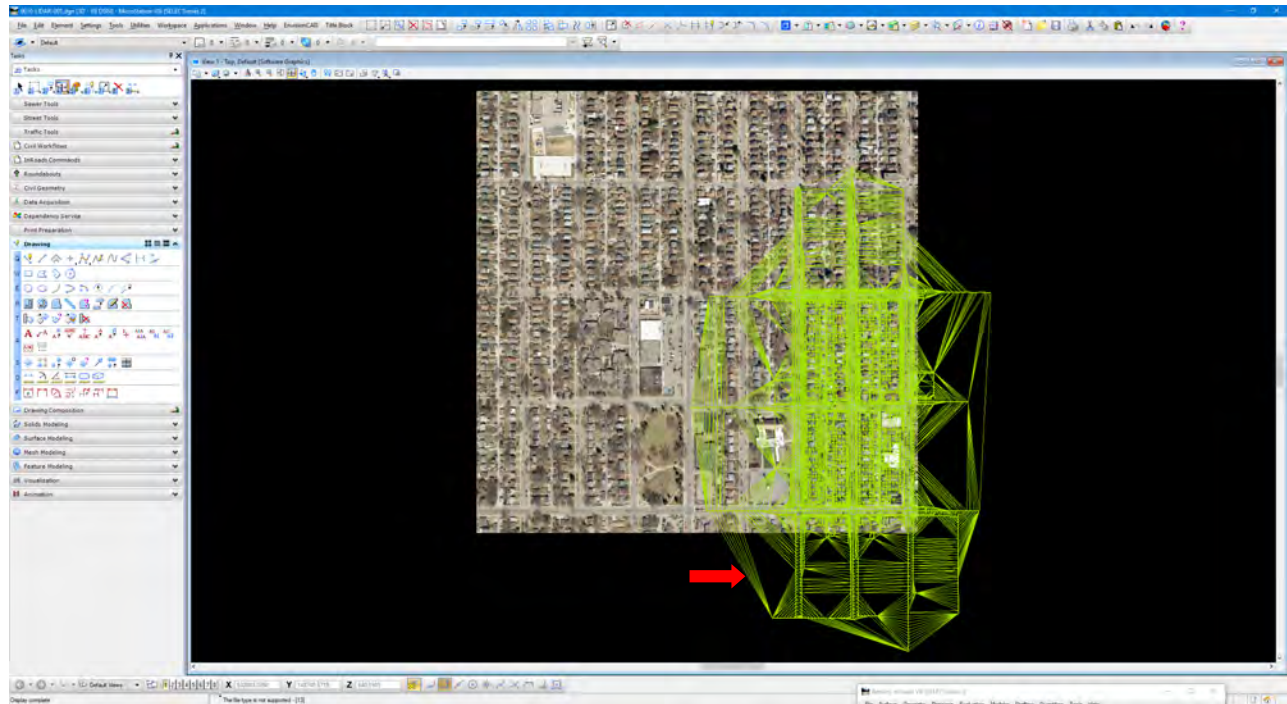
- In the *Open Palette* dialog box highlight **dcdrape.pal** and click **OK**.



- In the *Material Editor* dialog box right-click on **dcdrape** and select **Assign**.



- In *MicroStation* left-click on one of the triangles in the surface.
- Left-click again to accept the feature you selected.

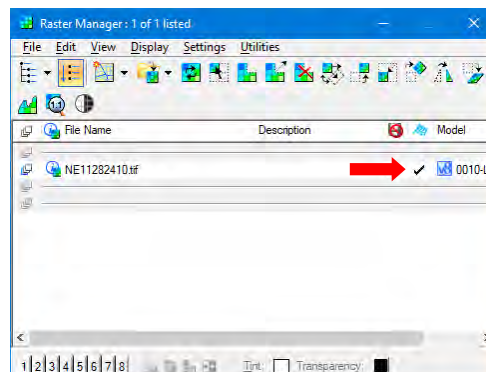


3. Display the draped photos:

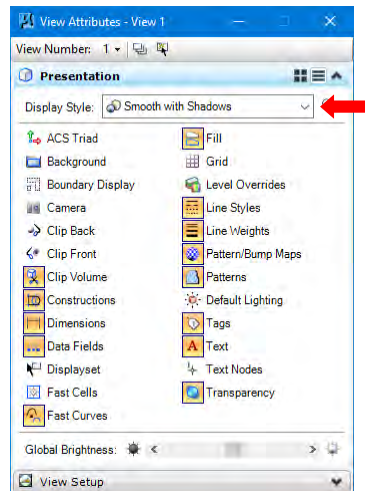
- a. In the *Raster Manager* dialog box right-click on the column headings and select **Draping**.



- In the *Raster Manager* dialog box ensure that there is a check mark in the *Draping* column next to the orthophotos you want to drape.



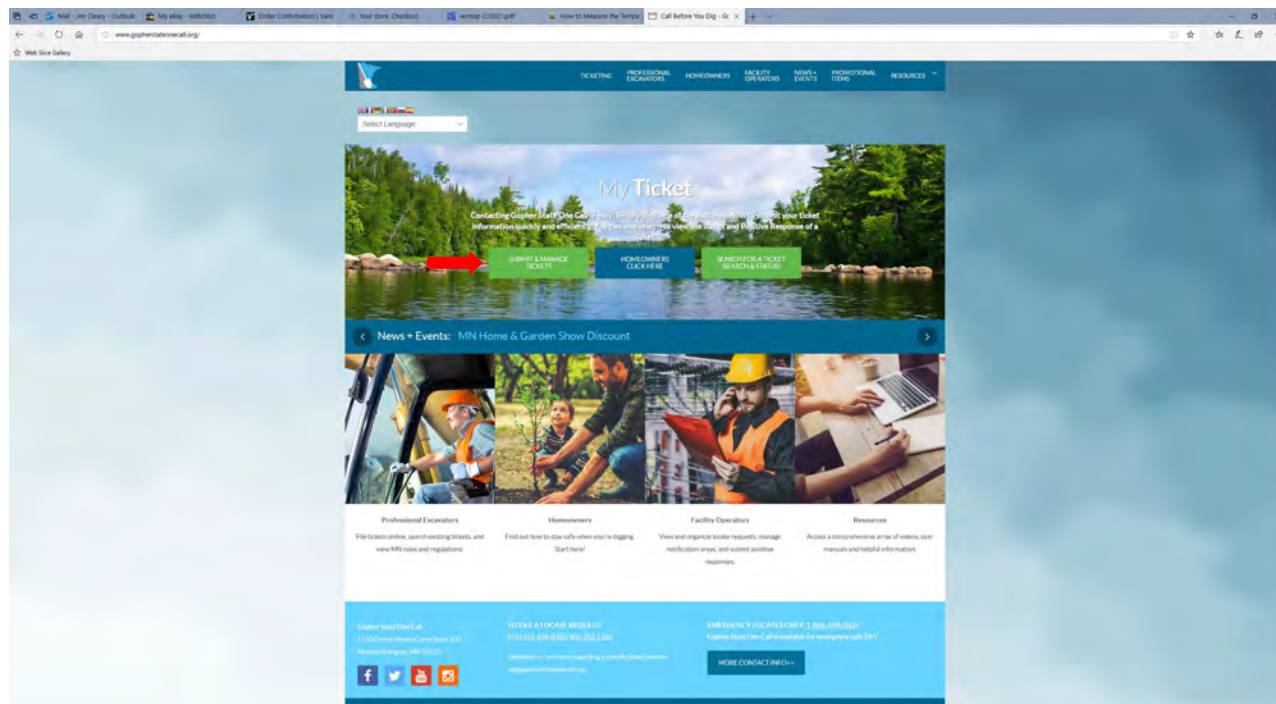
- b. In the *View Attributes* dialog box for *Display Style* select ***Smooth with Shadows*** from the dropdown list, then click the “X” in the upper right-hand corner.



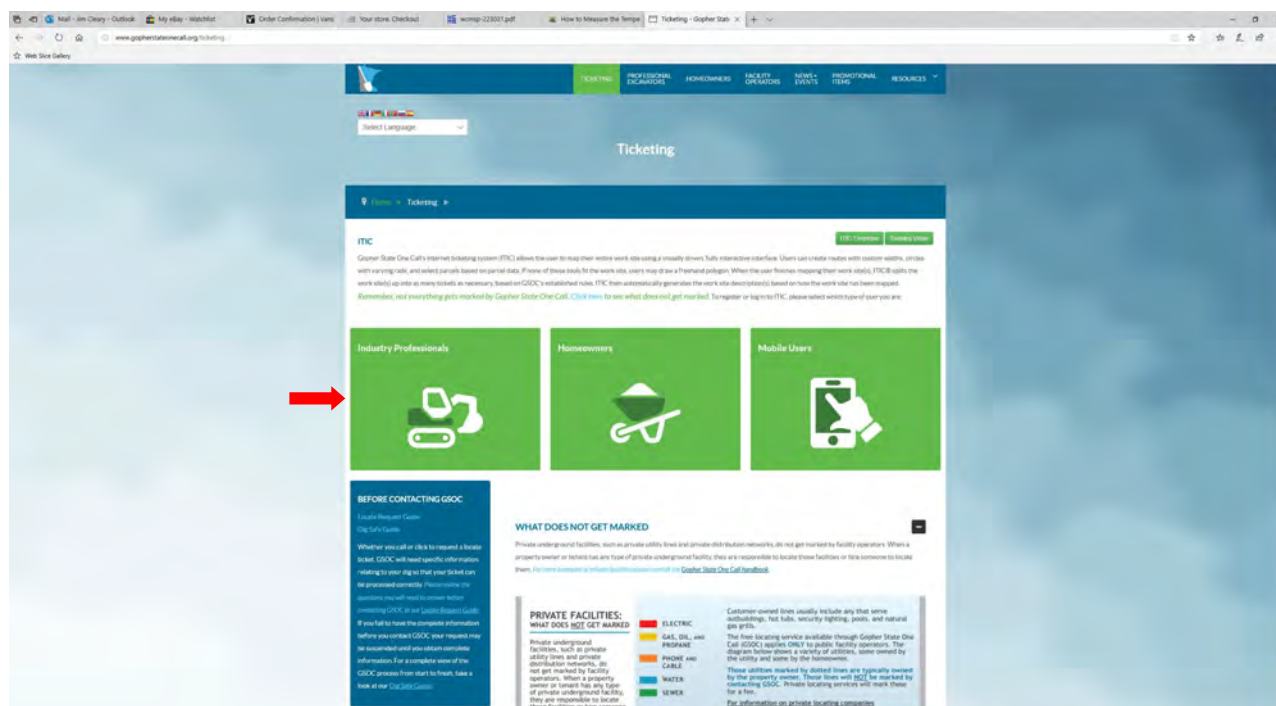
Detailed Steps for Requesting Non-Excavation Utility Data:

Note: Design teams are responsible for submitting utility data requests.

1. Submit a *Non-Excavation* ticket to *Gopher State One Call* (<http://www.gopherstateonecall.org/>).
 - a. Click **Submit & Manage Tickets**.

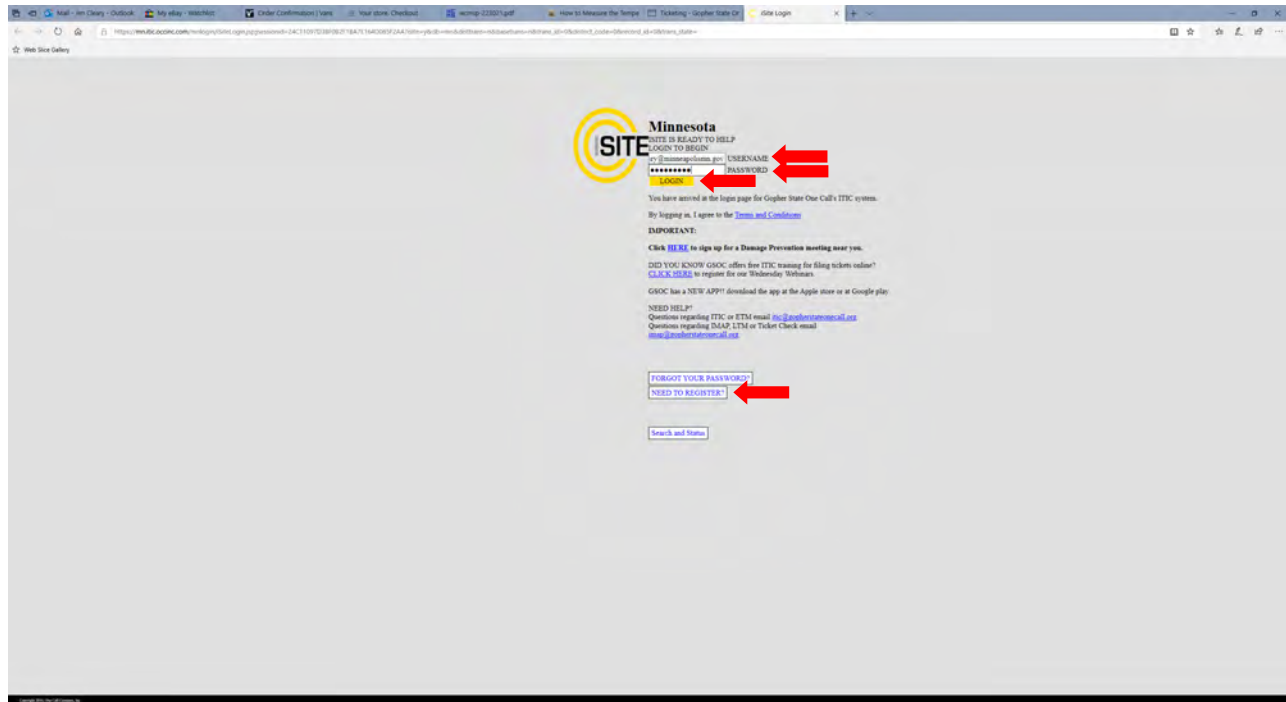


- b. On the *Ticketing* page click **Industry Professionals**.



- c. On the *iSite* page do the following:
- For *USERNAME* enter your email address.
 - For *PASSWORD* enter your password.
 - Click **Login**.

Note: If you do not have an account click *NEED TO REGISTER?*



- d. On the next page enter the following information:

- **CALLER INFORMATION:**

Note: This information will be entered automatically.

- EXCAVATION COMPANY: **CITY OF MINNEAPOLIS**
- ITIC USER NAME: **JIM CLEARY**
- ADDRESS: **309**
- STREET: **2ND AVE. S., ROOM 201**
- CITY: **MINNEAPOLIS**
- STATE: **MN**
- ZIP: **55401**
- PHONE NO: **612-673-3623**
- FAX: **612-673-2048**
- EMAIL ADDRESS: **JIM.CLEARY@CI.MINNEAPOLIS.MN.US**

- **PROFILE INFORMATION:**

- FIELD CONTACT: **JIM CLEARY**
- FIELD PHONE: **612-673-3623**
- TYPE OF WORK: **DESIGN FOR ROAD CONSTRUCTION**
- DURATION: **6 MONTHS**
- WORK DONE FOR: **CITY OF MINNEAPOLIS**
- TUNNEL BORE: **N**
- EXPLOSIVES: **N**
- AREA MARKED IN WHITE: **Y**
- RIGHT OF WAY: **Y**

- Click **NON-EXCAV TKT**.

NextGen EXCAVATOR

SEARCH & STATUS

LOGOUT

PLEASE MAKE YOUR SELECTION

CALLER INFORMATION

EXCAVATION COMPANY: CITY OF MINNEAPOLIS
 ADDRESS: 309
 CITY: MINNEAPOLIS
 ZIP: 55401
 FAX: 612-473-2048

ITC USER NAME: JIM CLEARY
 STREET: 2ND AVE. S. ROOM 201
 STATE: MN
 PHONE NO: 612-473-3623
 CELL NUMBER: -
 EMAIL ADDRESS: jim.cleary@cityofminneapolis.mn.us

PROFILE INFORMATION

FIELD CONTACT: JIM CLEARY
 TYPE OF WORK: DESIGN FOR ROAD CONSTRUCTION
 WORK DONE FOR: CITY OF MINNEAPOLIS
 TUNNEL BORE: N
 AREA MARKED IN WHITE: Y
 ADDITIONAL EMAIL RECIPIENTS: -

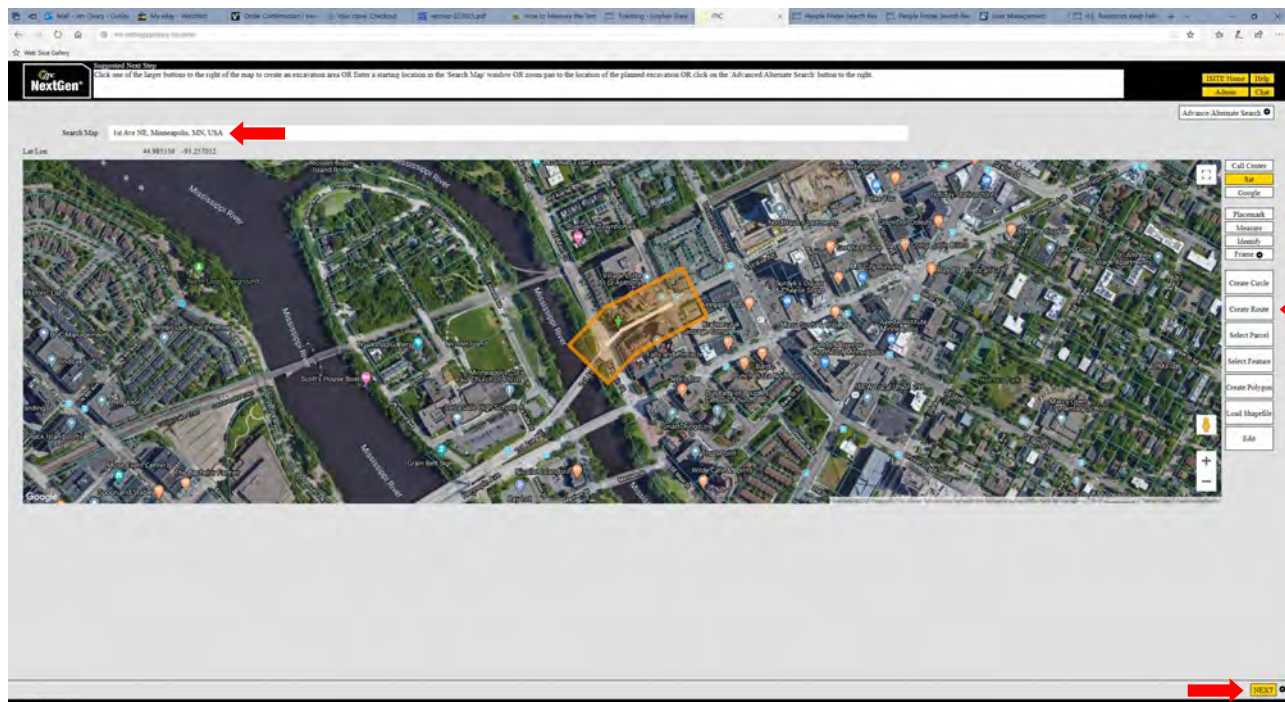
FIELD PHONE: 612-473-3623
 DURATION: 6 MONTHS
 EXPLOSIVES: N
 RIGHT OF WAY: Y
 DEFAULT MAPPING TOOL: -

DELETE PROFILE PROFILE

NORMAL TKT MEET TKT SURVEY TKT ENG-PRECON TKT NON-ENG-AV TKT

e. On the next page do the following:

- Enter the address of the excavation area (e.g. 1st Ave NE, Minneapolis, MN, USA).
- Click the method you want to use to define the excavation area (e.g. **Create Route**).
- Digitize the excavation area, and then click **End Route**.
- Click **NEXT**.



- f. On the next page enter the following information:
- LOCATION INFORMATION: **A ROUTE ALONG 1ST AVE. NE FROM 1ST ST NE TO 2ND ST NE.**
 - REMARKS: **WE NEED PLANS, NOT FIELD MARKINGS!**
SEND PLANS TO (enter your email address)
 - Click **NEXT**.

NextGen

Recommended Next Step
The number of tickets created is based on call-center policy for the excavation entities created. Click on each Ticket tab appearing below to verify the accuracy of the information depicted in the Call Center map at the right AND the corresponding 'Location Information' text on the left. Even though the ticket form has been completed by the system, you are responsible for the accuracy and validity of all information. A red globe in the ticket tab indicates that the ticket has not yet been created. A red exclamation point in the ticket tab indicates that information in the text on the left is incomplete. See the corresponding red exclamation point sent to the 'Information' tab below to watch these issues. Please enter any tab, or prompt for additional information. If you determine that some of the tickets below are not needed, they can be discarded on the next page.

Ticket A

EXCAVATOR INFORMATION

EXCAVATION INFORMATION **PROFILE**

LOCATION INFORMATION

COUNTY: MINNEAPOLIS

CITY: MINNEAPOLIS

ADDRESS #:

DRG STREET: 1ST AVE NE

NEAREST INTERSECTING STREET: MAIN ST NE

MARKING INSTRUCTIONS / DRAFTING DIRECTIONS: A ROUTE ALONG 1ST AVE. NE FROM 1ST ST NE TO 2ND ST NE

ADDITIONAL INFORMATION: WE NEED PLANS, NOT FIELD MARKINGS! SEND PLANS TO TRACLEARY@MINNEAPOLIS.MN.GOV

TOWNSHIP:

S-Q:

RANGE:

CC EMAIL:

Map

Call Center

Set

Google

Measure

Identify

Frame

Locate(s)

NEXT

- g. On the next page click **SUBMIT**.

NextGen

Recommended Next Step
Click on each Ticket tab below to review the 'Ticket Type' and 'Work to Begin' dates and times. In the 'Session Disposition' section, select an action item for each ticket individually, or use the 'action' button sent to the 'Action' column to change ALL tickets. When ready, click on the 'Submit' button in the lower right hand corner to complete forms and use a validated facility, ensure for each ticket.

Ticket A

TICKET DISPOSITION

TICKET TYPE: NON-EXCAVATION

WORK TO BEGIN DATE: 09/23/2009

WORK TO BEGIN TIME: 1:45 PM

SESSION DISPOSITION

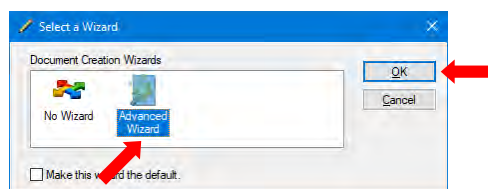
| Ticket | Issue Count | Place | Address | Cross Street | Ticket Type | Action Date | Action |
|----------|-------------|-------------|------------|--------------|----------------|-------------|---------|
| Ticket A | MINNEAPOLIS | MINNEAPOLIS | 1ST AVE NE | MAIN ST NE | NON-EXCAVATION | 09/23/2009 | RELEASE |

SUBMIT

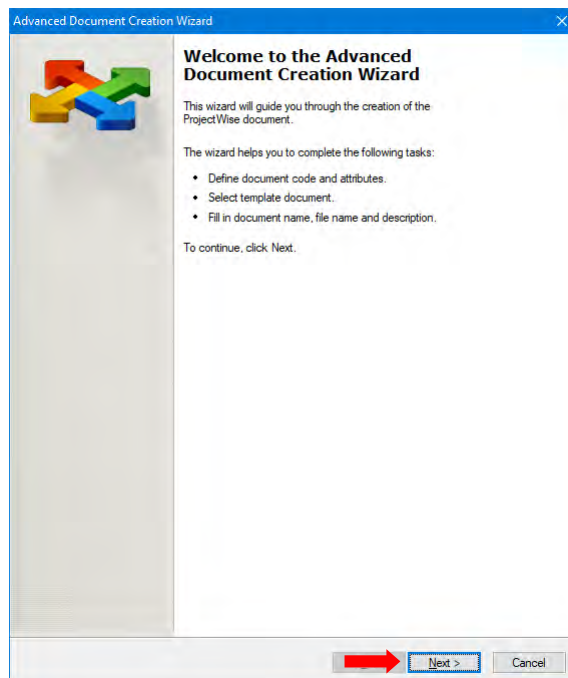
- h. On the next page click **LOGOUT**.
2. Proceed to [Detailed steps for moving files into ProjectWise](#).

Detailed Steps for Moving Files into ProjectWise:

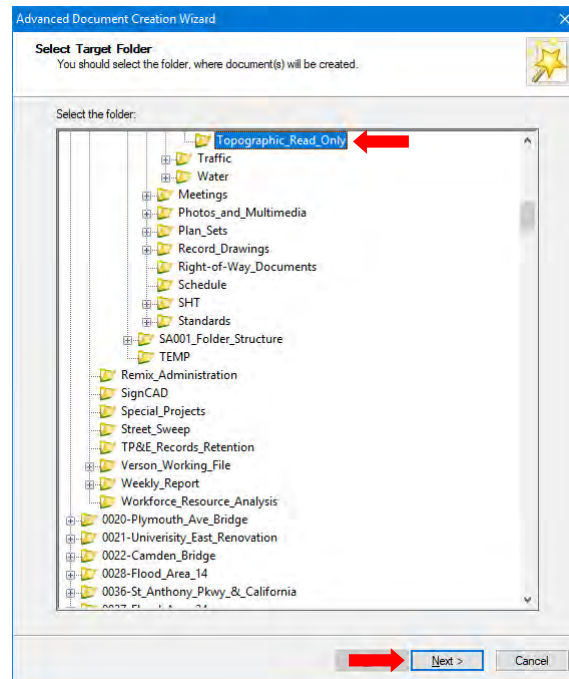
1. Move the extract design file to the project in ProjectWise:
 - a. Select **Start >All Programs >Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to one of the following folders in the project:
 - For **Centerline/Street Name, Contour, LiDAR, Orthophoto, & Planimetric** data select the Existing\Topographic\Topographic_Read_Only folder.
 - For **Private Utility** data select the Existing\Private_Uilities\Private_Uilities_Read_Only folder.
 - For **Right-of-Way/Building Number** data select the Existing\Right-of-Way\Right-of-Way_Read_Only folder.
 - For **Sewer** or **Watershed Drainage Area** data select the Existing\Sewer\Sewer_Read_Only folder.
 - For **Traffic** data select the Existing\Traffic\Traffic_Read_Only folder.
 - For **Water** data select the Existing\Water\Water_Read_Only folder.
 - c. Open the *Extract Data* folder on your *H:* drive and shrink it so that you can see the folder in ProjectWise.
 - d. Highlight the extract data file (e.g. 0000-EXTOPO.dgn), left-click on it and drag it into the folder in ProjectWise.
 - e. In the *Select a Wizard* dialog box highlight *Advanced Wizard* and click **OK**.



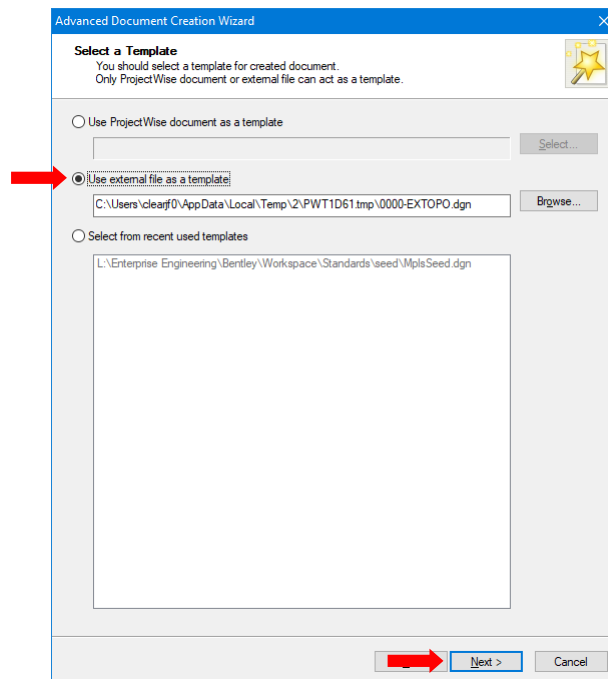
- f. In the *Advanced Document Creation Wizard* dialog box click **Next**.



- g. In the *Advanced Document Creation Wizard/Select Target Folder* dialog box highlight the appropriate folder and click **Next**.



- h. In the *Advanced Document Creation Wizard/Select a Template* dialog box click the **Use external file as a template** radio button and click **Next**.



- i. In the *Advanced Document Creation Wizard/Define Document Code* dialog box, for *CM_DOCTYP* choose one of the following from the dropdown list:
- For **Centerline/Street Name** data choose **CLINE**.
 - For **Contour** data choose **CONTOUR**.
 - For **LiDAR** data choose **LIDAR**.
 - For **Orthophoto** data choose **ORTHO**.
 - For **Planimetric** data choose **EXTOPO**.
 - For **Private Utility** data choose **EXUTIL**.
 - For **Right-of-Way/Building Number** data choose **EXRWAY**.
 - For **Sewer** data choose **EXSEWR**.
 - For **Shapefile** data choose **SHPFILE**.
 - For **Traffic** data choose **EXTRAF**.
 - For **Water** data choose **EXWATR**.
 - For **Watershed Drainage Area** data choose **WATRSHD**.

Click the **Generate** button, then click **Next**.

Advanced Document Creation Wizard

Define Document Code
You should define (generate) unique document code.

Document Unique Identifier

CM_PROJNO 0000

CM_DOCTYP - EXTOPO

CM_SEQNUM - 003

CM_PROJALIGN

Generate

Next available

0000-EXTOPO-003

☐ Show Advanced Generate Options

Next > Cancel

- j. In the *Advanced Document Creation Wizard/Define Document Attributes* dialog box click **Next**.

Advanced Document Creation Wizard

Define Document Attributes
You should define environment specific document attributes.

TITLE SHEET PROJECT OWNER
CITY OF MINNEAPOLIS

TITLE SHEET SECONDARY PROJECT OWNER

TITLE SHEET/PLAN SHEET PROJECT NAME

TITLE SHEET PROJECT NO.

NORTH SOUTH
WEST EAST

TITLE SHEET/PLAN SHEET TITLE

DRAWN DRW DATE
CHECKED CHK DATE
APPROVED APP DATE
PE NAME PE DATE
PE NUMBER

PROJECT NO. 1 PROJECT NO. 2
PROJECT NO. 3 PROJECT NO. 4
PROJECT NO. 5 PROJECT NO. 6

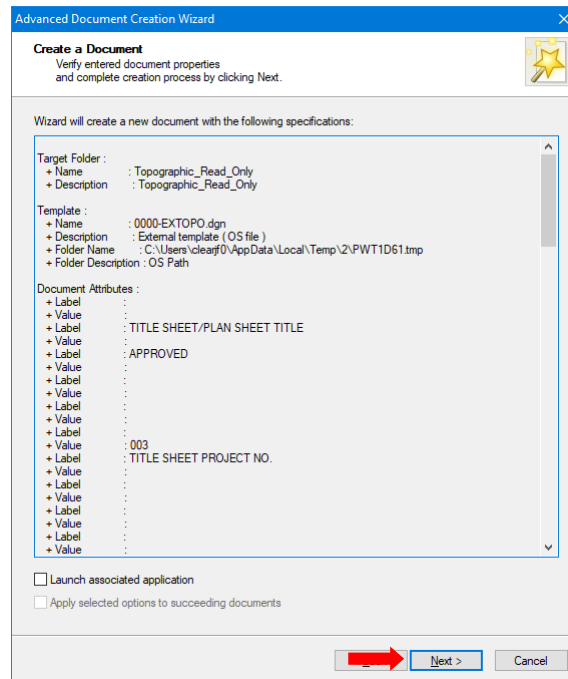
SHEET REV OF SHT

Next > Cancel

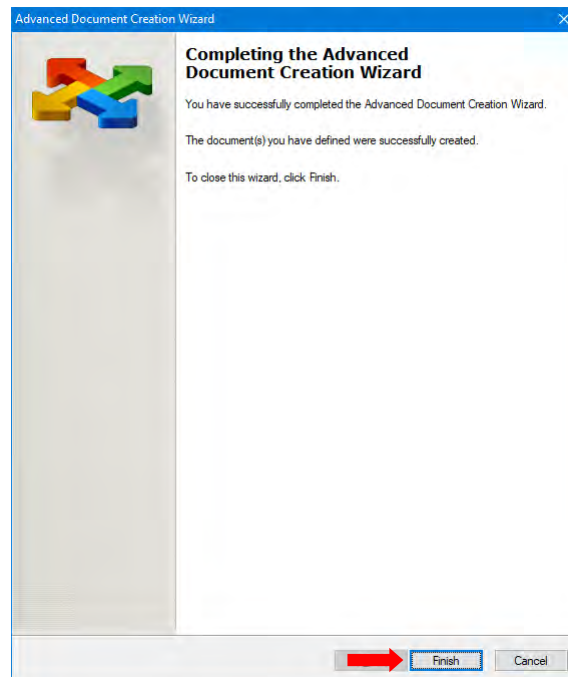
- k. In the *Advanced Document Creation Wizard/Document Properties* dialog box, for *Description for the new document* enter the appropriate description (see below) and click **Next**.
- For **Centerline/Street Names** enter **Centerlines/Street Names**.
 - For **Contour** enter **Contours**
 - For **LiDAR** data enter **LiDAR Data**.
 - For **Orthophoto** data enter **Orthophotos**.
 - For **Planimetric** data enter **Existing Planimetric Data**.
 - For **Private Utility** data enter **Existing Private Utility Data**.
 - For **Right-of-Way/Building Number** data enter **Existing Right-of-Way Data/Building Numbers**.
 - For **Sewer** data enter **Existing Sewer Data**.
 - For **Shapefile** data enter the data type associated with the data that was extracted, plus the word **Shapefile** (e.g. *Sewer Attributes Shapefile*).
 - For **Traffic** data enter **Existing Traffic Data**.
 - For **Water** data enter **Existing Water Data**.

The screenshot shows the 'Advanced Document Creation Wizard' dialog box, specifically the 'Document Properties' tab. The dialog has a title bar with a close button. Below the title bar, there's a section titled 'Document Properties' with a subtitle: 'Define required document properties - the name and the file name. Optionally, you can also define document description and version string.' There are four input fields: 'New document name' (containing '0000-EXTPO-003'), 'Description for the new document' (containing 'Existing Planimetric Data'), 'New document file name' (containing '0000-EXTPO-003.dgn'), and 'Version' (empty). Below these is a dropdown menu for 'Application' set to 'MicroStation'. At the bottom, there are 'Next >' and 'Cancel' buttons. A red arrow points to the 'Description for the new document' field, and another red arrow points to the 'Next >' button.

- l. In the *Advanced Document Creation Wizard/Create a Document* dialog box click **Next**.



- m. In the *Advanced Document Creation Wizard* dialog box click **Finish**.



- n. Delete the extract data file on your *H:* drive.
o. Notify the person who requested the extraction via email that it has been completed and is ready to be used.

WHAT TO DO

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0008
ISSUED BY: Jim Cleary
SUBJECT: Special Assessments Procedure

DEVELOPED BY: CADD Management Team
DATE: July 26, 2005

BACKGROUND

The Design Team Leads have identified a need for Special Assessments to place project data directly within a Special Assessments folder in ProjectWise.

OVERVIEW

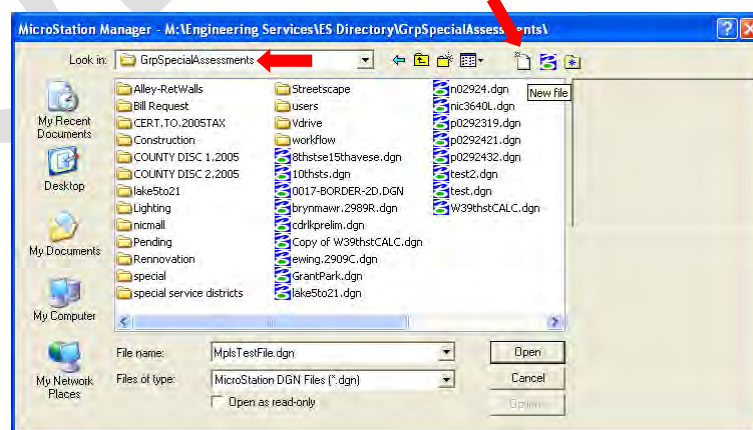
Special Assessments provides data that is used to determine which properties are assessed for costs incurred by project improvements.

LOCATION

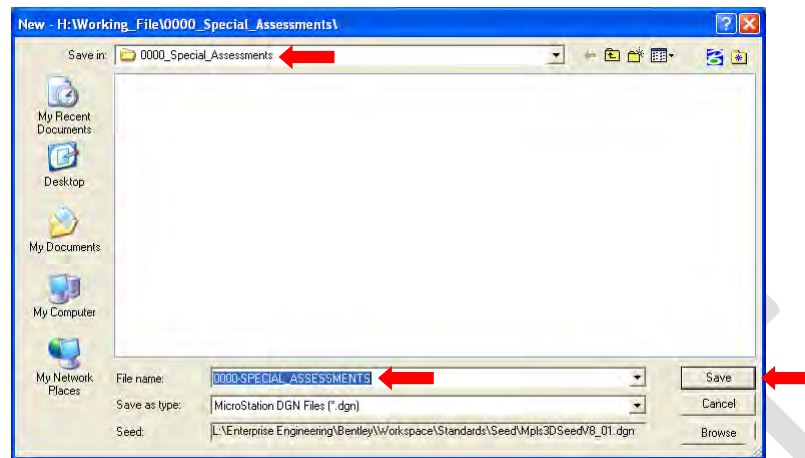
- **Hennepin County property data** is stored in the following location:
L:\Enterprise Engineering\Bentley\GeoGraphics\hencounty\County0405\parcels.
Note: The name of the folder "County0405" will change quarterly as new data is received.
- **Special Assessments data** for CIP projects are stored in the following location:
ProjectWise Explorer\CIP Projects\Documents\Project_Name\Budgeting\Special_Assessments.
Note: This folder is read-only to everyone except those in the Special Assessments group.

WHAT TO DO

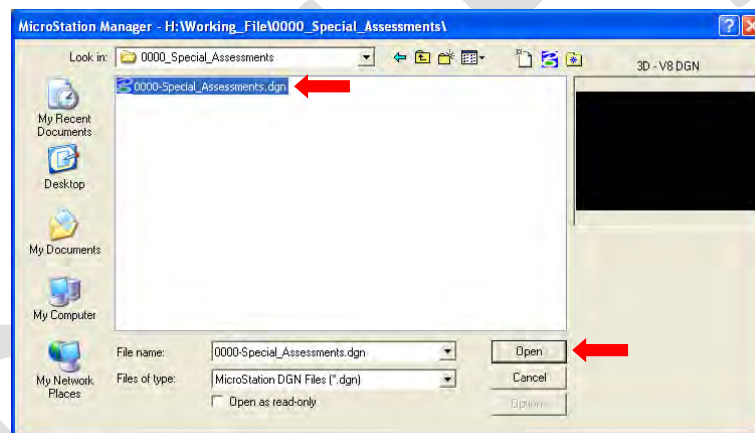
1. Create the working folder for the project:
 - a. Right-click on *Start* and select **Explore**.
 - b. In Windows Explorer navigate to the Special Assessments working location: *M:\Engineering Services\ES Directory\GrpSpecialAssessments*.
 - c. Right-click in the window and select **New > Folder**.
 - d. Right-click on *New Folder* and select **Rename**.
 - e. Rename the folder with the project's number and the words "Special_Assessments" (e.g. *0000_Special_Assessments*).
2. Create the project's special assessments design file:
 - a. Select **Start > All Programs > Enterprise Engineering > MicroStation**.
 - b. In the *MicroStation Manager* dialog box click the **New file** icon.



- c. In the *New* dialog box navigate to the working folder for the project (the folder created in Step 1).
- d. Enter a name in the File name field (use the project's number and the words "SPECIAL_ASSESSMENTS", e.g. *0000-SPECIAL_ASSESSMENTS-001.dgn*) and click **Save**.



- e. In the *MicroStation Manager* dialog box highlight the design file you just created and click **Open**.

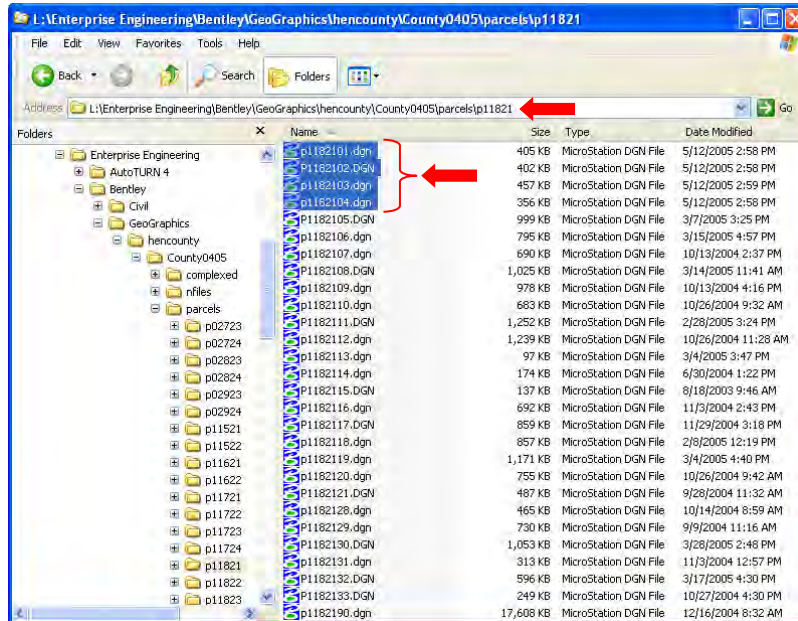


3. Copy the property data design file(s) you need to the working folder for the project (e.g. *0000_Special_Assessments*).
 - a. Right-click on *Start* and select **Explore**.
 - b. In Windows Explorer navigate to the location where Hennepin County property data is stored (*L:\Enterprise Engineering\Bentley\GeoGraphics\hencounty\County0405\parcels*).
 - c. Open the folder where the quarter-section design files you want are located. (A quarter section map is available in the following location: *ProjectWise Explorer\CIP Projects\Documents\0000-Project_Resource\Orthos\Quarter_Section.ppt*.)

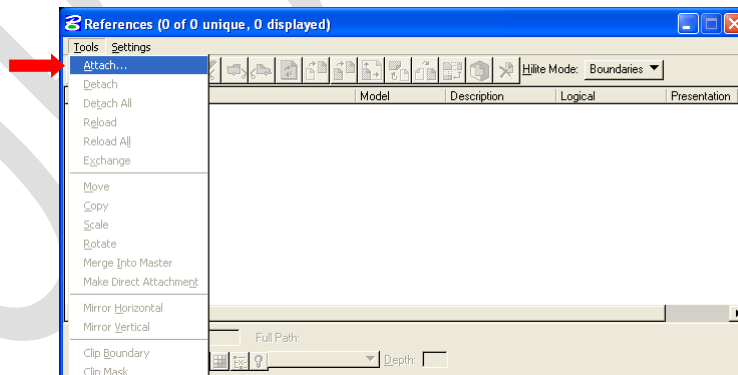
Note: The quarter-section design files are in folders named by township and range prefixed with a "p" (e.g. p11823 refers to Township 118 Range 23). The township and ranges within the City of Minneapolis are: **T118R21, T30R24, T29R24, T29R23, T28R24, T28R23**.

- d. Right-click on the file(s) you need and select **Copy**.

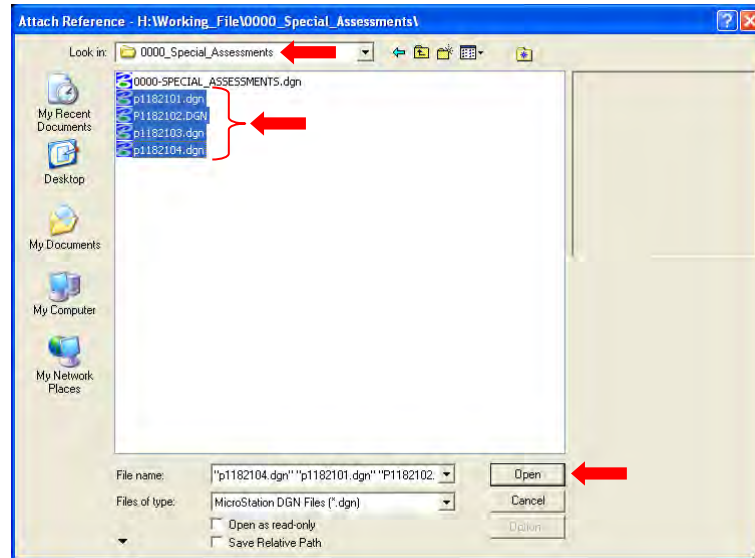
Note: Users may select more than one file by pressing the **Ctrl** key while left-clicking on each file.



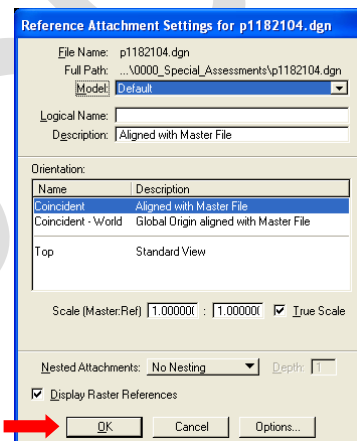
- e. Right-click in the working folder for the project (e.g. *0000_Special_Assessments*) and select **Paste**.
4. Reference the property data design files to the project's special assessments design file:
- Double-click on the project's special assessments design file (e.g. *0000-SPECIAL_ASSESSMENTS-001.dgn*).
 - In the design file select **File > Reference**.
 - In the *References* dialog box select **Tools > Attach**.



- d. In the *Attach Reference* dialog box navigate to the working folder for the project (e.g. *0000_Special_Assessments*).
 - e. Highlight the file(s) and click **Open**.
- Note:** Users may select more than one file by pressing the **Ctrl** key while left-clicking on each file.



- f. In the *Reference Attachment Settings* dialog box click **OK**.
- Note:** You will need to do this for each file you attach.



- g. In the design file click the **Fit View** icon to see the reference files.
5. Create the special assessment areas in the project's special assessments design file.
 6. Move the working folder for the project to the Special Assessments folder:
 - a. Open the project's Special Assessments folder in ProjectWise Explorer:
 - Select **Start > All Programs > Enterprise Engineering > ProjectWise Explorer**.
 - Double-click on CIP Projects and navigate to the project's Special Assessments folder (*Project_Name\\Budgeting\\Special_Assessments*).
 - b. Open the working folder for the project:
 - Right-click on *Start* and select **Explore**.

- In Windows Explorer navigate to the Special Assessments working location and make the window smaller so that you can see ProjectWise Explorer underneath.
 - c. Left-click on the working folder for the project and drag it into the Special Assessments folder.
7. Notify the project engineer when the files are ready to be used.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0009
ISSUED BY: Jim Cleary
SUBJECT: How to Deliver Project Standards
To Consultants

DEVELOPED BY: CADD Management Team
DATE: July 26, 2005
REVISION 0.8: March 10, 2020

BACKGROUND

Consultants are not delivering project plans that conform to City of Minneapolis Enterprise Engineering CADD standards.

OVERVIEW

MicroStation Packager gathers together copies of all the files necessary to produce plans that conform to Public Works CADD standards.

Note: Consultants may download these files from the [Public Works CADD Standards](#) web page. These files include:

InRoads Standard Files (L:\Enterprise Engineering\Bentley\Civil)

Note: *MicroStation Packager* does not gather together InRoads files; however, the following files should be delivered to the consultant:

- Drafting Notes: **Mpls.dft**
- Feature Code and Attribute Library: **Mpls.fxl**
- Rainfall Intensity-Duration-Frequency File: **Mpls.idf**
- Preference File: **Mpls.xin**
- Structures File: **Mpls.dat**
- Template Library: **Mpls.itl**

MicroStation Standard Files (L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell, Seed, Symb, Tables\Pen)

- Cell Library: **DFTG.cel, EROS.cel, PKBD.cel, RWAY.cel, SSWR.cel, STRC.cel, STRM.cel, SURF.cel, SURV.cel, TRAF.cel, TRAN.cel, UTIL.cel, VEG.cel, WATR.cel**
- Color Table: **MplsColor.tbl**
- Dgn Library: **Mpls.dgnlib**
- Pen Table: **MplsSewer.tbl, MplsStreet.tbl, MplsWater.tbl**
- Font Library: **MplsFont.rsc**
- Line Style Library: **MplsLine.rsc**
- Seed File: **MplsSeed.dgn**

Documentation

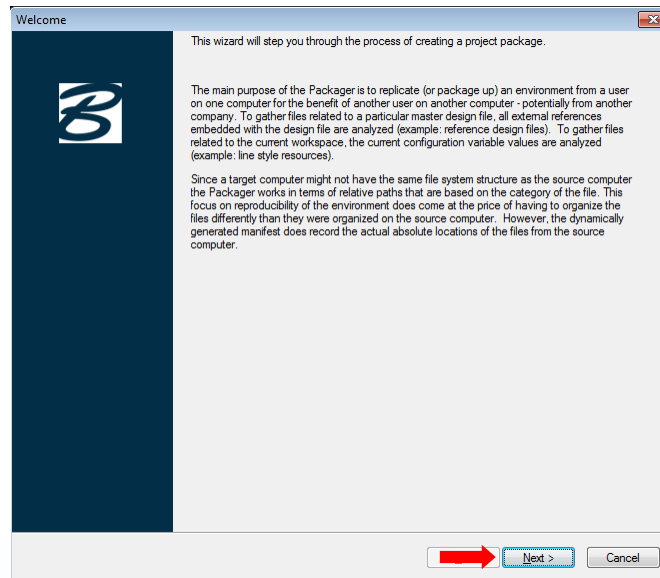
Note: *MicroStation Packager* does not gather together documentation; however, the following documents should be delivered to the consultant:

- [30 60 90.xls](#)
- [Mpls PW CADD Levels & Symbology.xls](#)
- [Mpls PW CADD Standards Files.pdf](#)
- [Mpls PW CADD Standards Manual.pdf](#)
- [Mpls PW Catch Basin Survey Form.pdf](#)
- [Mpls PW Review Comment Disposition Form.docx](#)
- [Mpls PW Standard Symbology.pdf](#)
- [Mpls PW Storm Sanitary Manhole Information Form.pdf](#)

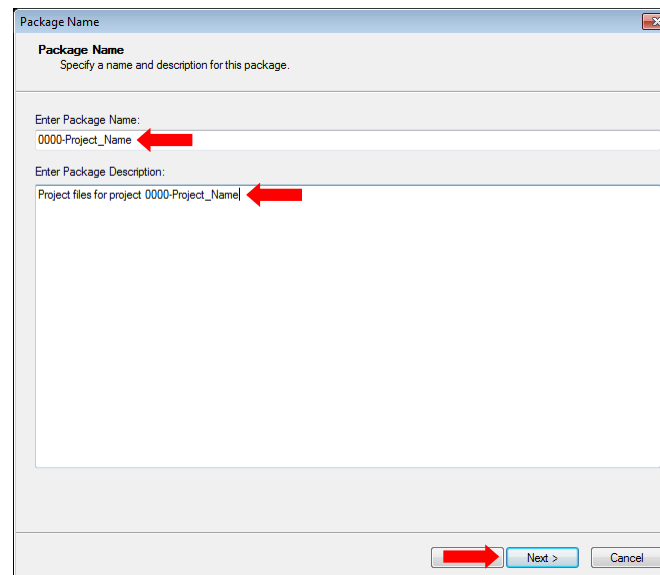
- [Mpls PW Survey Standards.pdf](#)
- [Mpls PW TE&D Consultant Design Standards.pdf](#) (for TE&D projects)
- [Mpls PW TE&D Sample Plan Set 100%.pdf](#) (for TE&D projects)
- [Transmittal CADD-0050 Mpls PW CADD Standards.pdf](#)
- [Transmittal Procedure-0014 How to Use Standard Plates in Plan Sheets.pdf](#)
- [Transmittal Procedure-0018 Attachment How to Revise Signed Plan Sheets.pdf](#)
- [Transmittal Procedure-0018 How to Revise Signed Plan Sheets.pdf](#)
- [Transmittal Procedure-0022 MicroStation Print Organizer.pdf](#)

WHAT TO DO

1. Begin creating the package:
 - a. Open a MicroStation design file.
 - b. Select **Utilities > Packager**.
 - c. In the *Welcome* dialog box click **Next**.



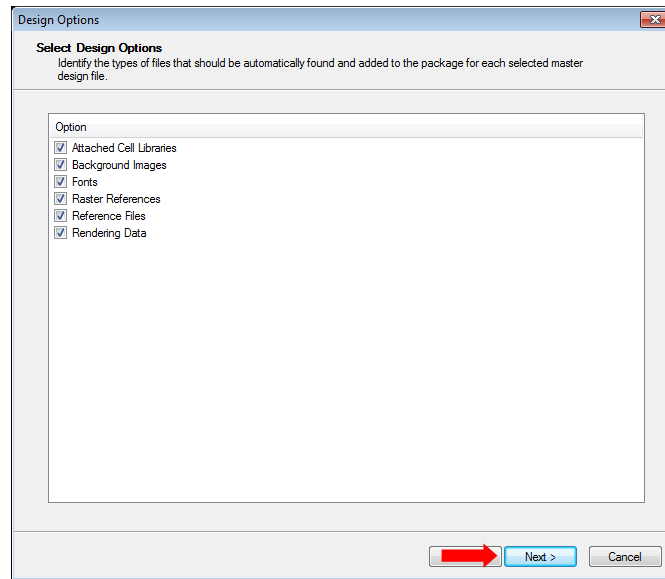
2. Enter the package name:
 - a. In the *Package Name* dialog box in the *Enter Package Name* field enter the project name (e.g. *0000-Project_Name*).
 - b. In the *Enter Package Description* field enter the following: **Project files for project** then enter the project name (e.g. *Project files for project 0000-Project_Name*) then click **Next**.



3. Select the design options:

Allows you to select the types of files that should be automatically found and added to the package for each selected master design file.

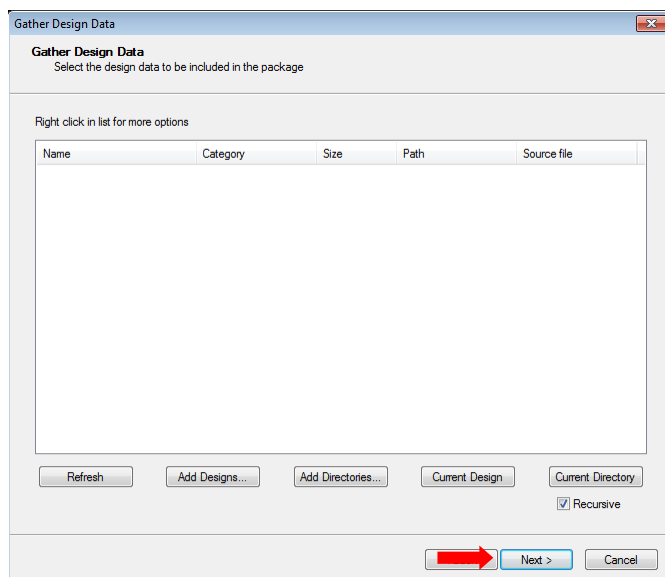
- a. In the *Design Options* dialog box check the boxes next to the items you would like to include in the package (by default they are all checked) then click **Next**.



4. Gather the design data:

Allows you to select files with all attachments to be included in the package. Right-clicking a file provides additional functionality such as, toggle selection, selecting all, selecting and unselecting a group, selecting and unselecting a category, selecting and unselecting a path, and refresh. Browse allows you to select design data. Current design loads the current design files and attachments and Current directory loads all design files in the same directory of the open DGN file. Recursive, on by default, searches and gets all design files in the sub-directories from the current directory and down.

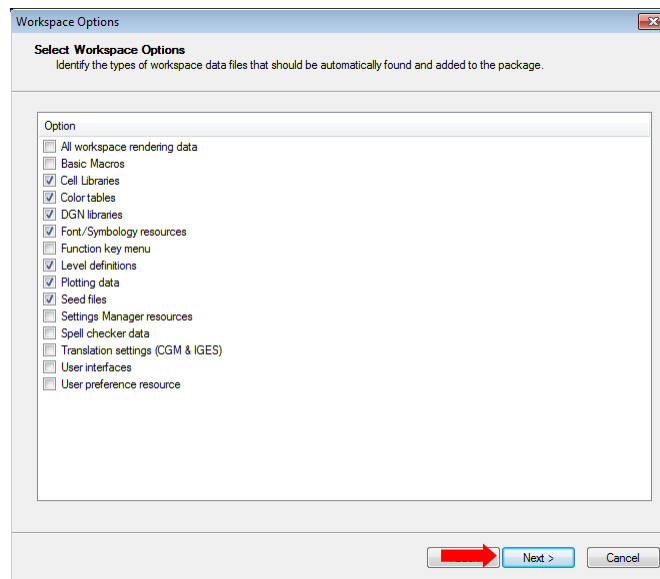
- a. In the *Gather Design Data* dialog box add any design files that you wish to include with the package and click **Next**.



5. Select the workspace options:

Allows you to select the types of workspace data files that should automatically be found and added to the package.

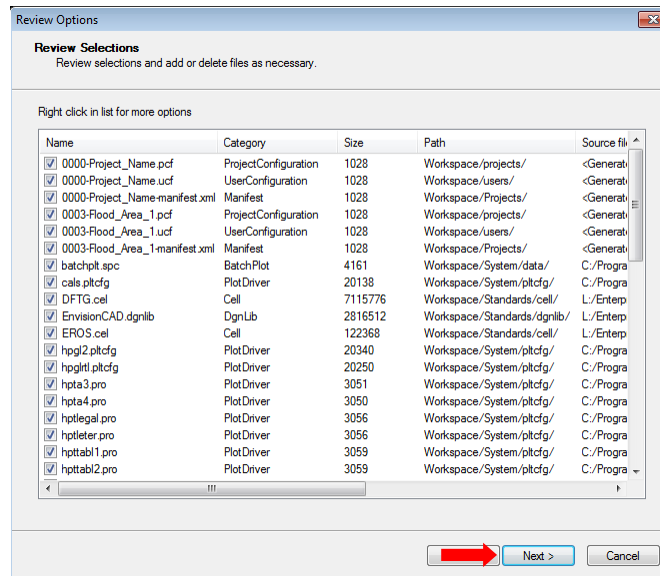
- a. In the *Workspace Options* dialog box check the boxes next to the following items:
 - Cell Libraries
 - Color tables
 - DGN libraries
 - Font/Symbology resources
 - Level definitions
 - Plotting data
 - Seed files
- b. Click **Next**.



6. Review your selections:

Displays the cumulative results of your selections thus far. In addition, several <generated> files are automatically created to document the package contents and provide configuration information for launching into the workspace. Unless you have a specific reason, you should not deselect these files. Right-clicking a file provides additional functionality such as, toggle selection, selecting all, selecting and unselecting a group, selecting and unselecting a category, selecting and unselecting a path, refresh, and extra files. Selecting Extra File opens the Add Extra File(s) dialog box, which is used to add and additional files to the package. The files are added to Workspace/projects/[project name]/Extras. Files can only be added once. You cannot have the same file in multiple locations.

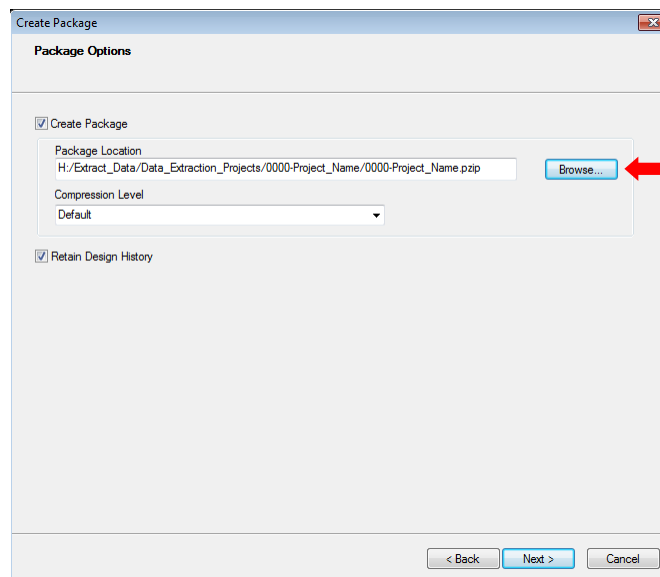
- a. In the *Review Options* dialog box check to see that you have included all of the files you want then click **Next**.



7. Select the Package options:

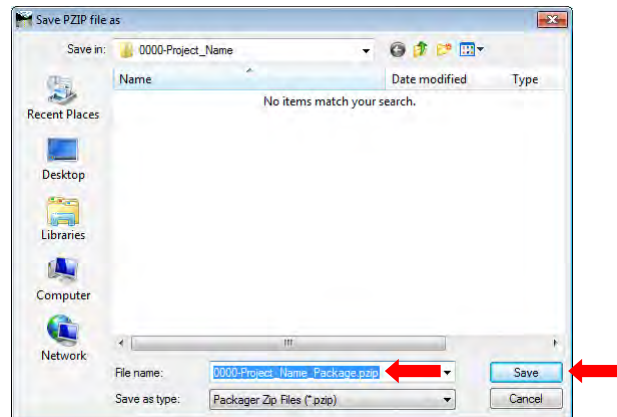
Allows you to select whether you would like to create a .pzip file or post the new package to a Web Folder.

a. In the Create Package dialog box click *Browse...*

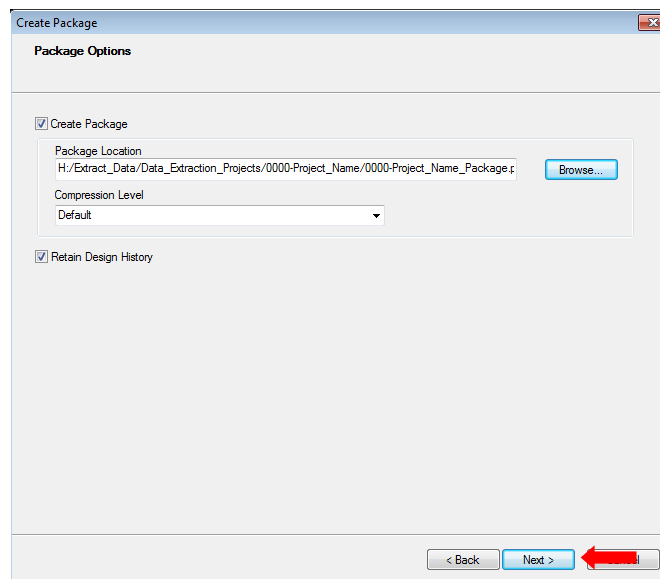


- In the *Save PZIP file as* dialog box browse to the location where you want to save the package.

- In the *File name* field enter a name for the package (e.g. *0000-Project_Name_Package.pzip*) and click **Save**.

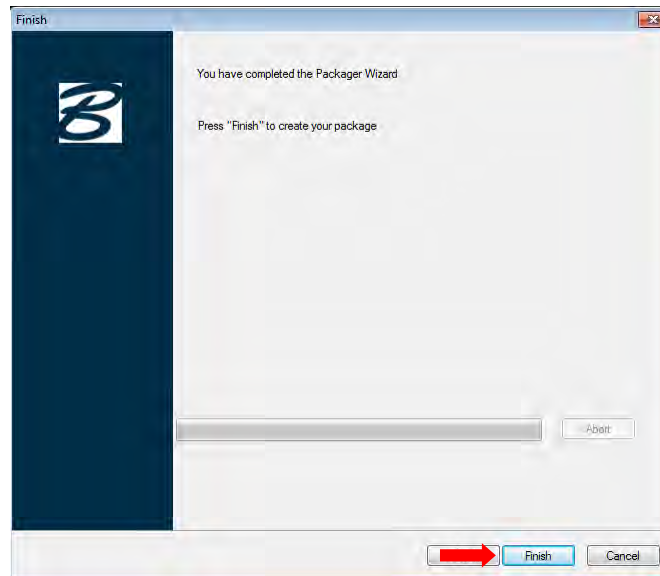


- In the *Create Package* dialog box click **Next**.

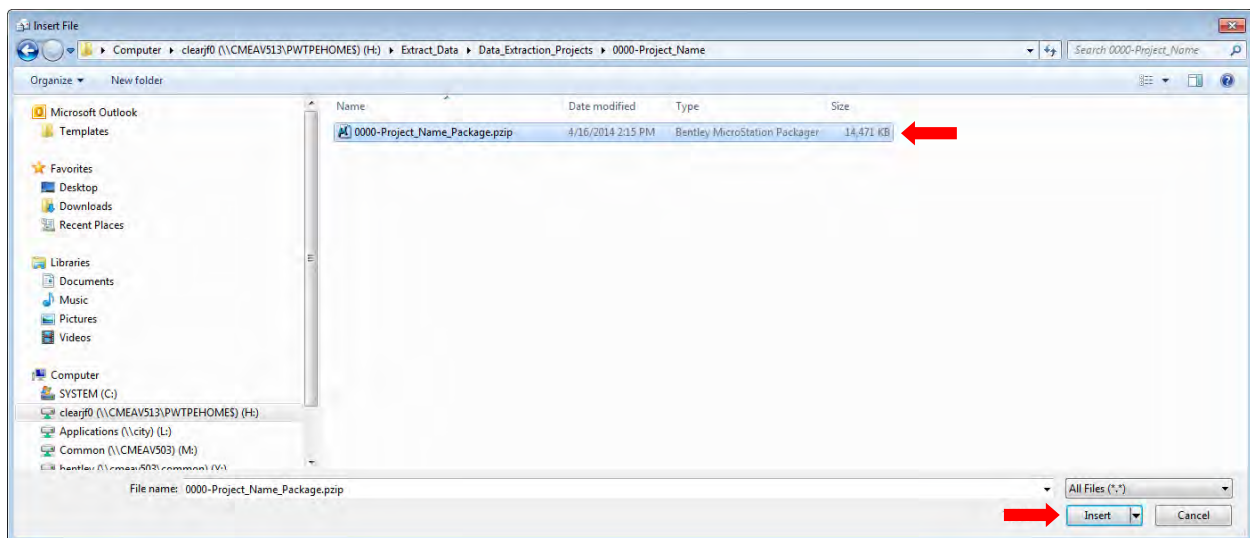


8. Finish creating the package:

- a. In the *Finish* dialog box click **Finish**.



9. Deliver the package to the consultant:
- Open *Outlook* and select **New > Mail Message**.
 - In the message select **Insert > File...**
 - In the *Insert File* dialog box browse to the location where you saved the package.
 - Highlight the pzip file (e.g. *0000-Project_Name_Package.pzip*) and click **Insert**.



- e. Fill in the *To* field and the *Subject* field and add any other information to the body of the message that you think the consultant needs. When you are ready to deliver the package click Send.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0011
ISSUED BY: Jim Cleary
SUBJECT: How to Share Files with People Who Don't Have ProjectWise

DEVELOPED BY: CADD Management Team
DATE: February 23, 2006
REVISION 0.3: March 10, 2020

BACKGROUND

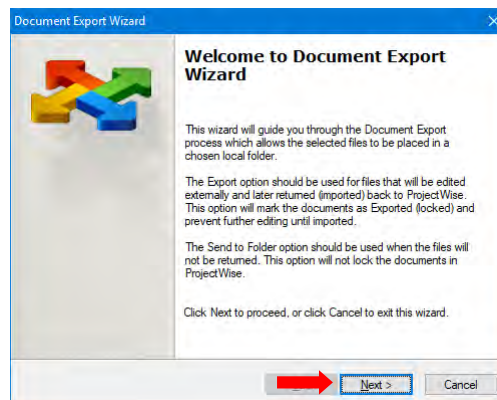
There is a need to share CIP project data with people who don't have ProjectWise. When you need to have your documents edited by someone who does not have ProjectWise, you can **export** those documents to a location outside of ProjectWise.

OVERVIEW

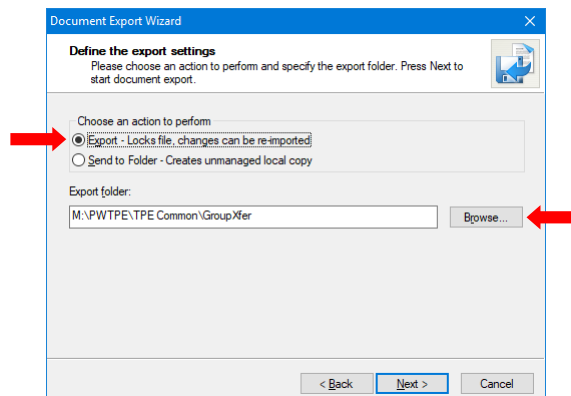
ProjectWise is the location for design teams to store and work on CIP project files. Using ProjectWise enables design teams to work collaboratively with other functional areas involved in the design process. Exporting the original document from ProjectWise eliminates the need to create and send copies of files and ensures that users can view the most up-to-date information.

WHAT TO DO

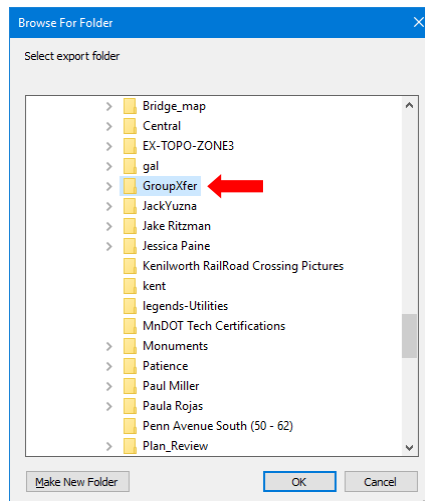
1. **Export the file:**
 - a. Right-click on the file you want to share and select **Export....**
 - b. In the *Document Export Wizard* dialog box click **Next**.



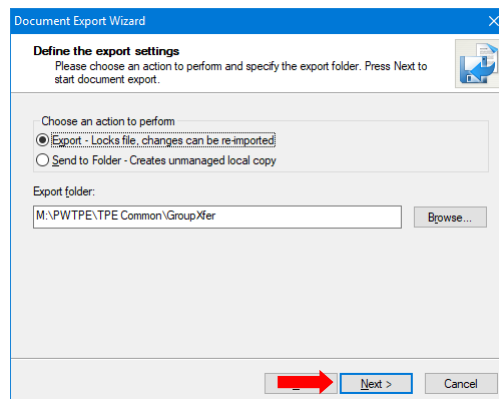
- c. In the *Document Export Wizard* dialog box click the radio button next to **Export**.
 - Click the **Browse...** button.



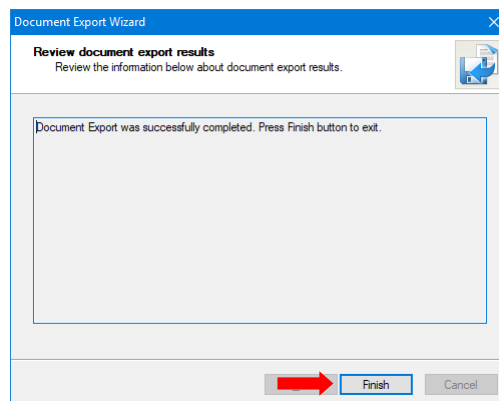
- In the *Browse For Folder* dialog box navigate to a location that both you and the person you want to share the file with have write access to (e.g. *M:\PWTPE\TPE Common\GroupXfer*).
- Click **OK**.



- d. In the *Document Export Wizard* dialog box click **Next**.



- e. In the *Document Export Wizard* dialog box click **Finish**.



After exporting a document, for you the document's icon changes to a diskette. Other users will see a lock icon. Other users can copy out locked documents or open them as read-only.

2. Edit the file:

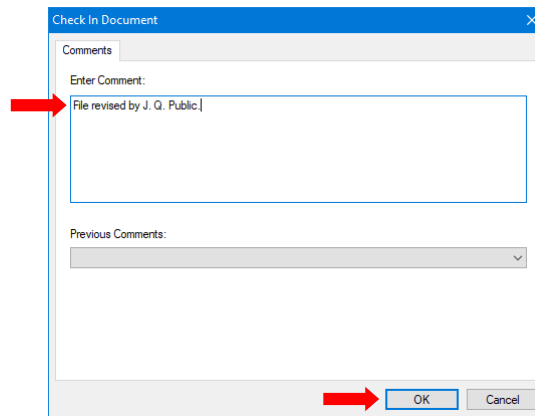
- a. Let the person without ProjectWise know that they can now open the file and make changes.

3. Import the changes:

When your exported documents are returned from being edited, you **import** them back into ProjectWise. An import is essentially a check in, but for exported documents.

- a. Right-click on the file you want to share and select **Import**.

- Enter a comment and click **OK**.



When importing a document from its original export folder, the local copy of the document is deleted after import.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0010
ISSUED BY: Jim Cleary
SUBJECT: How to Open DWG Files

DEVELOPED BY: CADD Management Team
DATE: February 1, 2006
REVISION 0.5: June 25, 2020

BACKGROUND

In MicroStation, you can work directly in a DWG file. Once you choose a DWG file to open, MicroStation automatically enables the DWG workmode. MicroStation also automatically detects the release version of the DWG file (for example, 2004). When you make changes to the DWG file, they are saved in the same release version.

OVERVIEW

MicroStation is the City of Minneapolis standard CADD program for creating engineering drawings.

Note: Consultants should deliver engineering drawings to the City of Minneapolis in the standard MicroStation CADD format.

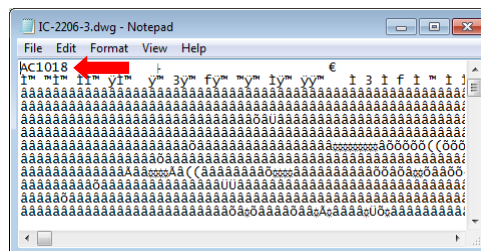
WHAT TO DO

Note: AutoCAD 2010 and later files are not supported in the version of MicroStation we are using (08.11.07.443). Consultants should be asked to deliver AutoCAD files in one of the following versions:

- 14
- 2000/2000i/2002
- 2004/2005/2006
- 2007/2008/2009

To determine the version of an AutoCAD file, do the following:

1. Right-click on the file and select **Open with > Notepad**.
2. Note the first 6 bytes (e.g. AC1018):

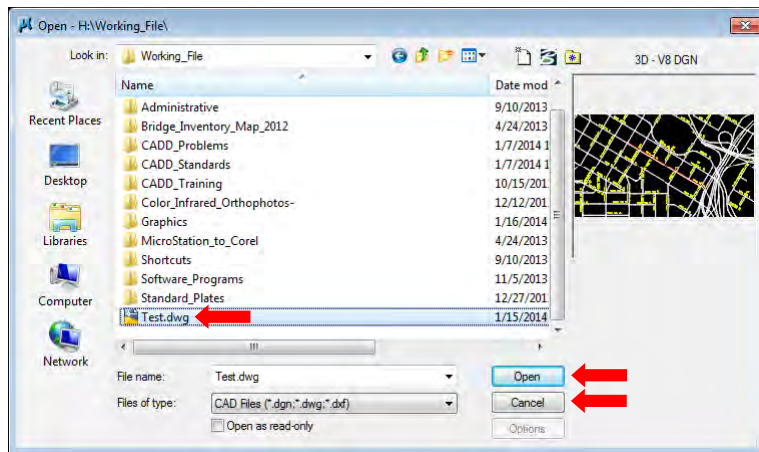


- **AC1032** = DWG AutoCAD 2018/2019/2020
- **AC1027** = DWG AutoCAD 2013/2014/2015/2016/2017
- **AC1024** = DWG AutoCAD 2010/2011/2012
- **AC1021** = DWG AutoCAD 2007/2008/2009
- **AC1018** = DWG AutoCAD 2004/2005/2006
- **AC1015** = DWG AutoCAD 2000/2000i/2002
- **AC1014** = DWG Release 14, 14.01 (LT97/LT98)
- **AC1012** = DWG Release 13 (LT95)
- **AC1009** = DWG Release 11/12 (LT R1/R2)
- **AC1006** = DWG Release 10
- **AC1004** = DWG Release 9
- **AC1003** = DWG Release 2.6

- **AC1002** = DWG Release 2.5
- **AC2.10** = DWG Release 2.10
- **AC1.50** = DWG Release 2.0
- **AC1.4** = DWG Release 1.4
- **AC1.2** = DWG Release 1.2
- **MC0.0** = DWG Release 1.1

1. Open the DWG file:

- Click **Start** then select **All Programs > Bentley > MicroStation V8i (SELECTseries 2) > MicroStation V8i (SELECTseries 2)**.
- In the *Open* dialog box in the *Files of type* field select **CAD Files (*.dgn;*.dwg;*.dxf)** from the dropdown list.
 - Highlight the DWG file you want to open and click **Open**.



WHAT TO DO

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0012
ISSUED BY: Jim Cleary
SUBJECT: How to Review Feature Attributes

DEVELOPED BY: CADD Management Team
DATE: June 16, 2006
REVISION 0.1: July 22, 2014

BACKGROUND

Designers have requested the ability to review the attributes (e.g. material, size, year built, etc.) of existing features.

OVERVIEW

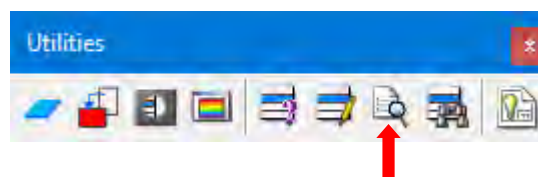
Bentley Map can display the attributes of features that have been extracted from the Enterprise Spatial Database (ESD). The following datasets have attributes available for viewing (the attributes available vary depending on the type of data.):

- Centerline
- Monument
- Planimetric
- Sewer

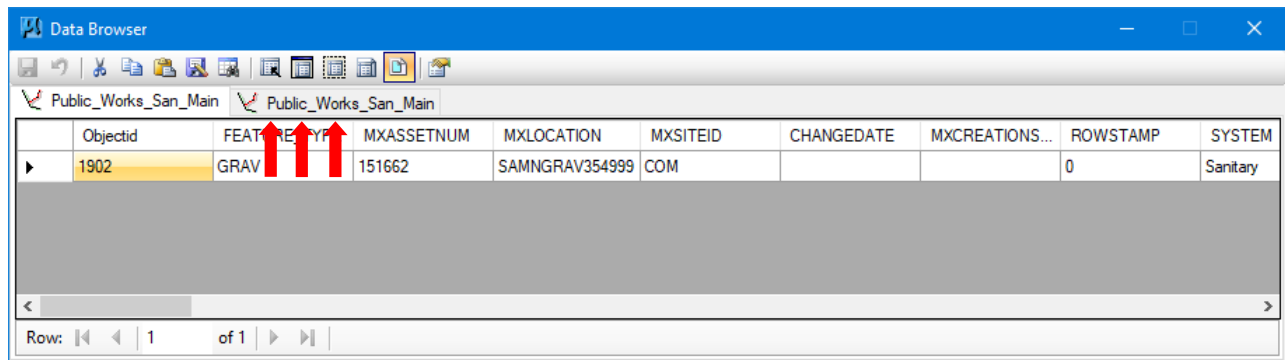
WHAT TO DO

1. Start Bentley Map:
 - a. In MicroStation select **Applications > InRoads Group > Activate InRoads**.
 - b. Select **Applications > Map > Activate Map**.
2. Review attributes:
 - a. Select **Tools > Geospatial > Utilities**.
 - b. Select the feature(s) for which you want to review attributes:
 - For single features use the **Element Selection** tool and click on the feature.
 - For multiple features use the **Place Fence** tool and place a fence around the features.

Note: Multiple features may also be selected from the current view.
 - c. Select the **Data Browser** tool.



- d. In the *Data Browser* window review the attributes for the feature(s) you have selected:
- For single features click **Load Selection**.
 - For multiple features click **Load Fence** or **Load View** depending on how you selected the features. The attributes will be displayed in the *Data Browser* window.



| | Objectid | FEATURETYPE | MXASSETNUM | MXLOCATION | MXSITEID | CHANGEDATE | MXCREATIONS... | ROWSTAMP | SYSTEM |
|---|----------|-------------|------------|----------------|----------|------------|----------------|----------|----------|
| ▶ | 1902 | GRAV | 151662 | SAMNGRAV354999 | COM | | | 0 | Sanitary |

Row: 1 of 1

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0013
ISSUED BY: Jim Cleary
SUBJECT: Standard Plate Creation, Update,
and Approval Procedure

DEVELOPED BY: CADD Management Team
DATE: July 24, 2006
REVISION 2.8: May 26, 2022

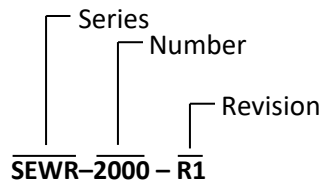
BACKGROUND

Currently, standard plates are stored in a variety of locations throughout Public Works. Standard plates will now be kept in one location to ensure that the most current standard plates are available to all users. This location will be read-only so that the plates cannot be modified except by authorized users.

OVERVIEW

Standard plates are drawings that can stand alone, requiring little or no modification.

Plate Numbering Key:



| Series | Description | Number | Revision |
|--------|---------------------------|-----------|----------|
| BRDG | Bridges & Pathways | 1000-9999 | R1-R99 |
| FORE | Forestry | 1000-9999 | R1-R99 |
| ROAD | Roadway | 1000-9999 | R1-R99 |
| SEWR | Sewer | 1000-9999 | R1-R99 |
| SPCL | Special Service Districts | 1000-9999 | R1-R99 |
| TRAF | Traffic | 1000-9999 | R1-R99 |
| WATR | Water | 1000-9999 | R1-R99 |

STANDARD PLATE APPROVAL

The following individuals are responsible for the standard plates for their functional area, including:

- Authorizing individuals to create and/or update standard plates as necessary.
- Approving (initialing and dating) standard plates for inclusion in the *City of Minneapolis Standard Plates Manual*.

| FUNCTIONAL AREA | SERIES | MANAGER |
|----------------------------------|--------|-----------------|
| Bridges & Pathways | BRDG | Meseret Wolana |
| Forestry | FORE | Ralph Sievert |
| Roadway | ROAD | Ole Mersinger |
| Sewer | SEWR | Kelly Moriarity |
| Special Service Districts | SPCL | Andy Carlson |
| Traffic | TRAF | Darryn Proch |
| Water | WATR | John Howes |

To grant an individual permission to create and/or update standard plates, or to add a new standard plate, see [Transmittal Procedure-0013 Standard Plate Creation Update and Approval Procedure.pdf](#), or contact the CADD Manager at jim.cleary@minneapolismn.gov, (612) 673-3623.

LOCATION

City of Minneapolis Standard Plates are available in Portable Document Format (.pdf) on the web at [Mpls Standard Plates](#), and in ProjectWise at *ProjectWise\CIP Projects\Documents\0000-Project_Resource\Standard_Plates\Mpls Standard Plates.pdf*.

MnDOT Standard Plates are available in Portable Document Format (.pdf) on the web at [MnDOT Standard Plates](#).

WHAT TO DO

The following procedure is divided into three different parts:

Part 1

[For Users Authorized to Create Standard Plates](#)

Pages 3-8

Part 2

[For Users Authorized to Update Standard Plates](#)

Pages 9-10

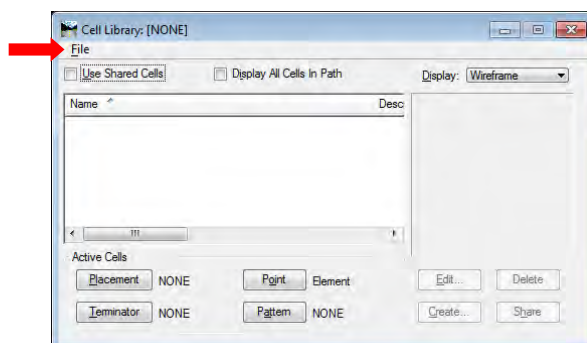
Part 3

[For the Functional Area Manager](#)

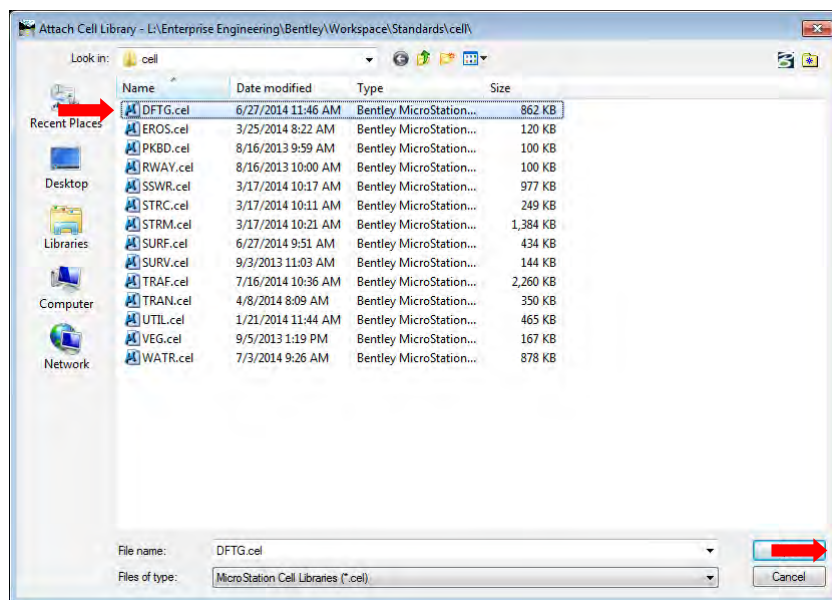
Pages 11-12

Part 1: For Users Authorized to Create Standard Plates

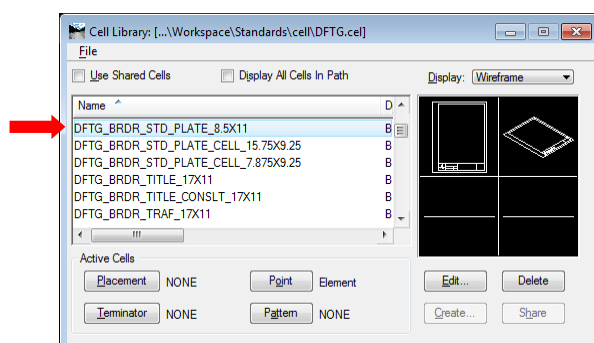
1. Create a new MicroStation design file.
2. Draft the new standard plate:
 - a. Place the standard plate border in the design file:
 - Select **Element > Cells**.
 - In the *Cell Library* dialog box select **File > Attach File....**



- In the *Attach Cell Library* dialog box navigate to *L:\Enterprise Engineering\Bentley\Workspace\Standards\Cell\DFTG.cel* and click **Open**.



- In the *Cell Library* dialog box double-click on either **DFTG_BRDR_STD_PLATE_17X11** or **DFTG_BRDR_STD_PLATE_8.5X11**.



- Left-click in the design file to place the standard plate border.

- b. Draft the new standard plate using the existing standard plates for your division as a guide for creating new standard plates.

Layout:

- Align the views according to standard drafting practices (e.g. the top view above the front view, the right-side view to the right of the front view, etc.). Details may be placed wherever there is free space.
- Label each view or detail appropriately (e.g. Top View, Side View, Section A-A, etc.).
- Center the views as a unit in the middle of the sheet.
- Maintain a minimum of 0.09375 inch between any element of the drawing (including dimension lines and text) and the inside line of the standard plate border sheet.

Text:

- Standard Text:
 - Font: Arial
 - Height: 0.09375
 - Width: 0.09375
 - Line Spacing: 0.046875
- Small Text:
 - Font: Arial
 - Height: 0.0625
 - Width: 0.0625
 - Line Spacing: 0.03125
- Label Text:
 - Font: Arial
 - Height: 0.125
 - Width: 0.125
 - Line Spacing: 0.0625
- Text Alignment:
 - Left Justified wherever possible.
 - Center Justified where necessary.
- Abbreviations:
 - Whenever possible words should not be abbreviated. If it becomes necessary to abbreviate a word see the Resources/Abbreviations section of the [Mpls EE CADD Standards Manual.pdf](#) for a list of approved abbreviations.

Dimensions:

- Use fractions rather than decimals.
- Dimensions shall use symbols for foot (') and inch (").
- Dimension lines shall begin from the left center of the top line for text on the right side of an object.
- Dimension lines shall begin from the right center of the bottom line for text on the left side of an object.
- Centerlines shall extend 1/8" beyond the edge of the object.

Arrowheads:

- Small Arrow: 0.10" long, 0.033" wide at the base
- Large Arrow: 0.20" long, 0.10" wide at the base

Levels, Colors, Weights, Line Styles and Cells:

All colors, weights, line styles and cells are set ByLevel. The following levels are recommended for creating standard plates:

- **DFTG_CL** (Drafting Centerline): Used for centerlines.
- **DFTG_DIM** (Drafting Dimension): Used for dimension lines, arrows, extension lines, dimension text.

- **DFTG_HDN_LI** (Drafting Hidden Line): Used for hidden lines.
- **DFTG_LDR_LI** (Drafting Leader Line): Used for leader lines.
- **DFTG_NOTE** (Drafting Note): Used for notes.
- **DFTG_OBJ_LI_1** (Drafting Object Line 1): Used for the outline of the object.
- **DFTG_PTRN** (Drafting Pattern): Used for patterns.

Note: For a complete list of levels and symbology see [Mpls EE CADD Levels & Symbology.xls](#).

3. Move the standard plate design file into ProjectWise:

- Select **Start >All Programs >Enterprise Engineering > ProjectWise Explorer**.
- Browse to the appropriate folder and subfolder in ProjectWise\Documents\0000-Project_Resource\Standard_Plates_&_Specifications:

Note 1: Design files should be moved into the DGN folder within the corresponding number range.

Note 2: PDFs should be moved into the PDF folder within the corresponding number range.

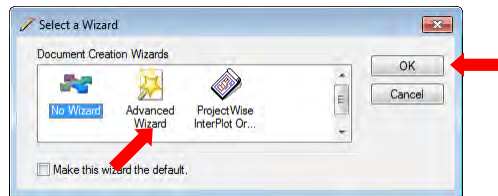
- **Mpls_Bridges_&_Pathways_Standard_Plates**
 - BRDG-1000_Railing
 - BRDG-1000_DGN
 - BRDG-1000_PDF
- **Mpls_Forestry_Standard_Plates**
 - FORE-1000
 - FORE-1000_DGN
 - FORE-1000_PDF
- **Mpls_Roadway_Standard_Plates**
 - ROAD-1000_Curbs_and_Gutters
 - ROAD-1000_DGN
 - ROAD-1000_PDF
 - ROAD-2000_Driveways
 - ROAD-2000_DGN
 - ROAD-2000_PDF
 - ROAD-3000_Alleys
 - ROAD-3000_DGN
 - ROAD-3000_PDF
 - ROAD-4000_Sidewalks
 - ROAD-4000_DGN
 - ROAD-4000_PDF
 - ROAD-5000_Streets
 - ROAD-5000_DGN
 - ROAD-5000_PDF
 - ROAD-6000_Miscellaneous_Roadway_Components
 - ROAD-6000_DGN
 - ROAD-6000_PDF
- **Mpls_Sewer_Standard_Plates**
 - SEWR-1000_Sewer_Structures
 - SEWR-1000_DGN
 - SEWR-1000_PDF
 - SEWR-2000_Sewer_Castings
 - SEWR-2000_DGN
 - SEWR-2000_PDF
 - SEWR-3000_Miscellaneous_Sewer_Components
 - SEWR-3000_DGN
 - SEWR-3000_PDF
 - SEWR-4000_Sewer_Pipes
 - SEWR-4000_DGN
 - SEWR-4000_PDF

- SEWR-5000_Existing_Sewer_Infrastructure_Reference
 - SEWR-5000_DGN
 - SEWR-5000_PDF
- SEWR-6000_Sewer_Design_Reference
 - SEWR-6000_DGN
 - SEWR-6000_PDF
- SEWR-7000_Park_Board_Sewer_Appurtenances
 - SEWR-7000_DGN
 - SEWR-7000_PDF
- SEWR-8000_Erosion_Control
 - SEWR-8000_DGN
 - SEWR-8000_PDF
- **Mpls_Special_Service_Districts_Standard_Plates**
 - SPCL-1000_Decorations
 - SPCL-1000_DGN
 - SPCL-1000_PDF
- **Mpls_Traffic_Standard_Plates**
 - TRAF-0100_Extra
 - TRAF-0100_DGN
 - TRAF-0100_PDF
 - TRAF-1000_Signals
 - TRAF-1000_DGN
 - TRAF-1000_PDF
 - TRAF-2000_Communication
 - TRAF-2000_DGN
 - TRAF-2000_PDF
 - TRAF-3000_Lighting
 - TRAF-3000_DGN
 - TRAF-3000_PDF
 - TRAF-4000_Power
 - TRAF-4000_DGN
 - TRAF-4000_PDF
 - TRAF-5000_Signing
 - TRAF-5000_DGN
 - TRAF-5000_PDF
 - TRAF-6000_Parking_Meters
 - TRAF-6000_DGN
 - TRAF-6000_PDF
 - TRAF-7000_Pavement_Markings
 - TRAF-7000_DGN
 - TRAF-7000_PDF
 - TRAF-8000_Lane_Use
 - TRAF-8000_DGN
 - TRAF-8000_PDF
 - TRAF-8500_Bikes
 - TRAF-8500_DGN
 - TRAF-8500_PDF
 - TRAF-9000_Safety
 - TRAF-9000_DGN
 - TRAF-9000_PDF
 - TRAF-9500_Extra
 - TRAF-9500_DGN
 - TRAF-9500_PDF

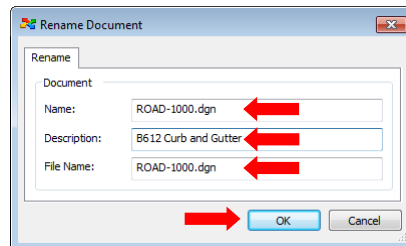
- **Mpls_Water_Standard_Plates**

- WATR-1000
 - WATR-1000_DGN
 - WATR-1000_PDF
- WATR-2000
 - WATR-2000_DGN
 - WATR-2000_PDF
- WATR-3000
 - WATR-3000_DGN
 - WATR-3000_PDF
- WATR-4000
 - WATR-4000_DGN
 - WATR-4000_PDF
- WATR-5000
 - WATR-5000_DGN
 - WATR-5000_PDF
- WATR-6000
 - WATR-6000_DGN
 - WATR-6000_PDF
- WATR-7000
 - WATR-7000_DGN
 - WATR-7000_PDF

- Open the folder where you created the standard plate file and shrink it so that you can see ProjectWise.
- Highlight the standard plate file, left-click on it and drag it into ProjectWise:
- In the *Select a Wizard* dialog box highlight *No Wizard* and click **OK**.

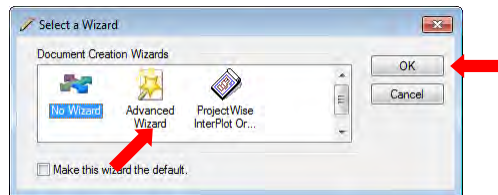


- In the *Rename Document* dialog box do the following:
 - For *Name* and *File Name* enter the plate number (e.g. ROAD-1000.dgn).
 - For *Description* enter the title of the plate. (Plates that are referenced within the plate should be listed in parenthesis after the title.)
 - Click **OK**.

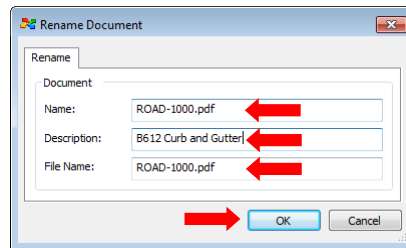


- Create a PDF of the standard plate:
 - Open the MicroStation file and use the **Place Fence** tool to select the opposite corners of the standard plate.
Note: Holding down the **Ctrl + Shift** buttons while using the **Place Fence** tool will allow you to snap to the corners of the standard plate border.
 - Select **File > Print**.
 - In the *Print* dialog box select **File > Select Windows Printer**.

- In the *Print* dialog box highlight **Adobe PDF** and click **Print**.
 - In the *Print Adobe PDF* dialog box for *Color* select **Monochrome** from the dropdown.
 - In the *Print Adobe PDF* dialog box select **File > Print...**
- c. Open the folder where you created the standard plate file and shrink it so that you can see ProjectWise.
- d. Highlight the standard plate PDF, left-click on it and drag it into ProjectWise:
- e. In the *Select a Wizard* dialog box highlight *No Wizard* and click **OK**.



- f. In the *Rename Document* dialog box do the following:
- For *Name* and *File Name* enter the plate number (e.g. ROAD-1000.pdf).
 - For *Description* enter the title of the plate. (Plates that are referenced within the plate should be listed in parenthesis after the title.)
 - Click **OK**.



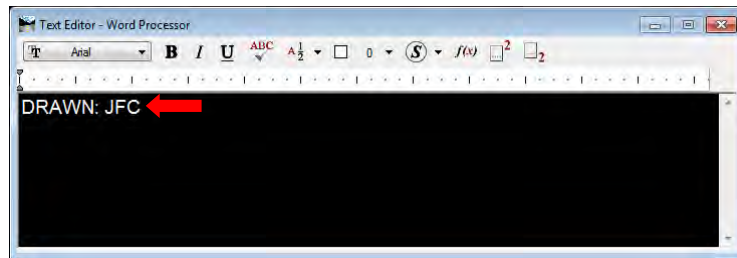
5. Notify the [Functional Area Manager](#) responsible for approving the standard plate that it is ready to be reviewed.

Part 2: For Users Authorized to Update Standard Plates

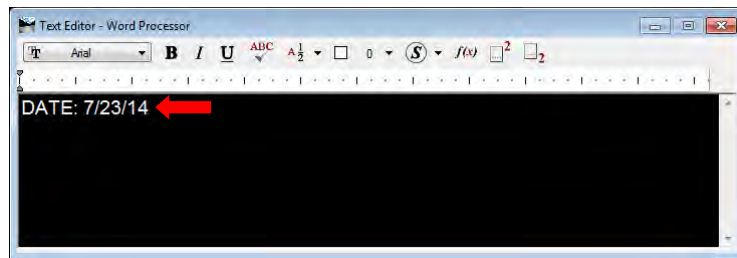
1. Update the standard plate:
 - a. Open *ProjectWise*, navigate to the folder where the standard plate is located, and open the MicroStation design file:
 - **For Bridges & Pathways**..... [Mpls Bridges & Pathways Standard Plates](#)
 - **For Forestry**..... [Mpls Forestry Standard Plates](#)
 - **For Roadway**..... [Mpls Roadway Standard Plates](#)
 - **For Sewer**..... [Mpls Sewer Standard Plates](#)
 - **For Special Service Districts**..... [Mpls Special Service Districts Standard Plates](#)
 - **For Traffic**..... [Mpls Traffic Standard Plates](#)
 - **For Water**..... [Mpls Water Standard Plates](#)
 - b. Update the standard plate design file (DGN) as necessary.
 - c. Add your initials and date to the *Drawn* and *Date* portions of the standard plate border:
 - Select the *Edit Text* tool (this tool can be found in the *Text* portion of the *Main* tool bar).



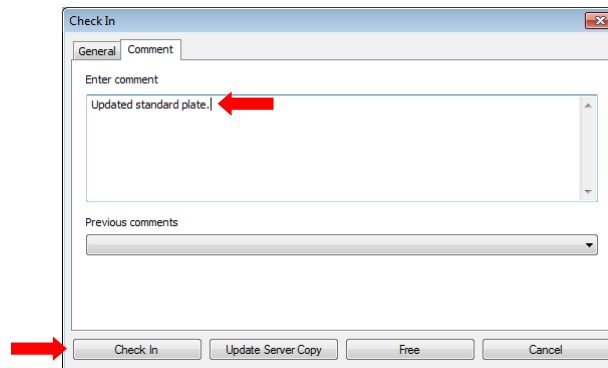
- Left-click on **DRAWN:**
 - In the *Text Editor – Word Processor* dialog box enter 1 space, then your initials after **DRAWN:**
- Note:** You must enter three initials (if you have no middle name use “X”).



- Left-click anywhere in the design file to accept the change.
- Left-click on **DATE:**
- In the *Text Editor – Word Processor* dialog box enter 1 space, then today's date after **DATE:**



- Left-click anywhere in the design file to accept the change.
 - Select **File > Close** to exit the MicroStation design file.
 - In the *Check In Document* dialog box enter “**Updated standard plate.**” and click **OK**.
- Note:** The user may enter additional details about the update if desired.



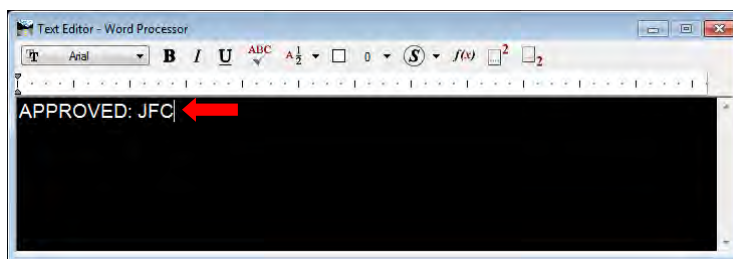
2. Notify the [Functional Area Manager](#) responsible for approving the standard plate that it is ready to be reviewed.

Part 3: For the Functional Area Manager

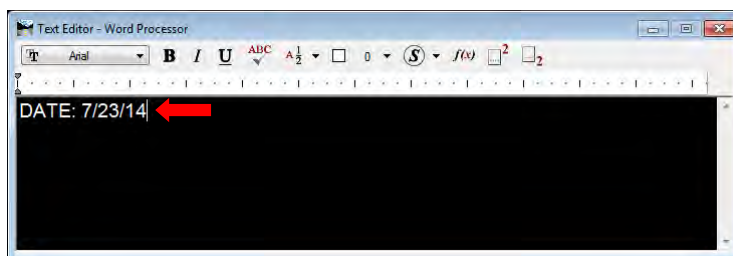
1. Approve the standard plate:
 - a. Open *ProjectWise*, navigate to the folder where the standard plate is located, and open the MicroStation design file:
 - For Bridges & Pathways..... [Mpls Bridges & Pathways Standard Plates](#)
 - For Forestry..... [Mpls Forestry Standard Plates](#)
 - For Roadway..... [Mpls Roadway Standard Plates](#)
 - For Sewer..... [Mpls Sewer Standard Plates](#)
 - For Special Service Districts..... [Mpls Special Service Districts Standard Plates](#)
 - For Traffic..... [Mpls Traffic Standard Plates](#)
 - For Water..... [Mpls Water Standard Plates](#)
 - b. Add your initials and date to the *Approved* and *Date* portions of the standard plate border:
 - Select the *Edit Text* tool (This tool can be found in the *Text* portion of the *Main* tool bar).



- Left-click on **APPROVED:**
 - In the *Text Editor – Word Processor* dialog box enter 1 space, then your initials after **APPROVED:**
- Note:** You must enter three initials (if you have no middle name use “X”).

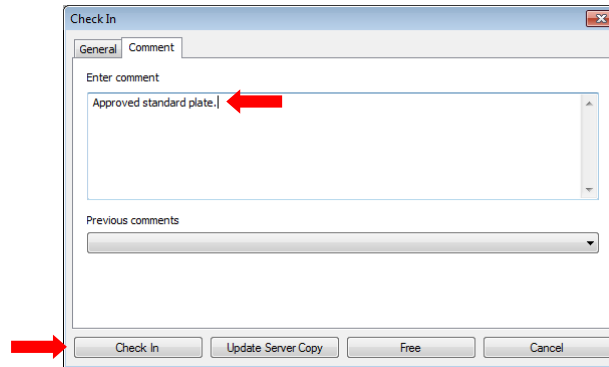


- Left-click anywhere in the design file to accept the change.
- Left-click on **DATE:**
- In the *Text Editor – Word Processor* dialog box enter 1 space, then today's date after **DATE:**



- Left-click anywhere in the design file to accept the change.

- Select **File > Close** to exit the MicroStation design file.
 - In the *Check In Document* dialog box enter “**Approved standard plate.**” and click **OK**.
- Note:** The Functional Area Manager may enter additional details about the update if desired.



2. Notify the CADD Manager at jim.cleary@minneapolismn.gov or call (612) 673-3623 that the standard plate has been approved.
3. The standard plate will be forwarded to the CPTF (Capital Project Task Force) reviewers for review.
 - a. The CPTF reviewers will contact the Functional Area Manager with any concerns they may have.
 - If changes need to be made the Functional Area Manager will ensure that the changes are made, approve the standard plate, then notify the CADD Manager that the standard plate is ready to be added to the web at [Mpls Standard Plates](#), and in ProjectWise at [Mpls Standard Plates.pdf](#).
 - If no changes are requested, or if there has been no response after two weeks, the CADD Manager will add the standard plate to the web and to the document in ProjectWise.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0014
ISSUED BY: Jim Cleary
SUBJECT: Mpls PW CADD Standards

DEVELOPED BY: CADD Management Team
DATE: March 1, 2007
REVISION 1.6: October 23, 2017

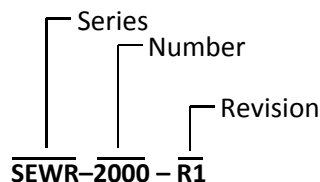
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| SEWR | Sewer | 1000-9999 | R1-R99 |
| SPCL | Special Service Districts | 1000-9999 | R1-R99 |
| TRAF | Traffic | 1000-9999 | R1-R99 |
| WATR | Water | 1000-9999 | R1-R99 |

LOCATION

City of Minneapolis Standard Plates are available in Portable Document Format (.pdf) on the web at [Mpls Standard Plates](#), and in ProjectWise at *ProjectWise\CIP Projects\Documents\0000-Project_Resource\Standard_Plates\Mpls_Standard_Plates.pdf*.

MnDOT Standard Plates are available in Portable Document Format (.pdf) on the web at [MnDOT Standard Plates](#).

MnDOT Standard Plans are available in Portable Document Format (.pdf) on the web at [MnDOT Standard Plans](#).

WHAT TO DO

The following procedures are presented in 2 different formats:

An abbreviated version *for users already familiar with the procedure*:

| | |
|----------|---|
| Page 2 | City of Minneapolis Standard Plates for Plans Requiring City of Minneapolis Approval Only |
| Page 3-4 | City of Minneapolis Standard Plates for Municipal State Aid or Hennepin County Projects |
| Page 5 | MnDOT Standard Plates |
| Page 6-7 | MnDOT Standard Plans |

The complete procedure *with* screen shots:

| | |
|-------------|---|
| Pages 8-9 | City of Minneapolis Standard Plates for Plans Requiring City of Minneapolis Approval Only |
| Pages 10-21 | City of Minneapolis Standard Plates for Municipal State Aid or Hennepin County Projects |
| Pages 22-23 | MnDOT Standard Plates |

City of Minneapolis Standard Plates for Plans Requiring City of Minneapolis Approval Only:

(Plan sets requiring City of Minneapolis approval do not need to have Mpls Standard Plates inserted in the plan set.)

1. Open the MicroStation design file that contains the Detail sheet (e.g. **0000-DETAIL-001.dgn**).
2. Place the **DFTG_INDX_MPLS_STD_PLATE** cell in the upper right-hand corner of the *Detail* sheet:
 - a. Select **Element > Cells**.
 - Select the cell **DFTG_INDX_MPLS_STD_PLATE**.
 - In the *Place Active Cell* dialog box for *X Scale*, *Y Scale* and *Z Scale* enter the scale of the border (e.g. for plan sheets at a scale of 1"=40' enter **40**).
 - Snap to the upper right-hand corner of the *Detail* sheet.
3. Enter the standard plate number in the *PLATE NO.* column and the standard plate name in the *PLATE NAME* column:
(See [Mpls Standard Plates](#) for a list of available standard plates.)
 - a. Select the **Edit Text** tool (this tool can be found in the *Text* portion of the *Main* tool bar).
 - Left-click on **0000** in the *PLATE NO.* column.
 - In the *Text Editor – Word Processor* dialog box enter the plate number (e.g. **SEWR-2000**).
 - Left-click anywhere in the design file.
 - Left-click on **STANDARD PLATE DESCRIPTION** in the *PLATE NAME* column.
 - In the *Text Editor – Word Processor* dialog box enter the plate name (e.g. **MANHOLE COVER CITY LOGO**).
 - Left-click anywhere in the design file.

City of Minneapolis Standard Plates for Municipal State Aid or Hennepin County Projects:

(Plan sets for Municipal State Aid or Hennepin County projects must have Mpls Standard Plates inserted in the plan set.)

1. Download the standard plate PDF(s):
 - a. Open a web browser (e.g. **Internet Explorer**).
 - Browse to the City of Minneapolis *Standard Specifications and Detail Plates* web page: [Mpls Standard Plates](#)
 - Click on the standard plate series where the standard plate you want to use is located:
 - **BRDG** Bridge Standard Plates
 - **FORE** Forestry Standard Plates
 - **ROAD** Roadway Standard Plates
 - **SEWR** Sewer Standard Plates
 - **SPCL** Special Service Districts Standard Plates
 - **TRAF** Traffic Standard Plates
 - **WATR** Water Standard Plates
 - Click on the standard plate you want to save (e.g. **ROAD-1000**).
 - Click the **Save As** icon.
 - In the *Save As* dialog box navigate to a temporary location to save the standard plate PDF(s) (e.g. **H:\My Pictures**) and click **Save**.
 - To download additional standard plates, click the **Back** arrow in the web browser to go back to the web page where the next standard plate you want to use is located.
2. Move the standard plate PDF(s) to your project in ProjectWise:
 - a. Select **Start > All Programs > Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Design_Files* folder in the project (e.g. *0000-Project Name\Design\Design_Files*).
 - c. Open the *My Pictures* folder on your H: drive and shrink it so that you can see the *Design_Files* folder in ProjectWise.
 - d. Highlight the PDF, left-click on it and drag it into the *Design_Files* folder.
 - e. In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.
 - f. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - g. In the *Advanced Document Creation Wizard* dialog box, under *Select Target Folder*, dialog box click **Next**.
 - h. In the *Advanced Document Creation Wizard* dialog box, under *Select a Template*, click **Next**.
 - i. In the *Advanced Document Creation Wizard* dialog box, under *Define Document Code*, for *CM_DOCTYPE* select **DETAIL**, click the **Generate** button, then click **Next**.
 - j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.
 - k. In the *Advanced Document Creation Wizard* dialog box, under *Document Properties*, for *Description for the new document* enter the name and description of the standard plate (e.g. **ROAD-1000 (B612 Curb and Gutter)**) and click **Next**.
 - l. In the *Advanced Document Creation Wizard* dialog box, under *Create a Document* click **Next**.
 - m. In the *Advanced Document Creation Wizard* dialog box click **Finish**.
 - n. Delete the standard plate PDF(s) on your H: drive.
3. Place the border sheet cell:
 - a. Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
 - b. Select **Element > Cells**.
 - Set the *Active Level* to **DFTG_BRDR**.
 - In the *Cell Library* dialog box do the following:
 - Check the box next to **Display All Cells In Path**.
 - Double-click on **DFTG_BRDR_17X11**.
 - In the *Place Active Cell* dialog box do the following:
 - In the *X Scale*, *Y Scale* and *Z Scale* fields enter the scale of the border sheet (e.g. for 1" = 40' enter **40.000000**).
4. Place the standard plate PDF(s) in the border sheet:

- a. Select **File > Raster Manager**.
 - In the *Raster Manager* dialog box select **File > Attach > Raster...**
 - In the Attach Raster Reference File dialog box navigate to the Design_Files folder in your project (e.g. **0000-Project Name\Design\Design_Files**).
 - Highlight the first standard plate you want to place, click **Add**, then click **OK**.
 - In the *Raster Attachment Options* dialog box do the following:
 - For Level select **DFTG_DTL** from the dropdown list.
 - Click **Attach**.
- b. Select **Fit View**.
- c. Select the **Move** tool.
 - Move the standard plate into the border sheet, snapping the upper left-hand corner of the standard plate to the upper left-hand corner of the inside line of the border sheet.
- d. Select the **Scale** tool.
 - In the *Scale* dialog box for *Method* select **3 points** from the dropdown list.
 - Follow the prompts:
 - *Identify the element:* Left-click on the standard plate.
 - *Enter origin point (point to scale about):* Snap to and left-click on the upper left hand corner of the standard plate.
 - *Enter reference point:* Snap to and left-click on the lower right hand corner of the standard plate.
 - *Enter point to define amount of scaling:* Snap to and left-click on the middle bottom of the inside line of the border sheet.

Note 1: Up to two full-size standard plates may be inserted into each border sheet. (The upper left-hand corner of the second standard plate may be snapped to the upper right-hand corner of the first standard plate sheet.)

Note 2: Up to eight Mpls Standard Plate cells may be placed at **half-size** if desired.
5. Delete the temporary standard plate PDF(s):
 - a. After you have placed all the standard plates, navigate to the temporary location where you saved the PDFs (e.g. **H:\My Pictures**) and delete them.

MnDOT Standard Plates:

1. Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
2. Place the **DFTG_INDX_MPLS_STD_PLATE** cell in the upper right-hand corner of the *Detail* sheet:
 - a. Select **Element > Cells**.
 - Select the cell **DFTG_INDX_MPLS_STD_PLATE**.
 - In the *Place Active Cell* dialog box for *X Scale*, *Y Scale* and *Z Scale* enter the scale of the border (e.g. for plan sheets at a scale of 1"=40' enter **40**).
 - Snap to the upper right-hand corner of the *Detail* sheet.
3. Enter the standard plate number in the *PLATE NO.* column and the standard plate name in the *PLATE NAME* column:

(See [MnDOT Standard Plans](#) for a list of available standard plates.)

- a. Select the **Edit Text** tool (this tool can be found in the Text portion of the Main tool bar).
 - Left-click on **0000** in the *PLATE NO.* column.
 - In the *Text Editor – Word Processor* dialog box enter the plate number (e.g. **3001B**).
 - Left-click anywhere in the design file.
 - Left-click on **STANDARD PLATE DESCRIPTION** in the *PLATE NAME* column.
 - In the *Text Editor – Word Processor* dialog box enter the plate name (e.g. **REINFORCED CONCRETE REDUCER PIPE**).
 - Left-click anywhere in the design file.

MnDOT Standard Plans:

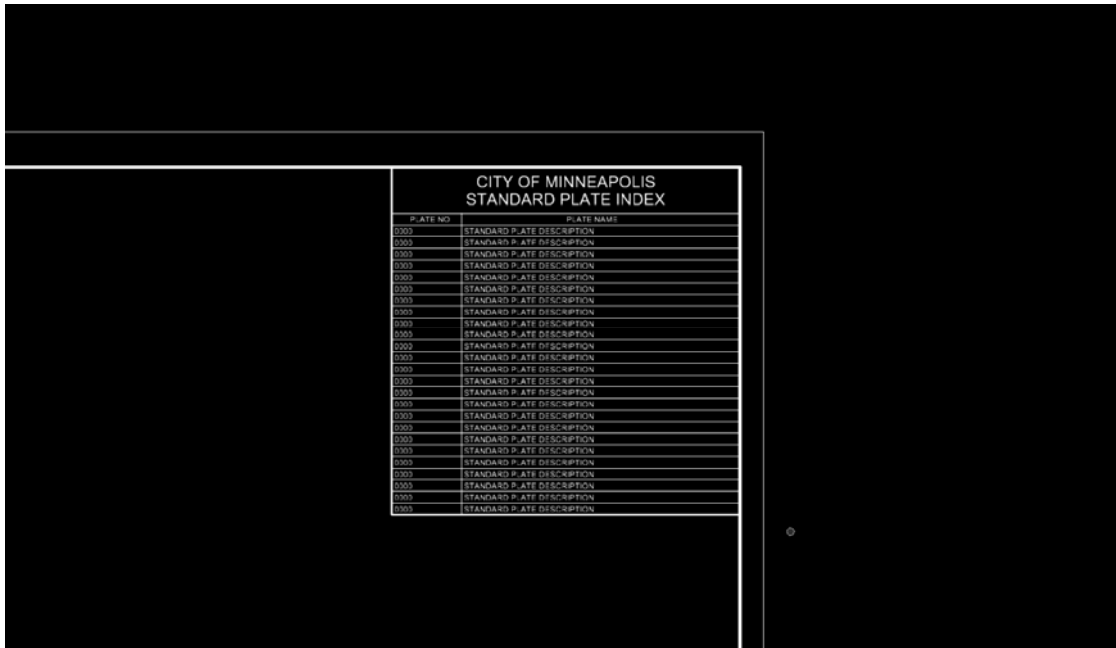
1. Download the standard plan PDF(s):
 - a. Open a web browser (e.g. **Internet Explorer**).
 - Browse to the Minnesota Department of Transportation *Standard Plans* web page: [MnDOT Standard Plans](#)
 - Click on the standard plan(s) you want to use:
 - Click the **Save As** icon.
 - In the *Save As* dialog box navigate to a temporary location to save the PDF (e.g. **H:\My Pictures**) and click **Save**.
 - To download additional standard plans, click the **Back** arrow in the web browser to go back to the web page where the next standard plan you want to use is located.
2. Extract the standard plan PDF(s):
 - a. Navigate to the temporary location where you saved the standard plan PDF (e.g. **H:\My Pictures**) and open the file with *Adobe Acrobat*.
 - Select **View > Tools > Pages**.
 - In the *Pages* panel click **Extract**.
 - In the *Extract Pages* dialog box enter the number(s) of the pages in the *From* and *To* fields (e.g. From: **9** To: **13**).
 - Check the box next to *Extract Pages As Separate Files* and click **OK**.
 - In the *Browse For Folder* dialog box navigate to the temporary location where you saved the standard plan PDF (e.g. **H:\My Pictures**) and click **OK**.
3. Move the standard plan PDF(s) to your project in ProjectWise:
 - a. Select **Start > All Programs > Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Design_Files* folder in the project (e.g. **0000-Project Name\Design\Design_Files**).
 - c. Open the *My Pictures* folder on your H: drive and shrink it so that you can see the *Design_Files* folder in ProjectWise.
 - d. Highlight the PDF, left-click on it and drag it into the *Design_Files* folder.
 - e. In the *Select a Wizard* dialog box highlight *Advanced Wizard* and click **OK**.
 - f. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - g. In the *Advanced Document Creation Wizard* dialog box, under *Select Target Folder*, dialog box click **Next**.
 - h. In the *Advanced Document Creation Wizard* dialog box, under *Select a Template*, click **Next**.
 - i. In the *Advanced Document Creation Wizard* dialog box, under *Define Document Code*, for *CM_DOCTYPE* select **PLAN**, click the **Generate** button, then click **Next**.
 - j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.
 - k. In the *Advanced Document Creation Wizard* dialog box, under *Document Properties*, for *Description* for the new document enter the name and description of the standard plan (e.g. **5-297.250 Pedestrian Curb Ramp Details (1 of 5)**) and click **Next**.
 - l. In the *Advanced Document Creation Wizard* dialog box, under *Create a Document* click **Next**.
 - m. In the *Advanced Document Creation Wizard* dialog box click **Finish**.
 - n. Delete the standard plate PDF(s) on your H: drive.
4. Place the border sheet cell:
 - a. Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
 - b. Select **Element > Cells**.
 - Set the *Active Level* to **DFTG_BRDR**.
 - In the *Cell Library* dialog box do the following:
 - Check the box next to **Display All Cells In Path**.
 - Double-click on **DFTG_BRDR_17X11**.
 - In the *Place Active Cell* dialog box do the following:
 - In the *X Scale*, *Y Scale* and *Z Scale* fields enter the scale of the border sheet (e.g. for 1" = 40' enter **40.000000**).
5. Place the standard plan PDF(s) in the border sheet:

- a. Select **File > Raster Manager**.
 - In the *Raster Manager* dialog box select **File > Attach > Raster...**
 - In the *Attach Raster Reference File* dialog box navigate to the *Design_Files* folder in your project (e.g. **0000-Project Name\Design\Design_Files**).
 - Highlight the first standard plan you want to place, click **Add**, then click **OK**.
 - In the *Raster Attachment Options* dialog box do the following:
 - For Level select **DFTG_DTL** from the dropdown list.
 - Click **Attach**.
 - b. Select **Fit View**.
 - c. Select the **Rotate** tool.
 - In the *Rotate* dialog box for *Method* select **Active Angle** from the dropdown list.
 - Enter the angle you want to rotate the file (e.g. **270**) in the angle field.
 - Follow the prompts:
 - Identify element: Left-click on the standard plan.
 - Enter pivot point (point to rotate about): Left-click anywhere in the design file.
 - d. Select **Fit View**.
 - e. Select the **Move** tool.
 - Move the standard plan into the border sheet, snapping the upper left-hand corner of the standard plan to the upper left-hand corner of the inside line of the border sheet.
 - f. Select the **Scale** tool.
 - In the *Scale* dialog box for *Method* select **3 points** from the dropdown list.
 - Follow the prompts:
 - *Identify the element:* Left-click on the standard plan.
 - *Enter origin point (point to scale about):* Snap to and left-click on the upper left hand corner of the standard plan.
 - *Enter reference point:* Snap to and left-click on the lower right hand corner of the standard plan.
 - *Enter point to define amount of scaling:* Snap to and left-click on the lower right hand corner of the inside line of the border sheet.
6. Delete the temporary standard plan PDF(s):
- a. After you have placed all the standard plans, navigate to the temporary location where you saved the PDFs (e.g. **H:\My Pictures**) and delete them.

City of Minneapolis Standard Plates for Plans Requiring City of Minneapolis Approval Only:

(Plan sets requiring City of Minneapolis approval do not need to have Mpls Standard Plates inserted in the plan set.)

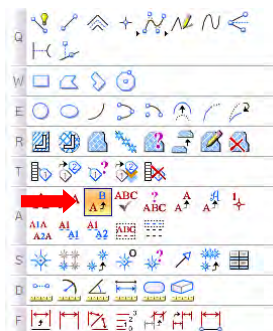
1. Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
2. Place the **DFTG_INDXX_MPLS_STD_PLATE** cell in the upper right-hand corner of the *Detail* sheet:
 - a. Select **Element > Cells**.
 - Select the cell **DFTG_INDXX_MPLS_STD_PLATE**.
 - In the *Place Active Cell* dialog box for *X Scale*, *Y Scale* and *Z Scale* enter the scale of the border (e.g. for plan sheets at a scale of 1"=40' enter **40**).
 - Snap to the upper right-hand corner of the *Detail* sheet.



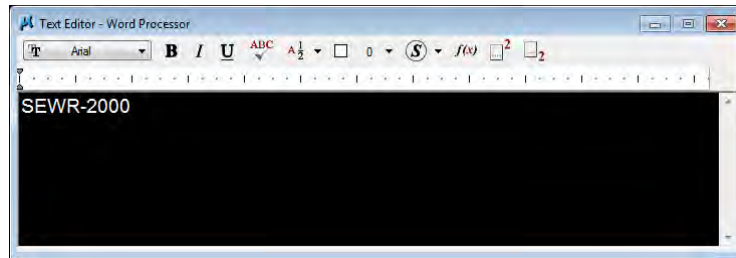
3. Enter the standard plate number in the *PLATE NO.* column and the standard plate name in the *PLATE NAME* column:

(See [Mpls Standard Plates](#) for a list of available standard plates.)

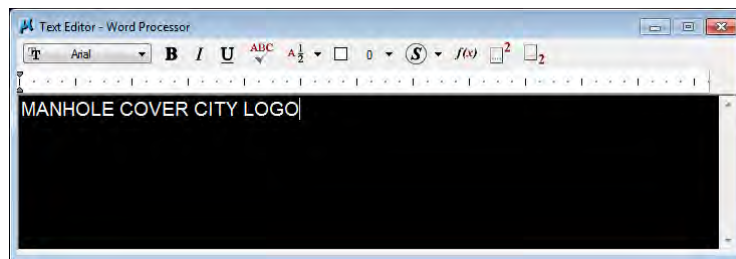
 - a. Select the **Edit Text** tool (this tool can be found in the *Text* portion of the *Main* tool bar).



- Left-click on **0000** in the *PLATE NO.* column.
- In the *Text Editor – Word Processor* dialog box enter the plate number (e.g. **SEWR-2000**).
- Left-click anywhere in the design file.



- Left-click on **STANDARD PLATE DESCRIPTION** in the *PLATE NAME* column.
- In the *Text Editor – Word Processor* dialog box enter the plate name (e.g. **MANHOLE COVER CITY LOGO**).
- Left-click anywhere in the design file.



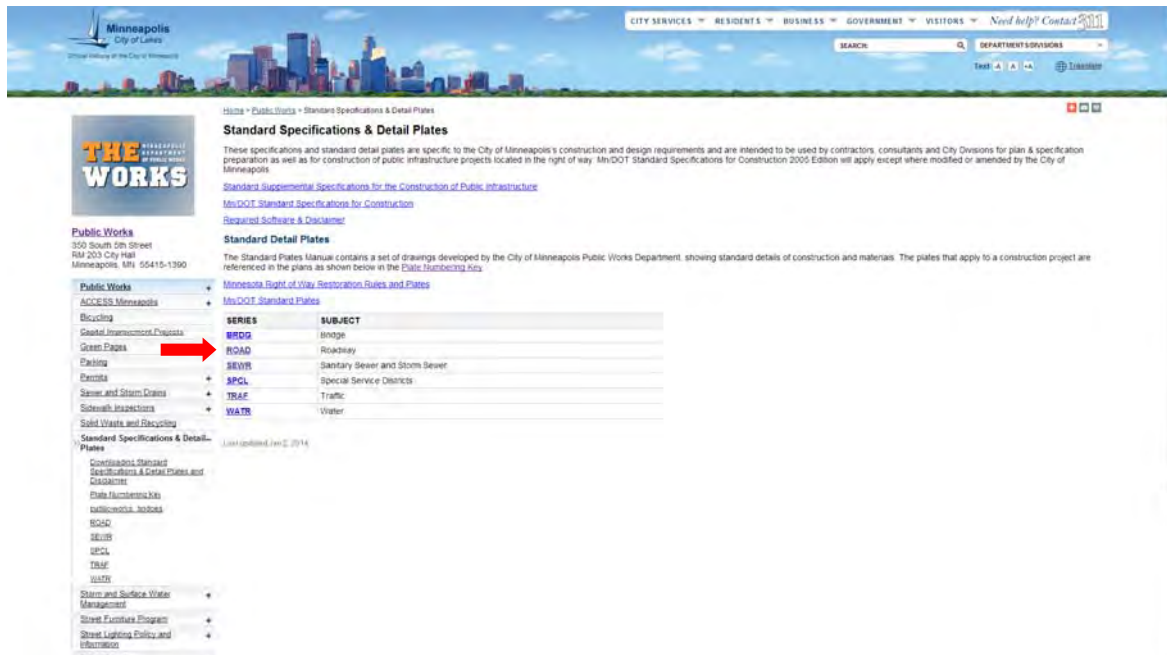
City of Minneapolis Standard Plates for Municipal State Aid or Hennepin County Projects:

(Plan sets for Municipal State Aid or Hennepin County projects must have Mpls Standard Plates inserted in the plan set.)

1. Download the standard plate PDF(s):

a. Open a web browser (e.g. *Internet Explorer*).

- Browse to the City of Minneapolis *Standard Specifications and Detail Plates* web page: [Mpls Standard Plates](#)
- Click on the standard plate series where the standard plate you want to use is located:
 - **BRDG** Bridge Standard Plates
 - **FORE** Forestry Standard Plates
 - **ROAD** Roadway Standard Plates
 - **SEWR** Sewer Standard Plates
 - **SPCL** Special Service Districts Standard Plates
 - **TRAF** Traffic Standard Plates
 - **WATR** Water Standard Plates



- Click on the standard plate you want to save (e.g. **ROAD-1000**).

Public Works
300 South 2nd Street
RM 203 City Hall
Minneapolis, MN 55415-1390

Public Works

- ACCESS Minneapolis
- Bicycling
- Capital Improvement Projects
- Green Pages
- Paving
- Permits
- Sewer and Storm Drain
- Sidewalk Inspections
- Standard Specifications & Detail Data
- Construction Manual
- Specifications & Detail Plates and Addendums
- Plate Numbers by
- Public Works

ROAD-1000 SERIES: CURBS AND GUTTERS

| NUMBER | TITLE | APPROVAL DATE |
|-----------|------------------------------------|---------------|
| ROAD-1000 | B612 Curb and Gutter | 5/19/2008 |
| ROAD-1001 | B612 Curb and Gutter Typout | 5/19/2008 |
| ROAD-1002 | B612 Curb and Gutter | 5/19/2008 |
| ROAD-1003 | B624 Curb and Gutter | 5/19/2008 |
| ROAD-1004 | B624 Curb and Gutter Modified | 5/19/2008 |
| ROAD-1005 | B624 Curb and Gutter Typout | 5/19/2008 |
| ROAD-1006 | B660 Curb and Gutter | 5/19/2008 |
| ROAD-1007 | D412 Curb and Gutter Modified | 5/19/2008 |
| ROAD-1008 | Parade Vertical Curb and Gutter | 5/19/2008 |
| ROAD-1009 | Reinforcing at Curb Outlet | 5/19/2008 |
| ROAD-1010 | Saw Cut at Curb and Gutter Removal | 5/19/2008 |

ROAD-2000 SERIES: DRIVEWAYS

| NUMBER | TITLE | APPROVAL DATE |
|-----------|---|---------------|
| ROAD-2000 | Driveway Reference | 5/19/2008 |
| ROAD-2001 | Typical Driveway Construction | 5/19/2008 |
| ROAD-2002 | Typical Driveway | 5/19/2008 |
| ROAD-2003 | Typical Sidewalk and Driveway Construction | 5/19/2008 |
| ROAD-2004 | Gates, Manholes, Monuments, etc. in Concrete Pavement | 5/19/2008 |

ROAD-3000 SERIES: ALLEYS

| NUMBER | TITLE | APPROVAL DATE |
|-----------|---|---------------|
| ROAD-3000 | Typical Alley Section | 5/19/2008 |
| ROAD-3001 | Typical Concrete Panel Layout for Residential Alley Corners | 5/19/2008 |

ROAD-4000 SERIES: SIDEWALKS

| NUMBER | TITLE | APPROVAL DATE |
|--------|-------|---------------|
|--------|-------|---------------|

- Click the **Save As** icon.

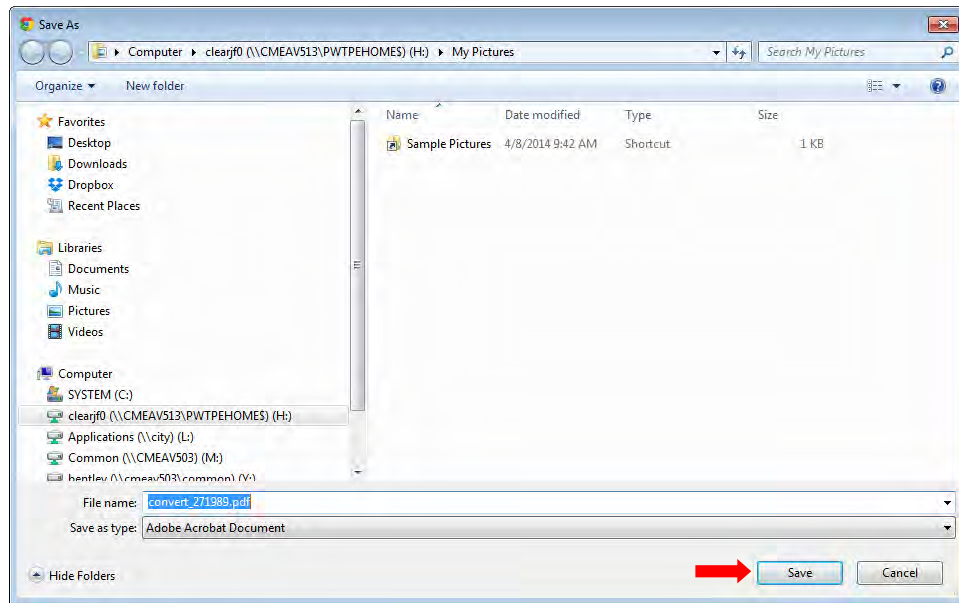
MINNEAPOLIS
CITY OF LAKES
STANDARD SPECIFICATIONS & DETAIL DATA

B612 CURB AND GUTTER

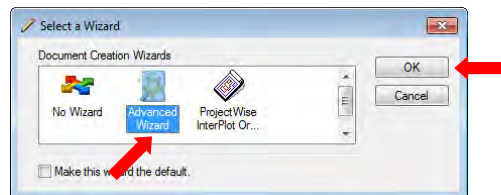
STANDARD PLATE NO. ROAD-1000

Save As

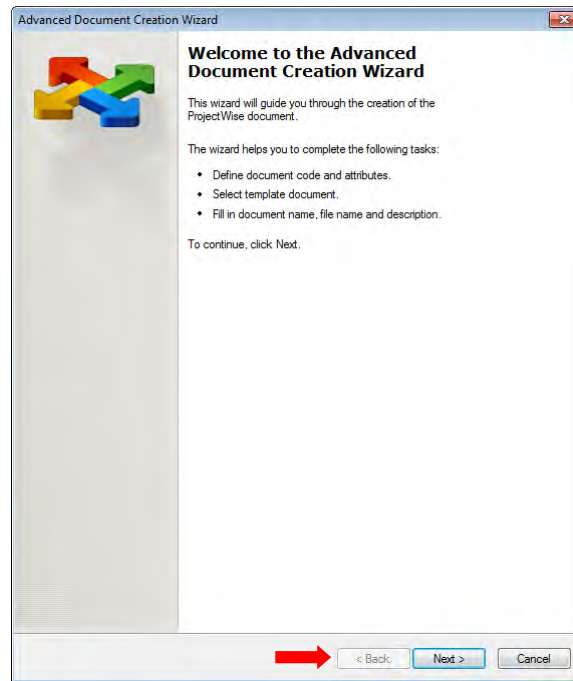
- In the *Save As* dialog box navigate to a temporary location to save the standard plate PDF(s) (e.g. **H:\My Pictures**) and click **Save**.



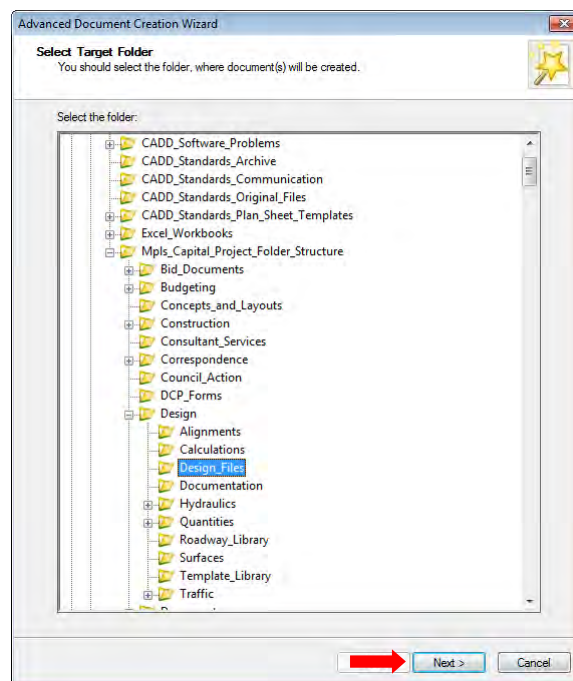
- To download additional standard plates, click the **Back** arrow in the web browser to go back to the web page where the next standard plate you want to use is located.
2. Move the standard plate PDF(s) to your project in ProjectWise:
 - a. Select **Start >All Programs >Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Design_Files* folder in the project (e.g. **0000-Project Name\Design\Design_Files**).
 - c. Open the *My Pictures* folder on your *H:* drive and shrink it so that you can see the *Design_Files* folder in ProjectWise.
 - d. Highlight the PDF, left-click on it and drag it into the *Design_Files* folder.
 - e. In the *Select a Wizard* dialog box highlight *Advanced Wizard* and click **OK**.



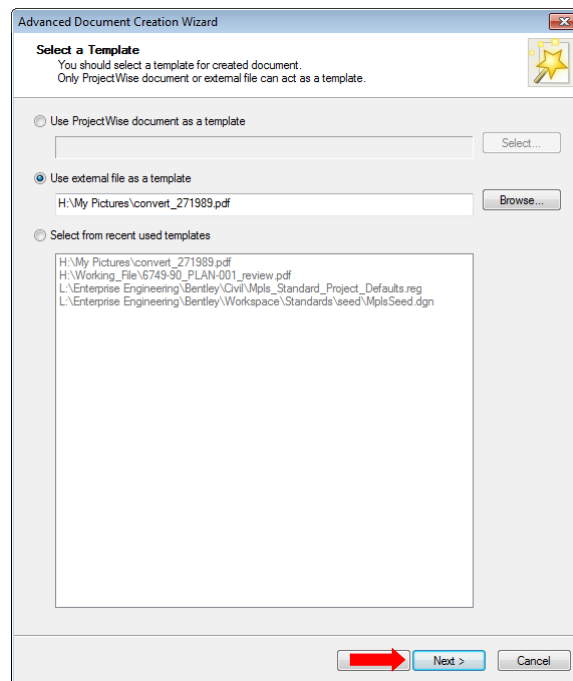
- f. In the *Advanced Document Creation Wizard* dialog box click **Next**.



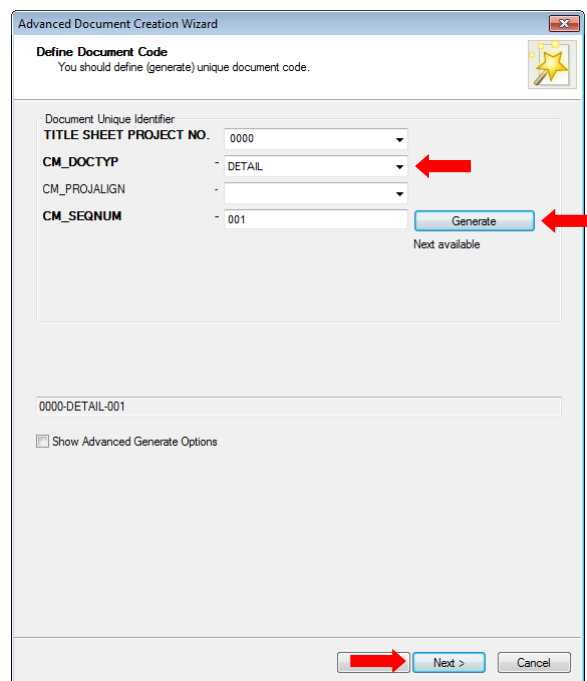
- g. In the *Advanced Document Creation Wizard* dialog box, under *Select Target Folder*, dialog box click **Next**.



- h. In the *Advanced Document Creation Wizard* dialog box, under *Select a Template*, click **Next**.



- i. In the *Advanced Document Creation Wizard* dialog box, under *Define Document Code*, for *CM_DOCTYPE* select **DETAIL**, click the **Generate** button, then click **Next**.



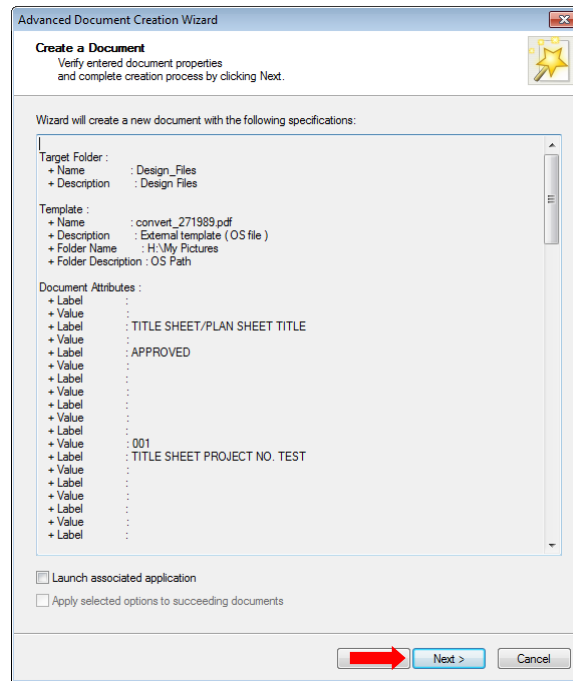
- j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.

The screenshot shows the 'Advanced Document Creation Wizard' dialog box, specifically the 'Define Document Attributes' step. The title bar reads 'Advanced Document Creation Wizard'. Below the title bar, the section is 'Define Document Attributes' with a subtitle 'You should define environment specific document attributes.' The form contains several fields: 'TITLE SHEET PROJECT OWNER' (dropdown menu with 'CITY OF MINNEAPOLIS' selected), 'TITLE SHEET SECONDARY PROJECT OWNER' (text field), 'TITLE SHEET/PLAN SHEET PROJECT NAME' (text field), 'TITLE SHEET PROJECT NO.' (text field with '0000'), 'NORTH' (dropdown menu), 'SOUTH' (dropdown menu), 'WEST' (dropdown menu), 'EAST' (dropdown menu), 'TITLE SHEET/PLAN SHEET TITLE' (text field), 'DRAWN' (text field), 'DRW DATE' (text field), 'CHECKED' (text field), 'CHK DATE' (text field), 'APPROVED' (text field), 'APP DATE' (text field), 'PE NAME' (text field), 'PE DATE' (text field), 'PE NUMBER' (text field), 'PROJECT NO. 1' through 'PROJECT NO. 6' (dropdown menus), 'TITLE SHEET PROJECT NO. TEST' (text field), 'SHEET' (text field), 'REV' (text field), and 'OF SHT' (text field). At the bottom right, there are three buttons: a red arrow pointing right, 'Next >', and 'Cancel'.

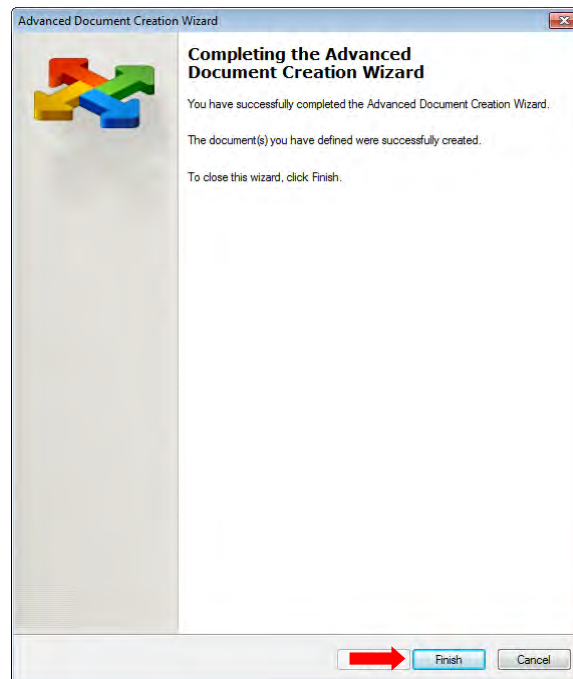
- k. In the *Advanced Document Creation Wizard* dialog box, under *Document Properties*, for *Description for the new document* enter the name and description of the standard plate (e.g. **ROAD-1000 (B612 Curb and Gutter)**) and click **Next**.

The screenshot shows the 'Advanced Document Creation Wizard' dialog box, specifically the 'Document Properties' step. The title bar reads 'Advanced Document Creation Wizard'. Below the title bar, the section is 'Document Properties' with a subtitle 'Define required document properties - the name and the file name. Optionally, you can also define document description and version string.' The form contains several fields: 'New document name' (text field with '0000-DETAIL-001'), 'Description for the new document' (text field with 'ROAD-1000 (B612 Curb and Gutter)' and a red arrow pointing to it), 'New document file name' (text field with '0000-DETAIL-001.pdf'), 'Version' (text field), and 'Application:' (dropdown menu with 'Adobe' selected). At the bottom right, there are three buttons: a red arrow pointing right, 'Next >', and 'Cancel'.

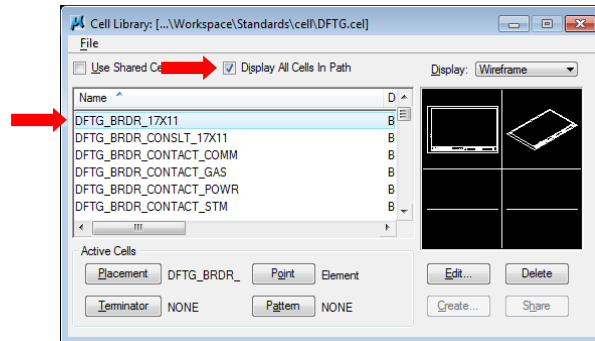
- I. In the *Advanced Document Creation Wizard* dialog box, under Create a Document click **Next**.



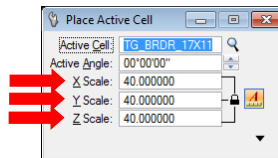
- m. In the *Advanced Document Creation Wizard* dialog box click **Finish**.



- n. Delete the standard plate PDF(s) on your H: drive.
3. Place the border sheet cell:
 - a. Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
 - b. Select **Element > Cells**.
 - Set the *Active Level* to **DFTG_BRDR**.
 - In the *Cell Library* dialog box do the following:
 - Check the box next to **Display All Cells In Path**.



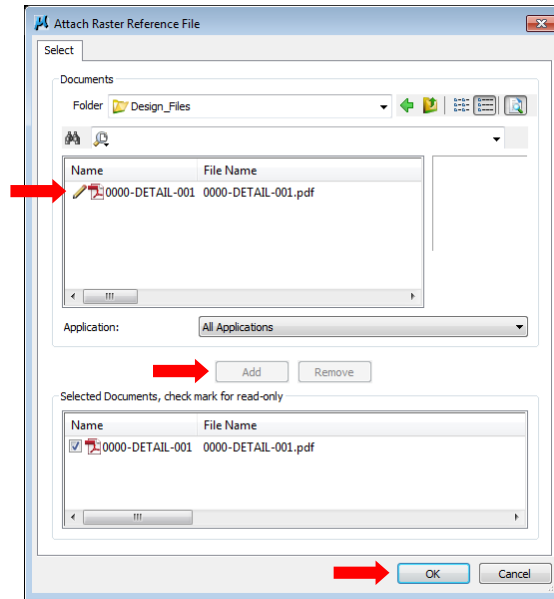
- Double-click on **DFTG_BRDR_17X11**.
- In the *Place Active Cell* dialog box do the following:
 - In the *X Scale*, *Y Scale* and *Z Scale* fields enter the scale of the border sheet (e.g. for 1" = 40' enter **40.000000**).



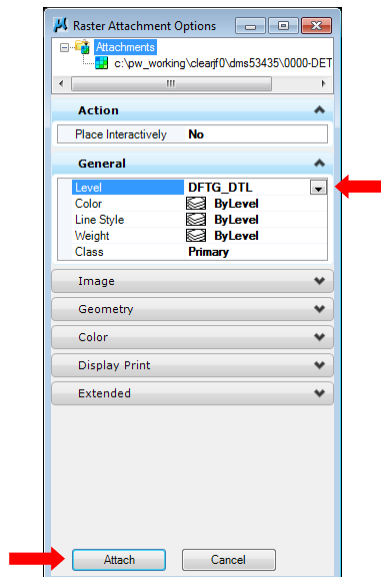
4. Place the standard plate PDF(s) in the border sheet:
 - a. Select **File > Raster Manager**.
 - In the *Raster Manager* dialog box select **File > Attach > Raster...**



- In the *Attach Raster Reference File* dialog box navigate to the *Design_Files* folder in your project (e.g. **0000-Project Name\Design\Design_Files**).
- Highlight the first standard plate you want to place, click **Add**, then click **OK**.



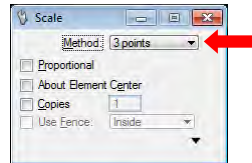
- In the *Raster Attachment Options* dialog box do the following:
 - For *Level* select **DFTG_DTL** from the dropdown list.
 - Click **Attach**.



- Select **Fit View**.
- Select the **Move** tool.
 - Move the standard plate into the border sheet, snapping the upper left-hand corner of the standard plate to the upper left-hand corner of the inside line of the border sheet.

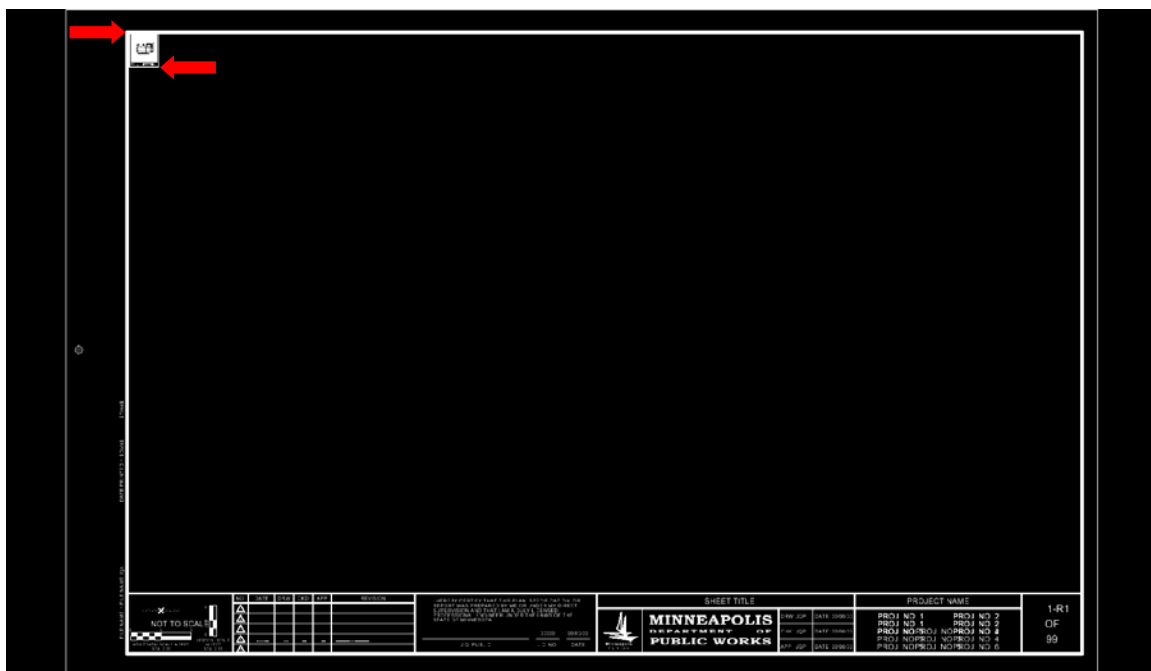
d. Select the **Scale** tool.

- In the *Scale* dialog box for *Method* select **3 points** from the dropdown list.

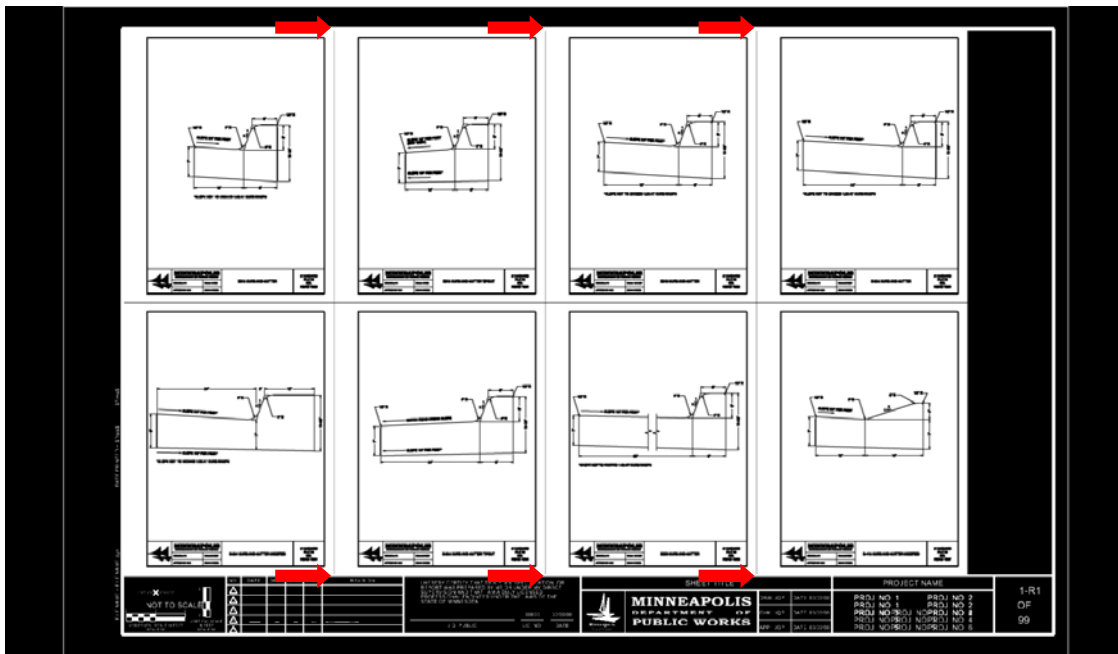


- Follow the prompts:

- *Identify the element:* Left-click on the standard plate.
- *Enter origin point (point to scale about):* Snap to and left-click on the upper left hand corner of the standard plate.
- *Enter reference point:* Snap to and left-click on the lower right hand corner of the standard plate.
- *Enter point to define amount of scaling:* Snap to and left-click on the middle bottom of the inside line of the border sheet.



Note 2: Up to eight Mpls Standard Plate cells may be placed at half-size if desired.



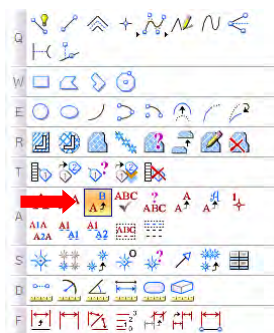
5. Delete the temporary standard plate PDF(s):
 - a. After you have placed all the standard plates, navigate to the temporary location where you saved the PDFs (e.g. **H:\My Pictures**) and delete them.

MnDOT Standard Plates:

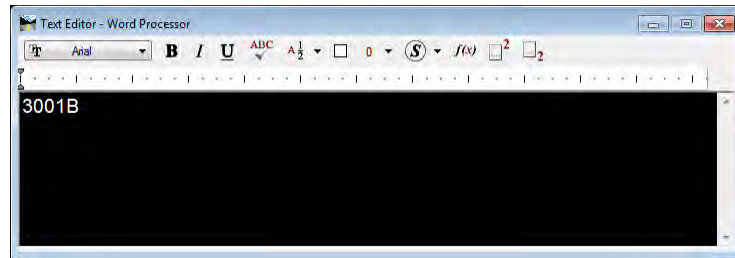
1. Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
2. Place the **DFTG_INDX_MPLS_STD_PLATE** cell in the upper right-hand corner of the *Detail* sheet:
 - a. Select **Element > Cells**.
 - Select the cell **DFTG_INDX_MPLS_STD_PLATE**.
 - In the *Place Active Cell* dialog box for *X Scale*, *Y Scale* and *Z Scale* enter the scale of the border (e.g. for plan sheets at a scale of 1"=40' enter **40**).
 - Snap to the upper right-hand corner of the *Detail* sheet.

[illegible]

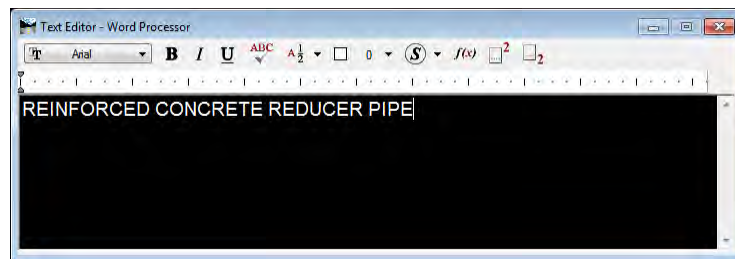
3. Enter the standard plate number in the *PLATE NO.* column and the standard plate name in the *PLATE NAME* column:
(See [MnDOT Standard Plates](#) for a list of available standard plates.)
 - a. Select the **Edit Text** tool (this tool can be found in the *Text* portion of the *Main* tool bar).



- Left-click on **0000** in the *PLATE NO.* column.
- In the *Text Editor – Word Processor* dialog box enter the plate number (e.g. **3001B**).
- Left-click anywhere in the design file.



- Left-click on **STANDARD PLATE DESCRIPTION** in the *PLATE NAME* column.
- In the *Text Editor – Word Processor* dialog box enter the plate name (e.g. **REINFORCED CONCRETE REDUCER PIPE**).
- Left-click anywhere in the design file.



MnDOT Standard Plans:

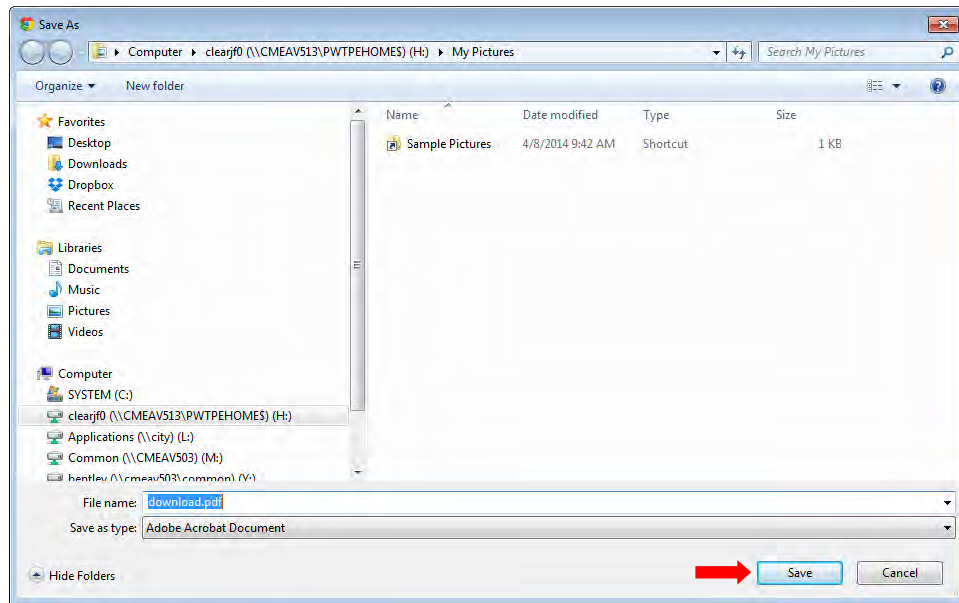
1. Download the standard plan PDF(s):
 - a. Open a web browser (e.g. **Internet Explorer**).
 - Browse to the Minnesota Department of Transportation *Standard Plans* web page: [MnDOT Standard Plans](#).
 - Click on the standard plan(s) you want to use:



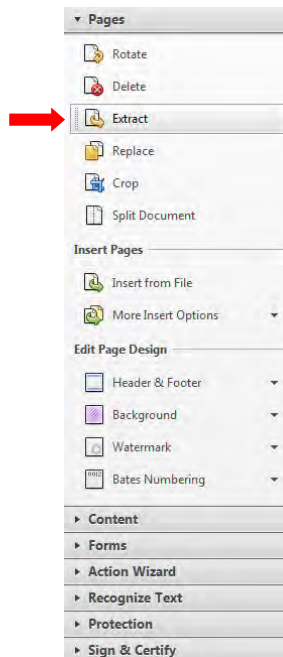
- Click the **Save As** icon.



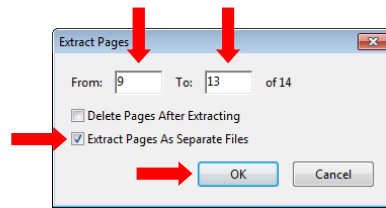
- In the **Save As** dialog box navigate to a temporary location to save the PDF (e.g. **H:\My Pictures**) and click **Save**.



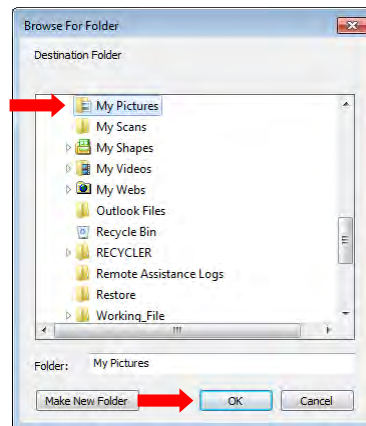
- To download additional standard plans, click the **Back** arrow in the web browser to go back to the web page where the next standard plan you want to use is located.
2. Extract the standard plan PDF(s):
 - a. Navigate to the temporary location where you saved the standard plan PDF (e.g. **H:\My Pictures**) and open the file with **Adobe Acrobat**.
 - Select **View > Tools > Pages**.
 - In the **Pages** panel click **Extract**.



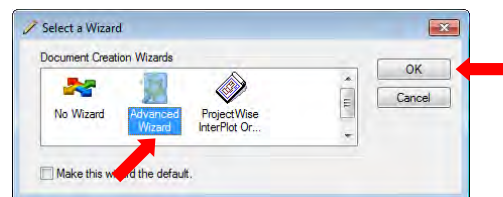
- In the *Extract Pages* dialog box enter the number(s) of the pages in the *From* and *To* fields (e.g. From: **9** To: **13**).
- Check the box next to *Extract Pages As Separate Files* and click **OK**.



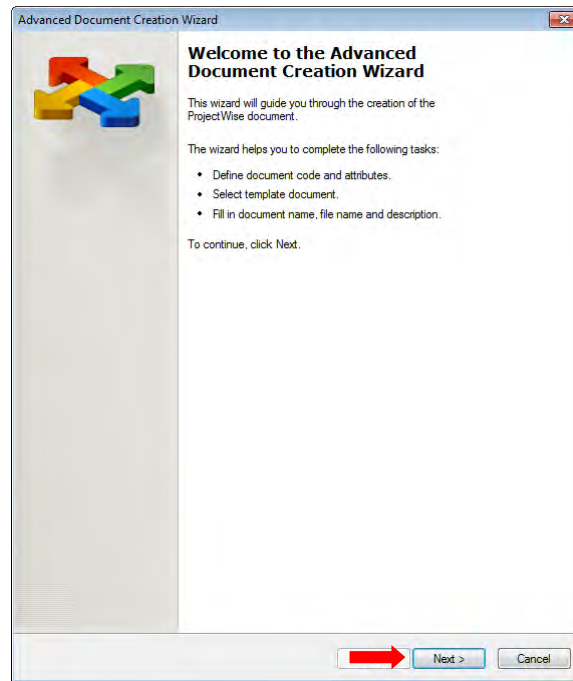
- In the *Browse For Folder* dialog box navigate to the temporary location where you saved the standard plan PDF (e.g. **H:\My Pictures**) and click **OK**.



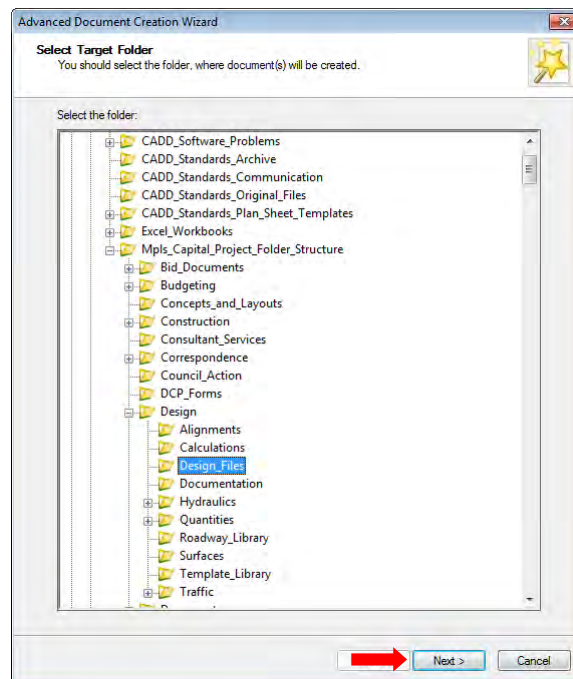
3. Move the standard plan PDF(s) to your project in ProjectWise:
 - a. Select **Start > All Programs > Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Design_Files* folder in the project (e.g. **0000-Project Name\Design\Design_Files**).
 - c. Open the *My Pictures* folder on your *H:* drive and shrink it so that you can see the *Design_Files* folder in ProjectWise.
 - d. Highlight the PDF, left-click on it and drag it into the *Design_Files* folder.
 - e. In the *Select a Wizard* dialog box highlight *Advanced Wizard* and click **OK**.



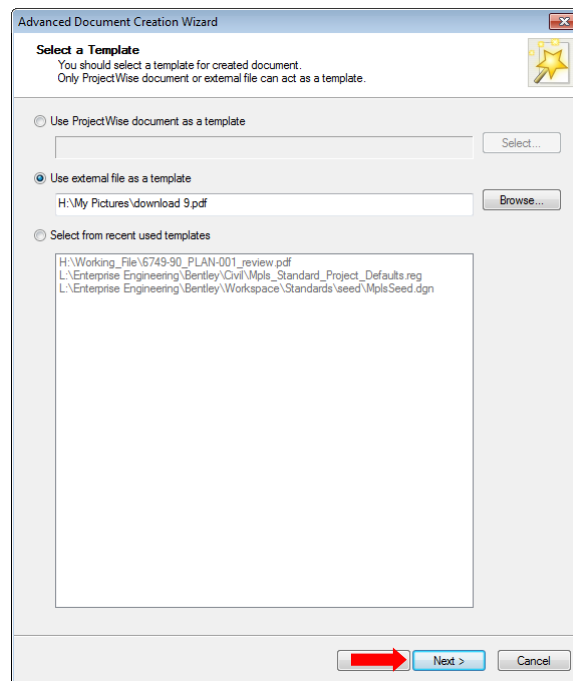
- f. In the *Advanced Document Creation Wizard* dialog box click **Next**.



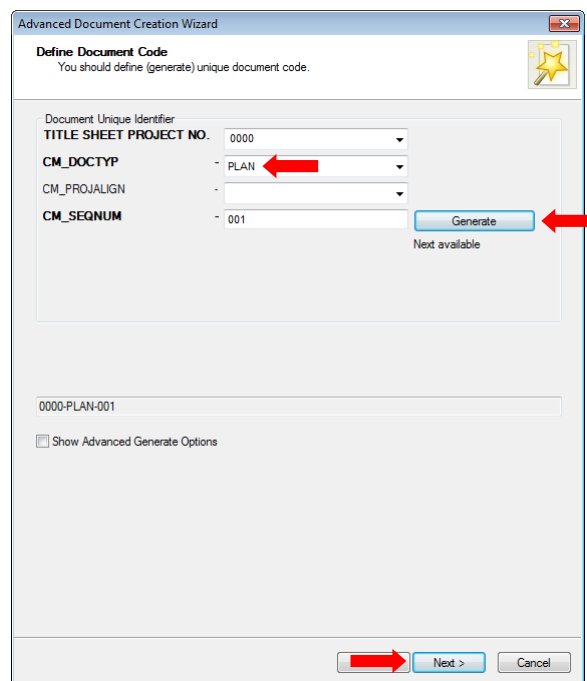
- g. In the *Advanced Document Creation Wizard* dialog box, under *Select Target Folder*, dialog box click **Next**.



- h. In the *Advanced Document Creation Wizard* dialog box, under *Select a Template*, click **Next**.



- i. In the *Advanced Document Creation Wizard* dialog box, under *Define Document Code*, for *CM_DOCTYPE* select **PLAN**, click the **Generate** button, then click **Next**.



- j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.

Advanced Document Creation Wizard

Define Document Attributes
You should define environment specific document attributes.

TITLE SHEET PROJECT OWNER
CITY OF MINNEAPOLIS

TITLE SHEET SECONDARY PROJECT OWNER

TITLE SHEET/PLAN SHEET PROJECT NAME

TITLE SHEET PROJECT NO.
0000

NORTH SOUTH
WEST EAST

TITLE SHEET/PLAN SHEET TITLE

DRAWN DRW DATE
CHECKED CHK DATE
APPROVED APP DATE
PE NAME PE DATE
PE NUMBER

PROJECT NO. 1 PROJECT NO. 2
PROJECT NO. 3 PROJECT NO. 4
PROJECT NO. 5 PROJECT NO. 6

TITLE SHEET PROJECT NO. TEST

SHEET REV OF SHT

Next > Cancel

- k. In the *Advanced Document Creation Wizard* dialog box, under *Document Properties*, for *Description for the new document* enter the name and description of the standard plan (e.g. **5-297.250 Pedestrian Curb Ramp Details (1 of 5)**) and click **Next**.

Advanced Document Creation Wizard

Document Properties
Define required document properties - the name and the file name.
Optionally, you can also define document description and version string.

New document name
0000-PLAN-001

Description for the new document
download 9

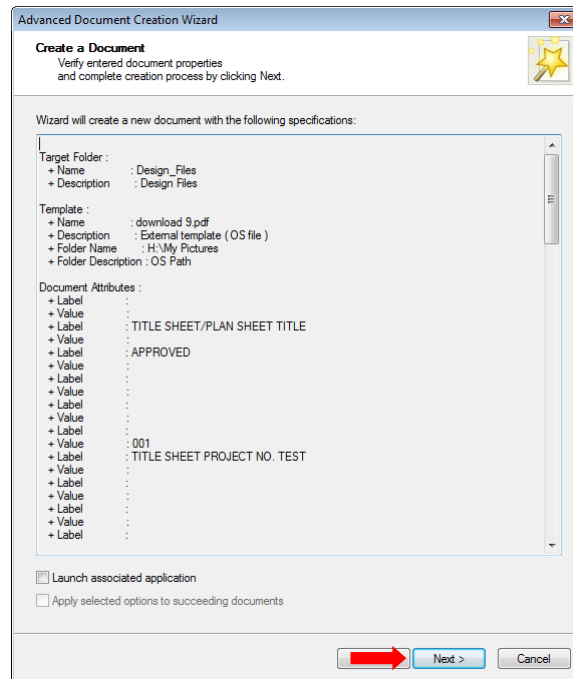
New document file name
5-297.250 Pedestrian Curb Ramp Details (1 of 5)

Version

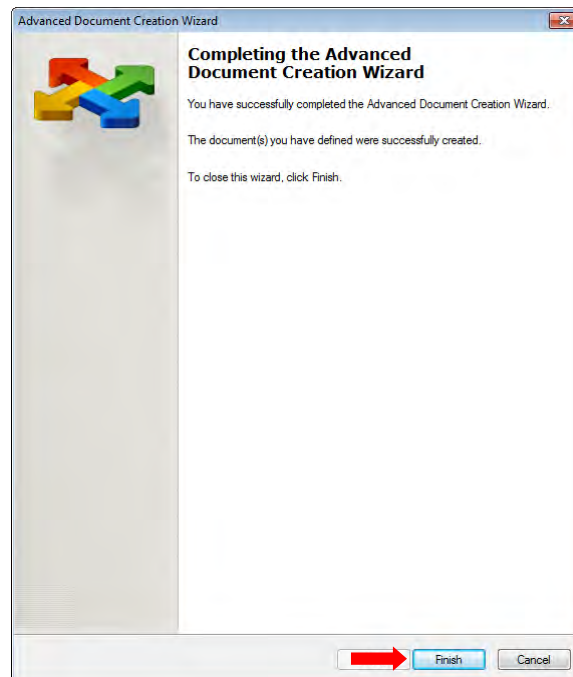
Application:
Adobe

Next > Cancel

- l. In the *Advanced Document Creation Wizard* dialog box, under *Create a Document* click **Next**.

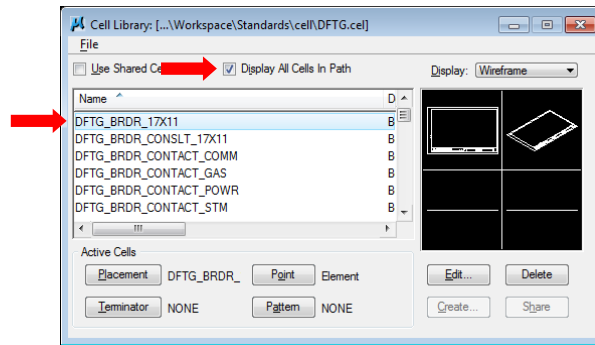


- m. In the *Advanced Document Creation Wizard* dialog box click **Finish**.

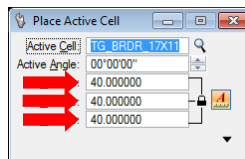


- n. Delete the standard plate PDF(s) on your *H:* drive.
4. Place the border sheet cell:
- Open the MicroStation design file that contains the *Detail* sheet (e.g. **0000-DETAIL-001.dgn**).
 - Select **Element > Cells**.
 - Set the *Active Level* to **DFTG_BRDR**.
 - In the *Cell Library* dialog box do the following:

- Check the box next to **Display All Cells In Path.**



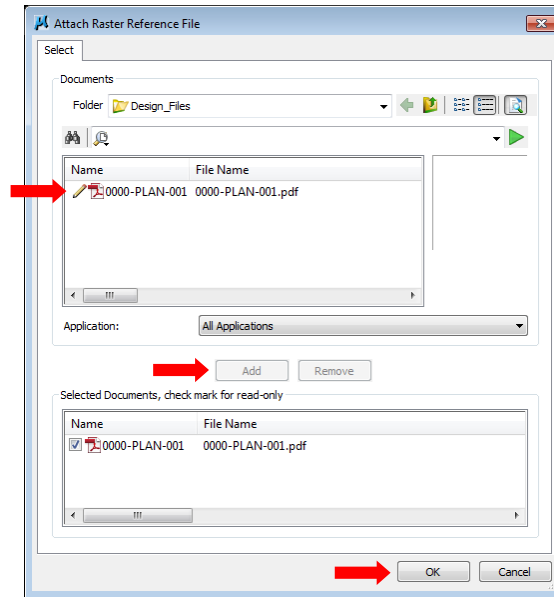
- Double-click on **DFTG_BRDR_17X11.**
- In the **Place Active Cell** dialog box do the following:
 - In the **X Scale**, **Y Scale** and **Z Scale** fields enter the scale of the border sheet (e.g. for 1" = 40' enter **40.000000**).



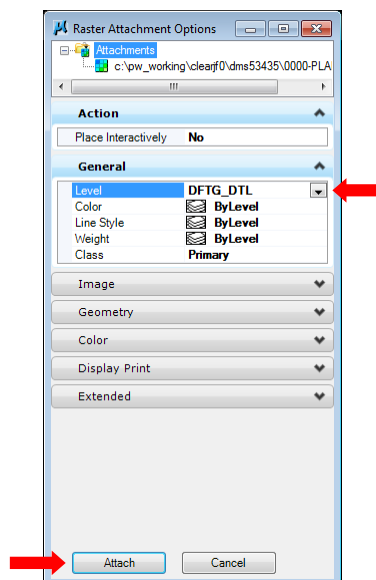
5. Place the standard plan PDF(s) in the border sheet:
 - a. Select **File > Raster Manager.**
 - In the **Raster Manager** dialog box select **File > Attach > Raster....**



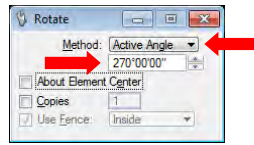
- In the *Attach Raster Reference File* dialog box navigate to the *Design_Files* folder in your project (e.g. **0000-Project Name\Design\Design_Files**).
- Highlight the first standard plan you want to place, click **Add**, then click **OK**.



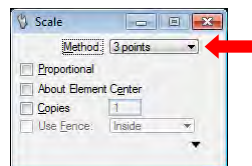
- In the *Raster Attachment Options* dialog box do the following:
 - For *Level* select **DFTG_DTL** from the dropdown list.
 - Click **Attach**.



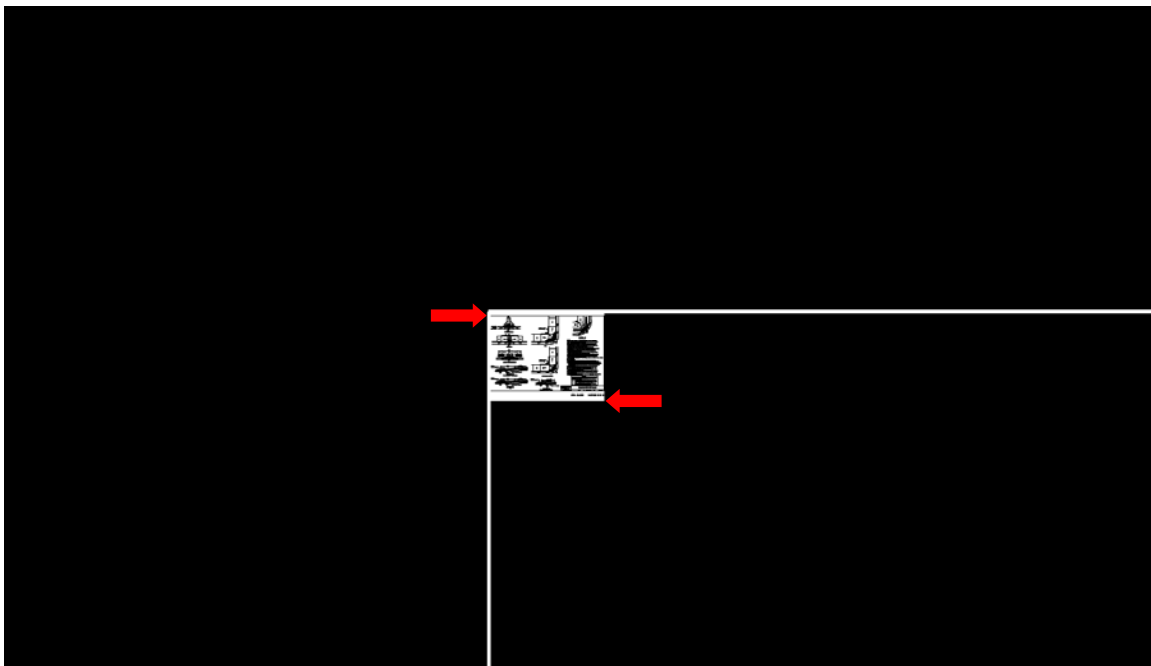
- b. Select **Fit View**.
- c. Select the **Rotate** tool.
 - In the *Rotate* dialog box for *Method* select **Active Angle** from the dropdown list.
 - Enter the angle you want to rotate the file (e.g. **270**) in the angle field.

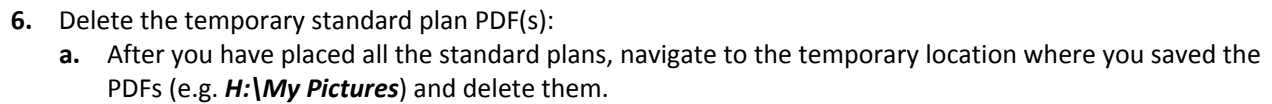


- Follow the prompts:
 - *Identify element:* Left-click on the standard plan.
 - *Enter pivot point (point to rotate about):* Left-click anywhere in the design file.
- e. Select **Fit View**.
- f. Select the **Move** tool.
 - Move the standard plan into the border sheet, snapping the upper left-hand corner of the standard plan to the upper left-hand corner of the inside line of the border sheet.
- g. Select the **Scale** tool.
 - In the *Scale* dialog box for *Method* select **3 points** from the dropdown list.



- Follow the prompts:
 - *Identify the element:* Left-click on the standard plan.
 - *Enter origin point (point to scale about):* Snap to and left-click on the upper left hand corner of the standard plan.
 - *Enter reference point:* Snap to and left-click on the lower right hand corner of the standard plan.
 - *Enter point to define amount of scaling:* Snap to and left-click on the lower right hand corner of the inside line of the border sheet.





ISSUE NO. CADD-0015
ISSUED BY: Jim Cleary
SUBJECT: How to Use the INI to XIN Translator

DEVELOPED BY: CADD Management Team
DATE: June 3, 2008

BACKGROUND

InRoads V08.08.00.46 no longer uses the following individual files, but instead combines them into one Civil.xin file:

- **Civil.ini** (Preference File)
- **Wysiwyg.ini** (Alignment Preference File)
- **Survey.fwf** (Survey Feature Table)
- **Survey.fxp** (Survey Preference File)
- **Impexp.ini** (Import/Export File)

OVERVIEW

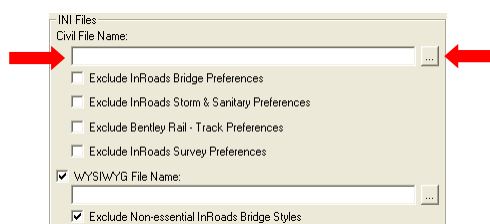
This application converts civil preference files (Civil.ini), alignment preference files (Wysiwyg.ini), survey feature tables (Survey.fwf), survey preference files (Survey.fxp), the TIW.ini file, and the IMPEXP.ini file from their original format into the new XIN preference format.

Note: Users will need to convert their project specific InRoads files before using InRoads.

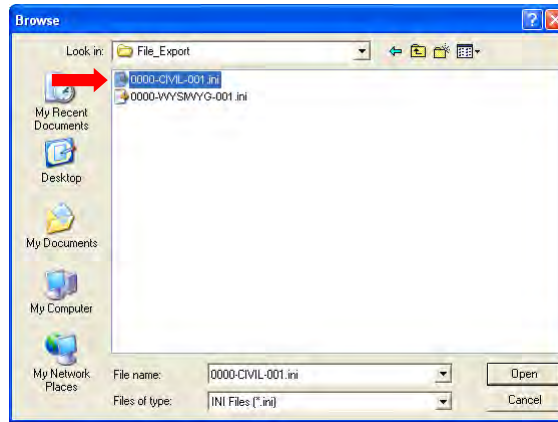
WHAT TO DO

Note: Project Managers should designate one person on the project team to do this for all project team members.

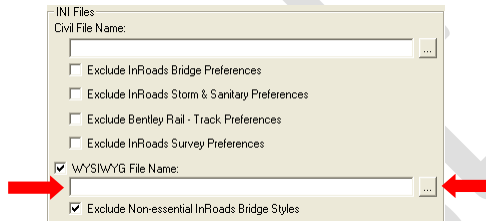
1. Export your project's InRoads files temporarily to a location outside ProjectWise:
 - a. Select **Start > All Programs > Enterprise Engineering > ProjectWise Explorer**.
 - b. Browse to the *Civil* folder in the project (e.g. 0000-Project Name\Standards\Civil).
 - c. Highlight the *Civil.ini* file (e.g. 0000-CIVIL-001.ini), right-click on it and select **Export....**
 - d. In the *Document Export Wizard* dialog box click **Next**.
 - e. For *Choose an action to perform* click the **Send to Folder** radio button.
 - **Civil.ini** (Preference File)
 - For *Folder* click **Browse....**
 - In the *Browse For Folder* dialog box navigate to the location where you want to export the files to (e.g. H:\File_Export) and click **OK**.
 - f. In the *Document Export Wizard* dialog box click **Next**.
 - g. In the *Document Export Wizard* dialog box click **Finish**.
 - h. Repeat *Step 1* for the Wysiwyg.ini (e.g. 0000-WYSIWYG-001.ini), Survey.fwf (e.g. 0000-SURVFEAT-001.fwf), and Survey.fxp (e.g. 0000-SURVPREF-001.fxp).
2. Select **Start > All Programs > Enterprise Engineering > INI to XIN Translator**.
 - a. In the *INI to XIN Translator* dialog box do the following:
 - i. Under *INI Files* click in the box below *Civil File Name* and then click the browse "... " button.



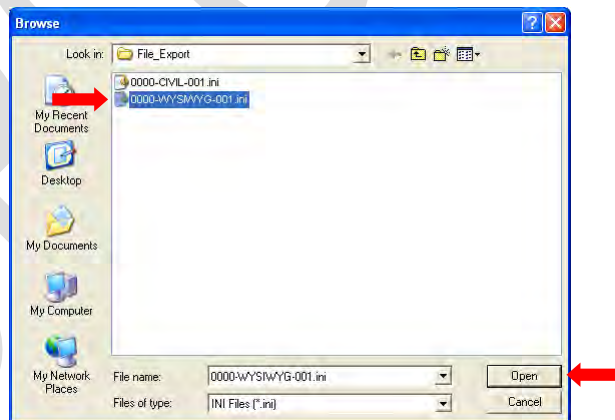
- In the *Browse* dialog box navigate to the location where you exported the files in *Step 1*, highlight the **Civil.ini** file and click **Open**.



- ii. Under *INI Files* click in the box below *WYSIWYG File Name* and then click the browse “...” button.

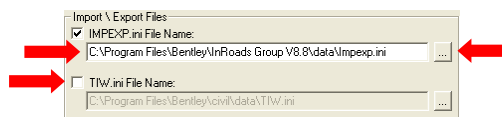


- In the *Browse* dialog box navigate to the location where you exported the files in *Step 1*, highlight the **Wysiwyg.ini** file and click **Open**.

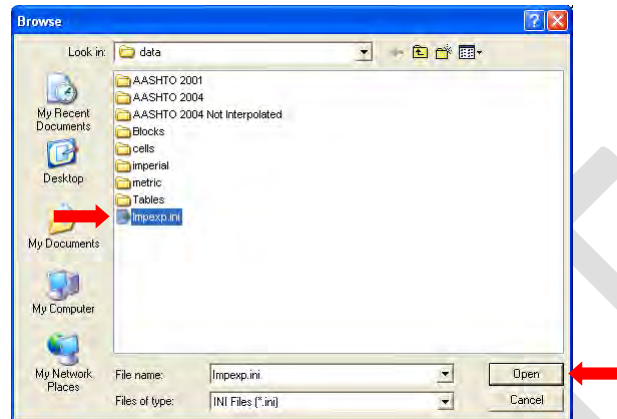


- iii. Under *Import \ Export Files* do the following:

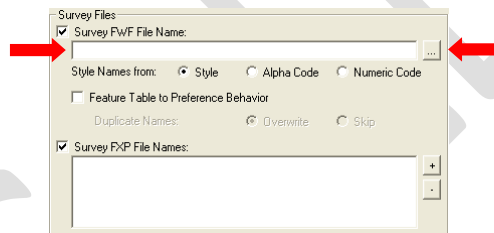
- Uncheck the box next to **TIW.ini File Name**.
- Click in the box below **IMPEXP.ini File Name** and then click the browse “...” button.



- In the *Browse* dialog box navigate to *C:\Program Files\Bentley\InRoads Group V8.8\data*, highlight the **Impexp.ini** file and click **Open**.



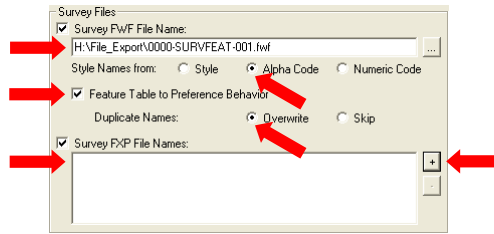
- iv. Under *Survey Files* click in the box below *Survey FWF File Name* and then click the browse “...” button.



- In the *Browse* dialog box navigate to the location where you exported the files in *Step 1*, highlight the **Survey.fwf** file and click **Open**.



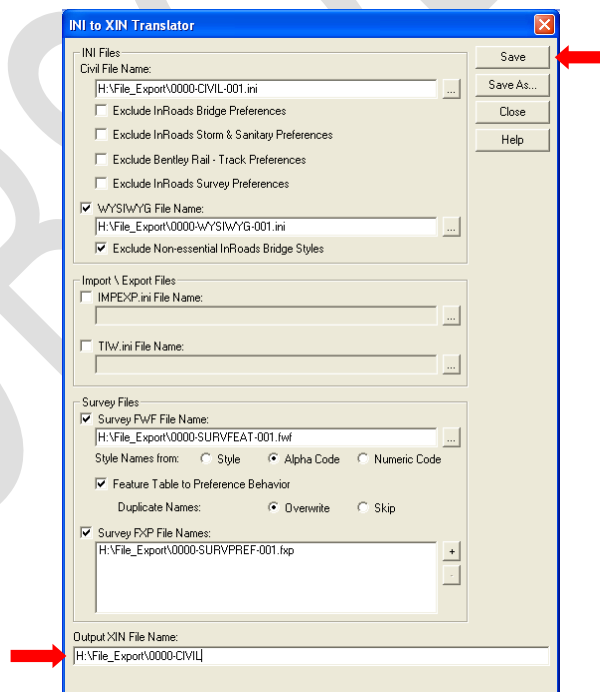
- For *Style Names from* click the **Alpha Code** radio button.
 - Check the box next to **Feature Table to Preference Behavior**.
 - For *Duplicate Names* click the **Overwrite** radio button.
- v. Under *Survey Files* click in the box below *Survey FXP File Name* and then click the add “+” button.



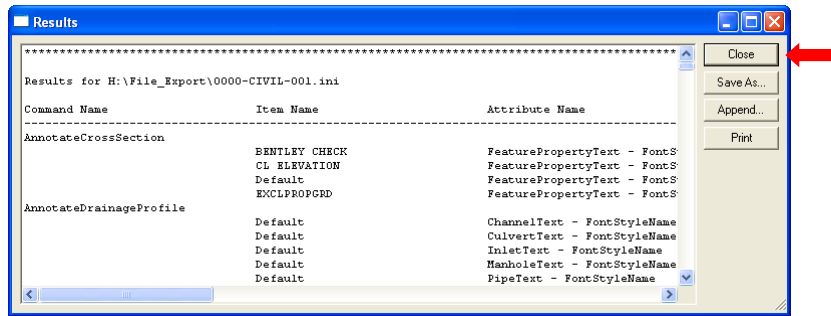
- In the *Open* dialog box navigate to the location where you exported the files in *Step 1*, highlight the ***Survey.fxp*** file and click ***Open***.



- vi. Click in the box below *Output XIN File Name* and enter the path to the location where you exported the files in *Step 1* and add the name of the new civil.xin file you will create (e.g. *H:\File_Export\0000-CIVIL*).
- vii. Click ***Save***.



- b. In the *Results* dialog box click ***Close***.



- c. In the *INI to XIN Translator* dialog box click **No**.



3. Drag and drop the Civil.xin file you just created into *ProjectWise\CIP Projects\Documents\Project Name\Standards\Civil*.
 - a. Navigate to *ProjectWise\CIP Projects\Documents\Project Name\Standards\Civil*.
 - b. Right-click on **Start** and select **Explore**.
 - c. Open the folder where you exported the files to (e.g. H:\File_Export) and shrink it so that you can see the *Civil* folder in ProjectWise.
 - d. Highlight the Civil.xin file (e.g. 0000-CIVIL.xin), left-click on it and drag it into the *Civil* folder in ProjectWise.
 - e. In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.
 - f. In the *Advanced Document Creation Wizard* dialog box click **Next**.
 - g. In the *Advanced Document Creation Wizard* dialog box under *Select Target Folder* highlight the Civil folder and click **Next**.
 - h. In the *Advanced Document Creation Wizard* dialog box under *Select a Template* click the **Use external file as a template** radio button and click **Next**.
 - i. In the *Advanced Document Creation Wizard* dialog box under *Select a Template* click the **Use external file as a template** radio button and click **Next**.
 - j. In the *Advanced Document Creation Wizard* dialog box under *Define Document Code*, for *DOCUMENT TYPE* choose **CIVIL**.
 - k. In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.
 - l. In the *Advanced Document Creation Wizard* dialog box under *Define Secondary Document Attributes* click **Next**.
 - m. In the *Advanced Document Creation Wizard* dialog box under *Document Properties*, for *Description for the new document* enter **Mpls InRoads Preference File** and click **Next**.
 - n. In the *Advanced Document Creation Wizard* dialog box under *Create a Document* click **Next**.
 - o. In the *Advanced Document Creation Wizard* dialog box click **Finish**.
 - p. Delete the Civil.xin file on your H: drive.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0016
ISSUED BY: Jim Cleary
SUBJECT: How to Convert Typical Section and Roadway Libraries

DEVELOPED BY: CADD Management Team
DATE: June 3, 2008

BACKGROUND

Previously created typical section libraries and roadway libraries must be converted from binary files (*.tml, *.rwl) into XML-based files (*.itl, *.ird) that can be used by InRoads V08.08.00.46.

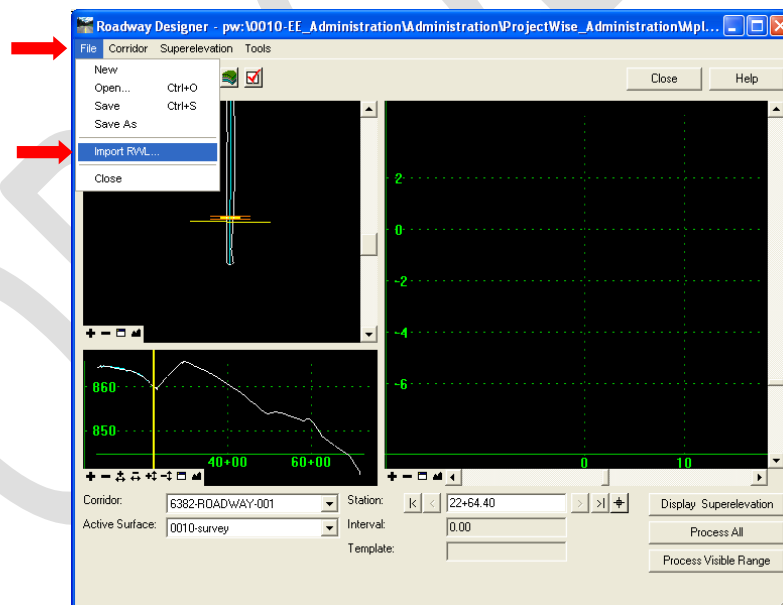
OVERVIEW

When the *Import RWL* command is executed, corridors, template drops, and display references are translated. For more details see the [Import RWL Overview](#) help topic.

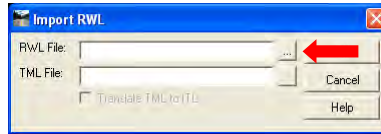
WHAT TO DO

Note: Due to the functionality and workflow changes between previous versions of InRoads, the import *rwl* translation is not an exact one to one conversion; many items are not translated. Once the file has been translated, you must open the new *.ird* file using the **Modeler > Roadway Designer** command and make any modifications as necessary.

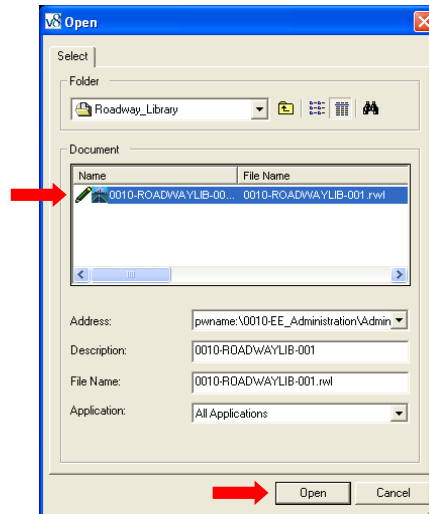
1. Load the project's surface and alignment files.
2. In the *Bentley InRoads 2004 Edition* dialog box select **Modeler > Roadway Designer....**
 - a. In the *Roadway Designer* dialog box select **File > Import RWL....**



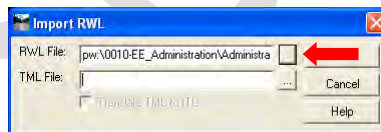
- In the *Import RWL* dialog box do the following:
 - For *RWL File* click the browse "... " button.



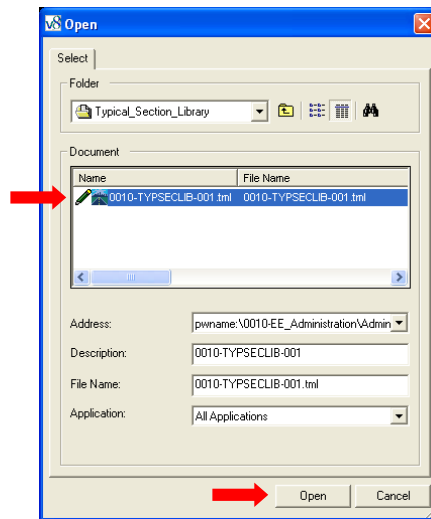
- In the *Open* dialog box navigate to the location of the roadway library file (e.g. *ProjectWise/CIP Projects/Documents/0010-Project Name/Design/Roadway_Library/0010-ROADWAYLIB-001.rwl*).
- Click **Open**.



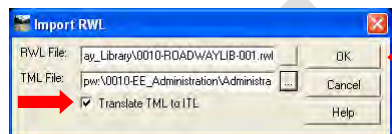
- For *TML File* click the browse “...” button.



- In the *Open* dialog box navigate to the location of the typical section library file (e.g. *ProjectWise/CIP Projects/Documents/0010-Project Name/Design/Typical_Section_Library/0010-TYPSECLIB-001.tml*) and click **Open**.

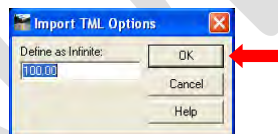


- Check the box next to *Translate TML to ITL* and click **OK**.

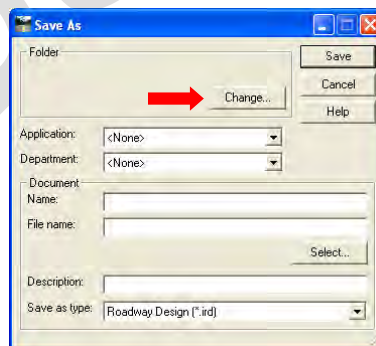


- In the *Import TML Options* dialog box accept the default value and click **OK**.

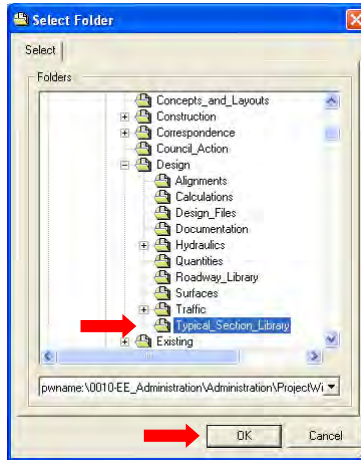
Note: The number in the *Define as Infinite* field is the length beyond which any segment is considered infinite.



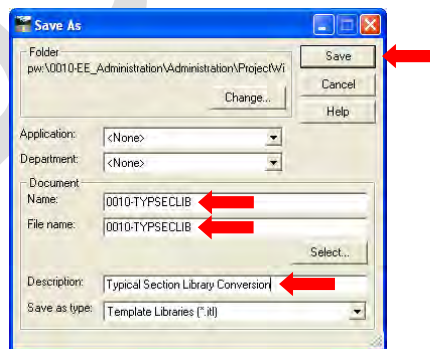
- In the *Save As* dialog box do the following:
 - Under *Folder* click **Change...**



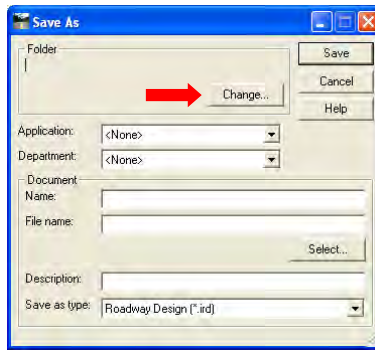
- In the *Select Folder* dialog box navigate to the location of the typical section library file (e.g. *ProjectWise/CIP Projects/Documents/0010-Project Name/Design/Typical_Section_Library*) and click **OK**.



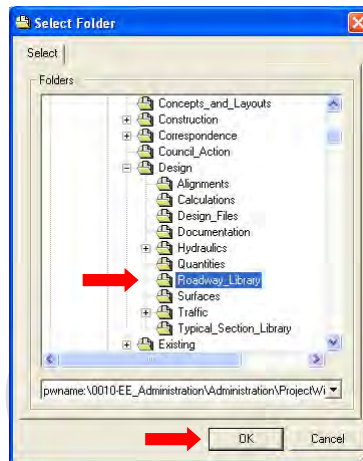
- Under *Document* do the following:
 - For *Name* enter a name for the Typical Section Library (e.g. 0010-TYPSECLIB).
 - For *File name* enter the same name as you did above (e.g. 0010-TYPSECLIB).
 - For *Description* enter **Typical Section Library Conversion**.
- Click **Save**.



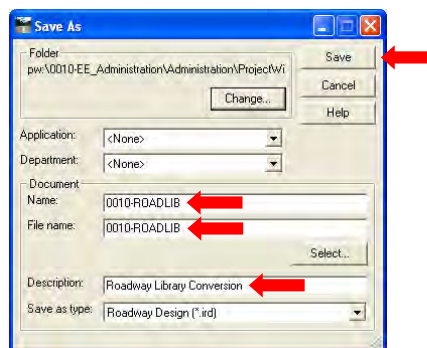
- In the *Save As* dialog box do the following:
 - Under *Folder* click **Change....**



- In the *Select Folder* dialog box navigate to the location of the typical section library file (e.g. *ProjectWise/CIP Projects/Documents/0010-Project Name/Design/Roadway_Library*) and click **OK**.



- Under *Document* do the following:
 - For *Name* enter a name for the Roadway Library (e.g. *0010-ROADLIB*).
 - For *File name* enter the same name as you did above (e.g. *0010-ROADLIB*).
 - For *Description* enter ***Roadway Library Conversion***.
- Click **Save**.

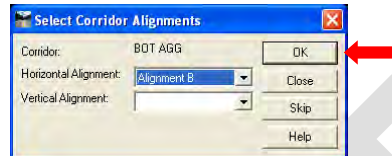


- c. In the *Select Corridor Alignments* do the following:

- For *Horizontal Alignment* select the alignment you want to use from the dropdown list.
- For *Vertical Alignment* select the alignment you want to use from the dropdown list.
- Click **OK**.



- Click **OK**.



COMMUNICATION

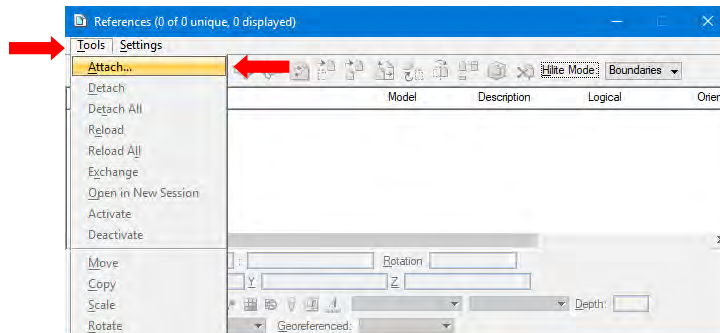
PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. CADD-0017
ISSUED BY: Jim Cleary
SUBJECT: How to Create a Surface

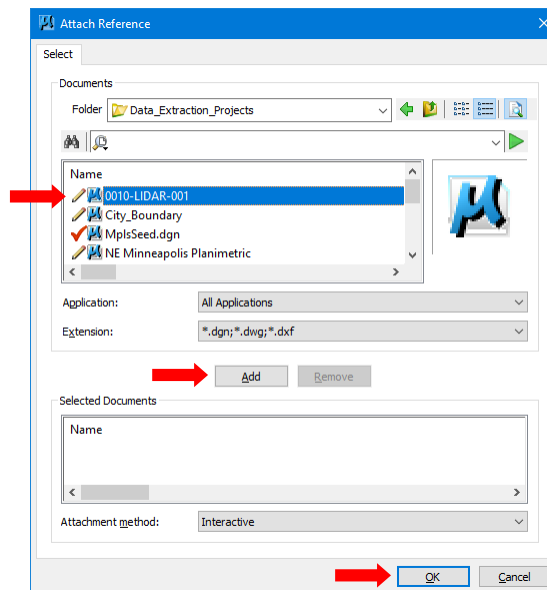
DEVELOPED BY: CADD Management Team
DATE: June 17, 2010
REVISION 0.1: July 24, 2014

WHAT TO DO

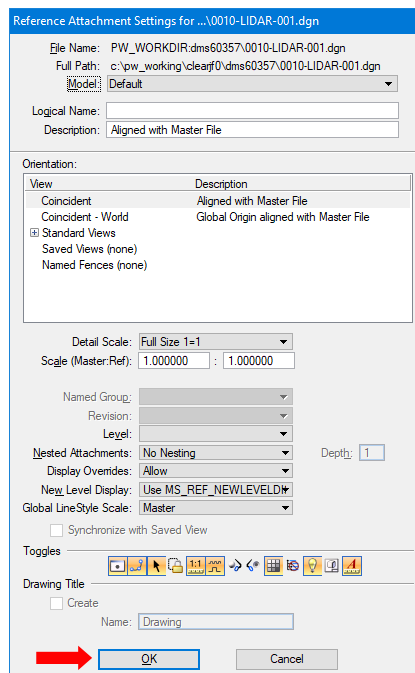
1. Open a design file with InRoads.
2. Import the LIDAR data:
 - a. In *MicroStation V8i (SELECTseries 2)* select **File > References**.
 - b. In the *References* dialog box select **Tools > Attach**.



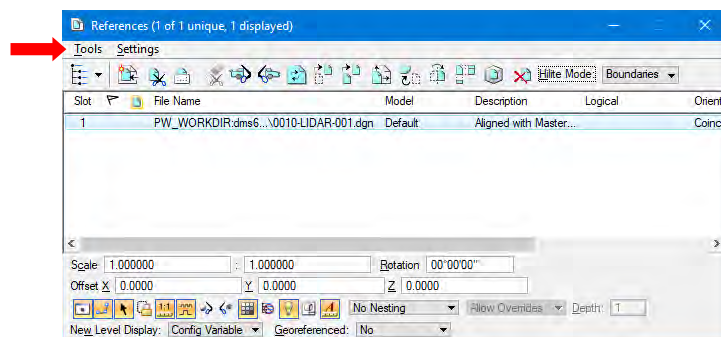
- In the *Attach Reference* dialog box navigate to the location where the LIDAR data is located, highlight the file, click **Add**, and click **OK**.



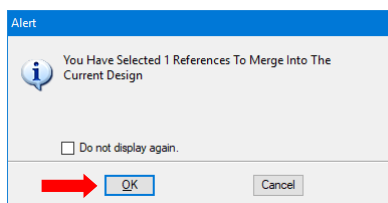
- c. In the *Reference Attachment Settings* dialog box click **OK**.



- d. In the *References* dialog box click select **Tools > Merge Into Master**.



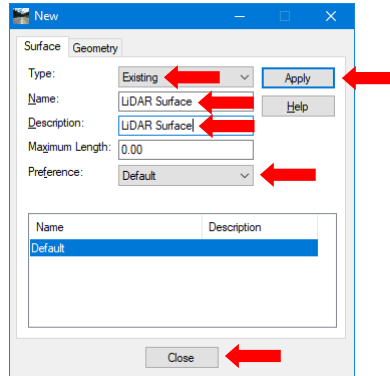
- Left-click anywhere in the design file.
- In the *Alert* dialog box click **OK**.



- Close the *References* dialog box.
- Click **Fit View** so you can see the LIDAR data.

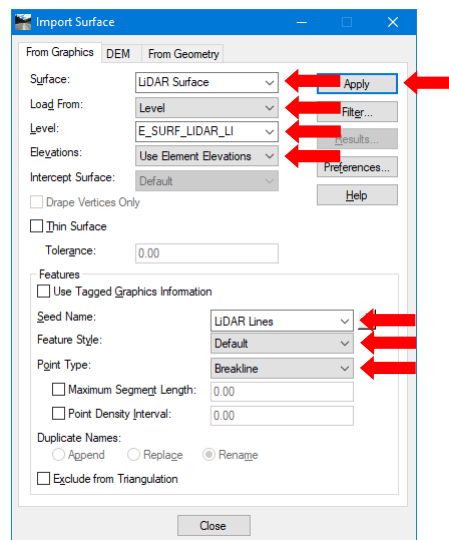
3. Create the surface:

- a. In the *InRoads V8i (SELECTseries 2)* dialog box select **File > New....**
- In the *New* dialog box do the following:
 - For *Type* select **Existing** from the dropdown.
 - For *Name* enter a name for the surface (e.g. LIDAR Surface).
 - For *Description* enter a description for the surface (e.g. LIDAR Surface).
 - For *Preference* select **Default** from the dropdown.
 - Click **Apply**, then click **Close**.



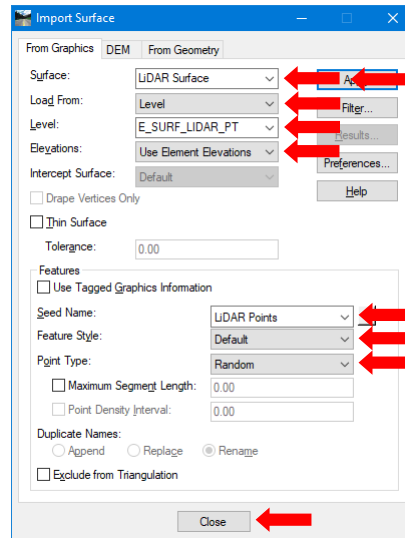
4. Import the LIDAR lines into the surface:

- a. In the *InRoads V8i (SELECTseries 2)* dialog box select **File > Import > Surface** and do the following:
- For *Surface* select the surface you created (e.g. *LIDAR Surface*) from the dropdown list.
 - For *Load From* select **Level** from the dropdown list.
 - For *Level* select **E_SURF_LIDAR_LI**.
 - For *Elevations* select **Use Element Elevations** from the dropdown list.
 - For *Seed Name* enter **LIDAR Lines**.
 - For *Feature Style* select **Default** from the dropdown list.
 - For *Point Type* select **Breakline** from the dropdown list.
 - Click **Apply**.



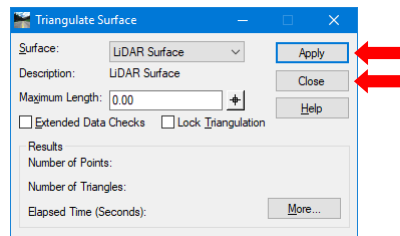
5. Import the LIDAR points into the surface:

- a. In the *InRoads V8i (SELECTseries 2)* dialog box do the following:
 - For *Surface* select the surface you created (e.g. *LIDAR Surface*) from the dropdown list.
 - For *Load From* select **Level** from the dropdown list.
 - For *Level* select **E_SURF_LIDAR_PT**.
 - For *Elevations* select **Use Element Elevations** from the dropdown list.
 - For *Seed Name* enter **LIDAR Points**.
 - For *Feature Style* select **Default** from the dropdown list.
 - For *Point Type* select **Random** from the dropdown list.
 - Click **Apply**, then click **Close**.



6. Triangulate the surface:

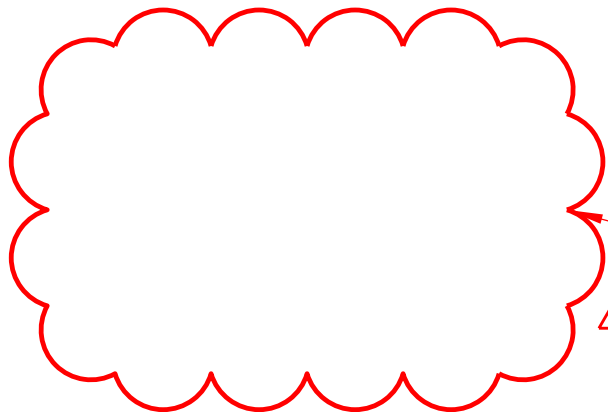
- a. In the *InRoads V8i (SELECTseries 2)* dialog box select **Surface** > **Triangulate Surface....**
- b. In the *Triangulate Surface* dialog box click **Apply**, then click **Close**.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

REVISED SIGNED PLAN SHEET



1

1a. REVISE THE PLAN SHEET

1b. PLACE "CLOUD" AROUND REVISED PORTION OF DRAWING

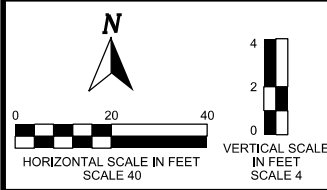
1c. PLACE NUMBERED TRIANGLE NEXT TO "CLOUD"

1d. FILL-IN THE REVISION BLOCK

1e. RENUMBER THE REVISED PLAN SHEET

1f. SIGN THE REVISED PLAN SHEET

FILE NAME = Procedure-0018 Attachment
DATE PRINTED = 00/00/00
12:00:00 PM



| NO. | DATE | DRW | CKD | APP | REVISION |
|-----|----------|-----|-----|-----|-------------|
| 1 | 00/00/00 | DFT | SUP | ENG | DESCRIPTION |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

P. E. Engineer
P.E. ENGINEER

00000
LIC. NO.

0/00/00
DATE

| REVISED PLAN SHEET | | | |
|--------------------|----------|----------------|--|
| | DRW: DFT | DATE: 00/00/00 | |
| | CHK: SUP | DATE: 00/00/00 | |
| | APP: ENG | DATE: 00/00/00 | |









| CITY PROJECT | |
|----------------|--|
| L.P. 600D 0000 | |

2 -R1
OF
99

ORIGINAL SIGNED PLAN SHEET

1d. MARK THE ORIGINAL PLAN SHEET WITH THE WORDS "NOT VALID"

NOT VALID

| | | | | | | | | | | | | | |
|---|---|---|------|-----|-----|-----|----------|--|---|----------|----------------|----------------|--|
|  HORIZONTAL SCALE IN FEET SCALE 40 |  VERTICAL SCALE IN FEET SCALE 4 | NO. | DATE | DRW | CKD | APP | REVISION | I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. <div style="display: flex; justify-content: space-between;"> <div> <u>P. E. Engineer</u> P.E. ENGINEER </div> <div> 00000 LIC. NO. </div> <div> <u>0/00/00</u> DATE </div> </div> | REVISED PLAN SHEET | | CITY PROJECT | | <div style="text-align: center;"> 2 OF 99 </div> |
| | |  | | | | | | |  | DRW: DFT | DATE: 00/00/00 | L.P. 600D 0000 | |
| | |  | | | | | | | | CHK: SUP | DATE: 00/00/00 | | |
| | |  | | | | | | | | APP: ENG | DATE: 00/00/00 | | |
| | |  | | | | | | | | | | | |
| | |  | | | | | | | | | | | |

| LEGEND | |
|--|--|
| CENTERLINE | |
| EROSION CONTROL LOCATOR | |
| HEDGE | |
| SHRUB | |
| SOD | |
| TREE, CONIFEROUS | |
| TREE, DECIDUOUS | |
| PROPERTY LINE | |
| BUILDING | |
| FENCE, WIRE | |
| FENCE, WOOD | |
| WALL, RETAINING | |
| UNIDENTIFIED MANHOLE | |
| SURVEY CONTROL MONUMENT | |
| RAILROAD TRACK | |
| CURB & GUTTER (EXISTING) | |
| CURB & GUTTER (PROPOSED) | |
| CURB & GUTTER (REMOVE) | |
| DRIVEWAY, RESIDENTIAL (6 IN. CONCRETE) | |
| DRIVEWAY, COMMERCIAL (8 IN. CONCRETE) | |
| REMOVE PAVEMENT (BITUMINOUS) | |
| REMOVE PAVEMENT (CONCRETE) | |
| SIDEWALK (3.5 IN. CONCRETE) | |
| SIDEWALK (6 IN. CONCRETE) | |
| SOIL BORING | |
| CABLE TV CONDUIT | |
| FIBER OPTIC CONDUIT | |
| TELEPHONE CONDUIT | |
| COMMUNICATION MANHOLE | |
| GAS PIPE | |
| GAS MANHOLE | |
| GAS VALVE | |
| POWER CONDUIT | |
| POWER MANHOLE | |
| POWER POLE | |
| SANITARY SEWER LAMPHOLE | |
| SANITARY SEWER PIPE (EXISTING) | |
| SANITARY SEWER PIPE (PROPOSED) | |
| SANITARY SEWER MANHOLE (EXISTING) | |
| SANITARY SEWER MANHOLE (PROPOSED) | |
| SANITARY SEWER MANHOLE, BLIND (EXISTING) | |
| SANITARY SEWER MANHOLE, BLIND (PROPOSED) | |
| SANITARY SEWER LIFT STATION | |
| STEAM PIPE | |
| STORM SEWER CATCH BASIN (EXISTING) | |
| STORM SEWER CATCH BASIN (PROPOSED) | |
| STORM SEWER CATCH BASIN RUN (EXISTING) | |
| STORM SEWER CATCH BASIN RUN (PROPOSED) | |
| STORM SEWER GRIT CHAMBER | |
| STORM SEWER PIPE (EXISTING) | |
| STORM SEWER PIPE (PROPOSED) | |
| STORM SEWER MANHOLE (EXISTING) | |
| STORM SEWER MANHOLE (PROPOSED) | |
| STORM SEWER MANHOLE, BLIND (EXISTING) | |
| STORM SEWER MANHOLE, BLIND (PROPOSED) | |
| STORM SEWER LIFT STATION | |
| TRAFFIC CONDUIT (EXISTING) | |
| TRAFFIC CONDUIT (PROPOSED) | |
| TRAFFIC HANDHOLE, MPLS | |
| TRAFFIC LOOP DETECTOR | |
| TRAFFIC PARKING METER | |
| TRAFFIC SIGN | |
| TRAFFIC SIGNAL PEDESTAL | |
| TRAFFIC STREETLIGHT | |
| WATER HYDRANT (EXISTING) | |
| WATER HYDRANT (PROPOSED) | |
| WATER PIPE | |
| WATER MANHOLE (EXISTING) | |
| WATER MANHOLE (PROPOSED) | |
| WATER MANHOLE VALVE (EXISTING) | |
| WATER MANHOLE VALVE (PROPOSED) | |
| WATER STOP BOX | |

CITY OF MINNEAPOLIS
DEPARTMENT OF PUBLIC WORKS

PROJECT NAME: CITY PROJECT
PROJECT NUMBER: 0000

LOCATION: NORTH AVE. FROM WEST ST. TO EAST ST.

| | | |
|------------------|-------------|------------|
| GROSS LENGTH | 330 FT. | 0.06 MILES |
| BRIDGE LENGTH | 0 FT. | 0 MILES |
| EXCEPTION LENGTH | 0 FT. | 0 MILES |
| NET LENGTH | 330 FT. | 0.06 MILES |
| PRESENT ADT | 5000 (2016) | |
| FUTURE ADT | 7500 (2036) | |
| FUTURE HCADT | 250 (2036) | |

| | |
|-----------------------------------|---|
| FUNCTIONAL CLASSIFICATION | LOCAL |
| DESIGN SPEED | 30 MPH |
| DESIGN LOADING | 9 TON |
| NO. OF TRAFFIC LANES | 2 |
| NO. OF PARKING LANES | 1 |
| SOIL FACTOR | 50% |
| STOPPING SIGHT DISTANCE BASED ON: | 3.5' HEIGHT OF EYE 2' HEIGHT OF OBJECT |

ORIGINAL SIGNED TITLE SHEET



2a. FILL IN THE REVISION BLOCK*

***Note: If the content (other than the sheet index or the revision block) of the original Title sheet is changed (i.e. changes to the size or scope of the project), proceed to Step 2c.**

| INDEX | |
|-----------|--------------------------------|
| SHEET NO. | DESCRIPTION |
| 1 | TITLE SHEET |
| 2 | ESTIMATED QUANTITIES |
| 3 | GENERAL NOTES |
| 4 | DETAILS AND STANDARD PLATES |
| 5 | TYPICAL SECTIONS |
| 6 | TEMPORARY TRAFFIC CONTROL PLAN |
| 7 | TEMPORARY EROSION CONTROL PLAN |
| 8 | ALIGNMENT PLAN/CONTROL |
| 9 | EASEMENT PLAN |
| 10 | EXISTING UTILITY PLAN |
| 11 | PAVING PLAN/PROFILE |
| 12 | INTERSECTION DETAILS |
| 13 | SANITARY SEWER PLAN/PROFILE |
| 14 | STORM SEWER PLAN/PROFILE |
| 15 | WATER PLAN |
| 16 | STRIPING/SIGNING PLAN |
| 17 | LIGHTING PLAN |
| 18 | SIGNAL PLAN |
| 19 | GRADING PLAN |
| 20 | LANDSCAPE PLAN |
| 21 | CROSS SECTIONS |

THIS PLAN CONTAINS 000 SHEETS.

| | |
|---|----------|
| <i>City Engineer</i> | 00/00/00 |
| APPROVED: MINNEAPOLIS CITY ENGINEER OR DEPUTY CITY ENGINEER | DATE |
| <i>Director, T&PS</i> | 00/00/00 |
| APPROVED: DIRECTOR, TRAFFIC & PARKING SERVICES | DATE |
| <i>Director, TE&D</i> | 00/00/00 |
| APPROVED: DIRECTOR, TRANSPORTATION ENGINEERING & DESIGN | DATE |
| <i>Director, TP&P</i> | 00/00/00 |
| APPROVED: DIRECTOR, TRANSPORTATION PLANNING & PROGRAMMING | DATE |
| <i>Director, TM&R</i> | 00/00/00 |
| APPROVED: DIRECTOR, TRANSPORTATION MAINTENANCE & REPAIR | DATE |
| <i>Director, SW&S</i> | 00/00/00 |
| APPROVED: DIRECTOR, SURFACE WATER & SEWERS | DATE |
| <i>Director, WT&D</i> | 00/00/00 |
| APPROVED: DIRECTOR, WATER TREATMENT & DISTRIBUTION | DATE |

| | | | | | | | | | |
|---|--------------|----------|----------|--|---|----------|----------------|----------------|------------------------|
|  <p>HORIZONTAL SCALE IN FEET SCALE 100</p> | SHEET NUMBER | APPROVED | DATE | <p>I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p><u>P. E. Engineer</u> 00000 <u>0/00/00</u> P.E. ENGINEER LIC. NO. DATE</p> | ORIGINAL TITLE SHEET | | CITY PROJECT | | <p>1 OF 99</p> |
| | 2 | ENG | 00/00/00 | |  | DRW: DFT | DATE: 00/00/00 | L.P. 600D 0000 | |
| | | | | | | CHK: SUP | DATE: 00/00/00 | | |
| | | | | | | APP: ENG | DATE: 00/00/00 | | |

12:00:00 PM

DATE PRINTED = 00/00/00

FILE NAME = Procedure-0018 Attachment

ISSUE NO. PROCEDURE-0018
ISSUED BY: Jim Cleary
SUBJECT: How to Revise Signed Plan Sheets

DEVELOPED BY: CADD Management Team
DATE: September 8, 2008
REVISION 8.3: October 23, 2017

OVERVIEW

Plan sheets that require alteration after being signed must be revised using the procedure described below.

WHAT TO DO

Note: If it is a State Aid project contact the City's State Aid point of contact: larry.veek@minneapolismn.gov (612) 673-2462.

1. Revise the plan sheet:

- a. Make any necessary revisions to the plan sheet.
- b. Place a "cloud" around the revised portion of the drawing.
- c. Place a numbered triangle next to the "cloud".
- d. Fill-in the revision block on the plan sheet:
 - **NO.** This number refers to the numbered triangle in *Step 1a*.
 - **DATE** Enter the date that the revision was made.
 - **DRW** Enter the initials of the person who drew the revision.
 - **CKD** Enter the initials of the person who checked the revision.
 - **APP** Enter the initials of the person who approved the revision.
 - **REVISION** Enter a description of the revision.
- e. Renumber the revised plan sheet:
 - For the first revision of the plan sheet add "-R1", for the second revision add "-R2", etc. (i.e. for plan sheet number 2 the name of the revised sheet will be 2-R1, 2-R2, etc.).
- f. Sign the revised plan sheet:

Note: If it is an *electrical* plan the *master electrician* must sign the sheet; if it is a *signal* plan the *signal engineer* must sign the sheet.

 - A *licensed professional engineer* must sign the revised plan sheet.
- g. Mark the original plan sheet with the words "NOT VALID" and include this sheet with the plan set.

2. Revise the Title sheet:

- a. Fill-in the revision block on the original Title sheet:
 - **SHEET NUMBER** Enter the number(s) of the revised sheet(s).
 - **APPROVED** A licensed professional engineer must initial the revision.

Note: If the licensed professional engineer determines that the scope of the changes is significant, then the Public Works division directors are required to initial the revision:

 - For *Traffic & Parking Services* plans, the *T&PS* director must initial first.
 - For *Transportation Engineering & Design* plans, the *TE&D* director must initial first.
 - For *Transportation Planning & Programming* plans, the *TP&P* director must initial first.
 - For *Transportation Maintenance & Repair* plans, the *TM&R* director must initial first.
 - For *Surface Water & Sewers* plans, the *SW&S* director must initial first.
 - For *Water Treatment & Distribution* plans, the *WT&D* director must initial first.
 - The *Public Works* director must initial last.
 - **DATE** Enter the date that the revision was made.

Note: If the content (other than the sheet index or the revision block) of the original Title sheet is changed (i.e. changes to the size or scope of the project), proceed to *Step 2b*.
- b. Renumber the revised Title sheet:
 - For the first revision of the Title sheet add "-R1", for the second revision add "-R2", etc. (i.e. the

name of the revised Title sheet will be *1-R1, 1-R2*, etc.).

c. Sign the revised Title sheet:

- A licensed professional engineer must sign the revised Title sheet.
- The Public Works division directors must sign the revised Title sheet:
 - For *Surface Water & Sewers* plans, the *SW&S* director must sign first.
 - For *Transportation Maintenance & Repair* plans, the *TM&R* director must sign first.
 - For *Transportation Planning & Engineering* plans, the *TP&E* director must sign first.
 - For *Traffic & Parking Services* plans, the *T&PS* director must sign first.
 - For *Water Treatment & Distribution* plans, the *WT&D* director must sign first.
 - The *Public Works* director must sign last.

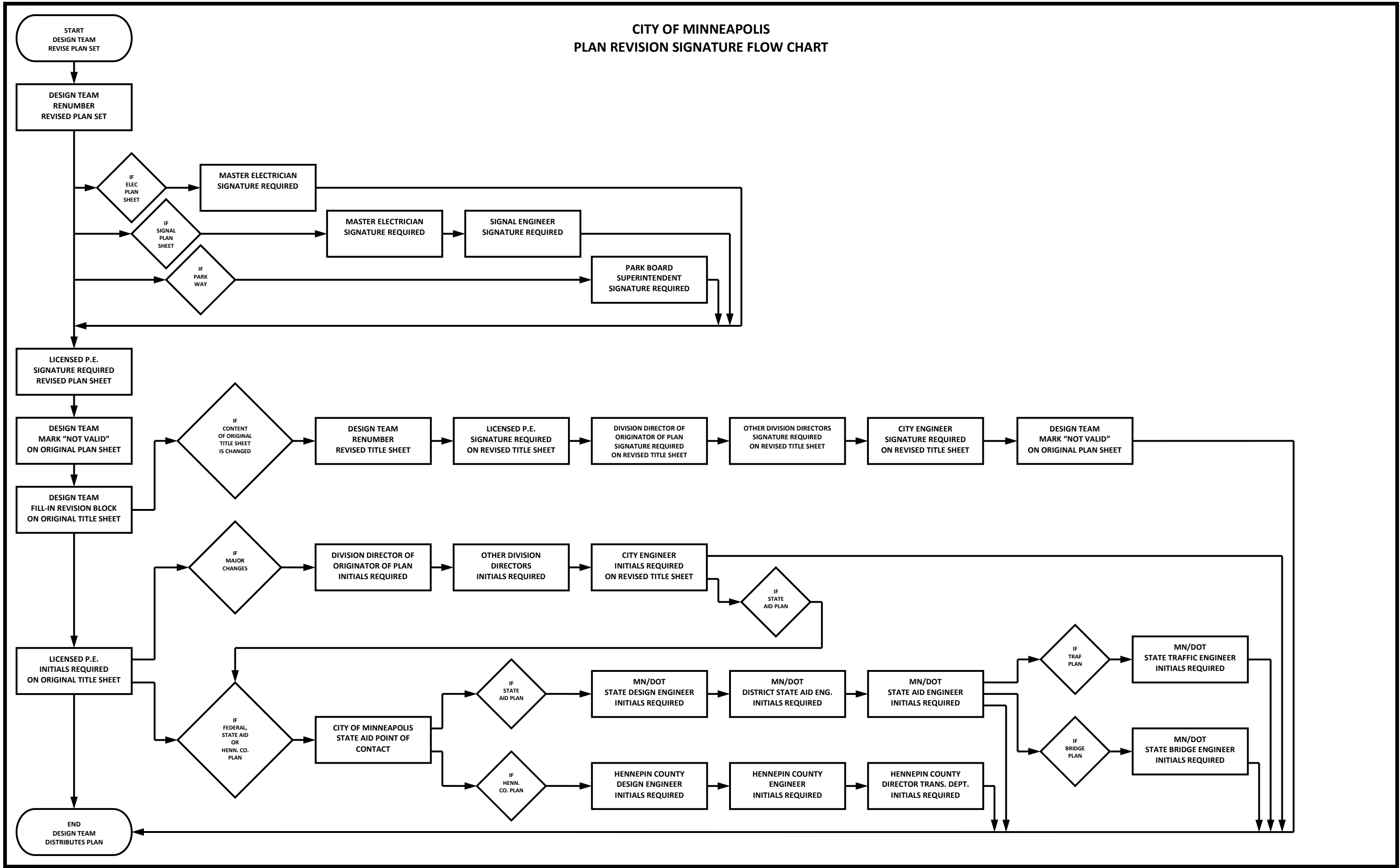
d. Mark the original Title sheet with the words “*NOT VALID*” and include this sheet with the plan set.

3. Distribute the revised plan set:

- a.** Deliver the revised plan set to the people listed in the *Distribution* column of the [Mpls Plan Review and Distribution Form.xls](#).

Note: If revisions are made after the construction purchase order has been signed, then the construction change order needs to be delivered as well.

CITY OF MINNEAPOLIS
PLAN REVISION SIGNATURE FLOW CHART



ISSUE NO. Procedure-0019

ISSUED BY: Greg Schroeder, Jim Cleary

SUBJECT: Plan Review and Signature Flow Charts

DEVELOPED BY: CADD Management Team

DATE: June 3, 2009

OVERVIEW

The following charts document the processes for plan reviews, signatures, and revision signatures:

- [Attachment Plan Review and Signature Flow Chart](#)
- [Attachment Plan Revision Signature Flow Chart](#)

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0020

ISSUED BY: Jim Cleary

SUBJECT: Electronic Plan Set Review Procedures

DEVELOPED BY: CADD Management Team

DATE: September 20, 2010

REVISION 0.5: March 23, 2020

BACKGROUND

To save time and reduce the cost of printing and delivering paper copies of plan sets to reviewers, electronic plan sets will now be delivered via e-mail.

WHAT TO DO

The following procedures are presented in 2 different formats:

An abbreviated version *for users already familiar with the procedure*:

Page 2 [Quick Steps for Sending Electronic Plan Sets for Review](#)

Page 3 [Quick Steps for Reviewing Plan Sets](#)

The complete procedure *with* screen shots:

Pages 4-6 [Detailed Steps for Sending Electronic Plan Sets for Review](#)

Pages 7-8 [Detailed Steps for Reviewing Electronic Plan Sets](#)

Quick Steps for Sending Electronic Plan Sets for Review:

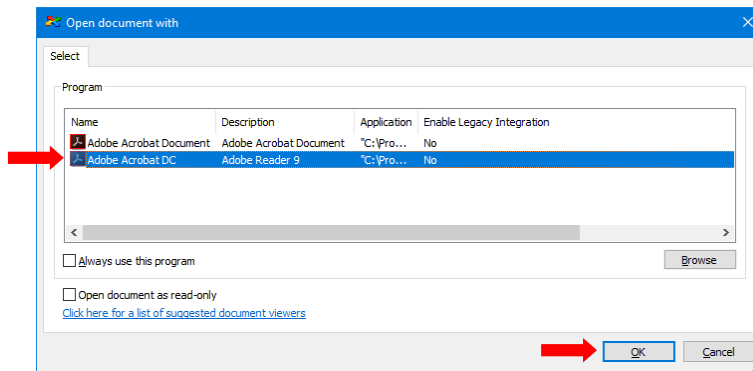
1. Reduce the size of the PDF file:
 - a. Open the PDF with *Adobe Acrobat DC*.
 - Right-click on the file and select **Open With....**
 - In the *Open Document with* dialog box highlight *Adobe Acrobat DC* and click **OK**.
 - In the PDF select **File > Reduce File Size**.
 - In the *Save As Reduced Size PDF* dialog box click on the folder that is automatically highlighted.
 - In the *Save As Reduced Size PDF* dialog box click **Save**.
Note: Do not change the location where the file is automatically saved to!
 - In the *Save As* dialog box click **Yes**.
 - b. Close the PDF file.
 - Right-click on the file and select **Check In**.
 - In the *Check In Document* dialog box enter a comment (e.g. *Reduced file size.*) in the *Enter Comment* field and click **OK**.
2. Send the Plan Set for review:
 - A. For **external reviewers** without ProjectWise access:
 - a. Right-click on the PDF in ProjectWise and select **Send To > Mail Recipient....**
 - b. In the *Untitled Message* enter the email addresses of the reviewers (see the [Mpls Plan Review and Distribution Form](#)).
 - c. For *Subject* enter the following (change the text in **bold** as required):
 - **00% Review Project 0000 Project Name**
 - d. For the body of the message enter the following (change the text in **bold** as required):
 - Please find attached for your review and comment the **00%** plan set for Project **0000 Project Name**. Please return comments to **Project Manager's E-mail Address** by **Date**. To request a hard copy of the plan set please respond to this email.
 - e. In the e-mail click **Send**.
 - B. For **internal reviewers** with ProjectWise access
 - a. Right-click on the PDF in ProjectWise and select **Send To > Mail Recipient As Link....**
 - b. In the *Untitled Message* enter the e-mail addresses of the reviewers (see the [Mpls Plan Review and Distribution Form](#)).
 - c. For *Subject* enter the following (change the text in **bold** as required):
 - **00% Review Project 0000 Project Name**
 - d. For the body of the message enter the following (change the text in **bold** as required):
 - Please find at the following link for your review and comment the **00%** plan set for Project **0000 Project Name**. Please return comments to **Project Manager's E-mail Address** by **Date**. To request a hard copy of the plan set please respond to this email.
 - e. In the e-mail click **Send**.

Quick Steps for Reviewing Electronic Plan Sets:

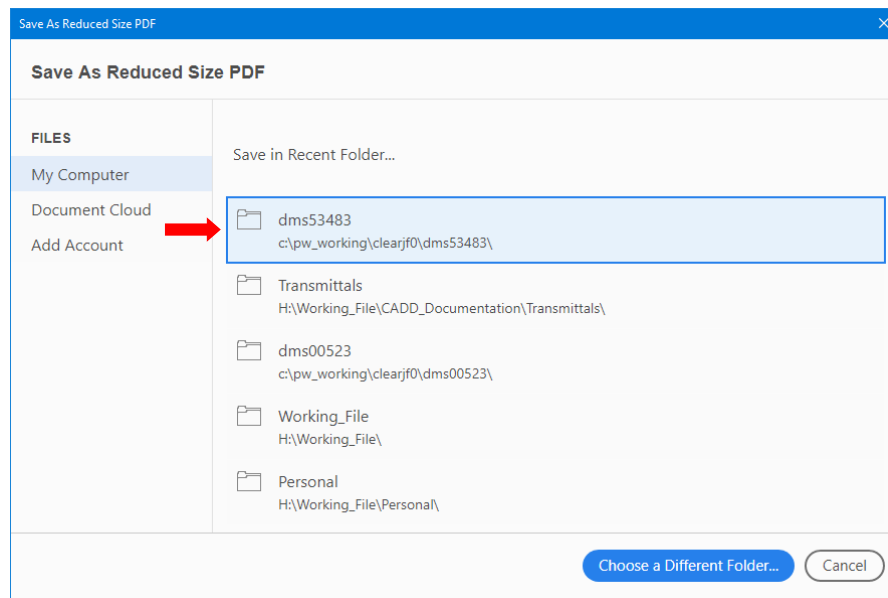
1. Review the Plan Set:
 - A. For **external reviewers** without ProjectWise access:
 - a. Open the e-mail and copy the attached PDF to your Desktop:
 - Right-click on the attachment and select **Copy**.
 - Navigate to your Desktop, right-click and select **Paste**.
 - b. Open the PDF with *Adobe Acrobat Professional*.
 - In the PDF select **Comment**.
 - c. Use the *Comment* tools to add comments and markup the plan sheets as necessary.
 - d. Save your changes and click the "X" in the upper right-hand corner.
 - e. Return the plan set to the project manager via email.
 - B. For **internal reviewers** with ProjectWise access
 - a. Open the e-mail and click on the link.
 - In the *Microsoft Word Security Notice* dialog box click **Yes**.
 - b. Open the PDF with *Adobe Acrobat Professional*.
 - In the PDF select **Comment**.
 - c. Use the *Comment* tools to add comments and markup the plan sheets as necessary.
 - d. Save your changes and click the "X" in the upper right-hand corner.
 - In the *Check In* dialog box click the *Comment* tab and enter a comment (e.g. **60% Review Cleary 2014_10_01**), then click **Check In**.

Detailed Steps for Sending Electronic Plan Sets for Review:**1. Reduce the size of the PDF file:****a. Open the PDF with Adobe Acrobat DC.**

- Right-click on the file and select **Open With....**
 - In the *Open Document with* dialog box highlight *Adobe Acrobat DC* and click **OK**.

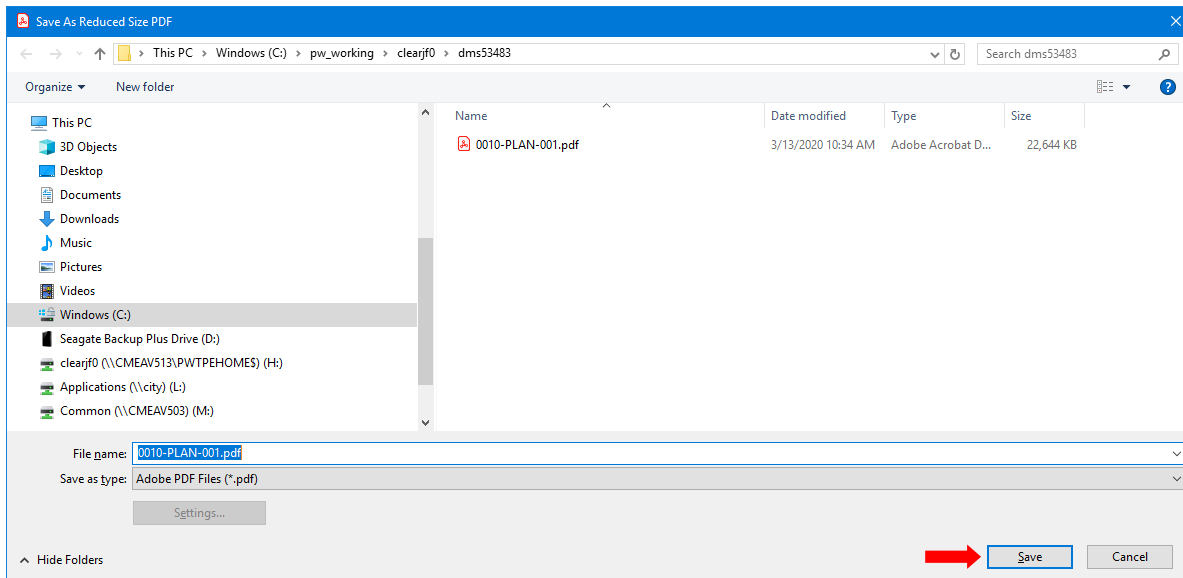


- In the PDF select **File > Reduce File Size**.
 - In the *Save As Reduced Size PDF* dialog box click on the folder that is automatically highlighted.

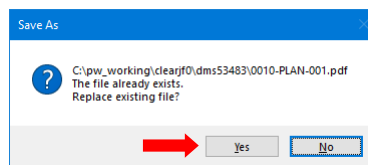


- In the *Save As Reduced Size PDF* dialog box click **Save**.

Note: Do not change the location where the file is automatically saved to!

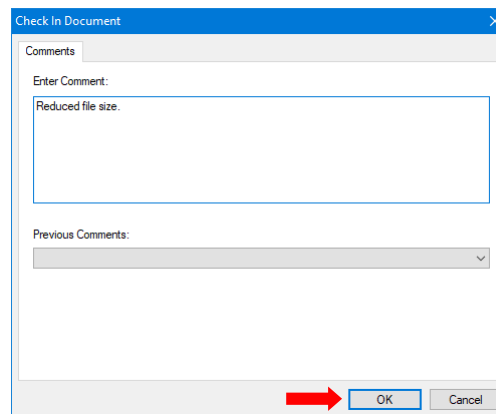


- In the *Save As* dialog box click **Yes**.



b. Close the PDF file.

- Right-click on the file and select **Check In**.
- In the *Check In Document* dialog box enter a comment (e.g. *Reduced file size.*) in the *Enter Comment* field and click **OK**.



2. Send the Plan Set for review:

A. For external reviewers without ProjectWise access:

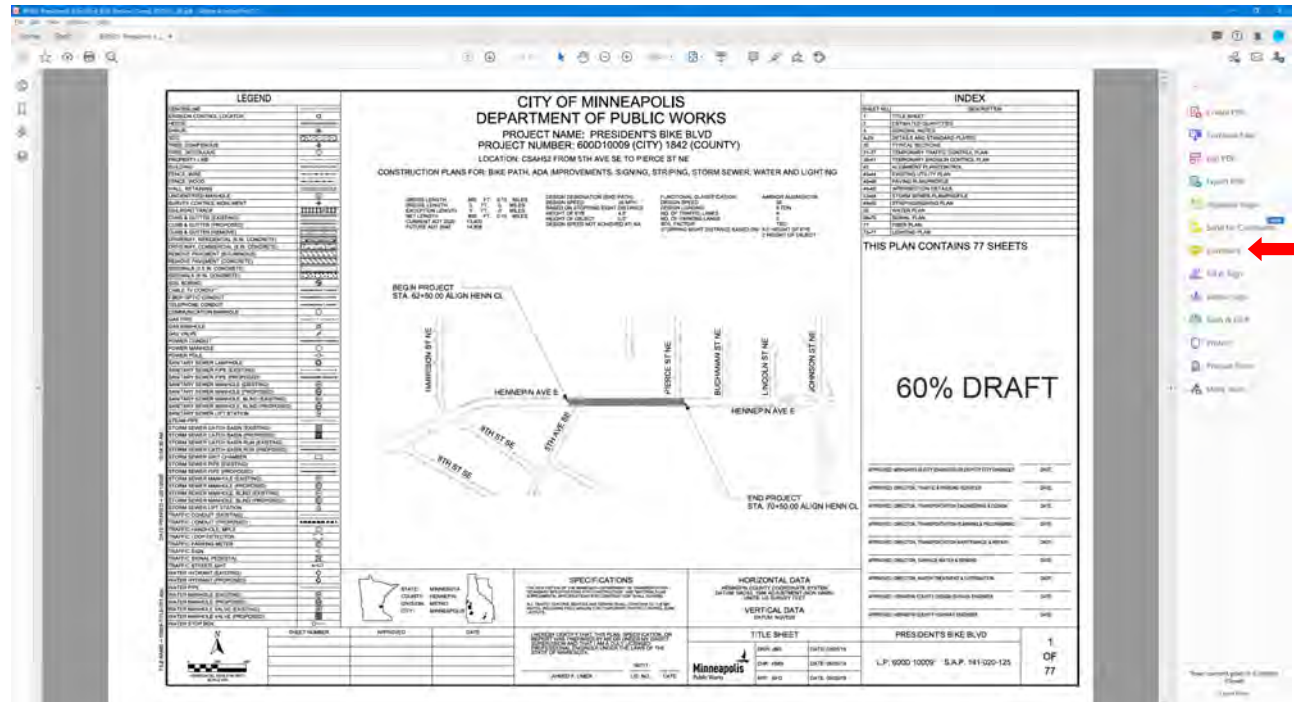
- Right-click on the PDF in ProjectWise and select **Send To > Mail Recipient....**
- In the *Untitled Message* enter the email addresses of the reviewers (see the [Mpls Plan Review and Distribution Form](#)).
- For *Subject* enter the following (change the text in **bold** as required):
 - **00% Review Project 0000 Project Name**
- For the body of the message enter the following (change the text in **bold** as required):

- Please find attached for your review and comment the **00%** plan set for Project **0000 Project Name**. Please return comments to **Project Manager's E-mail Address** by **Date**. To request a hard copy of the plan set please respond to this email.
- e. In the e-mail click **Send**.
- A. For **internal reviewers** with ProjectWise access
 - a. Right-click on the PDF in ProjectWise and select **Send To > Mail Recipient As Link....**
 - b. In the *Untitled Message* enter the e-mail addresses of the reviewers (see the [Mpls Plan Review and Distribution Form](#)).
 - c. For *Subject* enter the following (change the text in **bold** as required):
 - **00% Review Project 0000 Project Name**
 - d. For the body of the message enter the following (change the text in **bold** as required):
 - Please find at the following link for your review and comment the **00%** plan set for Project **0000 Project Name**. Please return comments to **Project Manager's E-mail Address** by **Date**. To request a hard copy of the plan set please respond to this email.
 - e. In the e-mail click **Send**.

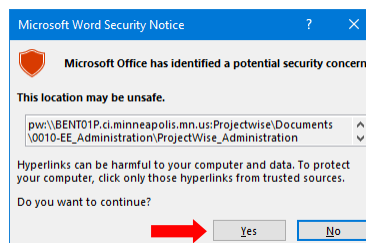
Detailed Steps for Reviewing Electronic Plan Sets:

1. Review the Plan Set:

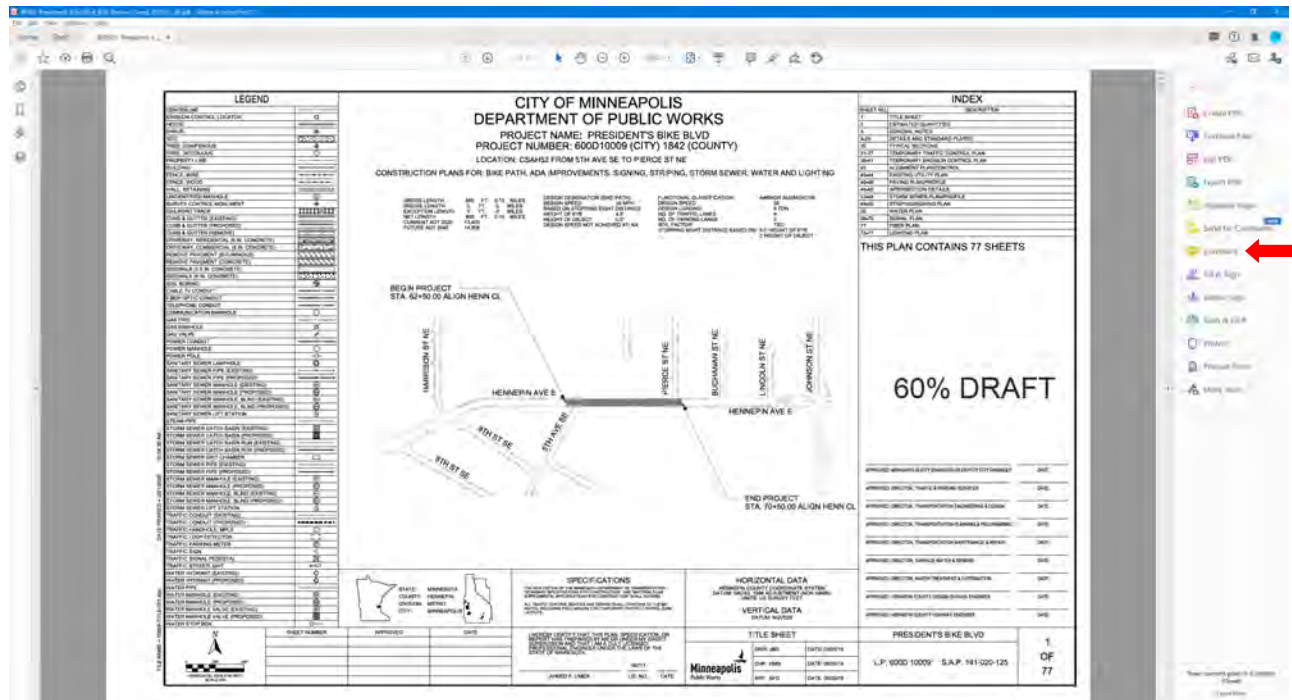
- A. For **external reviewers** without ProjectWise access:
 - a. Open the e-mail and copy the attached PDF to your Desktop:
 - Right-click on the attachment and select **Copy**.
 - Navigate to your Desktop, right-click and select **Paste**.
 - b. Open the PDF with *Adobe Acrobat Professional*.
 - In the PDF select **Comment**.



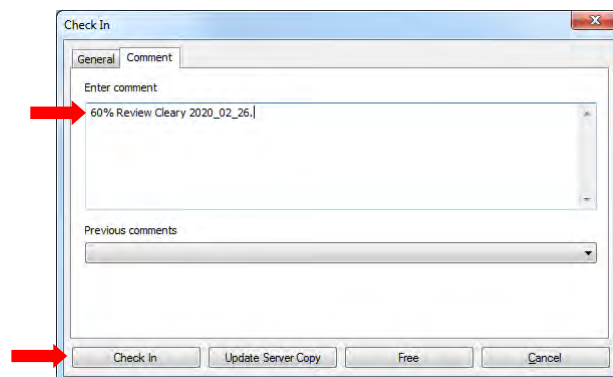
- c. Use the *Comment* tools to add comments and markup the plan sheets as necessary.
- d. Save your changes and click the "X" in the upper right-hand corner.
- e. Return the plan set to the project manager via email.
- B. For **internal reviewers** with ProjectWise access
 - a. Open the e-mail and click on the link.
 - In the *Microsoft Word Security Notice* dialog box click **Yes**.



- b. Open the PDF with *Adobe Acrobat Professional*.
 - In the PDF select **Comment**.



- c. Use the *Comment* tools to add comments and markup the plan sheets as necessary.
- d. Save your changes and click the "X" in the upper right-hand corner.
 - In the *Check In* dialog box click the *Comment* tab and enter a comment (e.g. **60% Review Cleary 2014_10_01**), then click **Check In**.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0021

ISSUED BY: Jim Cleary

SUBJECT: How to Open Adobe Files in ProjectWise
After Adobe has been Updated

DEVELOPED BY: CADD Management Team

DATE: January 24, 2012

BACKGROUND

On November 17, 2011, to comply with Lifecycle Management Guidelines, BIS installed Adobe *Reader 9* and *Adobe Acrobat X Pro*. For this reason, the first time you try to open a PDF in *ProjectWise* an error will occur. To solve this problem please follow one of the following procedures:

Procedure 1: To always open a PDF with *Adobe Reader 9* in *ProjectWise*

What to do:

1. Open *ProjectWise*.
2. Right-click on a PDF file (you must have write permission to this file) and select **Open With....**
3. In the *Open Document With* dialog box highlight **Adobe Reader 9**.
4. Check the **Always use this program** box and click **OK**.
5. The next time you want to open a PDF double-click on it. All PDFs will now open with **Adobe Reader 9**.

If you want to open a PDF with **Adobe Acrobat X Pro** in *ProjectWise* do the following:

Note: *Adobe Acrobat* must already be installed on your computer.

1. Right-click on the file and select **Open With....**
2. In the *Open Document With* dialog box click **Browse**.
3. In the *Open Document With* dialog box highlight **Adobe Acrobat X Pro** and click **OK**.

Procedure 2: To always open a PDF with *Adobe Acrobat X Pro* in *ProjectWise*

What to do:

1. Open *ProjectWise*.
2. Right-click on a PDF file (you must have write permission to this file) and select **Open With....**
3. In the *Open Document With* dialog box highlight **Adobe Acrobat X Pro**.
4. Check the **Always use this program** box and click **OK**.
5. The next time you want to open a PDF double-click on it. All PDFs will now open with **Adobe Acrobat X Pro**.

If you want to open a PDF that is read-only in *ProjectWise* do the following:

1. Right-click on the file and select **View**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. PROCEDURE-0022
ISSUED BY: Jim Cleary
SUBJECT: MicroStation Print Organizer

DEVELOPED BY: CADD Management Team
DATE: December 10, 2012
REVISION 0.8: December 17, 2021

BACKGROUND

Print Organizer is a utility for printing and reprinting sets of files, models, and Project Explorer links stored in a print set file. The individual files and models within a print set file are referred to as print definitions and can be hierarchically grouped in folders and sub-folders.

Print Organizer should be used instead of InterPlot Organizer for printing plan sheets. Print Organizer should provide improved performance for plotting plan sets because it doesn't run on the ProjectWise server (as does InterPlot Organizer). InterPlot Organizer will remain available for printing if necessary.

WHAT TO DO

The following procedures are presented in 2 different formats:

An abbreviated version *for users already familiar with the procedure:*

Page 2-3 [Quick Steps for Using Print Organizer](#)

The complete procedure *with* screen shots:

Pages 4-13 [Detailed Steps for Using Print Organizer](#)

Quick Steps for Using Print Organizer:**1. Create the *Print Set*:****Note 1:** There shall be one *print set* file for each project.**Note 2:** The *print set* file shall reside in the SHT folder (the same folder as the plan sheet files that you want to print).**a.** Open a MicroStation file and select **File > Print Organizer**.**b.** In the *Untitled.pset – Print Organizer* dialog box select **File > Save As....**

- In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.
- In the *Advanced Document Creation Wizard* dialog box click **Next**.
- In the *Advanced Document Creation Wizard* dialog box under *Select Target Folder* highlight the SHT folder for your project and click **Next**.
- In the *Advanced Document Creation Wizard* dialog box under *Define Document Code* do the following:
 - For *TITLE SHEET PROJECT NO.* click the dropdown arrow and select your project number (e.g. **0010**) from the list.
 - For *CM_DOCTYP* click the dropdown arrow and select **PSET** from the list.
 - For *CM_SEQNUM* click **Generate** then click **Next**.
- In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.
- In the *Advanced Document Creation Wizard* dialog box under *Document Properties*, for *Description for the new document* enter **Print Set** and click **Next**.
- In the *Advanced Document Creation Wizard* dialog box under *Create a Document* click **Next**.
- In the *Advanced Document Creation Wizard* dialog box under *Completing the Advanced Document Creation Wizard* click **Finish**.

2. Add files to the print set:**Note:** Files can also be added by dragging and dropping files into the *Print Set* in *Print Organizer*.**a.** In the *Print Organizer* dialog box select **File > Add Files to Set....**

- In the *Create Print Definitions* dialog box click **Add**.
- In the *Select Files* dialog box navigate to and select the file(s) you want to add, click **Add**, then click **OK**.
- In the *Create Print Definitions* dialog box for *Print style name* click the **magnifying glass**.
- In the *Apply Print Style* dialog box highlight one of the available print styles and click **OK**.

Note 1: For color plan sets use one of the following print styles:

- **MplsColor_PDF** Use this print style to create PDFs
- **MplsColor_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsColor_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsColor_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsColor_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 2: For plan sets created by the SW&S division use one of the following print styles:

- **MplsSewer_PDF** Use this print style to create PDFs
- **MplsSewer_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsSewer_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsSewer_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsSewer_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 3: For plan sets created by the TE&D division use one of the following print styles:

- **MplsStreet_PDF** Use this print style to create PDFs
- **MplsStreet_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsStreet_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsStreet_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsStreet_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 4: For cross section plan sets created by the TE&D division use one of the following print styles:

- **MplsStreetXSEC_PDF** Use this print style to create PDFs
- **MplsStreetXSEC_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsStreetXSEC_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsStreetXSEC_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsStreetXSEC_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 5: For plan sets created by the T&PS division use one of the following print styles:

- **MplsTraffic_BOR-100-TRAF3530** Use this print style to print to the BOR-100-TRAF3530 printer
- **MplsTraffic_PDF** Use this print style to create PDFs

Note 6: For plan sets created by the WT&D division use one of the following print styles:

- **MplsWater_PDF** Use this print style to create PDFs

- In the *Apply Print Style* dialog box select one of the print styles and click **OK**:
- In the *Create Print Definitions* dialog box click **OK**.

Options:

- The print order of files in the print set can be changed by selecting the file and clicking one of the arrow icons in the *Print Organizer* dialog box (or by selecting **Edit > Move to Top, Move Up, Move Down, Move to Bottom**).
- Folders can be created to organize files into plan set sections by selecting the *Add Folder to Set* icon (or by selecting **File > Add Folder to Set**). Files can then be dragged and dropped into any folder.

3. Print the files in the print set:

- a.** In the *Print Organizer* dialog box right-click on the file(s) and select **File > Print...**

Note: If you want to print all the files in the print set you do not have to highlight the files.

- In the *Print* dialog box follow one of the procedures below:

Procedure for Printing to a Printer:

- In the *Print* dialog box do the following:
 - For *Submit as*: select **Send to printer**.
 - For *Number of copies*: select the number of copies you want (e.g. **1, 2, 3**, etc.) from the dropdown list.
 - Click **OK**.

Procedure for Creating PDFs:

- In the *Print* dialog box do the following:
 - For *Submit as*: select **Single print job**.
 - For *Destination* click the **magnifying glass**.
 - In the *Save Output File* dialog box highlight the *SHT* folder for your project and click **OK**.
 - In the *Print* dialog box click **OK**.
 - In the *Check In* dialog box click the **Comment** tab, enter an appropriate comment and click **Check In**.

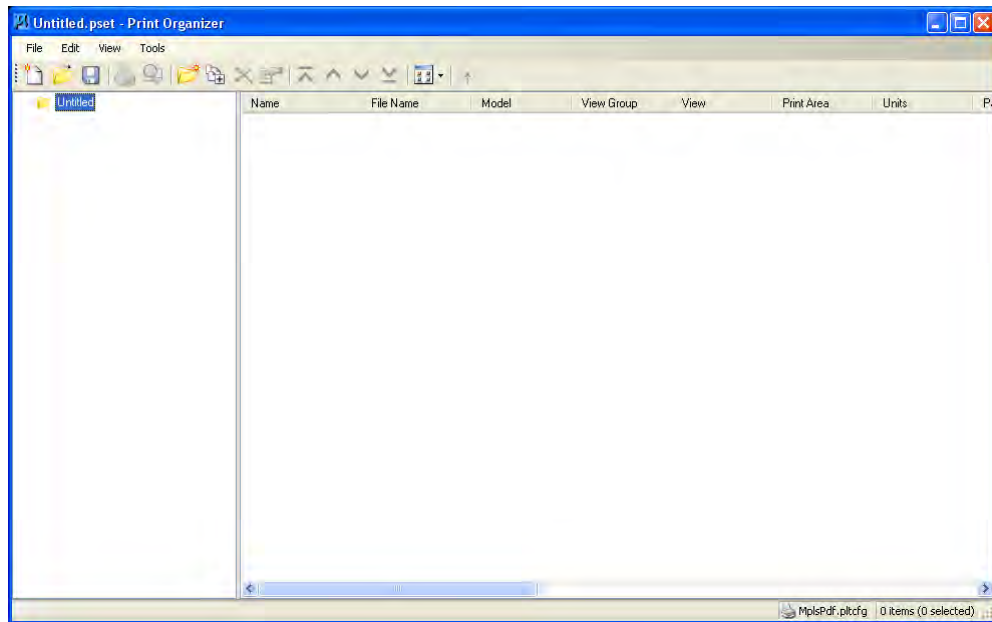
Detailed Steps for Using Print Organizer:

1. Create the *Print Set*:

Note 1: There shall be ***one*** *print set* file for each project.

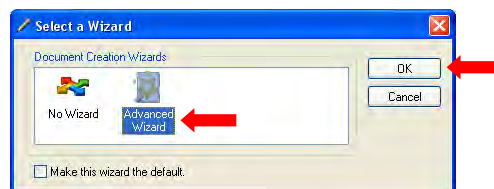
Note 2: The *print set* file shall reside in the ***SHT*** folder (the same folder as the plan sheet files that you want to print).

- a. Open a MicroStation file and select **File > Print Organizer**.

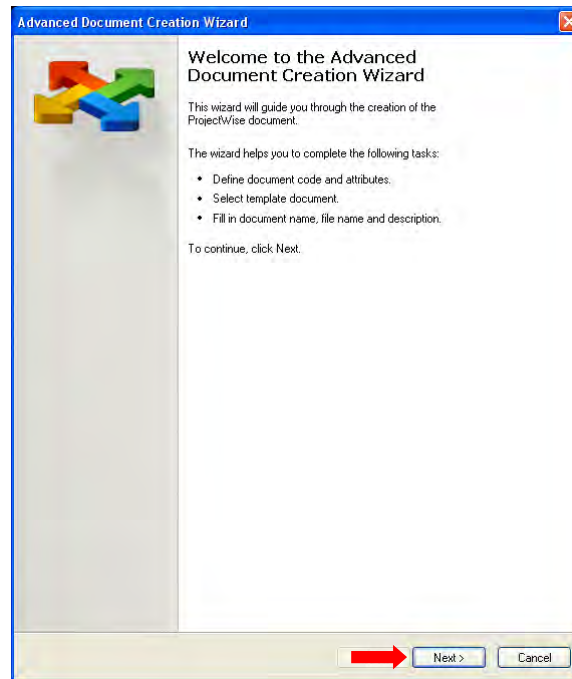


- b. In the *Untitled.pset – Print Organizer* dialog box select **File > Save As....**

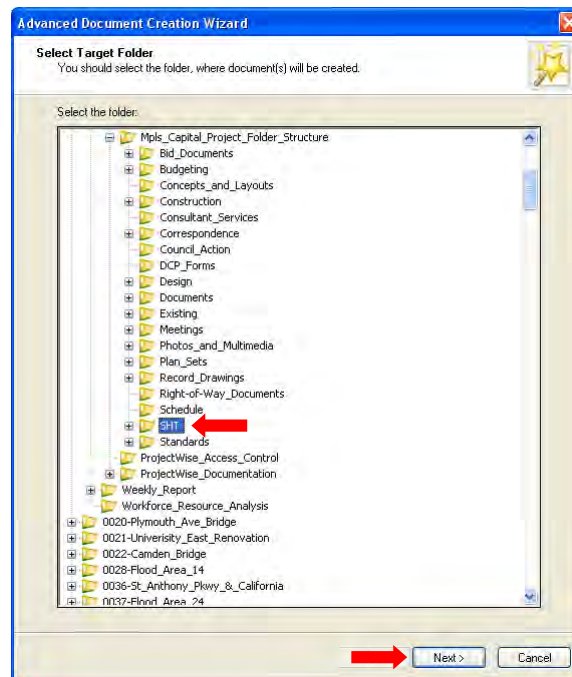
- In the *Select a Wizard* dialog box highlight **Advanced Wizard** and click **OK**.



- In the *Advanced Document Creation Wizard* dialog box click **Next**.



- In the *Advanced Document Creation Wizard* dialog box under *Select Target Folder* highlight the *SHT* folder for your project and click **Next**.



- In the *Advanced Document Creation Wizard* dialog box under *Define Document Code* do the following:
 - For *TITLE SHEET PROJECT NO.* click the dropdown arrow and select your project number (e.g. **0010**) from the list.
 - For *CM_DOCTYP* click the dropdown arrow and select **PSET** from the list.
 - For *CM_SEQNUM* click **Generate** then click **Next**.

Advanced Document Creation Wizard

Define Document Code
You should define (generate) unique document code.

Document Unique Identifier

TITLE SHEET PROJECT NO. 0010

CM_DOCTYP PSET

CM_SEQNUM 001

Generate

Next available

0010-PSET-001

☐ Show Advanced Generate Options

Next > Cancel

- In the *Advanced Document Creation Wizard* dialog box under *Define Document Attributes* click **Next**.

Advanced Document Creation Wizard

Define Document Attributes
You should define environment specific document attributes.

TITLE SHEET PROJECT OWNER
CITY OF MINNEAPOLIS

TITLE SHEET SECONDARY PROJECT OWNER

TITLE SHEET/PLAN SHEET PROJECT NAME

TITLE SHEET PROJECT NO.
0010

NORTH SOUTH
WEST EAST

TITLE SHEET/PLAN SHEET TITLE

DRAWN DATE
CHECKED CHK DATE
APPROVED APP DATE
PE NAME PE DATE
PE NUMBER

PROJECT NO. 1 PROJECT NO. 2
PROJECT NO. 3 PROJECT NO. 4
PROJECT NO. 5 PROJECT NO. 6

SHEET REV OF SHT

Next > Cancel

- In the *Advanced Document Creation Wizard* dialog box under *Document Properties*, for *Description for the new document* enter **Print Set** and click **Next**.

Advanced Document Creation Wizard

Document Properties
Define required document properties - the name and the file name.
Optionally, you can also define document description and version string.

New document name:
0010-PSET-001

Description for the new document:
Print Set

New document file name:
0010-PSET-001.pset

Version:

Application:
<none>

Next > Cancel

- In the *Advanced Document Creation Wizard* dialog box under *Create a Document* click **Next**.

Advanced Document Creation Wizard

Create a Document
Verify entered document properties
and complete creation process by clicking Next.

Wizard will create a new document with the following specifications:

Target Folder :
+ Name : SHT
+ Description : Sheet_Files

Template :
+ Name : Untitled.pset
+ Description : External template (DS file)
+ Folder Name : C:\DOCUME~1\clear0\LOCALS~1\Temp\31B.tmp
+ Folder Description : DS Path

Document Attributes :
+ Label :
+ Value :
+ Label : TITLE SHEET/PLAN SHEET TITLE
+ Value : APPROVED
+ Label :
+ Value :
+ Label :
+ Value :
+ Label :
+ Value :
+ Label : 001
+ Value :
+ Label :
+ Value :
+ Label :
+ Value :
+ Label :
+ Value :

☐ Launch associated application:
☐ Apply selected options to succeeding documents.

Next > Cancel

- In the *Advanced Document Creation Wizard* dialog box under *Completing the Advanced Document Creation Wizard* click **Finish**.

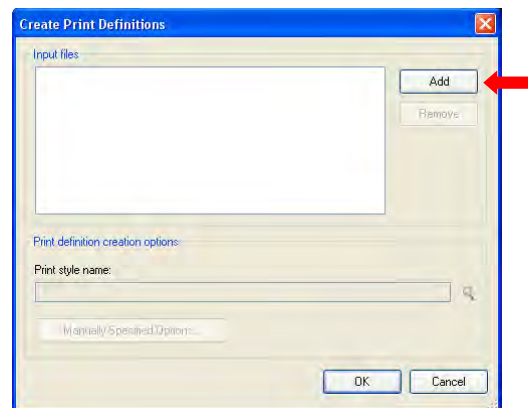


2. Add files to the print set:

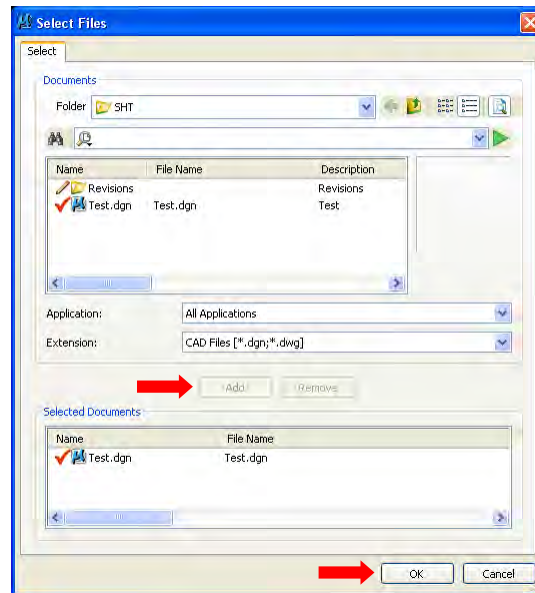
Note: Files can also be added by dragging and dropping files into the *Print Set* in *Print Organizer*.

a. In the *Print Organizer* dialog box select **File > Add Files to Set....**

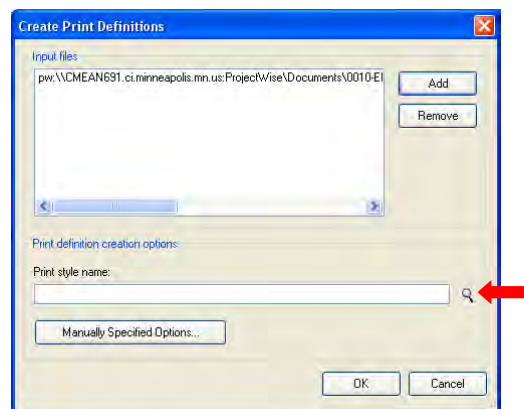
- In the *Create Print Definitions* dialog box click **Add**.



- In the *Select Files* dialog box navigate to and select the file(s) you want to add, click **Add**, then click **OK**.



- In the *Create Print Definitions* dialog box for *Print style name* click the **magnifying glass**.



- In the *Apply Print Style* dialog box highlight one of the available print styles and click **OK**.

Note 1: For color plan sets use one of the following print styles:

- **MplsColor_PDF** Use this print style to create PDFs
- **MplsColor_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsColor_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsColor_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsColor_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 2: For plan sets created by the SW&S division use one of the following print styles:

- **MplsSewer_PDF** Use this print style to create PDFs
- **MplsSewer_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsSewer_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsSewer_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsSewer_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 3: For plan sets created by the TE&D division use one of the following print styles:

- **MplsStreet_PDF** Use this print style to create PDFs
- **MplsStreet_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsStreet_PSB400_North2** Use this print style to print to the PSB400_North2 printer

- **MplsStreet_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsStreet_PSB400_South2** Use this print style to print to the PSB400_South2 printer

Note 4: For cross section plan sets created by the TE&D division use one of the following print styles:

- **MplsStreetXSEC_PDF** Use this print style to create PDFs
- **MplsStreetXSEC_PSB400_North1** Use this print style to print to the PSB400_North1 printer
- **MplsStreetXSEC_PSB400_North2** Use this print style to print to the PSB400_North2 printer
- **MplsStreetXSEC_PSB400_South1** Use this print style to print to the PSB400_South1 printer
- **MplsStreetXSEC_PSB400_South2** Use this print style to print to the PSB400_South2 printer

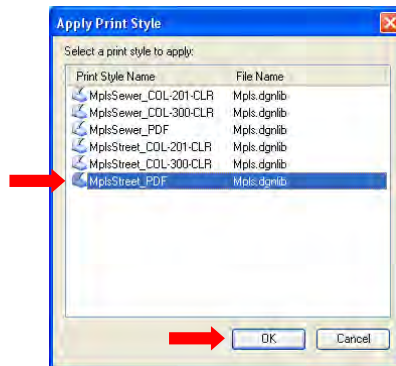
Note 5: For plan sets created by the T&PS division use one of the following print styles:

- **MplsTraffic_BOR-100-TRAF3530** Use this print style to print to the BOR-100-TRAF3530 printer
- **MplsTraffic_PDF** Use this print style to create PDFs

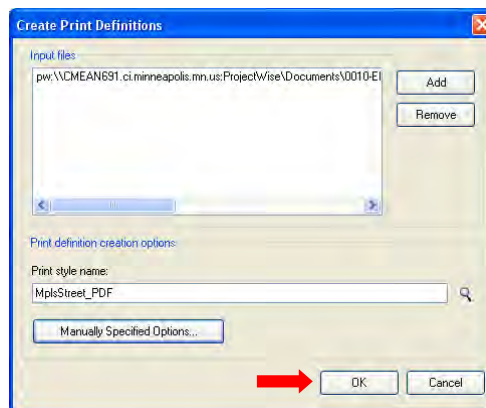
Note 6: For plan sets created by the WT&D division use one of the following print styles:

- **MplsWater_PDF** Use this print style to create PDFs

- In the *Apply Print Style* dialog box select one of the print styles and click **OK**:



- In the *Create Print Definitions* dialog box click **OK**.



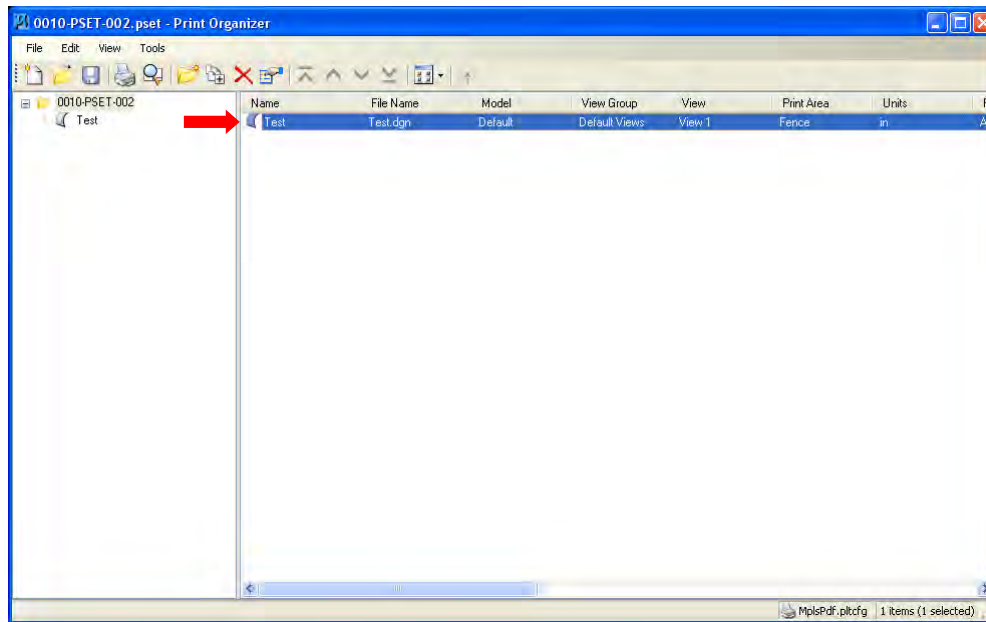
Options:

- The print order of files in the print set can be changed by selecting the file and clicking one of the arrow icons in the *Print Organizer* dialog box (or by selecting **Edit > Move to Top, Move Up, Move Down, Move to Bottom**).
- Folders can be created to organize files into plan set sections by selecting the *Add Folder to Set* icon (or by selecting **File > Add Folder to Set**). Files can then be dragged and dropped into any folder.

3. Print the files in the print set:

- a. In the *Print Organizer* dialog box right-click on the file(s) and select **File > Print...**

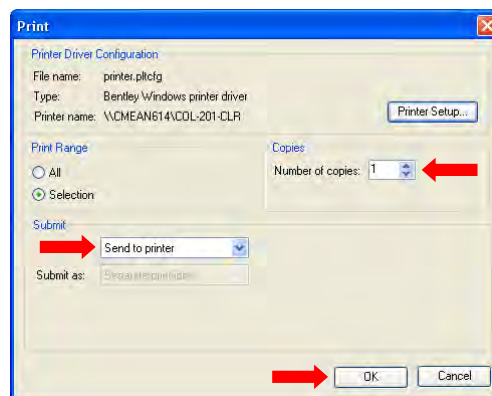
Note: If you want to print all the files in the print set you do not have to highlight the files.



- In the *Print* dialog box follow one of the procedures below:

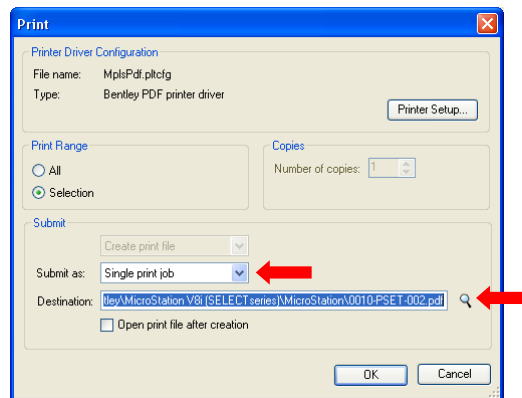
Procedure for Printing to a Printer:

- In the *Print* dialog box do the following:
 - For *Submit as*: select **Send to printer**.
 - For Number of *copies*: select the number of copies you want (e.g. **1, 2, 3**, etc.) from the dropdown list.
 - Click **OK**.

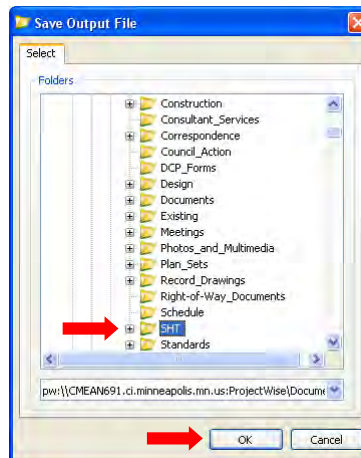


Procedure for Creating PDFs:

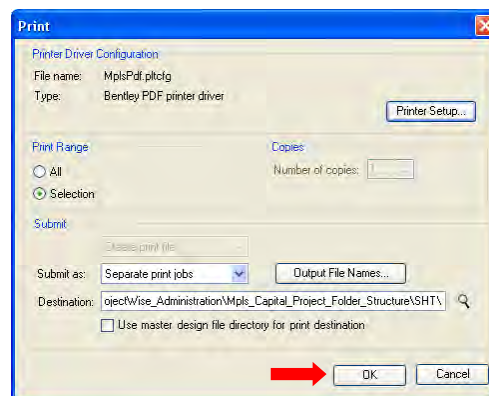
- In the *Print* dialog box do the following:
 - For *Submit as*: select **Single print job**.
 - For *Destination* click the **magnifying glass**.



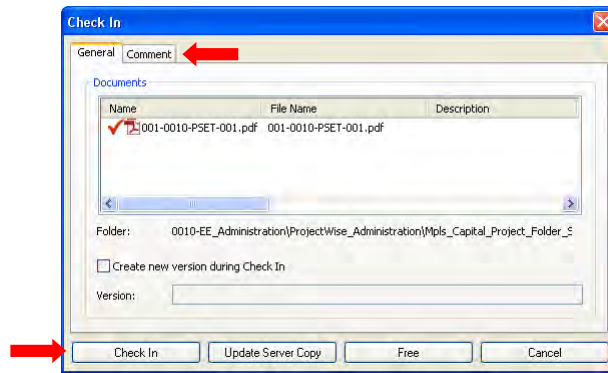
- In the *Save Output File* dialog box highlight the *SHT* folder for your project and click **OK**.



- In the *Print* dialog box click **OK**.



- In the *Check In* dialog box click the **Comment** tab, enter an appropriate comment and click **Check In**.



ISSUE NO. Procedure-0023
ISSUED BY: Jim Cleary
SUBJECT: Bentley Training

DEVELOPED BY: CADD Management Team
DATE: May 7, 2015
REVISION 0.1: December 31, 2015

BACKGROUND

- The Bentley LEARNserver is Bentley Institute's central access point for managing your skills improvement and product training online. Here you can find and register for live training, view on-demand courses, and enroll in learning paths for your products, solutions, or role. You also can access additional training resources and review your learning history with Bentley.
- All training courses are presented in learning paths. Learning paths provide the recommended sequences of courses for your products, solutions, or role to optimize your training experience. Use the learning paths to find live training and on-demand training, view course descriptions, and register.

WHAT TO DO

The following procedures are presented in 2 different formats:

An abbreviated version *for users already familiar with the procedure:*

Page 2 [Quick Steps for Accessing Bentley On-Demand Courses](#)

The complete procedure *with* screen shots:

Pages 3-11 [Detailed Steps for Accessing Bentley On-Demand Courses](#)

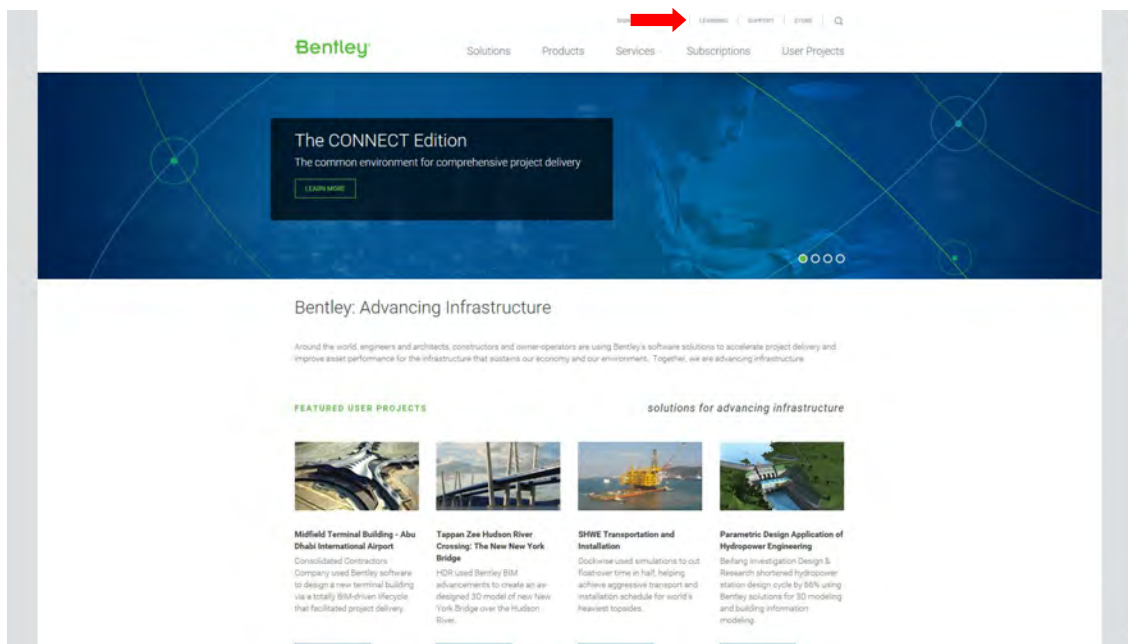
Quick Steps for Accessing Bentley On-Demand Courses:

1. Select **Start** > **Internet Explorer** > <http://www.bentley.com/en-US/>.
2. Select **Learning**.
3. Under *Delivering Continuous Learning > For Users* click **LEARN MORE**.
4. Under *Training Programs and Communities > Visit the LEARNserver* click **SIGN IN**.
5. Sign in with your City email and Bentley password (if you don't have an account click **Register**, enter the required information, and click **Submit**).
6. Click **Find Training**.
7. Under **Product Line** select the Bentley product you are interested in (i.e. *InRoads*).
8. In the list of *Learning Paths* (i.e. *InRoads for Everybody*) click **Courses**.
 - a. Click the first course you would like to take (i.e. *Introduction to InRoads*).

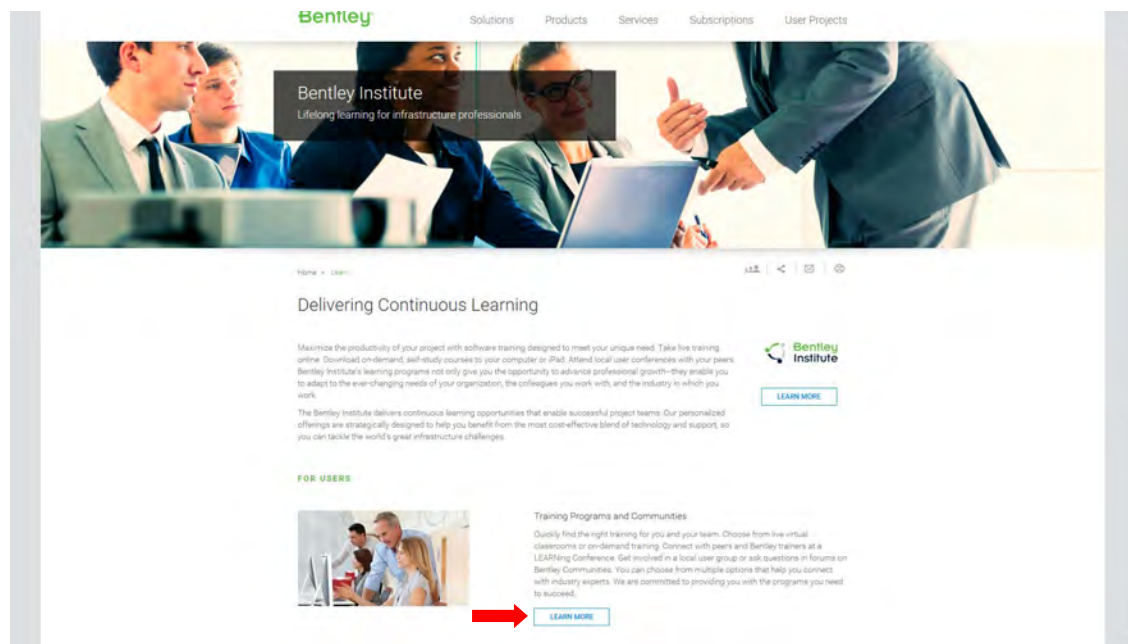
Note: The courses are listed in the order that you should take them.
9. In the *InRoads for Everybody Learning Path*, under *On-Demand*, click **Launch**.
 - a. If you receive the following message, "Internet Explorer blocked a pop-up from learn.bentley.com" click **Allow once**.
 - In the pop-up dialog box click the radio button next to **Always allow pop-ups from lms.bentley.com**, then click **Done**.
 - b. In the window that pops-up click **Before you Begin**.
 - Follow the instructions for *How to Install the Companion Dataset*:
 - **Step 1:** Click the **Download** button in the upper left corner of this page.
 - **Step 2:** Save the ZIP file to a temporary folder on your computer.
 - In the *Windows Internet Explorer* dialog box click **Save as**.
 - In the *Save As* window navigate to a folder on your Desktop (i.e. **Bentley_Training**) and click **Save**.
 - **Step 3:** Unzip the ZIP file to the temporary folder. The ZIP File contains two files, a ZIP file with the Imperial unit exercise files and a ZIP file with the metric unit exercise files.
 - In the folder on your Desktop where you saved the ZIP file (i.e. **Bentley_Training**), right-click on the file and select **Extract All...**
 - In the *Extract Compressed (Zipped) Folders* dialog box click **Extract**.
 - **Step 4:** Choose the **Imperial** dataset and unzip the ZIP file to the folder where you want to work the exercises.
 - Right-click on the file (i.e. **Introduction_to_InRoads_Imperial_Dataset.zip**) and select **Extract All...**
 - In the *Extract Compressed (Zipped) Folders* dialog box click **Extract**.
 - c. In the window that pops-up click the title of the course guide (i.e. **Introduction to InRoads**).
 - Read the guide and follow the instructions for the course.

Detailed Steps for Accessing Bentley On-Demand Courses:

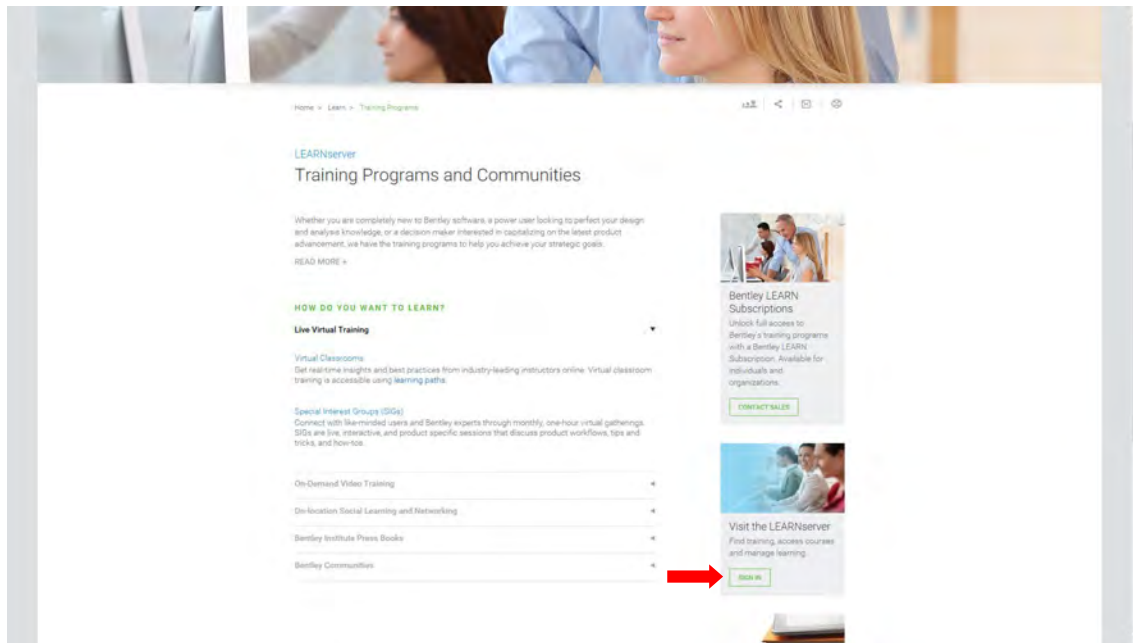
1. Select **Start > Internet Explorer** > <http://www.bentley.com/en-US/>.
2. Select **Learning**.



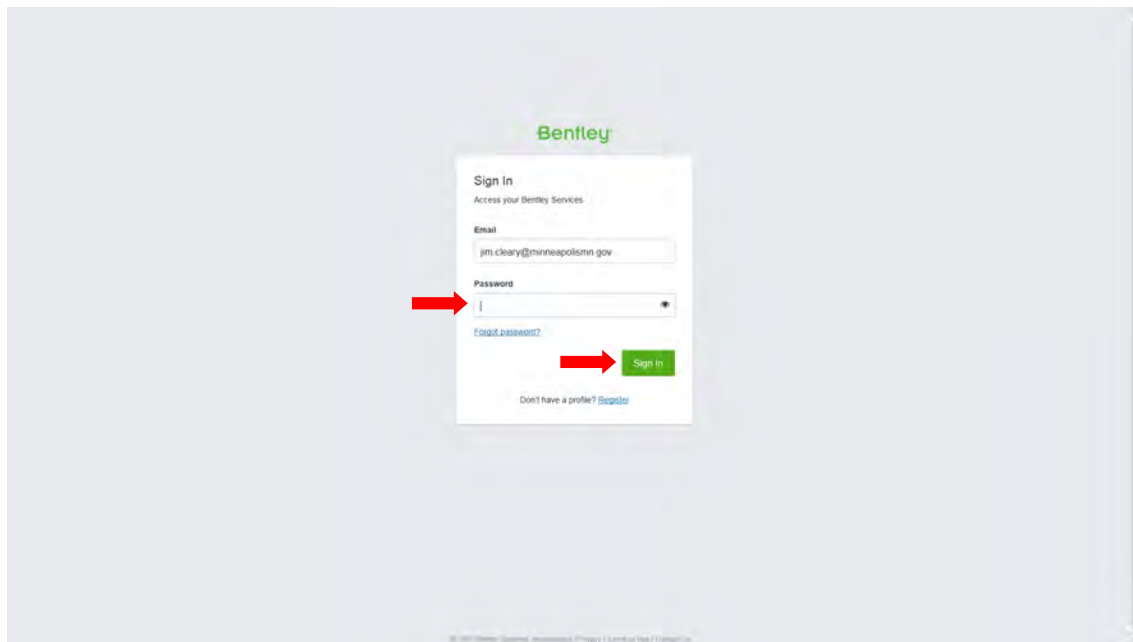
3. Under *Delivering Continuous Learning > For Users* click **LEARN MORE**.



4. Under *Training Programs and Communities* > Visit the *LEARNServer* click **SIGN IN**.



5. Sign in with your City email and Bentley password (if you don't have an account click **Register**, enter the required information, and click **Submit**).



6. Click **Find Training**.

LEARNserver
Find Training | Access Courses | Manage Learning

TAKE TOUR »

Find Training

Welcome!

The Bentley LEARNserver is Bentley Institute's central access point for managing your skills improvement and product training online. Here you can find and register for live training, view on-demand courses, and enroll in learning paths for your products, solutions, or role. You also can access additional training resources and review your learning history with Bentley.

Since this is your first visit, would you like a brief overview of the Bentley LEARNserver?

Take Tour **Not Now** **Don't Show Again**

News

- [SIGs and Ask the Instructor courses for April 6 - 17, 2015](#)
- [SIGs and Ask the Instructor Courses for March 23-27, 2015](#)
- [SIGs and Ask the Instructor courses for March 16-20](#)
- [How to access the on-demand video content for a virtual class](#)
- [The Place to Be: The Thing to Do.](#)
- [2015 Bentley LEARNing Conferences](#)
- [7 Great Reasons to Attend Special Interest Groups!](#)
- [Lesson Learned: A Micro-resolution with Macro-results](#)
- [Forum Post: I have a problem to load client *.uct and *.pct file in Microstation v8i](#)
- [Forum Post: Dimension style symbol.](#)
- [Blog Post: One Month Reminder for 2nd Quarter 2015 TMC of STL meeting](#)
- [Forum Post: water hammer in Autopipe](#)

Training & Learning

- [About Bentley Institute](#)
- [My Learning History](#)
- [Learning Units](#)
- [eDocuments](#)
- [Training Subscription](#)
- [Reference Books](#)

Support & Services

- [SELECTservices](#)
- [Communities](#)
- [Downloads](#)
- [Support Tools](#)
- [Account Management](#)

Communities

- [Bentley Communities](#)
- [Bentley Institute Community](#)
- [Bentley User Group](#)

Social Media

- [Facebook](#)
- [Twitter](#)
- [YouTube](#)
- [LinkedIn](#)

7. Under **Product Line** select the Bentley product you are interested in (i.e. *InRoads*).

The screenshot shows the 'Find Training' page on the Bentley website. The 'Product Line' dropdown menu is open, displaying a list of products. 'InRoads' is highlighted with a red arrow. A secondary dropdown menu for 'InRoads' is also open, showing various product-specific options, with 'InRoads' selected and highlighted by another red arrow.

8. In the list of *Learning Paths* (i.e. *InRoads for Everybody*) click **Courses**.
- a. Click the first course you would like to take (i.e. *Introduction to InRoads*).
- Note:** The courses are listed in the order that you should take them.

The screenshot shows the 'InRoads for Everybody' course page. The 'Courses' tab is selected, showing a list of courses. 'Introduction to InRoads' is highlighted with a red arrow.

9. In the *InRoads for Everybody Learning Path*, under *On-Demand*, click **Launch**.

Home Find Training My Learning Paths

Home » Find Training » View Learning Path

InRoads for Everybody Learning Path

This course teaches the skills that ALL users need first, from the InRoads Administrator or SuperGuru to the CAD drafter looking to expand his role, to a manager who wants to check work. The scope is the "critical but safe" display, annotation, and evaluation tools that do not require write-access to the InRoads files (it's safe knowledge for all users in all organizations). These skills can be used to create contract documents (Profiles, Cross Sections, Reports, etc.) and a pre-requisite skill set required for designing in InRoads. This class is equally applicable to Roadway, Site, and Drainage realms.

Progress

0% Complete Time Spent 0

Add to My Learning Path Personalize

Courses

Information about courses in this learning path is provided below. Click on Find Training to view all of the available offerings and their descriptions. Select a language, type of training, and/or product generation on the left to narrow your results.

Language

English

Type

Live

On-Demand

Release Detail

Base Release

SELECTseries 2

Course Level

Fundamental

RESET FILTER

Introduction to InRoads

This course teaches the skills that ALL users need first, from the InRoads Administrator or SuperGuru to the CAD drafter looking to expand his role, to a manager who wants to check work. The scope is the "critical but safe" display, annotation, and evaluation tools that do not require write-access to the InRoads files (it's safe knowledge for all users in all organizations). These skills can be used to create contract documents (Profiles, Cross Sections, Reports, etc.) and a pre-requisite skill set required for designing in InRoads. This class is equally applicable to Roadway, Site, and Drainage realms. <Less

0% Complete

Find Training (2)

Live

| Title | Language | Generation | Release Detail | Duration | Status | Register |
|-------------------------|----------|------------|----------------|----------|--------|------------------|
| Introduction to InRoads | English | V8i | SELECTseries 2 | 12h | 📅 | View Schedule(0) |

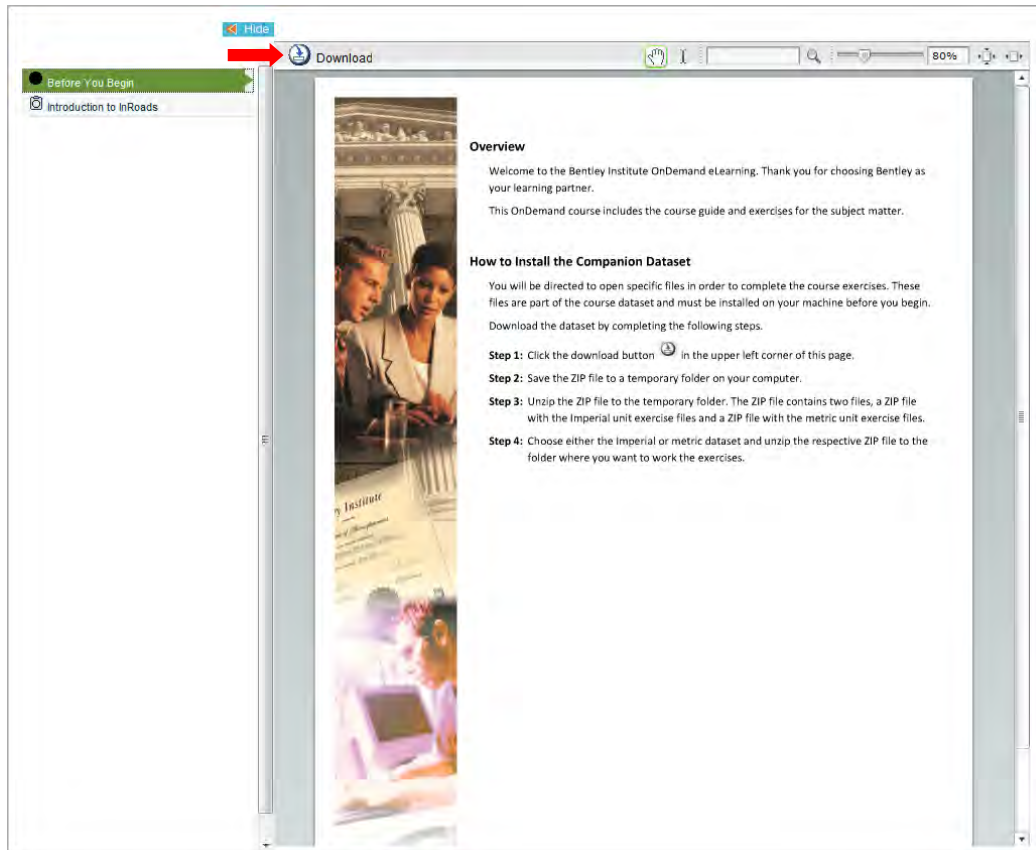
On-Demand

| Title | Language | Generation | Release Detail | Type | Duration | Status | Launch |
|-------------------------|----------|------------|----------------|----------|----------|--------|--------|
| Introduction to InRoads | English | V8i | SELECTseries 2 | Hands-on | 12h | 📅 | Launch |

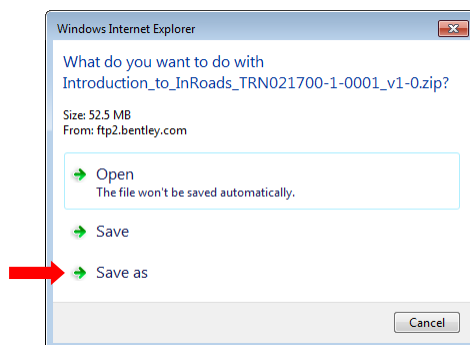
- a. If you receive the following message, "Internet Explorer blocked a pop-up from learn.bentley.com" click **Allow once**.
- In the pop-up dialog box click the radio button next to **Always allow pop-ups from lms.bentley.com**, then click **Done**.



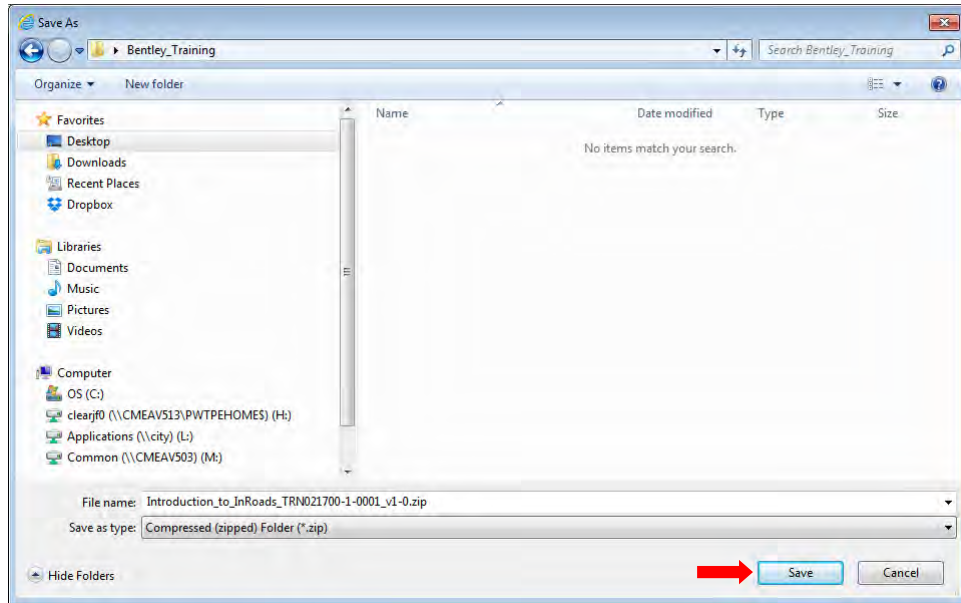
- b. In the window that pops-up click **Before you Begin**.
- Follow the instructions for *How to Install the Companion Dataset*:
 - **Step 1:** Click the **Download** button in the upper left corner of this page.



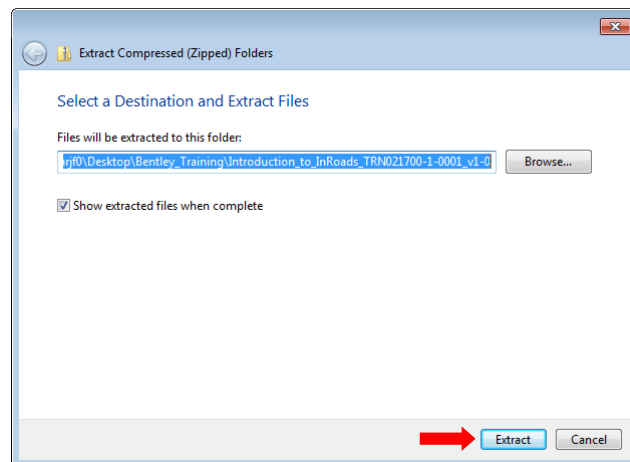
- **Step 2:** Save the ZIP file to a temporary folder on your computer.
 - In the *Windows Internet Explorer* dialog box click **Save as**.



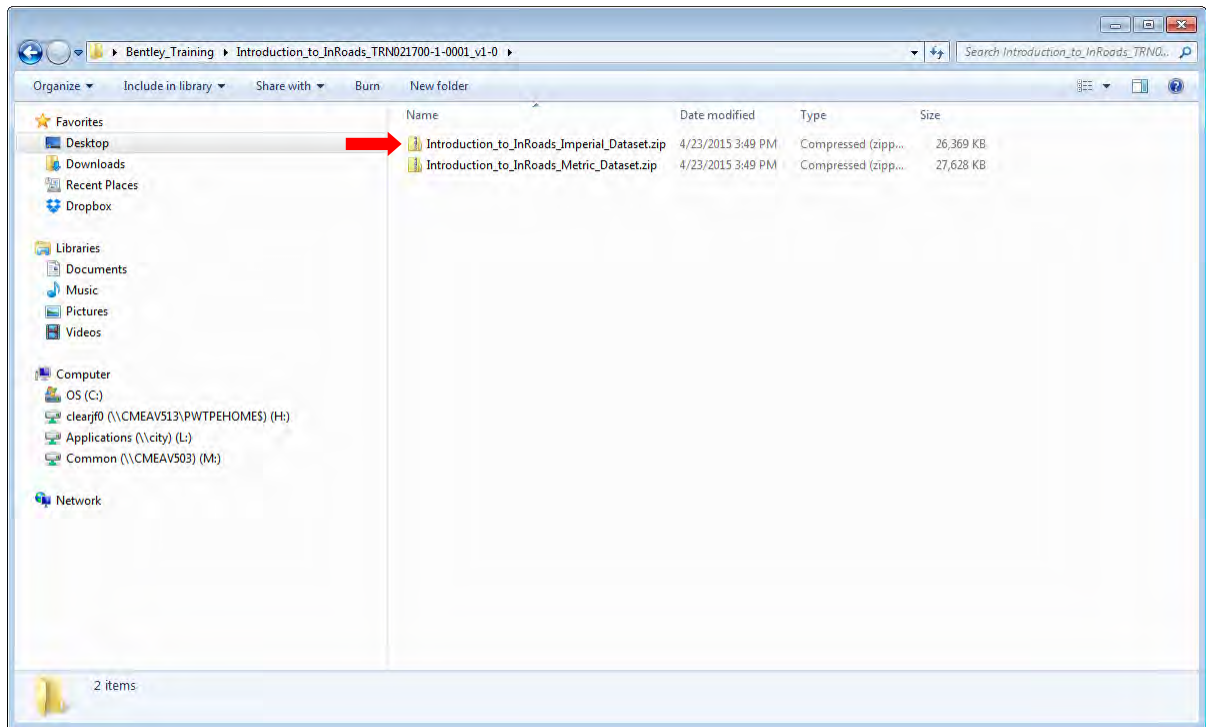
- In the **Save As** window navigate to a folder on your Desktop (i.e. **Bentley_Training**) and click **Save**.



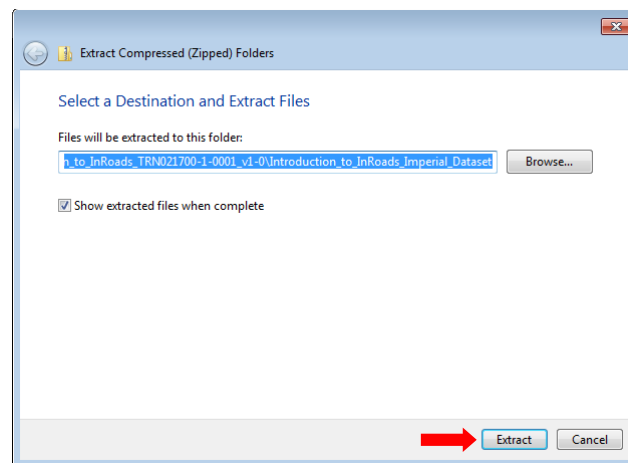
- **Step 3:** Unzip the ZIP file to the temporary folder. The ZIP File contains two files, a ZIP file with the Imperial unit exercise files and a ZIP file with the metric unit exercise files.
 - In the folder on your Desktop where you saved the ZIP file (i.e. **Bentley_Training**), right-click on the file and select **Extract All...**
 - In the **Extract Compressed (Zipped) Folders** dialog box click **Extract**.



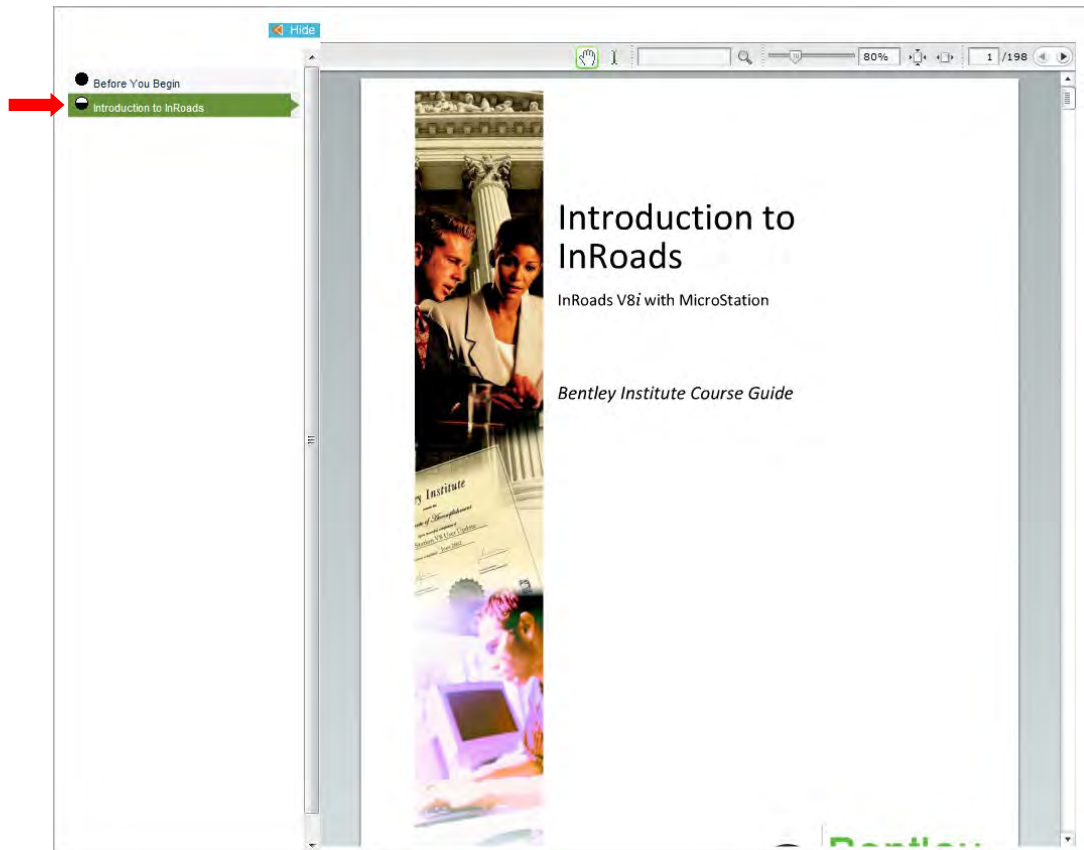
- **Step 4:** Choose the **Imperial** dataset and unzip the ZIP file to the folder where you want to work the exercises.
 - Right-click on the file (i.e. **Introduction_to_InRoads_Imperial_Dataset.zip**) and select **Extract All...**



- In the **Extract Compressed (Zipped) Folders** dialog box click **Extract**.



- c. In the window that pops-up click the title of the course guide (i.e. ***Introduction to InRoads***).
- Read the guide and follow the instructions for the course.



COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.

ISSUE NO. Procedure-0024
ISSUED BY: Juan Delgado
SUBJECT: SW&S Record Drawings

DEVELOPED BY: Surface Water & Sewers
DATE: December 31, 2020
REVISION 0.2: March 23, 2023

RESOURCES

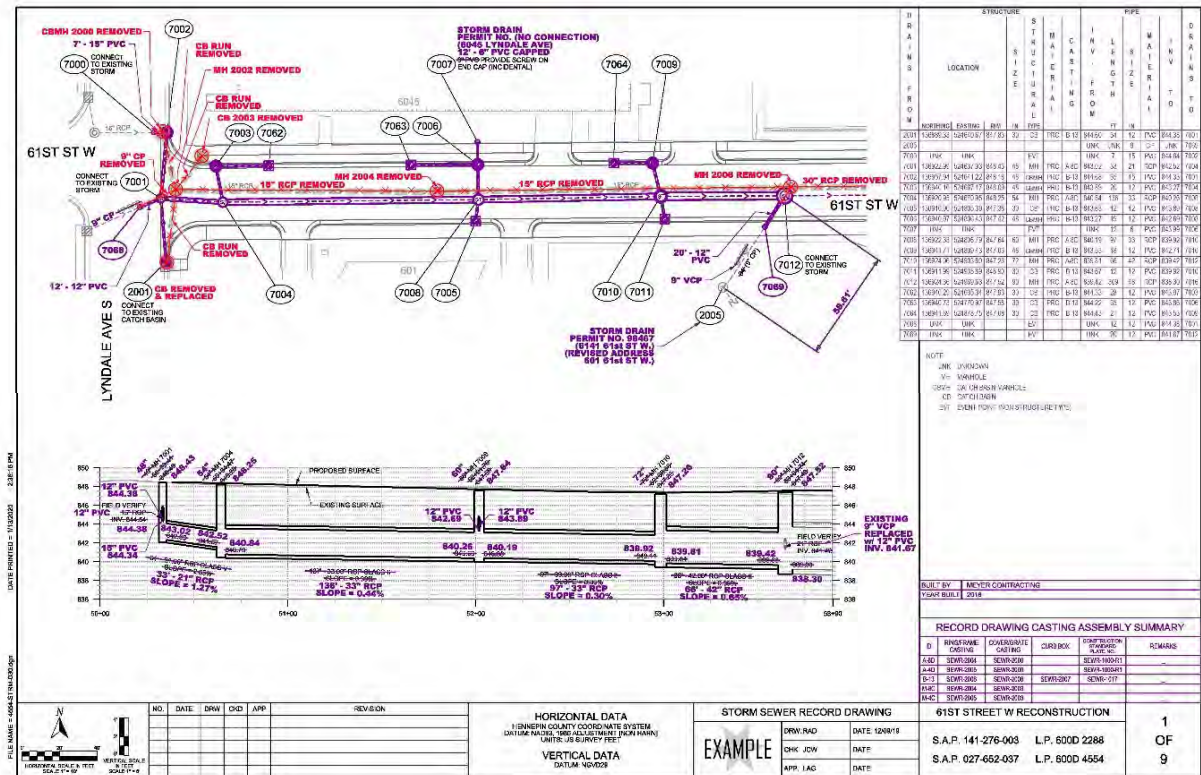
- **SW&S_Record_Drawing_Workbook.xlsx**
Excel workbook to be populated with information gathered during the survey.
- **SW&S_Record_Drawing_Sample_Sheet.pdf**
An example of what the record drawing should look like.
- **[Mpls PW CADD Standards Manual.pdf](#)**
This link takes you to the Public Works CADD Standards webpage where you can download CADD standards documentation, including the Mpls PW CADD Standards Manual. Along with other information the manual contains the following which will be useful for creating record drawings:
 - **Utility Callouts**
A range of numbers used to identify structures.
 - **Survey Feature Codes**
A list of feature codes and additional information about them.
 - **Survey Control Codes**
A list of control codes and their descriptions.
- **[Standard Specifications & Detail Plates – SEWR](#)**
This link takes you to the sewer section of the Standard Specifications & Detail Plates webpage.
- **[Mpls.fxI](#)**
This link takes you to the Public Works CADD Standards webpage where you can download Bentley InRoads files, including the Mpls feature code and attribute library. This file contains the survey feature codes and control codes used to collect data for the City of Minneapolis.

AS BUILT/RECORD DRAWINGS GUIDE

Having accurate information of the structures present in the field is crucial to serve the public and to conduct activities involving design, planning, operation, and maintenance. It is of great interest to us to update our data as soon as a project is completed. Being able to do this quickly is key for utility location activities.

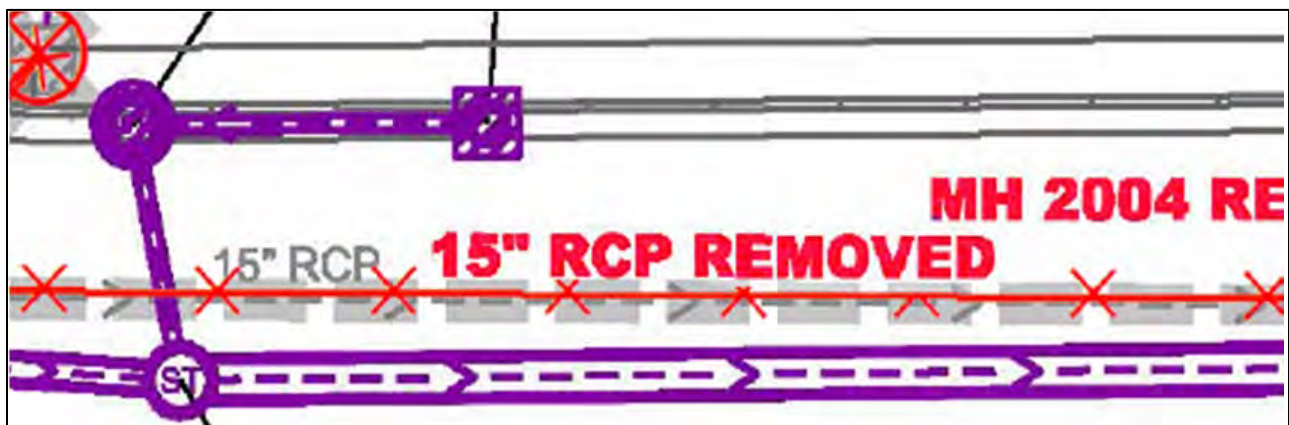
FINAL DELIVERABLE

The final deliverable consists of **drawings showing what was built (PDF)** and an **Excel spreadsheet** containing two tabs named **POINTS**, and **LINES**.

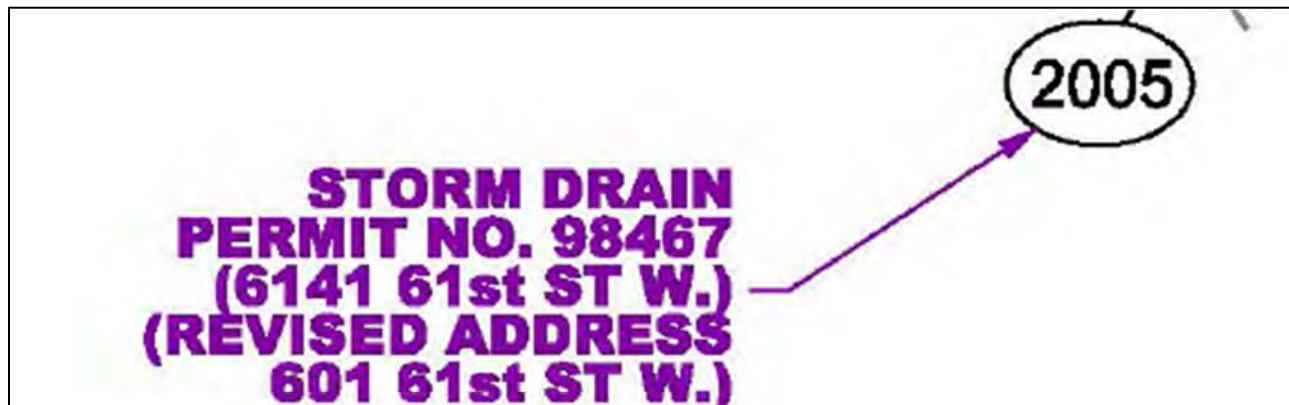


The drawings should comply with the following rules:

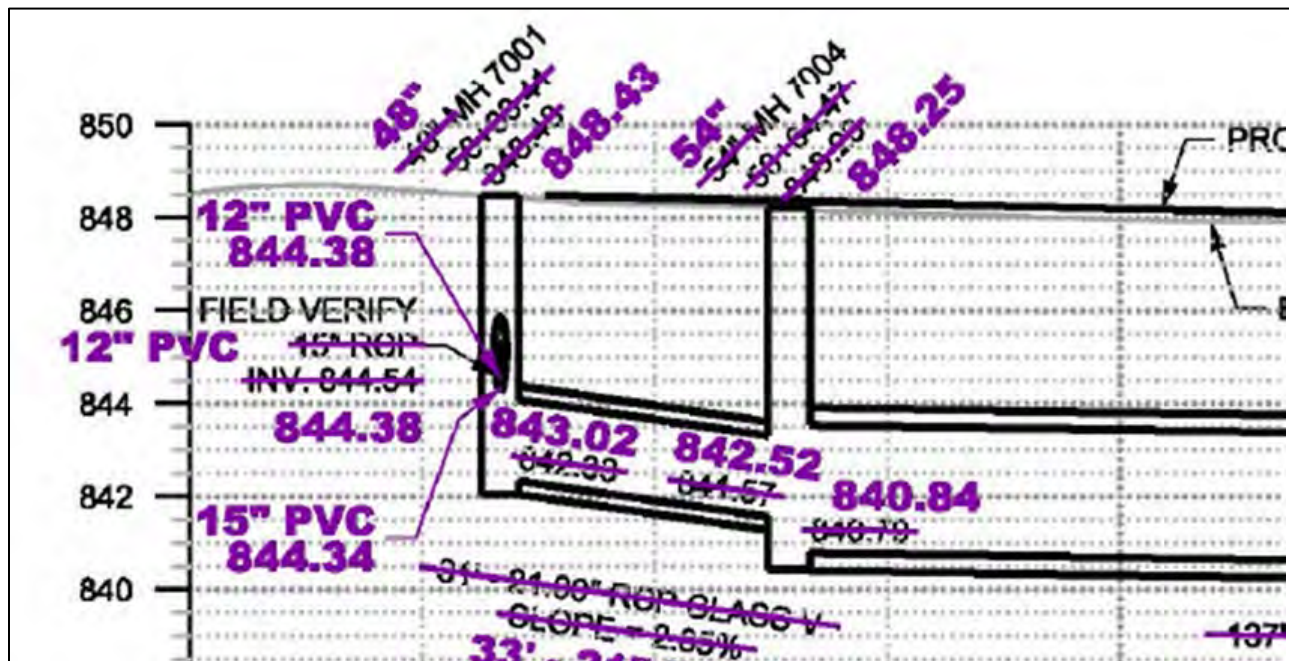
- All new structures, event points, and annotations should be shown in dark purple (RGB: 135, 37,123), on top of the design sheets (if available).
- All removals should be shown in red (RGB: 255, 0, 0), on top of the design sheets (if available).
- New structures and removals could be done in a single sheet if it readable, otherwise we would prefer a sheet for new structures and a sheet for removals.
- For fully removed pipes, annotate the lines with pipe size, material and the word "REMOVED".



- For linework dealing with changes to private sewer connections, add notes describing the type of connection, permit number, and address.



- On profiles, cross out the design data such as elevations, lengths, slopes, diameters, and materials. Add new annotation indicating the as-built values.



- Add a table to the plan sheet that contains information about all the structure present in the sheet.

| D R A I N S F R O M | STRUCTURE | | | | | | | PIPE | | | | | D R A I N S T O |
|--|-----------|-----------|--------|------------------|--|--------------------------------------|---------------------------------|--------------------------------------|----------------------------|------------------|--------------------------------------|----------------------------|--|
| | LOCATION | | | S I Z E | S T R U C T U R A L T Y P E | M A T E R I A L | C A S T I N G | I N V - F R O M | L E N G T H | S I Z E | M A T E R I A L | I N V - T O | |
| | | | | | | | | | | | | | |
| 2001 | 136889.33 | 524640.67 | 847.83 | 30 | CB | PRC | B-13 | 844.60 | 34 | 12 | PVC | 844.38 | 7001 |
| 2005 | | | | | | | | UNK | UNK | 9 | CP | UNK | 7069 |
| 7000 | UNK | UNK | | | EVT | | | UNK | 7 | 15 | PVC | 844.64 | 7002 |
| 7001 | 136922.00 | 524627.02 | 848.42 | 48 | MU | DDC | A-8D | 842.02 | 22 | 24 | DDC | 842.52 | 7004 |

- Indicate on every sheet who built the project and the year.

| | | |
|-----------|------------|-------------------|
| VC .67 | | |
| | | |
| | BUILT BY | MEYER CONTRACTING |
| | YEAR BUILT | 2018 |
| | | |
| | | |

- Add the "Record Drawing Casting Assembly Summary" table on every sheet.

| RECORD DRAWING CASTING ASSEMBLY SUMMARY | | | | | |
|---|--------------------|---------------------|-----------|---------------------------------|---------|
| ID | RING/FRAME CASTING | COVER/GRATE CASTING | CURB BOX | CONSTRUCTION STANDARD PLATE NO. | REMARKS |
| A-8D | SEWR-2004 | SEWR-2000 | | SEWR-1000-R1 | - |
| A-4D | SEWR-2005 | SEWR-2000 | | SEWR-1000-R1 | - |
| B-13 | SEWR-2006 | SEWR-2008 | SEWR-2007 | SEWR-1017 | - |
| M-8C | SEWR-2004 | SEWR-2003 | | | - |
| M-4C | SEWR-2005 | SEWR-2003 | | | - |

- A Provide detail drawings for any nonstandard structures such as but not limited to: special design structures, overflow structures, weir structures, stormwater BMP.

table and provide important information about each one. When populating fields with defined domain of values, do not include the description of the value that appears in square brackets.

POINTS

| FIELD NAME | DETAILS |
|--------------------|---|
| ASBUILT_ID | Structure number according to the as-built sheets. Data Type: String |
| YEAR_BUILT | Year the structure was installed. Data Type: Integer |
| STATUS_ | Indicates the status of the structure. Data Type: String Domain of values: <ul style="list-style-type: none"> ACTIVE EXISTING REMOVED UNKNOWN |
| X_COORD | The X coordinate for the center of the structure. Data Type: Double (2 decimal places) [NAD 1983 HARN] |
| Y_COORD | The Y coordinate for the center of the structure. Data Type: Double (2 decimal places) [NAD 1983 HARN] |
| MATERIAL | Manhole composite material. Data Type: String Domain of values for manholes: <ul style="list-style-type: none"> BLOCKRCP (Block and Reinforced Concrete Pipe Combination Structure) BRK (Brick) RCR (Reinforced Concrete Riser) BLOCK_6 (6 Inch Concrete Block) BLOCK_8 (8 Inch Concrete Block) HDPE (High Density Polyethylene) OTH (Other) Domain of values for catch basins: <ul style="list-style-type: none"> PRECST (Precast Concrete) CONCBRK (Concrete Brick) CLBRK (Clay Brick) |
| FLOW_SPLITTER | Indicates the presence or absence of a flow splitter in manhole. Flow Splitters split the water flow coming into a manhole into separate pipe systems alleviating some pipe capacity issues. Data Type: String Domain of values: <ul style="list-style-type: none"> Yes No |
| FLOW_SPLITTER_TYPE | Type of Flow Splitter in place. Data Type: String Domain of values: <ul style="list-style-type: none"> ORF (Orifice) VW (V-notch Weir) BW (Broad-crested Weir) SW (Sharp-crested Weir) PW (Proportional Weir) GATE (Gate) OW (Other Weir) WYE (Wye) COMBO (Combination) PR (Perforated Riser) PIPE (Pipe) C (Culvert) OTH (Other) |

| FIELD NAME | DETAILS |
|--------------|---|
| LINED | Indicates whether the structure has been lined or not. Data Type: String. Domain of values: <ul style="list-style-type: none"> Yes No |
| CASTING_ELEV | This is the surface elevation of the structure. Data Type: Double (2 decimal places) [NGVD 1929] |
| SUMP_ELEV | Indicates the sump (bottom) elevation of the structure. Data Type: Double (2 decimal places) [NGVD 1929] |
| DIAMETER_IN | Diameter of structure in inches. Data Type: Double (2 decimal places) |
| WIDTH_IN | Width of structure in inches. Data Type: Double (2 decimal places) |
| LENGTH_IN | Catch basin length listed on the source documentation. Data Type: Double (2 decimal places) |
| HEIGHT_IN | Height of structure in inches. Data Type: Double (2 decimal places) |
| COVER_TYPE | Manhole Cover Type. Data Type: String Domain of values for manholes: <ul style="list-style-type: none"> H1 (1 Hole Cover) H7 (7 Hole Cover) SSL (Self Sealing) DIAM36 (36" Diameter) HEX (Hexagonal) DIAM48 (48" Diameter) DIAM42 (42" Diameter) SQRVAN (Square Vane Grate [SEWR-2008]) CSLTCONC (Circular Slotted Concave Grate) CSLTCONV (Circular Slotted Convex Grate [SEWR-5005]) CTABSLT (Circular Tabbed Slotted Grate [SEWR-5004]) CTABVAN (Circular Tabbed Vane Grate [SEWR-2009, SEWR-2010]) CVAN (Circular Vane Grate [SEWR-2003]) APR (Alley Apron CB Grate [SEWR-5014]) ART (Art - Bronze) NART1 (MPRB Narrow Type 1 Grate [SEWR-7003]) GRNSPC (MPRB Green Space Grate [SEWR-7002]) NART2 (MPRB Narrow Type 2 Grate [SEWR-7004]) NART3 (MPRB Narrow Type 3 Grate [SEWR-7005]) RECTSLT (MPRB Rectangular Slotted Grate [SEWR-7007]) RECTVAN (MPRB Rectangular Vane Grate [SEWR-7008]) SQSLT (Square Slotted Grate [SEWR-7009, SEWR-5003]) SQRVAN814 (Square Vane Grate MNDOT 814A) WATHOG (Water Hog) JAKEGRT (Jake Grate [SEWR-1013]) SCB (Side Catch Basin [SEWR-5000]) BEEH (Beehive Grate) OTH (Other) |
| GRATE_TYPE | Grate cover type of catch basins. Data Type: String Domain of values for catch basins: <ul style="list-style-type: none"> SQRVAN (Square Vane Grate [SEWR-2008]) CVAN (Circular Vane Grate [SEWR-2003]) APR (Alley Apron CB Grate [SEWR 5014]) CTABVAN (Circular Tabbed Vane Grate [SEWR-2009, SEWR-2010]) SQSLT (Square Slotted Grate [SEWR-7009, SEWR-5003]) |

| FIELD NAME | DETAILS |
|--------------------|---|
| | <ul style="list-style-type: none"> SQRVAN814 (Square Vane Grate MNDOT 814A) SCB (Side Catch Basin [SEWR-5000]) JAKE1013 (Jake Grate [SEWR-1013]) GRNSPC (MPRB Green Space Grate [SEWR-7002]) CTABSLT (Circular Tabbed Slotted Grate [SEWR-5004]) CSLTCONV (Circular Slotted Convex Grate [SEWR-5005]) CSLTCONC (Circular Slotted Concave Grate) NART1 (MPRB Narrow Type 1 Grate [SEWR-7003]) NART2 (MPRB Narrow Type 2 Grate [SEWR-7004]) NART3 (MPRB Narrow Type 3 Grate [SEWR-7005]) RECTSLT (MPRB Rectangular Slotted Grate [SEWR-7007]) RECTVAN (MPRB Rectangular Vane Grate [SEWR-7008]) BEEH (Beehive Grate) WATHOG (Water Hog) SLOT (Slot Drain [SEWR-4016]) OTH (Other) |
| COVER_DIAMETER_IN | Manhole cover diameter in inches. Data Type: Double (2 decimal places) |
| DRILL_DIAMETER_IN | The diameter of the Drill Hole. Data Type: Double (2 decimal places) |
| CASING_DIAMETER_IN | Manhole casing diameter. Data Type: Double (2 decimal places) |
| TOP_OF_CASING | The elevation of the top of the manhole casing in NGVD 1929 feet. Data Type: Double (2 decimal places) [NGVD 1929] |
| CASING_MATERIAL | Casing composite material. Data Type: String Domain of values: <ul style="list-style-type: none"> DWS (Double [2 decimal places] Wall Steel) RCR (Reinforced Concrete Riser) CIPRC (Cast in Place Reinforced Concrete) OTH (Other) |
| COMMENTS | Catchall field for comments about this section of main. Data Type: String |
| MH_DROP | Indicates the position of the manhole drop in the manhole. Data Type: String Domain of values: <ul style="list-style-type: none"> INSIDE OUTSIDE |
| STRUCTURAL_SHAPE | The shape of the Manhole. Data Type: String Domain of values: <ul style="list-style-type: none"> CIRC (Circular) HEX (Hexagonal) OTH (Other) OVAL (Oval) RECT (Rectangular) SQ (Square) |
| AM_SYSTEM_TYPE | System type. Data Type: String Domain of values: <ul style="list-style-type: none"> Sanitary Storm |
| SUMP | Indicates if the structure has a sump. Data Type: String Domain of values: <ul style="list-style-type: none"> Yes No |
| SUMP_DEPTH_FT | Depth of the sump in feet. Data Type: Double (2 decimal places) |

| FIELD NAME | DETAILS |
|----------------|---|
| INVERT_ELEV | Lowest elevation in the structure. Data Type: Double (2 decimal places) [NGVD 1929] |
| TOP_WEIR_ELEV | Elevation at the top of the weir. Data Type: Double (2 decimal places) [NGVD 1929] |
| ABANDONED_DATE | Date the structure was abandoned. Type: Date |

LINES

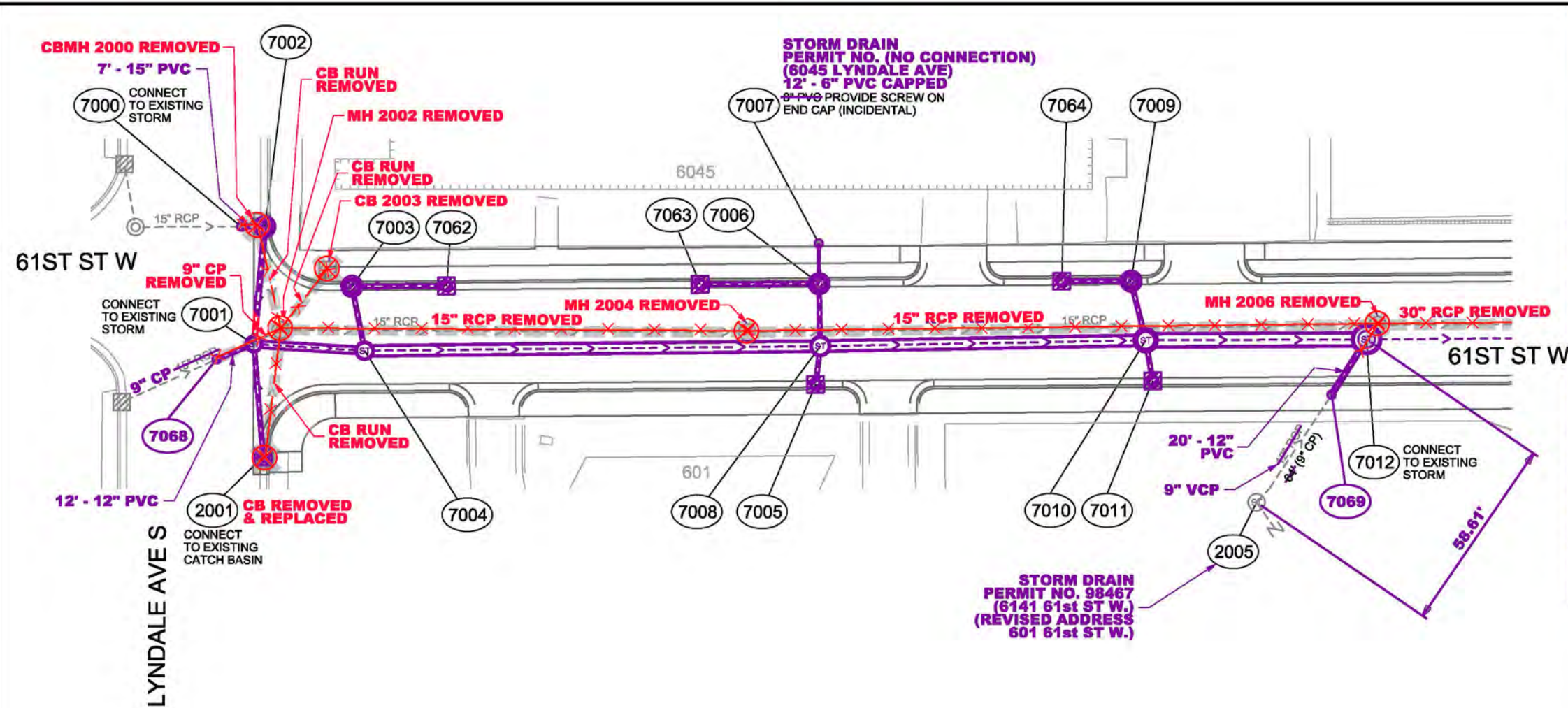
| FIELD NAME | DETAILS |
|------------|--|
| ASBUILT_ID | Structure number according to the as-built sheets. Data Type: String |
| YEAR_BUILT | Year the pipe was installed. Data Type: Integer |
| STATUS_ | Indicates the status of the structure. Data Type: String Domain of values: <ul style="list-style-type: none"> ACTIVE EXISTING REMOVED UNKNOWN |
| XBegin | X-coordinate of the start of the line. Data Type: Double (2 decimal places) [NAD 1983 HARN] |
| YBegin | Y-coordinate of the start of the line. Data Type: Double (2 decimal places) [NAD 1983 HARN] |
| XEnd | X-coordinate of the end of the line. Data Type: Double (2 decimal places) [NAD 1983 HARN] |
| YEnd | Y-coordinate of the end of the line. Data Type: Double (2 decimal places) [NAD 1983 HARN] |
| MATERIAL | Pipe material. Data Type: String Domain of values for sanitary: <ul style="list-style-type: none"> RCP (Reinforced Concrete) VCP (Vitrified Clay or Clay) PVC (Polyvinyl Chloride) CEM (Cement) CIP (Cast Iron) CIPP (Cured in Place) BRK (Brick) HDPEC (High Density Polyethylene Corrugated) DIP (Ductile Iron) CIPRCOI (Cast in Place Reinforced Concrete with Other Invert) CIPRBI (Cast in Place Reinforced Concrete with Brick Invert) CIPRCGI (Cast in Place Reinforced Concrete with Granite Block Invert) CIPRCCPI (Cast in Place Reinforced Concrete with Clay Pipe Invert) FRP (Centrifugally Cast Fiberglass Cement Resin) CSFM (Corrugated Smooth Flow Metal) CONC (Concrete) CFM (Corrugated Flow Metal) PPP (Polypropylene) PE (Polyethylene) HDPE (Density Polyethylene) PEC (Polyethylene Corrugated) UNK (Unknown) OTH (Other) Domain of values for storm: |

| FIELD NAME | DETAILS |
|------------------|--|
| | <ul style="list-style-type: none"> • RCP (Reinforced Concrete) • VCP (Vitrified Clay or Clay) • PVC (Polyvinyl Chloride) • CEM (Cement) • CIP (Cast Iron) • CIPP (Cured in Place) • BRK (Brick) • HDPEC (High Density Polyethylene Corrugated) • DIP (Ductile Iron) • CIPRCOI (Cast in Place Reinforced Concrete with Other Invert) • CIPRBI (Cast in Place Reinforced Concrete with Brick Invert) • CIPRCGI (Cast in Place Reinforced Concrete with Granite Block Invert) • CIPRCCPI (Cast in Place Reinforced Concrete with Clay Pipe Invert) • FRP (Centrifugally Cast Fiberglass Cement Resin) • CSFM (Corrugated Smooth Flow Metal) • CONC (Concrete) • CFM (Corrugated Flow Metal) • PPP (Polypropylene) • PE (Polyethylene) • HDPE (Density Polyethylene) • PEC (Polyethylene Corrugated) • UNK (Unknown) • OTH (Other) <p>Domain of values for CB runs:</p> <ul style="list-style-type: none"> • BRK (Brick) • CIP (Cast Iron) • CMP (Corrugated Metal) • DIP (Ductile Iron) • HDPE (High Density Polyethylene) • PVC (Polyvinyl Chloride) • RCP (Reinforced Concrete) • RCPA (RCP Arch) • VCP (Clay) • OTH (Other) |
| SOURCE_LENGTH_FT | Pipe length listed on the source documentation. Data Type: Double (2 decimal places) |
| LINED | Indicates whether the manhole has been lined or not. Data Type: String Domain of values: <ul style="list-style-type: none"> • Lined • Unlined |
| CAST_IN_PLACE | Indicates if the pipe was cast in place. Data Type: String Domain of values: <ul style="list-style-type: none"> • Yes • No |
| INVERT_IN_ELEV | Upstream invert elevation. Data Type: Double (2 decimal places) [NGVD 1929] |
| INVERT_OUT_ELEV | Downstream invert elevation. Data Type: Double (2 decimal places) [NGVD 1929] |
| DIAMETER_IN | Diameter of pipe in inches. Data Type: Double (2 decimal places) |

| FIELD NAME | DETAILS |
|---------------------------|---|
| WIDTH_IN | Width of pipe in inches. Data Type: Double (2 decimal places) |
| HEIGHT_IN | Height of pipe in inches. Data Type: Double (2 decimal places) |
| HEIGHT_FT | Height of pipe in feet. Data Type: Double (2 decimal places) |
| PIPE_SHAPE | The shape of the main or tunnel in place. Data Type: String Domain of values: <ul style="list-style-type: none"> • C (Circular) • B (Box) • SE (Semi Elliptical) • A (Arch) • EGG (Egg 2:3) • HS (Horseshoe) • OV (Oval) • R (Rectangular) • VELP (Vertical Elliptical) • HELP (Horizontal Elliptical) • OTH (Other) |
| UP_NODE | Upstream ASBUILT_ID node. Data Type: String |
| DOWN_NODE | Downstream ASBUILT_ID node. Data Type: String |
| COMMENTS | Catchall field for comments about this section of main. Data Type: String |
| YEAR_LINED | The year the pipe was last lined. Data Type: Date |
| MODELING_PIPE_SHAPE | Modeling software pipe shape value. Data Type: Integer Domain of values: <ul style="list-style-type: none"> • 1 (Circular) • 2 (Non-circular) |
| MODELING_PIPE_SHAPE_INDEX | Modeling software pipe shape index value. Data Type: Integer Domain of values: <ul style="list-style-type: none"> • 1 (Circular) • 2 (Rectangular) • 3 (SCC Horseshoe) • 4 (SCC Egg Shaped) • 5 (SCC Basket-handle) • 6 (Trapezoidal Channel) • 7 (Parabolic Channel) • 8 (Natural Channel) • 9 (User Defined Channel) • 14 (SCC Gothic) • 15 (SCC Catenary) • 16 (SCC Semi Elliptic) • 17 (SCC Semi Circular) • 18 (SCC Modified Basket Handle) • 19 (SCC Rectangular Triangular Bottom) • 20 (SCC Rectangular Round Bottom) • 28 (Horizontal Ellipse) • 30 (SCC Arch) • 29 (SCC Vertical or Horizontal Ellipse) |
| FEATURE_TYPE | Code identifying type value. Data Type: String Domain of values: <ul style="list-style-type: none"> • FORCE • GRAVITY • INTERCEPTOR |

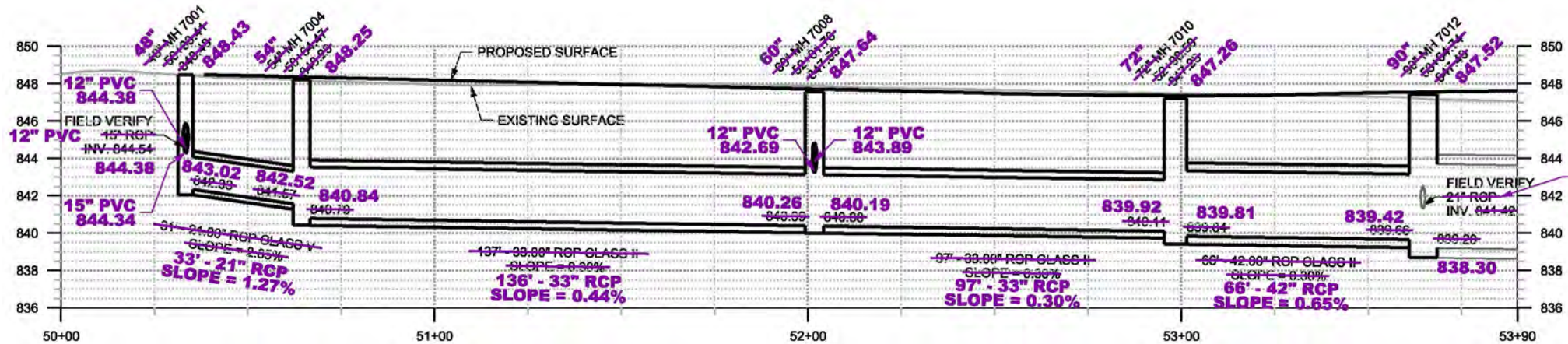
| FIELD NAME | DETAILS |
|----------------|---|
| | <ul style="list-style-type: none"> PIPE IN PIPE SIPHON PIPE TUNNEL |
| AM_SYSTEM_TYPE | System type, storm or sanitary. Data Type: String Domain of values: <ul style="list-style-type: none"> Sanitary Storm |
| PILING | Indicates if the pipe is supported by piles. Data Type: String Domain of values: <ul style="list-style-type: none"> Yes No |
| PLANKING | Data Type: String Domain of values: <ul style="list-style-type: none"> Yes No |
| ENCASEMENT | Indicates if the pipe is encased. Data Type: String Domain of values: <ul style="list-style-type: none"> Yes No |
| ABANDONED_DATE | Date the structure was abandoned. Type: Date |

FILE NAME = 4554-STRM-030.dgn
DATE PRINTED = 1/13/2020 2:36:16 PM



| D R A I N S F R O M | STRUCTURE | | | | | | | PIPE | | | | | D R A I N S T O | |
|--|-----------|-----------|--------|------------------|--|--------------------------------------|---------------------------------|--|----------------------------|------------------|--------------------------------------|--------------------------------------|--|------|
| | LOCATION | | | S I Z E | S T R U C T U R A L | M A T E R I A L | C A S T I N G | I N V E R T F R O M | L E N G T H | S I Z E | M A T E R I A L | I N V E R T T O | | |
| | | | | | | | | | | | | | | |
| | NORTHING | EASTING | RIM | IN | TYPE | | | | FT | IN | | | | |
| 2001 | 136889.33 | 524640.67 | 847.83 | 30 | CB | | PRC | B-13 | 844.60 | 34 | 12 | PVC | 844.38 | 7001 |
| 2005 | | | | | | | | | UNK | UNK | 9 | CP | UNK | 7069 |
| 7000 | UNK | UNK | | | | EVT | | | UNK | 7 | 15 | PVC | 844.64 | 7002 |
| 7001 | 136922.99 | 524637.93 | 848.43 | 48 | MH | PRC | A-8D | 843.02 | 33 | 21 | RCP | 842.52 | 7004 | |
| 7002 | 136957.94 | 524641.22 | 848.18 | 48 | CBMH | PRC | B-13 | 844.68 | 35 | 15 | PVC | 844.33 | 7001 | |
| 7003 | 136940.16 | 524667.17 | 848.09 | 48 | CBMH | PRC | B-13 | 843.89 | 20 | 12 | PVC | 843.27 | 7004 | |
| 7004 | 136920.95 | 524670.95 | 848.25 | 54 | MH | PRC | A-8D | 840.84 | 136 | 33 | RCP | 840.26 | 7008 | |
| 7005 | 136910.90 | 524805.39 | 847.38 | 30 | CB | PRC | B-13 | 843.83 | 12 | 12 | PVC | 843.89 | 7008 | |
| 7006 | 136940.97 | 524806.43 | 847.42 | 48 | CBMH | PRC | B-13 | 843.27 | 19 | 12 | PVC | 842.69 | 7008 | |
| 7007 | UNK | UNK | | | | EVT | | | UNK | 12 | 6 | PVC | 843.99 | 7006 |
| 7008 | 136922.33 | 524806.79 | 847.64 | 60 | MH | PRC | A-8D | 840.19 | 97 | 33 | RCP | 839.92 | 7010 | |
| 7009 | 136941.71 | 524899.43 | 847.03 | 48 | CBMH | PRC | B-13 | 843.53 | 18 | 12 | PVC | 842.71 | 7010 | |
| 7010 | 136924.06 | 524903.80 | 847.26 | 72 | MH | PRC | A-8D | 839.81 | 66 | 42 | RCP | 839.42 | 7012 | |
| 7011 | 136911.99 | 524905.89 | 846.90 | 30 | CB | PRC | B-13 | 843.67 | 12 | 12 | PVC | 839.92 | 7010 | |
| 7012 | 136924.36 | 524969.63 | 847.52 | 90 | MH | PRC | A-8D | 839.42 | 309 | 48 | RCP | 838.30 | 7016 | |
| 7062 | 136940.29 | 524695.34 | 847.93 | 30 | CB | PRC | B-13 | 844.33 | 28 | 12 | PVC | 843.97 | 7003 | |
| 7063 | 136940.73 | 524770.97 | 847.58 | 30 | CB | PRC | B-13 | 844.22 | 35 | 12 | PVC | 843.86 | 7006 | |
| 7064 | 136941.69 | 524878.75 | 847.08 | 30 | CB | PRC | B-13 | 844.43 | 21 | 12 | PVC | 843.53 | 7009 | |
| 7068 | UNK | UNK | | | | EVT | | | UNK | 12 | 12 | PVC | 844.38 | 7001 |
| 7069 | UNK | UNK | | | | EVT | | | UNK | 20 | 12 | PVC | 841.67 | 7012 |

NOTE:
UNK UNKNOWN
MH MANHOLE
CBMH CAT CH BASIN MANHOLE
CB CAT CH BASIN
EVT EVENT POINT (NON STRUCTURE TYPE)

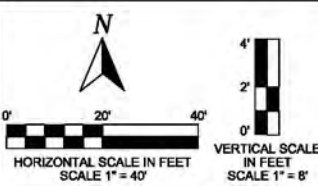


EXISTING
9\"/>

BUILT BY MEYER CONTRACTING
YEAR BUILT 2018

RECORD DRAWING CASTING ASSEMBLY SUMMARY

| ID | RING/FRAME CASTING | COVER/GRATE CASTING | CURB BOX | CONSTRUCTION STANDARD PLATE NO. | REMARKS |
|------|--------------------|---------------------|-----------|---------------------------------|---------|
| A-8D | SEWR-2004 | SEWR-2000 | | SEWR-1000-R1 | - |
| A-4D | SEWR-2005 | SEWR-2000 | | SEWR-1000-R1 | - |
| B-13 | SEWR-2006 | SEWR-2008 | SEWR-2007 | SEWR-1017 | - |
| M-8C | SEWR-2004 | SEWR-2003 | | | - |
| M-4C | SEWR-2005 | SEWR-2003 | | | - |



| NO. | DATE | DRW | CKD | APP | REVISION |
|-----|------|-----|-----|-----|----------|
| | | | | | |
| | | | | | |
| | | | | | |

HORIZONTAL DATA
HENNEPIN COUNTY COORDINATE SYSTEM
DATUM: NAD83, 1986 ADJUSTMENT (NON HARN)
UNITS: US SURVEY FEET

VERTICAL DATA
DATUM: NGVD29

STORM SEWER RECORD DRAWING

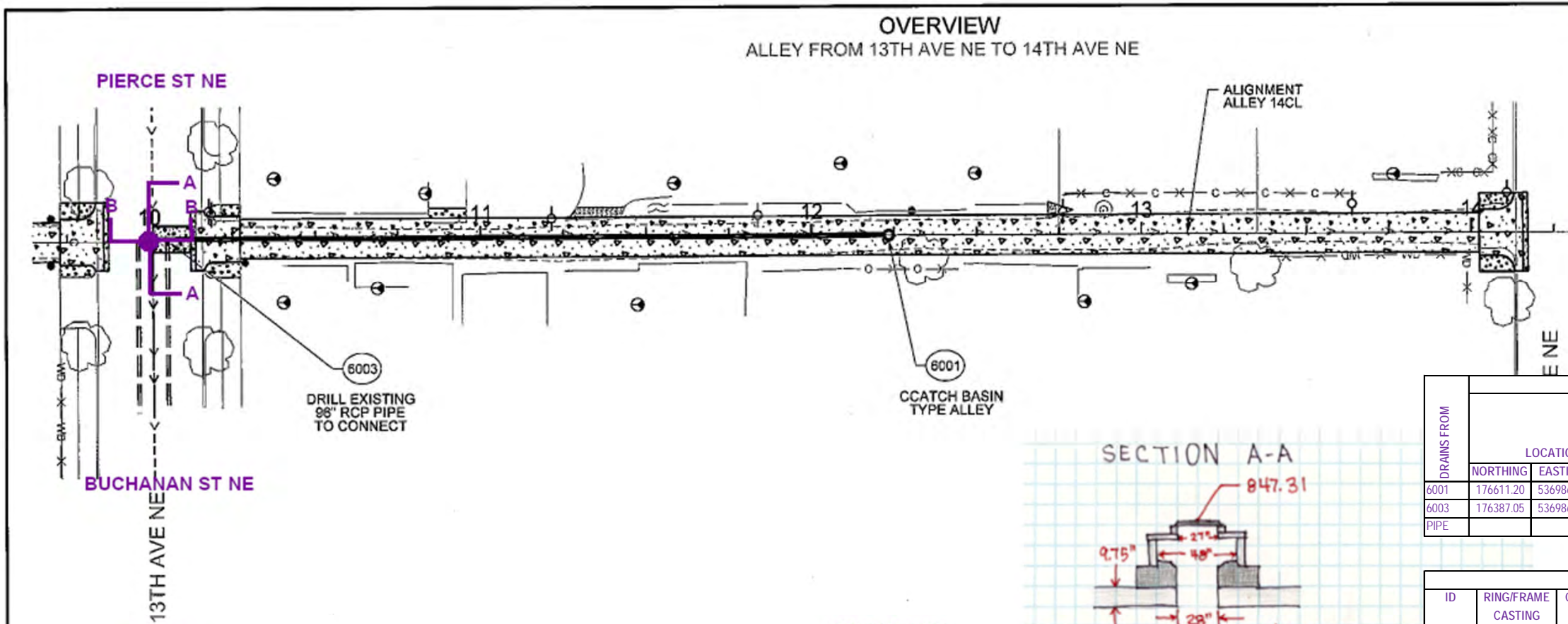
EXAMPLE

DRW: RAD
CHK: JCW
APP: LAG
DATE: 12/09/19
DATE:
DATE:

61ST STREET W RECONSTRUCTION

S.A.P. 141-276-003 L.P. 600D 2288
S.A.P. 027-652-037 L.P. 600D 4554

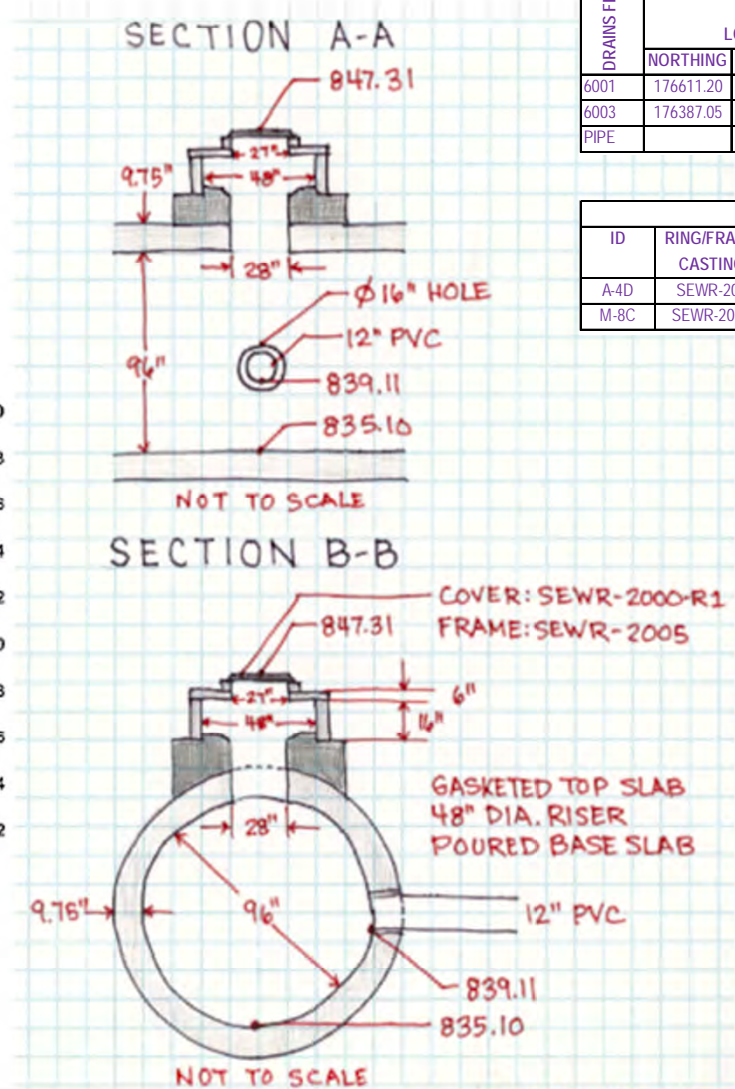
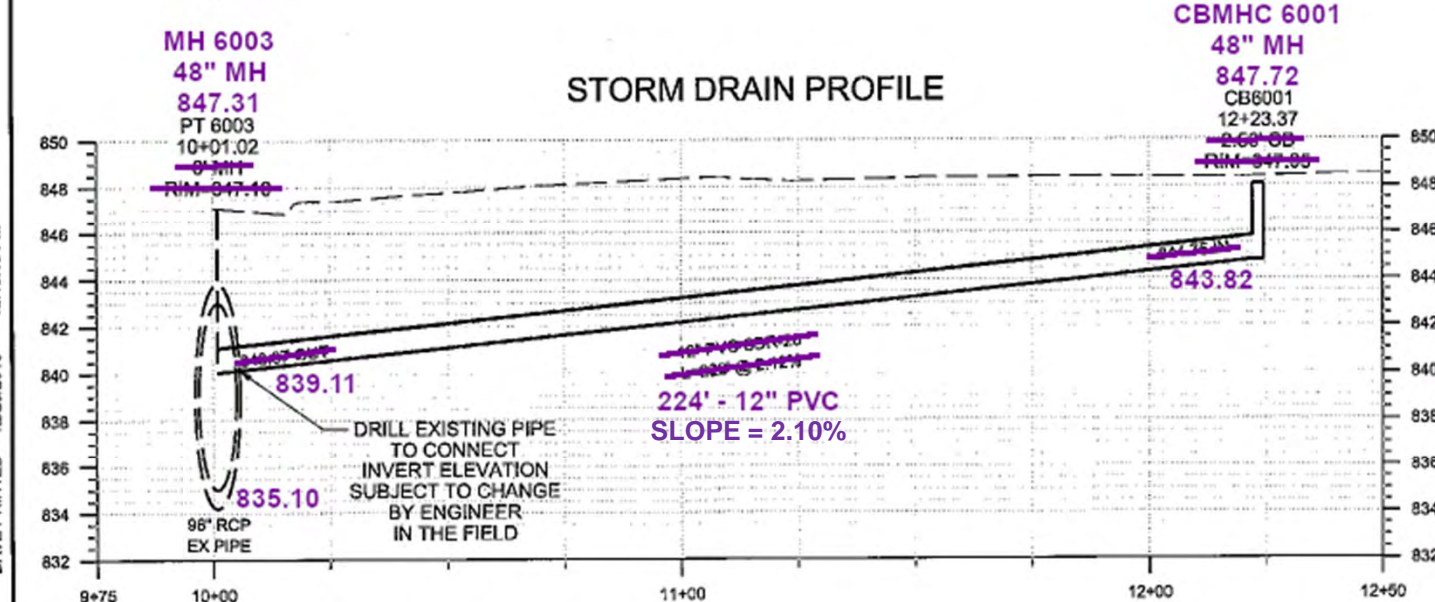
1
OF
9



| ALLEY 14TH AVE NE | | STORM QUANTITY | |
|-------------------|--|----------------|-----------------|
| ITEM NUMBER | DESCRIPTION | UNIT | ESTIMATED TOTAL |
| 2503.503 | 12" PVC PIPE SEWER | LN FT | 222 |
| 2503.602 | CONNECT INTO EXISTING DRAINAGE STRUCTURE | EACH | 1 |
| 2506.602 | CONSTRUCT DRAINAGE STRUCTURE DESIGN N | EACH | |

| DRAINS FROM | STRUCTURE | | | | | | | PIPE | | | | | DRAINS TO |
|-------------|-----------|-----------|--------|------|-----------|----------|---------|-------------|--------|------|----------|-----------|-----------|
| | LOCATION | | | SIZE | STRUCTURE | MATERIAL | CASTING | INVERT FROM | LENGTH | SIZE | MATERIAL | INVERT TO | |
| | NORTHING | EASTING | RIM | IN | TYPE | | | | FT | IN | | | |
| 6001 | 176611.20 | 536986.00 | 847.72 | 48 | CBMHC | PRC | M-8C | 843.82 | 224 | 12 | PVC | 839.11 | 6003 |
| 6003 | 176387.05 | 536986.46 | 847.31 | 48 | MH | PRC | A-4D | 835.10 | UNK | 96 | RCP | UNK | PIPE |
| PIPE | | | | | | | | UNK | UNK | 96 | RCP | 835.10 | 6003 |

| RECORD DRAWING CASTING ASSEMBLY SUMMARY | | | | | |
|---|-----------------------|------------------------|----------|------------------------------------|--------------------|
| ID | RING/FRAME CASTING | COVER/GRATE CASTING | CURB BOX | CONSTRUCTION STANDARD PLATE NO. | REMARKS |
| A-4D | SEWR-205 | SEWR-2000 | --- | SEWER-1000-R1 | ALT MH LOW PROFILE |
| M-8C | SEWR-2004 | SEWR-2003 | --- | --- | STD. ALLEYCB |

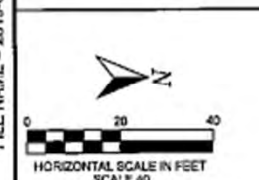


| STORM DRAIN STRUCTURES | | | | | | | | | | SHEET 02 | |
|------------------------|-----------|----------|--------|-------|------|-----------|-----------|-----------|--------|-------------|---------|
| NUMBER | ALIGNMENT | LOCATION | | TYPE | SIZE | CONSTRUCT | DRAINS TO | PIPE TYPE | LENGTH | CREAM TARKS | |
| | | STATION | OFFSET | | | | | | | | |
| 6001 | 14CL | 12+23.37 | 0.00 | MCB | 30 | 3.20 | 6003 | 12 | PVC | 222 | ALLEY |
| 6003 | 14CL | 10+01.02 | 0.00 | POINT | | | LINE | 96 | RCP | | EX PIPE |

| CASTING ASSEMBLY SUMMARY | | | | | | |
|--------------------------|--------------------|-----------------------|----------|-----------------|-------------------|------------------------|
| ASSEMBLY | RING/FRAME CASTING | COVER / GRATE CASTING | CURB BOX | STANDARD DETAIL | PROPOSED QUANTITY | REMARKS |
| B-13 | R-1728-B | R-2518 | NA | SEWER-2004 | 1 | CATCH BASIN TYPE ALLEY |

HORIZONTAL DATA
HENNEPIN COUNTY COORDINATE SYSTEM
DATUM: NAD83, 1986 ADJUSTMENT (NON HARN)
UNITS: US SURVEY FEET

VERTICAL DATA
DATUM: NGVD29



| NO. | DATE | DRW | CKD | APP | REVISION |
|-----|------|-----|-----|-----|----------|
| | | | | | |
| | | | | | |
| | | | | | |

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Lawrence Matsumoto 17855 55619
LAWRENCE MATSUMOTO LIC. NO. DATE

STORM SEWER RECORD DRAWING
~~STORM SEWER PLAN PROFILE~~

Minneapolis Public Works

DRW: BNP DATE: 09/17/18
CHK: EKL DATE: 10/18/18
APP: LGM DATE:

BUILT BY: CITY FORCES
YEAR BUILT: 2019

| | | |
|-------------------|--|--|
| 14TH AVE NE ALLEY | | 13 1 OF 13 1 |
| L.P. 600D 2319 | | |
| | | |

ISSUE NO. SA-0001
ISSUED BY: Larry Veek
SUBJECT: Current County, State Aid, and
Trunk Highway Map

DEVELOPED BY: Larry Veek
DATE: July 20, 2004
REVISION 0.1: March 27, 2020

BACKGROUND

The State of Minnesota requires the City to review and update the State Aid System on an annual basis.

WHAT TO DO

To see the current County, State Aid, and Trunk Highway Map do the following:

1. Click on the following link: [Public Works Capital Improvement Projects](#).
2. Find the **Maps** box on the left side of the page and click on **County, State-Aid, Trunk Highway Map**.

COMMUNICATION

PLEASE COMMUNICATE THIS TO YOUR STAFF.