Overview: Import 2 surveys into CADD which have at least 2 common control points but did not use a common coordinate system. Each survey will have a separate Point Group in order to help match them up using move and rotate. The coordinates of the "local" survey will be adjusted to match the coordinates of the "real world" survey.

Software: AutoCAD Civil 3D 2012, Iowa NRCS C3D 2012 template V2.0 (7/25/2014)

> **Notation:** Button to Press *Displayed Text* **Icon** Action {Text to Enter} *Menu Item...*

Import the "Local" survey

1) Follow instructions for *Importing Survey Coordinate Point Files*: "Importing a Survey from a File". Be sure to Add Points to Point Group. (e.g. TS 10-25-13)

Import the "Real World" survey

2) Repeat instructions for *Importing Survey Coordinate Point Files*: "Importing a Survey from a File". Be sure to Add Points to Point Group. (e.g. GPS 4-10-14)

Prepare and merge surveys

Rotate the labels of the "Real World" points
3) In Toolspace> Prospector… *Point Groups...* Right-click *GPS 4-10-14 ...* Click *Select...*
4) In the Properties box set the *Annotation: Label Rotation* and *Mark Rotation* to 45

Create a common baseline in both surveys
5) Set Osnap to *Node*. Use Tool Palette>NRCS 11x17B… Click *Breaklines and Boundaries...Breakline (Generic)...* to draw a baseline from Control Pt A to Control Pt B in the real world survey.
6) Use Tool Palette>NRCS 11x17B… Click *Breaklines and Boundaries...Breakline (Generic)...* to draw a baseline from Control Pt A to Control Pt B in the local survey.

Copy the baseline from the "Real World" to the "Local" survey
7) Click to select the baseline in the real world survey. Right-click… *Basic Modify… Copy…*
8) Snap to point A in the real world survey to establish the base point.
9) Snap to point A in the local survey to set the new copy location
10) Press ESC.

Rotate the "Local" survey to match the orientation of the "Real World"
11) In Toolspace> Prospector… *Point Groups...* Right-click *TS 10-25-13 ...* Click *Select...*
12) Also select the original baseline that connects the 2 control points in the local survey.
13) Right-click… *Basic Modify… Rotate…*

14) Snap to point A in the local survey to set the base point.
15) Type *R* Press Enter to use a reference angle
16) Osnap to point A in the local survey
17) Osnap to point B in the local survey
18) Set the new rotation by End Point snapping to the 2nd end point of the real world line that was copied to the local survey control point.

Move points to common coordinates.
Note: Determine whether you want to change elevation or maintain the elevation of the local survey and select the correct option. Examples:
    Use Option A if the geo-referenced survey was done with a "survey-grade" GPS unit.
    Use Option B if the geo-referenced survey was done with a GIS grade GPS unit.

19) Option A: Move local points to location and elevation of real world survey
    a) In Toolspace> Prospector… *Point Groups...* Right-click *TS 10-25-13 ...* Click *Select...*
    b) Right-click… *Basic Modify… Move…*
    c) Snap to Point A of the local survey to set the base point.
    d) Snap to Point A of the Real World survey.
       The position and elevation should be correct now.

20) Option B: Move the local points while maintaining the elevation of the "local" survey
    a) In Toolspace> Prospector… *Point Groups...* Right-click *TS 10-25-13 ...* Click *Select...*
    b) Right-click… *Basic Modify… Move…*
    c) Snap to Point A of the local survey to set the base point.
    d) Shift Right-click…. *Point Filters…* click *Z…*
    e) Snap to Point A of the **local** survey in order to hold the current elevation.
    f) Snap to Point A of the Real World survey to obtain the correct X & Y position.
       The position should be correct and the elevation should remain as originally set.

21) Review the additional control points that are common to both surveys and determine if the results are correct.

<u>Locking Points</u>

Lock all points so that their location, elevation, and description cannot be changed
22) In Toolspace> Prospector… Right-click *Points...* Click *Lock...*