

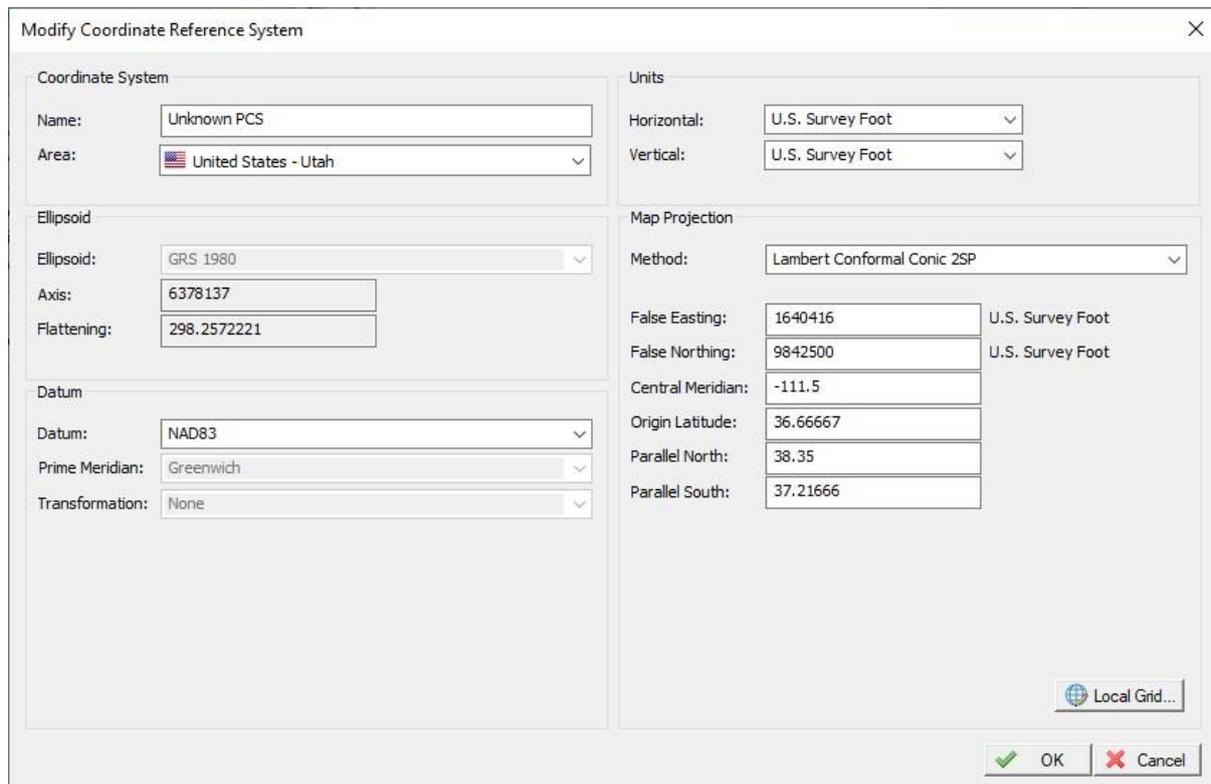
How to Survey Using Local Grid Co-ordinates in Hydromagic

Often, it is thought that the use of an RTK base station set up on the “local grid” or “mine grid” is needed to conduct a hydrographic survey when using custom site calibration geodesy. This is NOT the case. The geodesy of the dataset is set up in the acquisition software such as HYPACK or Hydromagic. This means there is no requirement for any special base station input, and indeed standalone differential GNSS may also be used on a local grid survey. How to set up the Hydromagic local grid option is described here.

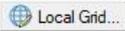
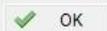
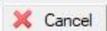
In Hydromagic, the grid geodetic parameters are first entered (projection, units, ellipsoid etc) and then two pairs of reference coordinates are used - one in the custom mine grid and one in the standard grid. Hydromagic then calculates the custom grid parameters based on this coordinate pair. The specific instructions on how to do this are as follows:

Go to options / manage coordinate systems to reach the “Modify Coordinate Reference System”.

Press "Add" (this will allow you to create a new grid). Don't worry about changing the grid name at this stage. Enter all your geodetic parameters as shown below:

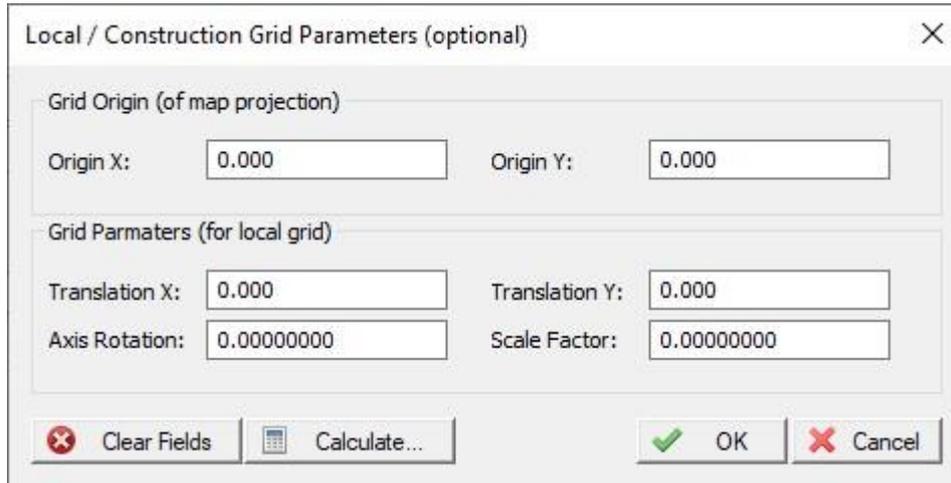


Section	Parameter	Value	
Coordinate System	Name:	Unknown PCS	
	Area:	United States - Utah	
Ellipsoid	Ellipsoid:	GRS 1980	
	Axis:	6378137	
	Flattening:	298.2572221	
Datum	Datum:	NAD83	
	Prime Meridian:	Greenwich	
	Transformation:	None	
Units	Horizontal:	U.S. Survey Foot	
	Vertical:	U.S. Survey Foot	
Map Projection	Method:	Lambert Conformal Conic 2SP	
	False Easting:	1640416	U.S. Survey Foot
	False Northing:	9842500	U.S. Survey Foot
	Central Meridian:	-111.5	
	Origin Latitude:	36.66667	
	Parallel North:	38.35	
	Parallel South:	37.21666	

Buttons:   

When finished, press "Local Grid".

Do not enter anything on this next screen. Press "calculate":



Local / Construction Grid Parameters (optional)

Grid Origin (of map projection)

Origin X: 0.000 Origin Y: 0.000

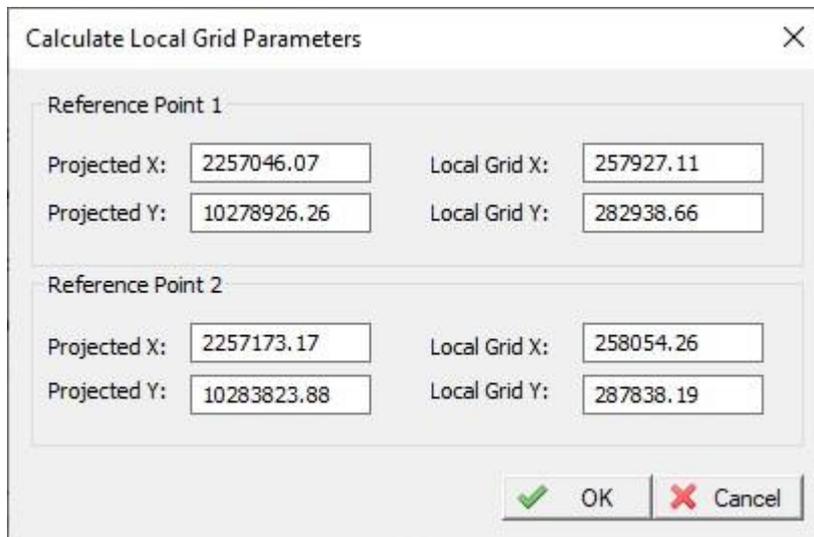
Grid Parameters (for local grid)

Translation X: 0.000 Translation Y: 0.000

Axis Rotation: 0.00000000 Scale Factor: 0.00000000

Clear Fields Calculate... OK Cancel

On the next screen, enter the pair of coordinates - one in "local / mine grid" and the other in the standard projection:



Calculate Local Grid Parameters

Reference Point 1

Projected X: 2257046.07 Local Grid X: 257927.11

Projected Y: 10278926.26 Local Grid Y: 282938.66

Reference Point 2

Projected X: 2257173.17 Local Grid X: 258054.26

Projected Y: 10283823.88 Local Grid Y: 287838.19

OK Cancel

Press "OK" and the next screen will have the transformation parameters automatically in the boxes:

Local / Construction Grid Parameters (optional) X

Grid Origin (of map projection)

Origin X: Origin Y:

Grid Parameters (for local grid)

Translation X: Translation Y:

Axis Rotation: Scale Factor:

Press "OK" again to go back to the first screen. Then hit "OK" again and you get back here with a "User Defined" grid on the list. The grid will have a unique identification number. It will still be called "Unknown PCS". On this example there are three local grids:

Select Coordinate System X

File Edit

<Enter a coordinate system name, area or code to start searching...>

- Recently Used
 - NAD83 / California zone 6 (ftUS) (EPSG:2230)
 - NAD83 / Florida West (ftUS) (EPSG:2237)
 - NAD83 / Minnesota Central (ftUS) (EPSG:26850)
 - NAD83 / North Dakota South (ft) (EPSG:2266)
 - NAD83 / Oregon South (ft) (EPSG:2270)
 - NAD83 / Utah South (ft) (EPSG:2282)
 - Recapture Reservoir Local Grid (USER: 131071)
 - Lloyds Lake Utah (USER: 131072)
 - WGS 84 / UTM zone 11N (EPSG:32611)
 - WGS 84 / UTM zone 12N (EPSG:32612)
 - WGS 84 / UTM zone 14N (EPSG:32614)
 - WGS 84 / UTM zone 17N (EPSG:32617)
 - WGS 84 / UTM zone 18N (EPSG:32618)
- Favorites
- User Defined
 - Recapture Reservoir Local Grid (USER: 131071)
 - Lloyds Lake Utah (USER: 131072)
 - Unknown PCS (USER: 131073)
- Sorted By Area

 Type the first characters of the projection name, area of use or the EPSG code to filter the items displayed above.

You can go back in and "Modify" the new grid to change the name. Highlight the "Unknown PCS" and press Modify and then change the name. When you first open the menu the name change does not work so you must have generated the grid first and then you can change the name of it. Possibly this glitch will be eliminated in later versions of Hydromagic.

When you create a "New Project" in Hydromagic just select this new local grid.