# The CEDRA Corporation's

# COMMAND OF THE MONTH

**A monthly information bulletin**        **January 2008**
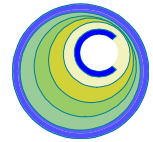
## Application Description

Anyone who has dealt with parcel mapping or subdivision design has encountered the phrase "metes and bounds". For those who have not, metes and bounds is a system for describing real property (as opposed to personal property) or real estate. The description is in the form of identifying the directions and distances for the various courses (sides) comprising the property.

When dealing with maps, this usually entails the annotation of the bearing and/or distance of a line, slightly offset from the line. For curves, the radius and/or arc length is annotated, again, slightly offset from the curve.

The task addressed this month is, how can a user create a metes and bounds description. In the May 2005 issue of Command of the Month, the [Annotate Distance], [Annotate Azimuth], [Annotate Bearing], [Annotate Distance and Azimuth] and [Annotate Distance and Bearings] commands were discussed.

These commands generated metes and bounds annotations based upon existing features. This month we discuss the case when the metes and bounds annotations are to be generated from user made "picks", rather than from existing features.

## The CEDRA Solution

To address the application of generating metes and bounds annotation from picks, the [Metes/Bounds Dimension] tool, within the {CEDRA-Dimension-Tools}
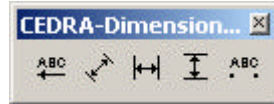


**Figure 1 - CEDRA-Dimension-Tools Toolbar for ArcGIS Users**

toolbar can be used, see Figure 1. Note that this functionality is available only for ArcGIS® users.

To utilize the [Metes/Bounds Dimension] tool, , ArcGIS® users should activate the CEDRA-Dimension-Tools toolbar and select the right-most tool in the toolbar. The tools to the right of the [Metes/Bounds Dimension] tool create leader and engineering style dimensioning.

***Command Of The Month bulletin***

*This month's issue discusses the process of creating metes and bounds annotation based upon picks made by the user.*

## Metes/Bounds Dimension - Overview

The intent of the [Metes/Bounds Dimension] tool is to provide the user the ability to generate metes and bounds annotation based upon two picks, rather than existing features.

As such, the command requires the user to make two "picks" in the map area. The picks made by the user can be the start or end point of a line, a vertex of a polyline, an existing point feature, an
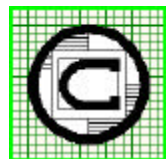
arbitrary location, etc. The standard point snapping property setting is used to ascertain the coordinates of the pick. These two picks represent an imaginary or "implied baseline". Note that when we use the term "implied baseline", this can represent a line or a curve.

After the two picks have been made, the user is presented with a multi-input dialog box, which the user responds to accordingly. This dialog box enables the user to set the desired metes and bounds properties which are to be used in the generation of the metes and bounds annotation.

Upon specification of the metes and bounds properties, the appropriate annotation is created. The command remains active so that additional metes and bounds, using the same property settings, can be created. These settings will remain in effect until altered by the user. So that, when the tool is reactivated, the previous settings will appear as the new default values.

The metes and bounds descriptions are represented in the form of annotation features which are stored in the current active layer and assigned the current active text properties (size, font, etc.). The [Set Active Layer] command can be used to define the current active layer, while the [Change Text Properties] command can be used to define the appropriate annotation property values.

The reader is referred to the May 2005 issue of Command of the Month for a description of the two commands mentioned above.

**Metes/Bounds Dimension - Operation**

Once the command has been activated, the following steps can be performed:

1. If the annotation features, which are to be created, are to be stored in an existing layer, proceed to the next step. If a new layer is to be created, use the [Set Working Directory] command to define the folder or directory where the new Personal GeoDatabase (PGD) is to reside.

2. If the current active layer has already been defined, proceed to the next step, otherwise, the user should invoke the [Set Active Layer] command to define the layer in which the new annotation features are to be stored in.

    In defining a new layer, note that since the annotation features which are created will be stored in a PGD, care should be given to ensure that the proper False X, False Y and False XY values are specified. Refer to the **GeoDatabase Considerations** section in the May 2005 issue of Command of the Month for a detailed description of these parameters.

3. Select the [Metes/Bounds Dimension] tool, ABC .

4. Make a pick denoting the start point of the implied course.

5. Make a pick denoting the end point of the implied course.

6. Once the two picks have been made, the multi-input dialog box of Figure 2 will appear.
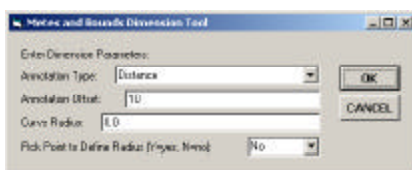


**Figure 2**
**Metes and Bounds Properties**

Beginning at the top of the dialog box, the user is able to control the following:

Data Line 1 - Annotation Type

From the choice list presented in Figure 3 select the type of metes and bounds description to be generated.



**Figure 3**
**Metes/Bounds Dimensioning Options**

Data Line 2 - Annotation Offset

Enter in world units (feet, meters, etc.) the offset distance of the annotation from the implied baseline. A value of 0 will place the annotation on top of the implied baseline, a value >0 places the annotation to the right of the implied baseline, while a value <0 results in the annotation being placed on the left side of the implied baseline.

Data Line 3 - Curve Radius

Enter in world units (feet, meters, etc.) the appropriate radius value. A value of 0 denotes that the implied baseline is actually a two-point line and not a curve. Any nonzero value results in the tool treating the implied baseline as a curve and not a two-point line.

Data Line 4 - Pick Point to Define Radius

If the implied baseline represents a curve, the user has the option of making a pick to define the radius, rather than having to explicitly enter the radius value in the Curve Radius parameter.

If the user wishes to define the radius value by making a pick, select the Yes option in the choice list that is presented.

After entering the appropriate value(s), click at the:
● *Cancel* button to terminate the command, or the
● *OK* button to continue with the processing.

7. If the implied baseline represents a curve and the user selects the Yes option for the Pick Point to Define Radius parameter, the user should make a pick in the map area denoting a point on an imaginary curve, otherwise, proceed to the next step.

8. At this point the tool has all of the information it needs to generate the desired metes and bounds annotation.

The tool at this point will create the appropriate annotation features storing them in the current active layer.

At this point, the command remains active so that another metes and bounds description can be created. As such, Steps 4 through 6 can be repeated as many times as need be. Note that when Figure 2 is re-displayed, the default values will reflect the previous settings.

If all of the desired metes and bounds descriptions have been created, the user can select another command or tool. If the user is not satisfied with the annotation, the {Edit} [Undo Create Annotation] can be selected to delete the newly created annotation.

**Notes**

a. When the Yes option for the Pick Point to Define Radius parameter is selected and the user makes a pick denoting a point on an imaginary curve, the command creates an imaginary circular arc through the 3 picks made by the user, with the pick made in Step 7 being treated as a POC (a point between the start and end points of the implied baseline).

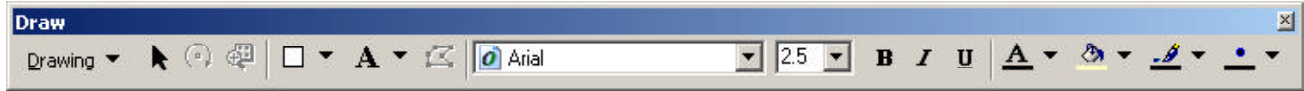b. When processing a curve, the Distance dimensioning option will re-
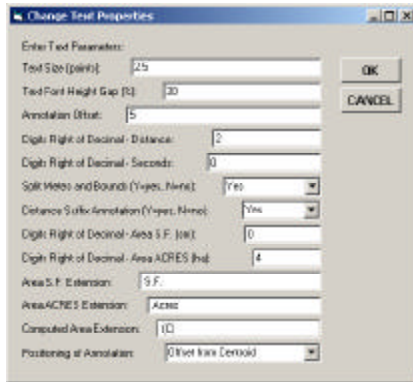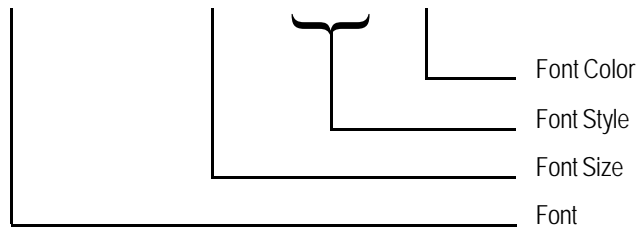
Figure 5 - ArcMap Draw Toolbar



**Figure 4**
**Change Text Properties Dialog Box**

sult in the radius of the curve being annotated.

**c.** When processing a curve, the Azimuth and Bearing dimensioning options will result in the arc length of the curve being annotated.

**d.** When processing a curve, the Distance and Azimuth, and Distance and Bearing dimensioning options will result in the arc length and radius of the curve being annotated.

**e.** The [Metes/Bounds Dimension] tool uses the same code for creating the annotation features as the [Annotate Distance], [Annotate Azimuth], [Annotate Bearing], [Annotate Distance and Azimuth] and [Annotate Distance and Bearings] commands.

**f.** The [Change Text Properties] tool can be used to control the properties which are associated with the annotation features which are created by the [Metes/Bounds Dimension] command. Specifically, the top 7 properties, which are presented in the command's multi-input dialog, will effect the annotation features, which are created, see Figure 4.

**g.** Should the user wish to change the font, font style (bold, italic, underline) or font color, native ArcMap functionality found within the ArcMap-Draw toolbar should be used, see Figure 5.

**h.** Presented in Figures 6 through 11 are sample annotation features which can be created using the [Metes/Bounds Dimension] command. The magenta color points indicate the user's picks. Note that the order of the picks will control the orientation of the annotation features, while the sign of the Annotation Offset value will control which side of the baseline the annotation features will appear on.
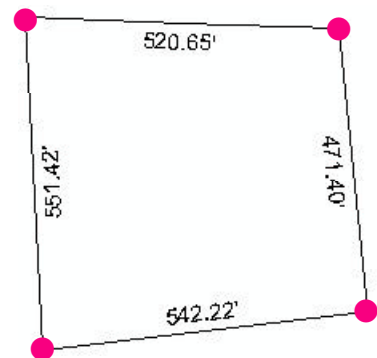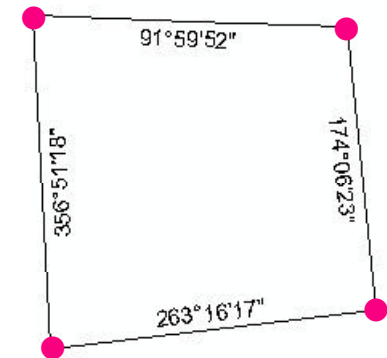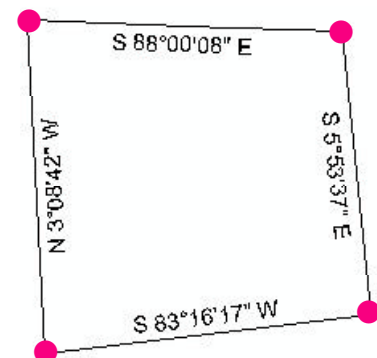
**Summary**

The creation of the [Metes/Bounds Dimension] tool is a direct result from a suggestion made by a CEDRA user.

In this particular case, the user had line features with points along the line. The line represented the subdivision property boundary and the points the individual lots which intersected the boundary. Rather than breaking the boundary line into individual lines, The [Metes/Bounds Dimension] tool was used to annotate the back lot distances along the boundary.

Note that the [Metes/Bounds Dimension] tool has recently been added to the software. So that, users wishing this new functionality should inquire about getting an upgrade to their existing software.
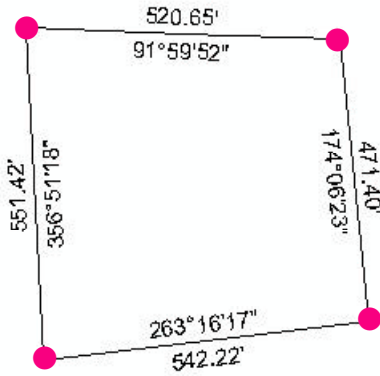


**Figure 6**
**Distance Option**



**Figure 7**
**Azimuth Option**



**Figure 8**
**Bearing Option**

**Figure 9**
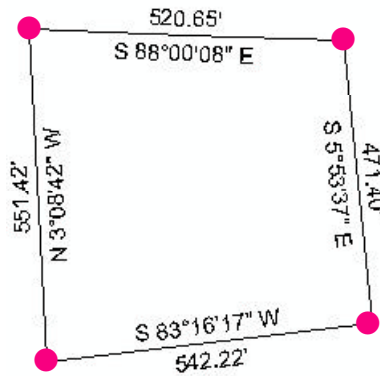Distance and Azimuth Option
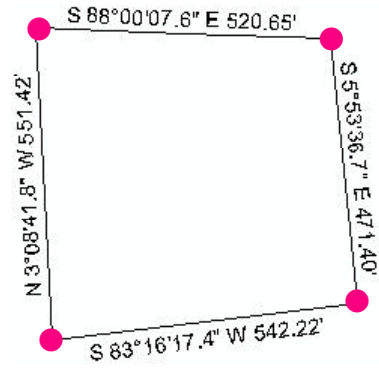
**Figure 10**
Distance and Bearing Option

**Figure 11**
Distance and Bearing Option with
Split Metes and Bounds Property
set to No

*If you have a request for Command Of The Month, feel free to phone, fax or e-mail your request to The CEDRA Corporation.*