# Exercise #2 Due April 28, 2005, 5pm

#### Drawing #1

In this problem you will draw the park plan shown below. You do not need to include dimensions, but you will need to include lines of symmetry and text. Use a scale of 1 in. = 30 ft., with the following information written by hand or in AutoCAD.

What is the total area of the planters? What is the total area of the lawn? What is the total area of the fountain? What is the total area of the park? (Use the *area* command)



Figure 1

## Drawing #2

Draw the house plan below. Create two new multilines to draw the walls and the windows. Assume interior and exterior walls are 6 inches thick. Submit a hard copy of your drawing, printed at a scale of 1 in. = 8 ft.,

Determine the total square footage of the two front rooms (don't include wall thickness) and the total square footage of the house (include the area of interior walls).



## Drawing #3

Draw the intersection shown below, then mirror the circular interchange for all lanes. Don't include dimensions, do include text. Submit a copy of your drawing file with a scale of 1 in. = 150 ft.





## Drawing #4

In this lab exercise, we will use blocks to create the following block library of foundation elements (Figure 4) and the following drawing of a foundation plan (Figure 5)

#### The block command

Download the files foundationElements.dwg and pileGroup.dwg from the class website. These files contain drawings of the foundation elements shown Figure 4 and you will use these drawings to create blocks for each of the foundation elements shown in Figure 5 pileGroup.dwg contains a drawing of the two-pile foundation element shown in Figure 5 Make sure that all of the objects are drawn on the 0 layer and that all of the objects have color, linetype, linewieght set to BYBLOCK. Use the block command (draw->block from the pull-down menus) to create a block for the foundation element, name the block twoPileGroup and choose a reasonable point on the pile cap (probably the center point, which you may need to locate with some construction lines) as the base point.

## The insert command

To confirm that the block was created, use the insert command (insert->block from the pull-down menu) to insert a copy of the foundation element in the file pileGoup.dwg. When the block insertion window opens you should see the block name in the box following Name. Carefully note the following questions (this is for your understanding you do not have to submit answers to these questions) On which layer are you inserting the block? What are the properties of the piles and pile cap that comprise the block?

# The wblock command

Use the wblock command to write the block so that it is available for use with other drawings. Make sure that you write the blocks in a file location from which you can easily retrieve it.

## Creating a block library

Open the file foundationElements.dwg. This file contains drawings of the other two foundation elements shown in Figure 1.2. Add the two-pile foundation to the drawing using the insert block command. This time you will need to browse to find the file twoPileGroup.dwg. Use the explode command to explode the block and change the properties of the piles and pile cap so that each is assigned to the correct layer. Create a new block for the two-pile foundation as well as two new blocks for the other two foundation elements in the file.

Use a block library in a new drawing

Open a new drawing in which you will draw the foundation plan shown in Figure 5. Name the drawing yourname\_lab4\_foundationPlan.dwg. Insert the block library using the insert command. To do this you will need to browse to find the foundationElements.dwg file that contains the blocks, Open the file for use and click the Okay button to indicate that you want to insert the foundation elements. You will see all of the foundation elements in the drawing window and will need only to click the mouse to insert all of the elements. If you click on the drawing window, all of the foundation elements blocks should be available for you to use in the new drawing. To confirm this, use the insert command and verify that all of the block names appear in the box following Name in the insert window.

Use the foundation elements to create the foundation plan drawing shown in Figure 5. Before you start your drawing, think about how you can use the array, multi-copy, offset, and mirror commands to draw the foundation layout using only a few commands. You do not need to put in the dimensioning for this assignment.

Using the found element blocks and foundation plan that you just created (Figures 4 and 5), create a multi-page set of drawings of the building foundation. These drawings should include a foundation plan and details of each of the elements that comprise the foundation: two-pile pilecap, three-pile pilecap, four-pile pilecap, typical grade beam and a typical pile.

Page 3 of the drawing set should include a single grade beam section. Use the slides from the 13 October 2003 lecture to configure reinforcement in the grade beam section.

Page 4 of the drawing set should include a list of other sections or details that should have been included in the set of foundation plan drawings to make it complete. Make sure to create appropriate layers in your drawing. Note the scale of each page of the drawing as is appropriate.



Figure 4: Typical foundation elements: triangular, square and rectangular pile groups and pile cap



Figure 5: Foundation Plan

Drawing #6

Draw and dimension the pulley bracket shown below (Figure 6). Include multiple layers as is appropriate. Print the drawing using a scale of 1 in. = 2 units



Figure 6