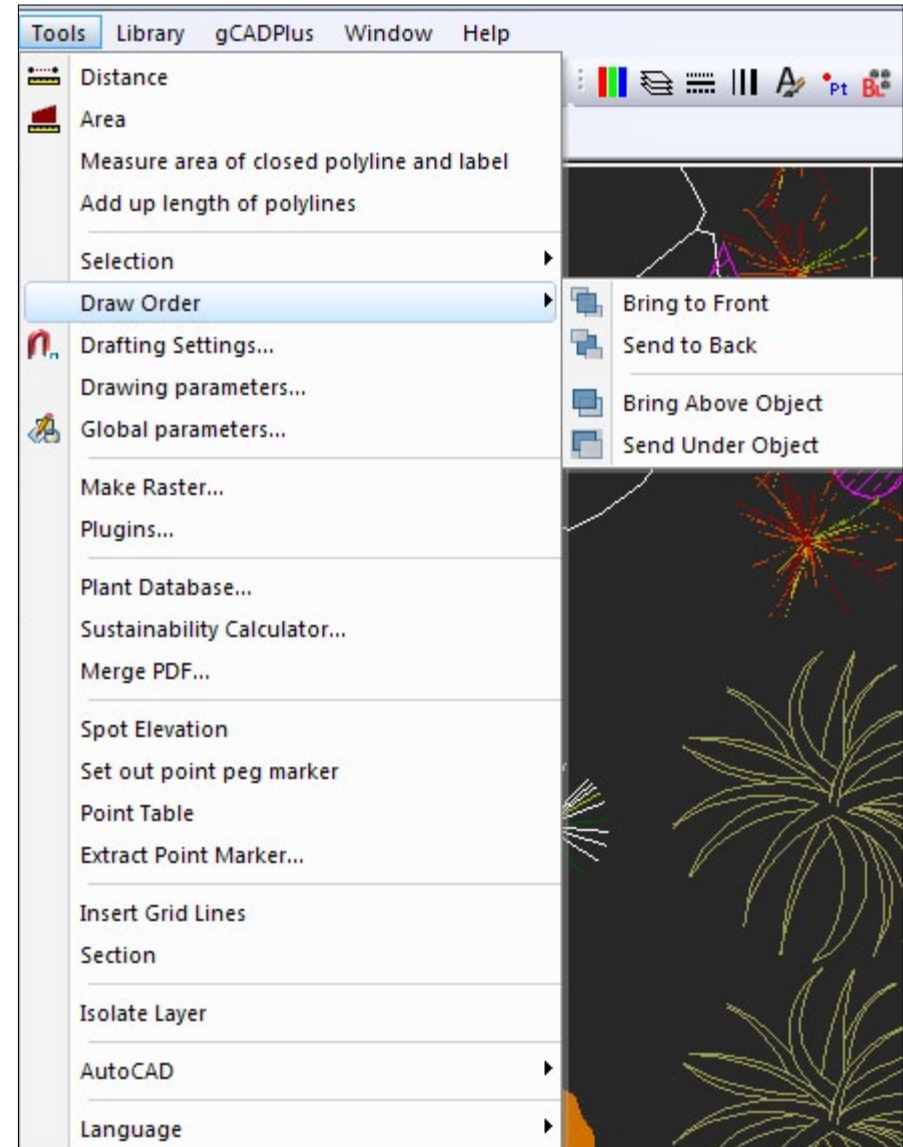# Tools

The Tools drop down menu provides some useful tools to speed drafting and editing. The following are available:

- Distance
- Area
- Measure & label closed polyline
- Add up lengths of polyline series
- Selection (All, un-select, Select by Current Layer, Select by polygon)
- Draw Order (bring to front/back, bring above/below object)
- Purge
- Drafting Settings
- Drawing parameters
- Global parameters
- Make Raster
- Plug-ins
- Plant Database
- Sustainability Calculator
- Merge PDF
- Spot elevations
- Setout Point Marker
- Draw point table
- Extract Point Marker data to Excel
- Insert grid lines
- Draw Section
- Isolate Layer
- AutoCAD compatibility checks
- Switch Language.

The Tools drop down menu.

Distance

This command, found on the top of the Tools drop down menu and on the standard toolbar [or activated simply by typing DIST in the drawing editor], asks for a start point for a distance measurement and a second (end) point. The distance between the first and second click is reported both in the command area and on the screen at the cursor point. When a third point is added, the running length is calculated so you could for example use distance to measure total lengths of irrigation piping. ,

Tip: Use object snap to provide accurate start and end points for a distance measurement. Although it may appear during the operation that you are adding entities or selecting them, these do not form part of the design.

This movie illustrates the use of the distance command.
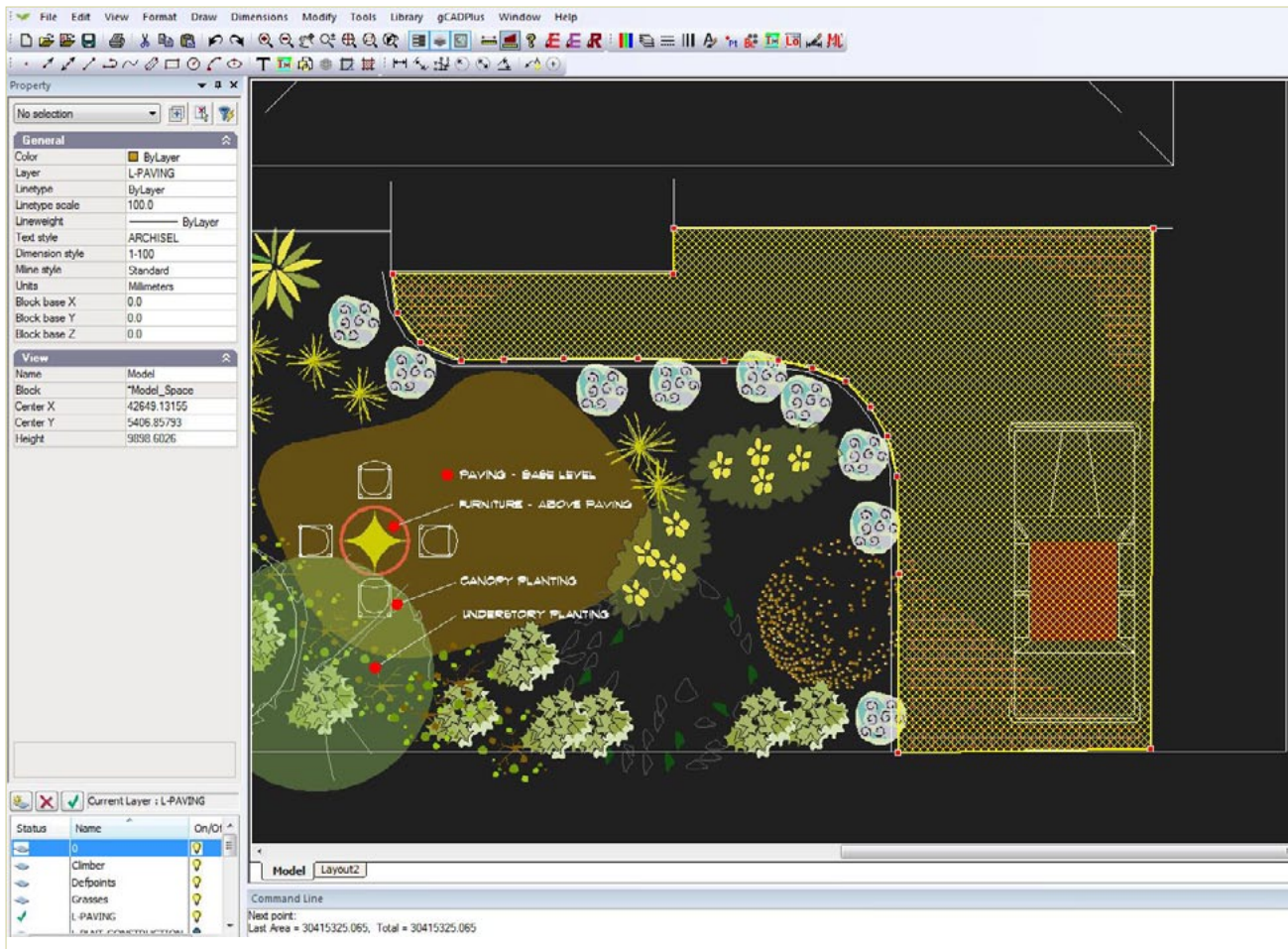
Measuring distance - use osnap to locate points

The area tool.

Area command

The area command (selected from Tools, the standard toolbar or started from the command area or by typing AREA), sets a yellow shape over what can be quite complex areas. Entity snap tools can be used to precisely mark points on the perimeter of the area to be measured if precision is needed. The value for area will be reported in the command line in square units - mm square, m square or square feet depending on the base unit in use.
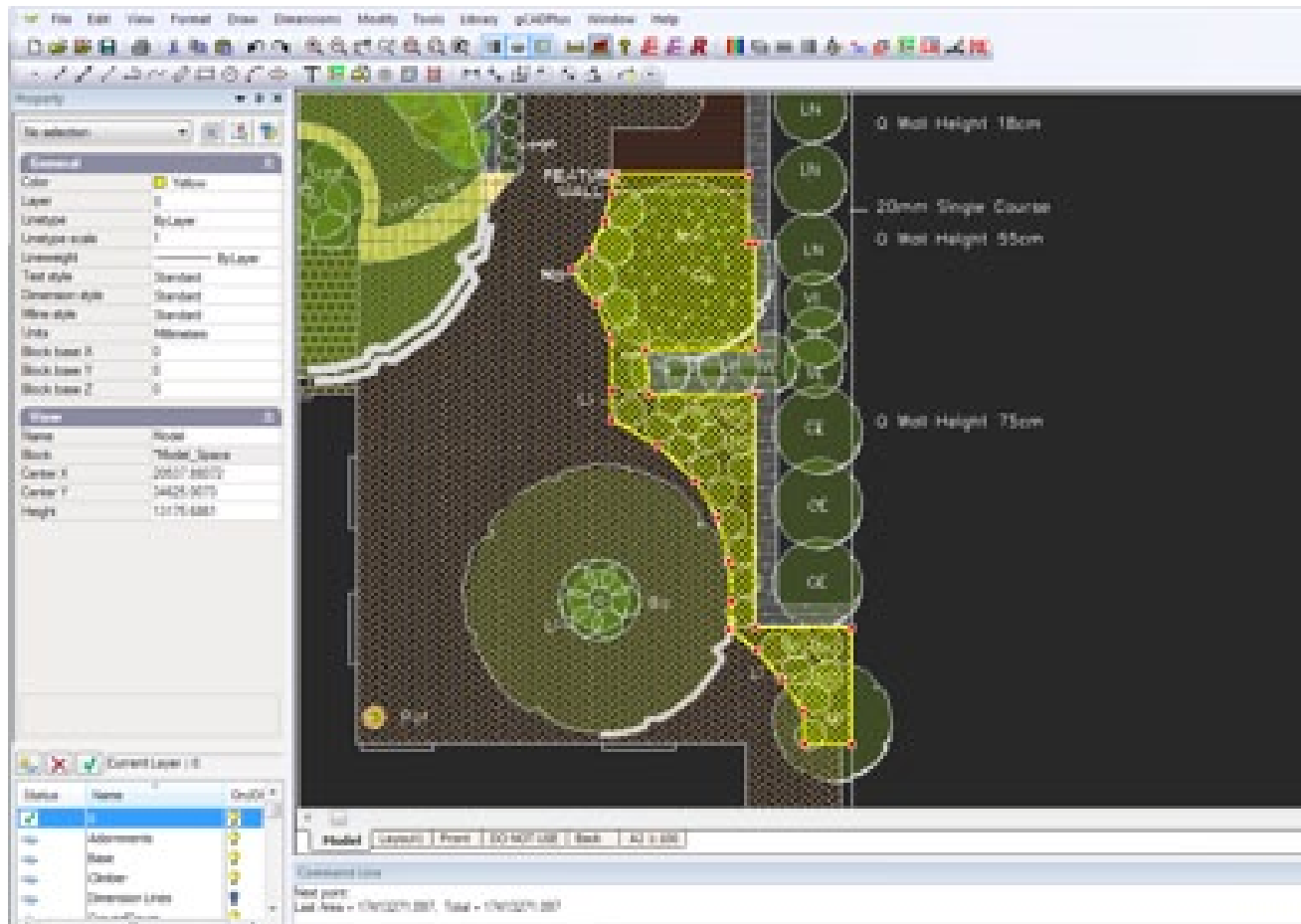
Using an area value

The value reported can be copied from the command area (use Control C combination or Command C on the Mac), the single line text or leader command started and the value pasted into the text box.

*Tip: After the copy, round off the value to a suitable number of decimal places.*

The area command has many uses. Like the distance command, when accurate measurements are required, it should be used in conjunction with osnaps.

Here we show how to use the area command to work out the area of a dwelling in a design by a firm of arborists.

It is worth repeating that although it may appear during the operation that you are adding entities or selecting them, these do not form part of the design.

Measure and mark the area of closed polyline (and label)

This tool calculates the total area enclosed by a polyline and labels the area. You might well use it to calculate volume of mulch required for planting beds by multiplying the area value by depth of mulch.
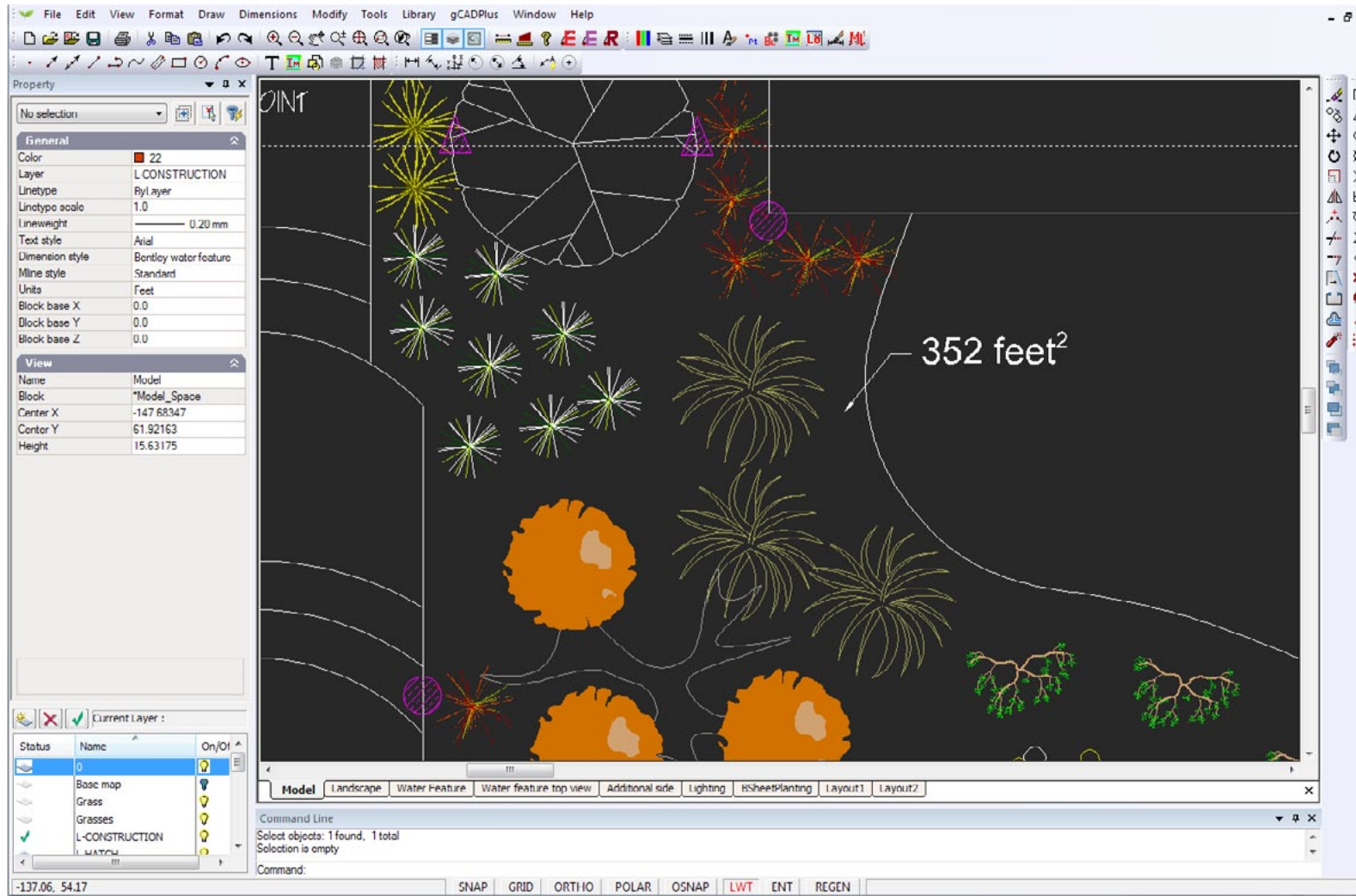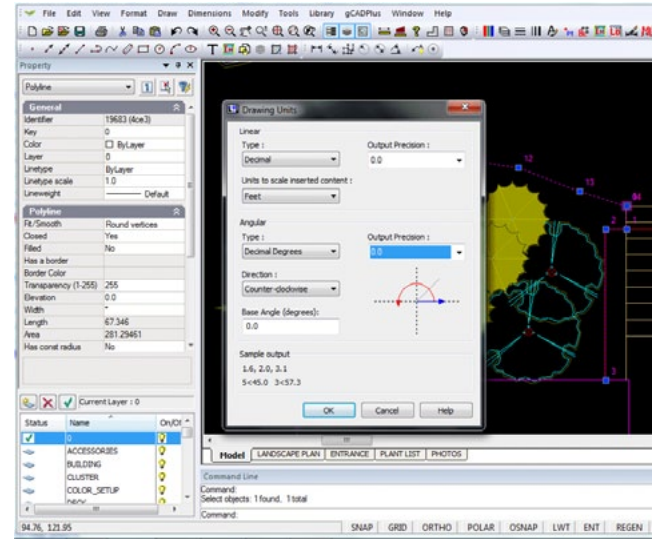

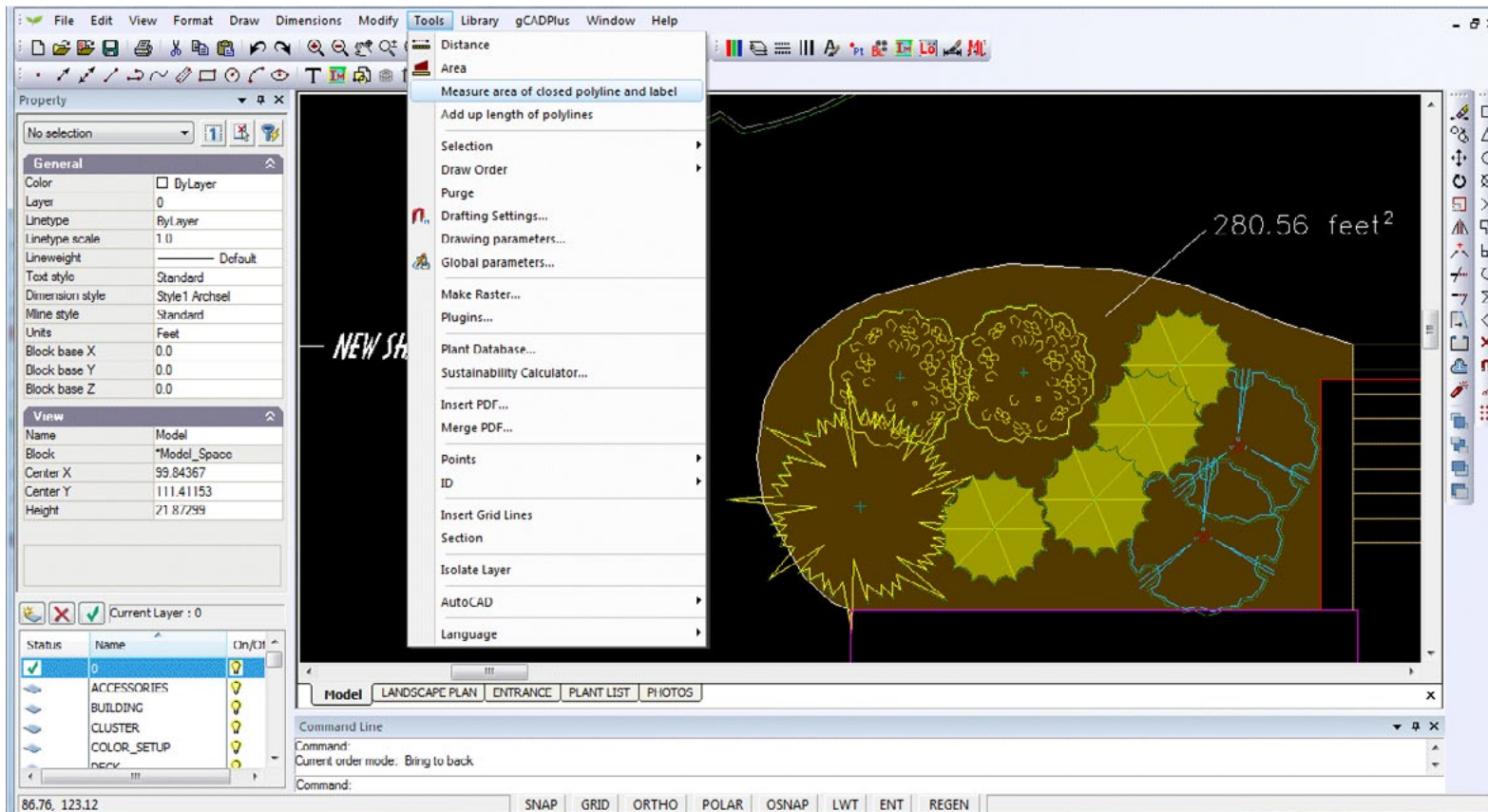*The mark area and label tool.*

This movie shows how to mark the area of a garden bed that's contained with a closed polyline.

Tip: If you are working in the Imperial system, make sure that you have set your units to decimal feet otherwise the area calculation will be incorrect.

The area text will need some editing to reduce the number of decimal points reported. In the figure below, the area has been rounded off to two decimal places.
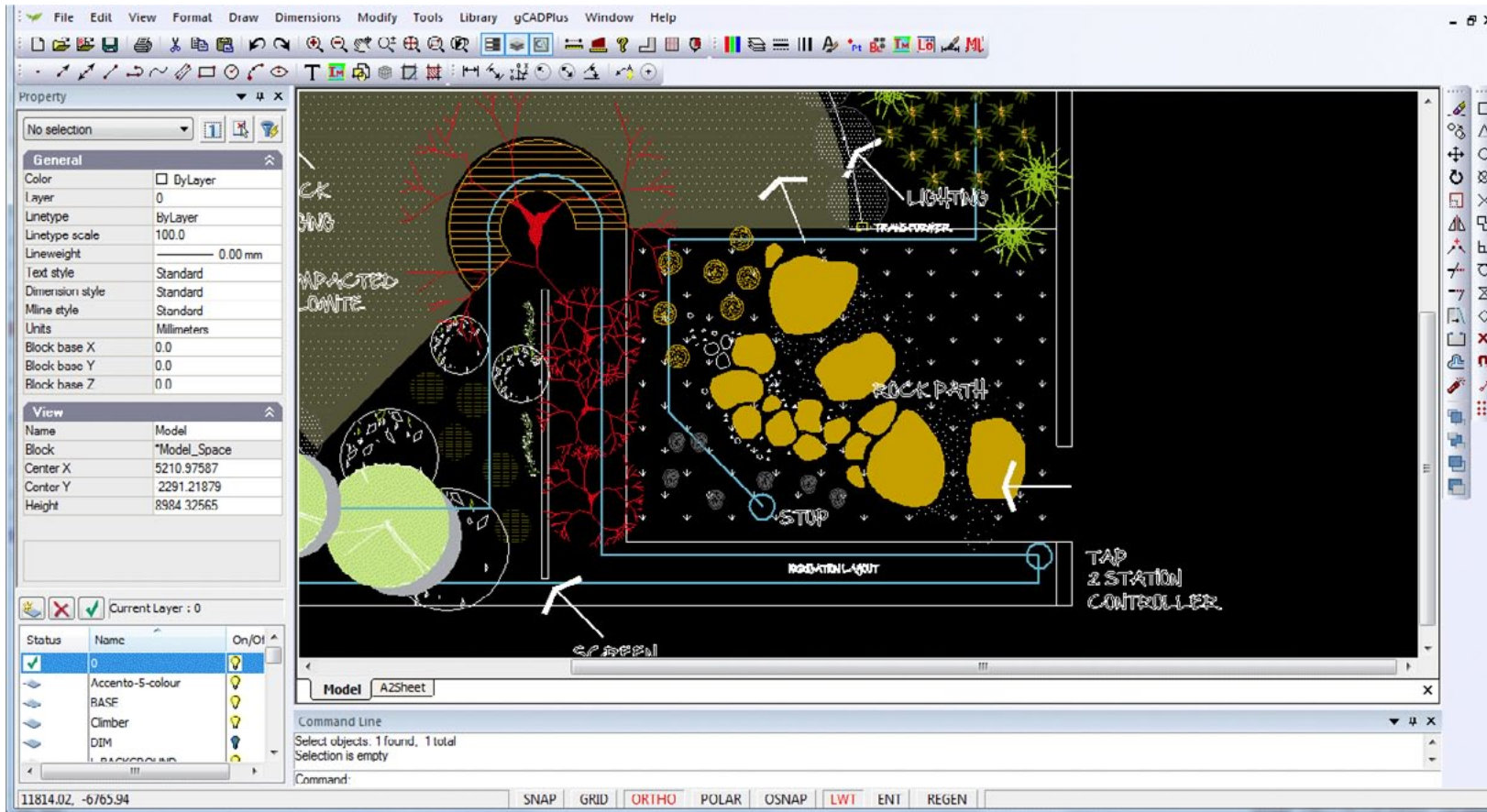
Total the length of a series of polylines

If you have a series of polylines and want to total the length, use this tool. The polylines do not have to be contiguous and might indicate a complex set of irrigation piping that can be totalled in one step.


Total length of irrigation piping required.

Selection

Various methods for selecting and manipulating a selection set have been discussed earlier.

Draw order - the entity stacking command

There is often a need to re-arrange the manner in which entities overlap. For example, mulching or paving would normally be seen at the base of a series of stacked entities. Similarly, tall trees forming an upper canopy of a design might be seen on top of lower planting. In order to cope with this need to control stacking order, gCADPlus provides a tool to allow changes to be made to the stacking order of entities. One (entity) object can be set to lie under or above another if required. Options are: send to the back, bring to the front, and for more subtlety, send above or below an entity.

This movie shows how to change the stacking order of a group of entities.
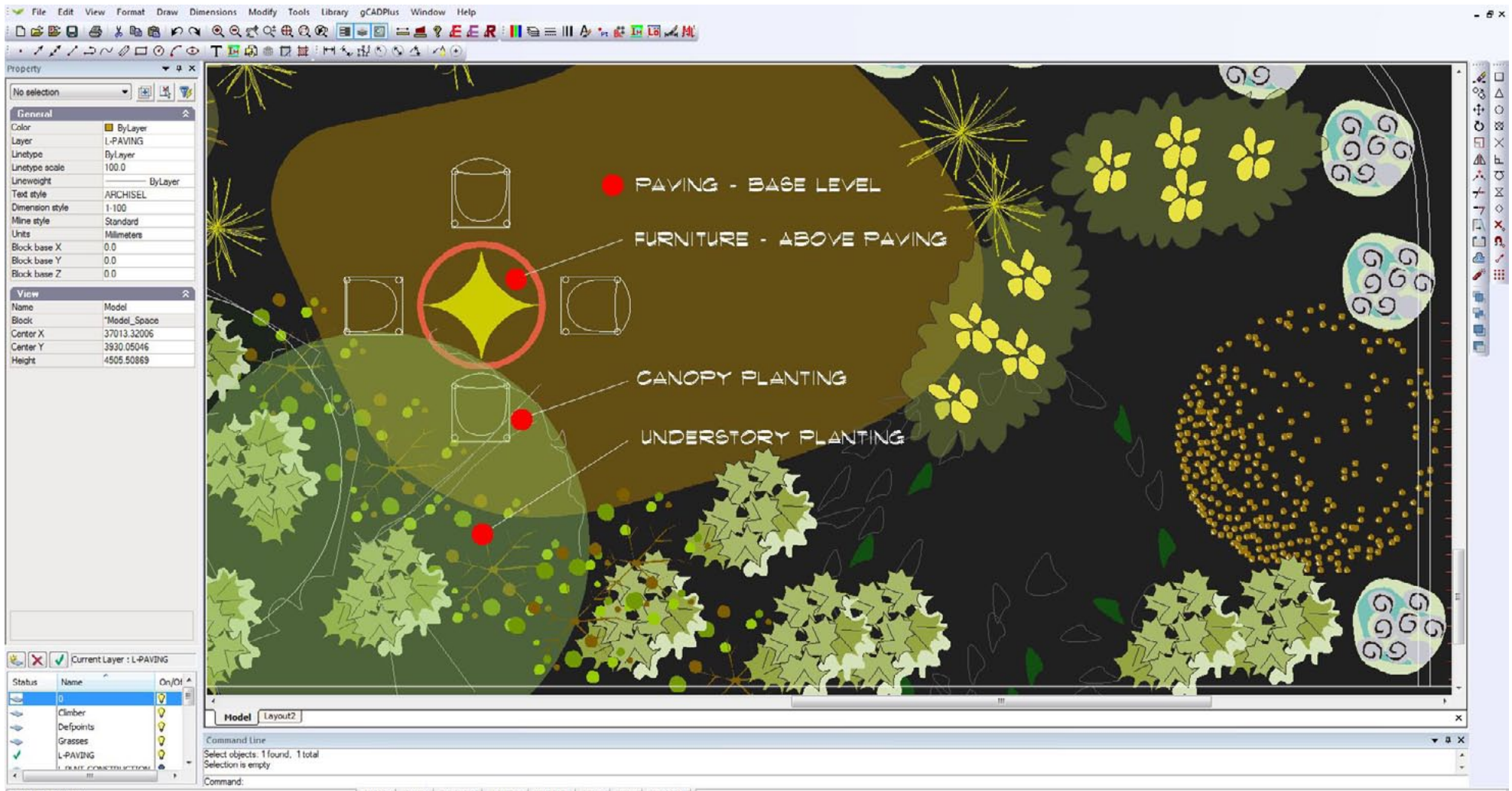
The Tools>Draw order option can be used to change the stacking order of entities.

Purge

This option removes unwanted blocks (commonly symbols, but other blocks as well) from the drawing.
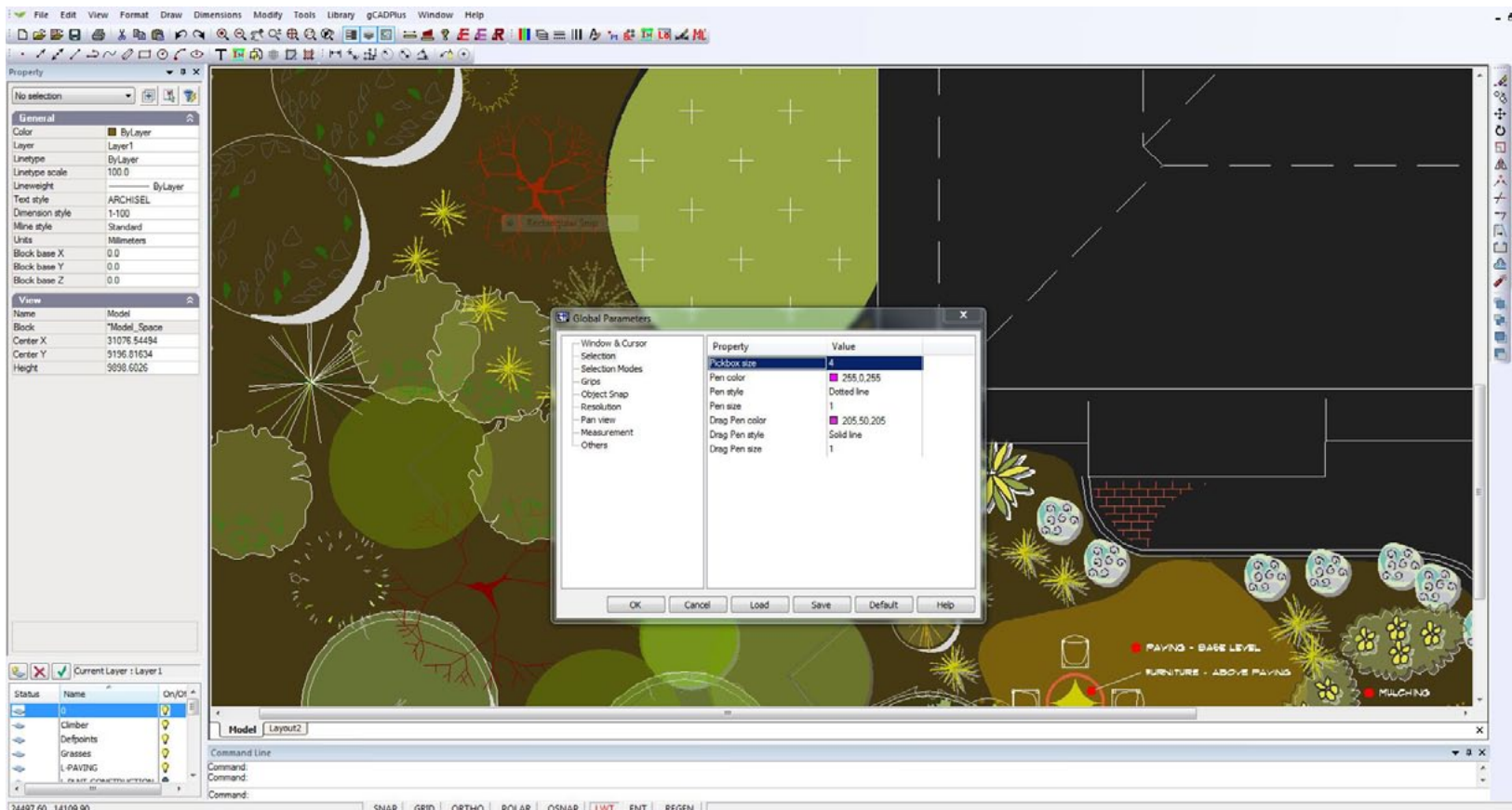
Drafting settings

These were discussed in an earlier chapter.

Global Settings

It is possible to make permanent changes to the way in which gCADPlus behaves; alter selection color, size of cross hair cursor, shift to add and so on.

Here we discuss making global changes to the gCADPlus drawing environment.

The Tools>Global Parameters option can be used to permanently change the behaviour of gCADPlus.

Make raster - export a bit mapped image file

It is possible to export raster images from gCADPlus drawings via Tools>Make Raster. A number of image file format is possible and the resolution of each type of image is controllable.

- Windows BMP (these will be relatively large files)

- GIF (Web format)

- JPEG, (Typical of images from low cost cameras)

- TIFF (image type from expensive cameras - un-compressed; large file size)

- PNG (Web format)

This movie shows how to export raster images from a landscape design for a 'modern' garden.
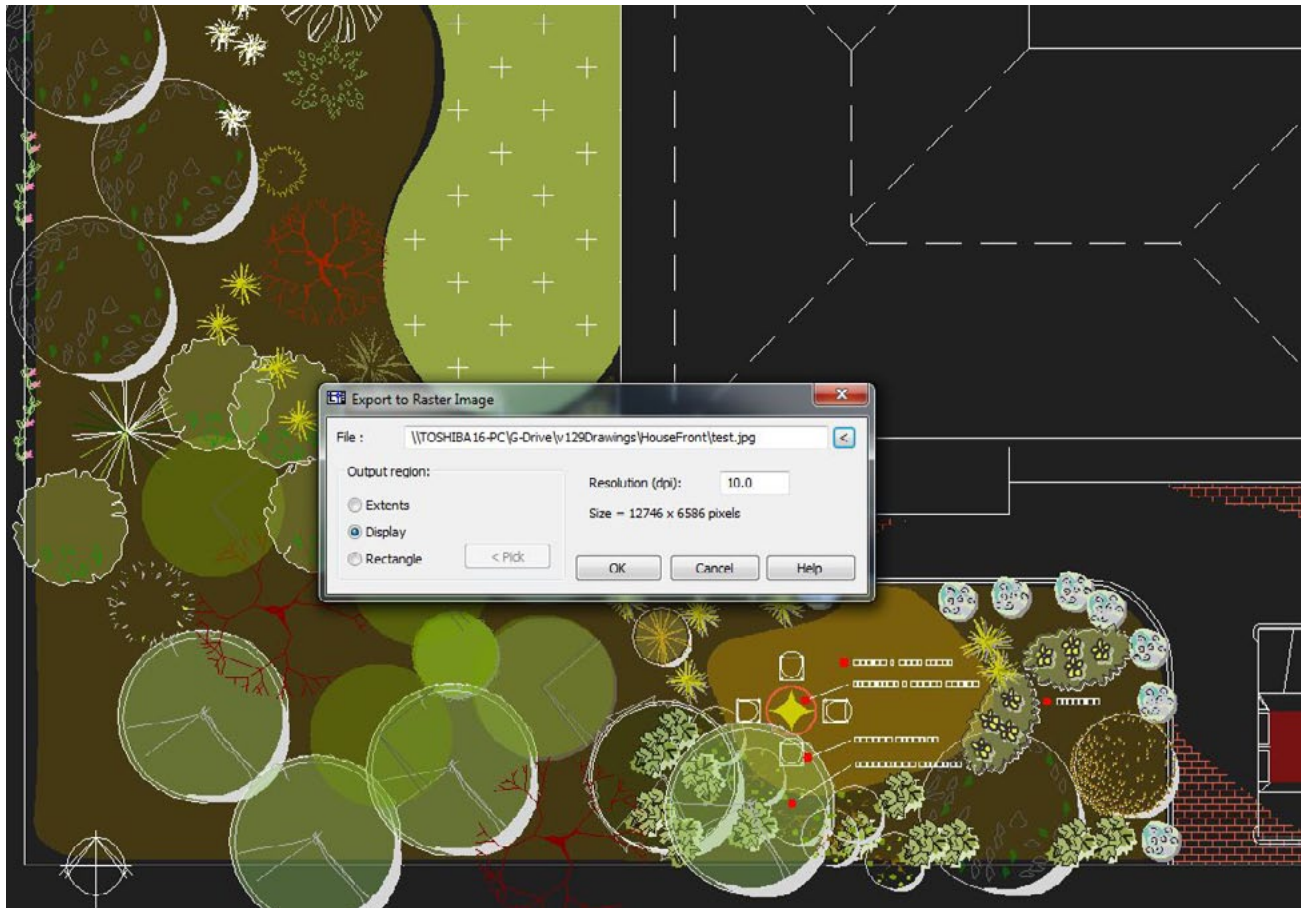
Exporting a raster image from gCADPlus.

Plug-ins

The enhance gCADPlus functionality and have been discussed earlier.
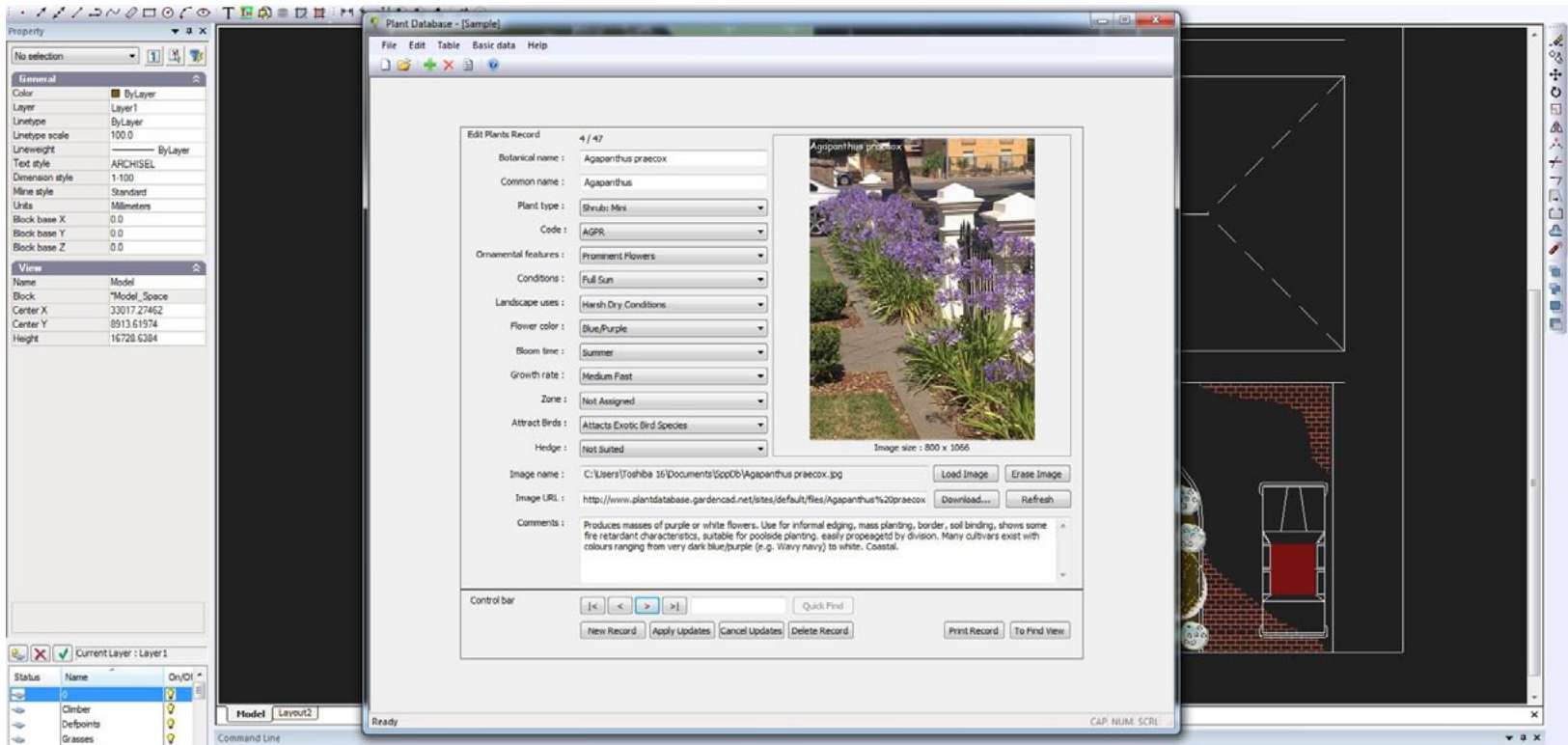
Plant databases

There are a number of different ways to work with plant databases in the gCADPlus environment.

SppDb - Species Database

We have created a separate Windows application called SppDb that's designed to work with gCAD+.

Here is a link a short YouTube movie showing how to use SppDb it with gCADPlus.

Using SppDb with gCADPlus.

Tip: It is important to note that SppDb is designed as a personal plant data file to work with plants with which you are already familiar so you can find species for a particular need. It also stores information about hardscape elements so you can paste images into plans to illustrate concepts. Once installed, SppDb is called from the Tools drop down menu and appears in its own window above the drawing as shown below.

The database floats in its own window. Use the search facility to find species with the characteristics you want and export the list to gCADPlus as a gcp file or copy the link to an image file and paste it into a drawing.

Using native gcp plant database files

As part of the gCADPlus drop down menu, the gCAD+ also loads, edits and works with its own internal plant lists. A substantial list of plant species called GardenCAD is part of the gCADPlus application. It is used to automate the production of planting schedules. The figure below shows the sample gcp plant data file supplied with gCADPlus loaded into the drawing editor. In order to generate a plant schedule, each symbol in the design is assigned to a particular plant species. There are tools to edit the list, save it to another name and to edit records in it

We have included a spelling checker in the gcp plant database tool. The red underlines in the figure above show those species names that have not yet been added to the dictionary. Adding new species and checking spelling

is an important step to ensuring that botanical names quoted in an automatically generated plant schedule are accurate. These plant list files
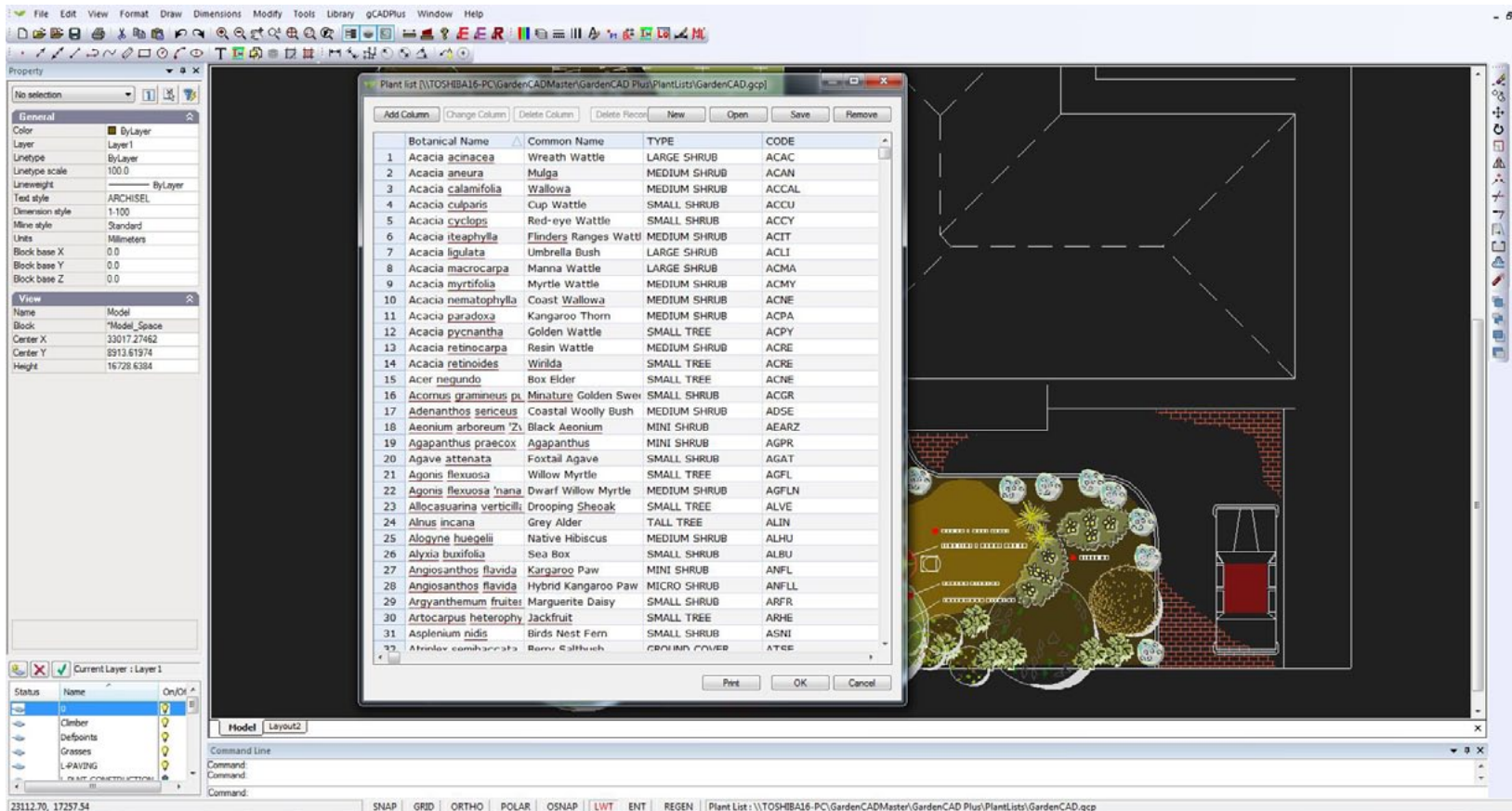
are associated with each design. It is possible to attach unique files for each job or attach a more general list.

3. Online web databases

There are a great number of plant databases available online. A particular favourite of ours is an English database 'DeepRoot' which contains an exhaustive collection of images of thousand of plant species. DeepRoot can also be used in association with gCADPlus drawings. A web version of DeepRoot is also available.
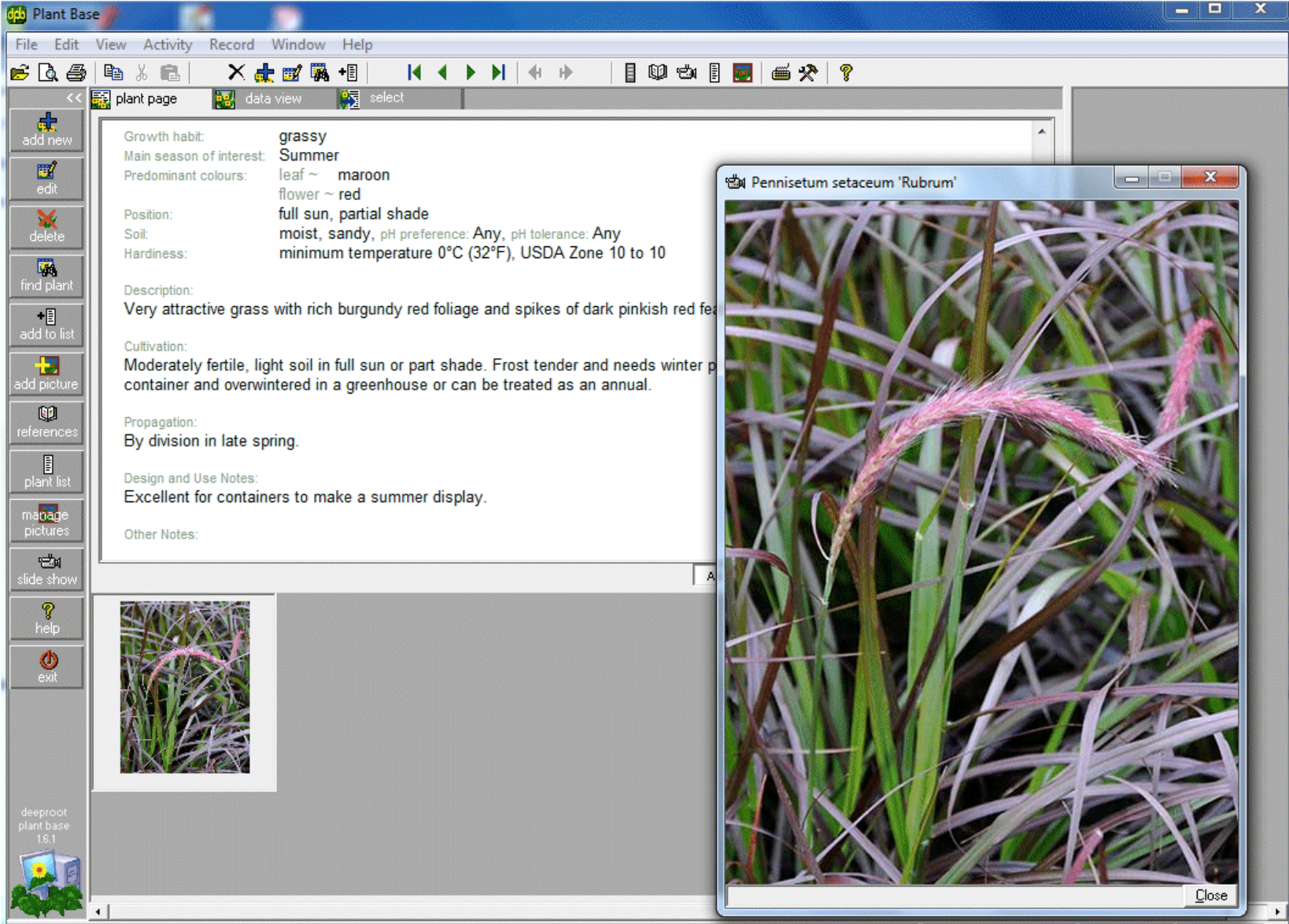
*DeepRoot - a massive online database.*

Sustainability calculator

This tool provides a mechanism for a structured approach to assessing a landscape designs for sustainability and runs in its own window floating on top of gCADPlus.

A number of questions are posed, each asks for an assessment of how well a particular 'sustainable' characteristic has been dealt with.

A movie showing how the sustainability tool is used.

Each question is rated with a score ranging between 1 and 10 and the calculator adds the total and calculates a sustainability index. As a question is answered, a tick
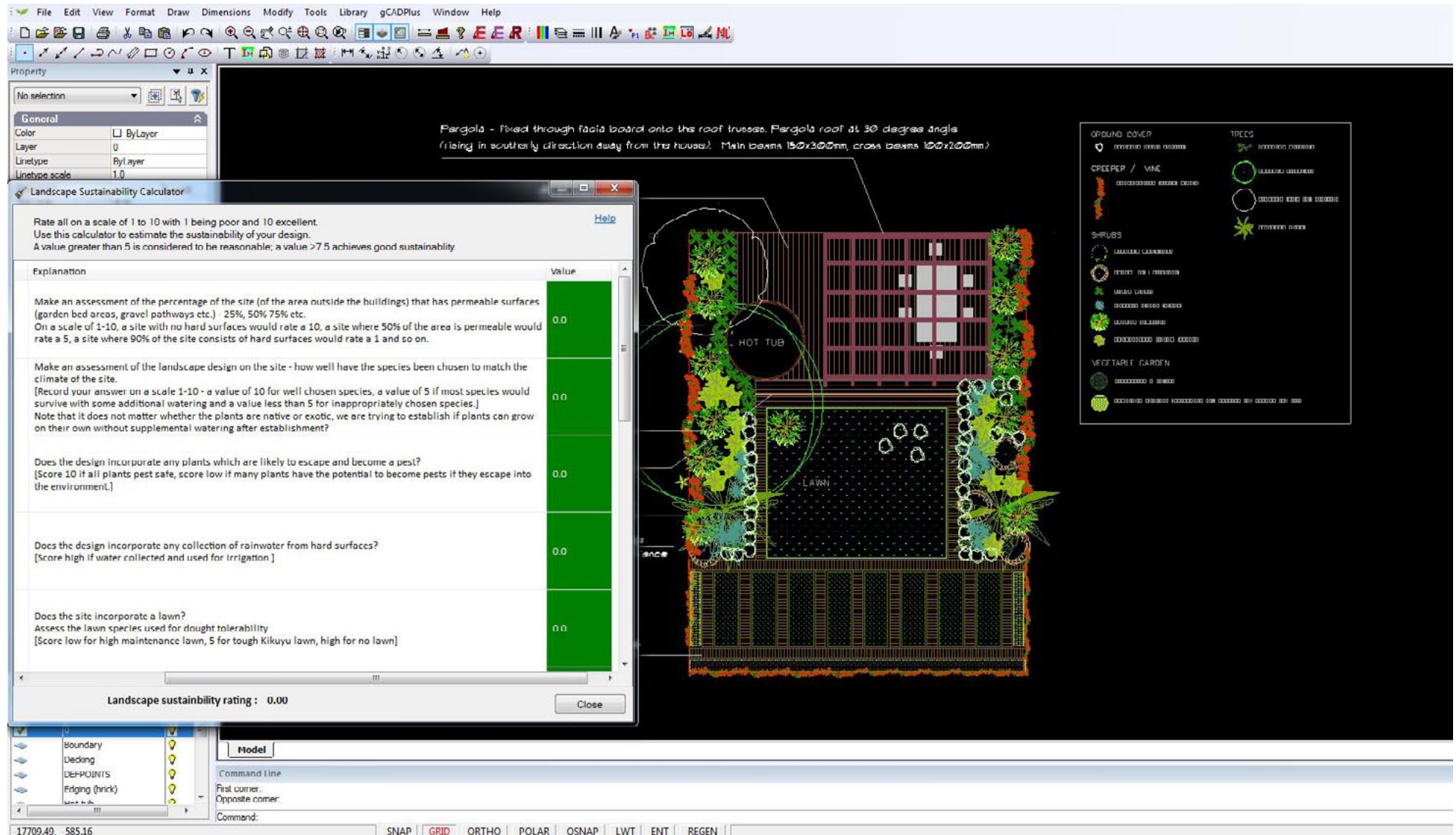
appears in a check box. If the question does not apply to the design being assessed, leave unchecked.

The figure below show the first question. Here you are asked to make an assessment of the proportion of the landscape area that is open to penetration of rainfall, i.e. provide an estimate the percentage of permeable surfaces. A site in which there is a high proportion of permeable surfaces will score highly on a scale of 1-10.

No	Question	Explanation	Value	
1	*Rate permeable surfaces.*	Make an assessment of the percentage of the site (of the area outside the buildings) that has permeable surfaces (garden bed areas, gravel pathways etc.) - 25%, 50% 75% etc. On a scale of 1-10, a site with no hard surfaces would rate a 10, a site where 50% of the area is permeable would rate a 5, a site where 90% of the site consists of hard surfaces would rate a 1 and so on.	0	

The second question is shown below. Here you are asked about the species chosen and their reliance on extra watering. If all species chosen in the planting plan will survive on natural rainfall after the first year, score highly.

The calculator keeps a running total and at the end of the series of questions presents an overall score. We suggest that a score > 50% means that reasonable attention has been paid to ensuring a sustainable landscape design.

Tip: Some questions may not be appropriate for every design. These can be left unchecked.

| 2 | *Rate species selection.* | Make an assessment of the landscape design on the site - how well have the species been chosen to match the climate of the site.
[Record your answer on a scale 1-10 - a value of 10 for well chosen species, a value of 5 if most species would survive with some additional watering and a value less than 5 for inappropriately chosen species.]
Note that it does not matter whether the plants are native or exotic, we are trying to establish if plants can grow on their own without supplemental watering after establishment? | 0 | |
| 13 | *Rate construction materials.* | Have appropriate low impact materials been used in constructed elements in the garden? | 7 | ☑ |

Landscape sustainbility rating : 5.71

Sustainability in the landscape is a must. We live in a world of finite resources.

- **Reflect:** If I want a deck, do you really need one this size? How often will I have 80 people on my deck? Could I go without or could I use a substitute.

- **Reduce:** Can I set my areas up to use less energy?

- **Refuse:** If what is proposed is a bad idea say no. You may not need it or there may be a suitable substitute.

- **Reuse:** In the rebuild, is this material really at the end of its useable life? Can I find another use for it? Can I find someone else who has a use for it?

- **Recycle:** Can this material be processed to have a new life? This is the next alternative to reusing. Can I use a recycled product instead?

Living chess board - design and construction by Ross Uebergang.

Mulch and Compost - Go to a local landscape supplies centre and use their courtesy trailer or get it delivered. The mulch will mean less watering, better soil structure and healthier plants while limiting the amount of weeds that pop up in your garden and spread throughout your neighbourhood. Depending on the style of mulch you choose you could spend as little as $30 per 10m2 if you use your local council mulch, or around $60 for decorative mulches. Compost will create healthy soil that needs much less additives.

Choose sustainable materials - If you must put in hard surfaces like decking, paving, pergolas etc, choose materials that have low embodied energies. This is the energy needed to extract, manufacture, transport and install your product. Not only should materials you use in the landscape be low embodied they should also have a reasonable longevity. A fantastic choices for low to medium use paths are local toppings.

Limit the use of hardscapes - How often will you actually have 80 people in your backyard to fill a massive deck? Consider if the space could be filled with plants instead.

Line your fences with Fruit Trees - Fruit trees keep on giving with low maintenance. If you don't have the time to be putting in vegetables every 12 weeks and maintaining a vegetable garden, perhaps fruit trees are for you. They require limited maintenance and you do not have to replant every season. Each year more dwarf varieties come out that take up less space which is fantastic for the small garden. Generally in the Australian garden, fruit trees require sun for most of the day to provide fruit that is plentiful and tastes good. A fence line is a great spot to find this sun.

Can I fix it? - Your deck might be looking a little ragged at the moment but perhaps all it needs is a smarter choice of decking boards. Perhaps it just needs a fresh coat of oil. Maybe a coat of paint on the back fence will revitalise the plantings that you have in front of them.

Cube seat - design and construction using recycled materials by Ross Uebergang.
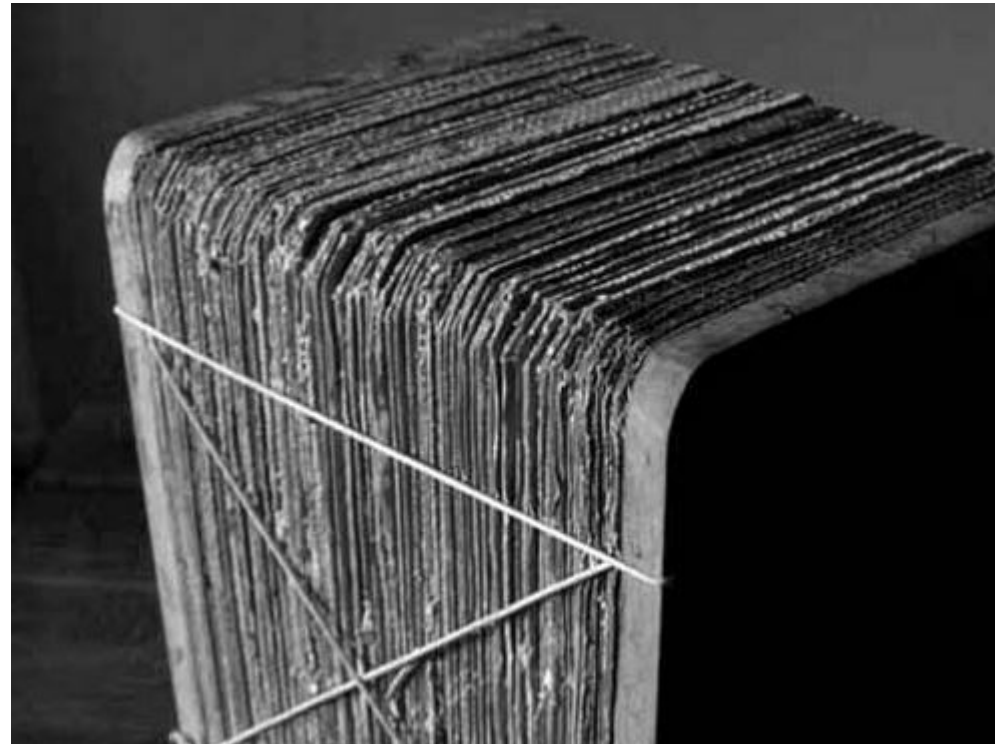
Merge PDF

If you have produced a series of PDF files matching each of the layout sheets, this tool can be used to gather those PDF files into one file ready to e-mail to a client.. Click on the image below to view a sample presentation.

This movie shows how to use the MergePDF tool.

Project:					
MELBOURNE INTERNATIONAL FLOWER AND GARDEN SHOW **ACHIEVABLE GARDEN 2015**					
Location	CARLTON GARDENS				
DWG Title	Landscape Series				
Client	Nursery & Garden Industry Victoria				
Drawn By	AK	Date	9 May 2014	Job No	003
Scale	1:20 @ A4	Rev		DWG No	

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BURNLEY LANDSCAPERS

Points

A number of different point options are available:

- Spot elevation.

- Setout point/peg market.

- Draw point/peg table, and

- Extract point/peg table (to file).

Spot elevation

This enable a point to be placed in the design with a Z value set to it. This is in direct contrast to the usual spot height markers provided by survey firms where the z value of a point is not stored.
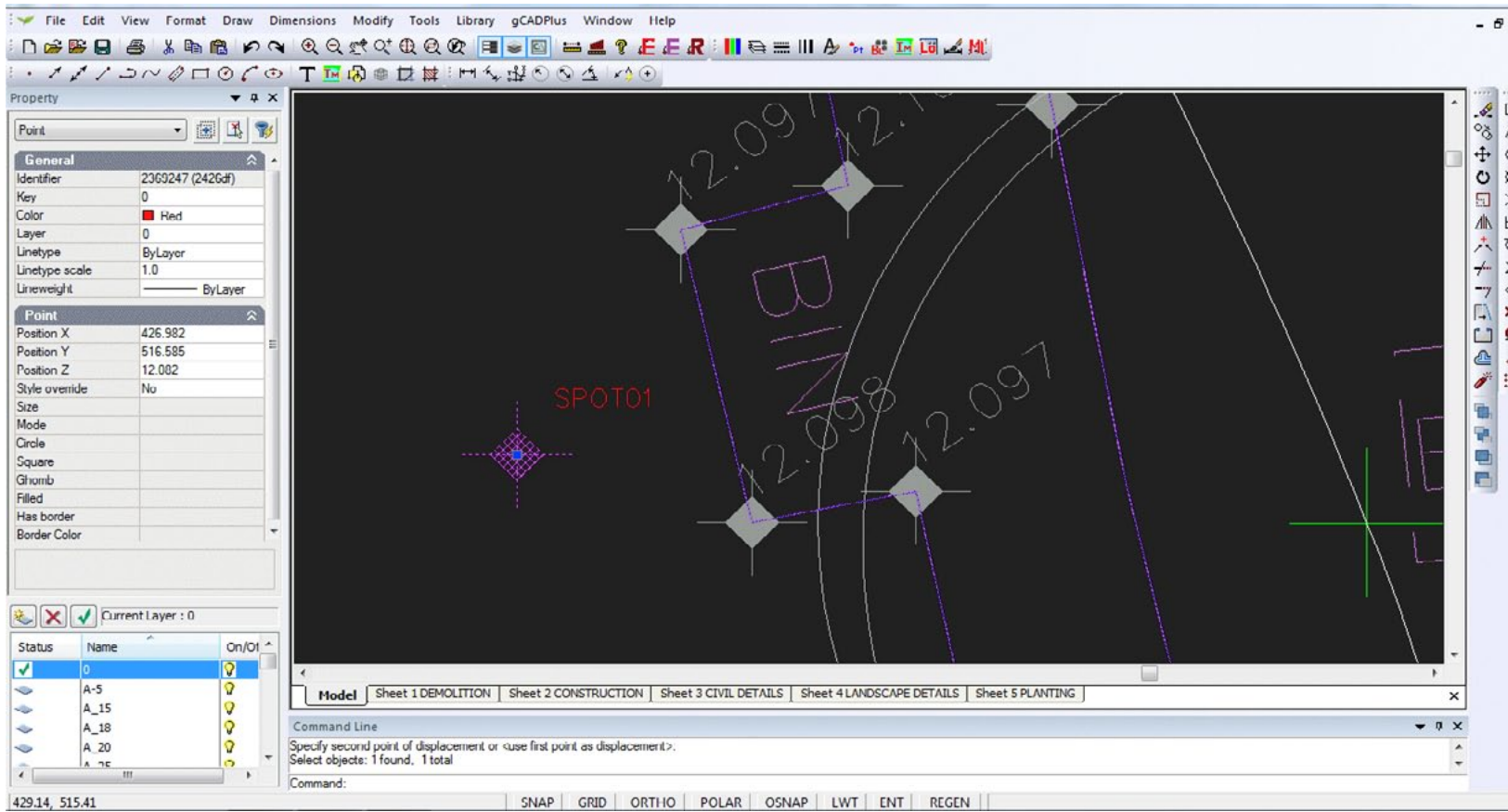
Using the spot height marker.

Setout point/peg marker

It is a good idea to keep the needs of your landscape construction team uppermost when designing. A point is associated with a fixed coordinate position and is often used to place setout markers for a construction team. the figure below shows a typical example. As can be seen from the properties box in the figure below, the entity associated with numbers 41 - 46 is a point. The number itself is simply a pice of text. The POINTMARKER command allows users to place a point entity and text.
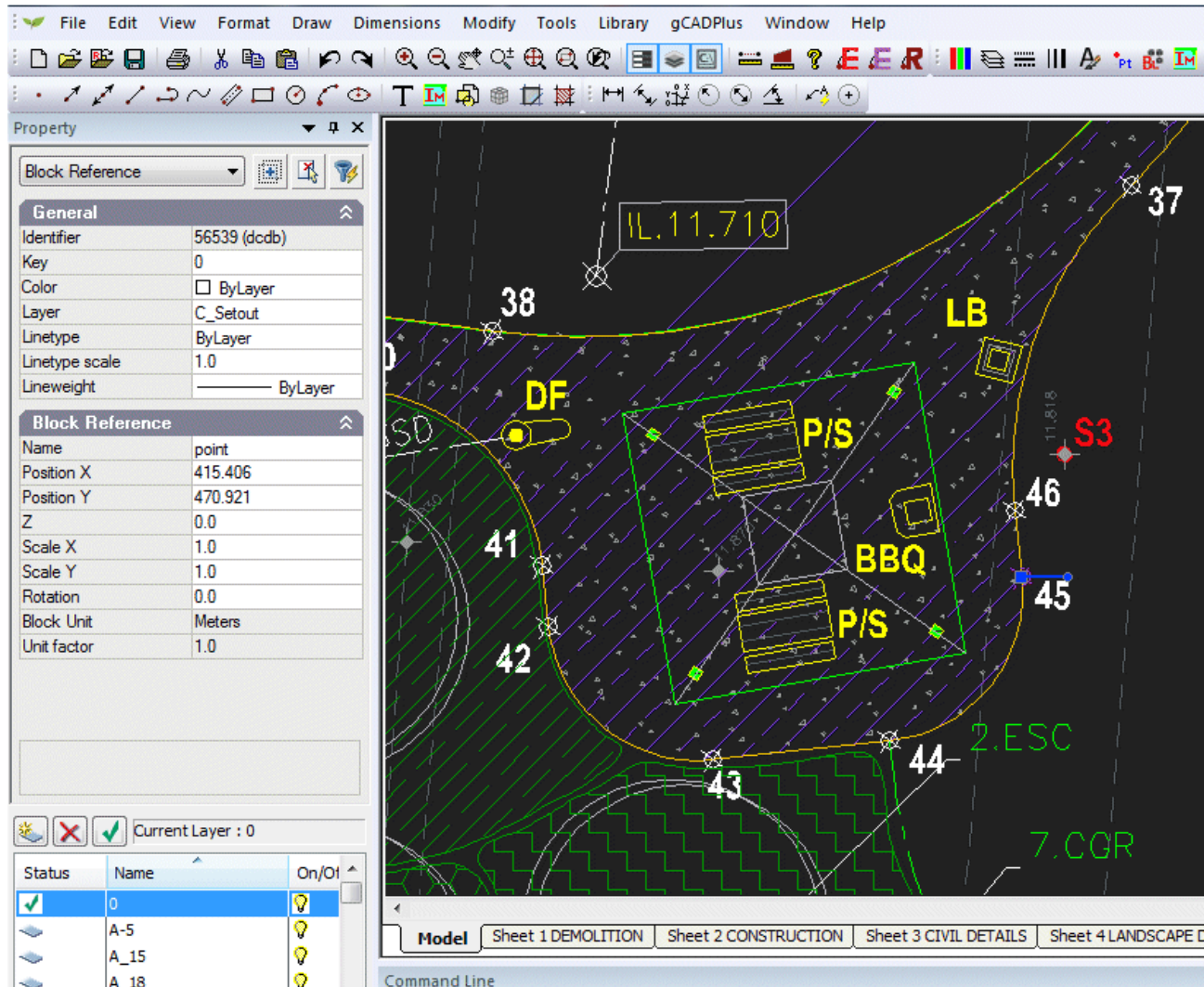

Setout points defining a curve.

The first prompt presented when the point marker tool is chosen ask for a base point. Each point marker is related to this base point. The default value for the location is coordinate 0,0, but it can be set to any convenient

point in the design - perhaps the corner of a building.

To delete a point, start the POINTMARKER command and type "D". When asked to select the point to delete, wrap a selection box around the point. That is easier than trying to make a direct selection.

The construction team can then be provided with dimensions for each point so they can swing two arcs to locate the point.
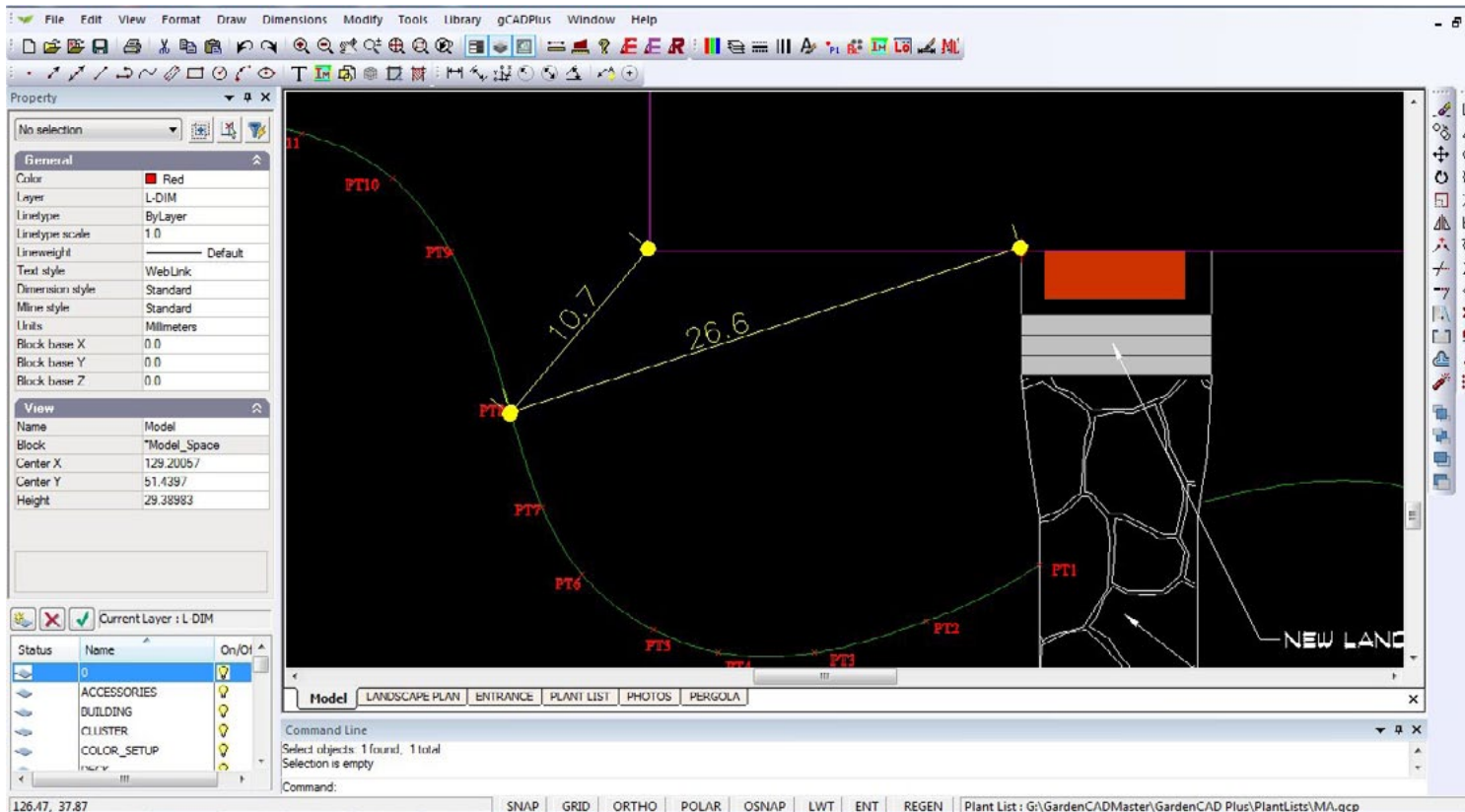
Dimensions can help construction teams. Aligned dimensions in this case.

ID command

There are occasions when you need to establish the x,y values of a location in the drawing. The ID command does just that and reports the coordinates of any location (usually in response to an osnap) - a variation of the command IDPoint, selects only point entities.

Insert grid lines

In common with many page layout document designers who use grids in Adobe's InDesign, many landscape designers prefer to design on a grid. The GRID command (found on the Tools menu) draws a grid over any size design area and has the option of labeling the horizontal and vertical lines. Far from cramping the design style,

a grid, especially based on the size of a dominant window in the building often helps unify a design and spark new ideas.

The grid dialog box allows users to set the number of horizontal and vertical lines, grid cell size and the form of text labels. The grid can be turned into a block and rotated to any desired angle. If the Intersection osnap turned on, it can be a simple matter to layout a design.

The figures below show a design where a grid was used as an aid to set out grassed and other areas.
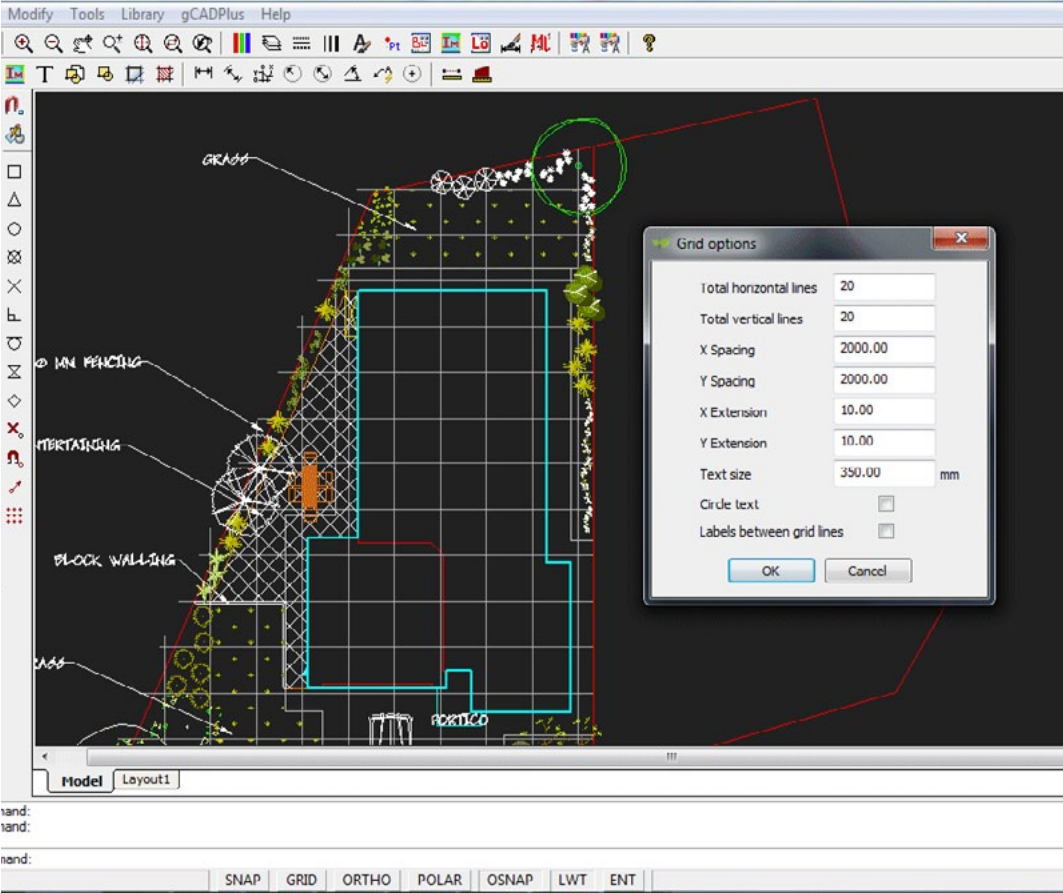

Using a grid as a design aid.
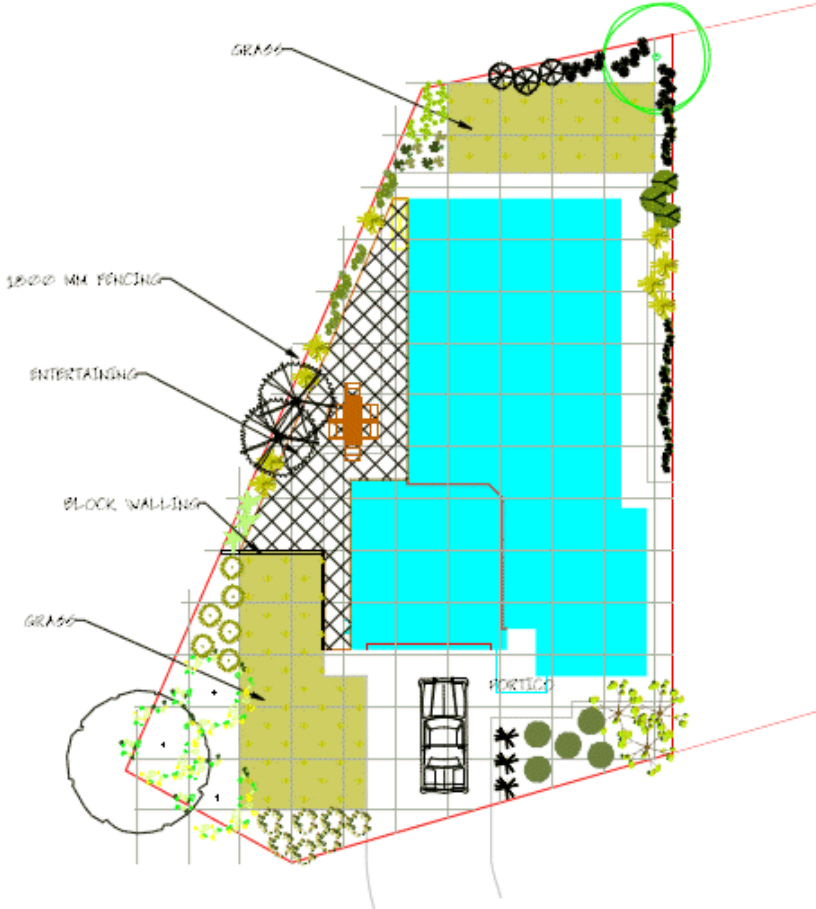
Reference grids

If you are dealing with a large site, labeled grid created with the GRID command provides a method of referring to any particular zone within the design. The figures below show an example from a site in metropolitan Melbourne. The grid has been drawn at 10 meter intervals. Because the grid can be automatically labeled, a reference such as D3 can be used to indicate the location of a proposed fire pit area in a landscape design for a large site.
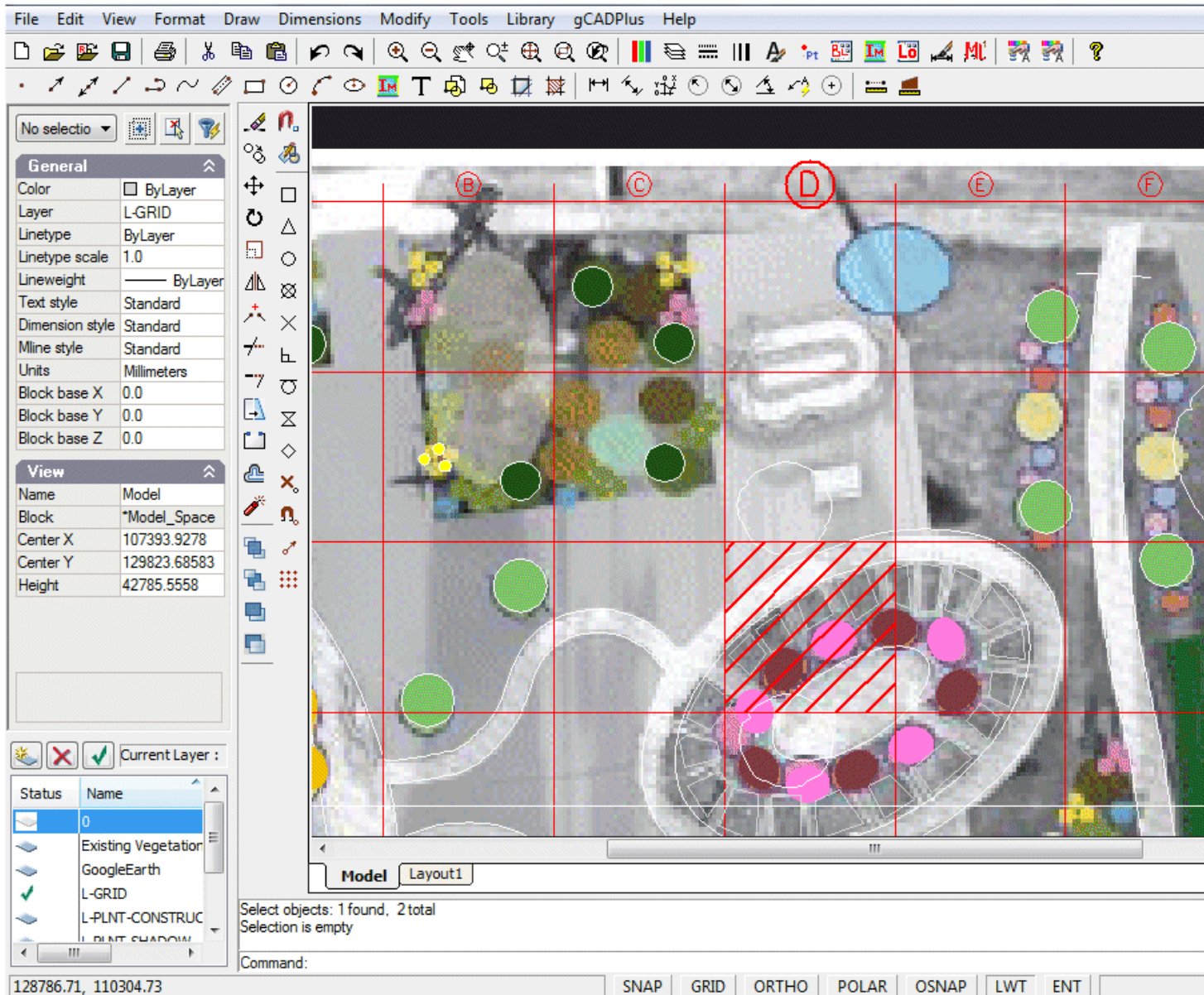
The grid can be a reference to location.

Here is another example of the use of the grid tool. A reference grid has been set up for an arboretum of Quercus spp in Southern Argentina.
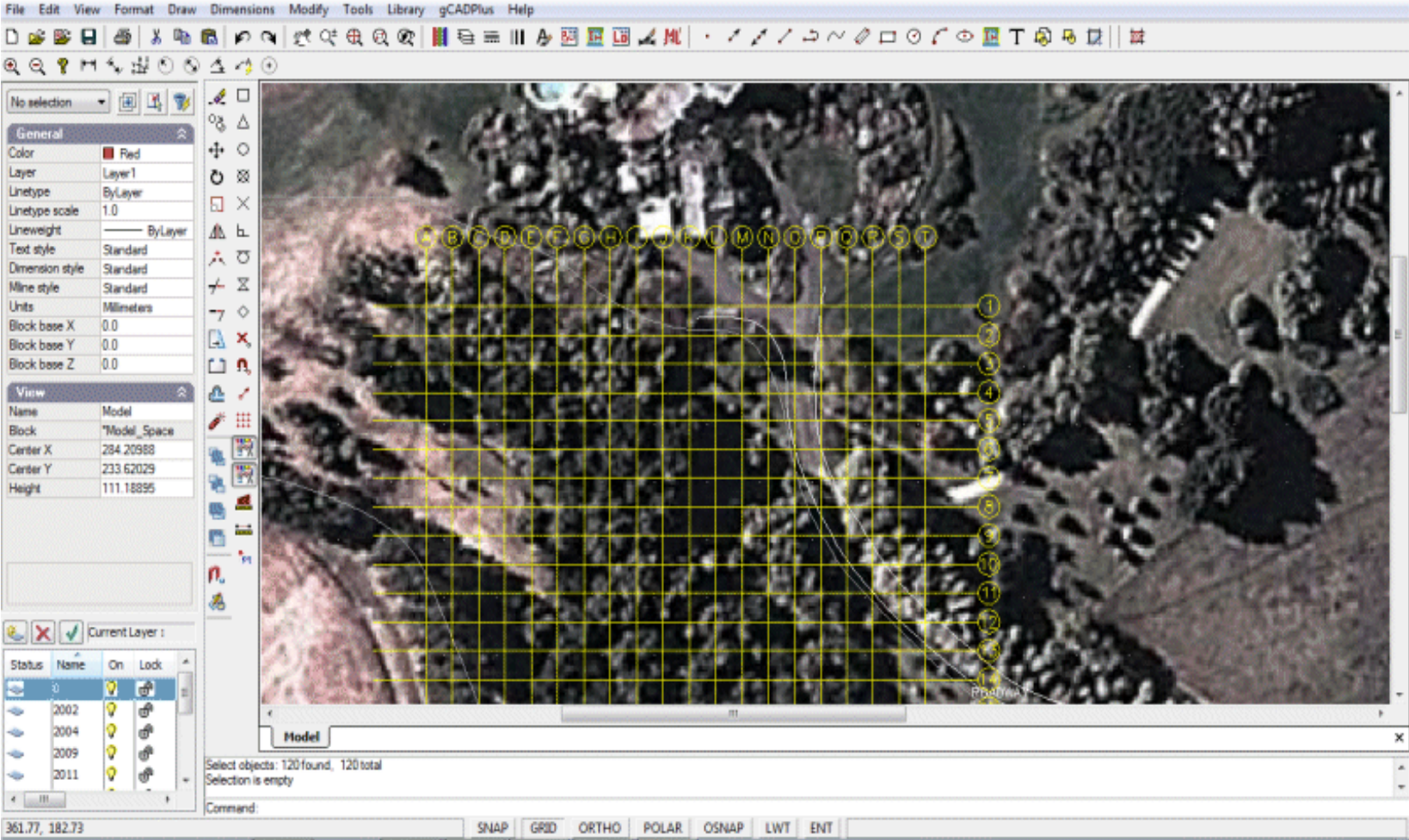
Location grid for an arboretum.

Section tool

An example of the use of this tool was given in chapter 3.

Isolate layer

This tool is used to select a layer and turns off all other layers.

Check AutoCAD drawing

Legacy tool for ananlyzing an AutoCAD dwg file to ensure it can be written. Largely supplanted by our DXFin and DXFout tools.

Clen up AutoCAD file.

Language switching

The use of this tool has been covered earlier.

More on coordinate systems

In common with other CAD software like AutoCAD, Vectorworks, MicroStation etc., gCADPlus works with a coordinate system. Looking at the figure below, positive X is to the right in the drawing editor and positive Y up. Entities can be placed into specific coordinate position and the database keeps track of the position and stores a new set of coordinate values, even if the entity is moved.

This movie discusses the coordinate system used by gCADPlus. We show how to draw line of accurate length using pairs of coordinates (called Cartesian coordinates) and draw lines of defined length at different angles.
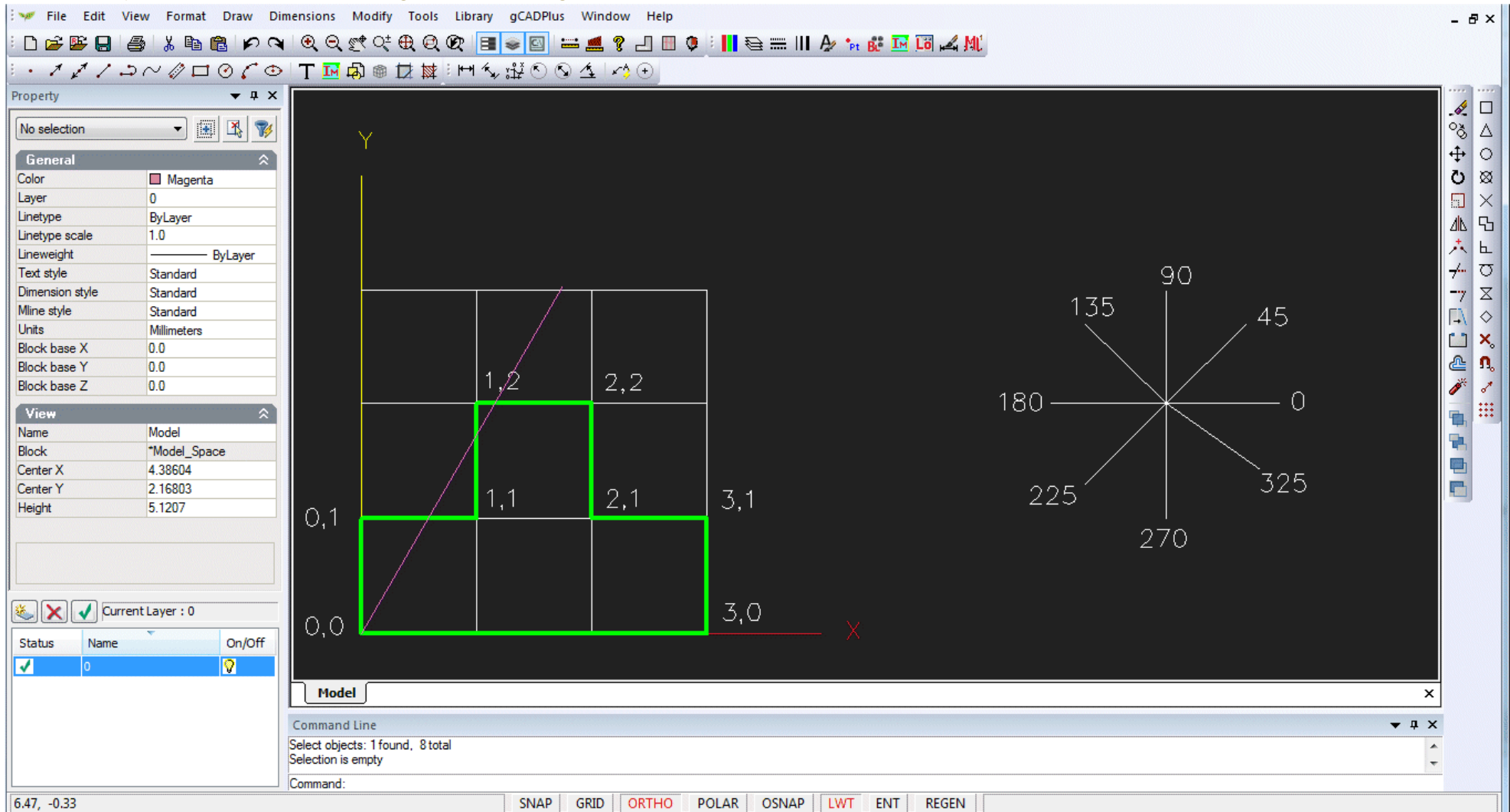
Using Cartesian coordinates in CAD drawings.

Beginners often have some difficulty understanding the different coordinate systems available in gCADPlus.

This movie explains the use of absolute and relative Cartesian coordinate systems along with absolute and relative polar coordinate systems using a typical landscape design file using metric units.
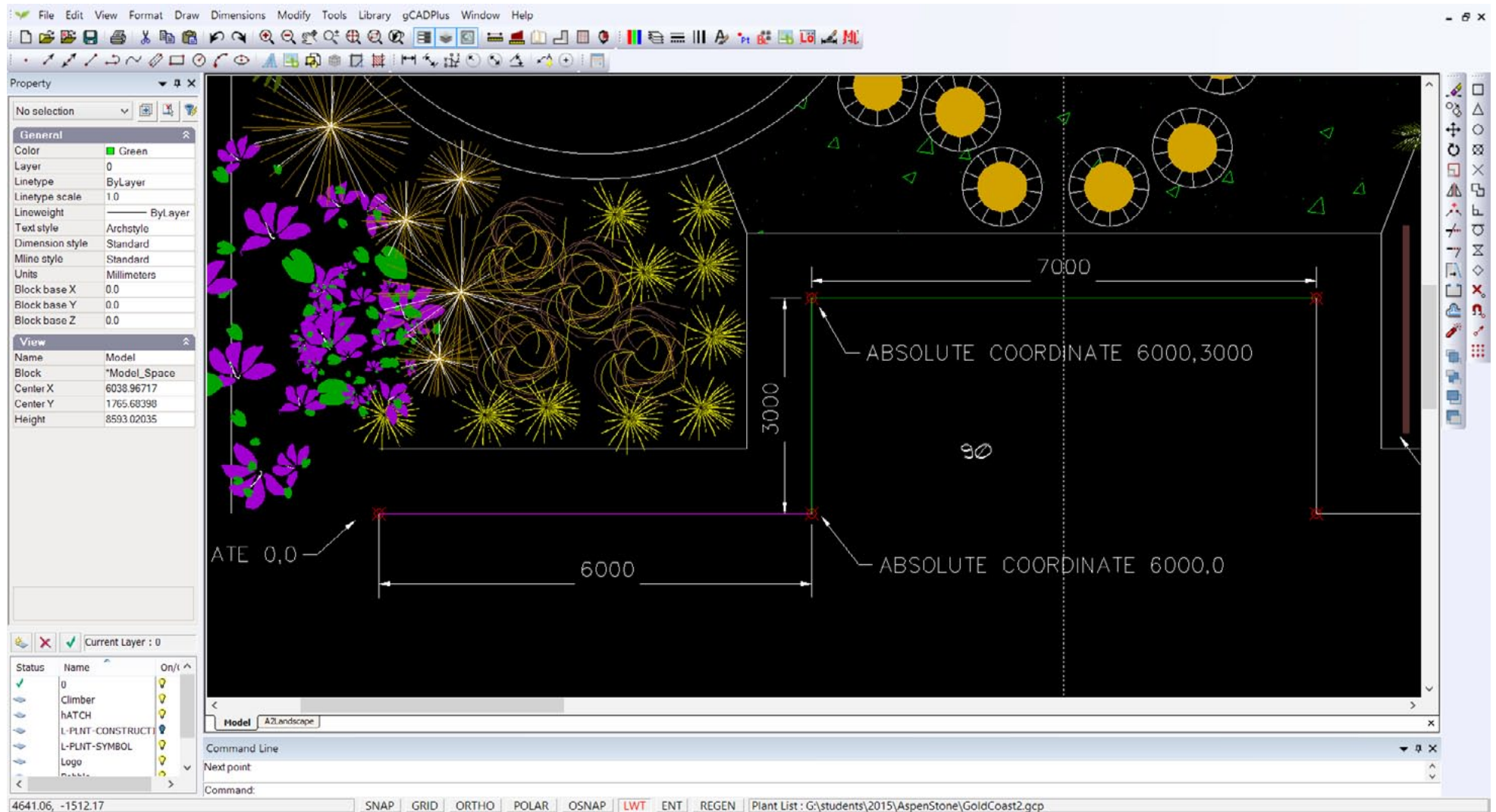
We show how to draw lines of required length in the landscape plan shown above.