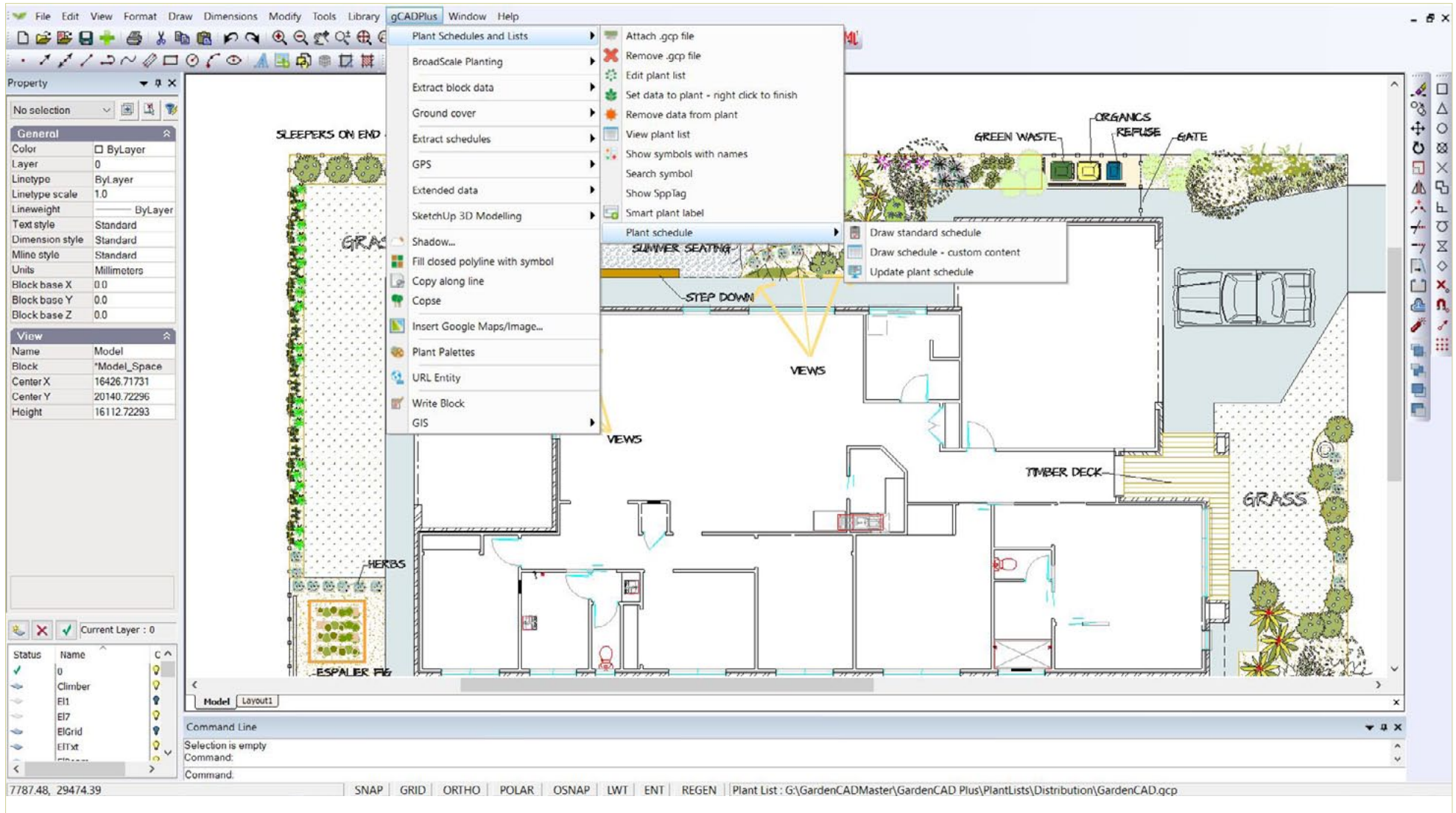# The gCADPlus menu

Many tedious landscape drafting tasks have been automated in gCADPlus. These are gathered together in a drop down menu. The figure below shows this menu and some of the tools reached from it. Note that many of the options such as the Plant Schedule have associated fly-out sub-menus.

In this chapter, we discuss the operation of the various tools on the menu including:

- Labeling of plant symbols in designs for small scale sites and in large, broad scale, landscape projects;

- Generating and updating plant schedules;

- Generating broad scale plant schedules;

- Extracting block information and passing data to Excel and costing designs;

- Tagging and calculating ground cover planting;

- Extracting plant and ground cover schedule information to Excel;

- Importing data from GPS equipment;

- Storing, propagating and extracting extended data with entities;

- Moving data to a layer for importation to SketchUp;

- Writing SketchUp information to DXF;

- Applying shadows to plant and other symbols;

- Filling closed polylines with symbols;

- Copying symbols along a line;

- Using plant palettes;

- The COPSE command;

- Setting a URL with a text entity;

- Writing block data to a file; and

- Using gCADPlus GIS facilities.

- The GOTOSPP command - bidirections data movement between gCADPlus and SppDb

Tip: A number of tools on this menu are dealt with more fully in Chapter 3 - 'Draw with gCADPlus'

Labeling plant symbols

Landscape designers use a variety of methods to indicate (label) the particular plant species associated with a given landscape symbol.

Text

The simplest approach is to label a symbol with a piece of text. The text can be placed in the middle of the symbol or a line/leader can be used to indicate the species as show in the figure below. Four examples of different symbol labeling using leaders with text are shown below. The first shows only text (RS) centered in the middle of the symbol, the next symbol uses a leader with no arrow, the third a leader with arrow and the fourth a leader with a custom arrow.

Text labeling. Many different leader styles are possible
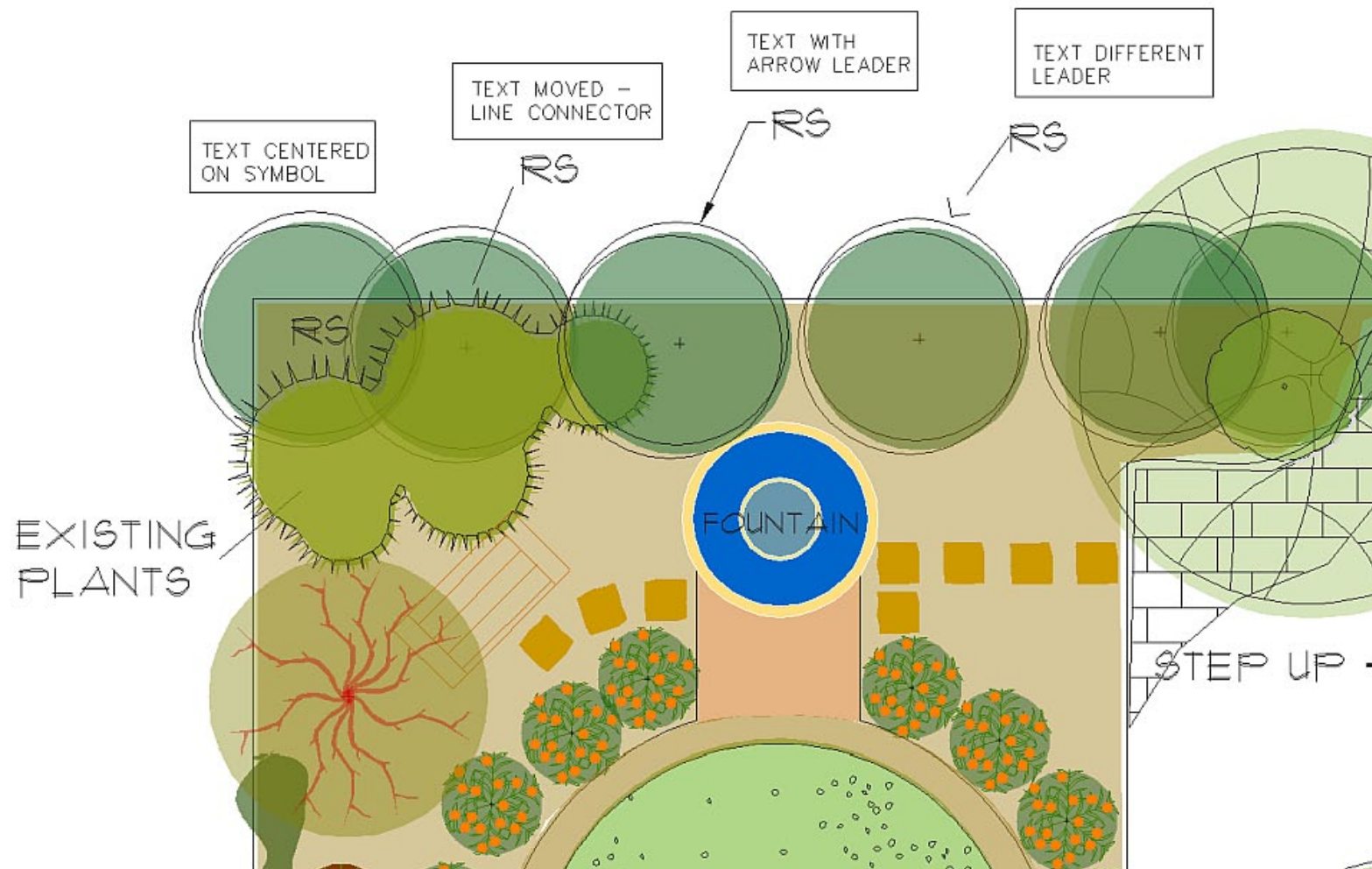
This movie shows some different labelling methods being applied to symbols in a drawing. Note that the current dimensioning style must be set to the style of lettering you require.

Required steps:

Create a new symbol or insert one from the gCADPlus library.

Start the single line text command and type the code or name. Place the text. If required, move the text to a suitable position.

Alternatively, use Dimension > Select Dimension Style > Make the style current and use a custom leader to label the symbol.

Note that there is no automation in this approach. The text codes used in the design need to be typed later into a table - perhaps adding a code, botanical name, common name and number to form (create) a schedule as shown below. This is a relatively time consuming method an is open to errors. As shown in the figure below, text may not line up, consistent botanical and common names are not always achieved. If new copies of additional symbols are added later, the count needs to be repeated. A far better approach will be discussed later - use a tool in gCADPlus to automatically generate thea plant schedule.

Some designers will use a restricted set of symbols - perhaps no more than 10 - and use those symbols again and again. By placing a numbered circle on top of each symbol and creating a table of numbers linking to a species, a labelling system is generated.

Again, the codes used are typed into a table along with the botanical and species names of the plants to form a planting schedule. This sytem can work reasonably well on small designs, especially where massed planting of single species is used.

Here a piece of text inside a red circle is used to key each symbol to a particular species. Although here each and every symbol is marked with a number, where similar symbols are grouped, (e.g. 5, 6 in this example), it is not necessary to tag each individual symbols.

Automating the generation of plant schedules and lists

gCADPlus offers a set of tools to automate the production of a plant schedule. We have tried to make the process flexible and some examples of different styles of plant schedules geberated by the PLANTSCHD command are shown in the figures below.

This movie provides an overview of the steps involved when using gCADPlus to automatically create a plant schedule (list).

Examples of plant schedules produced using the automated gCADPlus system.

PLANT SCHEDULE

Plant	Botanical Name / Common Name	Total
	Acacia cognata — Acacia 'Lime Magic'	3
	Angiosanthos flavida — Kangaroo Paw	14
	Banksia integrifolia — Coastal Banksia	5
	Callistemon viminalis 'Hannah Rae' — Hannah Rae Bottlebrush	2
	Citris limon — Lemon 'Meyer'	2
	Citrus latifolia — Tahitian Lime	1
	Correa reflexa — Correa	4
	Eucalyptus macrocarpa — Rose of the West	3
	Grevillea — 'Robyn Gordon'	4
	Grevilliea thyrsoides — No common name	4
	Malus domestica — Apple 'Jonathan'	6
	Vegetables mixed plantings — Vegetables and herbs	9
	Xanthorrhoea australis — Grass Tree	6

GROUND COVER

Area	Botanical Name / Common Name	Total
1	Dianella revoluta — Flax Lily	19

PLANT SCHEDULE

Plant	No	Botanical Name / Common Name	Total
	1	Acacia iteaphylla — Flinders Ranges Wattle	10
	2	Acacia myrtifolia — Myrtle Wattle	1
	3	Betula pendula — Silver Birch	1
	4	Cycas revoluta — Sago Palm	28
	5	Eucalyptus caesia — Gungurru	3
	6	Libertia peregrinans — Libertia	35
	7	Melaleca armillaris — Bracelet Honey Myrtle	4
	8	Myoporum parvifolium — Creeping boobialla	7
	9	Ophiopogon japonicus — Mondo Grass	10
	10	Poa poiformis — Coast Tussock Grass	22
	11	Scirpus nodosus — Club Rush	53
	12	Trachelspermum jasminoides — Star jasmine	2
	13	Triadica sebifera — Chinese Tallowood	5

PLANT SCHEDULE

Plant	Botanical Name / Common Name	Total
	Artocarpus heterophyllus — Jackfruit	1
	Cajanus cajan — Pigeon pea	18
	Carica papaya — Papaya	3
	Cymbopogon — Lemongrass	4
	Eugenia brasiliensis — Grumichama	5
	Hibiscus acetosella — Cranberry Hibiscus	5
	Litchi chinensis — Lychee	1
	Macadamia tetraphylla — Macadamia	1
	Mangifera indica — Mango	1
	Moringa Oleifera — Moringa	5
	Morus rubra — Mulberry	1
	Musa acuminata — Banana	2
	Persea americana — Avocado	2
	Prunus nucipersica — Nectarine	2
	Psidium — Guava	2
	Sauropus androgynus — Katuk	5
	Symphytum uplandicum — Comfrey	15

Here is another overview of the steps involved in automating the process of generating a plant schedule.

Here is a similar movie, this time a custom plant schedule is generated.

Selecting the plant schedule option

To generate a schedule, select the first option on the gCADPlus drop down menu - "Plant Schedules and Lists". Once selected, a series of sub-options are presented. Each is used in different way to mange the process of making a plant schedule and keeping it up-to-date.
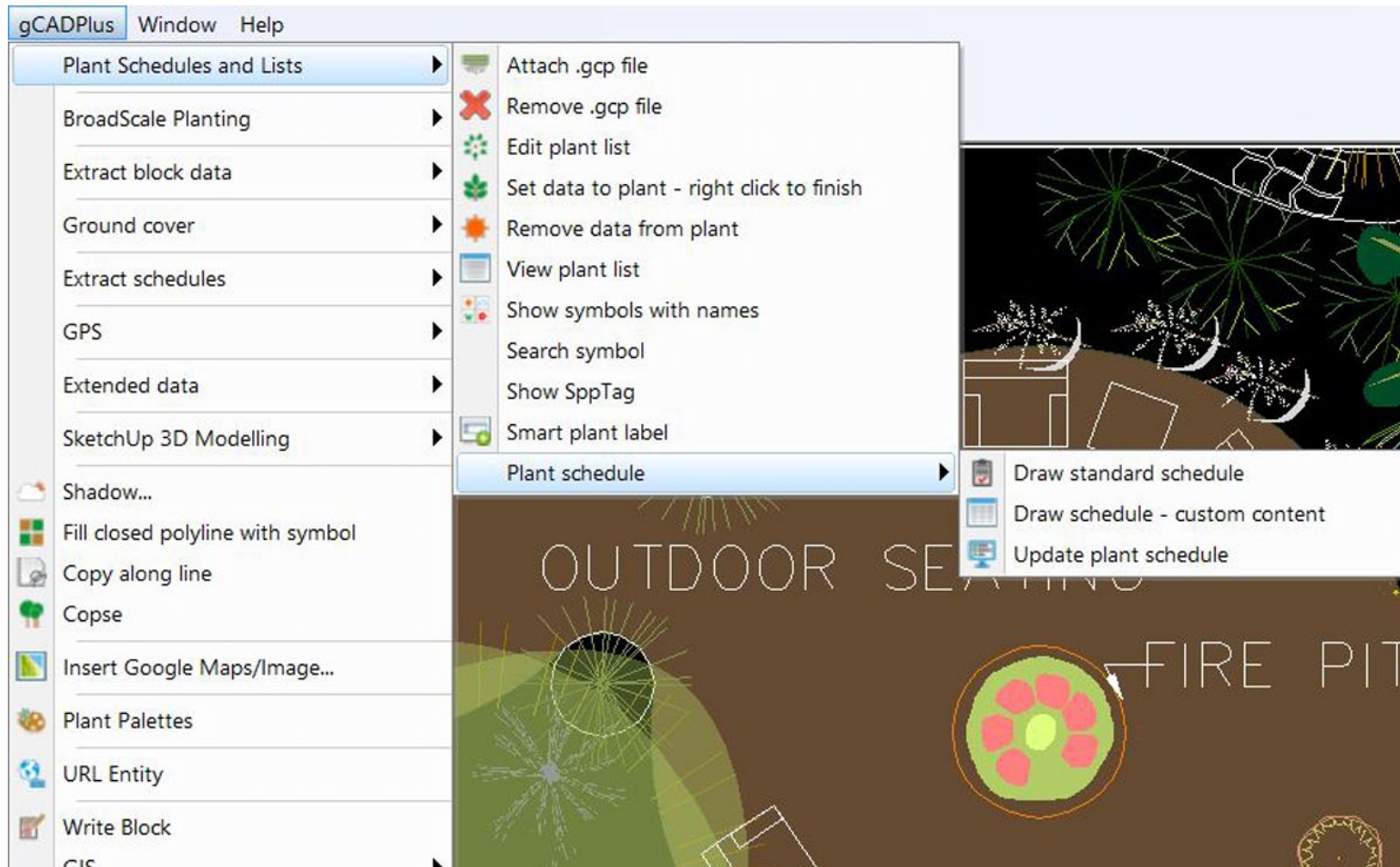

Selecting the main plant schedule option.

Step 1. Attaching a plant list (.gcp file)

Every landscape designer creates specific species lists for their various projects. Species from the list are chosen for their ability to grow well at the site in question and possess features that will enhance the design. Lists are usually drawn from personal experience gained over many years and are part of a landscape designer's

intellectual property. Designers keep lists in many different forms - from list on paper to sophisticated online databases. gCADPlus allows designers to attach an electronic list with each CAD drawing. These lists can act as a plant data file and assist greatly in plant selection and can be used over many different drawings if required. The first step in generating a plant schedule is to attach a plant database file to the drawing.

The figure below shows a design with the attached plant list displayed.
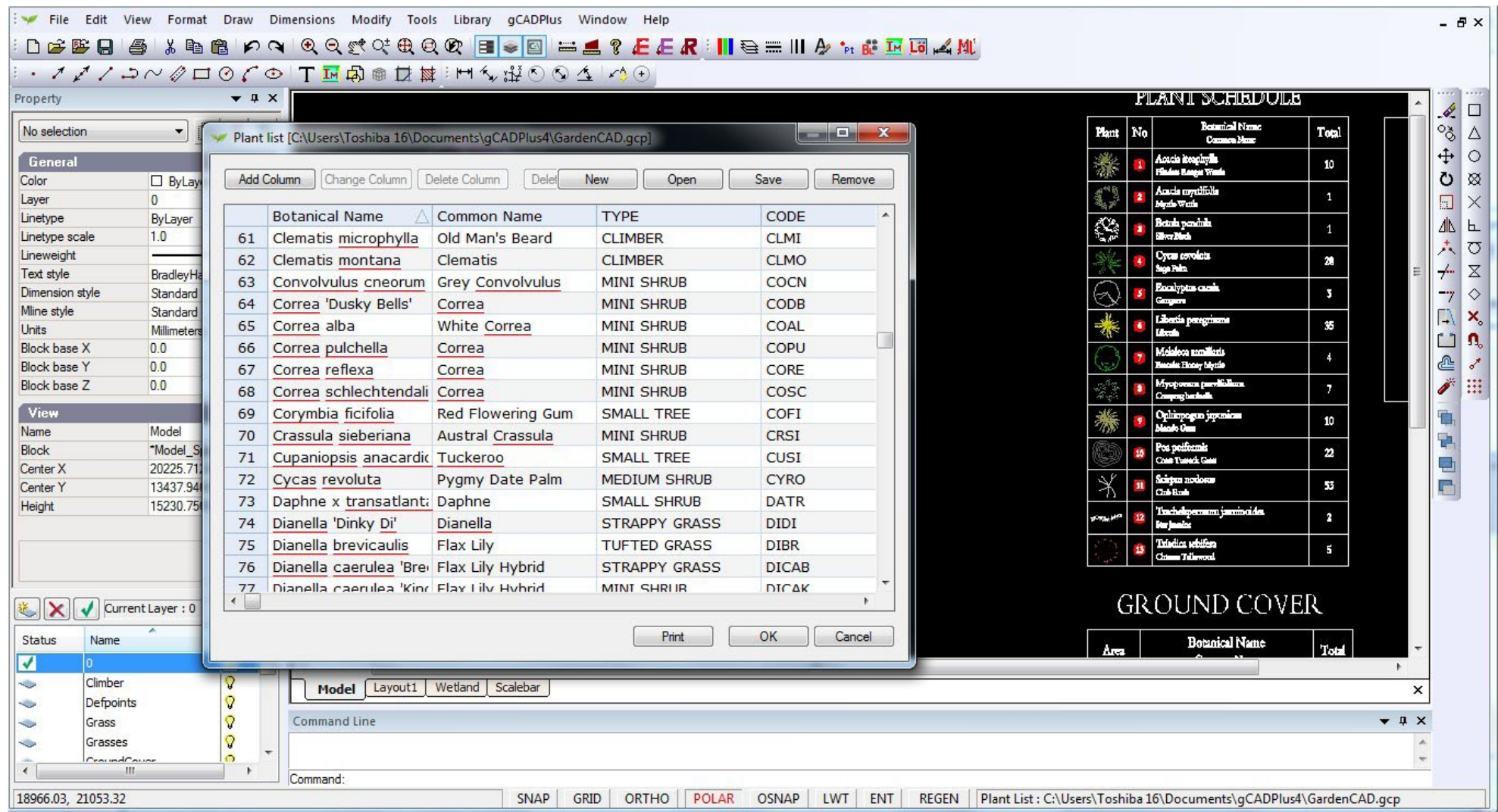
These plant data file are simple text lists and have the extension .gcp. The list can be short list suited to one site only, or a much longer list containing all the designer's favorite plant species.

The first step in making a schedule is to attach a list.

Tip: A sample list called GardenCAD.gcp is provided with with gCADPlus and stored in the My documents>gCADPlus folder.

Tip: We have placed some lists on the download page of this web site, but we really encourage you to make your own lists and customize the list environment to suit the way in which you work.

Tip: It is important to be aware that many of the automated tools including plant scheduling in gCADPlus are dependent upon a suitable plant list (.gcp file) being attached to the drawing.

Spellcheck inside a plant list

The figure below shows another example of a drawing with a gcp file attached. Note the red underlining in species names in the list indicating potential mis-spelling.
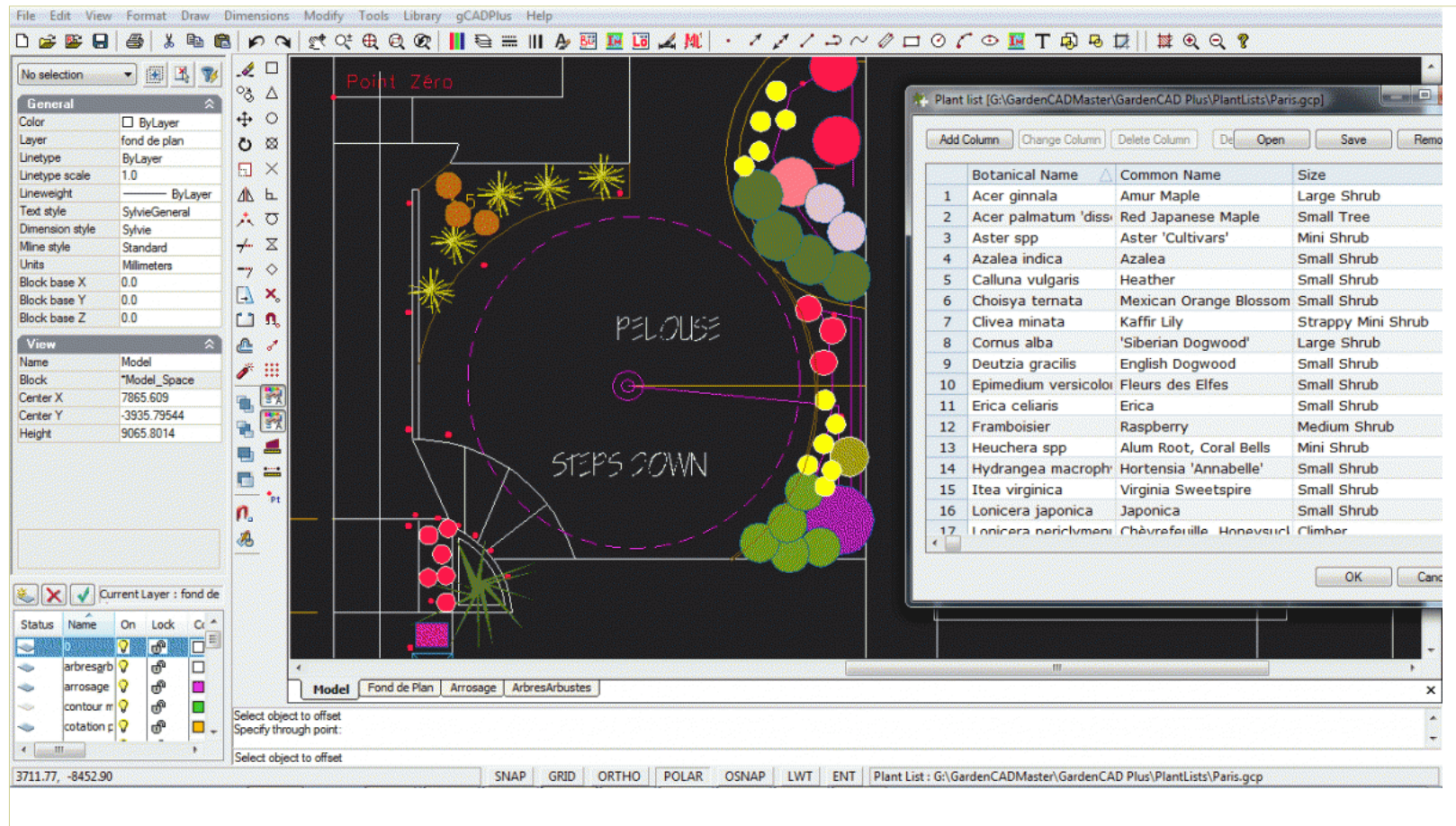
Plant list for a garden in Paris.

Here is a small movie showing how to remove the red underlining and make spelling corrections in a plant database file.

If gCADPlus sees a word in your plant list that it does not hold in its dictionary (or suspects that it is mis-spelled), the word is highlighted in red. To add the word, simply hover over the underlined word, right click with the mouse and select 'add word'.

Tip: If you have chosen a word with special characters like quote marks, remove those before adding the word to the dictionary.
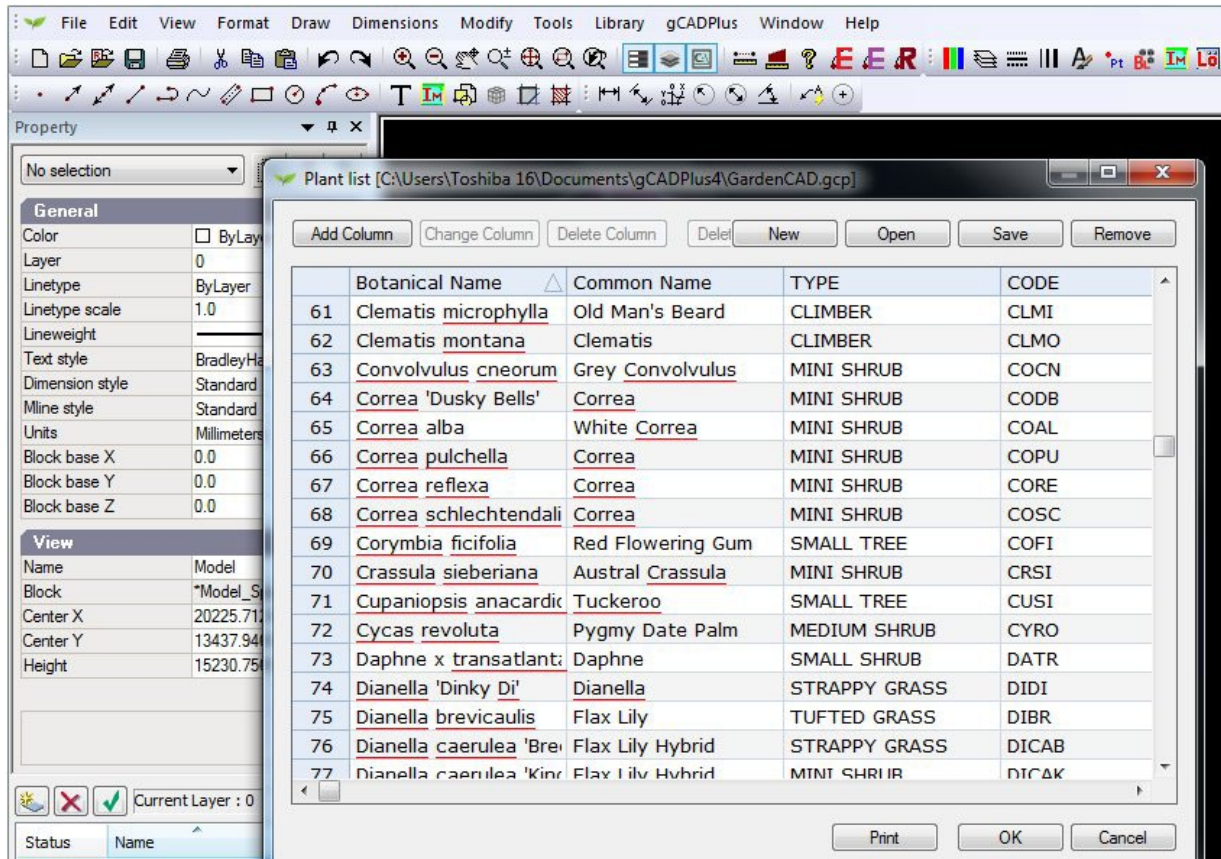
Plant list for housing sub-development.
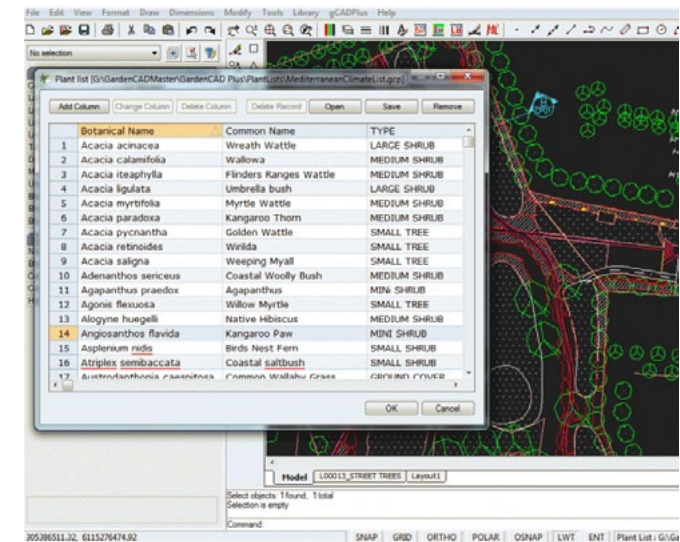
Here is a small movie showing how to attach a list how to work with a plant database list suitable for a mediterranean climate. Adding new botanical words to the gCADPlus dictionary, correcting mistakes and sorting the list are demonstrated.

Tip: Any number of additional columns can be added to the plant list.
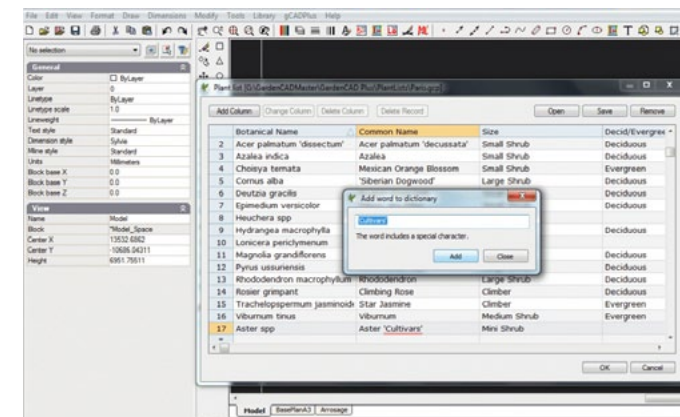
Adding species name to dictionary.

We cannot over emphasize the value of learning to use the plant list effectively. Some designers have comprehensive lists of several hundred species with information on text code, pot size, flowering time, flower color landscape use etc. That enables them (with the aid of the sort facility) to find a species for a particular use in a landscape plan.

Step 2: set data to a plant symbol

In order for the automated plant schedule tool to work, once the plant database file is loaded, each unique symbol in the drawing needs to be tagged with the appropriate species name (record) in the accompanying database file. The steps are:

Select the gCADPlus drop menu, then Plant Schedules and Lists and finally "Set data to plant". This command and promts for selection of a particular symbol. Right click to finish the tag. If you select the same symbol agin (with out activating the ADDPLANTDATA command, its botanical name, common name and code are shown in the gCADPlus properties box.

Tip Once a symbol has been tagged, there is no need to tag other copies of that same symbol.

How to assign a species name in a gCADPlus plant database file to a plant symbol. Tip: If you have a copy of our personal plant database tool - SppDb, it is possible to write out (save) a .gcp file from that application.

Using the species find facility

You may need to find a species from a long list. This ovies hsows how the Ffind tool when assigning a plant species to a symbol.

Step 3: Remove a tag

It is often necessary to remove a tag. For example when substituting one species for another.

Tip: Once attached, the path to the attached database file is shown in the status line at the bottom of the drawing.

Creating new plant data files

Plant data files used to make plant schedules in gCADPlus have the extension .gcp. They can be created from scratch within the gCADPlus environment using Tools > Create .gcp file or by loading an existing .gcp file (a sample file is delivered with gCADPlus and select New.

Set data to a plant symbol

Associating a species name with a symbol used in the design is the next step. Use the 'Set data to plant' option on the gCADPlus drop down menu. This option calls the ADDPLANTDATA command with a prompt to select the symbol and the appropriate row in the gcp file. Use the right click to exit when enough symbols have been assigned to species.

Removing data from plant symbol

This option is used to break the association between a row in the attached plant data file and a symbol. The symbol needs to be selected before running the command.

If you have made an error in a gcp file – say in the spelling of a plant name – and correct it, it is necessary to break the connection between a symbol and the record in the plant schedule. Then reassign the symbol to the newly corrected plant name.

View a plant list

Use the plant list option for a quick look (on the screen) at the currently assigned species list.

Show symbols with names

Show SppTag

Use to make an enquiry of a symbol. The option reports the Botanical Name, Common Name, and code in the Command line as shown in the figure below. Data also shows in the zone at the base of the Properties Window.
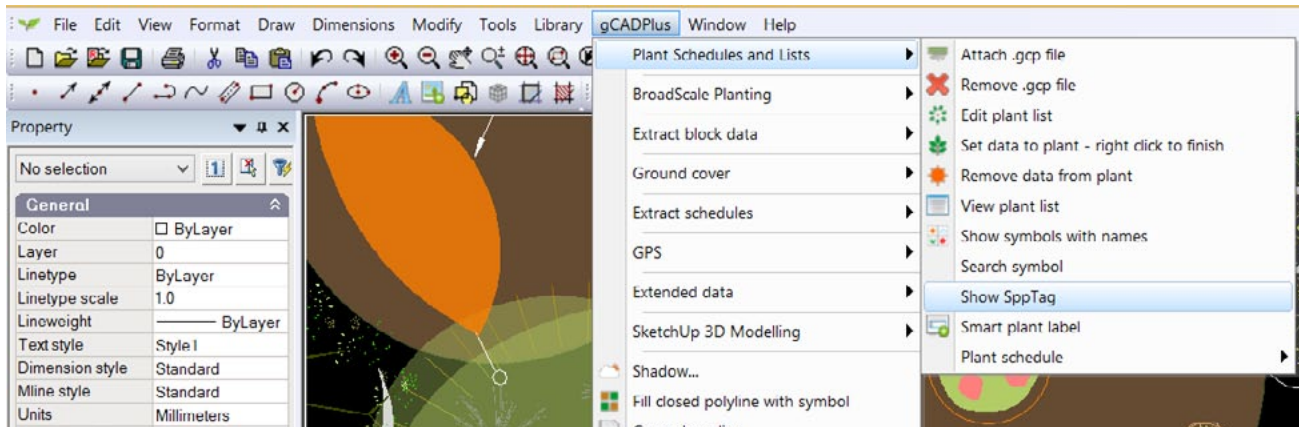
It may be necessary to increase the height of the Command Window in order to see species details.
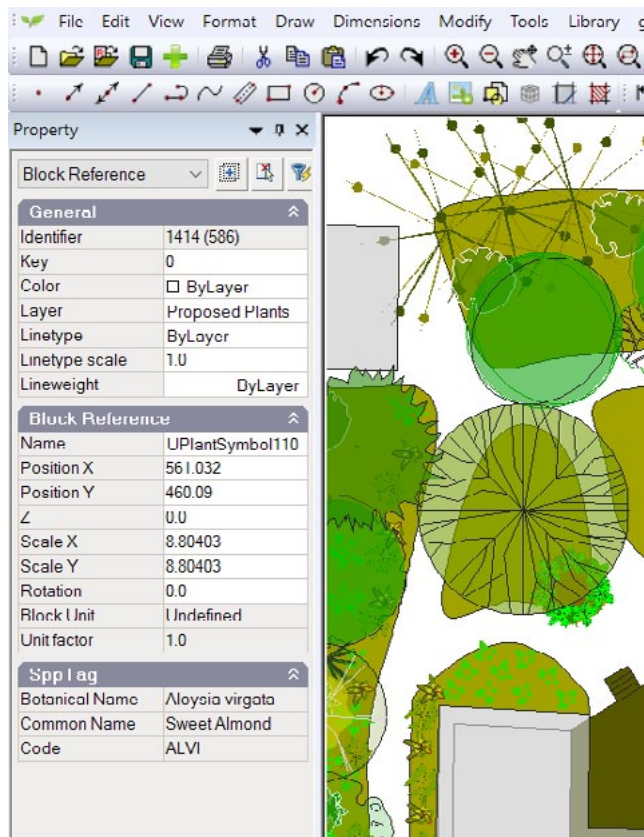
If a tagged symbol is selected, its botanical name, common name and tag are shown in the Properties window.

This movie shows how to tag symbols in a design for a rear garden site in suburban Paris.

This option is used to show all plant symbols that have had names assigned and is used to make sure that no symbols have been missed.
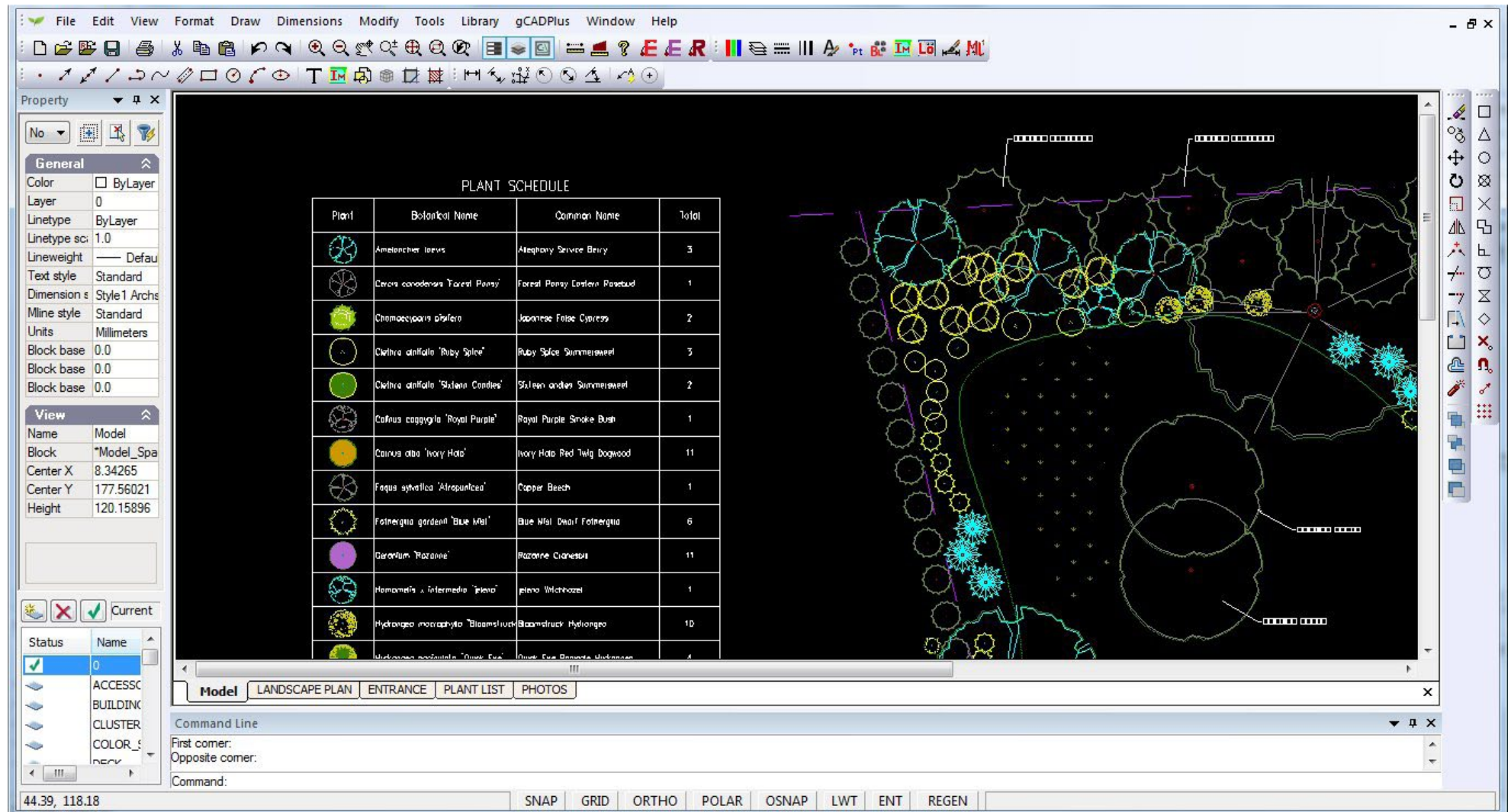
Typical standard schedule. The symbol, botanical name, common name and total number of each species is listed.

Work with a plant list from a site in Florida. We assign an new symbol to the
Here is a small movie showing how to attach a plant list, tag plants, apply line
weights and lay out a design for a front entrance to a house in Florida, USA - on
a size C sheet.

Search for symbol

This option is used to find an association in the design. Enter whole or part of
Botanical Name, Common Name or Code.

Draw the plant schedule

Once all symbols used in a design have been tagged with a plant name from the
plant list, it is time to draw the schedule. Two sub-options under "Plant schedule"
are available - a standard or custom schedule.

Draw standard schedule

This option draws a standard version of the schedule, drawing a column containing
the plant symbol, a column for botanical name, a column for common name and
the total of each species in the last column.

Draw schedule - custom content

This option allows control over the columns in the plant schedule. Instead of
drawing the schedule immediately, a number of questions are asked:

1. Include plant (species) symbol? [Yes/No]

2. Include red circle markers?

*Tip: It is then possible to copy the number with white text on a red circle and
place it over groups of plants of that species. This is especially useful where
massed planting is used.*

3. Include code? This is the text code contained in the gcp file (plant database)
currently attached to the drawing.

4. Botanical name?

5. Common name?

6. Print botanical name under common name?

Tip: Choosing this option can make the schedule more compact.

The exact number of each species in the design is totaled as the schedule is drawn.
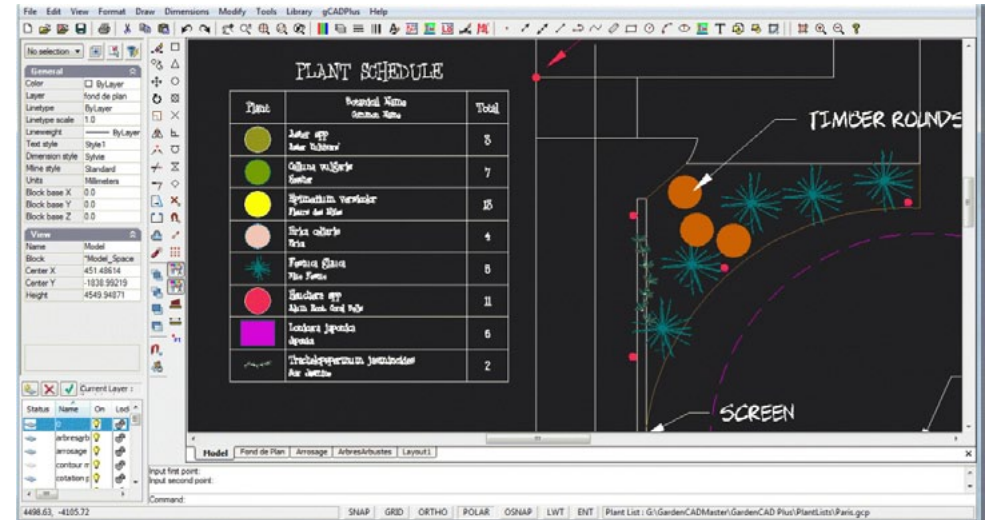
Simple list - no red dot column.
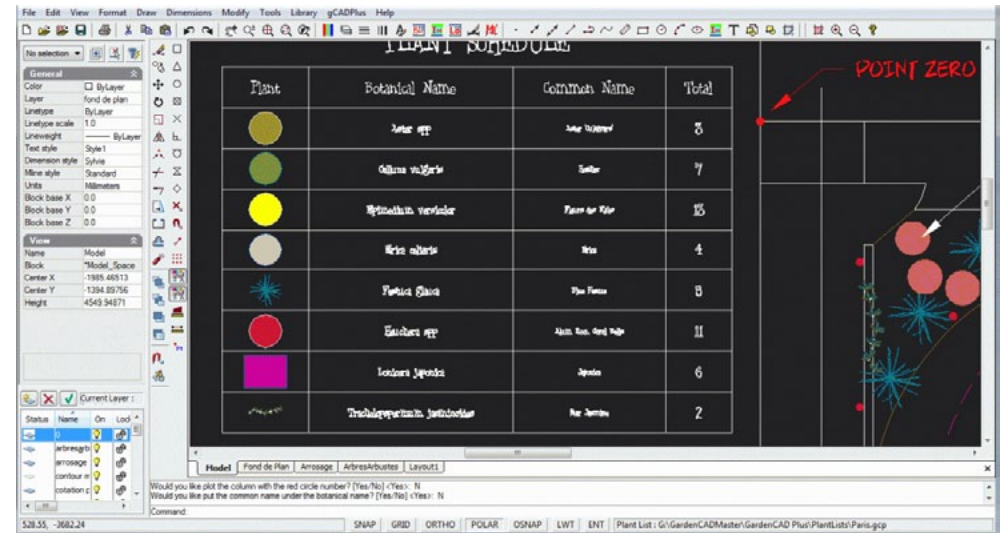
*Separating species and common
names.*

Plant schedule variations
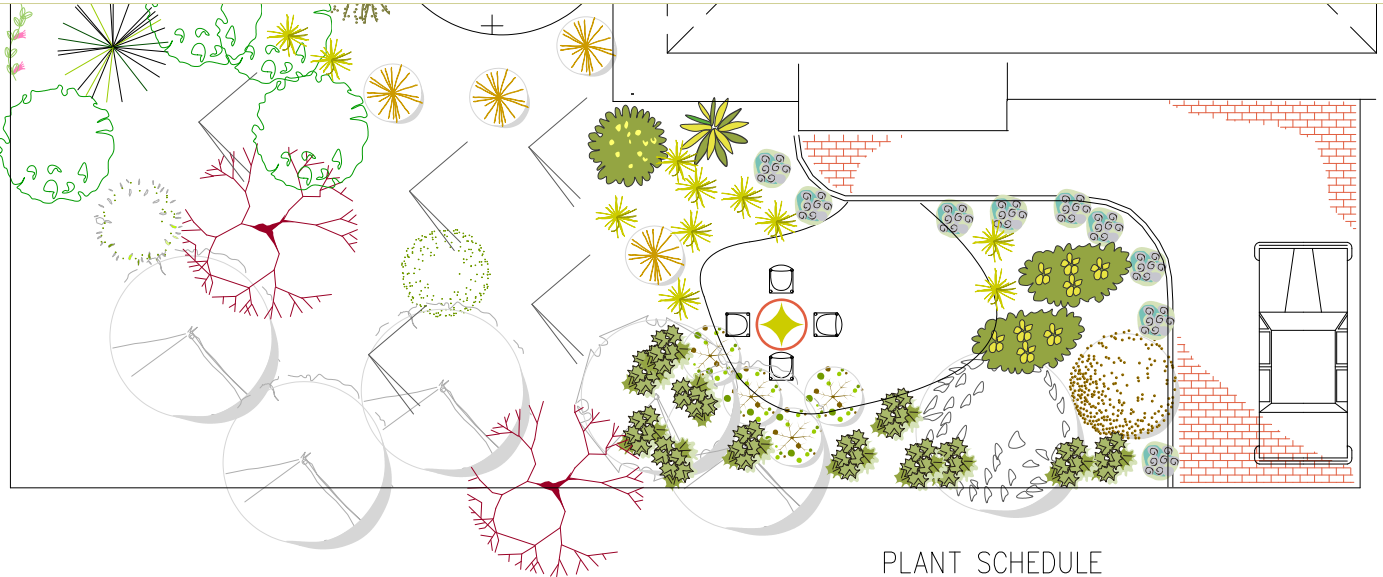
PLANT SCHEDULE

Plant	No	Botanical Name Common Name	Total
	1	Acacia acinacea Wreath Wattle	14
	2	Acacia calamifolia Wallowa	3
	3	Acacia ligulata Umbrella bush	1
	4	Acacia pycnantha Golden Wattle	1
	5	Adenanthos sericeus Coastal Woolly Bush	4
	6	Alogyne huegelli Native Hibiscus	4
	7	Nerium oleander Oleander	1

PLANT SCHEDULE

Plant	No	Botanical Name Common Name	Code	Total
	1	Amelanchier laevis Alleghany Service Berry	AMLA	3
	2	Cercis canadensis 'Forest Pansy' Forest Pansy Eastern Rosebud	CECA	1
	3	Chamaecyparis pisifera Japanese False Cypress	CHPI	2
	4	Clethra alnifolia 'Ruby Spice' Ruby Spice Summersweet	CLAL	3
	5	Clethra alnifolia 'Sixtenn Candles' Sixteen andles Summersweet	CLALS	2
	6	Colinus coggygria 'Royal Purple' Royal Purple Smoke Bush	COCO	1
	7	Cornus alba 'Ivory Halo' Ivory Halo Red Twig Dogwood	COALI	11
	8	Fagus sylvatica 'Atropunicea' Copper Beech	FASYA	1
	9	Fothergilla gardenii 'Blue Mist' Blue Mist Dwarf Fothergilla	FOGA	6
	10	Geranium 'Rozanne' Rozanne Cranesbill	GEROZ	11
	11	Hamamelis x intermedia 'jelena' jelena Witchhazel	HAINJ	1
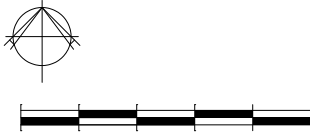
The schedule is drawn as a block and can be scaled or moved around the drawing as a single entity. It is also possible to edit the schedule block.

Tip: If the columns are too wide, simply draw the schedule again using a narrower pair of pick points.

Update a plant schedule

Use this tool to update the schedule taking into account any changes you may have made to the design since the schedule was drawn. Changes may involve removal or addition of symbols as a design is refined. The schedule is drawn again in the original position, updating the numbers as it does so.

Generate a plant schedule for a site in Massachusets, USA

Search for a symbol

This option is used to identify a particular species in a design. There are times, especially when working on a design for an extended period when it becomes difficult to remember the particular symbol assigned to a given species. This tool enables searching on either botanical name, common name or code.

The tool might well be used if a species previously specified in a design needs to be substituted with another; perhaps because it is unavailable.

This short movie shows the tool in action.
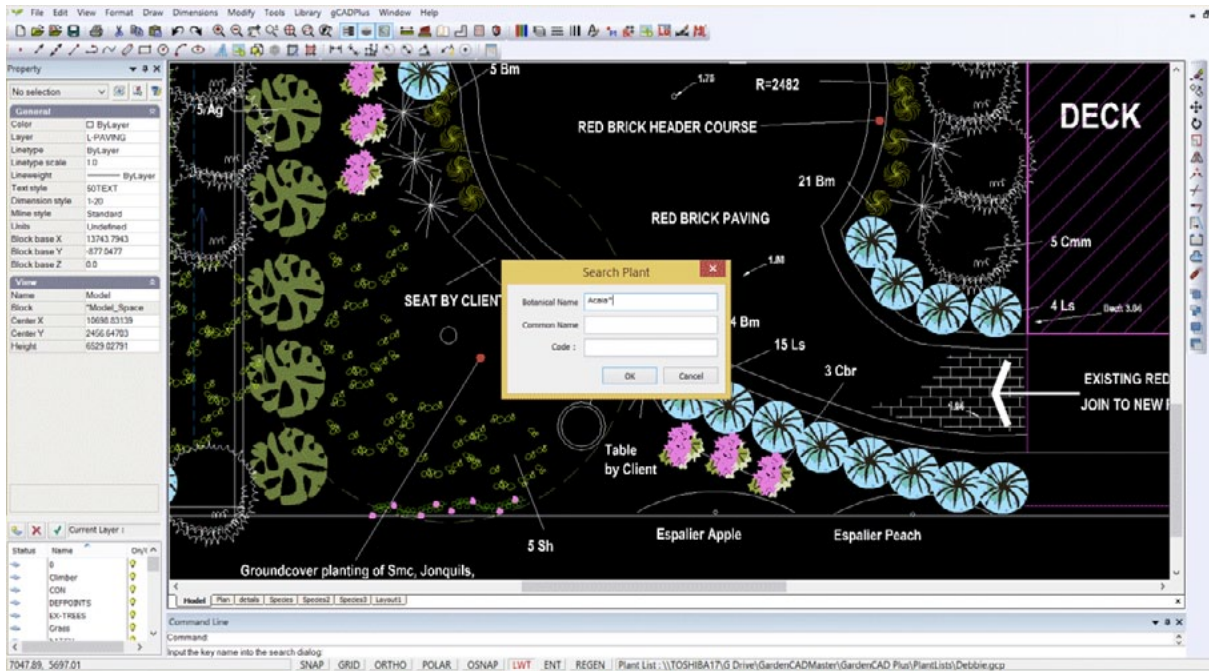
Search symbol

There are times when it is useful to show the name and details of a species associated with a symbol.

This movie shows the Search Symbol tool in action
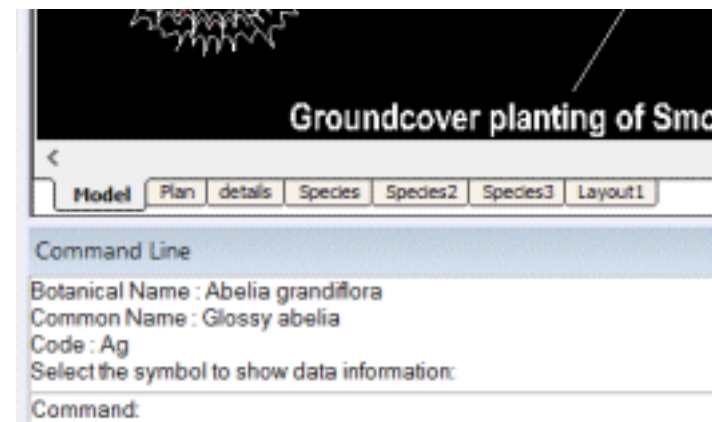
Smart label tool

This tool is part of the Plant Schedules and Lists group - the first item on the gCADPlus drop down menu. It is designed to complement other tools for identifying plant symbols in a design. It provides considerable flexibility in the way in which a symbol represent a particular species is labelled and can be used in conjunction with the automated plant schedule tools.

This movie shows how the SmartLabel tool works.
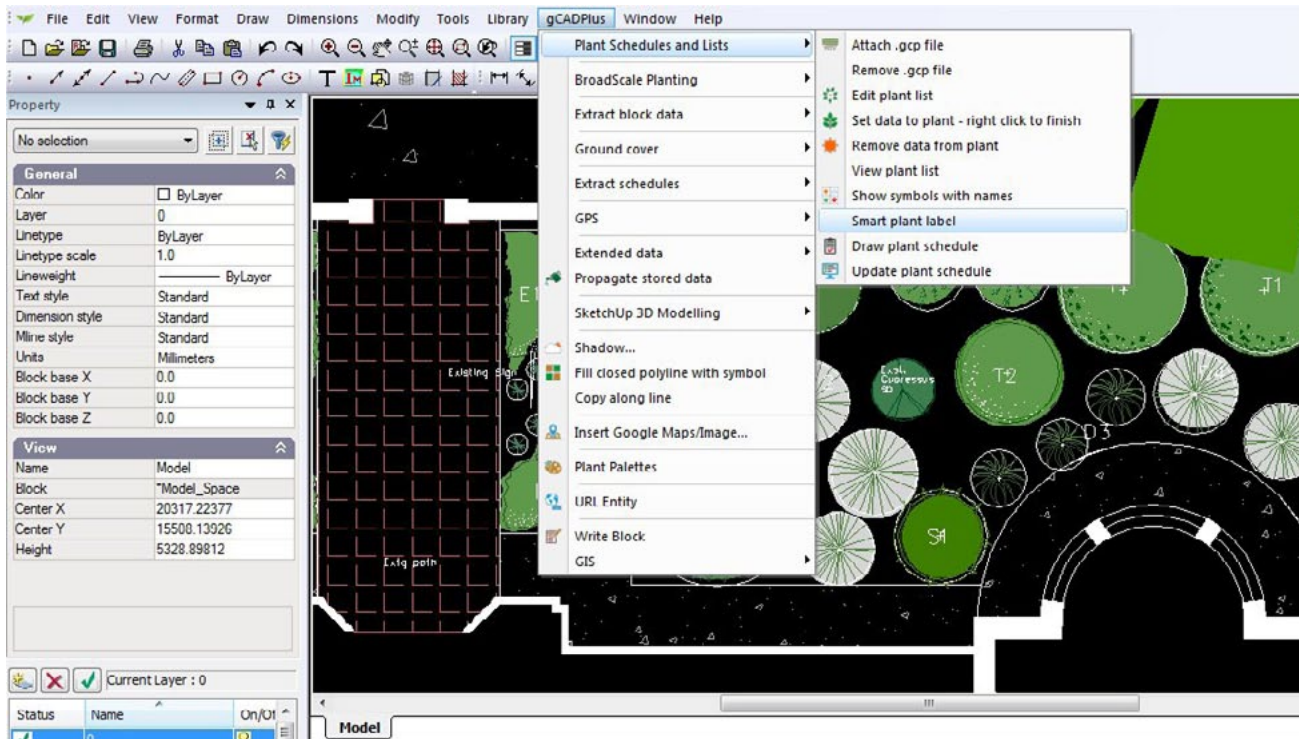
Smart label tool - picks up information from the gcp file attached to the design and labels the symbol using data from the file.

The command when started, first prompts for a selection of a single symbol (or group of symbols of the same type).

Tip: The symbol must already have been assigned to a record in an attached gcp file otherwise the command will fail.

After selection, hit ENTER. The next prompts asks for a start point for a tag line [the tag line is attracted to the insertion point of the symbol, but the location can be anywhere you like.] The hit ENTER.

Then the next point(s) on the tag line can be indicated. Hit ENTER when finished locating the line.

Next define the text height. Hit ENTER when set.

The next step is to nominate the type of labelling. The options are:

1. Include the total number of plant symbols in the selected group.

2. Include the species code as the label.

3. Set the botanical name as the label.

4. Set the common name as the label.

The figure below shows some of the variation in labelling that can be created using this tool.

Smart label tool - different options produce a variety of labels.

Broad scale planting

Landscape architects when working with large areas, often use the same symbol over and over again to represent different species. As shown in the figure below, it is common practice to link each plant with a line drawn from the insertion point of each symbol to the next. with the number of plants in the group totalled as a prefix to a text code indicating the botanical name of the intended species.
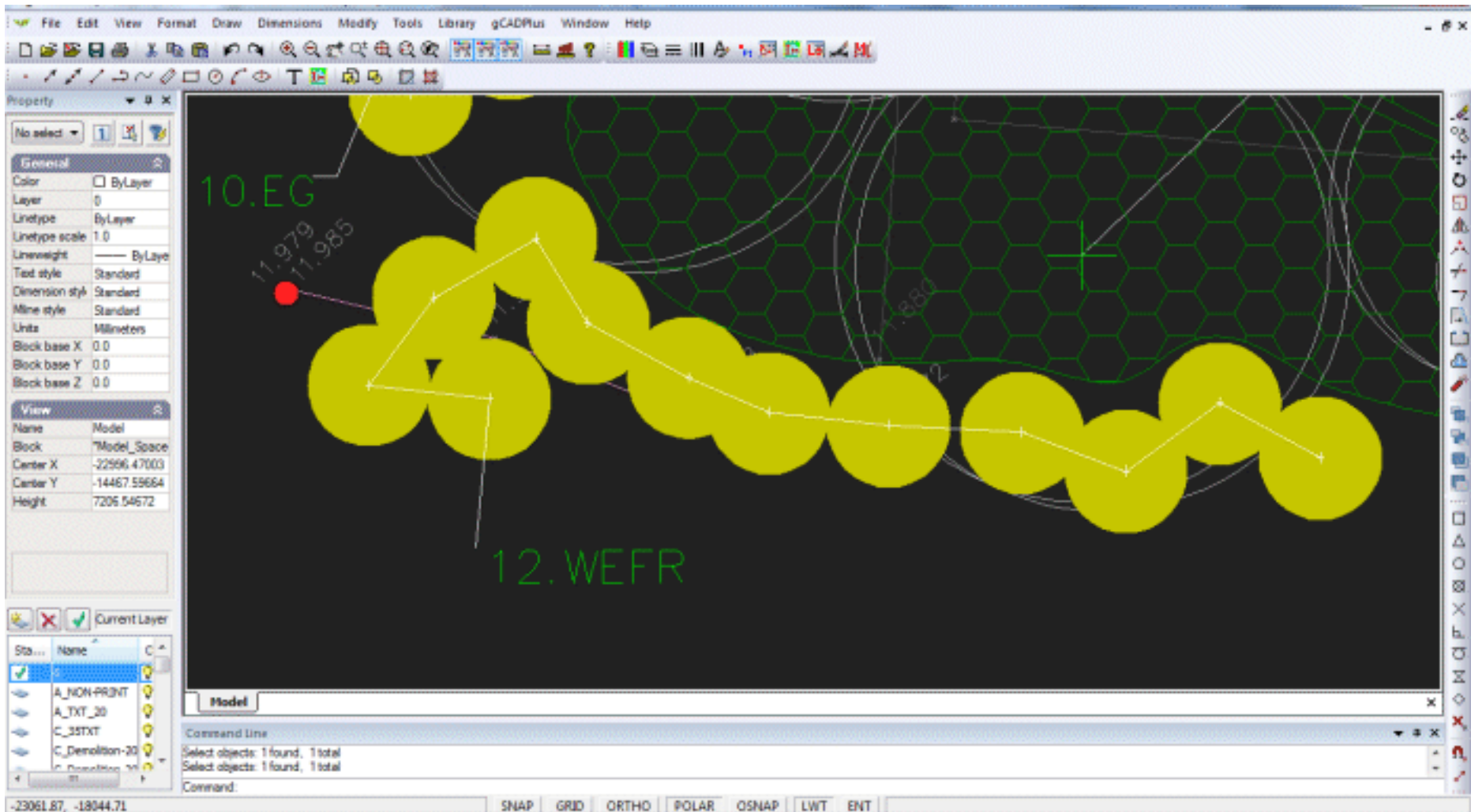
Linking symbols, totalling the number in the group and adding a code.

This can be a tedious process and gCADPlus provides a mechanism for automating this type of broad scale plant labelling.

If a project requires plant labeling in this manner, choose the broad scale planting option from the gCADPlus menu.

This movie shows how to use the LINKLABEL and LINKTABLE commands in the gCADPlus environment. It demonstrates one approach used by landscape architects when working on large scale plans.

Broadscale tagging an labelling steps

Follow these steps:

- Choose gCADPlus>BroadScale>Attach list.

- Next select BroadScale Planting>Label groups of symbols with code.

As shown in the movie, this command asks users to first select a species (row) from the gcp file. Once that's done, the type of labelling needs to be selected (M)ultiple or (S)ingle. Single symbols can be labelled or more usually, a group of symbols can be labelled terminating with a count of the total number of plants in the group and a species code. After the type of labelling has been chosen, the first symbol in the group is selected with the left mouse button, then the next and subsequent symbols. A line is drawn from the mid of each symbol to the next.

When the last symbol in the group has been selected, hit the ENTER key. The next prompt asks for a location for the label.

Then the desired height of text is indicated. A value for text height can be entered or alternatively, simply move the pointer away from the end of the label line and click to indicate a desired text height.

The command concludes by writing the count of the number of plants in the group followed by a dot (period) and the code taken from the gcp file.

Building a broad scale plant list

The option "Print schedule of linked plants draws the broad scale schedule in much the same manner as the plant schedules and lists tool does.

Creating a gcp file

The broad scale plant tagging tools are used in conjunction with a plant data file (.gcp). As discussed earlier, a plant data file (gcp file) can be created 'de novo', but it is much easier to generate the plant data file by exporting one from the companion plant database application SppDb.

This plant database application enables users to storage and filtering of plant species and subsequent export of a gcp file. Once that is done, broad scale tagging of plant symbols in gCADPlus can begin.

Note that the Botanical name, Common Name and Code are passed to the .gcp file. These three fields are used in tagging symbols and in creating a broadscale plant schedule list.
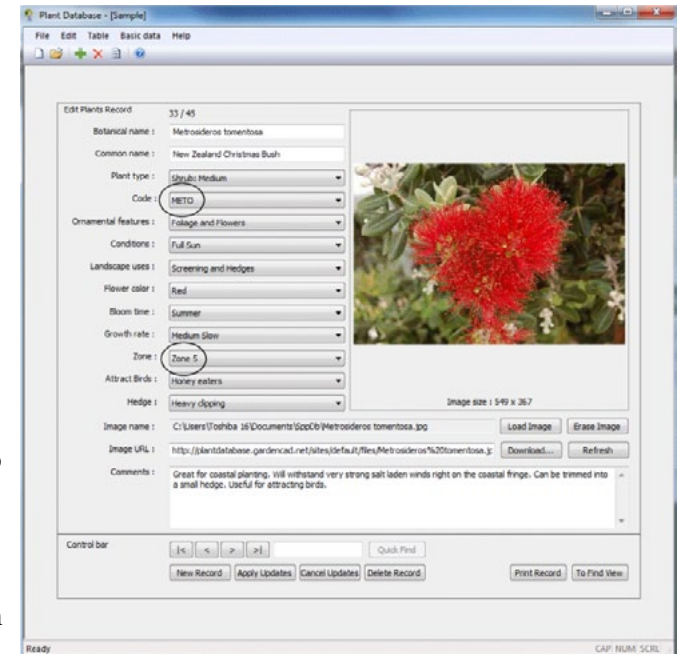
Use SppDb to create a plant data file for gCADPlus.
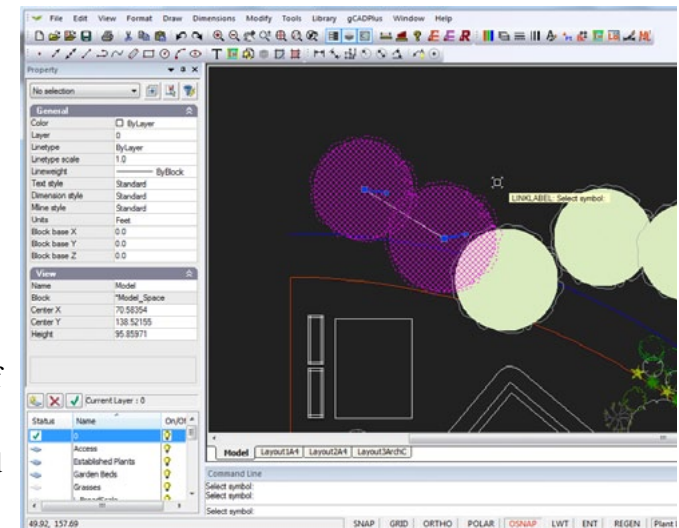
Linking and labelling symbols.

The figure below shows a demonstration of the use of the BroadScale labeling tool. Symbols have been chosen from the BroadScale group in the symbol library. The same symbol is used a number of times and represents different species. the symbols have been tagged with a polyline, counted and labelled automatically. The broadscale plant schedule tool is then used to draw the schedule. Note that several clumps of symbols representing the same species are automatically totalled in the table.

Extract block data

This fly-out item option on the gCADPlus drop down menu' enables the extraction of block data in the drawing (or part of a drawing) to a CSV file. A CSV file is a simple text file that can be used by many different software applications including spreadsheets like Microsoft Excel and Databases like Microsoft Access and SQL, FileMaker Pro etc. Several different options are provided.

Extract all blocks

Every block in the drawing is listed in the extract file, along with its x and y coordinate, the layer and any value that happens to be present in the key field.

Here is a small movie showing the use of the extract all block option.
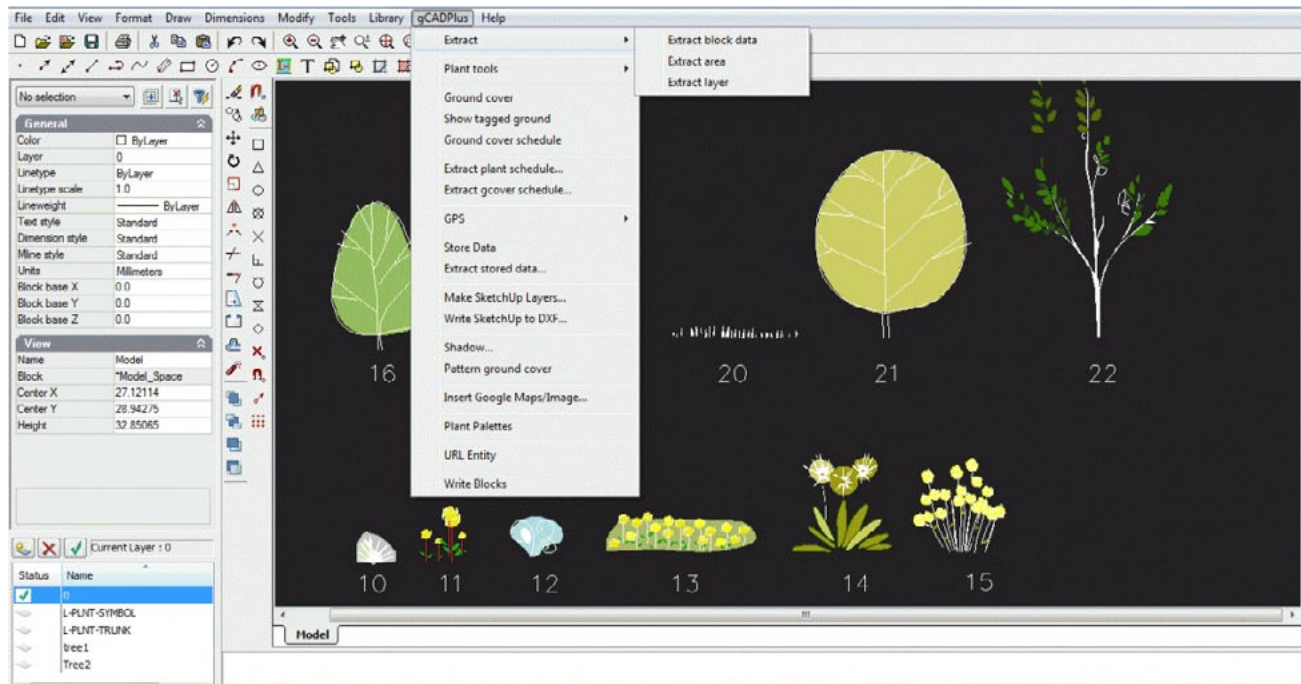
Export a block list.

The resultant CSV file

The figure below shows an example of an extract file displayed in the Windows Notepad editor.

The figure at right, shows a sample from a different design file, imported to MS Excel. Every block in the drawing is listed, along with its x and y coordinate, the layer and any value present in key field.


```
File  Edit  Format  View  Help
No,Name,X,Y,Layer,Key
1,5MeterScaleBar#3,9117.260406,-20945.225823,"fond de plan",0
2,Asters,7766.297416,-5430.619338,VIVACES,0
3,Asters,10079.534051,-11353.302790,VIVACES,0
4,Calluna,7087.178681,-5943.146259,0,0
5,Calluna,10106.383600,-6168.469500,0,0
6,Calluna,7328.804503,-6788.836635,0,0
7,Calluna,6860.654473,-6879.446319,0,0
8,Calluna,6407.606056,-6728.430180,0,0
9,Calluna,6830.451245,-6426.397902,0,0
10,conifer,10181.823700,2330.311500,arbres&arbustes,0
11,conifer,2174.417630,-7391.452578,arbres&arbustes,0
12,"Epimedium x versicolor",0.000000,0.000000,VIVACES,0
13,"Epimedium x versicolor",-2911.487489,3908.572245,VIVACES,0
14,"Epimedium x versicolor",-2652.245452,3589.505123,VIVACES,0
15,"Epimedium x versicolor",-2552.536976,3828.805464,VIVACES,0
16,"Epimedium x versicolor",-2672.187147,4227.639367,VIVACES,0
17,"Epimedium x versicolor",-2492.711891,4526.764794,VIVACES,0
18,"Epimedium x versicolor",-2652.245452,4885.715306,VIVACES,0
19,"Epimedium x versicolor",-3643.430298,8649.857759,VIVACES,0
20,"Epimedium x versicolor",-3867.626871,8425.661187,VIVACES,0
21,"Epimedium x versicolor",-3242.236432,9121.850543,VIVACES,0
22,"Epimedium x versicolor",-3383.834267,9558.443869,VIVACES,0
23,"Epimedium x versicolor",-3619.830659,9098.250904,VIVACES,0
24,Erica,7727.530398,-2032.139080,0,0
25,Erica,7702.250062,-2056.436082,0,0
26,Erica,7384.620476,-1602.468817,0,0
27,Erica,10106.383600,-5293.893500,0,0
28,Framboisier,10106.639500,-1733.431600,arbres&arbustes,0
29,Framboisier,7530.183026,451.743306,arbres&arbustes,0
30,Framboisier,7577.382304,-657.439737,arbres&arbustes,0
31,Heuchere,10045.231472,-10456.573200,VIVACES,0
32,Heuchere,1624.124343,-6899.887739,VIVACES,0
33,Heuchere,1428.624373,-6613.619927,VIVACES,0
34,Heuchere,1721.874328,-6508.887800,VIVACES,0
35,Heuchere,3349.700328,-7624.612523,VIVACES,0
36,Heuchere,1693.945761,-7624.612523,VIVACES,0
37,Heuchere,1686.963619,-7221.066261,VIVACES,0
38,Heuchere,1421.642231,-7248.994828,VIVACES,0
39,"Itea virginica",10110.117100,-2705.702300,0,0
40,"Itea virginica",6385.600524,-1471.627290,0,0
41,"Itea virginica",6680.596014,-2085.217909,0,0
42,"Itea virginica",7164.388618,-2451.012316,0,0
43,"Itea virginica",7718.980139,-2705.702300,0,0
44,Lonicera,1439.416102,-6232.886837,0,0
45,Lonicera,1439.416102,-7957.475856,0,0
46,Lonicera,1439.416102,-8438.545424,0,0
```

CSV file in NotePad.

CSV information now in Excel.

Block list

Given a modest level of Excel skill, it is possible to use macros and pivot tables to process this information for quotations and bills of materials.

Key information

Note that GCADPlus allows keys to be attached to any entity. As can be seen from the figure, the extract blocks routine also extracts the key value.
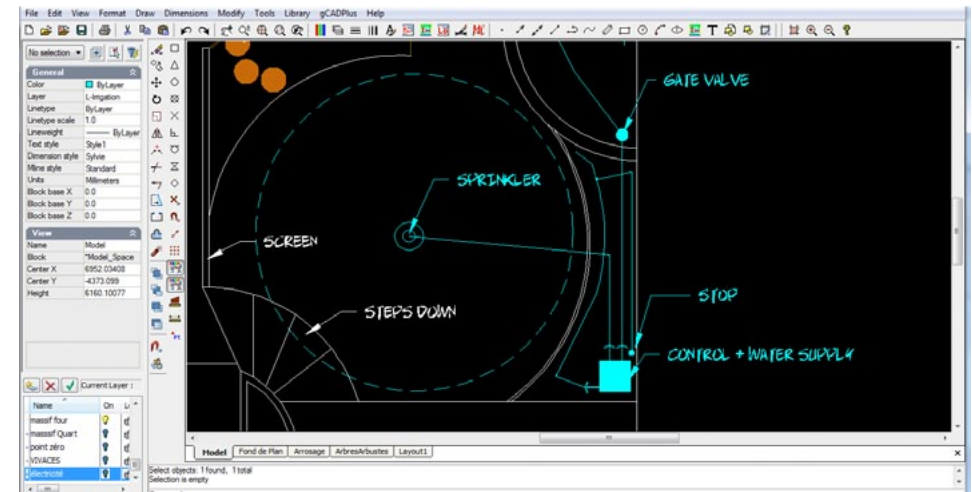
Extract blocks, irrigation

The Extract tool on the gCADPlus menu can be used to extract all block information from a gCADPlus drawing. If that information is passed to Excel, the filter tools and the COUNTA function in Excel can be used to total up the number of individual blocks.

Here is a small movie showing how to extract details of materials needed for an irrigation design. In this example, we add sprinklers, gate valves, elbows end plugs, T-Junctions etc from an irrigation layer.

The data is passed to Excel and the COUNTA function to total the entries in each category.

Extract blocks - lighting

We use the Extract blocks for layer tool to produce a list of lights used in a landscape plan ready for importation into Excel.

Extract irrigation data.

Irrigation data in Excel.

Extract all blocks from an area

This option is used when it becomes necessary to extract block information from a restricted area in a design. For example, there may well be a requirement to extract all block information from the front or rear yard of a site.

Extract blocks by layer

Helpful if it is necessary to extract information for specific purposes.

Here a short movie showing how block information on paving stones can be efficiently extracted.
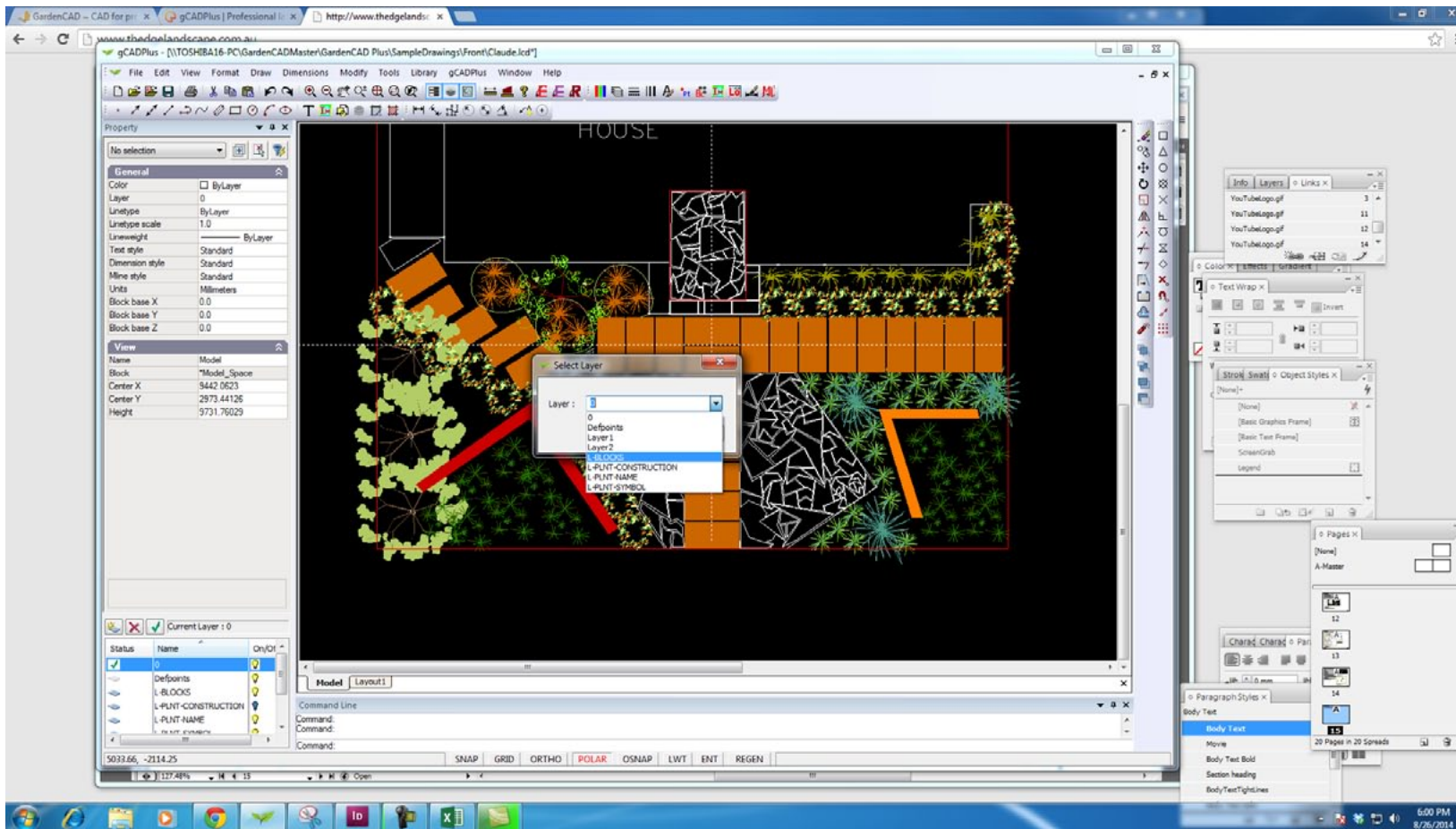
Ground cover planting

There are many different ways to indicate ground cover planting. Landscape designers will often draw a closed polyline to indicate an area to be planted to a ground cover species and hatch it as shown in the example below.
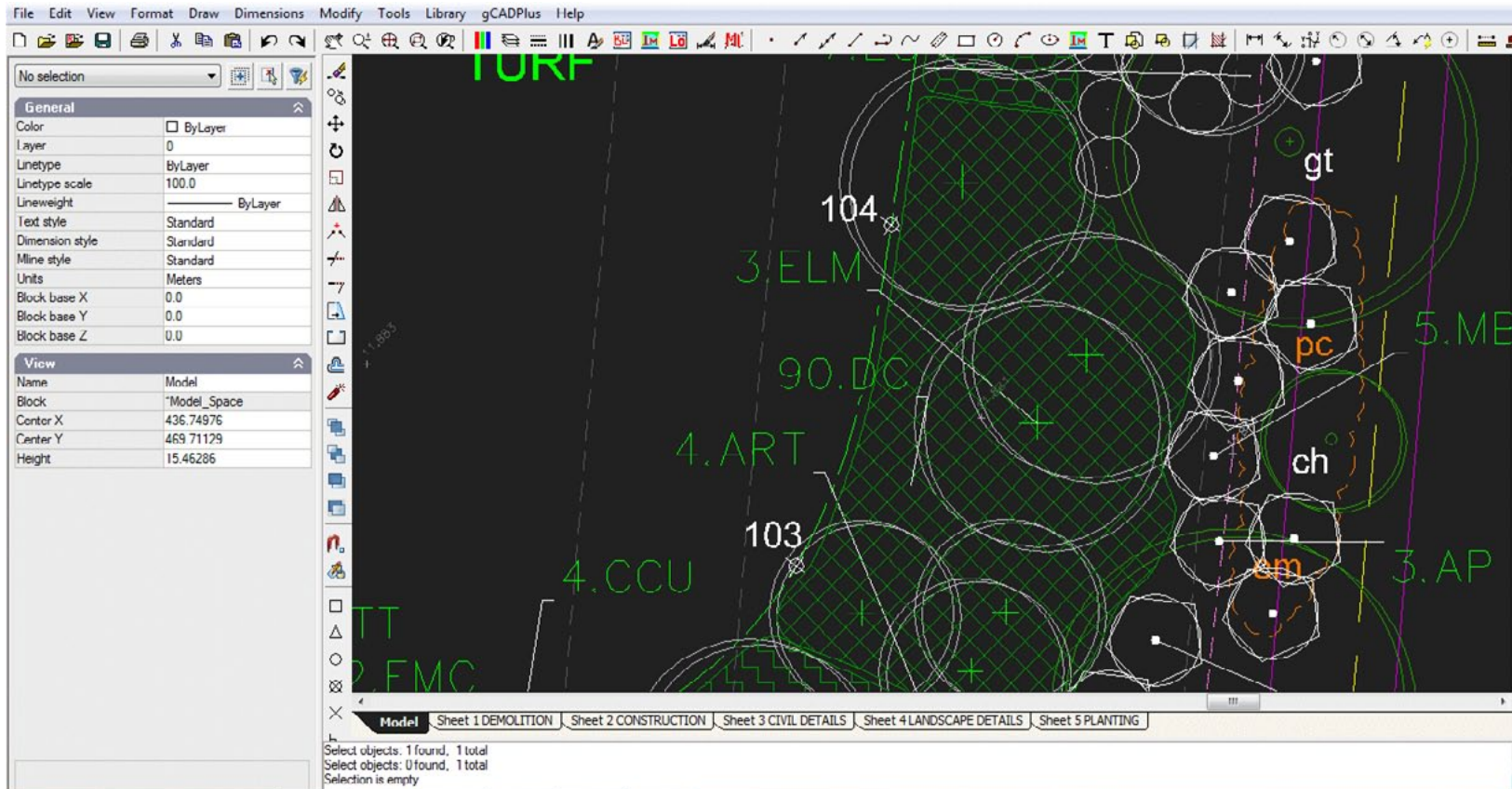
One convention for indicating large scale ground cover planting.

Taking into account the area to be planted, they would then calculate the number of plants of the particular ground cover species required to fill the area, taking into account spacing. In the example above, 90.DC is the convention used. The designer calculates that 90 Danthonia caespitosa (Wallaby Grass) specimens will fill the cross hatched area.

Ground cover planting

Effective ground cover planting takes many forms. Many different spcies can be used.

At other times, especially where small areas and close planting is required, the area enclosed by the polyline is left unhatched as shown below. Nine specimens of Dichondra repens (Kidney Weed) are required to fill this rather small area.

These marking and tagging calculations can be automated in gCADPlus.
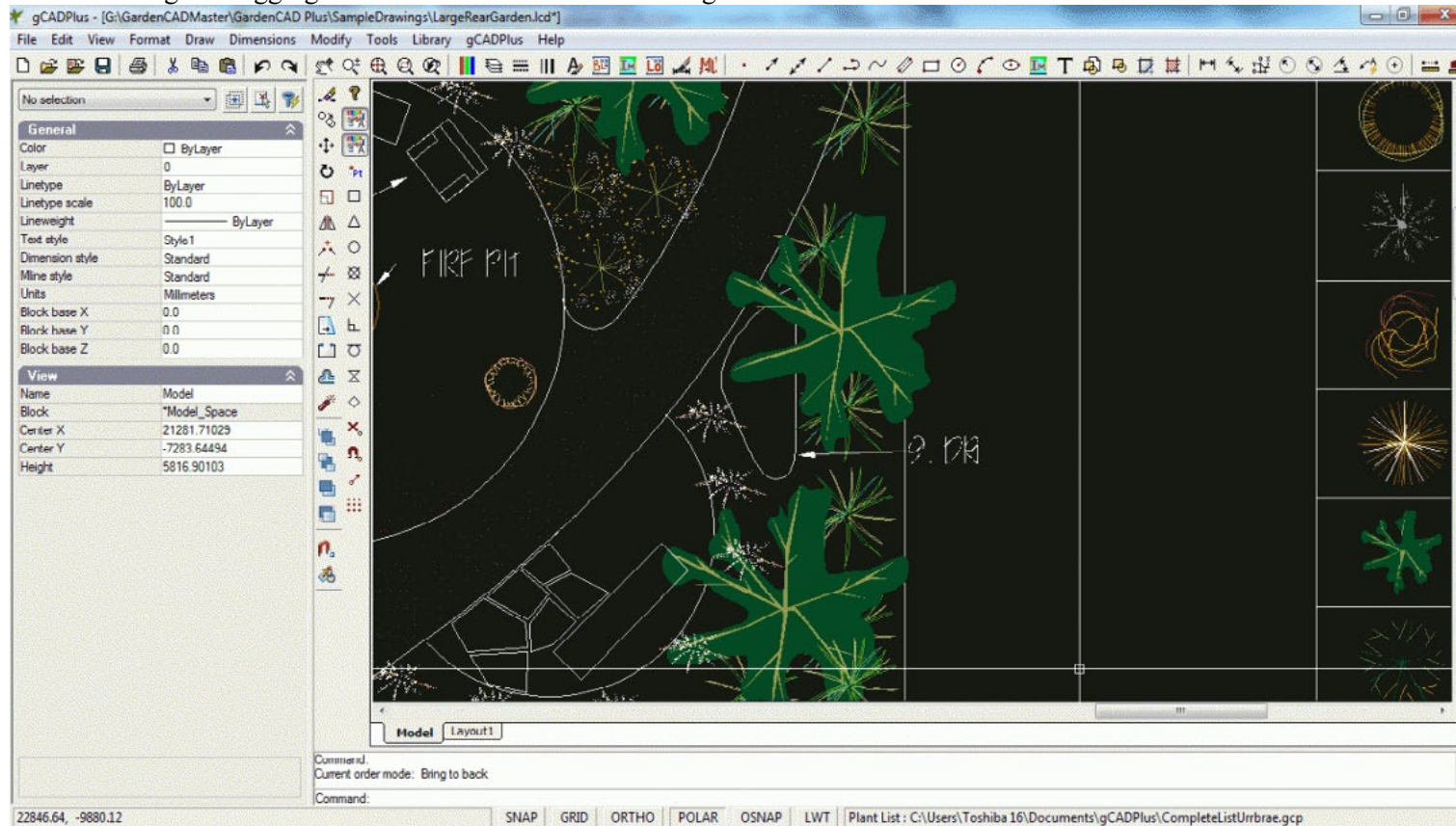
Alternative notation for ground cover planting.

The drop down menu has three options.

One tool (Make ground cover) asks for selection of the polyline defining the area, the routine then 'locks' a particular ground cover species to the space by calling up the plant database file currently attached to the drawing, calculates the number required and applies the label, leaving a marker code indicating the area to be planted. The second tool is used to show those areas that have been tagged, The final other tool generates a schedule of ground cover planting.

This movie shows the ground cover tool in operation.

Option 1: Make ground cover

The figure at right shows the ground cover group of tools in the gCADPlus drop down menu.

The first option asks a user to point to the closed polyline. This results in the appearance of a small multi-entry dialog box (shown at left in the figure below) requires information about the units of measurement for an area - square mm, meters or feet and the spacing distance, the species name (selected from the gCADPlus plant list), that populates the dialog box with a short text code to indicate the species to be used. Once the data has been entered, gCADPlus calculates the number of plants required and starts the leader command, enabling tagging the area with the appropriate information. In the example shown below, 63 plants of Danthonia caespitosa at a spacing of 1250 mm were required to fill the area.

The process begins by starting the sequence described above and concludes by placing a small marker in the area to indicate the number

Ground cover calculation dialog box.
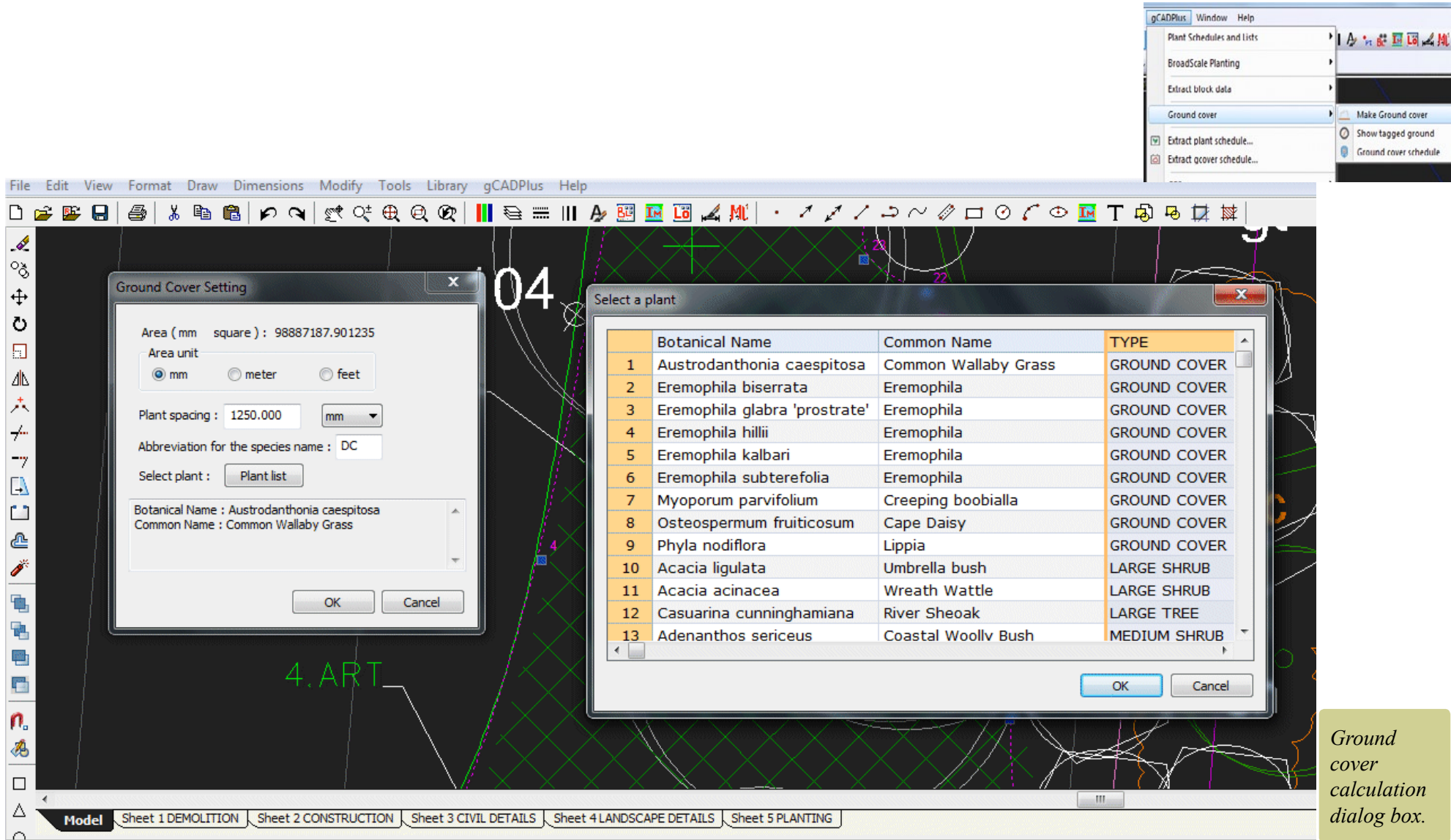
of the ground cover zone. This marker is used in the generation of a ground cover plant schedule.

63 specimens required.

Ground cover marker.
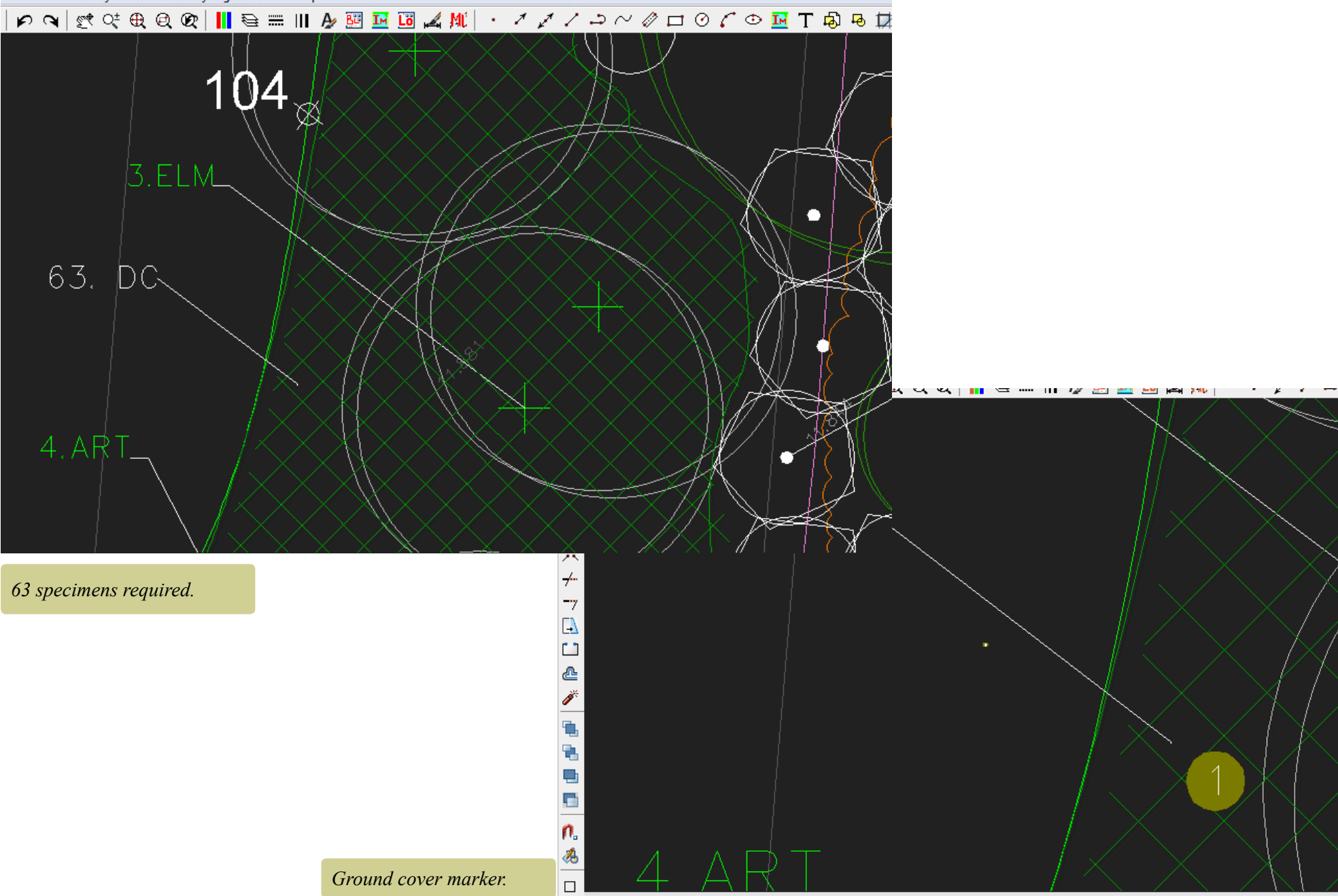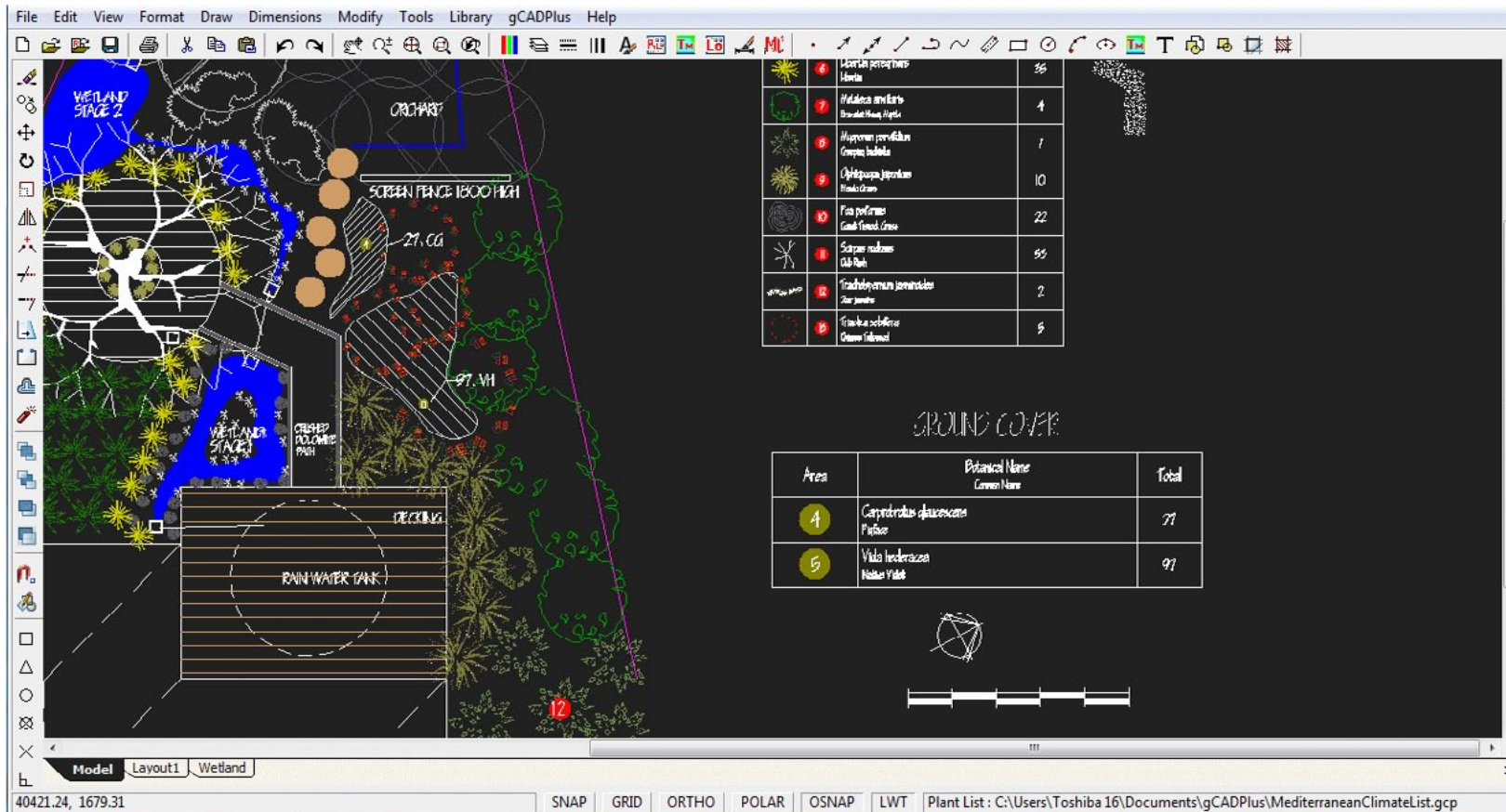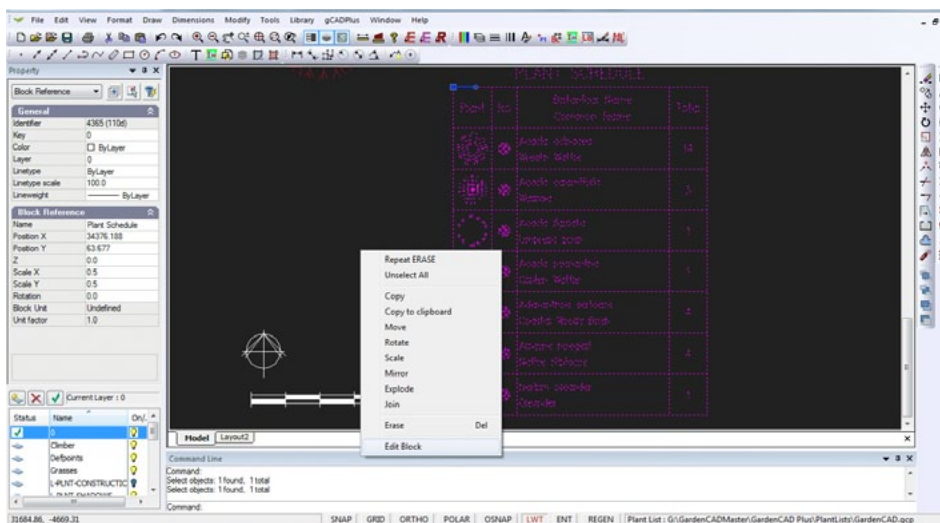
Option 2: Show tagged areas

Used to highlight areas tagged. Especially useful on large plans.

Option 3: Print ground cover schedule

This option draws the ground cover schedule. It displays the number of plants required to fill each ground cover planting area at the nominated plant spacing distance and links to the marker.

If the schedule is not quite drawn to your liking, it is possible scale the schedule.

The ground cover schedule is a block and if required can be edited in the usual way by selecting the block and right clicking on it.

Extract plant schedule

Once a design has been completed and a full planting schedule created, costing can be extracted from the design. It is possible to extract species quantities from the planting schedule and manipulate the data in spreadsheets such as Excel and Google Docs sheets.

This movie show how to extract a plant list and import to Excel

This movie shows how to extract information containing costs to a file suitable import to Excel.

You might use this technique to get data from list ready to send to a nursery for quote.

Extract ground cover schedule

Export plant schedule to spreadsheet for costing.

This option works in the same way as that described above and enables the ground cover schedule to be passed to a spreadsheet.

Export plant schedule.

GPS

The gCADPlus menu contains an option to import external data in the form of GPS coordinate and text data. Several options are available - import from a CSV file and import from Garmin GPX files.

GPS in

This option takes data in a standard comma separated file and based on information contained in the file puts a point marker entity at each location. The import tool provides a dialog box that is used to determine which comma separated zone is used for the x, y and z value for the point entity. A text label can also be added to the point.

If the CSV file has a header row, the header value can be used as an aid for data selection.
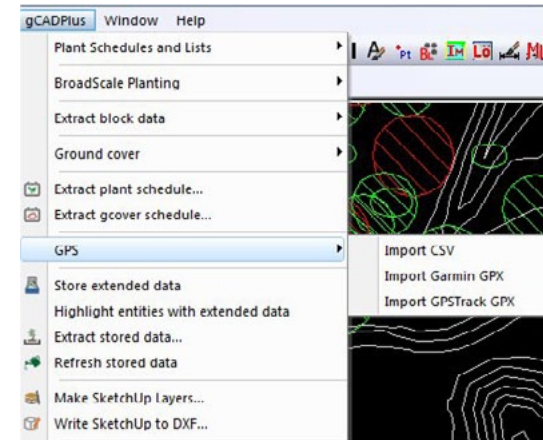
GPS import options.

Assign data columns.

Sample CSV data file.

It is possible to load a base survey map and overlay with data from a CSV file generated during a survey. Here is a typical base map showing a wetland and accompanying cadastral information on roads and allotments.

In this example, we run the GIS tool, select the CSV file and the data is plotted on top of the base map.
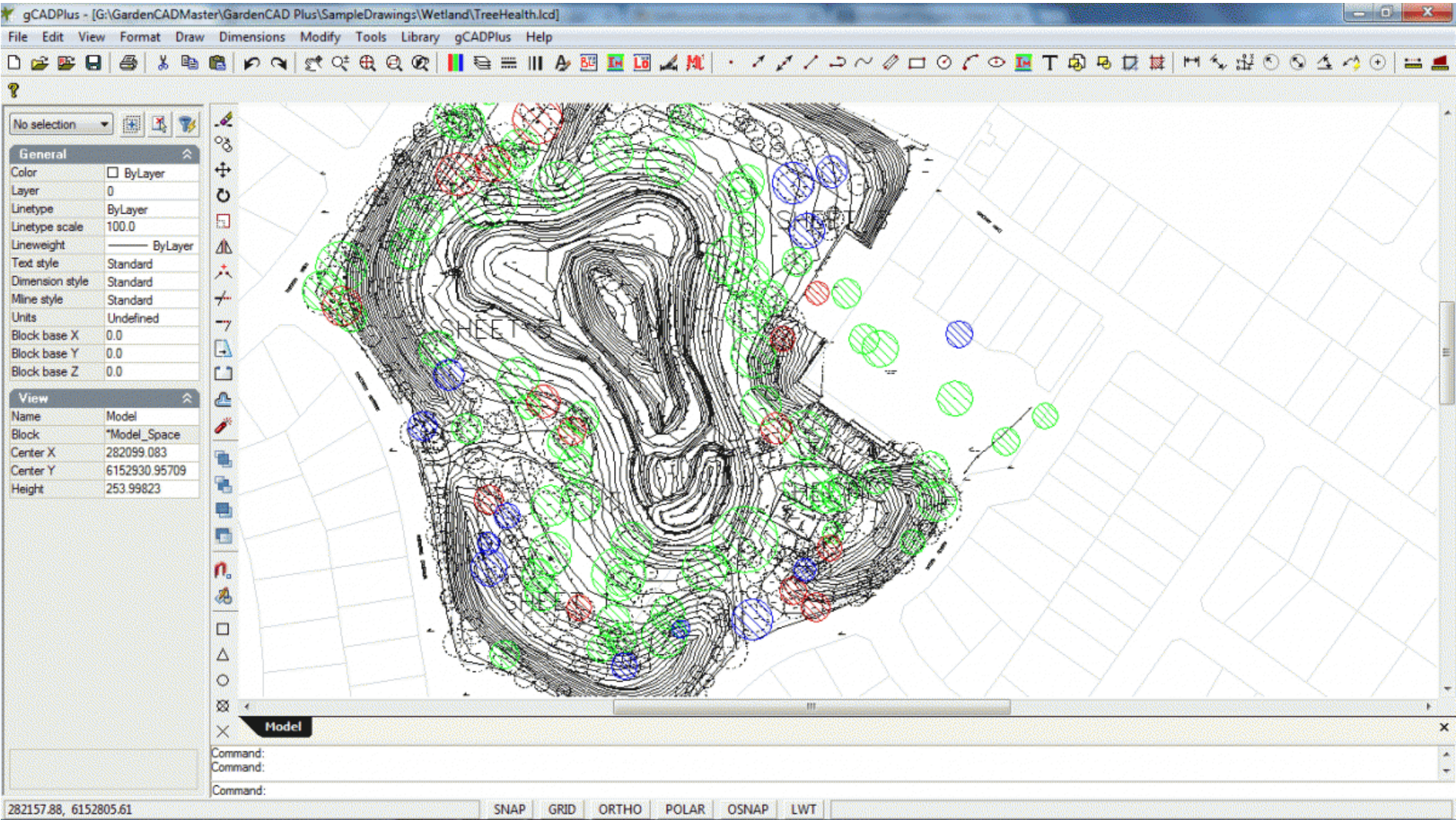
Tip: In this example, we ran a custom version of the generic GPSin command, colouring trees according to health.

Plotting tree health data.

The standard GPSin command in gCADPlus will import the first four columns in the data set.

Record 1 in your file should show the header information, then the routine will import column A (numeric), Column B (text), Column C (x coordinate) and column D (y coordinate). The remaining columns are ignored. A point is plotted at the x,y position and text written in the current style nearby.

Import Garmin GPX

This option takes a standard Garmin GPX file and imports the data, putting a point marker at the location the GPS value was recorded.

Import GPS track

Many landscape designers and horticulturists carry smartphones when they are inspecting a new site. Many have some type of GPS capability. Location data can be easily gathered and used to orient and help orient and create a base plan in CAD software before a visit. This small application is available for the iPhone. It enables an users to capture the latitude and longitude at any desired location. The figure below shows the IPhone screen and the shortcut to the App together with a copy of the first screen page in the App. Note the information available - latitude, longitude, sample time, elevation etc.

In this instance, tracking has been started and the Stop Tracking option is about to be selected.

Switching the view to 'Map' shows the location superimposed over a Google Earth images. This image (and others showing the complete house block) can then be emailed from the phone to the designer's home base email address while they are on site. Google klm file information can also be exported from the smart phone application as an aid in registering Google Earth images and GPS data.

The GPXtrack option takes a data file from the phone and will plot the points recorded by the phone.

GPSTrack application.

GPSTrack Google Earth.

Store extended data

There are times to when it is useful to store extra non-graphic information with symbols used in a landscape plan. For example, it might be advantageous to store behind a furniture symbol, the details of size, cost, manufacturer, material used in construction. In the same vein, GPS and Google Earth and photographic information about species symbols might also be required. The CAD drawing containing this extra information then becomes much more than a simple replacement for a drawing board. It is possible to store extended information behind any entity - lines, arcs, blocks etc. are all candidates for stored information.

This movie provides an overview of how extended data is manipulated.

Although it is not obvious, the design shown below contains a considerable amount of extended information. Details of outdoor furniture, seating, paving, irrigation design are all there but only appear when required
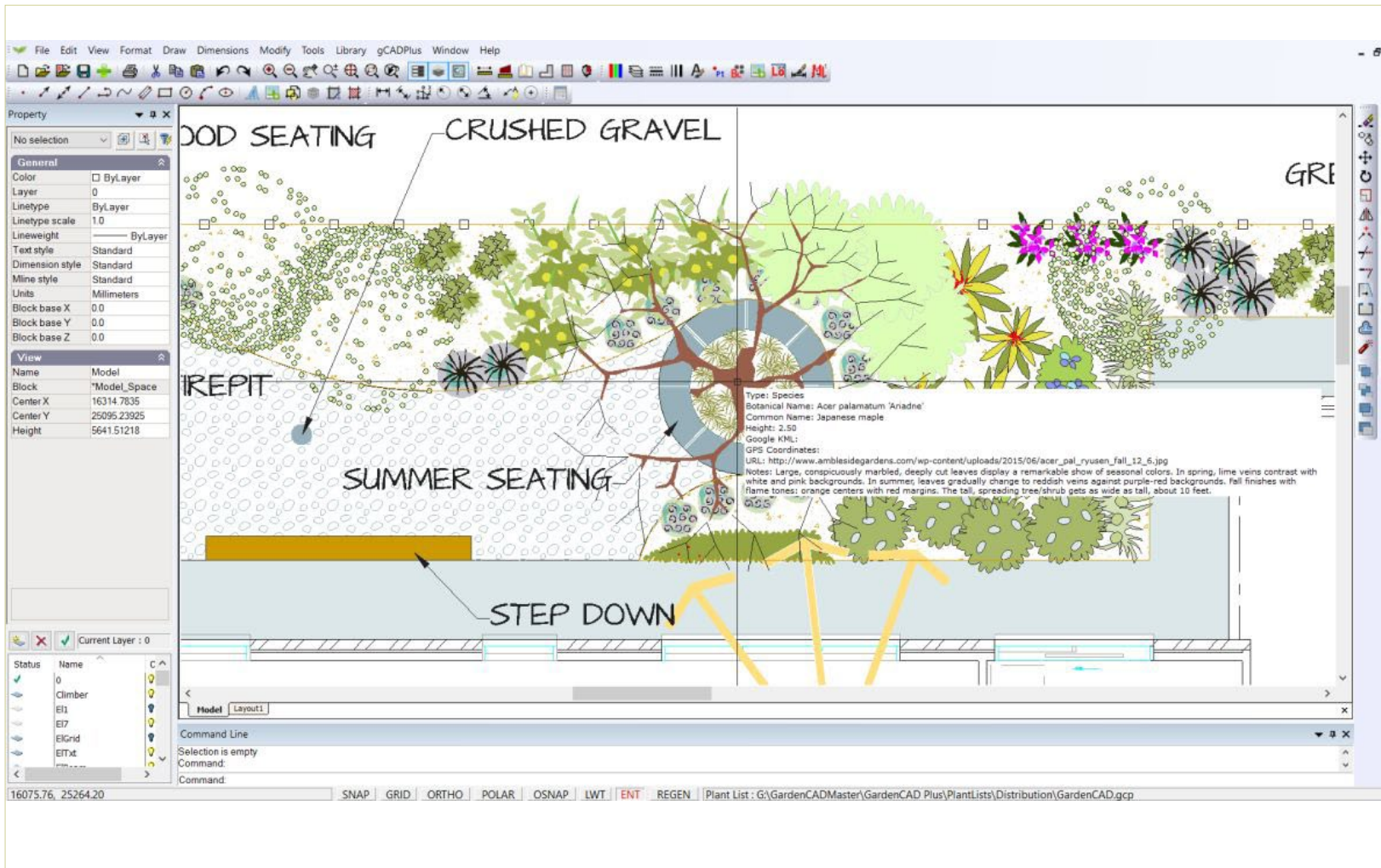
Drawing with extended data - only revealed when the EXT switch is turned on.

Furniture data

For example, you may have specified outdoor furniture from a particular manufacturer in the design. It would be useful to store manufacturer name, type
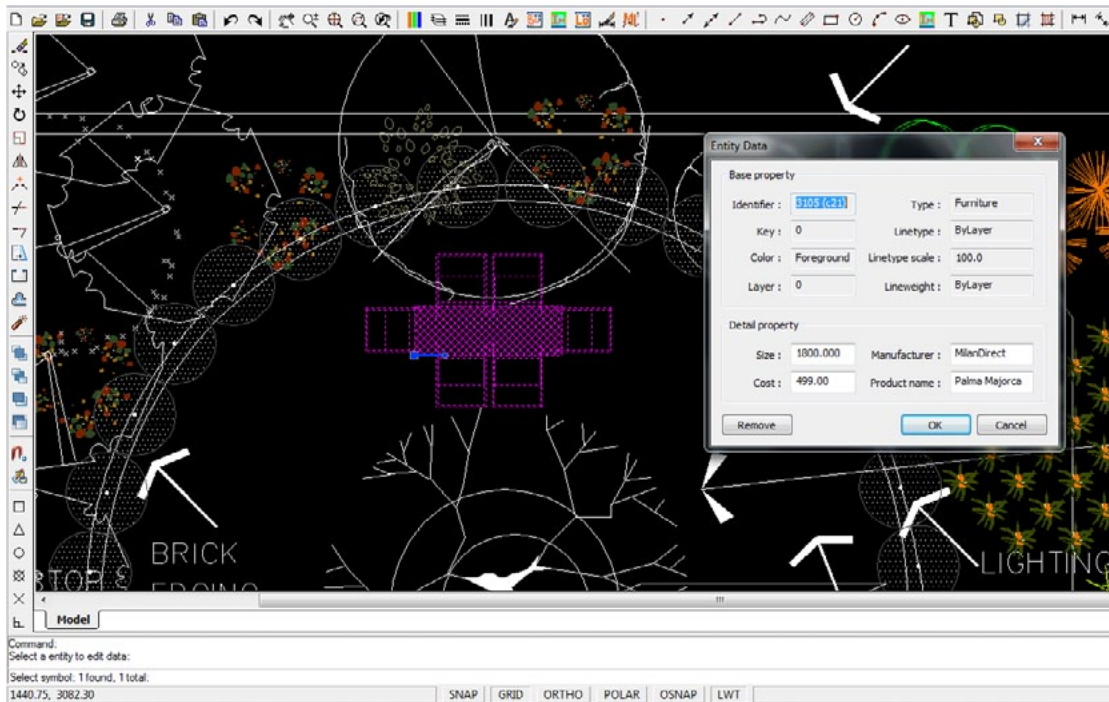
Outdoor furniture data.

and cost of the furniture shown above. The figure below shows a furniture block in a gCADPlus drawing with extended entity information about that furniture set. This information is not printed, but can be displayed on cue.

Paving

A design may well call for an area of paving outlined by a polyline. The STOREDATA feature is used here store information about the supplier, paver size/type, cost/paver etc.

Paving data.

Decking

The example here store information about a quotation for a custom build of some decking/seating around the base of a tree.
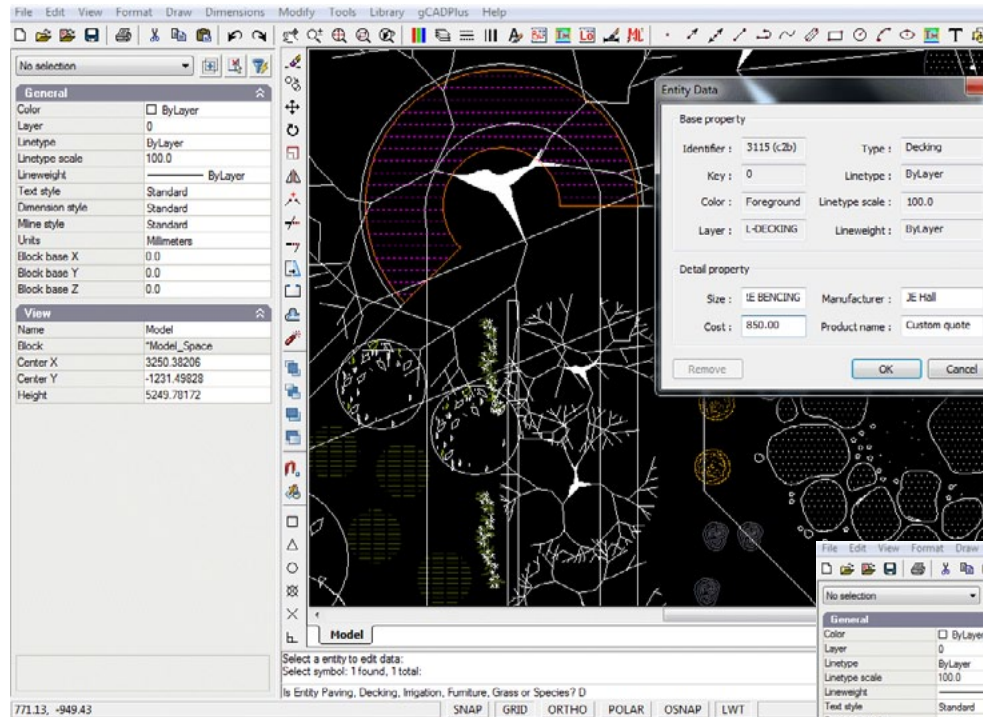
Irrigation

The length type and supplier of irrigation equipment is stored.
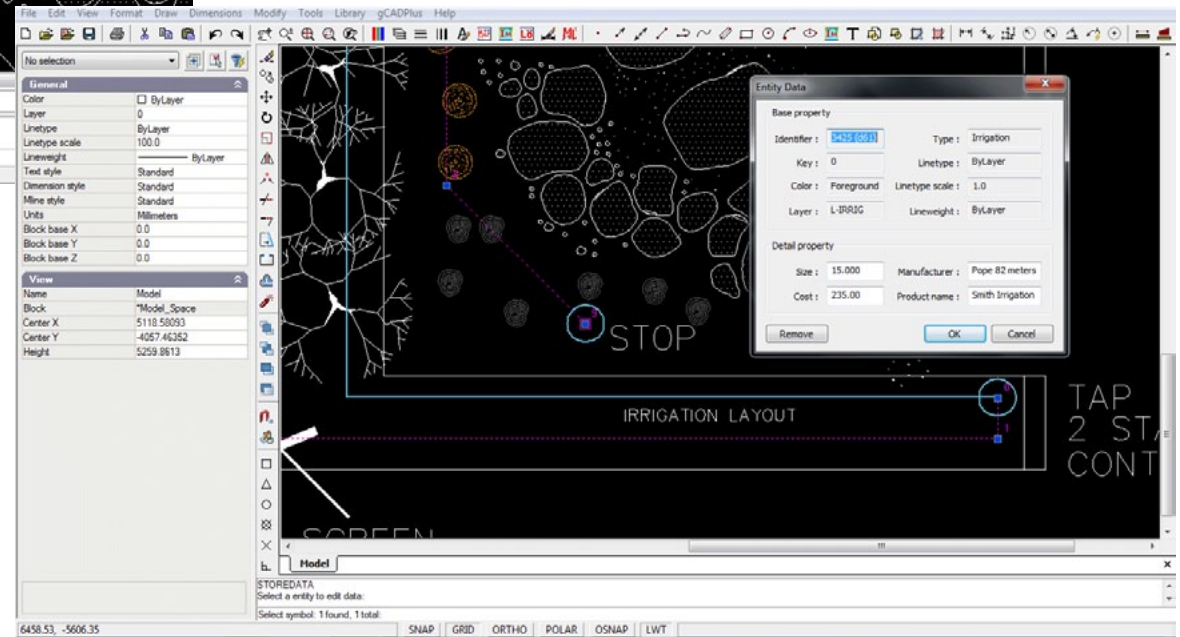
Grass

Total area to be grassed, the type and company contracted to lay the grass are available.
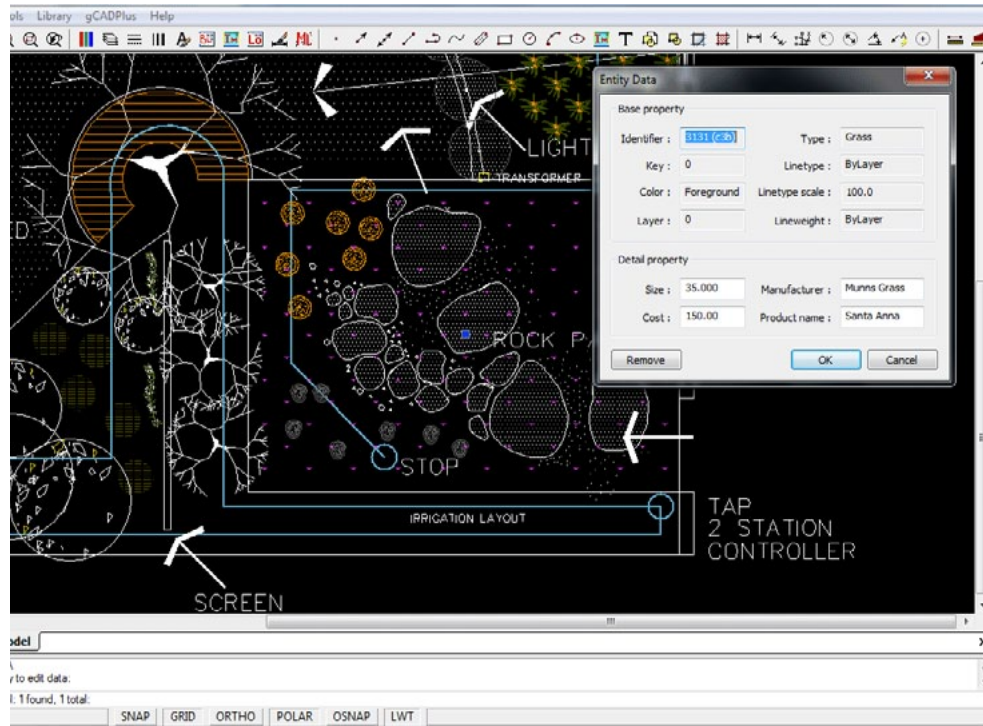
Lighting

Important information about lighting data can also be stored.
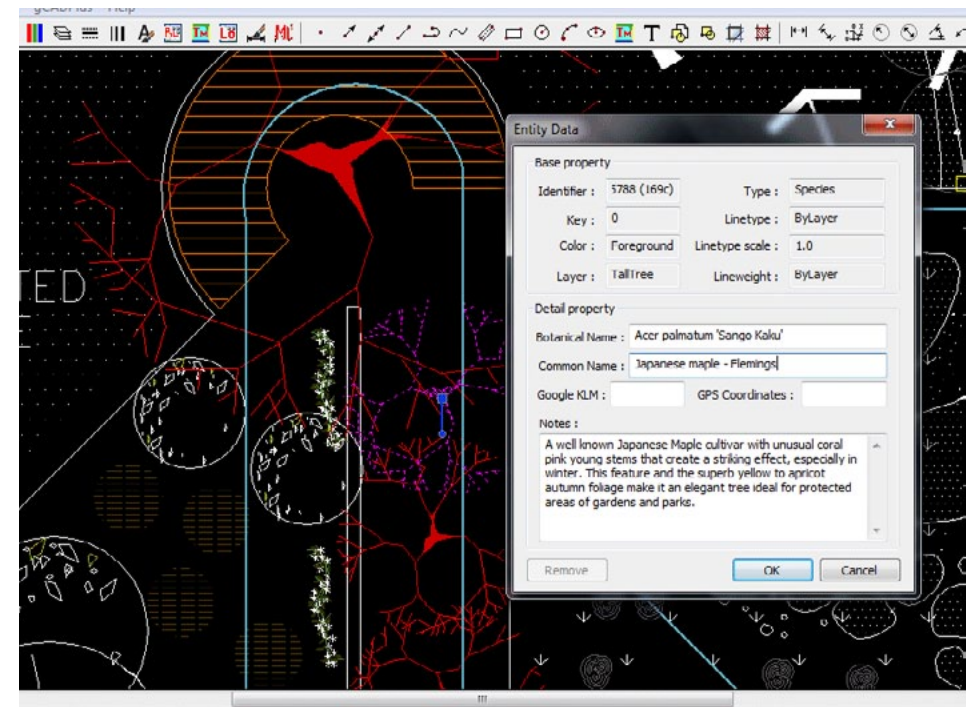
Species

The species option of the extended data tool allows storage of considerable extended information about particular plants. Although not used in the example below, if gCADPlus was being used in (say) a botanical gardens or arboretum, information on Google Earth location and GPS data can be recorded along with species information in the extended data dialog box.
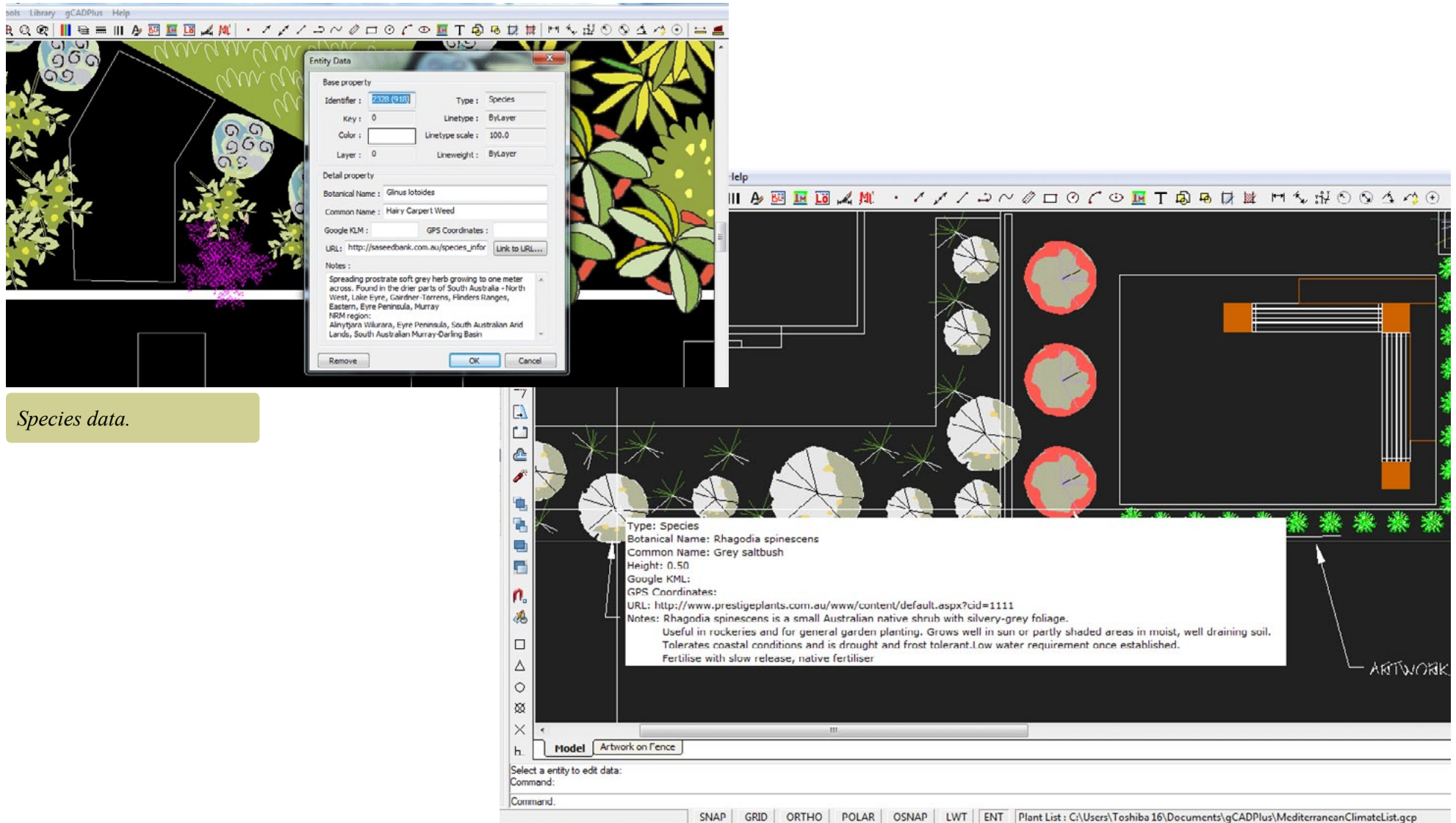
Species data.

View extended data.

Google Earth

The species data dialog box also allows storage of klm file information.
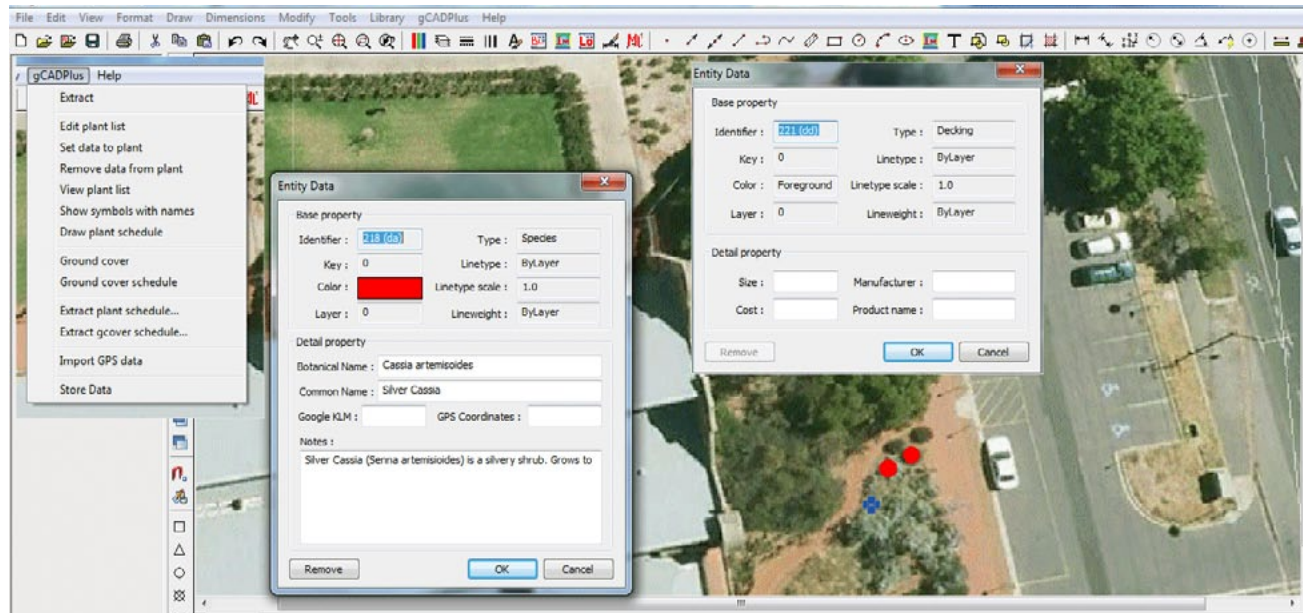
Store Google Earth klm data.

Link to URL

gCADPlus features the ability to store a URL, a link to an external location as part of extended entity data. In the example shown if a user clicks on the link to url button in the species dialog box, they will be taken to an online database where information on propagation methods for the plant is stored.

Tip: To display the information in real time, make sure that EXT tab is pressed and when your mouse hovers over the entity, much of the stored data becomes visible. It' works just like a tool tip.

Link to a URL.

Highlight extended data

If entities such as the circle outlining the canopy of a specimen of the Grey Alder (shown below) contains extended data, this option can be used to highlight in magenta color those entities in a design that have extended data associated with them.
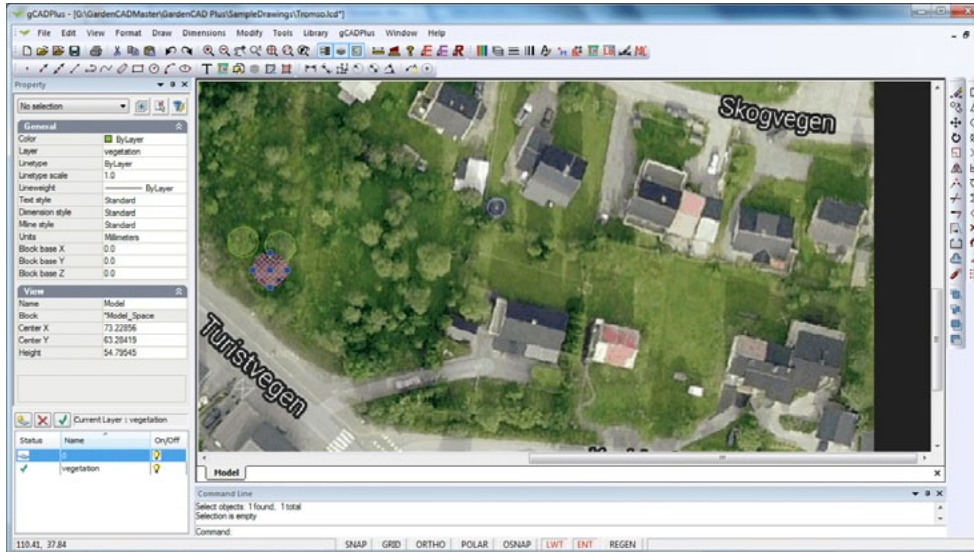
Show extended data.

Show symbol with extended data.

Extract stored data

This option writes all extended entity information contained in a drawing to a CSV data file ready for spreadsheet analysis.

Propagate stored data

Use this option to update a block symbol with extended data. For example, if in an arboretum, the same symbol had been used to indicate many instances of the same plant species then use this tool could be used to update all instance of the block to carry that same extended entity data.
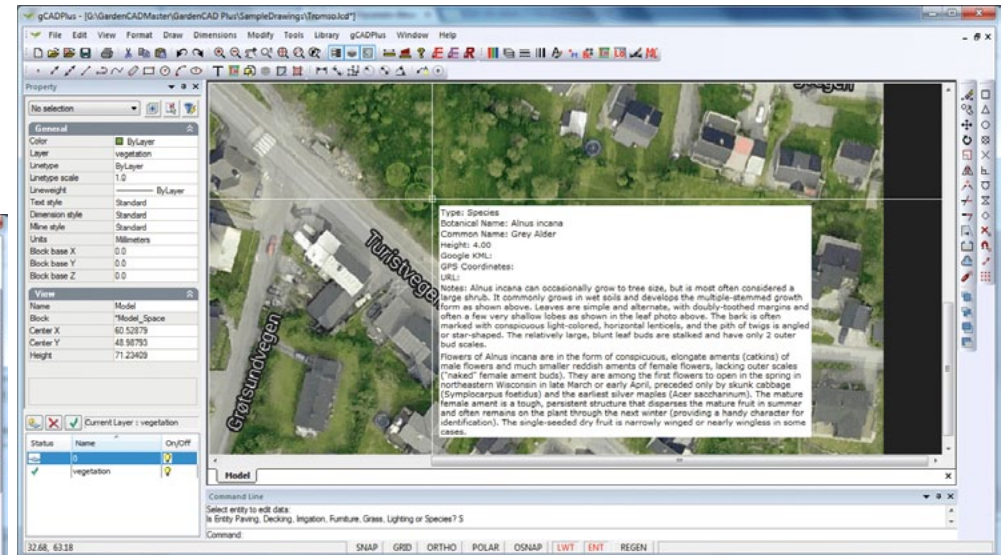
Export gCADPlus models to SketchUp

The sub options - Make SketchUp layers and Write SketchUp data to DXF were covered in some detail in chapter 3 of this guide - "Drawing with gCADPlus"

Further reading:

http://www.plus.designcad.com.au/?q=node/191

Shadow

This tool enables a shadow effect to be applied to any entity in a gCADPlus drawing. It is particularly useful where some emphasis is required for plant symbols (blocks). Again, chapter 3 provides extensive information on using this tool.
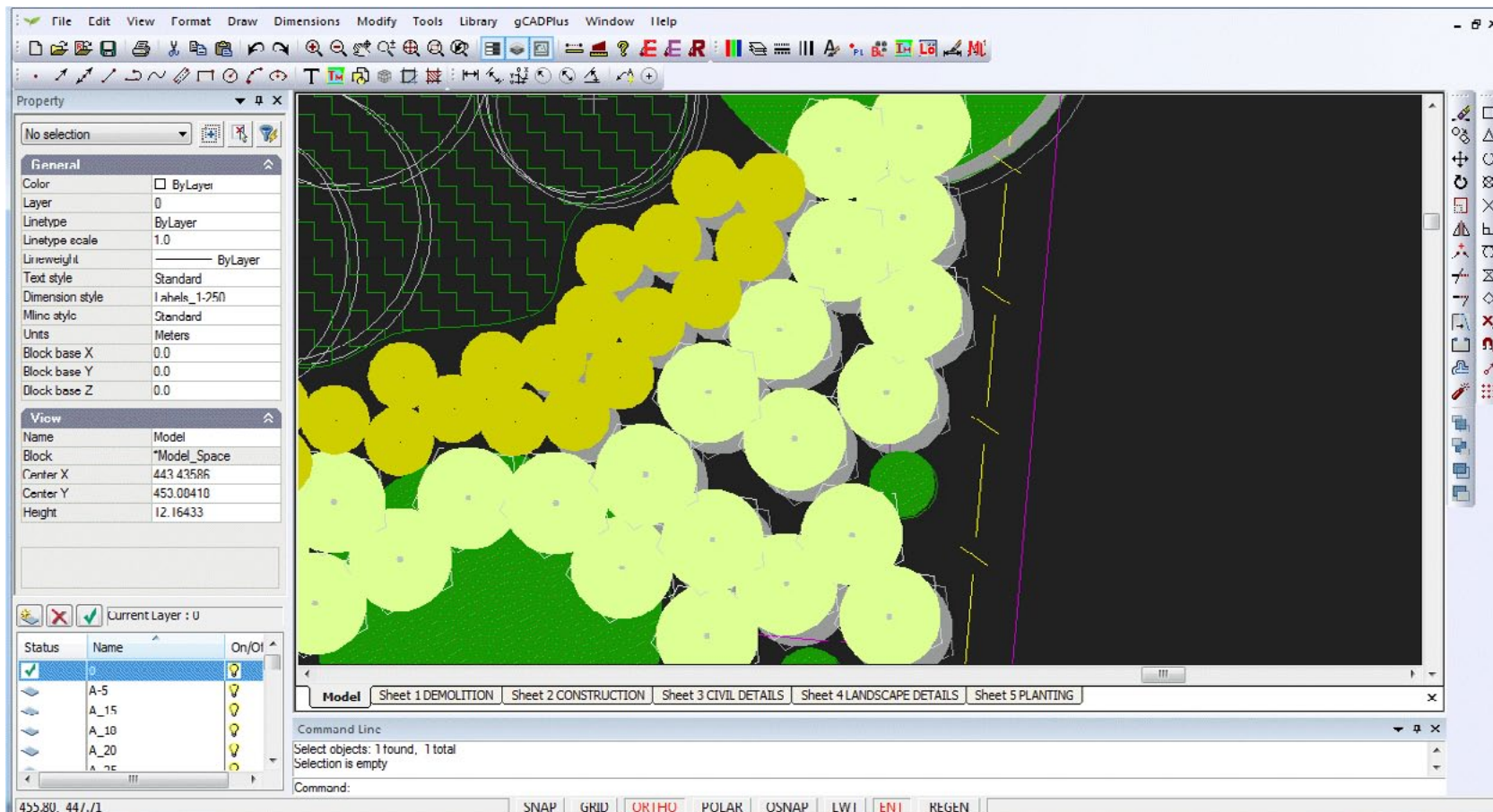
Apply shadows to symbols.

Fill closed line with a pattern

It is possible to take any symbol (a gCADPlus block) and use this tool to quickly flood fill the area with the symbol. The figure at right shows an area filled with a generic symbol indicating ground cover planting. Spacing is controlled by left clicking to indicate desired separation distance.

This movie shows the patterning tool in action.

Patterning can be applied to any symbol, even those blocks made 'on the fly'.
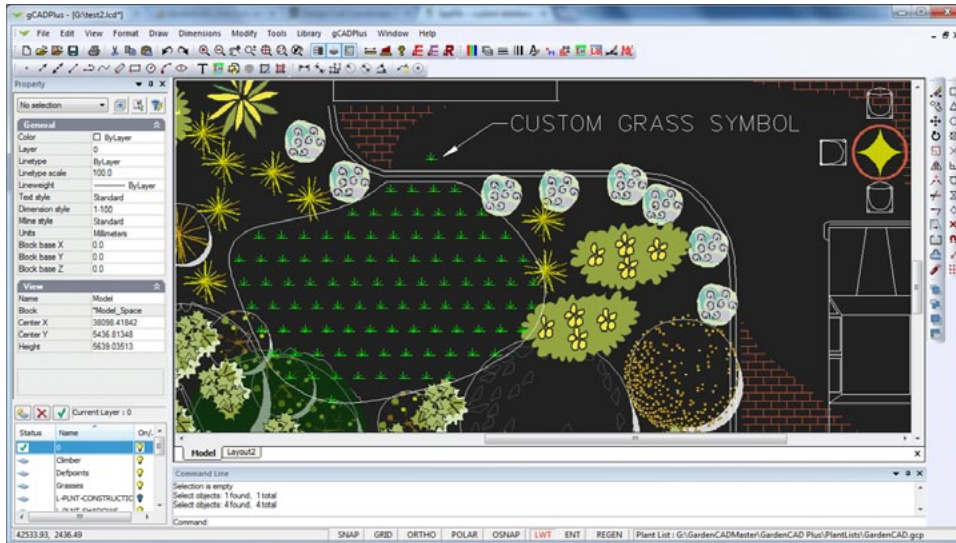
Patterning fill with a custom plant symbol.
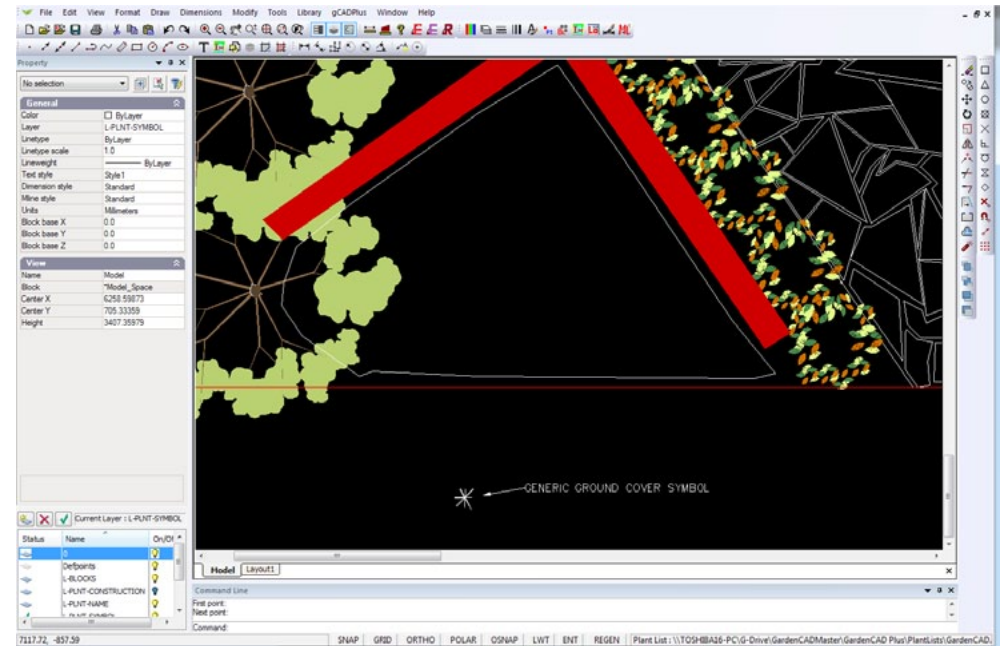
Before (top) and after (bottom) using the patterning cover symbol inside a closed polyline.
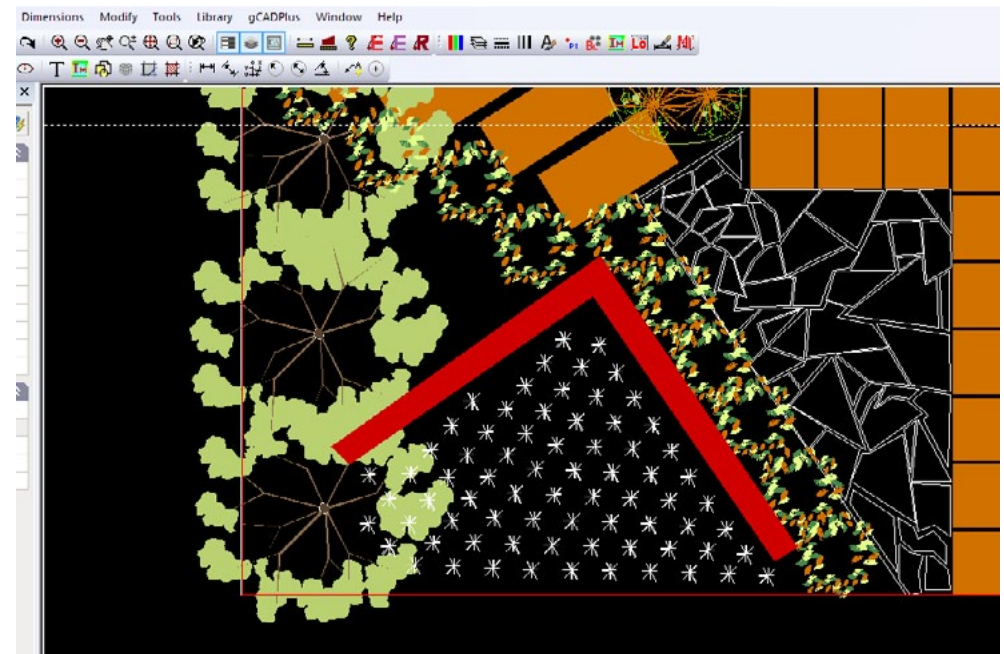
Copy symbol along line

This tool on the gCADPlus menu enables placement of multiple copies along a line at a fixed interval that you nominate. Use it when setting out regular planting such as seen in orchards.

This movie shows the 'Copy symbol along line' tool in action.
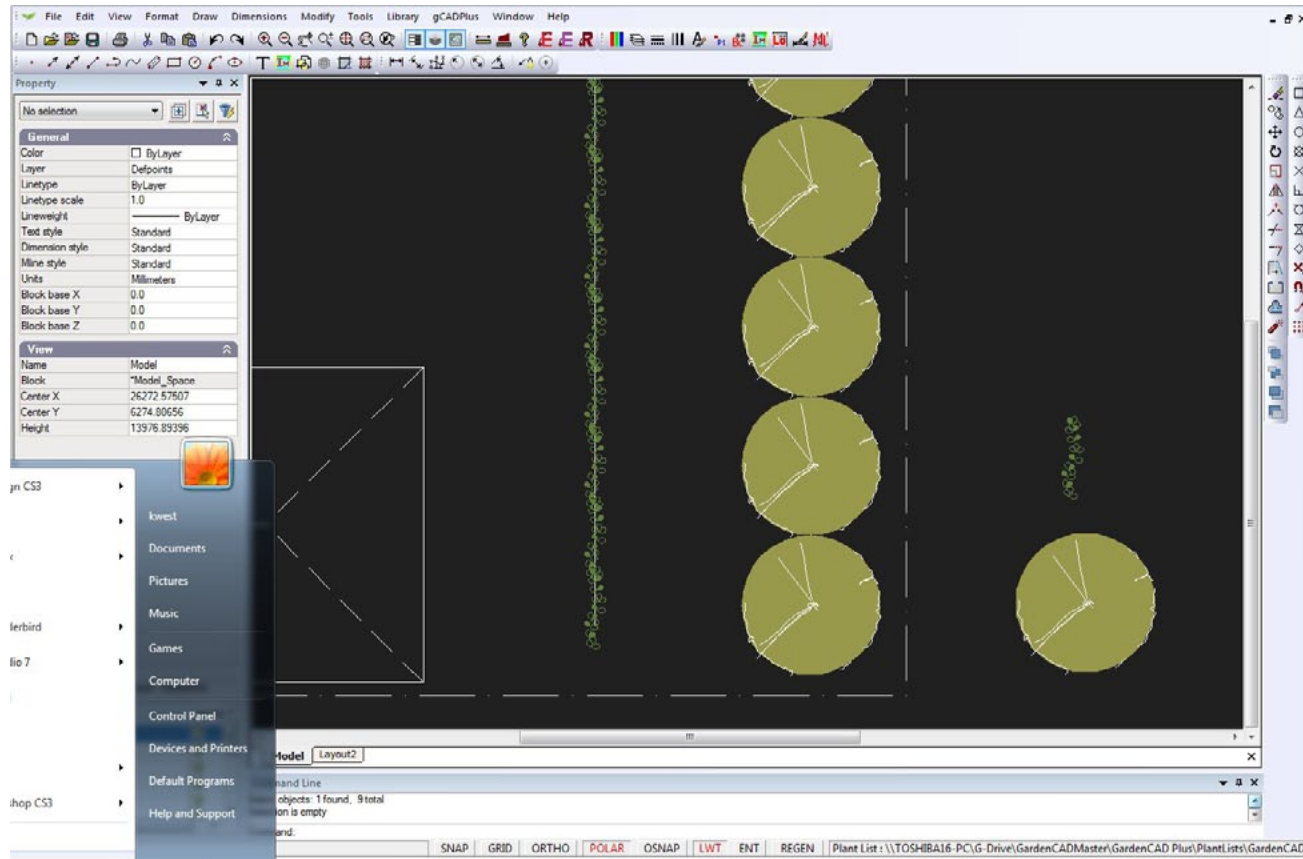
Copy a symbol along a line.

Copse

This tool merges a group of overlapping plant symbols to indicate a group of similar species. You will lose the ability to assign species to the resultant group so do not use when you want an automated plant schedule.

We show how to use the COPSE command to merge a group of symbols into a simpler group. For example, the tool might be used where shelter belt planting is required. Simply place any gCADPlus symbol as an overlapping group and use the gCADPlus menu and select COPSE. This strips the complexity from the symbol and leaves a marker in the center of each plant. That central marker can be altered at will to suit your particular need

Insert Google maps/Image

There are times when it can be convenient to incorporate satellite images taken from Google Earth into landscape drawings. The Insert Google Maps/Images tool is designed to make the process simple and straightforward.

Provided that you are connected to the internet, this tool enables Raster information from Google maps and satellite images to become part of the drawing environment. Select the tool and the dialog window shown bat right will appear.

   Here is a short movie showing how place Google Earth images into gCADPlus.

As shown in the movie, start Google Earth, set the option that prevents tilting as zoom. Zoom in to your site. Save the image file and edit inside an image editor.

Start gCADPlus use Draw > Insert Raster.

Paste the image - either into a layout space or into model space. We suggest using model space if you want to scale the image to match the real world units that you are using for the site.

Tip: it can be useful to paste the image onto its own layer. That layer can then be turned off if image display is not required.

   Here is another example showing a Google Earth image being used to assist in irrigation design work.

Save the resultant png image file.

Image held by image file manager.
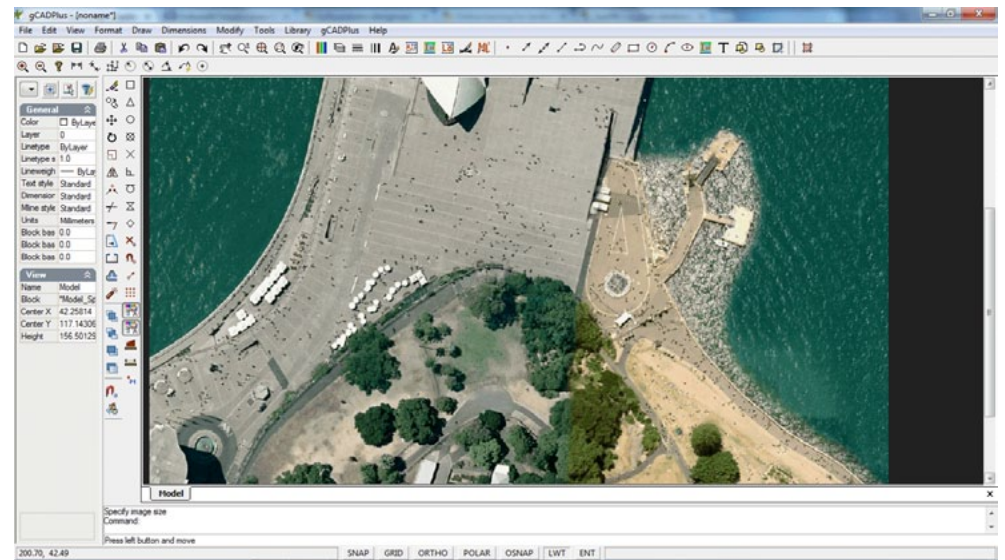
Image in gCADPlus.

Other users (especially in the environmental mapping and farm management fields) will add vector information and perhaps extended entity information. The figure below shows extra information added to a circle representing a Canary Date palm.

Tip: Use the STORDATA command to link to a URL for extra (Internet based) information.
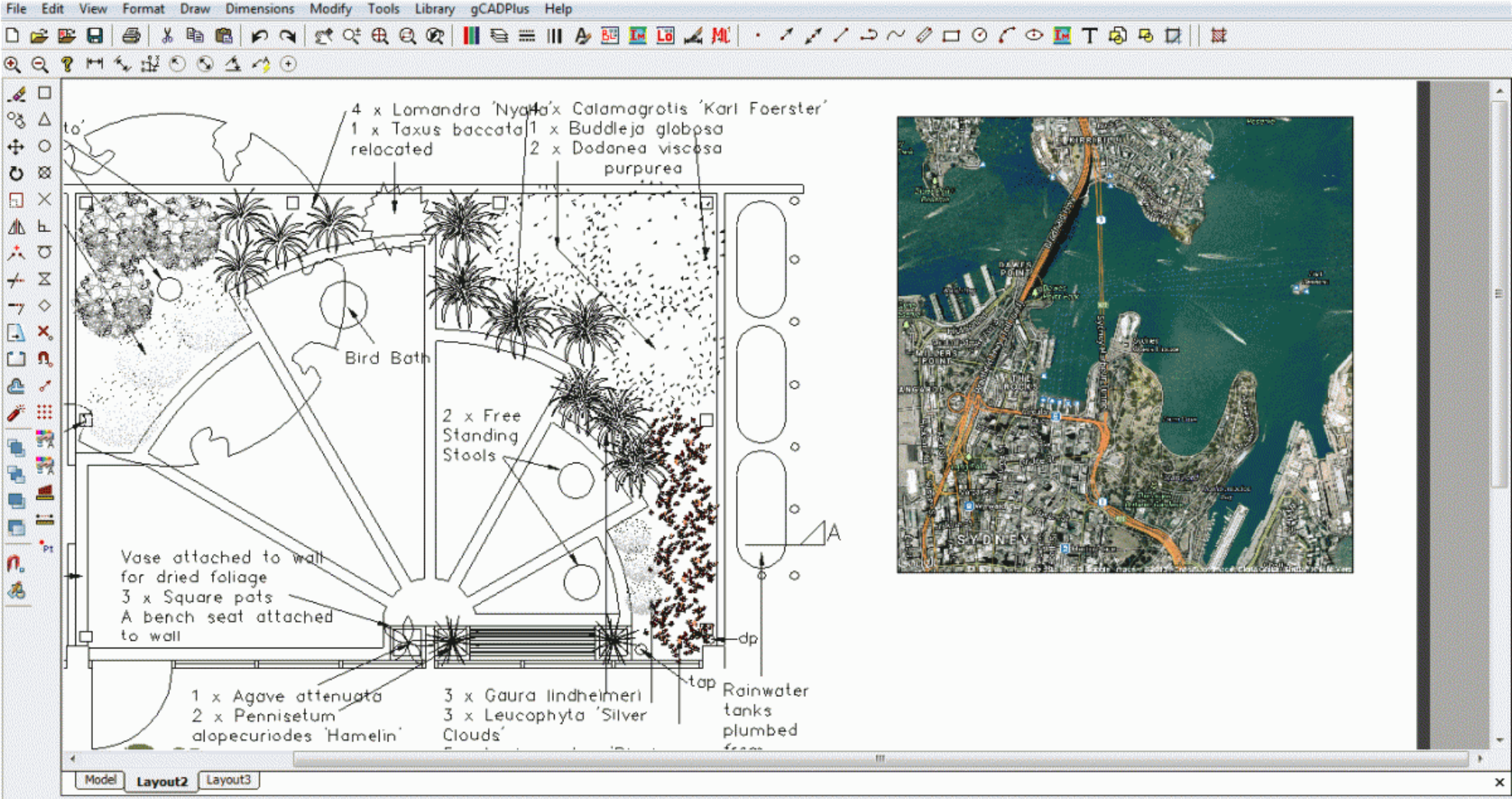
Google Earth image as a location plan indicator.

If you have enough information about x and y coordinates and latitude and longitude, it is possible to register the Google satellite image with vector data that you add thus creating another type of hybrid image.
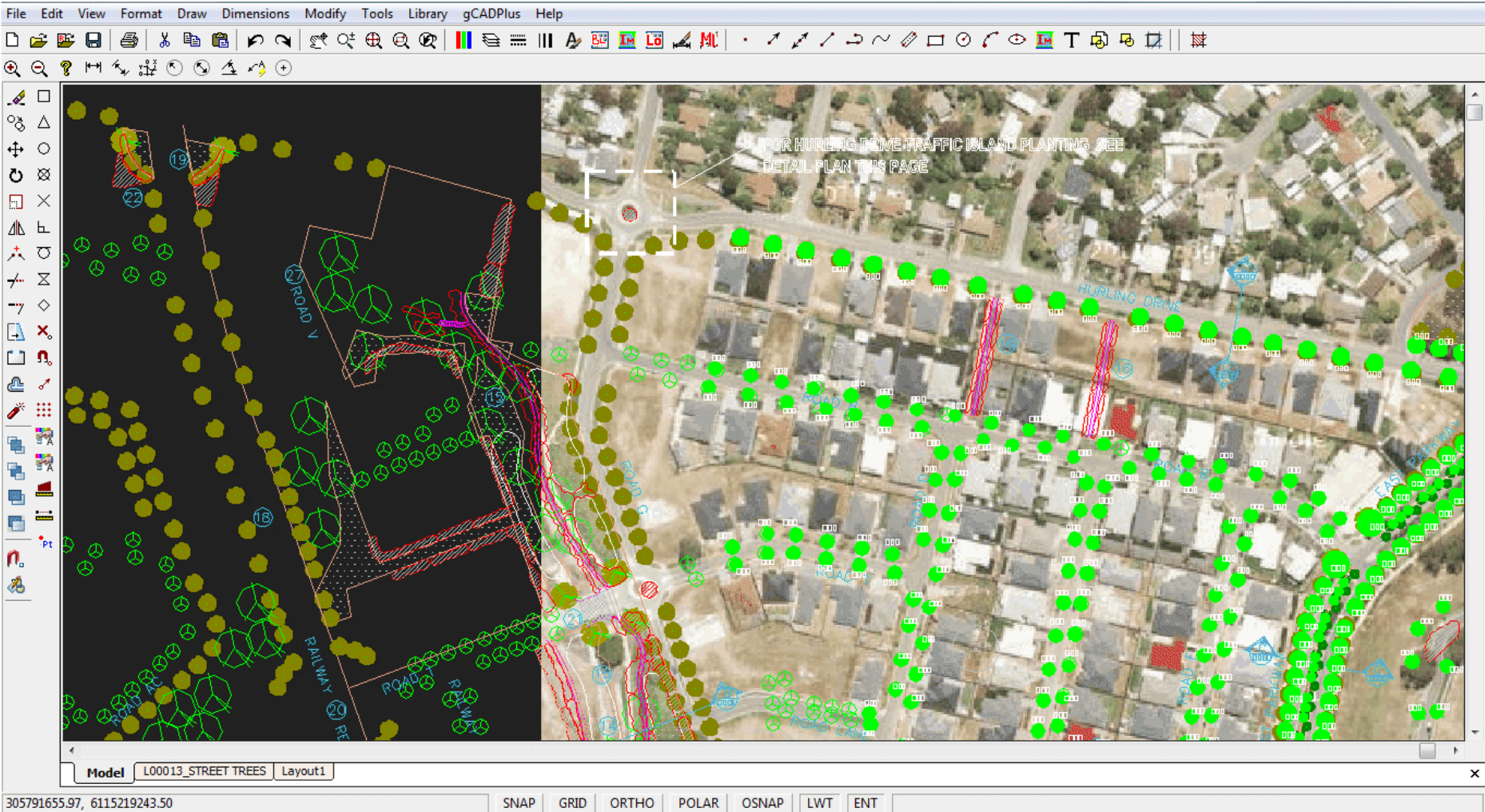
Hybrid satellite/map and CAD landscape plan information.
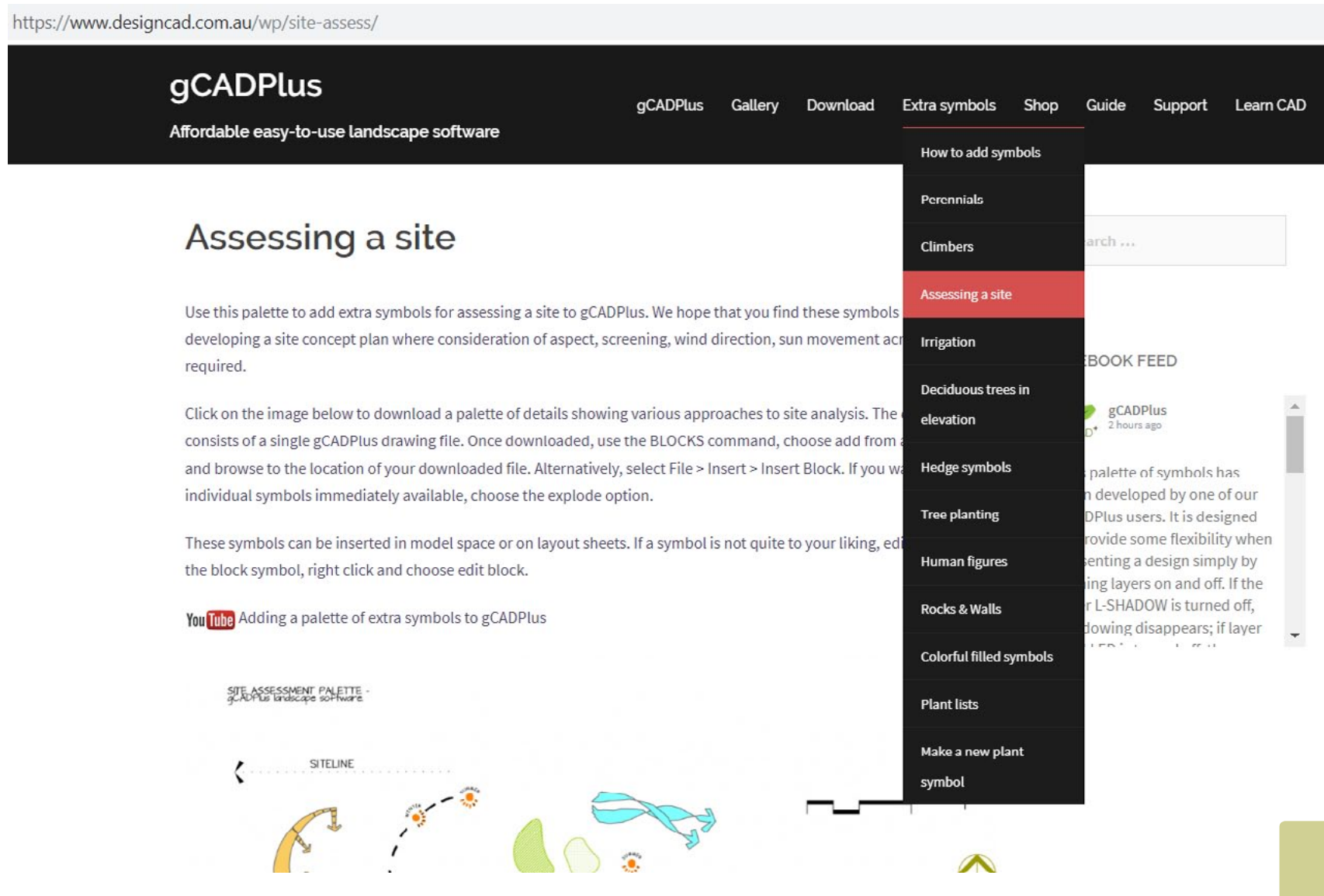
Plant palettes

Rather than continually adding new symbols to gCADPlus and thus making the gCADPlus setup file increasingly large, we have provided a section on our web site a series of palettes (single drawings containing many symbols) that can be downloaded and used to add additional gCADPlus symbols to your copy.

How to use the plant palette tool.

More information on palettes can be found at https://www.designcad.com.au/wp/how-to-add-extra-symbols/

Download extra symbols.

Some of the palettes available for download from the gCADPlus web site are shown below.

PERENNIALS

ASTRANTIA

ASTER

ACHILLEA

ALCHEMILLA

ACTAEA

ASTILBE

ACONITUM

DIGITALIS

ECHINOPS

ECHINACEA

HOSTA

HEMEROCALLIS

HEUCHERA

LAVANDULA

LEUCANTHEMUM

NEPETA

RUDBECKIA

SALVIA

STACHYS

Assess a site..

PERENNIALS

ANNUALS

GROUNDCOVERS

SMALL SHRUBS

XEROPHYTES

CLIMBERS

TREES

LARGE SHRUBS

MEDIUM SHRUBS

Climbers.

0   1   2   3   4   5M

Filled/Colorful

LEGEND

Symbol	Description
◪	WATER SUPPLY CONNECTION PUMP STATION
▶▶	BACKFLOW PREVENTION DEVICE
◫	FILTRATION ASSEMBLY
◉ MV	MASTER VALVE ASSEMBLY
◉	SOLENOID VALVE ASSEMBLY
◕	SOLENOID VALVES: 24VAC 50mm WITH FLOW CONTROL
▶◀	ISOLATION VALVE ASSEMBLY
19LD —◉◀◀◆	DOUBLE CHECK VALVE AND DRIP VALVE ASSEMBLY CONNECTED TO MAINS WATER
⬤	FLUSH VALVE ASSEMBLY
Ⓒ	CONTROLLER
▢C	EXISTING CONTROLLER
◉	EX. TREE TO BE RETAINED

MAINLINE PIPEWORK (PVC)
LATERAL PIPEWORK (PVC)
RECLAIMED WATER PIPEWORK
DRIPLINES (TURF)
DRIPLINES (GARDENS)
SPARE
IRRIGATION POWER CABLE
EX. ELECTRICITY – O/H
EX. ELECTRICITY – U/G
EX. COMMUNICATIONS
EXISTING WATER
EX. SEWER
EX. STORMWATER
EX. FENCES
EX. KERB
MAINLINE PIPEWORK (PE)
LATERAL PIPEWORK
PIPEWORK: uPVC CLASS 9

AMENDED DRAWING FOR CONSTRUCTION

Symbol	Description
⬤	SPRINKLERS (FULL CIRCLE)
◗ ◖ ◗	SPRINKLERS (PART CIRCLE)
⬤	SPRINKLERS: HUNTER

Irrigation..

Deciduous trees in elevation

HEDGE SYMBOLS FOR GCADPLUS
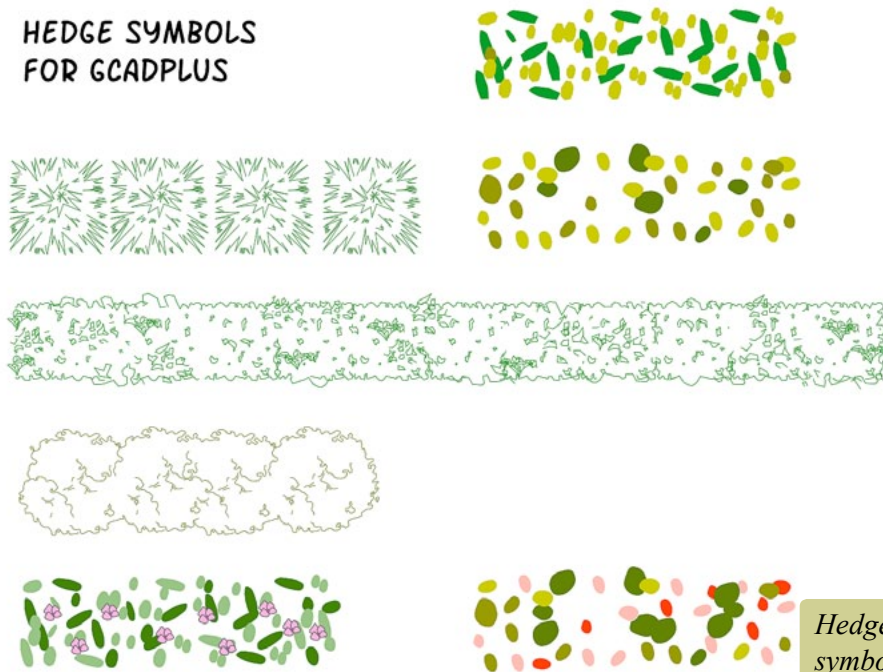
Hedge symbols.
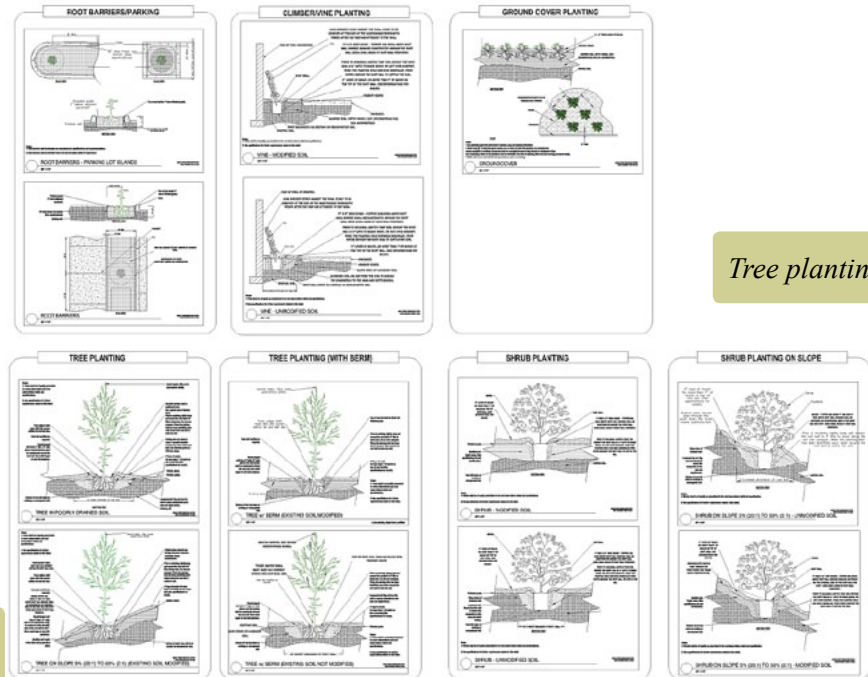
Tree planting.

URL entity

Use this tool to enable text in a design to link to an external a URL web address. Typical use might be to link to a manufacture's web site for a piece of landscape hardscape that has been specified for a design. Text in a title block in layout space might also link to the designer's web site.

Note that only Windows text can link to a URL, CAD text cannot be linked.

Tip: When setting a URL, make sure that you include the http:// in the URL reference.

Write block

This tool is used to 'lift' an entity or group of entities from a drawing and make a separate drawing of them. It is the equivalent of the WBLOCK (write block) command in the AutoCAD environment.

GIS

The term GIS describes any information system that integrates, stores, edits, analyzes, shares, and displays geographic information. gCADPlus is certainly capable of doing that. It is possible to load files from the the most popular commercial GIS system (ArcInfo) into gCADPlus. In addition, tags can be added to any entity in a drawing GIS tags and tools to work with SQL queries are being developed.
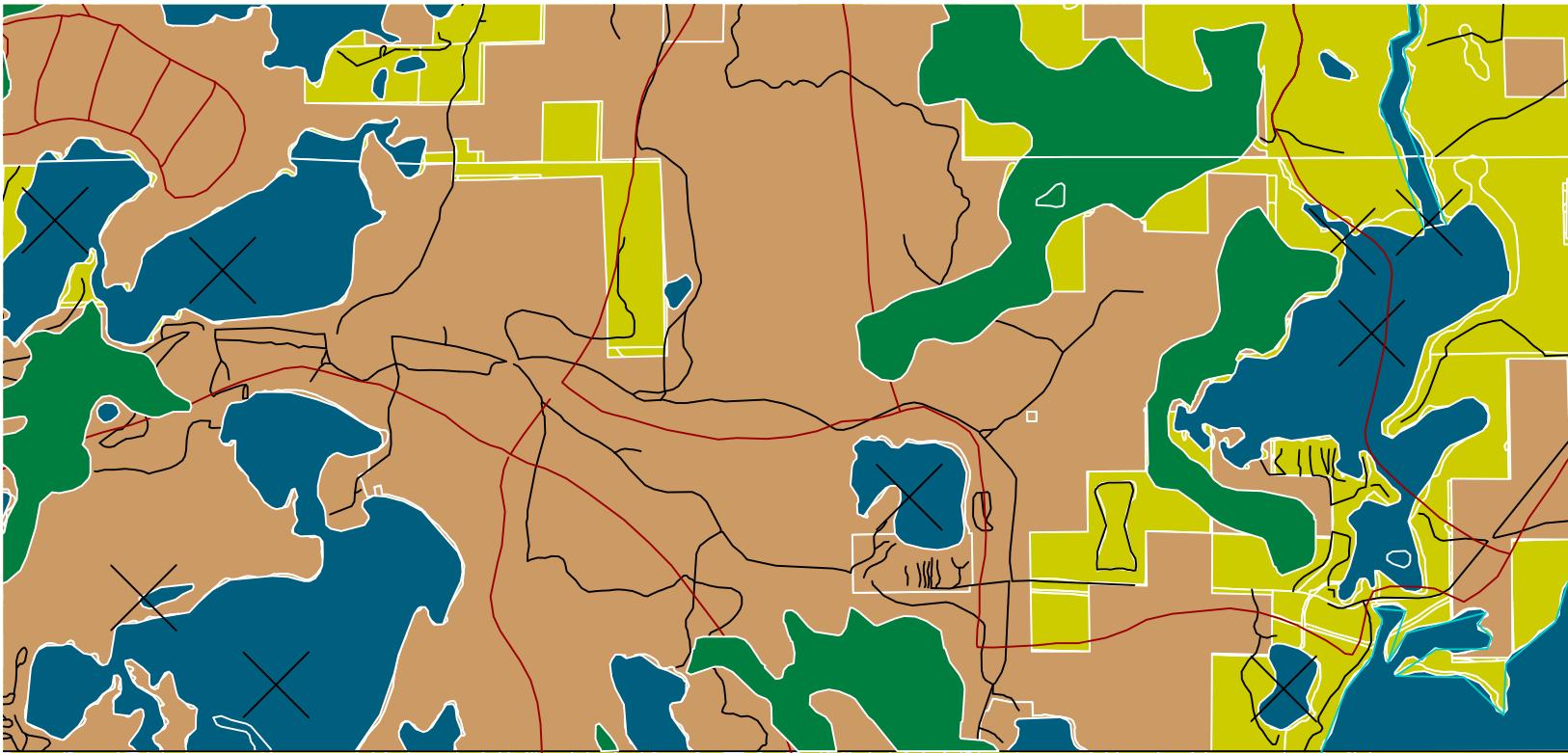
gCADPlus can load ArcInfo shape files.

Customizing gCADPlus for greater efficiency

Drafting efficiency can be inproved by customizing the gCADPlus environment. Template, plant data files, text styles and the path to your own symbols can be stored.

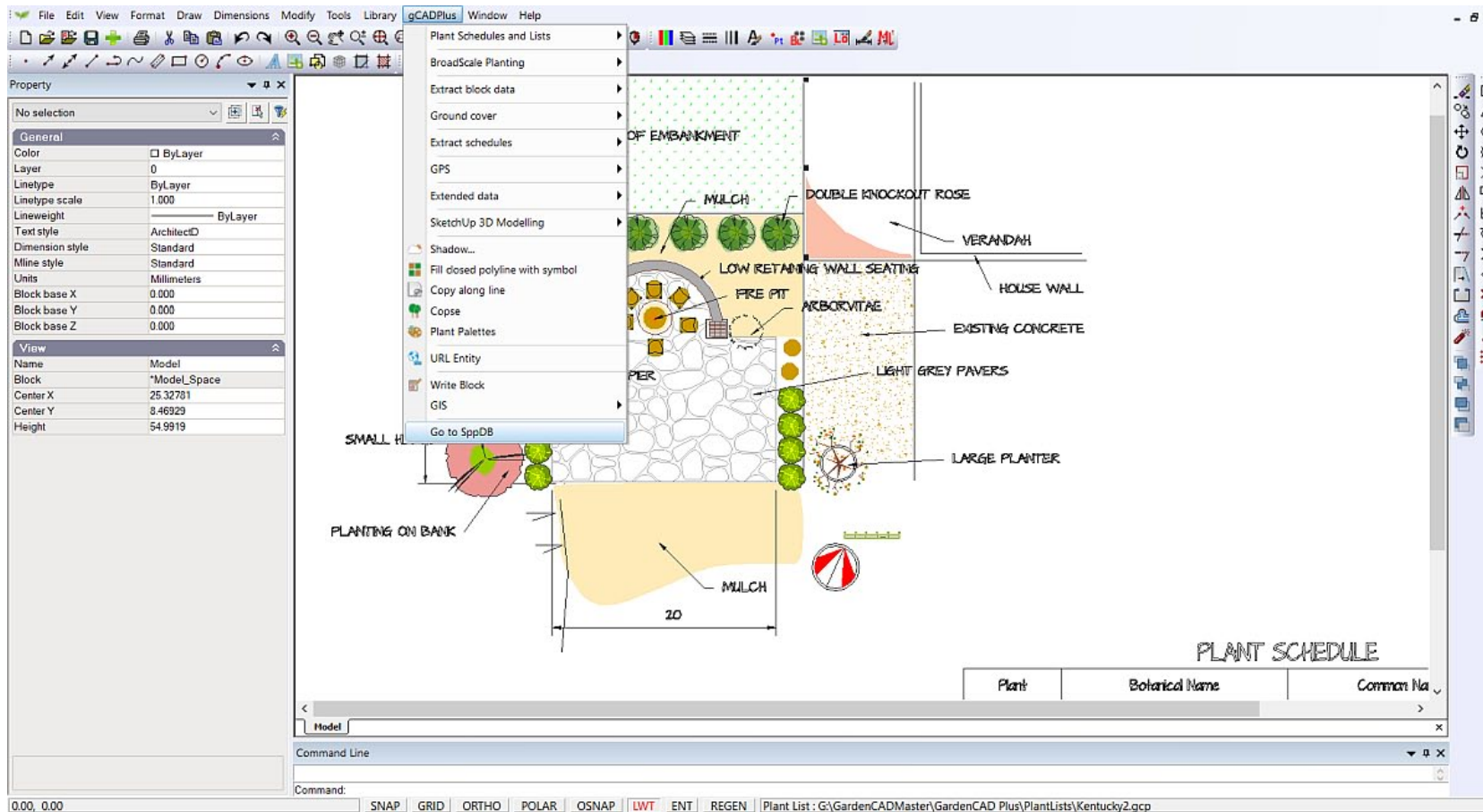This movie shows how one user customized gCADPlus for greater drafting efficiency.

SppDb and gCADPlus

We have developed a personal plant database application called SppDb that's designed for use with gCADPlus. SppDb is designed to hold information about plants that you know and work with. Both SppDb and gCADPlus can be run at the same time. Commonly, gCADPlus users will switch to SppDb and use it as a memory jogger to find a species suitable for a particular landscape need. They will also copy images from SppDb and paste into a gCADPlus layout page.

SppDb can also be used to generate a list of species for (say) a particular climatic zone or flower color. The list can be exported as a .gcp file that's capable of being read by gCADPlus. Once symbols are linked to individual species and a plant schedule created, the GOTSPP command can be used to establish a two way link.

Here is a small movie showing bidirectional data flow between gCADPlus and SppDb.

We export gCADPlus plant schedule information to a CSV file, switch to SppDb and print a PDF file containing details and images of all species used in the design.

Load an existing plant list then select new to create a new list.

Export a .gcp file from SppDb.