c2 Drawing with gCADPlus

This chapter focuses on the use of common drawing tools needed to create typical landscape drawings. You will 'learn by doing' and use various draw commands to make an accurate, full-size model of a proposal for a space in a garden show. Commands covered include the use of line, polyline, arc and circle commands. Producing a complete job such as this, even though it's for a very small site, will arm you with all the skills necessary to develop designs for much larger sites.

Since drawing sheets produced by your landscape design studio will contain contact details, logos and site information, as a first step we will ask you to make a sketch of a logo and show how to turn it into a CAD drawing. In doing that, we will use gCADPlus's flexible line (polyline) command and show how useful it can be in landscape design work. Once we have made the logo, we'll move on to the design.

Design for fireplace setting by
Ross Ubergang
http://www. rossu.com.au

A word on landscape logos

A logo is part of the 'branding' of every landscape design business. The logo is used over and over again in many documents (both in color and black and white), so it deserves some thought and testing.

The logo and information about the site location, direction of north and scale are often combined on drawing sheets as shown in the figure below and it is important to test the logo in combination with other elements.

CLIENT: JOHN DOE	DRAWN: FLOWIE 10-56	ISSUE: a
UPGRADE FOR REAR GARDEN AREA CONCEPT ONLY	DATE: 30/12/2010	
	SCALE: 1:50	
	info@gardencad.net	

COPYRIGHT 2011, DO NOT SCALE FROM DRAWING, INDICATIVE MEASUREMENTS ONLY
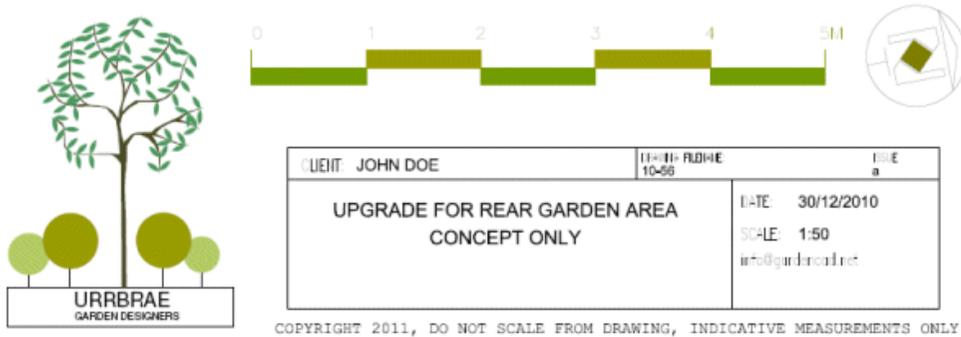
Logo and title block combination

Tip: For even greater efficiency, text information in title blocks is best organized as replaceable fields such that inputting details of site location, scale and so on becomes a straightforward process.

Design elements in landscape logos

The elements in the logo should reflect the philosophy and aims of your business. Some ideas for logos are shown at right. Note that the font chosen has a profound influence on the message conveyed.

1. This design is influenced by a cross-section of a trunk with annual rings.

2. This design is meant to indicate an abstract fire pit; encouraging outdoor entertainment is a specialty of this designer.

3. This logo for a team of landscape constructors who specialize in brick paving.

4. An abstract design for a landscaper whose favorite species is the Bougainvillea.

Logos for landscape designers.

Tip: Not all logos for landscape companies have to relate to a practice competency. The logo below for a company based in Oregon, USA uses a combination of abstract shapes and text and is shown in the gCADPlus drawing editor. The text dominates, with the green color used to provide the landscape feel.
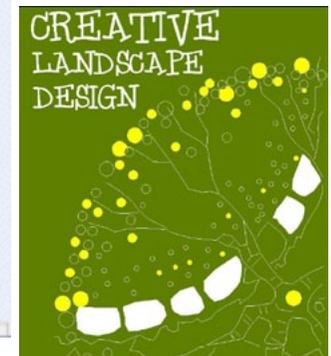
Some more examples of logos for landscape design practices are shown below and to the right.
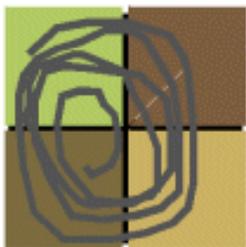
Building a CAD version of your own logo

Once you have developed your logo and made a rough sketch, it is useful to have it in several different file formats - as a GIF file for your web site as a high resolution TIFF file for printed materials, as a colored CAD file and possibly a version in monochrome (Black & White). All of the above can be generated from one gCADPlus drawing file.

The figure in the title block below shows an example of a logo used by a government instrumentality in a rural area of South Australia. Once drawn, there is no need to redraw the logo in subsequent plans. It is complex and certainly falls into the category of draw once, use many times. The CAD file of the logo is simply inserted into subsequent drawings (as a block, often in a title block).

Tip: This approach applies other details like north points, furniture, new planting symbols and even to whole designs.

Raster image versions from gCADPlus drawings

This movie shows that raster image files (in GIF, JPEG, PNG form etc.) can be generated from a drawing such as the above and used in documents such as word processing notes and brochures.

ATED PINE H3 LAWN EDGE
EGS @ 2000 CRS & CORNERS

13LD

REPLACE DAMAGED ARC PANELS
WITH GOOD SPARES

STANDARD COUNCIL CONC. PAVERS
STRETCHER BOND + HEADER COURSE

LANDSCAPE NOTES

PLANTS WILL BE SET−OUT ON−SITE BY LANDSCAPE ARCHITECT
PLANT IN ACCORDANCE WITH PLANTING DETAILS PROVIDED ON SEPERATE A4SHEETS
INSTALL DRIP IRRIGATION SYSTEM & PROVIDE 2x4.LPH DRIPPERS TO EACH TREE &
LARGE SHRUB USING MICRO−TUBE. PEG−DOWN LATERALS @ MIN.900mm CRS.
SUPPLY & SPREAD 75mm DEPTH OF 'FOREST MULCH' TO GARDEN BEDS.

SCALE - 1:100   METRES
0   1   2   5   7.5   10

N O R T H   T C E

VICES	CHECKED BY	DATE	DRAWING FILE LOCATION		SURVEYED	D.ANDREWS FEB '14		LOCK CENTENARY PARK	SHEET		
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TER	.	.			DESIGNED	D.ANDREWS FEB '14	LOCK	---		
S	.	.	MANAGER OF INFRASTRUCTURE & ENVIRONMENTAL SERVICES	Project Manager			LANDSCAPE UPGRADE PLAN	DRAWING No.	REVISION
LSTRA	.	.		Date	LAST EDIT	19/3/14		SCALE 1:100	1402-17-01	1
.S.A.	.	.								

THE DISTRICT COUNCIL OF
ELLISTON

Logo in drawing sheet.

Exercise: Sketch a logo and make a CAD drawing of it

This movie shows how to trace over a scanned logo for a landscape construction company using the polyline command.

Tip: do not be too fussy about this, you can easily edit the logo later in your CAD software application. The steps are:

```
Scan the logo and save it as a GIF or JPEG file (so it can
be inserted into a gCADPlus drawing). If you do not have
access to a scanner, use your phone and email the image to
yourself.
```

```
Start gCADPlus and use the Draw>Insert Raster sequence to
place the scanned logo in a 'clean' gCADPlus drawing on
layer zero.
```

```
Trace over the logo using the Polyline tool. This functions
much like the line tool that you have used already, but is
more flexible.
```

Tip: As shown in the movie, use the smooth tools in the Properties box when the polyline is selected.

```
Once you have copied the logo, adjust the size of the logo
using the scale command. Make the logo size approximately
25 units by 25 units. Wider is ok.
```

```
Save the file as a gCADPlus .lcd file (.lcd is the native file
format for gCADPlus).
```

This file will be used in a later exercise when developing a title sheet block.

Tip: If you are tracing a complex image to use as a base for your logo, take advantage of gCADPlus layers as shown in the figure at right. Put each part of the logo on a different layer.

A logo in a title block on CAD layout sheet.

SERVICES	CHECKED BY	DATE	DRAWING FILE LOCATION		SURVEYED	D.ANDREWS FEB '14		SHEET
SEWER	.	.	W:\Landscape Architect\ Projects\ Lock Centenary\ Drawings\ Lock Park.lcd		DRAWN	D.ANDREWS FEB '14	**LOCK CENTENARY PARK**	1 of 1
WATER	.	.			DESIGNED	D.ANDREWS FEB '14	LOCK	---
GAS	.	.	MANAGER OF INFRASTRUCTURE & ENVIRONMENTAL SERVICES	Project Manager			LANDSCAPE UPGRADE PLAN	DRAWING No.	REVISION
TELSTRA	.	.		Date	LAST EDIT	19/3/14		1402-17-01	1
E.T.S.A.	.	.					SCALE 1:100	

Exercise: Create a design for a small space

Let's imagine that you had been invited to design a pop up installation for a garden display show. The figure above right shows an example of the type of installation you might have in mind. You saw this design in a Paris park on your recent world trip and it has sparked a few ideas!

Brief - illustrate ideas for small garden spaces

The organizers of the show have specified that the space available will be 5 meters long by 3 meters wide. When complete, your design will be presented on an A2 sheet and look something like the one shown in the figure.

CONCEPT DESIGN FOR A SMALL SPACE

PLANT SCHEDULE

Plant	Botanical Name Common Name	Total
	Acer palmatum Japanese Maple	1
	Bougainvillea spectabilis Bougainvillea 'Mrs Butt'	1
	Calocephalus brownii Smoke Bush	3
	Calothamnus villosus Hairy Net Bush, One Sided Net Bush	1
	Clivea minata Kaffir Lily	3
	Westringia fruticosa Westringia	6

BURNLEY LANDSCAPE DESIGNERS
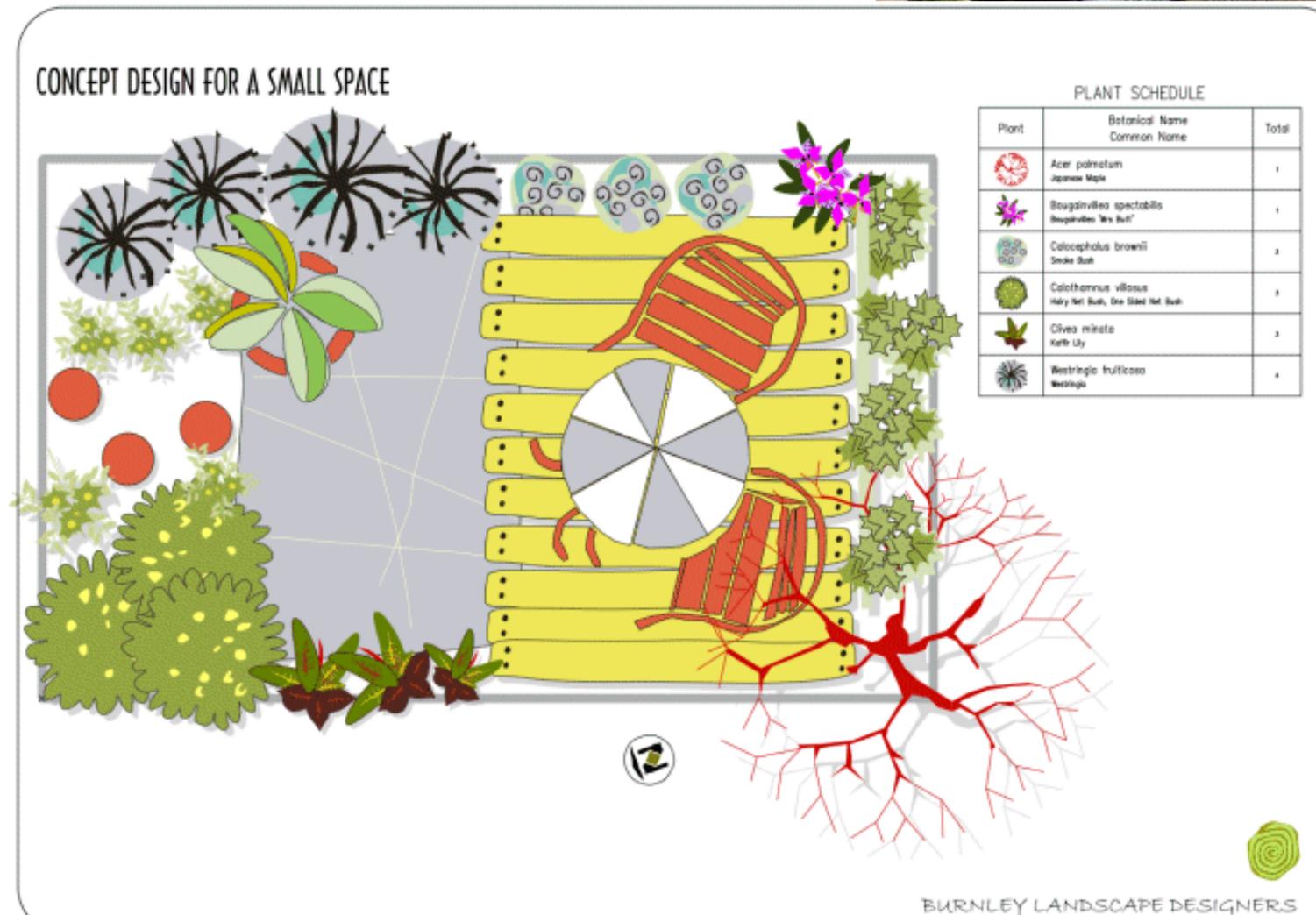
The aim in this exercise is to recreate this complete design.

In this exercise, not only will we show how to create the 2D model step-by-step, we will build a quick 3D model of the design by exporting to SketchUp and produce some images similar to that shown below.

This movie shows how to produce the design shown above. It uses one of the templates available in gCADPlus to speed drafting.

Created with gCADPlus and SketchUp

```
Start gCADPlus.

Select File>New and choose the template termed 'Funky'.
```

This template provides a space on the left of screen to set up the design. The symbols on the right can be used as a 'drag and drop' store.

```
Select the text on the left of screen, right click and
choose the erase option. This action removes the unwanted
text leaving the space clear for a design.

Hold the mouse wheel down and pan to center the view, ready
to create the design.
```

First draw the boundaries of the site (which measure 5 meters (5000 units - mm) by 3 meters. To do that, set a layer as current.
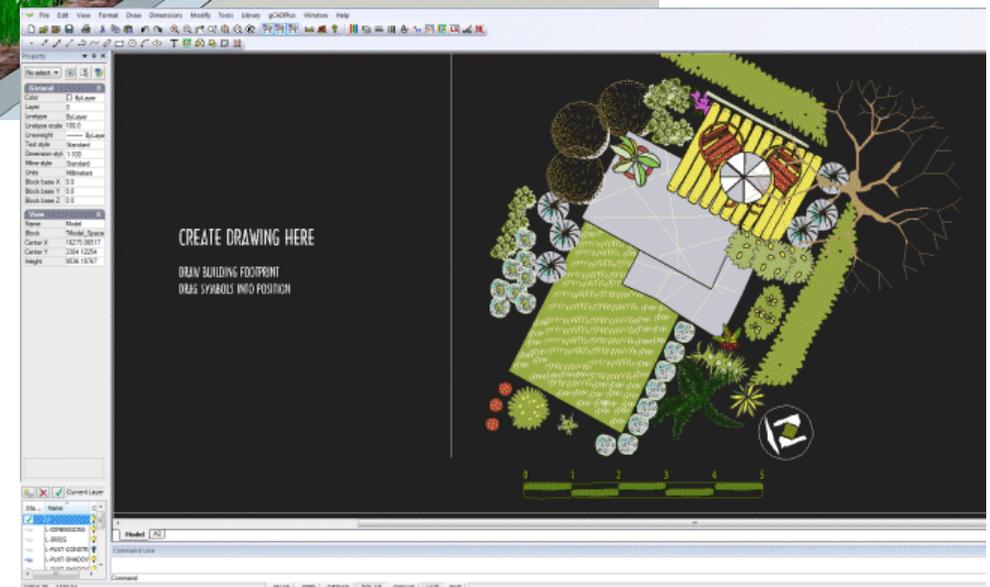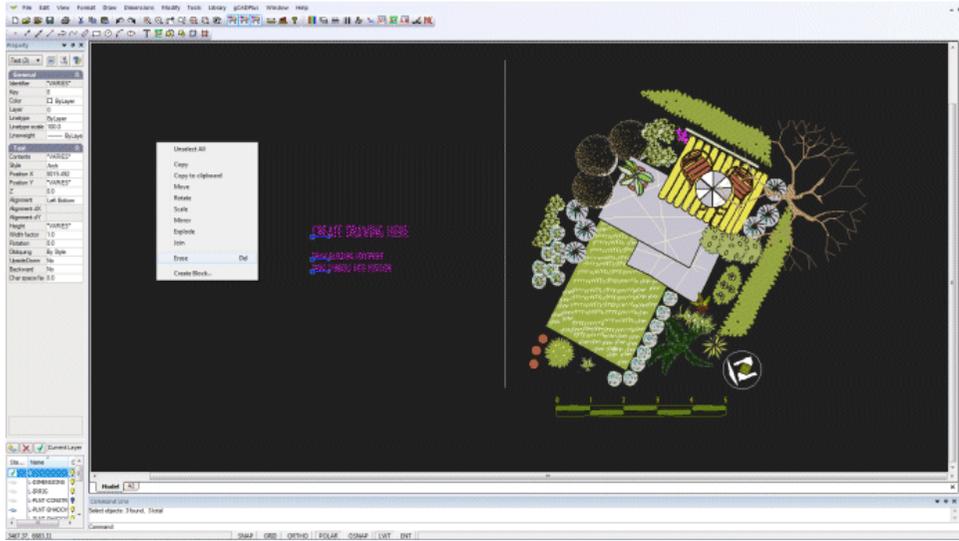
It is good practice to put boundary information on a
separate layer. As shown in the movie, click on the layer
tool and make the layer L-SITE-BOUNDARY layer current.
This layer was part of the 'Funky' template so there is no
need to create it again.

*Tip: your own templates will contain sets of layer names appropriate to the
style of work you do. It is suggested that preface each layer with L- to indicate a
landscape layer. This helps others who subsequently work with our CAD files.*

Set a drawing color

For ease of recognition (and only as a temporary step), set the color of the
boundary layer to red.

Double click on the word 'Foreground' in the color column
and change the color to red as shown below. This means
that anything drawn on that layer will be red in color.
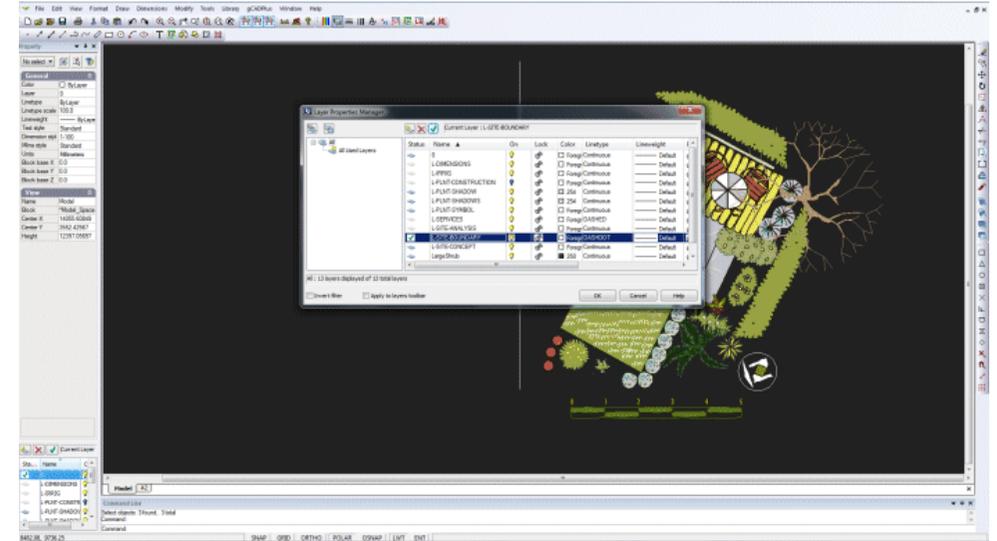
2. Set a layer for the site boundary.
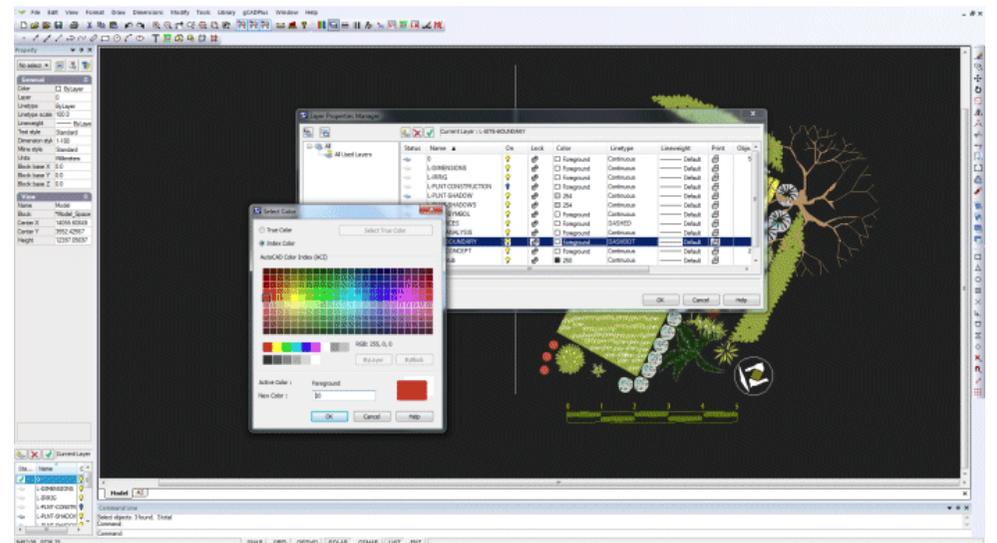
3. For ease of recognition while tracing, set drawing
color to red.

Draw the rectangular base (space) of the display

```
Select the rectangle tool (choosing the 2 points option)
from the Draw drop down menu (or toolbar).

Set the left (first corner of the rectangle at coordinate
position 0,0 by typing 0,0 in the command area (make sure
you type zero, not upper case O)

Hit the ENTER key and the right, second corner of the
rectangle by typing 5000,3000 and hit ENTER. The result
should be as shown in the figure.
```
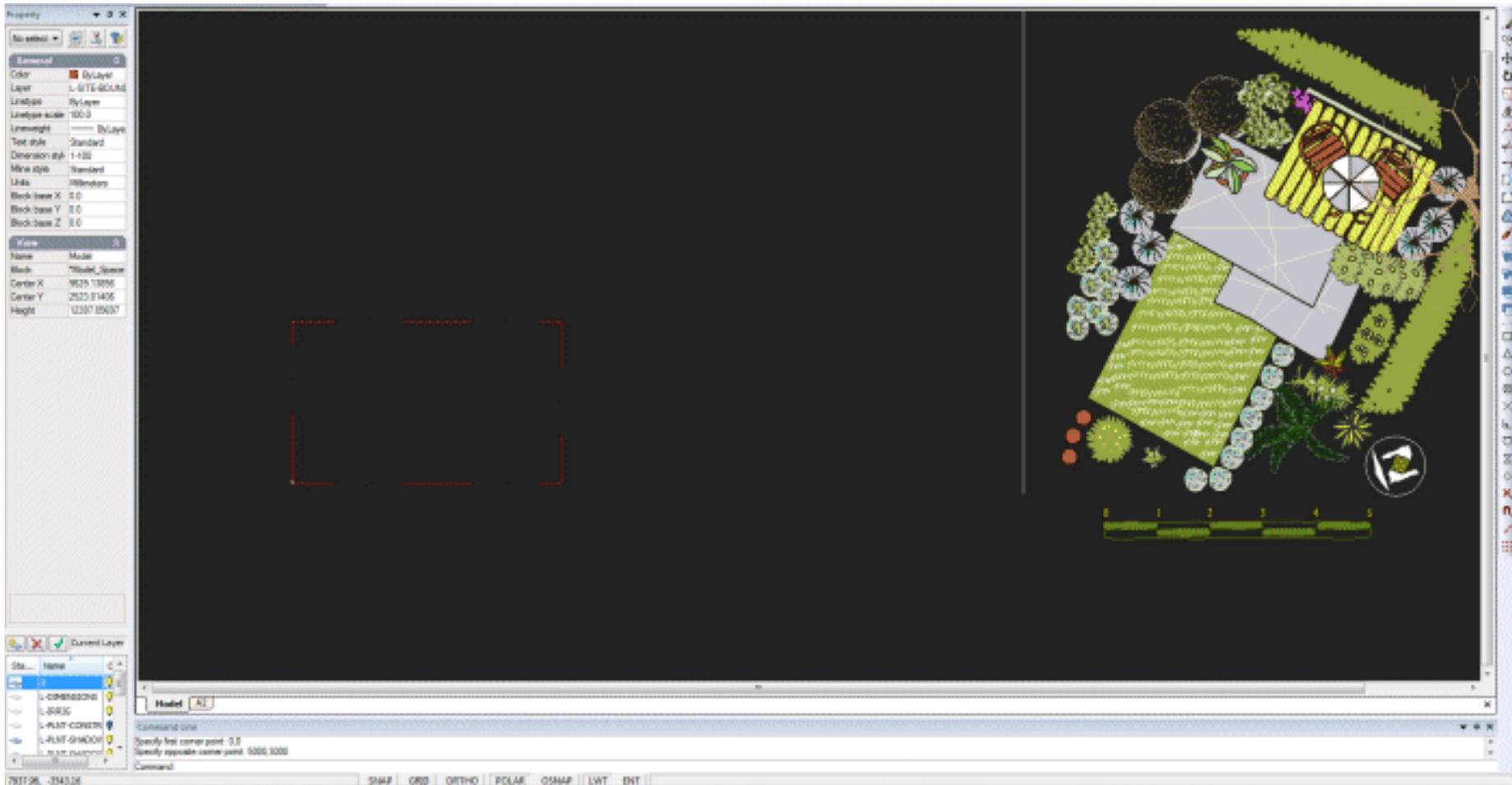

Place rectangle - select from toolbar or Draw drop menu.

```
Select the rectangle (with the left button of the mouse) .
Look in the properties box at left and change the linetype
scale from 100 to 1.0.
```

Tip: The Properties box is a most useful check, but it is more than that. If an error has been made in typing coordinate values, simply correct the error in the Properties box.

The rectangle is now a solid line because the linetype scale has been correctly set.

```
Select the rectangle again and focus on the size value in
the properties box. The rectangle must be 5000 units wide
and 3000 units high and have a center point at X=2500 and
Y= 1500. If not, you need to start again.
```

Once the base rectangle is correctly placed, it is time to drag various pieces from the template into position as shown in the movie.

```
Using the Library drop down menu, place some 'hardscape'
elements such as timber platforms, tables and chairs and
finally plant symbols into the space.
```

Tip: Try to match the 'feel' of the symbol to the intended species.

Checking properties of a rectangle.

Create a design by dragging symbols into position.

Create a plant schedule

Every landscape design needs a plant schedule. These can take many different forms - individual plants can be tagged with a text indicator, species can be identified by their symbol or by the use of the leader command. Experience has shown that labeling each plant with a leader is not helpful to the client or construction team as the drawing becomes very crowded. A better solution is to load a plant list that's specific for the site involved. Each symbol is tagged and a tool on the gCADPlus menu does the rest. The number of each species used in the design is counted and a plant schedule (species list) generated. This saves much time.

This function utilizes his a companion database called SppDb. This database enables the generation (export) of a plant data list which can be loaded into gCADPlus ready for tagging.

This small movie shows how gCADPlus and SppDb work together to produce a plant list.

gCADPlus can automatically generate the plant schedule.

Using a plant data file application with gCADPlus.

Download data file

Visit https://www.designcad.com.au/wp/plant-lists/ and download a copy of the file RossPlantlist.gcp and save it to your desktop. In the next part of this exercise, you will load it into gCADPlus.

Return to your design

Select the gCADPlus drop down menu and the Plant Schedules & Lists option and load the downloaded plant list.

Here is a small movie showing how to load a plant list and generate a plant list (schedule)

Follow the instructions in the movie to make a plant list.

1. Attach the plant list. Once attached, the list name will show in the status line.

2. Use the "Set data to plant" tool to lock each of the symbols used to a particular species.

Attaching a plant list to a design - assign species to symbols.

3. Use "Show symbols with names" to check that all symbols have been coded.

4. Use "Draw the plant schedule" option, nominating a rectangle in which the plant schedule is to be drawn. The number of each species used in the design will be totalled. If extra symbol copies are added, use the "Update schedule" tool to refresh the list.

Generating a plant schedule.

Tip: For an alternative method of identifying a plant symbol, it is possible to use the 'Broadscale' option on the gCADPlus drop down menu.

The plant schedule displayed in layout space.

Species from the Florida area - photos by Chris Maler. A plant list containing landscape species for Florida is available on the gCADPlus web site.

Preparing to print

Although it is possible top print a design from model space, drawings are best printed from a separate (layout) space. In this particular drawing, it is possible to move to layout space simply by clicking on the tab at the bottom of the drawing editor. This is possible because the template used as a base for the drawing already contains a layout space. It has been designed for an A2 sheet, so there is no need to create a new one. The figure below shows the layout view.

Adding shadows to symbols.

This movie shows how to manage the layout and printing of the design.

Improving the presentation in Layout space

This movie shows how to improve the presentation of the design.

Add title block and a landscape design logo

This movie shows how to apply shadowing to plant symbols and produce a quick PDF version of the design.

BURNLEY LANDSCAPERS
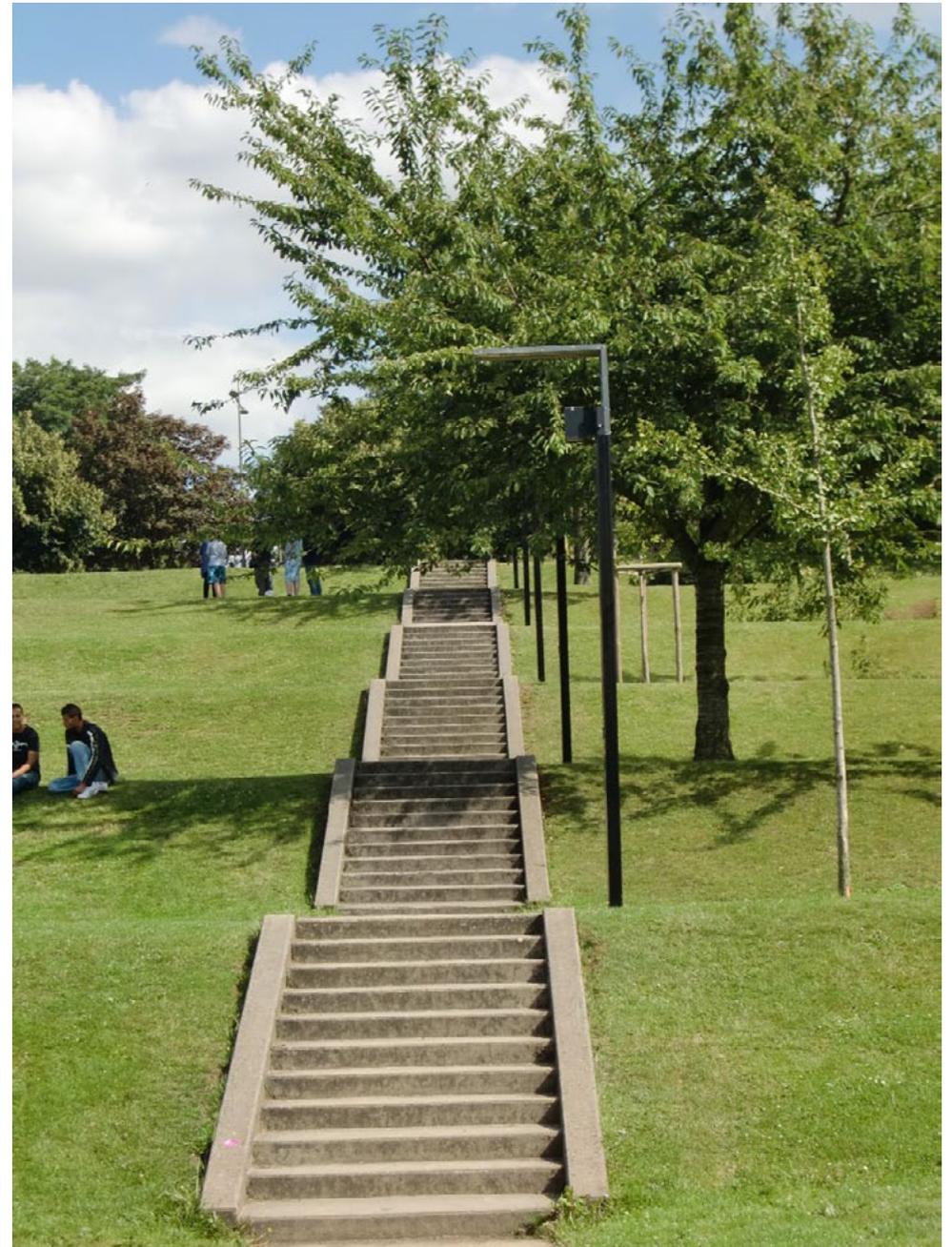
Additional layouts

In addition to what you have done so far, the client may wish to see:

- A section view
- Elevations on a layout sheet showing the design for the backing screen with a pattern similar to that on the paved surface.
- Location plan
- A dimensioned drawing complete with accurate setout point data (on a A4 sheet for a construction team to use)

'Thank you' wall Designer: Ross Ubergang. www.rossu.com.au

Constructing a section view

The tools drop down menu contains a link to a section tool. This can be used as an aid to construct both section and elevation views similar to that shown below.

To add interest, an image file - a strip of 'sky'has been added to the to the layout sheet.

This movie shows how to use the section tool in a gCADPlus drawing.
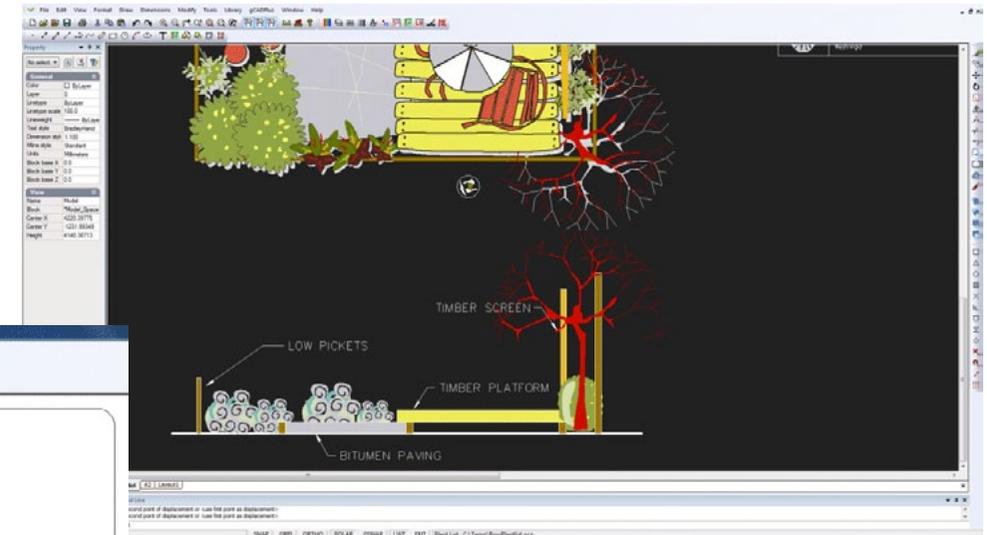
Section view in model space.

Section view in layout space.
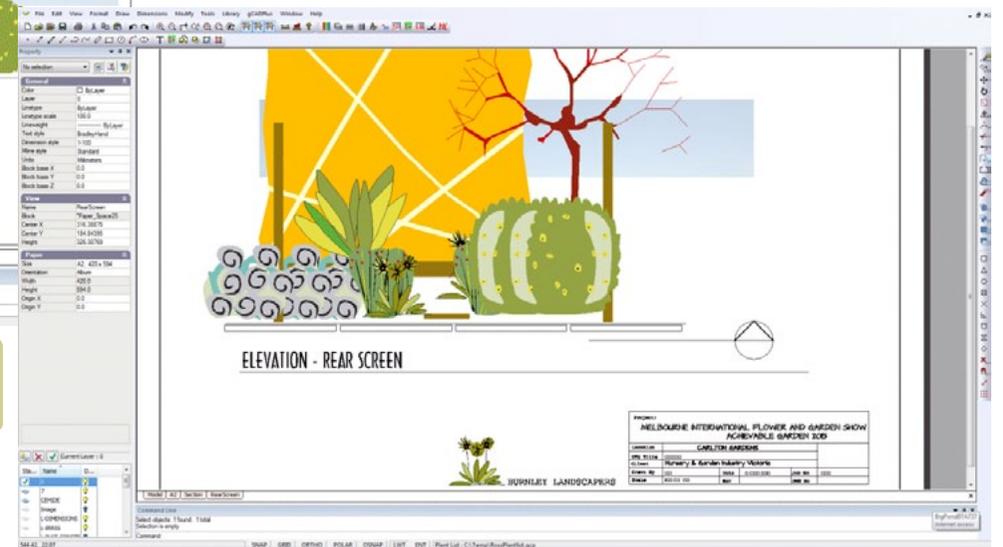
Title block and logo added in layout space.
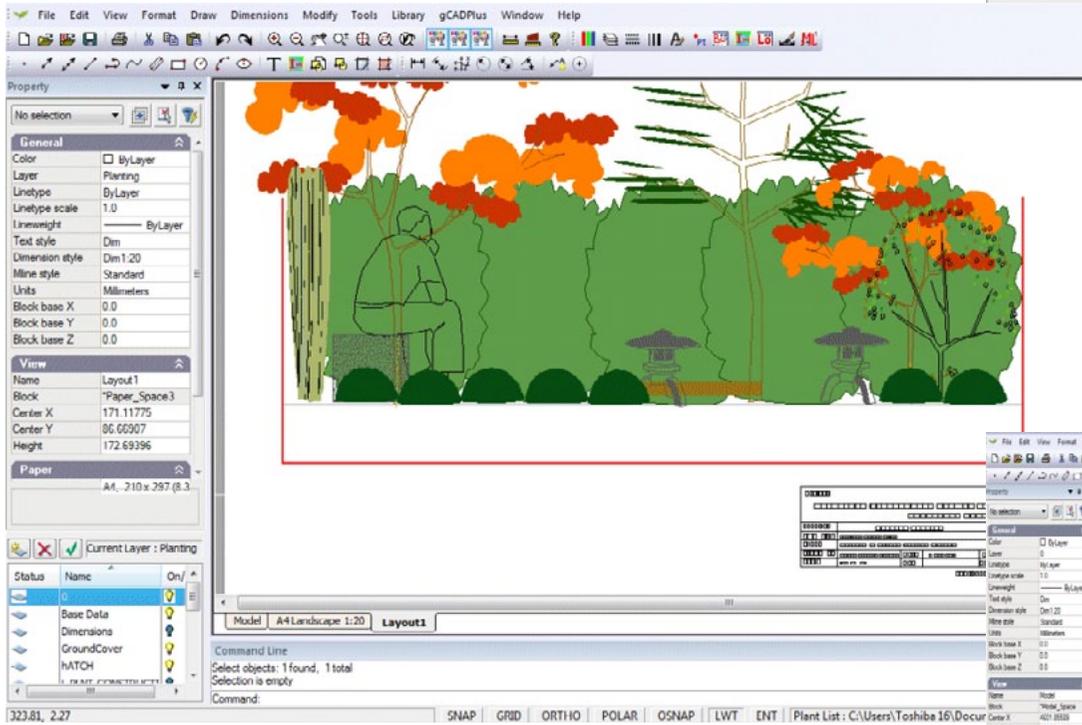
Setting up a layout to show an elevation view.

Elevation view in layout space.
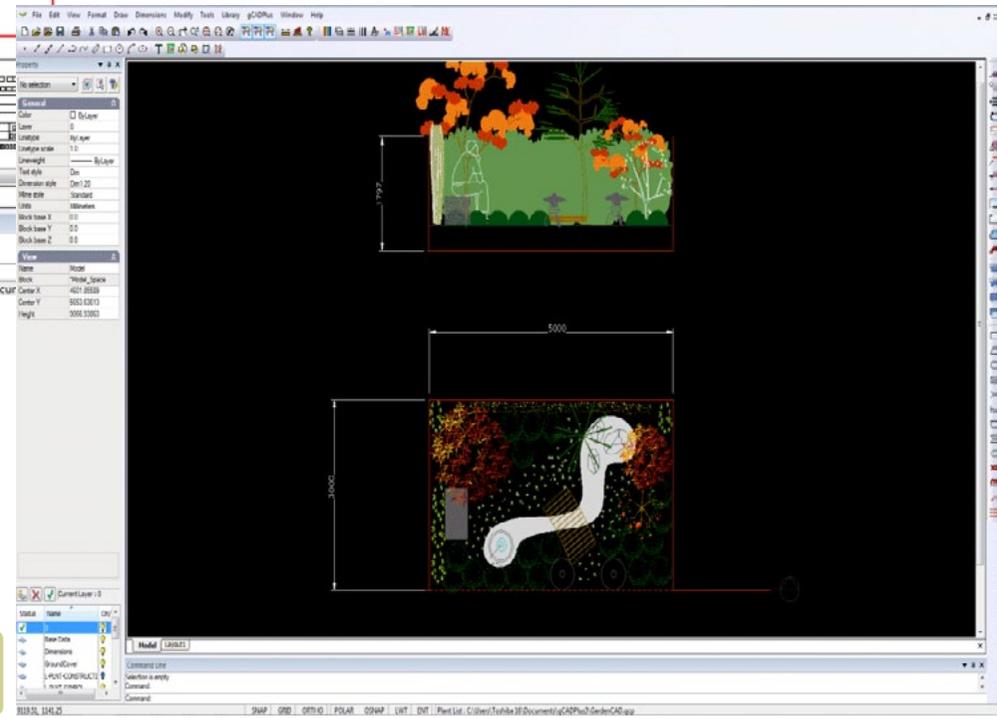
Elevation view in model space.

Elevation view

An elevation view is constructed in much the same way as the section view. The plant symbol library contains some useful symbols although we are sure you would prefer to make your own.

Tip: The images shown here are taken from a an alternative design for the same space.

Return to the design

It is time to draw an elevation view. Landscape designers will often reflect part of the building into a landscape plan. However, in this example, that idea has been turned on its head. A design for the screen at the back of the plot has been made that takes as its main design elements the 'stripes' embedded in the paved area and applies them to the backing board.

Note that the chairs and tables have not been included here. They will add a lot to our elevation once done.

This movie shows how to adjust the shape of a symbol by changing the x scale factor.
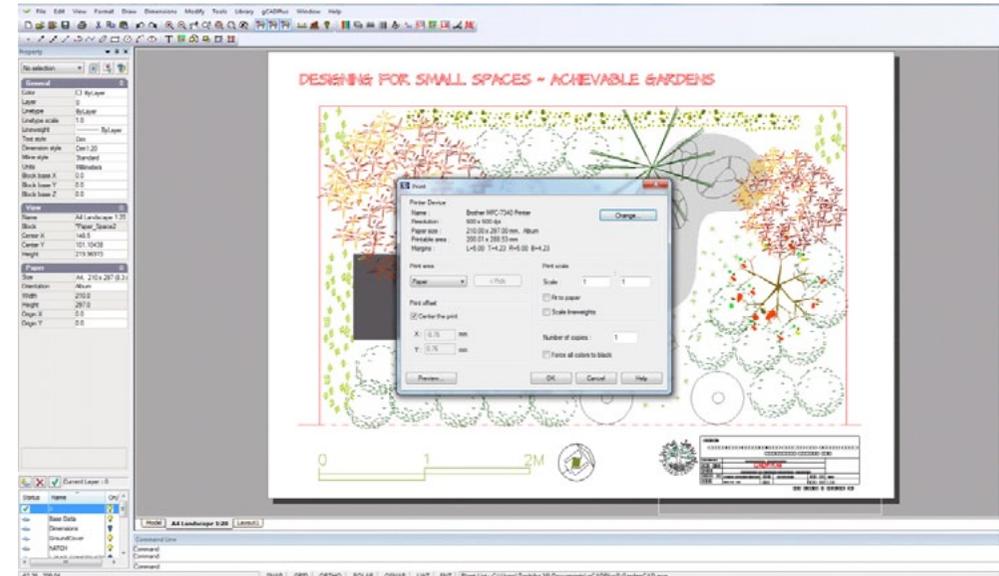
The Print dialog box. When printing to a fixed scale, choose print 1:1
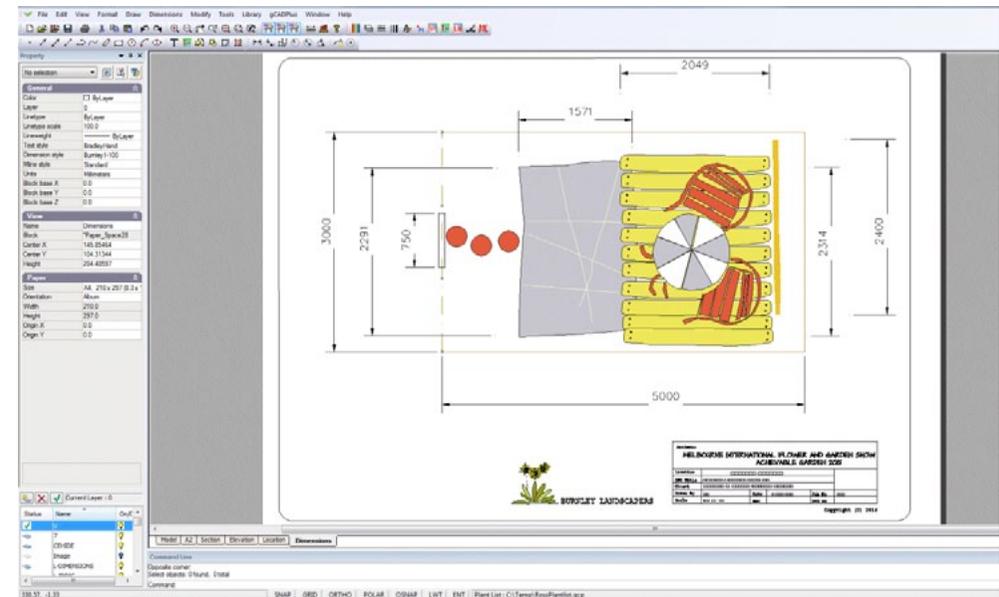
Edit title block information in layout space.

Print (plot) to a fixed scale

There is often a need to plot to a fixed scale. The image below shows another approach to the design task described above. The designer wants to plot the drawing out to a fixed scale and then print a check plot on a local A4 printer.

Here is a small movie showing how to plot to a fixed scale.

```
To do that, create a new layout using Format>Layout, choosing an A4 sheet in
```
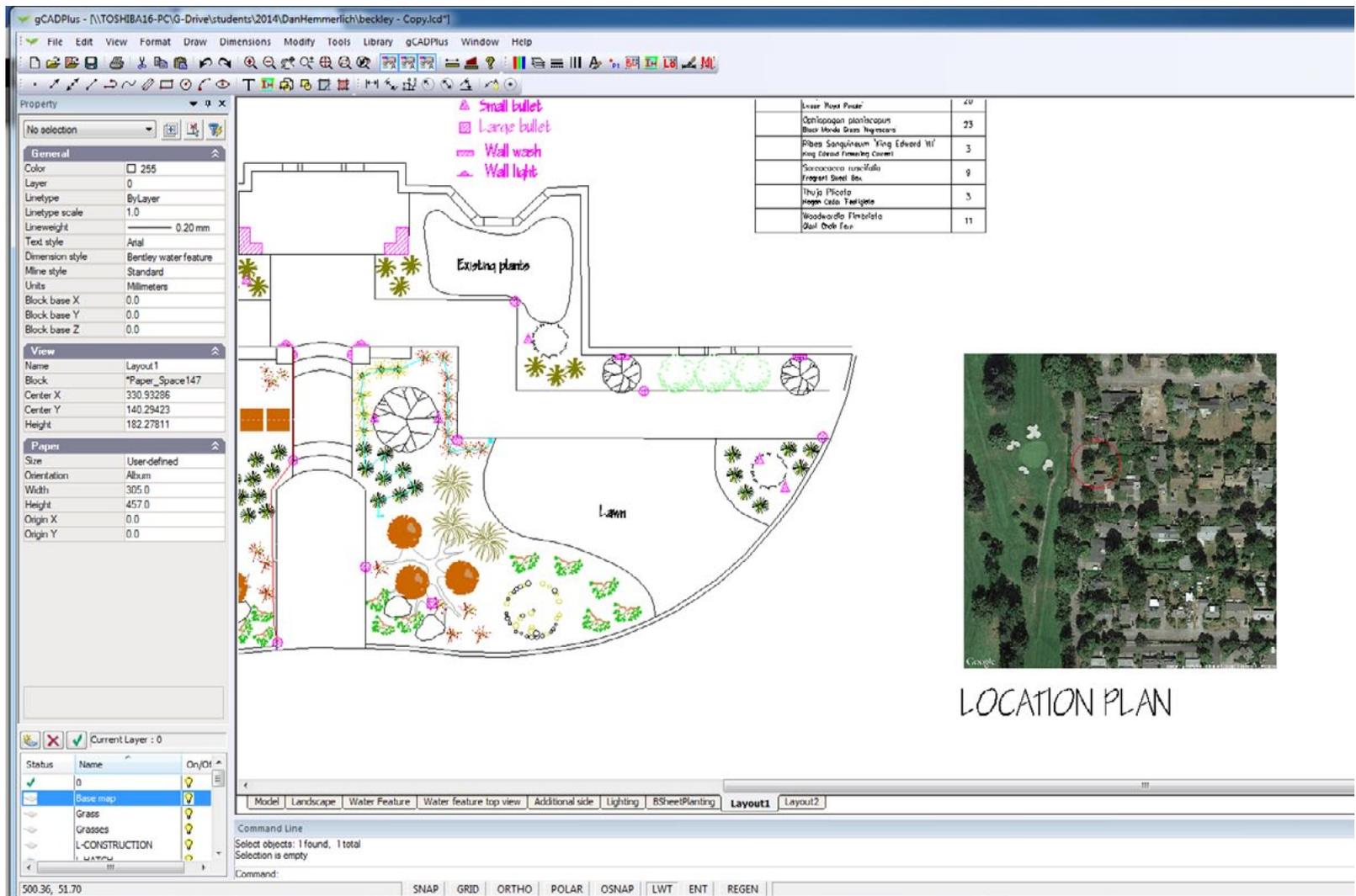

Type an address, fly to the site using Google Maps; copy the image to the drawing.

landscape view.

Here is the result; the layout has been given a meaningful name and the dimension layer turned off. Note that the scale factor in the selected floating viewport is about 50.

Let's assume that only a plan view of the design is required, but the scale factor must be fixed.

```
Double click into the floating viewport
and set the display appropriate for
the plan view.
```

Here is the result. Note that the scale factor is close to 20.

```
To print the design, simply print the
paper option at a scale of 1=1
```

Tip: It is recommended that a scale bar be included in model space as a separate check on scaling.

Handling title block information

It is better to insert a title block into layout space rather than model space. The same block can be included on all layout pages, but easily edited to adjust information on each sheet while keeping the same basic information such as logo and site locations.

This movie shows how to edit title block information in layout space.
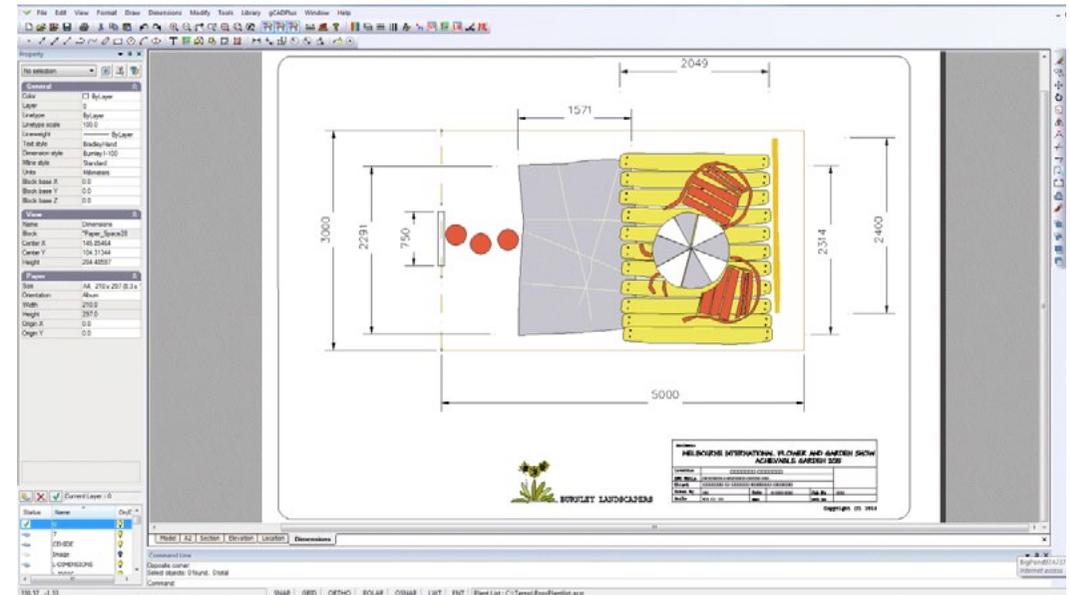
Apply dimensions in plan view.
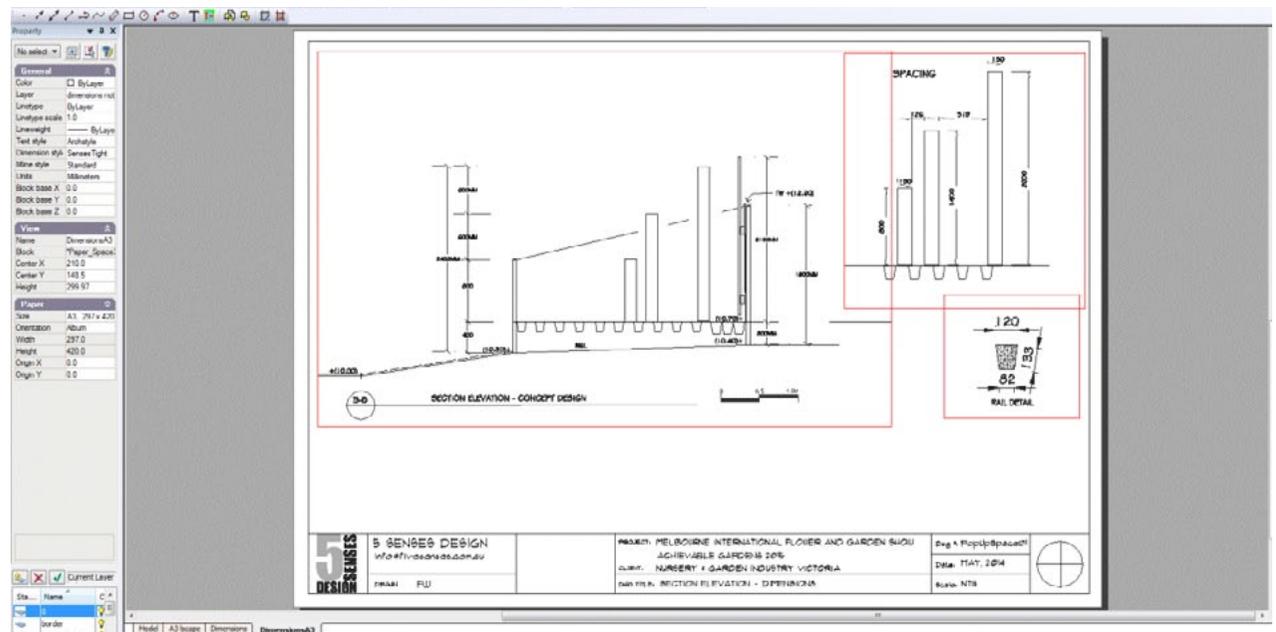
Apply dimensions in elevation view using multiple viewports.

Image files

There is often a need to mage files in gCADPlus drawings. These might be used to indicate a location plan, design ideas and extended data information. It is very convenient to use Google Maps to find a location, save a screen grab as an image file and paste the image into gCADPlus. Street names can be included along with satellite images to provide a location plan.
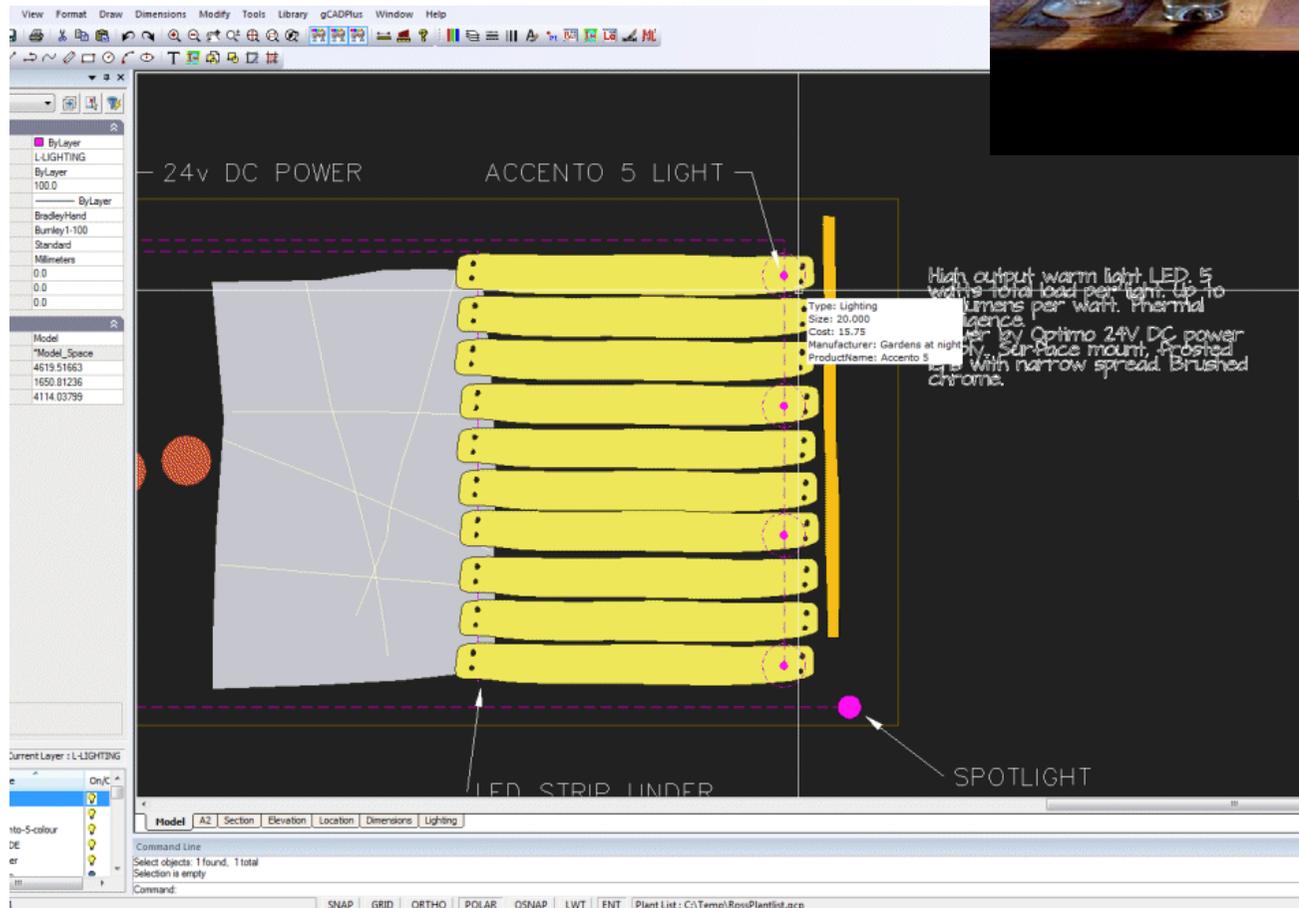
'Living chess' by Ross Ubergang.
www.rossu.com.au

Extended entity information.

Dimensions

Our model is full size and because it has been drawn that way, dimensions can be taken directly from the model with great ease.In order for this to operate smoothly, it is necessary to set up a dimension and a layer to accept the dimensions.

Tip: The layer L-DIMENSION may already be present in this drawing.

The next step is to create the dimension style and apply the dimensions as shown in the figure below.

This movie shows how to apply dimensions to entities in the drawing.
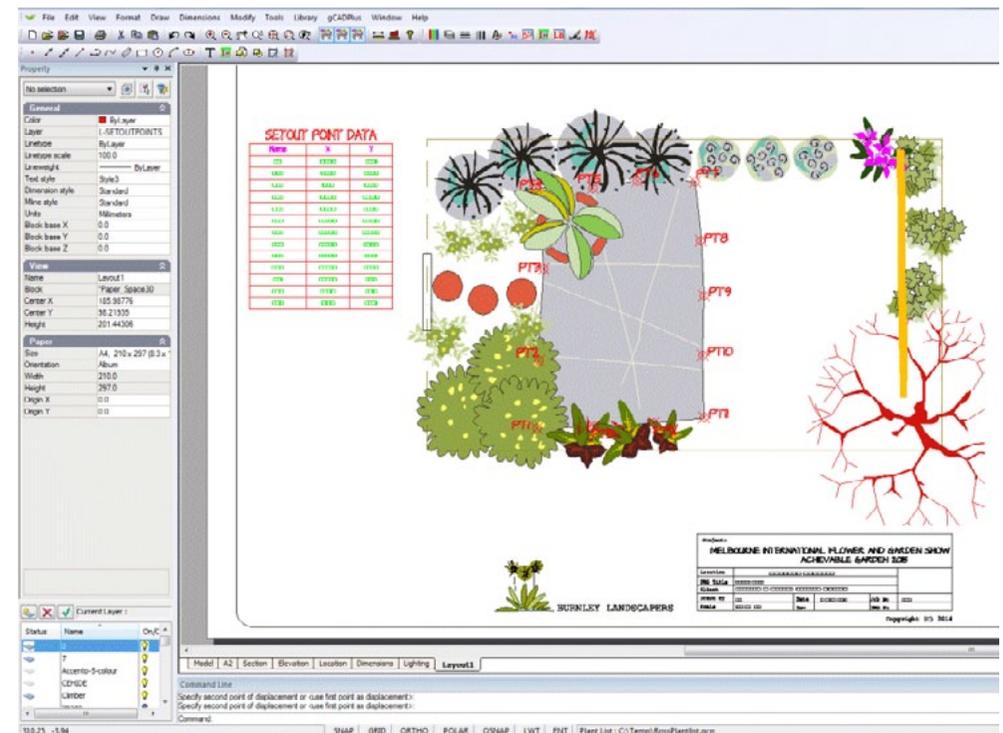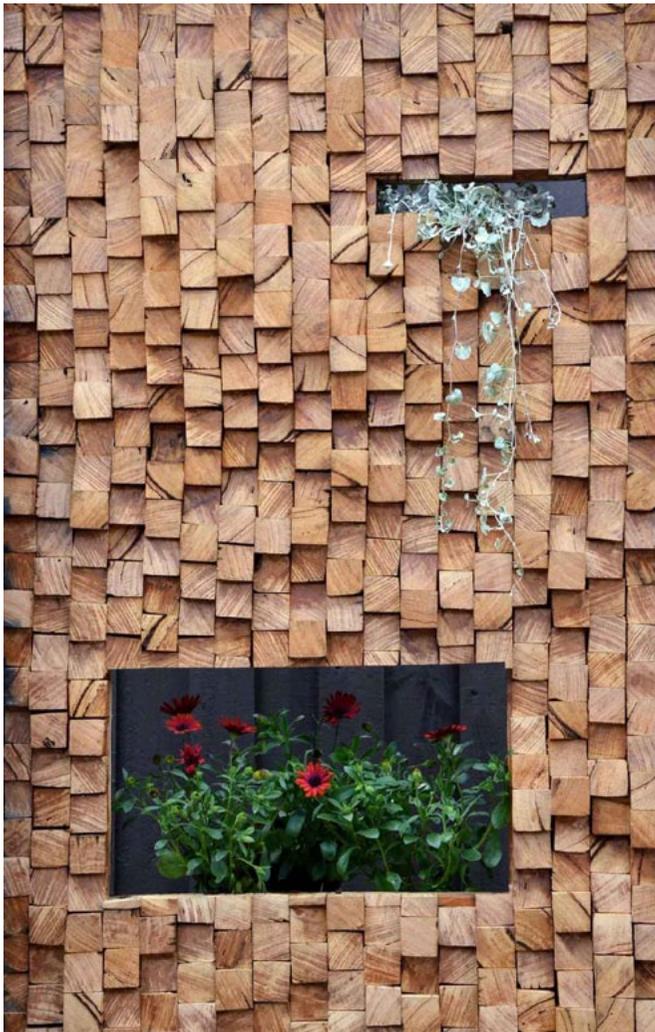
Provide construction teams with set out peg locations.

'Wood wall' design by Ross Ubergang.
www.rossu.com.au

Applying dimensions to a section

The figure shows some neatly applied dimensions to a typical landscape section. [Courtesy of 5SensesDesign]

Here is another movie showing how to apply a set of dimensions to an elevation view from a different design for the space.

The figure above right shows another example of well applied dimensions. Here the drawing has been plotted on an A4 sheet and is not to scale - the dimensions themselves take precedence over a written scale.

The presentation of this dimension information can be further improved by including a scale bar (as an additional check even when a design has been fully dimensioned) and utilizing the ability of gCADPlus to create multiple floating viewports.

Add lighting design

Providing appropriate lighting is an important part of landscape design work. The symbol and location can then be passed to programs such as SketchUp in order to provide a client with a realistic view of the completed design. This movie shows how the divide command was used to assist in the location of some small up-lights for the rear of the upper platform.

We discuss creation of a lighting design.

This movie shows how the extended data tool can be used to improve lighting design information.
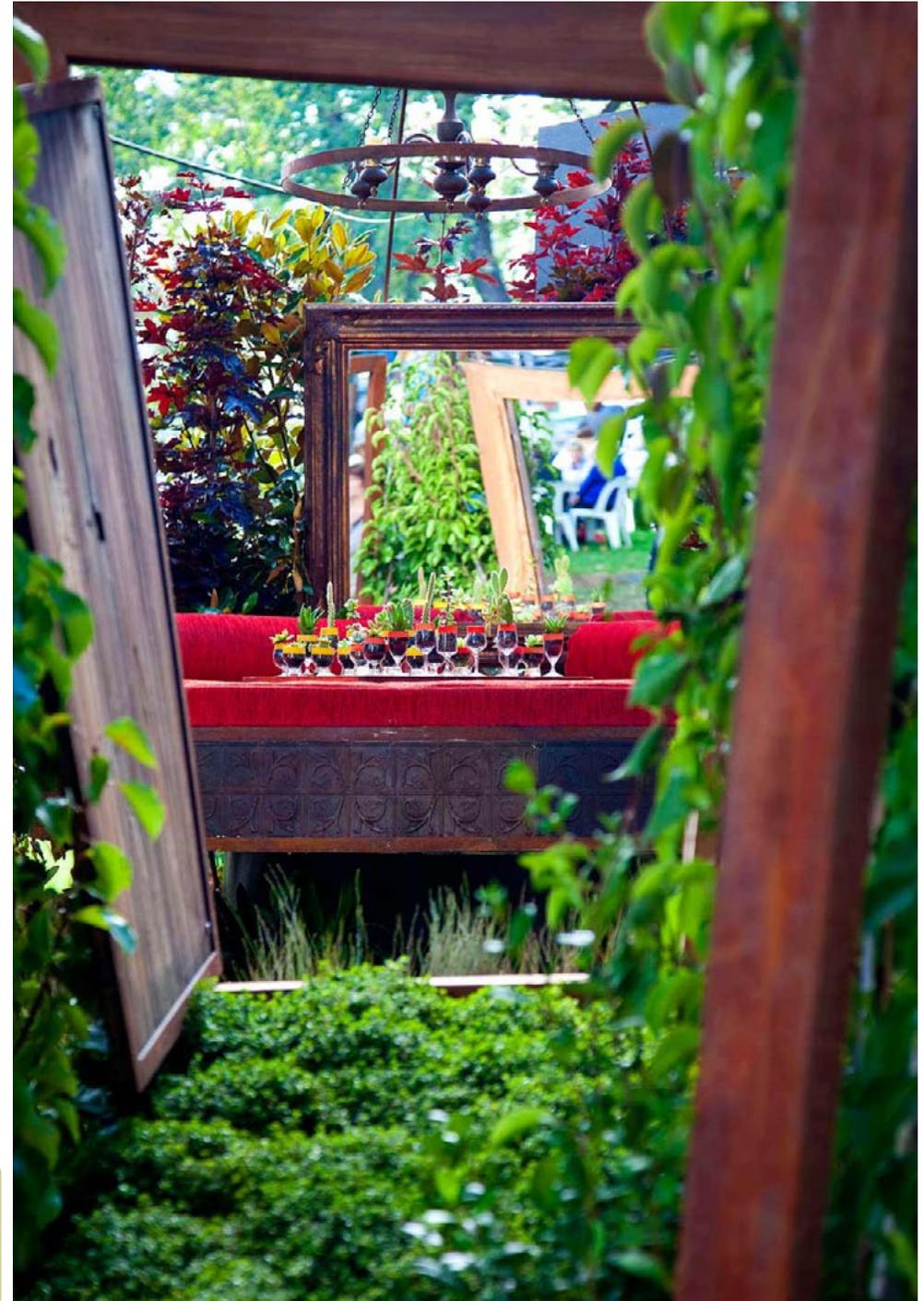
'Herbs' - design by Ross Ubergang.
www.rossu.com.au

Add setout points

The point marker tool can be useful to provide a construction team with guidance to set out a complex paved area. See the example below.

> This movie shows how to use gCADPlus to assist a construction team layout out an unusual paved area. It uses the Point Marker tool to provide a list of markers for pegging the edge of the paving.

Irrigation design

To come.

Export gCADPlus designs to 3D modelers (SketchUp)

Some clients experience difficulty in understanding 2D plans, even when they are provided with elevation and section views. It is of course, possible to hand sketch a 3D view, but not everyone has the necessary skill to do that. Many drafters now use software applications such as SketchUp to build a computer generated 3D representation of the design.

Tip: SketchUp, a tool previously owned by Google, is now owned by Trimble.

gCADPlus provides a convenient way of exporting base information from a 2D design and bringing it into SketchUp. Building a 3D model is then greatly simplified because the accurate 2D information from gCADPlus serves as a base for the 3D model.

You have three options for building a 3D model in SketchUp based on 2D information from gCADPlus:
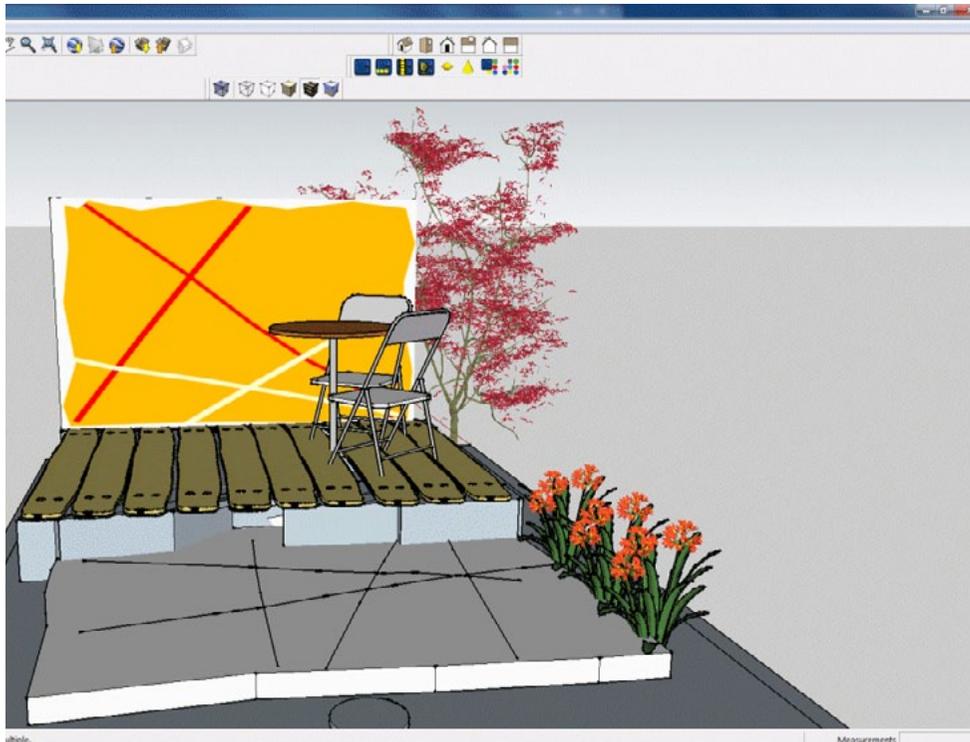
Example of 3D model in SketchUp.

(1) Export a graphic and use the free SketchUp application to build a model based on the graphic or

(2) Export a DXF file from gCADPlus and import into free SketchUp (using a plug in to allow DXF importation) or

(3) Use a SketchUp Pro which has the ability to import DXF and DWG files.
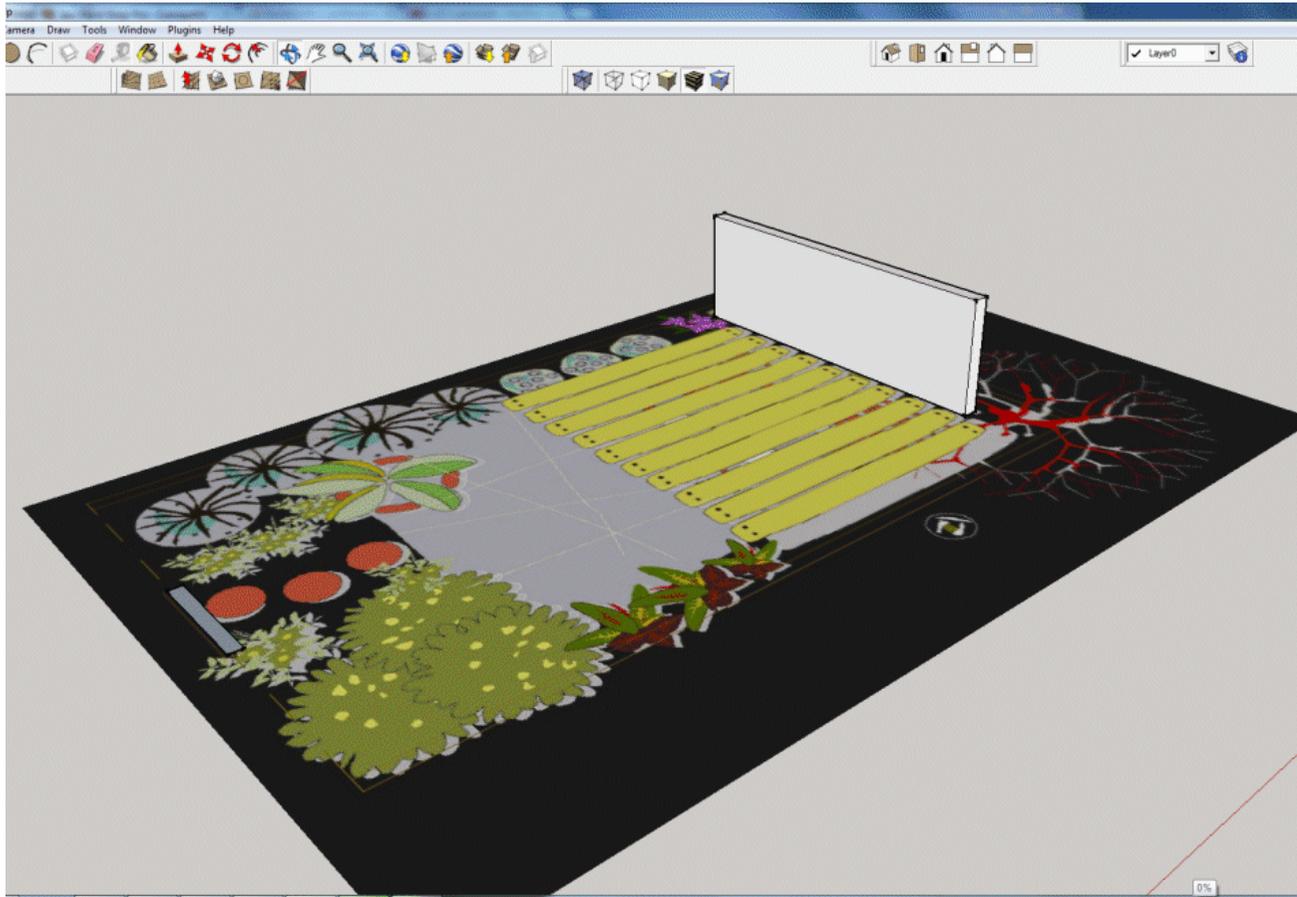
Simple 3D. Build a SketchUp model on a JPEG image exported from gCADPlus.

Recycled furniture.

Design: Ross Ubergang.

www.rossu.com.au
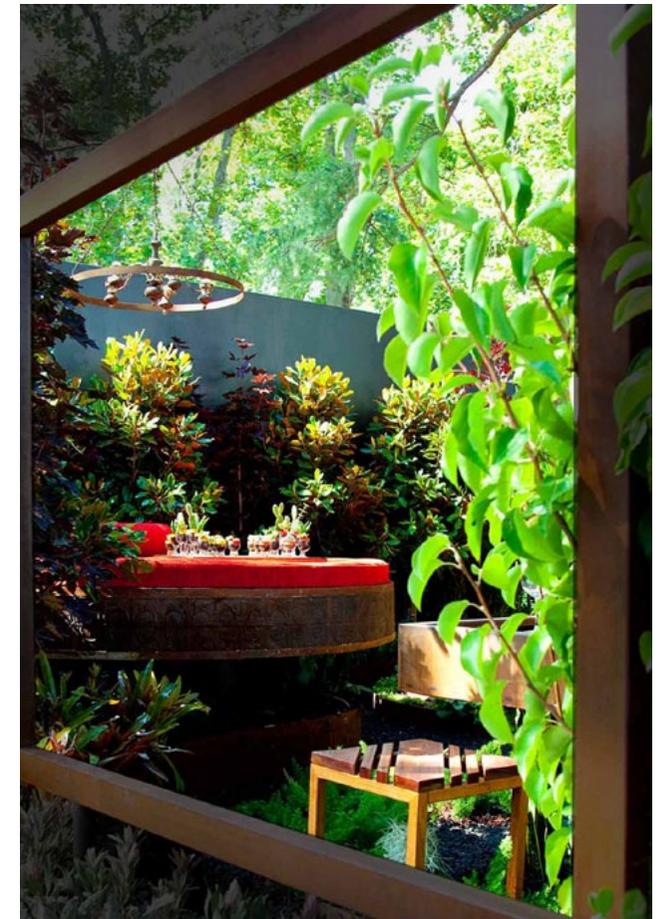
Option 1

This movie shows how to export a graphic from gCADPlus and use it in SketchUp as a base for building a 3D model.

Option 2

Assign a Z value to entities (structural elements) in the gCADPlus drawing. Use a "Create SketchUp Layers" tool and export accurate 2D information from gCADPlus in the form of a DXF file. Entity snap in SketchUp based on the transferred information is then possible.

This movie shows how to work with option (2) in the SketchUp environment. Export geometry as a DXF file, import to SketchUp and begin building the model.

This movie shows how to pass elevation data to SketchUp.

Assign Z values

```
Use the layer stack tool and isolate just those entities
that you want to work with as a base in the SketchUp
environment (turn off unwanted layers, including the layer
on which plant symbols have been placed).

Select the Make SketchUp layers tool from the gCADPlus
drop down menu.

Assign a Z coordinate to entities if required. In the
example above, the yellow deck was set at 300, the grey
paved area 100 and the white decoration 105.

Select entities (no hatching, no plant symbols, explode
blocks if used to make structural details).

Hit Enter.

Choose whether or not to transfer symbols and text to
another layer.

Start SketchUp and import the DXF file that's been exported
from gCADPlus. If you have assigned elevation values to
each structural entity, it is a simple task to use the
Push/Pull tool to create 3D geometry.

Use your SketchUp skills to assign materials to surfaces.

Add planting and furniture. An image file taken from the
elevation view in gCADPlus was pasted onto the screen.

Add some textures.
```
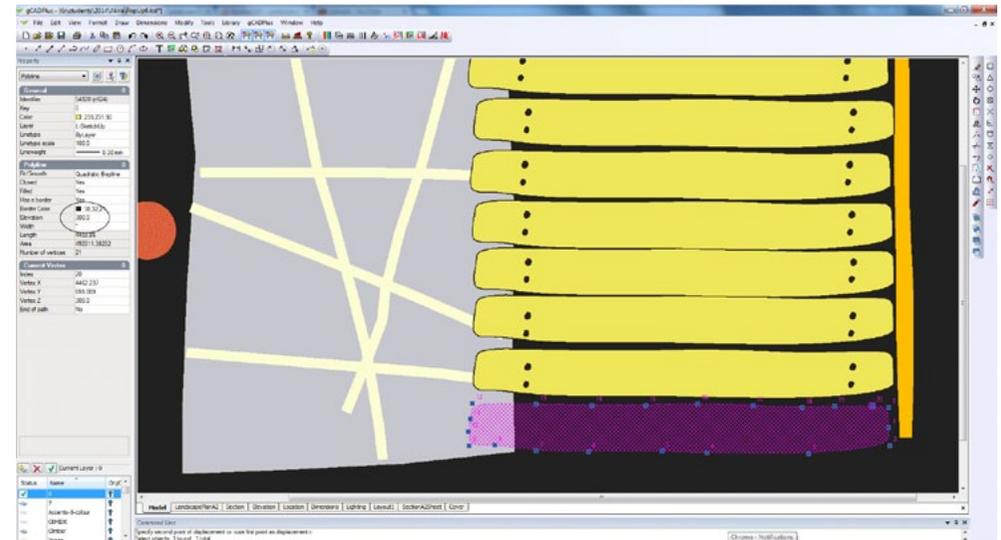

Assign a Z elevation value to an entity prior to export to SketchUp.
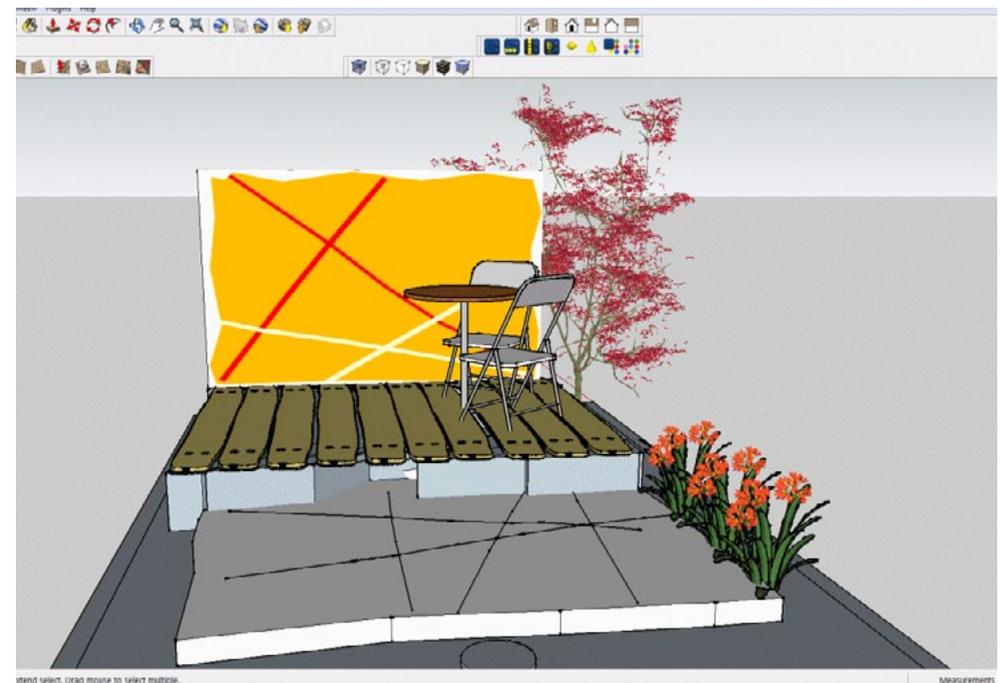
SketchUp model based on gCADPlus model.

If required, the model can be passed to rendering software for higher resolution and softening. Note the loss of detail of graphic on the screen wall. This is a function of the renderer in use. It is possible to include the graphic on the rear wall in some ray tracing software.

Some clients may benefit from seeing an animation of the proposed design.
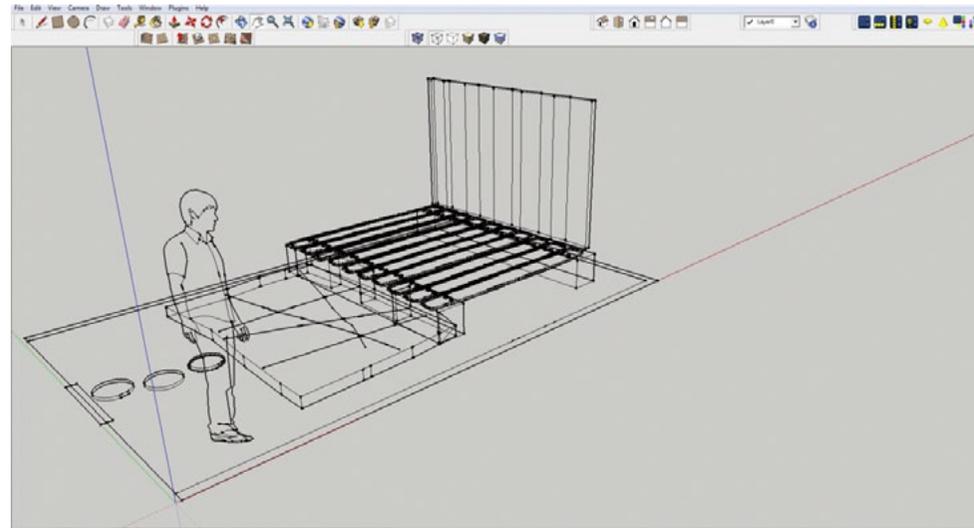
Export DXF from gCADPlus to SketchUp.
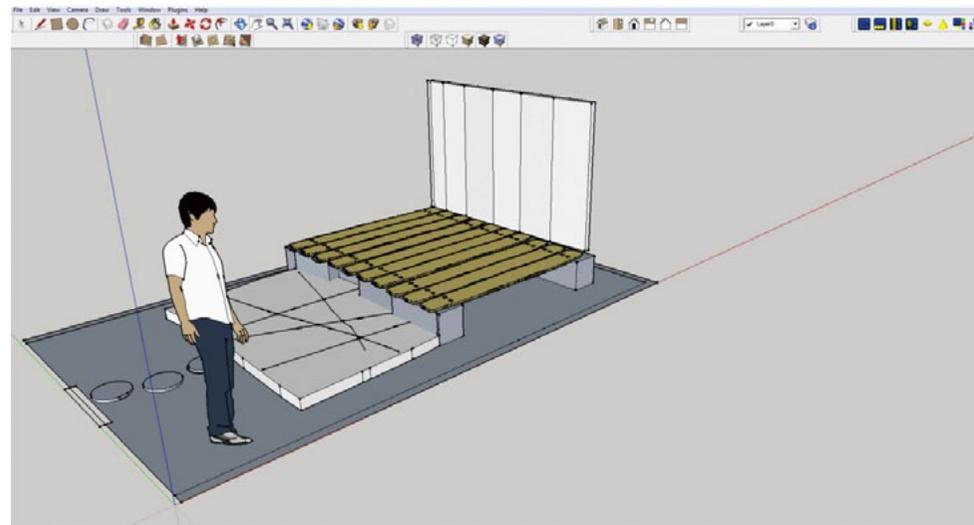
Export dwg file from gCADPlus.

PLANT SCHEDULE

Plant	Botanical Name Common Name	Total
	Acer palmatum Japanese Maple	1
	Bougainvillea spectabilis Bougainvillea 'Mrs Butt'	1
	Calocephalus brownii Smoke Bush	6
	Calothamnus villosus Hairy Net Bush, One Sided Net Bush	6
	Clivea minata Kaffir Lily	6
	Cupressus sempervirens glauca Pencil Pine	6
	Grevillea - standard Standard Poorinda Grafted Grevillea	5
	Westringia fruticosa Westringia	1

MELBOURNE INTERNATIONAL FLOWER AND GARDEN SHOW
ACHIEVABLE GARDEN 2015
CARLTON GARDENS

Dwg Title	Landscape Series			
Client	Nursery & Garden Industry Victoria			
Drawn By	AK	Date	3 May 2014	Job No	003
Scale	1:20 @ A4	Rev		Dwg No	

A BURNLEY LANDSCAPERS