THE DENSITY MAPPING FUNCTION
in Texture Creation

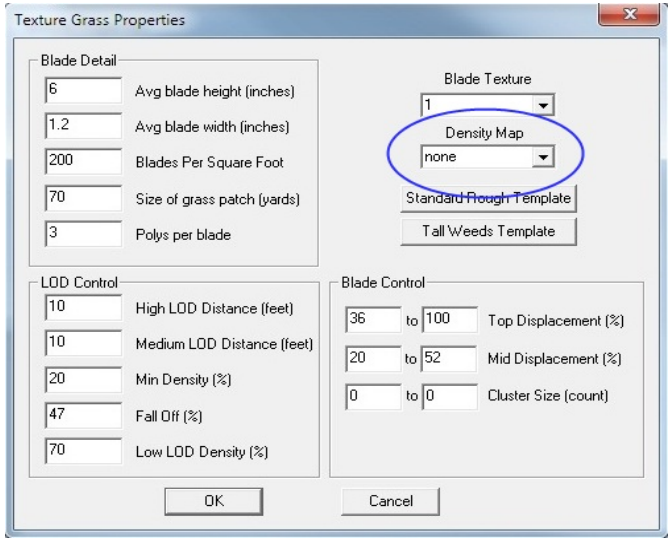
Firstly, a disclaimer: I am in NO WAY an expert in the use of the Library Creator 06 to make textures, in fact I am a relative newbie. Therefore you should look upon this Tutorial as a modest effort to convey some information that I have gleaned after much experimentation and just plain fooling around.

The course I am presently designing cried out for some different textures than I have normally used, so I decided to give myself a crash-course in texture creation. Steve Danut very kindly wrote up a good tutorial to get me started, and from there I plugged along with help from Jim Meier when I got stuck.

All right, enough back-story!

Chapter 1
What is a Density Map?

All of you interested enough to read this already know considerable about the “Blade Properties” menu in the LC, shown below:



We are only going to talk about the item circled in blue. I can find no definition of what the maker of the LC calls a Density map, but after fooling around with it I define it as a map used to alter “Color Density” of the blade properties. It doesnt change the blade's colors, only the density of the color already there.

What the map is is a power-of- two .bmp or .tga image (like all the terrain images in the LC). By power-of-two I mean that the dimensions of the map have be sizes that are 2^n X 2^n such as 128 x 128 pixels. They do not have to be square – it could be 64 X 256. The density of the black – to – white gradient determines the color density of the blades represented by that point on the “map”. I show an example map below:

This is a 256 X 256 .bmp and we see the results it produces a little further on. For this tutorial I created 50 meter squares of three different colored weedroughs, I show them below as they appear with no density mapping.

Chapter 2
How to Make and Apply a Density Map

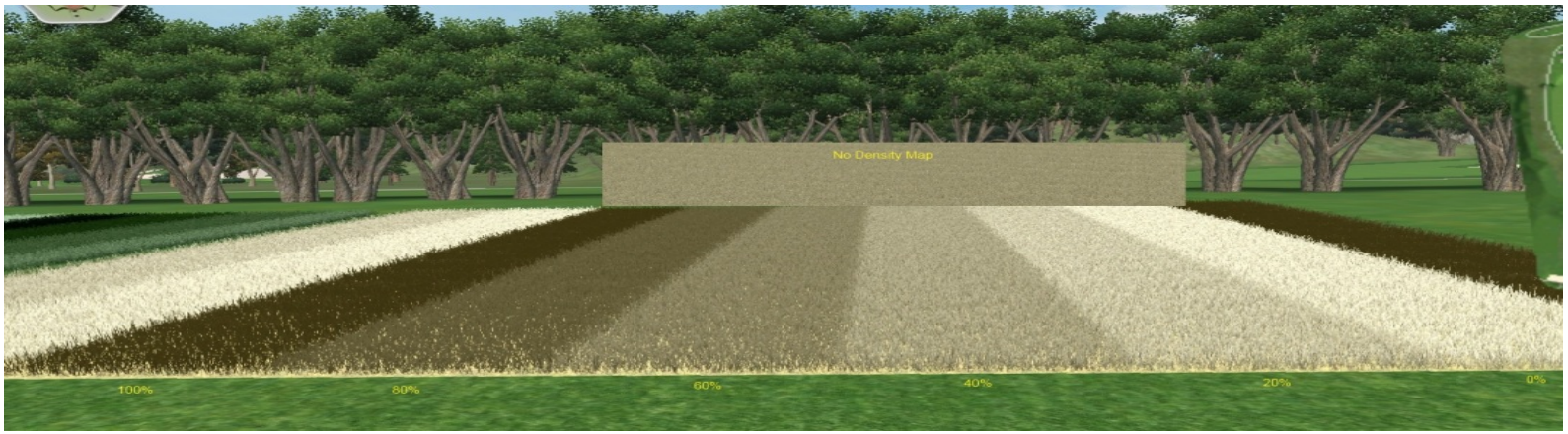
I use Paint.net for my texture creation, and to make a map I select “Black and White” in the Adjustments pull-down. I am sure the same idea is present in Photoshop or other programs. Start a new drawing, select the size you want it to be, and I find it best to fill in the whole thing with a 50% grey – this would give you the same color density as a non-mapped blade. Then just go ahead and draw forms with a tool using some other grey level, I usually try to stay between 75% and 25% so that the densities are not too unrealistic. It is usually

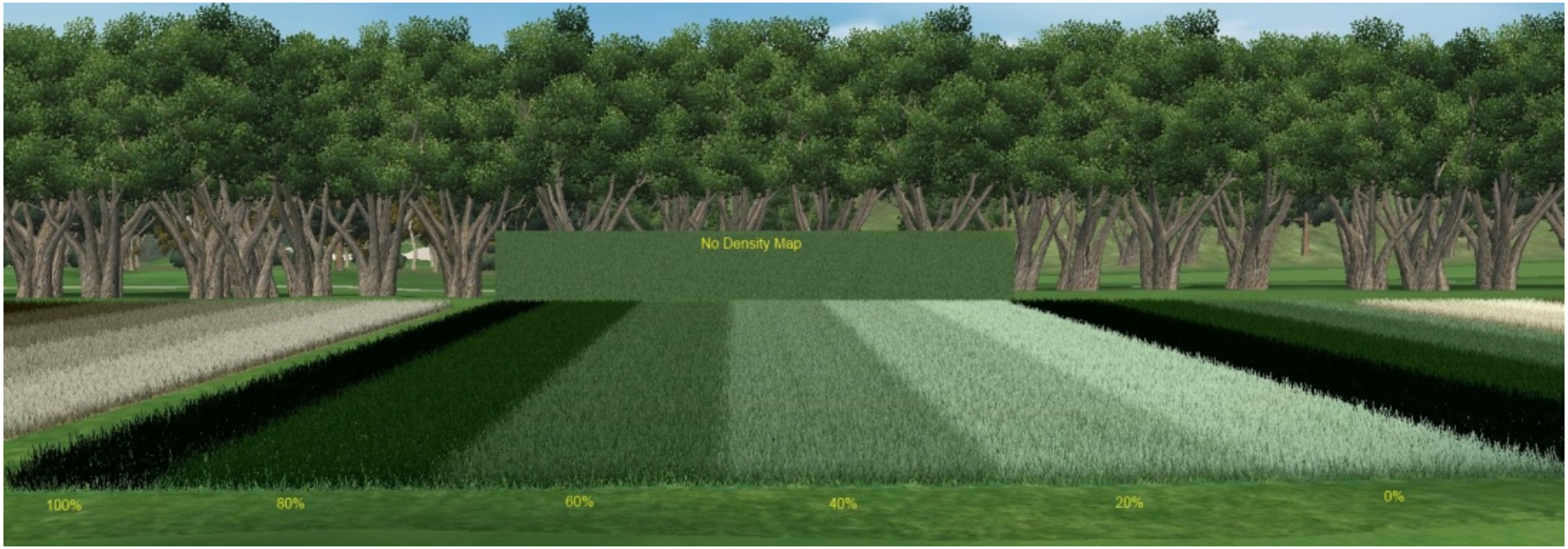
better to use small features, as this gives more real looking “patches”, but you will have to play around and find what you like. When done drawing, apply enough Gaussian or Surface blur to remove sharp edges. Then it is really simple – one adds the density map pictures to the “Grass Effect Textures” portion of the LC, just like the pictures that make up the blades, and they will get a number from 0 – whatever. Then, when you are selecting all the Texture Properties, select the Density Map dropdown and pick the number of the map you want to use. That is it!

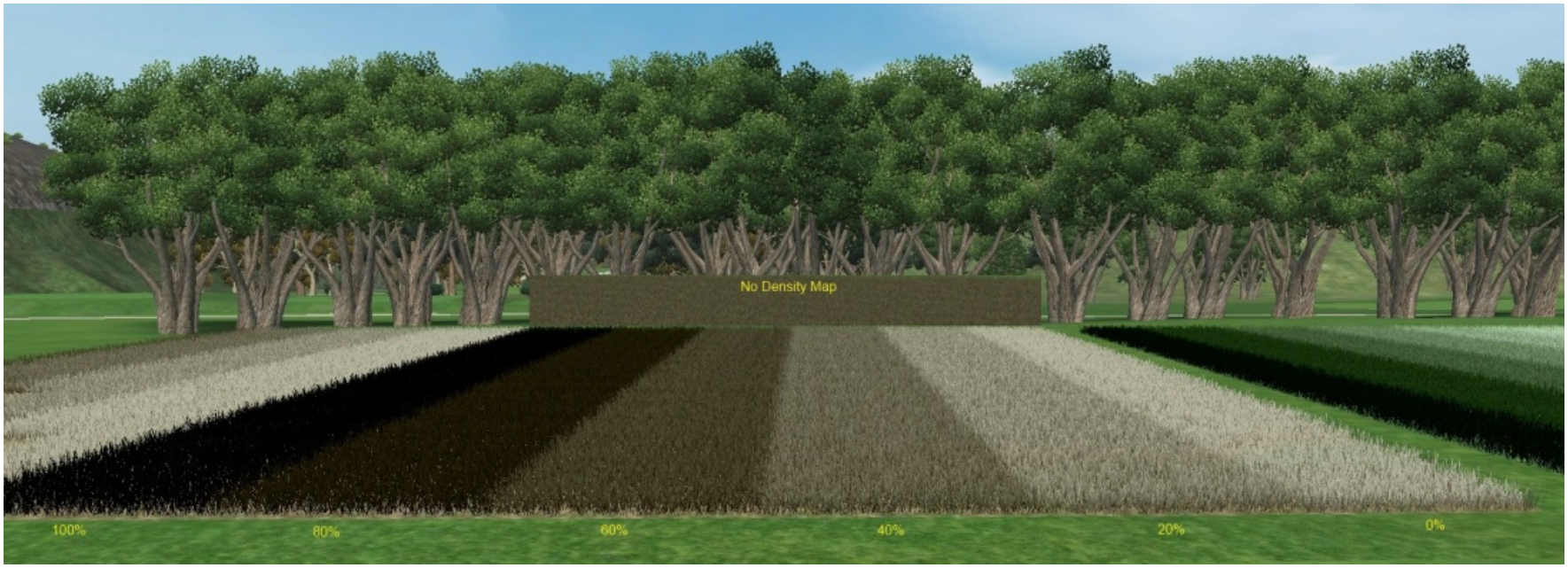
Chapter 3
The Effects of the Map

In order to quickly illustrate how the map affects the Blade colors, I made the map shown below:

Each of the bars is a 20% difference in density, running from 100% (black) to 0%. Now let's look at the three textures we showed above, this time using the map:




No Density Map
100%
80%
60%
40%
20%
0%


No Density Map
100%
80%
60%
40%
20%
0%

The unmapped color is shown beheind the plot. As you can see, the color changes from nearly black to nearly white. A map uniformly of 50% grey-density would produce the same thing as an unmapped blade.

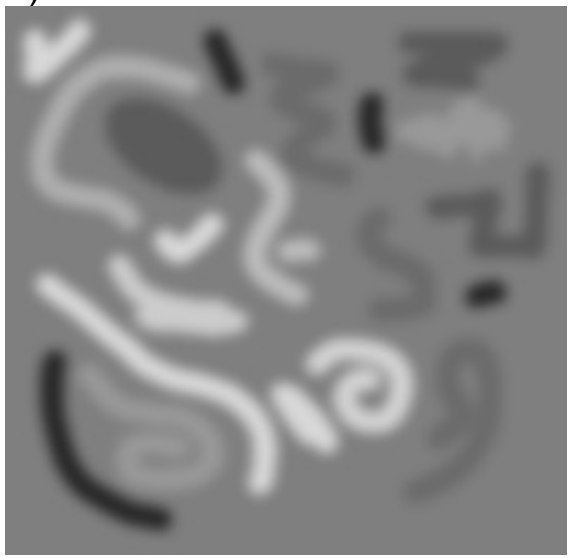
Chapter 4
Examples of using a Map

So, how can we use this to good effect in making varying areas of rough? I have not worked out all the possibilities, but I show three examples and the map that created them. Map 1(which was shown above):

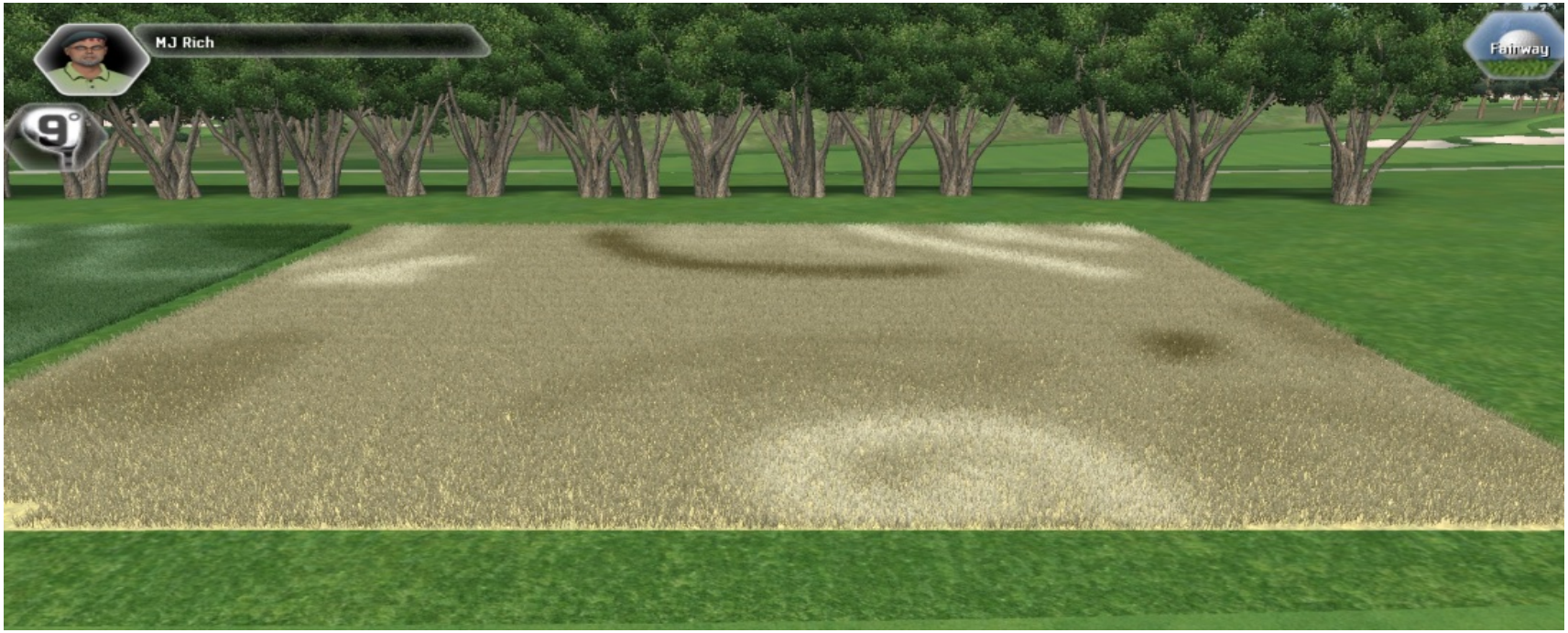
MJ Rich
Fairway
9
MENU
FULL
BACK
FORWARD
109 yds
PIN DOWN 9 ft
SSE
3 mph

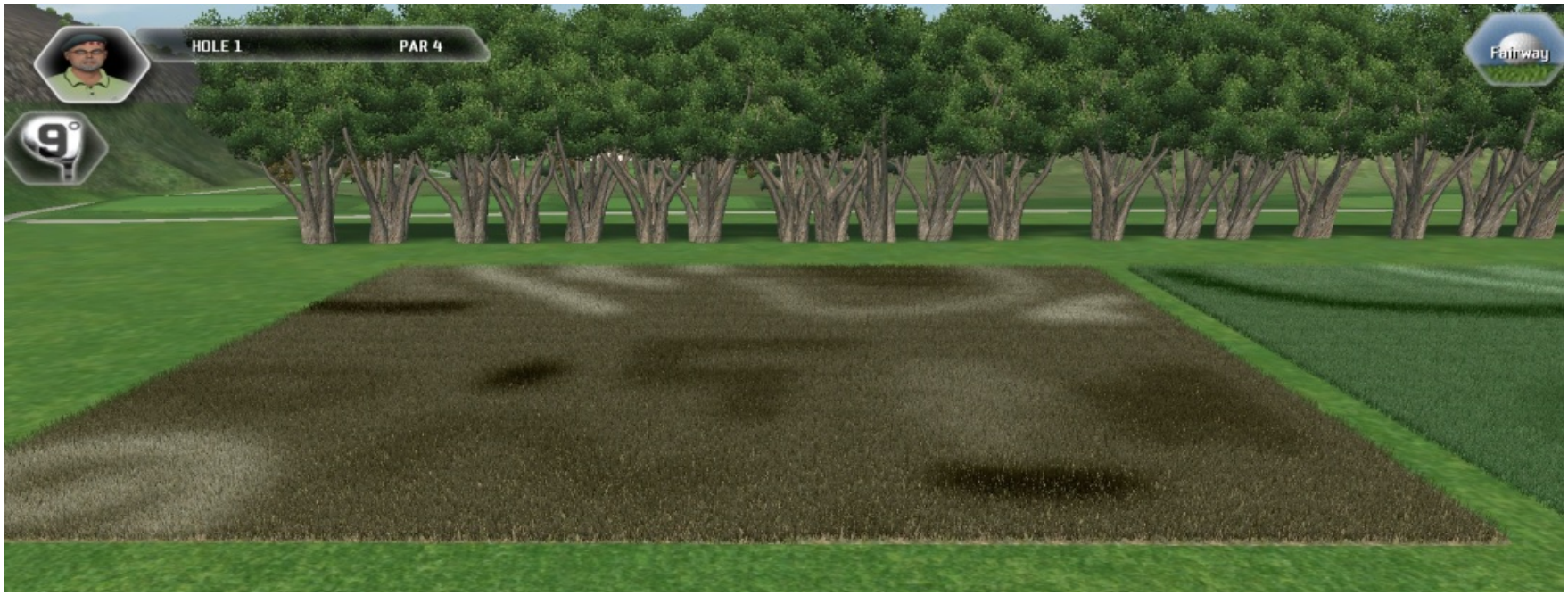
SSE

Next we see Map 2 (a little abstract art):



When you are making these maps, it is definitly best to apply enough blur to get rid of sharp transitions, unless you want them (as we shall see).


MJ Rich
9°
Fairway

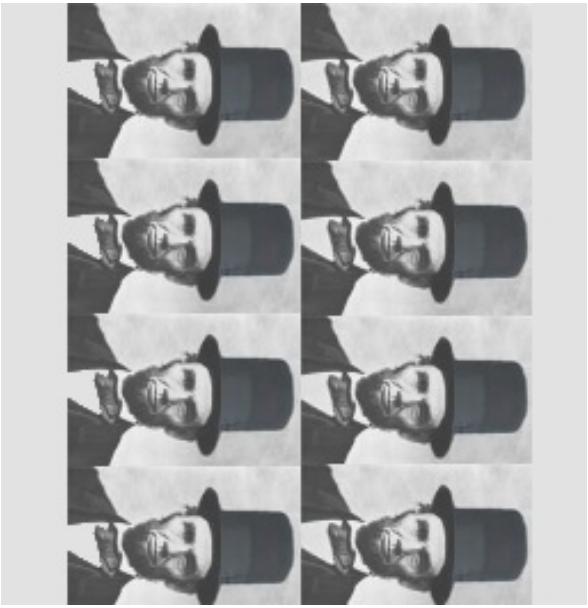

HOLE 1
PAR 4
9°
Fairway

And finally, one that maybe looks a little more natural:

MJ Rich
PAR 4
Fairway

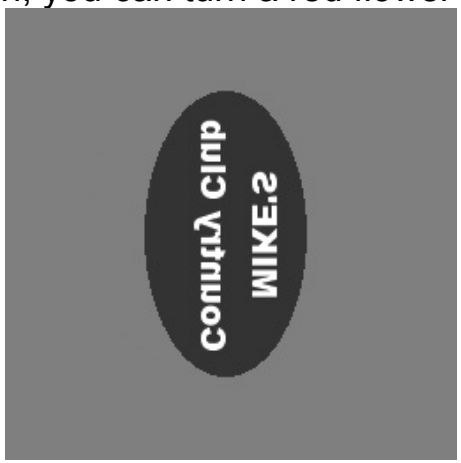
MJ Rich
Fairway

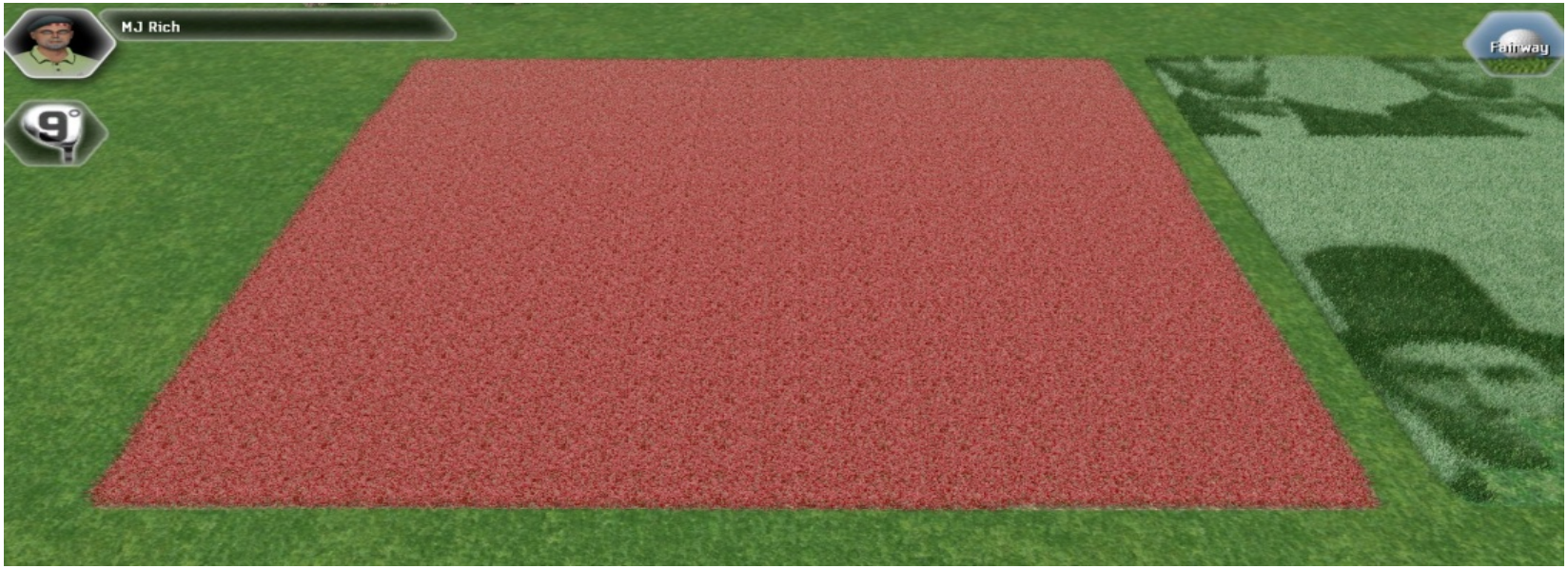
You can also do silly stuff, as illustrated below:



Which gives you the following:

and more usefully, you can make a “Flower Bed” with the course logo in it (obviously limited to color density, not different colors. Using the map shown, you can turn a red flower bed into:





becomes:

I can say a couple things about the maps: When you make one, the things you draw in it will run North/South (or East/West) based on the way the CA is oriented, so you have to keep that in mind if you are trying to put in logos and such. I have not worked out exactly the relationship in terms of size between the features you put on the map and where they appear on the texture. I think that it can depend on the size of .bmp or .tga you use for your terrain relative to the one you use for the map, but I am not sure of the relationship there.

That is all I know so far – go forth and explore (and report back if you find something interesting)!

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