FLASHPOINT CAMPAIGNS™
RED STORM

On Target Simulations

FPC Modding Guide 1:
Maps and Map Values

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Table of Contents

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1 Introduction

Welcome to the Flashpoint Campaigns Modding Guide Volume 1 or FCMG1 for short. This tome is the gateway to modding or creating Maps and Map Values for all things Flashpoint. The OTS Design Team determined from the onset of this new game engine, that we wanted the game data and supporting graphics and sound to be accessible to the players. We wish to foster the generation of a large library of 3rd party (User) content. In order to do this without it turning into a mess, as seen in other games in recent years, everyone really needs to read through Section 2 "The Rules of Play" that follows.

1.1 What will this Guide Teach You?

Volume 1 centers on making maps like the one the team made for the game. This will require you to use third party tools (HexDraw and a Paint program) and also the art and templates we used. Those files can be found in a separate download on the Matrix Site. You will learn how to setup your Hexdraw, build maps, export maps, crop and scale the maps and finally bring them in game to the Map Values editor to get all of the game specific data entries in.

We will also go over some of the other methods to make maps for the game. We will also cover options for the maps to add in some 3d effects for elevations.

Anything we miss or any questions you have can be directed to the forms on the Matrix Game Website. We will from time to time update this document with new information or corrections if things change. Enjoy!

2 The Rules of Play

It's kind of sad even having to point some of these "rules" out, but I think it will help everyone get along and work with each other to make this game really shine with tons of user created goodies. Away we go...

2.1 The Obligatory Disclaimer

Okay, tangent/disclaimer time. There is little to no value validation for these functions right now. It is something we want to add down the road to help you modders out. So understand if you delve into the numbers, you run the risk of breaking things if bad values or characters find their way into the files.

We at OTS take no responsibility for loss or damage of material items, virtual 1s and 0s, wives and girlfriends, or sanity when modifying game content and/or using third party tools. End tangent/disclaimer.

2.2 Open Source Content

The game engine runs and can simulate a wide range of modern combat actions based on the data we have provided. In the FPRS module folder you will find a Maps folder with the map images and the corresponding FP9 data file. The FP9 is generated by the Map Values Editor in game and is required to make the game function. It is the value and structure of this file that allow the game engine to use the maps both included and created by you and other third party creators. The maps are simple PNG format image files. You are free to use them or modify them as you see fit.

2.3 Free Use

We are giving you the right to freely utilize the OTS templates and map art files to create new maps, edit existing maps with third party paint programs, and edit/alter map values in order to create new or derived map image and FP9 files. Again, you modify them at your own risk.

You can also use other images to create your own maps and place them in the game. Those maps will need Map Value files created using the in-game editor unless the new image is replacing an existing map. Just remember to save the originals.

This "free" use comes with the express understanding that any created or derived works for this game and game engine will be provided to the public to freely use as well. This means if you put something you made out there for the game, other people can, and in many cases will, take that work and build upon it. Like us at OTS, you will have to be okay with that happening. That's the land of Free Use.

2.4   Derived versus Created Content

There are two types of user generated content. Derived works are those based on other original work. Repainting an existing map or editing existing map values are examples of derived content. Created works are those items made from scratch, like making new maps for the game. Even though these are created items, they are derived from the content specifications for the game engine.

2.5   Being Adult and Recognizing Original Content Designers

This is one of those sad to have to point out rules I mentioned above. A handful of games out there over the past decade have had major blow ups over this topic. If you take the scenarios from the Stoic Brit's scenario pack and make changes for whatever reason and then call them the Happy Canadian's scenario pack, I and the Happy Brit should be (or more to the point need to be) fine with that as long as your ReadMe text file states you made changes to the Happy Brit's content. That's it. Just a common courtesy to say this is a derived work. This will be an area especially watched with Scenarios and Map Data. Everyone is entitled by the Free Use and Open Source points above to edit other works. Just be adult and please note where the works originated.

2.6   Share and Play Well with Others

This is the second of the "should be obvious" rules. The goal in having this much modding capability is to build a friendly and thriving community of players looking to add to the game and to other player's enjoyment of it. To that end, I would ask that everyone work to help your fellow modders by sharing ideas, comments, tips, tricks, web links and even content. The more everyone works together, the better everything will be for the user generated content for the game.

2.7   Play Nice or We Throw the Kill Switch

In the very unlikely case that people can't play nice and/or abuse the open source content system, OTS reserves the right to shut down the game engines ability to use certain user generated content. In particular, data, maps and scenarios/campaigns can all be switched to an OTS only mode of use.

We (OTS) would prefer for this not to happen, but it is necessary to make this statement. The ability to edit a vast majority of the various inputs to the game was the center of a number of lengthy discussions on if we should do and to what extent. How the community does in the months after release will also tell us if we can expose even more internal magic numbers to everyone to add in even more customization of the game engine itself.

So please be civil and helpful to other modders and we will all enjoy this game system from many years to come.

Now onward to the good stuff!

3 Getting Started

FLASHPOINT CAMPAIGNS is both a game of grand tactical warfare as it is a construction kit with sweeping capability to make almost any modern combat situation (Post WW2) you want. Before you dive head long into a project you should take some time to get your ducks (or other regionally specific animals) in a row. This chapter of the guide breaks down a few of the key decisions and works on getting you ready to work on the mod you want to make.

3.1 Deciding What You Want to Make

It may sound like a silly question, but sometimes you may not really know what you want to mod or how far or deep you want to go. Starting small and simple in many cases is a good idea. If you really want to change many things you should really take a minute and map out all of the things you need to do the job. Another factor involved is the end user. Is this something for you only or are you going to make this for the pubic to use too. In some cases it helps to be familiar with the process or tools. If you are great at digital artwork and have image editing tools, maybe changing some of the game art is a better place to start than making a new database. Either way you go you really need to have a desire to do it and in some cases support after it is released.

3.2 New or Derived Content

Where do you want to start? It is no doubt easier in almost every area of the game to derive/edit existing content than to start from scratch. If you are new to modding, I would strongly suggest starting a derived type project first. Having data or a format in front of you helps reduce the chance of making a mistake. Once you are comfortable with all of the ins and outs of creating the content you want from existing materials you can switch over to making it from scratch.

If you are going to create items from scratch, make sure you are aware and following and rules or guidelines for formats, sizes and ranges. Failure to stay within the set boundaries of an object can lead to game crashes and the headaches of debugging what you have made.

3.3 Gathering Source Information

Before you launch into a project, take the time to gather up and supporting source information that can help you with what you are planning to do. This could range from images to maps to specifications and documents. This will be less of an issue with sounds and some art items, but a down right necessity for scenarios and data work.

3.4 Third Party Tools and Other Assets

Modding a game takes time, effort, and tools. The game does have a couple built in editors to make campaigns, scenarios and tweak map values, but the rest of the stuff requires having other 3rd party software. Here is a breakdown of what you will need to work on new maps:

- Graphics – Painting programs that can create or edit *.png images
- Maps – HexDraw map making software (what we use) or paint programs or image capture
- Templates and Artwork – There is a file of templates and art files required to make OTS style maps with HexDraw. This file can be found on the Matrix Game website along with other OTS files.

So, if you want to edit items in these areas you will need to have software to do so.

3.5   Working with User Feedback

Once you place content out there for others to use, you will need to deal with both positive and negative feedback and suggestions. The best advice I can give on the subject is to be polite in your responses. If possible, take good suggestions and work them in. At the end of the day, it is your work and your vision and there is nothing wrong with telling someone to use the tools to mod it the way they like. It's what we are doing!
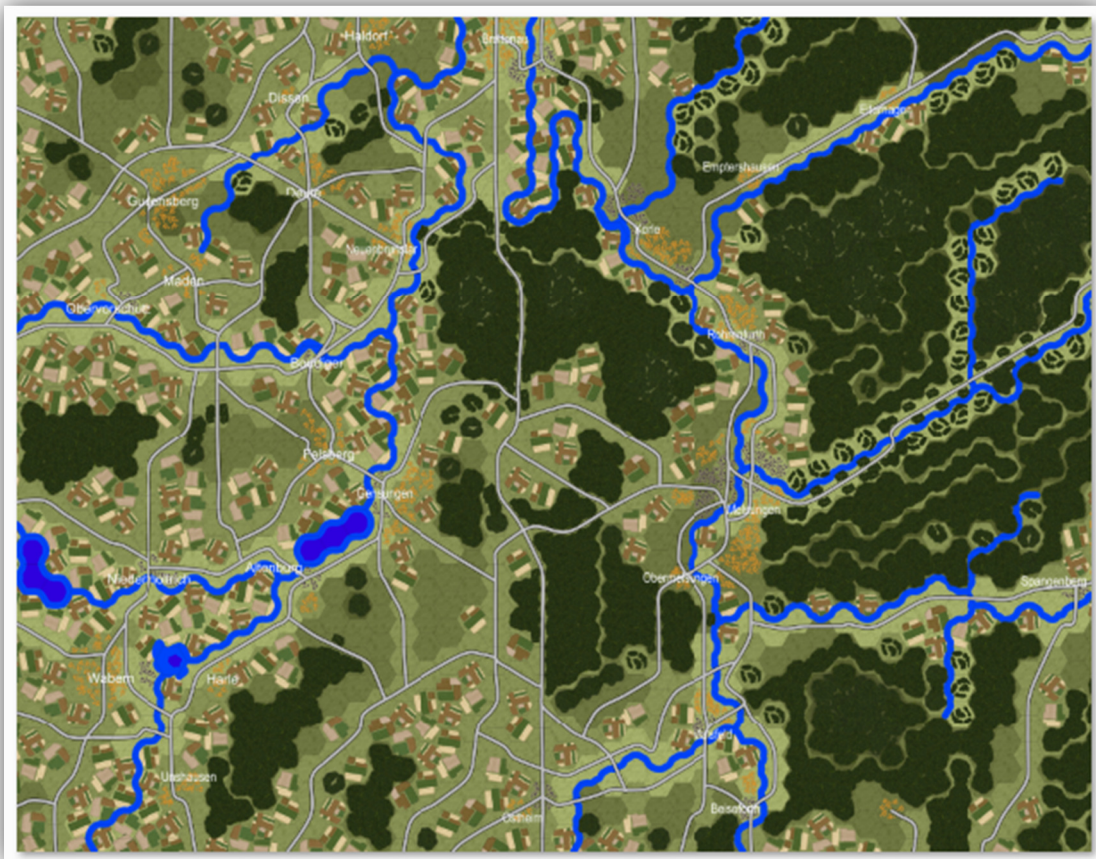
CS1 Red Storm Map Image

4 Making a Map

In this section we will cover what you need to know to make a map like the ones included in the game. There are a number of steps to map making ad it requires the use of a couple of third party pieces of software to get from beginning to end. The main tool used is HexDraw. This software can be found on the internet and relatively low cost and we will be supplying our templates and art files in a separate download on the Matrix site to help jump start your map making efforts.

4.1 Overview

Welcome to Flashpoint Germany 2: Red Storm's Hexdraw Mapping Guide. It is the goal of this document to teach you about the tools and techniques required in order to make maps like the ones we use in the game.

You will need a couple of third party tools as listed in the Checklist below to assist in the creation.
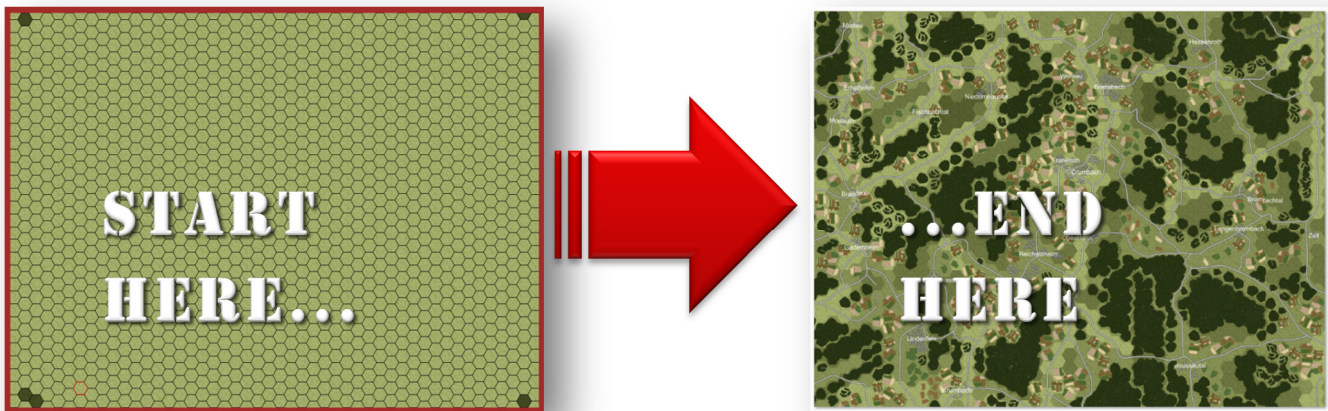
4.2 Getting HexDraw Setup

- Download and Install Hexdraw.
  - o Folder location is up to you.
- Download the Red Storm Map Art file.
  - o Unzip the contents into the main Hexdraw folder.
  - o Verify that there are RS-?? Files in the Texture and Overlay folders.
    - ▪ See next page for examples.
- Verify that there is a FPG2 Maps folder containing two FPG2 map files.
  - o FPG2 20x15 Lvl1 Basic Map.hm
  - o FPG2 20x15 Lvl2 Basic Map.hm
- Verify that there is a folder called Documents containing this Guide, a Checklist and Map Color Values spreadsheet.

Textures Folder

Overlay Folder

4.3   Map Basics for Standard Maps

- About the Standard Maps
  - o   Each map is roughly set to be 20km wide by 15km tall.
  - o   Each hex represents 500 meters side to side.
    - ▪   Our maps are scaled at 64 pixels per 500m, hexside to hexside.
  - o   The Stand Map is 46 hex columns wide by 30.5 hex rows tall.
    - ▪   By the numbers (for you math types)
      - •   46 hexes wide works out to approximately 2571 pixels or 20086 meters.
      - •   30.5 hexes tall works out to approximately 1952 pixels or 15250 meters.
  - o   On the Standard maps the dark green hexes show the 46 x 30.5 hexes we will crop to later on in this process.
    - ▪   The partial hexes will be filled out for aesthetics, but not used in game.
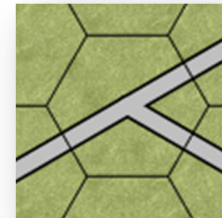
4.3.1 Map Basics: Elevations

- Standard Map Elevations

    o There are five elevations from "1" (low) to "5" (high).

        ▪ In the Textures folder they are in shades of green.

        ▪ Elevation Textures fill the entire hex.

    o The elevation height bands are not exact increments in meters, but rather are what the map designer considers to be militarily significant.

    o Elevations in FPRS serve mainly to cut line of sight and should be used accordingly.

    o Hills and ridges are very important.

    o Generally open but gentle slopes can be ignored.

    o These terrain elements are also what are shown to indicate "Mixed" terrain in the game. These are hexes with a small amount of hills, trees, fields and buildings, but not in an amount that requires art on the map.

    o It is possible to add more layers to indicate higher elevations. They need to be visually distinctive in color.

- Hillside 3D Highlights

    o To make elevation changes stand out on the map there is a light and dark shade hill highlight.

    o We did not use these with the shipping maps, but the shades are included if you wish to use them.
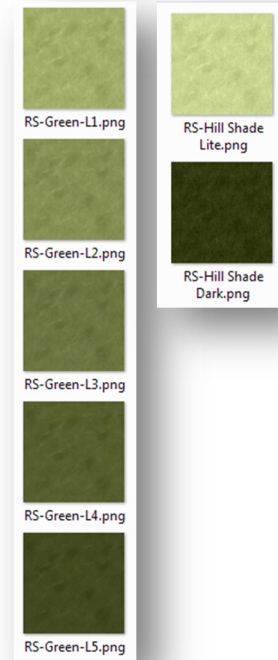
4.3.2 Map Basics: Roads

- Standard Map Roads

    o There is just one kind of road – a "major road" - in FPRS and it should cover militarily significant major roadways, highways and autobahns that have a pronounced influence on the movement of combat units through the hex.

    o All urban hexes are assumed to be road hexes by default.

    o Roads do not cross rivers. A bridge must be created by the scenario designer to achieve this.

    o Roads and their immediate road allowances are flat and open spaces that result in generally easier movement and better visibility in game terms.

    o Units that move directly from one road hex to another road hex pay substantially reduced terrain mobility penalties.

    o The roads are shown on map as a single shade of medium gray with a black outline.

        ▪ Roads appear over the top of hex terrain and most map objects.

4.3.3 Map Basics: Rivers and Lakes

- Standard Map Rivers and Lakes
    - o Lake Hexes
        - ▪ Lakes are hexes that are filled with the blue lake color.
        - ▪ They are impassible except to helicopters and to amphibious units at reduced speed.
        - ▪ You can place river hex edges around a lake to give it a less hex like appearance.
    - o Rivers
        - ▪ Rivers run between hexes and are drawn in the blue river color.
        - ▪ Rivers should only be used for rivers and streams of significant size that would impede military units from crossing at normal combat speeds.
            - • Most streams and creeks are not significant enough to have on the map.
        - ▪ River hexsides can be crossed by amphibious units with a substantial delay and must be crossed at a bridge by all other ground units.
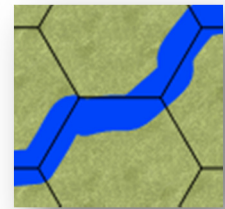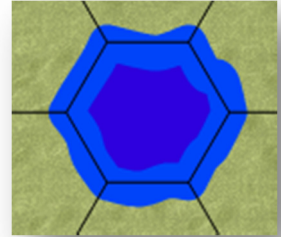
4.3.4 Map Basics: Terrain Elements

- Standard Map Terrain Elements
    - o There are the Terrain Elements that are found on the map that represent the fields, forests, and towns/cities.
        - ▪ Each of them impacts mobility and visibility in different ways.
        - ▪ Multiple elements may be found in a hex and the mobility and visibility effects are averaged based on density.
    - o Fields
        - ▪ These are various crop fields found dominating most of the low lands in Germany.
        - ▪ Impact to mobility and visibility are low.
    - o Forests
        - ▪ These are the clumps of trees that appear on most hills and in some low land areas.
        - ▪ Impact to mobility and visibility are high.
    - o Towns/Cities
        - ▪ These are the rural (orange) and urban (Dark Gray) centers located on the maps.
            - • Impact to visibility is high and mobility is low (assumed roads provide mobility)
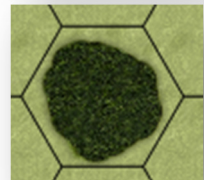
4.3.5 Map Basics: Colors and AutoMap Values

- Standard Map Colors and AutoMap Values Breakdown
    - In order to make the AutoMap Values system work for the in-game map editor we needed to make the art for the game conform to specific RGB color values.
        - Those color values can be found in the "RS Map Color Values.xlsx" file.
        - The target colors must be unique in each piece of art used on the map.
        - The color cannot be present in any other piece of art or the program will detect it wrong.
    - The Auto map program looks to rate the density of the terrain types in the hex.
        - If the majority of the hex is filled with forest then the hindrance to movement and to visibility will be higher.
        - The program will also "see" different types of terrain in a hex as well.

4.4 Map Checklist

- What you need to have to follow along:
    - Google Maps, Google Earth (used in the example below)
        - Any other maps or source will work as long as you can fairly accurately scale a 20km x 15 km box to use.
    - HexDraw 1.1
        - Loaded as directed above.
    - FPRS HexDraw map art assets
        - Also loaded as directed above.
    - Paint Shop Pro X3 (used below), Photoshop, Paint.Net or equivalent
        - The program must have the ability to crop images and to do a weighted resize to reduce the map image
    - Patients
        - There is a learning curve to some of this, but it is not overwhelming.

4.5 Creating a Map

- Now we will go through a step by step on making a map.
    - Most of the screens are based on the information found on the forums.
    - Some items in the maps and screens shown are subject change.
    - There is some mix and match screens from different maps in order to show the functions of the software in more detail.

4.5.1 Where is the Fight Happening

- The first thing to do is identify the area of the battle on Google Earth.
    - Make sure the area gives you good entry and exit points for the forces.
    - Make sure you have a good mix of terrain that suits the fight you are looking for.
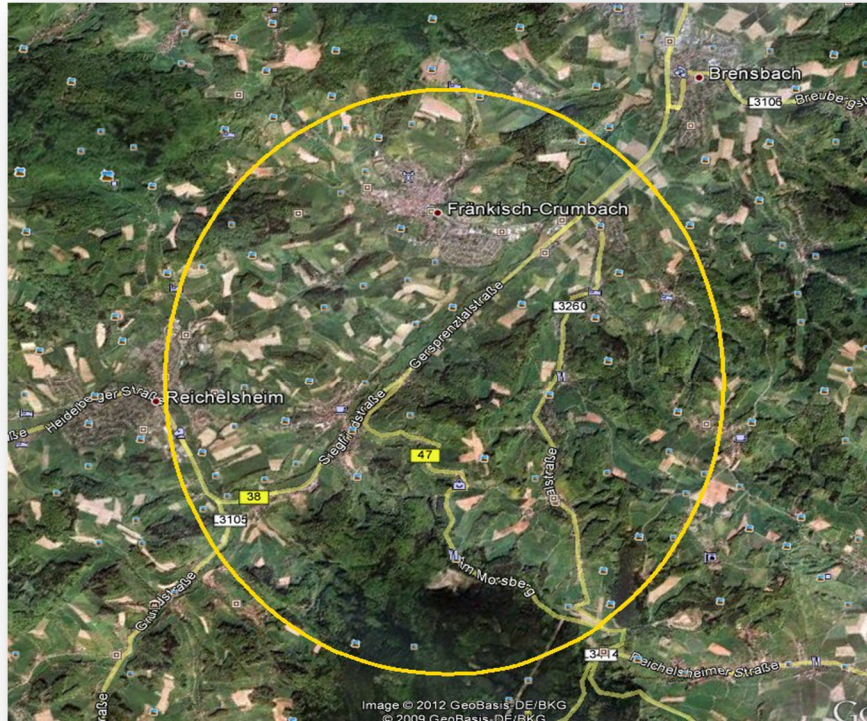
4.5.2 Fitting to the Standard Map

- Measure the height which will be at least 15km and the width is at least 20km.
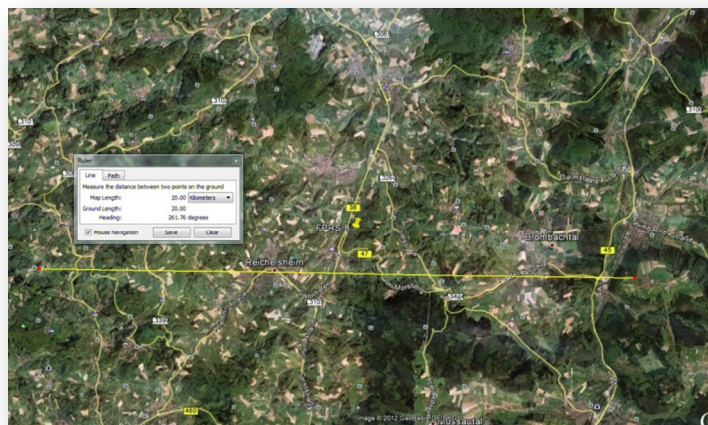
4.5.3 Getting Map Background Images

- Go to the View in Google maps and click Maps.
  - o Make sure that the height and width are centered within the area with the scale set at 1 mile/2km.
  - o Take a screen shot of that and save it as a [Map name]-Road Map.
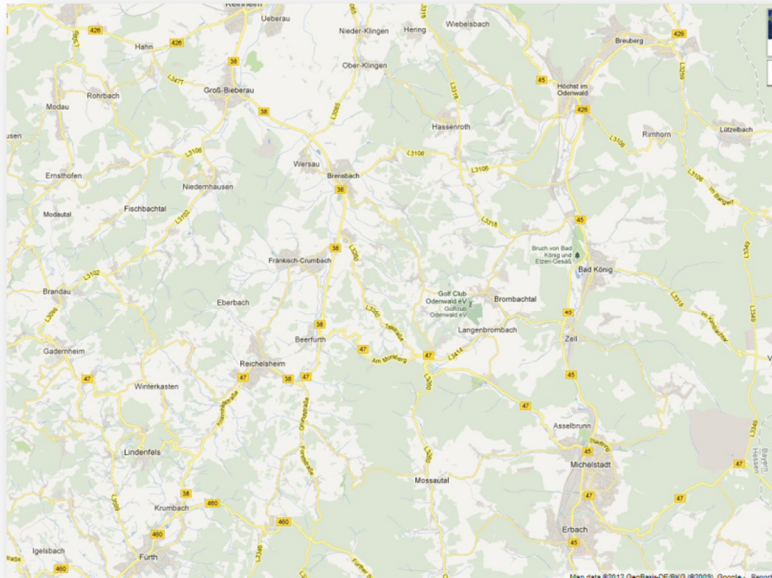
- Under the Satellite imagine in the upper left corner of Google Maps select Terrain.
  - o Without moving the screen, take a shot of the basic terrain/elevations.
  - o Save this with a [Map name]-Terrain map name.
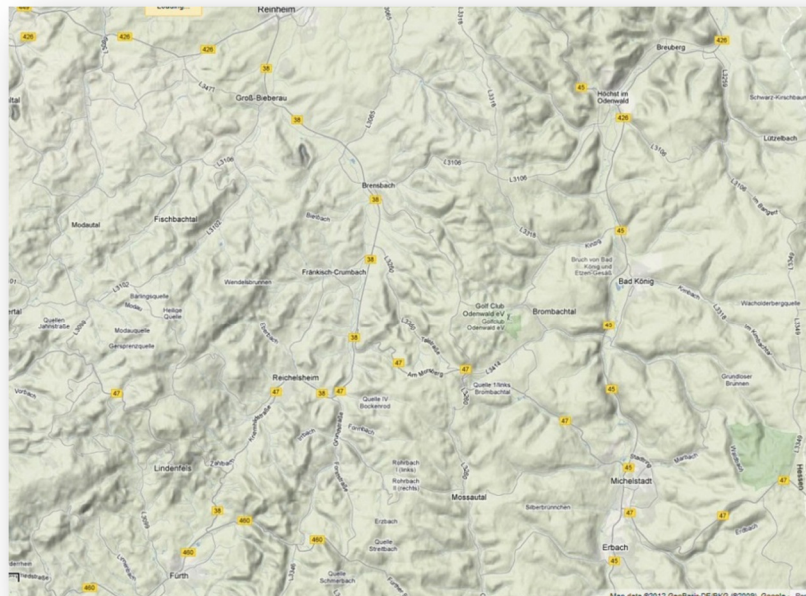
4.5.4 Marking Elevations

- Mark the map elevations on the basic screen shot using a paint program.

  - o   Use bright colors and a good thick line. This will help later on in HexDraw
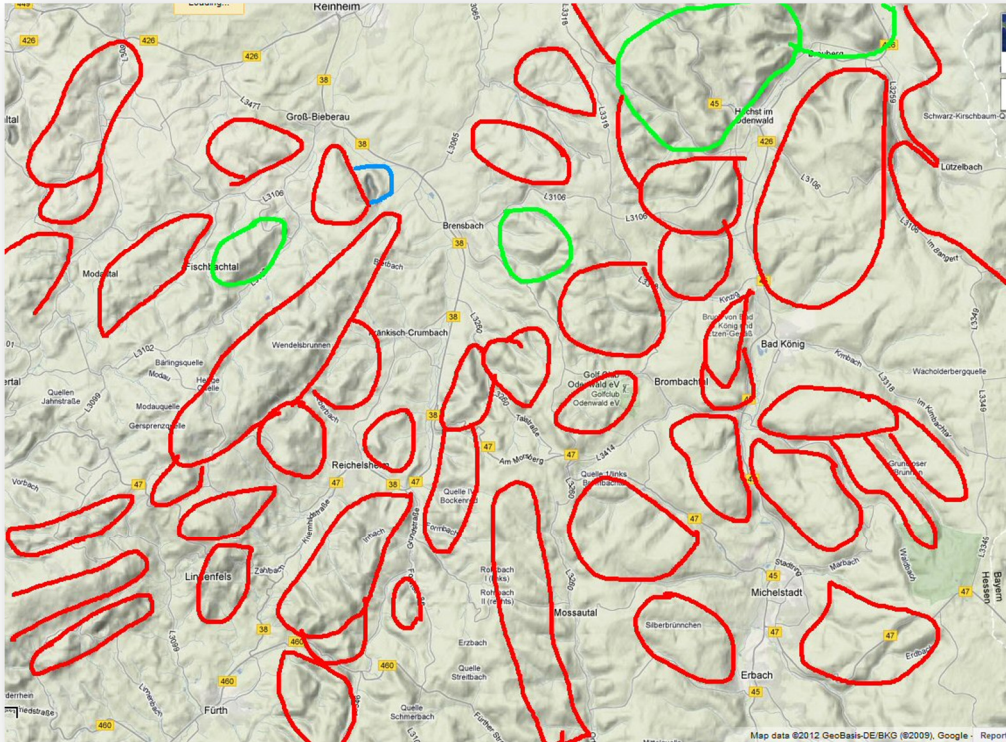
4.5.5 Saving Background Images

- Both the terrain and road maps must be sized to fit HexDraw.

  - o   Size up the screen shots to 3809 x 2856.

  - o   Save these images as PNG files in the Background folder in the HexDraw main folder.

- Once the images have been resized and saved, you are ready to start creating a Red Storm map.

  - o   The process to this point takes about 15 to 30 minutes from the time you open Google Earth until you're ready to open HexDraw.

4.6   Working in HexDraw

Now that we know where we are fighting and we have created the background images to help us, it is time to start working in HexDraw.

4.6.1 Starting a New Map

- Open HexDraw.

- Click File Open or click the open file icon.

- Navigate to FPG2 Maps folder.

- Select the "FPG2 20x15 Lvl2.hm" file.

- If you are editing a saved file, click on its filename to open it.

- Now we see the loaded map and should see the Terrain Tab active and the Elevation art showing in the window.
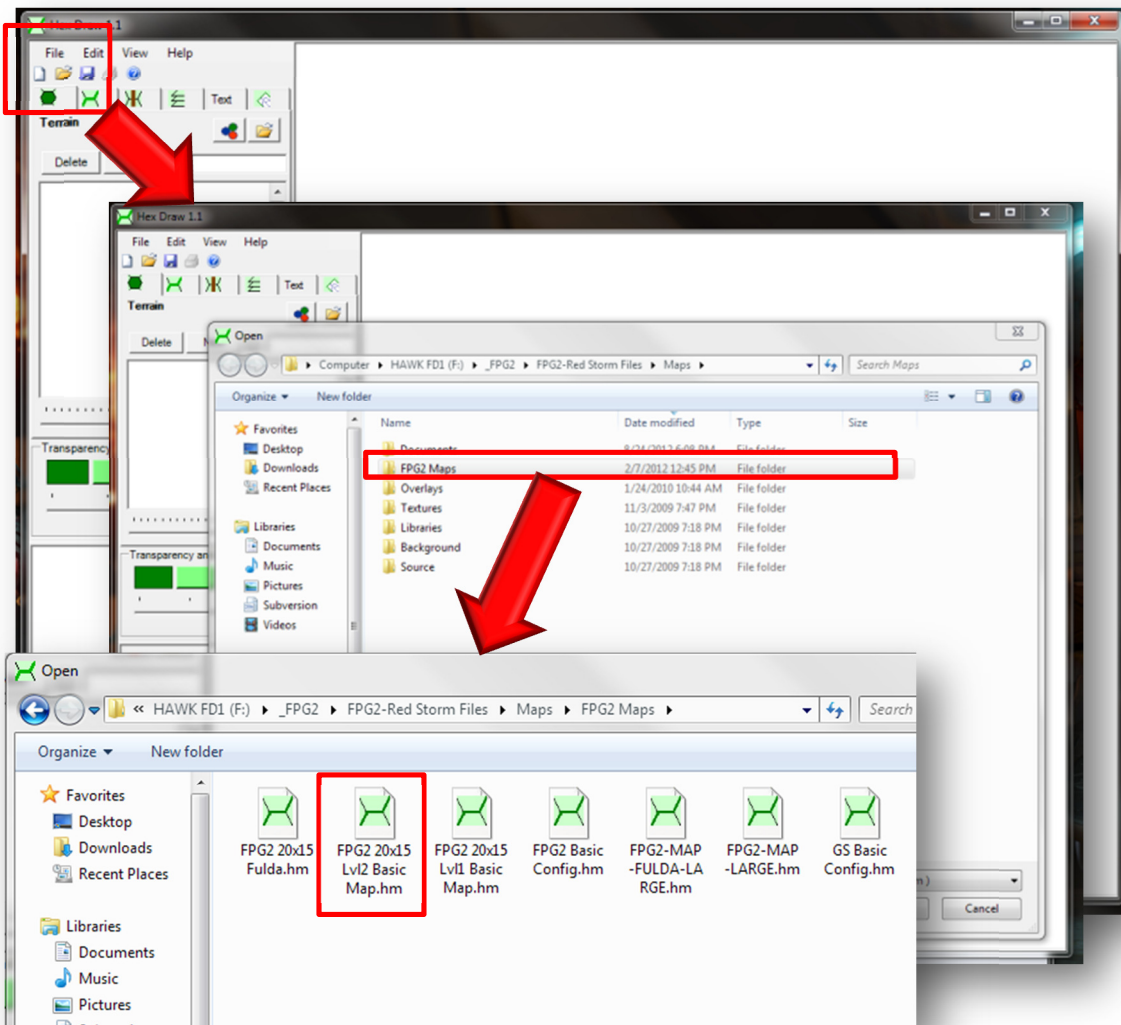
4.6.2 Overview of the Main Screen

- Selecting on of the showing elevation Art Images allows you to place that terrain on the map.
    - o Use the radius slider to make the "size" of the affected area larger.
    - o Clicking the Green to White buttons sets the transparency to the background image.
    - o The slider under the transparency buttons zooms the main map window in and out.
    - o You can use the jump map to see the entire map and also clicking on it will move you to that spot on the main map.
        - ▪ This map updates every five mouse clicks.

Main Tabs   Art Selection Window   Radius Setting

Transparency and Zoom   Jump Map   Main Map
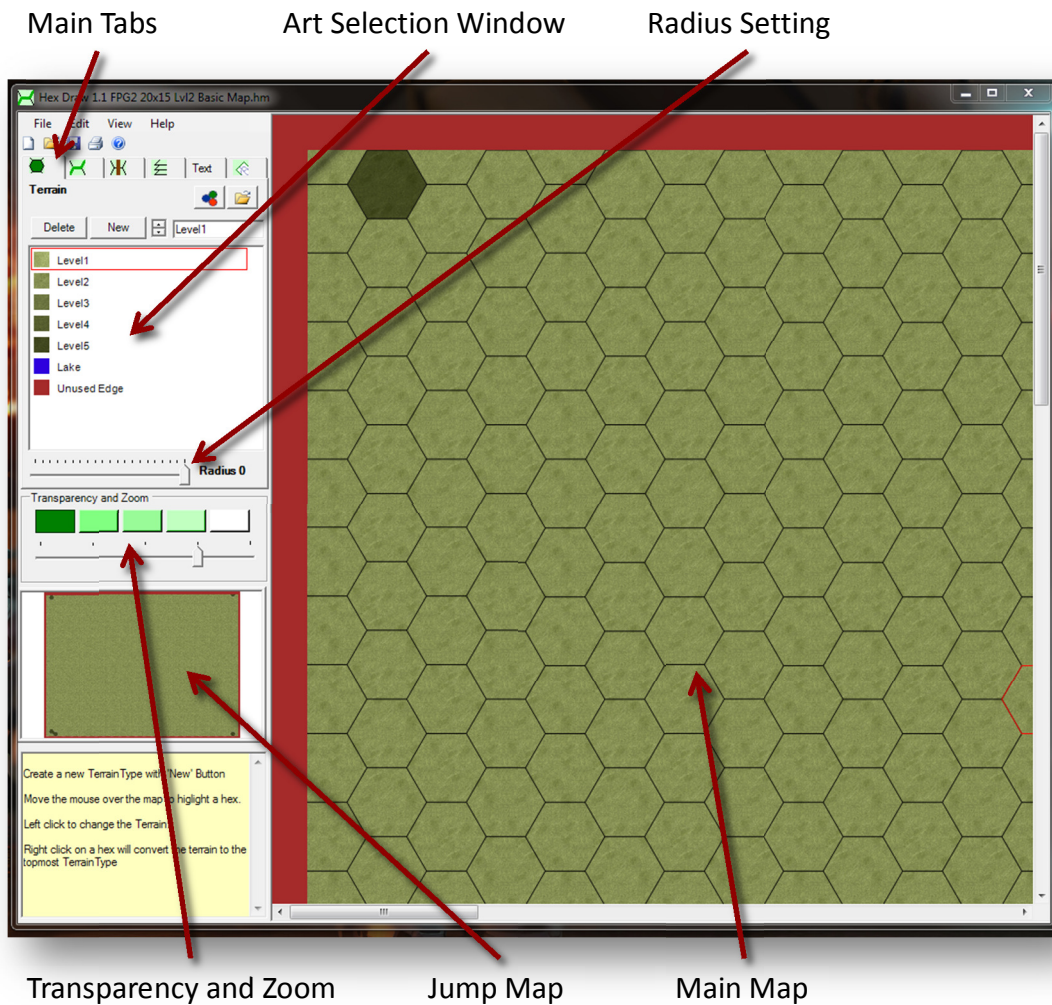
4.6.3 Bringing in the Background Image

- Now we need to add in our saved image of the elevations into the background layer.

  - o   Click on the Background tab (right most tab).
  - o   Click the New Image button.
  - o   Select your elevation image with the colored elevation lines.
  - o   Slide the Zoom Slider all the way to the left in order to see you entire map.
  - o   Click the lightest green Transparency button.
  - o   Click the elevation art object in the selection box.
  - o   Now click on the map.
  - o   The image is in but not centered or scaled.

Background Tab

New Image Button

Zoom Slider   Transparency Button   Background Image
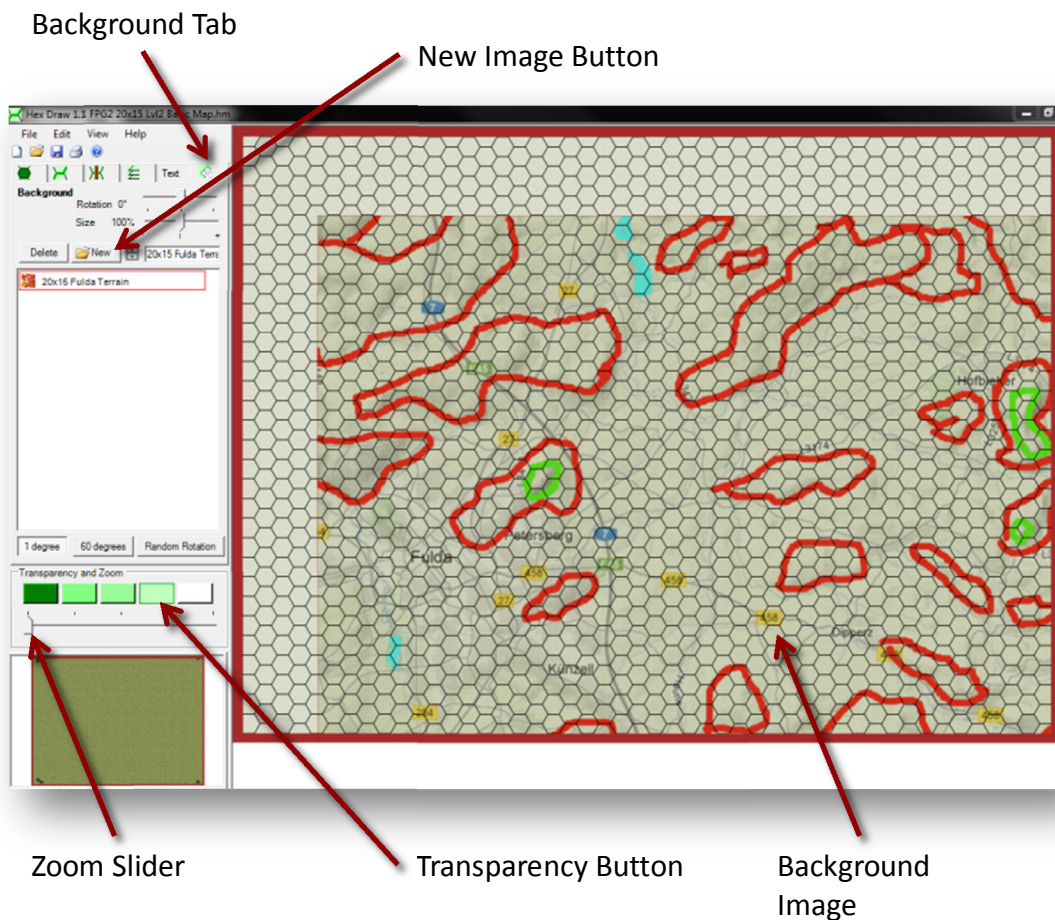
4.6.4 Scaling the Background Image

- To get the background image to be scales to the map we need to do two things.
    - o First use the Size slider to bring the size of the background down so it all fits on the map.
        - ▪ If you used the background size numbers from before, you need to scale down to roughly 76-79%.
    - o Next, using the mouse, left click and drag on the map to center it on the main map.
    - o You need the map large enough to have background image covering the dark green corner markers.
    - o Out to the red boarder is better.
- Now, do a File Save As and save your map with a meaningful name.
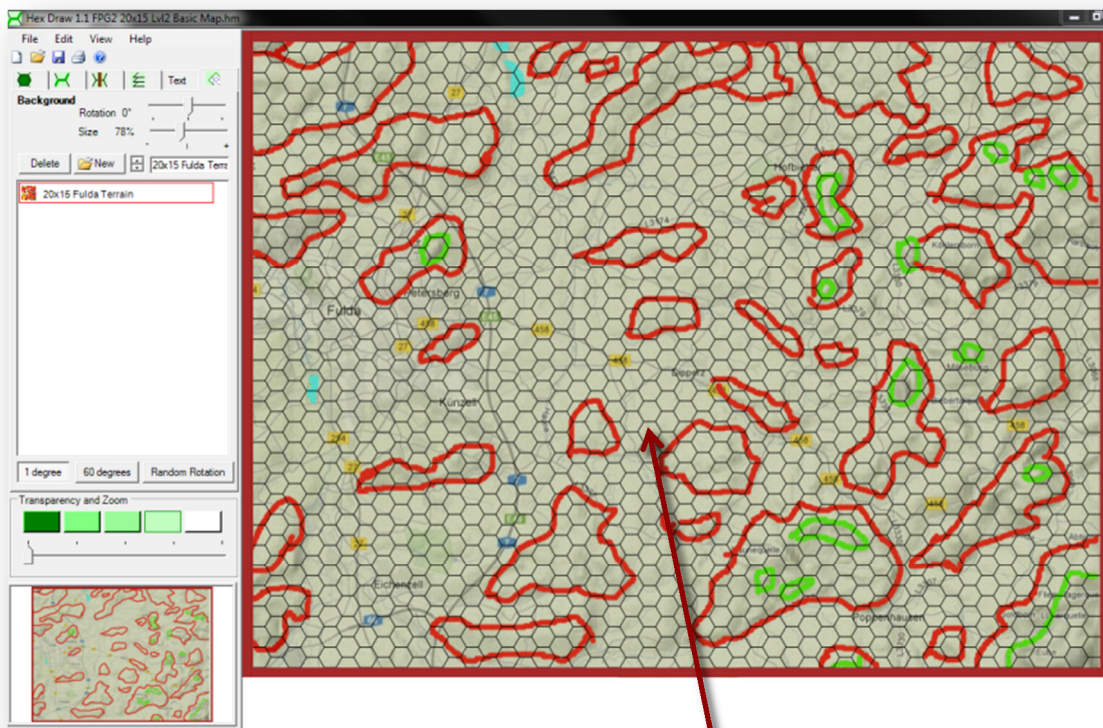
Background
Image Sized and Centered

4.6.5 Laying in the Elevations

- Next, we add in the Higher Elevations and Lakes.

    o Select the Terrain tab and then click on the Level3 terrain art in the selection window.

    o To paint the terrain, just click on those hexes in or on the red lines for Level 3.

    o Select the Level 4 art and do the same for any identified green hexes.

    o Do the same for any lakes.

    o The elevations and lakes do not need to be exact but get as close as you can.

Lake Terrain   Map Center Marker

Level 3 Elevation Terrain   Level 4 Elevation Terrain
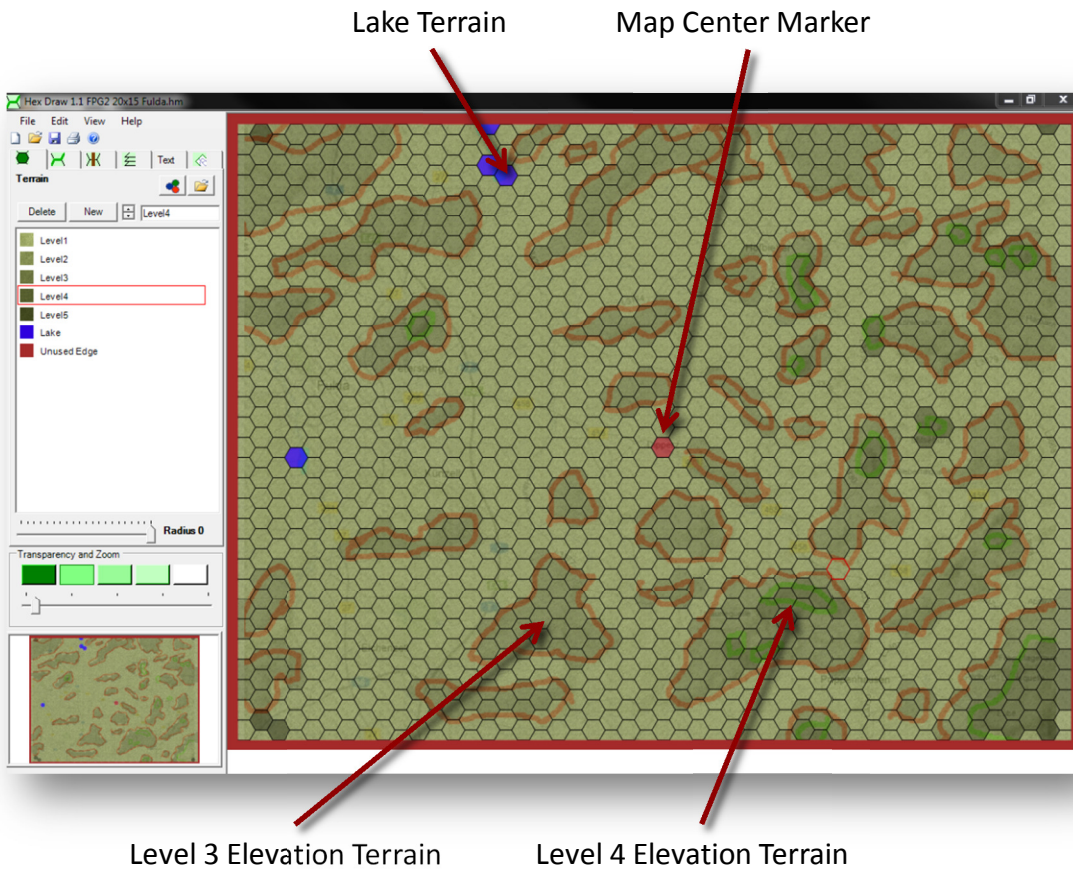
4.6.6 In Process Elevations

- Here's a look at the upper elevation of the entire map.
- Blue hexes are lake locations.
- The red hex is used as a centering feature for the background maps.
  - o We will remove it and the Dark green corner markers just before we export.
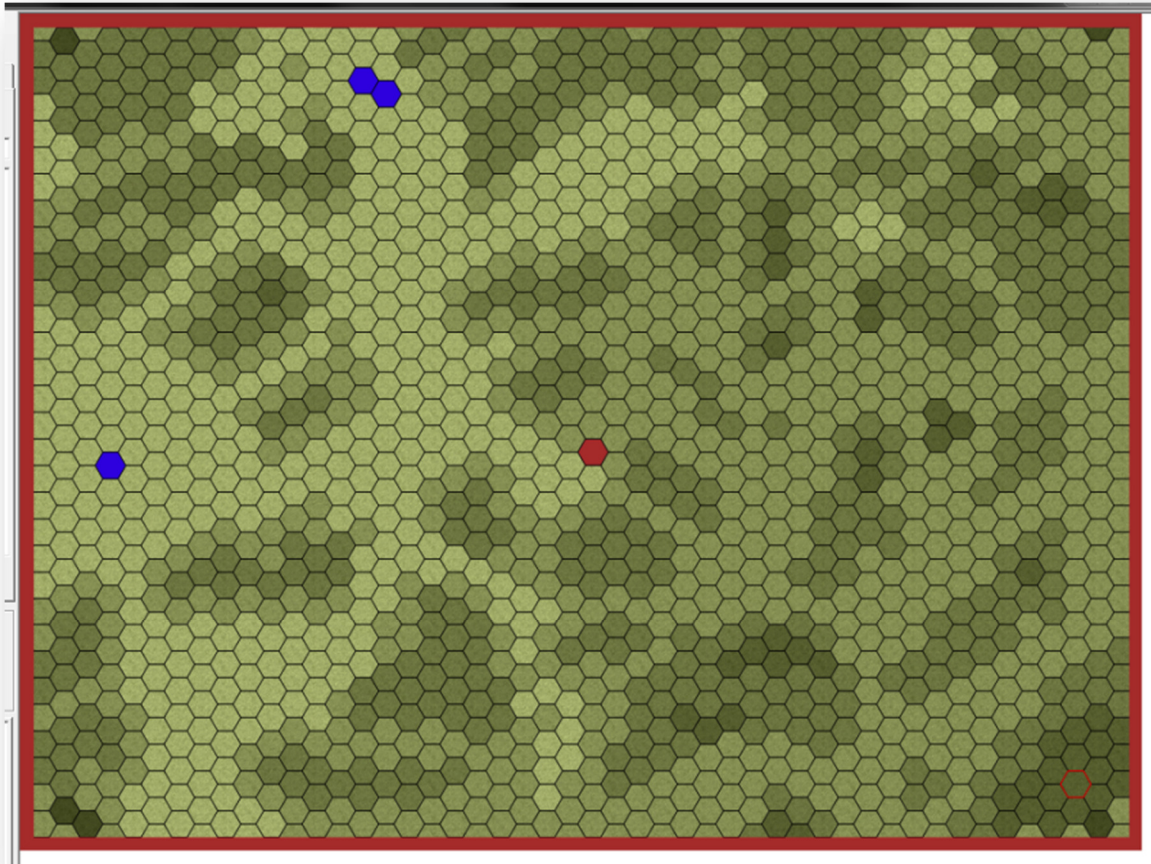
4.6.7 Adding in Level 1 Elevations

- Time to place in the Level1 Elevations.
    - o Load in and scale the road map saved earlier.
    - o Using the streams and roads as a guide, place Level1 terrain in the white low lands areas of the road map.
        - ▪ In most cases you will want to keep a hex of level 2 elevation terrain around the larger hill structures.
        - ▪ Use artistic license to blend elevations to achieve the best layout for the map.
        - ▪ You don't need to be precise. Just functional.
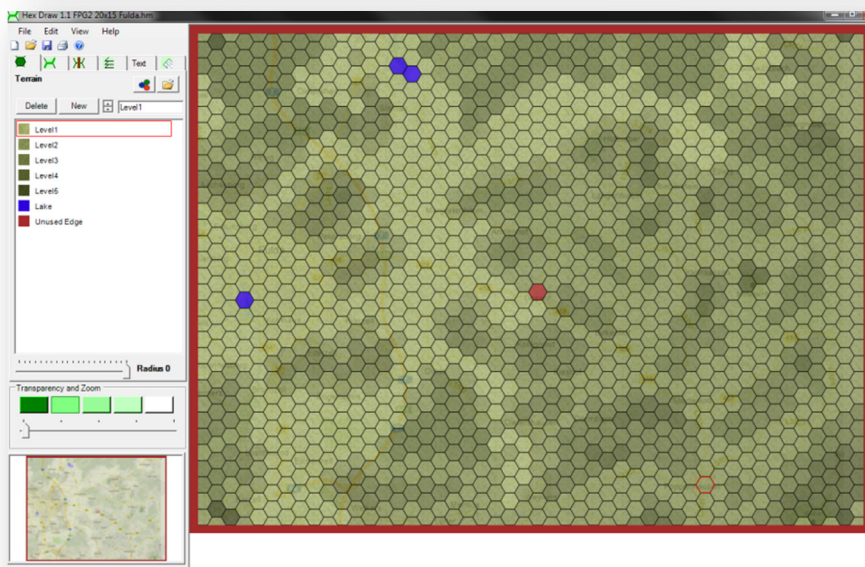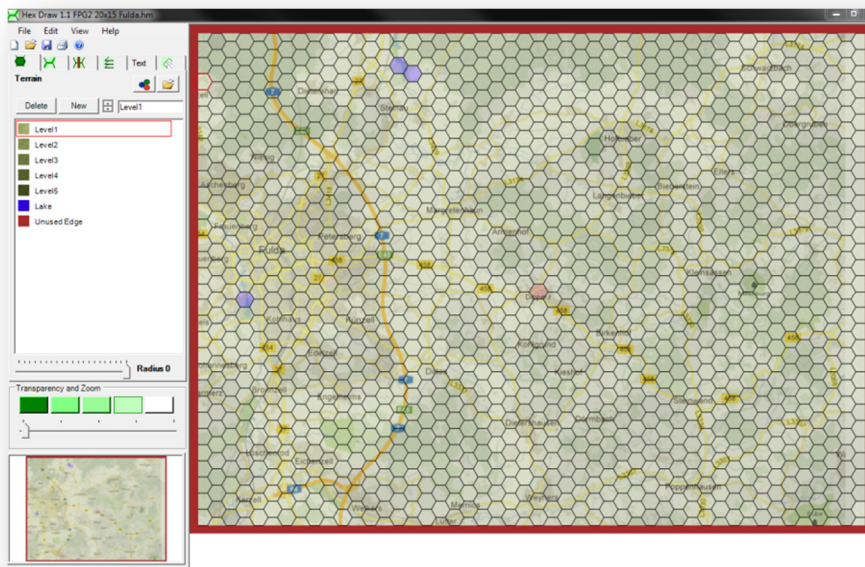
4.6.8 Elevations are Complete

- Now we are done with Elevations on the map.

- Save your map now.
    - Make sure it has a name that describes it for you.
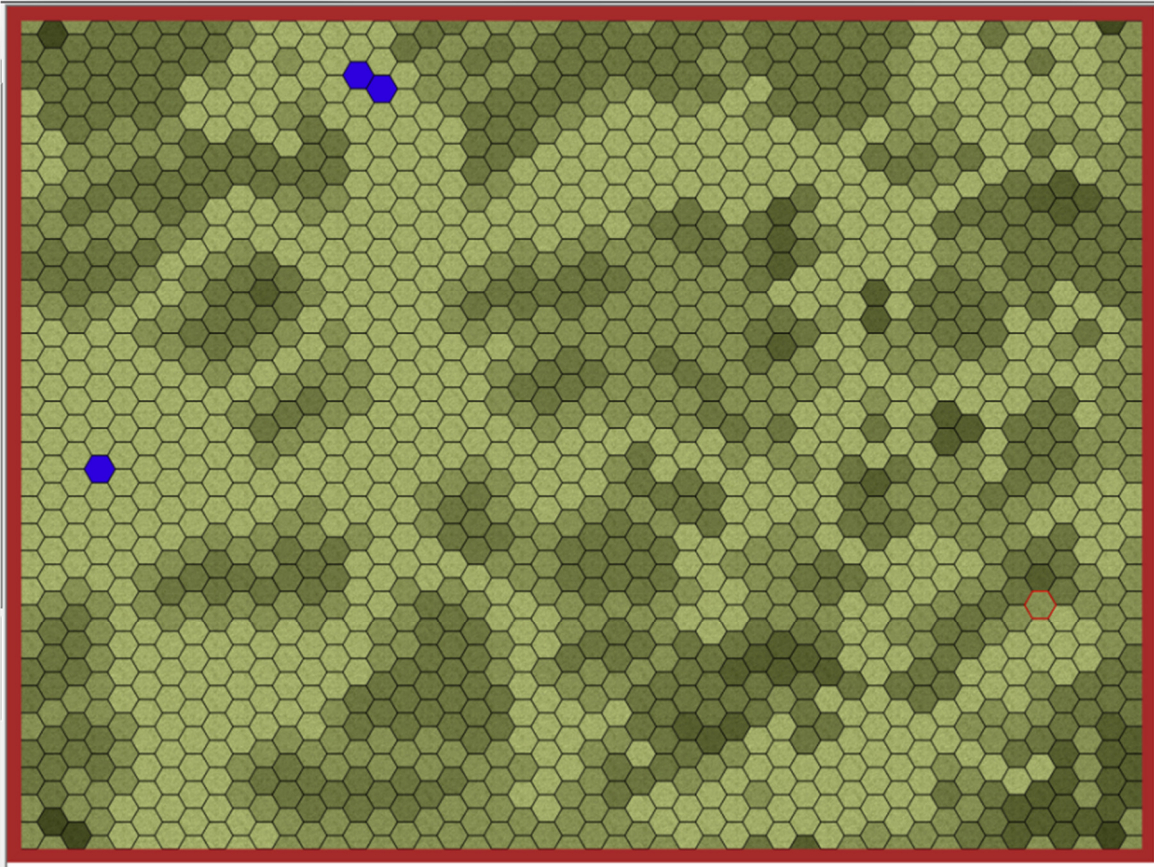
4.6.9 Road and River Network Settings

- Now we move to placing in the river and road networks.
    - River Settings Tab
        - River RGB Color is 0/68/249
        - Random = On
        - Slider at 20%
    - Road Settings Tab
        - Road Border RGB Color is 0/0/0
        - Road RGB Color is 192/192/192
        - Random = On
        - Slider at 10%
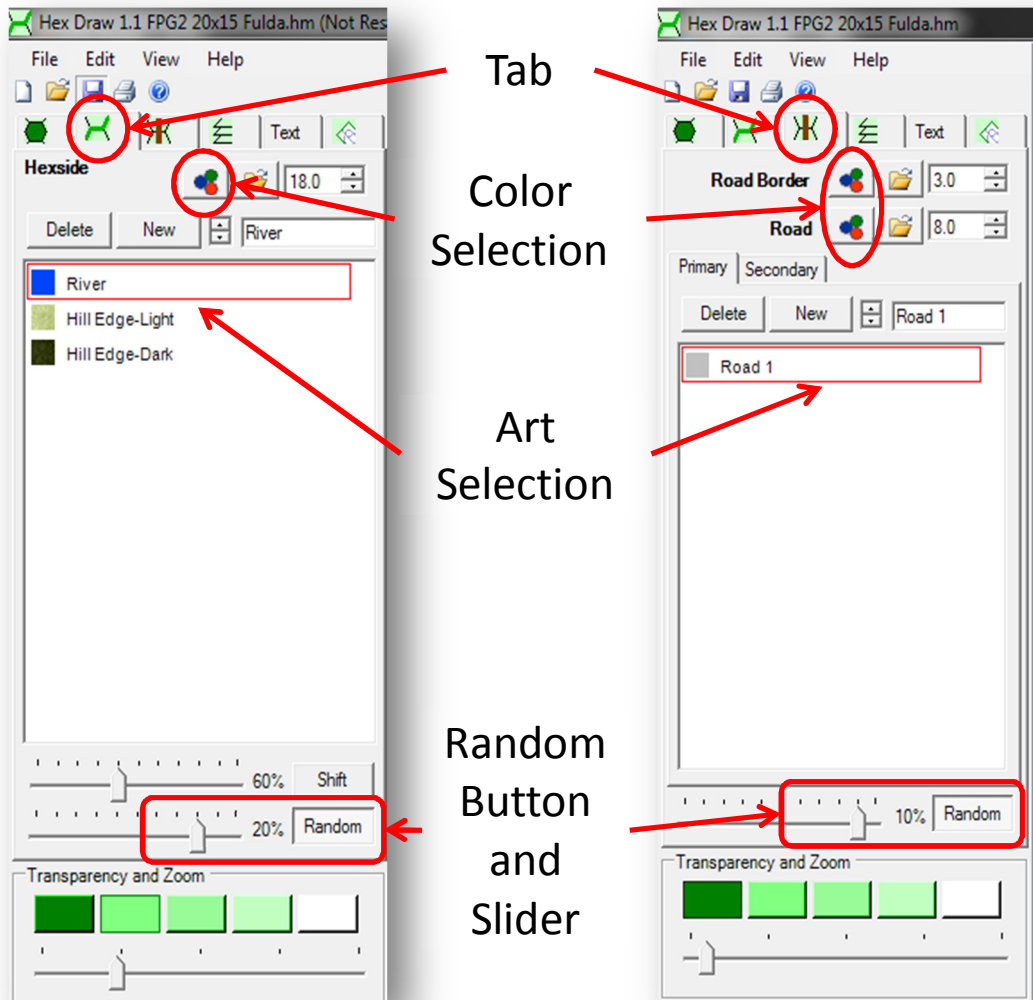
4.6.10   Road Network

- To place a road network:

    o   Set the transparency all the way down using the white button.

    o   Draw in all of the major roads connecting towns and cities.

    o   Again, only place those that are significant to the road network.

    o   You do not need to have all the ones in larger towns or cities, since the city graphics automatically include road movement.

    o   Just show enough to capture the hexes impacting travel.
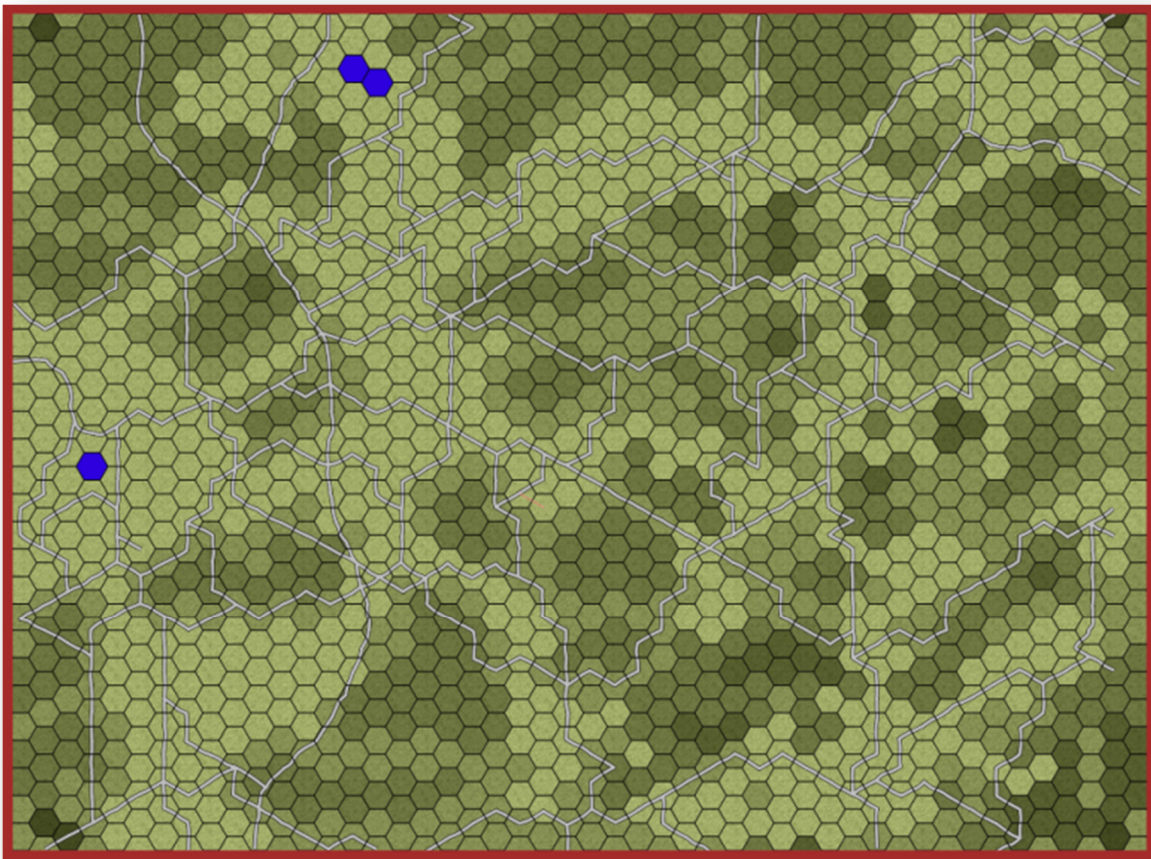
4.6.11 Smoothing Out the Roads

- Now we need to smooth out the roads by adjusting the control points on each road segment.
    - o Use the dots on the road splines to move the road closer to the map locations.
    - o Near the edges of the maps make sure to pull the end point of the road off to the red boarder so the final roads get cut clean.
    - o I also set the random on and use 10% to get a bit of wiggle in the road.
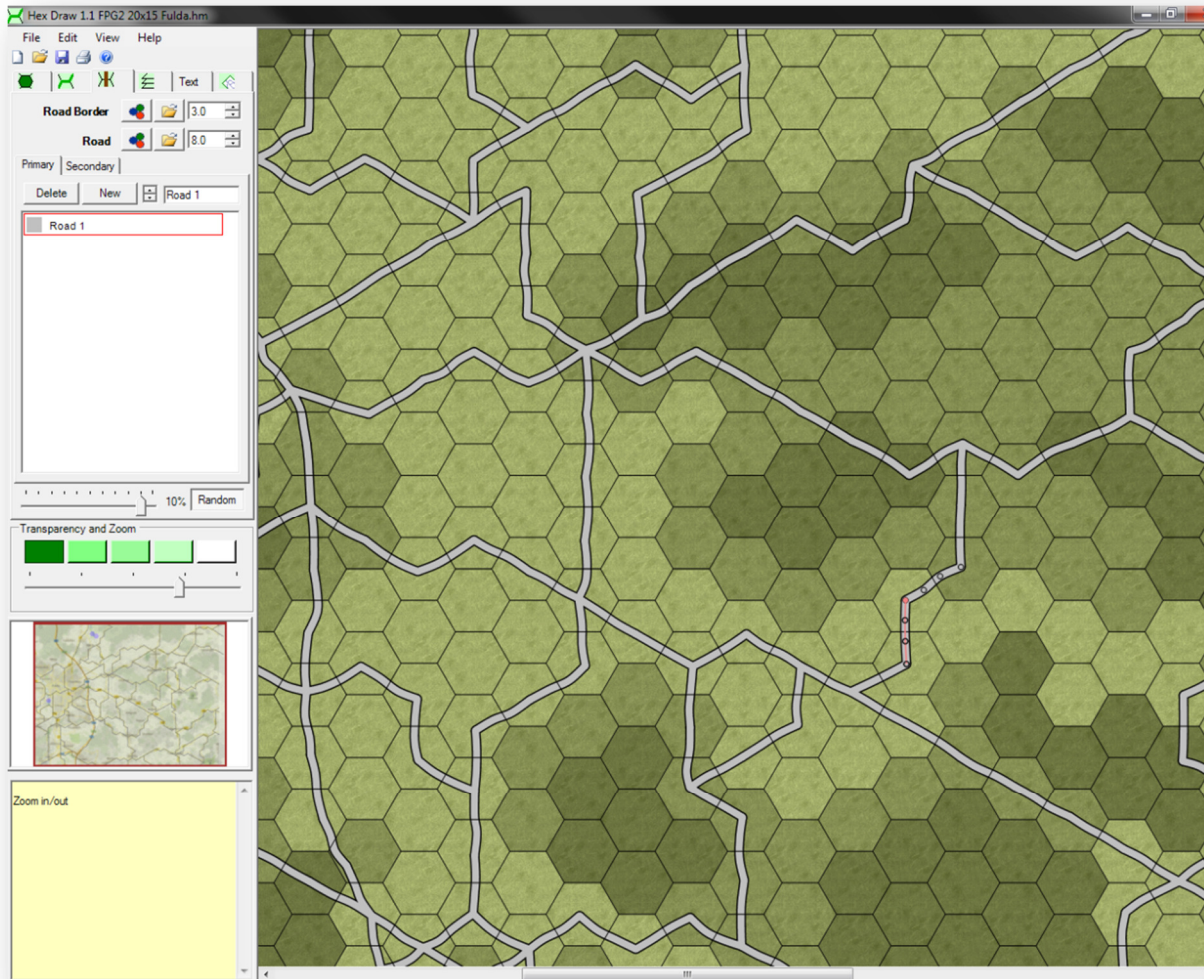
4.6.12   River Networks

- Placing and adjusting Rivers works just like roads.

  - Use the dots on the river splines to move the rivers along the hex edge close to the map locations.

    - You can move the river edge to the hex edge to shape a straighter run.

  - Near the edges of the maps make sure to pull the end point of the river off to the red boarder so the final roads get cut clean.

  - I also set the random on and use 20% to get a natural look to the river.
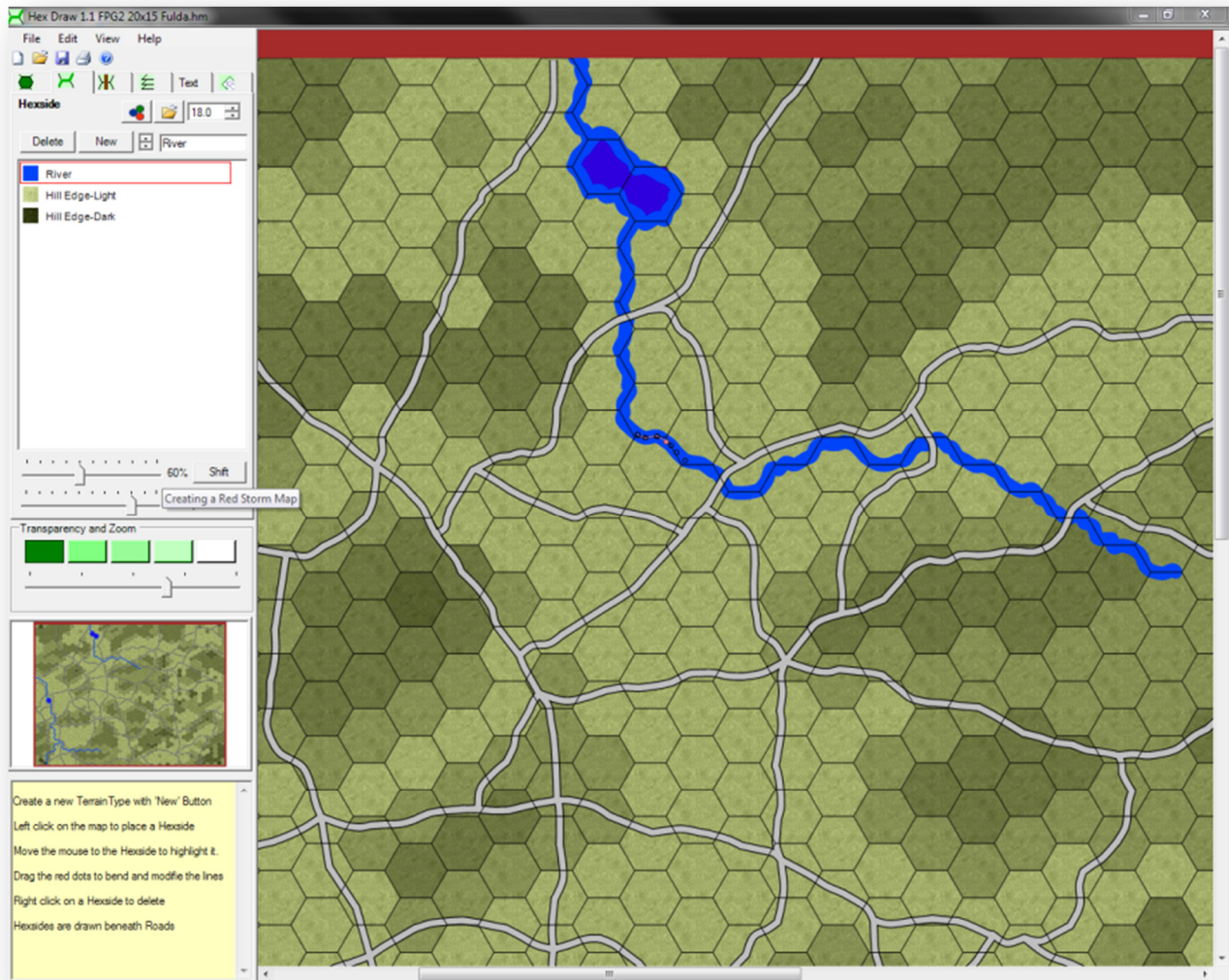
4.6.13   Completed Road and River Networks

- Here is the adjusted and tweaked road network compared to the underlying map and in final form.

- Save now if you have been working a while since road clean up takes a fair amount of time.

Transparency to Background Map
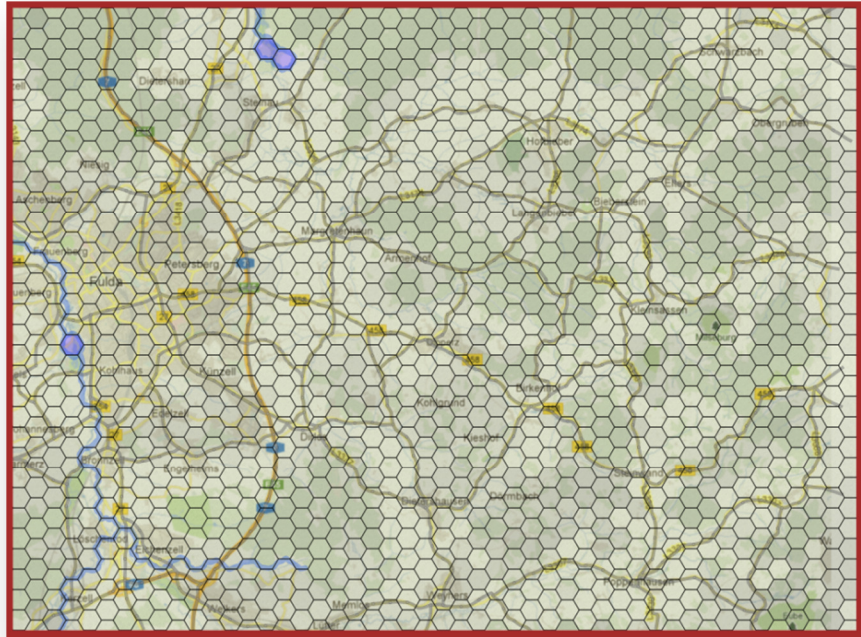
Current Map in Final Form
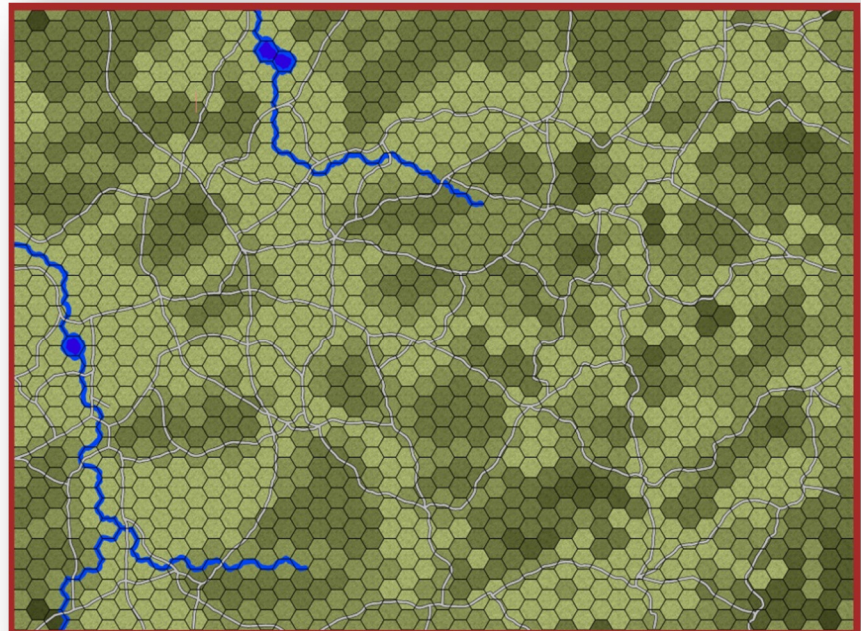
4.6.14   Adding Terrain Elements

- Now we are getting close to the end of the HexDraw portion of the map making.
  - o From here we need to place the towns, cities, fields and forests.
  - o We will also add in the town names along the way.
- I will take you through this last map making portion via two methods.
  - o I will be adding in the cities and towns using a copy of our road map with the towns highlighted in a bright green and making the autobahn bright red to use as a scale and position marker.
  - o For the fields and forests we will use Google maps/earth set to satellite map to see where the fields and trees go.
    - ▪ It helps to have a duel monitor setup for this but a printout works just as well.
    - ▪ You can also just create two more backgrounds like we will do for the towns and just do one for forests and one for fields.
    - ▪ Either method will work.
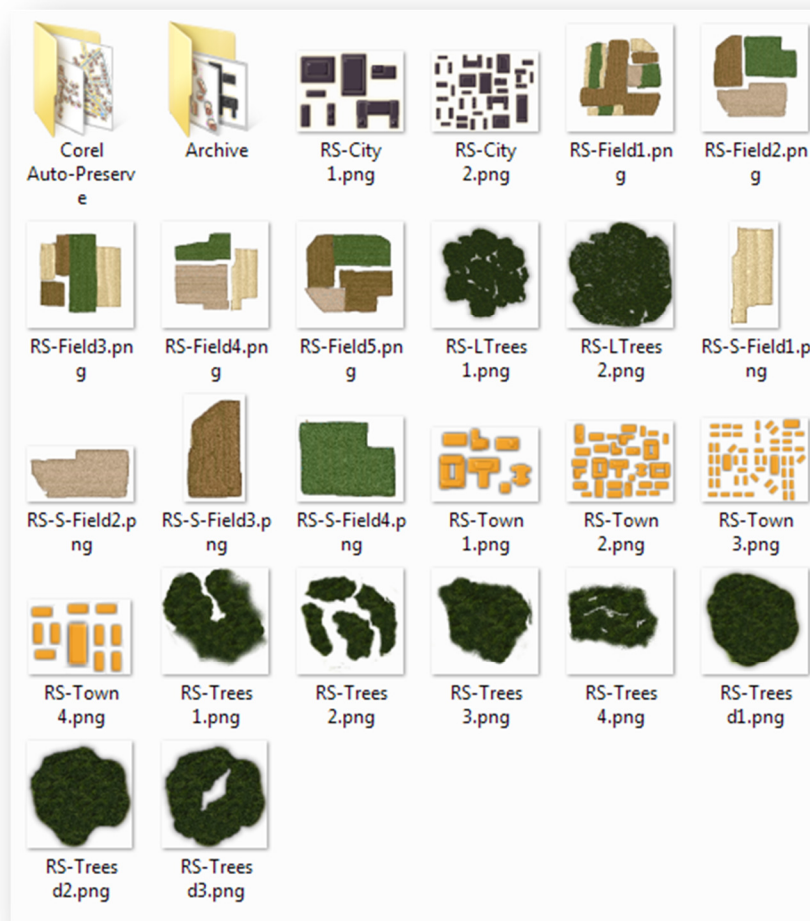
4.6.15   Placing Towns and Cities

- The top image shows our road map with the towns colored over in a bright green and the autobahn in red to help us line up to the map.

- The bottom image shows the town image placed and scaled back in HexDraw using the red autobahn and other roads to line up and scale the image.
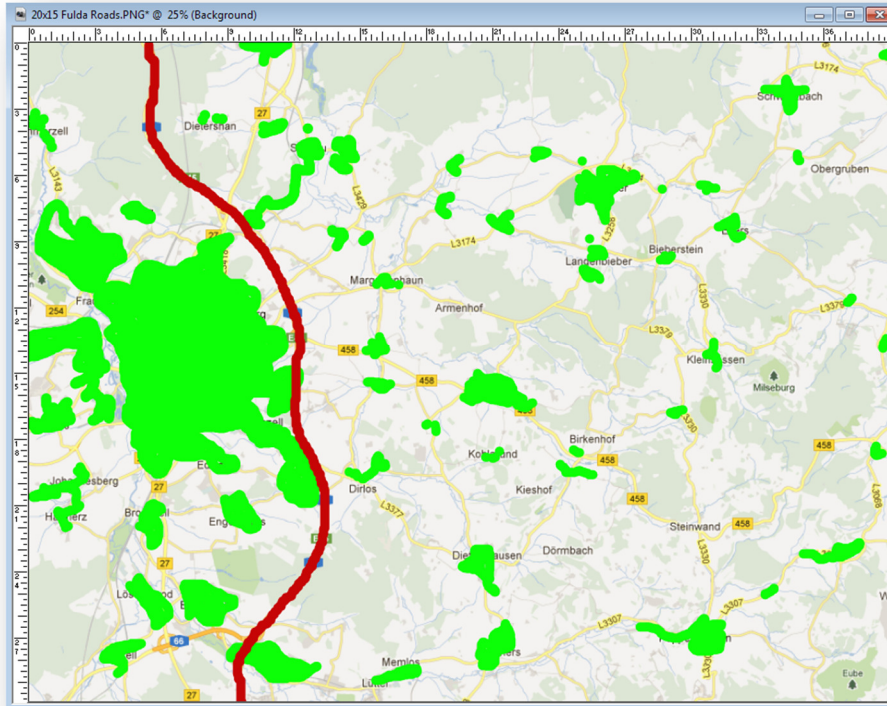
4.6.16   City Parameters

- Settings for Cities
    - o Select the Overlays Tab.
    - o Then select the Underlays tab for the Art Window.
    - o Scroll the Art Selection Window down to see the towns and cities sections.
    - o Depending on the size of the town or city you can use a combination of the various art selections to make the city areas.
    - o Make sure to click and set the Random Selection and 60 Degrees buttons.
    - o Setting the Transparent Setting to number two will allow the background with cities to show through.

Tab

Underlay Layer

Art Selection

Random and Angle Button

Transparent Setting
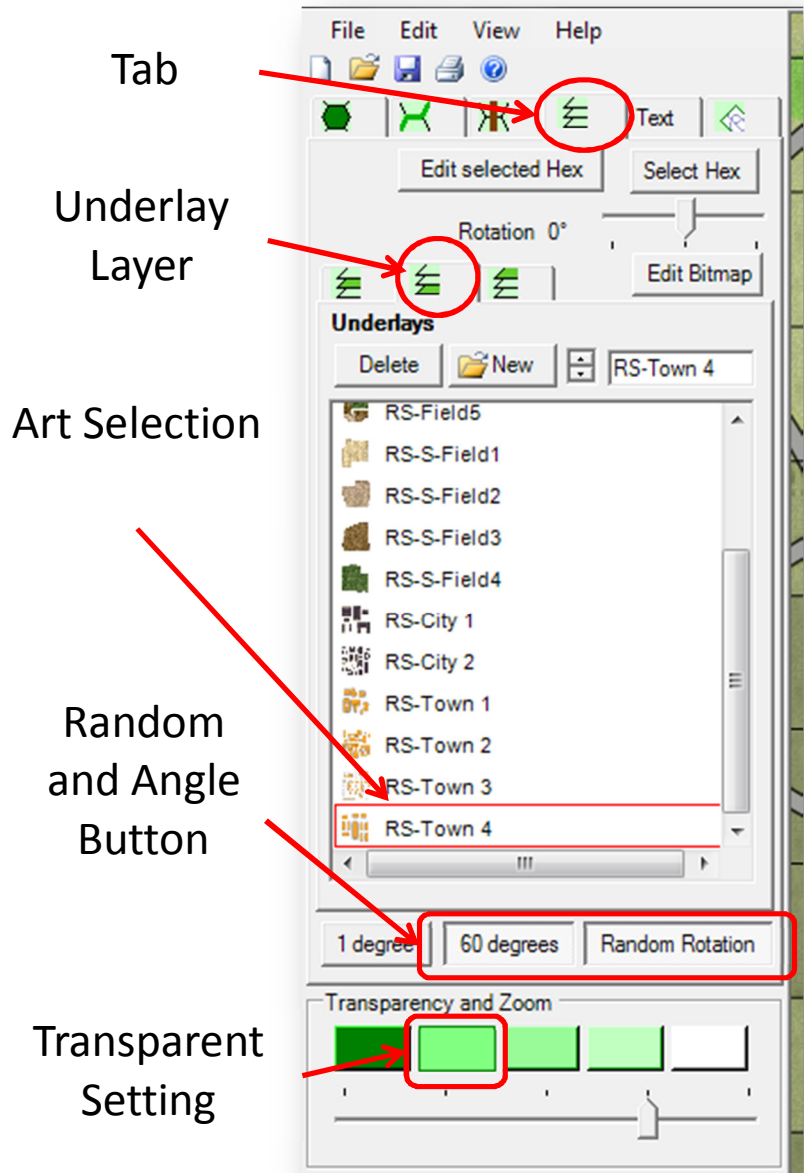
4.6.17   Placing Rural and Urban Terrain

- Work in progress
    - o   Using the various art selections paint in the "green" areas where the villages, towns and cities are.
    - o   Use the Orange selections for the rural areas and then use the gray for urban and industrial zones.
    - o   Placement and rotation should be used to match the look and feel of the city in question.
    - o   You do not have "color" in the hex lines. Overhanging terrain will get picked up by the map values editor and the effects on the map will be based on the amount of a terrain in the hex.

4.6.18   The Cities are Complete

- Cities are all done.
    - o   Review and compare to the background image.
        - ▪   Make any tweaks and adjustments you feel need to be made.
    - o   If it all looks good then save your map at this point.
    - o   You can go to the Background Image Tab and delete the Highlighted City image.
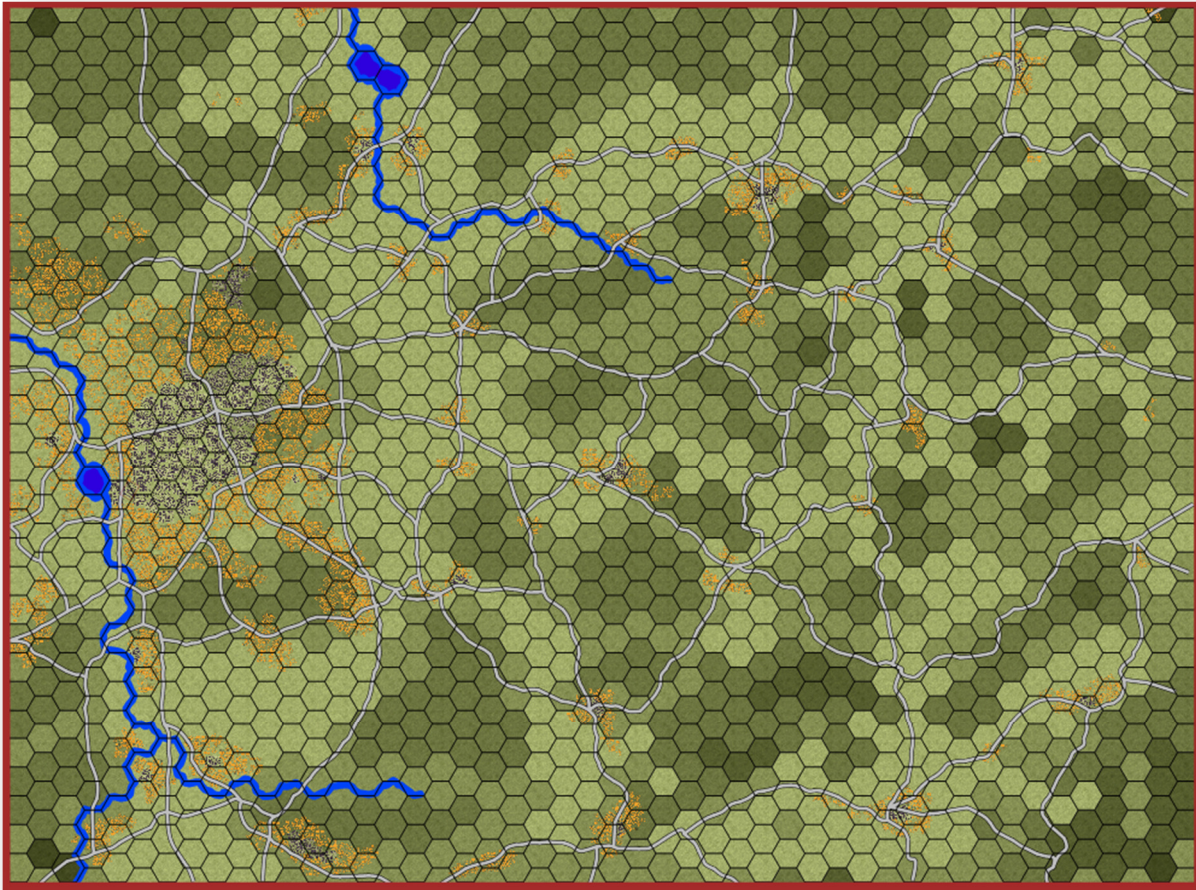
4.6.19 Field Parameters

- Fields settings
  - o Select the Overlays Tab.
  - o Then select the Underlays tab for the Art Window.
  - o Scroll the Art Selection Window up to see the fields sections.
  - o Depending on the open area you can use a large field (whole hex) or a single field (about a ¼ hex area).
  - o Make sure to click and set the Random Selection and 60 Degrees buttons.
    - ▪ You can go 1 degree with the fields as well or set the rotation with the slider.
  - o Set the Transparent Setting to number one as shown to show only the map work in progress.

Tab

Rotation Slider

Underlay Layer

Art Selection

Random and Angle Button

Transparent Setting
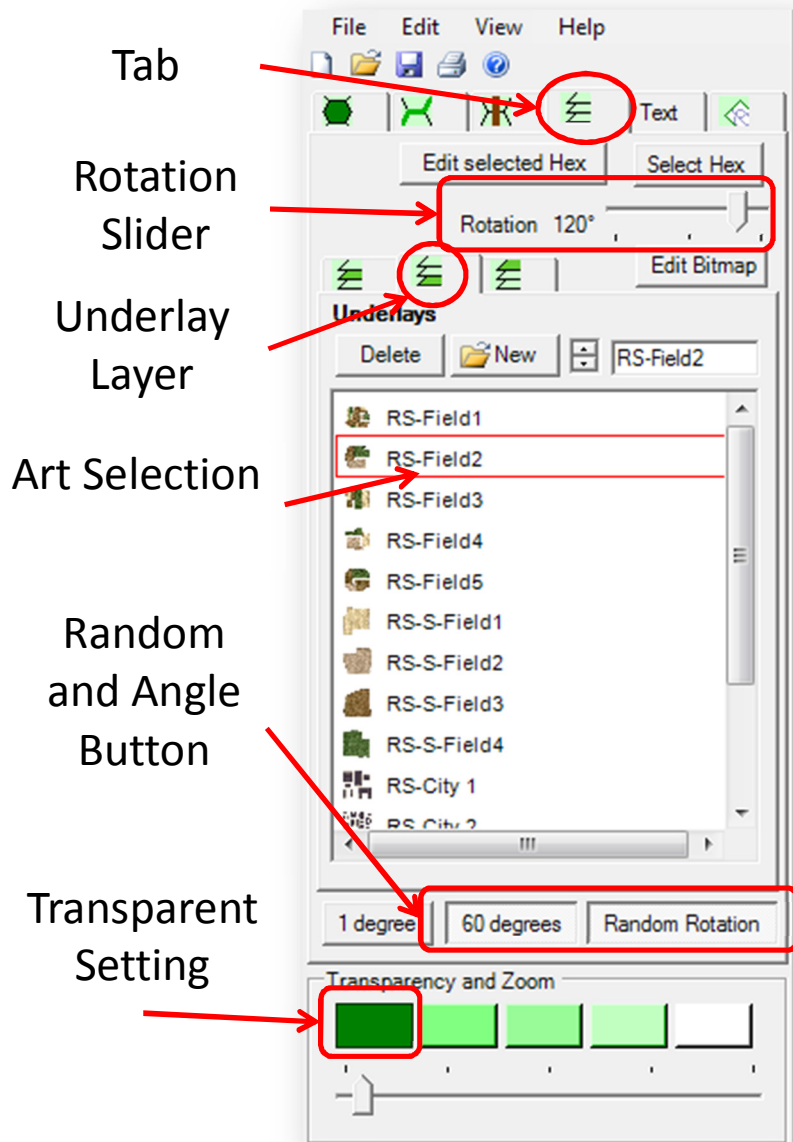
4.6.20   Placing Fields on the Map

- Fields in progress
    - o Using the various art selections for the fields, place graphics in level 1 open areas.
        - ▪ In some rare cases you may have fields at higher elevations, level 2).
    - o As stated before use the larger multi-colored fields in full open hexes and use the smaller single color fields to fill in areas around roads, trees and towns.
        - ▪ Placement and rotation should does not need to be perfect and in some cases having a field in multiple hexes looks good.
        - ▪ The map engine will work out the volume of items in a hex to get the correct movement and sight modifiers.

Done

Need to add

4.6.21   Review the Fields

- All the fields are now done.
    - o Review and compare to your Google Earth image if you are using one.
    - o If it all looks good then save your map at this point.
        - ▪ Really a good idea to save often with these large projects.
    - o You can always add, delete, or tweak a field at any point by being in the Underlays tab.
        - ▪ Don't be afraid to move the fields around or hang over a hex edge. The Map Values editor will place values on the hex based on the percentage of the item in the hex.

4.6.22   Forest Parameters

- Forest settings
  - Select the Overlays Tab.
  - Then select the Overlays tab for the Art Window.
  - Scroll the Art Selection Window up to see the forest sections.
  - Depending on the open area you can use large trees (LTrees) to fill seven hexes, single hexes (Trees-Dx) or smaller selections (Trees).
  - Make sure to click and set the Random Selection and 1 Degree buttons.
    - You can go 60 degree with the trees as well or set the rotation with the slider.
  - Set the Transparent Setting to number one as shown to show only the map work in progress.

Tab

Rotation Slider

Overlays Layer

Art Selection

Random and Angle Button

Transparent Setting
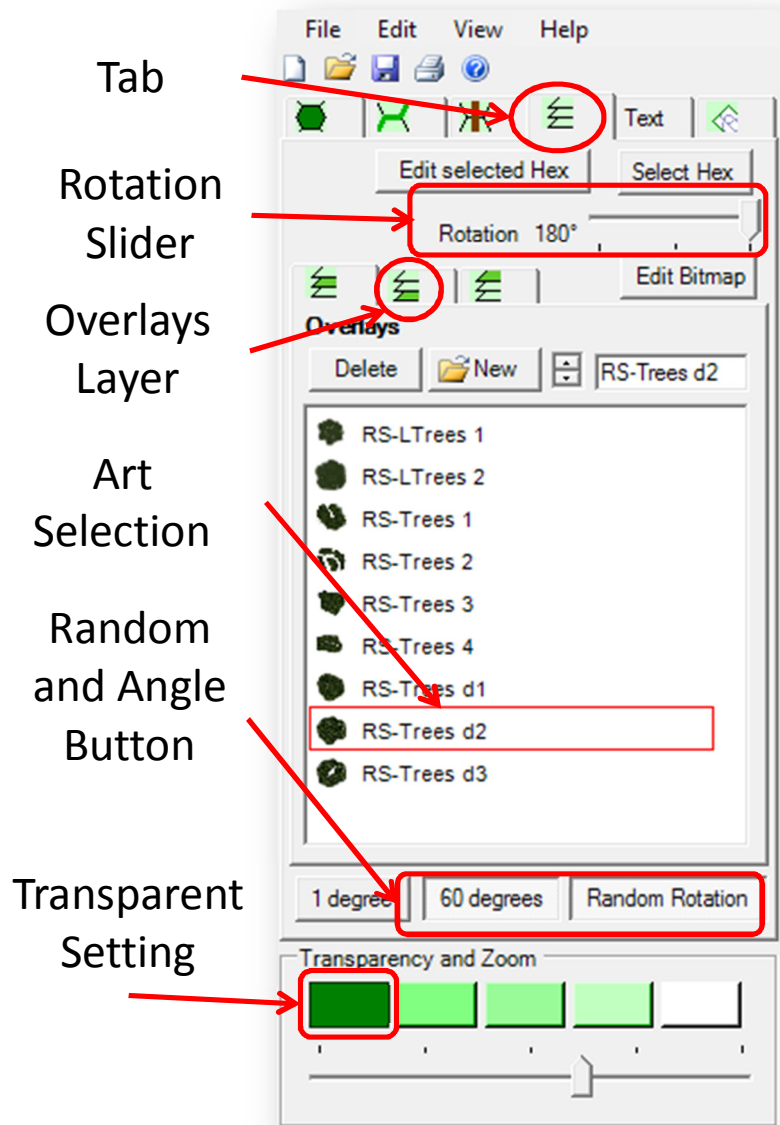
4.6.23   Placing Forests on the Map

- Forest in progress
    - o   Using the various art selections for the forests, place graphics based on locations seen in Google Earth maps.
        - ▪   In most cases this will be on level 2-5 hills.
        - ▪   There are some cases of forest locations on level 1.
    - o   Things to remember when placing forests.
        - ▪   Do not cover roads.
        - ▪   Leave room at elevation changes so players can see the change in elevation.
        - ▪   Fill in hexes with a variety of forest art to keep the look unique. Rotation of 1 degree will help.
        - ▪   Overlap art to fit open areas.
        - ▪   You may have to place the art away from the hex and then move it into position.

Forests placed leaving roads and elevation changes exposed for viewing. Various art types used to cover hexes.

Need to place more forests in these areas.

4.6.24   Review the Forests

- All Forests done.
    - o   Review and compare to your Google Earth image if you are using one.
    - o   You can always add, delete, or tweak a tree at any point by being in the Overlays tab
    - o   If it all looks good then save your map.
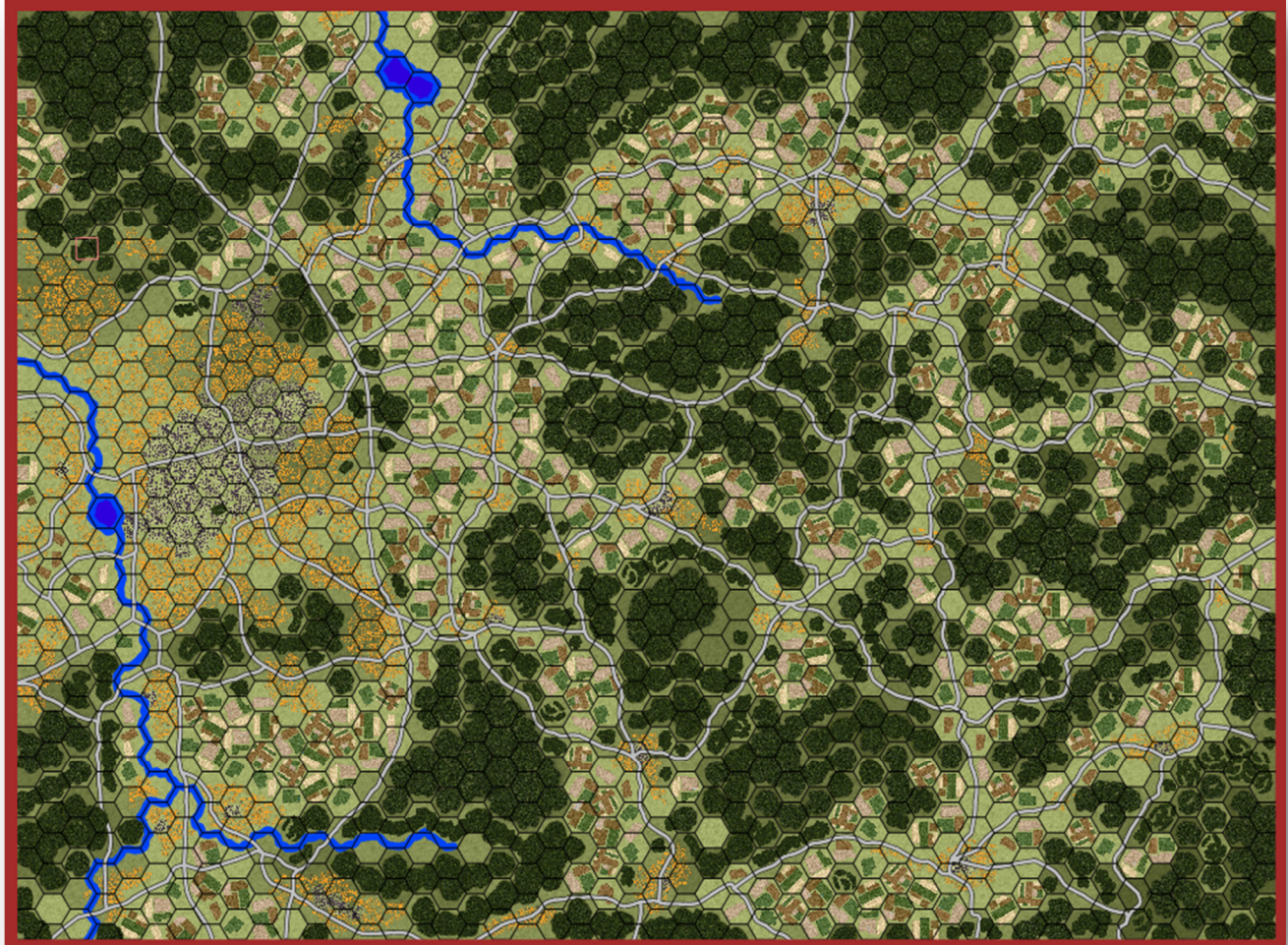
4.6.25   Town Name Parameters

- Town Name Settings
  - Select the Text Tab.
  - Then select the Top-Text tab for the Art Window.
  - Click the New Button to make a new text entry.
  - Looking at your Google Earth map or other source, place in names of major towns and cities.
    - Set the font to Arial Bold, size 26, color white. You can go 36pt for large cities.
    - Type in the name you want. Hit OK.
    - Left Click on the map to place name.
    - Left Drag to move.
    - Right click to delete from map when selected on map.
  - You can use rotation if required to place the name.
  - Try to position the name on or near the town in question.
  - You do not need to name every little village or small town. Stick to the larger ones.
  - You can use these guidelines to also name major rivers or other important landmarks.

Tab

Text Color and Font

Top-Text Layer

Name Selection

Change Text
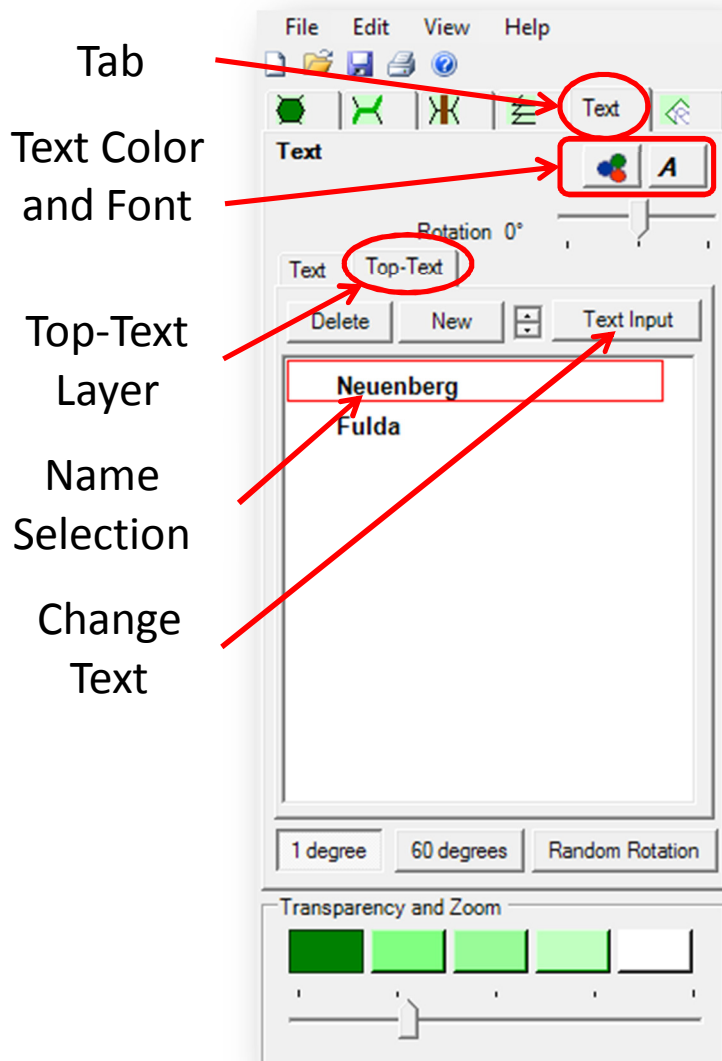
4.6.26 Placing and Reviewing Names

- A quick look at the names being added to the map.

- Again, not getting every little berg, but hitting the major locations, rivers and landmarks.

  o Depending on how important the roads are to your scenario you can add route names too.

- Once all of the names are in, save your map.

  o For the last time in HexDraw I might add!
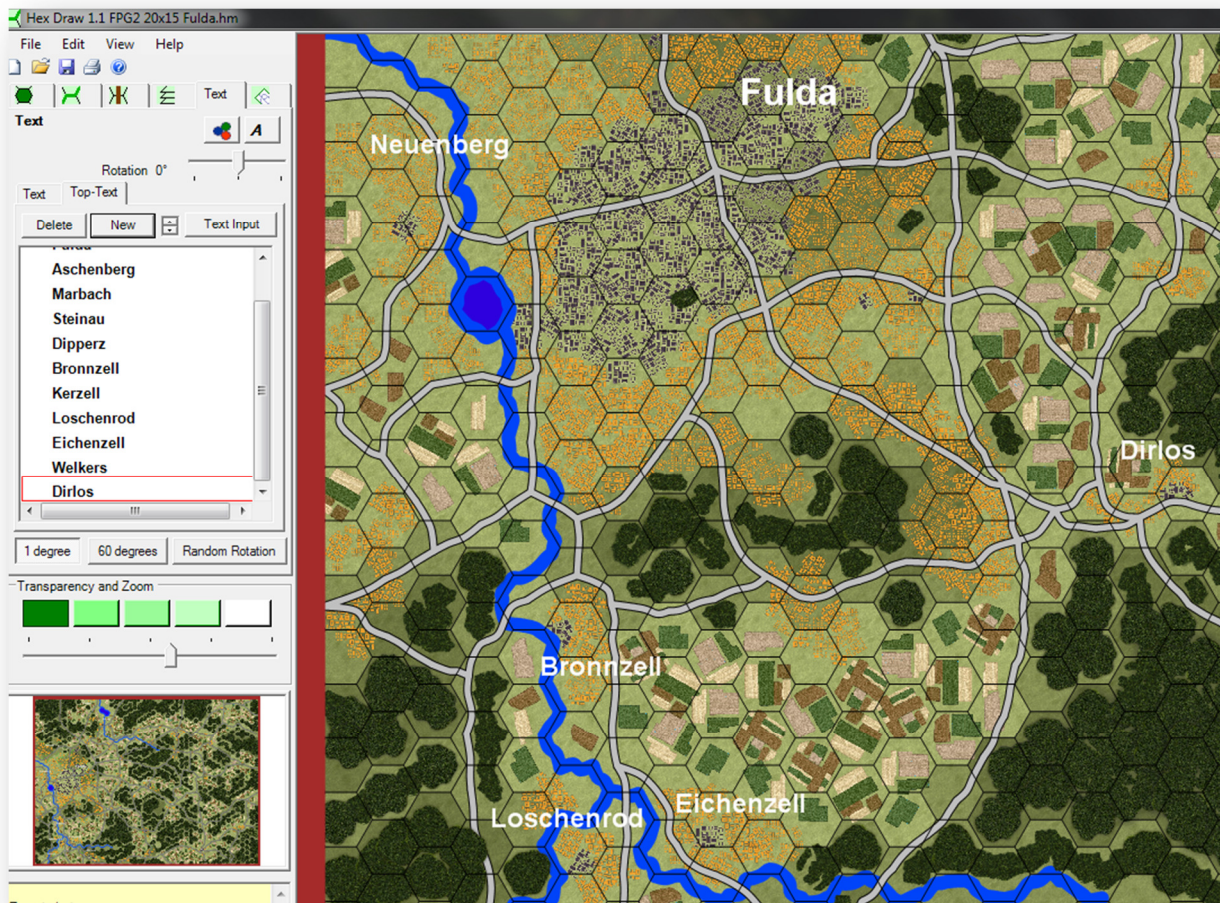
4.7   Exporting the Finished Map

- After saving your map, again to be safe, click File and then select Export Image.

- The Select Resolution dialog will pop up. Select the "x 2" size and click OK.

- The Export Image dialog will open looking to save the exported image.

    o   Change the Save As type at the bottom of the dialog to *.PNG.

    o   If you need to, rename the file in the File name text box.

    o   When ready hit the Save button.

- Saving will take a few minutes. It's a big file. In my case 45Mb!
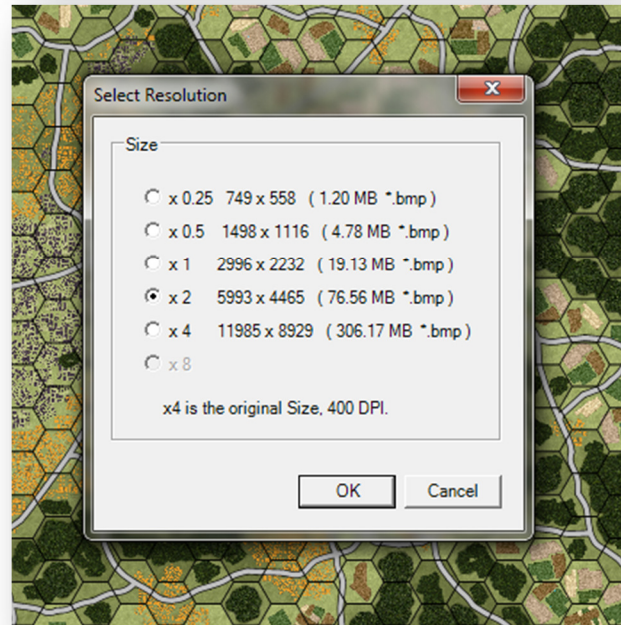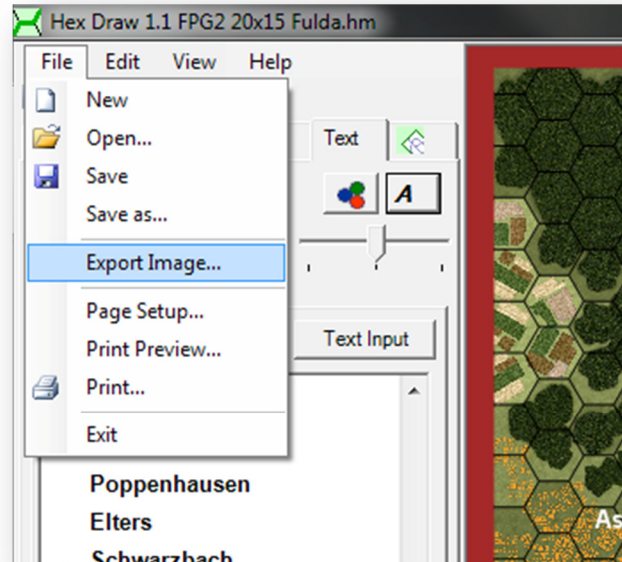
4.8   Processing the Image

- Now it is time to take the image we saved above and get it cropped and scaled to proper size for the game to use and place it in the right folder.

4.8.1 Loading it up in a Paint Program

- Next we need to take the exported PNG map file and load it into a paint program capable of both cropping and scaling down the image. In this case, loading the image into PSP X3.

- The full image should be a map with the border (red in this case).
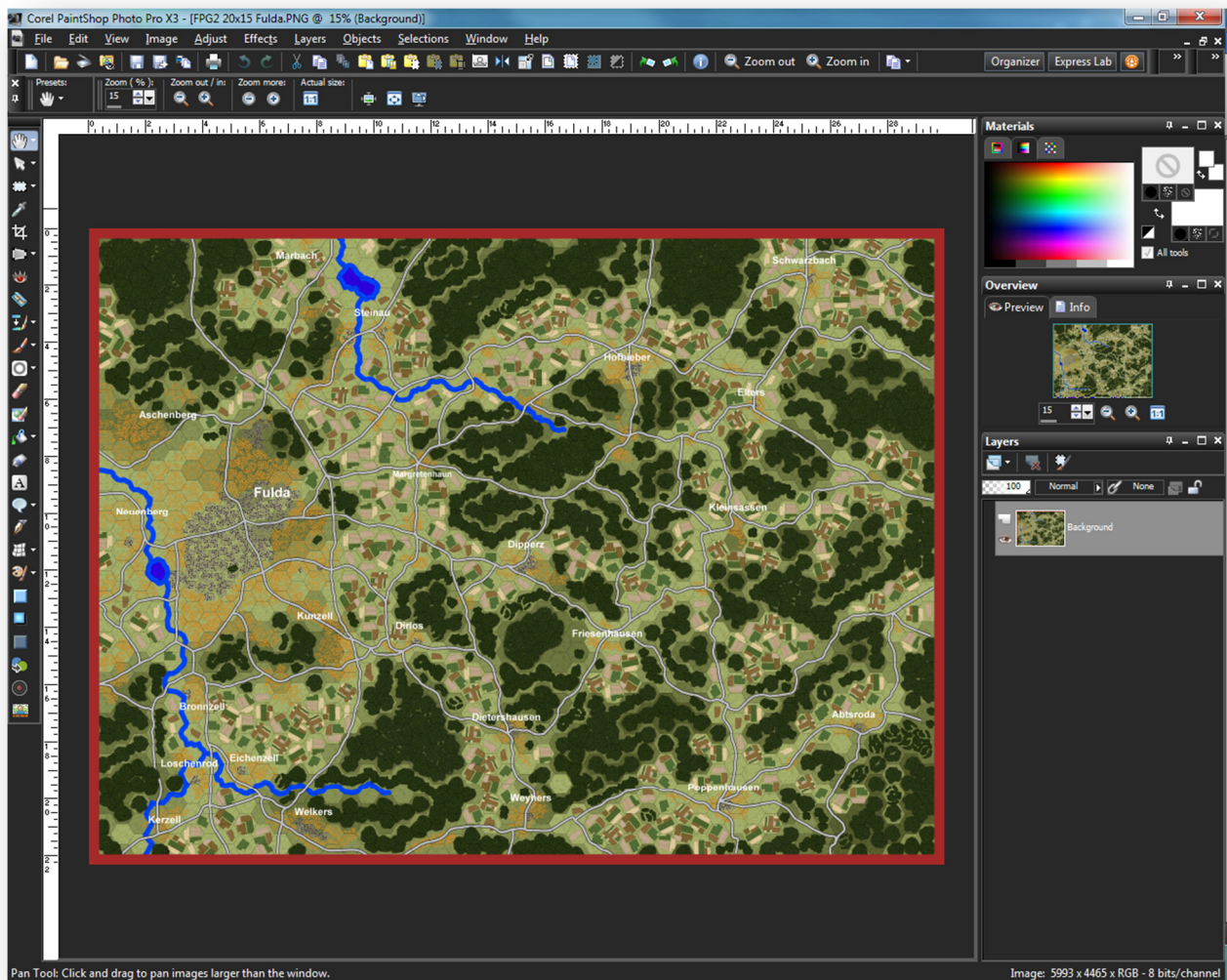
4.8.2 Cropping to Remove the Border.

- We need to start by setting the upper left to cover the first full hex on the map. Zoom in on the map corner to help see the edges and corners better.

- The left edge needs to be set on the corner point of the hex.

- The top needs to run along the dark top edge of the hex as seen in the left image. There may be a bit of red bleed from the export but it will basically vanish when we scale the map later.
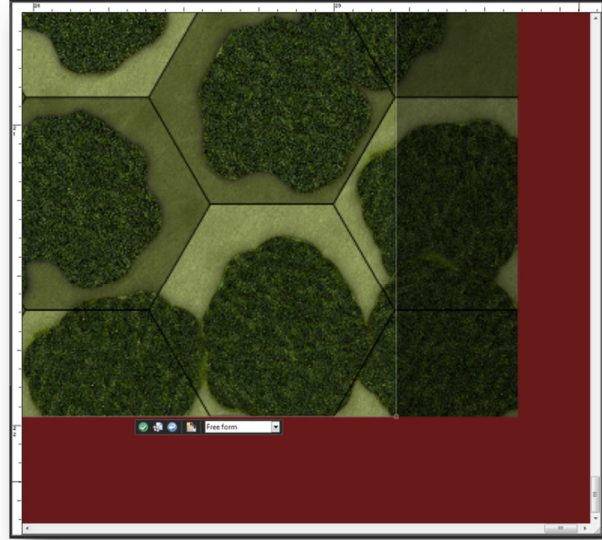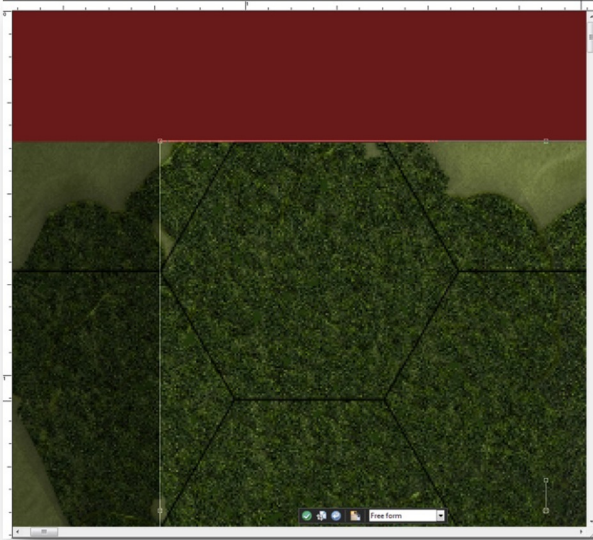
- Now we need to set the bottom right corner of the crop.

- The right needs to be set to the right point of the last full map hex.

- The bottom needs to run along the dark map hex border of the last full map hex up against the red border. This is shown in the right image above.

- Once you have this setup crop the image. In this case we have a button to press.

- Zoom the finished cropped map out to see the result. If the crop is off center redo it.

4.8.3 Scaling the Map to Proper Size

- Now that we have a clean cropped map we need to get the map into the games proper scale so the hexes will line up with the units and work correctly in the game.

- If you recall from the beginning of this guide the game uses a 500m hex that is 64 pixels from edge to edge. This is the magic number we need to have in order to scale this map.

  - o Our map is 30.5 hexes tall. Multiplying 64 pixels per hex time 30.5 hexes gives up 1952 pixels for the total height of the map.

- In PaintShop Photo Pro we need to use the resize command (others may call this scale) as seen below.

  - o We make sure the image is still at 200 pixels/inch resolution (Red box).

  - o For the New Resize we set the Height to 1952. The width will auto fill and be within a few pixels of 2570. This will vary based on the cropping done earlier and a few pixels off will not affect game play. (Green box)
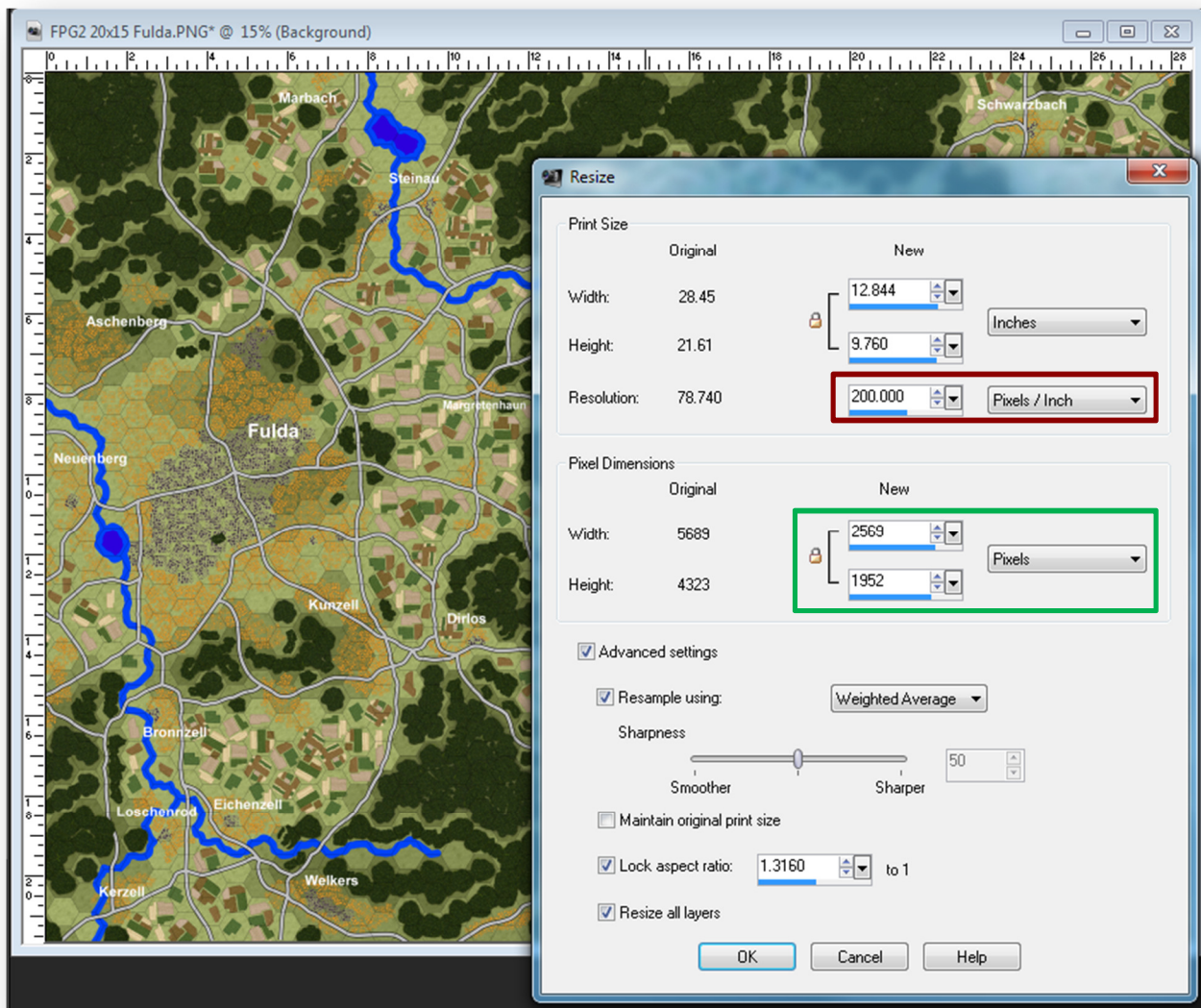
- o   Hit Okay to scale the image.

4.8.4 Save the Final Image

- From the paint software save the final image into a folder.
    - o   We strongly suggest having a folder for final processed maps separate from the exported maps.
    - o   If you need to edit or reprocess you don't want to lose the original export.
    - o   You can also rename the final map to make it different as well.
- Copy over to the final map image into the Maps folder in the proper game Module.
    - o   You can give it a new name here as well that fits either the scenario or region you are working with.
    - o   Whatever name used here will be the one used for the Map Values file and also the one displayed in the Map Values and Scenario editors.
- We are now done with the map art file. Yea!! Next we will use the in-game Map Values Editor to get the map full operational to be used in the game.
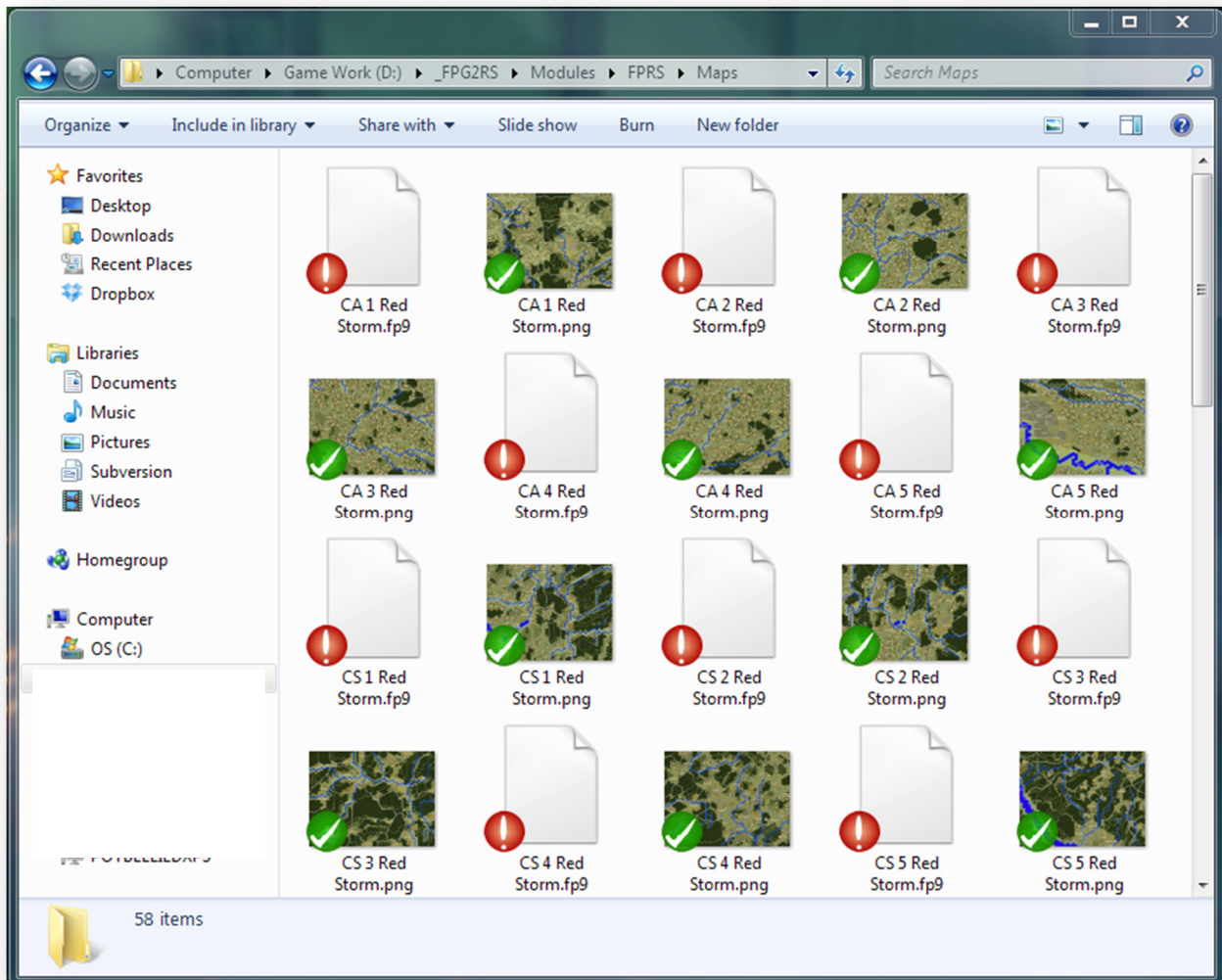
5   Editing Map Values

The map we just made is nothing more than a picture of the area we plan to battle over. To the game, there is no useful information about what is there. This is where the Map Values Editor comes into play. The editor allows us to place create/edit the information about each hex on the map. For a map to be functional we need to know the elevation, visibility, mobility, and road/river state of each hex.

If you use our mapping art and method the Map Values Editor has an auto-values routine that will do most of the grunt work of filling in all of these values. If you make a custom map you will need to enter all of the hex data hex by hex. Takes some time, but it can be done.

5.1   Opening the Map Values Editor

- To open the map editor, go to the Main Menu and click the Map Values button in the Editors group (Red Box).

5.2 Selecting a Map

• Once we click the editor button in the main menu we are presented with the map loading screen.

• Select the map needing value work (new or editing)

  o Red Storm Fulda Gap in this case.

  o Click the Open Button.
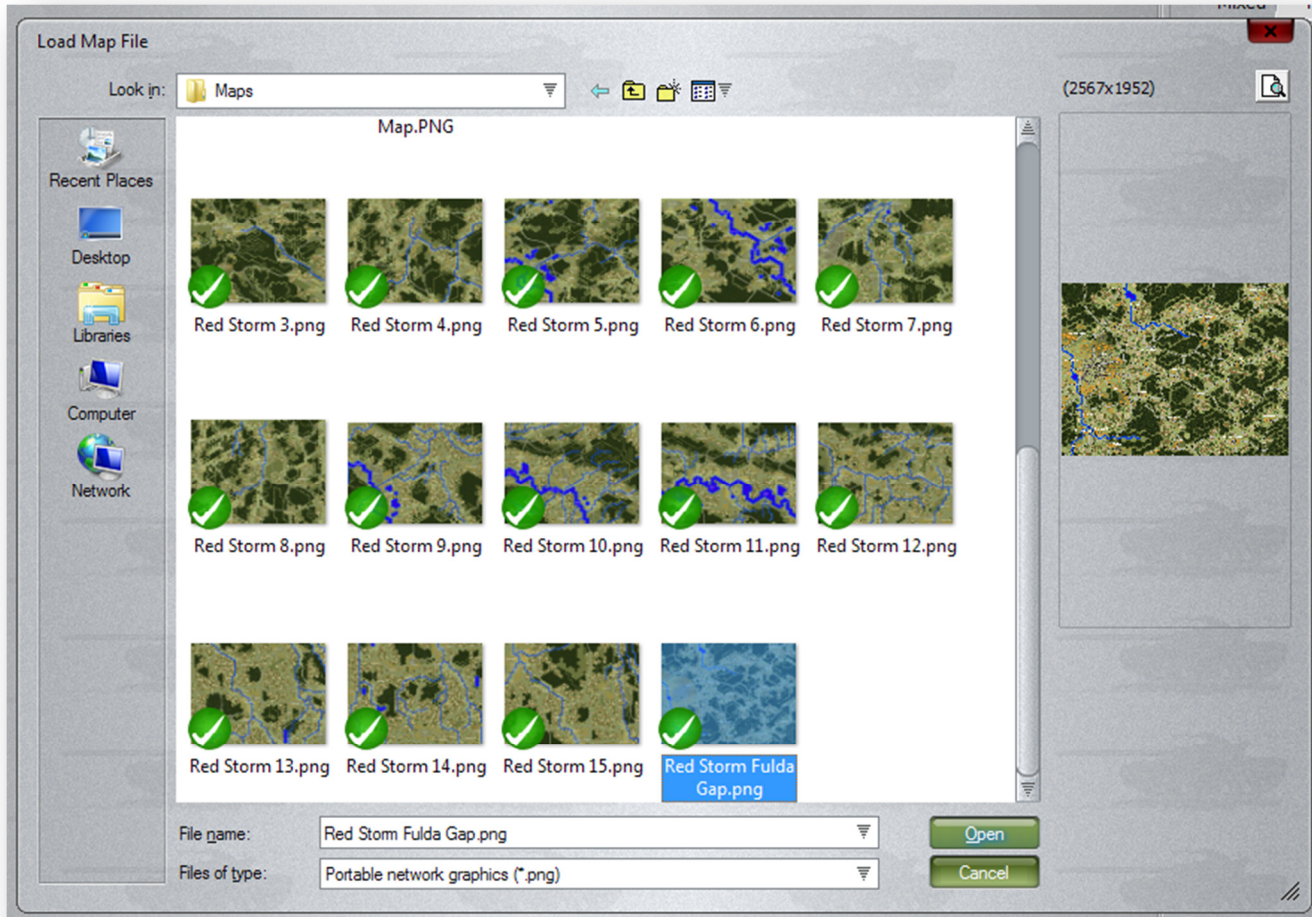
5.3   About the Interface

The Map Values Editor has six major areas of interest on it. Those areas function as follows.

- (1): Main Map Area – This is the area showing the loaded map, cursor and scroll bars for moving the map around. Depending on Layer setting (2) and value for the cursor (3) the map will show values for the various functions, road network and river hexside obstacle values.
- (2): Automated Map Scanning Settings – These are the controls that provide automatic values for Elevation, Visibility, Mobility and find the road network. The default settings are the OTS values used for the in-game maps. The width setting is used to give a buffer around the hex lines. The lower the value, more pixels will be scanned to provide values.
- (3): Layer Settings – here is where you can inspect and set map values for a given function and also enter details about the map and map maker.
- (4): Value Selection Settings – You set the value for the given layer here and anywhere you click with the cursor on the map will change to this value. You can make the cursor effect radius larger as well to speed things up with certain functions.
- (5): Status Area – Quick information about the indicated hex on the map.
- (6): Map Settings – Here you can turn the map on and off, change the transparency of the map highlight cursor, change the value text color displayed, Load a New Map or more importantly, Save the current map you are working on. Saving will generate the Maps FP9 file based on the data values entered.

5.4   Run Auto-Mapping Function

- With the new map loaded, go over to the Automated Map Scanning Functions and press the All Layers button (Red box). This will scan the map and process elevations, Visual Hindrance, Mobility Hindrance, and tag the Road Network on the map.

- At the Bottom of the setting box you will see how many pixels were processed to set the values for your map.

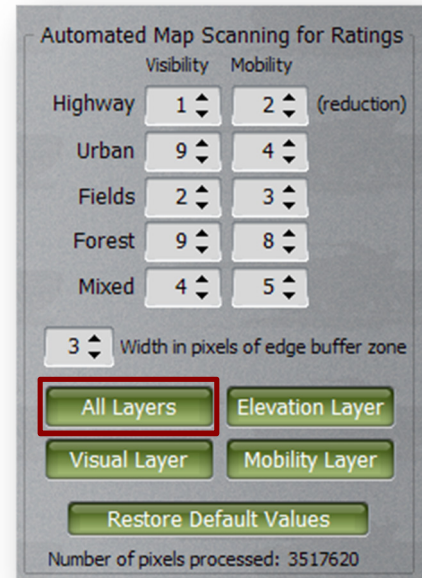   o   In the case of the Fulda map just over 3.5 million pixels!

5.5   Review the Elevation Layer

- Click on the Elevation Range button in the Edit Layer Settings. You will see the values pop on the screen from what the Automated Map Scanning detected. Of all the layers, the Elevation layer usually requires the most cleanup. Any place you see a "99" on the map, which is a hex where the scanner could not determine the elevation from the map pixels. This occurs mostly in heavy forested regions. It is usually easy enough to see the surrounding elevations and make the changes. In this case all of the visible "99s" need to be level 3. To fix this do the following:

    o   Set the Value Selection to 3 and radius to 0.

    o   Click on all of the "99s" to change them to "3s".

- Looking at the map there is also a rouge "5" with the "99s". In this case the scanner was confused by the blending of trees with the small amount of exposed elevation terrain.

    o   To fix it click on the hex with the "5" to make it a "3".

- Use the scroll bars to pan the map around and fix any other bad elevation values.

    o   You will run into the occasional "4" and "5" in the wrong place.

- The editor will not allow you to save a map with "99s" on it.

- *A quick tip: The mouse wheel will change the Map Value setting number and is a quick way to stay on the map and change values when needed.*

- All lake or single hex river hexes are elevation "0" and should not be changed.

- After fixing the Elevations you should save the map and reload it. Make sure the file name matches the name of the map. It will default that way, but always a good idea to check.

5.6   Review the Visual Hindrance Layer

- Next we click on the Visual Hindrance Layer.

- The scanning program does a very good job of setting values based on the OTS artwork.
  - o The rating reflects just how hard it is to see through the given hex on a scale of 1 very easy to 9 very hard.
  - o The value is based on the amount of visual clutter is in the hex.
  - o The less of a percentage of the item in the hex the lower the value.
  - o Composite terrain (trees and towns, fields and trees, etc.) becomes a weighted average of the elements in the hex.
  - o A road in the hex lowers the value by 1.

- It is still worth skimming through the map and tweaking those hexes you think don't match the value.

- If you are making a map from scratch you will have to assess the Visual hindrance of your terrain and enter the value manually.

Visual Hindrance Sample

5.7   Review the Mobility Hindrance Layer

- Next we click on the Mobility Hindrance Layer.

- The scanning program does a very good job of setting values based on the OTS artwork.
  - o The rating reflects just how hard it is to move through the given hex on a scale of 1 very easy to 9 very hard.
  - o The value is based on the amount of mobility clutter is in the hex.
  - o The less of a percentage of the item in the hex the lower the value.
  - o Composite terrain (trees and towns, fields and trees, etc.) becomes a weighted average of the elements in the hex.
  - o A road in the hex lowers the value by 2.

- It is still worth skimming through the map and tweaking those hexes you think don't match the value.

- If you are making a map from scratch you will have to assess the Mobility hindrance of your terrain and enter the value manually.

Mobility Hindrance Sample

5.8   Checking the Road Network

- Next click on Edit Road Net in the Layers Settings.

- The map should fill up with hexes labeled with "Road" markers.

- The scanning program is again very good at finding all of the roads. Scan the map to make sure it has them all.

  - o   The only place where roads might get lost is if they are covered by trees.

  - o   Fields and towns sit under the road in the standard OTS map templates.

- If a road is wrong or missing you can just click on the hex to set the road flag on and off.

- If you are making a custom map, you will need to set your road network manually by clicking on hexes with major roads in them.

  - o   As you can see some urban/town hexes do not have major roads, but they have a low mobility hindrance because of the existing road network in those types of hexes.

5.9   Working with Rivers

- Working with Rivers is the only item the scanner cannot do and it must be done by hand.

- Select Hexside Object ID from the Layer Settings.

- The only items filled in by the scanning routine are lakes or single hex rivers.

    o   Those will have a "9" in them.

    o   If any are missing, set the value to "9" and click on those lake hexes.

- For the game engine to recognize a river hex edge you need to have values across the river which are different.

    o   An edge that splits two similar numbers will not be "seen" by the game as a river.

    o   At branching points you will need at least 3 values as seen in the image to the right.

    o   If you end up with excessive branches or kinks in the rivers where two non-equal numbers share an edge the game engine will see that as a river crossing. In these cases you need to edit the map in order to move the rivers in a way to stop the conflict.

- Once you have detailed all river banks and checked for any conflicts you are now done!

5.10 Save it! You are Finished!!

Congratulations! As the section title says, save that baby! Your map is now ready to be used in game. To use the map you will need to build a scenario and for that you will need to read the **FPC Modding Guide 2: Scenarios and Campaigns**.

6   About OTS Maps

After many comments about the maps and the simple, bland, ugly, criminal (my favorite) references to the 30 odd in game maps we have based on real world locations, I figured a section talking a bit about why we did it the way we did may come in handy. I also wanted to offer up a couple solutions beyond making custom hand drawn maps so you can take advantage of the auto scanning in the editor.

6.1   Why are your maps so (*fill in the blank*)...

I know we have covered this in many venues from before the launch of the game and after, but one more time won't hurt. We started off right from the start wanting fairly simple and readable maps. Hand drawn maps like those in the original Flashpoint Germany, though "pretty" really lacked and ease of telling what terrain or elevation you were in. On top of that they took a long time to make and a long time to hand enter the values. Two very big strikes when we wanted more maps and even larger maps in this new game.

So we went with more of a board wargame map approach. Keep the art simple and clear. We started with even fancier art, but a couple maps in seeing how long the value process was taking changed our minds. The quick math on numbers of entries is 1200 times about 4. About 5000 entries for the 20km x 15km map. In order to speed up the processing we decided to make a scanning routine that could "read" the terrain in a hex and populate the values.

Sounds simple enough until you try to discern similar colors or deal with shifts in color when scaling the maps. It took us three attempts and a number of weeks to get colors and art that would process well. So the look, though (*insert adjective*), is functional and allows for rapid map making. A good trade. Just picture a slider with Functional on one end and Pretty on the other. You need to set the value somewhere because they are stuck on a single axis. We went fairly heavy toward functional.

That all being said, the next sections covers a few things that can be done to the existing maps to give them more of a 3d look or more varied appearance.

6.2   Adding/Changing OTS Map Artwork

One option beyond making custom maps from scratch is to add more art or modify the existing OTS art used by the automatic scanning system. We have supplied a spreadsheet file called "RS Map Color Values.xlsx". This file contains the color RGB codes used by the scanner for each type of elevation and terrain element on the maps. As long as the new or modified art elements use these colors they will be detected as that type of terrain. Also the amount of the specific color in the hex tells the scanning routine the percentage to rate the hex for visibility and hindrance based on the default values.

This should allow you to make more variations of the existing element or give them a new look but still use the colors the scanner can handle. You may need to do like we did and test, fix, test, fix and so one to hit on a good look and scanner functionality.

Some things you could do along these lines are:

• Make more sizes and shape variations for urban and town elements.
• Change the sizes and look of the fields.
• Make sparser looking forest elements of various sizes and shapes.
• Flatten out the terrain elevation tiles to remove the "rough" look.

The idea is if you think you have a better way to do it, try it and post it for the rest of us to work with.

6.3   Adding 3d Effects to OTS maps

There are a few things that can be done to give the maps using the OTS art a more 3d look and improved clarity for text. We will cover those now.

- The first thing you can do is add light and dark elevation edge highlights across the map. This is done in HexDraw by using the edge menu and light/dark edge colors provided. The best way to do this is to start with the highest elevation on the map and change out the terrain graphic with a solid pink (or other standout) color. Once you have these pink hexes displayed on the map you then add the light edge color to the top three hex sides and the dark edge color to the bottom three hex sides. There are a couple of rules for doing this correctly to make the 3d effect work and they are follows:

  o Any edge that butts up to another pink hex edge is NOT highlighted. This edge is at the same level. You basically only highlight around the outer edge of multiple joined pink hexes.

  o As you work your way down in elevations, NEVER change an existing edge from another higher elevation or River. This can get a bit tricky, but trust your eye. You can always change things.

- To make the rivers look more 3d you can do some post processing of the hex draw image in a paint program.

  o Create a new raster layer and set it to Overlay and drop the transparency down to 75%

  o Set the brush colors to a light gray and dark gray and set the brush to a round brush with a small number of pixels. I used 6 on a scaled map and you would want to be 2 or more times bigger on a raw map.

  o Now just trace along the edges of the river with a couple pixels on land and the rest in the water. Use a light color on the bottom and left sides of the river and a dark color on the top and right side to give the river/lake and sunken appearance on the map.

- Finally, we can make the text look clearer by simply making a new layer in the paint program and placing new text elements over the old ones. In this case it was just a matter of matching the Arial font and using a white fill, black outline and a dark gray outer glow effect. Bang. Done. Looks good too as you can see from the before and after.

7 CREDITS

7.1 On Target Simulations Design Team

Lead Programmer and Head Honcho: Robert "Ironman" Crandall

Data, Programming, Graphics, and Sound: Jim "Cap'n Darwin" Snyder

Maps, Scenarios, and Campaign Designer: Steve "Mad Russian" Overton

Quality Czar and Testing Lead: Charles "Hawkeye" Belva

Facebook Site Design/Maintenance: Rebecca "Beck" Snyder

7.2 Flashpoint Camapigns Modding Guides

Author and Graphics: Steve "Mad Russian" Overton and Jim "Cap'n Darwin" Snyder

Editing and Review: Rebecca "Beck" Snyder