Visual Nature Studio Training 2023

BY

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- Training will commence with a tutorial covering the basic procedures
- The session uses data provided by Drake Forestry
- Attendees will learn how to build a simple but complete VNS project

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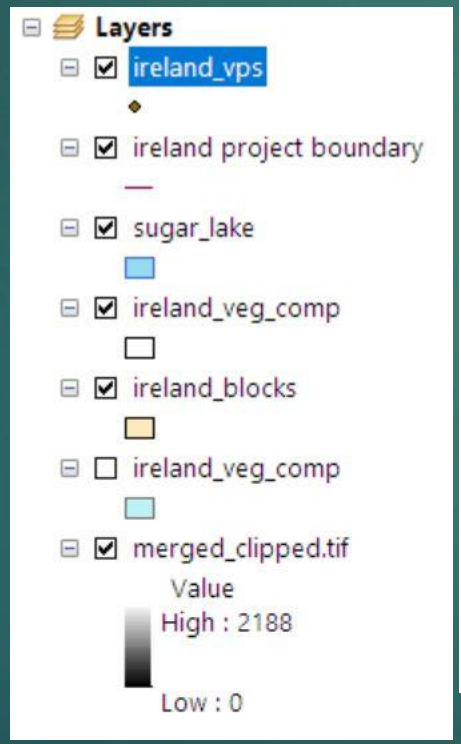
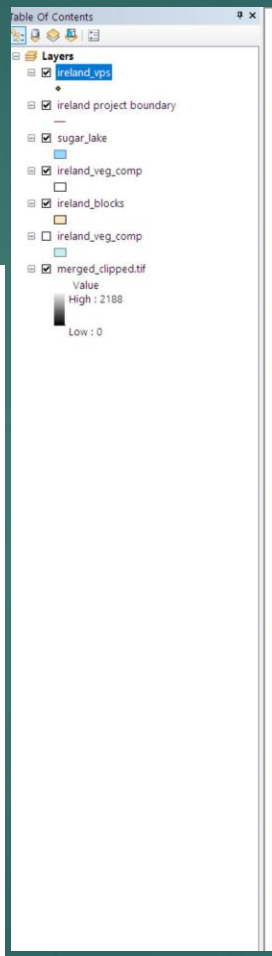
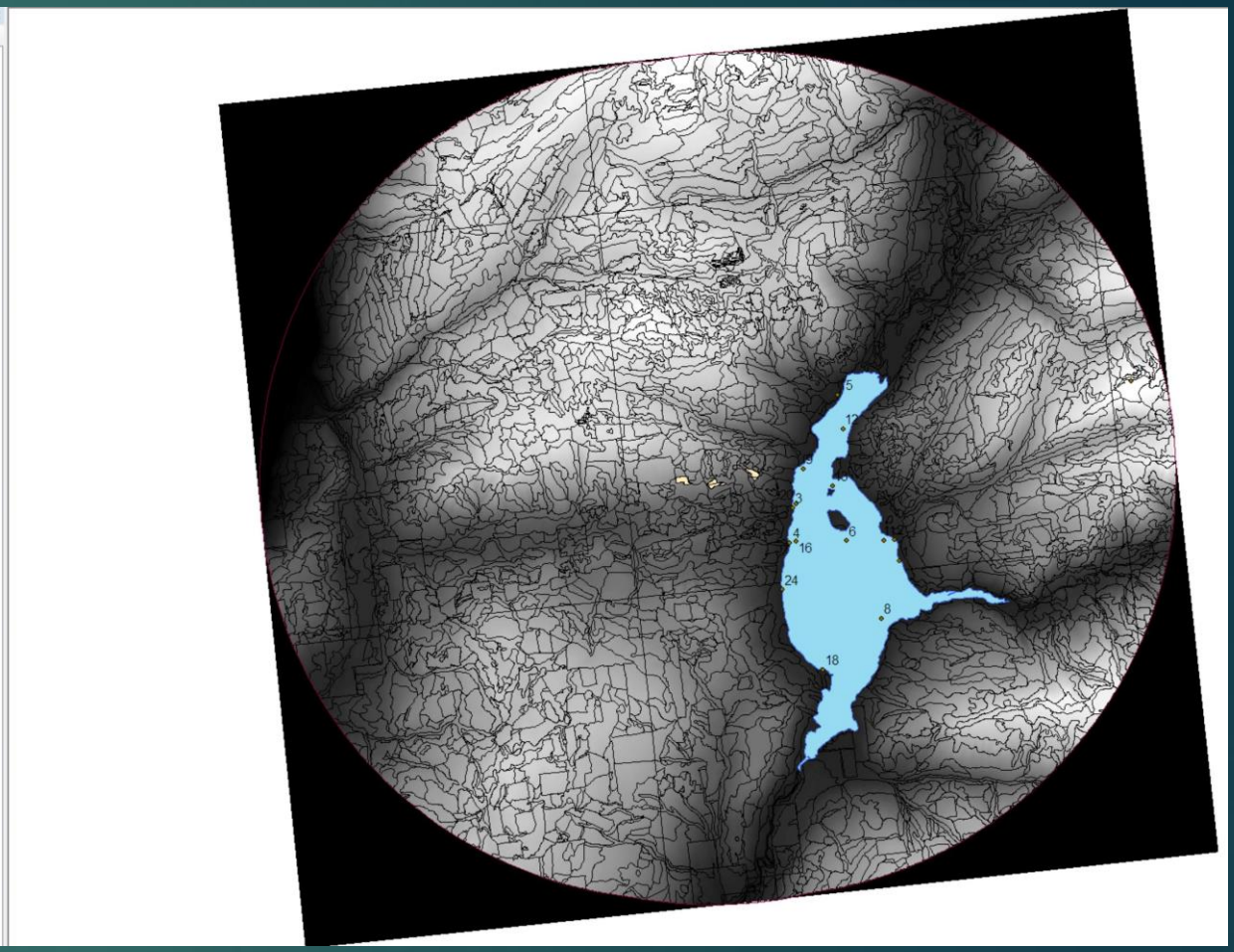
- Data used:







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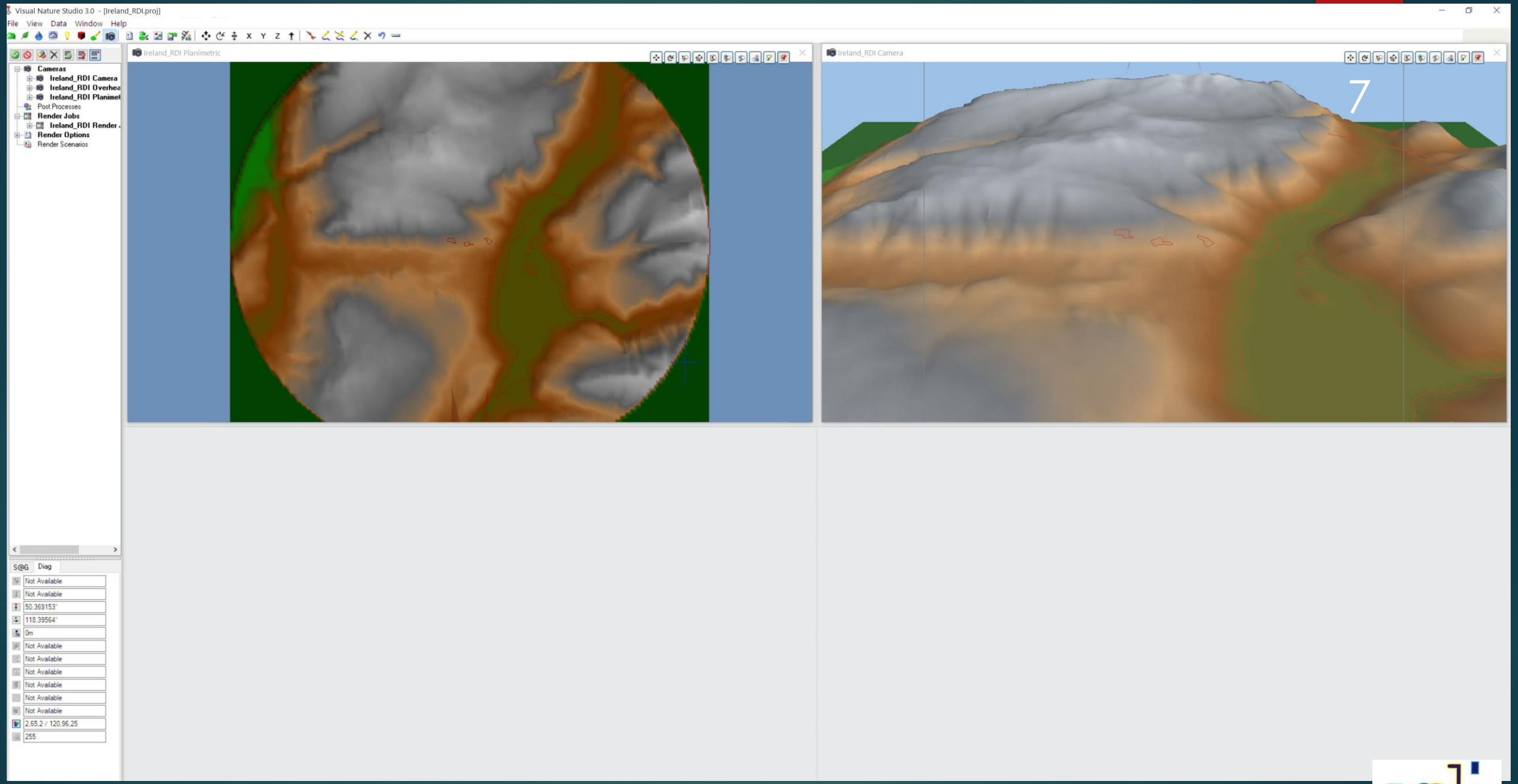
- The session is structured in 12 components:
  - 1. Set-up new VNS project/name; add data (S5)
  - 2. Use quadrant (4 windows) (S6)
  - 3. Examine Scene at a Glance (SAG) and diagnostics windows (S8)
  - 4. Add Lake shapefile; press conform to terrain (S9)
  - 5. Create a Lake Area Terraffector to dig out the lake (S11)
  - 6. Cameras at Viewpoints (S12)
  - 7. Add Cutblocks; build cutblock Ecosystem (S13)
  - 8. Add Forest VRI; Build VRI Ecosystem with Thematic Mapping (S14)
  - 9. Build Road Terraffectors (S16)
  - 10. Digitize points and lines (S17)
  - 11. Render Previews and set up Render Jobs and Render Options (S18)
  - 12. Other Embellishments beyond the first lesson (S20)

- 1. Set-up new VNS project/name; add data
  - Use Import Wizard to add data;
  - save frequently as you go although VNS autosaves
  - Start with merged_clipped.tif – this will create the VNS DEMS automatically – you can see them in your database 10 icons in on top
  - Follow with remainder of vector shapefiles
  - Note default locations in preferences tab – project is in C:WCS/Projects
  - Projection taken from tif: BC Environment-Albers
  - Leave unchanged when asked at each new import

- 2. Use quadrant (4 windows)
  - Open planimetric camera window to view coloured surface (I use upper left)
  - Open "Camera" in another window to see elevated from south
  - Any view can be unlocked and expanded when desired, then re-locked
  - Highlight bar on each single window to work with it
  - Press F9 to quick render, "x" to stop (or "escape" when mouse on top bar of VNS); F8 to go back to openGL view (no need to save diagnostics)
  - Can use toggle constrained area icon second from right in each window to zero in on small part of model for quick look
  - Note: the Help tab contains an interactive manual and tutorials
  - The manual should open at highlighted element



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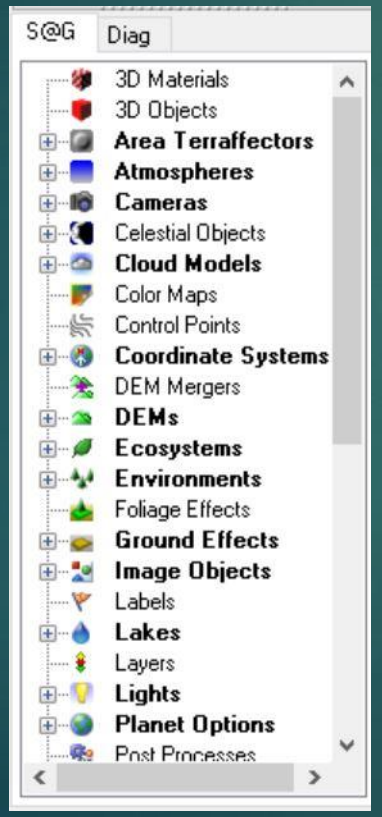
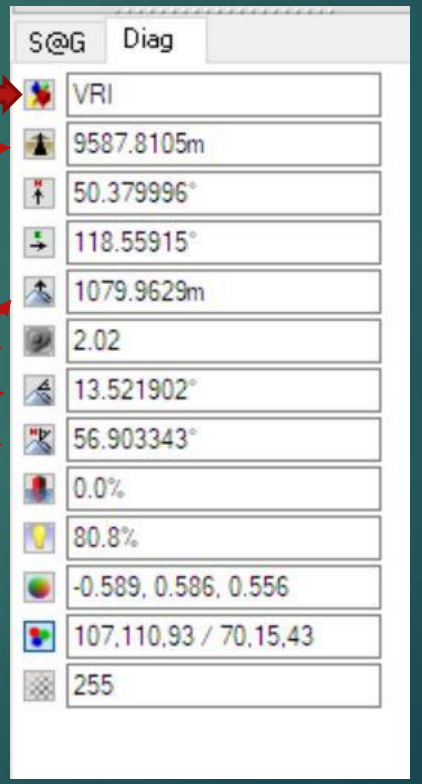
- 3. Examine Scene at a Glance (SAG) and diagnostics windows



Active Element touched by mouse

- Distance
- Lat
- Lon
- Elevation of point touched by mouse
- Relative Elevation
- Slope
- Aspect
- Other



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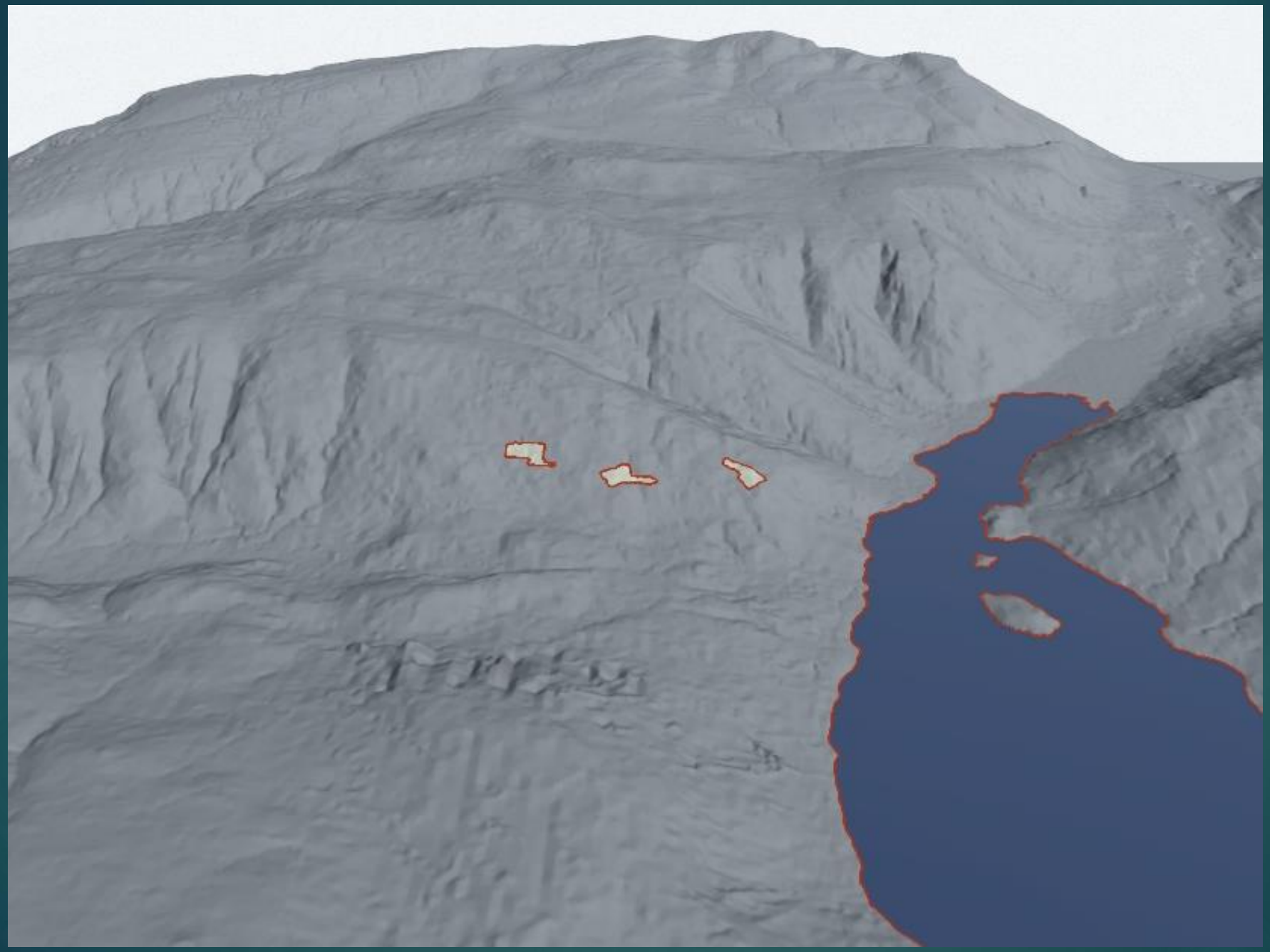
- 4. Add Lake shapefile; press conform to terrain
  - Create Lake in Water Task Mode,
  - Make Lake ELV relative to Vector low Elevation
  - attach to vector either by creating new search query (dynamic link)…
  - … or attach by hard link by highlighting lake vector in database
  - Open database green icon 10 in from left
  - Note the DEMS are there also – any not needed can be switched off



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- 5. Create a Lake Area Terraffector to dig out the lake
  - Click on first icon on left, dblclk area terractor, give it a name
  - Give it -50m dig-out (or more)
  - Attach to lake vector as you did with the lake eco
  - Render Planimetric View to see that the lake works
  - Test lake elevation by clicking on the lake surface – the elevation will show in the SAG – my model shows 605.04156m
  - Save any preview by rtclk on window bar and choose "save displayed image"
  - Save will default to WCS Frames folder in WCS. I save as jpg.

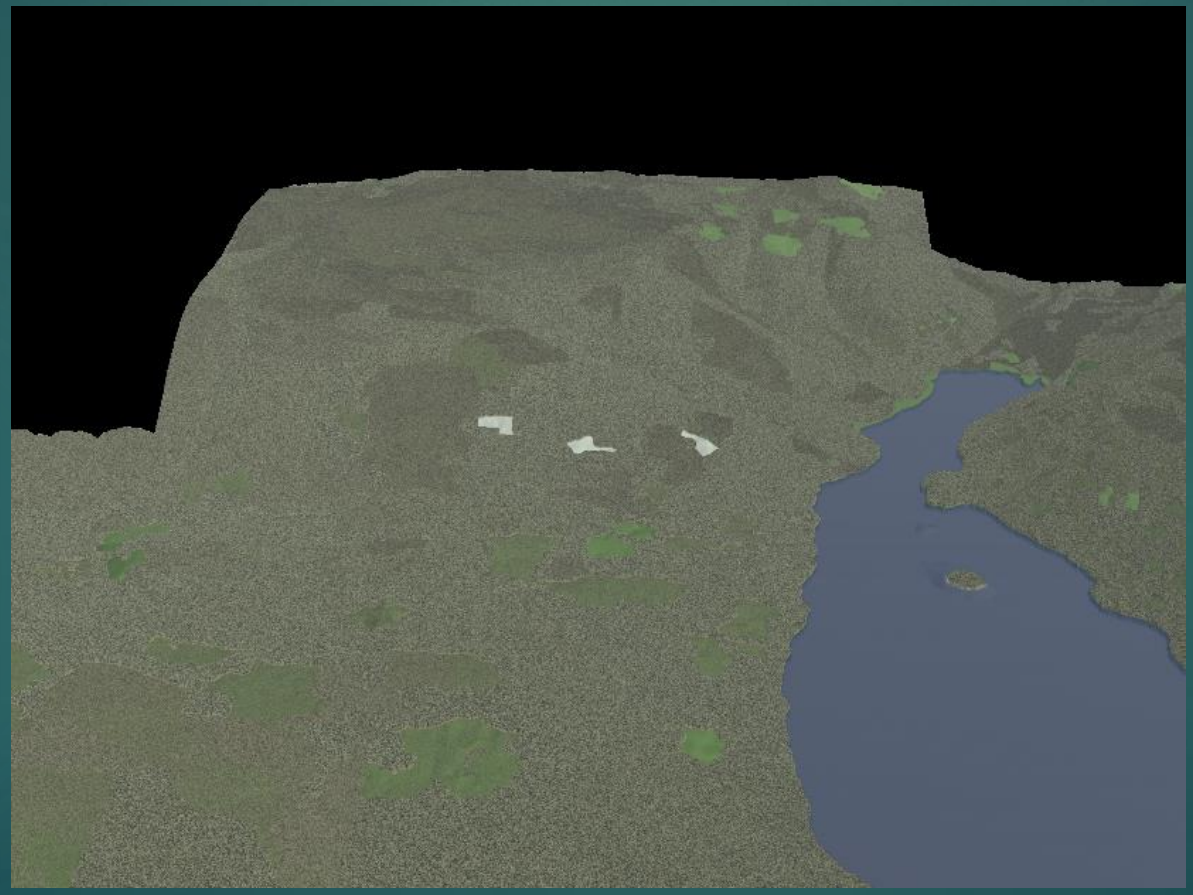
- 6. Cameras at Viewpoints
  - Cameras are found in the Camera icon 8 icons from the left on the second bar.
  - There are several ways to place a camera
  - You can clone a camera and use to the digitizer to place it. It should be 2m above ground. You can create one and drag it around.
  - You can clone the cameras and assign them to the viewpoint vectors – again +2m
  - When you have made a camera, highlight the appropriate viewpoint vector in your database. Edit the database object (third tab in the database editor). The vector editor window opens. Go to Transfer, select "copy from active vector" Path-Vector Transfer window opens, select Camera in Transfer to dropdown, make elevation adjustment +2m, select camera. Camera is placed correctly.
  - When rendering, sometimes view appears upside down or under water if so raise camera elev. Note yellow highlighted camera in planimetric view and red in others.
  - Note: red key frame animation icons appear in your left window. Remove these by selecting the third icon on the bottom (Remove Key Frames).

7. Add Cutblocks

- Create Cutblock Ecosystem in Landcover Task Mode (green leaf second from left)
- Make a beige/green mix of colours (try for reality)
- Give it a rendering priority of 10 (higher than the VEG priority so it cuts the trees)
- Attach to CB vectors as you did for the lake (either method is fine)
- Hint: If you make one ecosystem for each cutblock by name, you will be able to click on it in a rendered preview to see exactly which it is.

8. Add Forest VRI

- Create VRI Ecosystem
- Attach VRI vectors (either method)
- In the material window, give it a green diffuse colour (for the ground)
- Click Overstory, edit ecotype, add Foliage Group
- Add foliage object(s), new image object, go to Components/Images/ Conifers and select tree images (open folder in explorer to view them). I have used Lodgepole1.iff24 and dougfir21.png.
- Add more images to create texture, height variance, proportion of each.
- Edit Overstory again, go to parameters, set Density to 500 SPH (or more)
- Also, while here, enable "Thematic Operations"
- Data Input is single value; Channel 1 drop down and find "proj_heigh:
- This will assign correct heights based on the VRI
- Note: you will be able to import each of the ecosystems, lakes, skies, etc into each new project in View tab, Component Library; New File; Seek previous project; add selected elements



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- 9. Road Terraffectors
  - Create new Road Terraffector (not area terraffector) in first icon on left.
  - The component gallery window opens – you can select from there
  - I use dirt road for logging roads and 2 Lane highway for highways
  - Assign to your vectors
  - The dirt road is a bit narrow as is. Open the cross-section profile and increase the distances for each point from the centreline (this represents half the road, showing shallow ruts)
  - Note: You can save your terraffectors and ecosystems to the component gallery, adding a rendered image so that you can find them there for your your next project if you don't import them as in the previous slide.

- 10. Digitizing
  - Open a terraffector or polygon vector and press the digitizing pen
  - You can make it single point or continuous
  - You can set it to follow the vector, or in the case of a camera you can set it to person (+2m)
  - Rtclk to give it a name in your database, and save.
  - Digitizing is best on a rendered preview, but you can't see the results until you render again. It seems to work fine on the openGL mode and you see the progress (red line).

- 11. Rendering
  - You can F9 render any highlighted window and save
  - These are small images but you can up the dimension for better resolution
- Set up formal renderings under the camera tab. Create a render job for each viewpoint and create Render options for each viewpoint. You assign a file name in File Output Tab in Render Options. You can enable/disable what you like. You can render single images or an entire 360 panorama.
- Clone the first and give it the next name. Make sure you have both Render Job and Render Option pointing to the correct Viewpoint (camera)

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- 12. Other Embellishments beyond the first lesson
  - Clouds, Haze
  - Reflections, waves on water, snow on hillsides, 3-D objects
  - Much more such as animations

You are now ready to build the VNS – keep the notes handy.