



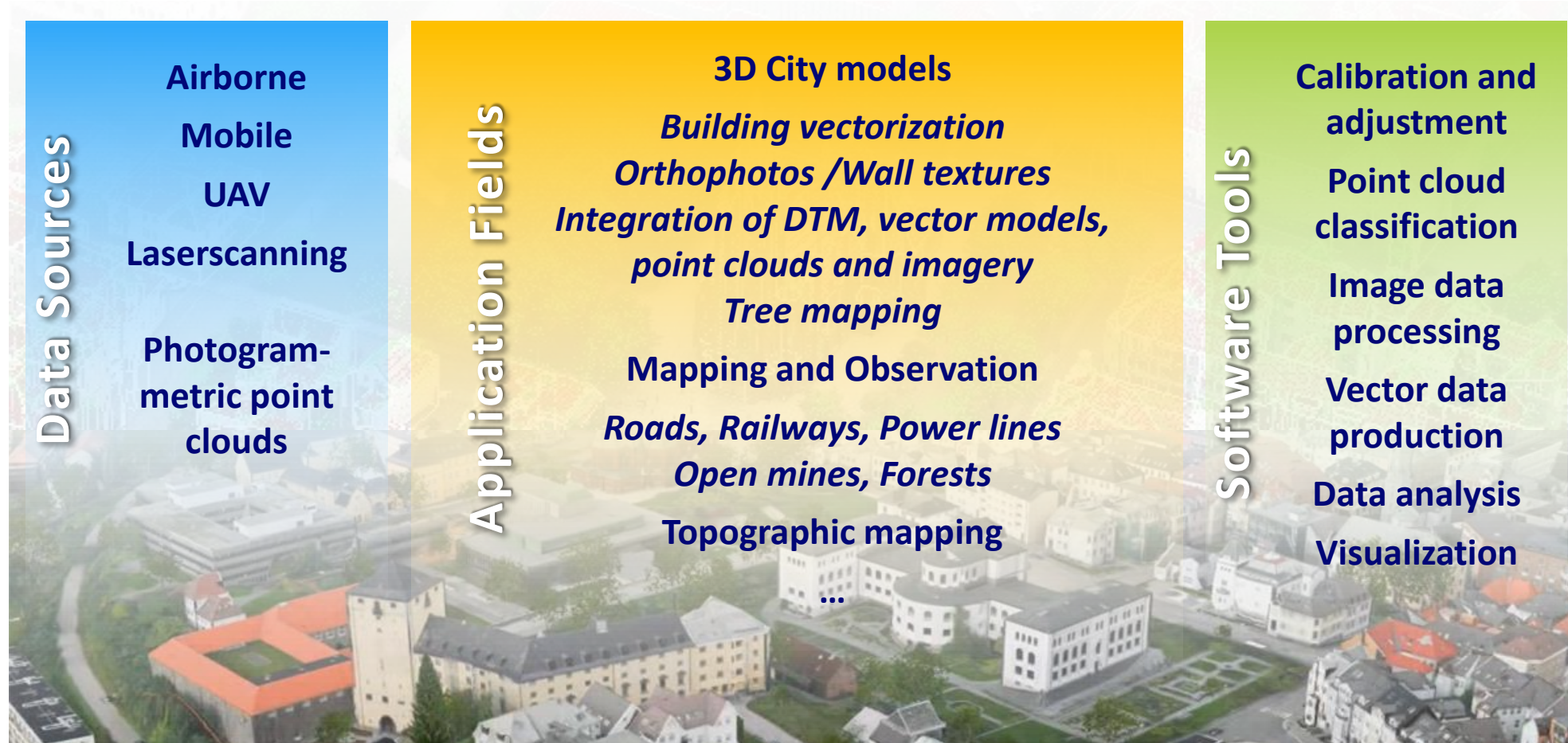
INTERGEO digital 2020

# ***TERRASOLID SOFTWARE – AN OVERVIEW***

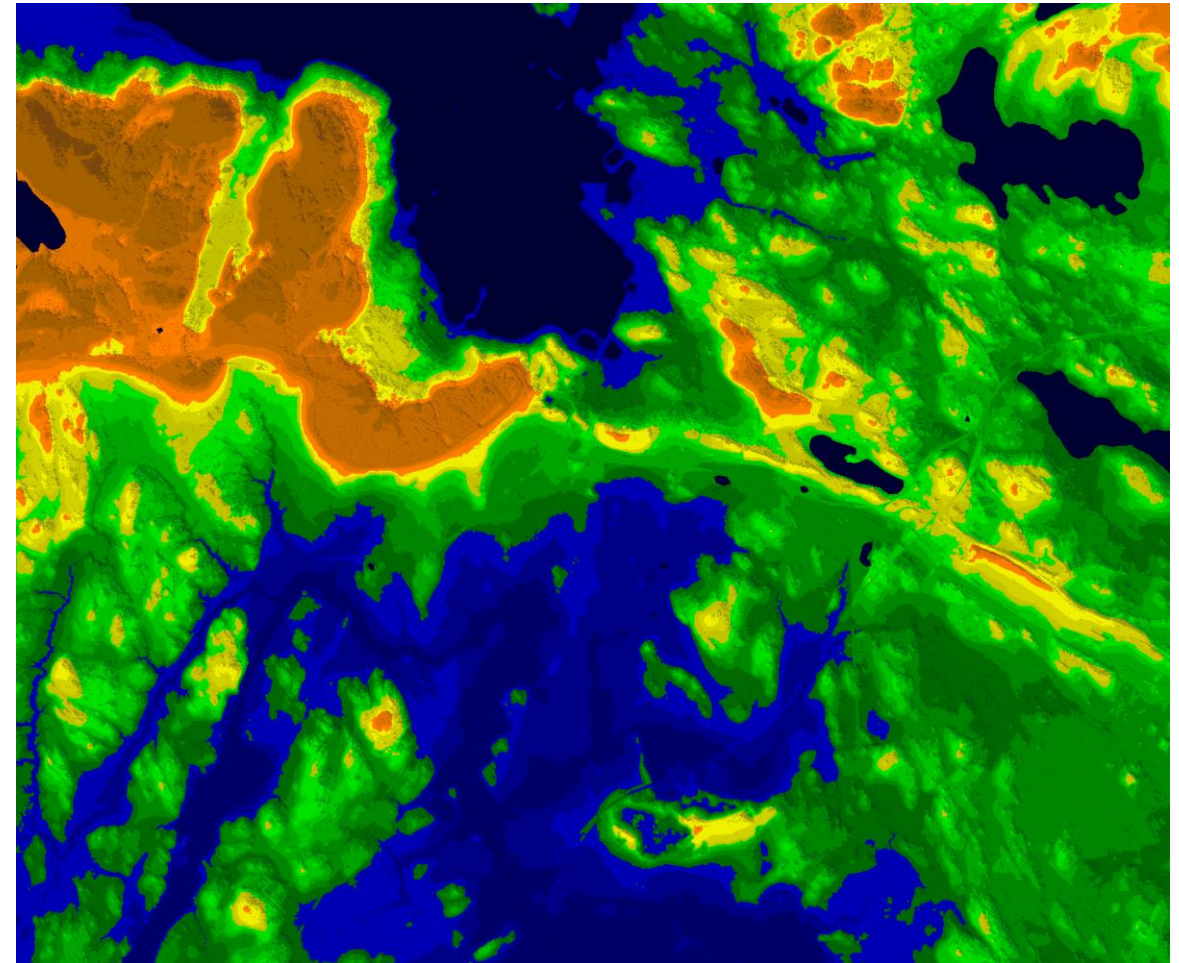
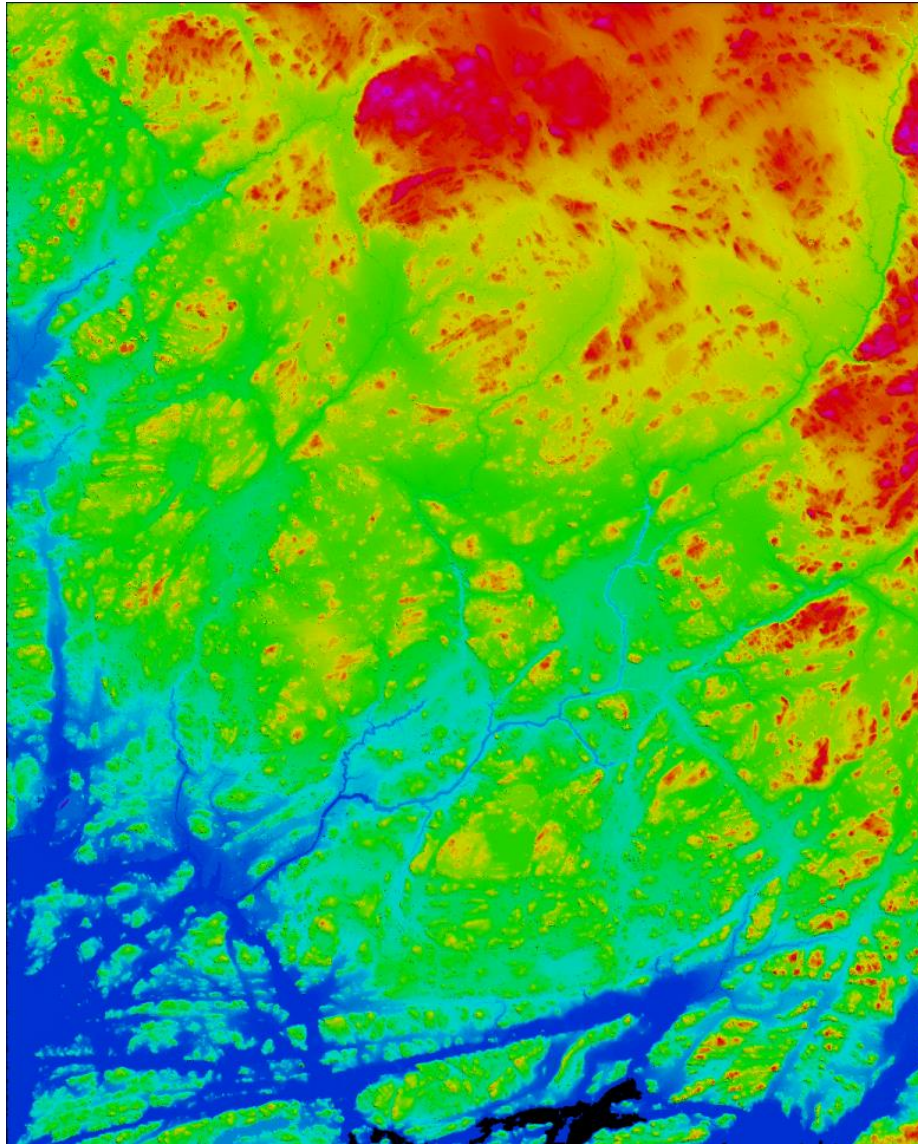
Friederike Schwarzbach  
Oktober 2020

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- founded in 1989, located in Finland
- worldwide leading software provider for processing point clouds and associated image



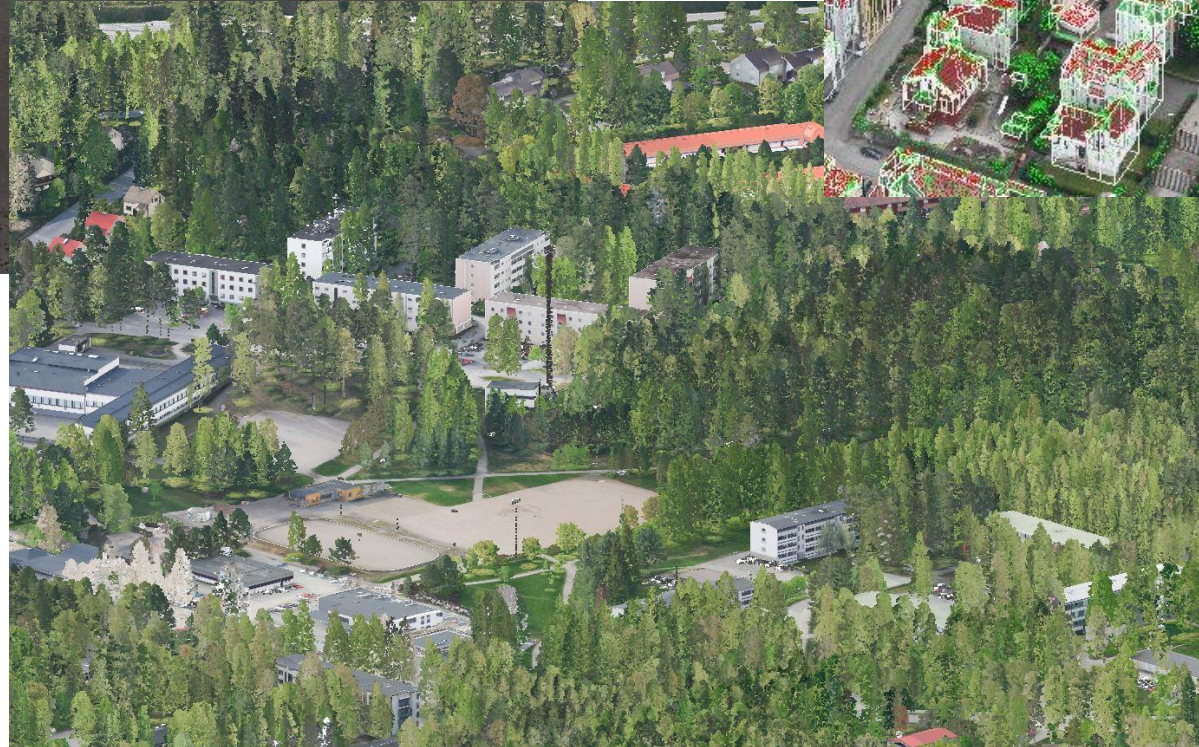




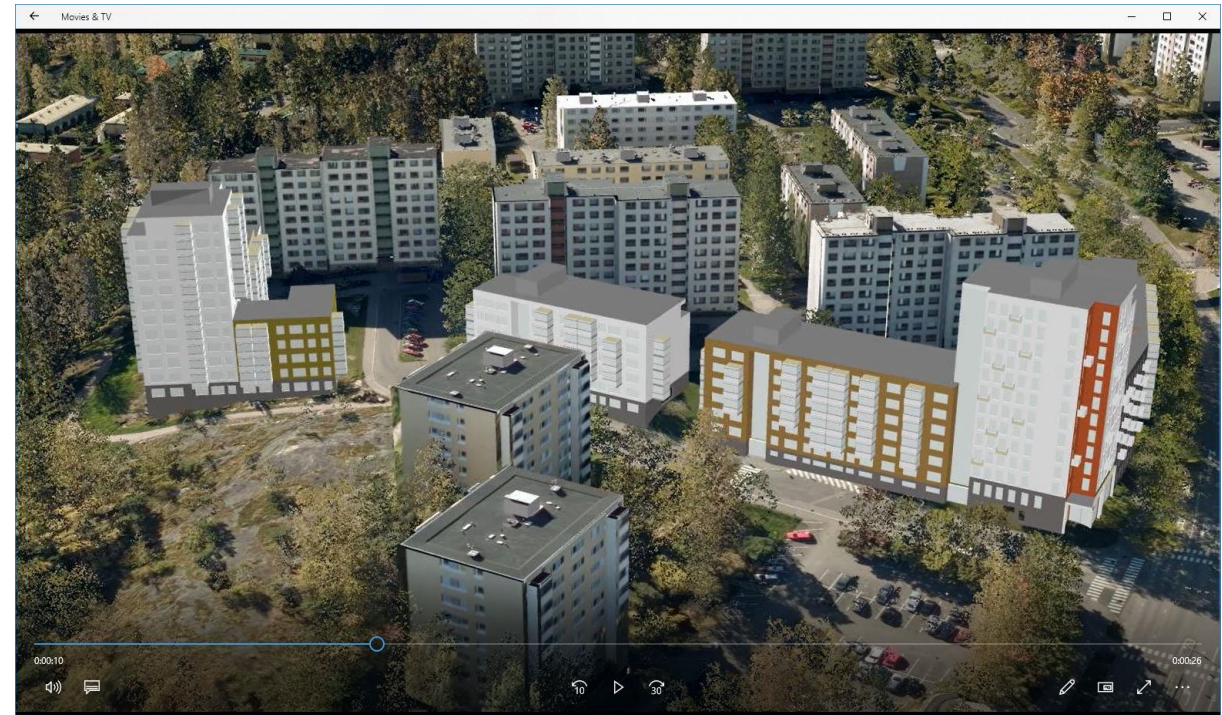
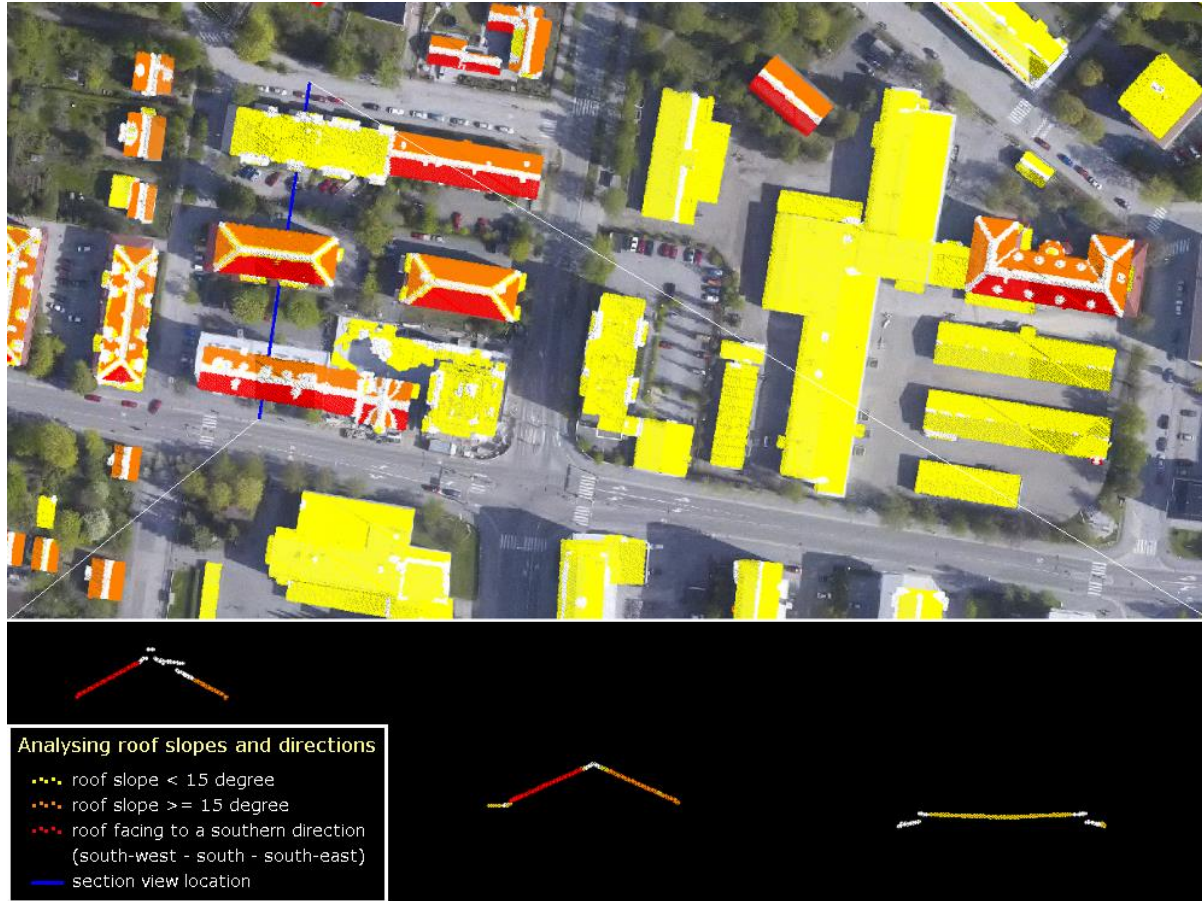






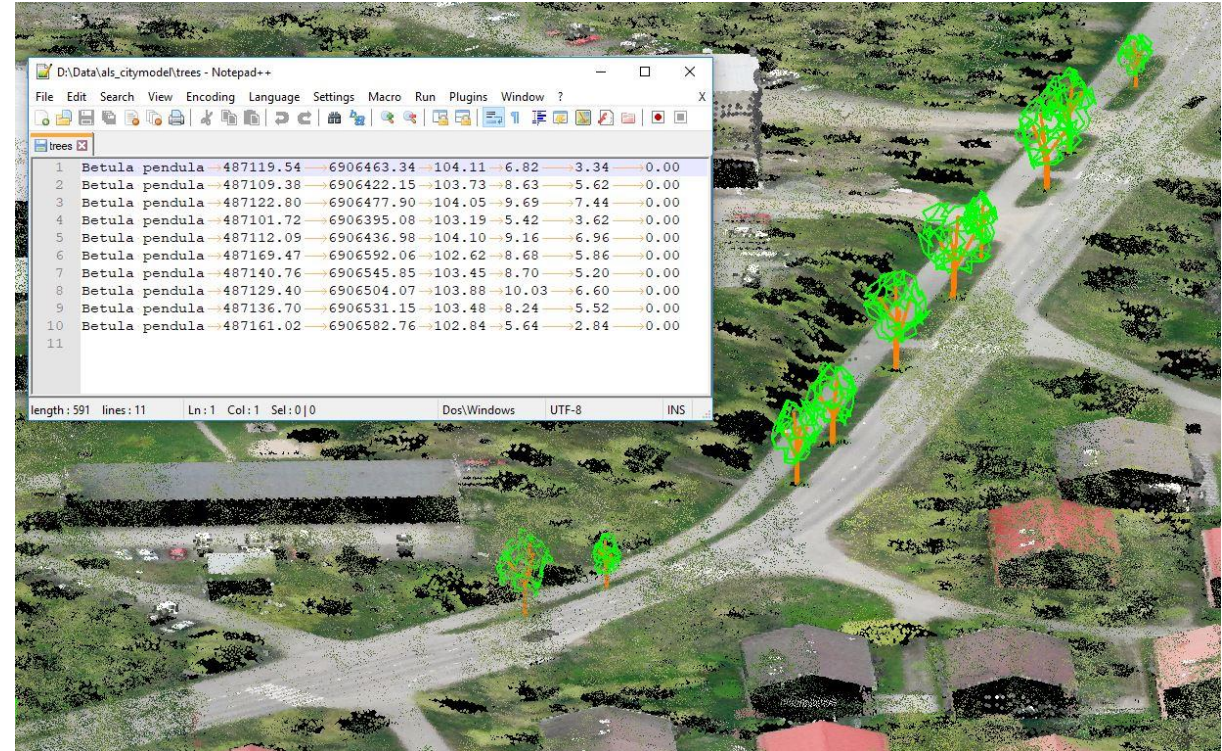




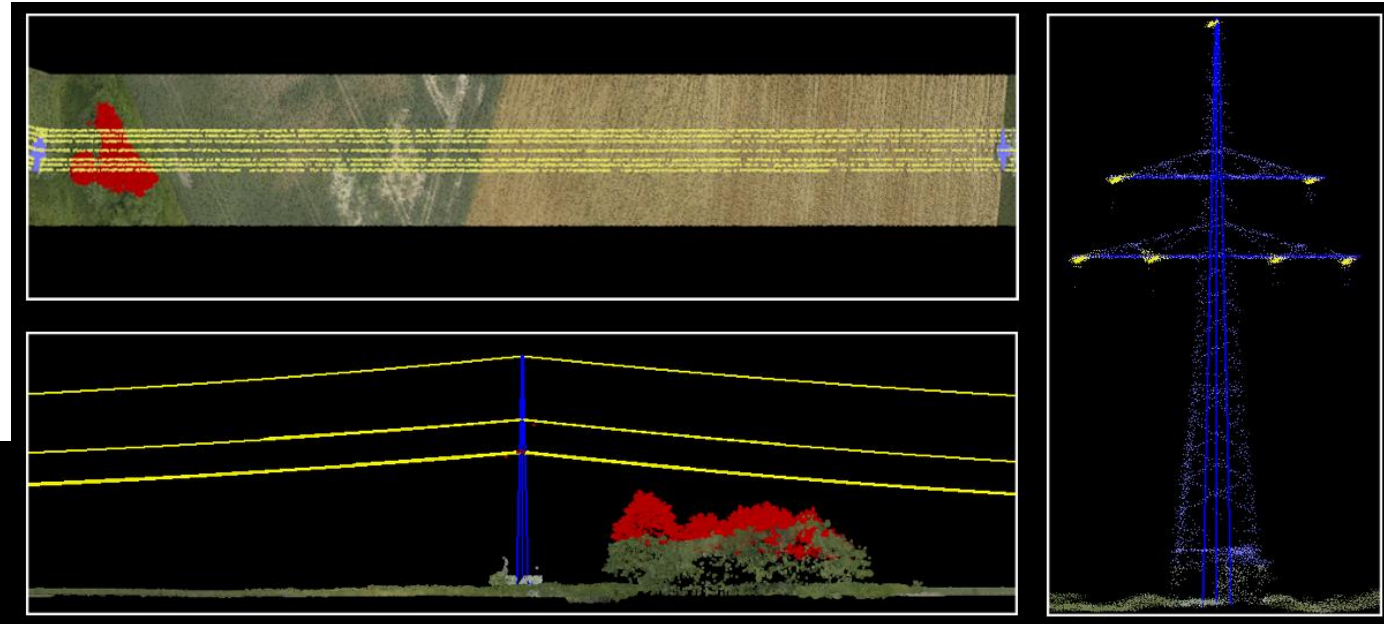
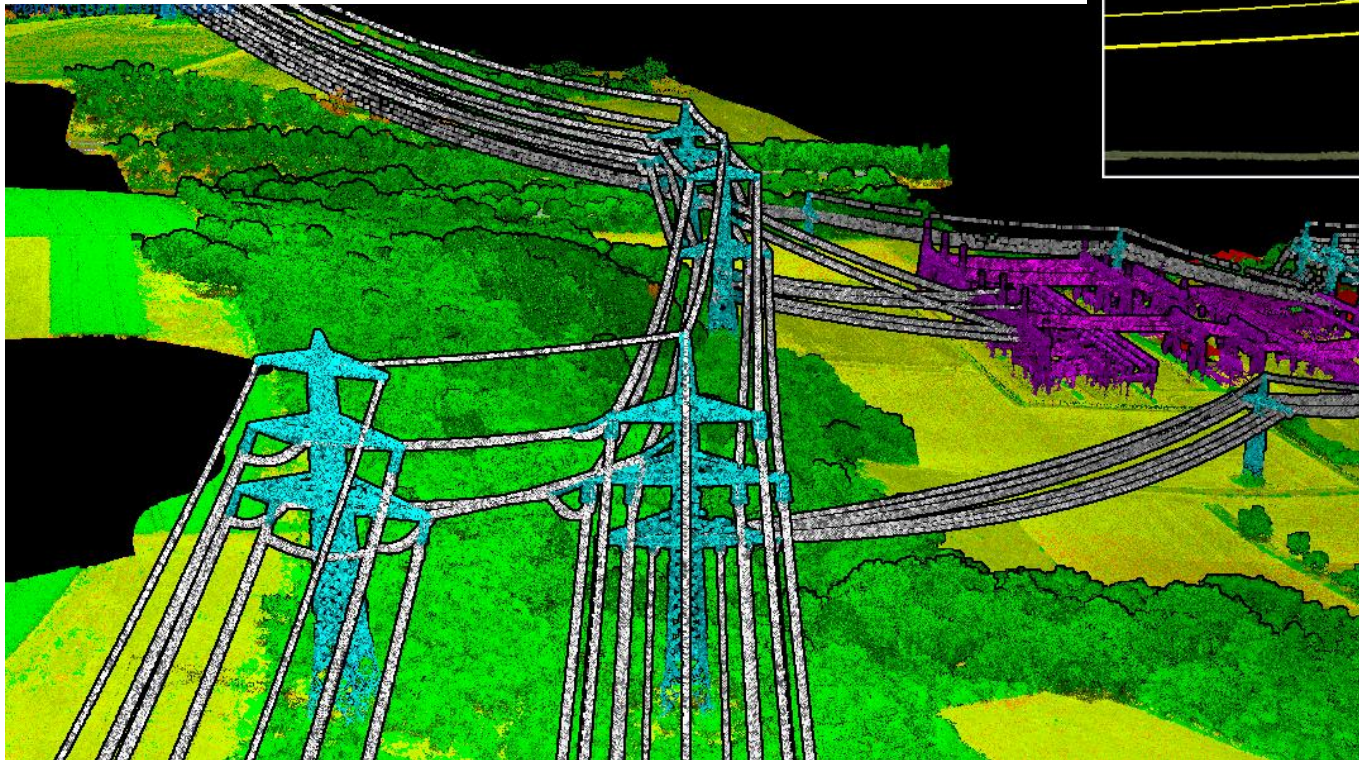




# 3D City Models – Mapping of trees in public areas







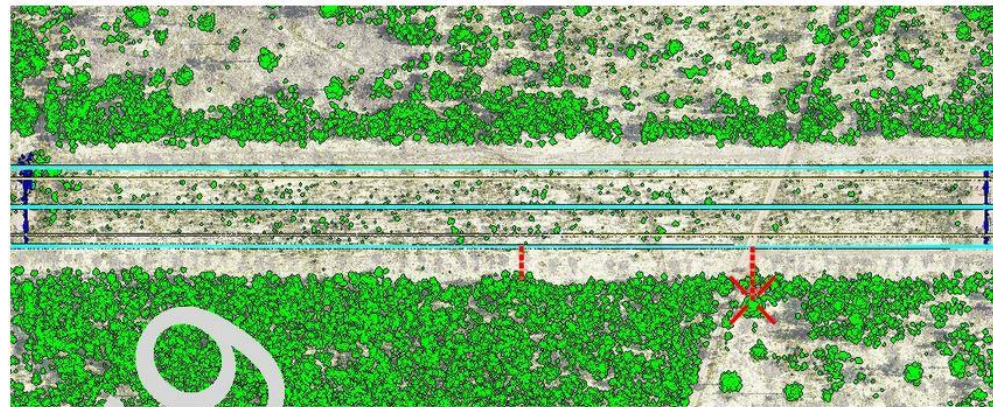


# Power Line Maintenance – Danger object detection

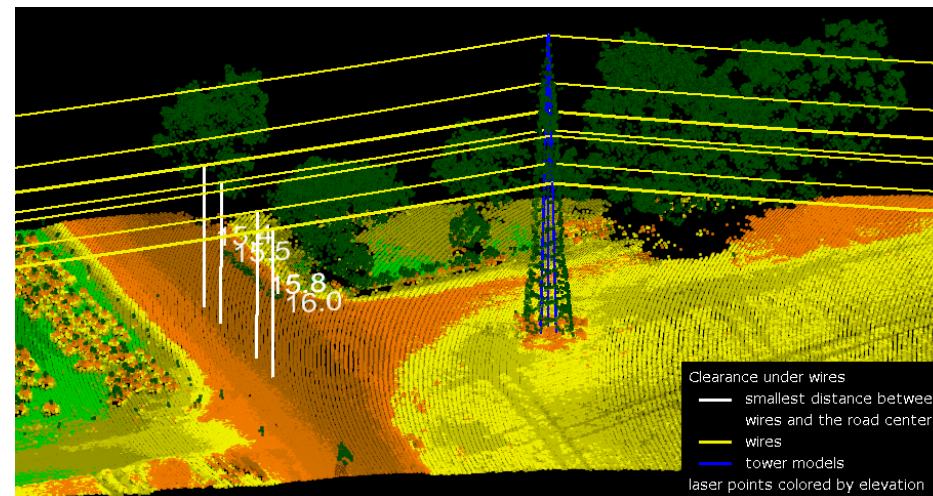
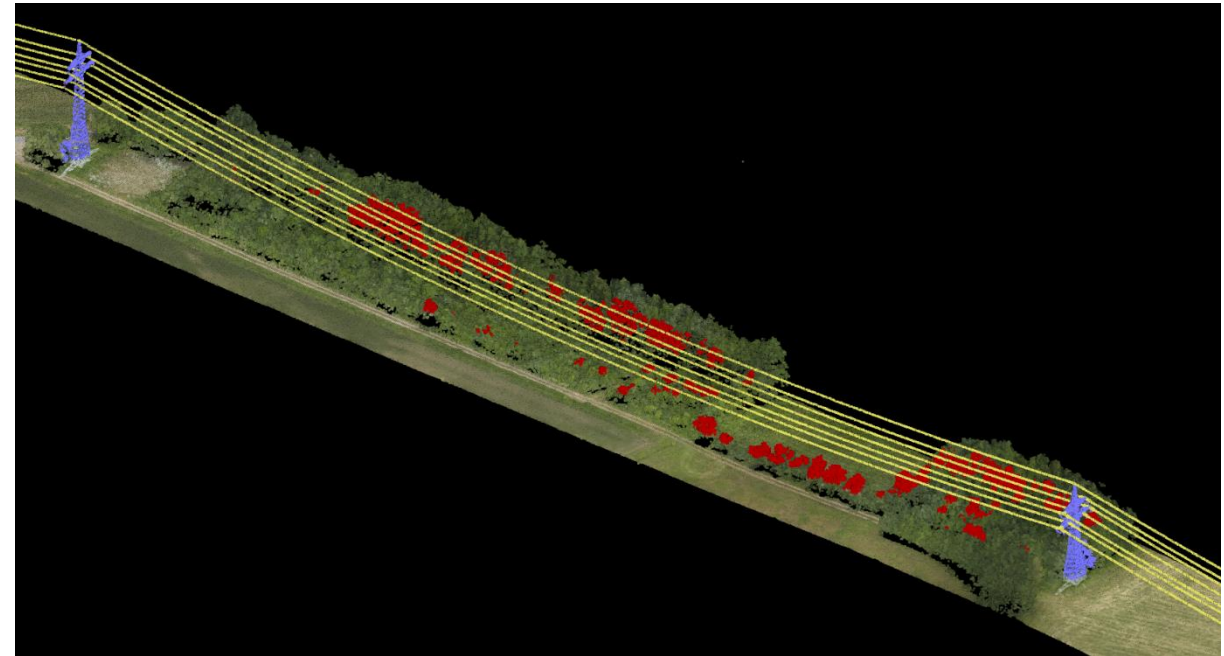
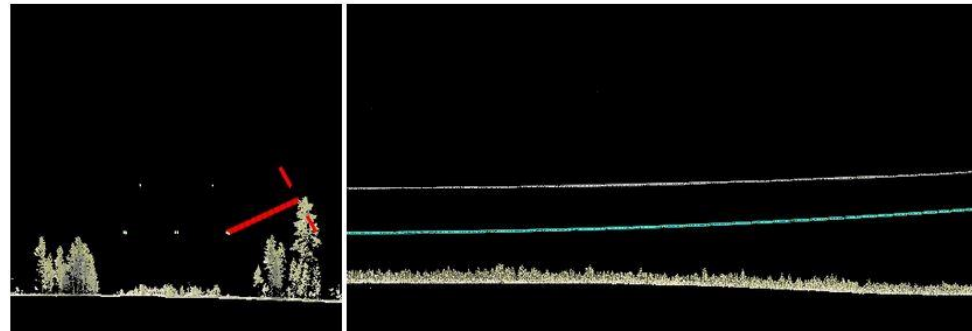
Point number	Span	Distance from 1 <sup>st</sup> tower
12	79-80	23.41

Easting	Northing	Elevation
1462607.9	6784937.6	226.79

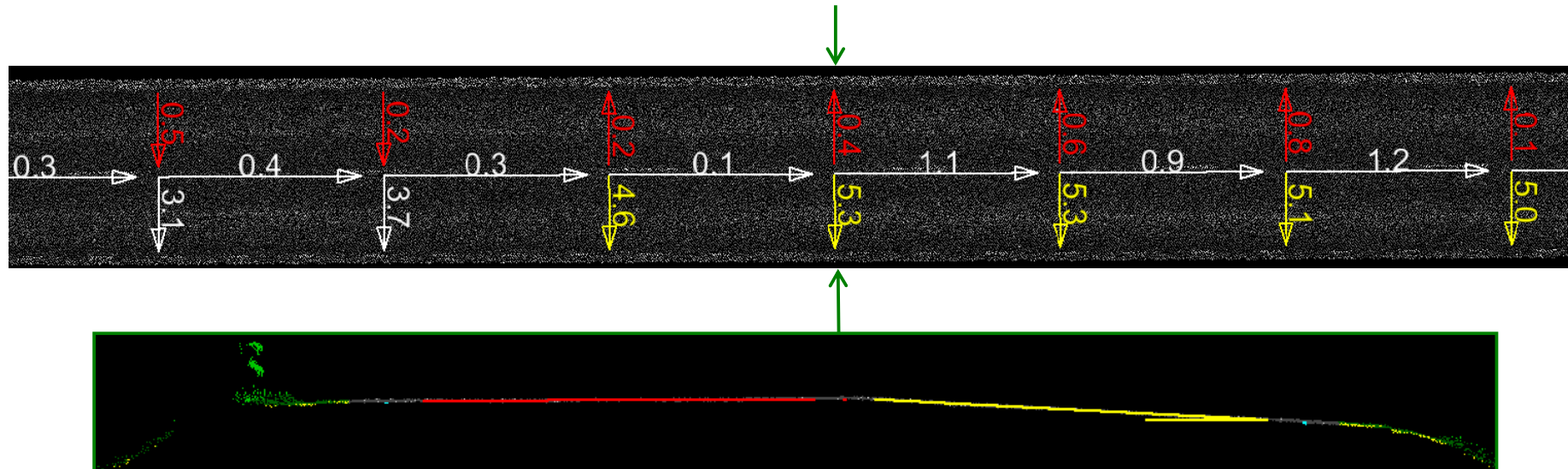
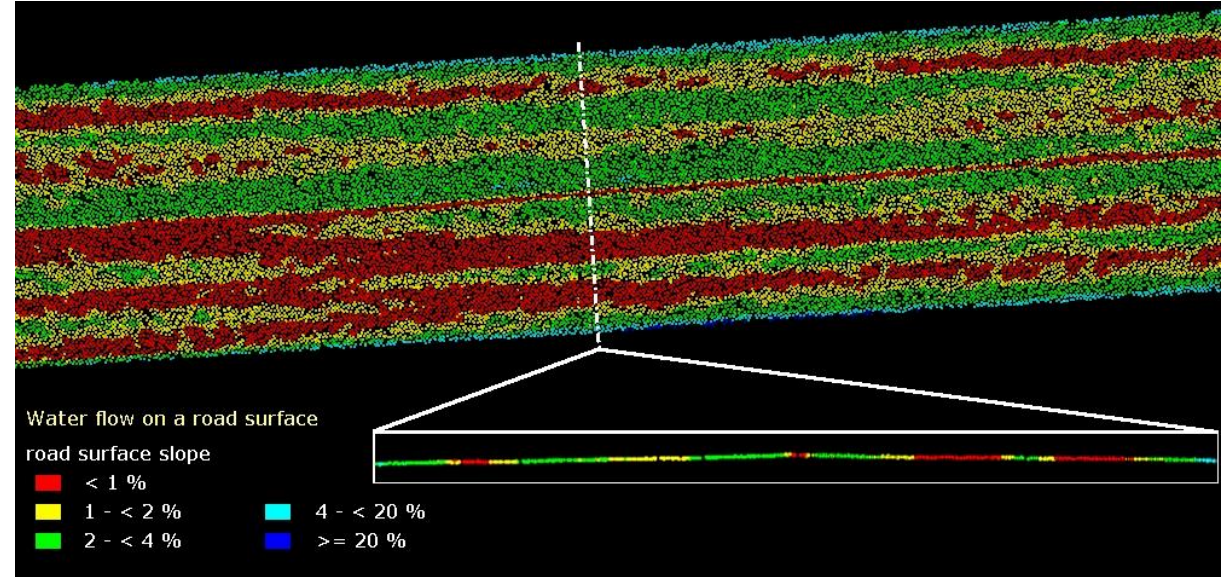
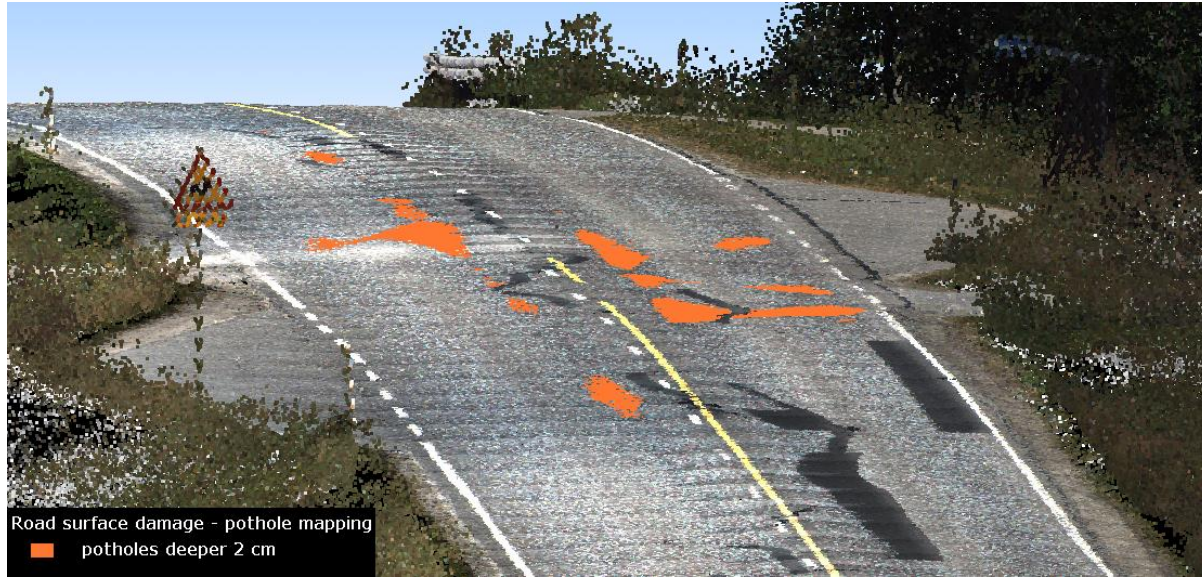
Longitude	Latitude	Distance from wire
15.110123	61.178357	2.09



Span top

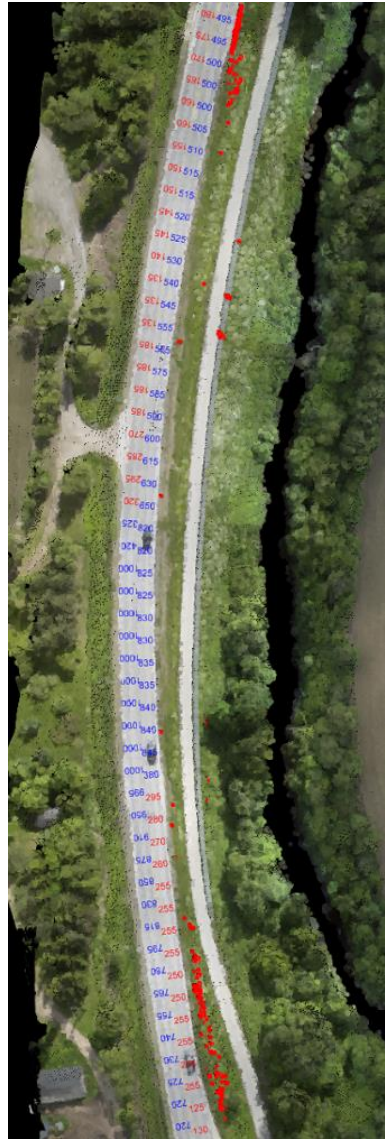




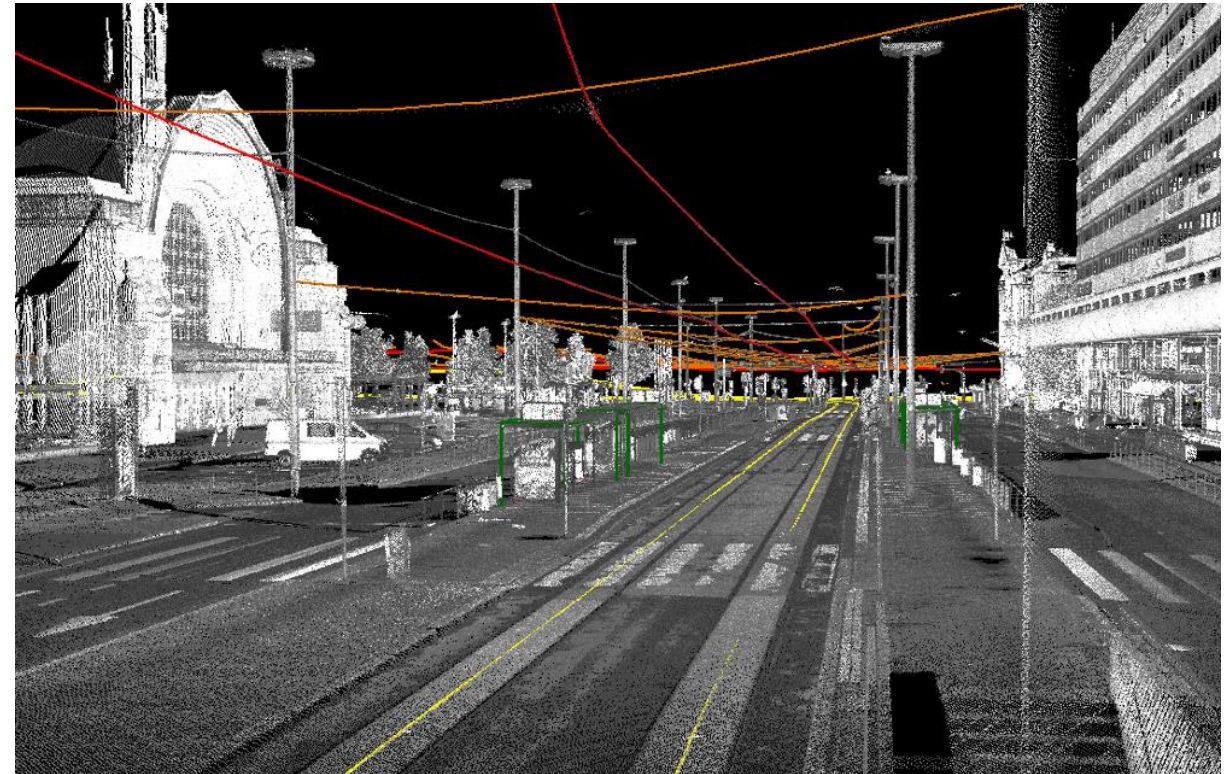
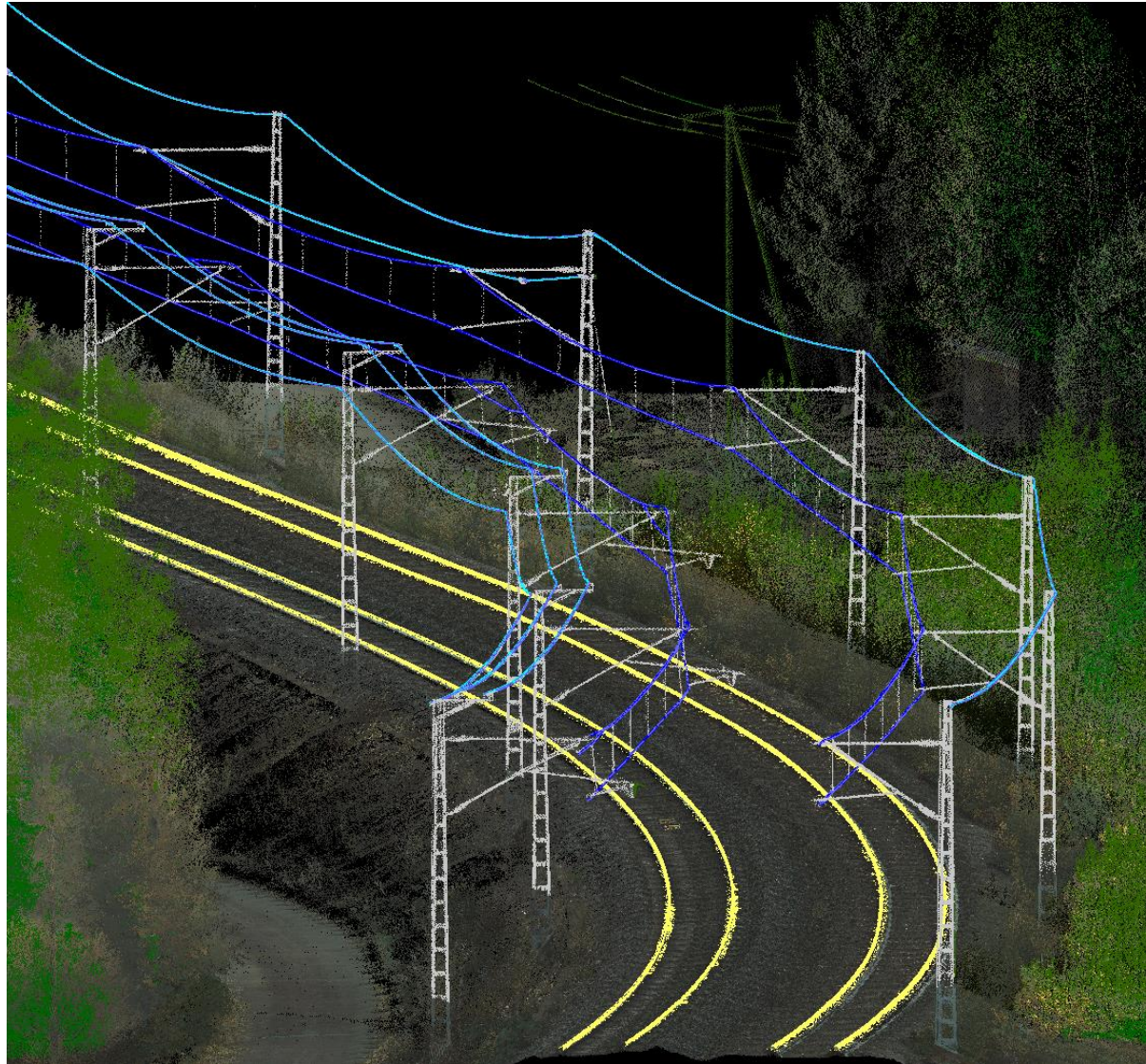




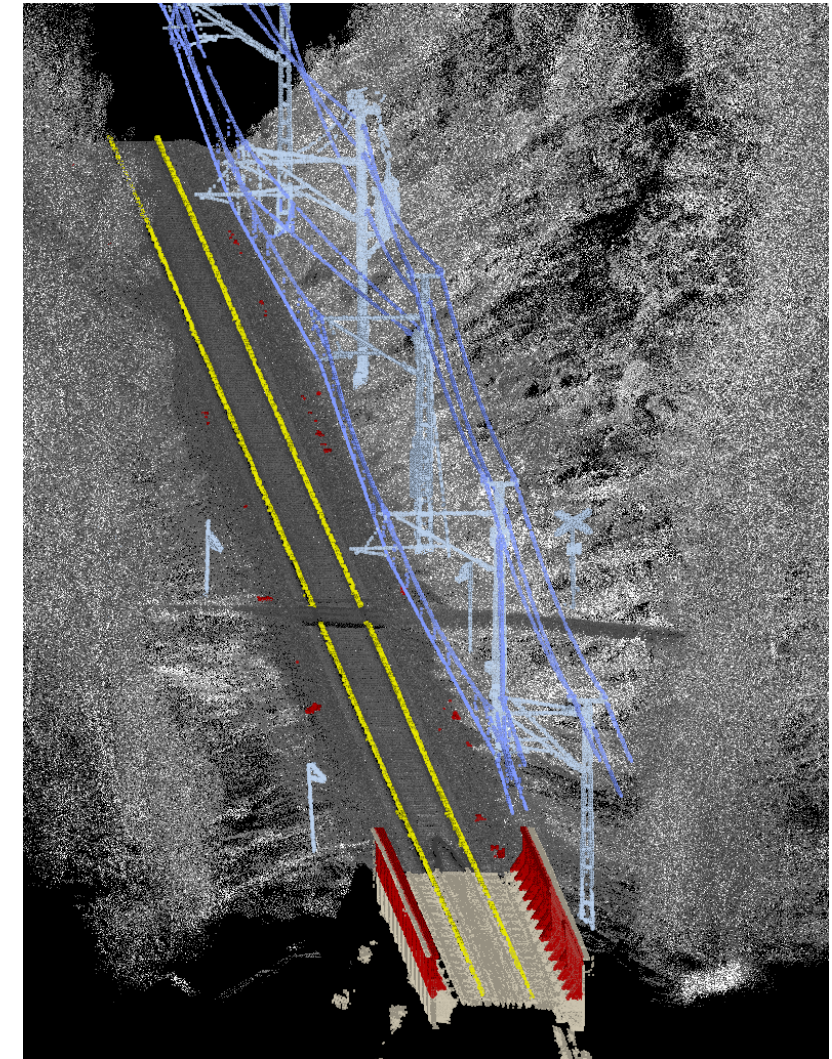
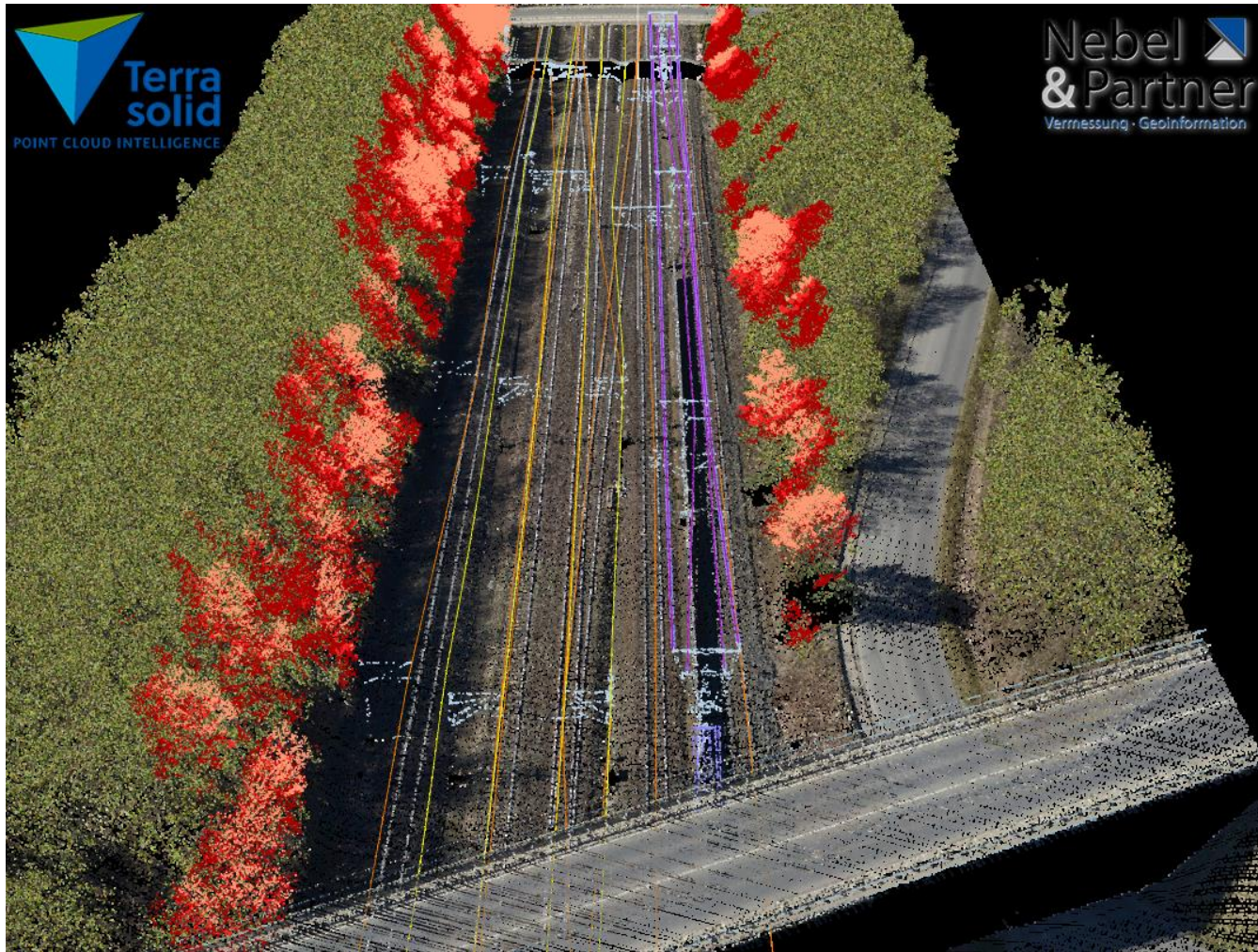
# Road Maintenance – Line-of-sight analysis



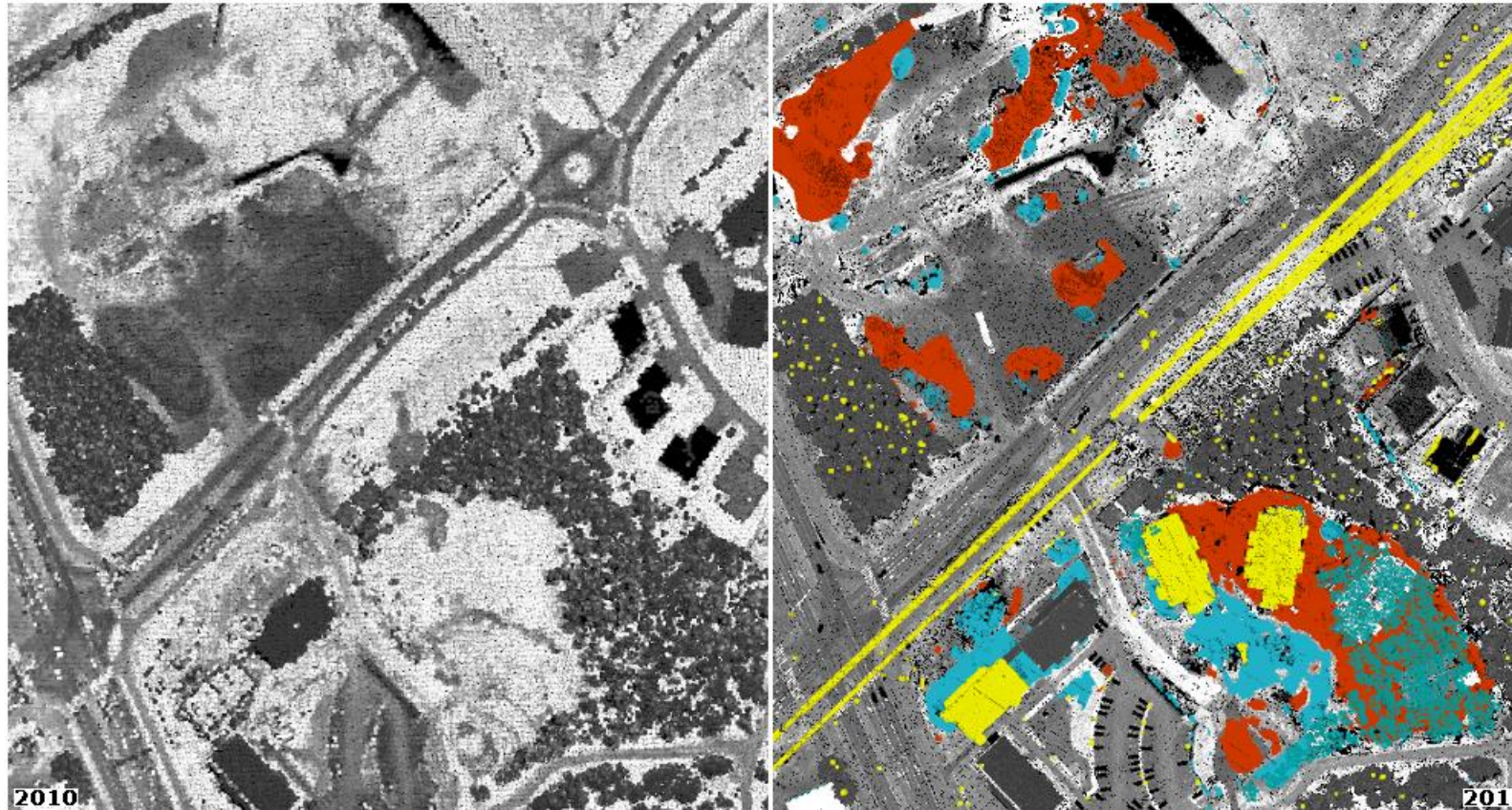












## Detection of Changes in an Urban Area

Changes in the ground level

added ground

removed ground

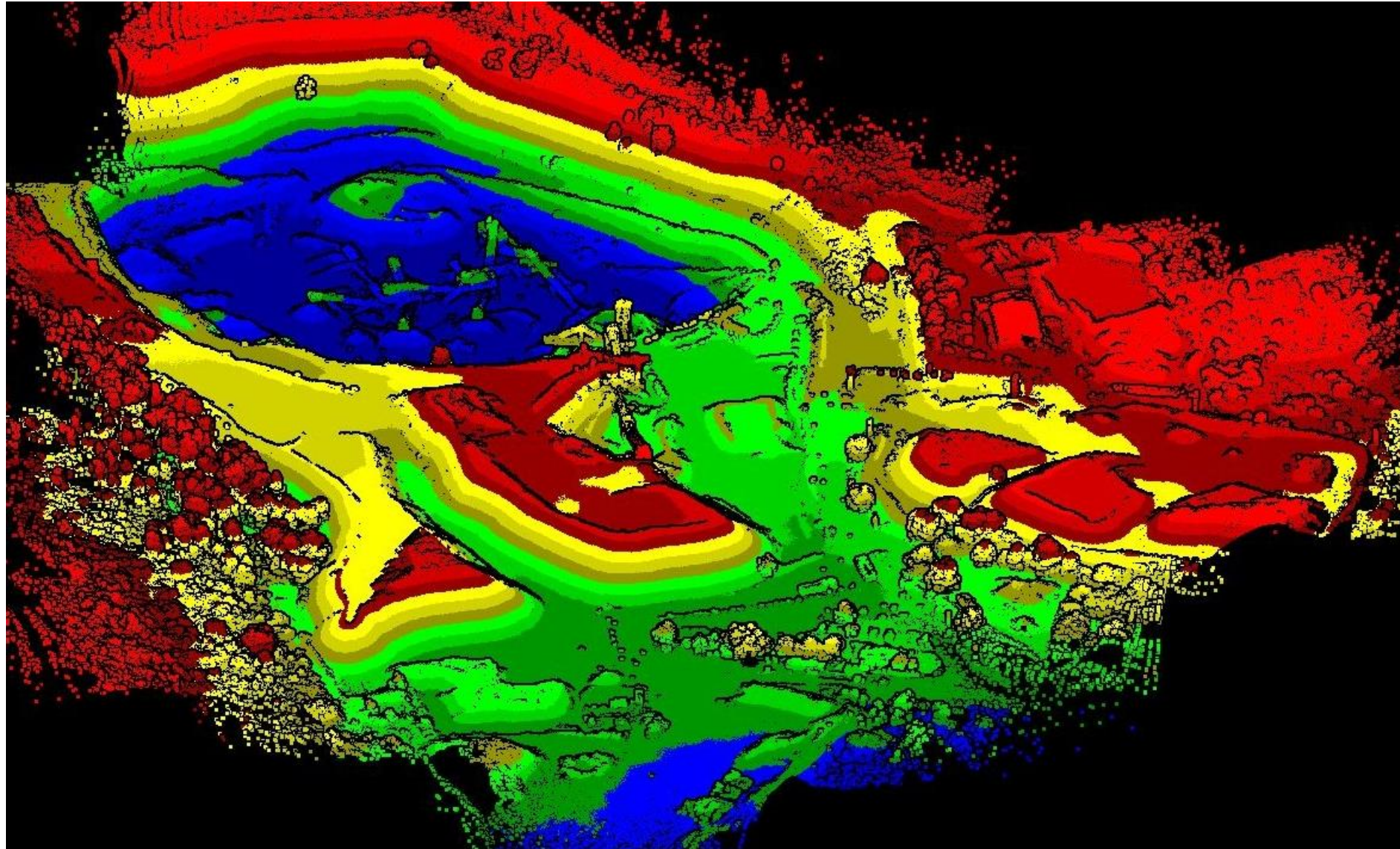
Changes in above-ground objects

added buildings and power line, grown vegetation

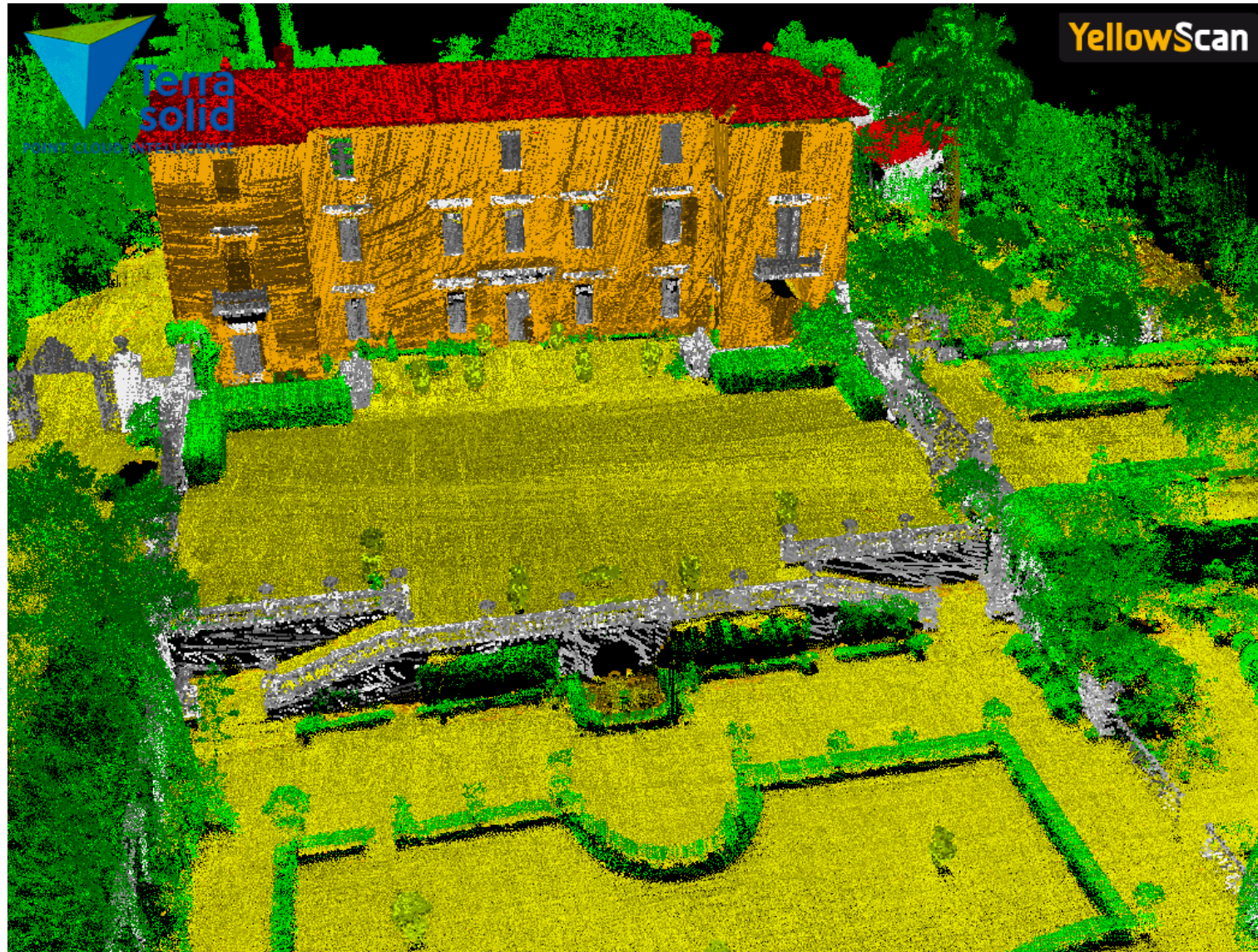
removed vegetation

all other points colored by intensity value











- Software modules:

- TerraScan<sup>UAV, Lite</sup> – point cloud processing
- TerraMatch<sup>UAV</sup> – calibration and strip adjustment of LiDAR point clouds
- TerraPhoto<sup>UAV, Lite</sup> – image processing
- TerraModeler<sup>UAV, Lite</sup> – surface modeling
- TerraStereo – advanced point cloud visualization
- TerraSlave – automatic/distributed processing in batch mode
- TerraSurvey, TerraStreet, TerraPipe, TerraBore, ... for specific mapping tasks, local market

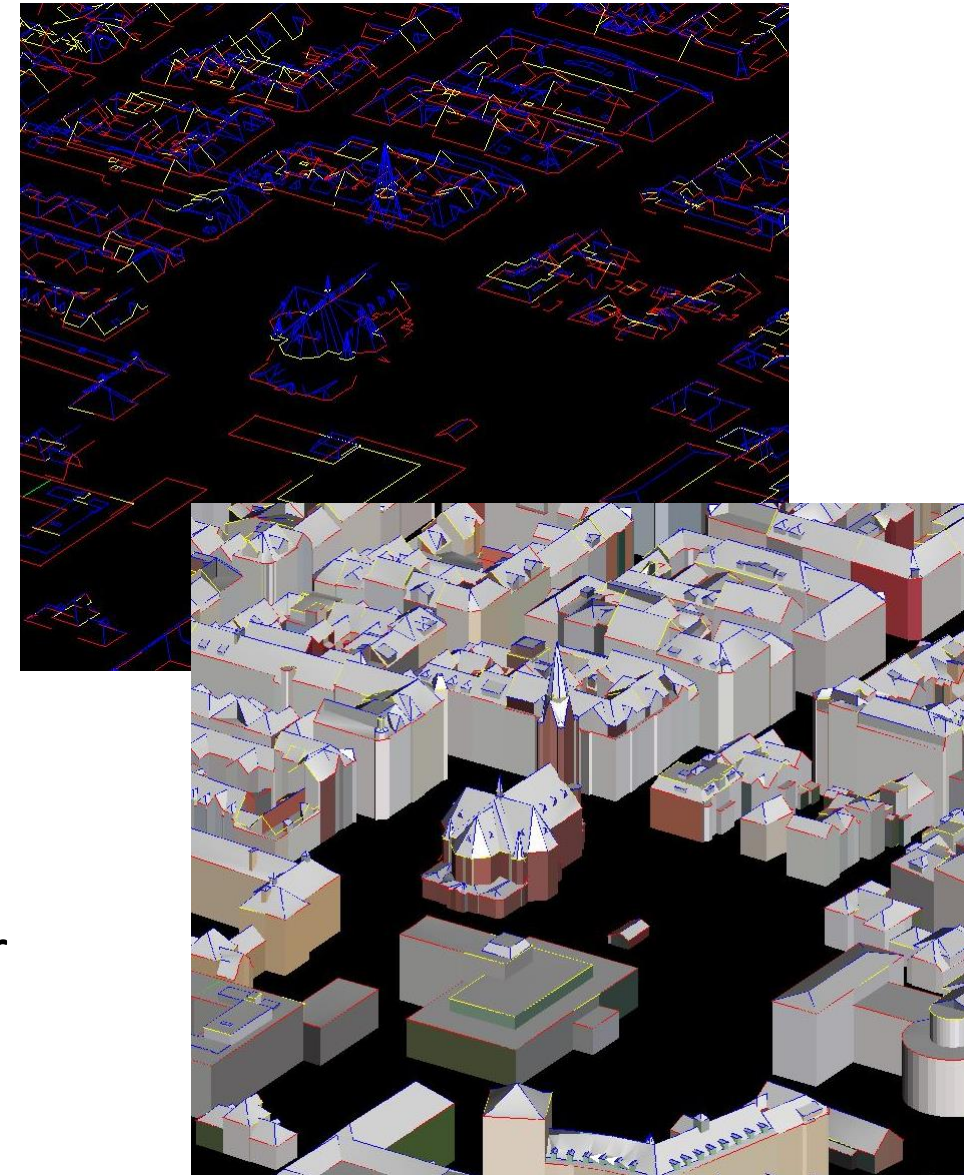
- Runs on top of CAD Software:

- Spatix – CAD program developed by GISware Integro / Terrasolid
- MicroStation, Map PowerView, PowerDraft, ... – CAD product family of Bentley

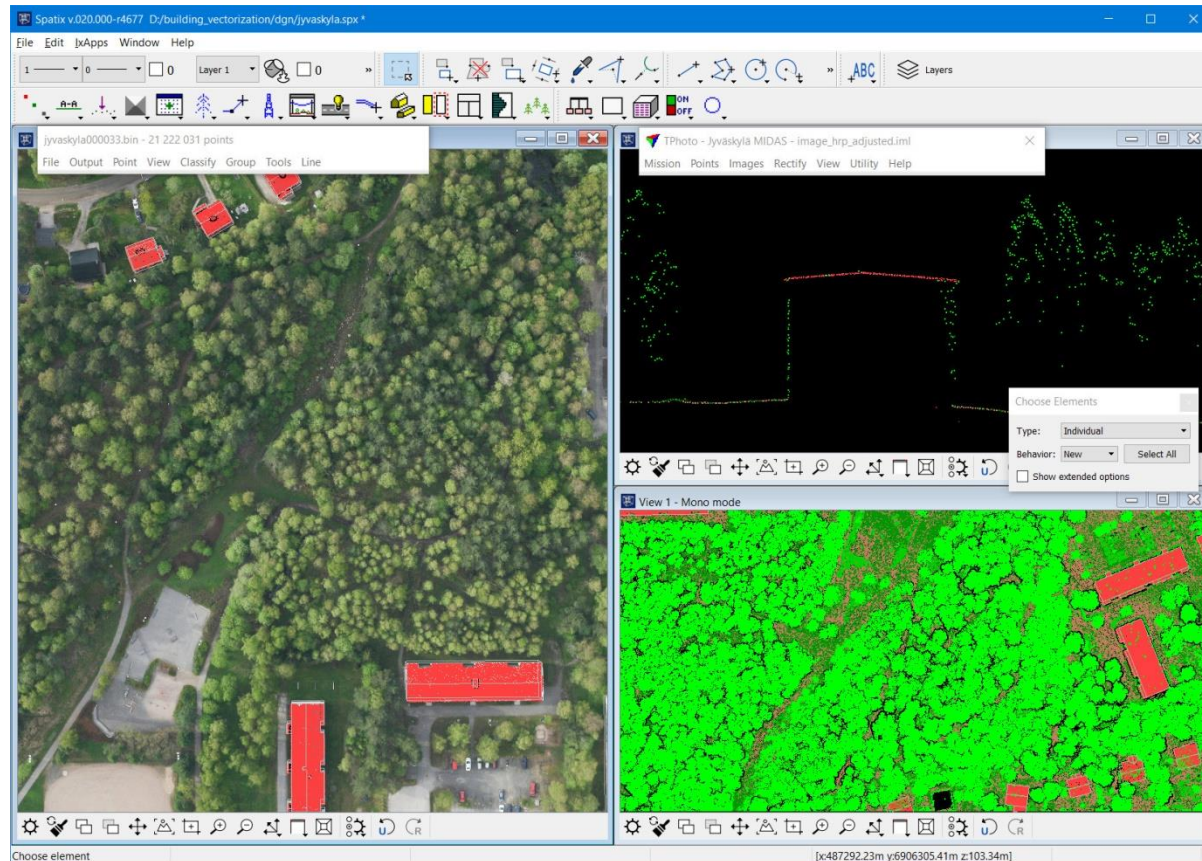




- The CAD System provides:
  - Tools needed to create, modify, delete and manage vector elements
  - Management of level names and ability set visible levels
  - 3D viewing capability and view manipulation tools
  - Data exchange in different formats
  - Ability to run applications from different sources simultaneously
  - Ability for users to implement own tools
- Practically same functionality in both platforms
- For Terrasolid software, the same licenses are valid for both platforms
- The customer decides which platform to use



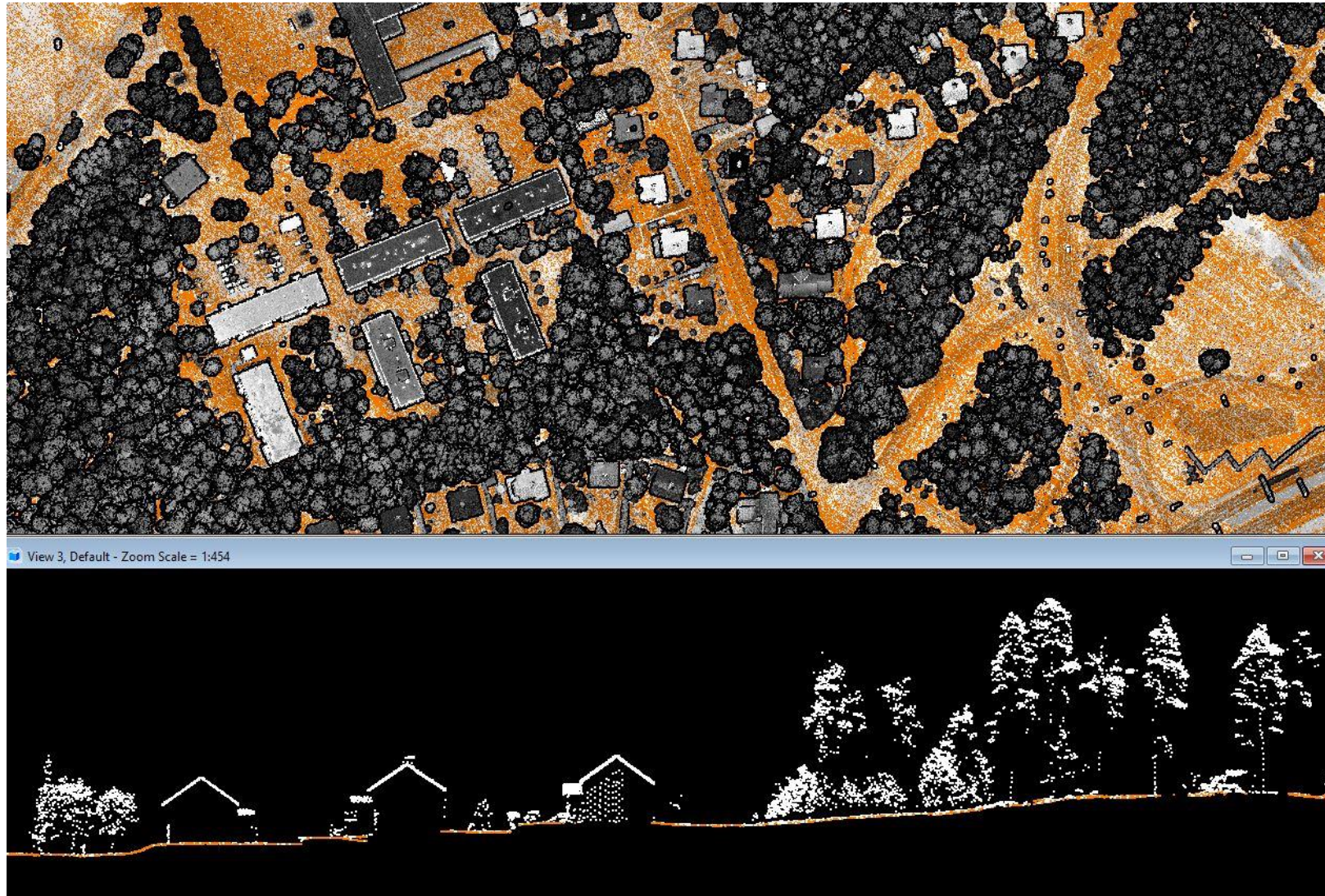




- Developed by GISware Integro, Russia in cooperation with Terrasolid
- Included in the Terrasolid software package
  - One price
  - One installation package
- Small and simple 3D CAD Software
- Up to 8 views supported: orthographic, perspektive, stereo
- Pulldown menu and tool boxes
- Programming interface “ixApps”

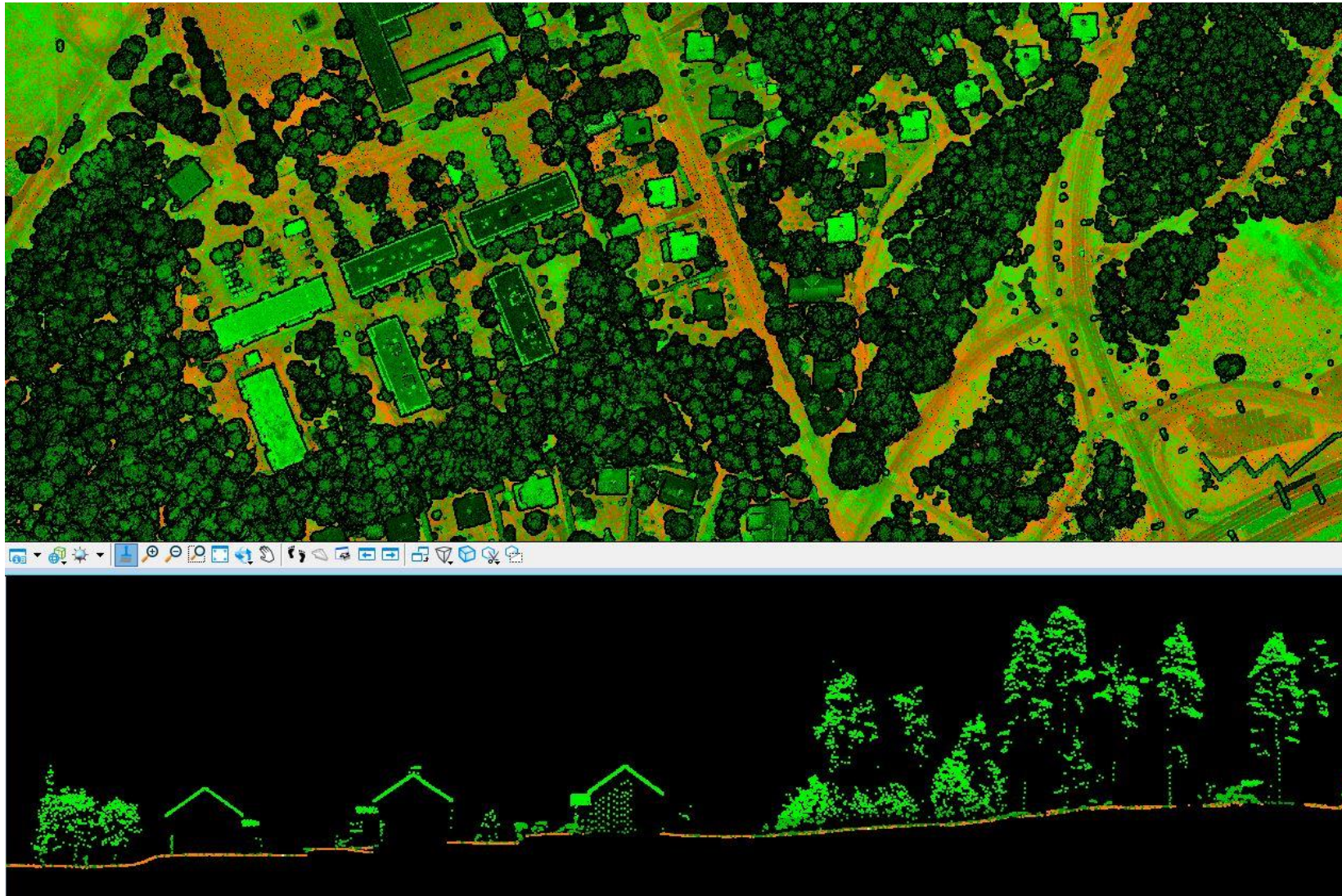


- Processing of point clouds, creation and modification of vector data



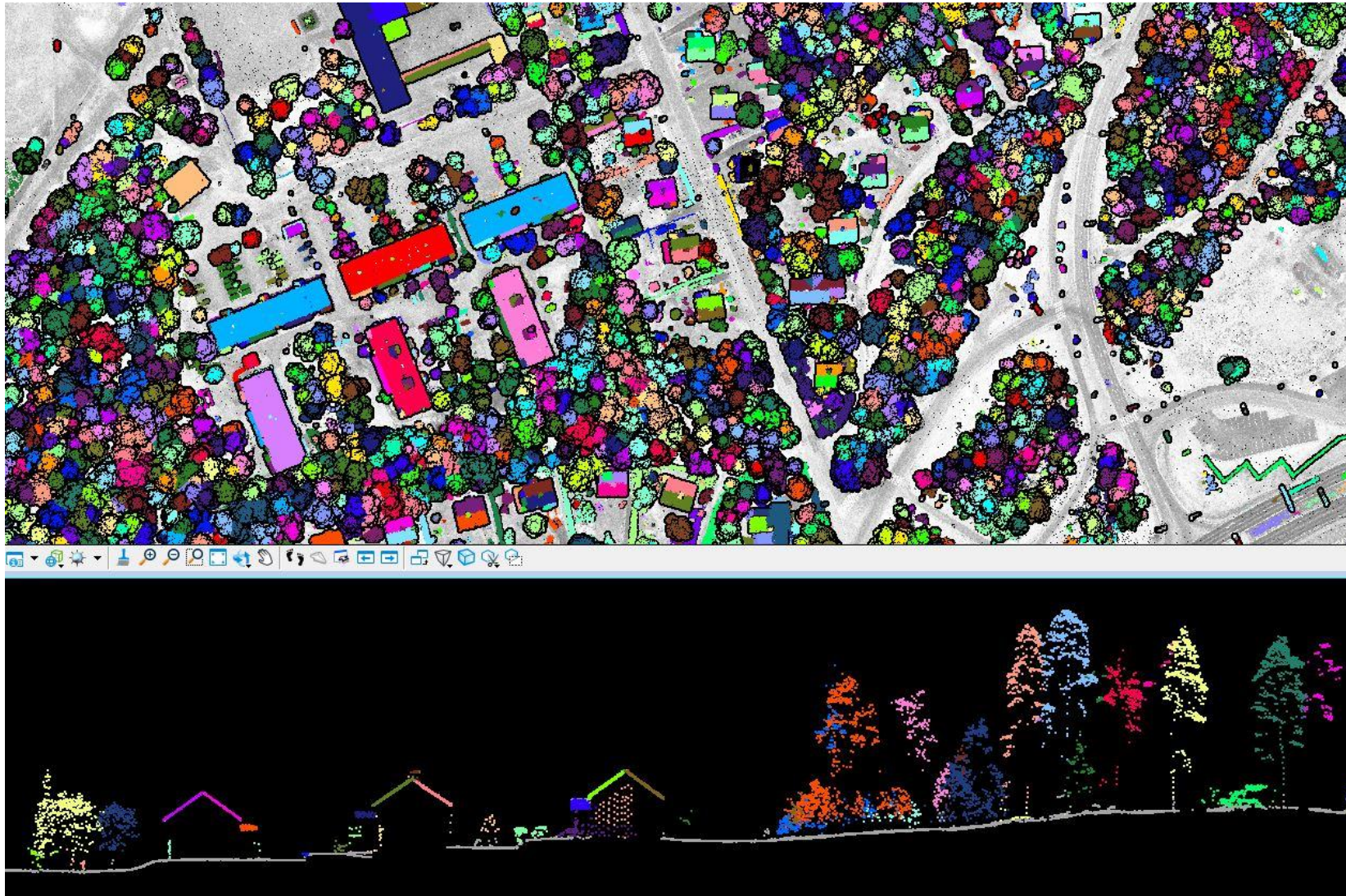


- Processing of point clouds, creation and modification of vector data



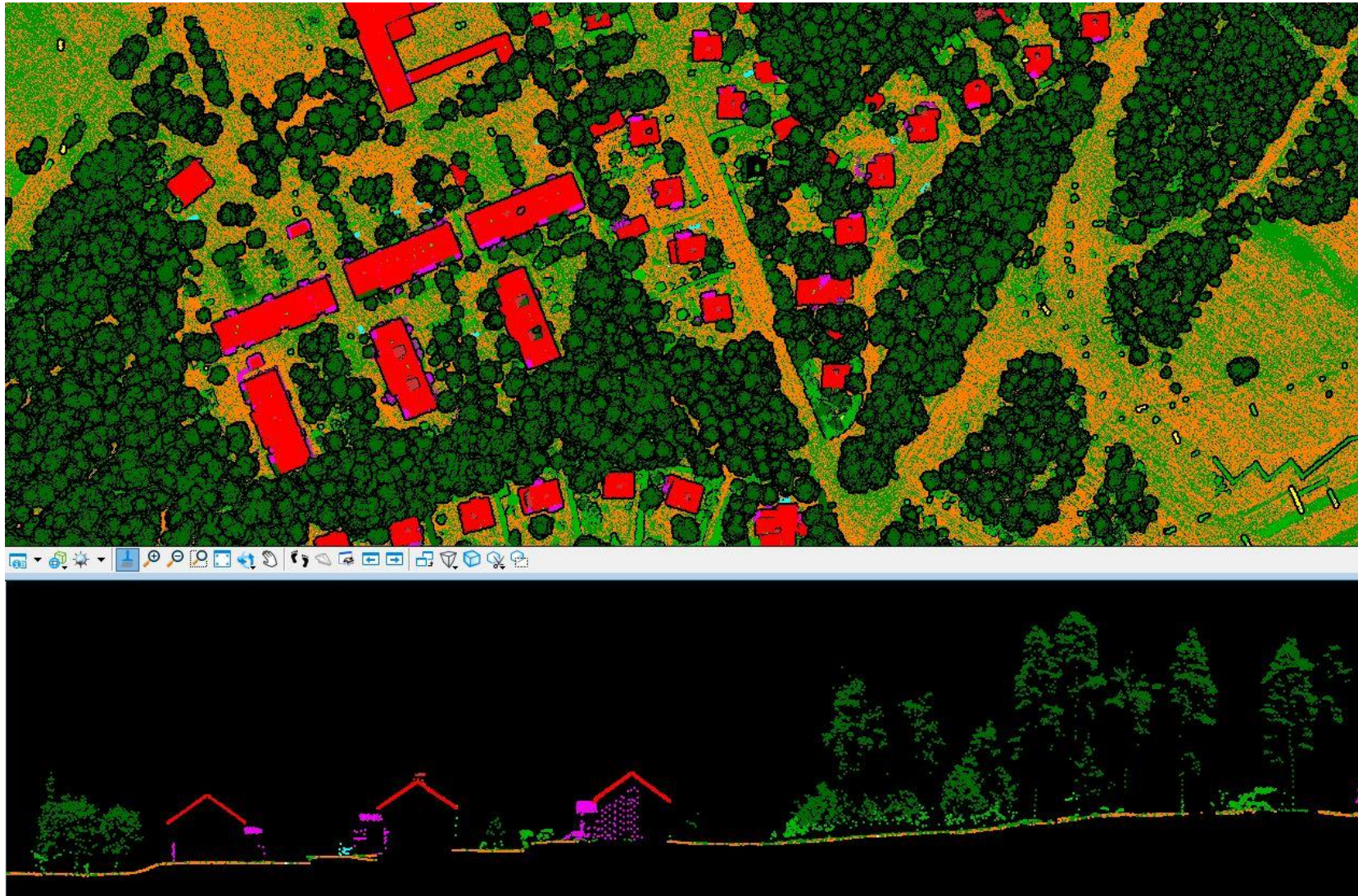


- Processing of point clouds, creation and modification of vector data



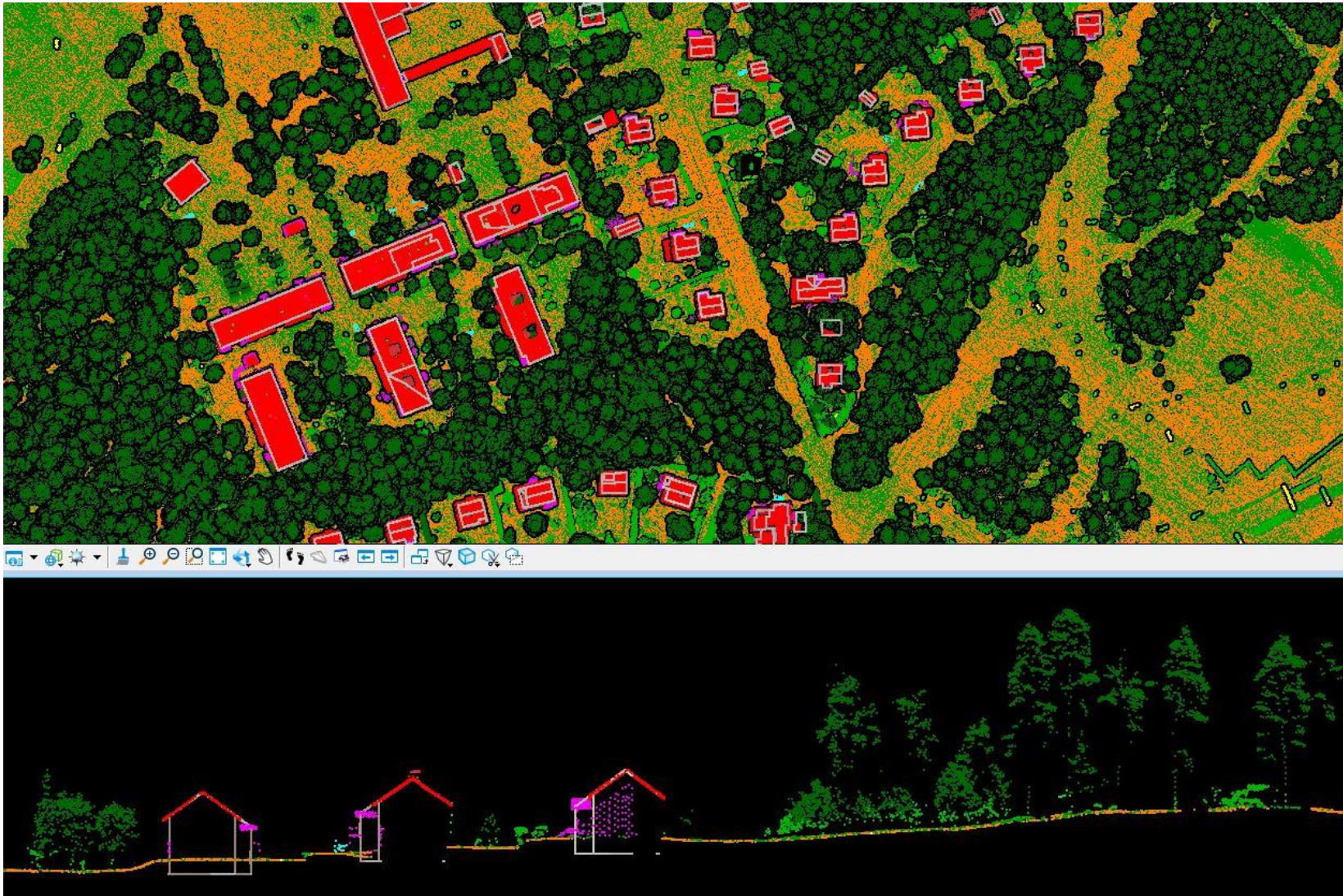


- Processing of point clouds, creation and modification of vector data





- Processing of point clouds, creation and modification of vector data





- Processing of image data, creation of rendered images and animations



nadir image



oblique image



- Processing of image data, creation of rendered images and animations



backward down



forward



forward left



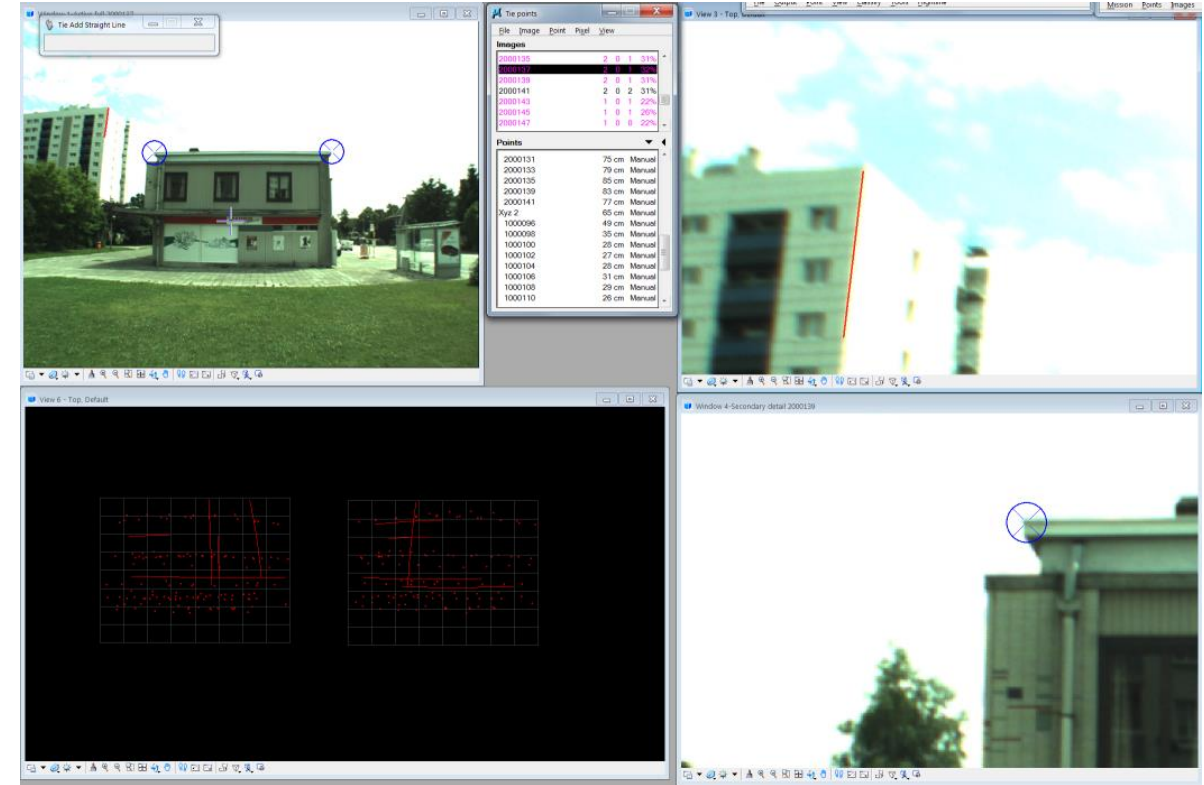
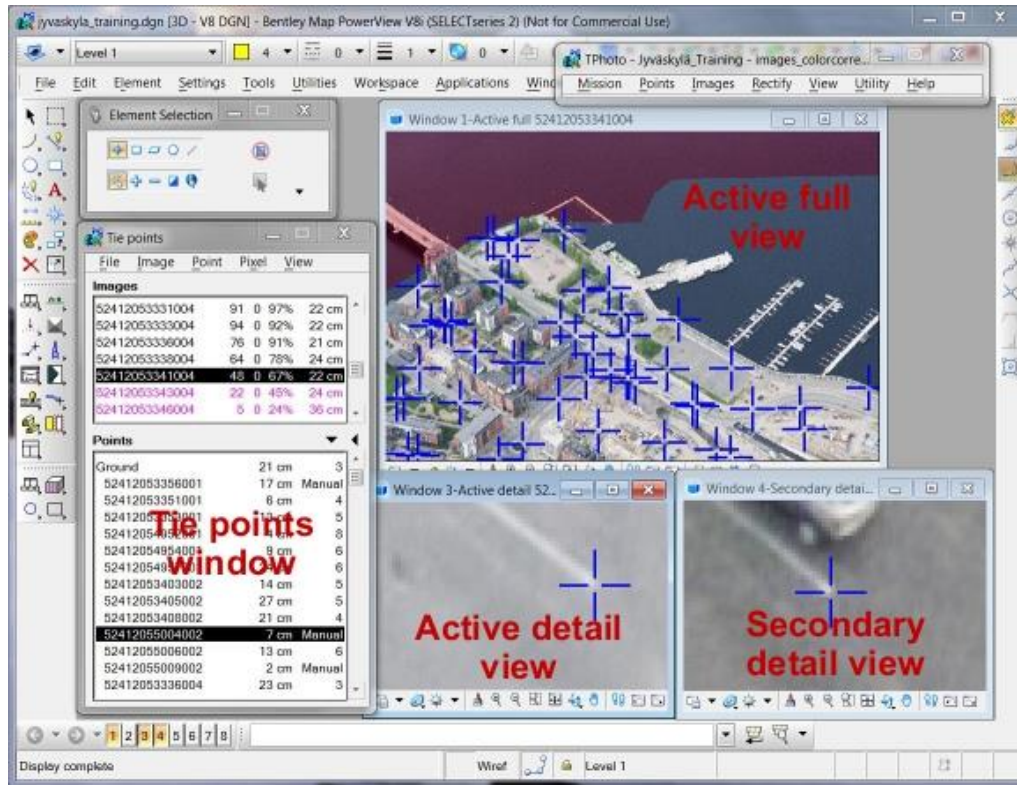
forward right



panoramic image



- Processing of image data, creation of rendered images and animations



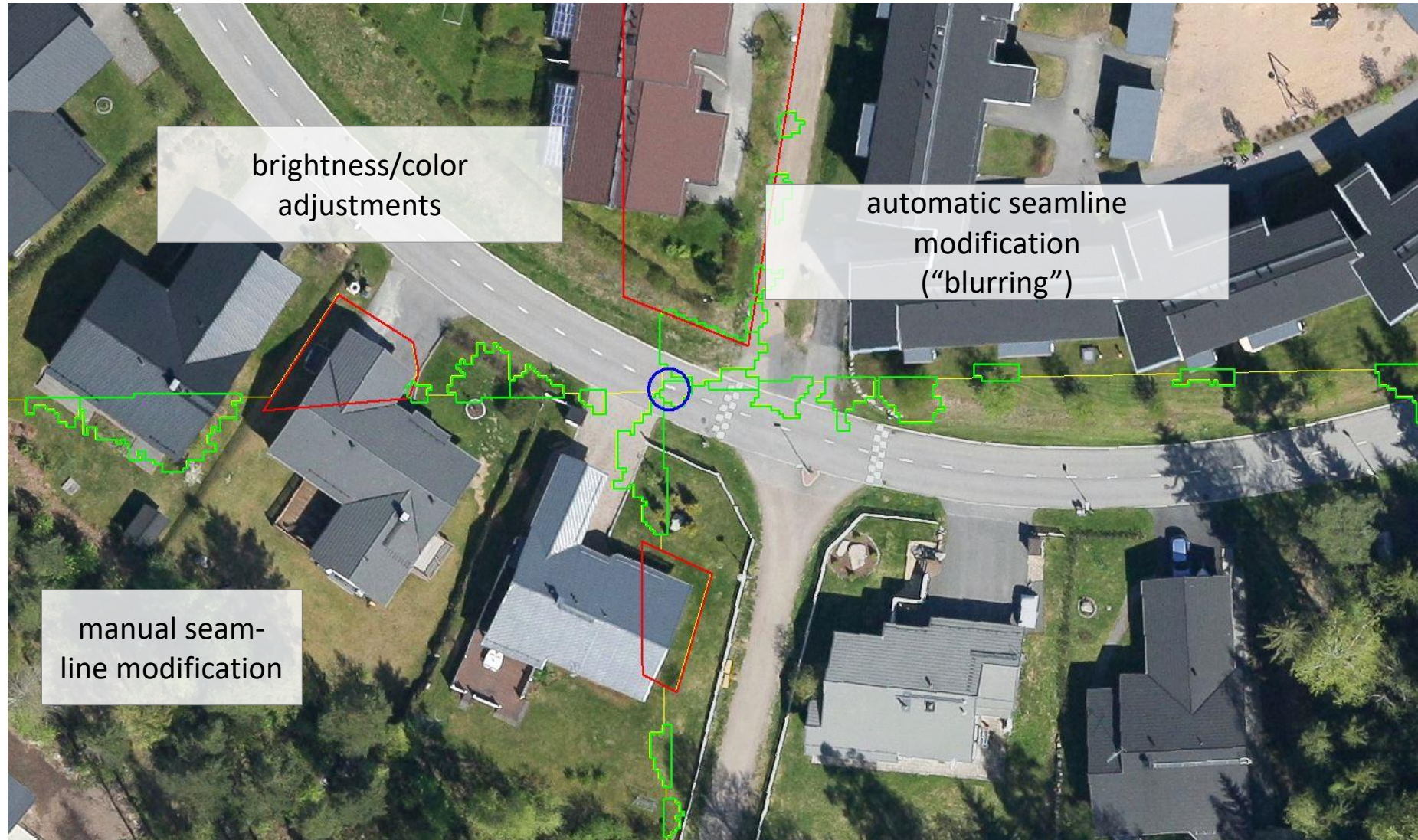


- Processing of image data, creation of rendered images and animations





- Processing of image data, creation of rendered images and animations





- Processing of image data, creation of rendered images and animations





- Processing of image data, creation of rendered images and animations



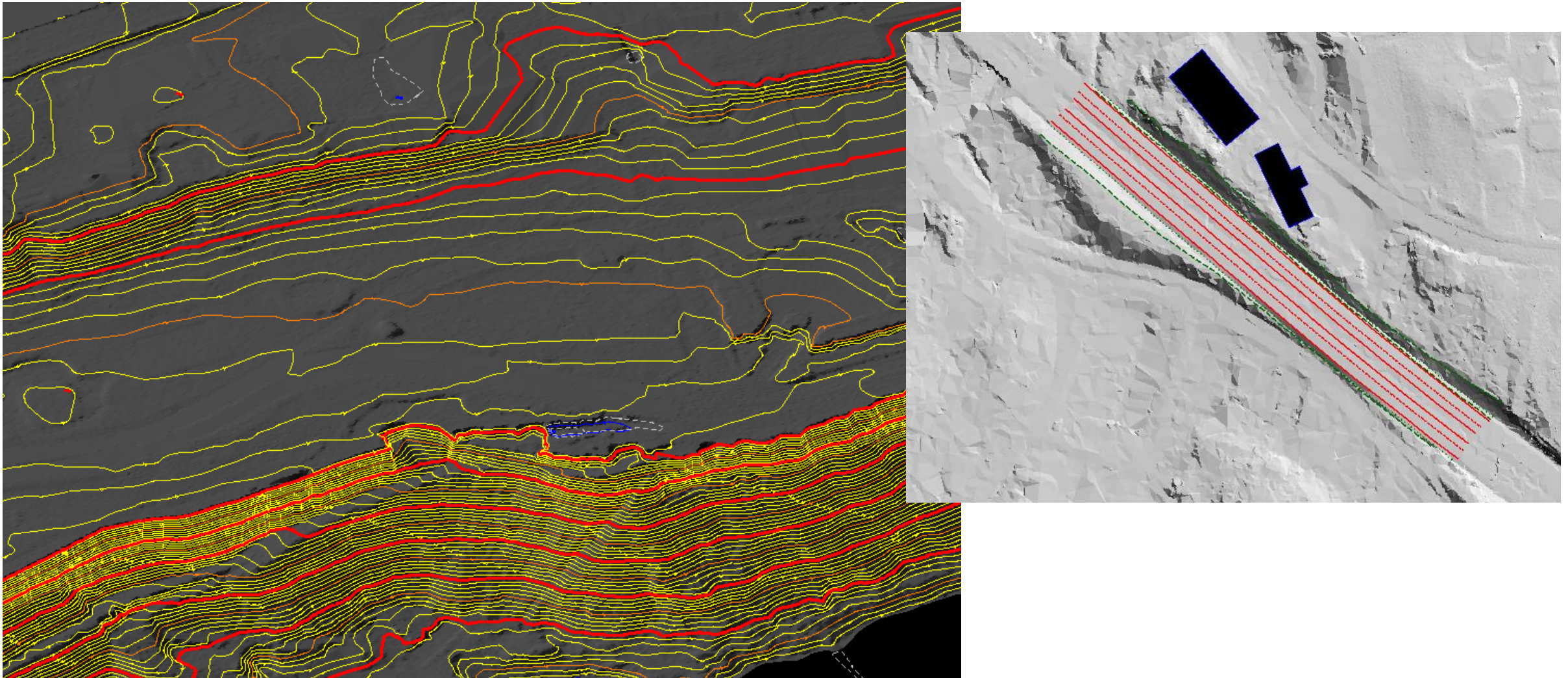


- Processing of image data, creation of rendered images and animations



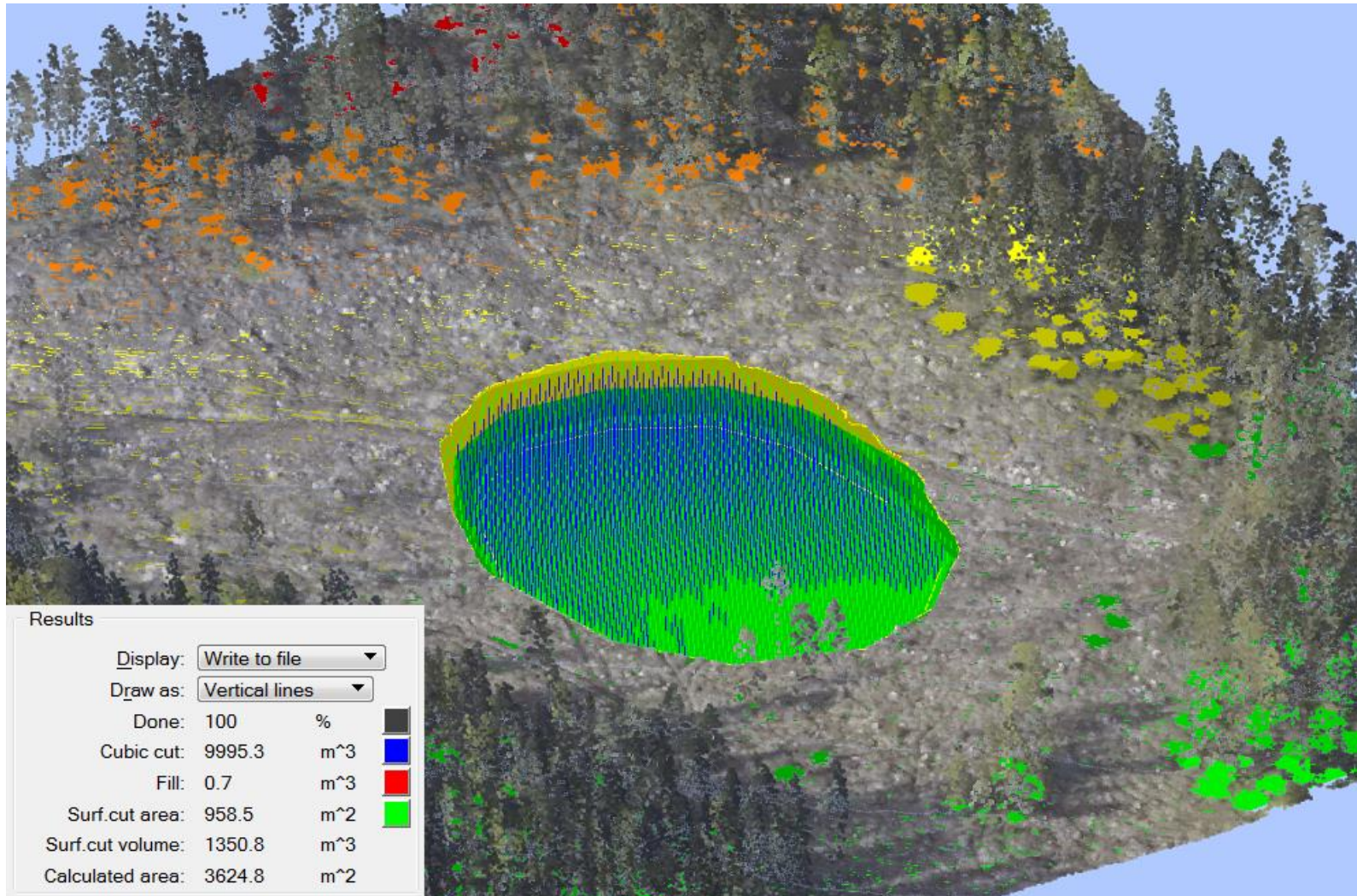


- Creation and visualization of surface models, volume computation



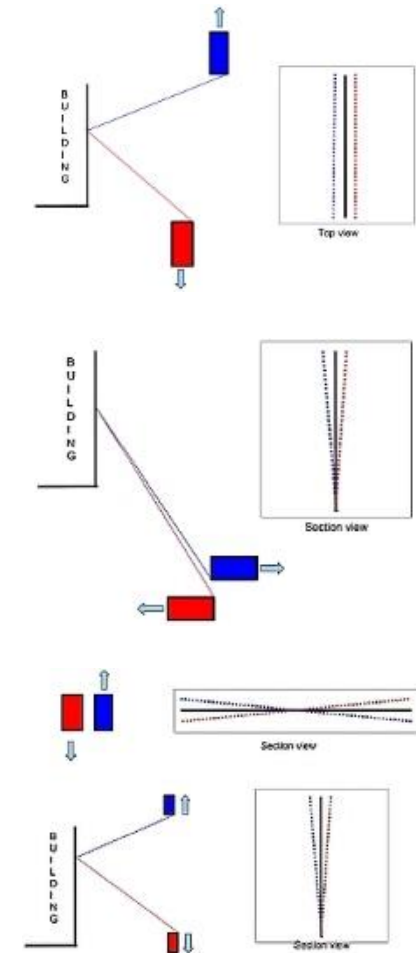
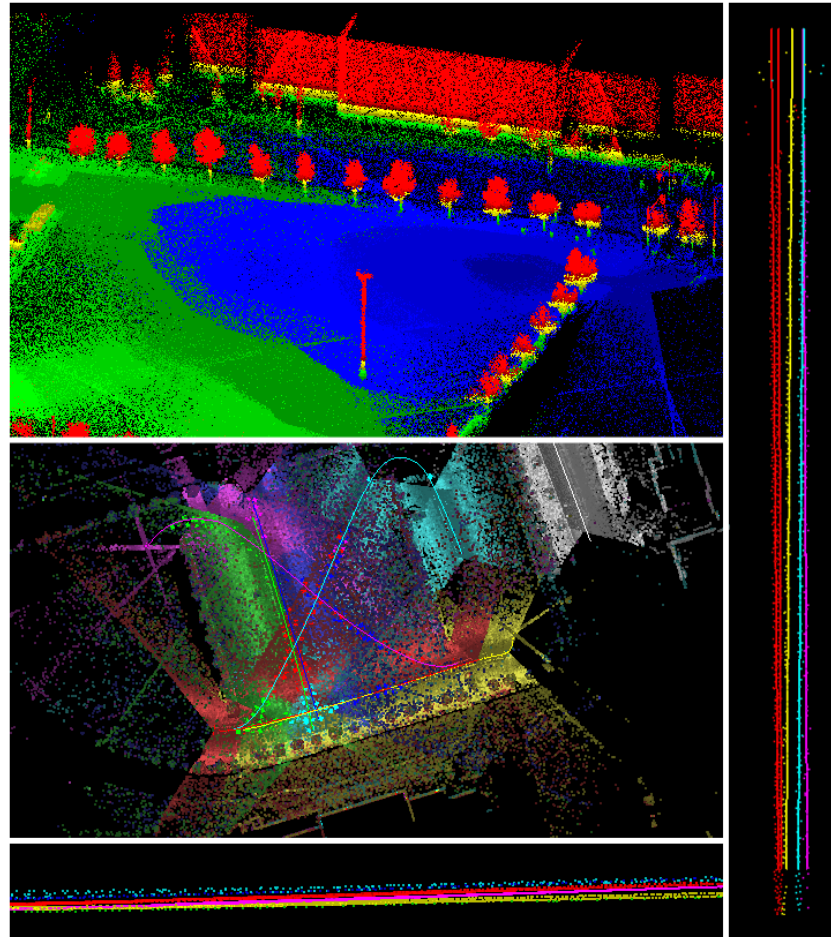
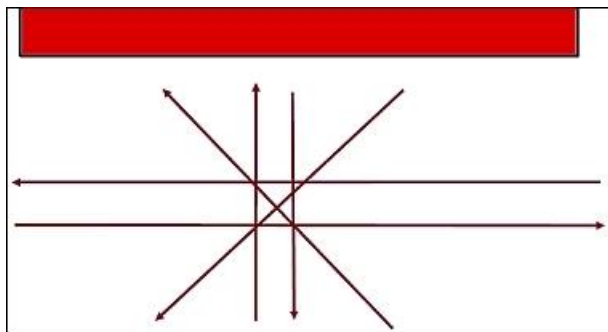
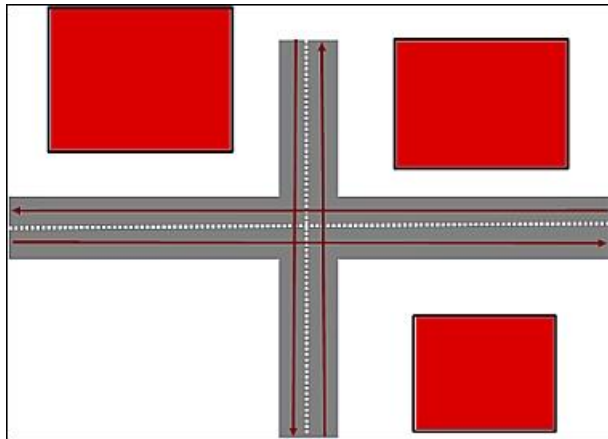


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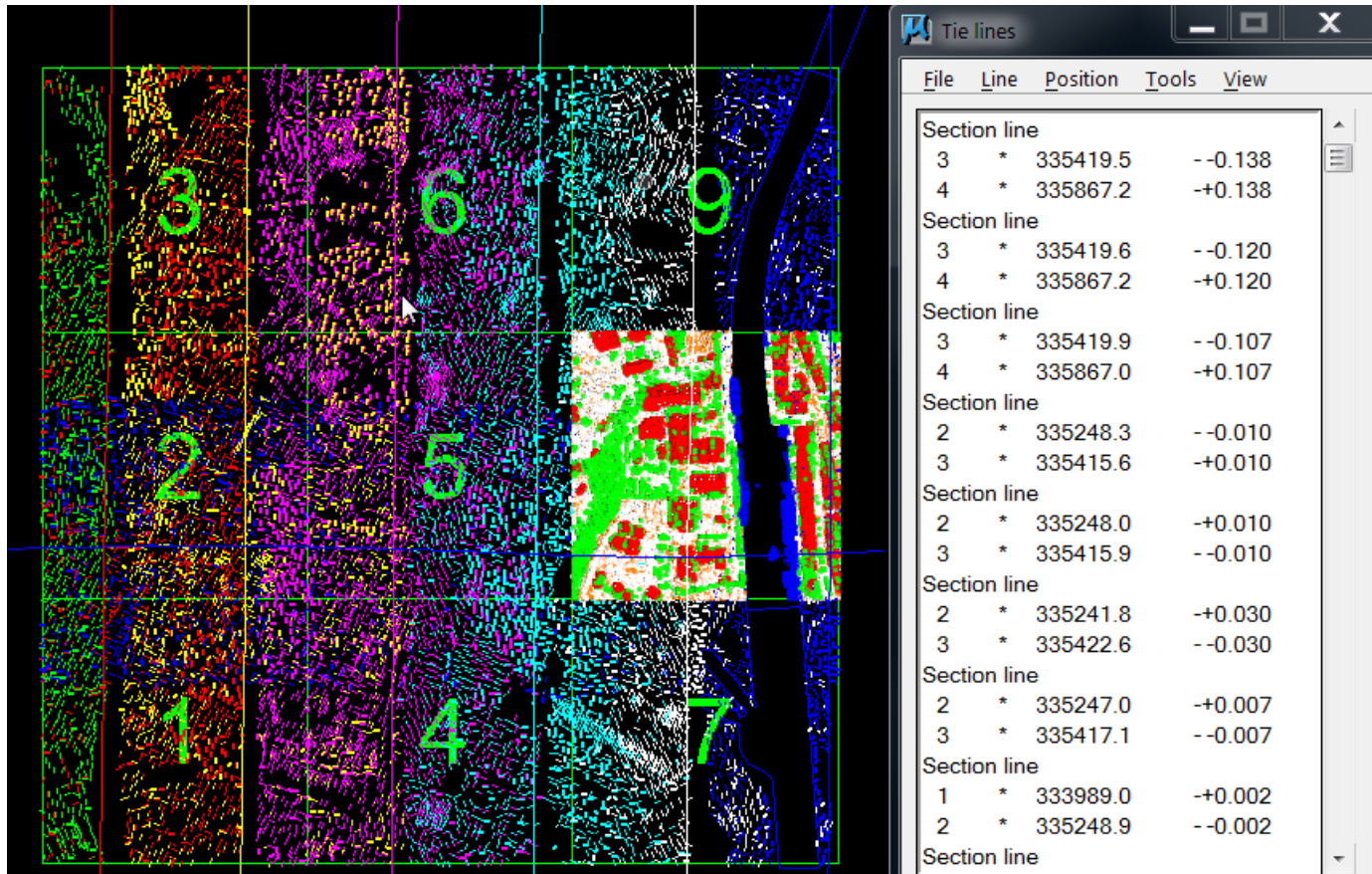


- Calibration of scanner systems, matching of flight lines/drive paths in ALS/MLS point clouds (correction of misalignment angles, XYZ shift and drift, GPS errors)



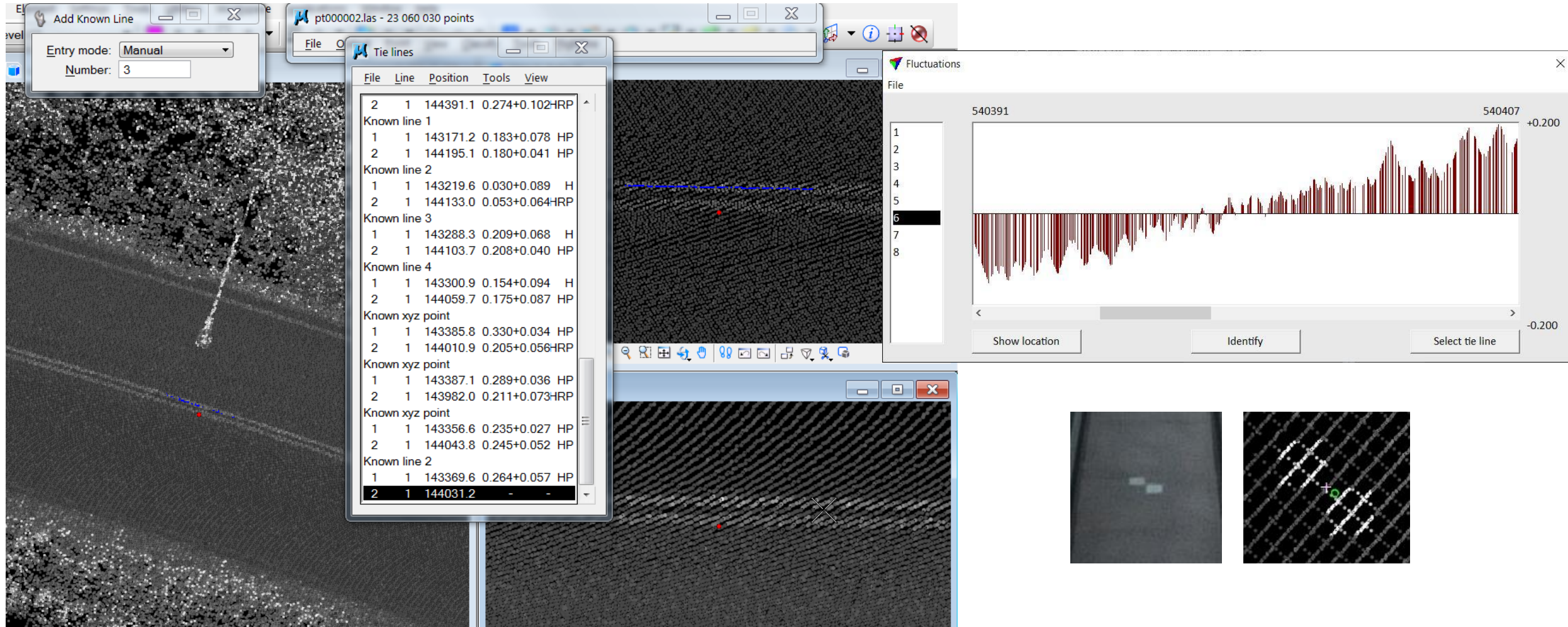


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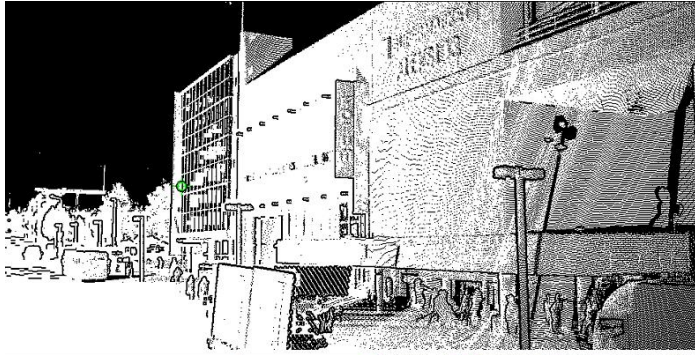
The screenshot displays the TerraMatch software interface with several key components:

- Main View:** A 3D point cloud visualization of a terrain with flight lines overlaid. A red dot and a blue line indicate a specific tie line location.
- Add Known Line:** A dialog box with "Entry mode: Manual" and "Number: 3".
- Tie lines:** A list window showing the following data:
 

File	Line	Position	Tools	View
2	1	144391.1 0.274+0.102	HRP	
Known line 1				
1	1	143171.2 0.183+0.078	HP	
2	1	144195.1 0.180+0.041	HP	
Known line 2				
1	1	143219.6 0.030+0.089	H	
2	1	144133.0 0.053+0.064	HRP	
Known line 3				
1	1	143288.3 0.209+0.068	H	
2	1	144103.7 0.208+0.040	HP	
Known line 4				
1	1	143300.9 0.154+0.094	H	
2	1	144059.7 0.175+0.087	HP	
Known xyz point				
1	1	143387.1 0.289+0.036	HP	
2	1	143982.0 0.211+0.073	HRP	
Known xyz point				
1	1	143356.6 0.235+0.027	HP	
2	1	144043.8 0.245+0.052	HP	
Known line 2				
1	1	143369.6 0.264+0.057	HP	
2	1	144031.2 - -		
- Fluctuations:** A graph showing vertical fluctuations between two flight lines. The x-axis represents line numbers (1-8) and the y-axis represents distance offsets from -0.200 to +0.200. A red line graph shows the fluctuation values.
- Bottom Right:** Two small inset images showing a close-up of the point cloud and a corresponding ground truth or reference image.



- Mono-/Stereovisualization of big point clouds, visual analysis





# Contact and Requests

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