Terra solid

POINT CLOUD INTELLIGENCE

DATA FUSION

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GWF
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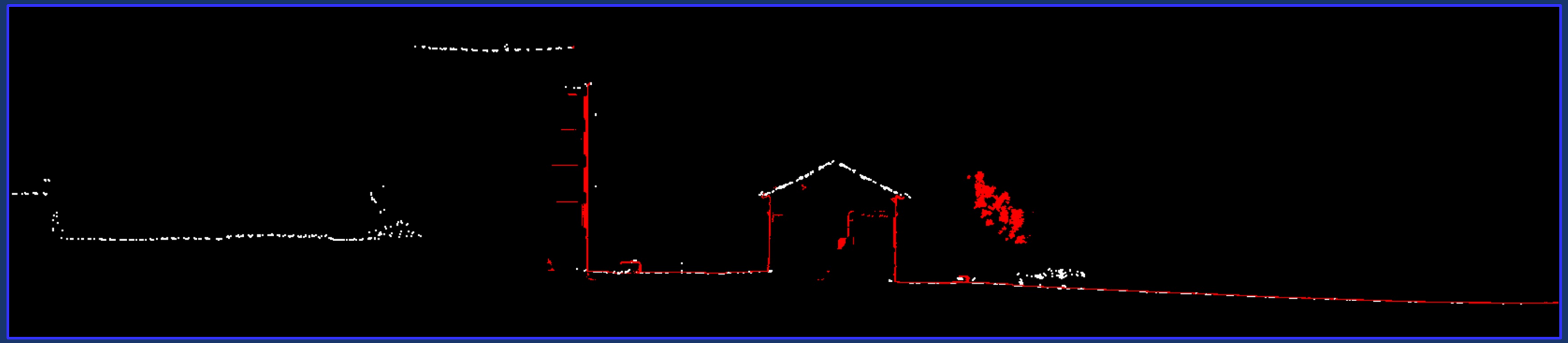
Merging Point Clouds from Different Sensors

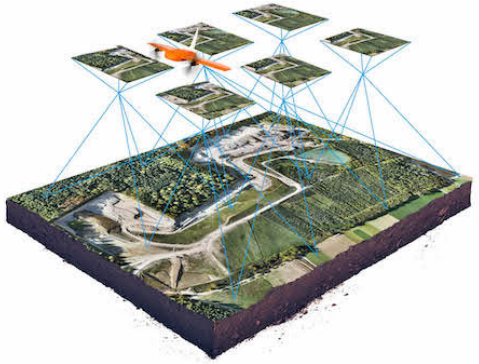
- Different sensors see different surfaces – merging produces a more complete model
- Merging requires planning and many decisions on how to merge
- Matching positioning is of vital importance
- Time difference between surveys complicates process



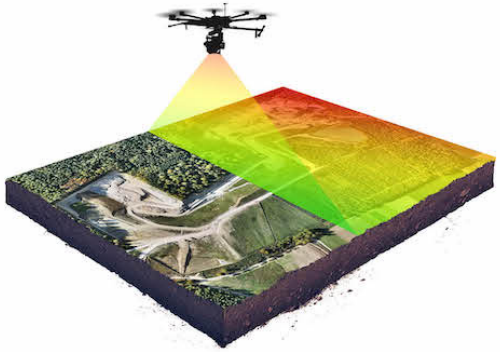
Airborne laser - white/mobile laser - red

Sensors for Creating Point Clouds

ALL POINT CLOUDS
NO MATTER THE SOURCE
NO MATTER THE SENSOR
NO MATTER THE SIZE



PHOTOGRAMMETRY



LASER SCANNING

Image: Wingtra

ALS Image: HELINET

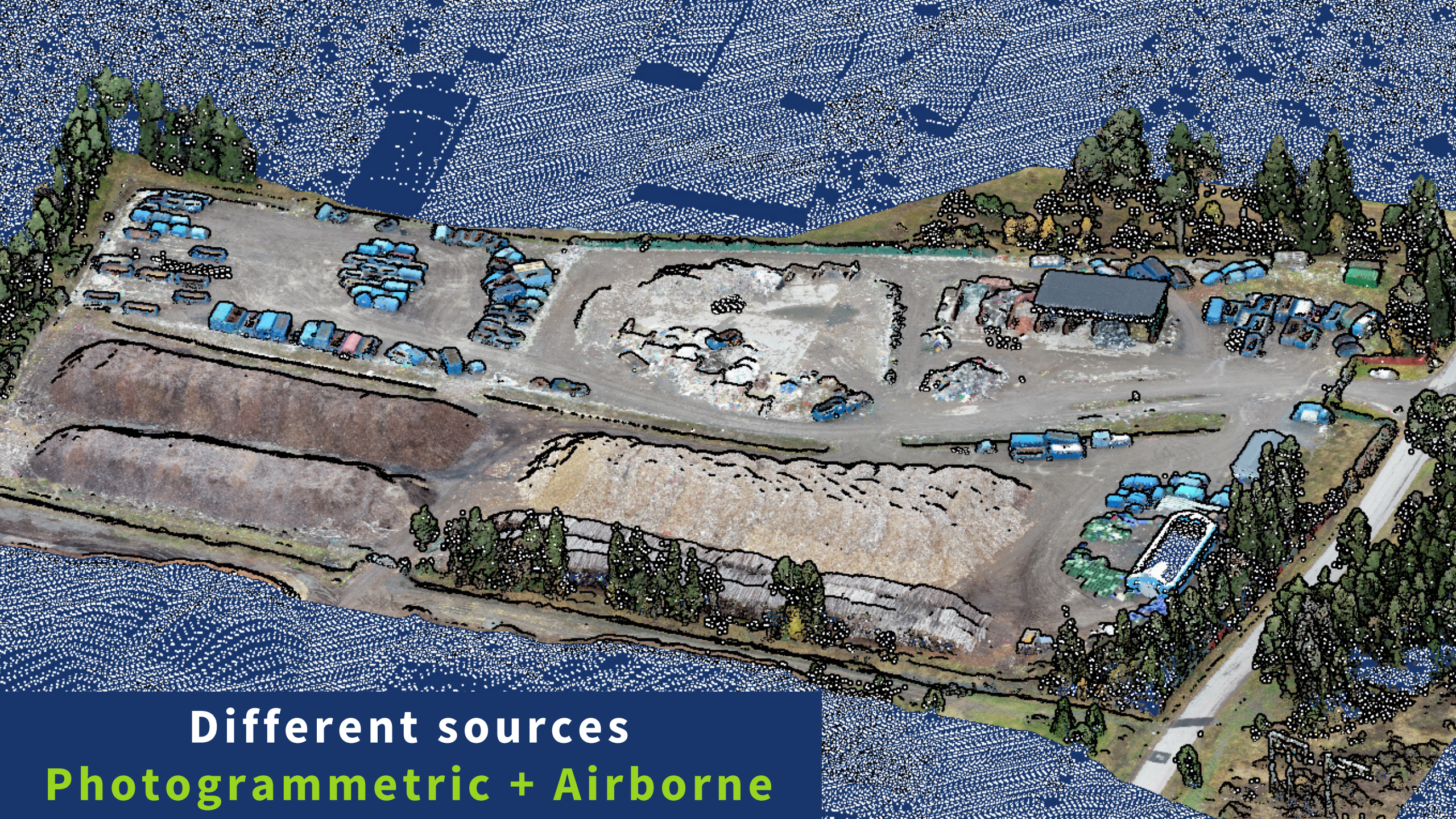
MLS Image: TOPCON

UAV Image: Phoenix LiDAR

HANDHELD Image: GEO-SLAM

Different sources

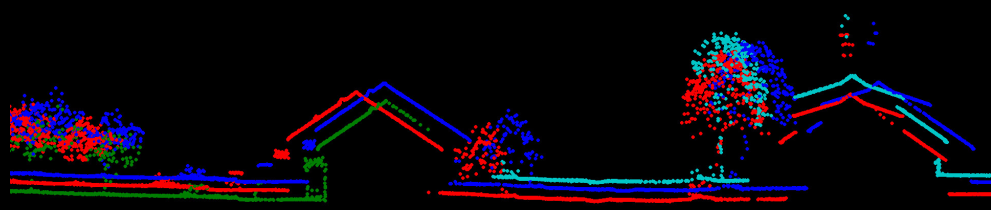
Airborne + Mobile



Different sources

Photogrammetric + Airborne

Diversity of tools to merge the pointclouds

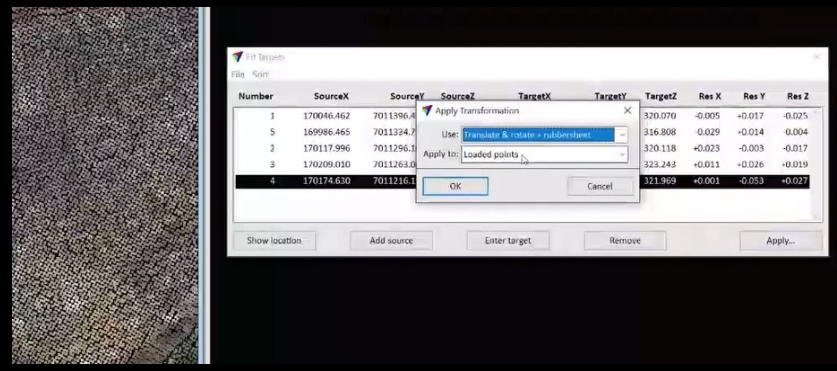


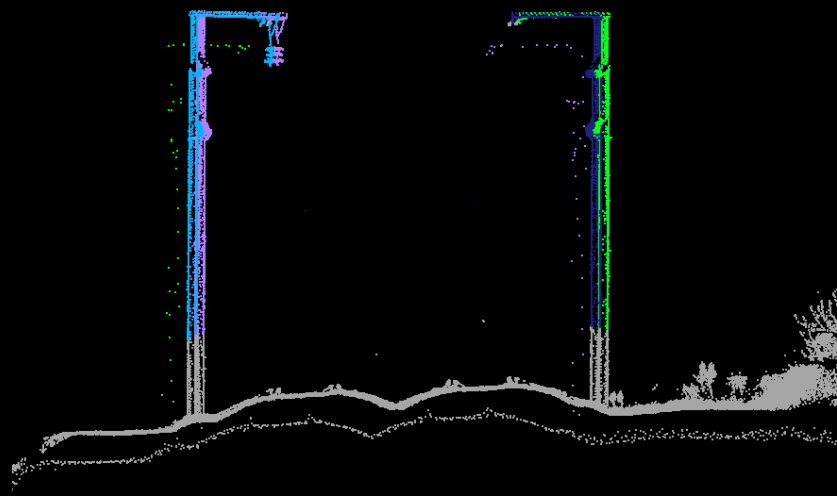
TerraScan

- On loaded points (smaller projects)
- No need trajectory or timestamps info (suitable for photogrammetric pointclouds)

TerraMatch

- Possibility to run on project
- Trajectory information is used in matching process
- Can use different sources as reference



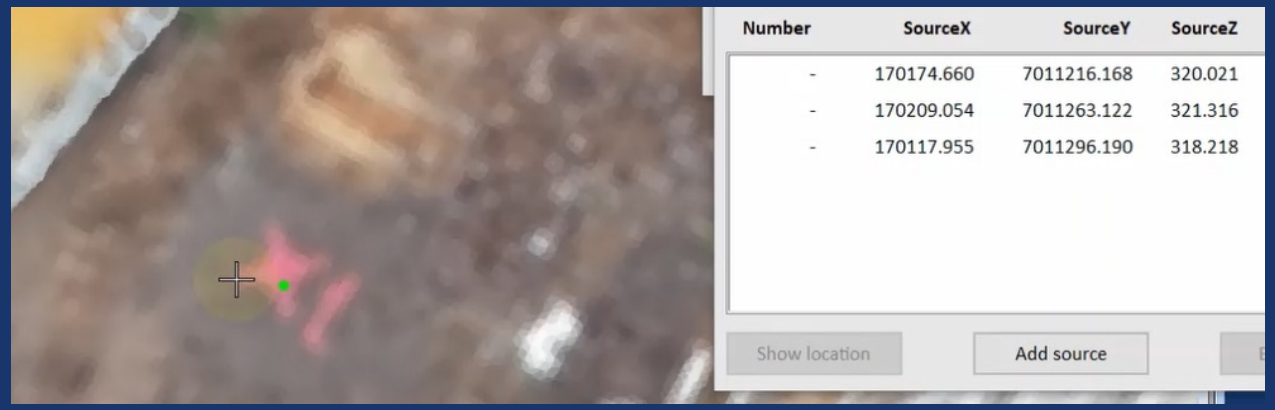


TerraScan

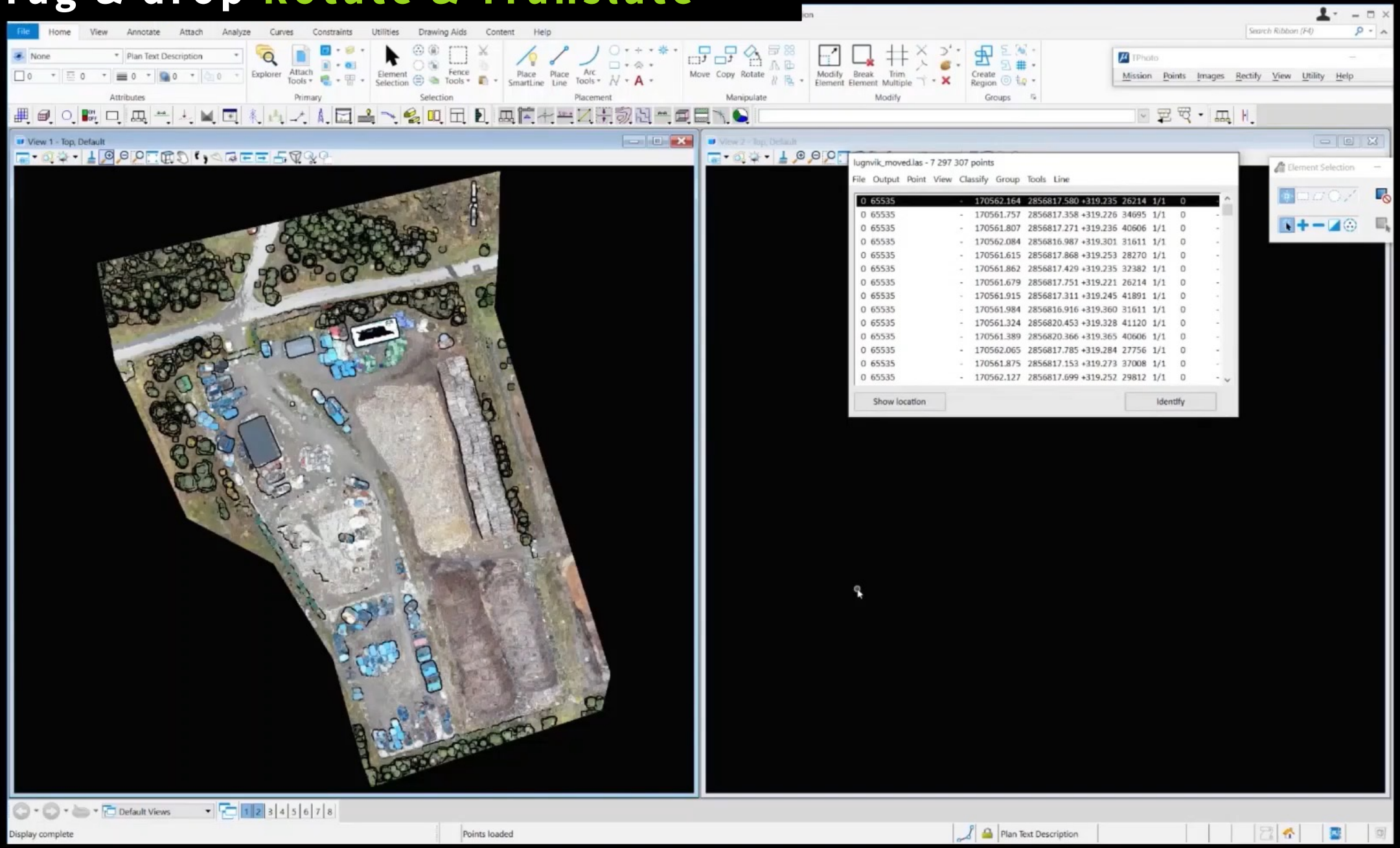
MANUAL
drag & drop

SEMI-AUTOMATIC
Match to GCPs

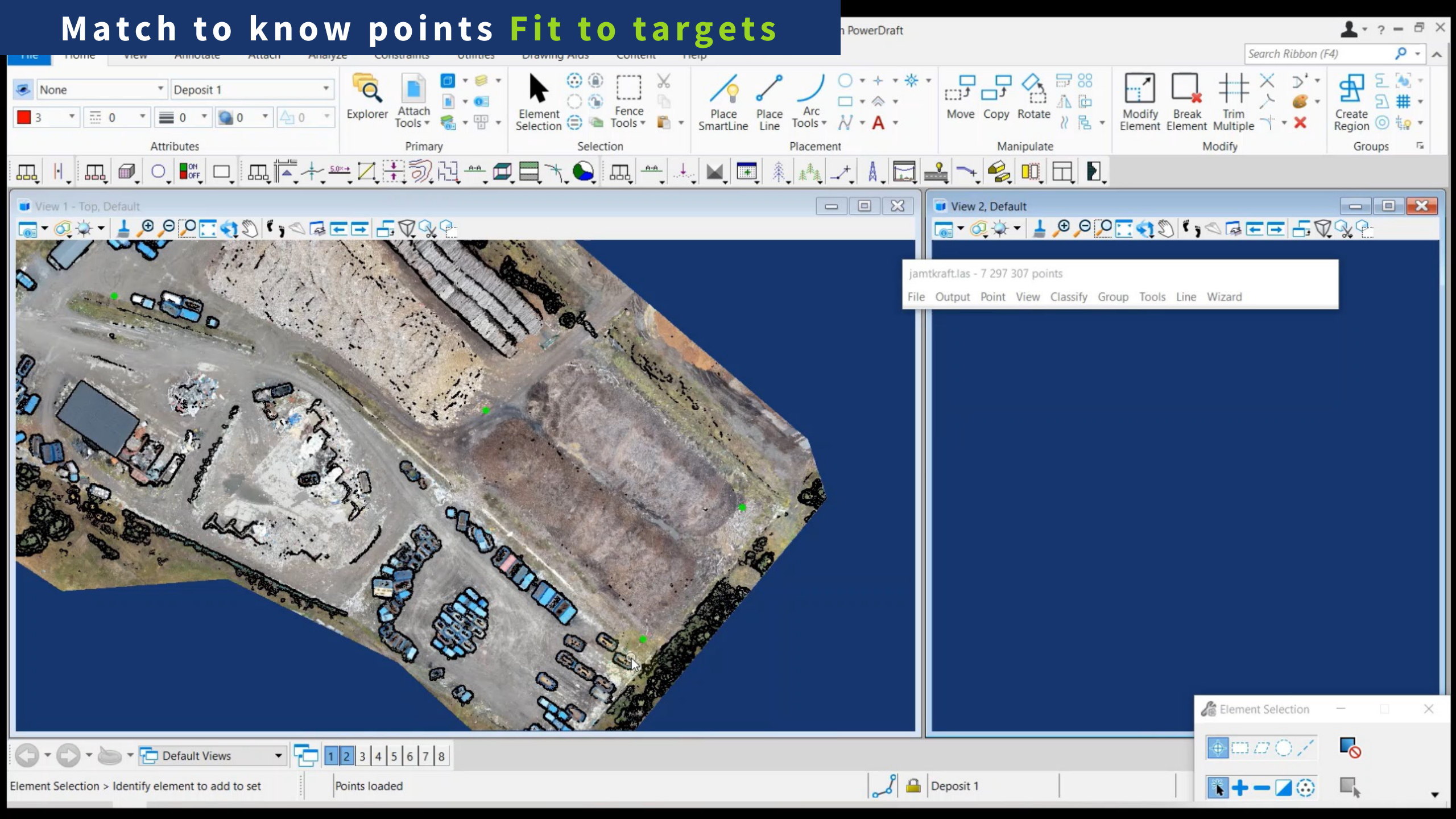
AUTOMATIC
Fit to reference



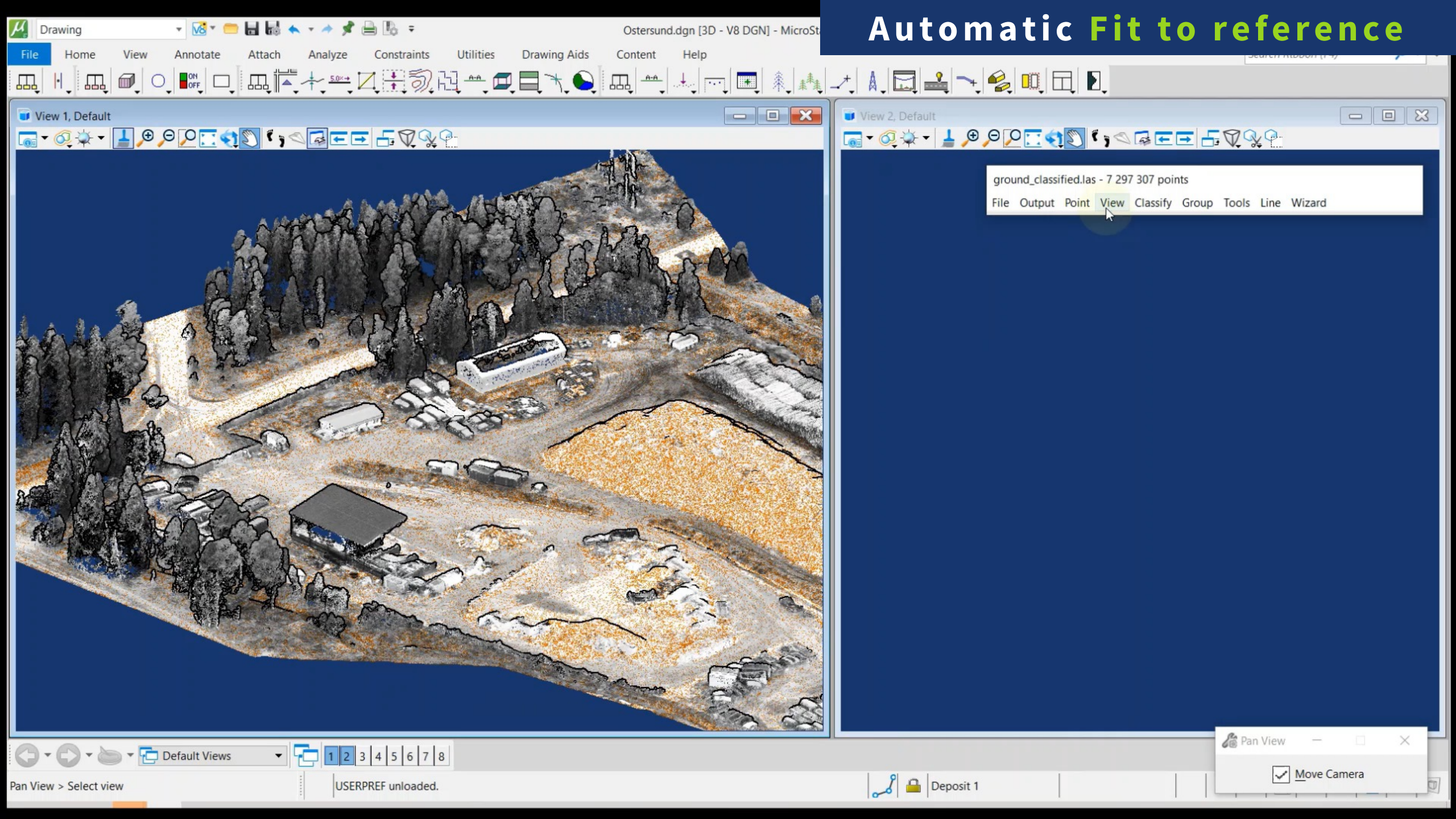
Drag & drop Rotate & Translate



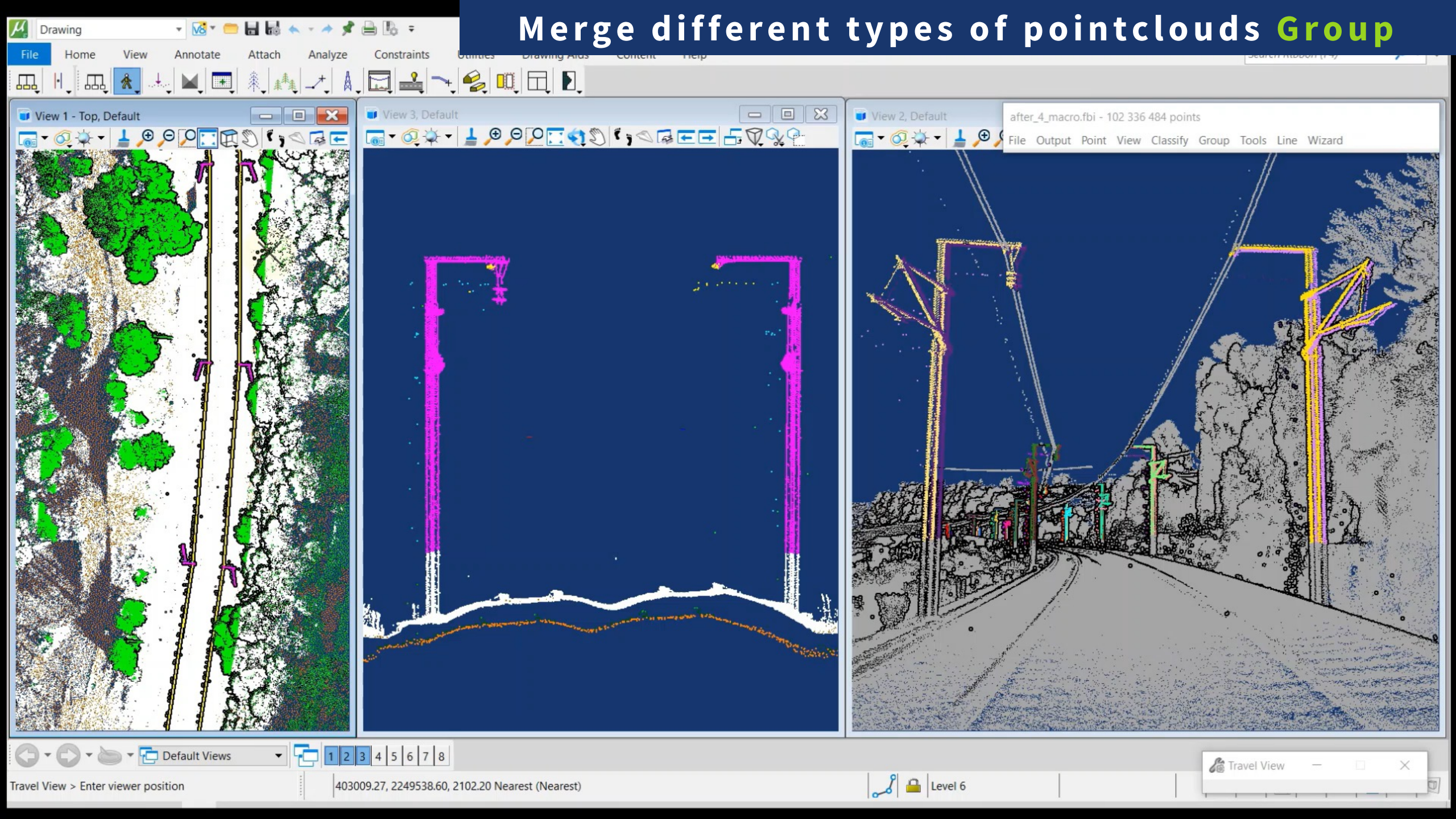
Match to know points Fit to targets



Automatic Fit to reference

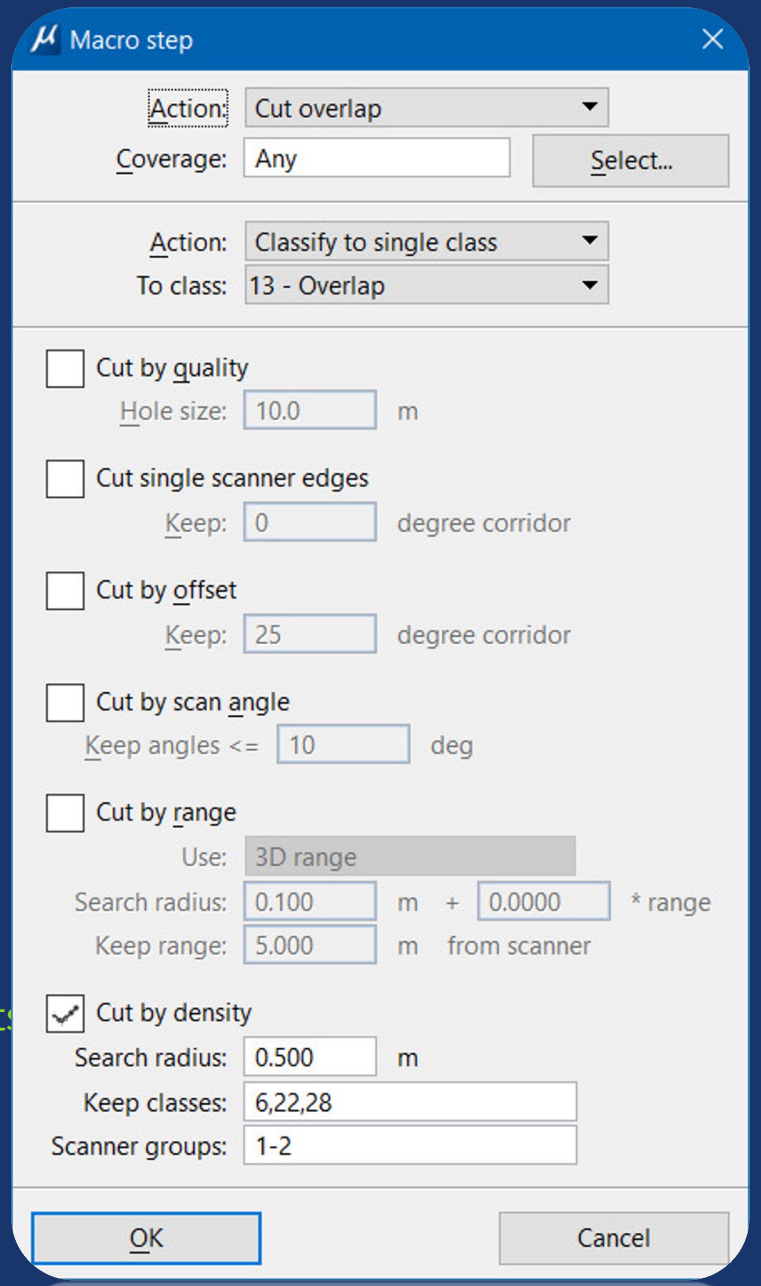


Merge different types of pointclouds Group



Which Points to Keep in Merged Data Set?

- **Point clouds from different sensors overlap in many places**
- **Often best to use data from one sensor only on one surface**
- **Best to cut overlap (principles)**
  - Manual cut – user draws polygons for cutting
  - By quality – keep data from more accurate sensor, remove all closeby points from another less accurate sensor
  - Can specify quality by time: latest is the best
  - By range – keep shorter measurement range points, remove all closeby points with longer measurement range
  - By density – keep data from locally highest density sensor, remove all closeby points from lower density sensor
  - By class – example: keep specific sensor on wall and on roof surfaces



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MAIN CONSULTING FIRMS	**5,000+** TERRASCAN	**8** INDUSTRY TOOLSETS	

Thank you for your attention!

Welcome to booth 39A

THE INDUSTRY STANDARD SOFTWARE FOR POINT CLOUD AND IMAGE PROCESSING

TERRASOLID SOFTWARE RUNS ON CAD

Terra solid
POINT CLOUD INTELLIGENCE

Bentley

MicroStation, PowerDraft, etc.
Channel Partner
Product Robustness

SPATIX

Integrated
Customizable
Inexpensive