Fáilte!

Seminarvortrag zu meiner Praxisphase bei
Murphy Surveys Ltd.

vom 16. März bis zum 07. Juni 2015

am 08.10.2015 an der Hochschule Bochum

vorgetragen von Florian Rogosch

Übersicht

- Allgemeine Vorstellung meiner Praxisstelle

- Einführung in meine Arbeit im Innen- sowie Außendienst

- Detailliertere Vorstellung meiner Arbeit an Hand eines beispielhaften Projekts
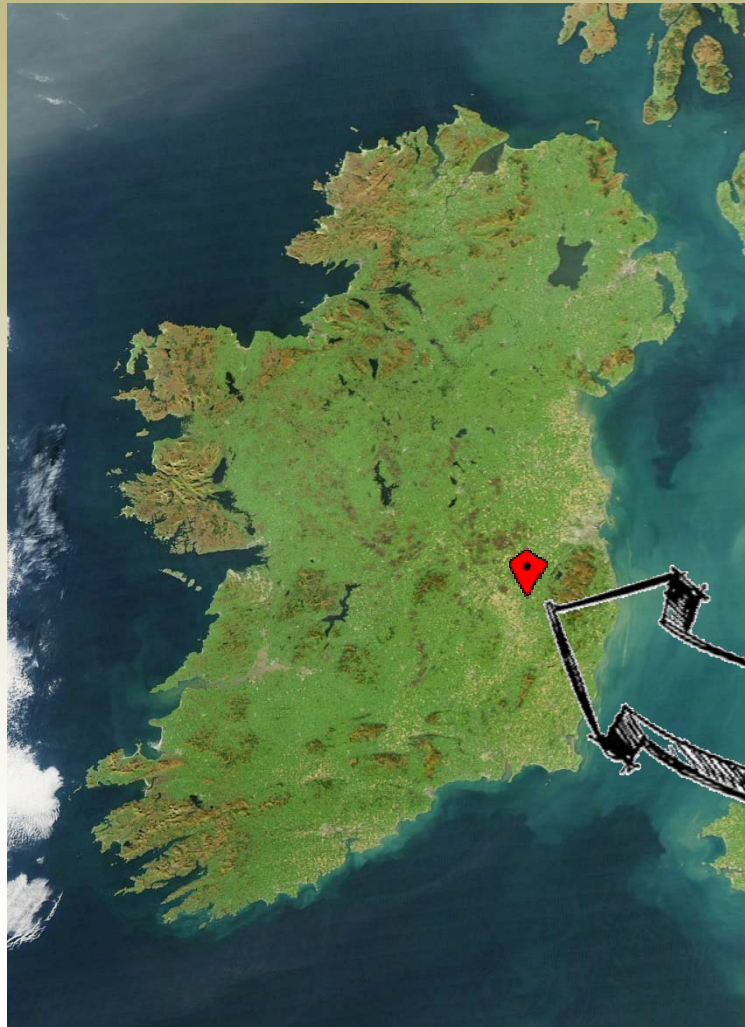
Murphy Surveys Ltd.

- Established in 1983 *(in the Rep. of Ireland)*

- Nationwide and international operating consultant surveying company

- Several offices in Ireland and the UK

- With a staff of over 120 people in Ireland and over 60 people in the UK

Location

http://www.murphysurveys.com/wp-content/uploads/2015/02/About-Us-image-440x370.jpg

Irish head office is based in **Kilcullen**, Co. Kildare

https://upload.wikimedia.org/wikipedia/commons/7/74/Ireland_%28MODIS%29.jpg
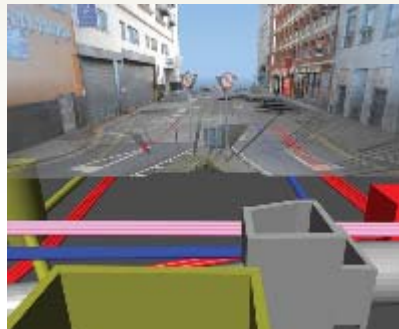
Survey services *(selection)*

Laser Scanning

Monitoring

BIM

Underground
Utility Surveys

Topographic
Surveys

Photographic &
Aerial Surveys

Daily work

in the **laser scanning department**

- A team with around 13 people
  very international !

- work on site → ⅔ of the time
  assisted experienced surveying engineers

- office   → ⅓ of the time
  processed the data I gathered on site

Equipment

Leica P20 Laser scanner

Leica TS15 total station

Z+F Imager 5010C
Laser scanner

Equipment

http://www.surveyingequipment.com/uploaded/public/4e31747e84b196.97755820.jpg

Leica GS15 GPS set

Leica DNA digital level

http://www.allenprecision.com/media/catalog/product/l/e/leica_dna03.jpg

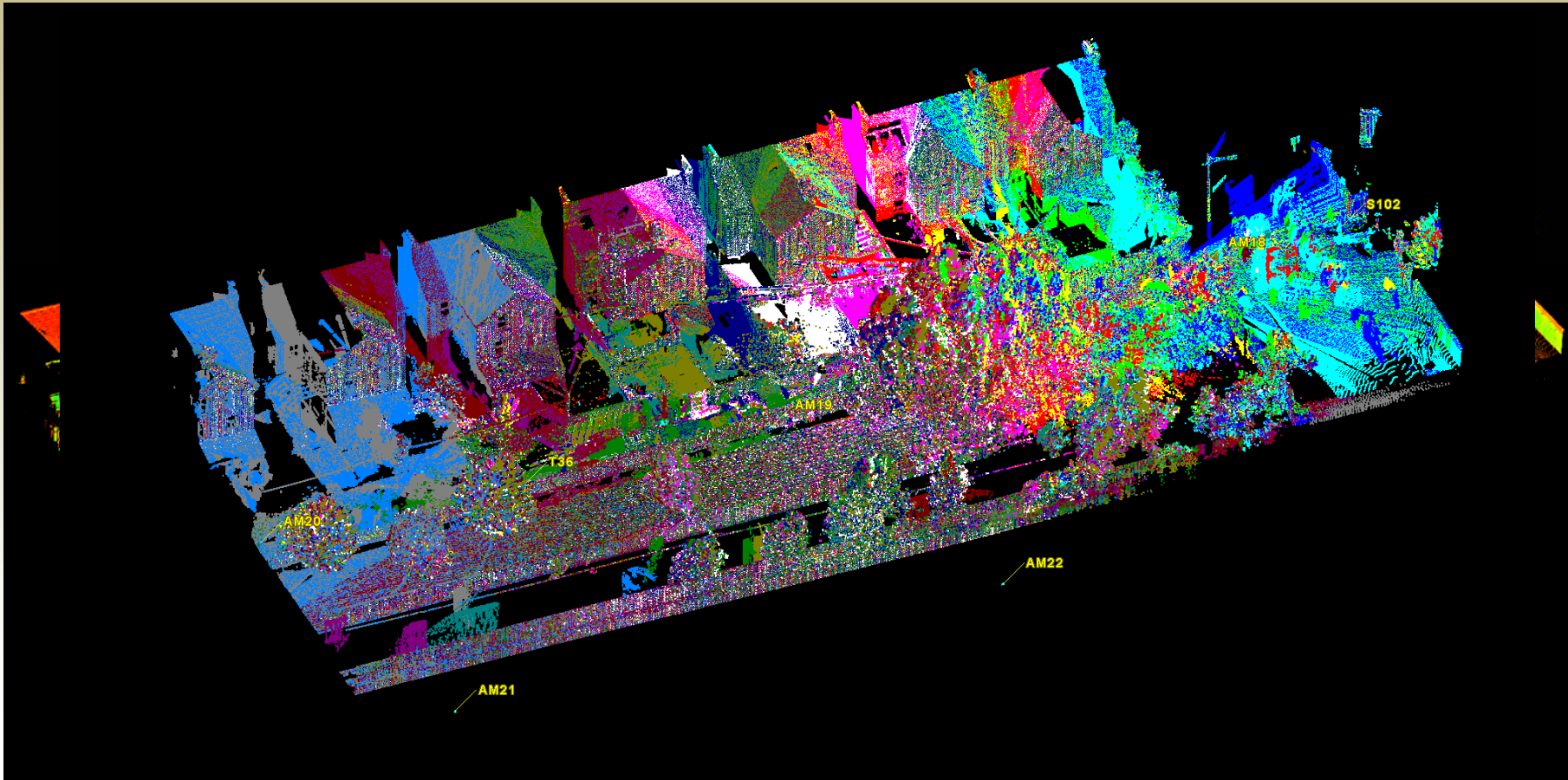# Office
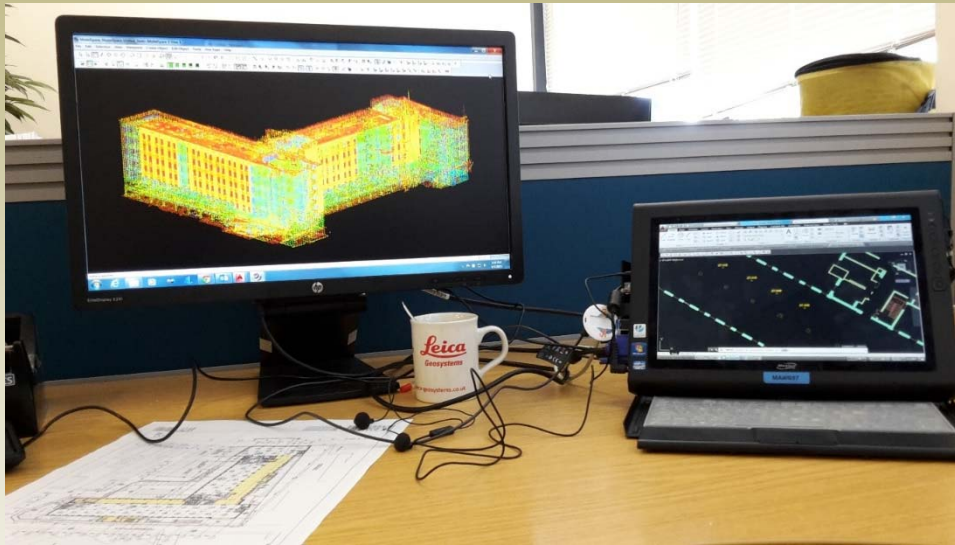
Typical workspace in the office

Extracting features of a 3D unified point cloud to a 2D floorplan

Work with **Leica Cyclone** and **Leica CloudWorx** for **AutoCAD**

Office - registration

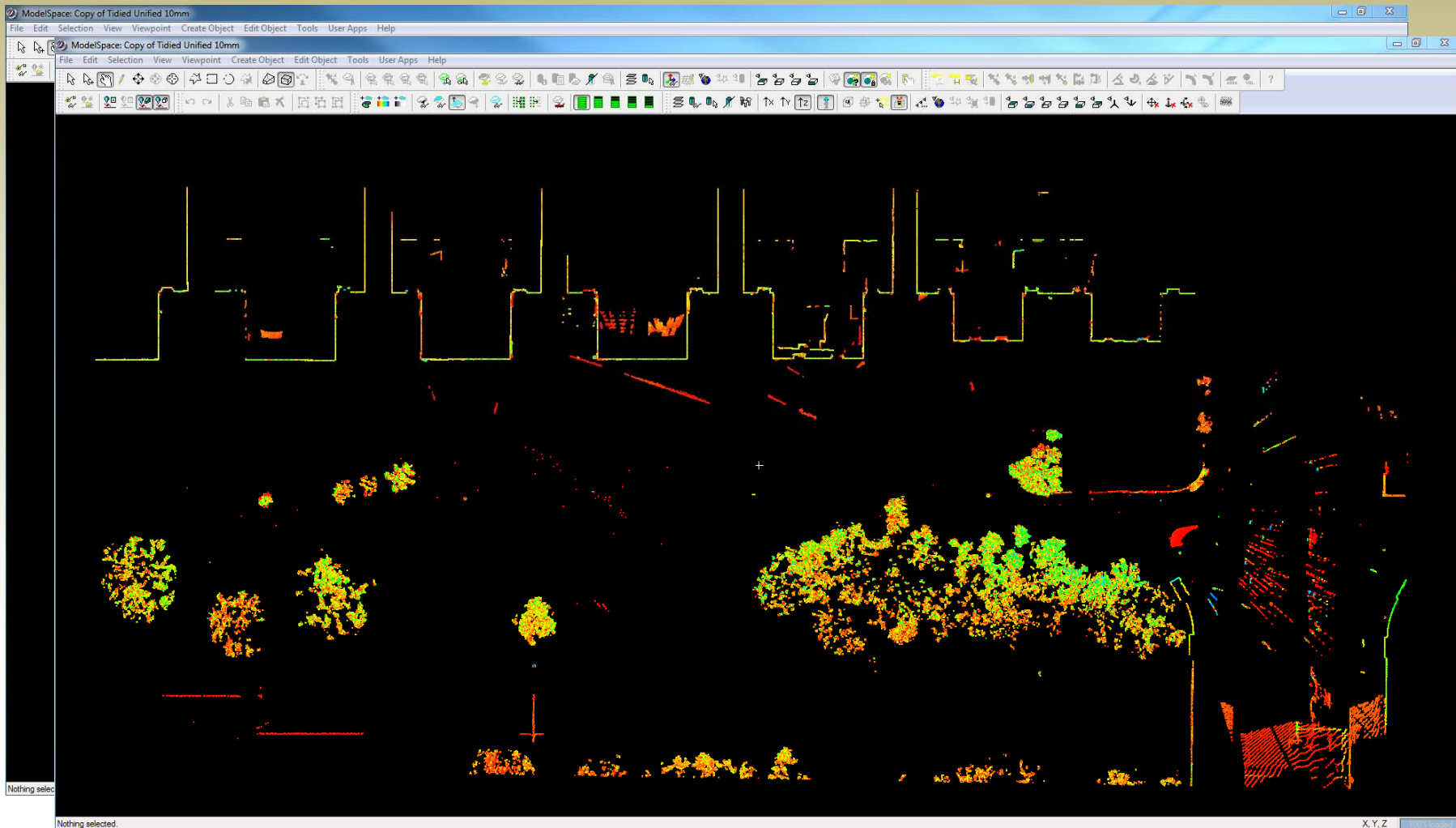→ Register scans and use **filters**
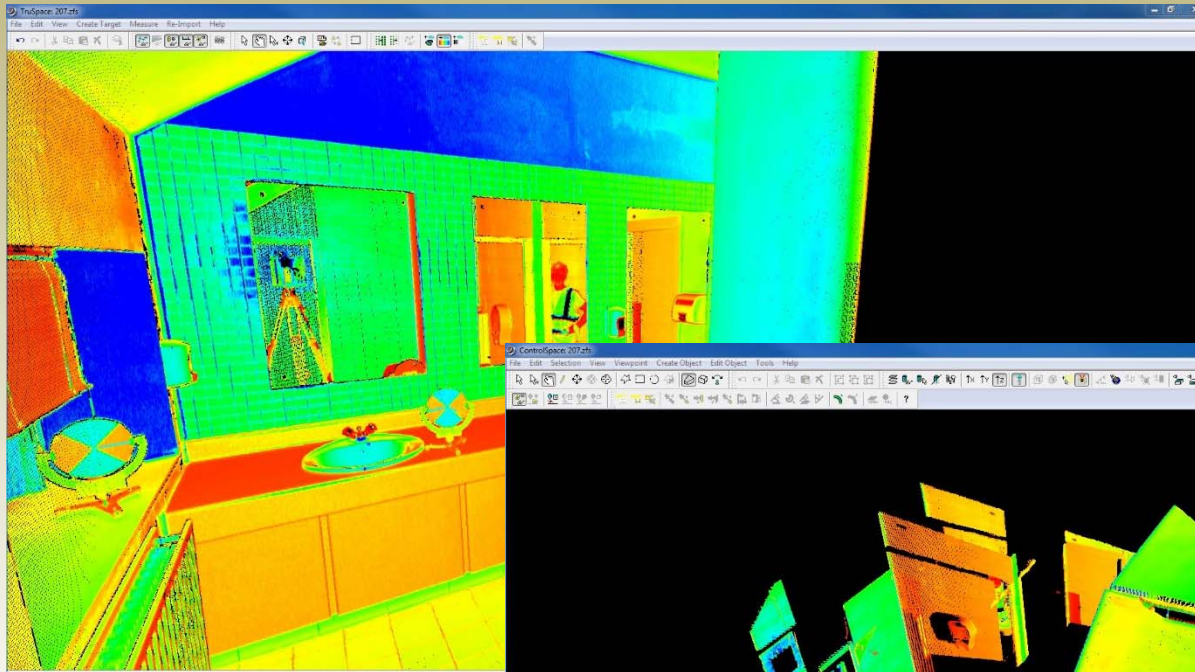

→ Create **unified and tidied** point clouds

Office - registration

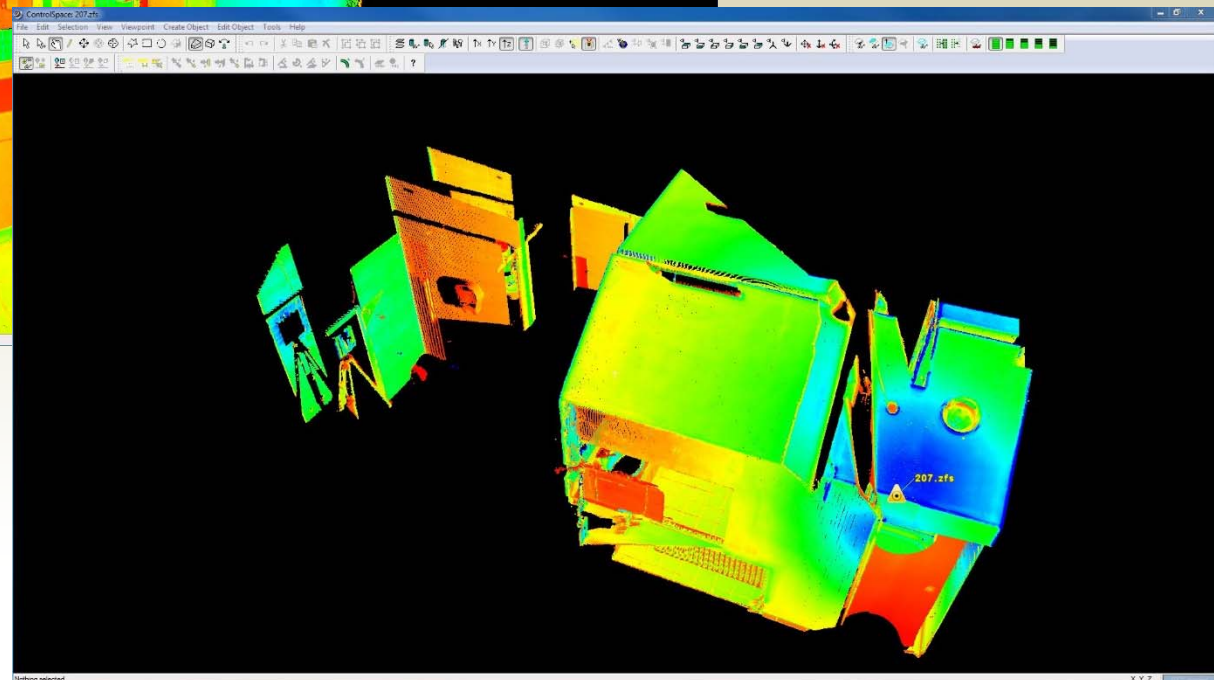Check the quility of the point cloud:

Office - filtering

Big issue:

Mirrors!

OPW – my 1st project

OPW Head Quarter in Trim, Co. Meath

→ scan of the **entire building** from the outside (elevations) and the inside (4 floors + basement)

OPW - client

What the client requires:

- Current **2D floor plans** and **elevations** of the whole building

- A detailled **BIM** *(Building Information Modelling)* of the entire building

OPW – laser scanner

Z+F Imager 5010C
laser scanner

Reasons:

- 360° scans + HDR panorama picture

- Create colourized point clouds
  → every pixel receives a RGB value

- difficult geometry of the building

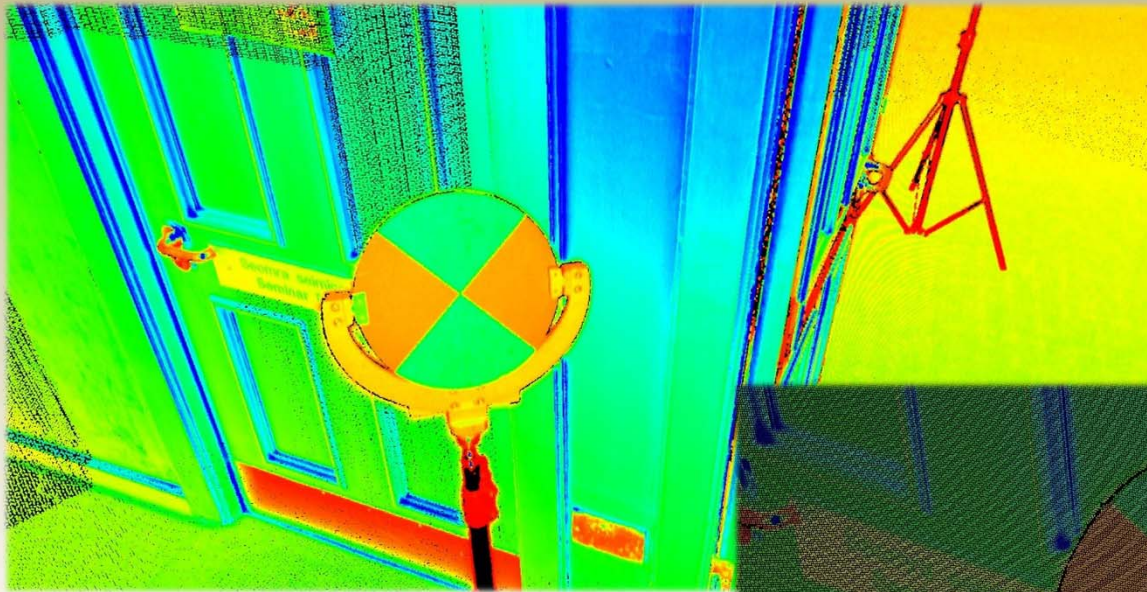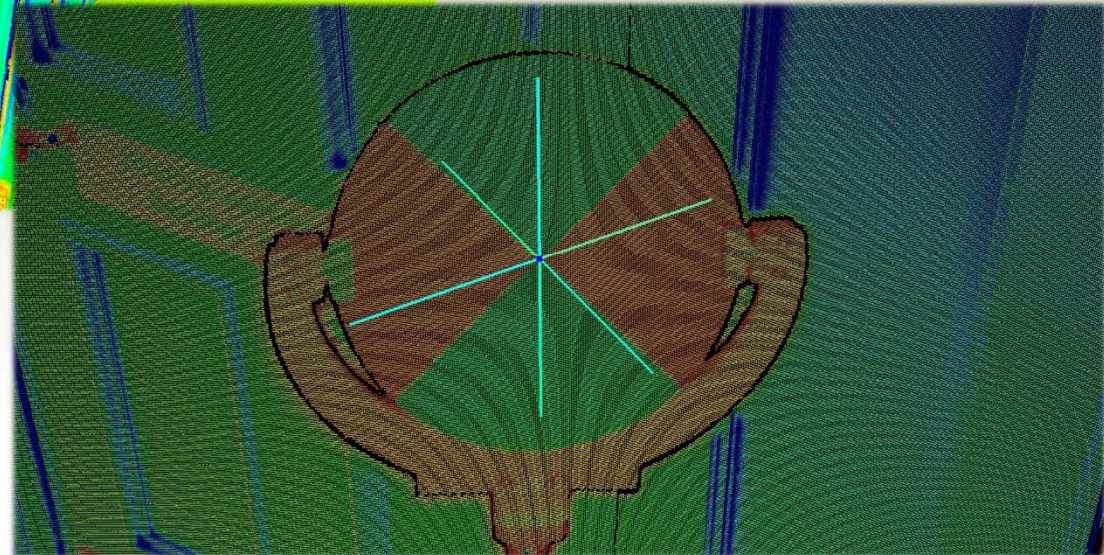# OPW - targets

B&W tilt-and-turn and paper targets

OPW - targets

B&W tilt-and-turn targets aka. " Lollipop"

Appearance in the
point cloud
(*Leica Cyclone)*

Registration of targets

Excursion

Rolling legs,
quick change of setup!

Spherical target
with magnetic stand

At least **3 targets**
for each scan

Complete scan of the OPW head quarter

→ 480 scans

*(60 scans for the basement and
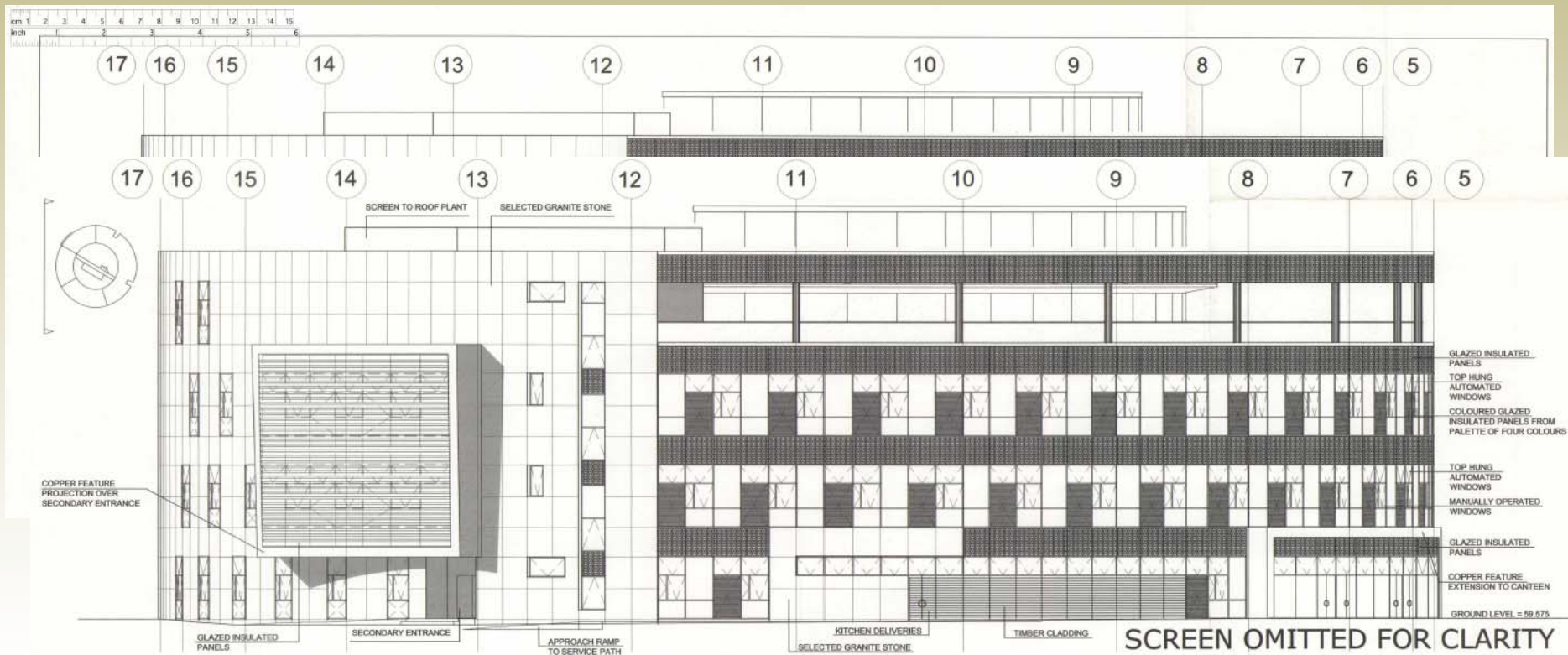100 to 110 scans for each floor)*

in **14 days** on site
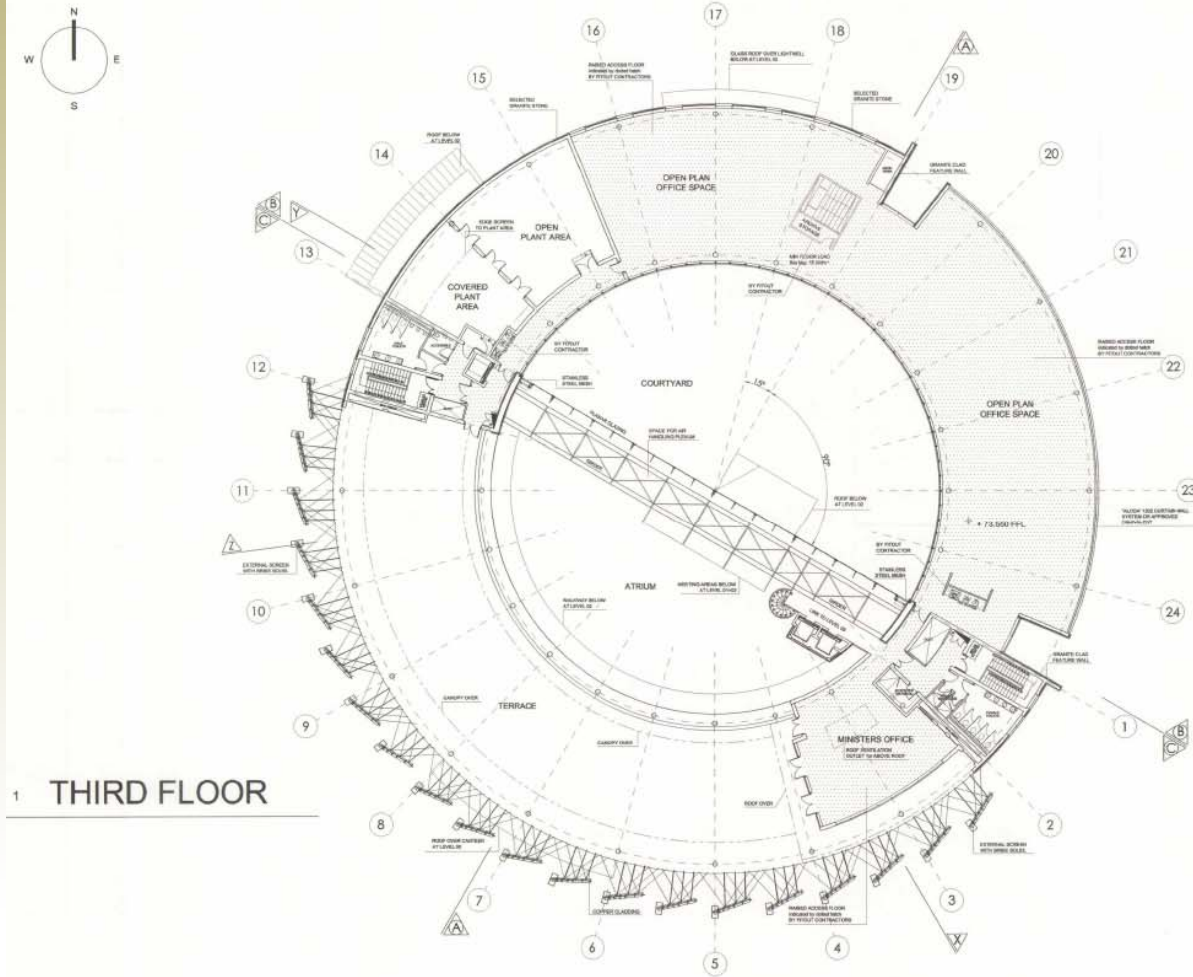
+ work in the office

=> **huge** amount of data!
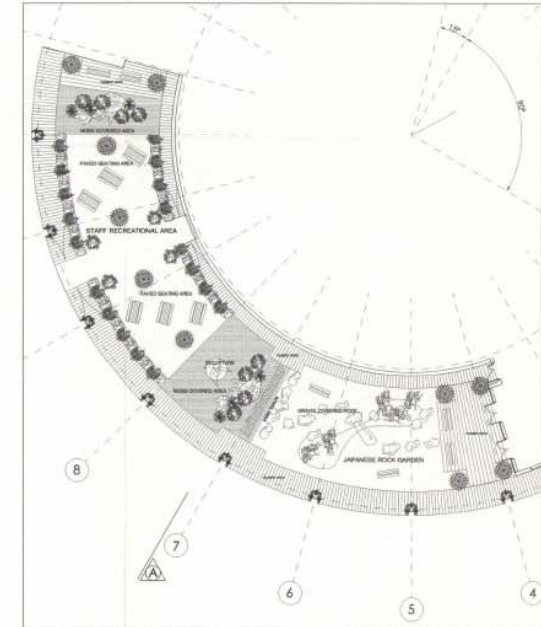
OPW – elevations

What the client receives:

OPW – floor plan

THIRD FLOOR

OUTLINE OF PROPOSED ROOF GARDEN
LANDSCAPING OF ROOF GARDEN BY FIT OUT CONTRACTOR

THANKS
FOR
LISTENING

Ireland – just a great craic !
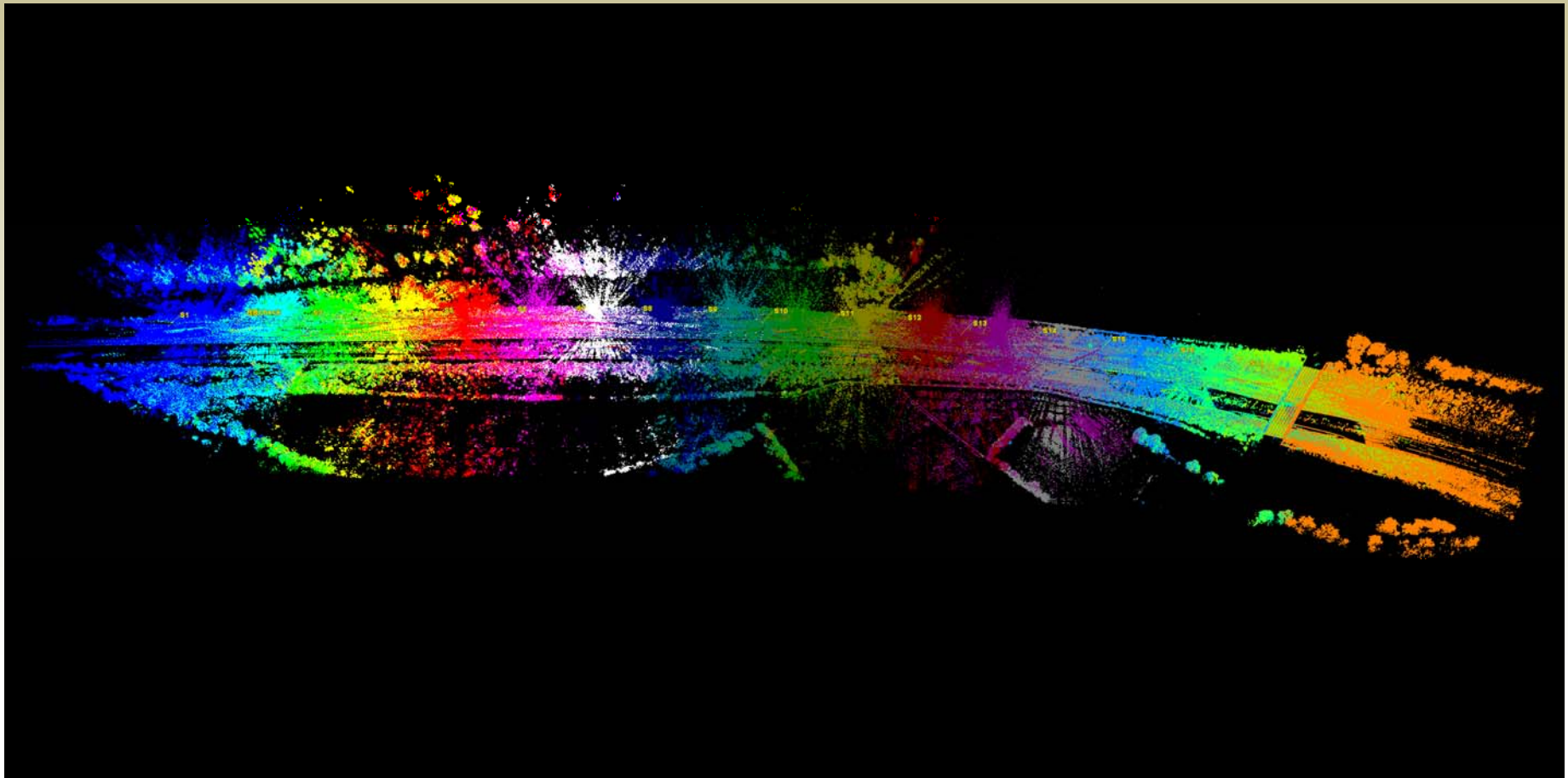
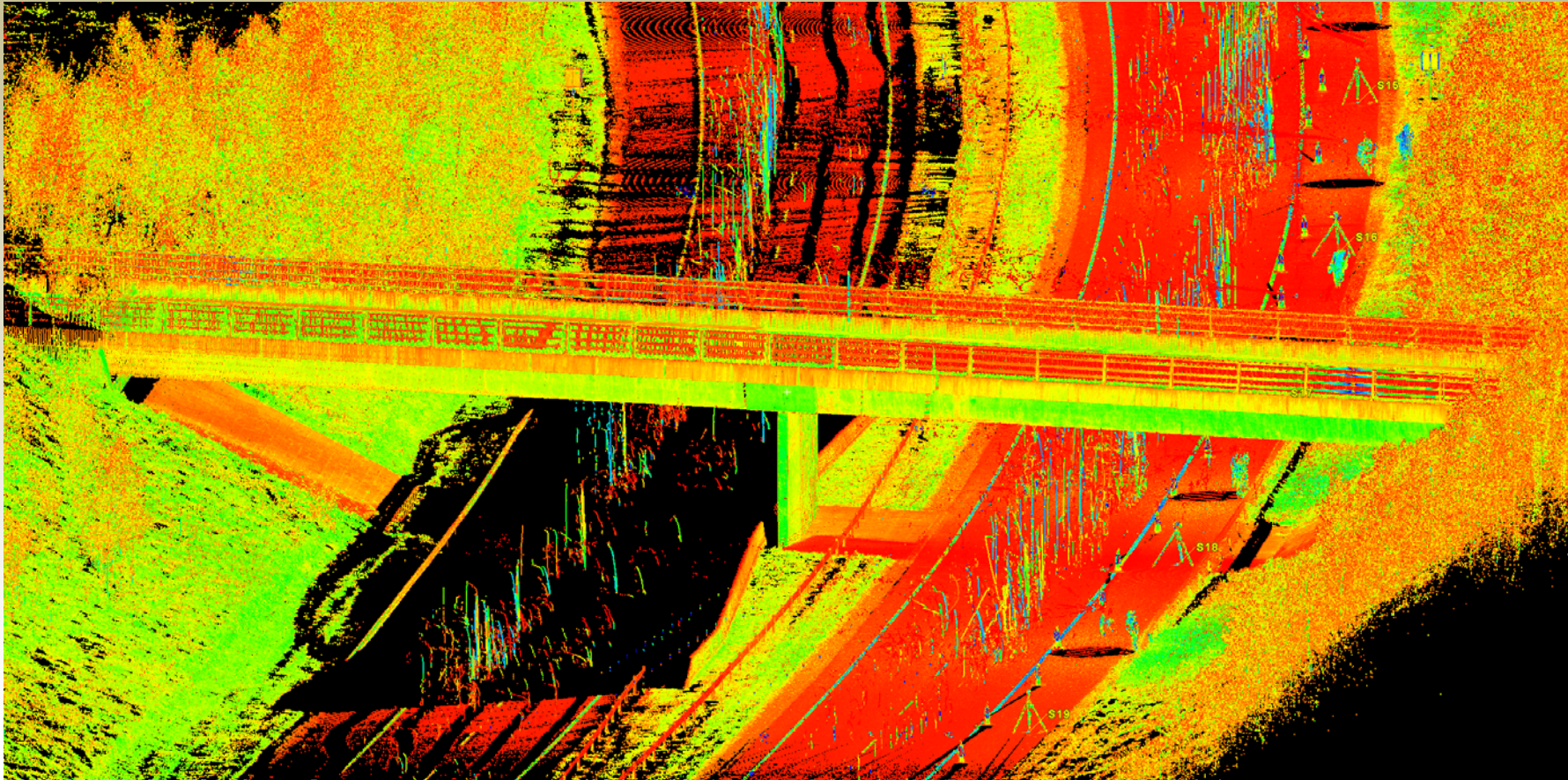…Fortsetzung folgt…

M7 motorway

After cloud to cloud registration with Leica Cyclone:

M7 motorway

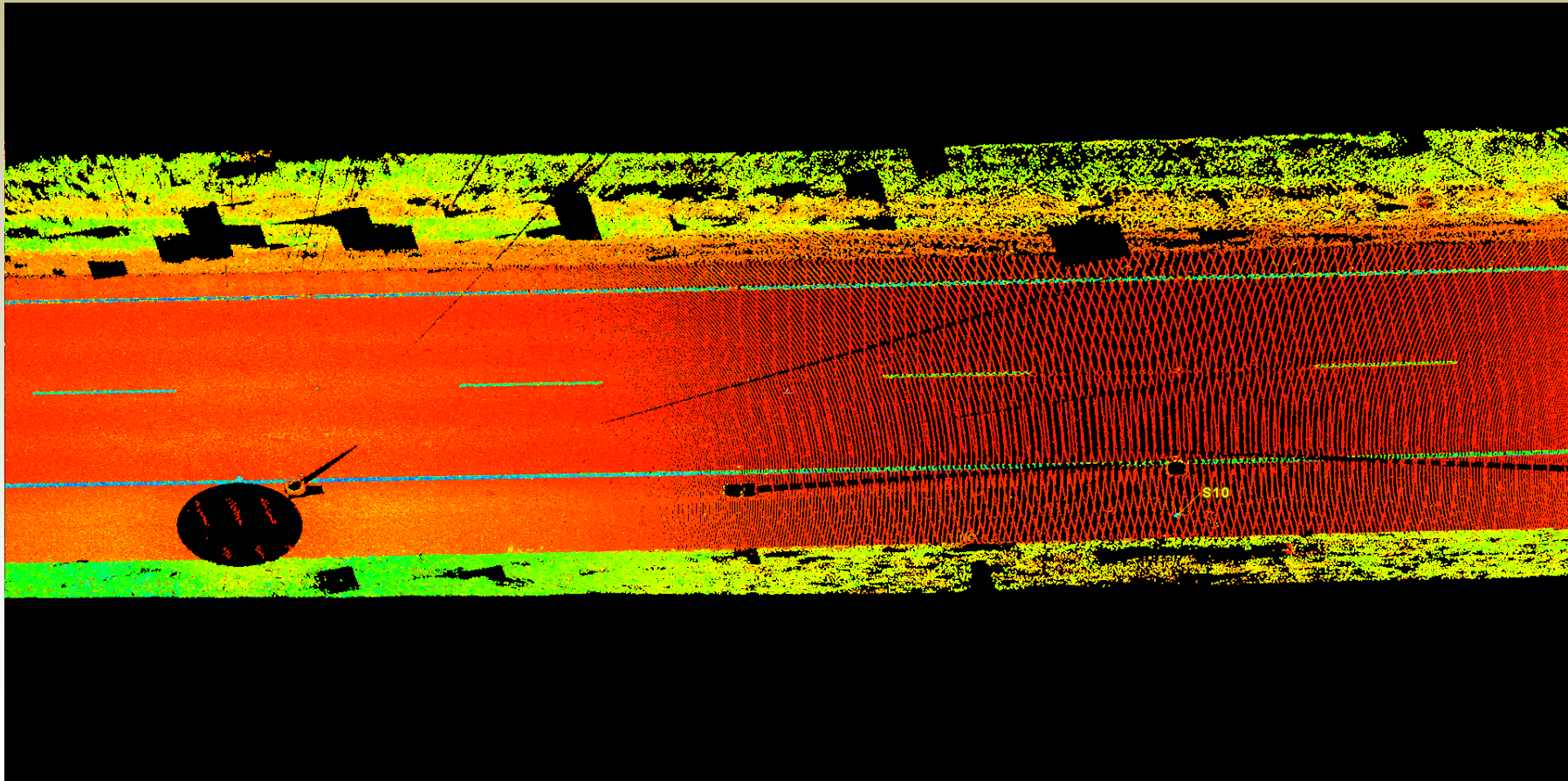Untidied but unified point cloud:

→ **a lot of noise** (e.g. vehicles that pass by)
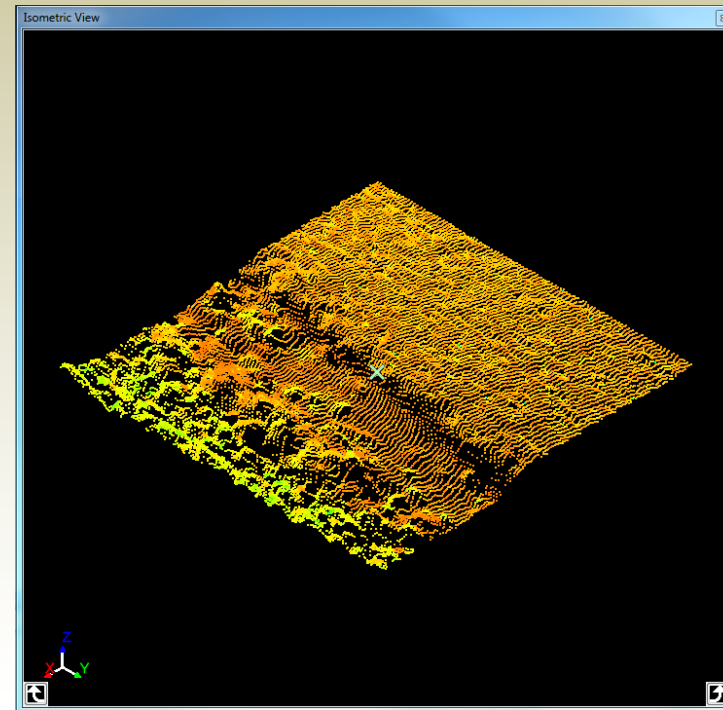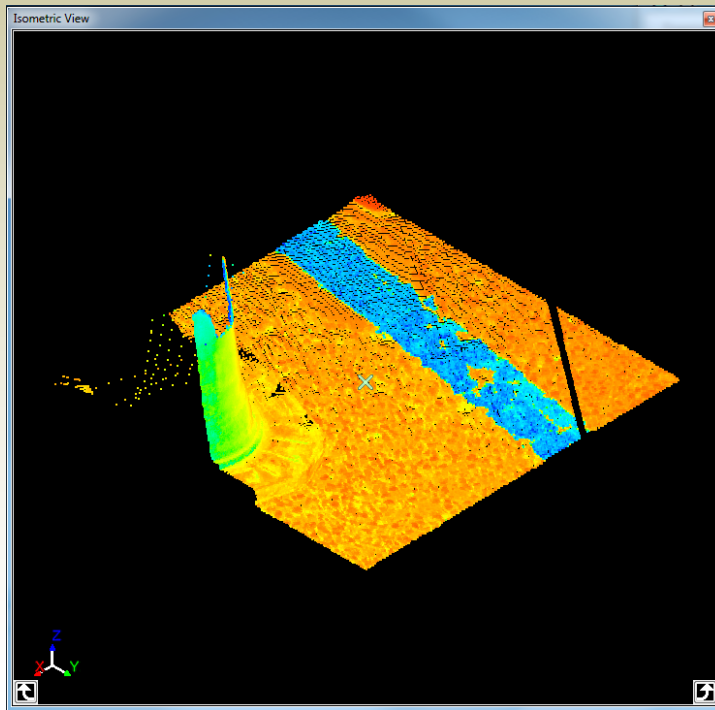
M7 motorway

Solution: Filtering the noise with **smooth surface**!

M7 motorway - Topo

- Use the pointcloud to **create a topographical map !**

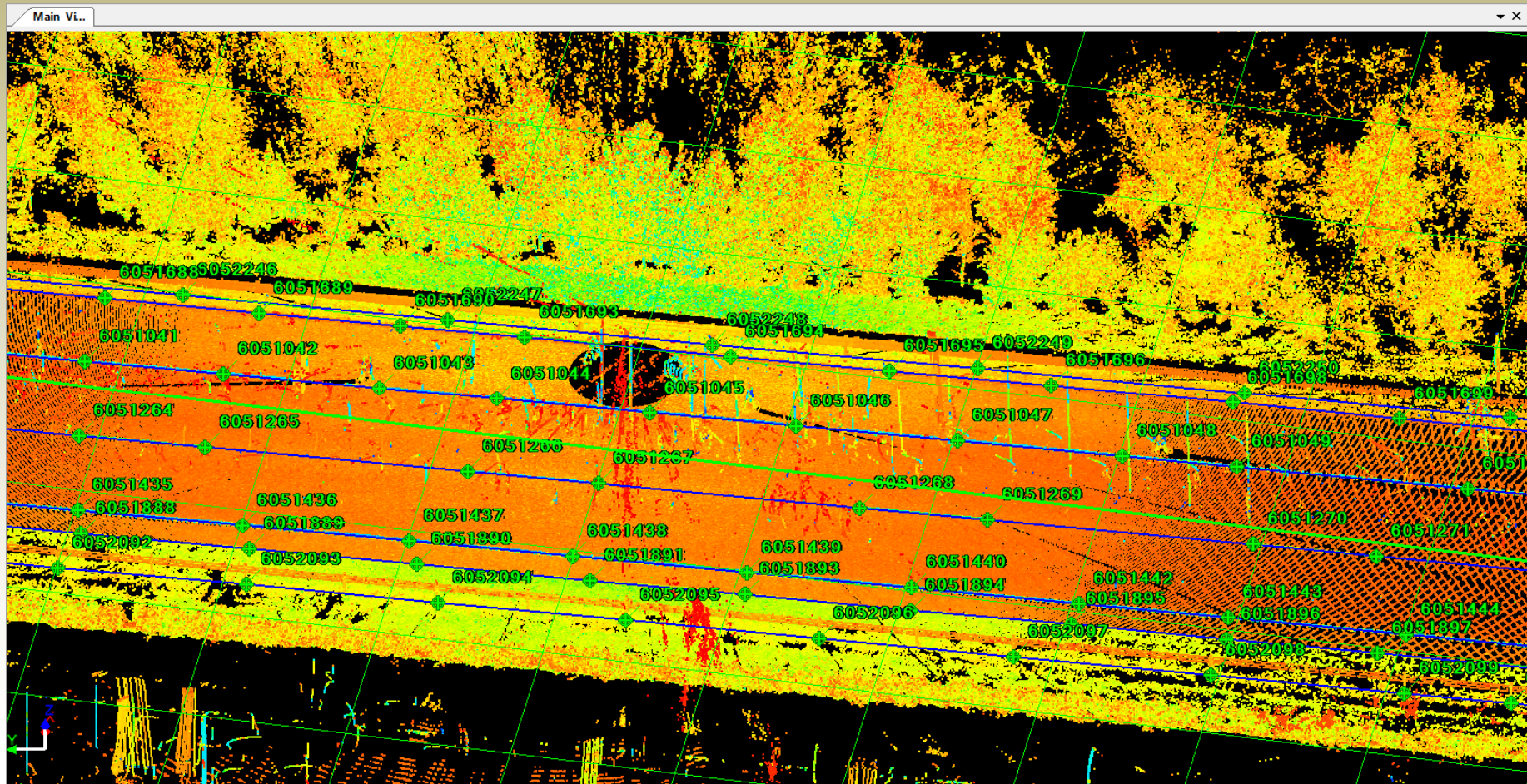- Capture topographical information with **Leica Cyclone Topo II**

→ Select single points (e.g. for height information)

M7 motorway - Topo

→ Draw / select topographical lines

→ **export** gathered topographical Information **to AutoCAD**