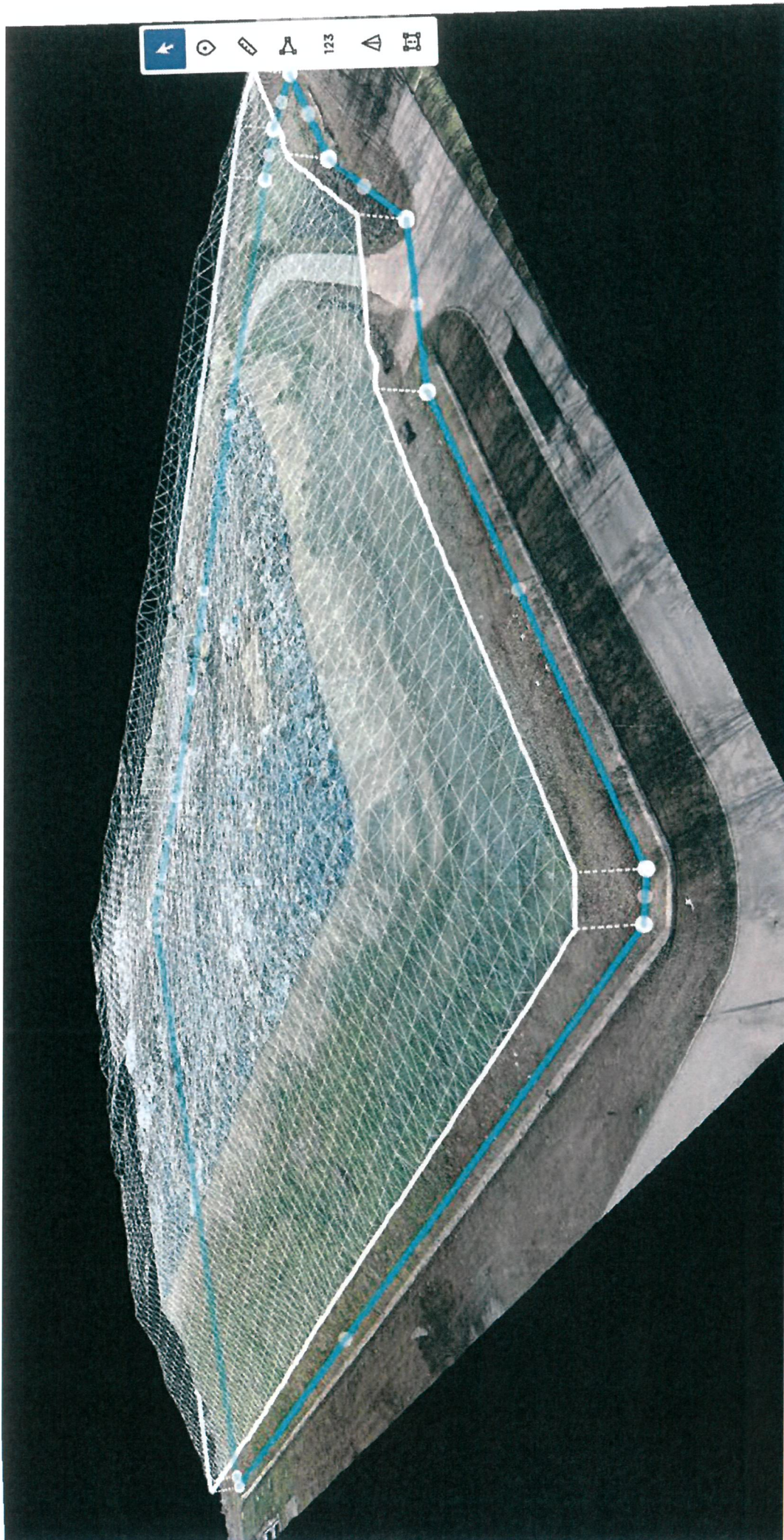


terep modell



1





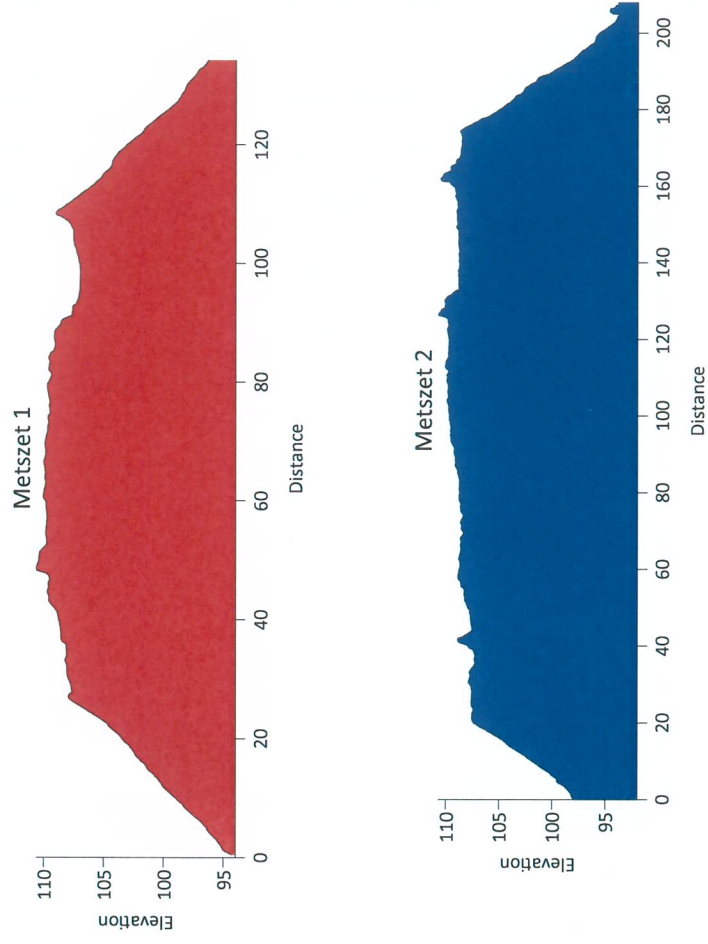
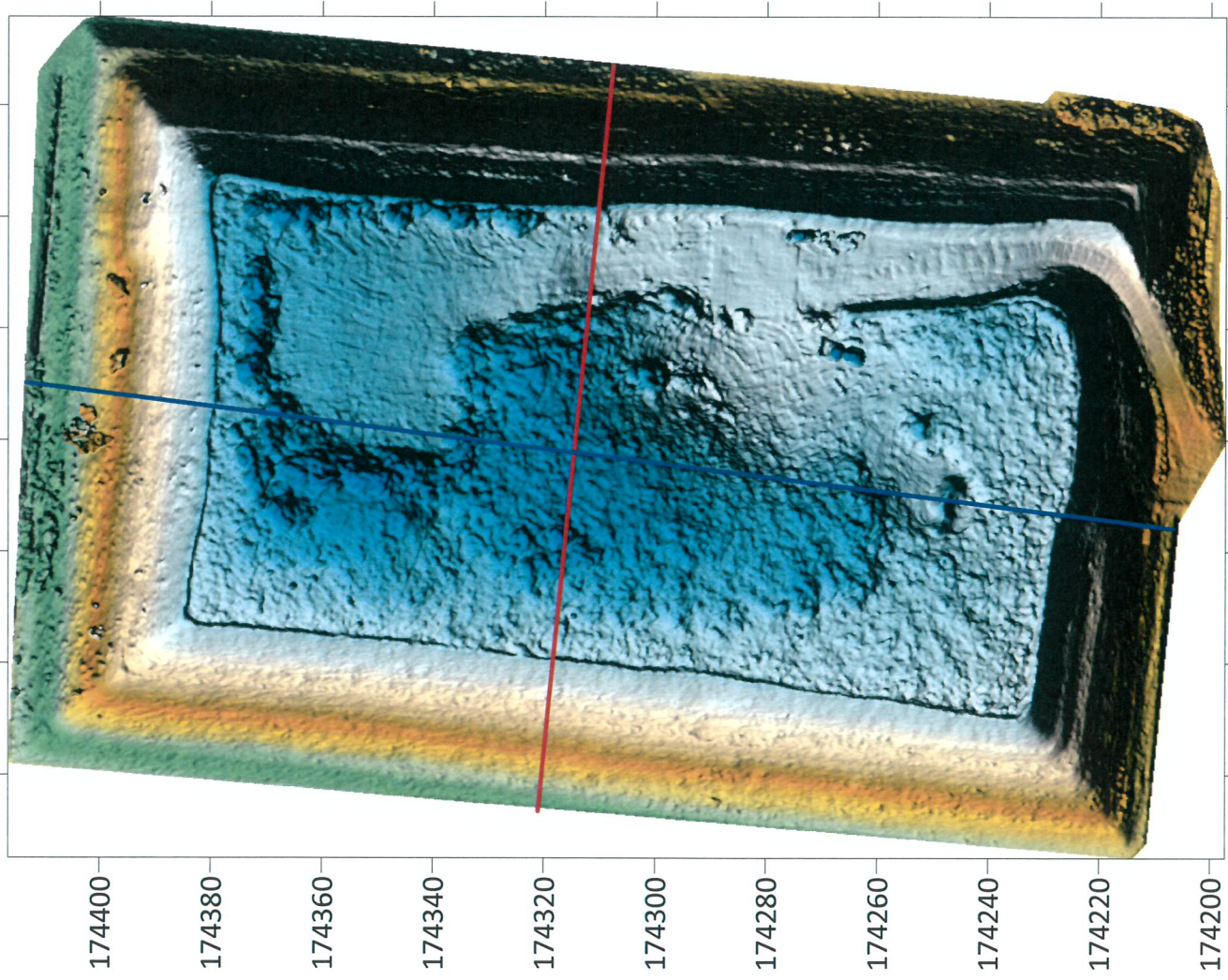


a depónia felülnézete számításhoz és metszet rajzok



1-1







# Quality Report



Generated with PIX4Dmapper version 4.8.4



**Important:** Click on the different icons for:



Help to analyze the results in the Quality Report



Additional information about the sections



Click [here](#) for additional tips to analyze the Quality Report

## Summary



Project	Gyomaendrod_25-02-03
Processed	2025-02-03 19:59:20
Camera Model Name(s)	FC2204_4.4_4000x3000 (RGB)
Average Ground Sampling Distance (GSD)	2.62 cm / 1.03 in
Area Covered	0.104 km <sup>2</sup> / 10.4441 ha / 0.04 sq. mi. / 25.8212 acres
Time for Initial Processing (without report)	05m:06s

## Quality Check



Images	median of 49941 keypoints per image	
Dataset	182 out of 182 images calibrated (100%), all images enabled	
Camera Optimization	5.23% relative difference between initial and optimized internal camera parameters	
Matching	median of 22180.3 matches per calibrated image	
Georeferencing	yes, no 3D GCP	

## Preview

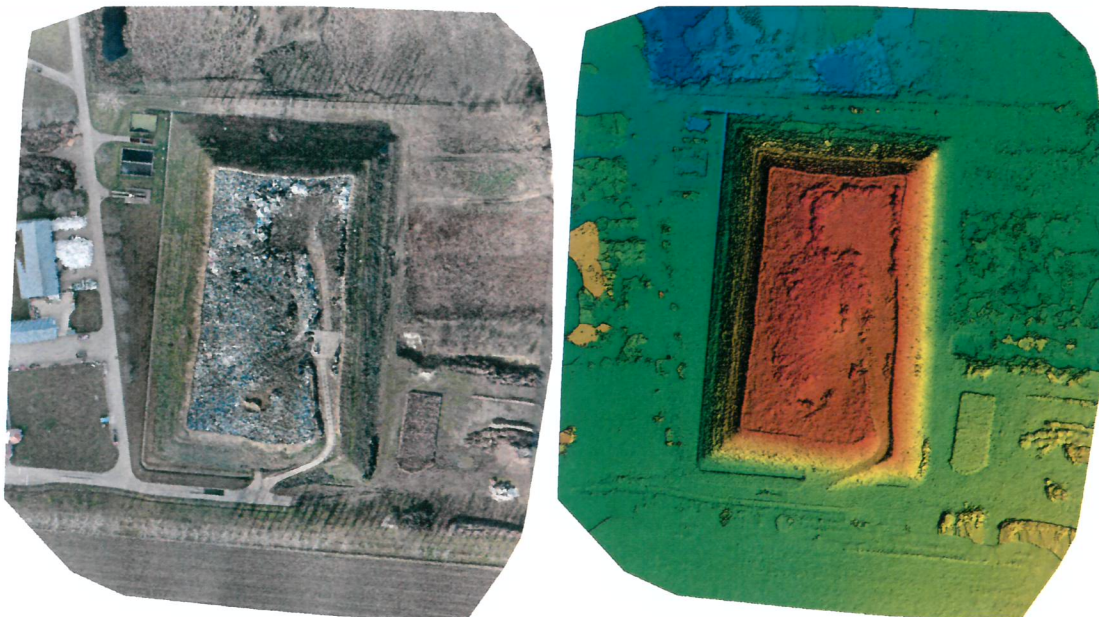


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

# Calibration Details



Number of Calibrated Images	182 out of 182
Number of Geolocated Images	182 out of 182

## ? Initial Image Positions

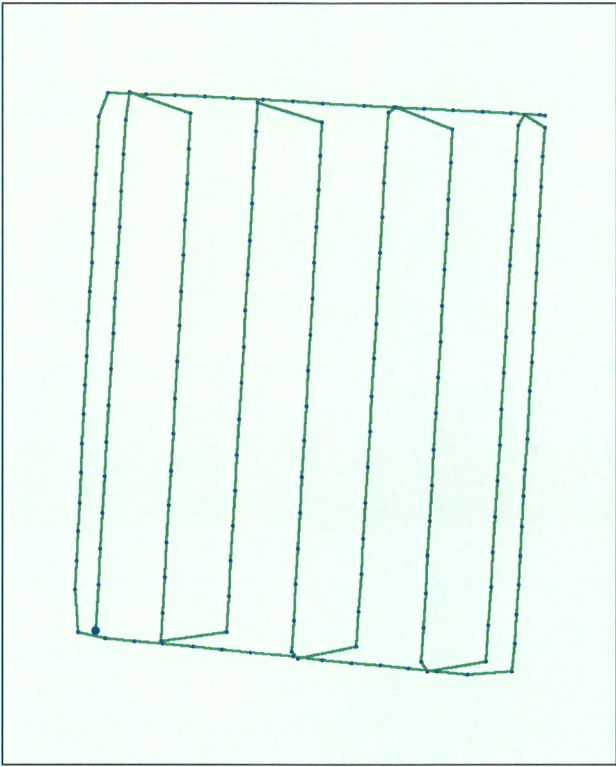
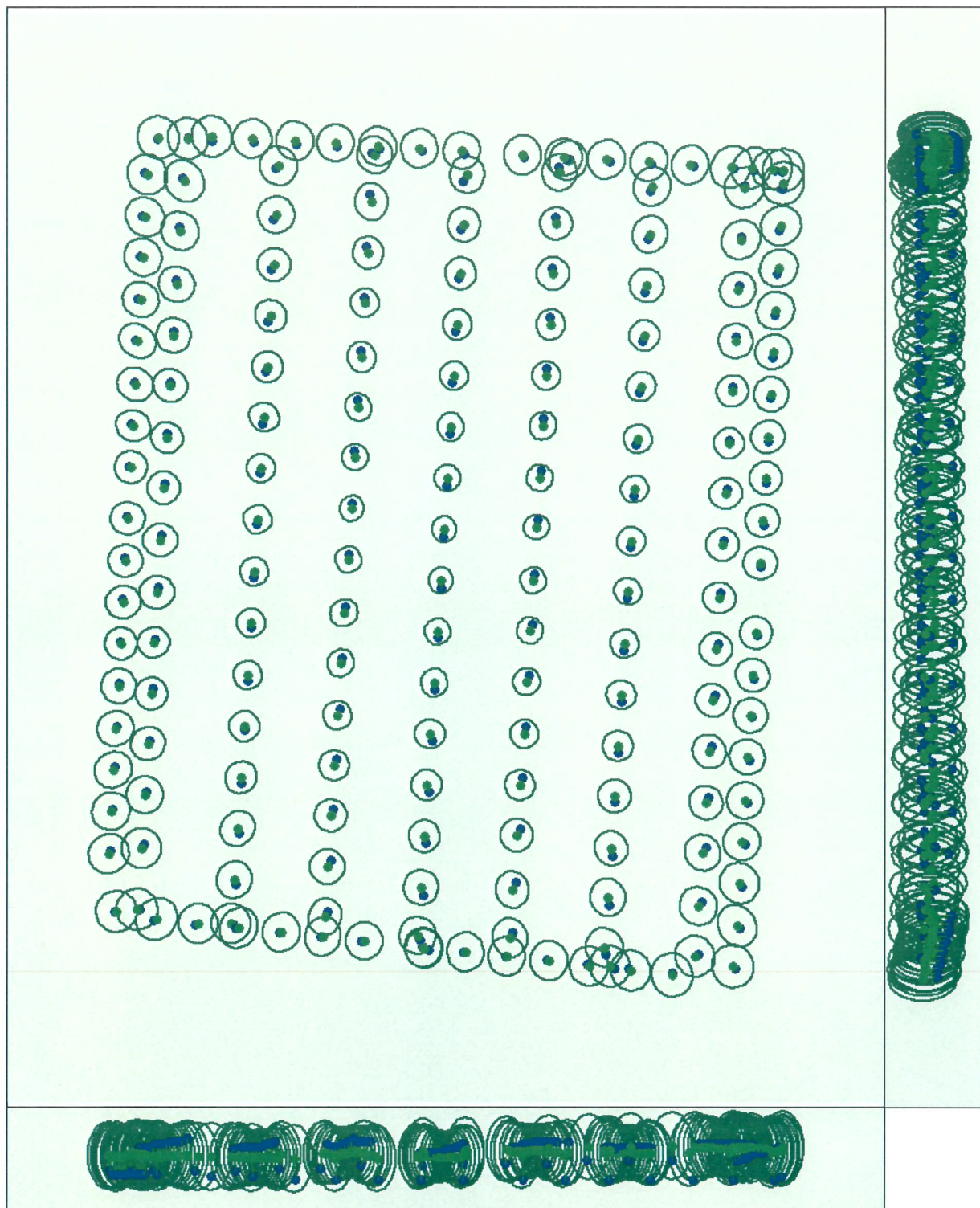


Figure 2: Top view of the initial image position. The green line follows the position of the images in time starting from the large blue dot.

## ? Computed Image/GCPs/Manual Tie Points Positions







Uncertainty ellipses 50x magnified

Figure 3: Offset between initial (blue dots) and computed (green dots) image positions as well as the offset between the GCPs initial positions (blue crosses) and their computed positions (green crosses) in the top-view (XY plane), front-view (XZ plane), and side-view (YZ plane). Dark green ellipses indicate the absolute position uncertainty of the bundle block adjustment result.

### ? Absolute camera position and orientation uncertainties



	X[m]	Y[m]	Z[m]	Omega [degree]	Phi [degree]	Kappa [degree]
Mean	0.127	0.129	0.224	0.057	0.056	0.045
Sigma	0.016	0.018	0.019	0.005	0.006	0.011

### ? Overlap



*Handwritten signature*

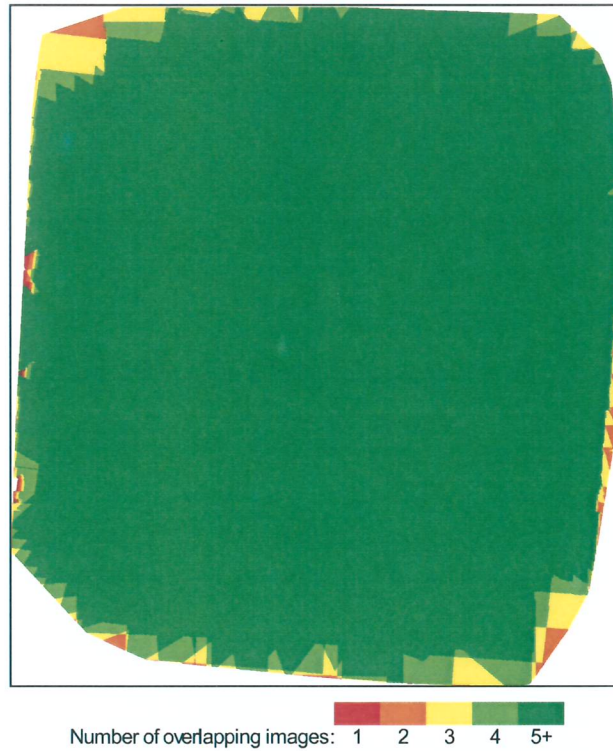


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic. Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint matches is also sufficient for these areas (see Figure 5 for keypoint matches).

## Bundle Block Adjustment Details



Number of 2D Keypoint Observations for Bundle Block Adjustment	4121514
Number of 3D Points for Bundle Block Adjustment	1473667
Mean Reprojection Error [pixels]	0.158

### ? Internal Camera Parameters

📷 FC2204\_4.4\_4000x3000 (RGB). Sensor Dimensions: 6.396 [mm] x 4.797 [mm]

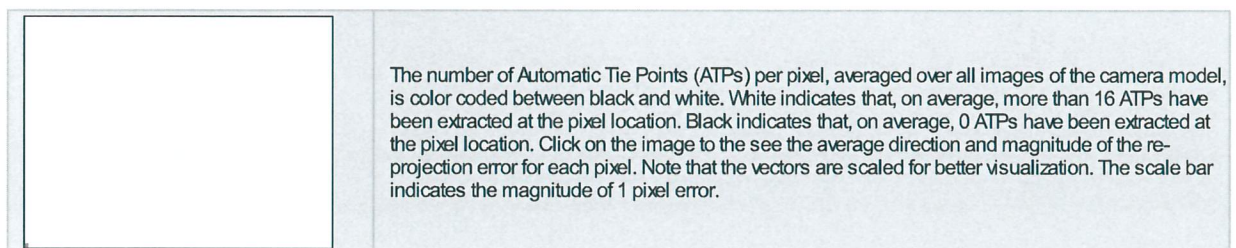
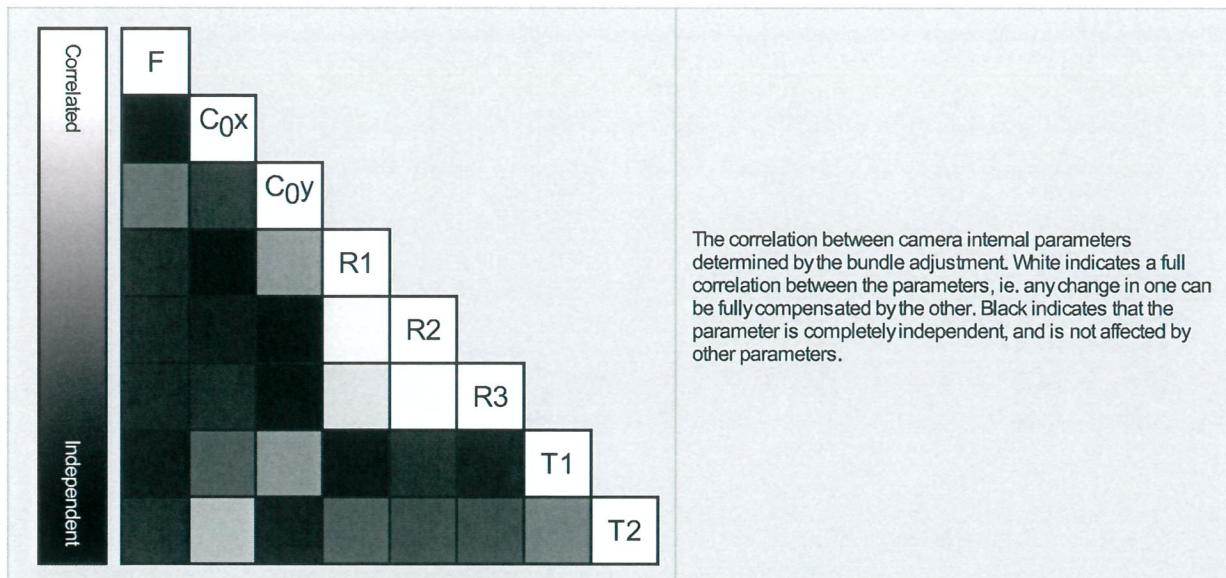


EXIF ID: FC2204\_4.4\_4000x3000

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	2742.856 [pixel] 4.386 [mm]	1999.999 [pixel] 3.198 [mm]	1500.000 [pixel] 2.399 [mm]	0.000	0.000	0.000	0.000	0.000
Optimized Values	2886.567 [pixel] 4.616 [mm]	1999.844 [pixel] 3.198 [mm]	1481.335 [pixel] 2.369 [mm]	-0.023	0.028	-0.026	-0.002	-0.000
Uncertainties (Sigma)	0.126 [pixel] 0.000 [mm]	0.086 [pixel] 0.000 [mm]	0.092 [pixel] 0.000 [mm]	0.000	0.000	0.000	0.000	0.000

*Handwritten signature*





## 2D Keypoints Table

	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	49941	22180
Mn	30162	5539
Max	73491	40930
Mean	50370	22646

## 3D Points from 2D Keypoint Matches

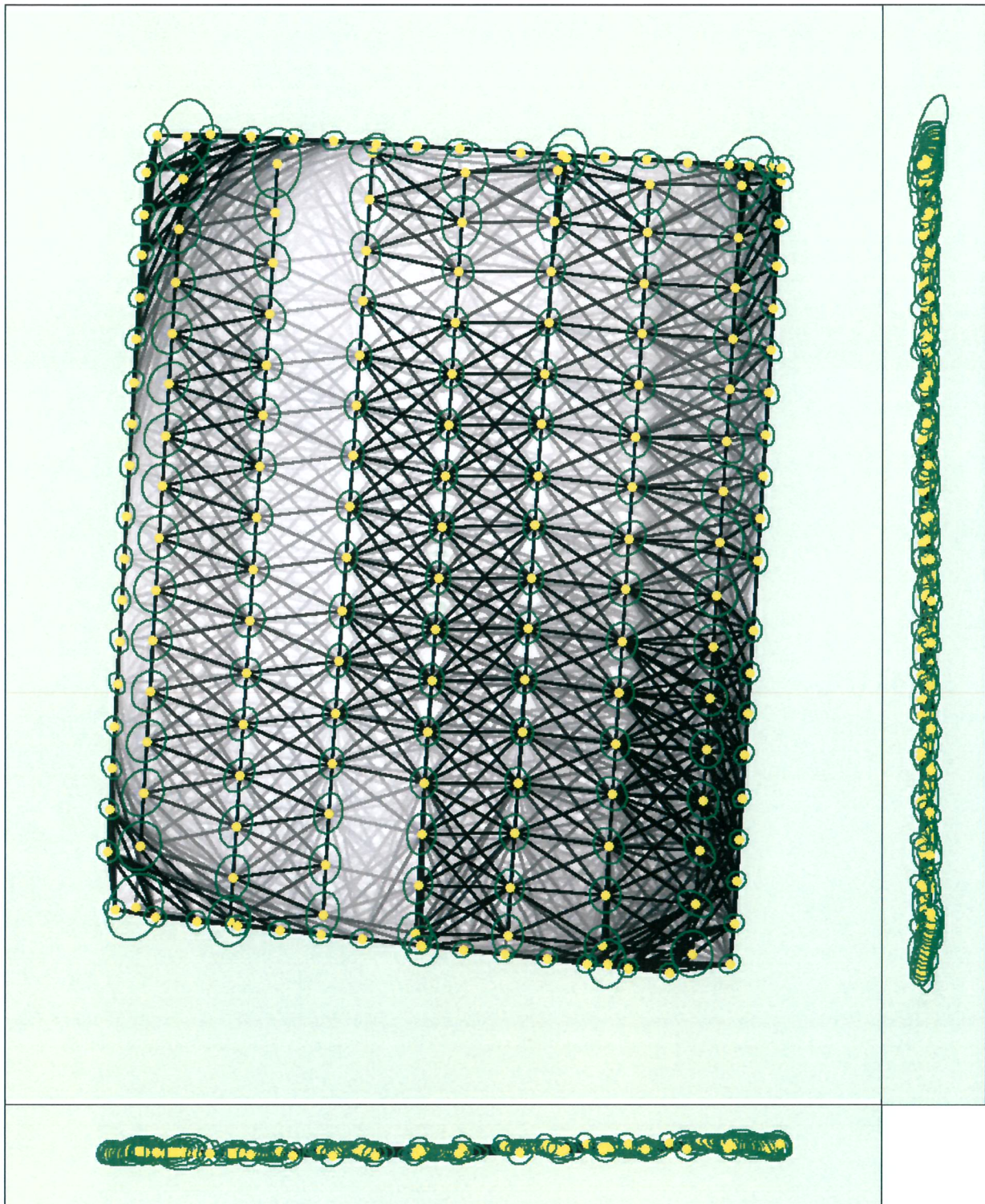
	Number of 3D Points Observed
In 2 Images	943007
In 3 Images	276249
In 4 Images	113920
In 5 Images	53749
In 6 Images	32338
In 7 Images	19132
In 8 Images	12492
In 9 Images	7630
In 10 Images	4797
In 11 Images	3142
In 12 Images	2181
In 13 Images	1516
In 14 Images	993
In 15 Images	742
In 16 Images	526
In 17 Images	368
In 18 Images	280
In 19 Images	198
In 20 Images	141
In 21 Images	85
In 22 Images	66



In 23 Images	41
In 24 Images	37
In 25 Images	16
In 26 Images	10
In 27 Images	6
In 28 Images	3
In 29 Images	2

## 2D Keypoint Matches

1



Uncertainty ellipses 1000x magnified

Number of matches

25 222 444 666 888 1111 1333 1555 1777 2000

Handwritten signature or mark.



Figure 5: Computed image positions with links between matched images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images. Dark green ellipses indicate the relative camera position uncertainty of the bundle block adjustment result.

## ? Relative camera position and orientation uncertainties



	X[m]	Y[m]	Z[m]	Omega [degree]	Phi [degree]	Kappa [degree]
Mean	0.005	0.006	0.003	0.005	0.004	0.002
Sigma	0.002	0.002	0.001	0.001	0.001	0.001

## Geolocation Details



## ? Absolute Geolocation Variance



Min Error [m]	Max Error [m]	Geolocation Error X[%]	Geolocation Error Y[%]	Geolocation Error Z[%]
-	-15.00	0.00	0.00	0.00
-15.00	-12.00	0.00	0.00	0.00
-12.00	-9.00	0.00	0.00	3.85
-9.00	-6.00	0.00	0.00	14.29
-6.00	-3.00	0.00	0.00	10.44
-3.00	0.00	50.00	50.55	3.85
0.00	3.00	50.00	49.45	36.81
3.00	6.00	0.00	0.00	29.67
6.00	9.00	0.00	0.00	1.10
9.00	12.00	0.00	0.00	0.00
12.00	15.00	0.00	0.00	0.00
15.00	-	0.00	0.00	0.00
Mean [m]		0.000000	-0.000000	0.000000
Sigma [m]		0.649919	1.724022	4.561727
RMS Error [m]		0.649919	1.724022	4.561727

Min Error and Max Error represent geolocation error intervals between -1.5 and 1.5 times the maximum accuracy of all the images. Columns X, Y, Z show the percentage of images with geolocation errors within the predefined error intervals. The geolocation error is the difference between the initial and computed image positions. Note that the image geolocation errors do not correspond to the accuracy of the observed 3D points.

## ? Relative Geolocation Variance



Relative Geolocation Error	Images X[%]	Images Y[%]	Images Z[%]
[-1.00, 1.00]	100.00	100.00	97.80
[-2.00, 2.00]	100.00	100.00	100.00
[-3.00, 3.00]	100.00	100.00	100.00
Mean of Geolocation Accuracy [m]	5.000000	5.000000	10.000000
Sigma of Geolocation Accuracy [m]	0.000000	0.000000	0.000000

Images X, Y, Z represent the percentage of images with a relative geolocation error in X, Y, Z.

Geolocation Orientational Variance	RMS [degree]
Omega	5.258
Phi	5.054
Kappa	19.575

Geolocation RMS error of the orientation angles given by the difference between the initial and computed image orientation angles.





## Initial Processing Details

### System Information

Hardware	CPU: AMD Ryzen 9 5900X 12-Core Processor RAM: 64GB GPU: NVIDIA GeForce RTX 3080 Ti (Driver: 32.0.15.6094)
Operating System	Windows 10 Pro, 64-bit

### Coordinate Systems

Image Coordinate System	WGS 84 (EGM96 Geoid)
Output Coordinate System	HD72 / EOVI (EGM96 Geoid)

### Processing Options

Detected Template	3D Maps
Keypoints Image Scale	Full, Image Scale: 1
Advanced: Matching Image Pairs	Aerial Grid or Corridor
Advanced: Matching Strategy	Use Geometrically Verified Matching: no
Advanced: Keypoint Extraction	Targeted Number of Keypoints: Automatic
Advanced: Calibration	Calibration Method: Standard Internal Parameters Optimization: All External Parameters Optimization: All Rematch: Auto, yes

## Point Cloud Densification details

### Processing Options

Image Scale	multiscale, 1 (Original image size, Slow)
Point Density	Optimal
Minimum Number of Matches	3
3D Textured Mesh Generation	yes
3D Textured Mesh Settings:	Resolution: Medium Resolution (default) Color Balancing: no
LOD	Generated: no
Advanced: 3D Textured Mesh Settings	Sample Density Divider: 1
Advanced: Image Groups	group1
Advanced: Use Processing Area	yes
Advanced: Use Annotations	yes
Time for Point Cloud Densification	19m:08s
Time for Point Cloud Classification	NA
Time for 3D Textured Mesh Generation	13m:40s

### Results

Number of Generated Tiles	4
Number of 3D Densified Points	57413437
Average Density (per m <sup>3</sup> )	639.27

## DSM, Orthomosaic and Index Details

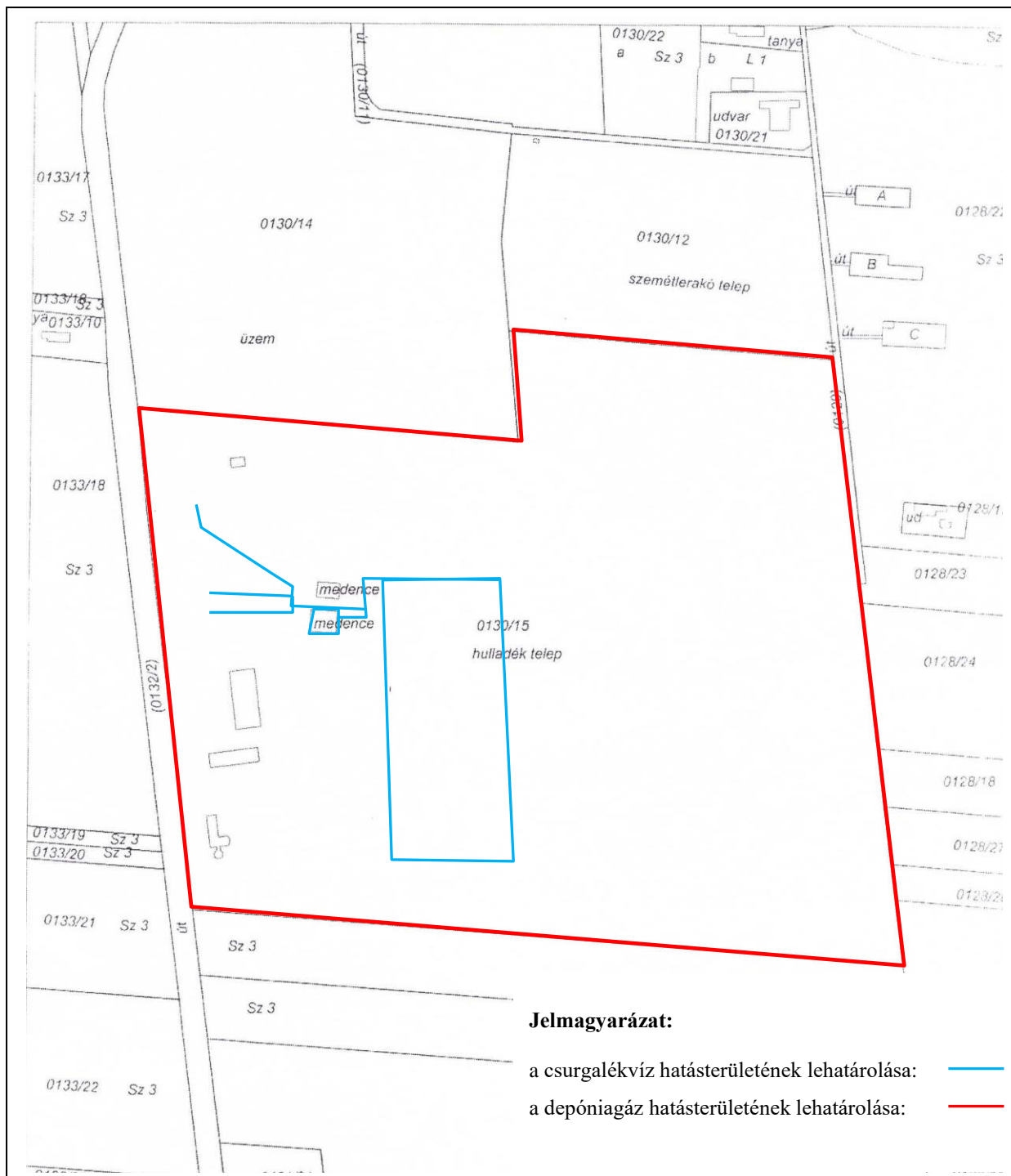


## Processing Options



DSM and Orthomosaic Resolution	1 x GSD (2.62 [cm/pixel])
DSM Filters	Noise Filtering: yes Surface Smoothing: yes, Type: Sharp
Raster DSM	Generated: yes Method: Inverse Distance Weighting Merge Tiles: yes
Orthomosaic	Generated: yes Merge Tiles: yes GeoTIFF Without Transparency: no Google Maps Tiles and KML: no
Time for DSM Generation	15m:30s
Time for Orthomosaic Generation	05m:55s
Time for DTM Generation	00s
Time for Contour Lines Generation	00s
Time for Reflectance Map Generation	00s
Time for Index Map Generation	00s





Regionális Hulladékkezelő Kft. 5500 Gyomaendrőd, Tanya 104.	<b>Projekt:</b> A Gyomaendrődi Regionális Hulladékkezelő Mű környezetvédelmi felülvizsgálata
	<b>Rajz megnevezése:</b> A tevékenység hatásterületének lehatárolása
2025. április 24.	Rajz száma:2.      M = 1 : 4.000

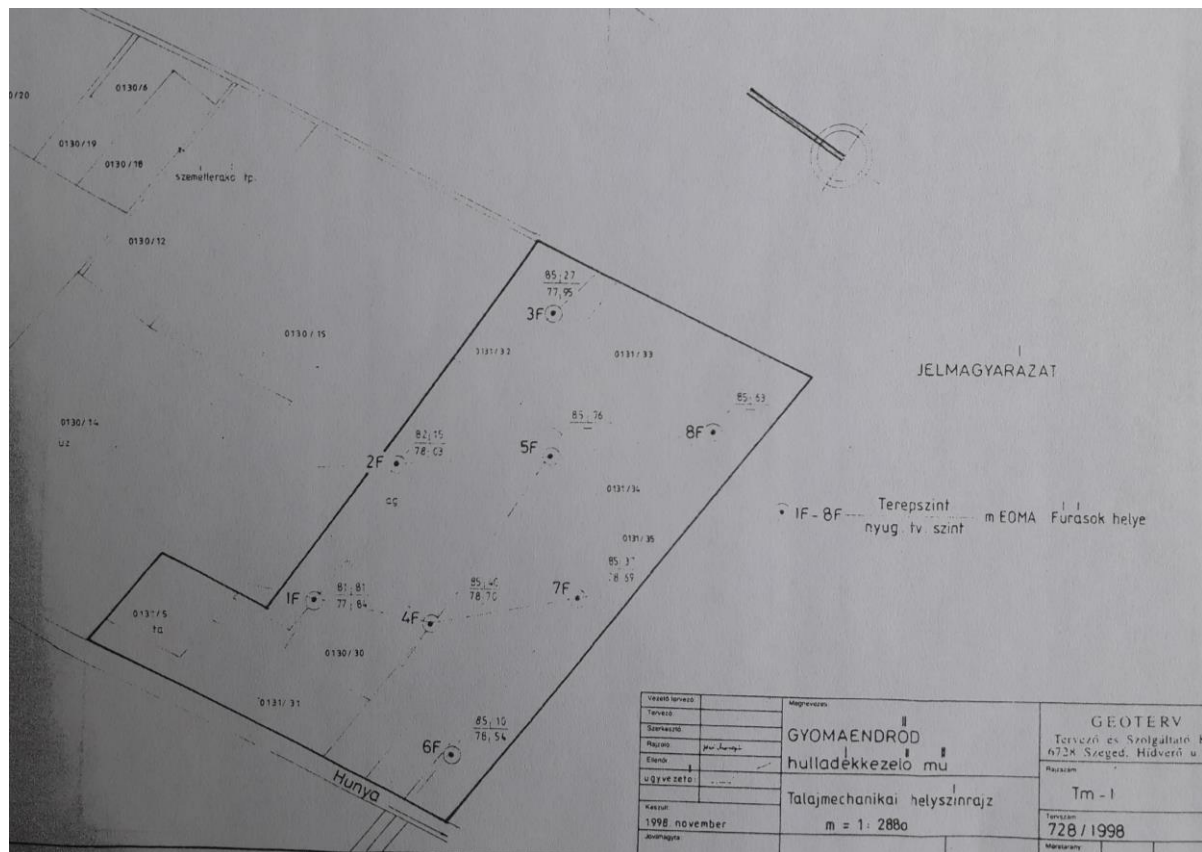


# 2020.

**Regionális Hulladékkezelő Kft.**

5500 Gyomaendrőd, Tanya 104.

## A földtani közegre vonatkozó alapállapot- jelentés Gyomaendrődi Regionális Hulladékkezelő Mű



Gyomaendrőd  
2020. október 12.



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### Melléklet

*1. sz. melléklet: A területismertető talajmechanikai szakvélemény*