

Barrio Cañada Matilde Pacheco Cont.

**Processing Report
10 September 2021**



Survey Data

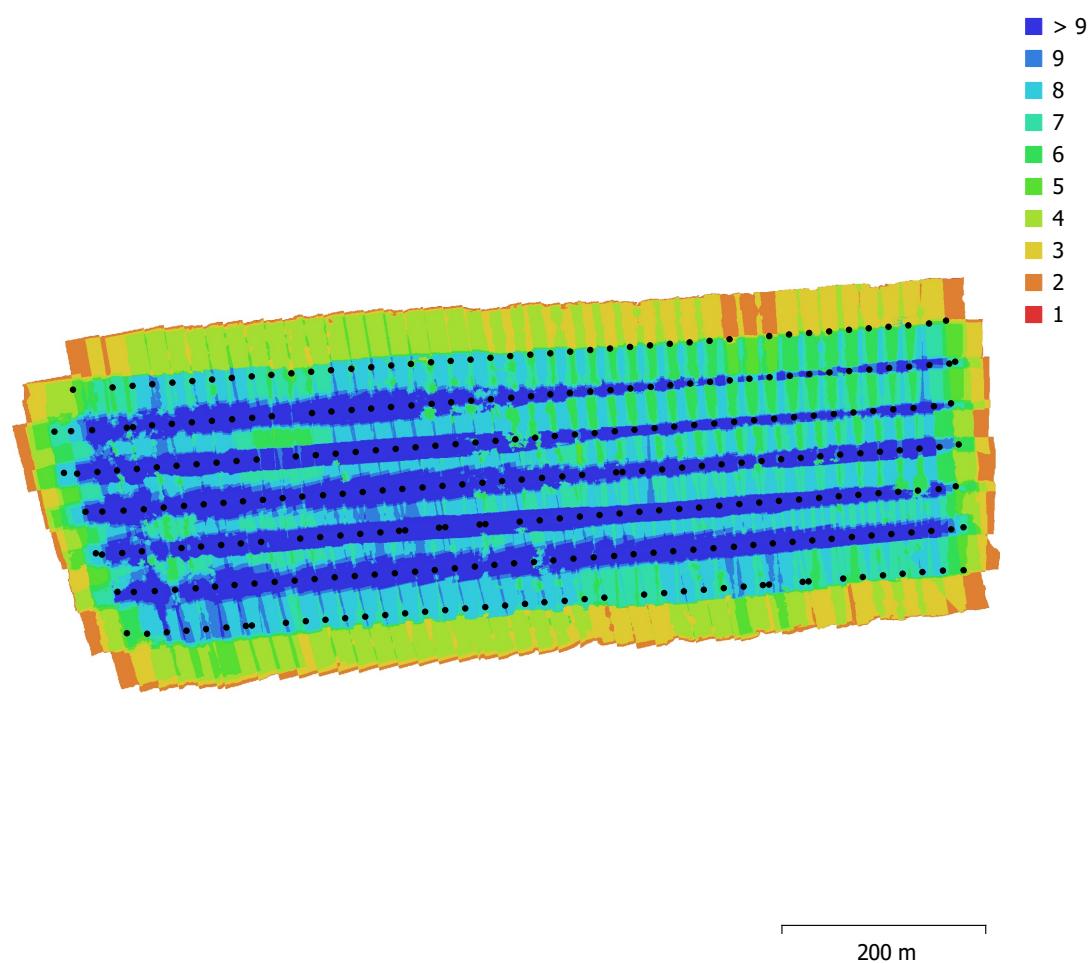


Fig. 1. Camera locations and image overlap.

Number of images:	308	Camera stations:	308
Flying altitude:	81 m	Tie points:	374,653
Ground resolution:	2.04 cm/pix	Projections:	1,103,281
Coverage area:	0.313 km ²	Reprojection error:	0.705 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8mm)	4864 x 3648	8.8 mm	2.61 x 2.61 μm	No

Table 1. Cameras.

Camera Calibration

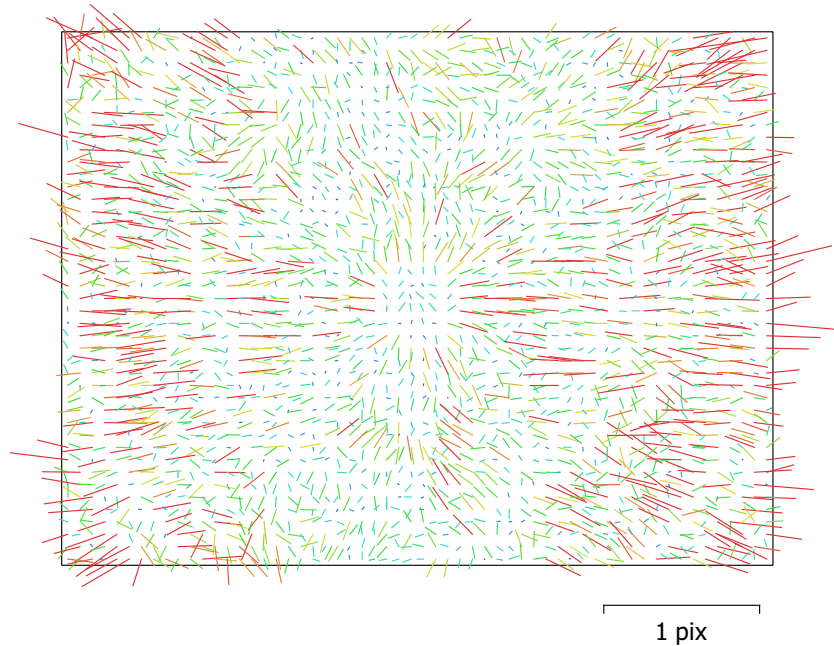


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

308 images

Type
Frame

Resolution
4864 x 3648

Focal Length
8.8 mm

Pixel Size
2.61 x 2.61 μm

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2	P3	P4
F	3595.23	1.4	1.00	0.40	0.46	0.14	-0.05	0.22	-0.41	0.52	-0.59	-0.04	-0.04	0.01	-0.02
Cx	-5.7925	0.061		1.00	0.19	-0.01	-0.02	0.10	-0.17	0.21	-0.24	0.20	0.00	0.02	-0.02
Cy	14.9707	0.048			1.00	0.05	-0.05	0.11	-0.19	0.24	-0.27	-0.03	0.25	0.03	-0.02
B1	-0.860633	0.015				1.00	0.00	0.04	-0.06	0.08	-0.08	-0.01	0.01	-0.00	-0.00
B2	-0.888256	0.016					1.00	-0.01	0.02	-0.03	0.03	-0.01	0.01	-0.00	0.00
K1	0.0174387	5.7e-05						1.00	-0.96	0.89	-0.82	-0.01	-0.00	0.00	-0.01
K2	-0.0964111	0.00034							1.00	-0.98	0.95	0.01	0.01	-0.01	0.01
K3	0.183851	0.00078								1.00	-0.99	-0.02	-0.01	0.01	-0.02
K4	-0.118493	0.00061									1.00	0.02	0.01	-0.01	0.02
P1	-7.65635e-05	2.1e-06										1.00	0.22	0.28	-0.26
P2	-0.000477228	4e-06											1.00	0.76	-0.70
P3	-0.126623	0.031												1.00	-0.98
P4	-0.106048	0.04													1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

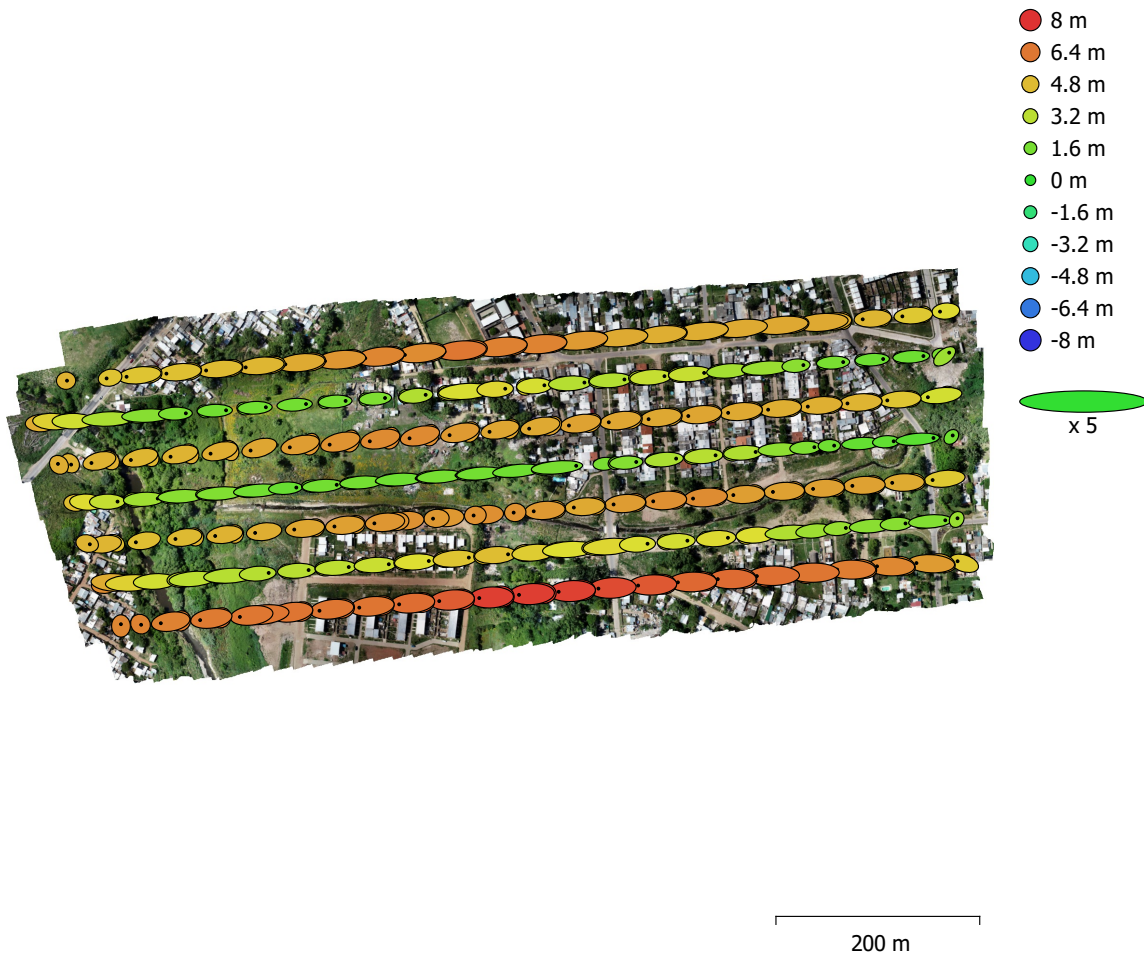


Fig. 3. Camera locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
3.86824	0.405299	4.6497	3.88941	6.06195

Table 3. Average camera location error.

X - Easting, Y - Northing, Z - Altitude.

Ground Control Points

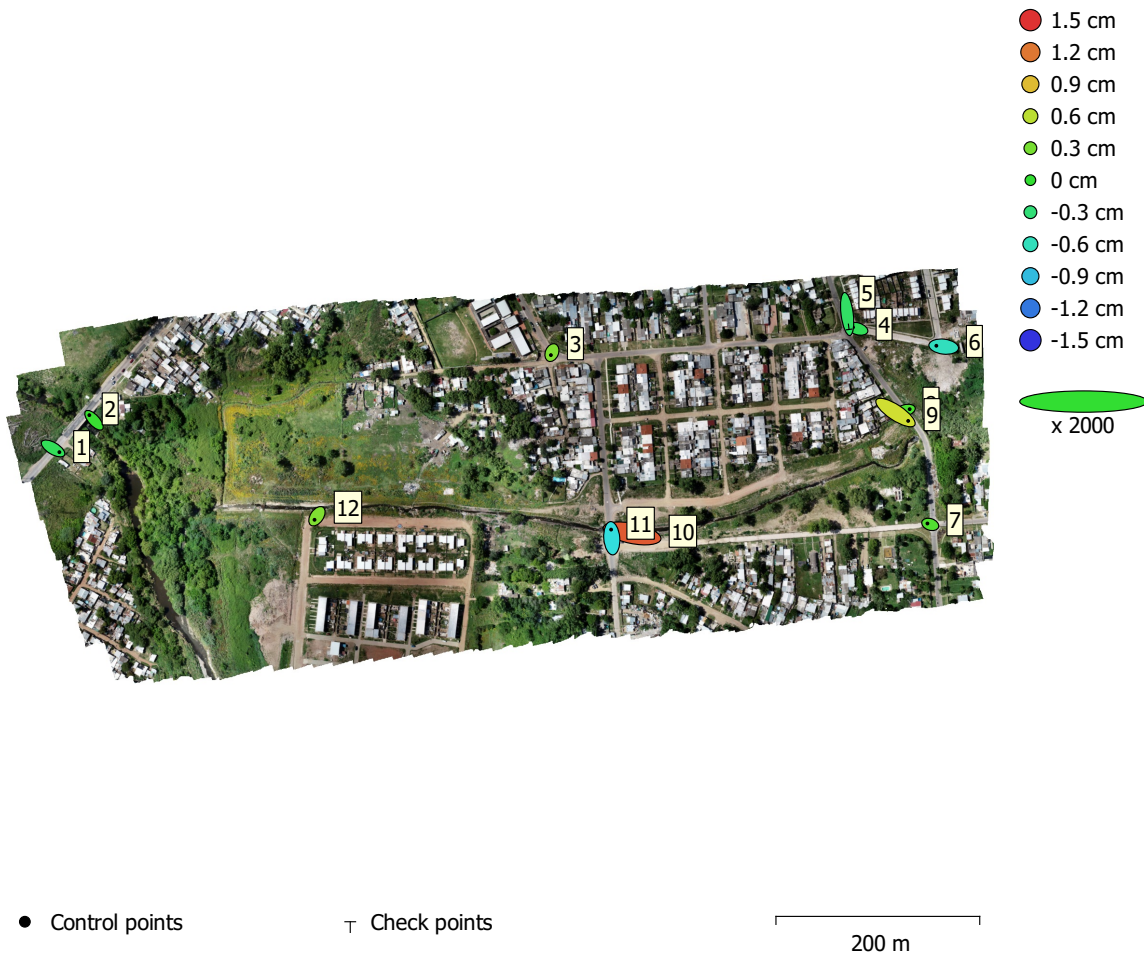


Fig. 4. GCP locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
10	0.565909	0.448823	0.415354	0.722284	0.833195

Table 4. Control points RMSE.

X - Easting, Y - Northing, Z - Altitude.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
2	1.32184	1.10557	0.951635	1.72324	1.96854

Table 5. Check points RMSE.

X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
1	0.616815	-0.364707	-0.162875	0.734847	0.113 (6)
2	-0.458094	0.501826	0.0308252	0.680169	0.137 (10)
3	-0.101852	-0.24528	0.340473	0.431807	0.246 (7)
4	-0.443228	0.135173	-0.165004	0.491884	0.404 (8)
6	-0.72222	0.0856234	-0.608585	0.948319	0.211 (6)
7	-0.273176	0.0905366	0.136663	0.318588	0.161 (11)
8	0.43903	0.121645	0.112685	0.4693	0.366 (6)
9	1.24707	-0.822913	0.690791	1.64607	0.289 (7)
11	-0.0646113	0.849077	-0.748317	1.13362	0.231 (9)
12	-0.238895	-0.350289	0.340063	0.543522	0.248 (12)
Total	0.565909	0.448823	0.415354	0.833195	0.251

Table 6. Control points.
X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
5	0.190402	-1.51732	-0.215841	1.54438	0.476 (6)
10	-1.85964	0.377255	1.32839	2.3163	0.259 (8)
Total	1.32184	1.10557	0.951635	1.96854	0.368

Table 7. Check points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

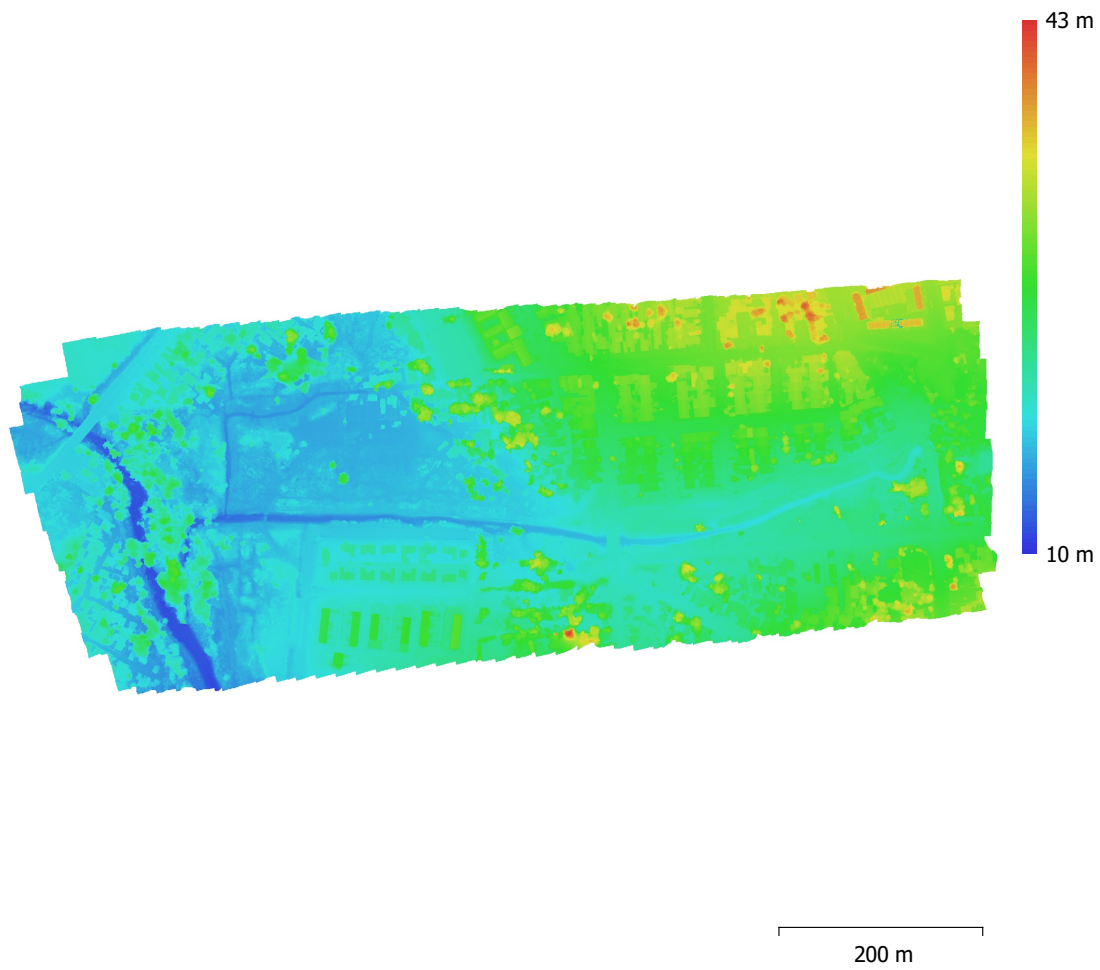


Fig. 5. Reconstructed digital elevation model.

Resolution: 4.08 cm/pix
Point density: 602 points/m²

Processing Parameters

General

Cameras	308
Aligned cameras	308
Markers	12
Coordinate system	WGS 84 / UTM zone 21S EGM96
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	374,653 of 396,596
RMS reprojection error	0.142013 (0.705348 pix)
Max reprojection error	0.734445 (32.7682 pix)
Mean key point size	4.32324 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.02999

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	11 minutes 16 seconds
Alignment time	1 minutes 21 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1-p4
Adaptive camera model fitting	No
Optimization time	7 seconds
File size	28.09 MB

Dense Point Cloud

Points	223,599,184
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	21 minutes 23 seconds

Dense cloud generation parameters

Processing time	30 minutes 15 seconds
File size	3.00 GB

DEM

Size	31,457 x 14,377
Coordinate system	WGS 84 / UTM zone 21S EGM96

Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled
Processing time	5 minutes 23 seconds
File size	831.60 MB

Orthomosaic

Size	47,537 x 19,995
Coordinate system	WGS 84 / UTM zone 21S EGM96
Colors	3 bands, uint8

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	9 minutes 13 seconds
File size	5.67 GB

System

Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12070
OS	Windows 64 bit
RAM	63.93 GB
CPU	Intel(R) Core(TM) i7-9700F CPU @ 3.00GHz
GPU(s)	Radeon(TM) RX 460 Graphics (Baffin)