



# Capture Guide

## Pro Tips for Aerial Drone Surveys of Vertical Structures

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Trendspek's Capture Guide combines 15+ years of enterprise drone pilot experience and professional tips to assist you in achieving an optimal capture, every time.

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## FLIGHT SETTINGS

# 90° Capture

To achieve a 1.5mm resolution 3D photogrammetry model, set up your flight parameters using the the settings below.

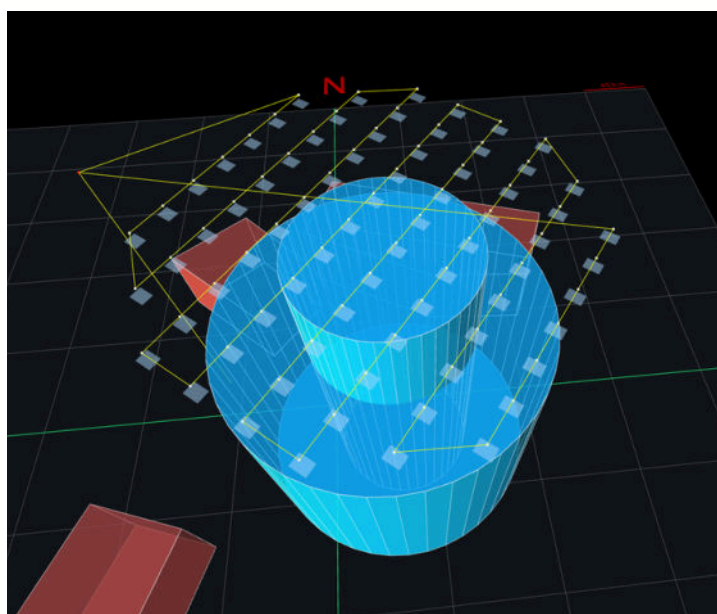
When planning the flight area, include additional margin to ensure the façades are fully captured in frame.

Please note these flight parameters are based on a DJI Mavic 3 Enterprise, you will need to change your parameters to the particular drone you are using to achieve 1.5mm GSD

**PRO TIP:** Use RTK if available

### Flight 1: Roof Capture

Flight Parameters	Values
Mission Type	Top Down (Nadir)
Target offset	Roof height plus 12m
Speed (M/S)	Maximum 2m/s
Overlap	75/75
Gimbal Pitch	-90* (Degrees)



Graphic courtesy of the Drone Harmony App

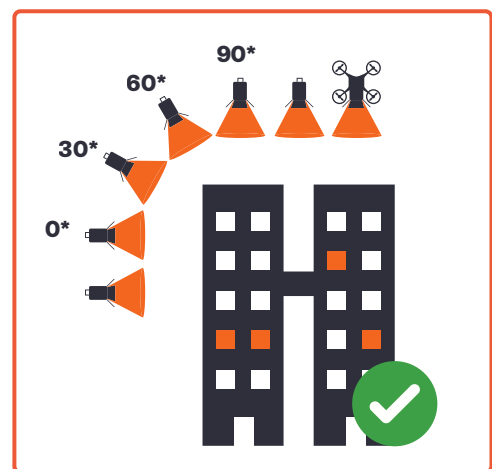
# Transition Tips

## Transition photos

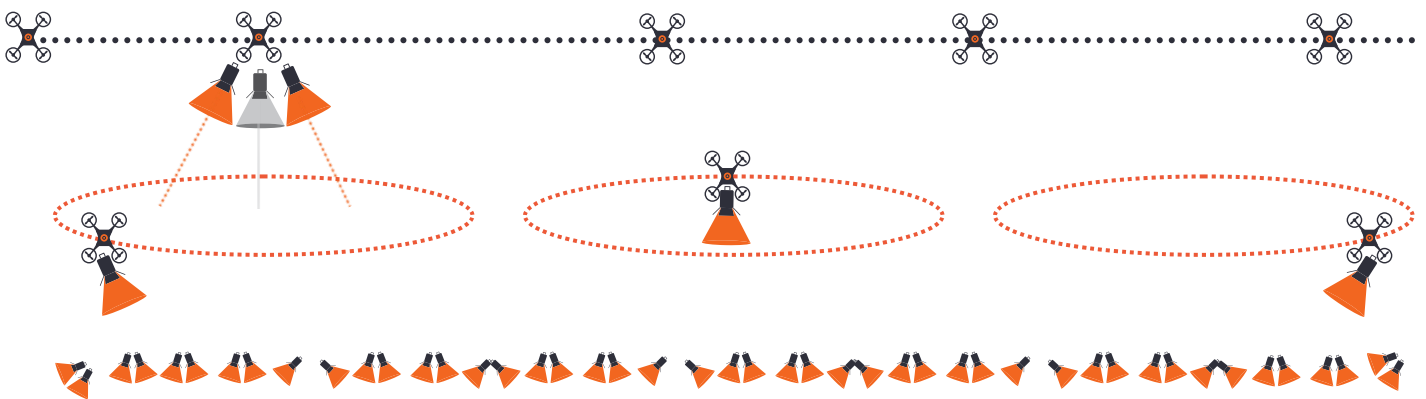
One of the most significant issues in drone capture is a lack of transitional imagery, which can lead to incomplete or fragmented corners of vertical structures.

- Aim for a minimum of one image per 30 degrees when transitioning around corners or;
- If mixing distances, try to include a "transition" distance and avoid going from far to really close.

See image below



**PRO TIP:** For intricate or detail-heavy assets, increase the amount of transition shots.



## FLIGHT SETTINGS

# Transitional Capture

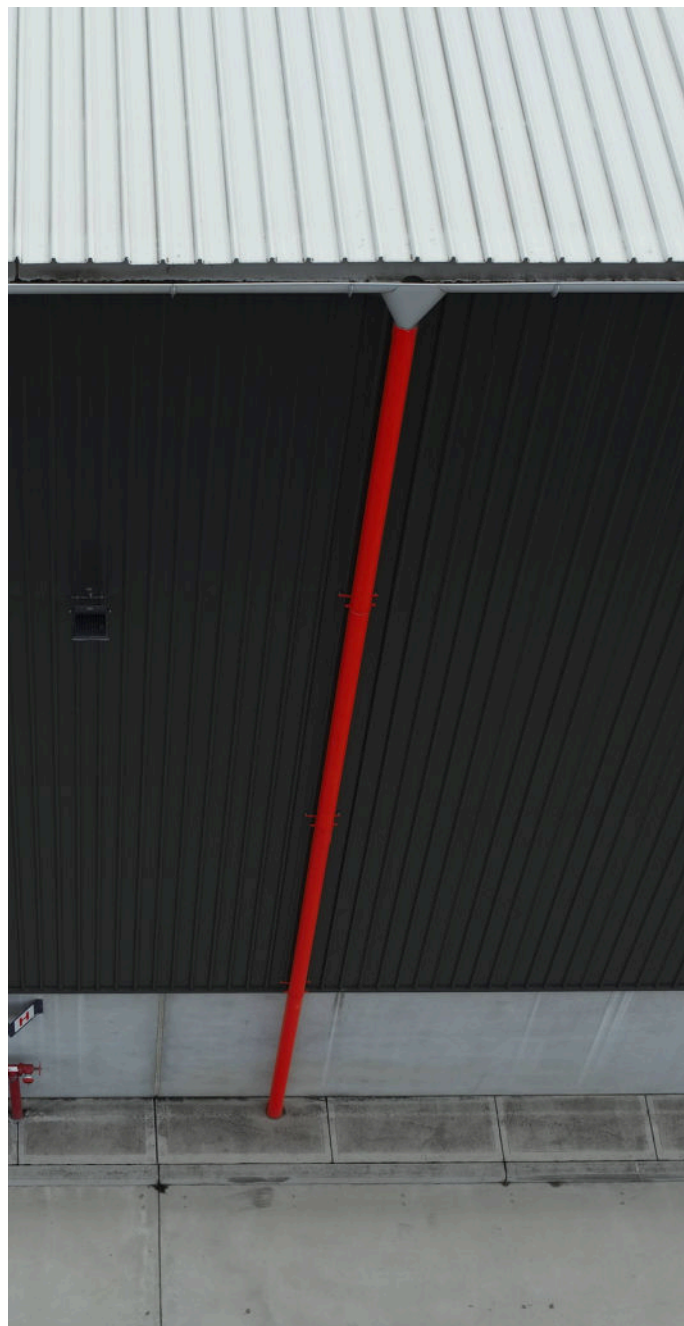
Please ensure you have transitional imagery between the roof and façades/elevations for a complete model.

To capture successful Transitional imagery you will need to ensure you are able to see the roof, façade and hardstand in each image, see the image on the right as an example.

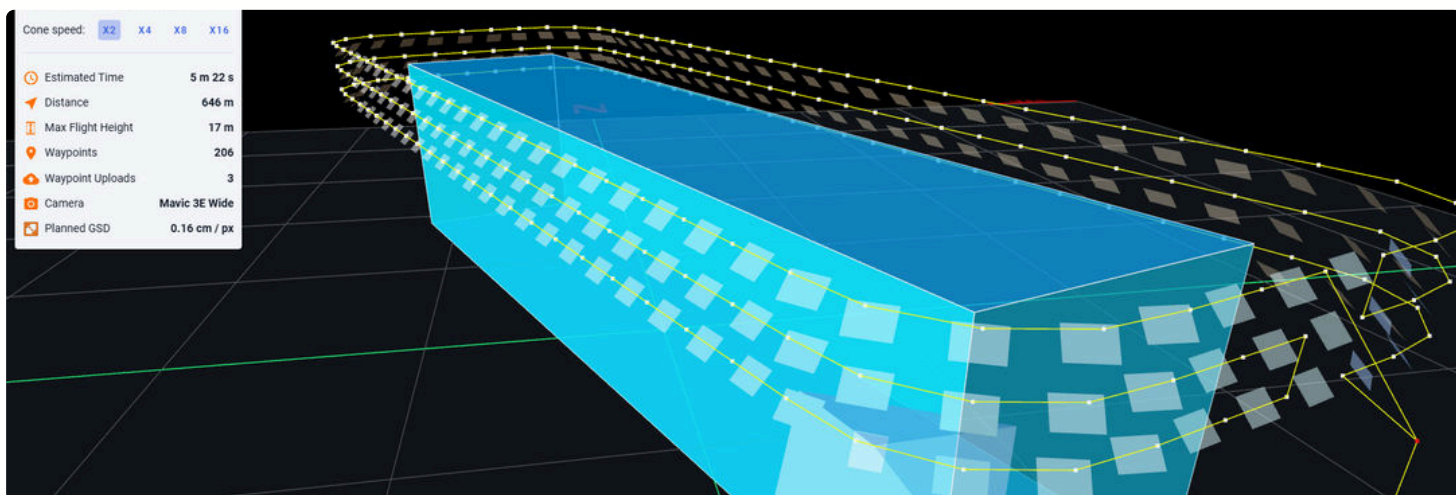
Please note these flight parameters are based on a DJI Mavic 3 Enterprise and you will need to change your parameters to the particular drone you are using to achieve 1.5mm GSD

**PRO TIP:** Use RTK if available

Flight Parameters	Values
Mission Type	Manual Orbit
Target offset	Reduce the height by 5-6 meters from the roof offset.
Speed (M/S)	Maximum 2 M/S
Overlap	75/75
Gimbal Pitch Lap 1	60-70* (Degrees)
Gimbal Pitch Lap 2	40-50* (Degrees)



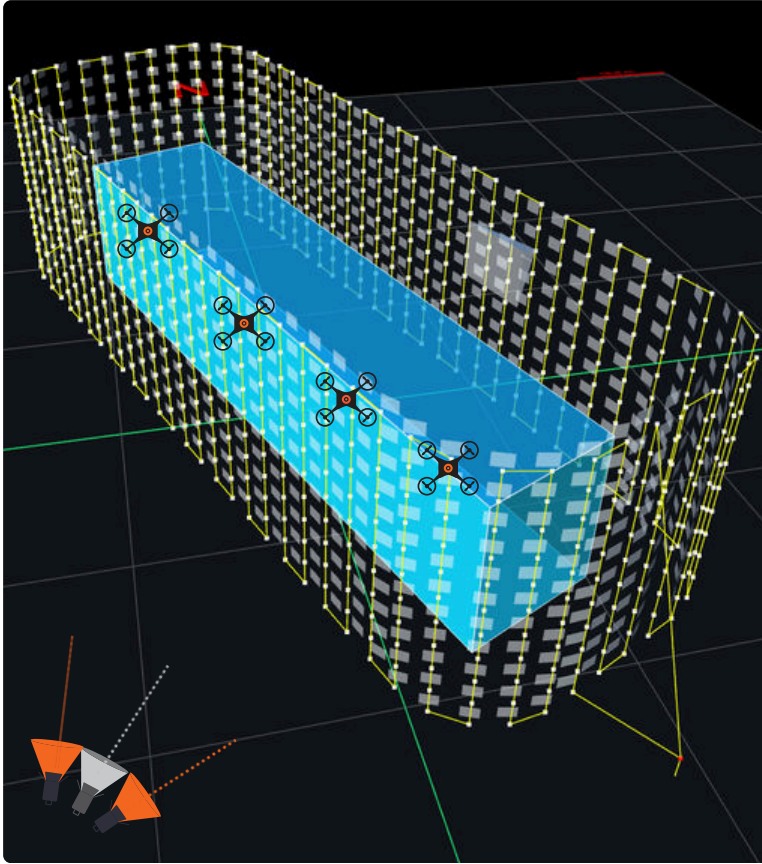
Example of successful transitional imagery



Graphic courtesy of the Drone Harmony App

## FLIGHT SETTINGS

## Façade and Lattice Capture



### ← Side Profile

Consider flying flight lines with the camera slightly tilted up, with the alternate flight line having the camera tilted down, thus enabling a better render of your 3D model.



Height change between each photo should equate to 75% overlap



### Recommended overlap **75/75**

To calculate the correct offset distance for your specific drone/camera please consult the [Resolution Calculator](#).

### ↑ Face-on profile

With intricately detailed façades, consider completing an extra flight/s with the camera, either panned to the left and/or right instead of directly facing the façade.

**i** If including top-down components such as roofs or hardstands, don't forget to include transition imagery as discussed on Page 5.



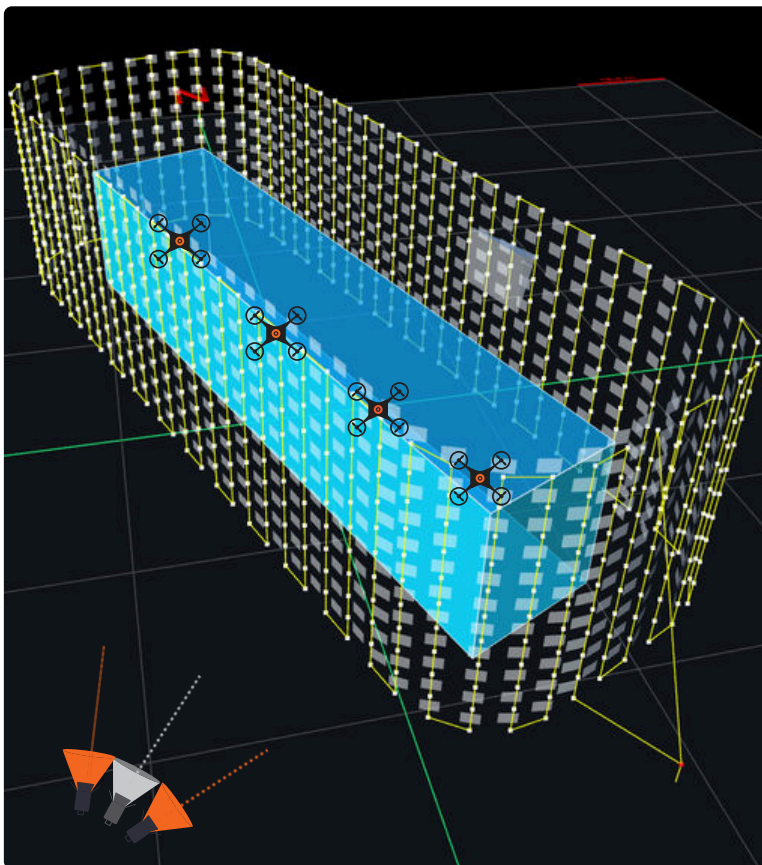
For lattice capture, repeat flight lines with the camera slightly tilted upward.



On alternating flights, pan the camera left and right while tilting it slightly downward.

This variation in angle and direction enhances the quality and detail of the lattice.

# Tips for Capturing Façades



## Façade Capture

Consider flying flight lines with the camera slightly tilted up, with the alternate flight line having the camera tilted down, thus enabling a better render of your 3D model.

Height change between each photo should equate to 75% overlap

If there are gutters, perform a lap around the whole perimeter ensuring to tilt the camera to -10 degrees to ensure the underside is captured effectively.

**i** If including top-down components such as roofs or hardstands, don't forget to include transition imagery as discussed on page 5.

To calculate the correct offset distance for your specific drone/camera please consult the Trendspek Resolution Calculator.

**Trendspek Resolution Calculator**

## FLIGHT SETTINGS

# Hardstands (Optional)

Hardstands should be captured at the resolution requested on your brief.

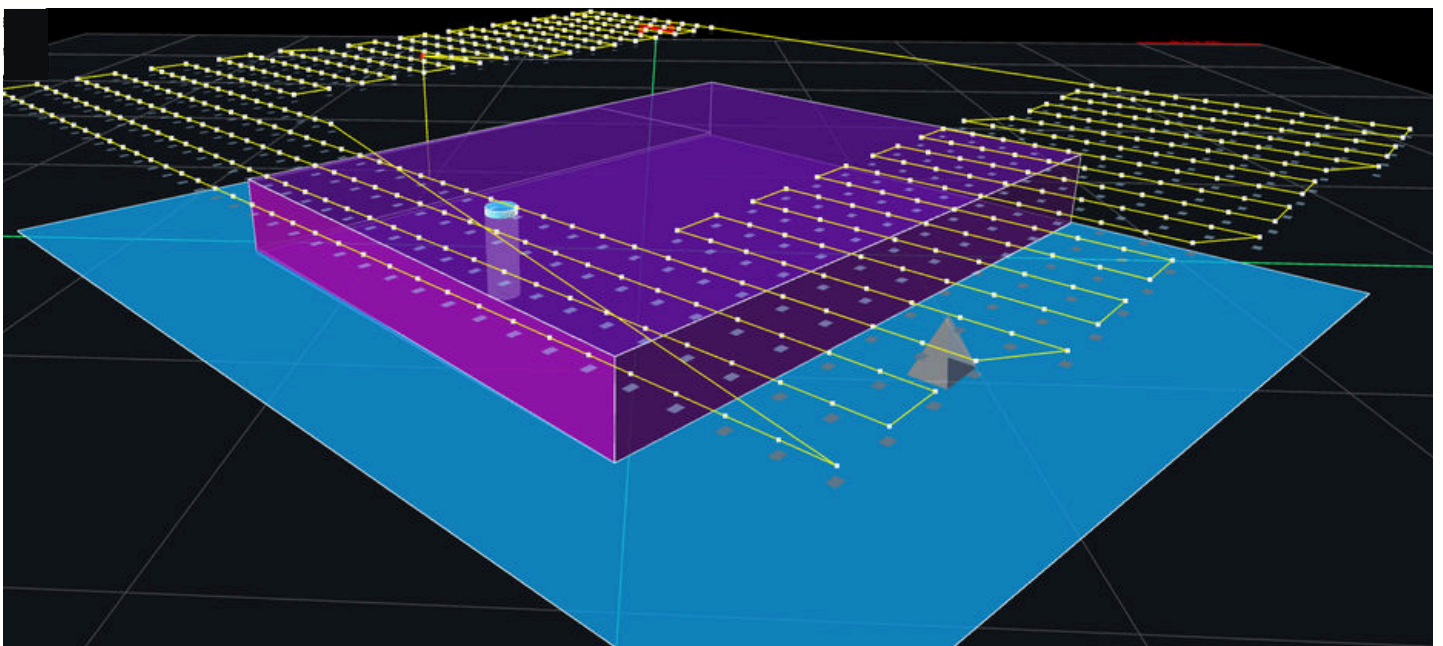
These flight settings are based on 3mm resolution

Please note these flight parameters are based on a DJI Mavic 3 Enterprise and you will need to change your parameters to the particular drone you are using to achieve 3mm GSD.

**PRO TIP:** Use RTK if available

### Flight 4: Hardstands Capture

Flight Parameters	Values
Mission Type	Hardstands
Target offset	12m
Speed (M/S)	Maximum 2 M/S
Overlap	75/75
Gimbal Pitch Lap 1	90* (Degrees)



Graphic courtesy of the Drone Harmony App



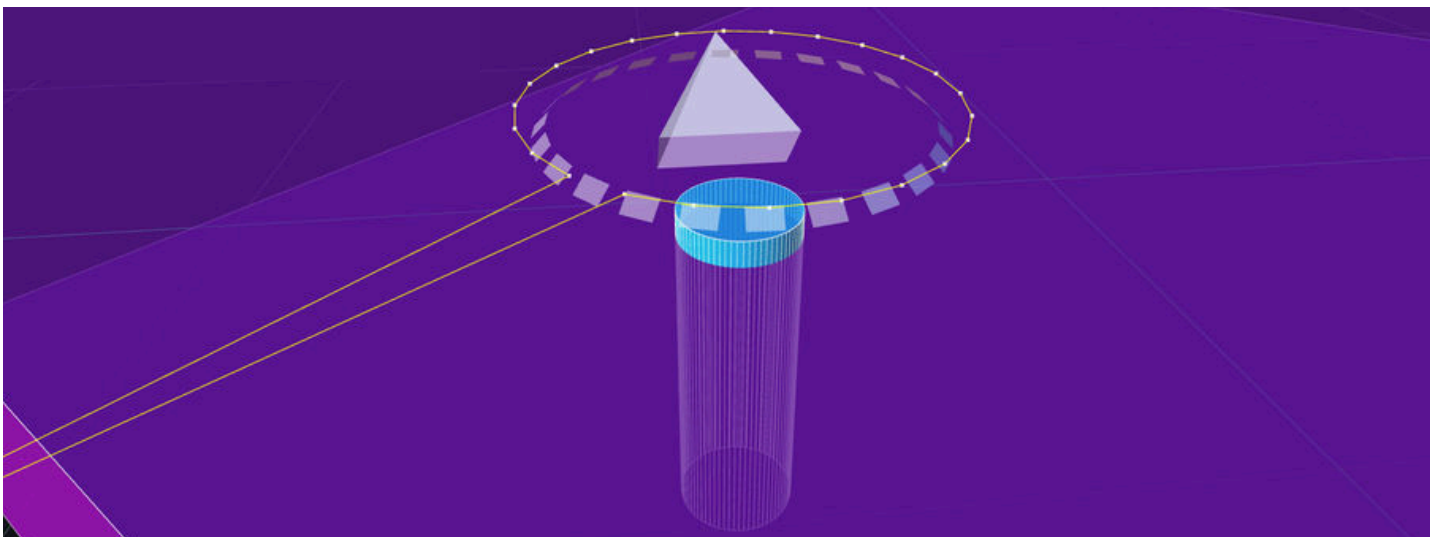
## Plant Equipment

### Plant Equipment or Noticeable Damage

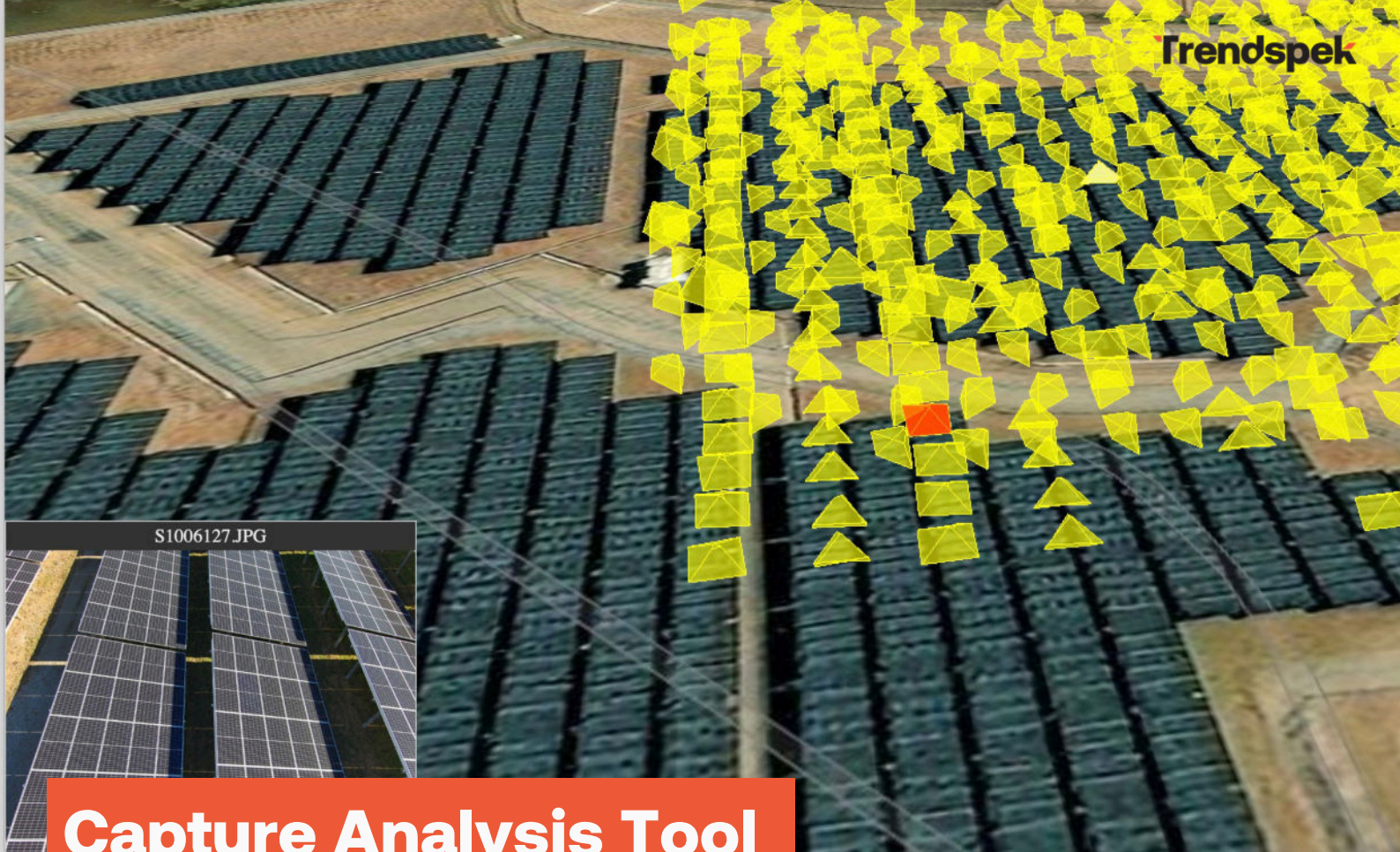
After completing your top-down mission, please perform manual orbits, maintaining the correct GSD as specified in your brief.

Capture the following if requested in your brief:

- Plant equipment
- Visible areas of damage



Graphic courtesy of the Drone Harmony App



# Capture Analysis Tool

Information	
Image Group 1 <span>▼</span>	
Total Gigapixels:	2.5 GP
Total images:	203
Total size:	1.22 GB
Camera size:	<input type="text" value="0.4"/>

## Check capture coverage while on-site for more complete 3D models

Trendspek's Capture Analysis tool allows you to verify that you've captured your whole asset while still on-site to ensure optimal coverage.

Accessible via the platform, this tool improves accuracy, resulting in better 3D models without the need for repeat site visits.

*You will need a Trendspek account to use the tool.*

## Capture Analysis Tool



## Drone Selection

The minimum recommended drone camera is a true 20 megapixels.

For anything less than this, please consult our capture team: [delivery@trendspek.com](mailto:delivery@trendspek.com)

**i PRO TIP:** Cameras with larger sensor sizes will produce superior image quality, with added benefits including:

- Capture more of the asset in one frame, meaning fewer overall photos
- Fewer flight lines needed, making it significantly quicker to capture
- Fewer obstacles avoided by flying higher

## Camera Tips

When setting up your camera for capture, keep in mind the following:



**PRO TIP:** Where possible, select Manual White Balance (e.g. sunny or cloudy). Don't change these settings during capture, even if weather conditions change.

If using multiple drones, ensure the white balance matches for each drone.



**PRO TIP:** In darker conditions, avoid exceeding ISO 3200 or Shutter Speed less than 1/500, as this will result in grainy/blurry images



ISO  
More than 3200



Shutter Speed  
1/250 - 1/2



ISO  
3200 or less



Shutter Speed  
1/500

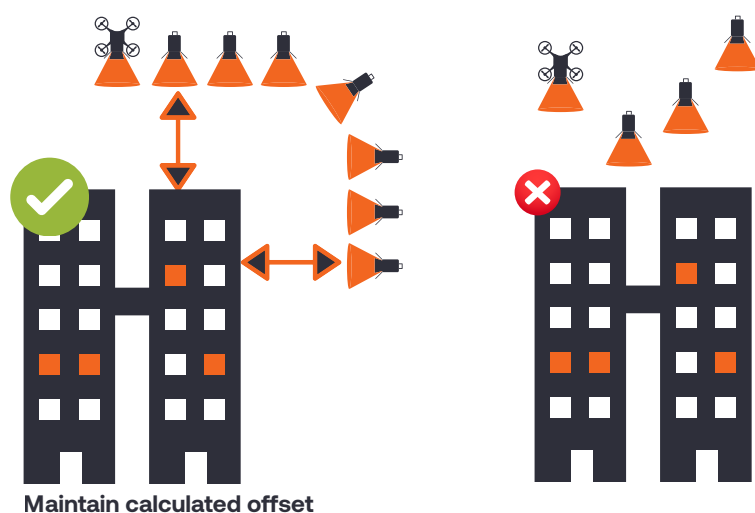
# Target Resolution (GSD)

When targeting a specific resolution or Ground Sample Distance (GSD), ensure accuracy when calculating the offset distance and adhere to it closely.

To calculate the correct offset distance for your specific drone/camera please consult the Trendspek offset calculator:

<https://trendspek.com/resources/resolution-calculator>

**PRO TIP:** Maintain the correct offset throughout the entire capture. For example, if your target offset is 10m, measure the height of the roof and then add the 10m offset above the roof's height.



## Apps









- DJI Pilot
- Drone Harmony
- Drone Link









# Capture Checklist

-  Asset .....
-  Camera/Lens .....
-  Target Resolution .....
-  Offset distance .....




## Pre-flight checklist

-  The capture plan includes the correct overlap of 75/75 and transition imagery
-  Image ratio set (4:3 or 3:2)
-  Image type set to JPEG
-  Offset distance / Height above asset set
-  Auto Focus set
-  White balance set

## Post-flight checklist (onsite)

-  Images are in focus without motion blur
-  Exposure is balanced correctly (No "blown-out" whites on the asset)
-  Images have a consistent white balance
-  Sufficient transitional imagery was captured (topdown - to verticals)
-  Sufficient overlap was captured
-  Validated with Trendspek's capture analysis tool

## Data and Upload Checklist

-  Upload data straight away to minimise risk of data loss, if not able create a second copy of the data
-  Where feasible check images and remove any that are out of focus or blurry
-  Ensure you name your upload with the address of the property in the following format:  
42 Wallaby Way Sydney

Trendspek advises all Recipients that the Capture Guide is provided for information purposes only and any reliance on the information contained herein shall be at the reader's own risk and not Trendspek's. Trendspek recommends consulting your relevant Regulatory Authority Legislation for the safe and legal operation of Remotely Piloted Aircraft, and the RPAS Manufacturer's User Guide for information regarding the safe and standard use of their RPAS.

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Prepared by

**Trendspek**  
[www.trendspek.com](http://www.trendspek.com)