

SAMPLE REPORT · SITE ASSESSMENT

Data Centre Impact Monitoring

Kulai, Johor, Malaysia · 102.2 ha campus boundary
Period: 21 Nov 2021 to 14 Aug 2026 · 8 satellite images
Indicators: vegetation cover, construction progress, surrounding land

Sample report on a demonstration site. Not commissioned by the site's owner or operator.

Issued 26 Oct 2026

Summary of findings

Between November 2021 and August 2026 a mature oil-palm estate in Kulai was cleared and built on as a data-centre campus and solar farm. On every date both could be measured, a 2 km ring around the site and a block of untouched palm nearby changed by almost the same average amount.

96.6% → 0.3%

of the 102.2 ha boundary

Closed-canopy vegetation is almost gone

Closed-canopy vegetation (mature oil palm, NDVI 0.8 or higher) fell from 96.6% on 21 Nov 2021 to 0.3% on 14 Aug 2026. It was 70.9% when the sale completed (30 Jan 2022), 28.0% at groundbreaking (28 Aug 2023), 13.8% at the first 8 MW (13 Jun 2024) and 3.5% by 3 Feb 2025.

100.5 ha

cleared of 101.8 ha campus

214.2 ha

cleared of 215.8 ha solar farm

Nearly all mature palm in both blocks has been cleared

By 14 Aug 2026, 100.5 ha of the campus block and 214.2 ha of the solar-farm block had gone from mature palm to bare or built ground. Ground once counted as cleared stays counted, so regrowing grass or cloud cannot lower the figure.

35.7 ha

built on the campus

107.7 ha

built on the solar farm

Built ground on 16 Apr 2026, the first clear image after 150 MW was delivered (March 2026)

Roofs, hardstanding or solar array covered 35.7 ha of the campus (49.5 ha still bare) and 107.7 ha of the solar farm (97.6 ha bare). The solar farm added 77.4 ha of built ground in the six months from 11 Oct 2025. This measures ground, not megawatts.

< 0.02

ring minus control, NDVI, at all 5 clear dates

Surrounding ring and untouched palm changed alike, on average

On 14 Aug 2026 a 2,190 ha ring around the site had changed by −0.043 NDVI since 2021 and a 100 ha block of untouched palm 3.8 km away by −0.044. At all five dates when both were clear, the two differed by less than 0.02, which the portal treats as no measurable difference. This is an average over the whole ring: it does not rule out a small change at one edge of the site.

What this report cannot tell you

These are satellite measurements at 10 m, not a ground survey, and no ground validation has been done. NDVI change is not a carbon or biodiversity measure. The images show what changed on the ground and when, not who did it or why. Section 07 lists every limitation.

A plantation estate becomes a data-centre campus

The site lies in Kulai, Johor. Until 2021 it was a mature oil-palm estate. Since then a data-centre campus and an adjoining solar farm have been built on it. The portal tracks three outlines: the 102.2 ha campus boundary used for land-cover shares, and two blocks used for clearing and construction figures, the campus (101.8 ha) and the solar farm (215.8 ha). Each table names the outline it uses.

Questions this assessment answers

- How did vegetation cover on the site change from the 2021 estate sale to the latest image?
- How much ground had been built on by each reported milestone?
- Did the land around the site change more than comparable land the build did not touch?



21 Nov 2021 · Estate sale agreed. Sentinel-2 true colour, 10 m.



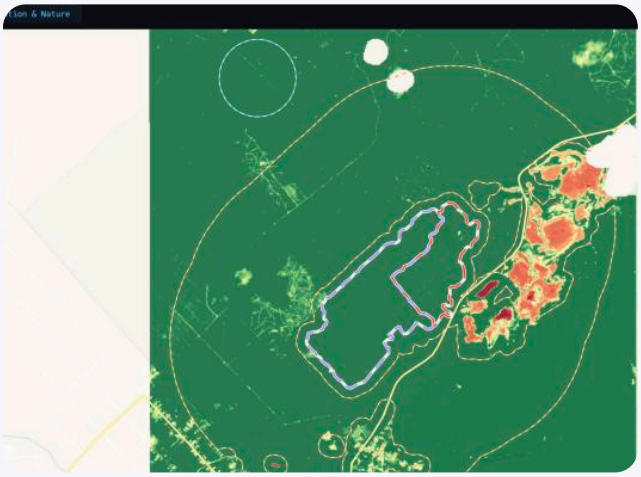
14 Aug 2026 · Latest image. Same frame.

Inputs

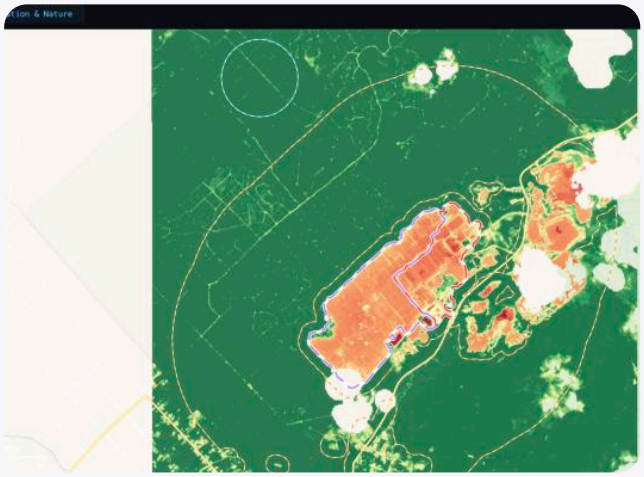
Eight Sentinel-2 images, all taken at about 03:38 UTC (11:38 local): 21 Nov 2021, 30 Jan 2022, 28 Aug 2023, 13 Jun 2024, 3 Feb 2025, 11 Oct 2025, 16 Apr 2026, 14 Aug 2026. Each is the nearest clear image to a reported milestone, plus the latest. The 2021 reference for the ring and control comparison is the per-pixel median of three clear images: 21 Nov, 1 Dec and 21 Dec 2021. The construction figures draw on 23 clear images from 8 Aug 2021 onwards. Milestones are public news and company announcements; each table gives both the event date and the image date.

03 · VEGETATION OVER TIME

Closed-canopy vegetation: 96.6% to 0.3%



Portal, Vegetation & Nature view, 21 Nov 2021. Green is dense vegetation, red is bare ground. Dashed lines: comparison ring and control area.

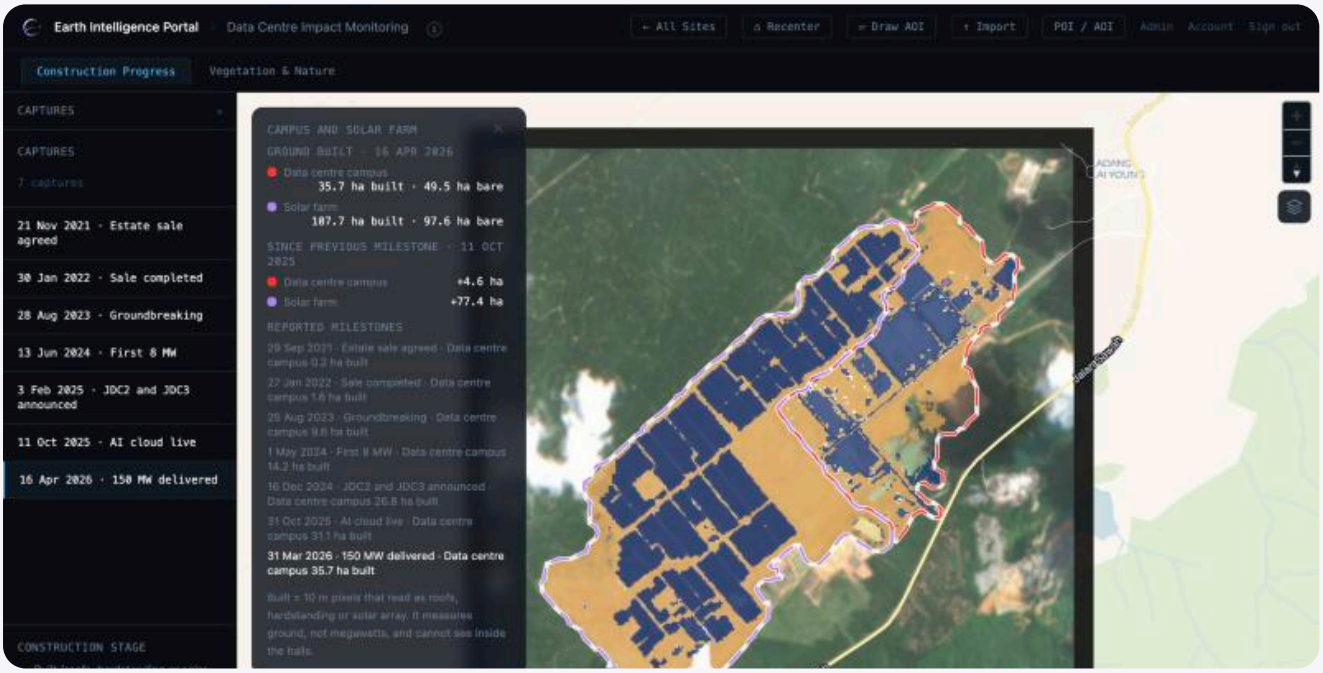


Same view, 14 Aug 2026. White patches are cloud, cut out before any figure is computed.

Image date	Milestone	Event date	Closed canopy NDVI 0.8+	Dense vegetation	Bare or built surface	Boundary clear of cloud
21 Nov 2021	Estate sale agreed	29 Sep 2021	96.6%	3.1%	0.0%	100%
30 Jan 2022	Sale completed	27 Jan 2022	70.9%	28.4%	0.0%	100%
28 Aug 2023	Groundbreaking	25 Aug 2023	28.0%	14.1%	17.5%	99.6%
13 Jun 2024	First 8 MW	May 2024	13.8%	9.9%	31.4%	100%
3 Feb 2025	JDC2 and JDC3 announced	16 Dec 2024	3.5%	4.8%	30.0%	100%
11 Oct 2025	AI cloud live	31 Oct 2025	1.0%	6.5%	27.3%	80.5%
16 Apr 2026	150 MW delivered	Mar 2026	0.4%	2.2%	43.5%	89.5%
14 Aug 2026	Latest image	–	0.3%	3.9%	40.8%	100%

Shares of the clear part of the 102.2 ha campus boundary. On 11 Oct 2025 and 16 Apr 2026 part of the boundary was under cloud; those shares describe the clear part only. The remaining classes (sparse cover, grass, shrub or young plantation, and a dark class that mixes ponds, shadow and dark roofs) are not shown. "Closed canopy" is the band name for NDVI 0.8 and above; on this site that ground was mature oil palm.

Built ground by each reported milestone



Portal, Construction Progress view, 16 Apr 2026 image, the first clear one after 150 MW was delivered (March 2026). Navy: roofs, hardstanding or solar array. Tan: bare ground (cleared or earthworks).

Milestone	Event date	Image	Campus built
Estate sale agreed	29 Sep 2021	21 Nov 2021	0.2 ha
Sale completed	27 Jan 2022	30 Jan 2022	1.6 ha
Groundbreaking	25 Aug 2023	28 Aug 2023	9.6 ha
First 8 MW	May 2024	13 Jun 2024	14.2 ha
JDC2 and JDC3 announced	16 Dec 2024	3 Feb 2025	26.8 ha
AI cloud live	31 Oct 2025	11 Oct 2025*	31.1 ha
150 MW delivered	Mar 2026	16 Apr 2026	35.7 ha

At 150 MW delivered

	Built	Bare
Campus	35.7 ha	49.5 ha
Solar farm	107.7 ha	97.6 ha

Since the previous milestone image (11 Oct 2025): campus +4.6 ha, solar farm +77.4 ha.

Event dates are as publicly reported; May 2024 and March 2026 were reported to the month. Each figure comes from the image date, not the event date. *The next clear image after 31 Oct 2025 was 25 Mar 2026, so that row uses the image three weeks before it. Built means 10 m pixels that read as roofs, hardstanding or solar array. It measures ground, not megawatts, and cannot see inside the halls. The portal reports hectares per block and gives no total across the two, because they are different kinds of ground.

Did the land around the site change more than untouched palm?

To separate the build's footprint from region-wide effects (season, haze, replanting), the portal compares two areas. **Ring:** land 150 m to 2 km around the campus and solar farm, leaving out both, two quarries and two villages; about 2,190 ha, part forest. **Control:** a 100 ha block of unchanged mature oil palm about 3.8 km north-west. Each is compared with its own 2021 reference; the difference shows how much more the surroundings changed than land the build did not touch.

Image	Ring change	Control change	Ring minus control
21 Nov 2021	+0.031	+0.027	+0.004
30 Jan 2022	−0.052	−0.038	−0.014
28 Aug 2023	too cloudy	too cloudy	–
13 Jun 2024	−0.006	−0.015	+0.009
3 Feb 2025	+0.004	too cloudy	–
11 Oct 2025	−0.034	−0.043	+0.009
16 Apr 2026	−0.026	too cloudy	–
14 Aug 2026	−0.043	−0.044	+0.001

Mean NDVI change since the 2021 reference (the median of all clear June to December 2021 images). The portal reads a difference under about 0.02 as no measurable difference. That is a working threshold, not a validated one.



Portal card for 14 Aug 2026: palm cleared per block, and ring vs control.

> **Reading.** At all five dates when both areas were clear, the ring and the control changed by amounts within 0.02 NDVI of each other. That says the ring as a whole did not change more than untouched palm. It does not rule out a small, local change: a few hectares at the site edge would barely move a 2,190 ha average. The ring is part forest and part palm, so compare changes, not levels.

The portal's assessment, in its own words

The portal answers questions in plain language from the same figures, and states the limits of each answer. The excerpt below is unedited, so you see what the feature produces; […] marks text left out. The box after it records what our review found.

Asked 26 Oct 2026 · **"Write a short site assessment for this site covering 21 Nov 2021 to 14 Aug 2026: how vegetation cover changed, at which milestones, and what the data cannot show. The site was a mature oil-palm estate before construction."**

Data Centre Impact Monitoring, Kulai, Johor — 102.2 ha, 21 Nov 2021 to 14 Aug 2026.

21 Nov 2021 (Estate sale agreed): The site was almost entirely vegetated. Closed canopy forest made up 96.6% of covered pixels, with Dense vegetation a further 3.1%. Mean NDVI was 0.88 and only 0.1% of pixels fell below 0.4. Because the site was a mature oil-palm estate, this signal almost certainly represents dense plantation canopy, not natural forest — NDVI cannot distinguish between the two.

28 Aug 2023 (Groundbreaking): A large step-change occurred. Closed canopy forest dropped to 28%, while Bare / built surface (17.5%) and Water / shadow (22%) appeared for the first time at meaningful levels. Share of pixels below 0.4 rose to 52.3%. Coverage was 99.6%, so the picture is nearly complete.

16 Apr 2026 (150 MW delivered): Closed canopy forest fell to 0.4% and Bare / built surface peaked at 43.5%, with mean NDVI at 0.09 — the lowest across all captures. Coverage was 89.5%; the uncovered 10.5% cannot be extrapolated.

14 Aug 2026 (Latest image): Closed canopy forest stands at 0.3% of covered pixels […] Full coverage was restored. Bare / built surface was 40.8% and Water / shadow 21.1%.

What the data cannot show:

- NDVI cannot distinguish oil-palm plantation from natural forest, so the pre-construction canopy cannot be characterised as either.
- The satellite captures specific dates only; clearing that happened between captures is not directly observed.
- These are satellite-derived estimates, not ground measurements.
- No carbon stock, biodiversity or soil impact assessment can be drawn from this data.

Based on: Data Centre Impact Monitoring, Vegetation & Nature (NDVI band shares and means), 21 Nov 2021 to 14 Aug 2026.

Our review of this answer. Every figure matches the portal's tables (pages 4 and 6). Three things we would not pass on unchanged: (1) "Closed canopy forest" is the portal's band name for NDVI 0.8 and above; on this site that ground was mature oil palm, so this report says "closed-canopy vegetation". (2) Its last caveat says the canopy "cannot be characterised as either". That is true of NDVI on its own, but the site history settles it: palm. (3) The […] cut a garbled hectare conversion; 0.3% of 102.2 ha is about 0.3 ha. AI text in a commissioned assessment is reviewed this way before it is issued.

How the figures were made

Data

Copernicus Sentinel-2 satellite data (European Space Agency), Level-2A surface reflectance, 10 m. Eight images, 21 Nov 2021 to 14 Aug 2026, listed on page 3.

Method

- NDVI, a greenness score from red and near-infrared light, is computed for each 10 m pixel.
- Cloud, cloud shadow, cirrus and the pixels next to them are cut out, as are hazy images. They never enter a figure.
- Land-cover shares group NDVI into bands; closed canopy is 0.8 and above.
- Palm cleared: ground at NDVI 0.6 or more in the 2021 reference that has read below 0.4 in at least two clear images. Left blank when under 70% of a block is clear.
- Built or bare: each pixel of the true-colour image classed as roofs, hardstanding or array, or as bare ground.
- Ring and control: mean NDVI change since the 2021 reference, over pixels clear in both images.

Limitations

- No ground validation yet. Figures are satellite measurements, not a survey, and carry no accuracy statement.
- No error margins are calculated. Figures are shown as computed (0.1 ha, 0.001 NDVI); read the last digit as indicative.
- The 0.02 NDVI threshold for ring vs control is a working rule, not a validated detection limit.
- At 10 m, narrow clearings and tree lines blur.
- NDVI change is not a carbon or biodiversity measure.
- Replanting lowers NDVI for years, so a drop in the ring can be replanting rather than loss.
- Thin haze the cloud mask misses lowers NDVI across a whole image, by up to about 0.06.
- Some dates have blank values where cloud covered an area.
- Built means ground cover, not capacity in use.
- Milestones are public announcements; figures come from the nearest clear image, which can be weeks away.
- Outlines were traced from 2026 imagery.

What a commissioned assessment adds

- Your site and your boundary, with the dates that matter to your decision.
- Surface heat and water indicators, which the portal already runs at other sites.
- Repeat assessments as new images arrive, in the same portal view.
- Where the project needs it, available commercially licensed higher-resolution imagery, chosen at scoping.

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CELESTARA

Contains modified Copernicus Sentinel data 2021–2026. Outlines traced by Celestara from Sentinel-2. Portal base map: OpenFreeMap, © OpenMapTiles, © OpenStreetMap contributors.