Gunnedah Solar Farm

765 Orange Grove Road, Gunnedah

Presented by Nick Guzowski from Photon Energy /Polpo Investments

In attendance with Chelsea Milles from Canadian Solar;

Malinda Facey and Adam Bishop from pitt&sherry (EIS and RtS)

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Gunnedah Solar Farm Pty Ltd.

- Applicants include:
  - Photon Energy
  - Polpo Investments
  - Canadian Solar

  - These applicants (in partnership and individually) currently have a portfolio of projects across NSW and Australia at various stages of planning, assessment, construction and commissioning.
    - Canadian Solar is currently commissioning Oakey (100MW) and have recently commissioned Longreach (17.4MW) and Nornmanton Solar Farm (5MW)
    - Photon Energy NV are soon to commence construction of the Leeton Solar Farm (30MW)

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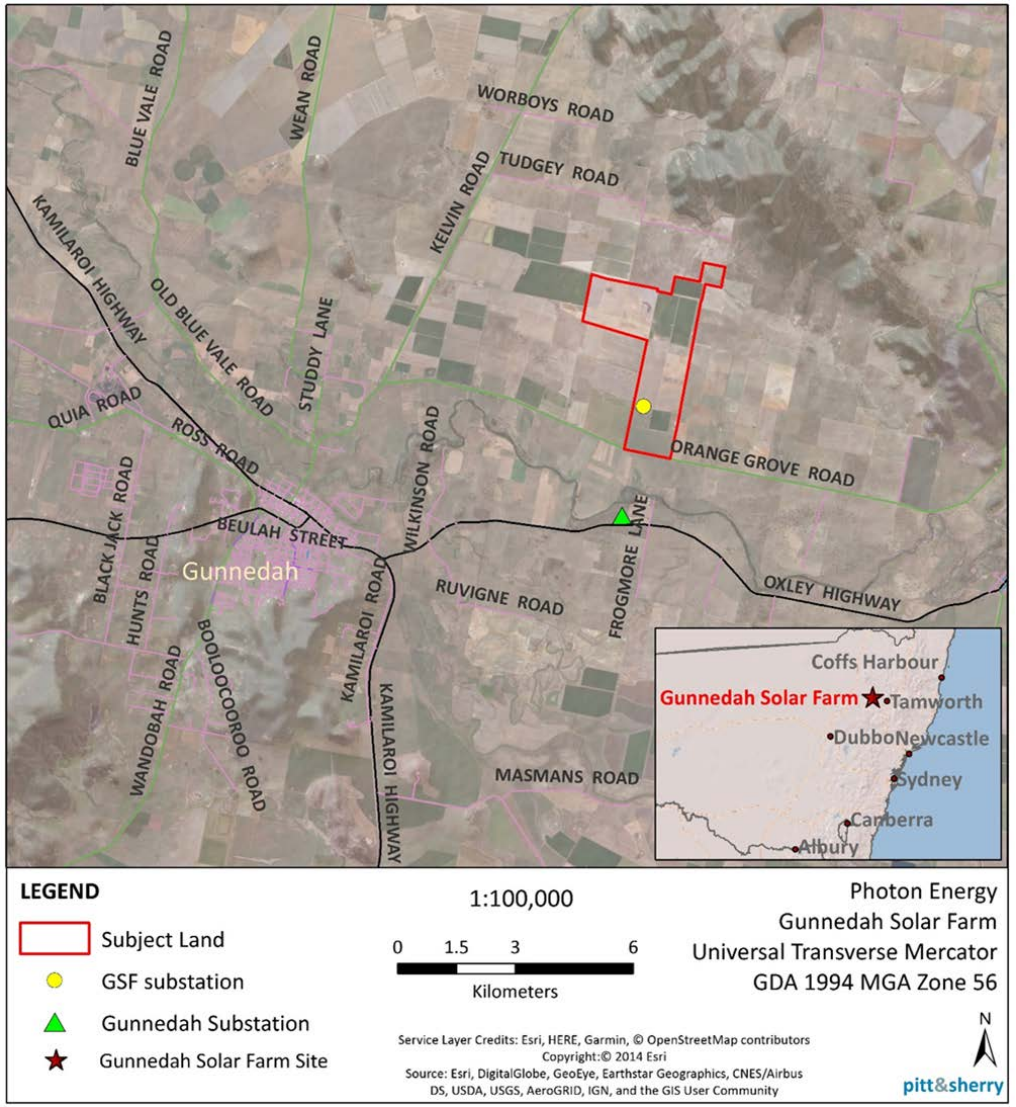
Why Gunnedah Solar Farm?

- Proximity to and capacity of connection infrastructure (Gunnedah substation)
- Solar yield
- Suitably sized lots
- North facing land
- Access to major transport routes
- Limited heritage risk
- Flat landscape
- Lease agreement with landowner
- Restricted water licencing on site



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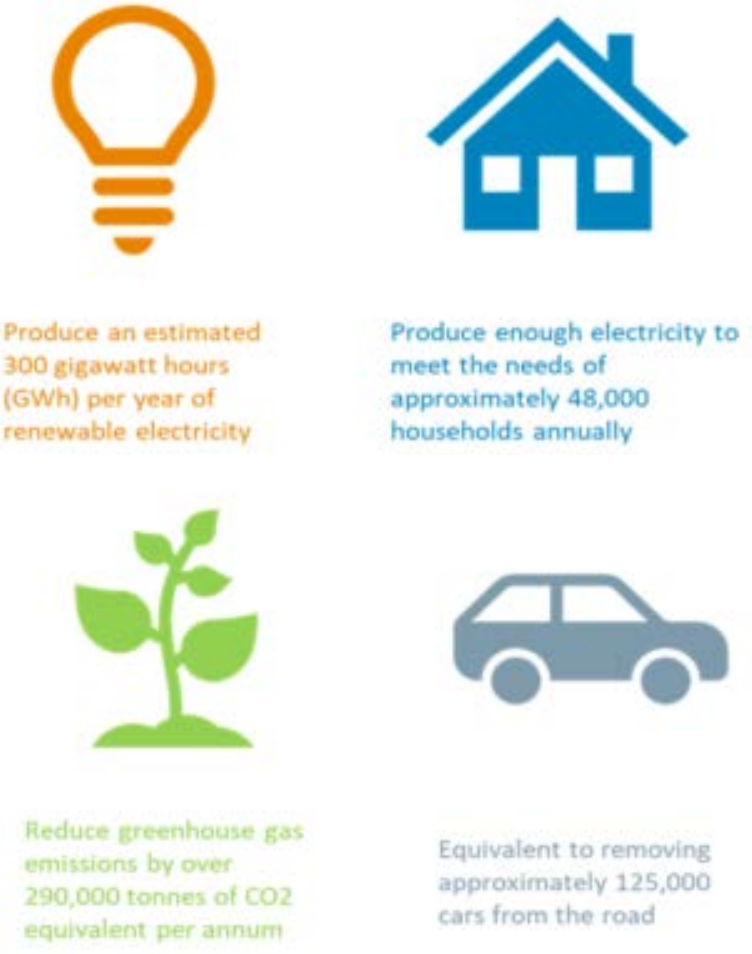
Gunnedah Solar Farm - Overview

- Proposed solar footprint is 304 ha.
- Approximately 460,000 panels
- Single tracking axis panels – up to 3m in height. North – south configuration
- Rows 5.5m apart
- 45 inverter stations
- One 132 kV sub station
- Operational life – 25 years
- Construction period – 12 months
- Up to 150 construction workers and 10 fulltime operational jobs.
- Investment - $201M



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Construction Overview

- Construction phase to commence in 2019 (pending approval)
- 12 month program
- Pile driving; trenching; firming roads, limited earthworks, fencing; electrical works; commissioning.
- Transport to site will be via an access route.
- Construction hours will be 0700 – 1800 Monday – Friday and 0800 – 1300 on Saturday.
- Will be up to 150 workers during peak construction.

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Project Decommissioning

- 25 year operation.
- If the site is decommissioned a remediation plan will be developed in consultation with stakeholders and the Gunnedah Shire Council.
- The plan will include management strategies; staging / program for decommissioning; community engagement; contingency plans; regulatory compliance; and reporting.
- The sub-station may not be decommissioned – this will depend on TransGrid.

Stakeholder Engagement

Stakeholders included:

- Gunnedah Shire Council

- Department of Planning and Environment
- Office of Environment and Heritage
- Department of Primary Industries – Water & Lands
- Department Resources and Geoscience
- Roads and Maritime Service
- State Emergency Services
- Rural Fire Services

Concerns included:

- Traffic, road, SEPP33, flooding and social issues resolved.
- Flooding
- Aboriginal heritage resolved
- Reviewed flood modelling and solutions for fencing.
- Road upgrades agreed.
- Development of the Emergency plan including engagement.

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Indigenous consultation

- The archaeological assessment for the Gunnedah Solar Farm was conclusive in determining the proposed activity would not harm Aboriginal objects or places.
- Following the Office of Environment and Heritage (OEH) guidelines, formal consultation with the local Aboriginal community was not undertaken; however the assessment and survey were completed with the assistance of Red Chief Local Aboriginal Land Council.
- Some members of the local Aboriginal community have subsequently contacted OEH and would like to be directly consulted.
- Gunnedah Solar Farm has committed to inviting local aboriginal stakeholders identified by OEH to undertake a site visit with a heritage consultant prior to commencing construction.

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Community Engagement

Included:

- Community meeting – August 2017
- Emails
- Phone Calls
- Letter
- One on One meetings – January 2018 and March/April 2018
- Group meeting
- Website
- Hotline
- Factsheets
- Newspaper
- Social Media

Responses:

- 29 register attendees
- Methods used to contact 34 residents within the locality of the site
- 26 Community members (15 neighbouring residents)
- Methods used to reach the wider community.

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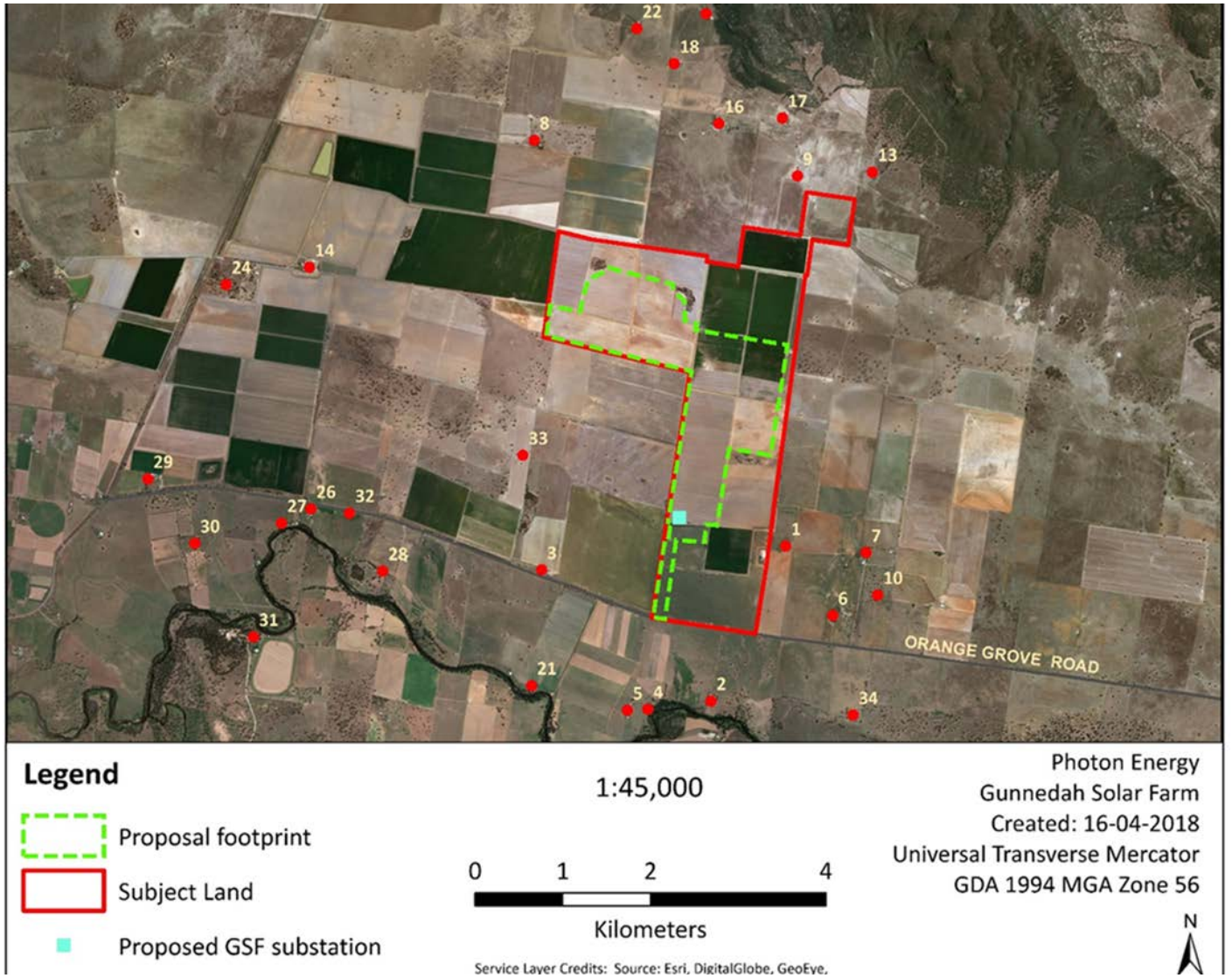
Sensitive Receivers

- 2 kms radius from the site
- Others identified in the visual assessment and noise assessment.
- Talked to others as we received requests from neighbours.



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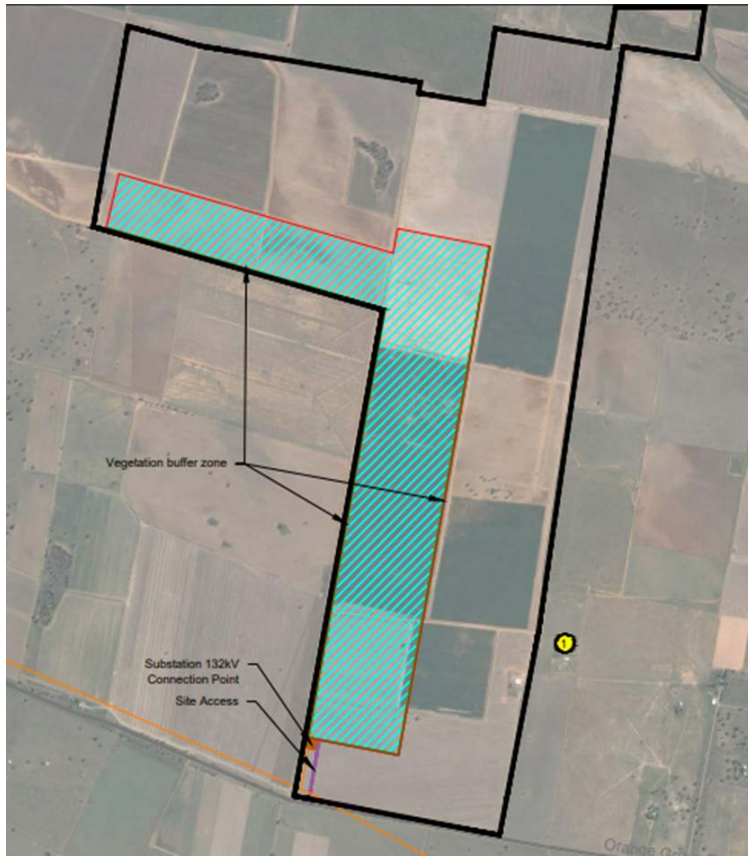
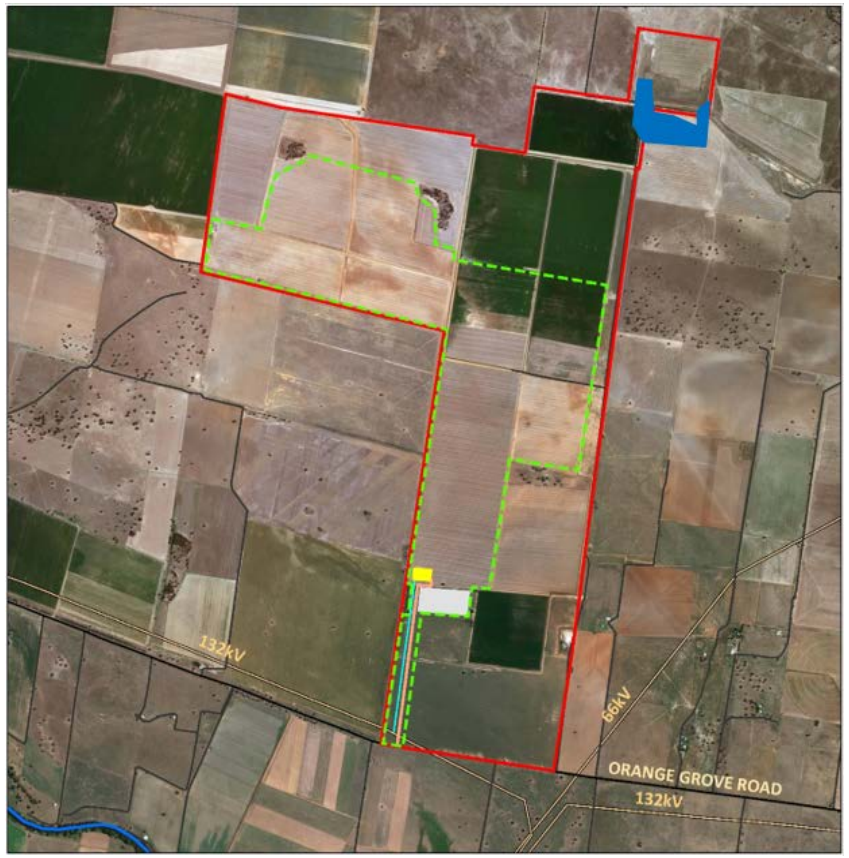
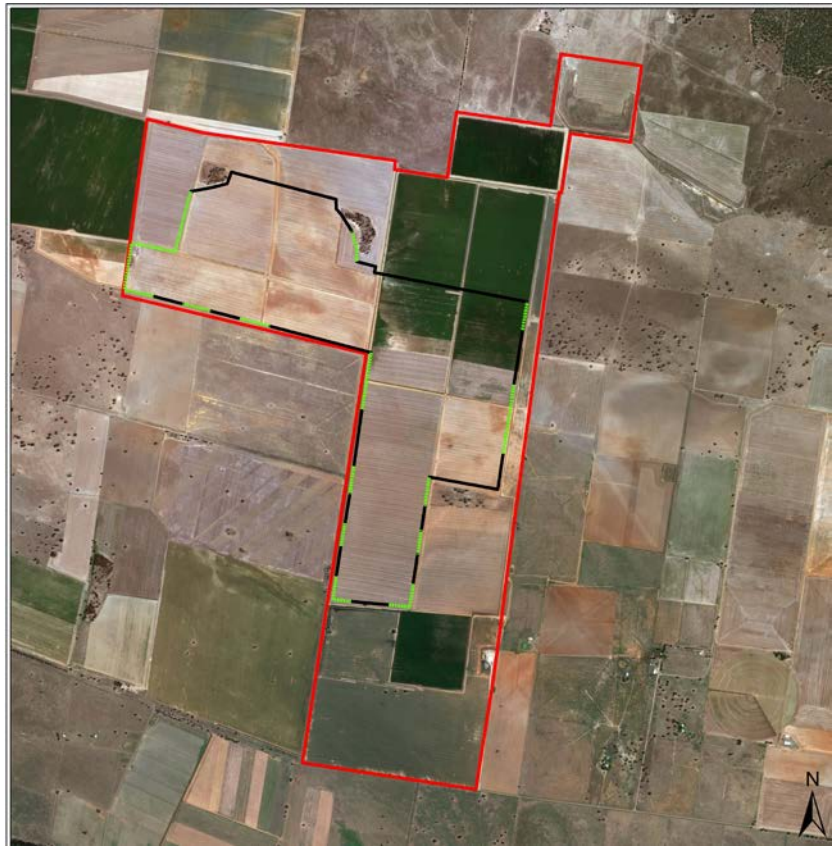
Project changes



July 2017 footprint



April 2018 footprint



September 2018 footprint

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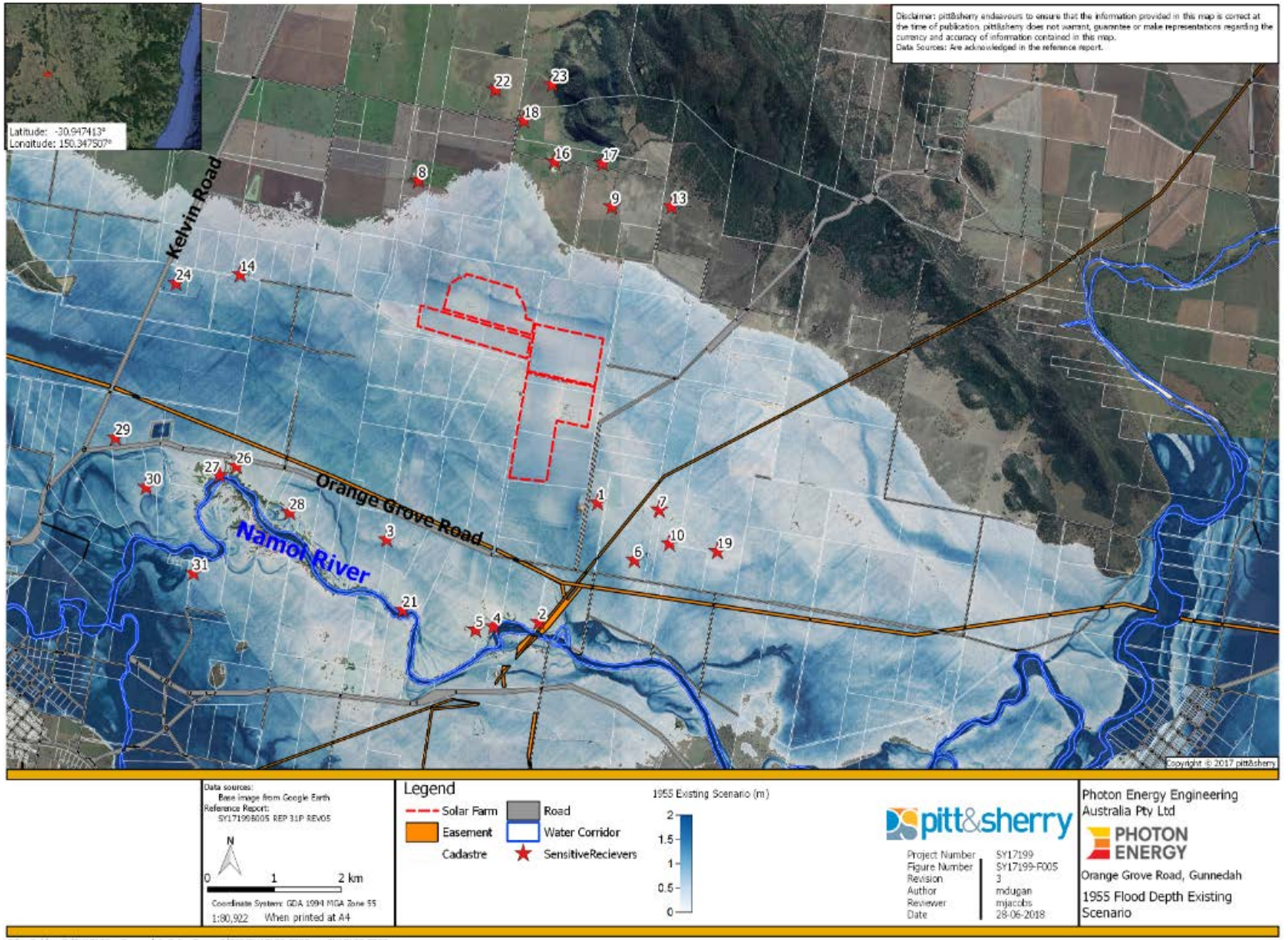
Flooding

- Flood modelling undertaken during the EIS phase and engagement with adjacent landholders and Council. Considered drop down / sacrificial fencing / farm fencing.
- Moved proposed development footprint north to minimise impacts from flooding.
- Assessed different options including installing gates every 100m along the perimeter and 20m corridors running east – west through the property to enable water flow.
- Further flood modelling to support the Response to Submissions report.
- Optioneering of design to include drop down fencing at strategic locations around the perimeter.
- Collaboration with a fencing contractor to design a practicable, resilient, safe, secure and affordable solution.
- Extension of fencing following discussions with Department of Planning and Environment.
- Department of Industry – Land and Water considers project would have a negligible impact on the flow and velocity of floodwaters.



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1:100 year flood event

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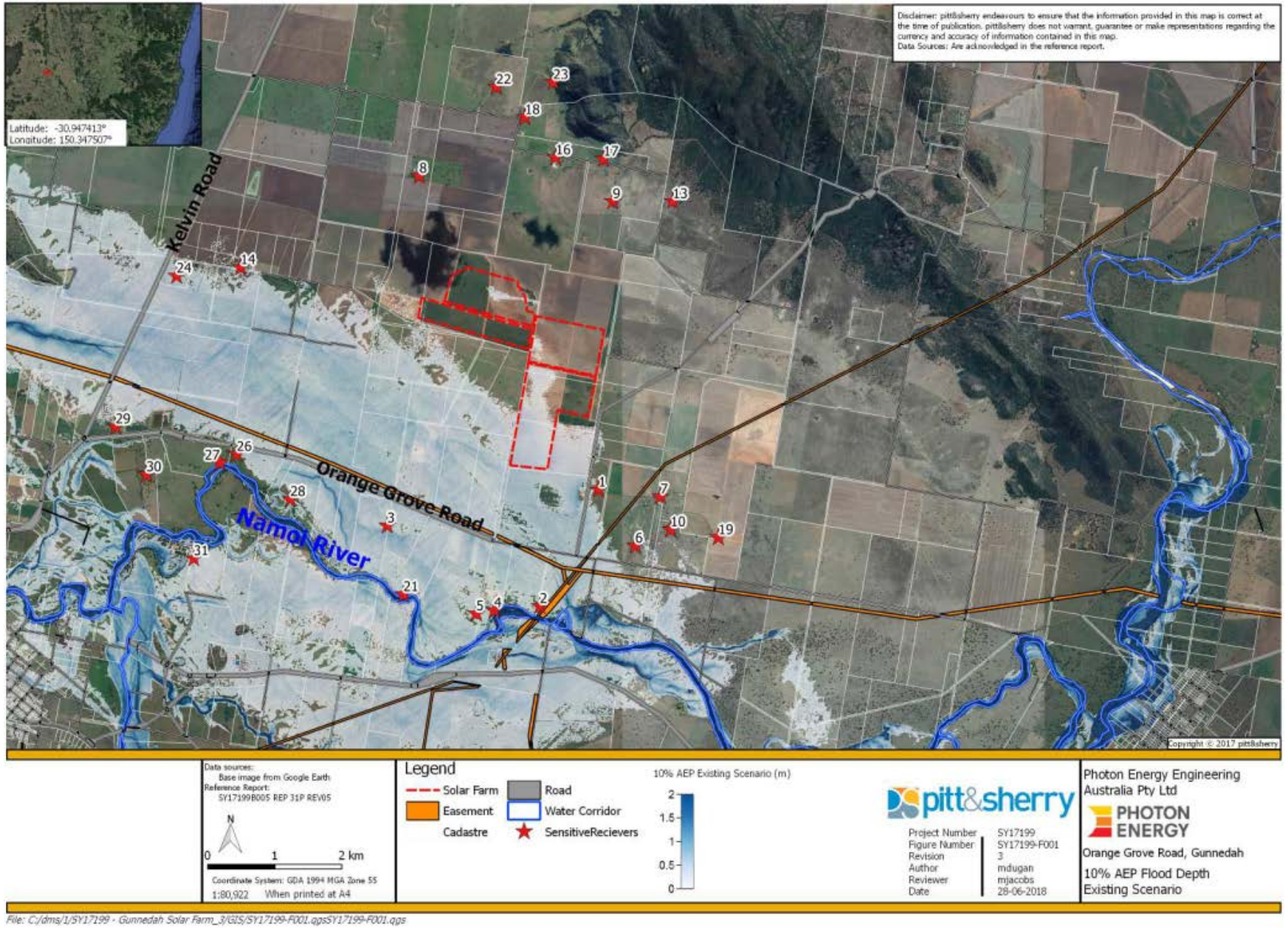

1:10 year flood event

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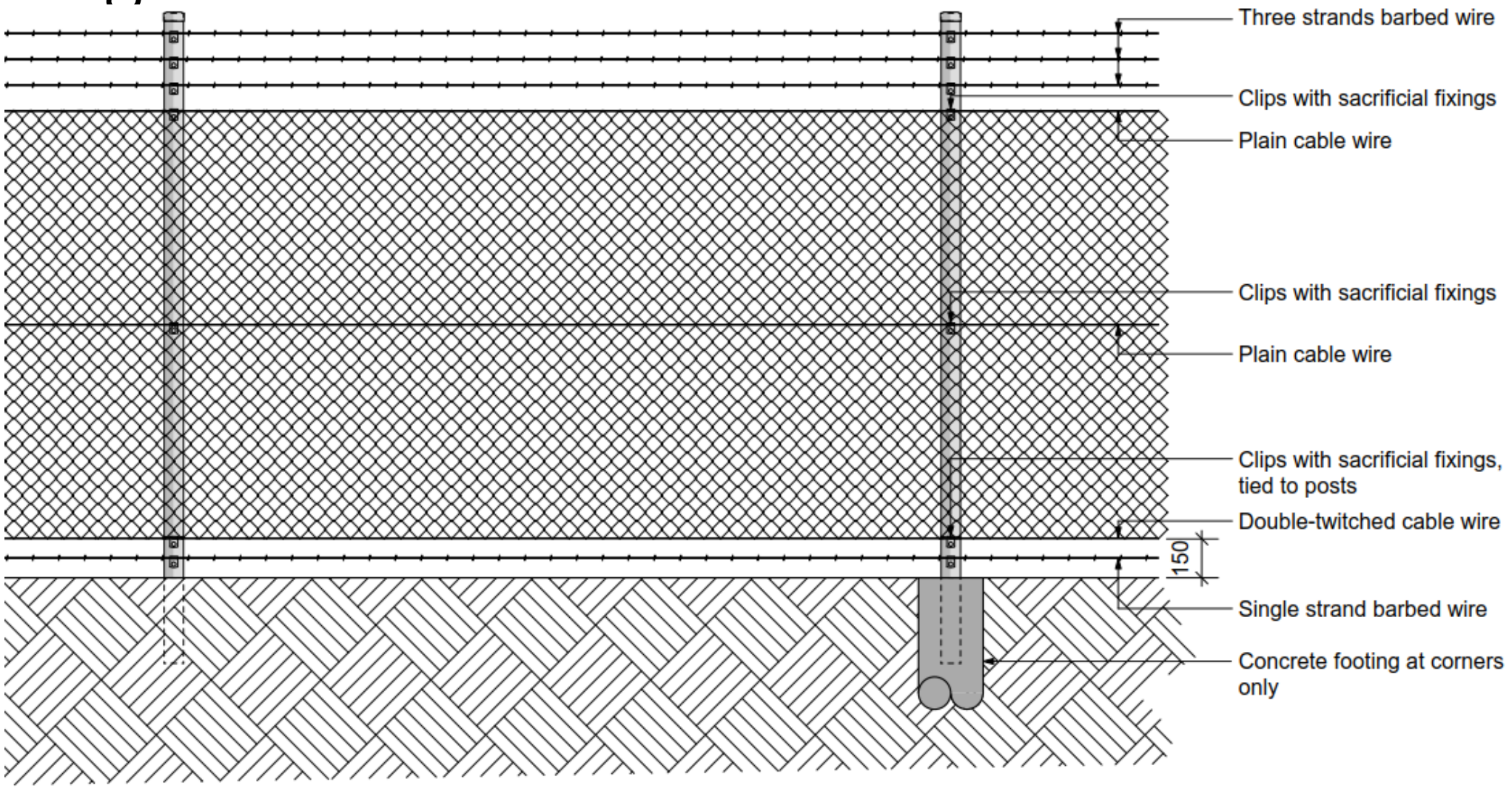
Design solution



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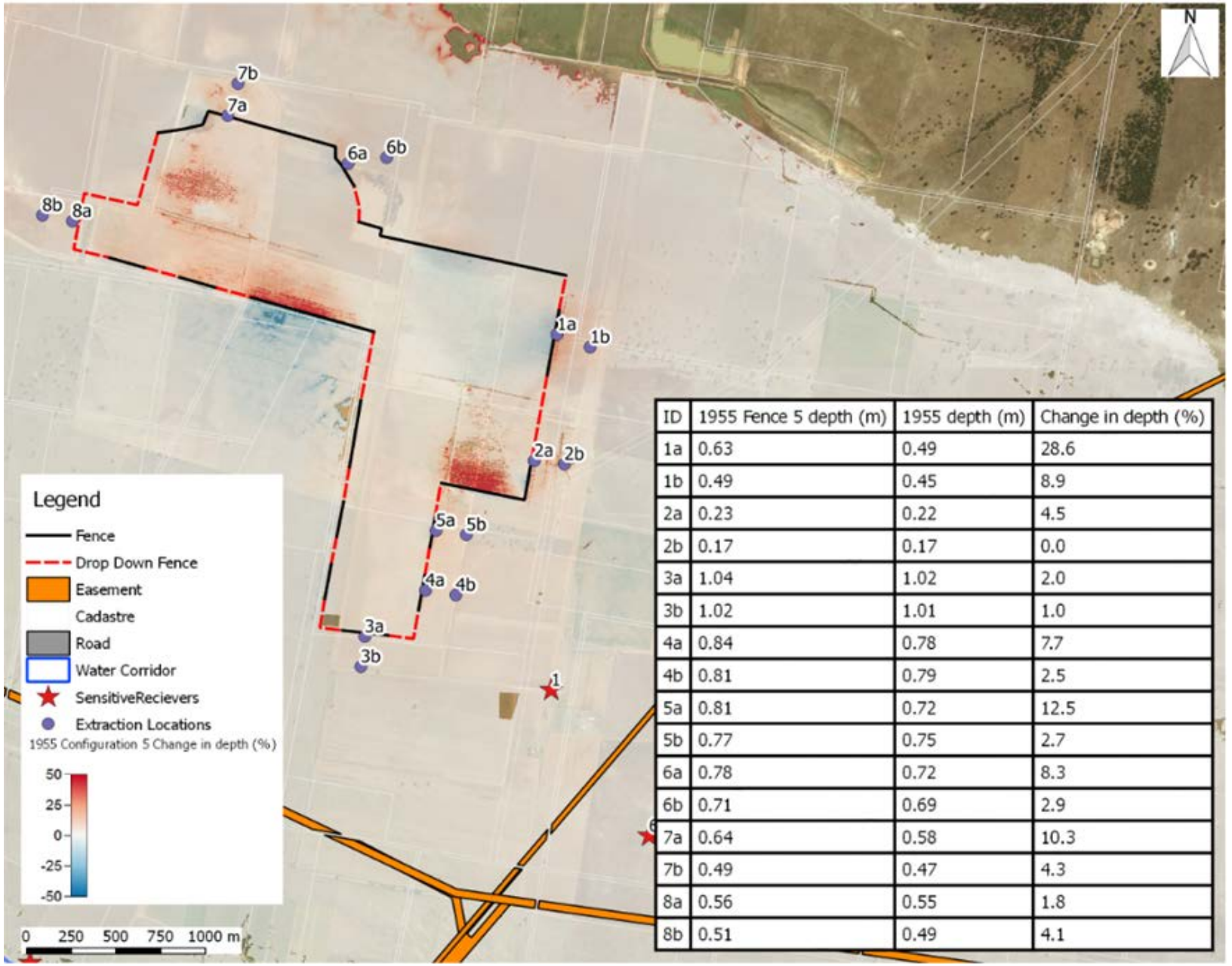

ID	1955 Fence 5 depth (m)	1955 depth (m)	Change in depth (%)
1a	0.63	0.49	28.6
1b	0.49	0.45	8.9
2a	0.23	0.22	4.5
2b	0.17	0.17	0.0
3a	1.04	1.02	2.0
3b	1.02	1.01	1.0
4a	0.84	0.78	7.7
4b	0.81	0.79	2.5
5a	0.81	0.72	12.5
5b	0.77	0.75	2.7
6a	0.78	0.72	8.3
6b	0.71	0.69	2.9
7a	0.64	0.58	10.3
7b	0.49	0.47	4.3
8a	0.56	0.55	1.8
8b	0.51	0.49	4.1

Modelling with fencing configuration

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Assessment Criteria	Carroll to Boggabri FMP	Draft FMP for Upper Namoi Valley Floodplain	Assessment
Time for drainage from adjacent landholders to be completed	Within 24hours of natural/existing drainage line	Within 24 hours of natural/existing drainage lines	Compliant
Maximum redistribution of peak flows onto adjacent property	5%	5%	<1% at most impacted residential receiver (VP1)
Maximum flood height impact on adjacent properties	100mm	200mm	Maximum at 14mm at the eastern boundary of the site (1a in previous slide)
Maximum flood height impact on high value infrastructure (e.g. residence)	10mm	An increase that impacts high value infrastructure	Maximum 2mm at most impacted residential receiver (VP1)
Maximum % increase in flow velocity	50% for velocities up to 0.5m/s	50% on the landholding under application, adjacent landholdings and other landholdings that may be affected.	Maximum of -1% at the eastern boundary of the site Maximum of 4% at the north western boundary of the site

Compatibility of Proposed Land use

- Confirmed Biophysical Strategic Agricultural Land – class 2
- Completed a Land Use Conflict Risk Assessment
- Limitations on available cropping areas
- Twenty five year life span
- Grazing whilst the panel are in place
- Provide an additional long term source of income for the landholder. Assist in diversifying land use.
- Rehabilitated after all infrastructure is removed (excl. Substation)

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Visual constraints

- Nearest sensitive receiver is 800m from the site (VP1).
- Most visually impacted residents are elevated north of the site (VP9,13,17,16)
- Met with landholders to discuss mitigation
- Leaving existing native vegetation and providing screening to minimise visual impact.
- Visual screening was discussed with landholders. VP 1 declined visual screening.

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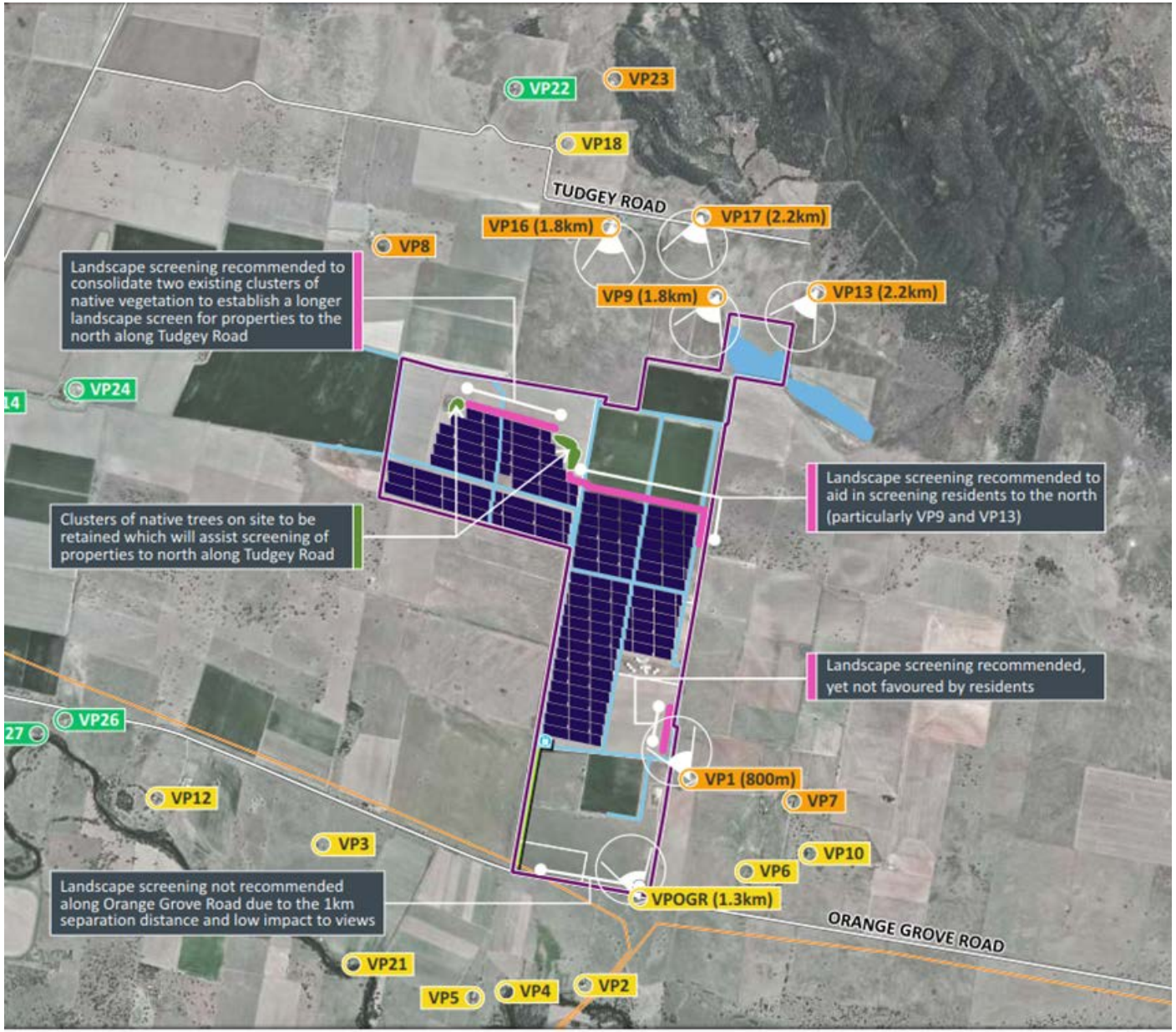

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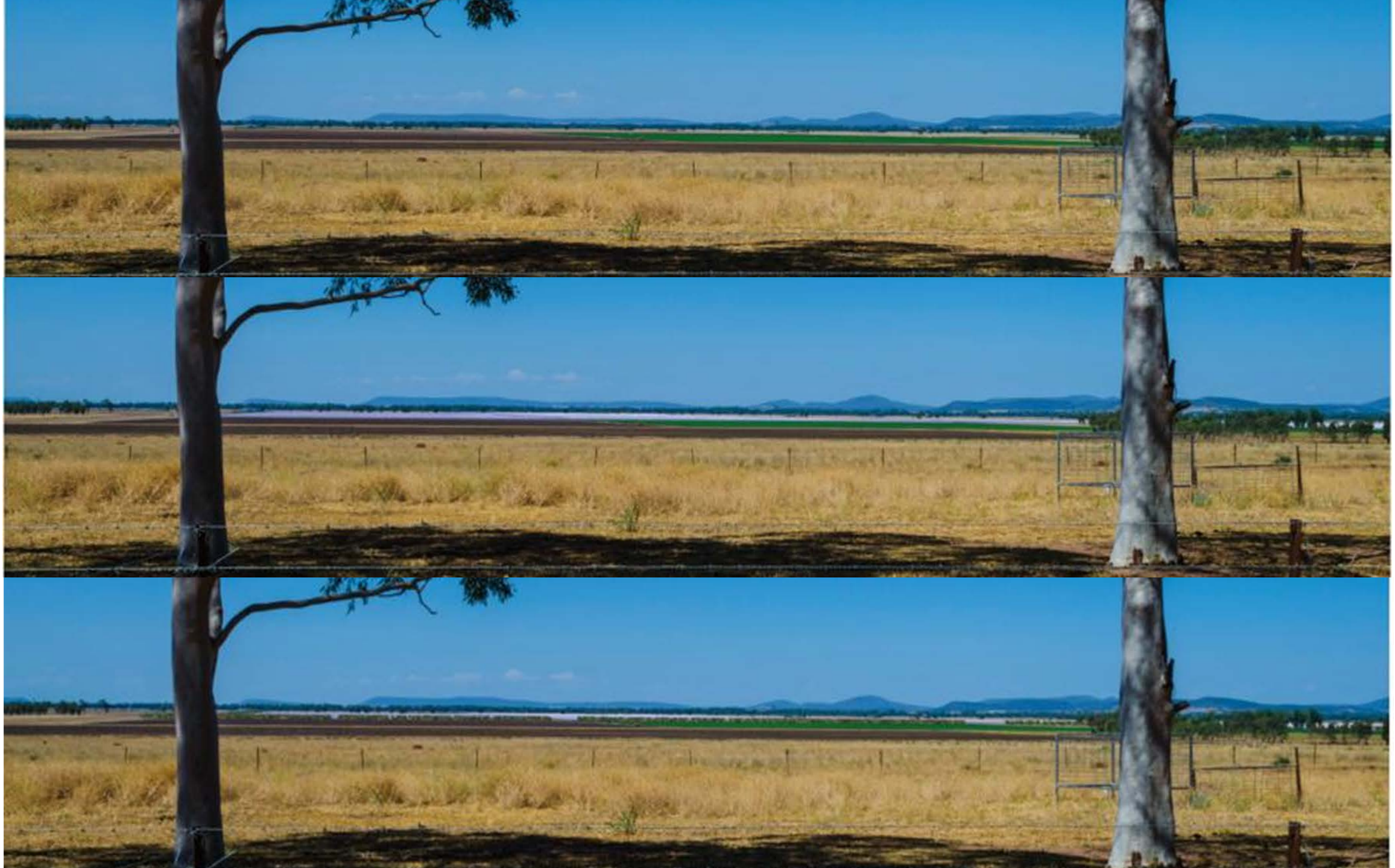

Noise concerns

- Completed noise modelling.
- No exceedance of Noise Management Levels predicted
- Determined minimal potential impact on receivers through construction.

Receiver ID	Description	Highest Predicted Noise Level dB $LA_{eq,15min}$	NML Standard Hours dB $LA_{eq,15min}$	Comply
K1	351 Kelvin Road	44	45	Yes
K2	210 Kelvin Road	36	45	Yes
K3	632 Kelvin Road	24	45	Yes
K4	554 Kelvin Road	26	45	Yes
OG1	767 Orange Grove Road	43	45	Yes
OG2	875 Orange Grove Road	32	45	Yes
OG3	897 Orange Grove Road	42	45	Yes
OG4	851 Orange Grove Road	29	45	Yes
OG5	898 Orange Grove Road	38	45	Yes
OG6	726 Orange Grove Road	34	45	Yes
OG7	640 Orange Grove Road	27	45	Yes
OG8	640 Orange Grove Road	29	45	Yes
OG9	476 Orange Grove Road	38	45	Yes
OG10	515 Orange Grove Road	36	45	Yes
OG11	306 Orange Grove Road	36	45	Yes
OG12	242 Orange Grove Road	34	45	Yes
OG13	224 Orange Grove Road	34	45	Yes
OG14	118 Orange Grove Road	33	45	Yes
OG15	88 Orange Grove Road	44	45	Yes
OG16	43 Orange Grove Road	36	45	Yes
S1	133 Shanley Lane	24	45	Yes
T1	Tudgey Road Lot 2 DP1202625	26	45	Yes
T2	254 Tudgey Road	43	45	Yes
T3	526 Tudgey Road	36	45	Yes
T4	615 Tudgey Road	34	45	Yes

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Summary of other environmental constraints

- Biodiversity – no outstanding concerns
- Heritage – no outstanding concerns
- Hazards – Bushfire assessment completed and no outstanding concerns.
- Soils – no outstanding concerns
- Ground water – no outstanding concerns
- Lighting – at the substation.
- Traffic – through consent conditions.

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Progress since July 2018

- Responding to Department of Planning and Environment requests for information and refinement of fencing design
- Responding to local newspaper requests

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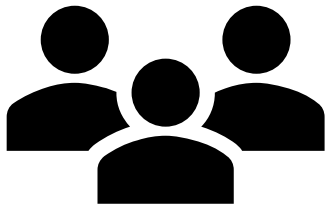
Draft Conditions of Consent

- No issues identified
- Agree with the draft Conditions of Consent
- The Gunnedah Solar Farm will include the Condition of Consent in the contractual requirements for the Contractor.

Community Benefits

Generating employment:

- **150** construction jobs (at peak) as well as indirect supply chain jobs.
- Contractor opportunities
- Support up to **10** operational jobs.



Encouraging regional development:

- Employee expenditure in the Gunnedah region (fuel supply, vehicle servicing, uniform suppliers, hotels/motels, B&B's, cafés, pubs, catering and cleaning companies)
- Maximising the use of local contractors and equipment hire
- Increasing local skills and trades through project experience.

- Gunnedah solar farm community solar program

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