Gunnedah Solar Farm
SSD 8658
Response to Submissions

transport | community | mining | industrial | food & beverage | energy



Prepared for: Photon Energy

Client representative: Robert Ibrahim

Date: 29 June 2018
Rev01

pitt&sherry

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1. Introduction

Gunnedah Solar Farm Pty Ltd (GSF) is owned by Photon Energy NV (Photon Energy), Canadian Solar Energy Holdings Singapore 4 Pte Ltd (Canadian Solar) and Polpo Investments Ltd (Polpo) (referred to herein as GSF). GSF propose to develop and operate a 115-megawatt (MW AC) (150 MW DC) solar photovoltaic (PV) facility including ancillary works and associated infrastructure at 765 Orange Grove Road, Gunnedah, NSW 2380 ("the Proposal").

The facility would operate for a duration of approximately 25 years following which GSF would reassess the viability and in agreement with the landowner either continue operations, upgrade the infrastructure or undertake decommissioning of the facility. Decommissioning would include removal of all ancillary works, associated infrastructure and remediation of the land (as required) to enable continued agricultural use. However, the substation may remain following decommissioning of the solar farm to continue to service the region.

An Environmental Impact Statement (EIS) was prepared by pitt&sherry on behalf of GSF and submitted to the Department of Planning and Environment (DP&E) in April 2018. The EIS, including all of the specialist reports were made available for download on the DP&E Major Projects Website during Public Exhibition from Friday 27th of April to Saturday 26th May 2018. During this period submissions were sought from members of the local community, government stakeholders and other interested parties.

The locality of the GSF is shown in Figure 1-1. An updated site constraints map, as requested by Gunnedah Shire Council is shown in Figure 1-2.

1.1 Purpose of this Submissions Report

As per the letter received from DP&E on 1st of June, DP&E requested that the proponent (GSF) prepare and submit a report detailing a response to the full range of matters and recommendations raised in the submissions.
This submissions report has been prepared by pitt&sherry on behalf of GSF to meet the requirements of DP&E, and is structured as follows:

- **Section 1**: *Introduction*. Provides a summary of the key issues.
- **Section 2**: *Exhibition and Consultation*. Provides detail of the consultation undertaken during the preparation of the EIS and public exhibition period.
- **Section 3**: *Actions Since the Exhibition period*. Provides detail of the consultation and assessment undertaken subsequent to the closing of the public exhibition period, during the preparation of the submissions report.
- **Section 4**: *Submissions Received and Responses.* Provides summaries of the submissions received by government agencies, interested parties and the community with associated responses and any changes to the proposal or revised mitigation measures.

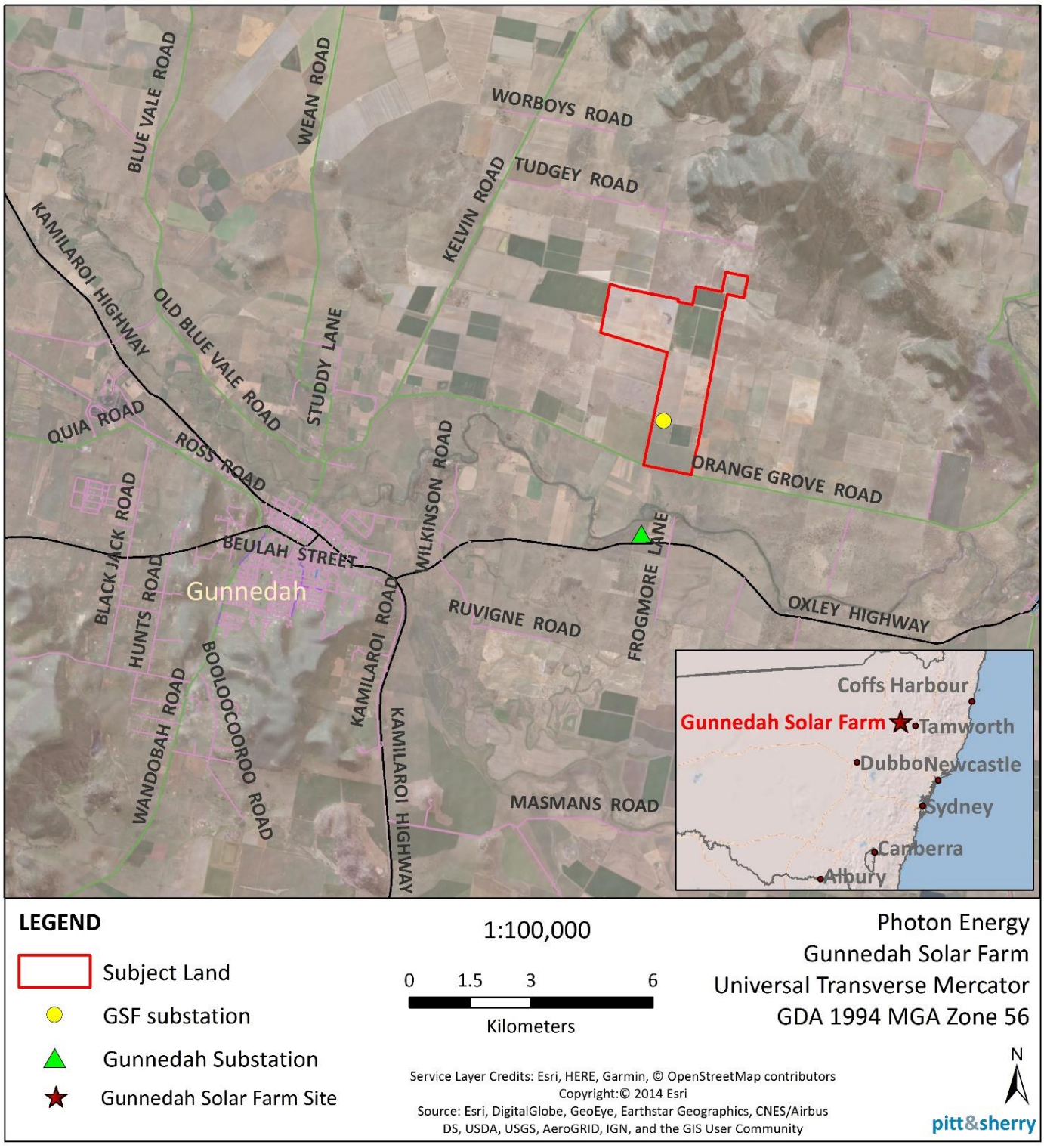

Figure 1-1 Locality map of the Proposal

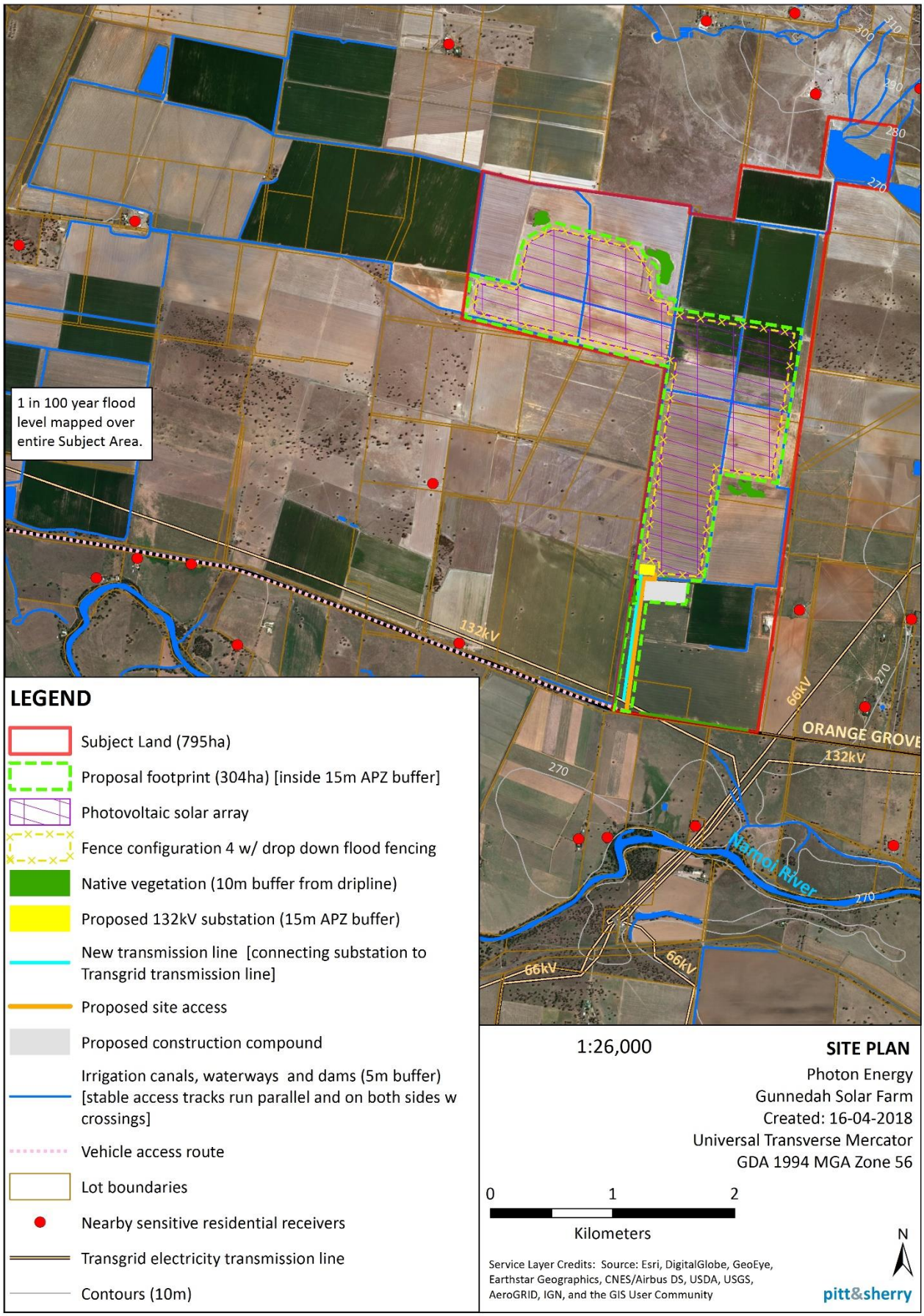

Figure 1-2 Updated Constraints Map

1.2 Summary of Key Issues

DP&E identified four key issues within their request for response to submissions for particular consideration. These have been addressed throughout Section 4 and are summarised below.

Accuracy of the Flood Impact Assessment

Submissions from government stakeholders, agencies and the community identified concerns associated with the data input into the flooding model used in the Flood Impact Assessment (Appendix J in the EIS).

The flood modelling has been updated to include additional and improved data, assumptions and modelling as per mitigation measure SW5 in the EIS and in response to submissions received including:

- More accurate ground surface data from three sources:
  - Aerial Laser Survey (ALS) surveyed in 2000 for the Carroll to Boggabri Flood Study (SMEC, 2003)
  - LiDAR surveyed by drone for Photon in 2017
  - Construction drawing for the ring levee around the property (765 Orange Grove Road).
- Processing of the ALS data to smooth the swathe overlap areas to avoid 'steps' in topography that were not representative of the real ground surface
- Update to flood model flows in accordance with Carroll to Boggabri Flood Study (SMEC, 2003)
- Assumption that the 1955 flood approximated a 1%AEP flow.
- Distribution of flows between the Namoi and Mooki Rivers based on information from *Gunnedah and Carroll Floodplain Management Plan* 1999 (SMEC Study, updated 2014).
- Development and modelling of a new fence configuration to address concerns around impacts to flow from debris collecting on the proposed security fence. Fence Configuration 4 has been developed and involves drop-down fencing in key areas and represents an alternate approach to mitigating the effects of the fence on floodwaters.

As a result, the flood model was re-run with the updated data, assumptions and new fence configuration the outcomes of which are presented in the Updated Flood Impact Assessment (Appendix C).

Adequacy of Aboriginal Cultural Heritage Consultation

Submissions from the Office of Environment and Heritage (OEH) and Gomeroi People identified concerns associated with the consultation process undertaken as part of the Aboriginal Heritage Impact Assessment.

The heritage consultant, Kelleher Nightingale Consulting (KNC), contacted OEH regarding their submission confirming consultation was undertaken in accordance with OEH requirements.

It was identified that OEH had received feedback from local aboriginal stakeholders regarding the project and OEH would consider consultation with these groups and the Gomeroi People to represent adequate consultation for the Project.

As outlined in Appendix B, GSF has committed to inviting local aboriginal stakeholders identified by OEH to undertake a site visit with KNC prior to commencing construction.

Review of the Biodiversity Assessment

Submissions from OEH and Gunnedah Shire Council identified concerns associated with inconsistencies within the biodiversity assessment and the need for a Koala Habitat Assessment in accordance with State Environmental Planning Policy (SEPP) 44.

Clarifications have been provided to remove inconsistencies and confirm that a Koala Habitat assessment is not required under SEPP 44 due to the lack of primary feed trees and koala habitat. Further information is contained in Section 4.

Use of Biophysical Strategic Agricultural Land

Submissions from government stakeholders, agencies and the community identified concerns associated with the use of biophysical strategic agricultural land.

Land use impacts (including mineral resources) were assessed in Section 6.3 of the Gunnedah EIS.

Land use conflicts occur when one land user does, or is perceived to, infringe upon the rights, values or amenity of another. In rural areas land use conflicts commonly occur between agricultural and residential uses. However, land use conflicts can also occur between different agricultural enterprises and other industries such as mining, forestry or energy production. Due to the potential for land use conflicts between the solar farm development and the existing agricultural land use, a land use conflict risk assessment (LUCRA) based on the Department of Primary Industries (DPI) '*Land Use Conflict Risk Assessment Guide' (Department of Trade and Investment, 2011*) was conducted as part of the EIS.

The LUCRA has been updated to include consideration of the *Right to Farm Policy* (Appendix G) and mitigation associated with the potential land use conflict are contained in the Draft Land Management Plan (Appendix G of the EIS).

1.3 Assessment and Determination Process

The Environmental Planning and Assessment Act 1979 (EP&A Act) is the principal piece of legislation covering assessment and determination of development proposals in NSW. It aims to encourage the proper management, development and conservation of resources, environmental protection and ecologically sustainable development. The development assessment and approval system in NSW is set out in Parts 4 and 5 of the EP&A Act.

Under Schedule 1, Part 20 of the State Environmental Planning Policy (State and Regional Development) 2011 electricity generating works with a capital investment value of more than $30million, or a capital investment of more than $10 million and located in an environmentally sensitive area of State significance, are deemed State Significant Developments (SSDs). The Proposed solar farm exceeds the $30million capital investment value and is therefore declared SSD. Development consent for the Proposal is therefore being sought under Part 4 of the EP&A Act.

On 28 July 2017, GSF submitted a Preliminary Environmental Assessment (PEA) along with a request to the Secretary for the Secretary's Environmental Assessment Requirements (SEARs), as required by clause 3 of Schedule 2 of the EP&A Act Regulations 2000. The PEA provided information about the proposed development and preliminary assessment of the potential environmental impacts. In formulating the SEARs, requests were sent to relevant public authorities and agencies to inform the key issues raised in Section 4of the EIS. The SEARs were issued to GSF on the 25 August 2017.

An Environmental Impact Statement (EIS) was prepared by pitt&sherry on behalf of GSF and submitted to the Department of Planning and Environment (DP&E) in April 2017. The EIS was put on Public Exhibition from Friday 27th of April to Saturday 26th May 2018. Following the closing of the Exhibition period, DP&E issued a letter Request for Response to Submissions (RTS) to GSF in June 2018.

pitt&sherry have prepared this Response to Submissions Report on behalf of GSF in response to DP&E request.

1.4 Project Benefits

The key benefit of the Proposal is the production of renewable electricity reducing greenhouse gas emissions and reliance on fossil fuels. The production of renewable electricity will help contribute to NSW Governments Renewable Energy Action Plan and other schemes and agreements made. On an annual basis, the Proposal will produce enough electricity to meet the needs of approximately 48,000 households.

Additionally, the proposal will reduce greenhouse gas emissions by over 290,000 tonnes of carbon dioxide (CO_2) equivalent per annum (based on 0.948t/MWh from fossil fuels). This is roughly equivalent to removing approximately 125,000 cars from the road.

The Proposal would also provide the following national benefits:

- Develop the solar power industry and supply chain in Australia
- Develop Australian intellectual property and expertise in solar power
- Assist with Australia's commitments under national and international agreements
- Diversify sources of income for the agricultural sector, allowing financial resilience for farmers
- Provide energy security.

The proposal would also generate regional and local benefits including:

- Generating employment:
  - 150 construction jobs (at peak) as well as indirect supply chain jobs
  - Support up to ten 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.

2. Exhibition and Consultation

A Community and Stakeholder Engagement Plan (CSEP) was prepared in October 2017 in accordance with The *Community and Stakeholder Engagement Draft Environmental Assessment Guidance Series June 2017* (Draft Guidelines) prepared by DP&E. The CSEP documented the objectives of engagement, identification of relevant stakeholders, as well as the community and potential issues associated with the development. The CSEP also included an implementation plan which was updated as required through the duration of the community and stakeholder engagement. Table 6 from the CSEP, attached as Appendix L in the Gunnedah EIS, outlines the implementation plan, which was used as the guiding document throughout stakeholder engagement. Consultation undertaken during the preparation of the EIS is outlined in Section 5 of the EIS.

2.1 Consultation during EIS public exhibition

Community

In anticipation of the commencement of public exhibition period on Friday 27th of April correspondence (email or SMS) was sent (23/04/2018) to the 19 registered community members to advise them of the public exhibition period.

In accordance with agreements made during consultation, hard copies of selected specialist reports were express posted to receiver 4 and 7.

In addition to notifying the community, further one on one consultation was conducted with the following sensitive receivers:

- Receiver 34: Multiple emails were exchanged between pitt&sherry and receiver 34 from 20/03/2018 – 26/03/2018. Receiver 34 requested further information on the potential impacts to their property. pitt&sherry provided the draft landscape plan, Orange Grove Road photomontage and multiple maps indicating the distance from the receiver's property to the closest solar panel.

- Receiver 7: On 1/04/2018 the receiver responded to an email from pitt&sherry providing the Gunnedah factsheet (dated 21/03/2018). Receiver 7 requested a phone call to further discuss flooding and fencing concerns. pitt&sherry attempted to contact the receiver however was unsuccessful. Due to the lack of new information available at that time regarding flooding and fencing and the pending public exhibition period no further contact was attempted with this receiver.

- Interested community member: On 17/05/2018 phone calls and email correspondence took place between an interested community member and pitt&sherry. The main concern discussed was regarding flood modelling and use of data. The community member provided suggestions and updated information for use in the revised flood modelling, including details of a contact within OEH that might be able to provide access to LiDAR data for the local floodplain that was obtained as part of the 2003 SMEC study. This was ultimately successful and the forthcoming data has been used in the updated flood model. Email exchanges occurred between 27/03/2018, 16/05/2018 - 17/05/2018, 23/05/2018, 25/05/2018 and 28/05/2018.

Aboriginal Heritage

No further consultation was undertaken with Aboriginal stakeholders during the exhibition period. Further consultation occurred with OEH and as a result of this consultation an invitation for a Site Visit prior to construction will be undertaken with interested local aboriginal stakeholders as identified by OEH.

Agency Stakeholders

Department of Planning & Environment (DP&E)
pitt&sherry on the behalf of GSF continued ongoing consultation with DP&E, to supply information requested including contact details for identified sensitive receivers.

In accordance with DP&E requirements hard copies of the Gunnedah Solar EIS were posted to the following:

- One copy to Department of Planning & Environment
- Two copies to Gunnedah Shire Council
- One copy to Nature Conservation Council.

Gunnedah Shire Council
GSF continued to engage with Gunnedah Shire Council following the submission of the EIS.

A meeting was held at the Gunnedah Shire Council headquarters on 23/06/2018 with representatives from GSF and pitt&sherry. Attendees included the Mayor, Councillors and members of the senior executive team. The correspondence, attendees list and presentation are provided in Appendix A.

Santos
As requested by Santos during consultation, pitt&sherry provided Santos with an email update informing them that the EIS was on public exhibition on 9/05/2018, see Appendix A.

Overland Sun Farming
GSF was also contacted by Overland the proponents for Orange Grove Sun Farm (23/04/2018) via phone to discuss respective projects and ongoing consultation occurring within the community.

3. Actions since Exhibition Period

GSF does not propose any changes to the layout or description for the Proposal to what was outlined in Section 3 of the EIS. Changes are proposed to the subdivision plan and fence configuration. Additional mitigation measures have been proposed to address submissions and in response to updated assessments. Further information is outlined below.

3.1 Revised Subdivision Plan

Changes are proposed to the subdivision as presented in Section 4.5.7 of the EIS.
A revised subdivision plan is presented in Appendix F which identifies an additional subdivision of 4800m^2 on part of Lot 264 DP754954 containing the TransGrid substation. The need for this additional subdivision is to provide a separate lot to be owned by TransGrid to contain the substation.

As such the following subdivision is proposed:

- Lot 1 – comprising the TransGrid substation which is estimated to occupy a 60m x 80m footprint and as such the lot would be 4800m^2. This lot would comprise part of Lot 264 DP 754954.
- Lot 2 – comprising the Gunnedah Solar Farm and access road which is estimated to occupy 304ha. This lot would comprise parts of Lot 1 DP 1202625, Lot 153 DP 754954, Lot 264 DP 754954, Lot 2 DP 801762, Lot 151 DP 754954 and Lot 1 DP 186590.
- Lot 3 – comprising the remaining land associated with the Property to occupy 200ha and be reconfigured into a single lot in accordance with Gunnedah Shire Council request. This lot would comprise:
  - Approximately 93ha of Lot 1 DP 1202625
  - Approximately 165ha of Lot 153 DP 754954
  - Approximately 14ha of Lot 264 DP 754954
  - Approximately 40ha of Lot 2 DP 801762
  - Approximately 114ha of Lot 151 DP 754954
  - Approximately 151ha of Lot 1 DP 186590.

3.2 Revised Fence Configuration

A new fence configuration (referred to as Fence Configuration 4) has been developed and modelled as depicted in Figure 3-1, and further described in Appendix C. It represents an alternative fencing design aimed at minimising blockage and redirection of floodwater and the potential impacts of the Proposal on the surrounding landscape and residents during a flood event. Fence Configuration 4 incorporates drop down fencing in key areas. The model indicates that Fence Configuration 4 further reduces flooding impacts compared to the preferred fence configuration presented in Appendix J of the EIS (Configuration 3) and produces an entirely acceptable outcome that is compliant with the Carroll-Boggabri Flood Management Plan 2006 and have negligible flood impacts on surrounding properties.

This change has been reflected in mitigation measure SW6 as follows:

GSF commits to construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events to minimise potential redirection of flood flows due to fence blockage. Design of the fencing shall seek to prevent offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval.

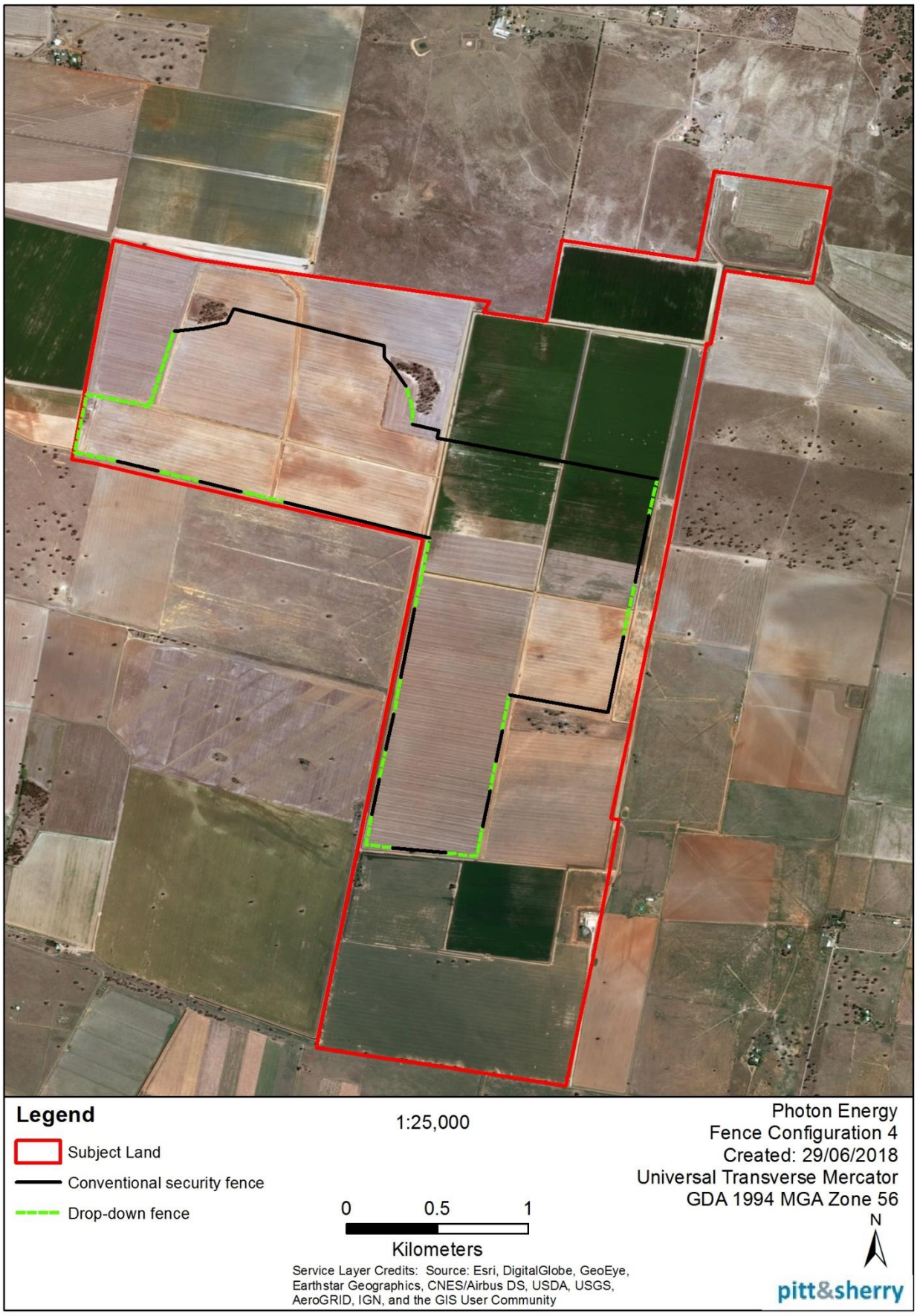

Figure 3-1 Proposed fence design as Fence Configuration 4

3.3 Updated Environmental Assessments

The following assessments were updated and plans developed in preparation of this response to submissions:

- Updated Flood Impact Assessment (Appendix C) including:
  - More accurate ground surface data from three sources:
    - Aerial Laser Survey (ALS) surveyed in 2000 for the Carroll to Boggabri Flood Study (SMEC, 2003)
    - LiDAR surveyed by drone for Photon in 2017
    - Construction drawing for the ring levee around the property (765 Orange Grove Road).
  - Processing of the ALS data to smooth the swathe overlap areas to avoid 'steps' in topography that were not representative of the real ground surface
  - Update to flood model flows in accordance with Carroll to Boggabri Flood Study (SMEC, 2003)
  - Assumption that the 1955 flood approximated a 1%AEP flow
  - Distribution of flows between the Namoi and Mooki Rivers based on information from *Gunnedah and Carroll Floodplain Management Plan* 1999 (SMEC Study, updated 2014)
  - Development of a new fence configuration to address concerns around impacts to flow from debris collecting on the proposed security fence. Fence Configuration 4 has been developed and involves drop-down fencing in key areas.
- Updated Constraints Map (Figure 1-2)
- Updated Traffic Impact Assessment (Appendix D)
- Preparation of a concept design for the access road (Appendix E)
- Revision of the subdivision plan (Appendix F)
- Updated LUCRA (Appendix G).

As a result of these additional assessments and in response to submissions a number of additional mitigation measures are proposed as outlined in Appendix B.

4. Submissions Received and Responses

A total of 63 submissions were received from government stakeholders, organisations and the community, as described in Table 4-1. Out of a total of 63 submissions received 49* were objections, 13 requested further information and 1 confirmed support of the project.

*It should be noted that two duplicated submissions (objections) were received.

Nine submissions were received from government stakeholders in the form of comments and have been addressed within Section 4.1 of this report. Two submissions were received from interested organisations, 1 of which objected to the proposal and one provided comments. These 2 submissions are addressed in Section 4.2 of this report.

Fifty-two submissions were received from the local and wider community collectively. Forty-eight of the submissions objected to the proposal, 3 provided comments and 1 submission expressed support of the proposal. These submissions have been addressed in Section 4.3.

Table 4-1 Number of responses received during public exhibition per stakeholder group

Stakeholder	Number of responses received
Government: • Department of Planning & Environment: Resources & Geoscience • Gunnedah Shire Council • Office of Environment & Heritage • NSW Rural Fire Service • Fire & Safety NSW • NSW Roads and Maritime Services • Department of Industry Crown Lands and Water Division • Environment Protection Agency • Office of Environment and heritage, Heritage Division	9
Agency / Organisation: • NTSCORP Limited (Gomeroi People) • Orange Grove Sun Farm	2
Community	52
Total	63

pitt&sherry have reviewed each submission to understand the key aspects and concerns.

Determination of key aspects was based on the percentage (>10%) of submitters who commented or raised concern regarding that aspect, as depicted in Table 4-2. All other aspects raised have been listed in Table 4-3.

The five key aspects raised by the government, agency and community stakeholders are:

- **Flooding**: Concerns were raised around the accuracy of the flood modelling performed, and the impact of security fencing on water flows and velocity during a flood event.
- **Prime Agricultural Land**: Concerns were raised around the use of prime agricultural land.

- **Traffic during construction**: Concerns were raised regarding the impact on road safety and condition due to the increase in heavy vehicle traffic, with particular concern raised around school bus routes and pedestrian safety.
- **Visual Impact**: Concerns were raised about the visual impact of the solar panels on neighbouring residents, as well as commuters using Orange Grove Road.
- **Land Value**: Concerns were raised around the potential impact the development would have on neighbouring land values.

Out of the 52 community submissions, it should be noted that 21 submitters (40%) stated that they were supportive of solar and/or renewable energy in general. 6 objectors are understood to reside outside of Gunnedah and would not be directly impacted by the Proposal.

Table 4-2 Key issues raised in submissions and percentage of submitters commenting on key aspects

Key Aspects	No. of submissions commenting on aspect	% of submissions raising key aspect
Flooding	52	83
Prime Agricultural Land (alternate land use)	18	29
Traffic during construction	13	21
Visual Impact	9	14
Land value	7	11

Table 4-3 Other aspects raised within government, organisation and community submissions

Other Aspects	No. of submissions commenting on aspect	% of submissions raising aspect
Noise during construction	4	7
Employment	3	5
Bushfire	3	5
Biodiversity	3	5
School bus routes	2	3
Decommissioning	2	3
Soil Quality, Air and noise pollution	2	3
Aboriginal Heritage consultation	2	3
Operation	1	2
Proximity to town	1	2
94A contributions	1	2
CEMP	1	2
Constraints Map	1	2
Emergency Response Plan	1	2
LUCRA	1	2
Social and Economic	1	2
Subdivision	1	2
Stakeholder consultation	1	2
Waste disposal	1	2

4.1 Response to Government agency submissions

Specific responses to government agency submissions is provided in Table 4-4.

Table 4-4 Summary of Responses to Government Agency Submissions

Aspect	Detail of submission	GSF Response
Department of Planning & Environment: Resources & Geoscience		
Stakeholder consultation	Acknowledges that the proponent has effectively consulted with the affected titleholders to date. GSNSW notes that Santos has requested their inclusion on the Proponent's distribution list in order to receive information about progress in relation to the proposal	pitt&sherry contacted Santos on 09/05/2018 via email to advise that the Gunnedah Solar Farm was on public exhibition. Correspondence is provided in Appendix A. *No further mitigation measures are proposed.*
Gunnedah Shire Council		
Constraints Map	The Site plans provided are difficult to review. Clarification is requested in regard to the proposed use of unsealed, unnamed road off Orange Grove Road (western boundary) as a Site access route	The description of the access road into the Site, provided in Section 3.2 and Section 6.6 of the EIS describes 'An existing unsealed unnamed access road off Orange Grove Road will be used to access the Site. The access road is located near the western boundary and would be upgraded as part of the works'. To clarify this access road is an existing private access road into the property. Figure 1-2 provides an updated site constraints map. *No further mitigation measures are proposed.*
Traffic	Volume of light vehicle traffic per day is to be 40 vehicle movements with an average occupancy of 4 people per vehicle. This is considered conservative and should be updated to 1-2 people per vehicle	The Traffic Impact Assessment has been updated to consider a lower occupancy per vehicle. Based on a worst-case scenario of 2 people per vehicle the light vehicle traffic at peak construction has been estimated at 75 light vehicles entering and exiting the site for staff movements. See Appendix D for further information. As outlined in mitigation measure T2, GSF commits to ensuring carpooling and shuttle bus arrangements are included in the Traffic Management Plan to minimise vehicle numbers during construction. As outlined in Section 8.1 of the EIS the identified management and mitigation measures will be incorporated into contractual arrangements with any future

Aspect	Detail of submission	GSF Response
		contractors for construction of the Proposal. As such, the Traffic Management Plan will be enforced through contractual arrangements. *A new mitigation measure has been proposed.*
	A new access should be provided at the development site, as a minimum the RMS Typical Rural Property Access Standard for articulated vehicles should be provided	Access for the development will be provided via upgrading the existing private access road into the property. The upgrades will meet the RMS Typical Rural Property Access Standard for articulated vehicles as identified in the concept design prepared. GSF commits to upgrade of the existing access road in accordance with Orange Grove Road Site Access Alignment Plan (SY17199-P1). See Appendix E. *A new mitigation measure has been proposed.*
	Working hours during construction should consider the existing school bus route and times and should be adjusted if required	The Traffic Impact Assessment has been updated to reflect a commitment to manage deliveries and access to the site to ensure they do not occur during school bus times. See Appendix D and revised Mitigation Measures in Appendix B. As outlined in mitigation measure T2, schedule of deliveries will form part of the Traffic Management Plan. GSF commits to a new mitigation measure (T12) placing restrictions on deliveries and access to the site during school bus route times as part of the Traffic Management Plan. *A new mitigation measure has been proposed.*
	TIA relies on a Code of Conduct to be agreed to by supply contractors. Need to clarify the consequences if there is a breach of the Code of Conduct	As outlined in mitigation measure T2, GSF commits to the Code of Conduct forming part of the Traffic Management Plan. As outlined in Section 8.1 of the EIS the identified management and mitigation measures will be incorporated into contractual arrangements with any future contractors for construction of the Proposal.

Aspect	Detail of submission	GSF Response
		No further mitigation measures are proposed.
	The complaint handling process and resolution process should be established prior to the commencement of works	Mitigation Measure G4 within the EIS addresses this concern. A complaint handling procedure and register will be implemented to assist in recording and managing potential conflict with the local community during construction. GSF commits to revision of mitigation measure (T2) establishing the complaint handling procedure and register prior to the commencement of works. *A mitigation measure has been revised.*
	A Road Safety Audit should be prepared by a suitably Qualified Road Safety Auditor and made available to council	Section 5.4 within the Gunnedah EIS addresses the Gunnedah Shire Council request for Road Safety Audit as stated in the SEARs. The Traffic Impact Assessment identified through its assessment of the proposed routes that there are no safety concerns, and therefore a Road Safety Audit was not required. A letter was sent to Gunnedah Shire Council 05/02/2018 to inform the council of the report's findings. A response was received 05/03/2018, confirming that a Road Safety Audit will not need to be completed with the submission for development approval, (Appendix L of Gunnedah EIS). As such, a Road Safety Audit is not proposed to be undertaken. *No further mitigation measures are proposed.*
	Commensurate light vehicle car parking should be provided for the proposed 150 staff during construction period	As identified in Section 6.6.3 of the EIS all parking will be contained on site within a temporary construction parking area. This area will allow up to 100 vehicles to park within the compound area which aligns with the expected vehicle numbers associated with staff movements. The number of vehicles to park on the Site is lower than the peak staff numbers as carpooling and shuttle buses will be utilised for transporting staff to Site.

Aspect	Detail of submission	GSF Response
		No further mitigation measures are proposed.
	All internal driveways, parking areas, loading bays and vehicular turning areas are to be constructed with a base course of adequate depth to suit design traffic to be approved by council	GSF commits to a new mitigation measure (T14) constructing the access road for the development, parking areas, loading bays and vehicular turning areas with a base course of adequate depth in consultation with Gunnedah Shire Council and in alignment with Gunnedah Shire Council Guidelines with consideration of the Project's requirements during construction, operation and decommissioning. *A new mitigation measure has been proposed*.
	Parking areas must comply with AS 2890 - Parking Facilities and Councils Engineering Guidelines for Subdivisions and Developments 2013	The parking area to be provided during construction of the solar farm will provide an area for up to 100 vehicles for a 12-month duration. Due to the temporary nature of the parking area and the rehabilitation of the area to former condition at the end of construction, these parking areas will not be constructed in compliance with AS 2890 – Parking Facilities and Councils Engineering Guidelines for Subdivisions and Developments 2013. GSF commits to a new mitigation measure (T17) that if permanent parking areas are deemed to be required to facilitate operation of the site, these parking areas must comply with AS 2890 – Parking Facilities ad Councils Engineering Guidelines for Subdivisions and Developments 2013. *A new mitigation measure has been proposed*.
	Variable Message Signage should be maintained on Kelvin road during construction period. Temporary speed limits should also be considered for the duration of the construction period	As outlined in mitigation measure T2, traffic controls including signage and speed limits, will be included in the Traffic Management Plan (TMP). GSF commits to a new mitigation measure (T13) Variable Message Signage on Kelvin Road for the duration of construction and its ongoing management will be outlined in the TMP. *A new mitigation measure has been proposed*.

Aspect	Detail of submission	GSF Response
	Old Blue Vale Road proposed as part of the HV Route has a nominal 5m wide seal	The TIA has been updated to include reference to the nominal 5m wide seal present on Old Blue Vale Road. GSF commits to a new mitigation measure (T15) establishing a maintenance agreement with Gunnedah Shire Council for Old Blue Vale Road for the duration of construction. *A new mitigation measure has been proposed*.
	Mitigation measures listed in Section 2.3 should be applied, in particular - Upgrading of the pavement width at the eastern end of Old Blue Vale Road, a maintenance agreement with Gunnedah Shire Council for the construction period on Old Blue Vale Road	GSF commits to a revised mitigation measure (T1) for consultation with the Road Authority regarding upgrades to the pavement width at the eastern end of Old Blue Vale Road. GSF commits to a new mitigation measure (T15) establishing a maintenance agreement with Gunnedah Shire Council for Old Blue Vale Road for the duration of construction. *A new mitigation measure has been proposed*.
	Standard hours of work are listed as 7am to 4pm on Saturday in TIA and Management Plan. This is considered to be outside 'typical' standard working hours of 8am to 1pm on Saturdays	This was a typographical error. The Traffic Impact Assessment has been updated to reflect the proposed working hours which are in accordance with the *Interim Construction Noise Guideline* for Saturdays 8am – 1pm. GSF commits to the existing mitigation measure, N3, Works are to be carried out during standard work hours (i.e., 7am to 6pm Monday to Friday; 8am to 1pm Saturdays). *No further mitigation measures are proposed.*
	The dilapidation assessment and report should be undertaken by a suitably qualified and independent civil or structural engineer. Geotechnical test pits should be considered as part of this	GSF commits to a revised mitigation measure (T10) with the dilapidation assessment and report being undertaken by a suitably qualified and independent civil or structural engineer through the construction period.

Aspect	Detail of submission	GSF Response
	assessment to determine existing depth of pavement on Old Blue Vale road to accurately determine cumulative impacts	*A mitigation measure has been revised.*
	Records of daily monitoring of road conditions should be maintained and made available on request	GSF commits to a new mitigation measure (T15) providing records for road condition monitoring undertaken in accordance with the maintenance agreement to be made with Gunnedah Shire Council. *A new mitigation measure has been proposed*.
	The required intervention level should be established with the Road Authority prior to the commencement of works	GSF commits to revised mitigation measure (T1), undertake consultation with the Road Authority on all proposed works and obtaining a Section 138 approval prior to the commencement of works. *A mitigation measure has been revised.*
	A Road Opening Permit (Section 138) will be required for any works undertaken on council's road network	As identified in Section 4.6 of the EIS, a Section 138 approval for work within a public road has been identified as an approval required for the Gunnedah Solar Farm. This will be undertaken after Project approval. *No further mitigation measures are proposed.*
	A Maintenance Bond/Defects Liability Period may be a satisfactory compromise to mitigate the recommended requirements of Section 4.1.4	GSF commits to a new mitigation measure (T15) establishing a maintenance agreement with Gunnedah Shire Council for Old Blue Vale Road for the duration of construction. The option for a Maintenance Bond/ Defects Liability Period would also be discussed at this time. *A new mitigation measure has been proposed.*
Flooding	EIS mapping of proposed security fencing, illustrating the locations of the proposed laneways is not of an adequate scale to review	GSF recognises the community concerns about the potential impacts of the security fence when blocked by flood debris. In response to these concerns, GSF has revised the design for the perimeter security fence (Appendix C). It is proposed to install perimeter security fencing which is designed to allow flood water into and through the development site. One option is drop-down fencing in strategic locations around the development perimeter. This option replaces the laneways previously proposed and will be even more effective in allowing free flow of flood water into and through the development, with less redistribution of flood flows through the site.

Aspect	Detail of submission	GSF Response
		The concept design and location of a drop-down fencing option were designed by reviewing the flood modelling and by targeting strategic locations to break up long runs of continuous fence. Nominally 200m sections of drop-down fence have been positioned around the perimeter in locations including: • The southern part of the development which is known to flood more regularly, i.e. within the Namoi River breakout • At the perimeter positions of previously proposed laneways • Western part of the development. Figure 25 in the Updated Flood Impact Assessment shows the proposed positions of drop-down fencing, which are referred to as Scenario 4. This fencing option has been modelled as Scenario 4 in the Updated Flood Impact Assessment. The modelling of Scenario 4 shows that the fencing would achieve the objective of allowing water into and through the development site and preventing offsite impacts in relation to flood levels and flood velocity. Full details are provided in the Updated Flood Impact Assessment (Appendix C). GSF commits to a new mitigation measure, SW6, for construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events to minimise potential redirection of flood flows due to fence blockage. Design of the fencing shall seek to prevent offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval. *A new mitigation measure has been proposed.*

Aspect	Detail of submission	GSF Response
	Provide response on why the 1955 flood data (being the event closest to the 1% AEP flood event) or records from the gauge at Gunnedah was not utilised in the hydraulic modelling	The 1984 flood was used as the basis for setting up the previous flood model as it is the largest flood on record for which the nearest gauges recorded data. This flood occurred after construction of the Keepit Dam while the 1955 flood predates Keepit Dam. As part of the Updated Flood Impact Assessment a review of the hydrology and revised flood modelling has been undertaken. To address numerous submissions the updated modelling specifically presents results for the 1955 flood (a close approximation to the 1% AEP flood) as well as results for the 10% AEP, 5% AEP and Probable Maximum Flood (PMF) events. The major flood event of January 1984 has been used to generate a hydrograph shape for the 10%, 5% and PMF design events. The 1984 event is the largest on record for Gauge 419006, and it falls between the 5% AEP and 2% AEP probabilities. The 1955 flood event (a close approximation for the 1% AEP event) was used as a scenario and calibration event. The recorded gauge height for 1955 at 419001 and a flood level within the model boundary from the Carroll to Boggabri Flood Study (SMEC, 2003) was available for calibration. The updated flood model was calibrated by comparing computed and observed flood levels for the 1955 flood, which resulted in a good fit between the two. Whereas the previous model assumed that flows approached the site from the Namoi River, the current model includes flows approaching the site from the Namoi and Mooki rivers. The distribution of flows between the Namoi and Mooki Rivers was based on further information obtained from the Gunnedah and Carroll Floodplain Management Plan 1999 (SMEC Study, updated 2014). The site is located where the flows from the two river systems merge over the flood plain, and the current model includes this mechanism by its representation of the terrain surface of the channels and flood plains. Inflows from the Rangari Creek were included in the Namoi and Mooki total flow, and were not modelled explicitly, because of the lack of flow data. Flows from the Rangari Creek merge with Namoi and Mooki flows on the flood plain over a wide area generally downstream of the site. The model was verified by

Aspect	Detail of submission	GSF Response
		comparing modelled flood levels and depths for the 1955 flood, which agree well with observed flood levels and depths. It is considered that the current model improves the representation of flood behaviour around the proposed solar farm primarily through the acquisition and use of updated terrain data. It therefore provides a more accurate assessment of potential impacts compared with the previous (March 2018) flood assessment. The updated flood model shows a lower risk of flood impact than the previous, more conservative model. Additional detail on the updated flood modelling is contained in the Updated Flood Impact Assessment (refer Appendix C). *The updated Flood Impact Assessment has been prepared in response to submissions.*
	The EIS has limited details regarding the proposed earth mound for the substation and whether it will result in any impact on the adjoining property - recommended that the flood configuration modelling be updated to include the substation earth mound	An electrical substation is proposed at the south-west corner of the site, which would be constructed on a new fill platform above the flood levels. The effect of the electrical substation was modelled as part of the Updated Flood Assessment and recommended substation platform heights are provided (Appendix C). The fill platform has assumed dimensions 90 m x 70 m and of infinite height for the purpose of modelling so it is not inundated. The results show that the substation fill mound would not have an impact on adjoining properties. *The updated Flood Impact Assessment has been prepared in response to submissions.*
Social and Economic	Accommodation within Gunnedah is noted - no assessment in regard to the availability of this accommodation, particularly during the construction phase	Section 6.12 of the EIS assessed the socio-economic impacts of the Proposal. The proposed development will have a positive employment impact during construction, and is likely to create in the order of 150 onsite jobs during the peak construction period.

Aspect	Detail of submission	GSF Response
		As per new mitigation measure Socio 2, GSF commits to the preparation of an Australian Industry Participation Plan which will identify strategies to maximise the percentage of labour sourced from within 100km of the Site. Where required, the Proposal would engage with local accommodation providers and Gunnedah Shire Council to provide additional short term and temporary accommodation. There are 11 accommodation options (257 rooms) within Gunnedah (*Gunnedah Shire Council, 2018*). There is also the possibility to stay in the local caravan park or to rent a house within Gunnedah through an accommodation website such as Stayz. Tamworth and Narrabri have over 60 accommodation options available that should be able to accommodate the overflow of people travelling to Gunnedah during tourism events or competing events and developments. Local accommodation within 100km of the Site is therefore considered adequate as over 70 accommodation options are likely to be available for the approximate number of 75 non-local employees (with anticipated 50% labour sourced locally) that will require accommodation during peak construction. *A new mitigation measure has been proposed.*
	The impact on health services is identified, suggesting workers utilise services in adjoining towns - no assessment of the availability of these services or any proposed actions if services are not available	The closest health service is the Gunnedah Hospital which has a total of 43 hospital beds and is located a 14.6km drive from the site. The Gunnedah Hospital has an emergency department as well as other services listed in Table 4-5. There are four other identified hospitals located within a 100km radius drive of the Site. The two larger hospitals offering the largest range of services are located in Tamworth. However, due to the travel distance, it is recommended that workers utilise services within Gunnedah, or Boggabri as an alternate service. *No further mitigation measures are proposed.*

Aspect	Detail of submission	GSF Response
	The EIS does not provide adequate detail regarding the proposed workforce and any potential for training programs. The availability of workers has not been considered. It is requested that the skills and employment strategy be developed prior to the commencement of works	As identified in Section 6.12.5, both local and non-local labour is expected to be used with a commitment to maximise local labour as outlined in mitigation measure Socio 2. GSF commits to the preparation of an Australian Industry Participation Plan which will identify strategies to maximise the percentage of labour sourced from within 100km of the Site. GSF commits to the preparation of a skills and employment strategy for the Proposal in consideration of the NSW Infrastructure Legacy Program. As outlined in Section 8.1 of the EIS the identified management and mitigation measures will be incorporated into contractual arrangements with any future contractors for construction of the Proposal. As such, both the plan and strategy will form part of the engineering, procurement and construction (EPC) contract. *A new mitigation measure has been proposed.*
Biodiversity	The assessment provided in the EIS does not address the provisions of SEPP 44 - Koala Habitat Protection. As the site is identified as containing potential Koala habitat, an assessment as to whether the site contains core Koala habitat is to be undertaken	The Biodiversity Impact Assessment (Appendix D of the EIS) states that the following native vegetation communities exist on site: • River Red Gum (*Eucalyptus camaldulensis*) – Yellow Box (*Eucalyptus melliodora*) Dry Sclerophyll Woodland/Open Woodland • Bimble Box (*Eucalyptus populnea* subsp*. bimbil*) Dry Sclerophyll Open Woodland. The two tree species, Blakely's Red Gum (*Eucalyptus blakelyi*) and Yellow Box (*Eucalyptus melliodora*) have been identified within the three native tree stands on Site. These species are considered secondary food trees for Koala populations. For this reason, a search for evidence for the presence of Koalas on site was conducted during the site visit. It should be noted that there were no primary food trees identified within the Site.

Aspect	Detail of submission	GSF Response
		No evidence of the presence of Koalas such as tree scratchings or droppings on the site could be found. The owners of the property were also interviewed and confirmed that they had never seen Koalas on the site. The three main tree stands on the Site are all widely separated from each other (by more than 500 metres of open field) and are quite small (with between 12 and 39 potential food trees present). Being isolated, Koalas would not seek out these trees as they would be too conspicuous once they reached the trees (the foliage is sparse and trees widely spaced). To reach the trees the Koalas would have to cross between 200 and 400m of open ground (this they are very unlikely to do because they are prone to easy predation when in the open away from tree cover). Based on these findings the secondary food trees were identified as not representative of potential Koala habitat and no further assessment in accordance with SEPP 44 was warranted. *No further assessment on potential core Koala habitat is required.*
Visual Impact	It is recommended that all proposed landscaping should be undertaken prior to the commencement of construction works	As per mitigation measure V3 in the EIS it is proposed that implementation of the concept landscape plan (including visual screening) occurs during the construction phase of the proposal. GSF commits to a revised mitigation measure (V3) undertaking the implementation of proposed landscaping works prior to commencing construction works, where possible. This excludes areas that would impact or be impacted by construction works. *A new mitigation measure has been proposed.*
Waste disposal	It is noted that waste from the development will be taken to licenced waste facility. For the disposal of large volumes of waste at council's waste management facility, notification is to be provided in advance to assist with the disposal	As outlined in mitigation measure W7 Gunnedah Waste Management Depot will be given appropriate notification before any large quantities of waste are deposited at the Gunnedah Waste Management Depot.

Aspect	Detail of submission	GSF Response
		No further mitigation measures are proposed.
Subdivision	As the development will require subdivision of land, it is requested that the residual land be consolidated into one lot to prevent any further fragmentation of agricultural land	Proposed subdivision of the land has been addressed in Section 4.5.7 of the Gunnedah EIS. GSF has agreed to the recommendation made by Gunnedah Shire Council to consolidate land remaining within the Site, outside of the solar panel and substation footprint in to one single lot. Revised subdivision proposal has been outlined in Section 3.1 and provided in Appendix F of this report. *Amendment has been made as a result of this submission*
94A Contributions	Councils Section 94A Contributions Plan applies to the development site. It is requested that any requirement for the payment of contributions be included on the notice of determination	GSF will provide significant investment into the Gunnedah community and wider region. This will be in the form of employment / contracting opportunities during construction and operations, waste management, accommodation, transport and general living expenses. GSF will also undertake appropriate road works and resealing as required. GSF will not be using Council facilities e.g. water and waste once the farm is operational. As such the development, will not result in net increased impost on council services and infrastructure but rather provided localised improvements and broader economic benefit. The roads will be used as required however, it will only be for general use as is now the case. Given this, GSF is requesting that there are no contributions in the determination. *No further mitigation measures are proposed.*
Office of Environment & Heritage		
Biodiversity	Resolve the contradictory information in the EIS and confirm the extent of the proposed impacts on the site on native vegetation and threatened species habitat	It is assumed that the contradictory information referred to by OEH is regarding the mention of tree removal in the Fauna Impact Assessment (Appendix C of the Gunnedah EIS). This reference related to a superseded version of the report which was not updated appropriately within the final version of the EIS submitted to DP&E. This has now been completed. GSF has committed to retaining all native stands of trees within the Site, as well as isolated trees located along fence lines of the property boundary. As per

Aspect	Detail of submission	GSF Response
		Section 6.1 of the EIS, clearing of native vegetation will be limited to grasses and shrubs. The existence of *White Box, Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* within the project area or immediate surrounds as identified within the Fauna Impact Assessment has the potential to represent Koala habitat. Whilst this broad fauna habitat type exists within the region, the Flora Impact Assessment revealed that there is no presence of White Box (*Eucalyptus albens*) within the Site which is considered a primary food type for Koalas. Other indicator flora species of this fauna habitat type do exist within the Site; however these species are not identified as primary food trees for Koala populations. The Fauna Impact Assessment determined that Koala populations do not exist within the Site, due to the degraded condition and sparse distribution of the existing native tree stands. Further, the summary provided in the Fauna Impact Assessment concludes that the Proposal would be unlikely to significantly impact any threatened species due to the poor condition and sparse location of the remaining native tree stands. *No further mitigation measures are proposed.*
	Update the threatened species assessment to include details of the nearby common Planigale record and evaluate the likelihood of this species occurring on the solar farm site	Section 2.2 of the Fauna Impact Assessment (Appendix D of the EIS) identifies that a fauna survey was completed on an adjoining property in 2011 and the Common Planigale (*Planigale maculata*) was located on site. A fauna assessment was carried out on Site during 26/10/2017 – 27/10/2017 by Biosphere Environmental Consultants Pty Ltd. The surveys conducted on site resulted in finding no explicit evidence of the presence of the Common Planigale. The summary provided in the Fauna Impact Assessment concludes that the Proposal would be unlikely to significantly impact any threatened species due to the poor condition and sparse location of the remaining native tree stands.

Aspect	Detail of submission	GSF Response
		No further mitigation measures are proposed.
	The proponent has not completed the biodiversity assessments in accordance with the Framework for Biodiversity Assessment (FBA). No shapefiles, plot data or site value scores have been provided for the flora assessment	GSF commissioned an appropriately accredited botanist to conduct a Flora Impact Assessment (FIA). The report was prepared in accordance with the following policies and guidelines: • Framework for Biodiversity Assessment (*FBA) (OEH, 2014*) • Biobanking assessment methodology (*BBAM) (OEH, 2014*) • Guidelines for Threatened Species Assessment (*DECC, 2007*). A summary of the FIA is provided in Section 6.1 of the Gunnedah EIS. The FIA determines that; given that the proposal does not involve the removal of remnant native vegetation stands on the Site and given the absence of any predicted indirect impacts to retained native vegetation (via the establishment of nominated buffers), an FBA/BBAM (2014) assessment was not required to be undertaken nor a Biodiversity Assessment Report (BAR) prepared. Instead a flora survey and assessment report were prepared, see Appendix D of the EIS. *No further actions are proposed. No further mitigation measures are proposed.*
	Fauna impact assessment - 'the main cumulative impact associated with the proposal is the loss of 15 trees in field B1' - contradicts flora assessment	This reference to removal of trees is residual information from a superseded version of the Fauna Impact Assessment and is incorrect. As per Section 6.1 of the EIS, clearing of native vegetation will be limited to grasses and shrubs. The main clusters of vegetation (V1, V2 and V3), as well as isolated trees on fence lines will be retained as part of the proposal (via the establishment of buffers). *No further actions are proposed. No further mitigation measures are proposed.*
Aboriginal Heritage	The proponent must consult more extensively with the Aboriginal community to ensure adequate consultation has occurred and not just rely on the LALC as the only source of information. The proponent should adhere to the 'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010'	The Gunnedah Solar Farm Aboriginal heritage assessment complies with OEH 'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010'. No impact to Aboriginal heritage will result from the proposed solar farm as determined by archaeological assessment and survey with Red Chief Local Aboriginal Land Council.

Aspect	Detail of submission	GSF Response
		The OEH consultation requirements apply when Aboriginal objects will be impacted. The location of the Gunnedah Solar Farm, within a featureless floodplain spread across heavily cropped fields, exhibits no Aboriginal objects or potential archaeological deposit/s. The property was heavily modified by natural erosion and agricultural activities which preclude the deposition or survivability of Aboriginal objects. Because no impact will occur to Aboriginal heritage the level of consultation is in accordance with OEH's requirements. The heritage consultant, Kelleher Nightingale Consulting, contacted OEH regarding their submission. It was identified that OEH had received feedback from local aboriginal stakeholders regarding the project and OEH would consider consultation with these groups and the Gomeroi People to represent adequate consultation for the Project. GSF commits to a new mitigation measure (H4) to inviting local aboriginal stakeholders as identified by OEH to undertake a site visit with a heritage consultant prior to commencing construction. *A new mitigation measure has been proposed*.
NSW Rural Fire Service		
Bushfire	A Fire Management Plan shall be prepared in consultation with the NSW RFS Liverpool Range Fire Control Centre: 24hr emergency contact details, site infrastructure plan, firefighting water supply, site access and internal road plan, APZ and continued maintenance, location of hazards and procedures to manage hazards, additional matters as required by the NSW RFS District Office	The Bushfire Impact Assessment prepared by Eco Logical (Appendix F of the EIS) will provide the basis of the Fire Management Plan (FMP). GSF will complete a FMP as part of the Construction Environmental Management Plan (CEMP). GSF commits to a new mitigation measure (BF12) that prior to construction, a Fire Management Plan will be completed as part of the CEMP. *A new mitigation measure has been proposed.*
	Entire solar array footprint to be managed as an Asset Protection Zone as outlined in Section 4.1.3	GSF has agreed to manage the solar array footprint as an Asset Protection Zone. GSF will commit to maintaining the ground cover within the footprint through

Aspect	Detail of submission	GSF Response
		grazing, mowing and slashing as required, as part of the Land Management Plan. GSF commits to a new mitigation measure (BF13) that the solar array footprint will be managed as an Asset Protection Zone, ensuring ground cover maintenance to maintain low fuel loads. *A new mitigation measure has been proposed.*
	A 20,000 litre water supply tank fitted with a 65 mm Storz fitting located adjoining the internal property access road within required APZ	As per mitigation measure BF10 in Section 6.9 of the Gunnedah EIS, one water supply tank with a capacity of 50,000L will be located near the substation, out of the APZ. *No further mitigation measures are proposed.*
	Allow for emergency service personnel to undertake property protection activities, a 10 metre defendable space (APZ) that permits a minimum 4 metre wide, unobstructed vehicle access is to be provided around the perimeter of the solar array and associated infrastructure	GSF commits to the requirements of mitigation measure BF6 of the Gunnedah EIS. BF6 states 'An APZ will be constructed around the solar farm with the following requirements: • The APZ will be 15 m wide around the entire perimeter of the solar farm footprint, and 20 m wide for areas abutting the remnant treed areas and landscaping areas • The external edge of the APZ setback at least 25 m from the external edge of PV panels or other components • The APZ must be either a mineral earth fire break (i.e. dirt or gravel) or a heavily grazed area • Trees and tall shrubs associated with the landscape plan should not be planted close to the APZ • APZ preferably located external to any security fence. The substation should have a 20m asset protection zone with no internal vegetation (gravel surface).' In accordance with the submission from NSW Rural Fire Service, this mitigation measure has been revised to include the following additional point:

Aspect	Detail of submission	GSF Response
		• A 10 metre defendable space that permits a 4 metre wide, unobstructed vehicle access will be provided around the perimeter of the solar array and associated infrastructure. Revised mitigation measures table is provided in Appendix B. *A mitigation measure has been revised.*
Fire & Rescue NSW		
Emergency Response Plan	A comprehensive Emergency Response Plan (ERP) is developed for the site	As per mitigation measure BF4 in Section 6.9 of the EIS, an Emergency Response Plan (ERP) will be developed in consultation with the NSW RFS District Fire Control Centre prior to construction. GSF commits to complying with this mitigation measure. *No further mitigation measures are proposed.*
	The ERP specifically addresses foreseeable on-site and off-site fire events and other emergency incidents e.g. fires involving solar panel arrays, bushfires in the immediate vicinity or potential hazmat incidents	GSF commits to the requirements of mitigation measure BF4 of the Gunnedah EIS. BF4 states that requirements of FMP to be developed will include: • Foreseeable on-site and off-site fire events • Clearly states work health safety risks and procedures to be followed by fire-fighters, including: – Personal protective clothing – Minimum level of respiratory protection (e.g. rubber fire fighter's boots and gloves, a self-contained breathing apparatus) – Minimum evacuation zone distances • A safe method of shutting down and isolating the PV system • Training for fighting fires within solar farms • Any other risk control measures required to be followed by fire-fighters • Evacuation triggers and protocols

Aspect	Detail of submission	GSF Response
		• Suppression response strategies and tactics, including aerial suppression options/management. *No further mitigation measures are proposed.*
	ERP details the appropriate risk control measures to safely mitigate potential risks to the health and safety of firefighters. Including level of personal protective clothing, minimum level of respiratory protection, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system Other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site should also be included in the ERP	GSF commits to the requirements of mitigation measure BF4 of the Gunnedah EIS. Mitigation Measure BF4 outlines the requirement of the FMP to be developed during construction of the solar farm (see above). The potential hazards to fire fighters were also addressed in Section 6.9.2 of the Gunnedah EIS. The risks to fire-fighter safety associated with a fire burning the solar panels and associated equipment include: • Electrocution – solar panels would be energised under any natural or artificial light conditions • Conduction of electrical current through water is also a risk when operational personnel spray the high-powered engine hose at the inverter or the components of the solar PV system • Inhalation of potentially toxic fumes and smoke from any plastic components such as cables or other decomposed products of the panels, although the majority of the site, would be largely constructed of glass, silicon, steel and aluminium. Each inverter station will be fitted with an isolation switch allowing for the isolation and the turning off parts or all of the solar farm. This can be done remotely from GSF's or Photon's control centre. When the inverter station is turned off then the solar panels will be isolated and disconnected from the grid. This will mitigate risks to fire fighters by reducing their risk of electrocution. *No further mitigation measures are proposed.*
	Two copies of the ERP be stored in a prominent 'Emergency Information Cabinet' located in a position directly adjacent to the sites main entry points	GSF commits to the requirements of mitigation measure BF5 of the Gunnedah EIS. BF5 states 'two copies of the ERP should be permanently stored in a prominent 'Emergency Information Cabinet' to be located at the main entrance

Aspect	Detail of submission	GSF Response
		point to the solar farm, external to any security fence or locked gate, and a copy provided to local emergency responders.' *No further mitigation measures are proposed.*
	Once constructed and prior to operation, the operator of the facility contacts the relevant local emergency management committee (LEMC). LEMC is a committee established by Section 28 of the State Emergency and Rescue Management Act 1989	Section 3.5 of the Bushfire Impact Assessment (Appendix F of the EIS) states the following 'once constructed and prior to operation, contact should be made by the site operator with the Local Emergency Management Committee to establish emergency management procedures with relevant authorities for the safety hazards presented by the site. The operator of the solar farm should brief the local volunteer fire brigades and neighbouring farmers at appropriate intervals, for example, at annual pre-season fire meetings, on safety issues and procedures.' GSF commits to a new mitigation measure (BF11) that consultation with the Local Emergency Management Committee will take place prior to operation to establish emergency management procedures and revise the ERP if required. *A new mitigation measure has been proposed.*
NSW Roads and Maritime Services		
Traffic	A Traffic Management Plan should be prepared for the construction, operation and decommission stages of the development, to the satisfaction of RMS and Gunnedah Shire Council	GSF commits to mitigation measure T2 of the Gunnedah EIS that a traffic management plan shall be developed in accordance with Roads and Maritime Guidelines and the Australian Standard AS1742.3. *No further mitigation measures are proposed.*
	TMP may include relevant Traffic Control Plans designed and approved by qualified persons in accordance with the RTA Traffic Control at Work Sites Manual. Implementation of TCPs on classified roads (Oxley or Kamilaroi Highway) would require a Road Occupancy Licence from RMS	GSF commits to mitigation measure T2 of the Gunnedah EIS that a traffic management plan shall be developed in accordance with Roads and Maritime Guidelines and the Australian Standard AS1742.3. GSF commits to revision of mitigation measure T2 to include: • Consultation with Roads and Maritime Services for any traffic control plans to be implemented on the Oxley of Kamilaroi Highway.

Aspect	Detail of submission	GSF Response
		A mitigation measure has been revised.
	TMP should include a Drivers Code of Conduct to include the following: • A map of primary access routes highlighting critical locations, safety initiatives for transport through residential areas (school zones, bus routes) • Consideration for coordination of construction traffic with seasonal agricultural haulage • An induction process for vehicle operators and regular toolbox meetings • A complaint resolution and disciplinary procedure • Any community consultation measures for the peak construction period.	GSF commits to mitigation measure T2 of the Gunnedah EIS that a Traffic Management Plan shall be developed in accordance with Roads and Maritime Guidelines and the Australian Standard AS1742.3. The plan will would include: • The designated routes of construction traffic to the site • A map of the primary access routes highlighting critical locations • Drivers Code of Conduct • Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction • Scheduling of deliveries • Community consultation requirements • Any restrictions on traffic movements (such as residential areas, school pickup and drop-off times) • Traffic controls (speed limits, signage, etc.) • A complaint handling procedure • An induction process for vehicle operators. The Traffic Impact Assessment within the EIS identified that the roads associated with the haulage route carry a high number of heavy vehicles, including B-doubles associated with local and regional agricultural demands. These agricultural demands are seasonal in nature and occur 24 hours a day often involving night travel and operations. There are a number of farms in the general locality of the project site as well as in the wider Gunnedah area that use these local and regional roads during these seasonally high demand periods. Due to the seasonal nature of this work and the requirement for quick turnaround of crop deliveries the TIA considered that it was not appropriate to limit truck movements for these existing farms. Similarly, it is considered that it

Aspect	Detail of submission	GSF Response
		is not appropriate to limit truck movements to and from the project site at these times as the traffic movements on the local roads will continue to remain low. However, in response to the submission from Roads and Maritime, GSF commits to revision of mitigation measure T2 to include: • Consideration of construction traffic with seasonal agricultural haulage. *A mitigation measure has been revised.*
	Should over mass, over dimension (OMOD) vehicles be required at any stage of the development then a Permit from RMS is required	GSF commits to a new mitigation measure (T16) to obtain relevant permits for OMOD vehicles should they be required at any stage of the development. *A new mitigation measure has been proposed*.
	Access to the development is proposed from local road. Access should be designed and constructed in accordance with Austroads Guidelines and Australian Standards, to the satisfaction of Gunnedah Shire Council. It is recommended that swept path analysis be undertaken to ensure the largest design vehicle can safely enter and exit the site in a forward manner	Access for the development will be provided via upgrading the existing private access road into the property. The upgrades will meet the RMS Typical Rural Property Access Standard for articulated vehicles as specified by Gunnedah Shire Council. A concept design has been prepared in accordance with this specification and the Austroads Guidelines and Australian Standards. The concept design prepared also includes a swept path analysis to illustrate safe entry and exit to the site in a forward manner. GSF commits to a revised mitigation measure (T1) which includes upgrade of the existing access road in accordance with Orange Grove Road Site Access Alignment Plan (Sy17199-P1). See Appendix E. *A mitigation measure has been revised.*
	It is the landowner's responsibility to maintain any access driveways to the development to improve safety and efficiency of access - minimise dust and/or tracking of material onto the public road	As identified in mitigation measure, S4, GSF commits to employing dust management measures on unsealed roads, stockpiles and other areas of loose or disturbed soil prone to dust generation. Controls may include covering of stockpiles, watering roads and synthetic soil stabilisers. Dust management techniques shall be outlined in the Soil and Water Management Plan.

Aspect	Detail of submission	GSF Response
		As identified in mitigation measure, S6, GSF commits to installing a stabilised site entrance that all construction vehicles will use to access the site. The stabilised entrance shall be designed to minimise tracking of sediment onto adjoining roads from departing vehicles. *No further mitigation measures are proposed.*
Department of Industry Crown Lands and Water Division		
Land Use	Proponent should revise the LUCRA to consider potential impacts from surrounding land use on solar farm operations - e.g. dust and the Right to Farm Policy	Land use impacts (including mineral resources) were assessed in Section 6.3 of the Gunnedah EIS. Land use conflicts occur when one land user does, or is perceived to, infringe upon the rights, values or amenity of another. In rural areas land use conflicts commonly occur between agricultural and residential uses. However, land use conflicts can also occur between different agricultural enterprises and other industries such as mining, forestry or energy production. Due to the potential for land use conflicts between the solar farm development and the existing agricultural land use, a land use conflict risk assessment (LUCRA) based on the Department of Primary Industries (DPI) '*Land Use Conflict Risk Assessment Guide' (Department of Trade and Investment, 2011*) was conducted as part of this EIS. As per the request of the Department of Industry Crown Lands and Water Division, the LUCRA has been updated to consider potential impacts of the Proposal on neighbouring land uses, see Appendix G. *Amendment has been made as a result of this submission.*
Flooding	Additional flood modelling should be provided which includes the inputs of both the Mooki River and the Namoi River to ensure impacts are consistent with the requirements of the Carroll to Boggabri Floodplain Management Plan (FMP). May require modifications to the infrastructure. Must ensure that the predicted increased flood levels on adjacent landholders properties is less	As detailed in the response to Gunnedah Council's submission, additional flood modelling has been undertaken and is detailed in the Updated Flood Impact Assessment (refer Appendix C).

Aspect	Detail of submission	GSF Response
	than 100mm and that drainage it to be within 24hrs of natural/existing drainage time	The Updated Flood Impact Assessment addresses relevant complying works criteria of the Draft Floodplain Management Plan for the Upper Namoi Valley Floodplain 2016 and the Carroll to Boggabri FMP. The updated modelling demonstrates that the complying works criteria would be met. In particular, the development would NOT: • Redistribute peak flood flow by more than 5% on adjacent landholdings • Increase flood levels by more than 100mm on adjacent landholdings • Increase flow velocity by more than 50% for a range of flood scenarios including the relevant large design flood, unless increases by more than 50% are in isolated areas • Increase flow velocity by more than 50% at the boundary • Increase drainage time by more than 24 hours of natural/existing drainage time. *Amendment has been made as a result of this submission.*
Decommission-ing	All underground infrastructure is to be removed during decommissioning	GSF commits to mitigation measure L5 of Section 6.3 of the Gunnedah EIS, see that all the infrastructure will be removed upon decommissioning with the possible exception of the substation, transmission lines to the substation and access road to the substation. *No further mitigation measures are proposed.*
Construction Environmental Management Plan (CEMP)	The proponent prepares a Soil and Water Management Plan as part of the CEMP in consultation with NRAR, prior to commencement of activities	GSF commits to mitigation measure G1 of Section 8.1 of the Gunnedah EIS that a project specific Construction Environmental Management Plan (CEMP) and all relevant sub-plans will be prepared by the Contractor prior to commencing Stage 1 construction. The sub-plans will include: • Land Management Plan (LMP) including a weed management plan • Soil and Water Management Plan (SWMP) including erosion and sediment (ERSED) control

Aspect	Detail of submission	GSF Response
		• Unexpected Finds protocol • Waste Management Plan (WMP) • Traffic Management Plan (TMP) • Emergency Contingency Plan. *No further mitigation measures are proposed.*

Additional information regarding the location and offering of health services in proximity to the Proposal has been provided in Table 4-5.

Table 4-5 Health services in proximity to Gunnedah Solar Farm

Hospital	No. of beds	Location	Distance from Site	Services Offered
Gunnedah Hospital	<50 (43)	Gunnedah	14.6km	• Domiciliary care unit • Emergency department • Hospice care unit • Obstetric services.
Boggabri Multipurpose service hospital	<50	Boggabri	50km	• Domiciliary care unit • Emergency department • Hospice care unit • Nursing home care unit.
Manilla Health Service	Unknown	Manilla	70km	• Aged care • Palliative care • GP services • X-ray

				• Physiotherapist • Optometrist • Community health • Emergency department
Tamworth Hospital	>50	Tamworth	90km	• Gastroenterology • General Medicine • Kidney Medicine • Maternity • Mental Health • Ophthalmology • Orthopaedics • Urology • Medical and Radiation Oncology • Hospital in the Home
Tamara Private hospital	>50 (53)	Tamworth	90km	• General Surgery • Urology • Endoscopy • Ophthalmology • Gynaecology • ENT • Orthopaedic (including major Joint replacements) • Oral Maxillary & Dental • Plastic Surgery

4.2 Responses to Organisation submissions

Responses to organisation submissions is provided in Table 4-6.

Table 4-6 Summary of responses to organisation submissions

Issue	Detail of issue	GSF Response
NTSCORP Limited (Gomeroi People)		
Aboriginal Heritage	The requirement for adequate consultation with the local Aboriginal community has not been met	The Gunnedah Solar Farm will have no impact on Aboriginal heritage. Detailed survey and consultation with the Red Chief Local Aboriginal Land Council was completed as part of the EIS and exceeds OEH consultation requirements where no impact to Aboriginal heritage objects will occur. Following consultation with OEH, GSF commits to a new mitigation measure (H4) that prior to commencing construction, local aboriginal stakeholders (as identified by OEH) will be invited to participate in a site visit with the heritage consultant. *A new mitigation measure has been proposed.*
	A condition be placed on the proponent/consultant to consult directly with the applicant for the Gomeroi People native title determination application in respect of the project	
	The Proponent/consultant organise a further cultural heritage site survey with monitors selected by the Applicant for the Gomeroi People native title determination application	
	A revised Aboriginal cultural heritage assessment report be submitted following the above consultation and site survey	
Orange Grove Sun Farm (OGSF)		
Flooding	Concerned with the accuracy of the flood impact assessment, it negatively misrepresents the potential for flood across the OGSF development footprint. Recommend that GSF undertake reassessment of the flood modelling utilising topographical and spatial data of appropriate resolution	An updated flood model has been prepared using more accurate ground surface data from three sources; LiDAR surveyed in 2000 for the Carroll to Boggabri Flood Study (SMEC, 2003), LiDAR surveyed by drone for Photon in 2017 and the construction drawing for the ring levee around the property at 765 Orange Grove Road (Myalla, or “Lou’s Place”). The available survey data was combined and processed into a single elevation model. With the new data, the flood model indicated more uniform flow depths across the site, with flood depths and patterns of flow that reflected observed conditions.

Issue	Detail of issue	GSF Response
		The revised model was then used to estimate the potential impacts of the proposed solar farm. These are presented in the Updated Flood Impact Assessment (Appendix C). *Amendment has been made as a result of this submission*
Traffic	Recommends GSF undertakes reassessment of the TIA using all available traffic data from NSW RMS and the Gunnedah Shire Council	The Traffic Impact Assessment has been updated to include additional traffic data (where available) for roads surrounding the site. The updated TIA is provided in Appendix D. *Amendment has been made as a result of this submission*

4.3 Responses to community submissions

Responses to organisation submissions is provided in Table 4-7

Table 4-7 Summary of response to Community

Aspect	Number of submissions	Detail of issue	GSF Response
Flooding: 48			
	46	Inappropriate location of solar farm in a floodplain / floodway. Concern over security fence and how it could block and redirect flows, worsening flood impacts to surrounding properties. Specific concerns relate to the effects of increasing flood depths and velocities, duration of flood and redirecting flood waters, damage caused by the washed away security fence. Potential impacts of concern include damage to fences, houses, pastures, farming operations, access restrictions, public safety, emergency services, erosion and sedimentation	GSF recognises and accepts the concerns of the community in relation to potential flood impacts. To address this additional flood modelling has been undertaken using new terrain data and updated hydrology assumptions, and is detailed in the Updated Flood Impact Assessment (refer Appendix C). A new fence configuration (Fence Configuration 4) has been developed and modelled (refer Appendix C) and represents an alternative fencing design aimed at mitigating the blockage and redirection of floodwater, and the potential impacts of the Proposal on the surrounding landscape and residents during a flood event. Fence Configuration 4 incorporates drop down fencing in key areas. The model indicates that Fence Configuration 4 further reduces flooding impacts compared to the fence configuration presented in Appendix J of the EIS (Configuration 3), is compliant with the Carroll-Boggabri Flood Management Plan 2006 and would have negligible flood impacts on surrounding properties. In particular, the development would NOT: • Redistribute peak flood flow by more than 5% on adjacent landholdings • Increase flood levels by more than 100mm on adjacent landholdings • Increase flow velocity by more than 50% for a range of flood scenarios including the relevant large design flood, unless Increases by more than 50% are in isolated areas • Increase flow velocity by more than 50% at the boundary • Increase drainage time by more than 24 hours of natural/existing drainage time. The modelling indicates that the proposed solar farm would not cause appreciable impacts on surrounding properties due to increasing flood depths and velocities. Nonetheless, GSF recognises that modelling alone may not entirely address community concerns. GSF therefore commits to constructing a perimeter security fence that is designed to allow flood water into and through the development site during significant flood events, which will mitigate the impacts of potential fence blockage on flooding.

Aspect	Number of submissions	Detail of issue	GSF Response
			Design of the fencing shall seek to mitigate offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. It is noted that "drop-down" fencing is employed commonly by surrounding landowners and is just one potential design that GSF is investigating. GSF commits to a new mitigation measure, SW6, construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events to minimise potential redirection of flood flows due to fence blockage. Design of the fencing shall seek to prevent offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval. *A new mitigation measure has been proposed.*
	25	Questions raised over accuracy of the flood model and data inputs, in particular: - Terrain data (SRTM), incl +/- 9.8m levels, 30m tiles. Why not use accurate terrain data? Concern at cutting corners and trying to push it through with more "malleable" terrain data - Should use LiDAR data which is now economical and would	The updated Flood Impact Assessment (Appendix C) includes a more accurate flood model with new data inputs. A summary is provided below and further detail is contained within the updated Flood Impact Assessment (Appendix C). <u>Terrain data, LiDAR and landscape features</u> It is acknowledged that the previous flood modelling utilised the SRTM DEM-H terrain data (which has a vertical accuracy of about ±9.8m against 90% of tested heights across Australia), and approximated flows approaching the site from the Namoi River. The intent of the previous modelling was to carry out a preliminary assessment that focused on potential flood changes due to the solar farm. It demonstrated that: • The site is flood affected • The security fencing could cause impacts in terms of increased flood levels and changed velocities, though these impacts were minor • The security fence should be designed in a way that reduces flood impacts.

Aspect	Number of submissions	Detail of issue	GSF Response
		be worthwhile for a project of this scale and potential impact - Landscape features of importance not included in model (e.g. major irrigation channels) - Use of 1984 flood data as a template. Why not use the 1955 flood - Use of river gauges that don't relate to the area - Effect of Mooki River and its contribution – all floods are different. - Effect of Rangari Creek - More accurate modelling is required - Unpredictability of flooding – all floods are different lending uncertainty to the model outcomes - Velocity was 4.7m/s in 1955 flood (from SMEC), much higher than we have predicted.	Though the results demonstrated that the site would be affected by flooding, and the fences were likely to result in small increases to flood levels, the terrain model was considered too coarse to provide an accurate estimation of flood depths and increases at an appropriate scale (less than 1.0 m). The SRTM DEM-H data were used in the previous assessment because better terrain data were not available at the time. Better data have now been acquired in the form of Aerial Laser Survey (ALS) data surveyed in 2000 for the Carroll to Boggabri Flood Study (SMEC, 2003); and LiDAR surveyed by drone for Photon in 2017. These data provide a far more accurate terrain model and do include landscape features such as drainage channels within the GSF site. The updated flood modelling based on these terrain data yields more credible results in terms of the distribution and depths of flooding around the site, which agree better with observed flood levels. In the previous model, the terrain was much more 'lumpy', falsely creating a network of channels and islands, which yielded over-estimates of velocities and impacts. In the current model, the terrain is much flatter and is crisscrossed with farm drains and levees, yielding more uniform flow distribution with lower velocities and lower potential impacts due to the solar farm. <u>Use of1955 and 1984 flood data</u> The earlier response to Gunnedah Shire Council submission explains the use of 1984 flood data in the establishment of a hydraulic model. The 1984 flood was used as the basis for setting up the previous flood model as it is the largest flood on record for which the nearest gauges recorded data. This flood occurred after construction of the Keepit Dam while the 1955 flood predates Keepit Dam. This is explained in the Updated Flood Impact Assessment (Appendix C). A review of the hydrology and revised flood modelling has been undertaken. To address numerous submissions the updated modelling specifically presents results for the 1955 flood (a close approximation to the 1% AEP flood) as well as results for the 10% AEP, 5% AEP and Probable Maximum Flood events. <u>Flood Gauges</u>

Aspect	Number of submissions	Detail of issue	GSF Response
			The nearest flood gauges were used in developing and verifying the hydraulic model and are considered appropriate. <u>Mooki River and Rangari Creek effects</u> Whereas the previous model assumed that flows approached the site from the Namoi River, the current model includes flows approaching the site from the Namoi and Mooki rivers. The distribution of flows between the Namoi and Mooki Rivers was based on further information obtained from the Gunnedah and Carroll Floodplain Management Plan 1999 (SMEC Study, updated 2014). The site is located where the flows from the two river systems merge over the flood plain. The current model includes this mechanism by its representation of the terrain surface of the channels and flood plains. Inflows from the Rangari Creek were included in the Namoi and Mooki total flow, and were not modelled explicitly, because of the lack of flow data. Flows from the Rangari Creek merge with Namoi and Mooki flows on the flood plain over a wide area generally downstream of the site. The model was verified by checking modelled flood levels and depths for the 1955 flood, which agree well with observed flood levels and depths. It is considered that the current model improves the representation of flood behaviour around the proposed solar farm primarily through the acquisition and use of updated terrain data. It therefore provides a more accurate assessment of potential impacts compared with the previous (March 2018) flood assessment. <u>Comparison with Previous (SMEC) Model</u> The hydraulic modelling software used for the peak flood level estimation was HEC-RAS Version 5.0.4 in 2D mode. The previous modelling carried out by SMEC relies on 1D modelling. The difference is that the 1D approach comprises a network of interconnected channels and flow paths and water is constrained to follow these channels and flow paths, and the 2D approach comprises a grid of cells in which water can flow in any direction into adjoining cells. A well-constructed 1D model can accurately represent overland flows in flood plains, but the accuracy depends on pre-emptive decisions made by the modeller about where the channels and flow paths are located, how they are interconnected, and what over-bank storage should be allocated to each channel or flow path. A

Aspect	Number of submissions	Detail of issue	GSF Response
			well-constructed 2D model removes the need for these pre-emptive decisions because it explicitly includes issues of flow direction, interconnectivity and storage in its grid. Both the 1D and 2D models rely on the quality of terrain data. Recent advances in survey techniques (especially LiDAR or ALS) have made it possible to move from surveying discrete cross sections (used in 1D modelling) to compiling entire ground surfaces in the form of digital elevation models, or DEMs (used in 2D modelling). It is considered that the 2D approach used in the current study provides a better representation of flows over the flood plain, and hence a better way to estimate the potential impacts of the proposal solar farm. Finally, the differences in the approaches 1D and 2D models makes it difficult to directly compare velocities. In a 1D model, velocities are averaged over entire cross sections, but in a 2D model, velocities vary from grid cell to grid cell in magnitude and direction. In the case of a uniform channel, the 1D average velocity and 2D distribution of velocities may be comparable. However, in the case of overland flow over a flood plain, the 1D average velocity could be quite different from the 2D distribution of velocities. It is considered that the 2D approach is more realistic for flood flows in a flood plain, and a comparison with 1D average velocities can only be tentative, at best. *The updated Flood Impact Assessment has been prepared in response to submissions.*
	11	Concern at failure to use information from Carroll to Boggabri Flood Management Plan (2006). Inconsistencies between the pitt&sherry flood modelling and data in the FMP (e.g. flood depths, velocities). Incorrectly identify the volume and	The Updated Flood Impact Assessment (Appendix C) has been undertaken with reference to the Carroll to Boggabri Flood Management Plan 2006 and study; and the Gunnedah and Carroll Floodplain Management Plan 1999 (SMEC Study, updated 2014). Inconsistencies between the SMEC flood model results and this study are to be expected due to the different models that were used. Please see comparison with Previous (SMEC) model above. The Namoi River flood breakout over Orange Grove Road to the south of the Site is clearly depicted in the flood model results in Appendix C. This breakout is very noticeable in the flood imagery for the 10% and 5% AEP flood events.

Aspect	Number of submissions	Detail of issue	GSF Response
		velocity at the breakout over Orange Grove Road	*The updated Flood Impact Assessment has been prepared in response to submissions.*
	10	Cyclone wire fence blockage assessment and predicted impact on flooding is inaccurate. Flood would flatten the fence. Blockage would be 100% causing full redirection of flows. Need to redesign or remove the fence	The Updated Flood Impact Assessment (Appendix C) has incorporated what we consider realistic conservative assumptions regarding the blockage of the security fence, that is full (100%) blockage below 0.5m height and 50% above that, in all model scenarios run to date. Nevertheless, to address the community concerns over the fencing and for operational reasons, GSF commits to construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events, to minimise potential redirection of flood flows due to fence blockage. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval. It is noted that "drop-down" fencing is employed commonly by surrounding landowners and is just one potential design that GSF is investigating. GSF commits to a new mitigation measure, SW6, construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events to minimise potential redirection of flood flows due to fence blockage. Design of the fencing shall seek to prevent offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval. *The updated Flood Impact Assessment has been prepared in response to submissions. A new mitigation measure has been proposed.*
	7	Inconsistencies between pitt&sherry flood model and actual observations of dry land vs inundated areas	The Updated Flood Impact Assessment (Appendix C) has been undertaken with more accurate terrain data. The observed differences between the previous model and actual observations of dry land vs inundated areas is a result of the limitations of the previous terrain data, which are addressed above.

Aspect	Number of submissions	Detail of issue	GSF Response
			By utilizing much more accurate terrain data the flood model now provides a better representation of the distribution of floodwaters across the floodplain which align with actual observations. *The updated Flood Impact Assessment has been prepared in response to submissions.*
	5	Support development without a security fence, or with reconfigured fence or drop-down fence and designed floodways	GSF commits to a new mitigation measure, SW6, construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events to minimise potential redirection of flood flows due to fence blockage. Design of the fencing shall seek to prevent offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval. *The updated Flood Impact Assessment has been prepared in response to submissions. A new mitigation measure has been proposed.*
	2	Questioned whether we checked landholder records of flood observations to validate our model	The Updated Flood Impact Assessment (Appendix C) records publicly available flood observations which were used to validate model performance. A list of recorded flood levels was included in the 2003 SMEC report. A 1955 flood level mark within the model boundary was available as verification on model performance. The flood level is located on a post found behind Battery Hill house, which was 272.61 m RL. The 1955 flood event was simulated to provide confidence that the model can simulate large historical flood events. The historical flows were applied to the upstream boundary conditions. Several scenarios were run for the 1955 flood event with varying roughness and a downstream boundary gradient. The scenario which achieved best fit against historical flood data was selected. The model achieves a reasonable fit between the available flood levels for the 1955 event. It is considered that model conditions developed for the 1955 flood provide a close representation of actual conditions and are valid for the purpose of the assessment. *The updated Flood Impact Assessment has been prepared in response to submissions.*
	1	Why would Photon build in a floodplain and risk	Site selection was addressed in Section 2.4 of the EIS.

Aspect	Number of submissions	Detail of issue	GSF Response
		damage to such expensive infrastructure and to their neighbours? Who covers damage bill and pays for repairs? Is there Insurance for the neighbours?	As identified with the updated Flood Impact Assessment (Appendix C) the solar panels are elevated on posts and above the flood heights in the 1% AEP and PMF flood events. The substation would be raised on a fill pad to ensure a sufficient level of flood immunity, as would the many inverters located throughout the solar farm. There is potential for some damage, especially during very large events, for example due to impact by floating logs. However, the risk is relatively minor in terms of likelihood and consequence of significant damage. GSF recognizes that the element of the solar farm that is at greatest risk of damage during a flood is the security fence. The security fence also has the greatest potential to redirect floodwaters if blocked by debris, which is of greater concern to the community. As explained earlier, GSF is reviewing the design of the fence and commits to installing security fencing which is designed to mitigate potential redirection of flood flows due to fence blockage. This reflects an amendment to the fence configuration presented in Appendix J of the EIS (Configuration 3) that was presented in the EIS (perimeter fence with laneways) and would be designed post approval as part of detailed design. The flood modelling undertaken to date indicates that the proposed solar farm would not appreciably increase the risk of flood impacts to surrounding properties which are already flood susceptible. A sympathetic fence design that allows the free flow of floodwaters through the solar farm site will further mitigate the risk of any offsite impacts. GSF commits to a new mitigation measure, SW6, construction of perimeter security fencing which is designed to allow flood water into and through the development site during significant flood events to minimise potential redirection of flood flows due to fence blockage. Design of the fencing shall seek to prevent offsite impacts in relation to flood levels and flood velocity, consistent with the complying works criteria in the Carroll to Boggabri Floodplain Management Plan 2006. The detailed design of the perimeter security fencing would be undertaken post consent and as part of construction certificate approval. *The updated Flood Impact Assessment has been prepared in response to submissions. A new mitigation measure has been proposed.*

Aspect	Number of submissions	Detail of issue	GSF Response
	1	Consider lowering/removing channel banks to reduce flood impacts	At this stage GSF does not propose any lowering of channel banks. However, this can be considered as part of the detailed design phase. Many of the channel banks and levees around the site have been formed from the spoil from the excavation of irrigation channels, and they may serve no specific operational purpose to the ongoing irrigation operations. If this were the case, these banks could be excavated, and the spoil used for the substation fill pad, subject to agreement with the landowner. *No further mitigation measures are proposed.*
Traffic During Construction:	10		
Adequate capacity of haulage route	4	- Width of Orange Grove Road too narrow - Width of Old Blue Vale Road too narrow - Width of Kelvin Rd too narrow - No intent to perform road upgrades, resulting in no benefit for the community	The updated TIA (Appendix D) identifies that Kelvin Road is 7m wide, Orange Grove Road is 6m wide and Old Blue Vale Road is 5m wide all allowing for two-way traffic movements as required. However, it was noted that the sealed width of Old Blue Vale Road only allows for a single vehicle and as such opposing vehicles must put two wheels on the dirt to the side of the seal when passing. It also identified that daily flows on Orange Grove Road are less than 200 vehicles (measured as 166 in 2015) and similarly Kelvin Road carries low traffic flows with 559 vehicles measured in 2015. Old Blue Vale Road carries very low traffic flows as it provides access to a low number of dwellings along its length and does not provide any through traffic movements. It is considered that the daily traffic flows along this road would be less than 100 vehicles per day. As the increased demands, will be limited to the construction period it is considered that this road can continue to operate as a single sealed lane with the implementation of mitigation measures. Mitigation measure T1 commits to road improvements prior to construction of the proposal. This mitigation measure has been revised to provide further clarification on the proposed road improvements as follows: GSF commits to the following road improvements to be completed prior to the construction of the proposal in consultation with the Road Authority: • Increasing the extent of two-lane seal width (7m) for a distance of 100m at the western and eastern ends of Old Blue Vale Road • Removal of loose gravel material at the Old Blue Bale Road and Kelvin Road intersection.

Aspect	Number of submissions	Detail of issue	GSF Response
			GSF also commits to a new mitigation measure (T15) to establish a maintenance agreement with Gunnedah Shire Council for Old Blue Vale Road for the duration of construction. The option for a Maintenance Bond/ Defects Liability Period would also be discussed at this time. *A new mitigation measure has been proposed.*
Safety of community due to increased traffic	2	- Consistent traffic of large vehicles causing disruption to local commuters - Existence of wet weather procedure - Safety of school children during school bus service	As outlined in the updated Traffic Impact Assessment the existing traffic flows on Kelvin Road, Orange Grove Road and Old Blue Vale Road are low and the increase in traffic associated with the Proposal is only associated with the construction phase of the Proposal and would peak at 75 light vehicles and on average 16 heavy vehicles entering and exiting the site per day. As identified in Section 6.6.3 of the EIS during operation, vehicle movements generated by the proposal are very low with a maximum on-site workforce of 10 people and no need for regular heavy vehicle access. GSF commits to revision of mitigation measure T2 to include a wet weather access procedure within the Traffic Management Plan. GSF commits to a new mitigation measure (T12) to restrict heavy vehicle deliveries and access to the Site during school bus route times. During the school holidays these restrictions for delivery and access will not apply. *A new mitigation measure has been proposed.*
Maintenance of haulage route	2	- Proponent lack of commitment to maintain quality of the road - Council lack of resourcing to maintain roads	Mitigation measure T1 commits to road improvements prior to construction of the proposal. This mitigation measure has been revised to provide further clarification on the proposed road improvements as follows: GSF commits to the following road improvements to be completed prior to the construction of the proposal in consultation with the Road Authority: • Increasing the extent of two-lane seal width (7m) for a distance of 100m at the western and eastern ends of Old Blue Vale Road

Aspect	Number of submissions	Detail of issue	GSF Response
			• Removal of loose gravel material at the Old Blue Bale Road and Kelvin Road intersection. GSF also commits to a new mitigation measure (T15) to establish a maintenance agreement with Gunnedah Shire Council for Old Blue Vale Road for the duration of construction. The option for a Maintenance Bond/ Defects Liability Period would also be discussed at this time. *A new mitigation measure has been proposed.*
Scheduling of truck/vehicle movements	2	- Proponent lack of commitment to ensure vehicle movements are outside of school bus runs	GSF commits to a new mitigation measure (T12) to restrict heavy vehicle deliveries and access to the Site during school bus route times. During the school holidays these restrictions for delivery and access will not apply. *A new mitigation measure has been proposed.*
Management of air and noise quality	3	- Increased noise and dust on haulage route due to traffic	As identified in Section 6.12.5, traffic generated by the Proposal has the potential to impact on sensitive receivers through the generation of noise and dust however these potential environmental impacts can be managed through implementation of the mitigation measures outlined in the EIS including mitigation measure G1, a project specific Construction Environmental Management Plan (CEMP). *No further mitigation measures are proposed.*
Adequate space for parking of truck/vehicles	1	- Where is adequate space located for parking of 50 B-Doubles a day	As identified in the updated Traffic Impact Assessment (Appendix D) parking will be provided for up to 100 light vehicles in accordance with anticipated movements associated with workers commuting to the site during construction. All staff vehicles will be able to park within the site adjacent to the site office with no external parking demands. There will be no formal parking area constructed for the project, however given the overall footprint of the project site it can be seen that the parking demands will be contained within the site. The car park area is a temporary feature of the project and to reduce the overall impact of the project, the existing surface will be maintained for the parking and will be managed / maintained throughout the project. Once the construction phase is complete, this car park will not be required and this area will be cleaned up and returned to its existing condition.

Aspect	Number of submissions	Detail of issue	GSF Response
			Parking is not required for heavy vehicles as they are associated with the delivery of plant, equipment and materials. *No further mitigation measures are proposed.*
Use of Prime Agricultural Land: 17			
Reduction of prime agricultural land, when arable land in Australia is already limited	17	- Reduction of highly productive farming land which should be protected - Solar farms are not dependant on soil quality, so do not need to be placed on 'valuable food producing land' - The area is currently in drought and needs all usable land available	Land use impacts were assessed in Section 6.3 of the Gunnedah EIS. The land for the Proposal has been mapped as Biophysical Strategic Agricultural Land (BSAL) by the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (New England North West Region – Map 008). BSAL is classified as naturally fertile and highly productive and can be used for intensive agriculture such as cultivation. The solar farm is located on land mapped in capability Class 2 under the Land and Soil Capability (LSC) Mapping for NSW (*OEH, 2017*). Class 2 land is '*arable land suitable for regular cultivation for crops, but not suited to continuous cultivation.'* (*NSW Agriculture, 2002*). The Proposal will cover approximately 38% of the Subject Land with a percentage of the remaining area to continue to be used for cropping agriculture. The Proposal will result in a change from cropping agriculture to electricity generation accompanied by grazing agriculture. It should be noted that the Site has operated as grazing land approximately 20 years prior to operating as cropping lands. As such, the Proposal can be seen as reverting the Site to a former land use, albeit at a reduced capacity. Except for limited and short-term earthworks associated with construction and operational use of internal tracks the majority of the soil surfaces would not be impacted by the development in the long term; no large areas of reshaping or excavation are proposed. The Proposal has a reversible nature as it can be easily decommissioned and rehabilitated returning the land to its former agricultural use at the end of the operational period. The proponent has demonstrated their intentions to ensure the rehabilitation of the site through the development of a draft Land Management Plan, provided in Appendix G of the EIS. The Gunnedah Solar Farm Site was considered a preferred location due to: • The suitability of commercial scale solar electricity generation on the land, in terms of solar yield

Aspect	Number of submissions	Detail of issue	GSF Response
			• Availability of suitably sized lots • Aspect of the land (north facing) • Ease of access to major transport networks such as the Kamilaroi and Oxley Highways • Limited site vegetation present • Limited potential for aboriginal or historic heritage items to be present • Flat landscape requiring minimal earthworks • Proximity to and capacity of connection infrastructure (132kV transmission line and Gunnedah substation) • Lease agreement with landowner • Water licencing constraints reducing the agricultural use of the site by the landowner. Due to the availability of water the landowner estimates they can successfully irrigate up to 180 hectares of land, which is approximately 23% of the Subject Land. This limits the agricultural use of the remaining land and as such this Proposal allows the irrigated section of land to continue to be used for cropping agriculture whilst the unirrigated land can be used for energy generation and limited grazing. The remaining 62% of the available land within the property will continue to be used for cropping agriculture. The 38% of the land occupied by the solar footprint will be maintained with sheep grazing. It is anticipated that the solar panels will provide shelter and a 'microclimate' for the ground cover beneath allowing some protection from extreme temperatures, which may improve ground cover health and longevity. It is recognised that agricultural use of the land will be reduced during the solar farm lifetime. Due to the reversible nature of this infrastructure, and commitment to rehabilitation it is anticipated that this property could be used for cropping agriculture following the decommissioning of the Proposal. The layout and design of the project has been designed to ensure that ongoing farm operations will not be adversely affected.

Aspect	Number of submissions	Detail of issue	GSF Response
			No further mitigation measures are proposed.
Loss of specifically 'intensive irrigation property'	1	- The proposal will reduce irrigation intensive cropping land	Due to the availability of water the landowner estimates they can successfully irrigate up to 180 hectares of land, which is approximately 23% of the Subject Land. This limits the agricultural use of the remaining land and as such this Proposal allows the irrigated section of land to continue to be used for cropping agriculture whilst the unirrigated land can be used for energy generation and limited grazing. *No further mitigation measures are proposed.*
Secondary economic impacts of reducing agricultural practices	1	- Not only does the land holder profit, but numerous associated support services like freight providers, agronomists, farm input businesses (i.e. fertilizer, chemical) which provide sustainable employment to the broader community	Short term economic benefits of the proposal (12 months) include the opportunity for up to 150 construction jobs (at peak) as well as indirect supply chain jobs. Regional economic benefits will include: • 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. Long term economic benefits of the Proposal include the opportunity of up to 10 operational jobs for the solar farm development. Job opportunities and associated benefits of the continued cropping and grazing of a proportion of the land will continue throughout the lifetime of the Proposal as well. The percentage of land proposed for use is not able to be irrigated and represents a very small percentage of the total productive land in the region. It is considered that the long term benefits and increase in renewable energy sources outweigh this minor loss of productive land. *No further mitigation measures are proposed.*
Visual Impact: 8			
Glint/glare of solar panels	4	- 'Now we are faced with overlooking a veritable sea of	The visual impact from public and private viewpoints was assessed in the Visual Impact Assessment (Appendix C of the EIS) and summarised in Section 6.4 of the EIS.

Aspect	Number of submissions	Detail of issue	GSF Response
		reflecting, glaring solar panels as far as the eye can see.' - Creates a traffic distraction	The level of impact to landscape character and viewpoints is based on the combination of two criteria – sensitivity and magnitude. When assessing private viewpoints, such as residences, the closer the proximity and clearer the potential view, generally the greater sensitivity to change, and therefore the higher potential for visual impact The solar farm is not located on elevated land that is prominent within the landscape. The solar farm is setback at least 800 meters from nearest receivers and solar panels will have a maximum height of 3 metres. As such it will not be visually prominent feature within the landscape in terms of height. The project will be a visible feature however this will appear as a feature of low height and comprised of large geometric shapes and repetitive rows, elementally similar in form to large mature crops viewed at similar distances but different in colour. The solar Photovoltaic (PV) modules proposed to be installed at the Site do not use mirrors to reflect the sun to one point to concentrate and harness the sunlight. PV panels are designed to reflect as little light as possible (generally around 2% of the light received) to maximise their efficiency, absorb sunlight and convert it to electricity (NSW Department of Industry Solar Farm Fact Sheet 2016). Furthermore, previous studies have identified that the overall expected impact upon road users from solar farms with respect to safety is classified as Low (at worst) where the solar panels are visible. *No further mitigation measures are proposed.*
Night lighting impact	1	- Address impact to night lighting	The impact of night lighting was raised as a concern during community consultation and addressed in Section 5.7 of the EIS. Lighting will be limited to compulsory lighting required for the substation. Substation lighting will be turned on if an intrusion is detected or if staff are on site undertaking works outside of daylight hours which is anticipated to only happen in case of an emergency. As such, there will be no night lighting permanently switched on at the Site. *No further mitigation measures are proposed.*
Visual Impact from Orange Grove Road	1	- Tree screening requested along Orange Grove	The visual impact from Orange Grove Road was assessed in the Visual Impact Assessment (Appendix C) and summarised in Section 6.4 of the EIS.

Aspect	Number of submissions	Detail of issue	GSF Response
		Road to mitigate view	The level of impact to landscape character and viewpoints is based on the combination of two criteria – sensitivity and magnitude. The sensitivity of Orange Grove Road is considered low as the nearest solar PV panel is approximately 1km to the north. The predicted magnitude of visual change would be low – moderate, due to: the flat terrain between the road and the substation; the separation distance; that the panels would be seen from the rear and/or side view; and the mostly low height of the substation. Therefore, the visual impact to viewpoints from Orange Grove Road has been assessed as low-moderate. No visual mitigation is considered necessary due to the assessed low-moderate impact. *No further mitigation measures are proposed*.
Elevation of Tudgey road residents north of the proposal	4	- Impact to lifestyle acreages relying on aspect as source of property value - Perceived impact from this view is 'extremely high' as it will be visible from all points of the property - Implementation of vegetation screening will not improve visual impact	The visual impact from public and private viewpoints on Tudgey Road was assessed in the Visual Impact Assessment (Appendix C), and summarised in Section 6.4 of the EIS. The level of impact to landscape character and viewpoints is based on the combination of two criteria – sensitivity and magnitude. When assessing private viewpoints, such as residences, the closer the proximity and clearer the potential view, generally the greater sensitivity to change, and therefore the higher potential for visual impact The solar farm is not located on elevated land that is prominent within the landscape. The solar farm is setback at least 800 meters from nearest receivers and solar panels will have a maximum height of 3 metres. As such it will not be visually prominent feature within the landscape in terms of height. The project will be a visible feature however this will appear as a feature of low height and comprised of large geometric shapes and repetitive rows, elementally similar in form to large mature crops viewed at similar distances but different in colour. The visual impact will be further reduced and mitigated by the introduction of proposed landscape screening. On this basis, it not considered the solar farm will be visually obtrusive to the landscape or unreasonable impact on the visual amenity of nearby residents.

Aspect	Number of submissions	Detail of issue	GSF Response
			Within the Visual Impact Assessment report (Appendix C of the EIS), impact to public views from Tudgey Road were classified as low – moderate. A key reason for this classification was due to the limited number of regular users of the road, as it is mainly used by residents. Impact from private viewpoints along Tudgey Road were assessed on a case by case basis (Table 6-9 in the EIS). Out of the eight receivers identified on Tudgey Road, the visual impact without mitigation was considered moderate - high for two receivers, moderate for four receivers, low – moderate for one receiver and low for the last receiver. Revised assessment of visual impact including mitigation measures to plant vegetative screening resulted in the lowering of classification of the two moderate-high impacts. These two receivers would have moderate visual impact once screening was established. It is noted that screening would aid in breaking up the view of the panels, although it would not completely mitigate visual impact due to the elevation of the two receivers. It is acknowledged that plantings will take some time to mature and provide maximum screening. GSF has committed to mitigation measure (V3), to implement Concept Landscape Plan, which includes visual screening prior to commencing construction works, where possible. *Mitigation measure has been revised*
Land Value: 7			
Property value will be negatively impacted due to construction of solar farm	7	- Local real estate agent has suggested a 10-15% reduction in property value - 'It has been suggested to us by local real estate agents that this	The impact of the Proposal on surrounding land and property value was assessed in Section 6.3.4 of the EIS. The impacts of a solar farm on neighbouring property values has not been studied in-depth however there have been numerous studies on the impacts of wind generation on neighbouring property values in the United States (*Hoen et al., 2010; Hoen et al. 2015; Vyn and McCullough 2014*). These studies found the impact of wind energy generation on neighbouring property values to be negligible. As solar farms are perceived to have less visual impact than wind farms, the impacts to property values caused by solar farms are anticipated to be less than the impacts of wind farms.

Aspect	Number of submissions	Detail of issue	GSF Response
		may reduce the value of our land by up to 20%' - 'Prospective buyers will be concerned about environmental, aesthetic, and adverse economic impacts of a solar farm' - Decrease the value of neighbouring landholders due to shimmer & glare	A number of large scale farms have now been operating in Australia for several years and there have been no formal or informal reported impacts on local land values. *No further mitigation measures are proposed*
Noise during construction: 5			
Use of pile drivers during construction	4	- Noise of ten pile drivers operating 60 hours per week for up to 12 months	The Noise Impact Assessment (NIA) (Appendix G within the EIS) identified that the key noise generating activities that will occur are listed below: • Earthworks involving trenching for cabling • Piling of panel supports • Assembly of the panels. It is envisaged that all three-key noise generating activities could occur simultaneously at up to 10 locations across the Site, along with substation construction, vehicle movements on the site and deliveries of materials to site. This represents a worst case construction scenario with respect to noise impacts. The NIA, used this worst-case construction scenario to model potential noise impacts upon sensitive receivers and identified that while construction activities would result in a temporary increase in

Aspect	Number of submissions	Detail of issue	GSF Response
			localised noise levels however all works have been modelled to comply with the applicable noise management level criteria. In accordance with mitigation measure N1, GSF commits to preparing a construction noise management protocol. GSF commits to comply with the Australian Standard AS 2436-2010(2016) – Guide to Noise and Vibration Control on Construction, Demolition and Maintenance sites. As identified in 6.5.5 of the EIS, GSF commits to a number of mitigation measures to reduce potential noise associated with construction of the Proposal including N1 preparing a construction noise management protocol and N2 to implement a formal complaint handling procedure with appropriate noise amelioration measures to be put in place where noise is in excess of allowable limits. *No further mitigation measures are proposed*
Inadequate testing performed by noise specialist	5	- Lack of ground truthing or testing from at neighbouring residences - Neighbouring residents unaware of any noise testing that was conducted	Noise testing was completed to quantify background noise levels to determine relevant criteria. The unattended noise monitoring survey was conducted in general accordance with the procedures described in Australian Standard AS 1055- 1997, "Acoustics – Description and Measurement of Environmental Noise". The monitoring sites selected were considered representative of noise catchments surrounding the project which were anticipated to have low background noise levels and were unlikely to vary significantly throughout the locality. Noise logging results confirm this, as background noise levels between sites are generally consistent for all periods. Notwithstanding, measured noise levels were below the minimum default as prescribed in relevant NSW Noise Policy for Industry (EPA 2017). Hence, background levels have been set to default levels as per the policy which are the lowest permissible (i.e. the most conservative) under policy. *No further mitigation measures are proposed*
Lack of vegetative screening and	1	- 'There is little vegetation between the construction zone	The 3D noise modelling completed for the project incorporated both ground type (i.e. rural pastures) and topography (i.e. elevations) for the project site and surrounds. As described in the summary provided in Section 6.5 of the EIS, despite the flat topography results show that the modelled noise

Aspect	Number of submissions	Detail of issue	GSF Response
buffers for noise		and the sensitive receptors, and the ground is flat so there is not much to reduce noise'	generated during construction works comply with the Noise Management Level standards at all residential receptors for the day period. *No further mitigation measures are proposed*
Employment: 3			
Minimal prospect of ongoing jobs for local community	3	- No, to limited (2 people) long term employment benefits flowing back to the community - Development will be taking away farming jobs for the local community, including profits from farming spent in the town	The EIS addresses benefits of the Proposal in Section 2.3 of the Proposal. The proposal would generate regional and local benefits including: • Generating employment: – 150 construction jobs (at peak) as well as indirect supply chain jobs – Support up to ten 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. *No further mitigation measures are proposed*
Operation: 1			
Management of impacts during the operation of the farm	1	- 'Following construction, that any unacceptable glint, glare, noise, lighting or other unforeseen impacts which arise during the operation of the	As identified in mitigation measures GO1 and GO2 an Operational Environmental Management Plan will be prepared and a complaint handing procedure and register implemented. Any complaints relating to glint, glare, noise or lighting would be managed via these mitigation measures. *No further mitigation measures are proposed*

Aspect	Number of submissions	Detail of issue	GSF Response
		solar farm are mitigated to the satisfaction of those impacted'	
Decommissioning: 1			
Obligations to rehabilitate the site	1	- 'There is the possibility for the farm to simply be decommissioned and the area does not have any party committed to rehabilitation of the area.' - 'It is likely a different generation of parties involved will be managing the aftermath that did not originally survey and appreciate the area'	GSF commits to the requirements of mitigation measure L2 of the Gunnedah EIS. Mitigation measure L2 states that GSF will 'create and implement a remediation plan during end of operation and decommissioning' of the Site. *No further mitigation measures are proposed*
Soil Quality			
Increase in sediment and nutrient profile due to construction of solar farm	1	- 'There will be an increase in the amount of sediment and nutrients transferred to the	GSF commits to all of the mitigation measures outlined in the EIS as S1-S11 to reduce the potential impacts to soils as a result of the proposal including preparation and implementation of a Soil and Water Management Plan in accordance with *Managing Urban Stormwater: Soils and Construction (Landcom, 2004)*. This will include an erosion and sediment control plan for implementation during construction.

Aspect	Number of submissions	Detail of issue	GSF Response
		land which could impact the quality of the soil, especially to areas that would be introduced to flooding'	*No further mitigation measures are proposed*
Bushfire			
Potential to start bushfires	1	- Electrical infrastructure to be a source of ignition for bushfires	As identified in Section 6.9.2 of the EIS, the bushfire risks can be managed including potential ignition from electrical equipment. The solar panels present no risk of ignition however ignitions from other PV equipment is theoretically possible from electrical faults such as arc faults, short circuits, ground faults and reverse currents. These risks can be adequately managed through proper installation and testing of equipment. GSF commits to mitigation measure, BF1, all electrical components would be designed and managed to minimise the potential for ignition and BF9 installation of electrical equipment to be in accordance with *AS 3000:2007 Electrical installations* and undertaken by qualified professionals. *No further mitigation measures are proposed*
Proximity to town			
Proposal is in close proximity to town	1	- 'The close proximity to town is also a concern. Surely there are places further out of site, that would be more suitable for a solar farm.'	As identified in Section 1.1.2, the Proposal is located approximately 9km north east of the Gunnedah township. At this distance, it is not considered to be in close proximity to Gunnedah township. Any impacts upon the township of Gunnedah, such as a limited increase in traffic, are manageable in accordance with the mitigation measures outlined in the EIS. *No further mitigation measures are proposed*

5. Conclusion

This submissions report has been prepared by pitt&sherry on behalf of GSF (the proponent) to meet the requirements of DP&E and Section 75H of the *Environmental Planning and Assessment Act 1979.*

As outlined within Section 3 the amendments to the Proposal as presented in the EIS are proposed as follows:

1. A revised subdivision plan is presented in Appendix F which identifies an additional subdivision of 4800m^2 on part of Lot 264 DP754954 containing the TransGrid substation (Section 3.1)
2. A new fence configuration (referred to as Fence Configuration 4) has been developed and modelled (See Appendix C) and represents an alternative fencing design aimed at minimising blockage and redirection of floodwater and the potential impacts of the Proposal on the surrounding landscape and residents during a flood event (Section 3.2).

A total of 63 submissions were received from government stakeholders, organisations and the community, as described in Table 4-1. Out of a total of 63 submissions received 49 were objections, 13 requested further information and 1 confirmed support of the project.

DP&E identified the following 4 key issues from the submissions which have been addressed throughout Section 4:

1. Accuracy of the Flood Impact Assessment - Submissions from government stakeholders, agencies and the community identified concerns associated with the data input into the flooding model used in the Flood Impact Assessment (Appendix J in the EIS). The flood modelling has been updated to include additional and improved data, assumptions and modelling in response to submissions received.
2. Adequacy of Aboriginal Cultural Heritage Consultation - Consultation with OEH confirmed GSF undertook consultation in accordance with OEH requirements however OEH would consider consultation with the Gomeroi People and other interested stakeholders who contacted OEH to represent adequate consultation for the Project. As outlined in Appendix B, GSF has committed to inviting local aboriginal stakeholders identified by OEH to undertake a site visit with KNC prior to commencing construction (mitigation measure H4).
3. Review of the Biodiversity Assessment - Clarifications have been provided to remove inconsistencies and confirm that a Koala Habitat assessment is not required under SEPP 44 due to the lack of primary feed trees and Koala habitat. Further information is contained in Section 4.
4. Use of Biophysical Strategic Agricultural Land - The LUCRA has been updated to include consideration of the *Right to Farm Policy* (Appendix G) and mitigation associated with the potential land use conflict are contained in the Draft Land Management Plan (Appendix G of the EIS).

These key issues alongside the other issues raised within government agency, organisation and community submissions have all been considered in Section 4. This has included further assessment and in some cases revision or additional mitigation measures (as summarised in Appendix B).

The Proposal, as presented in the EIS, would provide local, regional and national benefits including:

- Develop the solar power industry and supply chain in Australia
- Develop Australian intellectual property and expertise in solar power
- Assist with Australia's commitments under national and international agreements
- Diversify sources of income for the agricultural sector, allowing financial resilience for farmers
- Provide energy security
- Local and regional economic benefits.

In consideration of the assessment presented in the EIS and this Response to Submissions (RTS) and the revised mitigation measures presented in Appendix B, GSF consider all the issues raised from submissions have been addressed and the project should proceed for approval by the Minister.

Appendix A

Consultation Material

Appendix B

Revised Mitigation Measures

Appendix C

Updated Flood Impact Assessment

Appendix D

Updated Traffic Impact Assessment

Appendix E

Orange Grove Road Site Access Alignment Plan

Appendix F

Revised Subdivision Plan

Appendix G

Updated LUCRA

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