



Our ref: DOC23/689531
Your ref: SSD-60575715

Jai Reid
Principal Planning Officer
Department of Planning and Environment
jai.reid@planning.nsw.gov.au

Dear Jai

Narragamba Solar Farm (SSD-60575715) SEARs

I refer to your request dated 26 July 2023 seeking input into the Department of Planning and Environment Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the Narragamba Solar Farm (SSD-60575715).

The Biodiversity, Conservation and Science Directorate (BCS) has considered your request and provides SEARs for the proposed development in **Attachments A and B**.

BCS recommends the EIS needs to appropriately address the following:

1. Biodiversity and offsetting
2. Water and soils
3. Flooding

The scoping report for the project states that a significant extent of the threatened ecological community *White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Woodland/Grassland) is present on site, this is a Serious and Irreversible Impact (SAIL) entity.

The biodiversity development assessment report (BDAR) for the project must include an assessment for SAIL in accordance with Section 9.1 of the *Biodiversity Assessment Method 2020*. The BDAR must also apply the avoid, minimise and offset hierarchy including assessing all direct, indirect, uncertain and prescribed impacts in accordance with the BAM. We strongly recommend the avoidance and minimisation of impact resulting from the proposal prioritises SAIL entities.

If you have any questions about this advice, please do not hesitate to contact David Geering via david.geering@environment.nsw.gov.au or (02) 6883 5335

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Sarah Carr'.

Sarah Carr
Director North West
Biodiversity, Conservation and Science Directorate

4 August 2023

Attachment A - Environmental Assessment Requirements

Attachment B - Guidance Material

Standard Environmental Assessment Requirements

BCS	Biodiversity, Conservation and Science Directorate of the NSW Department of Planning and Environment
The Department	NSW Department of Planning and Environment
NPWS	National Parks and Wildlife Service

Ancillary development components

The assessment should include all components of the proposal, including any ancillary activities such as road/track widening to enable transport of infrastructure components, connecting pipelines and transmission lines etc.

Native Vegetation Regulatory Map – land categorisation

For SSD proposals that affect rural land as defined under Part 5A of the *Local Land Services Act 2013*, a draft Native Vegetation Regulatory Map (NVR map) is available. If the subject land is proposed to be delineated based on the NVR map categories, the map as it relates to the development site must be requested from BCS during preparation of the Biodiversity Development Assessment Report (BDAR) and prior to the BDAR being submitted to the consent authority. Requests should be made via the Data Broker – data.broker@environment.nsw.gov.au.

Where Category 2 – Regulated land is likely to be present on a development site, this will be identified on the draft map supplied by BCS and is land where the BAM must be applied.

Where Category 1 – Exempt Land is likely to be present on a development site, early engagement with BCS is encouraged. Site-based floristic assessment is required to verify the presence or absence of critically endangered ecological communities (CEECs), critically endangered plants and threatened grasslands, in order to confirm at the site scale whether the criteria for Category 1 – Exempt Land is met. Note that prescribed impacts must still be assessed on land identified as Category 1 – Exempt Land. In addition, the *Environment Protection and Biodiversity Conservation Act 1999* might also still apply.

Prior to the BDAR being submitted to the consent authority, the accredited assessor should submit a proposed land categorisation method to the BCS North West Planning team at rog.nw@environment.nsw.gov.au for review. The BCS Planning team may be able to provide in-principal support of land categorisation assessments prior to EIS exhibition.

For more information, see [Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme](#)

Controlled Actions under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

If the proposed development is likely to be a 'Controlled Action' under the EPBC Act, the accredited assessor should contact the BCS North West Planning team at rog.nw@environment.nsw.gov.au prior to submission of the EIS. The BCS North West Planning team can provide guidance on the minimum information requirements for the EIS for any entities that have been or are likely to be deemed a 'Controlled Action'.

Biodiversity

1. Biodiversity impacts related to the proposed project are to be assessed in accordance with [Section 7.9 of the Biodiversity Conservation Act 2016](#) the [Biodiversity Assessment](#)

Method 2020 and documented in a *Biodiversity Development Assessment Report (BDAR)*. The BDAR must include information in the form detailed in the *Biodiversity Conservation Act 2016* (s6.12), *Biodiversity Conservation Regulation 2017* (s6.8) and *Biodiversity Assessment Method 2020*, unless the Department determines that the proposed development is not likely to have any significant impacts on biodiversity values.

2. The BDAR must document the application of the avoid, minimise, and offset framework; including assessing all direct, indirect, uncertain and prescribed impacts in accordance with the *Biodiversity Assessment Method 2020*.
3. The BDAR must include details of the measures proposed to address the offset obligation as follows:
 - a. The total number and classes of biodiversity credits required to be retired for the development/project;
 - b. The number and classes of like-for-like biodiversity credits proposed to be retired;
 - c. The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules;
 - d. Any proposal to fund a *biodiversity conservation action*;
 - e. Any proposal to conduct ecological rehabilitation (if a mining project);
 - f. Any proposal to make a payment to the Biodiversity Conservation Fund.

If seeking approval to use the variation rules, the BDAR must contain details of the *reasonable steps* that have been taken to obtain requisite like-for-like biodiversity credits.

4. The BDAR must be submitted with all spatial data associated with the survey and assessment as per Appendix K of the BAM.
5. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the *Biodiversity Conservation Act 2016*.

NOTE – A BDAR template and guidance document has been created to assist accredited assessors to prepare a BDAR. It has been developed in accordance with best practice, the minimum information requirements, and to support BDAR reviewers. The BDAR Template can be found [here](#) and the Guidance for the BDAR Template can be found [here](#).

Residual Prescribed Impacts within the BAM 2020

Prescribed impacts can be difficult to quantify as they may result in discrete impacts, spatially undefined impacts, ecological regime shifts and/or impact cascades over time. Consequently, avoiding or minimising such impacts is critical and will likely be a key consideration for the consent authority in determining conditions of approval for relevant proposals.

If avoidance and mitigation measures are not applicable or will not result in the complete reduction of prescribed impacts occurring, the assessor and proponent will need to consider options to compensate for unavoidable residual prescribed impacts.

The BAM-C does not calculate biodiversity credits to offset a prescribed impact. However, the consent authority has the discretion to increase the number of biodiversity credits to be retired (or other conservation measures to be undertaken), under a planning approval.

The assessment and calculation of a predicted offset obligation for any prescribed impacts must be presented prior to project determination and any impact occurring, in accordance with Section 7.14 of the Biodiversity Conservation Act 2016. The purpose of this requirement is to ensure:

- commitments to proposed mitigation measures for residual prescribed impacts are described and can be captured in the projects consent conditions; and

- the total offset obligation can be embedded in the project approval

It is recommended that the proponent and assessor consult with BCS during the assessment process on prescribed impact assessment and calculation, when required.

Water and soils

6. The EIS must map the following features relevant to water and soils including:
 - a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map);
 - b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method);
 - c. Wetlands as described in s4.2 of the Biodiversity Assessment Method;
 - d. Groundwater;
 - e. Groundwater dependent ecosystems;
 - f. Proposed intake and discharge locations.
7. The EIS must describe background conditions for any water resource likely to be affected by the project, including:
 - a. Existing surface and groundwater;
 - b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations;
 - c. Water Quality Objectives (*as endorsed by the NSW Government*) including groundwater as appropriate that represent the community's uses and values for the receiving waters;
 - d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the *ANZECC (2000) Guidelines for Fresh and Marine Water Quality* and/or local objectives, criteria or targets endorsed by the NSW Government;
 - e. *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions*.
8. The EIS must assess the impacts of the project on water quality, including:
 - a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the project protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction;
 - b. Identification of proposed monitoring of water quality.
9. The EIS must assess the impact of the project on hydrology, including:
 - a. Water balance including quantity, quality and source;
 - b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas;
 - c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems;
 - d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches);

- e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water;
- f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options;
- g. Identification of proposed monitoring of hydrological attributes.

Flooding
<p>10. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 including:</p> <ul style="list-style-type: none"> a. Flood prone land; b. Flood planning area, the area below the flood planning level; c. Hydraulic categorisation (floodways and flood storage areas); d. Flood hazard.
<p>11. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP, flood levels and the probable maximum flood, or an equivalent extreme event.</p>
<p>12. The EIS must model the effect of the proposed project (including fill) on the flood behaviour under the following scenarios:</p> <ul style="list-style-type: none"> a. Current flood behaviour for a range of design events as identified in 14 above. This includes the 0.5% and 0.2% AEP year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.
<p>13. Modelling in the EIS must consider and document:</p> <ul style="list-style-type: none"> a. Existing council flood studies in the area and examine consistency to the flood behaviour documented in these studies; b. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood, or an equivalent extreme flood; c. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affectation of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazard categories and hydraulic categories; d. Relevant provisions of the NSW Floodplain Development Manual 2005.
<p>14. The EIS must assess the impacts on the proposed project on flood behaviour, including:</p> <ul style="list-style-type: none"> a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure; b. Consistency with Council floodplain risk management plans; c. Consistency with any Rural Floodplain Management Plans; d. Compatibility with the flood hazard of the land; e. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land;

- f. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site;
- g. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses;
- h. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the NSW SES and Council;
- i. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the NSW SES and Council;
- j. Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the NSW SES;
- k. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

Guidance Material

Title	Web address
<u>Relevant Legislation</u>	
<i>Biodiversity Conservation Act 2016</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2016-063
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	https://www.legislation.gov.au/Details/C2014C00140/Download
<i>Environmental Planning and Assessment Act 1979</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1979-203
<i>Fisheries Management Act 1994</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1994-038
<i>National Parks and Wildlife Act 1974</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1974-080
<i>Protection of the Environment Operations Act 1997</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1997-156
<i>Water Management Act 2000</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2000-092
<i>Wilderness Act 1987</i>	https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1987-196
<u>Biodiversity</u>	
Biodiversity Assessment Method (OEH, 2020)	https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-2020
Changes to the Biodiversity Assessment Method from 2017 to 2020	https://www.environment.nsw.gov.au/research-and-publications/publications-search/changes-to-the-biodiversity-assessment-method-from-2017-to-2020
Biodiversity Development Assessment Report Template	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-development-assessment-report-template-220210.docx?la=en&hash=1A4829C7ACA5A51ECE414A767C27361893706CEC
Guidance for the Biodiversity Development Assessment Report Template	https://www.environment.nsw.gov.au/research-and-publications/publications-search/guidance-for-the-biodiversity-development-assessment-report-template
BAM 2020 Operational Manual Stage 1	https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-manual-2020-operational-manual-stage-1
BAM 2020 Operational Manual Stage 2	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-operational-manual-stage-2-230164.pdf
BAM 2020 Operational Manual Stage 3	https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-operational-manual-stage-3

Title	Web address
BAM Calculator User Guide	https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-user-guide
Serious and irreversible impacts of development on biodiversity	https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/biodiversity-offsets-scheme/serious-and-irreversible-impacts
Practice Note - Guidance for assessors and decision makers in applying modified benchmarks to assessments of vegetation integrity: Biodiversity Assessment Method	https://www.environment.nsw.gov.au/research-and-publications/publications-search/guidance-assessors-decision-makers-applying-modified-benchmarks-to-assessments-vegetation-integrity
Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH, 2017)	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/guidance-decision-makers-determine-serious-irreversible-impact-190511.pdf
Accreditation Scheme for Application of the Biodiversity Assessment Method Order 2017	https://www.legislation.nsw.gov.au/view/pdf/asmade/sl-2017-471
Ancillary rules: Biodiversity conservation actions	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/ancillary-rules-biodiversity-conservation-actions-170496.pdf
Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying the variation rules	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/ancillary-rules-reasonable-steps-like-for-like-biodiversity-credits-170498.pdf
Ancillary rules: Impacts on threatened species and ecological communities excluded from application of variation rules	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/ancillary-rules-impacts-on-threatened-entities-excluded-from-variation-170497.pdf?la=en&hash=C38840BFF49F012433532DF72E3D90C741E4DAC1
The Department's Threatened Species Website	https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species
NSW BioNet (Atlas of NSW Wildlife)	https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet
Surveying Threatened Plants and their Habitats - NSW Survey Guide For The Biodiversity Assessment Method (DPIE 2020).	https://www.environment.nsw.gov.au/research-and-publications/publications-search/surveying-threatened-plants-and-their-habitats-survey-guide-for-the-biodiversity-assessment-method
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - November 2004	https://www.environment.nsw.gov.au/surveys/BiodiversitySurveyGuidelinesDraft.htm
Threatened species survey and assessment guidelines: field survey methods for fauna – amphibians	https://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-species-field-survey-methods-for-fauna-amphibians

Title	Web address
NSW Survey Guide for Threatened Frogs	https://www.environment.nsw.gov.au/research-and-publications/publications-search/nsw-survey-guide-for-threatened-frogs
Surveying 'species credit' threatened bats and their habitats – NSW survey guide for the Biodiversity Assessment Method	https://www.environment.nsw.gov.au/research-and-publications/publications-search/species-credit-threatened-bats-nsw-survey-guide-for-biodiversity-assessment-method
Bat calls of NSW - region-based guide to the echolocation calls of Microchiropteran bats	https://www.environment.nsw.gov.au/surveys/Batcalls.htm
Community Biodiversity Survey Manual	https://www.environment.nsw.gov.au/surveys/CommunityBiodiversitySurveyManual.htm
BioNet Vegetation Classification - NSW Plant Community Type (PCT) database	www.environment.nsw.gov.au/research/Vegetationinformation/system.htm
The Departments Data Portal (access to online spatial data)	http://data.environment.nsw.gov.au/
Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme	https://www.environment.nsw.gov.au/research-and-publications/publications-search/determining-native-vegetation-land-categorisation-for-application-in-the-biodiversity-offsets-scheme
Fisheries NSW policies and guidelines	https://www.dpi.nsw.gov.au/fishing/habitat/publications/pubs/fish-habitat-conservation
List of national parks	https://www.nationalparks.nsw.gov.au/conservation-and-heritage/national-parks
Revocation, recategorisation and road adjustment policy (OEH, 2012)	https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/park-policies/revocation-recategorisation-and-road-adjustment
Guidelines for consent and planning authorities for Developments adjacent to National Parks and Wildlife Service Land (NPWS, 2020)	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Development-guidelines/developments-adjacent-npws-lands-200362.pdf
<u>Water and Soils</u>	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via Data.NSW	https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c
Acid Sulfate Soils Manual (Stone et al. 1998)	https://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.

Title	Web address
Flooding	
Floodplain development manual	https://www.environment.nsw.gov.au/topics/water/floodplains/floodplain-manual
Floodplain Risk Management Guidelines	http://www.environment.nsw.gov.au/topics/water/coasts-and-floodplains/floodplains/floodplain-guidelines
NSW Climate Impact Profile	http://climatechange.environment.nsw.gov.au/
Climate Change Impacts and Risk Management	https://www.environment.gov.au/climate-change/adaptation/publications/climate-change-impact-risk-management
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC & ARMCANZ (2000) Water Quality Guidelines	https://www.waterquality.gov.au/anz-guidelines/resources/previous-guidelines/anzecc-armcanz-2000
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf