Our ref:DOC25/424290

Your ref: SSD-84365208

Cameron Ashe
Planning Officer
Department of Planning, Housing and Infrastructure
cameron.ashe@dpie.nsw.gov.au

Dear Cameron

**Request for SEARs – Puggoon Solar Farm and Battery Energy Storage System**

I refer to your request via the NSW Planning Portal dated 27 May 2025 seeking the Conservation Programs, Heritage and Regulation Group (CPHR) of the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) input into the Department of Planning, Housing and Infrastructure (DPHI) Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the Puggoon Solar Farm and Battery Energy Storage System (BESS) (SSD-84365208).

We understand the project involves the construction, operation and decommissioning of a solar farm, a BESS (110MW) and associated infrastructure. The Project Site (553ha area) is located approximately 6 km north-west of Gulgong and is intersected by an existing electricity transmission line in the eastern portion of the site.

## Issues identified in the preliminary biodiversity report

In reviewing the project's scoping report (6 May 2025) and preliminary biodiversity report (PBR) (7 February 2025) prepared by ERM, we have identified several issues of concern that will impact the preparation of the biodiversity development assessment report (BDAR); namely:

- It is indicated that a Land Category Assessment (LCA) report will be submitted in support of the BDAR. Based on Figure 4-1 of the PBR, this appears to include review and reclassification of an area mapped as Category 2 – Regulated land on the draft Native Vegetation Regulatory Map (NVR Map) to Category 1 – Exempt land.
  There is potential for that land to contain White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland), a critically endangered ecological community (CEEC) at risk of serious and irreversible impact (SAII). Box Gum Woodland CEEC must be mapped as Category 2 – Sensitive Regulated land.
- The calculation of native vegetation extent and patch size appears to be underestimated.
- The PBR suggests legacy data and guidelines may be utilised in the preparation of the BDAR instead of current information sources and guidelines. This is not compliant with the Biodiversity Assessment Method (BAM) 2020.

All these issues impact biodiversity credit calculations in the BAM Calculator (BAM-C). They also affect the candidate species that require survey. Ensuring these initial inputs to the BAM-C are correct is essential for accurate biodiversity assessment for the project.

To address these concerns, we have included project-specific requirements in addition to our standard recommended SEARs in **Attachment A**. We encourage the proponent to engage

early with CPHR for advice on any of these matters. In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment B**. We recommend the EIS appropriately address the following:

1. Project specific requirements
2. Biodiversity and offsetting
3. Water and soils
4. Flooding

### Serious and irreversible impacts

The PBR indicates that the SAII entity Box Gum Woodland CEEC is present on site. The BDAR must include an assessment for SAII in accordance with Section 9.1 of the BAM. 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 that SAII entities are prioritised for impact avoidance and minimisation.

### Land category assessment

CPHR note that the proponent intends to submit a land category assessment (LCA) report in conjunction with the BDAR. The PBR indicates that surveys will be undertaken to support an amendment of the draft Native Vegetation Regulatory Map (NVR). We recommend the proponent engage with CPHR as early as possible to discuss LCA requirements, particularly CEEC identification, as the results of the LCA directly impacts the survey requirements for the BDAR. CPHR will require all survey results, GIS layers and other supporting data used to justify the proposed land categories when reviewing the LCA.

If you have any questions about this advice, please do not hesitate to contact CPHR via the North West Branch Planning team via rog.nw@environment.nsw.gov.au.

Yours sincerely,

**Liz Mazzer**
**A/Senior Team Leader, North West**
**Conservation Programs, Heritage & Regulation Group**

12 June 2025

Attachment A - Environmental Assessment Requirements

Attachment B - Guidance Material

# List of Abbreviations

| | |
|---|---|
| BAM | Biodiversity Assessment Method 2020 |
| BAM-C | BAM calculator |
| BC Act | *Biodiversity Conservation Act 2016* |
| BDAR | Biodiversity Development Assessment Report |
| CEEC | Critically endangered ecological communities |
| CPHR | Conservation Programs, Heritage & Regulation Group of the NSW Department of Climate Change, Energy, the Environment and Water |
| The Department | NSW Department of Planning, Housing and Infrastructure |
| DNG | Derived Native Grassland |
| LLS Act | *Local Land Services Act 2013* |
| LLS Regulation | *Local Land Services Regulation 2014* |
| NPWS | National Parks and Wildlife Service |
| NVR map | Native Vegetation Regulatory Map |
| PCT | Plant Community Type |
| TEC | Threatened Ecological Community |

# Project Specific Environmental Assessment Requirements

**Land categorisation**

We note that portions of the development site are mapped as Category 2 – Regulated land on the draft Native Vegetation Regulatory Map (NVR Map) (as shown in Figure 2.3 of the PBR). Preliminary mapping in Figure 4-1 of the PBR suggests that much of the site may be mapped by the assessor as 'non-native' (stated on page 19 as depicting proposed Category 1-Exempt land), including some areas of draft NVR Map Category 2 - Regulated land.

Page 3 of the PBR indicates that amendment of the draft NVR map will be sought following site-based assessment.

*Extent of Category 2 – Sensitive Regulated Criteria*

Section 4.2 of the Preliminary Biodiversity Report (PBR) lists multiple threatened ecological communities (TECs) with potential to occur on the subject land, including the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (Box Gum Woodland CEEC). Any areas of CEEC must be mapped as Category 2 – Sensitive Regulated land and assessed under the Biodiversity Assessment Method (BAM), regardless of the presence of any other Category 1 – Exempt land criteria. A precautionary approach to identifying the extent of the CEEC on the site is encouraged.

The NSW Scientific Committee Final Determinations provide the legal definition of a TEC. The final determination for the Box Gum Woodland CEEC: (17 July 2020)[1]

[1] https://www.environment.nsw.gov.au/sites/default/files/white-box-yellow-box-final-determination-ceec.pdf

- Includes the derived native grassland formation - absence of tree species does not automatically exclude an associated PCT from the CEEC listing.
- Discusses a spectrum of land uses and condition states in relation to the CEEC and does not require the vegetation to be predominantly native.
- Notes that floristic composition and abundance may vary significantly in the derived native grassland form of the CEEC, and those areas may be dominated by only a few of the listed characteristic species.

Comprehensive reasoning against the final determination for the CEEC, presenting relevant analysis of site-based floristic data and demonstrating consideration of the landscape context and identified PCTs, will be required to support your conclusions.

When determining the extent of CEEC DNG and therefore, the land category, assessment of ground cover should be made during the time of year when the proportion of native ground cover on the subject land is likely to be at its maximum compared to that of exotic ground cover.

To determine whether a patch of DNG belongs to the CEEC or another recorded TEC, a TEC equivalency assessment is required (following section 4.2.2 BAM 2020). TEC equivalency assessments require detailed and systematic comparison of a vegetation patch's compositional, structural and functional attributes against the diagnostic criteria held in the community's final determination. This can be discussed with CPHR upon request.

Thorough assessment of land categorisation will also impact what areas of the subject land meet the Appendix B.1 criteria (BAM 2020) to be assessed under the BAM streamlined assessment module for scattered trees.

*Application of 'low conservation value' and 'significantly disturbed or modified' criteria*

Page 22 of the PBR suggests that the preliminary *'non-native'* areas on the site have been mapped on the basis of *'low conservation value'* and *'modified'* criteria. Any assessment of the 'conservation value' of grasslands or other groundcover or 'significantly disturbed or modified' provisions of the *Local Land Services Act 2013* (LLS Act) and *Local Land Services Regulation 2014* (LLS Reg) must comply with legislative requirements.

Where no other Category 2 – Regulated land criteria apply, a precautionary approach to assessing conservation value via application of the Interim Grasslands and other Groundcover Assessment Method (IGGAM) is the lowest risk for development proponents, particularly where a proponent is seeking a Category 1 – Exempt designation for land currently mapped on the draft NVR map as Category 2- Regulated land. Application of the IGGAM is advocated as a best practice method for addressing transitional period assessment requirements for the 'low conservation value' Category 1 – Exempt land criteria and also provides certainty for proponents should the transitional period (and availability of transitional arrangements) end prior to development consent. Assessments that have properly applied the IGGAM to demonstrate a low conservation value result will not need to undertake additional assessment post the transitional period.

Where no other Category 2 – Regulated land criteria apply, s.60J(2) of the LLS Act also allows native vegetation comprising grasslands or other non-woody vegetation to be taken as having been 'cleared' if the native vegetation has been 'significantly disturbed or modified' (determined in accordance with specific criteria in cl.114 of the LLS Regulation between 1 January 1990 and 25 August 2017).

The NVR Map Team have undertaken analysis against the cl.114 criteria via remote sensing as part of developing the draft NVR map, which is detailed in the NVR Map Method Statement. Where a Category 1- Exempt designation is sought for draft mapped Category 2 – Regulated land on the basis of the 'significantly disturbed or modified' criteria, the evidence relied upon in accordance with cl.114 LLS Regulation must be supplied for review. As per the provisions of cl.114, this evidence may include aerial or satellite imagery or landholder

records within the time period specified in the clause. The NVR Map Team uses the supplied evidence to reapply cl .114 at a finer scale in map reviews.

Recommendations:

1. Investigate all areas of the subject land for the presence of CEECs or critically endangered plants regardless of the land categorisation on the draft NVR map. When determining the extent of CEEC DNG, assessment of ground cover should be made during the time of year when the proportion of native ground cover on the subject land is likely to be at its maximum compared to that of exotic ground cover. Land containing CEECs (including DNG) must be mapped as Category 2 – Regulated land.
2. Provide evidence in the land category assessment which demonstrates that CEECs and critically endangered plants have been adequately considered in areas of Category 1 – Exempt land.
    a. Perform a TEC-equivalency assessment as per section 4.2.2 of the BAM to delineate all TECs present onsite and justify the extent of any CEECs and associated Category 2 – Regulated land mapping.
3. Where Box Gum Woodland CEEC may occur, an assessment should be made against the NSW Scientific Committee final determination. The justification should include:

    a) the diagnostic criteria adopted, referencing the NSW Scientific Committee final determination

    b) explanation of the desktop and field methods used

    c) the data used to determine presence or absence of the CEEC against the diagnostic criteria.
4. If seeking to apply the 'low conservation value' grassland/groundcover Category 1 - Exempt land criteria (where no other Category 2 - Regulated criteria apply) - apply IGGAM as a best practice method. Any alternative transitional method proposed should be carefully reviewed against legislative requirements, and the proponent informed that the data may not be accepted to support a review and recategorisation of Category 2 – Regulated land on the NVR map.
5. If seeking to apply the 'significantly disturbed or modified' Category 1 – Exempt land criteria (where no other Category 2 – Regulated land criteria apply) – identify the specific areas where the criterion is applicable and supply the supporting evidence addressing cl.114 of the LLS Regulation.
6. Include a supporting data package (spatial data, plot data, etc) with any land category assessment provided to CPHR for review. For spatial data, we encourage inclusion of a reference to the land category criteria and evidence relied upon for each polygon in the GIS shapefile attribute table.
7. For a NVR map review to seek re-categorisation of draft mapped Category 2 - Regulated land, we recommend an application be submitted to the CPHR Map Review Team. The application must provide appropriate evidence to demonstrate that Category 2 – Regulated land should be remapped as Category 1 – Exempt land on the draft NVR map.

**Native vegetation extent**

The calculation of native vegetation extent within the assessment area appears to be underestimated and based only on a single, outdated mapping resource. Section 2.2 of the PBR indicates an outdated version of the NSW State Vegetation Type Map (SVTM) has been used (version C2.0M2.0 - December 2023). The current version of the SVTM is C2.0.M2.1

(November 2024). Noting that the SVTM is subject to periodic updates, the accredited assessor must ensure the most current version of the SVTM is used in preparation of the BDAR.

Furthermore, the assessment area does not appear to include all areas of native ground cover and tree canopy cover (including scattered trees). As outlined in Table 3-2 of the PBR, the current native vegetation extent is estimated to be 9.04%. Review of the current native vegetation extent mapping in Figure 2.1 of the PBR shows there are remnant trees which must be manually included in the mapping as per section 4.1.1 of the BAM. Including areas of native ground cover can be informed by additional mapping resources and by providing adequate justification for mapping areas as not native, as outlined in section 4.1.2 of the BAM.

Recalculation of the native vegetation extent may result in the proposal entering a higher percent native vegetation cover class. Accurate estimation of native vegetation extent is a key component of the BAM Calculator (BAM-C) calculations which influences survey effort. Underestimation of native vegetation cover early in the preparation of the BDAR risks the need for additional surveys in later stages of the project's assessment, leading to potential project delays.

Recommendation:

8. Reassess the native vegetation extent within the assessment area and include all areas of native vegetation, ensuring this extends to native ground cover and tree canopy cover (including scattered tress) as outlined in section 4.1 of the BAM (2020).

**Patch size**

Section 3.2.1 of the PBR defines the patch size within each vegetation zone as an area of intact vegetation less than 100 m from the next area of moderate to good condition native vegetation (or 30 m for non-woody ecosystems). This definition varies from the definition of the BAM, which does not contain any quantifier of condition score, and instead requires a continuous patch (<100 m for woody and ≤30 m for non-woody ecosystems) to contain native vegetation as per section 1.6 of the BC Act and s60B of the LLS Act.

Recommendation:

9. Reassess the patch size for each vegetation zone in accordance with s4.3.2 of the BAM.

**Legacy data**

Section 1.1.2.2 of the PBR states that the BAM accredited assessor may choose to use outdated survey methods and exclude additional candidate species from assessment should BAM resources be updated during preparation of the BDAR.

This contradicts section 4.2 of the BAM Operational Manual Stage 1 (2020) which specifies that the biodiversity assessment report must reflect any changes in data made up to the date it is finalised. *An assessor has 14 days from the finalisation date in BOAMS to submit the BAR to the decision-maker (BCARS have 28 days to submit). If not submitted within this timeframe the assessor will be required to apply any changes as a result of TBDC data updates.*

Section 5.3 (2b and 2c) of the BAM (2020) also sets the expectation that assessors use best practice methods and comply with published guidelines where available. Associated guidance is provided in the BAM Operational Manual – Stage 1 (page 46). If the proponent or accredited assessor have concerns about the implications arising from newly released guidelines or data, contact CPHR as early as possible.

Recommendation:

10. When preparing the BDAR, the accredited assessor should consult BAM resources regularly. If the Department publishes new or revised survey guides, assessors are expected to apply them to all assessments for which the survey component is yet to be completed, and to all new assessments that commence on or after the publication date. If the proponent or accredited assessor have concerns about the implications arising from newly released or revised guidelines, newly listed species, or reference data, consult CPHR as soon as possible.

# Standard Environmental Assessment Requirements

| **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** |
| --- |
| Clearing of native vegetation on land that meets the definition of Category 1 - Exempt land (as defined under the *Local Land Services Act 2013* (*LLS Act*)) does not require assessment or offsetting under the *Biodiversity Conservation Act 2016*, however the following must still be considered:<br>• **Prescribed impacts** as outlined in chapter 6 of the Biodiversity Assessment Method (2020). E.g. there are threatened fauna species whose habitat may include land which meets Category 1- Exempt land criteria. Fauna survey on Category 1 – Exempt land may be necessary to meet the requirements of the BAM.<br>• Potential impacts to **Matters of National Environmental Significance** under the *Environment Protection and Biodiversity Conservation Act 1999* on Category 1 – Exempt land must also be considered.<br>During the 'transitional period' until the comprehensive Native Vegetation Regulatory Map (NVR Map) is published, land categories are defined by the criteria in the legislation. Assessors can make a reasonable approximation of land categorisation for unpublished layers, in consultation with the landholder.<br>It is recommended that:<br>• assessors first identify whether land meets criteria for Category 2 - Regulated land, prior to Category 1 - Exempt land.<br>o In some circumstances, land may meet multiple map criteria i.e. criteria for Category 2 - Regulated land, AND Category 1 - Exempt land<br>o In most circumstances' Category 2 - Regulated land criteria will determine the categorisation of the land, rather than Category 1 - Exempt land criteria.<br>A statewide draft Native Vegetation Regulatory Map is publicly available for proposals that affect rural land as defined under Part 5A of the *LLS Act*. This map as it relates to the development site must be referred to during preparation of the Biodiversity Development Assessment Report (BDAR) and prior to the BDAR being submitted to the consent authority. The draft map is available here: *Geocortex Viewer for HTML5 (nsw.gov.au)*.<br>Where Category 2 – Regulated land is mapped as present on a development site, the BAM should be applied.<br>Where the draft map indicates that Category 1 – Exempt land is present on a development site, early engagement with CPHR is encouraged.<br>State-wide comprehensive mapping of all critically endangered ecological communities (CEECs) and critically endangered species of plants is not currently published on the draft Native Vegetation Regulatory map. Critically endangered ecological communities and critically endangered species of plants are designated as Category 2- Sensitive Regulated land (clause 108(2)(b), *LLS Regulation*). The presence of CEECs and/or critically endangered plants must be considered for site-scale refinement, regardless of published map products.<br>To confirm at the site scale whether the criteria for Category 1 – Exempt land is met: |

- Site-based floristic assessment is required to verify the presence or absence of Category 2- Regulated land criteria, such as CEECs, critically endangered plants and threatened grasslands
- Review of any *Environmental Planning and Assessment Act 1979* development consents or approvals applicable to the land is required to demonstrate whether the land has an existing obligation to be set aside for nature conservation; revegetation of native vegetation; or as a native vegetation offset.

Prior to the BDAR being submitted to the consent authority, the accredited assessor may submit a proposed land categorisation method to the CPHR North West Planning team at rog.nw@environment.nsw.gov.au for review.

For more information, see Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme.

**Biodiversity**

1. Biodiversity impacts related to the proposed development 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)*. Biodiversity Development Assessment Report (BDAR), unless:
    a) a BDAR waiver is granted, or
    b) the site is on biodiversity certified land.
2. The BDAR must apply 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 be submitted with all spatial data associated with the survey and assessment as per Appendix K of the BAM.
4. 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 make a payment to the Biodiversity Conservation Fund.
    f. Any proposal to enter into a *Strategic Offset Delivery Agreement*.
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*.
6. The EIS must contain a summary of the commitments set out in the BDAR to avoid, minimise and mitigate the biodiversity impacts of development that are to be implemented, post approval, by their inclusion in a Biodiversity Management Plan (BMP)). The preparation of a BMP to fulfil the avoid and minimise requirements of the BDAR must be included as a condition of consent/approval, unless otherwise agreed with CPHR. The BMP must include detailed measures to minimise impacts on biodiversity, monitoring and reporting requirements, proposed adaptive management measures, performance criteria recommended to meet states outcomes, remedial actions to be undertaken of actions fail

to achieve stated outcomes, and any additional actions relevant to the management of biodiversity.

**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 CPHR during the assessment process on prescribed impact assessment and calculation, when required.

**Cumulative Impacts**

Cumulative impacts should be assessed through application of the *Cumulative Impact Assessment for State Significant Projects guidance* (DPE, Oct 2022).

**Water and soils**

7. 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.

8. The EIS must describe background conditions for any water resource likely to be affected by the development, 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.*

9. The EIS must assess the impacts of the development on water quality, including:

   a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development 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.

10. The EIS must assess the impact of the development 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**

11. The EIS shall include a flood impact and risk assessment (FIRA). As a minimum the FIRA must:

    a. Consider the relevant provisions of the NSW Flood Risk Management Manual (2023) and associated guides, and existing council and government studies, information and requirements.

    b. Identify and describe existing flood behaviour on the site and its surrounding areas for the full range of events, including 5% AEP, 1% AEP, PMF and 0.5% AEP or 0.2% AEP and provide an assessment of the compatibility of the development and its users with flood behaviour. This may require flood modelling where existing flood information is not available.

    c. Determine and describe changes in post development flood behaviour, impacts of flooding on existing community and on the development and its future community for

full range of events, 5% AEP, 1% AEP, PMF and 0.5% AEP or 0.2% AEP. This will typically require flood modelling.

d. Consider impacts of climate change due to both sea level rise and increase in rainfall intensities considering relevant Council and government advice. The 0.5% AEP or 0.2% AEP events can be used to provide an understanding of the scale of change of flood behaviour relative to the 1% AEP event.

e. Propose and assess the effectiveness of management measures required to minimise the impacts and risks of flooding to the development and its users and existing community.

Note:

- The scope of a FIRA must be consistent with the *Flood Risk Management Guideline LU01*.
- The FIRA will need to be tailored to suit the project being considered, whilst maintaining consistency with the FIRA guide.

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.

**ATTACHMENT B**

# Guidance Material

| Title | Web address |
|---|---|
| **Relevant Legislation** | |
| *Biodiversity Conservation Act 2016* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2016-063* |
| *Environment Protection and Biodiversity Conservation Act 1999* | https://www.legislation.gov.au/C2004A00485/latest/text |
| *Environmental Planning and Assessment Act 1979* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1979-203* |
| *Fisheries Management Act 1994* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1994-038* |
| *National Parks and Wildlife Act 1974* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1974-080* |
| *Protection of the Environment Operations Act 1997* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1997-156* |
| *Water Management Act 2000* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2000-092* |
| *Wilderness Act 1987* | *https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1987-196* |
| **Biodiversity** | |
| 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* |
| 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/sites/default/files/changes-biodiversity-assessment-method-200508.pdf |
| Biodiversity Development Assessment Report Template | https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.environment.nsw.gov.au%2Fsites%2Fdefault%2Ffiles%2Fbiodiversity-development-assessment-report-template-220210.docx&wdOrigin=BROWSELINK |
| Guidance for the Biodiversity Development Assessment Report Template | *https://www.environment.nsw.gov.au/sites/default/files/biodiversity-development-assessment-report-template-guide-220209.pdf* |
| BAM 2020 Operational Manual Stage 1 | https://www.environment.nsw.gov.au/sites/default/files/biodiversity-assessment-method-2020-operational-manual-stage-1-220279.pdf |
| BAM 2020 Operational Manual Stage 2 | https://www.environment.nsw.gov.au/sites/default/files/biodiversity-assessment-method-operational-manual-stage-2-230164.pdf |

| Title | Web address |
|---|---|
| BAM 2020 Operational Manual Stage 3 | https://www.environment.nsw.gov.au/sites/default/files/biodiversity-assessment-method-2020-operational-manual-stage-3-200584.pdf |
| BAM Calculator User Guide | https://www.environment.nsw.gov.au/sites/default/files/biodiversity-assessment-method-calculator-user-guide-240080.pdf |
| Serious and irreversible impacts of development on biodiversity | *https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/clear-and-develop-land/serious-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/sites/default/files/guidanceforassessorsanddecisionmakersinapplyingmodifiedbenchmarkstoassessmentsofvegetationintegrity2.pdf* |
| Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH, 2017) | https://www.environment.nsw.gov.au/sites/default/files/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/sites/default/files/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/sites/default/files/ancillary-rules-impacts-on-threatened-entities-excluded-from-variation-170497.pdf |
| CPHR'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/sites/default/files/surveying-threatened-plants-and-habitats-nsw-survey-guide-biodiversity-assessment-method-200146.pdf* |
| Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - November 2004 | *https://www.environment.nsw.gov.au/sites/default/files/draft-threatened-biodiversity-survey-guide.pdf* |
| Threatened species survey and assessment guidelines: field survey methods for fauna – amphibians | https://www.environment.nsw.gov.au/sites/default/files/amphibians-field-survey-methods-090213.pdf |
| NSW Survey Guide for Threatened Frogs | https://www.environment.nsw.gov.au/sites/default/files/nsw-survey-guide-for-threatened-frogs-200440.pdf |

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| Surveying 'species credit' threatened bats and their habitats – NSW survey guide for the Biodiversity Assessment Method | https://www.environment.nsw.gov.au/sites/default/files/speciescreditthreatenedbatsandtheirhabitatsnswguideforbiodiversityassessmentmethod200573.pdf |
| 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/Vegetationinformationsystem.htm* |
| CPHR Data Portal (access to online spatial data; SEED) | *http://data.environment.nsw.gov.au/* |
| Fisheries NSW policies and guidelines | *https://www.dpi.nsw.gov.au/fishing/habitat/publications/pubs/fish-habitat-conservation* |
| NSW Native Vegetation Extent 5m Raster v1.2 | *NSW Native Vegetation Extent 5m Raster v1.2*<br>*https://datasets.seed.nsw.gov.au/dataset/nsw-native-vegetation-extent-5m-raster-v1-0* |
| State-wide Landcover and Tree Survey (SLATS) clearing for NSW – used to identify detectable clearing events since January 1990 | *Dataset \| SEED (nsw.gov.au)*<br>*https://datasets.seed.nsw.gov.au/dataset?q=slats* |
| Published information on the Native Vegetation Regulatory Map, including Category 2-Sensitive Regulated, Category 2-Vulnerable Regulated, and Excluded Land | Transitional Native Vegetation Regulatory map \| NSW Environment and Heritage<br>*https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/native-vegetation-regulatory-map/transitional-native-vegetation-regulatory-map* |
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| **National Park Estate** | |
| 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/sites/default/files/developments-adjacent-npws-lands-200362.pdf* |
| List of aquatic reserves | *www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/mpa* |
| **Water and Soils** | |
| **Acid sulphate soils** | |
| Acid Sulfate Soils Planning Maps via Data.NSW | *https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c* |

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| 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*<br>This replaces Chapter 4 of the Acid Sulfate Soils Manual above. |
| **Flooding** | |
| Flood Risk Management Manual | *https://www.environment.nsw.gov.au/sites/default/files/flood-risk-management-manual-2023-230220.pdf* |
| Flood Risk Management Guideline | https://www.environment.nsw.gov.au/sites/default/files/flood-risk-management-understanding-230229.pdf |
| Flood Impact and Risk Assessment | *https://www.environment.nsw.gov.au/sites/default/files/flood-risk-management-impact-risk-assessment-230234.pdf* |
| 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* |
| Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004) | *http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf* |