APPENDIX B: Biodiversity Management Plan

344 Park Road, Wallacia

The Biodiversity Management Plan (BMP) is to be prepared to ensure best practices according to legislative requirements, policy, guidelines, and evidence-based practices are implemented through all stages of this development including ongoing operations for the preservation and protection of the sites biodiversity, by implementing appropriate mitigation measures and incorporating adaptive management in response to monitoring and evaluation/unexpected finds.

Development and implementation of each aspect of the Biodiversity Management Plan is the responsibility of the project manager. The final stamped BDAR V\_3.0 dated August2021, any associated ecological reports and the requirements outlined here are to be reviewed in association with preparation of the Biodiversity Management Plan. Performance measures are to be included for each commitment.

Record keeping and reporting to Council on biodiversity matters is required. Inspections by Councils Biodiversity Officer or suitable Council representative may be conducted. The BMP may be required to be updated in response to monitoring and evaluation.

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| **Chemical management** |
| For the prevention, of inadvertent impacts associated with all stages of the development (including operations) on native vegetation, habitat, waterways, protected native fauna.  This section of the BMP must prescribe the requirements for the purchase, management and application of chemicals across the site, and through all stages of the development. To include but not be limited to, herbicides, fertilisers, pesticides, rodenticides, and any other poisonous substances.  This plan must consider legislation, policy and guidelines as well as current literature on evidence-based practice.  Chemicals and their applications must be suitable for use in proximity to habitat for Cumberland Plain Land Snail. |

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| **Erosion and sedimentation plan** |
| The projects ecologist is to review and endorse the erosion and sedimentation plan, providing advice to ensure erosion and sedimentation controls are suitable for the protection of biodiversity features of the site and do not allow on- or off- site sedimentation of waterways/bodies and habitat. |

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| **Fauna Management** | |
| Aim | To ensure the persistence of protected native fauna, including but not limited to threatened species on site.  To ensure protected native fauna that is temporarily relocated, are managed appropriately and reintroduced on site.  To ensure the humane and ethical management of pest and feral species. |
| Clearing | Integrate fauna management requirements into each stage of the clearing requirements for the development. |
| Deceased wildlife | Prepare a protocol for the collection and transfer of any wildlife found dead or dying within the vicinity of the development during the operational phase of the development.  The protocol must include the safe handling and management of deceased wildlife, taking into account biosecurity risks, sample management and transport and submission to the National Measurements Institute.  The results are to be provided to Council and the NPWS Wildlife Management Officer. |
| Demolition and removal of stockpiles | Prepare a protocol for the removal of structures and stockpiles for the prevention of harm to protected native fauna, to include pre-works surveys and rescue actions.  To be integrated into the CEMP. |
| Emissions/pollutants | Subject to EPA commitments.  However, within this section of the BMP a commitment must be made to ensure responsive actions will be taken, should there be indicators that the resident fauna or habitat are being negatively impacted by emissions/pollutants from ongoing operations. |
| Euthanasia | See rescue and reintroductions, and pest and feral animals. |
| Exclusion fencing  (Subject site / construction footprint) | Provide advice on the requirements for exclusion fencing to prevent harm to protected fauna, that may access the construction zone/s.  See condition - Threatened species / native vegetation / fauna protection zone - to the full extent of the boundary of the subject land. |
| Fencing  (Lot boundary) | Provide advice for wildlife friendly fencing for permanent installation to the subject property, with the exception of fencing of the subject land.  Fencing must consider the requirement to allow for species movement in a north-south direction, while at the same time act to prevent illegal dumping.  Permanent signage should be erected on the fence to provide information about the endangered ecological community and the conservation efforts to protect this habitat in perpetuity.  Fencing to the subject land must act to exclude wildlife from the operational area (including Cumberland Plain Land Snails). Barbed wire must not be used.  Fencing to the subject property and the subject land must be approved by Council. |
| Injured wildlife, during works and ongoing operations | Protocol to be developed, with the end-point for all individuals to be released on site, unless otherwise determined through the approved rescue protocol / advised by a specialist wildlife veterinarian. |
| Lighting plan | The project ecologist is to provide input to development of the lighting plan for each stage of the development, including during construction and operations. The plan must consider Dark Sky Principles and the National Light Pollution Guidelines for Wildlife. |
| Monitoring, evaluation and adaptive management | Program to be developed for the ongoing monitoring, evaluation and adaptive management to ensure protected native wildlife (including threatened species) are not negatively impacted by the ongoing operations of this development.  This is to include, but not be limited to:   * The management and submission of deceased wildlife, for testing * Noise, lighting and dust spill monitoring * Species list * Species movement within the subject land and the area to be conserved * Response to problems that arise, with a protocol to resolve challenges in a timely manner * Notifications to Council |
| Mulch | Develop a protocol / provide advice to the projects’ supervising arborist to ensure all vegetation is cleared of native fauna, prior to mulching.  This must include but not be limited to:   * rescue requirements being completed * rigorous shaking of plant material to remove a significant number of native insects-many of which are critical to pollination and foraging requirements, prior to material being mulched. |
| Pest and feral animals | A procedure for the management of pest and feral animals (that takes into account the requirements of chemical management plan) is required for all stages of the development, including operations in perpetuity.  The plan must provide for the humane and ethical treatment of pest and feral animals. |
| Pets | Pets (including but not limited to dogs and cats) are not to be permitted within the land under Stewardship Agreement / 88b. |
| Rescue and reintroductions | A rescue and reintroduction plan is required and must include, but not be limited to:   * required equipment * Personnel * PPE requirements (zoonosis) * notification of a qualified wildlife veterinary or wildlife hospital, prior to works commencing * coordination with licenced wildlife carers (and specialists with experience in any identified threatened species) * euthanasia protocol (including decision making criteria and humane practices) * temporary relocation of displaced individuals, in approved care facilities * reintroduction of displaced individuals, to be released on site \*\*No individuals are to be relocated or translocated on a permanent basis unless directed by a recognised wildlife veterinarian (written advice must be obtained, for record keeping requirements). record keeping and notification of Council and other regulatory agencies   The plan must consider the *Code of Practice for injured, sick and orphaned protected fauna*. |
| Scheduling of works | Provide advice to the Project Manager for the scheduling of works, to avoid the breeding/nursing periods for identified (or unexpected finds of) threatened species. |
| Species management plans | The projects ecologist is to prepare a brief for Cumberland Plain Land Snail and any unexpected finds of threatened species identified during pre-clearance surveys. |
| Translocations  (mitigation) on-site | Cumberland Plain Land Snail – live snails and shells within the subject land or within 10 meters of the construction footprint are to be translocated at an appropriate distance and habitat to ensure their persistence on the property.  No live snails or shells are to be removed from the property.  Translocations must be conducted with respect to DPIE's *Translocation operational policy* and the *Code of Practice for injured, sick and orphaned protected fauna*. |
| Translocations (mitigation) off-site | Not permitted, unless directed by a specialist wildlife veterinarian or NPWS Wildlife Officer.  Translocations must be informed by a survey and risk assessment of the proposed receiving location/s, with review and approval from the receiving landholder, Council and NPWS-as required.  Translocations must be conducted with respect to DPIE's *Translocation operational policy* and the *Code of Practice for injured, sick and orphaned protected fauna*. |
| Unexpected finds | Develop a protocol for unexpected finds (threatened species-fauna) to include a stop works order, record keeping and reporting requirements.  Integrate into the CEMP. |
| Waterway | Prior to works commencing, the drainage line at the north-east of the subject land is to be inspected for aquatic fauna. The project ecologist is to assess risks to any resident fauna and plan for their safe temporary removal and care prior to being released on site, on completion of works.  The CEMP is to be updated to incorporate this requirement.  At any time, should Green and Golden Bell Frogs be identified on site – a stop work order will apply and Councils' Senior Biodiversity Officer is to be contacted as a priority. |

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| **Flora management** | | | | |
| Clearing | Contribute to (or develop) a clearing protocol, providing advice on:   * pre-clearance surveys (see relevant section) * requirement for the project ecologist to be in attendance and supervise/direct actions that relate to the removal of native vegetation * requirements for the clearing/removal of approved patches of native vegetation in such a way that the habitat features are preserved and the risk of injury or mortality to fauna is prevented, such as top-down lopping, with lopped sections gently lowered to the ground, or by lowering whole trees to the ground with the "grab" attached of a machine * staging of works in accordance with best practice methods * preventing inadvertent damage and reduce soil disturbance * removal by chainsaw rather than heavy machinery * integration of fauna management requirements (such as rescues) * tree protection and management requirements * salvage of habitat features (such as logs) * ensure weed and exotic species are mulched separately to materials from native vegetation, and disposed of at a licenced waste facility * ensure management of residual materials from native vegetation are mulched and retained for use within managed areas of native vegetation * ensure mulching considers fauna management requirements * stop works orders for unexpected finds | | | |
| Disease and pathogens | Either as an element addressed within the Weed Management Plan or a separate protocol for the Construction Environmental Management Plan, addressing requirements for:   * inductions * vehicle and machinery hygiene * access restrictions * soil * mulch and fill restrictions * purchase of plants and other landscaping supplies * identification and testing to ensure materials are free from disease and pathogens | | | |
| Dust suppression | Review and advise on dust suppression controls to ensure the protection of native vegetation adjacent to the development site, through all phases of the development including operations.  The dust suppression controls and treatments must ensure residues do not build up and impact the surrounding native vegetation / habitat.  Stopping operations if dust controls have stopped working. | | | |
| Edge effects | At this stage there is no Vegetation Management Plan for the residual portion of the subject property.  In the interim, edge effects must be addressed within the Weed Management Plan. | | |
| Mowing | All vegetation outside of the development footprint is to be managed in accordance with either the Stewardship agreement or approved Vegetation Management Plan. | | |
| Mulch | Protocol for the purchase and importation of mulch for the site (refer to disease and pathogen controls). | | |
| Mulching | See clearing. | | |
| Pre-clearance surveys | Prepare a protocol to guide pre-clearance surveys.  This is to include but not be limited to:   * identify locations of, clearly identify and ensure protection measures are appropriate for patches of threatened ecological communities/threatened species/native vegetation that are to be retained * identify locations of, and clearly identify habitat features for removal within the development footprint, plan for salvage and use within unaffected areas * consult with the projects' supervising bush regenerator for the transfer and management of salvaged materials (subject confirmation of the stewardship agreement/vegetation management plan), noting that salvaged materials must not be stockpiled outside the subject land, without guidance from projects ecologist) * integrate fauna management requirements * survey to record and action unexpected finds protocol * conduct seed collection, cutting, translocation activities from threatened plants within the subject land (subject to approvals and licencing requirements - materials must not be transferred off-site) * arrange for Councils’ Biodiversity Officer to inspect the protection measures, prior to clearing being conducted * maintain records and provide a brief to Council within one (1) month of clearing works [the brief is to include a record of any translocations (flora and fauna) from the development footprint and identify receiving locations] | |
| Protection of the unaffected areas of the site, in perpetuity | The unaffected areas of the site (outside of the subject site) are to be protected in perpetuity through a formal agreement associated with the title, either as a Stewardship Site (subject to review and approval of the Biodiversity Conservation Trust) or an 88b instrument registered on the property title as prepared by Council. | |
| Replanting requirements | Replanting requirements as specified within the BDAR must be referenced within the BMP.  Replanting must address the following:   * habitat restoration to improve the condition and integrity of the protected areas of native vegetation outside the construction footprint * Be targeted at achieving functional habitat, in perpetuity, consistent with the existing plant community type | |
| Salvage of habitat features | For inclusion within the Pre-clearance survey protocol.  Habitat features including but not limited to hollows, logs, leaf litter, bush rocks, dead wood and soil, are to be salvaged. |
| Seed collection, cuttings and translocations | Seed collection, cuttings and translocations are to be conducted by experienced, licensed staff. All material removed from areas approved for works is to be transferred into areas identified within the VMP.  Translocations must be conducted in consideration of DPIE's *Translocation operational policy* and the *Guidelines for the Translocation of Threatened Plants in Australia.* |
| Soil | Protocol for the importation of soil for use within landscaping treatments and habitat areas.  Soil and debris from the development footprint must not be transferred into habitat zone. |
| Stockpiles and machinery | Protocol to ensure stockpiles, vehicles and machinery do not enter tree / threatened species protection zones (Cumberland Plain Land Snail), waterways/bodies, habitat zone.  To be integrated within the CEMP. |
| Threatened ecological community protection zones | The boundary of the development footprint as identified in the stamped and approved plans is to be fenced to ensure protection of the vegetation community adjacent to the site, in perpetuity.  During works, signage must be installed to identify the area as a threatened species protection zone, no entry.  During the operations, construction signage can be replaced by educational signage to inform staff of the value of the habitat. |
| Translocations  (mitigation) | A translocation protocol must be prepared when plant material is being relocated from the construction footprint to areas that are being protected in perpetuity.  No material from threatened species is to be removed from the approved construction footprint (see final approved BDAR), for use off-site without a licence to pick or harm a threatened species (flora).  Translocations must be conducted in consideration of DPIE's *Translocation operational policy* and the *Guidelines for the Translocation of Threatened Plants in Australia.*  No material from threatened species located outside the approved construction footprint (see final approved BDAR) is to be picked or harmed. |
| Tree removal and retention plan | Final, approved plan to be referenced and linked as an appendix to this document. |
| Unexpected finds | Develop a protocol for unexpected finds (threatened species-flora) to include a stop works order, record keeping and reporting requirements. Integrate into the CEMP. |

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| **Noise, light and dust spill** |
| For all stages of development, including operational, provide recommendations for controls, to be integrated within the CEMP and operational plans, for the protection of native vegetation and fauna. Provide recommendations for the preparation of the lighting plan for all stages of the development, including ongoing operations.  Noise, light and dust spill recommendations must include monitoring and an adaptive management strategy to respond to any challenges for native protected wildlife (and threatened species) associated with the site or the properties immediately adjoining the site. This is to include resident diurnal and nocturnal wildlife, as well as wildlife moving through the area. A review of current literature must inform the recommendations for suitable controls an appropriate monitoring and evaluation program to inform an adaptive management process (for example national light pollution guidelines and current literature on noise pollution and biodiversity impacts has been referenced in: <https://environmentalevidencejournal.biomedcentral.com/articles/10.1186/s13750-020-00202-y>)  Should problems be identified within the sites’ regular monitoring program, or by an external party's formal assessment, this must trigger an investigation to resolve the matter in a timely manner and to the satisfaction of Council. This may include but not be limited to, the requirement to consult with and gain approval from species experts, as the expense of the site owners/management. |

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| **Record keeping, monitoring and reporting** |
| The project consulting ecologist is to identify key requirements/stages for record keeping, monitoring and reporting in relation to performance measures. |

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| **Specialists to assist with the Biodiversity Management Plan** | |
| Project ecologist fauna | The project’s fauna ecologist is:   * to be suitably qualified (tertiary qualifications in a targeted field of study) with a minimum of five (5) years' experience with projects of this scale (or larger) * is responsible for the development of all relevant components of the Biodiversity Management Plan * will either have or engage contractors/volunteers with all required licences and permits with respect to the management of protected native fauna * is responsible for overseeing all activities with the potential to impact threatened and protected native fauna, providing advice to the projects’ flora ecologist for pre-clearance surveys and clearance works to integrate fauna management requirements, unexpected finds protocol and its implementation, record keeping and reporting requirements * is to have current insurance coverage, for all activities associated with their engagement |
| Project ecologist -flora | The project’s flora ecologist:   * is to be suitably qualified (tertiary qualifications in a targeted field of study) with a minimum of five (5) years' experience with projects of this scale (or larger) and with direct experience with the identified plant community types identified on this site * is responsible for the development of all related components of the Biodiversity Management Plan * will either have or will engage a contractor with all required licences and permits with respect to the handling and management of protected native flora (including but not limited to collection of native seed or cuttings, translocations) * is responsible for overseeing all native vegetation removal activities on the subject land including but not limited to pre-clearance surveys, guiding and directing clearance activities (particularly in relation to habitat trees, threatened species, unexpected finds, salvage and management of habitat features), integration of fauna management requirements, record keeping and reporting requirements, except for actions prescribed to species experts or the supervising bushland regenerator - in relation to the habitat zone that will be managed according to the stewardship agreement or a VMP associated with an 88b registered on title, in perpetuity * Is responsible for preparation of the management plan/VMP for the habitat zone * is to have current insurance coverage for all activities associated with their engagement |
| Supervising bush regenerator  For works within the habitat zone | Please refer to Council’s draft guide for preparing a Vegetation Management Plan. |
| Vegetation Management Plan, author  If applicable | If not the project ecologist flora, please refer to Council’s draft guide for preparing a Vegetation Management Plan.  If the habitat zone will be managed according to a Stewardship agreement, these requirements will be specified within this program. |

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| **Staff training and inductions** |
| Biodiversity management requirements are to be included in all staff inductions, for all stages of the development.  To be integrated within the CEMP and work instructions.  Record keeping and an adaptive management procedure for breaches is required. |

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| **Vegetation Management Plan** |
| If the habitat zone is to come under the management of a VMP, Council is to be contacted to obtain further guidance. |

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| **Waste management plan (update)** |
| The project ecologist/s (flora/fauna) are to provide advice to inform the Waste Management Plan/s, for all stages of the development including ongoing operations.  The recommendations must ensure there is no harm to protected native fauna, habitat, areas of native vegetation and waterways/bodies.  Recommendations are to address, but not be limited to:   * purchase and use of waste receptacles that do not allow access by native wildlife (including birds), pests or feral species * management of green waste from 1. exotics/weed species and 2. native vegetation (see salvage of materials and mulch) * routine procedures for the collection of litter * monitoring and review to update the plan, due to inadvertent waste impacts |

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| **Weed management plan** |
| 1. To fulfil obligations under the Biosecurity Act 2015, for the management of priority weeds. 2. To prevent impacts associated with all stages of the development associated with the transport of weeds and pathogens on- and off-site.   The weed management plan must be endorsed by the Hawkesbury River County Council.  The first phase of the weed management plan must address actions to be implemented across the site prior to works commencing and for each stage of the development, including operations – in perpetuity. |