

15 September 2022

Our ref: 3358

Brightlands Living Pty Ltd
Level 1, 822 George St
Chippendale NSW 2008

Attention: Ed Fernon

Dear Ed,

Preliminary Ecological Advice – Future ecologically sustainable residential development – Illawong - Lot 1 DP 1256287 Broulee Road, Broulee

ELA was engaged by Brightlands Living Pty Ltd to provide preliminary biodiversity advice for a proposed residential development on Lot 1 DP 1256287 Broulee Road, Broulee (hereafter referred to as the subject land). ELA understands the proposal involves rezoning the land to enable ecologically sustainable residential development. The subject land has a total area of approximately 126 ha.

This report briefly describes the biodiversity values of the subject land and provides:

- A description of the assessment methods.
- A description of the vegetation communities, threatened flora and fauna habitats, and existing threatened species records within the subject land.
- Considerations of the implications of riparian buffers under the NSW *Water Management Act 2000* and the Eurobodalla Local Environmental Plan 2012.
- Considerations of Chapter 2 - Coastal Management - of the State Environmental Planning Policy (Resilience and Hazards) 2021.
- Consideration of the implications of the NSW Biodiversity Offsets Scheme (BOS) under the NSW Biodiversity Conservation Act (BC Act).
- Consideration of the implications of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1997* (EPBC Act).
- Provides a synthesis of preliminary biodiversity and ecological constraints
- Provides recommendations regarding further assessment and opportunities.

Method

Field surveys were conducted within the subject land on 22 August and 7 September 2022 by ELA Senior Ecologist and Accredited Assessor Ryan Smithers over a period of approximately six hours. The field surveys consisted of rapid vegetation surveys to validate Plant Community Types (PCTs), and assess composition, condition, and the integrity of native vegetation. Searches were also undertaken for key fauna habitat features such as hollow-bearing trees, raptors nests, foraging substrates, water, and rock habitats.

Limitations

The results of biodiversity assessments can be optimised by conducting investigations over a long period to compensate for the effects of unfavourable weather, seasonal changes and climatic variation. In general, the longer the survey the more species detected. Results can also be improved by using a wide range of techniques, since some species are more likely to be detected by a particular method. However, surveys and assessment are subject to constraints that determine the amount of time allocated, the methods used and the timing of the work. The biodiversity values detected during the site survey are a guide to those present, but are by no means definitive. This assessment is preliminary in nature, based on limited field data and, in the absence of comprehensive data, a range of assumptions. The results of this assessment should be viewed in light of these limitations.

Biodiversity Values

Vegetation Communities

The bulk of the subject land has long been cleared, pasture improved, and subject to grazing and a range of other farming activities. As such, the bulk of the subject land comprises exotic grazing pasture.

Notwithstanding the extent of clearing within across the site, the subject land and immediate surrounds support a diverse range of vegetation communities in various condition states. These include vegetation that comprises four threatened ecological communities (TECs) listed under the BC Act and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), much of which is in excellent condition and/or has good recovery potential.

A preliminary attribution of the plant communities using the Eastern NSW Plant Community Types (PCT), is identified in Figure 1. The distribution of TECs within the subject land is identified in Figure 2. Further discussion of the vegetation within the subject land is provided with Photos 1-10.

Threatened flora habitats

The wetlands and wetland fringes within the subject land provide potential habitat for three threatened flora species which are known from the locality *Persicaria elatior* (Tall Knotweed), *Haloragis exalata* subsp. *exalata* (Square Raspwort) and *Aldrovandna vesiculosa* (Waterwheel Plant).

The remnant forest within the study area provides potential habitat for a few other threatened flora species, in particular *Rhodamnia rubescens* (Scrub Turpentine). The exotic pasture, which dominates the subject land, does not provide potential habitat for any threatened flora.

A search of the Bionet Atlas did not detect any threatened flora species records within the subject land.

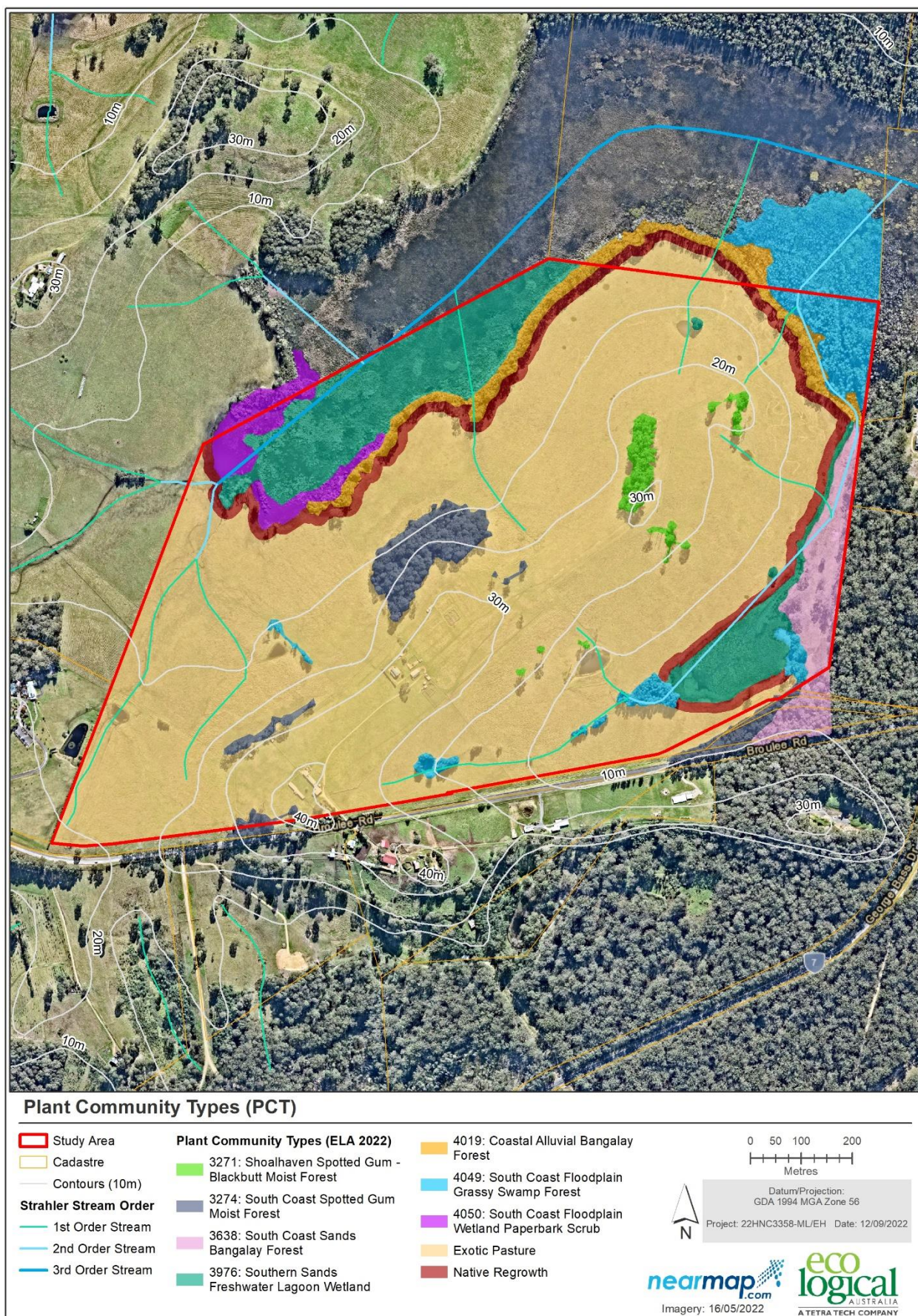


Figure 1: Plant community types, watercourses, fauna habitats within the subject land.

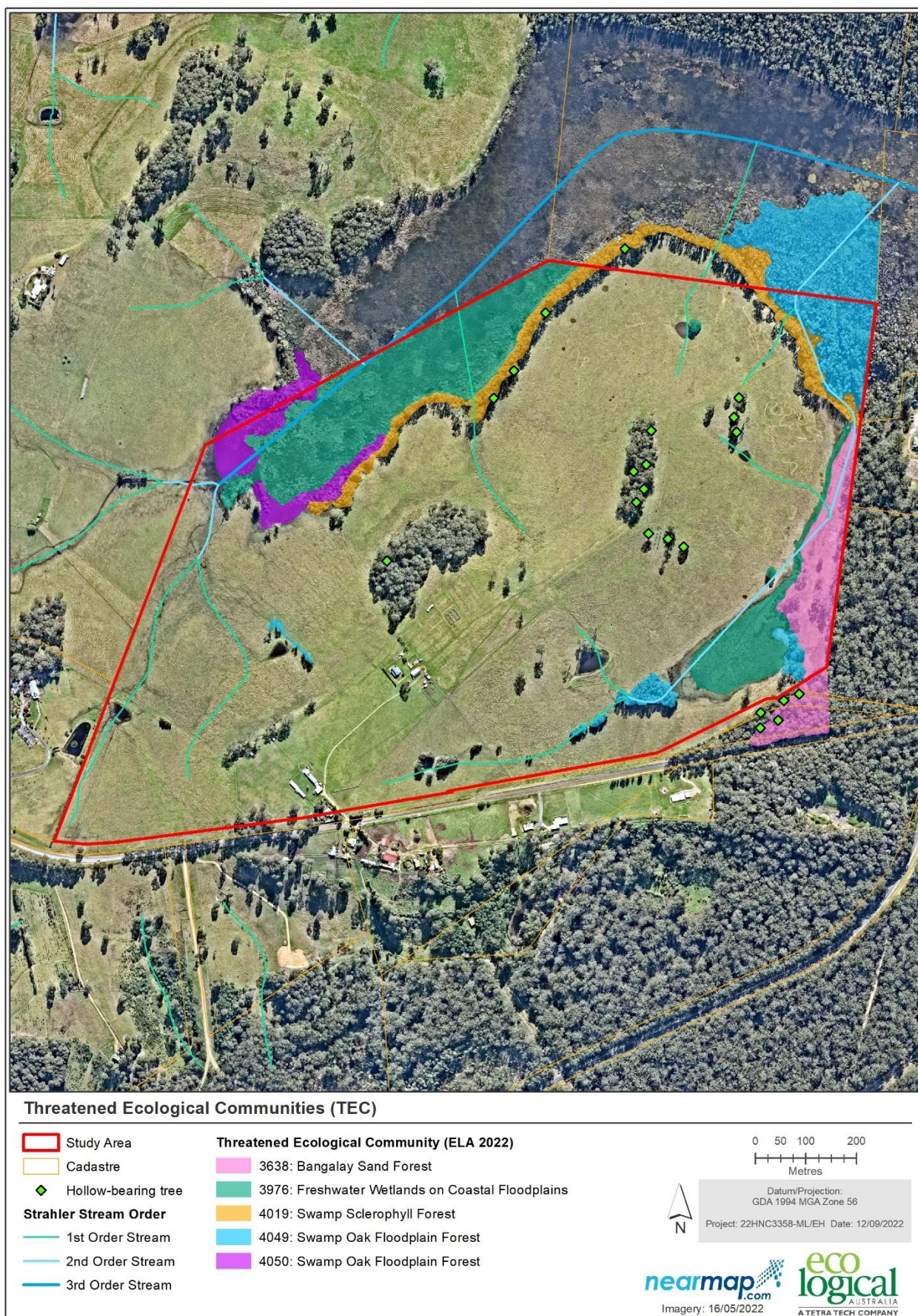


Figure 2: Threatened ecological communities within the subject land



Photo 1: The bulk of the forest that would have once dominated the subject land has long been cleared and converted to grazing pastures dominated by common exotic pasture grasses such as *Cenchrus clandestinus* (Kikuyu).



Photo 2: The northern parts of the subject land fringe Longvale Swamp, which is a very large freshwater wetland complex extending to the north and east of the subject land. The swamp margins are fringed by large *Eucalyptus botryoides* (Bangalay) trees, some of which support hollows. The swamp and the fringing forest comprise TECs.



Photo 3: The largest patch of remnant forest within the subject land comprises an approximately 3 ha patch of moist *Corymbia maculata* (Spotted Gum) dominated forest associated with a small outcropping of Coila Basalt, which occurs in the western central and southern parts of the subject land extending to just south of Broulee Road. This is the same unit that outcrops at South Broulee.



Photo 4: The Spotted Gum forest on the Coila Basalt supports a diverse mesic understorey and groundcover, as is typical on the few higher fertility patches of basalt that occur within the shire. The nearest patches of Coila Basalt are in the Jeremadra and Congo – Meringo areas. This forest is in excellent condition despite minor infestations of weeds such as African Olive and Asparagus Fern. The many small basalt boulders make walking difficult and presumably deter cattle.



Photo 5: The second largest patch of remnant forest within the subject land is very different to the largest, despite only being 250 m to the east on the same ridge. This patch is not underlain by basalt and is associated with a capping of ridgetop sand that presumably has been transported by wind or waves from the Bengello sand sheet. The influence of the sandy soils is evident by the presence of *Corymbia gummifera* (Red Bloodwood), *Banksia integrifolia* (Coast Banksia) and *Monotoca elliptica* (Tree Broom Heath). This patch has been more heavily affected by grazing but continues to have good recovery potential and to support many hollow-bearing trees.



Photo 6: There are several patches of scattered remnant trees above exotic grazing pastures throughout the subject land. Many of the remnant trees are large-diameter and hollow-bearing.



Photo 7: The far eastern and southern parts of the subject land are dominated by a heavily modified wetland that is connected to Longvale Swamp by a narrow channel. To the east, a band of partially cleared Bangalay Sand Forest (BSF) TEC occurs along the eastern property boundary and adjoins the extensive BSF to the east and south that is associated with the Bengello holocene sand-sheet.



Photo 8: Swamp Oak Floodplain Forest (SOFF) extends in patches along the watercourse in the southern and eastern parts of the subject land. This community, a TEC under both the BC Act and EPBC Act, would have once dominated much of the most low-lying parts of the subject land.



Photo 9: The SOFF adjoining the wetland continues to be degraded by cattle grazing. Despite this, it continues to be dominated by native species and has excellent recovery potential. It would respond well to the exclusion of cattle and other recovery efforts.



Photo 10: The wetland in the east of the subject land, whilst impacted by historic clearing and ongoing grazing, is highly diverse floristically and provides excellent habitats for a diverse range of waterbirds. The approximately 3 ha of partially cleared BSF to the east is dominated by native plants in all strata and would recovery well with appropriate management.

Fauna Habitats

Twenty-one hollow-bearing trees were recorded within the subject land or immediately adjacent during the site inspection, Figure 2. This is likely to be an underestimation of the hollow resources on the subject land. The hollow-bearing trees within the subject land, which include some very large living and dead trees with excellent quality hollows provide potential denning, roosting and breeding habitat for a range of hollow-dependent threatened fauna species.

Threatened arboreal mammals including *Petaurus australis* (Yellow-bellied Glider) and *Petauroides volans* (Greater Glider) are well known from contiguous forests and may utilise the narrow band of remnant forest fringing Longvale Swamp. This fringing forest provides potential nesting habitat for a range of raptors as does the wetland vegetation within Longvale Swamp. Hollows in the isolated patches of remnant trees within the subject land provide habitat for more mobile threatened hollow-dependent fauna including threatened cockatoos such as *Callocephalon fimbriatum* (Gang-gang Cockatoo), threatened owls such as *Tyto novaehollandiae* (Masked Owl) and a range of hollow-dependent threatened microchiropteran bats.

Water habitats within the subject land provide potential habitat for a diverse range of waterbirds, and a wide range of waterbirds were observed within the swamps within the subject land during the site inspection. The water habitats also provide potential habitat for threatened amphibians such as *Litoria aurea* (Green and Golden Bell Frog). The sand forest in the far east of the subject land provides potential habitat for the threatened *Heleioporus australiacus* (Giant Burrowing Frog).

A search of the Bionet Atlas did not identify any threatened fauna species records within the subject land, however this is likely an indication of the absence of survey effort rather species usage.

Given the heavily modified nature of the fauna habitats within the subject land it is considered unlikely that threatened fauna will comprise a major constraint to future residential development within the subject land. However, targeted surveys will be necessary to assess potential usage, particularly breeding or roosting habitat for threatened hollow-dependent birds such as the Masked Owl and Gang-gang Cockatoo, and threatened microchiropteran bats such as the *Myotis macropus* (Southern Myotis). Surveys will also be necessary to assess usage by threatened amphibians, raptors, arboreal mammals, and to a lesser extent, threatened flora.

Eurobodalla Shire Council Yellow-bellied Glider Policy

Eurobodalla Shire Council (ESC) has a Yellow-bellied Glider policy that pertains specifically to the Broulee area. The objectives of the policy are relevant elsewhere in the shire however, where the species is present the policy has the following objectives that pertain to subdivisions:

- Retain all Yellow-bellied Glider sap feeding trees.
- Retain all large hollow-bearing trees except where it can be demonstrated that Yellow-bellied Gliders do not utilise the tree.
- Retain connectivity to sap feeding trees and large/important hollow-bearing trees.
- Retain connectivity for Yellow-bellied Gliders across the property and onto adjoining properties.

Future residential design will need to retain Yellow-bellied Glider sap feeding trees in the unlikely event that they are detected within the subject land and provide adequate access to these trees. Ideally, future development will retain as many of the hollow-bearing trees within the subject land as possible, particularly trees that are found, through future targeted surveys, to be den trees. Large hollow-bearing trees proposed to be removed will need to be subject to targeted surveys to assess their importance to Yellow-bellied Gliders.



Photo 11: The remnant patch of forest in the east of the subject land supports some excellent quality hollows including in this large stag (dead tree) which provides potential nesting and roosting habitat for the Masked Owl.



Photo 12: The large patch of Moist Spotted Gum Forest in the northern parts of the subject land has been more heavily affected by logging and whilst it supports many large trees, only a few are hollow-bearing. Notwithstanding, it provides a diverse range of fauna habitat, including shelter for macropods, birds and bats. If linkages to the extensive forests surrounding the subject land were improved, the patch could provide habitat for a range of arboreal mammals, potentially including threatened species such as the Yellow-bellied Glider and Greater Glider.



Photo 11: The patches of remnant trees and to a lesser extent isolated remnant trees within the subject land include many large and hollow-bearing live and dead trees which support potential habitat for hollow-dependent threatened birds and bats.



Photo 12: The BSF and large remnant trees fringing the freshwater swamp complex in the eastern parts of the subject land provide excellent fauna habitats, particularly for waterbirds. The scratches and wear on the tree trunks suggest arboreal mammal usage and usage by Goannas. This vegetation also provides a valuable linkage to the adjoining forest and an important north-south wildlife corridor.

Coastal Wetlands

Longvale Swamp is a Coastal Wetland under Chapter 2 - Coastal Management - of the State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021. Longvale Swamp and the associated Proximity Area under the SEPP, as shown in Figure 3, constrain development within the subject land in that all development should avoid impacting on the swamp, either directly or indirectly, and a vegetated buffer will be required adjoining the swamp. The intention of the vegetated buffer or proximity area, is to mitigate any indirect impacts on the wetland.

If the proposed development was to impact areas mapped as Coastal Wetlands, the development would be considered designated development under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and an Environmental Impact Statement (EIS) would be required to demonstrate that sufficient measures have been, or will be taken, to protect, and where possible enhance, the biophysical, hydrological and ecological integrity of the coastal wetland. Development in the proximity to coastal wetlands buffer, should not impact the adjacent coastal wetland or the quality and quantity of surface and ground water flows to and from the coastal wetland. The development will need to demonstrate avoidance and mitigation measures to avoid and minimise impacts to the adjacent wetland.

As Chapter 2 Coastal Management of the SEPP (Resilience and Hazards) 2021 applies to the subject land, and the subject land includes areas mapped as Coastal Wetlands, any future development will need to address the relevant clauses in the SEPP, as identified in Table 1.

Riparian Areas

As shown in Figure 3, a number of unnamed 1st, 2nd, and 3rd order watercourses (using the Strahler system of ordering watercourses) occur within the subject land, draining to Longvale Swamp. Under the NSW *Water Management Act 2000* (WM Act), a minimum 10 m riparian buffer is required for 1st order watercourses, a 20 m buffer for 2nd order, and 30 m for 3rd order watercourses. The watercourses within the subject land are also mapped as Category 3 watercourses on ESCs riparian constraint map. Under the Eurobodalla Local Environmental Plan 2012 (LEP) a 10 m buffer from the top of bank is required for Category 3 watercourses.

A future development proposal will need to incorporate, as a minimum, buffers to watercourses consistent with the requirements under the WM Act and LEP, as shown in Figure 3. Note, the buffers shown in Figure 3 are from the 1:25,000 scale watercourse mapping and may not accurately correspond with the actual top of bank of the watercourses associated with the subject land.

There is capacity to review the watercourse mapping and riparian buffer requirements, and in some instances, it may not be necessary to provide buffers to some of the mapped 1st order watercourses. It is recommended that early liaison with NRAR be undertaken to clarify their expectations regarding riparian buffers.

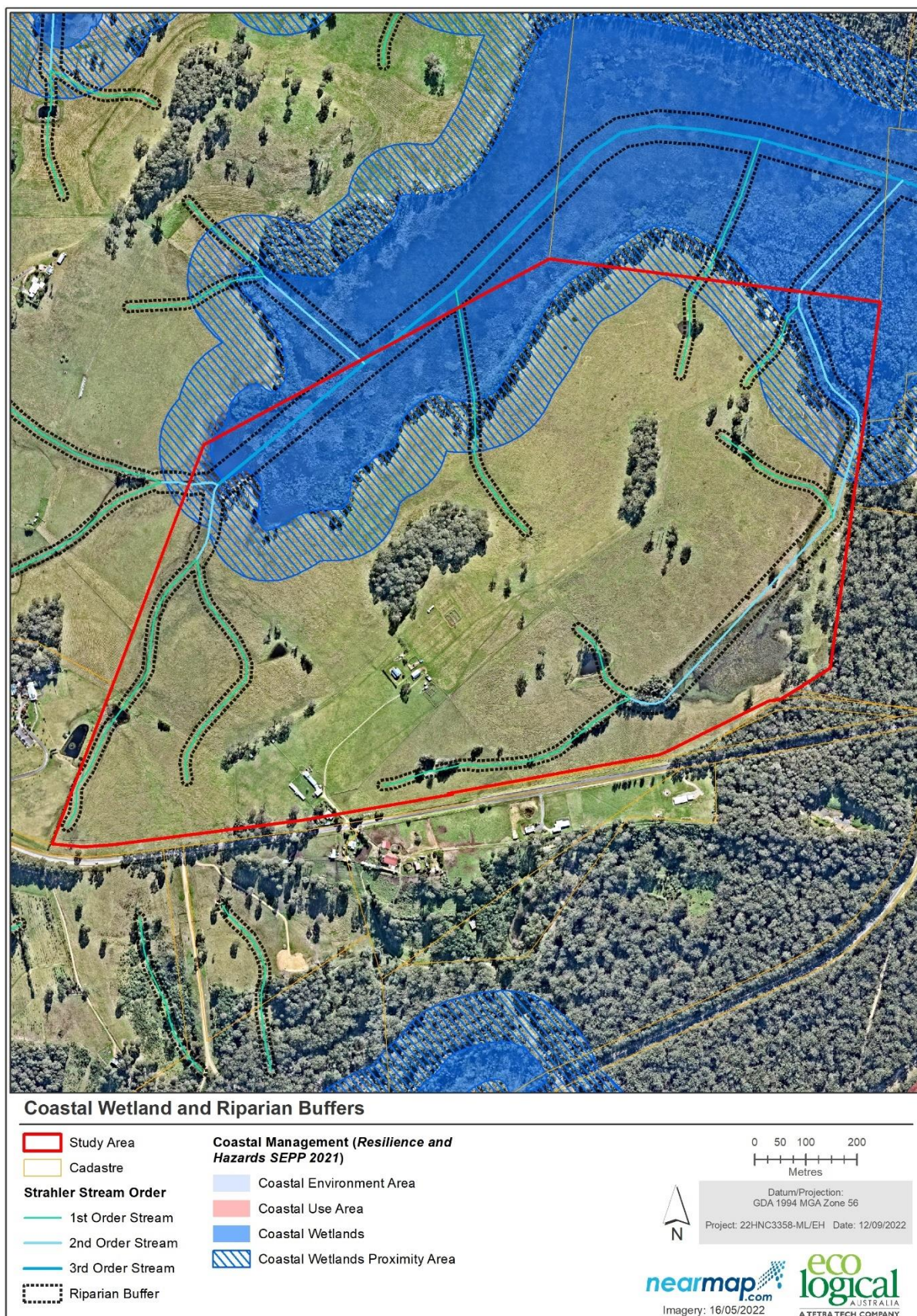


Figure 3: Coastal Wetlands and Riparian buffer mapping within the subject land.

Table 1: Coastal Wetlands requirements under Chapter 2 Coastal Management of the SEPP (Resilience and Hazards) 2021

Coastal Zone	Development Controls	Notes
Clause 2.7 Coastal wetlands and littoral rainforests	<p>(1) The following may be carried out on land identified as “coastal wetlands” or “littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map only with development consent—</p> <ul style="list-style-type: none"> (a) the clearing of native vegetation within the meaning of Part 5A of the Local Land Services Act 2013, (b) the harm of marine vegetation within the meaning of Division 4 of Part 7 of the Fisheries Management Act 1994, (c) the carrying out of any of the following— <ul style="list-style-type: none"> (i) earthworks (including the depositing of material on land), (ii) constructing a levee, (iii) draining the land, (iv) environmental protection works, (d) any other development. <p>Note—</p> <p>Clause 2.14 provides that, for the avoidance of doubt, nothing in this Part—</p> <ul style="list-style-type: none"> (a) permits the carrying out of development that is prohibited development under another environmental planning instrument, or (b) permits the carrying out of development without development consent where another environmental planning instrument provides that the development may be carried out only with development consent. <p>(2) Development for which consent is required by subsection (1), other than development for the purpose of environmental protection works, is declared to be designated development for the purposes of the Act.</p>	<p>Anything other than environmental protection works will be designated development.</p> <p>It is best to avoid any direct impacts on mapped Coastal Wetlands.</p>
Clause 2.8 Land in proximity to coastal wetlands or littoral rainforest	<p>(1) Development consent must not be granted to development on land identified as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on—</p> <ul style="list-style-type: none"> (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or (b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest. <p>(2) This section does not apply to land that is identified as “coastal wetlands” or “littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map.</p>	<p>Development can occur with consent if the applicant can demonstrate no significant impact on the adjacent wetlands.</p>

Biodiversity Offset Scheme

The BC Act introduces a mandatory framework for addressing impacts on biodiversity from development and clearing, including the BOS and Biodiversity Assessment Method (BAM). If the BOS is triggered a Biodiversity Assessment Report (BAR) prepared in accordance with the BAM is required. Future development within the subject land will trigger the BOS if:

- any native vegetation on the biodiversity values map (see Figure 4) is cleared
- the development exceeds the clearing threshold for the BOS which applies to the subject land (1 ha); or
- the development is likely to result in a significant impact on any threatened entity listed under the BC Act.

Whilst it is possible that future development within the subject land may trigger the BOS, there is ample opportunity to avoid triggering the BOS, given the extent of cleared land associated with the subject land.

Preliminary BAM assessment

A preliminary assessment using the BAM calculator (BAMC) was undertaken to assess the potential biodiversity credits requirements if the proposed development was to trigger the BOS. Note, this is preliminary advice only, and is based on limited survey and plot data. It is intended only as a preliminary assessment of the potential biodiversity credit obligations of future development within the subject land. As discussed above, there is ample opportunity to avoid triggering the BOS, given the extent of cleared land associated with the subject land, the intention to not only avoid and minimise any clearing of native vegetation, but to recover and rehabilitate native vegetation across the site.

Ecosystem credits

The majority of the subject land comprises grazing pastures dominated by exotic pasture grasses. Some hardy native grasses and forbs, and to a lesser extent shrubs, are scattered throughout the grazing pastures to varying degrees. A preliminary assessment of the grazing pastures within the subject land suggests that they are well below the thresholds at which they may be considered native vegetation and/or the vegetation integrity score that would require offsetting under the BOS.

In general, any development and impacts in the grazing pastures within the subject land will not trigger the BOS or incur any biodiversity credit obligation. The exception to this is those grazing pastures in close proximity i.e. within approximately 20-40 m, of remnant vegetation, particularly the forest fringing Longvale Swamp in the northern parts of the subject land. As shown in Photo 14, these areas typically support a greater cover and diversity of native plants and, in some areas, would be above the threshold at which offsetting is required under the BOS. In general, given that these areas are within the required buffers to the wetland required under SEPP, WM Act and LEP, they will not be developed. However, any permissible development that is proposed in these areas, i.e. perimeter roads, walking or bike paths, stormwater management infrastructure etc, may require offsetting. Given the relatively low condition of this vegetation, any offset requirements are likely to be relatively modest with respect to quantum and cost.

Notwithstanding the objective of the proposed development to protect and enhance the biodiversity values within the subject land, the BC Act requires proponents to demonstrate appropriate application of the hierarchy of “avoid, minimise and mitigate” impacts through reasonable measures prior to consideration of offsets. Recent Land and Environment (L&E) court judgements have provided more clarity about the application of the hierarchy, and demonstrated that a minimal approach i.e. only retaining areas that are not developable, is not a sufficient demonstration of “reasonable measures”.

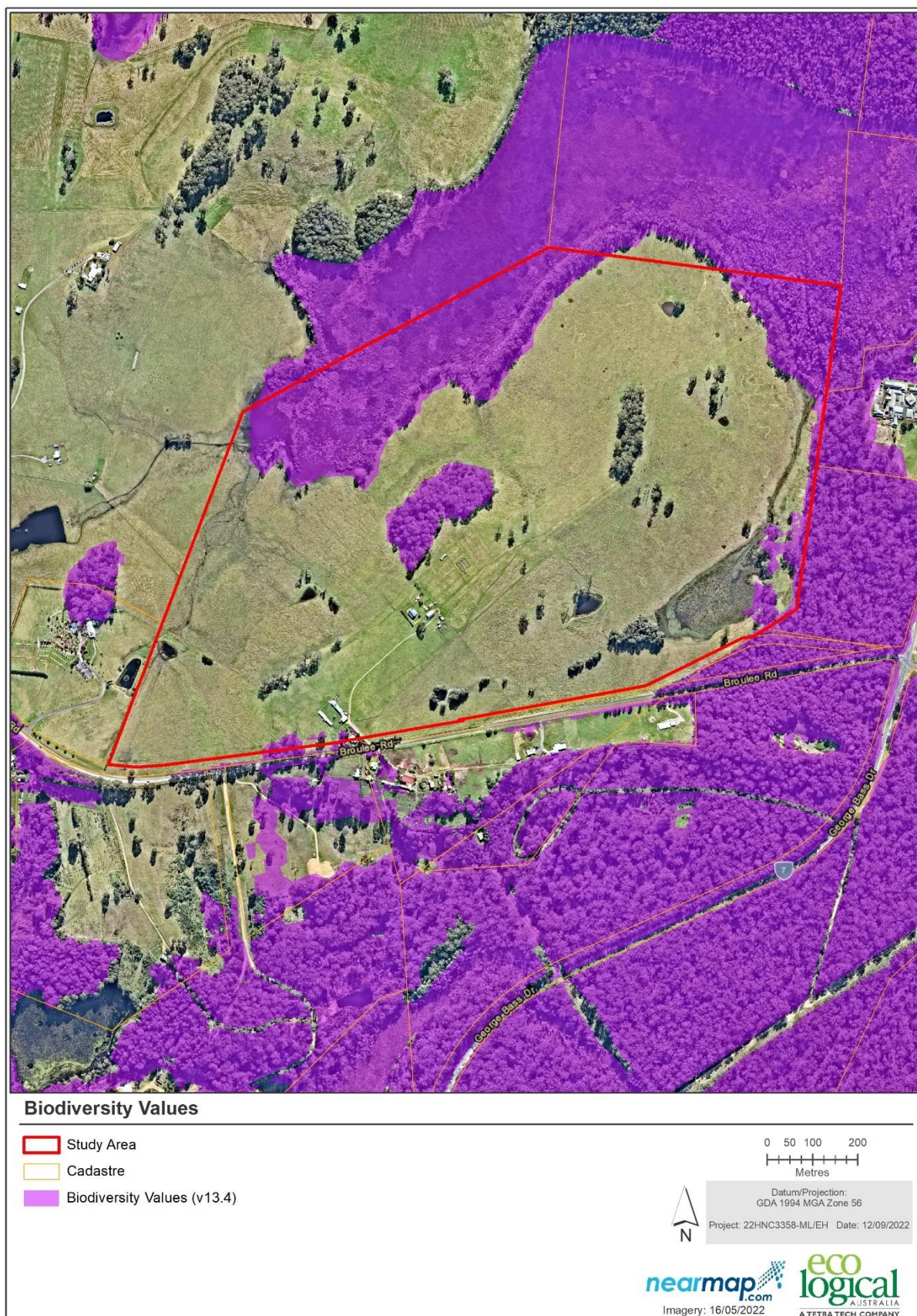


Figure 4: Biodiversity Values map as it applies to the subject land



Photo 13: The grazing pastures which dominate the subject land are dominated by exotic pasture grasses and typically only support occasional patches or scattered individuals of hardy native grasses, forbs, plants or shrubs. As such they are below the threshold where they would be considered a constraint to the proposed development. On the contrary, they are the areas where development should be concentrated given their low biodiversity value.



Photo 14: Areas fringing the remnant forests and wetlands within the subject land typically support higher cover of native plants, and thus present a moderate constraint to development. However, these areas are typically within the buffers required to avoid and manage indirect impacts, and thus should not typically be impacted by the proposed development.

The L&E court judgements indicate that development designs need to respond to the biodiversity values/constraints, and demonstrate how these have been retained/avoided, and adverse impacts avoided and minimized. Consistent with the requirements of the mitigation hierarchy and the sustainability objectives of the proposed development, clearing of the remnant forest, wetlands or isolated trees within the subject land should be avoided. If it is not entirely possible to avoid clearing, then ecosystem credits are likely to be required. However, as noted above, offset requirements are likely to be relatively modest with respect to quantum and cost.

Species credits

Regardless of the approval process future development of the subject land is subject to a range of targeted surveys using approved methods and effort during the appropriate season will be required. This is irrespective of whether the BOS is triggered or not. Each candidate threatened species will need to be surveyed for to demonstrate presence/absence within the subject land. If the BOS is triggered, these surveys will determine whether biodiversity credits will be required to offset any potential impact on the species. If the BOS is not triggered, these surveys will be used to inform the development design and enable the appropriate application of the mitigation hierarchy. It is unlikely that that many threatened species impacts will need to be offset, given the habitats within the subject land and the objectives of the proposed development. As such, if a species credit obligation is created by clearing for a future development, then any offset requirements are likely to be relatively modest with respect to quantum and cost.

Biodiversity Constraints

A summary of identified biodiversity constraints in the subject land is provided in Table 2 and Figure 5.

Table 2: Classification of biodiversity values

Constraint Level	Value present	Ranking criteria
High	Riparian buffers to 2nd and 3 rd order watercourse	<ul style="list-style-type: none"> • Riparian buffers to larger watercourses. • Important wetlands.
	Mapped Coastal Wetlands	<ul style="list-style-type: none"> • Threatened ecological communities.
	TECs	<ul style="list-style-type: none"> • Hollow-bearing trees occur across the subject land and should be retained.
	Hollow-bearing trees	<ul style="list-style-type: none"> • Known and potential denning habitat for Yellow-bellied Glider
Medium	Native vegetation in good condition	<ul style="list-style-type: none"> • Potential threatened flora habitats. • Potential denning, roosting, and breeding habitat for threatened mammals, birds and microbats.
	Proximity to Coastal Wetlands	<ul style="list-style-type: none"> • Buffers to important wetlands
	Riparian buffers to 1 st order watercourse	<ul style="list-style-type: none"> • Not all mapped 1st order watercourses will necessarily be considered so by NRAR and thus may not require a riparian buffer.
	Potential habitat linkages	<ul style="list-style-type: none"> • Areas that could be revegetated or planted with trees to provide habitat linkages, particularly for birds, bat and arboreal mammals.
Low/Negligible	Scattered/isolated remnant trees	<ul style="list-style-type: none"> • Isolated trees should be retained where possible, particularly where they are hollow-bearing, and where possible should be included within proposed habitat linkages. • Potential foraging habitat for threatened fauna species.
	Exotic pastures or otherwise substantially degraded areas.	<ul style="list-style-type: none"> • These areas have negligible biodiversity value.

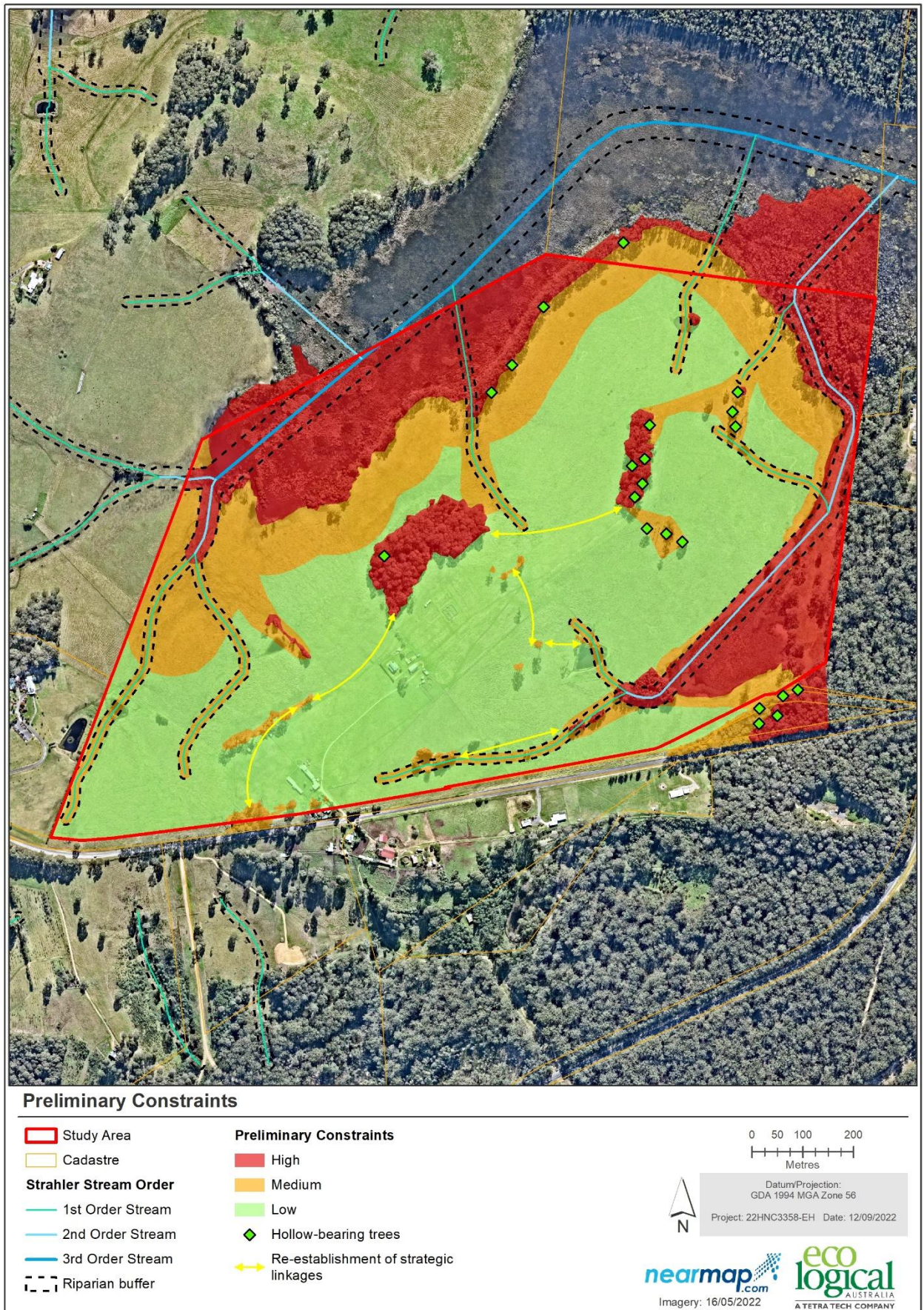


Figure 5: Preliminary biodiversity constraint levels within the subject land

On the basis of the assessment undertaken to date, those areas that are identified in Figure 5 as High biodiversity constraint (30 ha) are unsuitable for future residential or other types of development and will need to be retained, protected and buffered from any indirect impacts.

Those areas identified as Medium (29 ha) constraint appear, on the basis of the preliminary analysis, to be less constrained from a biodiversity perspective. Limited impacts on riparian areas or buffers to coastal wetlands may be acceptable in some circumstances for road crossings, stormwater infrastructure, for walking and bike paths, or other relatively minor impacts. Any residential or other development in these areas will need to be minimal and compensated for elsewhere. Isolated trees, whilst they should ideally be retained, pose a medium constraint to development, particularly if they are not hollow-bearing. Similarly, not all mapped 1st order watercourses will necessarily be considered by NRAR and may not require a riparian buffer. The areas identified as potential habitat linkages are indicative only, and the exact location and shape of habitat linkages is flexible such that the mapped linkages are only considered a medium constraint. However, parts of these areas are constrained more heavily by hollow-bearing trees. These constraints, and other potential biodiversity constraints that may be identified during a comprehensive biodiversity assessment, required for any future development, may further constrain the Medium constraint areas identified in this preliminary assessment.

The 68 ha of Low / Negligible constraint is, based on the assessment undertaken to date, considered to be unconstrained by biodiversity values. It is important to note that the Low and Medium constraint areas identified in Figure 5 do not necessarily represent a preliminary “developable area” as the constraint assessment does not include other considerations such as bushfire protection measures, cultural heritage, engineering or other constraints.

Additional Survey and Assessment

Whilst there is no legislative requirement to undertake a Biodiversity Development Assessment Report (BDAR) for a Planning Proposal (rezoning), it is increasingly requested by councils that Planning Proposals include a BDAR or completion of Stage 1-2 of the BAM. We recommend that the biodiversity assessment requirements to accompany any future Planning Proposal are clarified with ESC as soon as possible.

Regardless of the specific planning and approval pathway, additional targeted threatened species surveys will need to be undertaken to complete a BAR for any future Planning Proposal or development application. Some targeted surveys will be essential to demonstrate, as required by the BC Act and BAM, that adequate measures have been undertaken to avoid and mitigate impacts on native vegetation and threatened species. Other targeted surveys will be prudent to provide evidence that species credit species do not occur within the subject land and subsequently to justify why the potential impacts on the species may not need to be offset. These surveys may also significantly reduce, or potentially eliminate, species credit offset requirements and associated cost.

Targeted surveys required to complete an assessment for any future development proposal have seasonal requirements and a full year may be required to comply with all the seasonal survey requirements for each threatened species. Many species can be surveyed for during the spring and summer period, however some species such as the Glossy Black-cockatoo and large forest owls, can only be surveyed for during late autumn and winter. As such, we recommend that targeted surveys commence as soon as possible to avoid delays.

Threatened species that are likely to require targeted surveys include the threatened cockatoos the Gang-gang Cockatoo and Glossy Black-cockatoo, Masked and Barking owls, the arboreal mammals Yellow-bellied Glider and Greater Glider, threatened raptors and microbats, and Green and Golden Bell and Giant Burrowing frogs.

EPBC Act referral

Under the EPBC Act, actions that have the potential for a significant impact on a federally listed entity, must be referred to the Commonwealth. Proponents have a legal obligation to refer actions if there is a potential for a significant impact on a federally listed entity. There are significant penalties for not doing so. Despite the anticipated relatively limited impacts of the proposed development, and notwithstanding the potential benefits of the biodiversity recovery and rehabilitation opportunities associated with the proposed development, it would be prudent to liaise with the Commonwealth, and if recommended by the pre-referral process, to refer a future development proposal. Not doing so would leave the proposal and proponent open to the risk of potential prosecution and criticism for not referring, and associated delays and costs to subsequently refer if called in by the Commonwealth. When a referral is made, the Commonwealth will then determine whether the action is a “controlled action” or not, and thus whether it requires assessment and approval under the EPBC Act. The Commonwealth must determine whether the action is a “controlled action” within 20 days of referral.

Opportunities

Notwithstanding the diverse range and quality of the remnant biodiversity values on the subject land, the biodiversity values of the subject land have been heavily degraded by historic clearing for farming and associated practices such as logging for fence posts and firewood collection, and continue to be degraded by ongoing grazing. The proposed development, if it involves a change of landuse that promotes sustainability and ecological recovery and enhancement, provides an opportunity to significantly improve the biodiversity values which remain within the subject land and provide significant biodiversity benefits at a local scale. Some of the potential opportunities are discussed briefly below, and identified in Figure 6.

Recovery of native vegetation communities - The remnant native vegetation within the subject land has excellent recovery potential and will respond well to the removal of grazing and other recovery actions such as weed control, strategic planting and the installation of supplementary fauna habitats such as nestboxes. Furthermore, some areas that have been cleared, particularly those areas that would have formerly supported forested wetlands, could be reforested.

Improved buffers to Longvale Swamp and other waterbodies - Enhancing the vegetated buffers to Longvale Swamp and the other wetlands within the subject land would provide a significant biodiversity benefit generally, but will also enhance the ecological integrity of the wetlands, improve water quality, and mitigate the potential for indirect impacts from the proposed development. These buffers will also provide opportunities for kangaroos and other macropods which currently occupy the subject land to graze and move through the property to adjoining lands.

Improved habitat connectivity throughout the subject land and beyond - Re-establishing connectivity between the patches of remnant native vegetation within the subject land and the extensive forests and wetlands on surrounding properties will significantly enhance their biodiversity value, long-term viability, and the ecosystem services they provide.

Increased awareness and appreciation of the biodiversity values on the subject land and locally.

A system of walking /cycling paths, picnic areas, bird hides, boardwalks and interpretive signage that take advantage of and showcase the biodiversity values within the subject land would, in addition to being a valuable local recreational resource, increase awareness and appreciation of the truly wonderful biodiversity values within the subject land and locally.

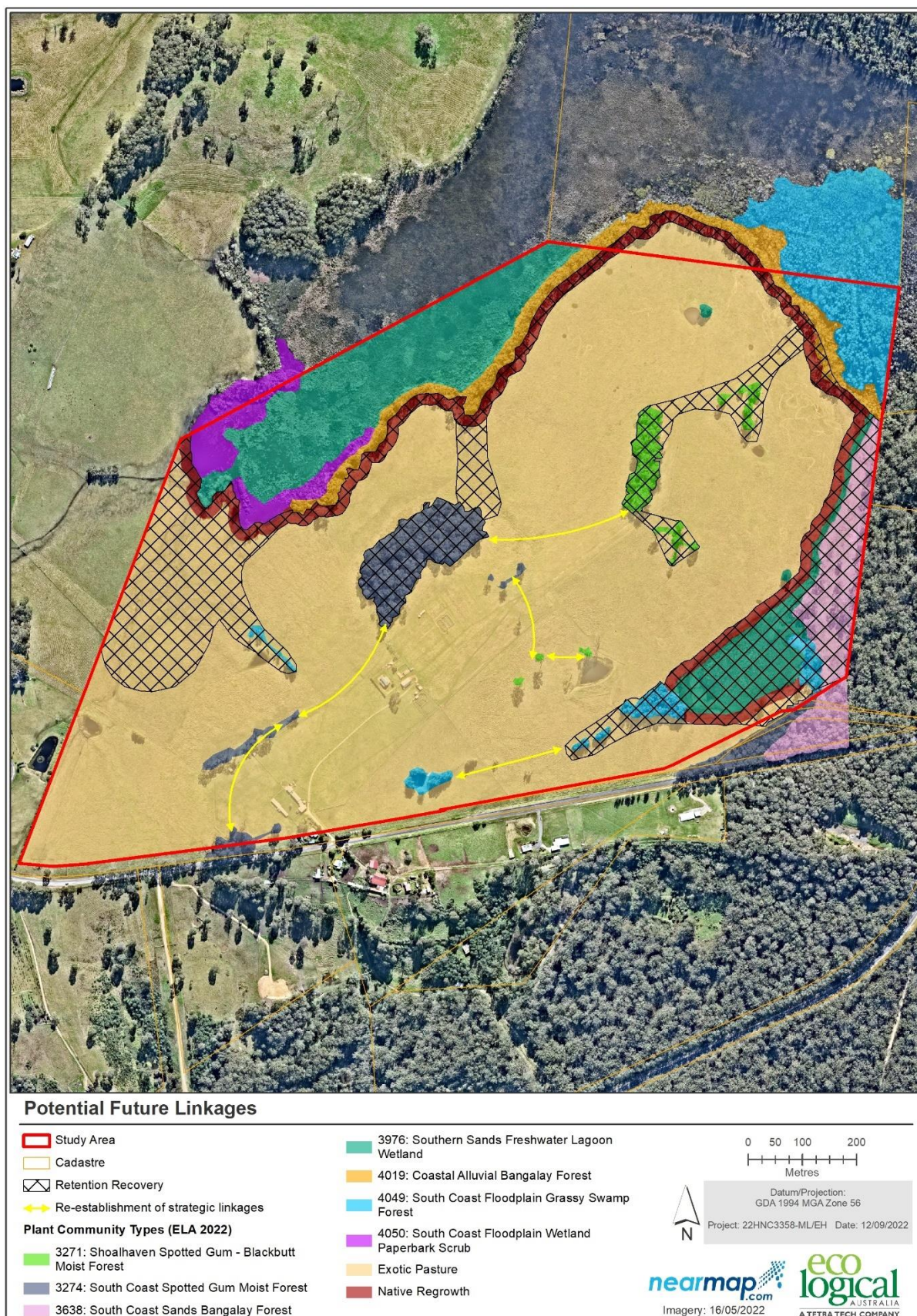


Figure 6: Potential areas for vegetation recovery and enhancement and potential habitat linkages.



Photo 15: The Forested Wetlands that have been removed from the low-lying and poorly drained areas fringing Longvale Swamp could be recovered through the cessation of grazing and strategic planting.



Photo 16: A walking /cycling path with exercise equipment bird hides, boardwalks and interpretive signage would be a great resource and an excellent use of the buffer to Longvale Swamp. Areas with good recovery potential could be revegetated and the buffer comprise a mix of vegetation and open areas used for recreation and other compatible uses.



Photo 17: 1st order watercourses and associated riparian buffers could be used as habitat corridors linking the remnant vegetation within the subject land to larger areas of forest, like the forest fringing Longvale Swamp.



Photo 18: The BSF in the eastern extremities of the subject land has excellent recovery potential and provides excellent opportunities to increase biodiversity values through recovering the TEC and enhancing the locally important north – south habitat corridor through this area. It could also be traversed by a walking/cycling path with exercise equipment, picnic areas, bird hides, boardwalks and interpretive signage.



Photo 19: Patches of isolated old-growth trees should be considered assets. With considered design and modest supplementary planting, the connectivity and integrity of these patches could be enhanced whilst also providing a safe and special community space.



Photo 20: Revegetating the degraded channel linking the wetland in the southern parts of the subject land to Longvale swamp will provide significant local biodiversity enhancement.

Summary

This preliminary assessment has identified:

- the bulk of the subject land (68 ha) is relatively unconstrained by biodiversity values given historic clearing and pasture improvement.
- areas of high biodiversity value, with significant opportunity to protect, recover and enhance the biodiversity values within the subject land.
- a change of land use of the subject land that promotes ecologically sustainable development, has the potential for significant biodiversity benefits both on the subject land and locally.
- approximately 30 ha is highly constrained by wetlands, watercourses and associated riparian buffers, TECs, hollow-bearing trees and other remnant native vegetation.
- approximately 29 ha is constrained to a lesser extent by buffers to wetlands, 1st order watercourses, isolated remnant trees, and potential habitat linkages.
- that future development may trigger the BOS, however it is unlikely to generate a substantial biodiversity credit obligation or associated cost given the intention to retain and enhance the biodiversity values of the land.
- that early liaison with the Commonwealth is recommended early in the development design process.
- that early liaison with NRAR is recommended early in the development design process.
- positive biodiversity benefits of ecologically sustainable residential development that protects and enhances the biodiversity values of the subject land, additional surveys and assessment will be required to document and clarify the biodiversity values on the subject land, and to comply with the required environmental assessment.

This preliminary assessment has identified there is considerable scope for ecologically sustainable residential development that protects and enhances the significant biodiversity values.

If you have any queries in relation to this advice please contact me by email or 0422 802 447.

Regards,



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