

# ***Environmental Impact Assessment (EIA)***

## **Flynn Drive Staged Road Upgrade (Stage 2)**

Flynn Drive road reserve BANKSIA GROVE, CARRAMAR and  
NEERABUP, Mather Drive road reserve, NEERABUP,  
Lot 8002, 270 Flynn Drive, NEERABUP and  
Lot 9943, 310 Flynn Drive, NEERABUP

Native Vegetation Clearing Permit Application  
Supporting Documentation

November 2022

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# 1. Introduction

The City of Wanneroo is proposing to undertake the clearing of vegetation within the boundaries of Flynn Drive road reserve, Mather Drive road reserve, Lot 8002 270 Flynn Drive, and Lot 9943 310 Flynn Drive BANKSIA GROVE, CARRAMAR and NEERABUP. The proposed clearing is to enable the staged upgrade of the existing road to a dual carriageway and enable the installation of associated infrastructure, including: adjoining intersection upgrades, shared use pathways and connections, drainage and kerbing, street lighting, asset (service) protection and relocation, signage and integrated landscaping. Detailed land parcel information for the locations affected by the proposed clearing works is contained within Table 1 below, copies of the Land Titles for Lot 8002 and Lot 9943 are provided as Attachment A and B.

**Table 1:** Ownership and zoning of the land affected by the proposed clearing works.

Project	Lot number	Deposited Plan	Reserve Number	Address	Land Owner	MRS Zoning	Reserve Purpose
Flynn Drive Upgrade from Tranquil Drive to (just past) Pinjar Road (Stage 2)	n/a	n/a	n/a	Flynn Drive road reserve, BANKSIA GROVE (6031), CARRAMAR (6031) AND NEERABUP (6031)	Crown Land - City of Wanneroo	Other Regional Road	n/a
	n/a	n/a	n/a	Mather Drive road reserve, NEERABUP (6031)	Crown Land - City of Wanneroo	Industrial, Other Regional Road	n/a
	8002	411322	53164	270 Flynn Drive, NEERABUP 6031	Crown Land - City of Wanneroo	Industrial	Drainage
	9943	53573	35951	310 Flynn Drive, NEERABUP 6031	Crown Land - City of Wanneroo	Industrial, Other Regional Road	Public Recreation

To facilitate the clearing within the Flynn Drive road reserve, Mather Drive road reserve, Lot 8002 and Lot 9943 the City submits this supporting documentation to assist the Department of Water and Environmental Regulation's (DWER) assessment of the clearing permit application.

## 2. Background

The City has been advocating for a number of years for the upgrades to Flynn Drive due to the strategic and community benefits. The urgency for road upgrades has grown due to the increased traffic volumes and growing needs of residential and commercial road users.

The proposed staged upgrades to Flynn Drive will provide the following strategic and community benefits:

- Improving road infrastructure and providing an arterial link from Wanneroo Road to Old Yanchep Road and the adjoining Neerabup Industrial Area
- a strategic transport link between the Mitchell Freeway and the Neerabup Industrial Area
- an important East / West link to the future proposed realigned Neaves Road and Whiteman Park to Yanchep Highway
- accommodate extra traffic capacity generated by the industrial development of Lot 9100, Mather Drive and subsequent development of additional land in the Neerabup Industrial Estate
- encourage investment and development, catering for the pace of development in this corridor
- reduce traffic congestion and frustration, and serve the community in Banksia Grove and Carramar residential areas and
- provide cycle lanes and shared paths and additional road connectivity for surrounding residents.

The City proposes to construct the project in three (3) stages over the next three years with Table 2 below detailing the projects staged road improvement upgrades to Flynn Drive. The total proposed clearing for stage 2 of the Flynn Drive upgrade project is 6.0 hectares (60,000m<sup>2</sup>) within a 12.164 hectares (121,640m<sup>2</sup>) footprint and is the subject of this Environmental Impact Assessment (EIA) (Figure 1 and 2). The clearing plan and shapefiles for stage 2 are provided as Attachment C and D respectively.

Stage 2 of the Flynn Drive upgrade project includes the upgrade of the existing road to a dual carriageway between Tranquil Drive and Pinjar Road and enables the installation of associated infrastructure, including: adjoining intersection upgrades, shared use pathways and connections, drainage and kerbing, street lighting, asset (service) protection and relocation, signage and integrated landscaping (Figure 1 and 2). Flynn Drive Design Drawings (inclusive of Stages 1 through 3) are provided as Attachment E.

The City sought, and was granted CPS 3731/2 (now CPS 3731/8) in 2010 to enable the upgrade and realignment of Flynn Drive from Wanneroo Road to Travertine Vista, CARRAMAR and NEERABUP. These works were commenced by the City in mid-2013, however the completion of the works were delayed until early 2017 to tie-in with Main Roads roadworks to Wanneroo Road between Joondalup Drive and Hester Avenue.

In May 2022 the City sought an amendment to CPS 3731/7 requesting an extension in the duration of the permit to complete remaining Stage 1 works. CPS 3731/8 was granted on 16 September 2022 with clearing now authorised until 19 September 2027 (Attachment F).

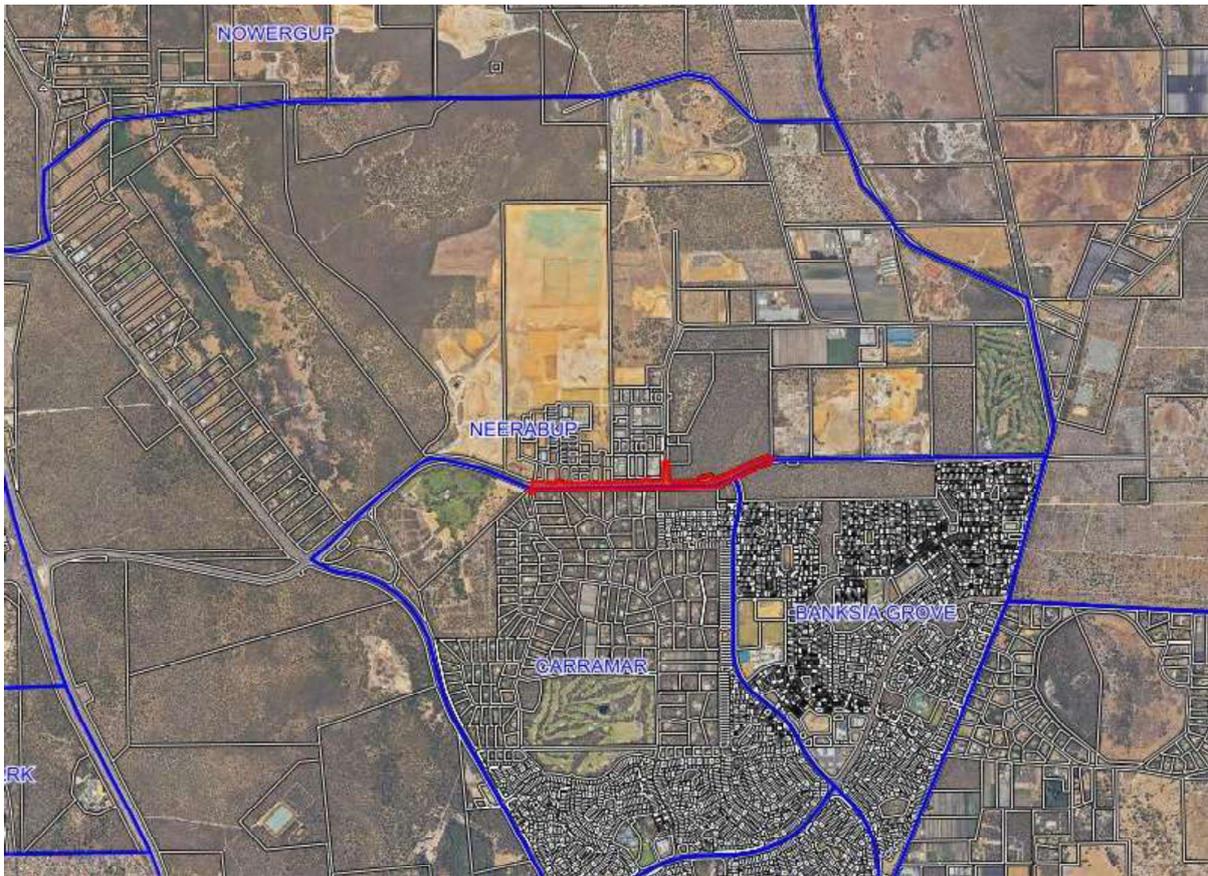
Development of the clearing plan and supporting documentation for Stage 3 of the Flynn Drive upgrade project is currently underway and an application for clearing permit will be submitted to the Department shortly for assessment.

Stages 2 and 3 of the Flynn Drive upgrade project will be referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) presently due to the occurrence of protected matters within these locations. Please note, the City is not referring the clearing of these project stages under the Bilateral assessment process. On 29<sup>th</sup> July 2012, the City received the notification of referral decision for EPBC 2011/6170 for clearing of Flynn Drive between Wanneroo Road and Tranquil Drive, Carramar and Neerabup (Stage 1 works).

**Table 2:** Flynn Drive project, clearing details and timeframes.

Proposed Project Stages	Project Details	Clearing Requirements	Proposed construction timeframes
Stage 1	Improvements to the single carriageway and alignment from Travertine Vista to Tranquil Drive	Clearing conditioned under CPS 3731/8 and EPBC 2011/6170	February 2023 to November 2023
Stage 2	Upgrades to the dual carriageway from Tranquil Drive to (just past) Pinjar Road	Proposed clearing to be assessed as part of this application	November 2023 to September 2024 (subject to receipt of clearing permit. If permit granted earlier, staging would be brought forward).
Stage 3	Upgrades to the rural grade section of Flynn Drive between Pinjar Road and Old Yanchep Road	Clearing permit application yet to be submitted	September 2024 to March 2025 (subject to land acquisition finalisation and receipt of clearing permit).

The City has been pledged State and Federal funding to enable upgrades to Flynn Drive, with the WA Labor Government pledging \$20M and the Federal Government providing \$2.5M toward the project. Both funding agreements are subject to time constraints with the State Government funding to be fully expended by October 2024 and the Federal Government funding to be fully expended by February 2025. State and Federal Government funding agreements and relevant correspondence are provided as Attachment's G.1 and G.2.



**Figure 1:** Location map of Flynn Drive between Tranquil Drive and Pinjar Road, BANKSIA GROVE, CARRAMAR AND NEERABUP.



**Figure 2:** Project footprint of Flynn Drive between Tranquil Drive and Pinjar Road, BANKSIA GROVE, CARRAMAR AND NEERABUP.

The City's proposed Stage 2 Flynn Drive dual carriageway and associated works will impact upon native vegetation, planted landscaped vegetation and weed species within the Flynn Drive road reserve, Mather Drive road reserve, Lot 8002 and Lot 9943 and it is for this reason that a clearing permit is being sought from the Department of Water and Environmental Regulation (DWER).

### **3. Avoidance, Impacts and Mitigations**

The footprint required for the second carriageway of Flynn Drive has been outlined in the Metropolitan Regional Scheme (MRS) for a number of years. To help mitigate the proposed clearing works, the City proposes to retain suitable remnant native vegetation where possible within the proposed works footprint, provided the vegetation does not pose a safety concern to road or shared path uses and is not severely impacted as a result of construction activities. The City or its Contractors, when undertaking the works, will ensure that all reasonable actions to mitigate the loss of remnant native vegetation occur, wherever feasible.

The City is avoiding excessive clearing by clearing only what is absolutely necessary. At the time of construction, the Project Manager will assess all trees which sit outside the actual road carriageway, and on advice from an Arborist and the City of Wanneroo environmental team, determine if trees can be retained.

#### **3.1 How impacts have been avoided**

During the design phase of the project, the City's civil design consultant, in consultation with the City, conducted various investigative works, including the design and use of extensive

roadside swales along Flynn Drive in order to reduce the need for large drainage sumps which would have had increased the projects clearing footprint.

### 3.2 How impacts have been minimised

A summary of how the City has mitigated impacts to the surrounding bushland areas has been listed below:

- Surveying and clearly delineating the proposed clearing areas within the larger clearing footprint (with bunting/flagging) to ensure that no unauthorised clearing occurs outside of this footprint and
- A Construction Environmental Management Plan (CEMP) to be submitted, reviewed, and approved by the City, outlining how the project will be constructed including clearing activities and methodology, the demolition of existing materials and removal of waste, site hygiene, dust suppression methods and material stockpiling, among other considerations.

## **4. Scope**

The purpose of this document is to provide an assessment against the *Environmental Protection Act 1986* – Ten Clearing Principles to determine whether the proposed clearing is likely to have a significant impact on the environment. The clearing of vegetation is proposed within the Flynn Drive road reserve, Mather Drive road reserve, Lot 8002 and Lot 9943, totalling 6.0 hectares (60,000m<sup>2</sup>) within an 12.164 hectares (121,640m<sup>2</sup>) footprint (Figure 3, Attachment C - Clearing Plan 4140-2-0; and Attachment D – Shapefiles (GDA 1994 and GDA 2020)).



## 5. Flora and Vegetation

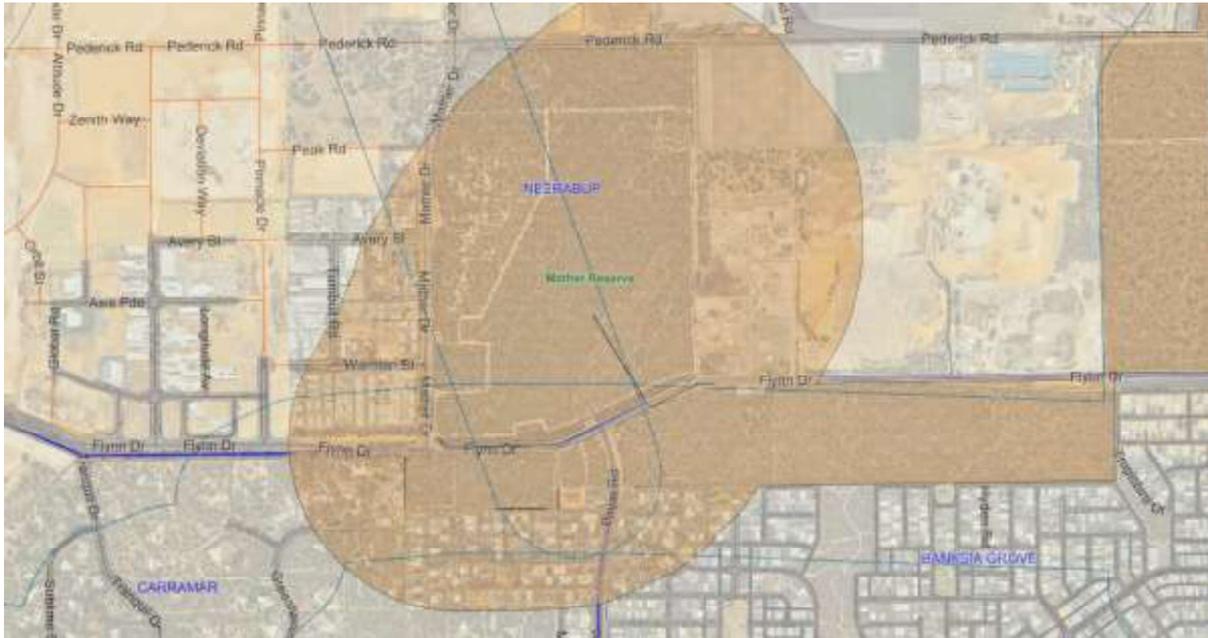
The City of Wanneroo engaged Ecoscape over two Spring seasons (2020 and 2021) to undertake Biological Surveys for different sections of Flynn Drive consistent with the Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016). In 2020, the survey of Flynn Drive was undertaken between Travertine Vista and Pinjar Road, and the 2021 survey was undertaken between Pinjar Road and Old Yanchep Road. In both years the surveys consisted of a two-phase detailed flora and vegetation survey.

The proposed clearing of the northern verge of Flynn Drive road reserve between Mather Drive to just past Pinjar Road forms part of Bush Forever Site 295 (Figure 4 below). Bush Forever Site 494 is present within land parcels adjoining the Flynn Drive road reserve (Wallangara Reserve and Lot 8031).



**Figure 4.** Bush Forever Sites 295 and 494 shown in green hatching along the Flynn Drive Stage 2 proposed clearing areas between Tranquil Drive and Pinjar Road.

The proposed Flynn Drive Stage 2 clearing areas contain both an Environmentally Sensitive Area (ESA), and Ecological Linkages (Figure 5 below).



**Figure 5.** Environmentally Sensitive Areas (ESA) (shown in orange shading) and Ecological Linkages (demarcated by blue polygons) along the Flynn Drive Stage 2 proposed clearing areas.

### [5.1 Flynn Drive - Travertine Vista and Pinjar Road \(2020\)<sup>1</sup>](#)

Ecoscape’s 2020 field survey was undertaken over two sampling periods 1-2 September and 6-7 October 2020. The survey identified 175 vascular flora taxa from 118 genera and 44 families along Flynn Drive from Travertine Vista to Pinjar Road from six quadrats and opportunistic observations.

One (1) Threatened Flora taxon (*Grevillea thelemanniana*) was recorded during Ecoscape’s 2020 survey. This species occurs outside of the Stage 2 project area (the area subject to this clearing permit application) and was assessed by the Department as part of the amendment to CPS 3731/7 (Attachment H.1 – CPS 3731/7 Request for information e-mail). It should be noted that the City concluded this species to be purposely planted in verge landscaping due to the listing of this species on City-produced landscaping plans (Attachment H.2 – Flynn Drive Landscaping Plan 01, specifically page 6).

Three (3) confirmed Priority Flora *Conostylis bracteata* (P3), *Grevillea olivacea* (P4), *Jacksonia sericea* (P4) were recorded during the survey (Ecoscape, 2021a). Of the three confirmed Priority Flora, *Grevillea olivacea* (P4) does not occur within the Stage 2 project area

<sup>1</sup> Referenced as (Ecoscape, 2021a).

and was also assessed by the Department during the amendment to CPS 3731/7 (see details in Attachment H.1). It should be noted that the City concluded this species to be cultivated and not representative of a naturally occurring population due to the justifications provided by the City's environmental consultants (Attachment H.1, pages 1 through 3).

Individuals of *Conostylis ?pauciflora* subsp. *pauciflora* (P4) were found within Stage 2 of the Flynn Drive project area but could not be identified to species level with certainty as species confirmation requires the presence of diagnostic flowering material that was not available at the time of Ecoscape's 2020 survey. The suitability of habitat and the scattered distribution of plants recorded during the 2020 survey suggests that a population extends into adjacent bushland (Ecoscape, 2021a).

46 introduced species (weeds) were recorded during Ecoscape's 2020 field survey representing 26.2% of the total flora inventory. A Weed of National Significance was also recorded (*\*Asparagus asparagoides* – Bridal Creeper) with multiple individuals occurring on the southern verge of Flynn Drive between Tranquil Drive and Pinjar Road (Ecoscape, 2021a).

Vegetation condition along Flynn Drive between Tranquil Drive and Pinjar Road ranged from Cleared/Not Vegetated to Excellent; including areas of Degraded-Good, Good and Very Good (Ecoscape, 2021a).

Ecoscape recorded two distinct vegetation types during the 2020 survey, confirmed with floristic analysis, with both types occurring between Tranquil Drive and Pinjar Road:

- **EmBaAf** – *Eucalyptus marginata*, *Banksia attenuata* and *Allocasuarina fraseriana* mid woodland: and
- **EgBsJs** – *Eucalyptus gomphocephala* mid open woodland over *Banksia sessilis* and *Jacksonia sternbergiana*.

Vegetation type **EmBaAf** is considered representative of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC) listed *Banksia* Woodlands of the Swan Coastal Plain TEC and Western Australian *Banksia attenuata* woodland over species rich dense shrublands TEC/PEC (Ecoscape, 2021a).

## 5.2 Flynn Drive – Pinjar Road and Old Yanchep Road (2021)<sup>2</sup>

Ecoscope's 2021 field survey was undertaken over two sampling periods 7-9 September and 18 October 2021. The survey identified 147 vascular flora taxa from 110 genera and 43 families along Flynn Drive from Pinjar Road to Old Yanchep Road from eight assessment sites (four quadrats and four relevés) and opportunistic observations. Relevés were used in linear, degraded areas where a bounded 10m x 10m quadrat was not practical and vegetation could effectively be captured via relevé assessment (Ecoscope, 2021c).

No Threatened or Priority Flora species were recorded in the survey area between Pinjar Road and Old Yanchep Road during Ecoscope's 2021 survey. Although not recorded in 2021, three (3) Priority taxa *Poranthera moorokatta* (P2), *Conostylis bracteata* (P3) and *Jacksonia sericea* (P4) are considered to have potential to be present within the survey area (Ecoscope, 2021c).

43 introduced species (weeds), representing 29.25% of the total flora inventory, were recorded during Ecoscope's 2021 field survey, none of which were Weeds of National Significance or Declared Pest plants. Weed cover in the four (4) relevés ranged from 15% to 85%, with weed burden and diversity highest along road verges and areas of previous clearing or disturbance (Ecoscope, 2021c). Within the *Banksia* woodland quadrat sites (Q01, Q02 and Q03) observed weed cover was low <3%.

Vegetation condition along Flynn Drive between Pinjar Road and Old Yanchep Road ranged from Cleared/Not Vegetated to Very Good - Excellent; including areas of Completely Degraded, Degraded, Good, and Revegetation (Ecoscope, 2021c).

Ecoscope recorded one distinct vegetation type along Flynn Drive between Pinjar Road and Old Yanchep Road during the 2021 survey, **BAf** –*Banksia* spp. and *Allocasuarina fraseriana* low open woodland, confirmed with floristic analysis.

A portion of vegetation type **BAf** is considered representative of the EPBC-listed *Banksia* Woodlands of the Swan Coastal Plain TEC and Western Australian *Banksia attenuata* woodland over species rich dense shrublands TEC/PEC (Ecoscope, 2021c).

Other portions of the survey area between Pinjar Road and Old Yanchep Road consisted of revegetation/landscaping, or were cleared of vegetation, and are not considered native vegetation (Ecoscope, 2021c).

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<sup>2</sup> Referenced as (Ecoscope, 2021c)

## 6. Fauna

The City of Wanneroo engaged Ecoscape over two Spring seasons (2020 and 2021) to undertake Biological Surveys for different sections of Flynn Drive consistent with the Fauna Technical Guidance (EPA, 2020a). In 2020, the survey of Flynn Drive was undertaken between Travertine Vista and Pinjar Road and in 2021, the survey was undertaken between Pinjar Road and Old Yanchep Road. In both years, the surveys consisted of a basic fauna survey and a Black Cockatoo habitat survey.

WALGA's Environmental Protection Considerations Report (EPCR) identified instances of threatened or priority fauna species within the selected footprint. Protected fauna species were also identified within a 5km radius of the selected area (Attachment I). The WALGA EPCR also identified the selected area contains vegetation mapped as potential Quenda (*Isoodon obesulus*) habitat.

The City's Native Vegetation Clearing Permit (NVC) Report (Attachment J) identified the selected area as being located within a Carnaby's cockatoo (*Zanda latirostris*) "Confirmed" roosting area buffer and contained foraging habitat. In addition, the NVC identified the proposed clearing area as a Key Biodiversity Area for birds Northern Swan Coastal Plain IBA.

### 6.1 Flynn Drive - Travertine Vista and Pinjar Road (2020)<sup>3</sup>

Ecoscape's 2020 basic fauna and Black Cockatoo habitat survey were undertaken on 6-7 October 2020.

A total of 21 vertebrate species were recorded from the survey area during the field survey (one mammal – Western Grey Kangaroo, 19 birds and one reptile - Bobtail). Four (4) introduced species were recorded in the survey area: *Canis familiaris* (Dog), *Oryctolagus cuniculus* (Rabbit), *Rattus rattus* (Black Rat) and *Spilopelia chinensis* (Spotted Turtle Dove). One species of significance were sighted as a flying pair over the survey area (Carnaby's Cockatoo – *Zanda latirostris*) (Ecoscape, 2021b).

In addition to visual observation of Carnaby's Black Cockatoo (*Zanda latirostris*) individuals, evidence of foraging activity by this species was also present in the form of chewed Marri fruits (*Corymbia calophylla*) (Ecoscape, 2021b).

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<sup>3</sup> Referenced as (Ecoscape, 2021b).

Three conservation significant species (Forest Red-tailed Black Cockatoo, Quenda and Black-striped Snake) are considered to likely utilise the survey area, however were recorded only in the desktop assessment, and not during the field survey (Ecoscape, 2021b).

The fauna survey determined that two fauna habitat types occur: Woodland and Shrubland. The Woodland habitat type occurs across the majority of the survey area, and the low-quality Shrubland type occurs as isolated, patchy areas of revegetation or landscaping throughout the survey area (Ecoscape, 2021b).

Woodlands occurred throughout the survey area and comprised two sub-units: *Eucalyptus gomphocephala* (Tuart) woodland and *Banksia attenuata* woodland. The Tuart-woodland was assessed as good quality and the *Banksia attenuata* woodland assessed as very good quality. Woodland habitat areas will support bird and ground-dwelling vertebrate species, including the conservation significant Black Cockatoo species (Carnaby's and the Forest Red-tailed Black Cockatoo) (Ecoscape, 2021b).

An assessment was completed utilising the grading system for the assessment of potential breeding trees for Black Cockatoos (DSEWPaC, 2012), with breeding trees scored in accordance with scale developed by Dr Mike Bamford (Bamford, 2016). A total of 46 potential Black Cockatoo breeding trees were recorded in the survey area (Jarrah – *Eucalyptus marginata* or Tuart – *Eucalyptus gomphocephala*). Of the 46 trees recorded, 10 were Jarrah and 36 were Tuart (Ecoscape, 2021b).

No potential breeding trees were scored as Class 1 or 2. Three trees were scored as Class 3, 11 trees were scored as Class 4 and 32 trees were scored as Class 5 (Ecoscape, 2021b). No trees showed signs of nesting activity at the time of the survey, however the trunks were of suitable size (DBH > 500mm) and have a high potential to form suitable hollows in the future (Ecoscape, 2021b).

The Flynn Drive survey area was assessed by Ecoscape for quality of existing Black Cockatoo foraging habitat using the then draft government scoring tool (Commonwealth of Australia, 2017). In accordance with the scoring tool guidelines, the survey area for Carnaby's scores a total of 15, which indicates very high quality habitat for Carnaby's Black Cockatoo (Ecoscape, 2021b). In accordance with the scoring tool guidelines, the survey area for Forest Red-tailed Black Cockatoo scores a total of eight, which indicates high to very high quality habitat for Forest Red-tailed Black Cockatoo (Ecoscape, 2021b).

Foraging habitat quality for Baudin's Cockatoo was not assessed as Ecoscape's desktop assessment determined that this species was unlikely to occur within the survey area (Ecoscape, 2021b).

Suitable roosting habitat for Black Cockatoo's is present within both the Tuart and *Banksia attenuata* woodland habitats as mature Jarrah and Tuart trees provide value and are wide over the survey area (Ecoscape, 2021b). Roosting behaviours was not observed by Ecoscape during the 2020 fauna survey.

No fauna species inhabiting, or likely to inhabit the survey area, are considered to be dependent on the habitat within the survey area (Ecoscape, 2021b).

## 6.2 Flynn Drive – Pinjar Road and Old Yanchep Road (2021)<sup>4</sup>

Ecoscape's 2021 basic fauna and Black Cockatoo habitat survey were undertaken during 7 to 9 September and 18 October 2021.

A total of 22 vertebrate species were recorded from the survey area during the field surveys (two mammals – Western Grey Kangaroo and Quenda, 19 birds and one reptile – Dwarf Bearded Dragon). One (1) introduced avian species was recorded in the survey area: *Streptopelia senegalensis* (Laughing Turtle Dove). Three species of significance were recorded within the survey area: Carnaby's Cockatoo (*Zanda latirostris*), Rainbow Bee-eater (*Merops ornatus*) and a Quenda (*Isodon fusciventer*) (Ecoscape, 2021d).

Carnaby's Black Cockatoo was observed foraging and perching within the survey area (Ecoscape, 2021b). An individual Quenda was sighted in the northwest portion of the survey area in *Banksia* Woodland, quenda diggings were present within portions of the survey area and a deceased individual (motor vehicle strike) was also recorded (Ecoscape, 2021d). An individual Rainbow Bee-eater was observed moving through *Banksia* Woodland in the northwest portion of the survey area and no nesting burrows attributable to the species were observed in the survey area (Ecoscape, 2021d).

Two conservation significant species (Forest Red-tailed Black Cockatoo (*Zanda banksii naso*) and Black-striped Snake (*Neelaps calonotos*) are considered to likely utilise the survey area, however were recorded only in the desktop assessment and not during the field survey (Ecoscape, 2021d).

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<sup>4</sup> Referenced as (Ecoscape, 2021d).

The fauna survey determined one fauna habitat type occurs: *Banksia* Woodland. Throughout the survey area, areas cleared of vegetation / not vegetated (68.27% of the survey area) and areas of revegetation (2.99% of the survey area) were also present, however are not considered fauna habitat as they are lacking in native vegetation and adequate structure and density to provide shelter or foraging resources (Ecoscape, 2021d).

The *Banksia* Woodland habitat covered 28.7% of the survey area between Pinjar Road and Old Yanchep Road and consisted of *Banksia attenuata* and *B. menziesii* over shrubs and grey soils (Ecoscape, 2021d). The *Banksia* Woodland habitat is significant as foraging habitat for the Black Cockatoo species and provides shelter and foraging resources for common birds and ground-dwelling vertebrate species (Ecoscape, 2021d).

An assessment was completed utilising the grading system for the assessment of potential breeding trees for Black Cockatoos (DSEWPaC, 2012), with breeding trees scored in accordance with scale developed by Dr Mike Bamford (Bamford, 2016). A total of 3 potential Black Cockatoo breeding trees (all Jarrah – *Eucalyptus marginata*) were recorded in the survey area (Ecoscape, 2021d).

No potential breeding trees were scored as Class 1 or 2. One tree was scored as Class 3 (a total of 5 hollows with no chew marks), one tree was scored as Class 4 (hollow not suitable) and one tree was scored as Class 5 (no hollows) (Ecoscape, 2021d). The low proportion of suitable breeding trees indicates very low value breeding habitat.

The Flynn Drive survey area was assessed by Ecoscape for quality of existing Black Cockatoo foraging habitat using the then draft Commonwealth scoring tool (Commonwealth of Australia, 2017). In accordance with the scoring tool guidelines, the survey area for Carnaby's scores a total of nine, which indicates very high quality habitat for Carnaby's Black Cockatoo (Ecoscape, 2021d). In accordance with the scoring tool guidelines, the survey area for Forest Red-tailed Black Cockatoo scores a total of six, which indicates high quality habitat for Forest Red-tailed Black Cockatoo (Ecoscape, 2021d).

Foraging habitat quality for Baudin's Cockatoo was not assessed as Ecoscape's desktop assessment determined that this species was unlikely to occur within the survey area (Ecoscape, 2021d).

Little to no roosting habitat is present within the survey area (Ecoscape, 2021d). Roosting behaviours was not observed by Ecoscape during the 2021 fauna survey.

No fauna species inhabiting, or likely to inhabit the survey area, are considered to be dependent on the habitat within the survey area (Ecoscape, 2021d).

## **7. Clearing Principles**

Ecoscape was commissioned by the City in 2020 to undertake an Environmental Impact Assessment (EIA) (Attachment K) of the Flynn Drive survey area between Travertine Vista and Pinjar Road. In 2021, Ecoscape were commissioned by the City to undertake an EIA (Attachment L) of the Flynn Drive survey area between Pinjar Road and Old Yanchep Road. Findings from Ecoscape's 2020 and 2021 biological surveys (2021a through 2021d), as well as relevant desktop and literature reviews from past surveys of the area have been incorporated in these EIAs to assess the potential impacts arising from the clearing of these sites.

The City generated a 'Desktop Assessment Report for Native Vegetation Clearing (NVC) Application' using the City's Intramaps Tool (Intramap NVC, 2022) (Attachment J), the impacts listed in the report are categorised in Table 3, below.

A WALGA Environmental Planning Tool (EPT) 'Environmental Planning Considerations Report' (Attachment I) has also been generated by the City as supporting documentation for the below clearing principle assessment.

Table 3 summarises the potential environmental impacts and the level of variance against the clearing principles.

**Table 3: Assessment of the proposed project's likely impacts against the 10 Clearing Principles.**

Clearing Principle	Impacts (Flag colour)	Proposed Project Impacts
<p><b><i>Principle (a) – Native vegetation should not be cleared if it comprises a high level of biodiversity</i></b></p>	<p><b>Red</b></p>	<p>Vegetation condition between Travertine Vista and Pinjar Road ranged from Cleared/Not Vegetated to Excellent, including areas of Degraded- Good, Good and Very Good (Ecoscape, 2021a).</p> <p>Vegetation condition between Pinjar Road and Old Yanchep Road ranged from Cleared/Not Vegetated to Very Good - Excellent; including areas of Completely Degraded, Degraded, Good, and Revegetation (Ecoscape, 2021c).</p> <p>The proposed clearing of the northern verge of Flynn Drive road reserve between Mather Drive to just past Pinjar Road forms part of Bush Forever Site 295 (Figure 4). Bush Forever Site 494 is present within land parcels adjoining the Flynn Drive road reserve (Wallangara Reserve and Lot 8031). The Flynn Drive Stage 2 application area contain both an Environmentally Sensitive Area (ESA), and Ecological Linkages (Figure 5).</p> <p>The WALGA EPC (Attachment I) identifies the following flora and fauna attributes within the proposed application area:</p> <ul style="list-style-type: none"> <li>• 12 records of EPBC and State listed TECs</li> <li>• No records of PEC's, Threatened and Priority Flora records within the selected boundaries</li> <li>• 5 records of EPBC and State listed (Threatened/Specially protected) Fauna and 1 Priority Fauna record within the selected boundaries</li> <li>• Presence of Carnaby Cockatoo foraging habitat and</li> <li>• The proposed clearing area is within an important birding area (Northern Swan Coastal Plain IBA).</li> </ul> <p>The WALGA EPC (Attachment I) identifies the following flora and fauna attributes within 5kms of the proposed clearing site:</p> <ul style="list-style-type: none"> <li>• Federal and State listed TECs and PECs (or their buffers) located within a 5km radius of the proposed application area</li> <li>• State listed Threatened and Priority Flora records located within a 5km radius of the proposed application area</li> </ul>

		<ul style="list-style-type: none"> <li>• Federal and State listed Threatened and Priority Fauna and Fauna Habitat records located within a 5km radius of the proposed application area and</li> <li>• Possible Black Cockatoo roosting habitat within 6km's of the proposed application area.</li> </ul> <p>Native vegetation within the application area is representative of the EPBC-listed <i>Banksia</i> Woodlands of the Swan Coastal Plain TEC and Western Australian <i>Banksia attenuata</i> woodland over species rich dense shrublands TEC/PEC (Ecoscape, 2021a and 2021c).</p> <p>Considering the above, the Flynn Drive Stage 2 application area is likely to be at variance with clearing principle (a).</p>
<p><b><i>Principle (b) – Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna</i></b></p>	<p style="text-align: center;"><b>Red</b></p>	<p>The City's NVC (Attachment J) identified the application area is within an important birding area (Northern Swan Coastal Plain IBA) (Birdlife Australia, 2022) contains Carnaby's Cockatoo foraging habitat and is within 6km's of Carnaby's Cockatoo confirmed, and unconfirmed, 'roosting area buffer'.</p> <p><u>Travertine Vista to Pinjar Road</u></p> <p>Vegetation condition ranged from Cleared/Not Vegetated to Excellent, including areas of Degraded-Good, Good and Very Good (Ecoscape, 2021a).</p> <p>Ecoscape's 2020 assessment using the Commonwealth's Black Cockatoo habitat scoring tool (Commonwealth of Australia, 2017) determined that the survey area contained remnant vegetation that constituted very high-quality foraging habitat for Carnaby's cockatoo and high to very high-quality habitat for Forest Red-tailed Black Cockatoo (Ecoscape, 2021b).</p> <p>No potential breeding trees were scored as Class 1 or 2. Three trees were scored as Class 3, 11 trees were scored as Class 4 and 32 trees were scored as Class 5 (Ecoscape, 2021b). No trees showed signs of nesting activity at the time of the survey; however, the trunks were of suitable size (DBH &gt; 500mm) and have a high potential to form suitable hollows in the future (Ecoscape, 2021b).</p> <p><u>Pinjar Road to Old Yanchep Road</u></p> <p>Vegetation condition ranged from Cleared/Not Vegetated to Very Good - Excellent; including areas of Completely Degraded, Degraded, Good, and Revegetation (Ecoscape, 2021c).</p> <p>Ecoscape's 2021 assessment using the Government's Black Cockatoo habitat scoring tool (Commonwealth of Australia, 2017) determined that the survey area contained remnant vegetation that</p>

		<p>constituted very high-quality foraging habitat for Carnaby's cockatoo and high-quality habitat for Forest Red-tailed Black Cockatoo (Ecoscape, 2021d).</p> <p>No potential breeding trees were scored as Class 1 or 2. One tree was scored as Class 3 (a total of 5 hollows with no chew marks), one tree was scored as Class 4 (hollow not suitable) and one tree was scored as Class 5 (no hollows) (Ecoscape, 2021d). The low portion of suitable breeding trees indicates very low value breeding habitat.</p> <p>Considering the above, the Flynn Drive Stage 2 application area is likely to be at variance with clearing principle (b).</p>								
<p><b>Principle (c) – Native vegetation should not be cleared if it includes or is necessary for the continued existence of threatened flora</b></p>	<p style="text-align: center;"><b>Orange</b></p>	<p>No threatened or priority flora species are identified within the application area; however, there are threatened, and priority flora species found within 5km's of the proposed clearing area, summarised in the Table below (WALGA EPT, 2021 – Attachment I).</p> <p><b>Table 4.</b> Threatened and Priority flora species within 5km of the Flynn Drive Stage 2 project area.</p> <table border="1" data-bbox="703 394 847 1529"> <thead> <tr> <th>Conservation Status</th> <th>Number of Records</th> </tr> </thead> <tbody> <tr> <td>EPBC Act listed</td> <td>20 (includes Vulnerable and Endangered records)</td> </tr> <tr> <td>State Listed - Threatened</td> <td>20</td> </tr> <tr> <td>Priority</td> <td>34 (includes Priority 2, Priority 3 and Priority 4 records)</td> </tr> </tbody> </table> <p>No naturally occurring threatened flora was observed during Ecoscape's 2020 and 2021 biological surveys and none is considered likely to occur within the biological survey areas (Ecoscape 2021a and 2021c). It is noted that <i>Grevillea thelemanniana</i> was observed in the 2020 survey area between Travertine Vista and Pinjar Road and has been determined to be purposely planted in verge landscaping (Attachments H.1 and H.2).</p> <p>Given the above, the application area is not likely to be at variance with clearing principle (c).</p>	Conservation Status	Number of Records	EPBC Act listed	20 (includes Vulnerable and Endangered records)	State Listed - Threatened	20	Priority	34 (includes Priority 2, Priority 3 and Priority 4 records)
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<p><b>Principle (d) - Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a Threatened</b></p>	<p style="text-align: center;"><b>Red</b></p>	<p>The City's NVC Report (Attachment J) identified 41 Threatened Ecological Communities (TEC) (and buffers) within a 5km radius of the application area.</p> <p>Ecoscape's survey area between Tranquil Drive and Pinjar Road determined vegetation type <b>EmBaAf</b> is representative of the EPBC-listed <i>Banksia</i> Woodlands of the Swan Coastal Plain TEC and Western Australian <i>Banksia attenuata</i> woodland over species rich dense shrublands TEC/PEC (Ecoscape, 2021a).</p>								

<p><b>Ecological Community.</b></p>	<p>Ecoscape's survey area between Pinjar Road and Old Yanchep Road determined a portion of vegetation type <b>Baf</b> is representative of the EPBC-listed <i>Banksia</i> Woodlands of the Swan Coastal Plain TEC and Western Australian <i>Banksia attenuata</i> woodland over species rich dense shrublands TEC/PEC (Ecoscape, 2021c).</p> <p>Due to the presence of an identified TEC within the Flynn Drive Stage 2 application area, the City's proposed clearing is likely to be at variance to clearing principle (d).</p> <p>The Flynn Drive Stage 2 application area is mapped in the following Swan Coastal Plain vegetation complexes (Attachment J):</p> <ul style="list-style-type: none"> <li>• Cottesloe Complex – Central and South; and</li> <li>• Karrakatta Complex-Central and South.</li> </ul>																																				
<p><b>Principle (e) - Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been significantly cleared.</b></p> <p style="text-align: center;"><b>Red</b></p>	<p>The table below summarises the native vegetation statistics as described by DBCA (2019).</p> <p><b>Table 5.</b> Native vegetation statistics (DBCA, 2019).</p> <table border="1" data-bbox="699 264 1286 1525"> <thead> <tr> <th></th> <th>Pre-European Extent (ha)</th> <th>Current Extent (ha)</th> <th>Extent remaining (%)</th> <th>Current extent in all DBCA managed lands (ha)</th> <th>Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)</th> </tr> </thead> <tbody> <tr> <td colspan="6"><b>IBRA bioregion</b></td> </tr> <tr> <td>Swan Coastal Plain / Perth (SWA02)</td> <td>850,785.09</td> <td>276,461.42</td> <td>32.49</td> <td>51,457.07</td> <td>13.25</td> </tr> <tr> <td colspan="6"><b>Swan Coastal Plain vegetation complexes</b></td> </tr> <tr> <td>Cottesloe Complex – Central and South</td> <td>45,299.61</td> <td>14,567.84</td> <td>32.16</td> <td>6,606.12</td> <td>14.58</td> </tr> <tr> <td>Karrakatta Complex – Central and South</td> <td>53,080.99</td> <td>12,467.20</td> <td>23.49</td> <td>4,282.73</td> <td>8.07</td> </tr> </tbody> </table>		Pre-European Extent (ha)	Current Extent (ha)	Extent remaining (%)	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)	<b>IBRA bioregion</b>						Swan Coastal Plain / Perth (SWA02)	850,785.09	276,461.42	32.49	51,457.07	13.25	<b>Swan Coastal Plain vegetation complexes</b>						Cottesloe Complex – Central and South	45,299.61	14,567.84	32.16	6,606.12	14.58	Karrakatta Complex – Central and South	53,080.99	12,467.20	23.49	4,282.73	8.07
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		<p>In accordance with DBCA's South West Vegetation Complex Statistics, vegetation representation within the Cottesloe Complex is greater than 30%, with 32.16% currently persisting and within the Karrakatta Complex is less than 30%, with 23.49% currently persisting (DBCA, 2019).</p> <p>The City's proposed clearing may be at variance with clearing principle (e) due to the current extent of the Karrakatta Complex – Central and South Vegetation Complex and that the application area contains <i>Banksia</i> woodland TEC and suitable habitat for conservation significant fauna and flora species (Ecoscape, 2021a and 2021c).</p>
<p><b>Principle (f) - Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or a wetland</b></p>	<p style="text-align: center;"><b>Green</b></p>	<p>Wetlands or watercourses are not located within the Flynn Drive Stage 2 clearing permit application area, or within 50 metres of the application area (Intramap NVC, 2022 – Attachment J). The woodland vegetation types within the Flynn Drive Stage 2 application area are therefore not growing in association with a wetland or watercourse.</p> <p>The closest lake to the application area is Neerabup Lake, located approximately 1.4km from the application area (Intramap NVC, 2022 – Attachment J).</p> <p>Given the above, the proposed clearing is therefore not likely to be at variance to clearing principle (f).</p>
<p><b>Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.</b></p>	<p style="text-align: center;"><b>Green</b></p>	<p>Department of Primary Industry and Regional Development's (DPIRD) Natural Resource Information (WA) mapping tool maps the proposed clearing permit footprint as land system 211 Sp_Ky Karrakatta Sand Yellow Phase, described as Low hilly to gently undulating terrain: Yellow sand over limestone at 1-2 m. <i>Banksia</i> spp. woodland with scattered emergent <i>E. gomphocephala</i> and <i>E. marginata</i> and a dense shrub layer. (DPIRD, 2022).</p> <p>DWER's Perth Groundwater Map identifies the surface geology within the footprint area as Tamala Limestone: predominately calcarenite, variably lithified, leached quartz sand (DWER, 2022).</p> <p>The proposed clearing area footprint receives an annual mean rainfall of 729mm and is not located within an Acid Sulfate Soil risk area (Intramap NVC, 2022 – Attachment J).</p> <p>The Groundwater Salinity (Total Dissolved Solids) within the proposed clearing area footprint is considered to be Fresh with a salinity range of between 250 - 500mg/L (DWER, 2022 and DoE, 2004).</p> <p>The table below summarises the land degradation risk as described by DPIRD (2022).</p> <p><b>Table 6.</b> Risks of land degradation summary for Flynn Drive Stage 2.</p>

		<table border="1"> <thead> <tr> <th data-bbox="193 1182 1018 1541">Risk categories</th> <th data-bbox="193 199 1018 1182">Karrakatta Sand Yellow Phase</th> </tr> </thead> <tbody> <tr> <td data-bbox="229 1182 296 1541">Wind erosion</td> <td data-bbox="229 199 296 1182">98% of the map unit has a high to extreme wind erosion hazard</td> </tr> <tr> <td data-bbox="300 1182 331 1541">Water erosion</td> <td data-bbox="300 199 331 1182">0% of the map unit has very high to extreme water erosion risk</td> </tr> <tr> <td data-bbox="335 1182 367 1541">Water repellence</td> <td data-bbox="335 199 367 1182">10% of the map unit has a high susceptibility</td> </tr> <tr> <td data-bbox="370 1182 402 1541">Salinity hazard</td> <td data-bbox="370 199 402 1182">0% of the map unit has moderate salinity hazard</td> </tr> <tr> <td data-bbox="405 1182 437 1541">Subsurface acidification</td> <td data-bbox="405 199 437 1182">82% of the map unit has a high susceptibility</td> </tr> <tr> <td data-bbox="440 1182 472 1541">Subsurface compaction</td> <td data-bbox="440 199 472 1182">5% of the map unit has a high susceptibility</td> </tr> <tr> <td data-bbox="475 1182 507 1541">Flood risk</td> <td data-bbox="475 199 507 1182">0% of the map unit has moderate to high flood risk</td> </tr> <tr> <td data-bbox="510 1182 542 1541">Water logging</td> <td data-bbox="510 199 542 1182">0% of the map unit has moderate to high water logging risk</td> </tr> </tbody> </table>	Risk categories	Karrakatta Sand Yellow Phase	Wind erosion	98% of the map unit has a high to extreme wind erosion hazard	Water erosion	0% of the map unit has very high to extreme water erosion risk	Water repellence	10% of the map unit has a high susceptibility	Salinity hazard	0% of the map unit has moderate salinity hazard	Subsurface acidification	82% of the map unit has a high susceptibility	Subsurface compaction	5% of the map unit has a high susceptibility	Flood risk	0% of the map unit has moderate to high flood risk	Water logging	0% of the map unit has moderate to high water logging risk
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<p><b><i>Principle (h) - Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.</i></b></p>	<p style="text-align: center;"><b>Red</b></p>	<p>Given the topography of the application area, the porous nature of sandy soils within the Flynn Drive Stage 2 project site and relatively low rainfall, the proposed clearing is unlikely to cause appreciable land degradation through water erosion, waterlogging or salinity.</p> <p>However, the abovementioned mapped soil type has a high to extreme wind erosion risk. Considering the relatively flat to gently undulating topography along Flynn Drive, the proposed clearing may cause appreciable land degradation in the form of wind erosion. Wind erosion management practices during construction activities may mitigate the risk of wind erosion.</p> <p>Given the above hydrogeological conditions, lineal nature of the clearing along an existing road reserve and low risks associated with clearing within these hydrogeological features, it is not likely for the clearing to result in appreciable land degradation and therefore is not likely to be at variance to clearing principle (g).</p> <p>The proposed clearing area intersects with, or is adjacent to the following conservation areas or reserves:</p> <ul style="list-style-type: none"> <li>• Flynn Park, Neerabup:</li> <li>• Wallangara Reserve, Carramar (BF Site 494)</li> <li>• Mather Reserve, Neerabup (part BF Site 295) and</li> <li>• Bush Forever Site 295 (Lot 8031), Banksia Grove.</li> </ul> <p>Bush Forever Site 295 is mapped within the remnant vegetation of the Flynn Drive road reserve adjacent to Mather Reserve (Figure 4). Flynn Drive road reserve, Mather Drive road reserve, Lot 8002 and Lot 9943 are within both a mapped ESA and an Ecological Linkage (Figure 5).</p>																		

There are 23 Bush Forever Sites found within 5km's of the proposed clearing area, summarised in the Table below (Intramap NVC, 2022 – Attachment J).

**Table 7.** Bush Forever Sites within 5km of the Flynn Drive Stage 2 project area.

Distance	Bush Forever Site and distance to project site
Within 1km	BF Site 494 (>100metres) and BF Site 295 (122metres).
Within 2km	BF Site 384 (1.5km) and BF Site 383 (2.0km).
Within 3km	BF Site 428 (2.3km), BF Site 444 (2.5km), BF Site 382 (2.5km), BF Site 457 (2.6km), BF Site 293 (2.9km) and BF Site 455 (3.0km).
Within 4km	BF Site 140 (3.2km), BF Site 446 (3.3km), BF Site 443 (3.4km), BF Site 139 (3.5km), BF Site 299 (3.6km), and BF Site 147 (4.0km).
Within 5km	BF Site 398 (4.1km), BF Site 164 (4.3km), BF Site 104 (4.4km), BF Site 105 (4.5km), BF Site 451 (4.6km), BF Site 106 (4.7km) and BF Site 323 (4.9km).

Due to the high value remnant vegetation proposed for clearing within the Flynn Drive road reserve adjacent to Mather Reserve, and, that this vegetation is mapped Bush Forever Site 295, it is likely the proposed clearing is at variance to clearing principle (h).

Wetlands or watercourses are not located within the Flynn Drive Stage 2 clearing permit application area, or within 50metres of the application area (Intramap NVC, 2022 – Attachment J). The woodland vegetation types within the Flynn Drive Stage 2 application area are therefore not growing in association with a wetland or watercourse.

As no surface water is present within the proposed Flynn Drive Stage 2 clearing area, the proposed clearing is not likely to cause deterioration in surface water quality through sedimentation or eutrophication.

The proposed clearing area is not within a Public Drinking Water Source Area; however, it is within the Perth Groundwater Area RIWI Act area. Given the availability of adjacent remnant vegetation throughout Bush Forever Sites 494 and 295, and the proposed linear nature of the clearing area, it is not considered the proposed clearing will increase groundwater salinity.

Noting the above, the proposed clearing is therefore not likely to be at variance to clearing principle (i).

**Principle (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

Green

<p><b>Principle (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause or exacerbate the incidence or intensity of flooding.</b></p>	<p style="text-align: center;"><b>Green</b></p>	<p>According to the DAFWA Land Quality flood risk categories &lt;3% of the map unit has a moderate to high flood risk (Intramap NVC, 2022 – Attachment J). Noting this and the extent of the proposed clearing, the proposed clearing is not likely to cause, or exacerbate the incidence, or intensity of flooding.</p> <p>The proposed clearing is not likely to be at variance to clearing principle (j).</p>
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**Table Notes:**

Definitions of impact flag colours:

**Red** = Likely to be at variance

**Orange** = May be at variance and

**Green** = Not likely to be or not at variance.

## 8. Conclusion

The City of Wanneroo has assessed the proposed clearing of 6.0 hectares (60,000m<sup>2</sup>) within a 12.164 hectares (121,640m<sup>2</sup>) footprint against the ten clearing principles and has found that the clearing is likely to be at variance to clearing principle (a), (b), (d) and (h); may be at variance to clearing principle (e), and not likely to be at variance with the remaining clearing principles (c), (f), (g), (i) and (j).

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