

Title of Proposal - Bunbury Outer Ring Road Southern Section project, Bunbury, Western Australia

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Transport - Land

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The Bunbury Outer Ring Road (BORR) forms a major component of the planned regional road network for the Greater Bunbury area. The land requirement for the BORR was identified in the original draft Greater Bunbury Region Scheme (GBRS) with the route advertised to the broader community as part of the GBRS assessment.

In late 2016, Main Roads commenced a planning review for a future South West Freeway (Forrest Highway, BORR and Bussell Highway between Mandurah and Busselton) spanning the Forrest and Bussell highways. This network forms the primary connection of Perth with Bunbury, Busselton and the broader South West Region including the Ports of Fremantle, Bunbury and the proposed Outer Harbor at Kwinana.

The BORR Project comprises three sections:

- 'BORR Northern Section' – Forrest Highway to Boyanup-Picton Road
- 'BORR Central Section' – Boyanup-Picton Road to South Western Highway, an existing 4 kilometre (km) section which was completed in May 2013, along with a 3 km extension of Willinge Drive southwards to South Western Highway
- 'BORR Southern Section' – South Western Highway (near Bunbury Airport) to Bussell Highway.

The Commissioner of Main Roads Western Australia (Main Roads) is proposing to construct and operate the southern section of BORR (Figure 1, Appendix A). BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The completed project will provide a high standard route for access to the Bunbury Port and facilitate proposed development to the east of the City of Bunbury. BORR also provides an effective bypass of Bunbury for inter-regional traffic.

Main Roads is referring the BORR Southern Section (the Proposal) to the Department of the Environment and Energy (DoEE) for assessment under the Environmental Protection and Biodiversity Conservation Act (EPBC Act). The purpose of this document is to provide information to support the decision on assessment of the Proposal.

The Proposal includes the construction and operation of approximately 10.5 km of new freeway standard, dual carriageway southwest of South Western Highway to Bussell Highway and a 3 km regional distributor from Bussell Highway at Centenary Road southeast to a grade separated

interchange at the western end of Lillydale Road. The Proposal includes associated bridges, interchanges, local road modifications and other infrastructure including, but not limited to, drainage basins, drains, culverts, lighting, noise barriers, fencing, landscaping, road safety barriers and signs. The area being referred by Main Roads covers approximately 300 hectares (ha) and is referred to as the Proposal Area. The Proposal Area connects the northern and central sections of BORR (from Forrest Highway) to Bussell Highway.

The Proposal is located approximately 160 km south of Perth, mainly within the Shire of Capel including the localities of Gelorup, North Boyanup and Statham with some overlap into neighbouring localities (College Grove, Usher and Dalyellup). A small part of the Proposal occurs in the City of Bunbury.

The existing north-south route of Forrest Highway, Robertson Drive and Bussell Highway runs through a highly populated area of the Greater Bunbury Region resulting in increased congestion, inefficient freight operations, significant road safety issues, reduced social amenity and community separation. The future planning for the Greater Bunbury Region projects a population growth from approximately 86,400 persons in 2011 to approximately 122,400 persons by 2026 (WAPC, 2018). This, in conjunction with increased freight and tourist movements to the South West, will lead to unsustainable traffic growth within the existing north-south route resulting in further congestion and reduced amenity.

The northeast end of the Proposal is located approximately 8 km southeast of Bunbury Central Business District. The northwest end of the Proposal (regional distributor) at Bussell Highway is approximately 7 km south of Bunbury and the southernmost point of the Proposal Area (on Bussell Highway adjacent Capel Golf Course), is approximately 15 km south of Bunbury CBD.

Approximately 67 % of the land within the Proposal Area is cleared and highly modified, including previously constructed roads. Approximately 33 % of the land within the Proposal Area is native vegetation, including revegetation and scattered vegetation in road reserves or as isolated patches on agricultural land.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Bunbury Outer Ring Road Southern Section	1	-33.385846238249	115.64180234924
Bunbury Outer Ring Road Southern Section	2	-33.385523735087	115.64188817993
Bunbury Outer Ring Road Southern Section	3	-33.385523735087	115.6436047937
Bunbury Outer Ring Road Southern Section	4	-33.384592052566	115.64394811645
Bunbury Outer Ring Road Southern Section	5	-33.384663720807	115.64467767731

Area	Point	Latitude	Longitude
Bunbury Outer Ring Road Southern Section	6	-33.385022061124	115.64472059265
Bunbury Outer Ring Road Southern Section	7	-33.385774570983	115.64858297363
Bunbury Outer Ring Road Southern Section	8	-33.387136238933	115.65304616943
Bunbury Outer Ring Road Southern Section	9	-33.388784545286	115.65570692078
Bunbury Outer Ring Road Southern Section	10	-33.391185283409	115.65780977264
Bunbury Outer Ring Road Southern Section	11	-33.392296050253	115.66454748169
Bunbury Outer Ring Road Southern Section	12	-33.390970294638	115.66995481506
Bunbury Outer Ring Road Southern Section	13	-33.38993117475	115.67325929657
Bunbury Outer Ring Road Southern Section	14	-33.38925036533	115.674932995
Bunbury Outer Ring Road Southern Section	15	-33.388999539462	115.67549089447
Bunbury Outer Ring Road Southern Section	16	-33.390683642117	115.67622045532
Bunbury Outer Ring Road Southern Section	17	-33.392833512986	115.67188600555
Bunbury Outer Ring Road Southern Section	18	-33.394015919298	115.66776613251
Bunbury Outer Ring Road Southern Section	19	-33.395484947157	115.66652158752
Bunbury Outer Ring Road Southern Section	20	-33.397204753098	115.6674657251
Bunbury Outer Ring Road Southern Section	21	-33.401217501271	115.67248682037
Bunbury Outer Ring Road Southern Section	22	-33.401360810279	115.66150049225
Bunbury Outer Ring Road Southern Section	23	-33.40533754095	115.65995553986
Bunbury Outer Ring Road Southern Section	24	-33.411284384091	115.6599984552
Bunbury Outer Ring Road Southern Section	25	-33.413147166875	115.66004137054
Bunbury Outer Ring Road Southern Section	26	-33.415224839	115.65879682556
Bunbury Outer Ring Road Southern Section	27	-33.416084550858	115.65892557159
Bunbury Outer Ring Road Southern Section	28	-33.41622783534	115.66098550812
Bunbury Outer Ring Road Southern Section	29	-33.416729329165	115.66098550812

Area	Point	Latitude	Longitude
Bunbury Outer Ring Road Southern Section	30	-33.416657687368	115.65901140228
Bunbury Outer Ring Road Southern Section	31	-33.420812813937	115.65356115356
Bunbury Outer Ring Road Southern Section	32	-33.424287206777	115.64952711121
Bunbury Outer Ring Road Southern Section	33	-33.426579513547	115.64051488892
Bunbury Outer Ring Road Southern Section	34	-33.428083806968	115.64051488892
Bunbury Outer Ring Road Southern Section	35	-33.428083806968	115.64004282013
Bunbury Outer Ring Road Southern Section	36	-33.426758597464	115.63999990478
Bunbury Outer Ring Road Southern Section	37	-33.42994622937	115.63236097351
Bunbury Outer Ring Road Southern Section	38	-33.430698350166	115.63248971954
Bunbury Outer Ring Road Southern Section	39	-33.430590904738	115.63025812164
Bunbury Outer Ring Road Southern Section	40	-33.430483459176	115.62806943909
Bunbury Outer Ring Road Southern Section	41	-33.432166757698	115.62665323273
Bunbury Outer Ring Road Southern Section	42	-33.432095128639	115.62648157135
Bunbury Outer Ring Road Southern Section	43	-33.430519274378	115.62764028564
Bunbury Outer Ring Road Southern Section	44	-33.430841610532	115.62558034912
Bunbury Outer Ring Road Southern Section	45	-33.431880241106	115.62304834381
Bunbury Outer Ring Road Southern Section	46	-33.433921651184	115.62017301575
Bunbury Outer Ring Road Southern Section	47	-33.436392767555	115.61716894165
Bunbury Outer Ring Road Southern Section	48	-33.437896890893	115.61549524322
Bunbury Outer Ring Road Southern Section	49	-33.440690193633	115.61386446014
Bunbury Outer Ring Road Southern Section	50	-33.446169103178	115.61111787811
Bunbury Outer Ring Road Southern Section	51	-33.447637248907	115.6097445871
Bunbury Outer Ring Road Southern Section	52	-33.449570866339	115.60918668762
Bunbury Outer Ring Road Southern Section	53	-33.451110567908	115.60704092041

Area	Point	Latitude	Longitude
Bunbury Outer Ring Road Southern Section	54	-33.453079913794	115.60601095215
Bunbury Outer Ring Road Southern Section	55	-33.45415408361	115.60498098389
Bunbury Outer Ring Road Southern Section	56	-33.453939250711	115.60446599975
Bunbury Outer Ring Road Southern Section	57	-33.447350783399	115.60888628021
Bunbury Outer Ring Road Southern Section	58	-33.446813658021	115.60794214264
Bunbury Outer Ring Road Southern Section	59	-33.446419763964	115.60824255005
Bunbury Outer Ring Road Southern Section	60	-33.446813658021	115.60905794159
Bunbury Outer Ring Road Southern Section	61	-33.440618571609	115.61326364532
Bunbury Outer Ring Road Southern Section	62	-33.440403705183	115.60914377228
Bunbury Outer Ring Road Southern Section	63	-33.440224649421	115.61013082519
Bunbury Outer Ring Road Southern Section	64	-33.439794914086	115.6112037088
Bunbury Outer Ring Road Southern Section	65	-33.439186118717	115.61184743896
Bunbury Outer Ring Road Southern Section	66	-33.439472611187	115.61201910034
Bunbury Outer Ring Road Southern Section	67	-33.439902348119	115.61154703155
Bunbury Outer Ring Road Southern Section	68	-33.440117215787	115.61223367706
Bunbury Outer Ring Road Southern Section	69	-33.440081404546	115.61330656067
Bunbury Outer Ring Road Southern Section	70	-33.433993278735	115.61622480408
Bunbury Outer Ring Road Southern Section	71	-33.434064906228	115.61708311096
Bunbury Outer Ring Road Southern Section	72	-33.435461630518	115.61639646545
Bunbury Outer Ring Road Southern Section	73	-33.435282564558	115.61695436493
Bunbury Outer Ring Road Southern Section	74	-33.433348628641	115.61910013214
Bunbury Outer Ring Road Southern Section	75	-33.43098487066	115.62364915863
Bunbury Outer Ring Road Southern Section	76	-33.42958807432	115.62630990997
Bunbury Outer Ring Road Southern Section	77	-33.428728496168	115.63025812164

Area	Point	Latitude	Longitude
Bunbury Outer Ring Road Southern Section	78	-33.427618195123	115.63103059784
Bunbury Outer Ring Road Southern Section	79	-33.425970625465	115.63227514282
Bunbury Outer Ring Road Southern Section	80	-33.42582735706	115.63309053436
Bunbury Outer Ring Road Southern Section	81	-33.42640042926	115.63313344971
Bunbury Outer Ring Road Southern Section	82	-33.427868909504	115.63158849731
Bunbury Outer Ring Road Southern Section	83	-33.427367480019	115.63360551849
Bunbury Outer Ring Road Southern Section	84	-33.424752836488	115.64047197357
Bunbury Outer Ring Road Southern Section	85	-33.42271121076	115.64690927521
Bunbury Outer Ring Road Southern Section	86	-33.419451673684	115.65090040222
Bunbury Outer Ring Road Southern Section	87	-33.416765150042	115.6555352594
Bunbury Outer Ring Road Southern Section	88	-33.416800970904	115.65351823822
Bunbury Outer Ring Road Southern Section	89	-33.415869623691	115.65360406891
Bunbury Outer Ring Road Southern Section	90	-33.415869623691	115.65540651337
Bunbury Outer Ring Road Southern Section	91	-33.414544227744	115.65708021179
Bunbury Outer Ring Road Southern Section	92	-33.412215780477	115.65823892609
Bunbury Outer Ring Road Southern Section	93	-33.4097797996	115.65888265625
Bunbury Outer Ring Road Southern Section	94	-33.410030565492	115.65725187317
Bunbury Outer Ring Road Southern Section	95	-33.410102212757	115.65261701599
Bunbury Outer Ring Road Southern Section	96	-33.409170793706	115.65304616943
Bunbury Outer Ring Road Southern Section	97	-33.409134969697	115.65866807953
Bunbury Outer Ring Road Southern Section	98	-33.406340651469	115.65871099487
Bunbury Outer Ring Road Southern Section	99	-33.396129878373	115.65845350281
Bunbury Outer Ring Road Southern Section	100	-33.388712880442	115.65235952393
Bunbury Outer Ring Road Southern Section	101	-33.389752014893	115.64969877258

Area	Point	Latitude	Longitude
Bunbury Outer Ring Road Southern Section	102	-33.392511035745	115.64969877258
Bunbury Outer Ring Road Southern Section	103	-33.392403543066	115.64836839691
Bunbury Outer Ring Road Southern Section	104	-33.390289493356	115.6484542276
Bunbury Outer Ring Road Southern Section	105	-33.388533718074	115.64948419586
Bunbury Outer Ring Road Southern Section	106	-33.387100405839	115.64798215881
Bunbury Outer Ring Road Southern Section	107	-33.386527074329	115.64557889954
Bunbury Outer Ring Road Southern Section	108	-33.386491240984	115.64403394714
Bunbury Outer Ring Road Southern Section	109	-33.387387070177	115.64351896301
Bunbury Outer Ring Road Southern Section	110	-33.387136238933	115.64308980957
Bunbury Outer Ring Road Southern Section	111	-33.386132906722	115.64347604767
Bunbury Outer Ring Road Southern Section	112	-33.385846238249	115.64180234924

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The Proposal is located approximately 160 km south of Perth, mainly within the Shire of Capel including the localities of Gelorup, North Boyanup and Statham with some overlap into neighbouring localities (College Grove, Usher and Dalyellup). A small part of the Proposal occurs in the City of Bunbury. The proposal area stretches 3 km between Centenary Road in the north to Bussell Highway in the south.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

300 ha

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Approx. 160 cadastral units, including existing roads, lots and easements

1.8 Primary Jurisdiction.

Western Australia

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

Yes

1.9.1 Please provide details.

In May 2017, \$12.5 million of joint funding was announced by the Australian (\$10 million) and State (\$2.5 million) Governments to complete the planning and project development for the unbuilt sections of BORR. This work is to be completed by the end of 2019.

A total of \$682 million of Federal funding has been committed towards construction of BORR. State Government funding will be provided, subject to normal State Budget processes, with final project costs being determined as part of business case development.

1.10 Is the proposed action subject to local government planning approval?

Yes

1.10.1 Is there a local government area and council contact for the proposal?

Yes

1.10.1.0 Council contact officer details

1.10.1.1 Name of relevant council contact officer.

Ian McCabe - Chief Executive Officer

1.10.1.2 E-mail

info@capel.wa.gov.au

1.10.1.3 Telephone Number

(08) 9727 0222

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 02/2021

End date 04/2024

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

Proposal Justification

The existing north-south route of Forrest Highway, Robertson Drive and Bussell Highway runs through a highly populated area of the Greater Bunbury Region resulting in increased congestion, inefficient freight operations, significant road safety issues, reduced social amenity and community separation. Future planning for the Greater Bunbury Region projects a population growth from approximately 86,400 persons in 2011 to approximately 122,400 persons by 2026 (WAPC, 2018). This, in conjunction with increased freight and tourist movements to the South West, will lead to unsustainable traffic growth within the existing north-south route resulting in increased congestion and reduced amenity.

The Proposal is a major component of the BORR project which is a key part of the planned regional road network for the Greater Bunbury Region aiming to improve port access and accommodate the increase in traffic associated with the anticipated population growth.

The main economic drivers of the South West are mining and mineral processing (predominantly alumina, coal and mineral sands), tourism, construction, timber industry and agriculture/viticulture. Each of these industries are reliant on road transport (South West Development Commission, 2018).

Key benefits of the Proposal include:

- Providing connection to the northern and central sections of the BORR; thereby completing the BORR link between Forrest Highway and Bussell Highway
 - Enabling the completed BORR to fulfil its role within the planned regional road network for the Greater Bunbury Region and realising the associated benefits including reduced congestion, reduced air and noise pollution in developed urban areas, improved access to Bunbury Port and accommodating future planning, e.g. Draft Wanju District Structure Plan (WAPC, 2016) and Draft Waterloo Industrial Park District Structure Plan (WAPC, 2017b)
 - Increasing direct and indirect employment opportunities for the local population during the construction phase
 - Improving road user safety on Bussell Highway
- Achieving best practicable outcomes based on assessments of Environmental, Social, Engineering and Economic issues.

Environmental Protection Act 1986, Part IV Environmental Impact Assessment

This Proposal is being referred to the WA Environment Protection Authority (EPA) as a Proposal under Part IV of the *Environmental Protection Act 1986* (EP Act).

Environmental Protection Act 1986, Part V Environmental Regulation Division 2, Clearing of Native Vegetation

If the Proposal is not formally assessed by the EPA, a native vegetation clearing permit is required under the EP Act prior to clearing native vegetation. Granting and administration of clearing permits is regulated under the Environmental Protection Act (Clearing of Native Vegetation) Regulations 2004. Main Roads will submit an application for a clearing permit to the Department of Water and Environmental Regulation (DWER) in the event this Proposal is not formally assessed.

Other regulatory approvals required

The anticipated regulatory approvals required for the Proposal are:

DWER - Interference with bed and banks of a watercourse or wetland (clearing of vegetation and construction works)

Application for a permit to authorise interference or obstruction of the bed and banks of a watercourse under the *Rights in Water and Irrigation Act 1914* (RIWI Act).

DWER - Sourcing of construction water

Licence to take under the RIWI Act.

DPLH - Disturbance of a registered Aboriginal heritage site

Section 18 consent under the *Aboriginal Heritage Act 1972* (AH Act).

DPLH - Land acquisition process

Administration of State Land and transfer of private land under the *Land Administration Act 1997*.

Department of Biodiversity, Conservation and Attractions (DBCA) – Biodiversity Conservation

Licence to take (fauna) and modify Threatened Ecological Communities (TEC) under the Biodiversity Conservation Act 2016 (BC Act).

Context

The BORR concept was originally developed by Main Roads in the early 1970s in consultation with other State Government departments and Local Authorities. The original concept linked the Australind Bypass (now known as Forrest Highway), north of Bunbury, with Bussell Highway, south of Bunbury, via a 19 km, Controlled Access, four-lane, divided rural highway. BORR formed part of the Bunbury Region Plan (State Planning Commission, 1987), now replaced by the Bunbury Wellington Region Plan (Department of Planning and Urban Development, 1993).

The BORR GBRS corridor alignment was developed in 1995, based on work undertaken by Halpern Glick and Maunsell (HGM) to prepare a BORR Concept Report (Halpern Glick and Maunsell (HGM), 1995). The purpose of that work was to develop an environmentally and socially acceptable concept alignment suitable for inclusion in the town planning scheme.

Further planning and development work followed over many years resulting in construction of the BORR Central Section in 2013 as part of the Bunbury Port Access Road (PAR), Stage 2.

In November 2012, Main Roads referred a proposal to the EPA for BORR Southern Section, which connected the South Western Highway (north) and Bussell Highway (south) (GHD, 2012). The 2012 referral area is shown in Figure 2 (Appendix A). The southern alignment of the 2012 Referral Project Area was set within the GBRS corridor, i.e. Hasties Road (north) to Bussell Highway (south), near Lakes Road.

2019 alignment review

During May 2019, an Environmental Options Assessment was undertaken which identified that a key concern for the 2012 BORR Southern Section Project was the clearing of native vegetation comprising fauna habitat, particularly in regards to Western Ringtail Possum (WRP). As a result, the northern and southern alignments set out in the 2012 Referral Project Area for the BORR Southern Section were reviewed, as was a subsequent, "Southern Section Alternative Alignment" for the southernmost section of BORR Southern Section.

The review of the 2012 BORR Southern Section, from South Western Highway south to Hasties Road, confirmed that it was still preferred in regards to resources, farming and environmental aspects. The alignment of the 2012 BORR Southern Section from Hasties Road south to Bussell Highway, was reviewed with alternative alignments including those put forward by stakeholders. The "preferred" Southern Section Alternative Alignment derived from that assessment against the alignment originally proposed in the 2012 BORR Southern Section Project referral. A key feature of the Southern Section Alternative Alignment was that it would be located to the southeast of the GBRS corridor, enabling the BORR Southern Section to bypass the town of Gelorup and connect with Bussell Highway south of Cable Mine Road.

The Southern Section Alternative Alignment was derived through assessment of a number of proposed alternative alignments using Multi-Criteria Analysis (MCA). MCA was also used to evaluate the Southern Section Alternative Alignment against the alignment in 2012 BORR Southern Section Project referral.

Whilst there were benefits to adopting the Southern Section Alternative Alignment for the southern alignment of the 2012 BORR Southern Section, the MCA indicated that based on environmental, social, heritage, land use planning, engineering constraints, potential impacts on agricultural businesses, raw material and mining tenement, the alignment within the GBRS corridor (i.e. as proposed in the 2012 BORR Southern Section Project referral) was preferred compared to the Southern Section Alternative Alignment.

The BORR Southern Section Proposal Area and 2012 Referral Project Area are shown in Figure 2 (Appendix A). The Proposal Area associated with the current Proposal reflects updated concept design based on refinements in construction planning and constraints assessments. As previously stated; the Proposal is currently at Concept Design phase and further changes will result during detailed design.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Stakeholder consultation has been integral in developing this Proposal. The overarching objectives of the stakeholder engagement program are:

- To inform stakeholders about the Proposal and its impacts to the environment and describe the outcomes of consultation in project design
- To establish relationships with key stakeholders that enable ongoing dialogue through implementation and regulatory phases of the Proposal.

Main Roads has been engaged in consultation with key stakeholders with interests in the BORR Project since the mid-1990s.

Consultation undertaken by Main Roads with key stakeholders has included:

- Technical Working Group: including engineering and planning representatives from Main Roads, the City of Bunbury, the Department of Planning, the DBCA (formerly Department of Environment and Conservation), the Shire of Capel and the Shire of Dardanup
- BORR Stakeholder Group: State and local government agencies met as required and included: City of Bunbury (CEO, Mayor), Shire of Capel (CEO, Shire President), Shire of Dardanup (CEO, Shire President), Bunbury Port Authority, South West Development Commission (SWDC), Bunbury Chamber of Commerce and John Castrilli (former Member for Bunbury)-
- Consultation with: DPLH (formerly Department of Planning), Public Transport Authority, Local Government, Service Authorities
- Consultation with environmental stakeholders including:
 - Commonwealth DEE (formerly DSEWPaC) DBCA (formerly Department of Environment and Conservation)
 - DWER (formerly Department of Water (DoW),
 - Department of Environment Regulation (DER) and
 - Office of the EPA).

Stakeholder and community engagement is continuing with landowners and local residents, communities of interest, local government authorities and State Government agencies. Key stakeholders are provided in Table 1?2. During 2018, Main Roads consulted with key stakeholders to discuss BORR Project issues and potential impacts including environmental, heritage (Aboriginal and European), social and economic impacts. This consultation will continue until construction of the proposal is completed.

A summary of stakeholder consultation completed to date is provided in Table 1A of Appendix B. Regulatory agencies consulted to date are shown in Table 1B of Appendix B. A summary of the key concerns raised during stakeholder consultation is provided in Table 1C of Appendix B, along with Main Roads responses.

Table 1?2 Key stakeholders

Commonwealth Government

- DEE
- Regional Development Australia

State Government

- DPLH
- Local Members
- DWER (Office of the EPA)
- DWER (Native Vegetation Regulation)
- Department of Transport
- Department of Treasury
- Department of Infrastructure, Regional Development and Cities
- SWDC
- Bunbury Port Authority

Industry

- Chamber of Commerce and Industry
- Chamber of Minerals and Energy

Local Government

- City of Bunbury
- Shire of Capel

Community

- Gnaala Karla Booja WC1998/058 Native Title Claim group (GKB NTC)
- BORR South Community Reference Group (CRG)
- Friends of Gelorup Corridor
- Land owners

- General public and local residents

Committees and Reference Groups

- Bunbury Geographe Economic Alliance
- Investment Logic Mapping (ILM) Workshop
- Project Steering Committee
- Project Enabling Group
- BORR Regional Local Government Advisory Group (RLGAG)
- Economic Advisory Group
- Drainage Reference Group (DRG)
- Freight and Road Users Group

Indigenous consultation

Aboriginal heritage surveys for the Proposal Area were conducted in 1995 (McDonald Hales and Associates, 1995), updated in 2002 and again in 2009 (Brad Goode & Associates, 2009) and 2012 (Brad Goode & Associates, 2012). The 2012 survey included both archaeological and ethnographic components. A recommendation of the 2012 investigation was that Main Roads make application under Section 18 of the Aboriginal Heritage Act for consent to use land that may contain an Aboriginal site.

In November 2017, Main Roads sought advice from the South West Aboriginal Land and Sea Council (SWALSC) on appropriate Aboriginal community representatives to be consulted regarding BORR project. The Proposal Area occurs within the Gnaala Karla Booja (GKB) People Indigenous Land Use Agreement (ILUA). After consideration by the Working Party of the Gnaala Karla Booja (GKB) Native Title Claim group, ten community representatives were identified.

Additional consultation with the community is proposed once BORR concept design has been further developed particularly at watercourse crossings.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

Environmental studies have been carried out as a component of the supporting documentation for referral of the Proposal to the WA EPA under Part IV of the *EP Act*. As detailed in section 1.6, the Proposal Area represents the maximum extent of potential impacts that will be refined through the detailed design period. The impacts detailed below, as identified through the Environmental studies undertaken to support referral and assessment of the Proposal under

State environmental legislation, therefore represent the maximum potential impacts and the actual footprint associated with road construction is likely to be less.

The clearing of up to 98 ha of remnant native vegetation over the 300 ha Proposal Area (76 ha in the surveyed areas and an estimated 22 ha in unsurveyed areas) will potentially result in impacts to species and communities listed under the EPBC Act through the loss of up to:

- 20.8 ha of 'Banksia Woodlands of the Swan Coastal Plain (SCP)' Threatened Ecological Community (TEC) in the surveyed areas
- Approximately 80 ha of habitat for Black Cockatoos (Carnaby's Cockatoo [Endangered], Baudin's Cockatoo [Endangered] and Forest Red-tailed Black Cockatoo [Vulnerable]) (including 59.4 ha in surveyed and 20 ha in unsurveyed areas)
- 538 Suitable Diameter at Breast Height (DBH) Trees (Black Cockatoos) in the Surveyed Area, of which 18 had a Suitable Nest Hollow for Black Cockatoos, of which eight are Known Nesting Trees in the surveyed areas
- Approximately 80 ha of habitat for Western Ringtail Possums (WRPs) (Critically Endangered) (including 59.4 ha in surveyed and 20 ha in unsurveyed areas) and the potential reduction in home ranges of approximately 73 individual WRPs recorded during strip sampling across the Proposal Area (noting that some areas of potential WRP habitat were not surveyed as access was not permitted), representing approximately 1 % of the regional population (Swan Coastal Plain and Crooked Brook Forest populations).
- Potential loss of 'Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the SCP' TEC, which was listed as MNES after flora and vegetation field surveys were concluded. The extent of this community within the Proposal Area and potential impacts of the proposed action on this TEC have not yet been quantified. Field survey and analysis, to be conducted in spring 2019, will determine the presence or otherwise of this TEC within the Proposal Area, and quantify any impacts of the proposed action.

All of the above species and TECs are also listed as threatened species or communities under the WA BC Act. In addition, the following potential impacts to species and communities listed under State policy frameworks and recorded in the Proposal Area were also identified:

- Loss of up to 62.6 ha habitat for South-western Brush-tailed Phascogale (Schedule 6)
- Loss of up to 98 ha of habitat for Southern Brown Bandicoot, Quenda (Priority 4)
- Loss of up to 36.5 ha of 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region' Priority Ecological Community (PEC)
- Loss of up to 28.6 ha of the 'Tuart (*Eucalyptus gomphocephala*) woodlands of the SCP' PEC
- Loss of up to 71 recorded individuals of the State Priority 4 (P4) flora species *Caladenia speciosa*.
- Loss of habitat for a further six conservation significant fauna species that could possibly occur

within the Proposal Area, although not expected to be significantly impacted by the Proposal, including:

- Black Stripe Minnow (*Galaxiella nigrostriata*) – Schedule 2 BC Act, EN EPBC Act
- Western Quoll, Chuditch (*Dasyurus geoffroi*) – Schedule 3 BC Act, VU EPBC Act
- Peregrine Falcon (*Falco peregrinus*) – Schedule 7 BC Act
- Blue-billed Duck (*Oxyura australis*) – Priority 4
- Western Brush Wallaby (*Notamacropus irma*) – Priority 4
- Western False Pipistrelle (*Falsistrellus mackenziei*) – Priority 4
- Coastal Plains Skink (*Ctenotus ora*) – Priority 3.

The Proposal has potential to result in indirect impacts such as fragmentation of native vegetation and spread of weeds. Preparation and implementation of a Construction Environmental Management Plan (CEMP) will help to mitigate the risk of these indirect and operational impacts.

Refer to Section 7 for a list of environmental studies undertaken for the Proposal.

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

A separate referral has been submitted for BORR Northern and Central Sections, following completion of an alignment selection and definition process.

The construction of the Southern Section of BORR is intended to commence after the Northern and Central Sections. However, the two projects can operate independently of each other, with neither required for the other to proceed.

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

BORR Southern Section will connect to BORR Northern and Central Sections Proposal.

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The [interactive map tool](#) can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

- [Profiles of relevant species/communities](#) (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- [Significant Impact Guidelines 1.1 – Matters of National Environmental Significance](#);
- [Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies](#).

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
'Banksia Woodlands of the Swan Coastal Plain' TEC - Endangered	Significant impact unlikely. Within the surveyed areas (of the Proposal Area), clearing of up to 20.8 ha of Banksia Woodlands of the Swan

Species	Impact
	<p>Coastal Plain TEC ('Banksia Woodlands TEC') would result from the proposed action (Figure 5, Appendix A), potentially resulting in a 0.006 % reduction in the reported extent of the TEC within the IBRA region. The selection of the Proposal Area has minimised the potential impacts on high quality vegetation, with 9.5 ha of the TEC extent ha in Very Good or better condition. Approximately 20 ha of remnant vegetation is present in three patches within unsurveyed areas of the Proposal Area. Further survey, timed appropriately in regard to season, is required to determine whether this vegetation contains occurrences of the TEC. Indirect impacts (such as those associated with potential changes in hydrology and introduction of weeds and diseases) will be managed through implementation of suitable mitigation. The predicted direct impacts to the Banksia Woodlands TEC are considered to be minor residual impacts and will be offset by Main Roads through the implementation of an appropriate offsets strategy. Reduce the extent of an ecological community: In the surveyed areas, the proposed action involves clearing of up to 20.8 ha of Banksia Woodland TEC. A further 20 ha of vegetation in unsurveyed areas requires additional survey to determine its status in regards to the TEC. Fragment or increase fragmentation of an ecological community: Clearing is not expected to fragment any patches of this TEC to the extent that they will no longer meet the size and condition thresholds for the TEC. Adversely affect habitat critical to the survival of an ecological community: The Banksia TEC conservation advice (TSSC, 2016) estimates that there is approximately 336,489 ha of Banksia TEC remaining within the SCP. Approximately 81,800 ha (24.33 %) of the TEC are estimated to occur within reserves, most of which are in the Perth subregion of the SCP Bioregion (TSSC, 2016). Based on these assessments, the clearing of up to 20.8 ha within the surveyed areas would result in a 0.006 % reduction in the reported extent of the Banksia TEC. Modify or destroy abiotic (non-living) factors (such as water, nutrients, or</p>

Species	Impact
	<p>soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns: The Proposal may cause temporary (dewatering activities) change to groundwater levels associated with the TEC in the short term. The construction of the highway will increase runoff compared to the existing undeveloped land and provision of flood mitigation storage areas will therefore be required. A Drainage Strategy will be developed for the project that will include "maintenance of existing water cycle balance within the project area whilst also improving the surface and groundwater quality" as one of its main objectives. The Proposal is unlikely to result in the modification or destruction of abiotic factors necessary for an ecological community's survival. Drainage design will be undertaken during detailed design to ensure pre-development flows are maintained within the Proposal Area. Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species/ Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community and Interfere with the recovery of an ecological community: Unlikely. The Proposal will be carried out in accordance with an EMP that includes management of aspects that have the potential to cause further degradation of the retained TEC patches. This includes Phytophthora Dieback, weeds, topsoil and drainage management. There is no recovery plan for the Banksia TEC.</p>
<p>Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain TEC – Critically Endangered</p>	<p>This TEC was listed as MNES after flora and vegetation field surveys were concluded. As such, the extent of this community within the Proposal Area and potential impacts of the proposed action on this TEC have not yet been quantified. Field survey and analysis, to be conducted in spring 2019, will determine the presence or otherwise of this TEC within the Proposal Area, and quantify any impacts of the proposed action. Based on field survey data (BORR IPT, 2019a), 28.6 ha of vegetation within the Proposal Area is considered</p>

Species	Impact
	representative of the State-listed 'Tuart woodlands of the Swan Coastal Plain' PEC. It is therefore considered likely that the Tuart Woodlands TEC is also present. Should residual impact be likely, this will be offset through the implementation of an appropriate Offsets Strategy.
Calyptorhynchus latirostris (Carnaby's Cockatoo) (Endangered) and Calyptorhynchus baudinii (Baudin's Cockatoo) (Endangered) and Calyptorhynchus banksii naso (Forest Red-tailed Black Cockatoo) (Vulnerable)	Residual impacts likely. The proposed action involves clearing of up to approximately 80 ha of suitable breeding and foraging habitat including 59.4 ha in Surveyed and 20 ha in unsurveyed areas. 538 Suitable DBH Trees were identified within the surveyed areas; 18 of these were identified as Trees with a Suitable Nest Hollow for Black Cockatoo (confirmed via drone survey), of which eight are Known Nesting Trees (Figure 6, Appendix A). Where possible, loss of these trees will be minimised through the detailed design process. The habitat values referred to above have not yet been quantified for the 20 ha of vegetation in unsurveyed areas. Lead to a long-term decrease in the size of a population: Unlikely. Numerous large areas of remnant native vegetation that are likely to comprise habitat for Black Cockatoos are present in proximity to the Proposal Area. An assessment of available Black Cockatoo habitat within 12 km of the Proposal Area has not yet been undertaken. However according to the DPIRD Native Veg Extent dataset, approximately 5,900 ha of vegetation remains within a 5 km radius, much of which is likely to provide foraging and potential nesting habitat. The approximately 80 ha reduction in available foraging and breeding habitat in the local area and broader region is unlikely to contribute to a long-term decrease in the population. Reduce the area of occupancy of the species: Unlikely. The Proposal is located within the mapped distribution of these species (DSEWPaC, 2012; DEE, 2017), with their presence confirmed in the field. The species are known to occur throughout the greater South-West region and Southern Jarrah Forest bioregion. Given the presence of large expanses of habitat within the broader area, the loss of up to 80 ha of habitat is unlikely to significantly reduce the area of occupancy of

Species	Impact
	<p>the species. Fragment an existing population into two or more populations: Unlikely. The referral guideline for the three cockatoo species (DEE, 2012) identifies the species as mobile and highly dispersed and indicates that definition of distinct and/or important populations is not considered appropriate for these species. The proposed action is within an area where habitat is highly fragmented. The largest gap created by the proposed action will be approximately 200 m wide and is will not fragment an existing population into two or more populations. Adversely affect habitat critical to the survival of a species: Unlikely. The species were observed within the Proposal Area with foraging and potential breeding habitat present (Figure 6, Appendix A). The EMP will provide mitigation measures to reduce indirect impacts that may reduce the quality of adjacent / retained habitat. The loss of approximately 80 ha of foraging habitat containing known and potential nesting habitat is not considered likely to affect the survival of the species. Disrupt the breeding cycle of a population: Unlikely. Implementing the Proposal will result in the loss of up to 538 Suitable DBH Trees including eight trees with Known Nesting Hollows for Black Cockatoo and a further ten that are Trees with a Suitable Hollow for Black Cockatoo (confirmed via drone survey). Bunbury represents a known breeding area for Baudin's Cockatoo and is within the breeding range for Carnaby's Cockatoo (Biota, 2019b). Evidence of breeding was observed in eight trees in the Proposal Area during the field survey (Biota, 2019b). The removal of known and potential breeding trees could result in local disruption to breeding of individual pairs. Impacts will be mitigated through the installation of artificial hollows in nearby areas. Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline: The Proposal may result in loss of up to approximately 80 ha of suitable Black Cockatoo habitat including 18 Trees with a Suitable Nest Hollow for Black Cockatoo, of which eight are Known Nesting Trees (Figure 6, Appendix A). The reduction in</p>

Species	Impact
	<p>foraging, potential and known breeding habitat for Black Cockatoo species will be mitigated through revegetation of cleared areas and installation of artificial nesting hollows in nearby areas. Impacts will be mitigated by the installation of artificial nesting hollows within nearby areas. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat: Unlikely. The proposed action is unlikely to result in the introduction of new species to the area. However, competition currently exists for nest hollows with European honeybees and other bird species. The loss of up to 18 hollows has the potential to increase the competition for remaining hollows by a variety of species. Introduce disease that may cause the species to decline: Unlikely. The Proposal is unlikely to introduce a disease (e.g. beak and feather disease virus) that may cause the species to decline. There are no known diseases that may be introduced to the area that may cause the Black Cockatoo population to decline and it is unlikely that any disease already exists in the Proposal Area that may be spread by the activities of the Proposal (as there has been no indication of any such disease). Interfere with the recovery of the species: The Recovery Plans (DPaW, 2013 and DEC, 2008) provide measures for the species' recovery. These include identifying, protecting and managing important habitat. The proposed action will result in the clearing of up to approximately 80 ha of habitat including 18 Trees with a Suitable Nest Hollow for Black Cockatoo, of which eight are Known Nesting Trees. The reduction in foraging, potential and known breeding habitat for Black Cockatoo species will be mitigated through revegetation of cleared areas and installation of artificial nesting hollows in nearby areas.</p>
Western Ringtail Possums (Critically Endangered)	<p>Clearing of native vegetation within the Proposal Area will result in the loss of up to approximately 80 ha of WRP habitat within the 'Supporting Habitat' zone as defined in DSEWPaC (2009), and impact the home ranges (to varying degrees) of approximately 73</p>

Species	Impact
	<p>WRPs recorded in strip sampling across the Proposal Area (Noting that some areas of potential WRP were not surveyed as access was not permitted). The clearing associated with this proposal relates to a road corridor, typically no more than 100 m wide in areas that intersect WRP habitat. Where WRP have been recorded, extensive areas of habitat occurs beyond the reserve. Accordingly, it is considered that home ranges of individual WRPs will be affected to varying degrees, with some home ranges expected to only be partially cleared. Prior to clearing, pre-clearance searches will be undertaken to ensure that no WRPs are within the area to be cleared. To mitigate the potential impacts on WRP, revegetation will occur in key areas to better connect remaining areas of WRP habitat. It is considered that the proposal will have a minor residual impact on WRPs, given: - that pre-clearing searches are proposed, - the nature of the clearing is expected to result in home ranges being impacted to varying degrees rather than all home ranges being entirely removed, and - adjacent WRP habitat adjoins most areas where WRP habitat is to be cleared. Main Roads will work closely with DBCA to monitor home range utilisation and the carrying capacity of nearby areas to ensure carrying capacities aren't exceeded and, if so, explore alternative options to maintain viable local populations. Lead to a long-term decrease in the size of a population: The proposed action involves clearing of up to approximately 80 ha of habitat (Figure 7, Appendix A). The clearing for this proposal involves the clearing of a corridor, typically no more than 100 m wide in areas that intersect WRP habitat. Wherever WRP habitat was recorded, this habitat extended well beyond the Proposal Area. Accordingly, many home ranges may be reduced rather than be totally cleared. Based on preliminary analysis of a regional survey undertaken to provide context to the potential impacts of the Proposal, the population of WRPs for the SCP (Swan Coastal Plain and Crooked Brook populations) was estimated at 7,166 individuals (Biota, 2019b). The 73</p>

Species	Impact
	<p>individuals utilising habitat impacted by the proposal therefore represent approximately 1 % of the regional population. To mitigate the reduction of WRP habitat, Main Roads will undertake revegetation planting, using species most utilised by WRPs, within the vicinity of the project area. Effort will be made to retain WRP in the habitat abutting the clearing area. Based on the results of the regional population survey and the estimated maximum number of possums displaced as a result of the Proposal, it is possible that the Proposal may result in some minor residual impact to the WRP population.</p> <p>Reduce the area of occupancy of the species: The proposed action involves the clearing of up to 80 ha of habitat within a corridor typically no more than 100m wide in areas that intersect WRP habitat (Figure 7, Appendix A). Biota (2019b) conducted surveys for WRP in additional habitat areas (referred to as contextual sites). The contextual sites included Manea Park, Reserve 23000, Lot 2 Boyanup-Picton Road and the Southern Lots survey area. These areas combined contain approximately 577 ha of remnant native vegetation and were estimated to support 878 individual WRPs. The loss of up to 80 ha of habitat may result in a minor residual impact to the area of occupancy for the species when having regards to these nearby contextual sites.</p> <p>Fragment an existing population into two or more populations: The Proposal will result in the local fragmentation as the BORR passes through Gelorup. Construction of BORR will restrict the north-south movement of WRPs, particularly in the Georup area. In the north of the Proposal Area, the construction of BORR will result in the separation of two areas of habitat (partially fragmented rural residential land containing remnant native vegetation and a large tract of vegetation associated with the Preston River to Ocean Regional Park) through the removal of connecting vegetation. In the south of the Proposal Area, this will result in the separation of a large expanse of known habitat in rural residential land either side of the Proposal Area into two separate areas, one of >90 ha and the other >200 ha. Both areas will</p>

Species	Impact
	<p>retain connection to adjoining habitat outside of the Proposal Area. Where appropriate, fragmentation will be mitigated with the implementation of structures to facilitate movement of WRPs between habitat. Adversely affect habitat critical to the survival of a species: The Proposal will potentially result in the loss of up to approximately 80 ha of habitat for the WRP and impact the home ranges (to varying degrees) of approximately 73 individuals estimated to utilise this habitat (Figure 7, Appendix A). Based on the results of regional surveys, this is estimated to represent approximately 1 % of the regional population. The loss of up to 80 ha of habitat may result in a minor residual impact to the species when considered in the regional context. Disrupt the breeding cycle of a population: The proposed action involves clearing of up to approximately 80 ha habitat and impact the home ranges (to varying degrees) of approximately 73 individuals estimated to utilise this habitat (Figure 7, Appendix A). The 73 WRPs potentially affected represent approximately 1 % of the regional population. The proposal may result in minor disruption of breeding of WRPs locally through loss of foraging and breeding habitat. Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline: The proposed action involves clearing of up to approximately 80 ha habitat and impacts to home ranges of up to an estimated 73 individual WRPs (Figure 7, Appendix A). The 73 WRPs estimated to utilise the 80 ha of habitat represent approximately 1 % of the regional population. The proposal may result in impacts on the local population through loss of foraging and breeding habitat and loss of individual possums. However, Main Roads intend to mitigate the impacts of fragmentation of habitat through the implementation of structures to facilitate WRP movement between areas. Impacts to individual possums during construction will also be mitigated through pre-clearance surveys. Although the proposal may have some short term local impacts, it is unlikely that the clearing impacts will result on</p>

Species	Impact
Galaxiella nigrostriata (Black-stripe Minnow) (Endangered)	<p>the decline of the species. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat: Unlikely. The Proposal is unlikely to result in the introduction of new invasive species to the area. Introduce disease that may cause the species to decline: Unlikely. The Proposal is unlikely to result in the introduction of a disease. Interfere with the recovery of the species: The WRP Recovery Plan (DPaW, 2017) outlines the key items for the recovery of this species. While the Proposal Area contains habitat for WRP, the proposal will not interfere with the relevant actions of the Recovery Plan and is not expected to interfere with the recovery of the species. To mitigate the reduction of WRP habitat, Main Roads will undertake revegetation planting, using species most utilised by WRPs, within the vicinity of the project area. Fragmentation will be mitigated with the implementation of structures to facilitate movement of WRPs between habitat where appropriate.</p> <p>Clearing of native vegetation and wetland areas within the Proposal Area is unlikely to be significant on the Black-stripe Minnow. Lead to a long-term decrease in the size of a population: Unlikely. No Black-striped Minnow (<i>Galaxiella nigrostriata</i>) were found within the Proposal Area (WRM, 2019) however, the species was recorded in a wetland adjacent to the Proposal Area and there is potential for Black-stripe Minnow to opportunistically utilise habitat within the Proposal Area. Up to 63.6 ha of Geomorphic Wetlands will be impacted by the Proposal. The majority are mapped as 'Multiple Use' (94 %), with these wetlands retaining limited (low) wetland values and majority of these areas are cleared and used for agriculture. Approximately 60 % of the wetlands are Multiple Use damplands, which are seasonally waterlogged, with 33 % of the wetlands classified as Multiple Use sumplands, which are seasonally inundated. The Proposal Area also contains 3.5 ha of Resource Enhancement and 0.1 ha of Conservation category wetlands, also comprising damplands</p>

Species	Impact
	<p>and sumplands, and 0.18 ha of Multiple Use Palusplain wetland (seasonally waterlogged). Sections of these wetlands could potentially provide habitat for the species where inundation occurs during winter. Impacts to the hydrologic function of wetlands undisturbed within and adjacent to the Proposal Area will be managed through the implementation of the Drainage Strategy. Reduce the area of occupancy of the species: Unlikely. No Black-stripe Minnow were found within the Proposal Area. Further field investigations will be undertaken during winter 2019 to identify whether suitable habitat for Black-stripe Minnow is present and determine the likelihood of occurrence of the species within the Proposal Area. Fragment an existing population into two or more populations: Unlikely. No Black-stripe Minnow were found within the Proposal Area. Impacts to the hydrologic function of wetlands undisturbed within and adjacent to the Proposal Area will be managed through the implementation of the Drainage Strategy. Adversely affect habitat critical to the survival of a species: Unlikely. No Black-stripe Minnow were found within the Proposal Area. Further field investigations will be undertaken during winter 2019 to identify whether suitable habitat for Black-stripe Minnow is present and determine the likelihood of occurrence of the species within the Proposal Area. Disrupt the breeding cycle of a population: Unlikely. No Black-stripe Minnow were found within the Proposal Area. Minor loss of cleared and degraded wetlands, and portions of some more intact wetlands within the Proposal Area will occur, however hydrological regimes of wetlands adjacent to the Proposal Area will be maintained through the implementation a Drainage Strategy. Where appropriate, drainage design will incorporate designs to facilitate the movement of aquatic fauna. Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline: Unlikely. No Black-stripe Minnow were found within the Proposal Area. Minor loss of cleared and degraded wetlands, and portions of some more intact wetlands, within the Proposal Area</p>

Species	Impact
	will occur, however hydrological regimes of wetlands adjacent to the Proposal Area will be maintained through the implementation a Drainage Strategy. Where appropriate, drainage design will incorporate designs to facilitate the movement of aquatic fauna. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat: Unlikely. The Proposal is unlikely to result in invasive species that are harmful to Black-stripe Minnow being introduced. Introduce disease that may cause the species to decline: Unlikely. The Proposal is unlikely to result in the introduction of disease that may cause Black-stripe Minnow population to decline. Interfere with the recovery of the species: Unlikely. No Black-stripe Minnow were found within the Proposal Area.

2.4.2 Do you consider this impact to be significant?

Yes

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

Flora

A total of 187 ha of the Proposal Area has been surveyed (referred to herein as the 'surveyed area') and 113 ha has not yet been surveyed ('unsurveyed areas'). Of the 113 ha that haven't been surveyed, it is estimated that approximately 22 ha is native vegetation, with the remainder (91 ha) highly modified and not comprising remnant native vegetation. The flora and vegetation values are primarily derived from the flora and vegetation report (BORR IPT, 2019a) (attached). This report presents the findings of a detailed flora and vegetation assessment of 178.7 ha of the 300 ha Proposal Area (Appendix C). Additional information has also been drawn from a flora and vegetation assessment undertaken for the Alternate alignment (BORR, 2019b) which included 8.3 ha of the Proposal Area.

BORR IPT (2019a) assessment included a desktop assessment and review of previous flora and vegetation assessments undertaken within the surveyed areas or in close proximity. A detailed vegetation and flora assessment of the surveyed areas with field components undertaken in August (reconnaissance), October and November (detailed and targeted) 2018. A targeted survey was also completed for *Diuris drummondii* (a late-flowering threatened orchid species).

BORR IPT (2019a) recorded 267 plant taxa (including subspecies and varieties) representing 62 plant families and 182 genera within the study area. This comprised 178 native species and 89 introduced (exotic) and planted species.

Dominant families recorded from the study area included:

- Fabaceae (34 taxa including 14 introduced taxa)
- Cyperaceae (20 taxa including five introduced)
- Asteraceae (18 taxa including ten introduced species)
- Poaceae (18 taxa including 17 introduced species)
- Myrtaceae (16 taxa including four planted species).

Desktop searches of the EPBC Act Protected Matters Search Tool (PMST), NatureMap, DBCA Threatened and Priority Flora List (TPFL) and Western Australian Herbarium (WAHERB) databases identified the presence/potential presence of 30 conservation significant flora taxa

within a 5 km buffer around the BORR IPT (2019a) field survey area. This included seven taxa listed under the EPBC Act and/or as Threatened under the BC Act and 23 listed as Priority species by the DBCA. The likelihood of occurrence assessment, post-field survey, concluded that three taxa are known or likely to occur and 27 taxa possibly occur within the Proposal Area.

The field survey did not record any EPBC Act or BC Act listed flora. One DBCA Priority-listed flora species, *Caladenia speciosa* – Priority 4, was recorded within the Proposal Area.

Introduced and invasive species

Eighty nine (89) introduced flora species were recorded in the BORR IPT (2019a) study area. Of these, three that are listed as Declared Pests under the *Biosecurity and Management Act 2007* and / or as a WoNS are known to be present within the Proposal Area, namely:

- **Asparagus asparagoides* (Bridal Creeper) – Declared Pest and WoNS
- **Moraea flaccida* (One-leaf Cape Tulip) – Declared Pest
- **Zantedeschia aethiopica* (Arum lily) – Declared Pest.

The remaining introduced species are considered environmental weeds and all have been recorded on the SCP. Locations of the declared weeds is shown in Figure 3 (Appendix A).

Fauna

For the purposes of the Proposal, reports by Biota (2019a; 2019b) (the latter attached as Appendix C) have been used as primary references for fauna species occurring or likely to occur within the Proposal Area and fauna habitats occurring within the Proposal Area.

Three broad habitat types were identified by Biota (2019b) within the Proposal Area:

- Marri/ Eucalyptus woodland
- Dampland with *Melaleuca* woodland and/or shrubland
- Marri/Eucalyptus in paddocks and road reserves.

In addition, one type considered to be largely devoid of fauna habitat was described as 'cleared' (Biota, 2019b).

Biota (2019b) completed a desktop NatureMap database search of the Biota Study Area. The results of the search were used as an indicator of potential faunal diversity within the Proposal Area. The database search listed a species inventory of 223 vertebrate fauna species comprising 25 mammals (14 native non-volant, one bat and ten non-native), 159 birds (63 of which are largely reliant on freshwater or marine habitats), 29 reptiles and ten amphibians.

Searches of the EPBC Act Protected Matters database, DBCA NatureMap database and previous studies identified the presence/ potential presence of conservation significant fauna species within 10 km of the Biota Study Area (Biota, 2019b). The desktop searches undertaken

by Biota (2019b) recorded:

- 14 species listed under the EPBC Act and/or the BC Act
- 43 migratory birds protected under international agreement (Schedule 5)
- Seven DBCA Priority listed species.

An additional targeted survey for aquatic fauna was undertaken by WRM (2019). This study surveyed seven wetlands within a study area similar to the Biota Study Area.

Seven conservation significant species were directly and indirectly observed within the Biota Study Area (Biota, 2019b) and areas sampled by WRM (2019) including:

- Western Ringtail Possum (Critically Endangered)
- Carnaby's Cockatoo (Endangered)
- Baudin's Cockatoo (Endangered)
- Forest Red-tailed Black Cockatoo (Vulnerable)
- Quenda, Southern Brown Bandicoot (Priority 4) (evidence in the form of diggings)
- South-Western Snake-Necked Turtle (Near Threatened, (IUCN, 2019))
- Black-striped Minnow (Endangered).

References

Biota. (2019a). Bunbury Outer Ring Road Southern Alternative Alignment Targeted Fauna Assessment. Unpublished report prepared for Main Roads Western Australia.

Biota. (2019b). Bunbury Outer Ring Road Southern Section Targeted Fauna Assessment. Unpublished report prepared for Main Roads Western Australia.

BORR IPT. (2019a). Bunbury Outer Ring Road Southern Section Vegetation and Flora Study. Unpublished report prepared for Main Roads Western Australia.

BORR IPT. (2019b). Bunbury Outer Ring Road South Alternate Section Vegetation and Flora Study. Unpublished report prepared for Main Roads Western Australia.

WRM. (2019). Bunbury Outer Ring Road Southern Investigation Area: Targeted Conservation Significant Aquatic Fauna Survey. Unpublished report prepared for BORR IPT on behalf of Main Roads Western Australia.

3.2 Describe the hydrology relevant to the project area (including water flows).

The Project is within the Bunbury Groundwater Area and Busselton-Capel Groundwater Area, as proclaimed under the RIWI Act (GoWA, 2019a).

No rivers proclaimed under the RIWI Act will be impacted by the Proposal, although a number of minor drainage lines (not proclaimed under the RIWI Act) will be impacted, including Five Mile Brook.

There are no Proclaimed Surface Water Areas within the Proposal Area.

Most of the western boundary of the Proposal Area abuts and, in several areas, overlaps the boundary of the Bunbury Reserve Priority 3 (P3) Public Drinking Water Source Areas (PDWSA). P3 areas are defined where it is necessary to manage the risk of contamination to a water source and where water supply sources need to co-exist with other land uses such as residential, commercial and light industrial developments (DoW, 2009). Mitigation measures to address contamination risks to the Bunbury Reserve PDWSA posed by the Proposal will be included in the CEMP and will be consistent with the Bunbury Water Reserve drinking water source protection plan (DWSPP) (DoW, 2008).

The Proposal Area is not within a proclaimed Waterways Conservation Area.

There are no Ramsar wetlands located within 10 km of the Project Area. The nearest, (Vasse-Wonnerup System) is located approximately 19 km southwest of the Project Area (GoWA, 2019a).

The Proposal Area overlaps or intersects 24 Geomorphic Wetlands (GoWA, 2019a). The number of wetlands in each category and the total areas of overlap for each category (approximate) are as follow:

- One Conservation Category, 0.1 ha (0.03 % of the Proposal Area)
- One Resource Enhancement, 3.5 ha (1.2 % of the Proposal Area)
- 21 Multiple Use, 60 ha (20% of the Proposal Area)
- One Not Categorised, 0.5 ha (0.17 of the Proposal Area).

A Drainage Strategy has been developed for the Proposal Area, in consultation with the Project Drainage Reference Group (DRG) (BORR IPT, 2019c). The DRG is comprised of relevant stakeholders and was formed to investigate the opportunities, issues and options related to drainage and water management across the Proposal Area.

The objectives of the Drainage Strategy include:

- Minimisation of road user risk, including risk of injury or loss of life, by effective removal and disposal of surface runoff water from the pavement
- Protection of the existing and future built environment from flooding and water log conditions. Prevention of adverse impacts where the existing built environment is already impacted by flooding. In areas where the existing ground is already water logged (i.e. in areas of

palusplain), ponding adjacent the road formation should be minimised

- Maintenance of existing water cycle balance within the project area whilst also improving the surface and groundwater quality.

There is a risk of direct impacts to wetlands and waterways as a result of the Proposal. However, it is expected that the surface water hydrology can be maintained in its current regime with appropriate drainage design.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Soils

The Proposal Area occurs within the Swan Province and lies within the Spearwood and Bassendean Dunes and Pinjarra Plain geomorphological elements as described by (Churchward & McArthur, 1980; McArthur & Bettenay, 1960). The Bassendean dune and sandplain system is described as Pleistocene sand dunes with very low relief, leached grey siliceous sand, intervening sandy and clayey swamps and gently undulating plains. These occur immediately west of, and partly overlie, the Pinjarra Plain (Barnesby et al., 1994). The Spearwood dune system is described as Pleistocene and aeolian sands overlying Tamala limestone featuring low dunes and swales of shallow pale grey sands over yellow sands are characteristic of the Spearwood system. Wetlands are associated with peats and carbonate sands, occasionally with clay overlaying sands. The Pinjarra Plain is described as a broad low relief plain west of the foothills, comprising predominantly Pleistocene fluvial sediments and some Holocene alluvium associated with major current drainage systems. Major soils are naturally poorly drained with many swamps.

Twenty-one (21) soil landscapes occur within the Proposal Area. The two most represented soil landscapes are the Bassendean B2 and Pinjarra P1b and P3 phases, which represent 22 % and 21 % of the Proposal Area respectively.

The Proposal Area is characterised by low and very low relief areas with poor drainage, and more elevated areas associated with undulating dunes of the Spearwood and Bassendean dune systems. Topography ranges from 10 – 35 m AHD with the more elevated areas associated with the Spearwood sands and the least elevated areas associated with drainage lines.

The Proposal Area comprises mostly cleared land, primarily for agricultural land, with some remnant vegetation on Crown land, private property, road reserves and creek lines. Agricultural land use has impacted the terrestrial environment of the Proposal Area.

A review of the ASS risk mapping for the Proposal Area indicates 92 % of the Proposal Area is rated as low to moderate risk of ASS with minor areas of high risk (the remaining 8 %) associated with wetlands and watercourses and the Capel Golf Course (GoWA, 2019a).

Broad vegetation

The Proposal Area is located in the SCP Bioregion and the Perth Subregion (SWA02) as

described by the IBRA. The Perth Subregion is dominated by Banksia or Tuart on sandy soils, Casuarina obesa on outwash plains and paperbark in swampy areas. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland. The outwash plains, once dominated by C. obesa - Marri woodlands and Melaleuca shrublands, are extensive only in the south (Mitchell, Williams & Desmond, 2002).

Broad scale (1:250,000) pre-European vegetation mapping of the area has been completed by Beard (1979) at an association level. This indicates that the Proposal Area intersects three vegetation associations:

- Medium woodland; Tuart and Jarrah (Vegetation Association 6) – occurs in the northern, central and southern extents of the Proposal Area
- Medium woodland; Tuart (Vegetation Association 998) – occurs in the northern extent of the Proposal Area
- Mosaic: Medium forest; Jarrah-Marri / Low woodland; Banksia / Low forest; Teatree (*Melaleuca spp.*) (Vegetation Association 1000) – occurs in the northeast of the Proposal Area.

Regional vegetation has been mapped by Heddle et al. (1980) and Webb et al. (2016) based on major geomorphic units on the SCP and identifies four vegetation complexes within the Proposal Area:

- Bassendean Complex – Central and South: Vegetation ranges from woodland of *Eucalyptus marginata* (Jarrah) - *Allocasuarina fraseriana* (Sheoak) - Banksia species to low woodland of *Melaleuca* species, and sedgelands on the moister sites. This area includes the transition of *Eucalyptus marginata* (Jarrah) to *Eucalyptus todtiana* (Pricklybark) in the vicinity of Perth
- Karrakatta Complex – Central and South: Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (Jarrah) - Banksia species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River
- Southern River Complex – Open woodland of *Corymbia calophylla* (Marri) - *Eucalyptus marginata* (Jarrah) - Banksia species with fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca raphiophylla* (Swamp Paperbark) along creek beds
- Yoongarillup Complex – Woodland to tall woodland of *Eucalyptus gomphocephala* (Tuart) with *Agonis flexuosa* in the second storey. Less consistently an open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri). South of Bunbury is characterised by *Eucalyptus rudis* (Flooded Gum)-*Melaleuca* species open forests.

Vegetation types

BORR IPT (2019a) describes the Project Area as being extensively cleared for agriculture with native vegetation occurring within road reserves, along rivers and creeklines, in patches on private land and as scattered trees. Some larger patches of native vegetation within the agricultural area are present, particularly in the southern portion. Isolated larger patches are also present in the north and centre of the Proposal Area.

Remnant vegetation was assigned a condition rating of Degraded where the tree (upper) layer was retained but no native mid or ground layers were present. When these patches also had native species in the mid / ground layers, they were assigned condition ratings of Good or better. Almost half (45 %) of surveyed vegetation is in Degraded or worse condition, 30 % is in Good or better condition and the remainder vegetation is in Good – Degraded condition.

The Project Area includes ten vegetation types considered to be remnant native vegetation as well as highly disturbed areas, non-native vegetation and revegetation / regrowth (Figure 8, Appendix A).

Surveys within the Project Area have recorded 76 ha of native vegetation (this includes scattered trees in paddocks), 0.4 ha of revegetation / regrowth and 111 ha of highly modified area (cleared paddock, existing infrastructure and non-native vegetation).

Vegetation types include:

- Open forest of *Eucalyptus marginata*, *Corymbia calophylla* and *Banksia attenuata* on Karrakatta deep sands (VT1) - Open forest of *Eucalyptus marginata* and *Corymbia calophylla* +/- *Agonis flexuosa* with isolated occurrences of *Eucalyptus gomphocephala* over low open forest of *Banksia attenuata* over shrubland of *Hibbertia hypericoides*, *Macrozamia riedlei* and *Xanthorrhoea brunonis* over grassland over **Ehrharta* spp. [1], **Briza maxima* over herbland of *Dasypogon bromeliifolius*, *Lomandra* species and *Phlebocarya ciliata* over open sedgeland of *Lepidosperma pubisquameum*

- Open forest of *Eucalyptus marginata*, *Corymbia calophylla*, *Banksia attenuata* and *Agonis flexuosa* on Bassendean dunes (VT2) - Open forest of *Eucalyptus marginata*, *Corymbia calophylla* and *Agonis flexuosa* over low forest of *Banksia attenuata* and *Banksia ilicifolia* over tall shrubland of *Kunzea glabrescens*, *Jacksonia furcellata* and *Xylomelum occidentale* over shrubland of *Hibbertia hypericoides*, *Acacia* spp. and *Xanthorrhoea brunonis* over grassland / Sedgeland of *Tetraria octandra*, *Desmocladius fascicularis* and introduced grasses

- *Corymbia calophylla* and *Eucalyptus marginata* +/- *Banksia* spp. (VT3) - Scattered *Eucalyptus marginata*, *Corymbia calophylla* and +/- *Agonis flexuosa* over a tall very open shrubland of *Banksia attenuata*, *B. ilicifolia*, *Xylomelum occidentale* and *Kunzea glabrescens* over grassland over introduced grasses Open forest of *Banksia attenuata* and *Agonis flexuosa* (VT4) - Open forest of *Banksia attenuata* and *Agonis flexuosa* over shrubland of *Hibbertia hypericoides*, *Macrozamia riedlei* and *Leucopogon propinquus* over open grassland of **Ehrharta* spp. and **Briza maxima* over herbland of *Dichopogon capillipes*, *Phlebocarya ciliata* and *Conostylis aculeata*

- Tall shrubland *Kunzea micrantha* subsp. *micrantha* and *Melaleuca viminea* over weeds (VT5) - Tall open shrubland of *Kunzea micrantha* subsp. *micrantha* and *Melaleuca viminea* over open sedgeland of *Lepidosperma longitudinale* and *Juncus subsecundus* over grassland of **Briza maxima*, **Briza minor* and **Ehrharta calycina*

- Closed tall scrub of *Melaleuca preissiana*, *Astartea scoparia* and *Kunzea glabrescens* over sedgeland (VT6) - Closed tall scrub of *Melaleuca preissiana*, *Kunzea glabrescens* and *Astartea scoparia* and over a sedgeland of *Baumea juncea*, *Lyginia imberbis* and **Cyperus tenellus* with introduced grasses species over open herbland of **Hypochaeris* sp., **Ornithopus*

compressus and **Ursinia anthemoides*

- Woodland of *Melaleuca preissiana* and *M. raphiophylla* (VT7) - Low woodland of *Melaleuca preissiana* and *M. raphiophylla* over tall sparse shrubland of *Astartea scoparia* +/- *M. lateritia* over sedgeland of *Juncus pallidus*, *Lepidosperma longitudinale* over herbland of **Cotula coronopifolia*, **Lotus subbiflorus* and *Isolepis cernua* var. *setiformis* with **Callitriche stagnalis* in open water
- Low open forest of *Eucalyptus rudis* and *Melaleuca preissiana* over sedgeland (VT8) - Low open forest of *Eucalyptus rudis* and *Melaleuca preissiana* over grassland of **Ehrharta longiflora* and **Avena* spp. over sedgeland of *Lepidosperma longitudinale* over herbland of **Rumex* spp.
- Scattered remnant vegetation present in agricultural areas and along road reserves:
- VT09a - *Corymbia calophylla* and *Eucalyptus marginata* +/- *Agonis flexuosa* with very occasional *E. gomphocephala*
- VT09b – *Melaleuca raphiophylla*
- VT09c – *Agonis flexuosa* stands
- VT09d – *Eucalyptus rudis* and *Corymbia calophylla* +/- *M. raphiophylla*
- Parkland cleared with native / non-native trees (VT10) - Parkland cleared with occasional *Corymbia calophylla*, *Eucalyptus marginata* and *Agonis flexuosa* trees with planted tree species over an understorey of weedy herbs and grasses
- Revegetation / Regrowth (VT10b) – This includes revegetation as well as areas planted with a mixture of native and non-native vegetation. There are scattered remnant trees occasionally present (including *Corymbia calophylla*, *Eucalyptus marginata*, *E. rudis*, *Agonis flexuosa* and *Casuarina obesa*). Common shrubs include *Melaleuca nesophila*, *M. lanceolata*, *Kunzea glabrescens* and *Acacia saligna*. The understorey was mostly dominated by introduced grasses and herbs.

References

- Barnesby, B., King, P. & Proulx-Nixon, M. (1994). Land resources from Harvey to Capel on the Swan Coastal Plain Western Australia (Scale 1:50,000, 2 map sheets). DAFWA Land Resource Map No. 23/1. To accompany Land Resources Series No. 15.
- Beard, J. S. (1979). Vegetation Survey of Western Australia: the Vegetation of the Perth Area Western Australia, map and explanatory memoir 1:250,000 series. Applecross: Vegmap Publications.
- BORR IPT. (2019a). Bunbury Outer Ring Road Southern Section Vegetation and Flora Study. Unpublished report prepared for Main Roads Western Australia.
- Hedde, E. M., Loneragan, O. W., & Havel, J. J. (1980). Vegetation Complexes of the Darling System, Western Australia, in Atlas of Natural Resources, Darling System Western Australia.

Perth: Department of Conservation and Environment.

Mitchell, D., Williams, K., & Desmond, A. (2002). Swan Coastal Plain 2 (SWA2 - Swan Coastal Plain Subregion). Perth: Department of Conservation and Land Management.

Webb, A., Kinloch, J., Keighery, G., & Pitt, G. (2016). The Extension of Vegetation Complex Mapping to Landform Boundaries with the Swan Coastal Plain Landform and Forested Region of South-west Western Australia. Perth: Department of Biodiversity, Conservation and Attractions.

1] * Denotes introduced species

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

No further outstanding natural features and/or any other important or unique values are relevant to the Proposal.

3.5 Describe the status of native vegetation relevant to the project area.

The pre-European vegetation mapping (Beard 1979) has been adapted and digitised by Shepherd et al. (2002). The extent of the vegetation associations has been determined by the state-wide vegetation remaining extent calculations maintained by the DBCA (latest update March 2019 – GoWA 2019b).

The current extent of Vegetation Association 6 is less than 30 % of its pre-European extent at state, IBRA bioregion and subregion levels, but greater than 30% at the LGA (Shire of Capel) level. Vegetation Association 998 has more than 30% of its pre-European extent remaining within the entire state but less than 30% remaining in the relevant IBRA bioregion, subregion or LGA (Shire of Capel). Less than 30% of the pre-European extent of Association 1000 remains at all levels.

GoWA (2019c) has assessed the vegetation complexes mapped by Heddle et al. (1980) and Webb et al. (2016) against presumed pre-European extents within the SCP IBRA bioregion and LGA levels. Current extents of complexes remaining within the Proposal Area are less than 30 % of their pre-European extents within the SWA IBRA bioregion and within the City of Bunbury and Shire of Capel LGAs with the exception of the Yoongarillup Complex, at the bioregion level, and the Karrakatta Complex - Central and South, at the LGA level (GoWA 2019c)

BORR IPT (2019a) identified TEC/PECs within the Proposal Area:

- 'Banksia Woodlands of the Swan Coastal Plain ecological community' (Endangered) ('Banksia Woodlands TEC') (Floristic Community Types (FCT) 21a and 25). Vegetation types VT1, VT2 and VT4 are considered to be potentially representative of this TEC

- 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region' PEC (P3) (FCTs 21a and 25) ('Banksia Woodlands PEC'). Vegetation types VT1, VT2 and VT4 are considered to be potentially representative of this PEC

- 'Southern Swan Coastal Plain Eucalyptus gomphocephala - Agonis flexuosa woodlands' PEC (P3) (FCT25). Also forms a component of the Tuart Woodlands of the Swan Coastal Plain PEC (P3) ('Tuart Woodlands PEC'). Vegetation types VT1 and VT4 are considered to be potentially representative of this PEC.

The 'Tuart Woodlands and Forests of the Swan Coastal Plain' TEC (Critically Endangered) ('Tuart Woodlands TEC') was listed as a MNES on 4 July 2019, after the flora and vegetation surveys were completed (DEE, 2019). As such, the extent of this TEC in the flora field survey area is not quantified in the BORR IPT (2019a) report however, it is likely to occur within the Proposal Area and will be targeted in supplementary flora and vegetation surveys in spring 2019.

The extent and condition of TECs within the Proposal Area is illustrated in Figure 5 (Appendix A). There is substantial overlap between the areas of Commonwealth TEC and State PEC identified in the surveyed areas, and some areas of vegetation meet the definition of all three of these communities.

Other significant vegetation

The Proposal Area intersects a number of minor drainage lines as well as seasonally inundated areas (wetlands). Approximately 15.4 ha of vegetation within the Proposal Area occurs in association with minor watercourses and/or wetlands. This vegetation has a restricted distribution and has been impacted by extensive clearing throughout the area. The vegetation types that represent riparian/wetland vegetation are VT5, VT7 and VT8. 6.3 ha of this vegetation is in Good condition and is considered to be the significant vegetation (other than that formally listed under legislation and policy). The remainder is in Good to Degraded or poorer condition and is not considered to be representative of other significant vegetation given its degraded nature / composition of scattered trees only).

The majority of wetlands and associated vegetation within the Proposal Area have been identified as having a moderate to high potential to be groundwater dependent ecosystems (GDEs) in the Bureau of Meteorology (BoM) GDE Atlas (BoM, 2018).

According to the Geomorphic Wetlands dataset (DBCA, 2019), there is approximately 64.1 ha of mapped wetland within the Proposal Area, comprising:

- 0.1 ha of Conservation Category
- 3.5 ha of Resource Enhancement
- 60.0 ha of Multiple Use
- 0.5 ha of unassessed wetlands.

There is a remnant mature Tuart tree located within the Proposal Area between Five Mile Brook

and Woods Road, Gelorup, which is listed as an Australian Champion Tree (National Register of Big Trees, 2019) and was assessed by an arborist on 5 March 2019. The alignment of the proposal has been amended such that the tree will be retained.

References

Barnesby, B., King, P. & Proulx-Nixon, M. (1994). Land resources from Harvey to Capel on the Swan Coastal Plain Western Australia (Scale 1:50,000, 2 map sheets). DAFWA Land Resource Map No. 23/1. To accompany Land Resources Series No. 15.

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BORR IPT. (2019a). Bunbury Outer Ring Road Southern Section Vegetation and Flora Study. Unpublished report prepared for Main Roads Western Australia.

GoWA. (2019a, June). data.wa.gov.au. Retrieved June 2019, from <http://www.data.wa.gov.au/>

GoWA. (2019b). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. Retrieved from WA Department of Biodiversity, Conservation and Attractions: <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>

GoWA. (2019c). 2018 South West Vegetation Complex Statistics. Current as of March 2019. Retrieved from WA Department of Biodiversity, Conservation and Attractions: <https://catalogue.data.wa.gov.au/dataset/dbca>

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Shepherd, D. P., Beeston, G. R., & Hopkins, A. J. (2002). Native Vegetation in Western Australia – Extent, Type and Status. Resource Management Technical Report 249, Department of Agriculture, Western Australia.

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3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

Topography ranges from 10 – 35 m AHD with the more elevated areas associated with the

Spearwood sands and the least elevated areas associated with drainage lines.

3.7 Describe the current condition of the environment relevant to the project area.

BORR IPT (2019a) survey describes the Proposal Area as being extensively cleared for agriculture with native vegetation occurring within road reserves, along rivers and creeklines, in patches on private land and as scattered trees.

Vegetation condition in surveyed areas ranges from Excellent (2) to Completely Degraded (7) (BORR IPT 2019a). Almost half (45 %) of surveyed vegetation is in Degraded or worse condition. Historical clearing and aggressive weed species have influenced the structure and composition of the native vegetation. There was approximately 23 ha (12 % of the surveyed areas) of vegetation in Good or better condition; the remaining vegetation is in Good – Degraded condition, i.e. approximately 19 ha (approximately 10 %).

Based on the DPIRD native vegetation extent dataset (GoWA, 2019a) and interpretation of aerial imagery, it is estimated that approximately 22 ha of the 113 ha of unsurveyed area is native vegetation, with the remainder (91 ha) highly modified and not comprising remnant native vegetation.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

No World Heritage Properties or Commonwealth Heritage Places occur within 10 km of the Proposal Area (DEE, 2018).

3.9 Describe any Indigenous heritage values relevant to the project area.

Aboriginal heritage surveys of the Proposal Area were conducted in 1995 (McDonald Hales and Associates, 1995) and updated in 2002. These earlier surveys were again updated in 2009 (Brad Goode & Associates, 2009) and again in 2012 (Brad Goode & Associates, 2012).

A search of Aboriginal heritage in July 2019 identified three 'Other Heritage Places' within the Proposal Area (DPLH, 2019). The 'Other Heritage Places' identified within the Proposal Area include:

- Place ID 18884 Bunbury Bypass Archaeological Site 1 – Artefact Scatter
- Place ID 37869 Paper bark wetlands – Modified Tree, Birth Place, Hunting Place, Water Source
- Place ID 37870 The Gelorup Corridor – Artefacts / Scatter, Ceremonial, Skeletal Material, Burial.

The Proposal Area occurs within the Gnaala Karla Booja (GKB) People Indigenous Land Use Agreement (ILUA). Aboriginal heritage surveys for the Proposal Area were conducted in 1995

(McDonald Hales and Associates, 1995), updated in 2002 and again in 2009 (Brad Goode & Associates, 2009) and 2012 (Brad Goode & Associates, 2012). The 2012 survey included both archaeological and ethnographic components. A recommendation of the 2012 investigation was that Main Roads make application under Section 18 of the Aboriginal Heritage Act for consent to use land that may contain an Aboriginal site.

A targeted Aboriginal Heritage survey was conducted as an addendum to the 2012 Report (Brad Goode & Associates, 2019). The survey area was a portion of the southern section of the Proposal Area and concluded that there were no culturally significant trees within the search area of the Proposal.

Additional Aboriginal and Ethnographic surveys will be conducted during the detailed design phase.

References

Brad Goode & Associates. (2009). Desktop Aboriginal Heritage Survey of the Proposal Bunbury Outer Ring Road, Western Australia. Unpublished report prepared for GHD Pty Ltd on behalf of Main Roads Western Australia.

Brad Goode & Associates. (2012). Aboriginal Heritage Survey Report of the Proposed Bunbury Outer Ring Road Stage 2, Western Australia. Unpublished report prepared for GHD Pty Ltd on behalf of Main Roads Western Australia.

Brad Goode & Associates. (2019). Addendum to the Report of an Archaeological Survey of the Bunbury Outer Ring Road (Southern Section) Gelorup: Western Australia. Unpublished Report prepared for Main Roads Western Australia.

DPLH. (2019). Aboriginal Heritage Inquiry System. Retrieved July 2019, from Department of Planning, Lands and Heritage: <https://maps.daa.wa.gov.au/AHIS/>

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The Proposal Area intersects Crown, Freehold and Reserve land titles and easements, plus a combination of Easement, Primary Road and Other (e.g. railway, water, and vacant Crown land) lot types.

All land required for the Proposal will be acquired by Main Roads prior to construction activities under the *WA Land Administration Act 1997*.

3.11 Describe any existing or any proposed uses relevant to the project area.

The Proposal Area lies within the GBRS, legislated under the *Planning and Development Act 2005*, which applies to land use in the Greater Bunbury area. This Scheme comprises the City of Bunbury and Shires of Harvey, Dardanup and Capel.

The majority (> 96 %) of land within the Proposal Area, within the GBRS, is zoned as either Primary regional roads (the current BORR alignment as identified in the GBRS) or Rural. The Proposal Area also intersects land zoned as urban and regional open space.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

Over the years, a number of options have been considered for BORR in order to avoid environmental impacts where possible and assess the risk to key environmental aspects, including the consideration of a possible alternate alignment. Refer to Section 8 – Proposal Alternatives considered for detailed information regarding the option analysis process. Based on a comparative assessment of potential impacts, the GBRS alignment was selected as the preferred option. Refinement of the BORR alignment within the Proposal Area to further minimise impacts will occur, where possible, through detailed design.

An EMP will be prepared to minimise the environmental impacts associated with the proposed action as well as identifying areas of responsibilities required for the implementation of management strategies. The EMP will be implemented prior to construction, during construction and post construction works.

A Drainage Strategy has been prepared to ensure maintenance of the existing water cycle balance within the Proposal Area and also improve the surface and groundwater quality. The Drainage Strategy was developed in consultation with the DRG, which is comprised of relevant stakeholders, including the state DWER who have provided in principle support for the Strategy.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The Proposal will result in impacts on EPBC listed fauna and TECs including:

Banksia Woodlands TEC

- Loss of up to 20.8 ha within surveyed areas which is less than 0.01 % of the known extent within the Perth Subregion and potential for additional occurrence within 20 ha of native vegetation in unsurveyed areas.

Tuart Woodlands TEC

- Unknown. The extent of Tuart Woodlands TEC within the Proposal Area and therefore the

impact from the Proposal will be quantified through further survey in spring 2019

Black Cockatoos

- Loss of up to approximately 80 ha of potential habitat including 59.4 ha in Surveyed and an estimated 20 ha in unsurveyed areas Quantification of habitat in unsurveyed areas will be completed through targeted surveys in the second half of 2019.
- Loss of up to 538 Suitable DHB Trees
- Loss of up to 18 Trees with a Suitable Nest Hollow (for Black Cockatoos) of which eight are Known Nesting Trees

Western Ringtail Possum

- Loss of up to approximately 80 ha of potential habitat including 59.4 ha in surveyed areas and an estimated 20 ha in unsurveyed areas
- Reduction in home ranges of approximately 73 individual WRPs (representing approximately 1 % of the regional population (Biota, 2019b)

Black-stripe Minnow

- No Black-stripe Minnow were found within the Proposal Area. The species was recorded in a wetland adjacent to the Proposal Area and there is potential for Black-stripe Minnow to opportunistically utilise habitat in the Proposal Area

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

Listed threatened species and communities - Yes

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

Not relevant

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Main Roads is a State Government agency with an assured record of responsible environmental management and performance.

Main Roads has a strong environmental compliance record, with Main Roads remaining in compliance with all conditions of environmental approvals granted under the Environment Protection and Biodiversity Conservation Act 1999 (C'th) and the Environmental Protection Act 1986 (WA).

Main Roads operations are undertaken in accordance with an Environmental Policy, which outlines Main Roads overarching objectives for environmental protection, sustainability and continual improvement in environmental performance.

The Environmental Policy is implemented through Main Roads international standard AS/NZS ISO 14001:2015-certified Environmental Management System (EMS). Main Roads EMS provides a formalised systematic approach to environmental management for all aspects of the operations (road planning, construction and maintenance).

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Not relevant.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

Main Roads EMS is independently certified and covers the processes and activities that have

the potential to impact the environment. The EMS ensures compliance with Main Roads environment and heritage compliance obligations, providing the framework for driving environmental requirements through leadership, planning, support, operation, performance evaluation and improvement actions. The action, therefore, will be undertaken, monitored and measured in accordance with the Main Roads EMS.

Main Roads Environmental Policy commits to protecting and enhancing the natural environmental and social values in all Main Roads activities.

Main Roads Environment Policy and EMS certificate is publicly accessible from: <https://www.mainroads.wa.gov.au/OurRoads/Environment/Pages/environmentalmanagement.aspx>

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

Main Roads has referred numerous projects under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th). A list of recent Projects (2016-2019) referred to the DotEE under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) is listed below.

List of EPBC Referrals 2016 to 2019

- EPBC 2019/8471 Bunbury Outer Ring Road Northern and Central Section Project
- EPBC 2018/8367 Mitchell Freeway Extension and Wanneroo Road Upgrade (Controlled action)
- EPBC 2018/8346 Indian Ocean Drive Widening, Gingin Shire (Not controlled action)
- EPBC 2018/8316 Roe Highway and Kalamunda Road Interchange Upgrade (Controlled action)
- EPBC 2018/8315 High Street Upgrade, Fremantle (Not controlled action)
- EPBC 2018/8284 Armadale Road to North Lake Road Bridge Development, Jandakot (Not controlled action)
- EPBC 2018/8279 South Coast Highway Road Widening SLK 14.1 to 18.3, Albany (Not controlled action)
- EPBC 2018/8238 Northam Cranbrook Road Widening, Katanning (Not controlled action)
- EPBC 2017/8110 Wanneroo Road / Ocean Reef Road Grade Separation, Pearsall (Not controlled action)

- EPBC 2017/8035 Great Northern Highway-Bindoon Bypass (Controlled action)
- EPBC 2017/8015 Upgrading Pinjarra Williams Road (M053) 24 -40 SLK (Not controlled action)
- EPBC 2017/8009 South Coast Highway Widening 8.2-14.16 SLK, Albany (Not controlled action)
- EPBC 2017/7972 Armadale Road Duplication - Tapper to Anstey Road (Not controlled action)
- EPBC 2017/7934 Road widening Kojonup South SLK 254.9 to SLK 266 (Controlled action)
- EPBC 2017/7907 Albany Highway Crossman Intersection Improvements (Not controlled action)
- EPBC 2017/7884 Indian Ocean Drive Passing Lanes and Widening Works, 52-258 SLK (Not controlled action)
- EPBC 2017/7864 Brand Highway Widening and Passing Lanes Project 34.83-164.3 SLK (Controlled action)
- EPBC 2016/7811 South Western Highway Upgrade, Padbury Hill Stage 2 SLK 219.45-221.00, Balingup (Not controlled action)
- EPBC 2016/7777 South Coast Highway Cheynes East Intersection Upgrade and Realignment (Not controlled action)
- EPBC 2016/7762 Upgrade a section of Albany Highway, Harold Road passing lane (Not controlled action)
- EPBC 2016/7761 Great Northern Highway Muchea to Wubin Upgrade Stage 2, Walebing to Wubin (Controlled action)
- EPBC 2016/7757 Bowelling curves realignment- Collie Lake King Road 64.76-69.84 SLK (Controlled action)
- EPBC 2016/7743 Arthur River Road Upgrade (Not controlled action)
- EPBC 2016/7740 Brand Highway road formation and seal widening 51.2-77.5 SLK (Not controlled action)
- EPBC 2016/7732 Ellenbrook Bus Rapid Transit Project (Not controlled action)
- EPBC 2016/7714 Northam to Cranbrook Road Widening 325.9 - 347.4 SLK (Controlled action)
- EPBC 2016/7698 Maintenance Zone Establishment - Toodyay Goomalling Road, Williams Narrogin Highway and Pinjarra Williams Road, Wheatbelt Region (Controlled action)
- EPBC 2016/7665 Toodyay Road Widening and Upgrade Project (Controlled action)

- EPBC 2016/7664 Narrogin Link Road Stage 3 - North Extension (Not controlled action)

- EPBC 2016/7656 Great Northern Highway Muchea to Wubin Upgrade Stage 2 - Muchea North (Controlled action)

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Barnesby, B., King, P. & Proulx-Information is reliable Nixon, M. (1994). Land resources from Harvey to Capel on the Swan Coastal Plain Western Australia (Scale 1:50,000, 2 map sheets). DAFWA Land Resource Map No. 23/1. To accompany Land Resources Series No. 15.	Information is reliable	There are no uncertainties
Beard, J. S. (1979). Vegetation Survey of Western Australia: the Vegetation of the Perth Area Western Australia, map and explanatory memoir 1:250,000 series. Applecross: Vegmap Publications.	Information is reliable	There are no uncertainties
Brad Goode & Associates. (2009). Desktop Aboriginal Heritage Survey of the Proposal Bunbury Outer Ring Road, Western Australia. Unpublished report prepared for GHD Pty Ltd on behalf of Main Roads Western Australia.	Information is reliable	There are no uncertainties
Brad Goode & Associates. (2012). Aboriginal Heritage Survey Report of the Proposed Bunbury Outer Ring Road Stage 2, Western Australia. Unpublished report prepared for GHD Pty Ltd on behalf of Main Roads Western Australia.	Information is reliable	There are no uncertainties
Biota. (2019a). Bunbury Outer Ring Road Southern Alternative Alignment Targeted Fauna Assessment. Unpublished report prepared for Main Roads	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
Western Australia. Biota. (2019b). Bunbury Outer Ring Road Southern Section Targeted Fauna Assessment. Unpublished report prepared for Main Roads Western Australia.	Information is reliable	113 ha of Proposal Area is unsurveyed
BoM. (2018). Groundwater Dependent Ecosystem Atlas. Retrieved December 2018, from http://www.bom.gov.au/water/groundwater/gde/map.shtml	Information is reliable	There are no uncertainties
BORR IPT. (2019a). Bunbury Outer Ring Road Southern Section Vegetation and Flora Study. Unpublished report prepared for Main Roads Western Australia.	Information is reliable	113 ha of Proposal Area is unsurveyed
BORR IPT. (2019b). Bunbury Outer Ring Road South Alternate Section Vegetation and Flora Study. Unpublished report prepared for Main Roads Western Australia.	Information is reliable	There are no uncertainties
BORR IPT. (2019c). Drainage Strategy – Southern Section. Unpublished report prepared for Main Roads Western Australia.	Information is reliable	There are no uncertainties
Churchward, H. M., & McArthur, W. M. (1980). Landforms and Soils of the Darling System, Western Australia. Perth: Department of Conservation and Environment.	Information is reliable	There are no uncertainties
Department of Environment and Conservation (DEC). (2008). Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus Baudinii and Forest Red-Tailed Black Cockatoo Calyptorhynchus Banksii Naso) Recovery Plan. Perth: Government of Western Australia.	Information is reliable	There are no uncertainties
Department of Environment and Energy (DEE). (2013). Matters of National Environmental Significance, Significant Impact Guidelines 1.1 Environment	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
<p>Protection and Biodiversity Conservation Act 1999. Canberra: Department of the Environment and Energy. Department of Environment and Information is reliable Energy (DEE). (2017). Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo (Endangered) <i>Calyptorhynchus latirostris</i> Baudin's Cockatoo (Vulnerable) <i>Calyptorhynchus baudinii</i> Forest Red-tailed Black Cockatoo (Vulnerable) <i>Calyptorhynchus</i>. Commonwealth of Australia.</p>	Information is reliable	There are no uncertainties
<p>Department of Environment and Energy DEE. (2018). Protected Matters Search Tool. Retrieved October 2018, from https://www.environment.gov.au/epbc/protected-matters-search-tool</p>	Information is reliable	There are no uncertainties
<p>Department of Environment and Energy (DEE). (2019). Approved Conservation Advice (incorporating listing advice) for the Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain ecological community. Canberra: Department of the Environment and Energy.</p>	Information is reliable	There are no uncertainties
<p>Department of Parks and Wildlife (DPaW). (2013). Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>) Recovery Plan. Perth: Government of Western Australia.</p>	Information is reliable	There are no uncertainties
<p>Department of Parks and Wildlife (DPaW). (2017). Western Ringtail Possum (<i>Pseudocheirus occidentalis</i>) Recovery Plan. Perth: Government of Western Australia.</p>	Information is reliable	There are no uncertainties
<p>Department of Planning, Lands</p>	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
and Heritage (DPLH). (2019). Aboriginal Heritage Inquiry System. Retrieved April 2019, from https://maps.daa.wa.gov.au/AHIS/		
Department of Planning and Urban Development. (1993). Bunbury Wellington Region Plan.	Information is reliable	There are no uncertainties
Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2012). Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy. Retrieved from http://www.environment.gov.au/system/files/resources/12630bb4-2c10-4c8e-815f-2d7862bf87e7/files/offsets-policy_2.pdf	Information is reliable	There are no uncertainties
Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2009). EPBC Act policy statement 3.10 Significant impact guidelines for the vulnerable western ringtail possum (<i>Pseudocheirus occidentalis</i>) in the southern Swan Coastal Plain, Western Australia.	Information is reliable	There are no uncertainties
DoW. (2008). Bunbury Water Reserve drinking water source protection plan (Report 96).	Information is reliable	There are no uncertainties
DoW. (2009). Protecting public drinking water source areas (WQPN 36).	Information is reliable	There are no uncertainties
Ecoedge. (2018). A Flora and Vegetation Survey on Lot 104 Willinge Drive, Davenport. Unpublished report prepared for Main Roads Western Australia.	Information is reliable	There are no uncertainties
Environmental Protection Authority (EPA). (2003). Greater Bunbury Region Scheme, Western Australian Planning Commission, Bulletin 1108 September 2003. Perth,	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
Western Australia. GHD. (2012). Environmental Impact Assessment Bunbury Outer Ring Road - Southern Section (South Western Highway to Bussell Highway). Unpublished report prepared for Main Roads Western Australia.	Information is reliable	There are no uncertainties
Gibson et al. (1994). A Floristic Survey of the Southern Swan Coastal Plain. Perth: Unpublished Report for the Australian Heritage Commission prepared by Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc).	Information is reliable	There are no uncertainties
Government of Western Australia (GoWA). (2014). WA Environmental Offsets Guidelines. Retrieved from http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/WA%20Environmental%20Offsets%20Guideline%20August%202014.pdf	Information is reliable	There are no uncertainties
Government of Western Australia (GoWA). (2019a). data.wa.gov.au . Retrieved November 2018, from https://data.wa.gov.au/	Information is reliable	There are no uncertainties
Government of Western Australia (GoWA). (2019b). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. Retrieved from WA Department of Biodiversity, Conservation and Attractions: https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics	Information is reliable	There are no uncertainties
Government of Western Australia (GoWA). (2019c). 2018 South West Vegetation Complex Statistics. Current as of March 2019. Retrieved from	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
WA Department of Biodiversity, Conservation and Attractions: https://catalogue.data.wa.gov.au/dataset/dbca		
Hedde, E. M., Loneragan, O. W., & Havel, J. J. (1980). Vegetation Complexes of the Darling System, Western Australia, in Atlas of Natural Resources, Darling System Western Australia. Perth: Department of Conservation and Environment.	Information is reliable	There are no uncertainties
IUCN. (2019). IUCN Red List of Threatened Species. Version 2019-1. International Union for Conservation of Nature. Retrieved from www.iucnredlist.org	Information is reliable	There are no uncertainties
McArthur, W. M., & Bettenay, E. (1960). The Development and Distribution of the Soils on the Swan Coastal Plain, Western Australia. Melbourne: CSIRO.	Information is reliable	There are no uncertainties
McDonald Hales and Associates. (1995). Report of an Aboriginal Heritage Survey Bunbury Bypass Road, Bunbury WA. Unpublished report for Halpern Glick Maunsell on behalf of Main Roads Western Australia	Information is reliable	There are no uncertainties
Mitchell, D., Williams, K., & Desmond, A. (2002). Swan Coastal Plain 2 (SWA2 - Swan Coastal Plain Subregion). Perth: Department of Conservation and Land Management.	Information is reliable	There are no uncertainties
National Register of Big Trees. (2019). Australia's Champion Trees. Retrieved from https://www.nationalregisterofbigtrees.com.au/contactus.php	Information is reliable	There are no uncertainties
Shepherd, D. P., Beeston, G. R., & Hopkins, A. J. (2002). Native Vegetation in Western Australia – Extent, Type and	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
Status. Resource Management Technical Report 249, Department of Agriculture, Western Australia.		
South West Development Commission. (2018). Impressive Economic Growth. Retrieved from South West Development Commission: http://www.swdc.wa.gov.au/economy/impressive-economic-growth.aspx	Information is reliable	There are no uncertainties
Standards Australia. (2005). AS/NZS 1158.0 Lighting for roads and public spaces Introduction.	Information is reliable	There are no uncertainties
Threatened Species Scientific Committee. (TSSC). (2016) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community. Canberra: Department of the Environment and Energy.	Information is reliable	There are no uncertainties
Western Australian Planning Commission WAPC. (2016). Draft Wanju District Structure Plan. Perth, Western Australia: WAPC.	Information is reliable	There are no uncertainties
Western Australian Planning Commission (WAPC). (2017a). GBRS Amendment 0041/57 Amendment Report, Public Drinking Water Source Protection Areas. Perth: WAPC.	Information is reliable	There are no uncertainties
Western Australian Planning Commission (WAPC). (2017b). Draft Waterloo Industrial Park District Structure Plan. Perth, Western Australia: WAPC.	Information is reliable	There are no uncertainties
Western Australian Planning Commission (WAPC). (2018). City of Bunbury Local Planning Strategy. Retrieved March 26, 2019, from https://www.dplh.wa.gov.au/bunbury	Information is reliable	There are no uncertainties
Webb, A., Kinloch, J., Keighery,	Information is reliable	There are no uncertainties

Reference Source	Reliability	Uncertainties
G., & Pitt, G. (2016). The Extension of Vegetation Complex Mapping to Landform Boundaries with the Swan Coastal Plain Landform and Forested Region of South-west Western Australia. Perth: Department of Biodiversity, Conservation and Attractions.	Information is reliable	There are no uncertainties
Western Australian Minister for the Environment. (2005). Statement that a Scheme may be implemented - Greater Bunbury Region Scheme. Ministerial Statement 000697.	Information is reliable	There are no uncertainties
Wetland Research and Management (WRM). (2019). Bunbury Outer Ring Road Southern Investigation Area: Targeted Conservation Significant Aquatic Fauna Survey. Unpublished report prepared for BORR IPT on behalf of Main Roads Western Australia.	Information is reliable	There are no uncertainties

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

The concept for BORR was developed by Main Roads in the early 1970s in conjunction with the preparation of the Bunbury Wellington Region Plan (Department of Planning and Urban Development, 1993).

The WAPC prepared the GBRS, including an alignment for BORR (Southern and Central Sections) as regional roads. The GBRS was referred to the EPA, by WAPC as the proponent, for assessment under Section 48 of the EP Act. The EPA provided specific recommendations in respect to BORR in Bulletin 1108 (EPA, 2003).

The Western Australian Minister for the Environment released Statement No. 697 prescribing conditions for the implementation of the GBRS in October 2005 (Western Australian Minister for the Environment, 2005).

The land requirement for BORR was subsequently identified in the draft GBRS, with the route advertised to the broader community as part of the GBRS assessment. The GBRS was effected in November 2007, after being passed through Parliament, and gazetted in January 2008.

Main Roads amended the Proposal in 2007 to comply with the WA EPA's recommendations and ministerial conditions.

2019 Alignment review

During May 2019, an Environmental Options Assessment was undertaken which identified that a key concern for the 2012 BORR Southern Section Project was the clearing of native vegetation comprising fauna habitat, particularly in regards to WRP. As a result, the northern and southern alignments set out in the 2012 Referral Project Area for the BORR Southern Section were reviewed, as was a subsequent, "Southern Section Alternative Alignment" for the southernmost section (see Figure 2, Appendix A).

Review of the 2012 BORR Southern Section alignment options confirmed that the northern option (from South Western Highway, south to Hasties Road) was preferable when considering resource, farming and environmental aspects. A review of the 2012 BORR Southern Section southern alignment option involved assessment of alternative alignments (including those suggested by stakeholders who were involved in the review). Subsequently, a "preferred" Southern Section Alternative Alignment was evaluated against the original alignment proposed in the 2012 BORR Southern Section Project referral.

The Southern Section Alternative Alignment was derived through assessment of a number of proposed alternative alignments using Multi-Criteria Analysis (MCA). MCA was also used to

evaluate the Southern Section Alternative Alignment against the alignment in the 2012 BORR Southern Section Project referral. The key findings of the review were based on environmental, social, heritage, land use planning, engineering constraints, potential impacts on agricultural businesses, raw material and mining tenement, the 2012 BORR alignment within the GBRS corridor rated highest.

The BORR Southern Section Proposal Area and 2012 Referral Project Area are shown in Figure 2 (Appendix A). The Proposal Area associated with the current Proposal reflects updated concept design based on refinements in construction planning and constraints assessments.

Further refinement of BORR Southern Section (GBRS Option)

Design of the Proposal has been informed by the results of environmental and other surveys and adjusted where possible to minimise impacts, including alteration of the alignment to avoid the large remnant tuart tree in Gelorup. The Proposal is currently at Concept Design phase. Further refinement of the BORR Southern Section alignment within the Proposal Area to minimise impacts to MNES and other environmental values will occur as part of the detailed design process.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Manager Environment

9.2.2 First Name

Martine

9.2.3 Last Name

Scheltema

9.2.4 E-mail

martine.scheltema@mainroads.wa.gov.au

9.2.5 Postal Address

PO Box 6202
East Perth WA 6002
Australia

9.2.6 ABN/ACN

ABN

50860676021 - MAIN ROADS

9.2.7 Organisation Telephone

138 138

9.2.8 Organisation E-mail

enquiries@mainroads.wa.gov.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date:

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, Martine Scheltema, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature: Martine Scheltema Date: 19.09.19.....

I, Martine Scheltema, the person proposing the action, consent to the designation of Main Roads Western Australia as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature: Martine Scheltema Date: 19.09.19.....

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Manager Environment

9.5.2 First Name

Martine

9.5.3 Last Name

Scheltema

9.5.4 E-mail

martine.scheltema@mainroads.wa.gov.au

9.5.5 Postal Address

PO Box 6202
East Perth WA 6002
Australia

9.5.6 ABN/ACN

ABN

50860676021 - MAIN ROADS

9.5.7 Organisation Telephone

138 138

9.5.8 Organisation E-mail

enquiries@mainroads.wa.gov.au

Proposed designated proponent - Declaration

I, Martine Scheltema, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: Martine Scheltema Date: 19.09.19

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Manager Environment

9.8.2 First Name

Martine

9.8.3 Last Name

Scheltema

9.8.4 E-mail

martine.scheltema@mainroads.wa.gov.au

9.8.5 Postal Address

PO Box 6202
East Perth WA 6002
Australia

9.8.6 ABN/ACN

ABN

50860676021 - MAIN ROADS

9.8.7 Organisation Telephone

138 138

9.8.8 Organisation E-mail

enquiries@mainroads.wa.gov.au

Referring Party - Declaration

I, Martine Scheltema, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: Martine Scheltema Date: 19.09.19

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. Appendix A - Figure 1.pdf
2. Appendix A - Figure 2.pdf
3. Appendix A - Figure 3.pdf
4. Appendix A - Figure 4.pdf
5. Appendix A - Figure 5.pdf
6. Appendix A - Figure 6.pdf
7. Appendix A - Figure 7.pdf
8. Appendix A - Figure 8.pdf
9. Appendix B - Stakeholder Consultation.pdf
10. Appendix C - BORR IPT (2019a) - Part 1 of 12 03-12-19.pdf
11. Appendix C - BORR IPT (2019a) - Part 1 of 12.pdf
12. Appendix C - BORR IPT (2019a) - Part 2 of 12.pdf
13. Appendix C - BORR IPT (2019a) - Part 3 of 12.pdf
14. Appendix C - BORR IPT (2019a) - Part 4 of 12.pdf
15. Appendix C - BORR IPT (2019a) - Part 5 of 12.pdf
16. Appendix C - BORR IPT (2019a) - Part 6 of 12.pdf
17. Appendix C - BORR IPT (2019a) - Part 7 of 12.pdf
18. Appendix C - BORR IPT (2019a) - Part 8 of 12.pdf
19. Appendix C - BORR IPT (2019a) - Part 9 of 12.pdf
20. Appendix C - BORR IPT (2019a) - Part 10 of 12.pdf
21. Appendix C - BORR IPT (2019a) - Part 11 of 12.pdf
22. Appendix C - BORR IPT (2019a) - Part 12 of 12.pdf
23. Appendix C - Biota (2019b) - Part 1 of 2.pdf
24. Appendix C - Biota (2019b) - Part 2 of 2.pdf
25. Appendix C - Brad Goode & Associates (2012).pdf
26. Appendix C - Main Roads WA (2018).pdf
27. Appendix C - WRM (2019).pdf
28. Appendix C BORR Heritage Survey 2012 part 1 03-12-19.pdf
29. Appendix C BORR Heritage Survey 2012 part 2 03-12-19.pdf
30. BORRSouthReferralBoundary_BORR_PCG94_20190805.zip
31. Table 1-1 Local Government Contact Details.pdf