Department of Energy, Mines, Industry Regulation and Safety

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	6712/3
Permit type:	Purpose Permit
Applicant name:	Holcim (Australia) Pty Ltd
Application received:	21 March 2024
Application area:	47 hectares
Purpose of clearing:	Sand mining
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 45/277
	Mining Lease 45/530
Location (LGA area):	Town of Port Hedland
Colloquial name:	Turner River Quarry Project

1.2. Description of clearing activities

Holcim (Australia) Pty Ltd proposes to clear up to 47 hectares of native vegetation within a boundary of approximately 47.01 hectares, for the purpose of sand mining (Holcim, 2024). The project is located approximately 35 kilometres southwest of Port Hedland, within the Town of Port Headland (GIS Database).

The application is to allow for the Turner River Quarry operation to supply crushed aggregate and sand products for use in the construction industry (MWH, 2015b).

Clearing permit CPS 6712/1 was granted by the Department of Mines and Petroleum (now the Department of Energy, Mines, Industry Regulation and Safety) on 22 October 2015 and was valid from 14 November 2015 to 30 June 2019. The permit authorised the clearing of up to 47 hectares of native vegetation within a boundary of approximately 47.01 hectares, for the purpose of sand mining.

CPS 6712/2 was granted on 27 June 2019, amending the permit to increase the permit duration for an additional five years. The area of clearing authorised and the permit boundaries remained unchanged.

On 21 March 2024, the Permit Holder applied to amend CPS 6712/2 to extend the permit duration an additional five years (Holcim, 2024). No clearing has been carried out under this permit (Holcim, 2023).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	14 June 2024
Decision area:	47 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51KA(1) of the *Environmental Protection Act 1986* (EP Act). The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advertised the application for a public comment for a period of 7 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), supporting information provided by the applicant, including the results of a flora and fauna survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment has not changed since the assessment for CPS 6712/2. The Delegated Officer determined that the proposed extension of duration is not likely to lead to an unacceptable risk to environmental values.

However, according to the Department of Energy, Mines, Industry Regulation and Safety's best practice guidelines; the Delegated Officer decided to grant the clearing permit CPS 6712/3 with extension of duration to 30 June 2029, subject to existing conditions on CPS 6712/2:

- commence proposed activities no later than three months after undertaking clearing to reduce the risk of erosion;
- no clearing of vegetation two metres in height or greater and no clearing of vegetation within the drip line; and
- take hygiene steps to minimise the risk of the introduction and spread of weeds.

Additionally, a new condition will be implemented to:

- avoid, minimise to reduce the impacts and extent of clearing; and
- require slow directional clearing to allow fauna to move into adjacent environments.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

Relevant agreements (treaties) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement
- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Guidance for the Assessment of Environmental Factors – *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004)
- Guidance for the Assessment of Environmental Factors – *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Holcim (MWH, 2015b) have outlined they maintain the following internal databases, and avoidance and mitigation measures:

- the river will be worked only during the dry season. The part of the river covered by the mining tenements contains no permanent pools or water holes;
- native vegetation two metres in height or greater, measured from base of the vegetation will not be cleared;
- a buffer distance of at least two metres from the "drip line" of vegetation two metres in height or greater will be retained;
- there will be no water used in the project, the material will be dry screened;
- the entire operation of excavation and screening will be carried out on the river bed within the confines of the river banks. No mining or stockpiling activity will be carried out on the flats above the river bank or on the banks of the river;
- at the end of each operating period, the oversized materials and any other rejects will be spread out over the worked areas;
- the river banks at the point of entry to the river shall be battered and sloped to their natural state;
- when the sand/shingle within the leases is depleted, mining on this lease will cease. It will only commence again when sufficient replenishment has taken place; and
- on completion the front end loader and hydrascreen will be removed from site.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

A review of current environmental information (Appendix A) reveals that the assessment against the clearing principles has not changed from the Clearing Permit Decision Report CPS 6712/2.

The environmental values of the application area are well understood and are described in the previous version of the decision report. The previous assessment of the clearing did not identify any significant environmental impacts from the clearing of 47 hectares.

No Threatened flora, Threatened Ecological Communities or Priority Ecological Communities have been recorded within or in close proximity to the application area (GIS Database), and none were found during the flora and vegetation survey (MWH, 2015a). Fourteen Priority flora taxa have been recorded within 50 kilometres of the application area, however no conservation significant flora species were recorded (MWH, 2015a; GIS Database). Given no new survey information has been provided in support of this amendment application, there is potential for six priority flora species to occur (A.3; GIS Database). Given there are several records of these species within the bioregion and suitable habitat is available within the surrounding environments, the potential impacts to these species may be managed through the applicant's avoidance and mitigation measures.

Four broad fauna habitats were identified within the application area: *Eucalypt* woodland, *Acacia* shrubland, spinifex sand plain and river bed *(*MWH, 2015a). The habitats within the application area may be used for dispersal and/or foraging for several conservation significant species (A.4), however they are considered common and widespread within the subregion and not considered critical habitat. Impacts to fauna may be minimised by conditioning the clearing to be undertaken slowly in one direction to allow fauna to move into the adjacent environments.

The Turner River and several other ephermeral drainage tracts intersect the application area, one vegetation association mapped within the application area, EcMa, is considered associated with these drainage lines (MWH, 2015a). Holcim have committed to only working the river during the dry season, native vegetation two metres in height or greater will not be cleared, a buffer distance of at least two metres will be applied from the 'drip line' of vegetation two metres in height and no stockpiling on the banks (MWH, 2015b). Using the above approach, the vegetation cleared within the application boundary is likely to be minimal. Further impacts to riparian vegetation in the application area may be minimised by the implementation of a restrictive clearing condition which will prevent the clearing of large trees from within the river. Further land degradation impacts will be maintained through the continued implementation of a staged condition where Holcim shall not clear native vegetation unless the purpose for which the clearing is authorised begins within three months of the clearing being undertaken.

Based on the current environmental information, the amendment to extend the permit duration is unlikely to change the environmental impacts of the proposed clearing. The conditions, with the exception of the avoid/minimise and slow directional clearing, currently imposed on clearing permit CPS 6712/2 are considered adequate to manage the impacts of the clearing.

3.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 5 April 2024 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim over the area under application (Kariyarra People - WAD6169/1998) (DPLH, 2024). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are one registered Aboriginal Sites of Significance within the application area (DPLH, 2024). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). The area is located within the Roeburn subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Roeburn subregion primary land uses include native pastures, Aboriginal Lands and Reserves, Conservation and Mining Leases (MWH, 2015a).
Ecological linkage	The application area is not known to be an important ecological linkage (GIS Database).
Conservation areas	There are no conservation areas located within the area proposed to be cleared (GIS Database). The nearest conservation area (Directory of Important Wetlands – Leslie (Port Hedland) Saltfields System) is located approximately 40 kilometres northeast of the application area (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: • 589: Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex; and • 619: Medium woodland; river gum (*Eucalyptus camaldulensis*) (GIS Database). A flora and vegetation survey was conducted over the application area by MWH Australia during April, 2015. The following vegetation associations were recorded within the application area (MWH, 2015a): • **EcMlTw:** Low open woodland dominated by *Eucalyptus camaldulensis*, over tall sparse Shrubland dominated by *Melaleuca lasiandra*, over low sparse hummock grassland dominated by *Triodia wiseana;* • **EcMa:** Mid isolated trees of *Eucalyptus camaldulensi*s with mid isolated clumps of mallee shrubs of *Melaleuca argentea* over low sparse forbland of *Goodenia lamprosperma*, *Ptilotus fusiformis* and *Pluchea rubelliflora*, with mid isolated sedges of *Cyperus ixiocarpus*; • **EcAtTe:** Mid isolated trees of *Eucalyptus camaldulensis*, with mid isolated mallee trees of *Melaleuca argentea*, over mid to tall sparse shrubland dominated by *Acacia trachycarpa*, *Acacia pyrifolia* and *Triumfetta chaetocarpa* over low sparse hummock grassland of *Triodia epactia* and *Triodia wiseana*; • **EcAtTw:** Low isolated trees of *Eucalyptus camaldulensis*, over tall sparse shrubland of *Acacia tumida* over low hummock grassland dominated by *Triodia wiseana*; • **AtAsTw:** Tall isolated shrubs of *Acacia tumida*, over mid shrubland of *Acacia stellaticeps*, over low hummock grassland dominated by *Triodia wiseana;* • **AtTcTw:** Tall sparse shrubland of *Acacia tumida*, over mid sparse shrubland dominated by *Triumfetta chaetocarpa* and *Pimelea ammocharis* over low open hummock grassland dominated by *Triodia wiseana*.
Vegetation condition	The vegetation survey (MWH, 2015a) indicates the vegetation within the proposed clearing area is in 'Excellent' to 'Poor' (Trudgen, 1991) condition, described as • Excellent: Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. • Very good: Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks. • Good: More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds. • Poor: Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds. The full Trudgen (1991) condition rating scale is provided in Appendix C.
Climate and landform	The climate of the Roebourne subregion is characterised as arid to tropical (MWH, 2015b). The area experiences an average rainfall of 314.1 millimetres (BoM, 2024).
Soil description and Land degradation risk	The soils within the application area are mapped as: • Mallina System (281Ma): Sandy surfaced alluvial plains supporting soft spinifex grasslands and minor hard spinifex and tussock grasslands. • River System (281Ri): Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex (DPIRD, 2024). The application to clear for sand extraction is located within the River and Mallina land systems of the Pilbara region (GIS Database; Van Vreeswyk *et al*., 2004). The majority of the application area falls within the River land system, which is characterised by broad sandy plains and major rivers

Characteristic	Details
	supporting grassy Eucalypt woodlands, tussock grasslands and soft spinifex grasslands and its susceptibility to erosion is high or very high if vegetative cover is removed (Van Vreeswyk *et al*., 2004). The Mallina land system is characterised by sandy surfaced alluvial plains supporting soft spinifex (and occasionally hard spinifex) grasslands (Van Vreeswyk et al., 2004). Alluvial plains are moderately to highly susceptible to erosion if vegetative cover is seriously depleted (Van Vreeswyk *et al*., 2004).
Waterbodies	According to available databases, a number of ephemeral drainage tracts transect the application area as well as the Turner River, which crosses through the application area (GIS Database).
Hydrogeography	The application area is not mapped within a proclaimed public drinking water area (GIS Database). The area is mapped within the Pilbara Groundwater Area, proclaimed under the Rights in Water Irrigation (RIWI) Act (GIS Database).
Flora	No threatened flora have been recorded within the application area (MWH, 2015a; GIS Database). Fourteen conservation flora species have been recorded within 50 kilometres of the application area (A.3) (GIS Database).
Ecological communities	The application area is not located within any known or mapped Threatened Ecological Community (TEC) (MWH, 2015a; GIS Database).
Fauna	One fauna of conservation significance was recorded within the application area during the fauna survey, Rainbow Bee-eater (*Merops ornatus*), which was previously listed as Migratory (MWH, 2015a). Several additional conservation significant fauna species have been recorded within 50 kilometres of the application area (A.4) (GIS Database).
Fauna habitat	A fauna survey was conducted over the application area in April 2015 by MWH Australia (2015a). Based off this survey, four broad fauna habitats were identified within the application area, these being: • Eucalypt woodland; • River bed; • Spinifex sand plain; and • Acacia Shrubland.

A.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion Pilbara	17,808,657.04	17,731,764.88	99.57	1,801,714.98	10.12
Beard vegetation associations - State					
Veg Assoc No. *589*	807,698.58	802,713.40	99.38	15,304.39	1.89
Veg Assoc No. *619*	119,373.78	118,205.01	99.02	236.34	0.20
Beard vegetation associations - Bioregion					
Veg Assoc No. *589*	728,768.20	724,695.82	99.44	15,304.39	2.10
Veg Assoc No. *619*	118,920.31	118,116.78	99.32	236.08	0.20

Government of Western Australia (2019)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information (MWH, 2015a; Western Australian Herbarium, 1998-; GIS Database) impacts to the following conservation significant flora and fauna required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Abutilon sp. *Pritzelianum* (S. van Leeuwen 5095)	3	Y	<5	51
Bulbostylis burbidgeae	4	N	<25	39
Eragrostis crateriformis	3	N	<8	53
Euphorbia clementii	3	N	<24	31
Euploca mutica	3	Y	<9	76
Gomphrena cucullata	3	N	<51	13
Gomphrena leptophylla	3	Y	<28	8
Gomphrena pusilla	2	N	<31	15
Gymnanthera cunninghamii	3	Y	<10	42
Ptilotus mollis	4	N	<8	45
Rothia indica subsp. *australis*	3	Y	<12	22
Stylidium weeliwolli	3	Y	<40	29
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	N	<26	44
Triodia chichesterensis	3	N	<11	42

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.4. Fauna analysis table

Species name	Common Name	Conservation status	Distance of closest record to application area (km)	Suitable habitat features? [Y/N]
Actitis hypoleucos	common sandpiper	MI	<11	Y
Apus pacificus	fork-tailed swift	MI	<19	Y
Arenaria interpres	ruddy turnstone	MI	<13	N
Calidris acuminata	sharp-tailed sandpiper	MI	<11	N
Calidris alba	sanderling	MI	<13	N
Calidris canutus	red knot	EN	<13	N
Calidris ferruginea	curlew sandpiper	CR	<23	N
Calidris melanotos	pectoral sandpiper	MI	<29	Y
Calidris ruficollis	red-necked stint	MI	<13	N
Calidris subminuta	long-toed stint	MI	<13	Y
Calidris tenuirostris	great knot	CR	<13	N
Charadrius leschenaultii	greater sand plover, large sand plover	VU	<13	Y
Charadrius mongolus	lesser sand plover	EN	<13	Y
Charadrius veredus	oriental plover	MI	<34	Y
Chlidonias leucopterus	white-winged black tern	MI	<23	Y
Ctenotus angusticeps	Airlie Island Ctenotus, Northwestern coastal Ctenotus	P3	<28	N
Dasycercus blythi	brush-tailed mulgara	P4	<7	N
Dasycercus cristicauda	crest-tailed mulgara, minyiminyi	P4	<22	N
Dasyurus hallucatus	northern quoll	EN	<15	Y
Falco hypoleucos	grey falcon	VU	<11	Y

Species name	Common Name	Conservation status	Distance of closest record to application area (km)	Suitable habitat features? [Y/N]
Falco peregrinus	peregrine falcon	OS	<16	Y
Fregata ariel	lesser frigatebird	MI	<15	N
Gallinago stenura	pin-tailed snipe	MI	<28	Y
Gelochelidon nilotica	gull-billed tern	MI	<11	Y
Glareola maldivarum	oriental pratincole	MI	<10	Y
Hirundo rustica	barn swallow	MI	<23	Y
Hydroprogne caspia	Caspian tern	MI	<7	Y
Lagorchestes conspicillatus leichardti	spectacled hare-wallaby (mainland)	P4	<40	Y
Lagostrophus fasciatus fasciatus	banded hare-wallaby, mernine	VU	<30	Y
Liasis olivaceus barroni	Pilbara olive python	VU	<12	N
Limicola falcinellus	broad-billed sandpiper	MI	<35	N
Limnodromus semipalmatus	Asian dowitcher	MI	<34	N
Limosa lapponica	bar-tailed godwit	MI	<13	N
Limosa lapponica menzbieri	bar-tailed godwit (Northern Siberian)	CR	<35	N
Limosa limosa	black-tailed godwit	MI	<35	N
Macroderma gigas	ghost bat	VU	<14	Y
Macrotis lagotis	bilby, dalgyte, ninu	VU	<7	Y
Motacilla flava	yellow wagtail	MI	<35	N
Numenius madagascariensis	eastern curlew	CR	<13	N
Numenius minutus	little curlew	MI	<13	Y
Numenius phaeopus	whimbrel	MI	<13	N
Oceanites oceanicus	Wilson's storm-petrel	MI	<35	N
Onychoprion anaethetus	bridled tern	MI	<33	N
Ozimops cobourgianus	northern coastal free-tailed bat	P1	<31	N
Pandion haliaetus	osprey	MI	<13	Y
Phalaropus lobatus	red-necked phalarope	MI	<43	N
Philomachus pugnax	ruff	MI	<13	N
Plegadis falcinellus	glossy ibis	MI	<24	N
Pluvialis fulva	Pacific golden plover	MI	<15	N
Pluvialis squatarola	grey plover	MI	<13	N
Pseudomys chapmani	western pebble-mound mouse, ngadji	P4	<18	N
Rhinonicteris aurantia	orange leaf-nosed bat	P4	<17	N
Rhinonicteris aurantia (Pilbara form)	Pilbara leaf-nosed bat	VU	<17	N
Sterna hirundo	common tern	MI	<34	N
Sternula albifrons	little tern	MI	<34	N
Sternula nereis nereis	fairy tern	VU	<33	N
Sula leucogaster	brown booby	MI	<41	N
Thalasseus bergii	crested tern	MI	<13	N
Tringa brevipes	grey-tailed tattler	MI & P4	<13	N
Tringa glareola	wood sandpiper	MI	<13	N
Tringa nebularia	common greenshank	MI	<11	Y
Tringa stagnatilis	marsh sandpiper	MI	<24	N
Xenus cinereus	Terek sandpiper	MI	<13	N

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, OS: other specially protected

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: There are no Threatened or Priority Ecological Communities located within the application area (GIS Database). There are no records of any conservation significant flora within the application area. There is potential habitat for several Priority flora species, however, the application area is not likely to represent significant habitat for these species and none were recorded within the area proposed to be cleared (MWH, 2015a). The fauna habitats within the application area are common in the local area and are not likely to support a high level of faunal diversity (MWH, 2015a).	Not likely to be at variance (as per CPS 6712/2)	No
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The faunal habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to that found in similar habitat located elsewhere in the region (MWH, 2015a). The fauna survey identified one significant species within the application area, Rainbow Bee-eater (*Merops ornatus*), which was previously listed as Migratory (MWH, 2015a). The habitat present within the application area may be suitable for several conservation significant species, however, the clearing of 47 hectares of this native vegetation is not likely to impact critical feeding of breeding habitat for any conservation significant species.	Not likely to be at variance (as per CPS 6712/2)	No
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: There are no known records of Threatened flora within the application area (GIS Database). The flora survey of the application area did not record any species of Threatened flora (MWH, 2015a).	Not likely to be at variance (as per CPS 6712/2)	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: There are no known Threatened Ecological Communities (TECs) located within the application area and the flora and vegetation survey did not identify any TECs (MWH, 2015a; GIS Database).	Not likely to be at variance (as per CPS 6712/2)	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not at variance (as per CPS 6712/2)	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas (GIS Database).	Not likely to be at variance (as per CPS 6712/2)	No
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The application area is located within the Turner River (GIS Database). The river is endoreic and ephemeral, and water flows only in times of heavy seasonal rainfall (MWH, 2015a). The proponent has committed to avoiding clearing of riparian vegetation, larger trees and vegetation within their drip lines (MWH, 2015b). Therefore, the proposed clearing is unlikely to result significant impacts to the vegetation growing within Turner River. Potential impacts will be further managed by the continued implementation of a vegetation management, which will assist in minimising impacts to riparian vegetation and vegetation within the drip line of tress.	At variance (as per CPS 6712/2)	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given that the land systems associated with the areas to be cleared have a moderate to high susceptibility to erosion when vegetation is removed there may be an increased risk of wind and water erosion associated with mining during heavy rainfall events. The excavation will disturb the ground but flooding will refill and rehabilitate these areas with sand deposits and replenish the seed source. Potential impacts from wind erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.	May be at variance (as per CPS 6712/2)	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: There are no permanent watercourses or water bodies within the application area (GIS Database). The Turner River crosses through the application area and a few ephemeral drainage tracts transect the application area (GIS Database). These drainage tracts are dry for most of the year and only flow and hold surface water for short durations following significant rainfall events during December to April (MWH, 2015a; GIS Database). Project activities are not expected to cause deterioration in the quality of surface or underground water as sand extraction is only undertaken when the creek bed is dry with any remaining standing water avoided (MWH Australia, 2015b).	Not likely to be at variance (as per CPS 6712/2)	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: Given the size of the area to be cleared (47 hectares) compared to the size of the Turner River catchment area (480,185 hectares) (GIS Database) it is not likely that the proposed clearing will lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.	Not likely to be at variance (as per CPS 6712/2)	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.

Condition	Description
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Sources of information

D.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

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MWH Australia Pty Ltd (MWH) (2015a) Level 1 Flora and Fauna Assessment - Turner River Quarry. Report prepared for Holcim Australia Pty Ltd by MWH Australia Pty Ltd, August 2015.

MWH Australia Pty Ltd (MWH) (2015b) Turner River Quarry Native Vegetation Clearing Permit Application for Tenements M45/530 and M45/277 M45/530 and M45/277. Prepared for Holcim Australia Pty Ltd, by Holcim Australia Pty Ltd, July 2015.

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4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T **Threatened species:**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**
Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western

Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

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

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.