

MUCHEA INDUSTRIAL PARK

COMPLIANCE REPORT
EPBC 2017/8119

16 December 2022

to

16 December 2023

Project Implementation Year 4

Prepared by Harvis,
with Emerge Technical Reports

(REV 1 - ISSUED)

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1. DECLARATION OF ACCURACY

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed:



Full Name: **Kelvin Flynn**

Position: **Managing Director**

Organisation: **Harvis Capital Pty Ltd, as trustee for the Northern Gateway Unit Trust No 2**
ABN – 99 450 875 764

Date: **06 / 02 / 2024**

2. TERMINOLOGY

The 'Compliance Status' field of the audit tables describes the implementation of actions and compliance with the approval. Table 1 details the terminology that has been applied in this audit report.

Specific Definitions:

Compliance Period: 16 December 2022 – 16 December 2023

Compliance Area: That area of the Muchea Industrial Park project that falls within the EPBC Act approval area (i.e. does not include the specifically agreed excised area)

Table 1 Audit terminology

Compliance status term	Abbreviation	Description
Regulatory requirements - applicable to the conditions of approval		
Compliant	C	When all the requirements of a condition have been met, including the implementation of management plans or other measures required by those conditions.
Completed	CLD	Where a requirement with a finite period of application has been satisfactorily completed.
Not Applicable	NA	Where the requirements of a condition or elements of a condition fall outside of the scope of the current reporting period. For example, a condition which applies to an activity that has not yet commenced.
Non-compliant	NC	Where the requirements of a condition or elements of a condition, including the implementation of management plans and other measures, have not been met.
Corporate policies, standards and procedures – applicable to the CEMP		
Conformant	C	When sufficient evidence has been provided to confirm that the requirements within a corporate policy, standard and/or procedure (including an environmental management plan) has been satisfactory implemented.
Completed	CLD	Where a requirement with a finite period of application has been satisfactorily completed.
Not Applicable	NA	Where the requirements of a corporate policy, standard and/or procedure (including an environmental management plan) fall outside of the scope of the current reporting period. For example, a management plan which applies to an activity that has not yet commenced.
Non-conformant	NC	Where the requirements within a corporate policy, standard and/or procedure (including an environmental management plan) have not been satisfactory implemented.

3. DESCRIPTION OF ACTIVITIES

EPBC Number:	2017 / 8119
Project Name:	Mucnea Industrial Park, Great Northern Highway Mucnea
Approval Holder (ABN):	Harvis Capital Pty Ltd, as trustee for the Northern Gateway Unit Trust No 2 ABN – 99 450 875 764
Person Accepting Report Responsibility:	Kelvin Flynn (See Section 1 for Declaration)
Approved Action:	To clear vegetation and construct an industrial precinct and related infrastructure at Lot 809 Great Northern Highway, Mucnea, Western Australia.
Dates for the Reporting Period of the Report:	16 / 12 / 2022 – 16 / 12 / 2023 (Note: Fourth Reporting Period for the Project)
Date of Preparation of the Report:	31 / 01 / 2024

Description of Activities

The activities within the reporting period relevant to the Approved Action are summarised as follows:

- Monitoring during peak breeding season was undertaken of the previously installed 6x 'artificial nesting hollows' as outlined here-in. Breeding events were observed in 3x of the 6x artificial nesting hollows:
 - 1) Successful breeding event of a Carnaby's black cockatoo in artificial tree hollow 844B.
 - 2) Egg laid in in artificial tree hollow 845B, however subsequent loss of egg, suspected due to predation.
 - 3) Egg laid in in artificial tree hollow 849B, however subsequent loss of egg, suspected due to predation.
- Note: Due to timing of the laying of eggs in the artificial hollows, 3x rounds of monitoring were undertaken at 9 November 2023 (chick in 844B, egg in 845B), 14 December 2023 (new egg in 849B) and additionally on 29 January 2024 (for additional egg in 849B), and accordingly reporting was delayed herein until final results were determined across the 3x sites.
- Broad-scale clearing was not undertaken during the Carnaby's Black Cockatoo breeding season of the reporting period, with accumulating clearing to only 4.5ha of up to 12.55 permitted hectares, and over 18ha currently remaining undisturbed in-situ. The crossing of the Wandina Creekline was undertaken under 'Beds & Banks' permit to interfere/disturb as issued by DWER.
- No additional clearing (cumulative prior total 0.17 of up to 0.43 hectares permitted) of 'Banksia Woodlands TEC' was undertaken, with 7.11ha continuing to remain undisturbed in-situ.

Section 4, Table 2 below provides the tabulated detail of the current compliance status and relevant actions against each of the specific approval conditions of EPBC 2017/8119.

4. COMPLIANCE TABLE

Table 2: List of approval conditions and current compliance status of EPBC 2017/8119

Condition No.	Condition	Compliance Status	Evidence / Comments
Part A – Conditions specific to the action			
1	The approval holder must not clear more than 12.55 hectares of black cockatoo habitat and must not clear more than 0.43 hectares of Banksia Woodlands TEC within the project area .	N/A	<p>Overall project clearing works ongoing, with no clearing of 'Black Cockatoo Habitat' occurring within the breeding season of the current reporting period.</p> <p>Extent of clearing works undertaken to date are well within areas calculated to be ultimately cleared and do not impact on compliance with the overall condition values.</p> <p>With respect to 'Black Cockatoo Habitat', the cleared area to date remains less than the 12.55 hectares permitted threshold (~4.5ha cleared with over 18ha remaining undisturbed). The Wandina Creekline crossing was installed under WA Department of Water Environment Regulation (DWER) permit to interfere with the beds and banks of a watercourse PMC207900(1) (Beds & Banks Permit).</p> <p>See <i>Annexure D – Beds & Banks Permit Documents</i>.</p> <p>With respect to 'Banksia Woodlands TEC', the cleared area to date remains less than the 0.43 hectares permitted threshold (~0.17ha have been cleared with 7.11ha remaining.</p> <p>Not-Applicable - Condition Works Ongoing.</p>
2	To mitigate impacts to black cockatoos and black cockatoo habitat , the approval holder must implement the Construction Environmental Management Plan (CEMP) during construction .	Compliant	<p>The CEMP was implemented during construction, with the CEMP incorporated into requirements of Contractor responsibilities and implemented during prior period Stage 1D clearing works.</p> <p>The CEMP implementation actions are specified in Annexure H - Table 3 below. Further stages of Civil Contractors works will continue to ensure the CEMP are implemented via the contractor's management plans.</p> <p>See <i>Annexure E – Table 3: Conformance with Construction Environmental Management Plan</i></p> <p>Compliant.</p>

Condition No.	Condition	Compliance Status	Evidence / Comments
3	<p>To mitigate impacts to black cockatoos and Banksia Woodlands TEC, the approval holder must, no later than 12 months following the submission of the final report under Condition 4f., provide the Department with:</p> <ul style="list-style-type: none"> a) written evidence demonstrating that a restrictive statutory conservation covenant has been established over the identified conservation reserves for their protection in perpetuity b) written evidence demonstrating that ownership of the conservation reserves has been ceded to the Shire of Chittering c) the conservation reserves' attributes, shapefiles and textual descriptions and maps to clearly define the location and boundaries of the conservation reserves. 	N/A	<p>Condition ongoing</p> <p>Neither conditions 3a), 3b) or 3c) have yet reached a point of implementation to be created. We expect to implement Condition 3 on a staged basis within future reporting periods.</p> <p>Not-Applicable – Condition Ongoing.</p>
4	<p>To mitigate the loss of 12.55 hectares of black cockatoo habitat and improve potential breeding and foraging opportunities for black cockatoos in the project area, the approval holder must:</p> <ul style="list-style-type: none"> a) undertake revegetation works within the conservation reserves to establish a self-sustaining vegetation cover integrated with the surrounding ecosystem which provides black cockatoo habitat and that meets the completion criteria b) ensure that the density of planted vegetation is sufficient to account for mortality to meet the completion criteria and until the reserves are ceded to the Shire of Chittering c) commence revegetation required under Condition 4.a. within 12 months of commencement of the action d) provide the Department with written and photographic evidence of the commencement of the revegetation works within 10 days of their commencement e) not cease revegetation works until a suitably qualified horticulturist has verified that the revegetation works meet the completion criteria and the Department has been provided with written evidence, endorsed by a suitably qualified horticulturist, that the revegetation works meet the completion criteria f) upon attainment of the completion criteria, ensure all areas of revegetation are inspected by a suitably qualified horticulturist once every two years, during spring, for a further 10 years to ensure the completion criteria are maintained and provide the Department with a report of each inspection within 40 days after the inspection g) re-establish the completion criteria within revegetated areas within three months of becoming aware that an area of revegetation no longer meets the completion criteria. 	Compliant (Except 4d)	<p>Overall Condition still ongoing:</p> <p>4a) Ongoing. Additional revegetation works have been implemented within part of the (future) Central Reserve (where forward preparation works, and initial planting efforts, were completed in the prior reporting periods). The full extent of revegetation works will be implemented over several future years (winter seasons) as the necessary preparatory/Interface civil works are completed. Note: A further 2000+ trees were planted during the current 2023 Year 4 compliance reporting period.</p> <p>See <i>Compliance Report Year 1 for Notification of Commencement of Revegetation Works</i></p> <p>4b) Ongoing, subject to full extent of revegetation planting being implemented.</p> <p>4c) Compliant. As previously reported (Reporting Period 1), initial revegetation works commenced on 8th October 2020, within the 12-month window of the notified commencement of the action (16th December 2019).</p> <p>See <i>Compliance Report Year 1 for Notification of Commencement of Revegetation Works</i></p> <p>4d) Non-Compliant (late). As previously reported (Reporting Period 1), written and photographic evidence of the commencement of revegetation was provided on 2nd December 2020, however this should technically have been provided by 18th October 2020. Notification of the non-compliance was raised within the notification letter itself. See <i>Compliance Report Year 1 for Notification of Commencement of Revegetation Works</i></p> <p>4e) Ongoing. Revegetation works are confirmed as continuing, with further planting scheduled for Winter 2024 (and beyond). Chittering Landcare provided as summary letter providing status update on the success of planting as at 28th November 2023. See <i>Annexure B – Chittering Landcare Cockatoo Offset Tree Survival Survey</i> (at 28/11/2023).</p> <p>4f) N/A. Revegetation works not yet complete.</p> <p>4g) N/A. Revegetation works not yet complete.</p> <p>Generally Compliant, except 4d), which has previously been noted (see Reporting Period 1) as a late (administrative) notification.</p>
5	To mitigate impacts to nesting black cockatoos, the approval holder must, within two days prior to clearing the two known nesting hollows, investigate these hollows to determine if they are currently utilised by black cockatoos	Compliant	<p>Overall Condition completed previously:</p>

Condition No.	Condition	Compliance Status	Evidence / Comments
	<p>for nesting. The investigation must be undertaken by a suitably qualified person. If any black cockatoos are detected utilising any hollow in any tree, the approval holder must:</p> <p>a) clearly identify and mark the nesting tree</p> <p>b) not clear the identified nesting tree or any vegetation within a 10 metre radius of that tree until a suitably qualified ecologist has verified that the hollow in the tree is no longer being used by black cockatoos.</p>		<p>5a) Compliant. During prior reporting period(s) each of the 2x trees were assessed and proven by Emerge ecologists to be not utilised for black cockatoo nesting prior to clearing, and the condition is now no longer relevant moving forward (tree now cleared). See <i>Compliance Report Year 2 and Year 3 for prior compliance</i>.</p> <p>5b) Compliant. During prior reporting period(s) the 10-20m setback zone was retained up until the point of clearing each of the 2x trees, and the condition is now no longer relevant moving forward (tree now cleared). See <i>Compliance Report Year 2 and Year 3 for prior compliance</i>.</p> <p>Compliant.</p>
6	<p>To mitigate and offset the loss of two known nesting hollows within the project area, the approval holder must install, within the conservation reserves and in accordance with artificial hollow installation guidelines, at least six artificial nesting hollows. To maximise the likelihood of the installed artificial nesting hollows being used by black cockatoos, the approval holder must:</p> <p>a) install at least six artificial nesting hollows prior to the beginning of the next breeding season following the commencement of the action</p> <p>b) undertake adaptive management of the artificial nesting hollows, and as a component of adaptive management, ensure that each installed artificial nesting hollow is:</p> <p>i. monitored and maintained in accordance with relevant artificial hollow maintenance guidelines for the life of the approval, with maintenance actions undertaken outside of the breeding season and before the commencement of the next breeding season</p> <p>ii. not install in a manner that requires additional clearing of black cockatoo habitat or within 10 metres of the edge of the road seals or buildings, to reduce the risk of vehicle strike and human disturbance.</p> <p>c) prior to clearing the known nesting hollows, have a suitably qualified ecologist undertake a hollow inspection of the known nesting hollows during the peak breeding season across three consecutive years, to confirm whether black cockatoo nesting is occurring. If a suitably qualified ecologist certifies in writing that no black cockatoo nesting occurred in any of the three consecutive years, then compliance with Condition 6d, 6e and 7 is not required.</p> <p>d) ensure that each installed artificial nesting hollow is inspected at least twice each year, and at least 4 weeks apart, by a suitably qualified ecologist during the peak breeding season for nine years to record any evidence of use by black cockatoos and to identify any maintenance requirements</p>	Compliant	<p>Overall Condition still ongoing:</p> <p>6a) Compliant. As previously reported (Reporting Period 1), following commencement of the action on 16 December 2019, 6x artificial nesting hollows were installed on 23 June 2020, prior to the beginning of the next breeding season in July 2020. See <i>Compliance Report Year 1 for Confirmation of 6x Artificial Nesting Hollows Installation</i></p> <p>6b)i) Ongoing. Most recent Year 4 (2023) results from inspection of the 6x artificial nesting hollows determined "All artificial hollows are in good condition and do not require maintenance". See <i>Annexure A – Black Cockatoo Artificial Hollow Monitoring Report 2023 (Year 4)</i></p> <p>6b)ii) Compliant. As previously reported (Reporting Period 1), no habitat was required to be cleared for installation of the Artificial Nesting Hollows and locations are greater than 10m from any adverse conditions. See <i>Compliance Report Year 1 for Artificial Hollows Installation Conformance</i></p> <p>6c) Compliant. Qualified ecologists undertook hollow inspections on the following peak breeding dates: 5 November 2018 (2018 Peak Breeding Season) 15 October 2019 (2019 Peak Breeding Season) 30 September 2020, 5 October 2020 & 16 December 2020 (2020 Peak Breeding Season) 1 December 2021 (2021 Peak Season, and then immediately prior to clearing first tree) 1 December 2021 (2021 Peak Season, and then immediately prior to clearing second tree) At no times during the inspected dates was nesting observed to be occurring, and accordingly the letter attached at Annexure G certifies that no black cockatoo nesting occurred in any of the three consecutive years, nor in the fourth year prior to the commencement of clearing. As such, compliance with Condition 6d, 6e and 7 is not required. See <i>Compliance Report Year 1 for Black Cockatoo Hollow Monitoring Results Letter (3-Years)</i></p> <ul style="list-style-type: none"> 6d) No Longer Applicable. In accordance with 6c) outcomes above, compliance with condition 6d) is no longer formally required. Notwithstanding, following the installation of the 6x artificial hollows on 23 June 2020, and inspections during the 2020 Peak Breeding Season, a further inspection was undertaken by Emerge Associates qualified ecologist during the 2021 Peak Breeding

Condition No.	Condition	Compliance Status	Evidence / Comments
	e) not cease adaptive management of artificial nesting hollows until at least one artificial nesting hollow ¹ for each known nesting hollow identified with evidence of black cockatoo nesting under Condition 6.c. has shown evidence of black cockatoo nesting , as verified in writing by a suitably qualified ecologist , for three consecutive years.		<p>Season on 1 December 2021. Additionally Emerge Associates undertook an inspection during the 2022 Peak Breeding Season on 10 November 2022. No active use of the artificial hollows by black cockatoos or any other fauna species was recorded during the 2022 monitoring events. Secondary evidence of bird activity in the form of chew marks was noted on two of the artificial hollows, however the chew marks could not be attributed to a particular bird species.</p> <p>Emerge Associates continued monitoring of the artificial nesting hollows during the (current) 2023 peak breeding season with the positive outcome of <u>breeding events being observed in 3x of the 6x artificial nesting hollows</u>:</p> <ol style="list-style-type: none"> 1. <u>Successful</u> breeding event of a Carnaby's black cockatoo in artificial tree hollow 844B. 2. Egg laid in in artificial tree hollow 845B, <u>however subsequent loss of egg</u>, suspected due to predation. 3. Egg laid in in artificial tree hollow 849B, <u>however subsequent loss of egg</u>, suspected due to predation. <p>3x rounds of monitoring were undertaken at 9 November 2023 (chick in 844B, egg in 845B), 14 December 2023 (new egg in 849B) and additionally on 29 January 2024 (for additional egg in 849B).</p> <p>See Annexure A – <i>Black Cockatoo Artificial Hollow Monitoring Report 2023 (Year 4)</i></p> <p>6e) No longer Applicable. In accordance with 6c) outcomes above, compliance with condition 6e) is no longer formally required. Notwithstanding, Harvis and Emerge continued to monitor the artificial hollow in the prior 2021 & 2022 Reporting Periods, wherein no damage or adaptive management was seen to be required.</p> <p>As noted in 6d) above, Emerge Associates continued monitoring during the 2023 reporting period and noted Black Cockatoo use (resulting in eggs) in 3 of the 6x hollows. No adaptive management requirements were noted for the current period.</p> <p>See Annexure A – <i>Black Cockatoo Artificial Hollow Monitoring Report 2023 (Year 4)</i></p>
7	<p>If, after nine years from commencement of the action, the approval holder is unable to provide the verification by a suitably qualified ecologist required under Condition 6.e., the approval holder must, within ten years after commencement of the action:</p> <ol style="list-style-type: none"> a) submit to the Minister for approval, the details of an offset that meets the requirements of the EPBC Environment Offsets Policy and will compensate for the permanent loss of the two known nesting hollows b) submit to the Department a detailed assessment of the factors that caused the failure to achieve black cockatoo nesting in at least one artificial nesting hollow² for each suitable nesting hollow for three consecutive years. 	N/A	<p>Compliant.</p> <p>No Longer Applicable. In accordance with 6c) outcomes above, compliance with condition 7 is no longer formally required.</p> <p>Not Applicable.</p>

¹ The artificial nesting hollow in use for three consecutive years need not be the same artificial nest hollow each year.

² The artificial nesting hollow in use for three consecutive years need not be the same artificial nest hollow each year.

Condition No.	Condition	Compliance Status	Evidence / Comments
8	All data, enquiries and findings of the monitoring required by Condition 6 must be provided to the Department to contribute to broader research into the use of artificial nesting hollows by black cockatoos . Provision must occur within one year of the verification by a suitably qualified ecologist required under Condition 6.e. being obtained, or within 25 business days after submitting the assessment report required under Condition 7.b.	N/A	Ongoing. Whilst the current compliance reporting period found interim reportable findings (eggs laid in 3 of 6x artificial hollows, resulting 1x chick fledging) potential ongoing observation of multiple use is yet to occur. Current successful use of hollows will be reported to the Department and finalised monitoring outcomes will be reported in future years as applicable, noting that Condition 7b) is now no longer applicable per 6c) determination.
Part B – Standard administrative conditions			
Notification of date of commencement of the action			
9	The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action .	Compliant	As previously reported (Reporting Period 1), the action commenced on 16 December 2019, and a notification letter was sent to the Department on the same day, along with an email copy on 20 December 2019. <i>See Compliance Report Year 1 for Notification Advising Commencement of Action</i> Compliant.
Compliance records			
10	The approval holder must maintain accurate and complete compliance records .	Compliant	Ongoing. Compliance records commencing with this current second compliance report are being maintained by the approval holder and the project's environmental consultant (Emerge Associates), with the key information documented here-in. Compliant.
11	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request. Note: Compliance records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act , and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the Department's website or through the general media.	N/A	No requests made to date. Not Applicable.
Preparation and publication of plans			
12	The approval holder must: a) submit plans electronically to the Department ; b) publish each plan on the website within 20 business days of the date the plan is approved by the Minister or of the date a revised action	Compliant	As previously reported (Reporting Period 1), the applicable 'plan' is the approved Construction Environmental Management Plan (CEMP).

Condition No.	Condition	Compliance Status	Evidence / Comments
	<p>management plan is submitted to the Department, unless otherwise agreed to in writing by the Minister;</p> <p>c) exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public; and</p> <p>d) keep plans published on the website until the end date of this approval.</p>		<p>12a) Compliant – CEMP was submitted electronically to the Department during the EPBC Act assessment process for the project. See <i>Compliance Report Year 1 for record of Submitted CEMP to Department</i></p> <p>12b) Compliant – The CEMP was uploaded to the project website on 20 December 2019, within 20 business day of the action commencing on 16 December 2019. Email from Harvis to DAWE confirming this dated 20 December 2019. See <i>Compliance Report Year 1 for record Advising of CEMP Upload</i></p> <p>12c) N/A – there was no sensitive ecological data to exclude or redact. The full CEMP is available online.</p> <p>12d) Compliant – the CEMP remains on the project website. See <i>Annexure C for Evidence of CEMP & Compliance Report Remaining Published to Website</i></p> <p>Compliant.</p>
13	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under conditions of this approval, is prepared in accordance with the Department's Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department within six months of monitoring taking place.	Compliant	<p>The monitoring outcomes are provided in Annexure F, and are prepared and retained in a format as required by the Department's guidelines, being submitted electronically herein to the Department.</p> <p>Compliant.</p>

Table 2: List of approval conditions and current compliance status of EPBC 2017/8119 (continued)

Condition No.	Condition	Compliance Status	Evidence / Comments
Annual compliance reporting			
14	<p>The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder must:</p> <ul style="list-style-type: none"> a) publish each compliance report on the website within 20 business days following the relevant 12 month period; b) notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within five business days of the date of publication; c) keep all compliance reports publicly available on the website until this approval expires; d) exclude or redact sensitive ecological data from compliance reports published on the website; and e) where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within five business days of publication. <p>Note: Compliance reports may be published on the Department's website.</p>	Compliant	<p>Overall Condition still ongoing:</p> <p>14a) The Muchea Industrial Precinct Compliance Report (for EPBC approval 2017/8119) will be published on the project website at https://www.mucheaindustrialpark.com.au/muchea/downloads. Note: The current compliance report represents the third reporting period.</p> <p>14b) The Department will be notified via email that the ACR was published on the Muchea Industrial Park project website.</p> <p>14c) Ongoing. The compliance reports will remain available.</p> <p>14d) Not Applicable. No sensitive ecological data applicable to reports to date.</p> <p>14e) Not Applicable. No sensitive ecological data applicable to reports to date.</p> <p>Compliant.</p>
Reporting non-compliance			
15	<p>The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:</p> <ul style="list-style-type: none"> a) any condition which is or may be in breach; b) short description of the incident and/or non-compliance; and c) the location (including co-ordinates), date and time of the incident and/or non-compliance. 	Compliant	<p>No incidents or non-compliances occurred in the current reporting period.</p> <p>As previously reported (Reporting Period 1), as outlined in condition 4d) above, in preparing the notification of commencement of revegetation works, the approval holder became aware that the notification itself was late/over-due. Whilst the revegetation works themselves were undertaken within the required compliance timeframe, the follow-up advice notification itself was prepared on the 2nd December 2020 (due 18th October 2020). As the non-compliance was administrative in nature (not physical) the matter of late reporting was outlined within the notification itself.</p> <p>See Annexure C – <i>Notification of Commencement of Revegetation Works</i>.</p> <p>Compliant.</p>

16	<p>The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:</p> <p>a) any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;</p> <p>b) the potential impacts of the incident or non-compliance; and</p> <p>c) the method and timing of any remedial action that will be undertaken by the approval holder.</p>	Compliant	<p>No incidents or non-compliances occurred in the current reporting period.</p> <p>As previously reported (Reporting Period 1), as outlined in condition 4d) and 15) above, in preparing the notification of commencement of revegetation works, the approval holder became aware that the notification itself was late/over-due. Whilst the revegetation works themselves were undertaken within the required compliance timeframe, the follow-up advice notification itself was prepared on the 2nd December 2020 (due 18th October 2020). As the non-compliance was administrative in nature (not physical) the matter of late reporting was outlined within the notification itself.</p> <p>16a) As the non-compliance was administrative in nature, the admission of error (late reporting) was provided, and no further action is proposed.</p> <p>16b) As the non-compliance was administrative in nature, there are not expected to be any result on-ground impacts as a result of the non-compliance.</p> <p>16c) As the non-compliance was administrative in nature and was for a one-off administrative notification, no further remedial action is proposed unless advised otherwise by the Department.</p> <p>Compliant.</p>
Independent audit			
17	The approval holder must ensure that independent audits of compliance with the conditions are as requested in writing by the Minister .	N/A	No audit requests made to date. Not Applicable.
18	<p>For each independent audit, the approval holder must:</p> <p>a) provide the name and qualifications of the independent auditor and the draft audit criteria to the Department;</p> <p>b) only commence the independent audit once the audit criteria have been approved in writing by the Department; and</p> <p>c) submit an audit report to the Department within the timeframe specified in the approved audit criteria.</p>	N/A	No audit requests made to date. Not Applicable.
19	The approval holder must publish the audit report on the website within 10 business days of receiving the Department's approval of the audit report and keep the audit report published on the website until the end date of this approval.	N/A	No audit requests made to date. Not Applicable.
Revision of action management plans			
20	The approval holder may, at any time, apply to the Minister for a variation to the CEMP by submitting an application in accordance with the requirements of section 143A of the EPBC Act . If the Minister approves a revised CEMP then, from the date specified, the approval holder must implement the revised CEMP in place of the previous CEMP .	N/A	No modification to the CEMP required at this time. Not Applicable.

21	The approval holder may choose to revise the CEMP without submitting it for approval under section 143A of the EPBC Act , if the taking of the action in accordance with the revised CEMP would not be likely to have a new or increased impact .	N/A	No modification to the CEMP required at this time. Not Applicable.
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Annexure A - Black Cockatoo Artificial Hollow Monitoring Report 2023 (Year 4)

Document Reference: EP17-089(26)—070 NAW

Emerge contact: Rachel Weber

2 February 2024

Attention: Daniel Chatley
Harvis
Level 9, 190 St George's Terrace,
PERTH WA 6000

Delivered by email to: Daniel@harvis.com.au

Dear Daniel

BLACK COCKATOO ARTIFICIAL HOLLOW MONITORING 2023 – LOT 809 GREAT NORTHERN HIGHWAY, MUCHEA

This letter provides the results of black cockatoo artificial hollow monitoring undertaken within Lot 809 Great Northern Highway in Muchea in 2023. The location of the site and the artificial hollows are shown in **Figure 1**.

1 BACKGROUND

Harvis are currently developing the Muchea Industrial Precinct which comprises Lot 809 Great Northern Highway in Muchea, Western Australia (hereafter referred to as the 'site'). Emerge have previously undertaken multiple ecological surveys within the site and recorded habitat trees for threatened species of black cockatoo listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Implementation of the Muchea Industrial Precinct project is subject to an environmental approval issued under the EPBC Act, which was granted on 8 November 2019 (EPBC 2017/8119). The approval relates to potential impacts of the project on EPBC Act listed matters of national environmental significance (MNES), including threatened species of black cockatoo and the banksia woodland ecological community.

The approval includes multiple conditions related to trees with hollows that may be utilised by threatened species of black cockatoo as breeding habitat, including requirements to install, maintain and monitor six artificial breeding hollows within the site. The conditions relating to artificial hollows are shown in **Table 1**.

As condition 6c was met following monitoring of the natural hollows within the site for three consecutive years (2018 to 2020), compliance with 6d, 6e and 7 are no longer required. Therefore, annual monitoring in 2023 was to satisfy conditions 6b and 8.

Table 1 Conditions relating to black cockatoo hollows within the site.

Condition number	Condition description
6	<p>To mitigate and offset the loss of two known nesting hollows within the project area, the approval holder must install, within the conservation reserves and in accordance with artificial hollow installation guidelines, at least six artificial nesting hollows. To maximise the likelihood of the installed artificial nesting hollows being used by black cockatoos, the approval holder must:</p> <ol style="list-style-type: none"> install at least six artificial nesting hollows prior to the beginning of the next breeding season following the commencement of the action undertake adaptive management of the artificial nesting hollows, and as a component of adaptive management, ensure that each installed artificial nesting hollow is: <ol style="list-style-type: none"> monitored and maintained in accordance with relevant artificial hollow maintenance guidelines for the life of the approval, with maintenance actions undertaken outside of the breeding season and before the commencement of the next breeding season not install in a manner that requires additional clearing of black cockatoo habitat or within 10 metres of the edge of the road seals or buildings, to reduce the risk of vehicle strike and human disturbance. prior to clearing the known nesting hollows, have a suitably qualified ecologist undertake a hollow inspection of the known nesting hollows during the peak breeding season across three consecutive years, to confirm whether black cockatoo nesting is occurring. If a suitably qualified ecologist certifies in writing that no black cockatoo nesting occurred in any of the three consecutive years, then compliance with Condition 6d, 6e and 7 is not required. ensure that each installed artificial nesting hollow is inspected at least twice each year, and at least 4 weeks apart, by a suitably qualified ecologist during the peak breeding season for nine years to record any evidence of use by black cockatoos and to identify any maintenance requirements. not cease adaptive management of artificial nesting hollows until at least one artificial nesting hollow¹ for each known nesting hollow identified with evidence of black cockatoo nesting under Condition 6.c. has shown evidence of black cockatoo nesting, as verified in writing by a suitably qualified ecologist, for three consecutive years.
7	<p>If, after nine years from commencement of the action, the approval holder is unable to provide the verification by a suitably qualified ecologist required under Condition 6.e., the approval holder must, within ten years after commencement of the action:</p> <ol style="list-style-type: none"> Submit to the Minister, for approval, the details of an offset that meets the requirements of the EPBC Environment Offsets Policy and will compensate for the permanent loss of the two known nesting hollows. Submit to the Department a detailed assessment of the factors that caused the failure to achieve black cockatoo nesting in at least one artificial nesting hollow for each suitable nesting hollow for three consecutive years.
8	<p>All data, enquiries and findings of the monitoring required by Condition 6 must be provided to the Department to contribute to broader research into the use of artificial nesting hollows by black cockatoos. Provision must occur within one year of the verification by a suitably qualified ecologist required under Condition 6.e. being obtained, or within 25 business days after submitting the assessment report required under Condition 7.b.</p>

2 SCOPE OF WORK

Emerge Associates (Emerge) were engaged by Harvis to undertake works to satisfy conditions 6bi and 8 above. Specifically, the scope of work comprised the following tasks:

- Monitor artificial hollows during the 2023 peak black cockatoo breeding season in accordance with artificial hollow guidelines (DPaW 2015).
- Documentation of the artificial hollow monitoring results.
- Provide advice on any maintenance requirements for artificial hollows.

¹ The artificial nesting hollow in use for three consecutive years need not be the same artificial nest hollow each year.

3 METHODS

3.1 Hollow monitoring

Two ecologists from Emerge visited the site to undertake artificial hollow monitoring on 9 November 2023.

During this survey, the six artificial hollows were inspected using a pole mounted camera (GoPro). The internal hollow inspection searched for signs of hollow use such as chicks, brooding birds or chew marks on the wooden post, nesting material such as feathers and presence of birds perching at the entrance or entering the hollow. Hollows were also inspected for any maintenance requirements.

Follow-up inspections were undertaken on 14 December 2023 and 29 January 2024.

3.2 Data analysis

Following the field survey, the photographs of the artificial hollows were further examined for signs of use by black cockatoos.

4 RESULTS AND DISCUSSION

4.1 Hollow monitoring

Three of the six artificial hollows installed within the site were observed to be in use by black cockatoos during the 2023 monitoring event.

A Carnaby's black cockatoo chick was observed in tree 844B and is suspected to have successfully fledged.

Eggs, that were attributed to a black cockatoo due to their dimensions and colour, were observed in tree 845B and 849B.

However, during follow-up inspections either the egg was not visible (tree 845B) or was broken and empty (tree 849B). Black cockatoo chicks remain in the nest for 10 to 12 weeks before fledging (Saunders 1977; Smith and Saunders 1986). The inspections were spaced 5 to 6 weeks apart and so it is implausible that the eggs could have hatched and left their nests between inspections. It is most likely that both eggs were predated.

All six artificial hollows were in good condition and securely installed.

Photographs of each artificial hollow from each monitoring event are provided as **Attachment A**. A summary of the results of the artificial hollow monitoring is provided in **Table 2**.

Table 2: Summary of the artificial hollow monitoring results

Tree ID	Monitoring Results		
	9 November 2023	14 December 2023	29 January 2024
844B	Black cockatoo chick observed in hollow. Chick was too young to ID to a species.	Black cockatoo chick observed in hollow. Identified as Carnaby's black cockatoo.	Not inspected
845B	One egg in hollow attributed to a black cockatoo.	One egg no longer visible in hollow. Suspected predation.	Not inspected
849B	No evidence of use by black cockatoos (or any other bird species).	One egg in hollow attributed to a black cockatoo. Female adult Carnaby's black cockatoo observed perching in tree next to hollow (likely parent).	Empty egg shell in hollow. Suspected predation.
850B	No evidence of use by black cockatoos (or any other bird species).	No evidence of use by black cockatoos (or any other bird species).	Not inspected
854B	No evidence of use by black cockatoos (or any other bird species).	No evidence of use by black cockatoos (or any other bird species).	Not inspected
855B	No evidence of use by black cockatoos (or any other bird species).	No evidence of use by black cockatoos (or any other bird species).	Not inspected

5 CONCLUSIONS

A successful Carnaby's black cockatoo breeding event was observed in tree 844B. Eggs attributed to black cockatoo were observed in trees 845B and 849B. However, they were unsuccessful in producing live young due to suspected predation.

All artificial hollows are in good condition and do not require maintenance.

Future annual monitoring of the artificial hollows would be adequate to comply with adaptive management requirements and to monitor any potential black cockatoo activity over a period of multiple years. However, with black cockatoo breeding now occurring within the site, biannual monitoring may be necessary to successfully record breeding events.

Summary and closing

We trust that this letter provides sufficient information on the artificial hollow monitoring in 2023. Should you have any questions regarding the content of this letter, please do not hesitate to contact the undersigned.

Yours sincerely
Emerge Associates



Rachel Weber

SENIOR ENVIRONMENTAL CONSULTANT - TEAM LEADER ECOLOGY

Encl: Figure 1: Artificial Black Cockatoo Hollow Locations
Attachment A: Photographs of Artificial Hollow Monitoring

References

- Department of Parks and Wildlife (DPaW) 2015, *How to monitor and maintain artificial hollows for Carnaby's cockatoo*, Perth.
- Saunders, D. A. 1977, *The effect of agricultural clearing on the breeding success of the White-tailed Black Cockatoo*, Emu, 77: 180-184.
- Smith, G. and Saunders, D. 1986, *Clutch Size and Productivity in 3 Sympatric Species of Cockatoo (Psittaciformes) in the Southwest of Western-Australia*, Australian Wildlife Research(13): 275-285.



Figure 1: Black Cockatoo Nest Box Location

Project: Black Cockatoo Nest Box Monitoring
 Lot 809 Great Northern Highway, Muchea
Client: Harvis Property Pty Ltd

Plan Number: EP17-089(26)-F75a
Drawn: AS
Date: 30/01/2024
Checked: MS
Approved: TAA
Date: 30/01/2024



0 100 200
 Metres
 Scale: 1:8,000@A4
 GDA 1994 MGA Zone 50

emerge
 ASSOCIATES

Attachment A

Photographs of Artificial Hollow Monitoring



Tree ID

844B

Project no.: EP17-089(26)

Inspection dates: 26/11/2023 and 1/12/2023

Evidence of use: Carnaby's black cockatoo chick in hollow

9 November 2023



14 December 2023



Tree ID

845B

Project no.: EP17-089(26)

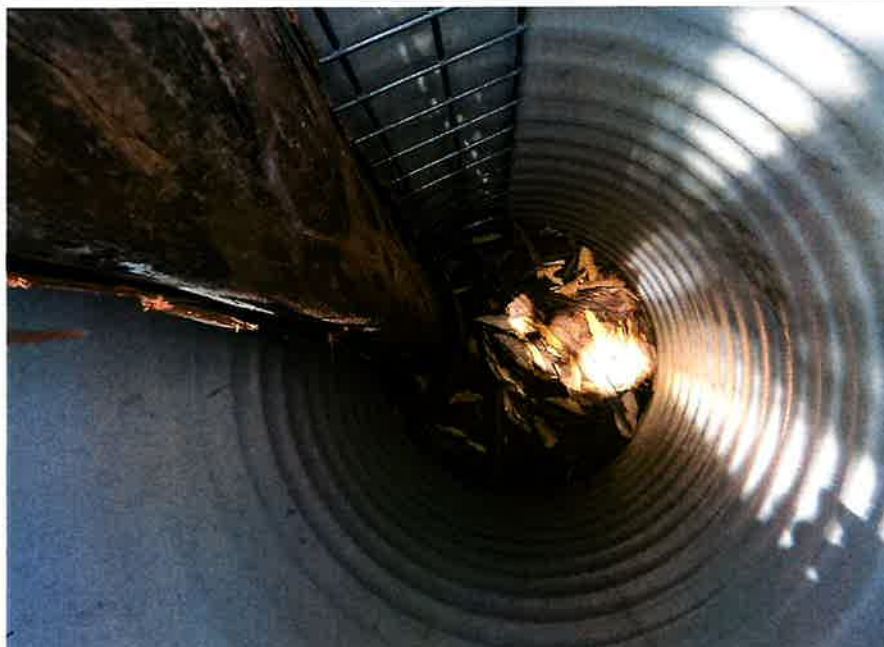
Inspection dates: 9/11/2023 and 14/12/2023

Evidence of use: Egg attributed to black cockatoo on first inspection. Missing on second inspection due to possible predation.

9 November 2023



14 December 2023



Tree ID

849B

Project no.: EP17-089(26)

Inspection dates: 9/11/2023, 14/12/2023 and 29/01/2024

Evidence of use: Egg attributed to black cockatoo on second inspection. Shell empty on third inspection due to possible predation.

14 December 2023



29 January 2024



Tree ID

850B

Project no.: EP17-089(26)

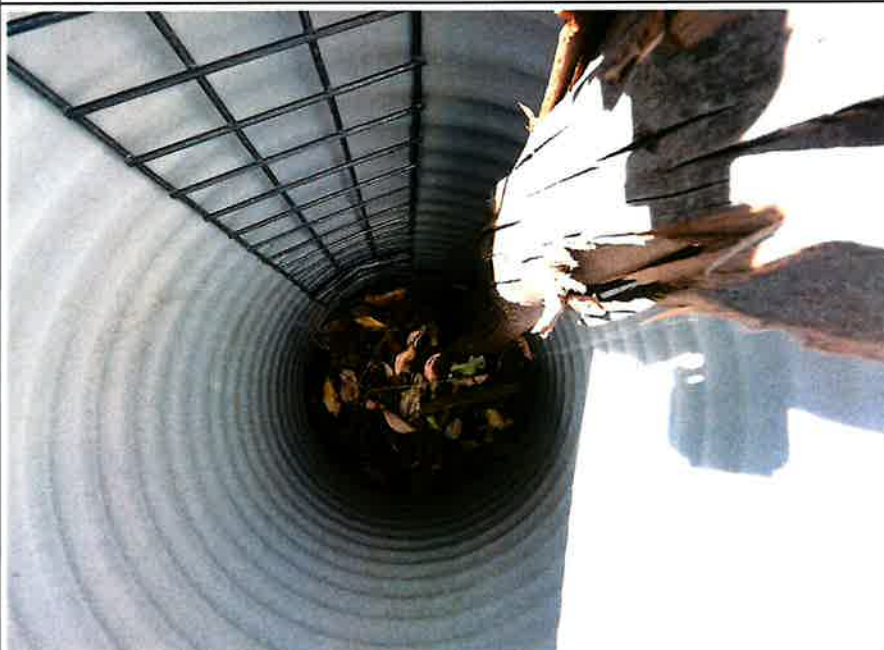
Inspection dates: 9/11/2023 and 14/12/2023

Evidence of use: None

9 November 2023



14 December 2023



Tree ID

854B

Project no.: EP17-089(26)

Inspection dates: 9/11/2023 and 14/12/2023

Evidence of use: None

9 November 2023



14 December 2023



Tree ID

855B

Project no.: EP17-089(26)

Inspection dates: 9/11/2023 and 14/12/2023

Evidence of use: None

9 November 2023



14 December 2023



Annexure B – Chittering Landcare Cockatoo Offset Tree Survival Survey (at 28/11/2023)

MIP Carnaby's Black Cockatoo offset tree, November 28th Survival Survey

Over the Past 4 years the Chittering Landcare Centre has been working with HARVIS to establish 3 species of local tree species as part of an offset planting program due to habitat disturbance. Working with across three planting areas, Landcare teams have been planting tube stock of Marri (*Corymbia calophylla*), Wandoo (*Eucalyptus wandoo*) and Jarrah (*Eucalyptus marginata*). All of which are important feeding, nesting and Roosting habitat trees for Carnaby's Black Cockatoo.

Whilst the survival rate of seedlings has not desirable a constant evolution of the planting method is required to meet the climatic and Geologic Challenges of the site. Up to date results from the tree planting efforts are shown below.

MIP Black Cockatoo Offset Tree Survival Survey November 28th 2023


	Species			
SITE	Marri	Jarrah	Wandoo	
BP East Yr 1	264			
Yr 2-3	124	62	102	
Yr 4	7	9	3	
Totals	395	71	105	571

Location of each of the planting sites at MIP




Annexure C - Evidence of CEMP & Compliance Report Remaining Published to Website (ongoing)


← → ↻ 📄 mucheaindustrialpark.com.au/muchea/downloads 🔍 ☆ 📁 📄 ⬇️ ⓘ ⋮





ABOUT MUCHEA NEWS OWNER CONTACT


DOWNLOADS



 **Construction Environmental Management Plan** 📄 0.91 Mb
Mucnea Industrial Precinct (EPBC 2017/8119)
Project No: EP17-089(19)
August 2019

 **EPBC 2017-8119 Mucnea Industrial Park** 📄 3.72 Mb
2020 Compliance Report
16th December 2019 - 16th December 2020

 **EPBC 2017-8119 Mucnea Industrial Park Year 2** 📄 3.50 Mb
2021 Compliance Report
16th December 2020 - 16th December 2021

 **EPBC 2017-8119 Mucnea Industrial Park Year 3** 📄 2.55 Mb
2022 Compliance Report
16th December 2021 - 16th December 2022

Screen-shot @ 2nd February 2024

www.mucheaairport.com.au/muchea/downloads

Annexure D – Beds & Banks Permit



PERMIT TO OBSTRUCT OR INTERFERE (S21A)

Granted by the Minister under section 21A of the Rights in Water and Irrigation Act 1914

Permit Holder(s)	Harvis Capital Pty Ltd
Description of Water Resource	Swan River and Tributaries Ellen Brook
Location of Water Source	LOT 9005 ON PLAN 423345 - Volume/Folio 4019/269 - Lot 9005

Authorised Activities	Activity	Location of Activity
	Construction of a culvert(s).	LOT 9005 ON PLAN 423345 - Volume/Folio 4019/269 - Lot 9005
Duration of Permit	From 11 October 2022 to 10 October 2023	

This Permit is subject to the following terms, conditions and restrictions:

1. The permit holder must undertake the works authorised by this permit with minimal disturbance to the watercourse.
2. The permit holder shall ensure that the structure does not act as an artificial barrier or levee, causing water to pond upstream.

End of terms, conditions and restrictions



Harvis Capital Pty Ltd
PO Box 7980
CLOISTERS SQUARE WA 6850

Dear Licensee,

Issue of a permit under the *Rights in Water and Irrigation Act 1914*.

Property:

Lot 9005 On Plan 423345 - Volume/Folio 4019/269 (Muchea Industrial Precinct)

The Department of Water and Environmental Regulation acknowledges receipt of your application, dated 20 September 2022 for a permit for the construction of a culverted road crossing across the central waterway on the above property. Your application has been approved.

Please find enclosed the following:

- Your permit to interfere with the beds and banks of a watercourse **PMC207900(1)**
- Brochure - *Your permit to interfere with the bed and banks of a watercourse*

Please take time to read these documents as they contain important information about your rights and responsibilities.

The department emphasises that it is the responsibility of the permit holder to ensure the safety and adequacy of the design, method of construction and operation of the works or action the subject of the permit.

The department focuses upon water resource related issues. It does not assess, and indeed is precluded by the *Rights in Water and Irrigation Regulations 2000* from assessing, the works or action in respect of which the permit has been issued.

Should your authorised modification cause a detrimental effect on another person or damage the water resource or associated environment, the department may amend, suspend or cancel your permit.

The approved modifications must be completed while the permit is current. Should the works be expected to continue past the expiry date of the permit, you must apply

for an extension. It is suggested that an application to vary the duration of the permit be made at least one month in advance.

Please note all sites affected by construction or removal activities should be stabilised using the methods outlined in *Stream Stabilisation (Report No RR10)*, which is available from the department's website www.dwer.wa.gov.au

Compliance with the terms, conditions or restrictions of this permit does not absolve the permit holder from responsibility for compliance with the requirements of all Commonwealth and state legislation.

If you have any queries about this or any other water licensing matter please contact Daisy Passmore by telephone on 6250 8000.

Yours faithfully,



Teguh Wibisono
District/Program Manager
Swan Avon Region
11 October 2022

Cc: David.Coremans@emergeassociates.com.au

Document Reference: EP17-089(31)—062 MGB

Emerge contact: David Coremans

14 September 2022

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57144772510 trading as Emmerge Associates

Department of Water and Environmental Regulation
8 Davidson Terrace
Joondalup WA 6027

To whom it may concern

APPLICATION TO INTERFERE WITH BED AND BANKS – CENTRAL WATERWAY CROSSING, MUCHEA INDUSTRIAL PARK, MUCHEA

Harvis Capital Pty Ltd (the proponent) are developing part of Lot 9005 at Mercury Rise, Muchea (Deposited Plan 423345) (formerly known as Lot 102 or Lot 809 Great Northern Highway) for industrial purposes as part of the overarching Muchea Industrial Precinct (MIP). The MIP is located within the Shire of Chittering (SoC) and zoned 'Industrial development' under the SoC Town Planning Scheme No. 6 (SoC 2004).

The first stages of the MIP are being constructed under subdivision approvals 155948 and 158715. Subdivision has been supported by the preparation of technical reports including an Urban Water Management Plan (UWMP) and addendum (Emerge Associates 2019, 2021) which direct water management.

As part of Stage 2 construction, a crossing of a natural waterway termed the 'Central Waterway' is required to allow local traffic access to the northern portion of the precinct for future stages and to facilitate local drainage outfalls and servicing requirements. This crossing forms part of works associates with Stage 2 construction and is shown in subdivision approval 158715 and supported by the UWMP addendum for Stage 2 (Emerge Associates 2021). Preliminary designs of the crossing prepared by project engineers Cossill and Webley is provided in **Attachment 1**. The location of the extent of works for the crossing construction (herein referred to as the application area), the development stages to date and the location of the Central Waterway is shown in **Figure 1**.

The current stage of the project will involve the construction of the culverted road crossing across the Central Waterway, which will result in disturbance to the banks of the watercourse. As such, an application to interfere with bed and banks of a watercourse, pursuant to the *Rights in Water and Irrigation Act 1914*, has been prepared for the project. This covering letter provides the supporting information accompanying this application.

In addition to the supporting figure, the following attachments are also provided:

- **Attachment 1** – Preliminary Central Waterway crossing design (Prepared by Cossill and Webley 2022)
- **Attachment 2** – Subdivision approval plans 155948 and 158715
- **Attachment 3** – Stormwater Management Plan (Emerge Associates 2019).

Land ownership and access

The application area, adjacent local road reserve and the balance of Lot 9005 is owned in freehold by Harvis Capital Pty Ltd (the proponent). A drainage easement is located adjacent to the Central Waterway drainage/waterway reserve and connecting local road. The crossing will be directly accessed via the adjacent local road reserve and/or Lot 9005. The easement and road reserve layout are shown in **Figure 1** and in **Attachment 2**.

Existing environment

Flora, vegetation and fauna

Site-specific fauna and flora assessments have been undertaken to support ecological management of the site and has formed the basis of the *Flora, Vegetation, Wetland and Waterway Management Plan* (the FVWWMP) (Emerge Associates 2018). The application area was determined to have been subject to long-term disturbance associated with historic land use, and as such was categorised as a 'pasture' vegetation community and in a 'completely degraded condition' (Emerge Associates 2013). Where native vegetation does occur, it is primarily as isolated paddock trees.

Based on the results of the site-specific fauna assessment, fauna habitat values within the application area were determined to be generally limited, primarily providing habitat that is suitable for common and widespread native species with non-specific habitat requirements. However, black cockatoo breeding and foraging habitat was identified within the application area (Bamford Consulting Ecologists 2018). Three Marri habitat trees are located within the application area and based on an initial inspection were identified as category 5 trees (trees that were large enough to be recorded but had no sign of any hollows big enough for black cockatoos). The foraging habitat consists of moderate to moderate-low value foraging habitat.

Hydrology

The Central Waterway (known locally as Wandina North) is a clearly defined, highly eroded natural channel with steep side slopes and minimal vegetation within the channel and adjacent banks. The waterway runs east to west through the application area and is fed by a large upstream catchment with significant flows following large rainfall events (Emerge Associates 2019).

The channel eventually discharges beneath the Great Northern Highway through six 1.2 m x 0.9 m culverts (at location Culvert B - see **Attachment 3**), with a pre-development peak flow rate of 5.46 m³/s in the 1% annual exceedance probability (AEP) (100 year average recurrence interval equivalent) event.

During major rainfall events (1% AEP event) several flows 'break out' from the Central Waterway to the north, and south-west following the natural topography towards existing culverts under the Great Northern Highway, with all flows ultimately being conveyed west and joining the Ellen Brook which is located to the west of the application area.

The stormwater management plan for the development is described in the UWMP (Emerge Associates 2019) and involves conveying the majority of the inflows (22 m³/s in the 1% AEP event) via the Central Waterway (by removing flow break outs). The Central Waterway discharge increases to 16.2 m³/s in the post-development scenario, however the overall peak flows to the Ellen Brook are managed to maintain the overall pre-development discharge. The UWMP stormwater management plan is provided in **Attachment 3**.

The proposed design for the Central Waterway crossing is consistent with the existing water management strategy outlined in the UWMP and the overarching *Muchea Employment Node Local Structure Plan 1 Local Water Management Strategy* (the LWMS) (Emerge Associates 2017). The configuration of five 1.2 m x 0.9 m is consistent with the configuration described and modelled in the LWMS (see Section 8.1.8.2 of the LWMS).

Assessment against DWER key principles

To inform this application, an assessment of the proposed crossing against the key principles specified in *Fact Sheet: Supplementary information for permit applications to interfere with bed or banks of watercourses* (DoW 2012) has been completed, as presented in **Table 1**.

Table 1: Assessment of project against key principles

No.	Key principle (DoW 2012)	Project design/construction response
1	Avoid interference or obstruction of the water, bed or banks of watercourses, wherever practicable.	<ul style="list-style-type: none"> To avoid interference or obstruction to the waterway flows, the proposed Central Waterway crossing has been designed to ensure existing/pre-development flows are maintained following completion of construction. The configuration is consistent with crossing modelled in the LWMS and carried forward to the UWMP, thereby ensuring post-development flows within the development meet the required targets. Disturbance to the banks of the Central Waterway will be unavoidable given the crossing design requires the crossing to be installed across the full width of the waterway bed to provide road support. To minimise impacts, this crossing is the only crossing proposed to be installed across the Central Waterway. Rock pitching at the upstream and downstream headwalls is proposed to assist in bank stabilisation and erosion management. In addition, planting and revegetation of the Central Waterway reserve in accordance with the FVWWMP will be undertaken.
2	Dams on watercourses are discouraged, where there are viable off-stream alternatives.	<ul style="list-style-type: none"> No temporary (during construction) or permanent damming of the Central Waterway is proposed. The proposed crossing design will ensure existing water flows are maintained during and following construction. No temporary damming during construction is expected to be required due to the proposed works being targeted for periods of the year when the waterway is unlikely to be flowing.
3	Reduce watercourse crossings to a minimum and consolidate watercourse crossings with other infrastructure, where practicable.	<ul style="list-style-type: none"> A single Central Waterway crossing is proposed, which will incorporate all road and servicing infrastructure at one consolidated location.
4	Avoid permanent pools, bends or high velocity sections of watercourses.	<ul style="list-style-type: none"> The proposed crossing location occurs at a straight, section of the watercourse, which is not associated with a permanent pool or bend in the watercourse.
5	Minimise disturbance to riparian vegetation, riparian zones and flood plains.	<ul style="list-style-type: none"> The portion of Central Waterway where the bridge crossing is proposed supports limited vegetation values, mapped as 'pasture' in a 'completely degraded' condition. This vegetation was determined to have likely been subject to long-term landuse disturbances, and as a result no longer represents an intact riparian native vegetation community. Notwithstanding, the design intends to minimise the construction footprint around the crossing as far as possible and only a single crossing is proposed for the development. This allows for the maximum possible tree retention and greatest potential revegetation area (as described in the FVWWMP). Ellen Brook is located 1.6 km to the west of the application area. The 1% AEP Ellen Brook floodplain mapping does not extend to the section adjacent to the site. The LWMS and UWMP reports have considered the impacts of future development with regard to floodplain impacts, which has also been considered during the design process for the proposed road and crossing. This has resulted in the current design approach which, along with the wider stormwater management strategy, ensures that the total peak outflow to the Ellen Brook is maintained at pre-development rates, thereby minimising disturbance to the 1% AEP Ellen Brook floodplain. The application inherently impacts the local floodplain of the Central Waterway as the crossing intersects this area. This impact is localised to the vicinity of the application area and is unavoidable as the crossing forms part of the overall stormwater management plan for the site.
6	Mitigate the risks or impacts from site disturbance, including erosion, sedimentation, weed introduction, vegetation clearing, loss of habitat and changes to ecological values.	<ul style="list-style-type: none"> As outlined above, the design intends to minimise the construction footprint around the crossing as far as possible and provide only one crossing for the Central Waterway within the development, thereby facilitating the greatest potential tree retention and revegetation area. In addition, rock pitching at the crossing headwalls is proposed to assist in bank stabilisation and erosion control. The appointed contractor will be required to prepare and implement a Construction Environmental Management Plan, the management measures of which will address

No.	Key principle (DoW 2012)	Project design/construction response
		potential construction risks/impacts such as erosion, sedimentation and weed introduction.
7	Prevent the discharge of pollutants and materials into watercourses.	<ul style="list-style-type: none"> The appointed contractor will be required to prepare and implement a Construction Environmental Management Plan, the management measures of which will address prevention of pollutant discharge to Central Waterway.
8	Rehabilitate or revegetate the site following construction to maintain or improve riparian zone function.	<ul style="list-style-type: none"> Revegetation of the application area (and surrounding drainage/waterway reserve) will occur in accordance with the FVWWMP prepared for the development and be coordinated by the Chittering Landcare Centre.

Summary and closing

This bed and banks permit application intends to support approval under the *R/VI Act 1914* to undertake the following activities within the application area:

- Construction of a culverted road crossing and associated services, local drainage and battering requirements over the Central Waterway.

The proposed Central Waterway crossing has been designed to maintain the existing hydrological regime of the area in conjunction with the overarching stormwater management plan for the development. Specifically, the design of the crossing is consistent with the configuration modelled and detailed in the LWMS and thereafter adopted for the consequent UWMP and addendum (Emerge Associates 2019, 2021). This configuration has been demonstrated to maintain the existing surface water flow discharges from the development to the Ellen Brook.

Timing of construction works is proposed to be targeted for periods of the year when Central Waterway is unlikely to be flowing to avoid any potential flow impediments and to facilitate construction. Revegetation of the Central Waterway drainage/waterway reserve is proposed following completion of earthworking in that area. The revegetation will be funded by the proponent and coordinated by the Chittering Landcare Centre as detailed in the FVWWMP. In addition, a Construction Environmental Management Plan will be prepared and implemented to mitigate potential construction risks and/or impacts to the Central Waterway.

Please contact David Coremans on 9380 4988 should you require any further information regarding this application.

Yours sincerely
Emerge Associates



David Coremans
PRINCIPLE ENVIRONMENTAL CONSULTANT

Encl: Figure 1: Location Plan
Attachment 1 – Preliminary Central Waterway crossing design (Prepared by Cossill and Webley 2022)
Attachment 2 – Subdivision approval plans 155948 and 158715
Attachment 3 – Stormwater Management Plan (Emerge Associates 2019).

References

- Bamford Consulting Ecologists 2018, *Muchea Industrial Precinct Black-cockatoo and Black Striped Minnow Assessment*.
- Department of Water (DoW) 2012, *Fact Sheet: Supplementary information for permit applications to interfere with bed or banks of watercourses*.
- Emerge Associates 2013, *Flora and Vegetation Survey and Wetland Assessment: Pt Lot M1313 Great Northern Highway Muchea*.
- Emerge Associates 2017, *Muchea Employment Node Local Structure Plan 1 Local Water Management Strategy*, EP15-037(02)–003D RLE, Version D.
- Emerge Associates 2018, *Northern Gateway Industrial Park: Flora, Vegetation Wetland and Waterway Management Plan*, EP17-089(05)–006, revision 2.
- Emerge Associates 2019, *Urban Water Management Plan Muchea Industrial Precinct LSP 1 - Stage 1*, EP17-089(03)–010 RLE, Version B.
- Emerge Associates 2021, *Urban Water Management Plan Addendum - Stage 2 Muchea Industrial Precinct LSP1*, EP17-089(28)–050C.
- Shire of Chittering (SoC) 2004, *Town Planning Scheme No. 6 (TPS 6) District Zoning Scheme*, Chittering.

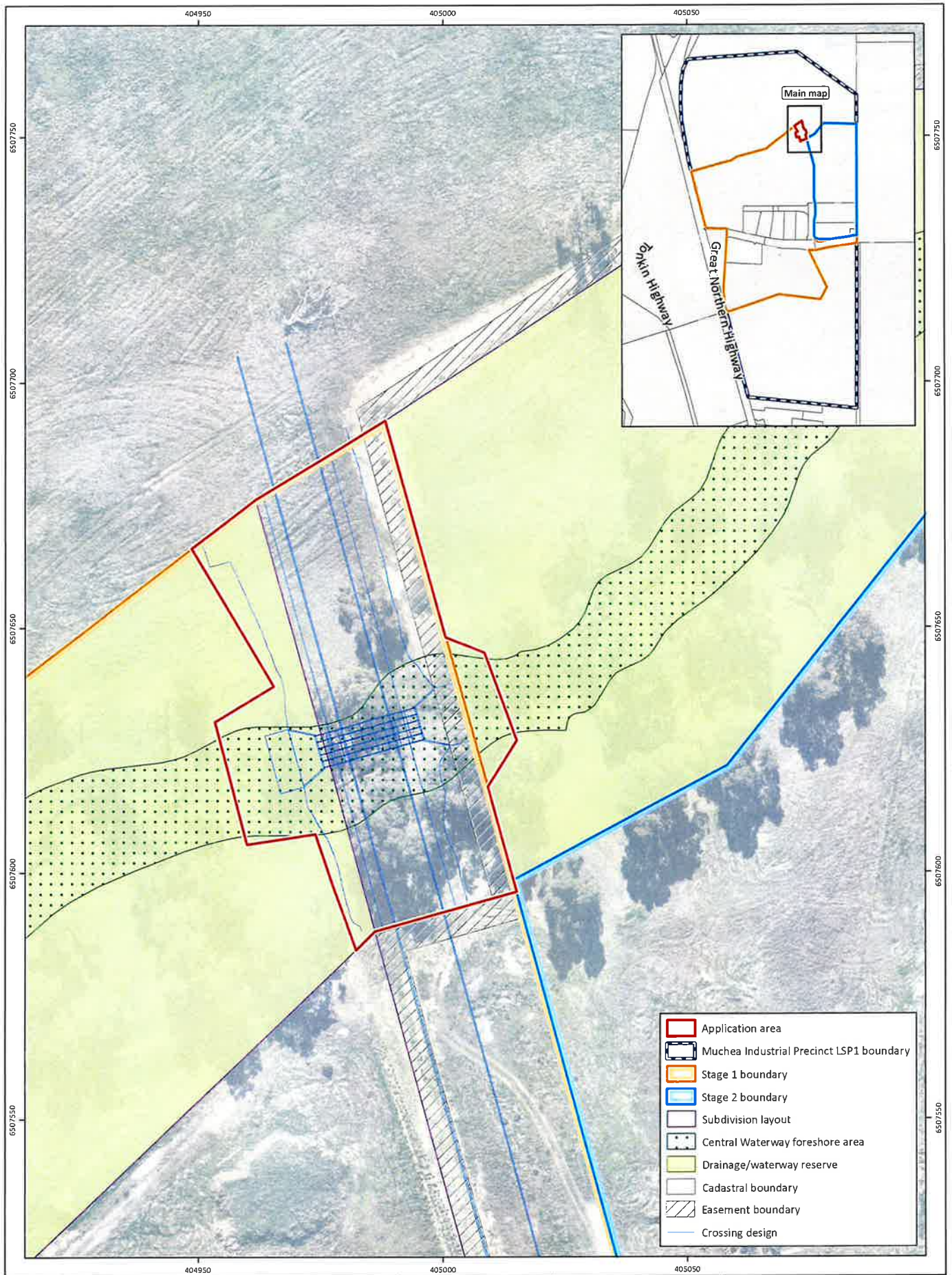
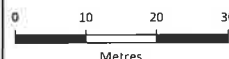


Figure 1: Location Plan

Project: Bed and Banks Permit Application
Central Waterway Crossing, Muchea Industrial Precinct
Client: Harvis Capital Pty Ltd

Plan Number: EP17-089(31)--F76
Drawn: GAR
Date: 09/09/2022
Checked: MGB
Approved: DPC
Date: 14/09/2022



Scale: 1:1,000@A4
GDA 1994 MGA Zone 50



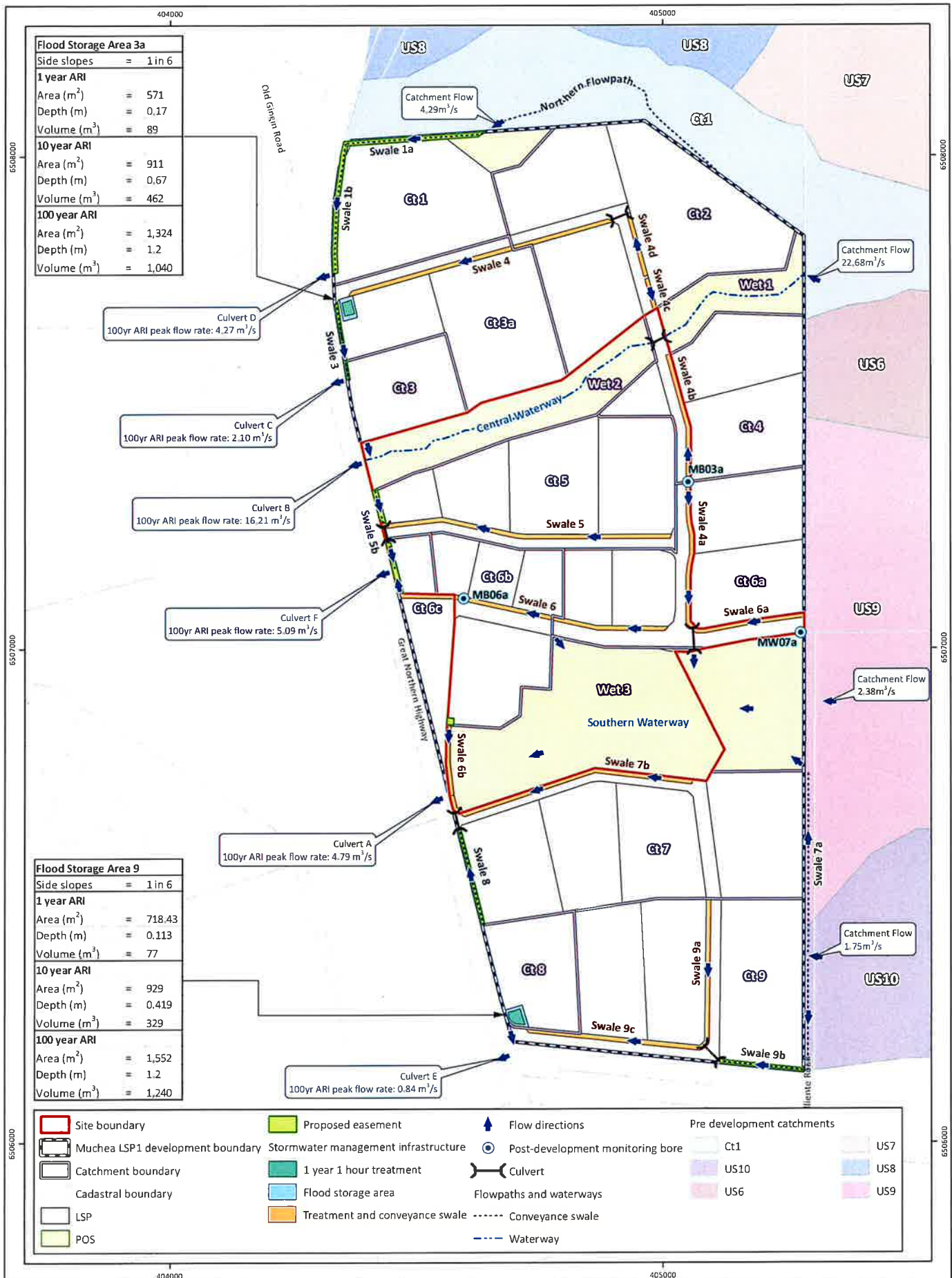


Figure 7: Stormwater Management Strategy

Project: Urban Water Management Plan
Muchea Employment Node LSP1 – Stage 1

Client: Harvis Capital Pty Ltd


Plan Number: EP17-089(03)-F54b
Drawn: GAR
Date: 29/08/2019
Checked: ASC
Approved: RLE
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Scale: 1:10,000@A4
GDA 1994 MGA Zone 50



Annexure E – Table 3: Conformance with Construction Environmental Management Plan

Table3: Conformance with Construction Environmental Management Plan

Reference code	Management Action	Compliance Status	Evidence / Comment
CEMP A1	All staff and on-site personnel to be inducted on CEMP and associated management actions before commencement on-site.	Compliant	Limited on site clearing works undertaken during the reporting period, with only minor fire-breaks maintenance/clearing works occurring.
CEMP B1	Local reserve boundaries to be delineated on-site using appropriate methods (e.g. star pickets and coloured tape) to avoid encroachment and unintended clearing within reserves.	Compliant	Star pickets and flagging were utilised by Tracc Civil to demarcate extent of works area and boundary of Central Reserve, with specific trees to be retained at the fringe of the works area pre-marked with pink tape. No unintended clearing occurred. 
CEMP B2	To ensure all potential habitat trees within local reserves are retained, mark all potential habitat trees that are within the local reserve but adjacent to its boundary.	N/A	Any potential habitat trees to be retained within the Central Reserve were well within the surveyed reserve boundary line and all retained trees pre-marked with pink tape. No unintended clearing occurred.
CEMP B3	Where trees are proposed to be opportunistically retained within industrial development area, trees are to be marked.	Compliant	Trees proposed to be opportunistically retained were marked and currently remain.
CEMP B4	Avoid all trees marked for retention within industrial development area during earthworks and civil construction.	Compliant	No trees 'marked for retention' during works were cleared. Harvis identified additional trees to be retained for further ongoing review of potential integration into the finished developed industrial lots, with such trees all being protected and retained during prior clearing works.
CEMP B5	Following the completion of earthworks and civil construction works, confirm all tree identified for retention have been retained.	N/A	Works ongoing. Trees subject to 'possible retention' are still subject to final civil design and lot delivery across the majority of the site.

Reference code	Management Action	Compliance Status	Evidence / Comment
CEMP C1	Fauna specialist to inspect all trees to be cleared to confirm no fauna is present.	Compliant	Works ongoing. During the current period clearing works, Emerge ecologist provided advice to confirm contractor's extent of clearing was appropriate to clear with normal fauna spotting methods. No fauna was present, and no cockatoo nesting trees were cleared during the works.
CEMP C2	In the instance that fauna is observed nesting in a tree, clearing is not to occur until it has been verified that the tree is no longer in use.	Compliant	Works ongoing. As noted above, during the works of the reporting period no fauna was present, and no cockatoo nesting trees were cleared during the works in accordance with Emerge ecologist advice.
CEMP C3	Fauna specialist to be onsite during clearing works.	Compliant	Works ongoing. As noted above, during the works of the reporting period no fauna was present, and no cockatoo nesting trees were cleared during the works in accordance with Emerge ecologist advice.
CEMP C4	Clearing of vegetation and fauna habitat to occur in a single direction.	N/A	Clearing during the reporting period was specific to a localised area relating to the creek crossing, which was cleared via a short single direction pushing of localised trees in a single direction to an adjacent stockpile.
CEMP C5	If any injured fauna species are encountered the DBCA's Wild Care (08 9474 9055) is to be contacted.	N/A	No injured fauna encountered by Emerge or Contractor.
CEMP C6	Speed limit of 40 km/hr will be applied within site for all construction vehicles to reduce risk of fauna strikes and minimise dust generation.	Compliant	Harvis enforces a site-wide speed limit restriction of 15km/hr (<40km/hr required).
CEMP C7	Water carts and/or surface stabilisation measures (e.g. hydro mulch) will be used to minimise dust generated from cleared areas to minimise impacts on fauna health and fauna habitat.	Compliant	Tracc Civil implemented a Shire of Chittering approved Dust Management Plan, which provided for the use of various measures including water-carts. Water-cart dust suppression was provided during installation of general bulk-earthworks. Hydromulch was applied at the completion of works to the extent of works area, in accordance with the direction of Shire of Chittering.
CEMP D1	Install minimum 3 metre firebreak within internal boundary of local reserves to provide access for emergency vehicles and a reserve management interface.	N/A	Ongoing – Local Reserves have not yet been created for final condition/hand-over. Interim 3m fire-breaks are installed for the broader land-holding (ie within paddock edges), including along the southern-edge of the Southern Conservation Reserve to be retained (at future reserve edge line). Ongoing installation and management of firebreaks will continue to occur until such time as each local reserve is handed-over to local authority.
CEMP D2	Inspect firebreak to monitor for any debris or vegetation growth.	Compliant	Interim land-holding fire breaks (including to yet to be handed over future conservation reserves) are maintained and monitored annually to required standards.

Reference code	Management Action	Compliance Status	Evidence / Comment
CEMP D3	Install reserve fencing to restrict public access to reserve, generally consistent with the design specification provided in Appendix B.	N/A	Works ongoing. Specifications for the nominal 'Conservation Area Fencing' included as scope for constructed work. In the case of the current works period, the lots completed along the southern boundary of the Central Reserve were fenced with an 'upgraded industrial duty fence' comprising 1.8m high mesh fencing and 3-strands barb wire, as agreed with the Shire of Chittering. This fencing is superior (in cost and quality) to the basic conservation area fencing, to both keep contain fauna from entering into the industrial lots, and also restrict industrial uses/impacts transgressing into the future reserve. Fencing will continue to be installed to the extent of the reserve areas as the adjacent industrial land is developed and sold, and prior to 'formal creation and vesting' of the reserve(s).
CEMP D4	Inspect constructed reserve boundaries and associated fencing to monitor for damage.	Compliant	Those portions of final constructed reserve boundary fencing that have been handed over to government are regularly inspected during fortnightly site visits. No damage has been seen to date.
CEMP D5	During periods of civil construction work adjacent to reserve boundaries, undertake reserve boundary inspections to monitor for damage and/or encroachment.	Compliant	Regularly undertaken during attendance to fortnightly site visits and during construction.
CEMP E1	Access of vehicles to be restricted to construction areas only and excluded from local reserves. To be included as part of site induction package.	Compliant	The works during the current reporting period did not require the contractor's staff to enter the local reserves, except in undertaking the specific implementation of the Central Reserve crossing, as implemented under the approved requirements of a 'Beds & Banks' permit.
CEMP E2	All machinery, vehicles and tools to be cleaned down before entering the site and when leaving the site. To be included as part of site induction package.	Compliant	Contractor inducted all staff and on-site personnel to all matters of the project including CEMP requirements.
CEMP E3	Any fill brought onto site to be disease free.	N/A	Works ongoing. No imported fill was required for works at the conservation area, with any fill sourced for the broader construction (internal industrial lot areas) provided from WA Limestone sand quarry.

- *END* -