Planning, Industry & Environment

Mr Scott Lawrence
Environmental Manager
Transport for NSW – Northern Project Office
PO Box 576
Grafton NSW 2460

28/07/2021

Dear Mr Lawrence

Coffs Harbour Bypass (SSI 7666)
Low Impact Work Submission

I refer to your submission received 12 June 2021, requesting the Planning Secretary's consideration of low impact works to enable utility relocation and geotechnical investigations under the conditions of approval for SSI 7666.

The Department has carefully reviewed your request and is satisfied that the Utility Relocation and Geotechnical Activities – Low Impact Submission (Revision 1-1, dated July 2021) has been reviewed and supported by:

- the Heritage Council of NSW (NSW Department of Premier and Cabinet),
- the Department's Biodiversity and Conservation Division,
- Coffs Harbour City Council, and
- contains the information required by the conditions of approval.

As nominee of the Planning Secretary, I have determined that the activities as described are not 'construction' for the purpose of the definition under SSI 7666, subject to the works being undertaken according to the information provided in the Utility Relocation and Geotechnical Activities – Low Impact Submission (Revision 1-1, dated July 2021) and supporting documentation.

You are reminded that prior to any works at Site 19 and 20, a search of the Aboriginal Heritage Information Management System (AHIMS) must be undertaken.

Please ensure that you make the submission and this approval publicly available on the project website in accordance with the conditions of approval.

If you wish to discuss the matter further, please call Lee McCourt on 8289 6969.

Yours sincerely

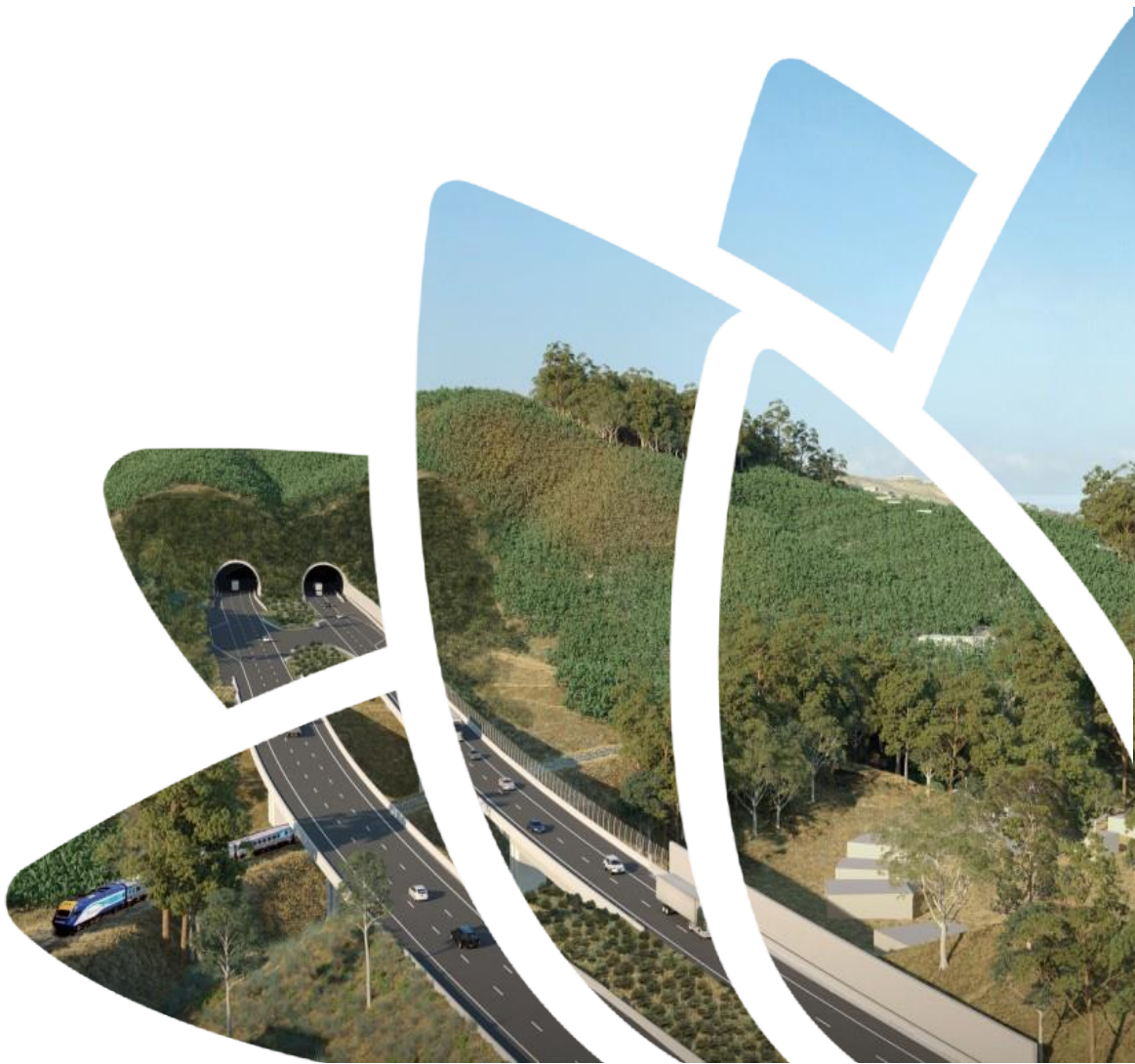
Jake Shackleton
Director – Infrastructure Management

As nominee of the Planning Secretary

Coffs Harbour Bypass

Utility Relocation and Geotechnical Activities - Low impact work submission

Transport for NSW | July 2021



NSW GOVERNMENT

Coffs Harbour Bypass

Utility Relocation and Geotechnical Activities - Low impact work submission

Transport for NSW | June 2021

Document controls

Document status	Date	Prepared by
Rev 1-0	June 2021	A Stackman
Rev 1-1	July 2021	S Lawrence

Contents

Tables

Figures

1. Introduction

Transport for NSW has gained approval for the Coffs Harbour Bypass (CHB) project, which will provide a four-lane divided highway with a posted speed limit of 110 km/h that bypasses Coffs Harbour, passing through the North Boambee Valley, Roberts Hill and then traversing the foothills of the Coffs Harbour basin to the west and north to Korora Hill. The project includes a two-kilometre upgrade of the existing highway between Korora Hill and Sapphire. As part of the pre-construction activities for the Approved CHB project, Transport for NSW (TfNSW) will be undertaking the relocation of utilities (water, sewer, telecommunications and electricity) to ensure efficient delivery of the construction phase and the integrity of utilities locally. Accordingly, TfNSW is proposing to install new utilities and consequently decommission redundant utilities during the pre-construction phase of the CHB project.

In addition, TfNSW are proposing further geotechnical activities. Detailed geotechnical investigations are required to provide sufficient additional geotechnical and groundwater information for the preparation of representative geological, geotechnical and hydrogeological models enabling validation of the concept design and progression of development of the detailed design which are inputs into the eventual construction of the project.

1.1 Background

TfNSW completed an environmental assessment of the CHB project (the Project EIS) in 2019. The Project EIS identified a range of environmental, social and planning issues associated with the construction and operation of the CHB Project and proposed measures to mitigate or manage those potential impacts.

The Project EIS was publicly exhibited from 11 September 2019 to 27 October 2019. Following public exhibition, 186 submissions were received from government agencies, stakeholders and the community. Submissions were addressed by Transport for NSW in the Submissions Report which was lodged with the NSW Department of Planning in late 2019.

In accordance with clause 192(2) of the Environmental Planning and Assessment Regulation 2000 (NSW) (EP&A Regulation), the Secretary of DPIE gave approval to amend the project on 19 May 2020. As such, in June 2020, an Amendment Report was prepared for the project in accordance with clause 192(3) of the EP&A Regulation.

After consideration of the Project EIS, Submissions Report and Amendment Report, the Minister for Planning approved the CHB Pacific Highway project under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) on 2 November 2020 subject to the Minister's Conditions of Approval (CoA) being met.

For the purposes of this report, the overall CHB Project is referred to as the Approved Project or the CHB Project, which is based on the concept design and project corridor / boundary described and assessed in the Project EIS and consequently approved by the Minister.

The Conditions of Approval (CoA) for the project include an allowance for construction and operation of the project to be carried out in stages. The development of a staging report submitted to the Planning secretary no later than one month before the commencement of construction of the first of the proposed stages of construction was accepted by the NSW Planning Secretary in November 2020.

Table 1 of the instrument of approval includes a definition of construction applicable to the project. The definition specifically excludes low impact work (where it is either listed or determined by the Environmental Representative or the Planning Secretary as low impact work) from requiring approval of a CEMP prior to the activity being carried out.

1.2 Purpose

The purpose of this submission is to:

- Provide an overview of the proposed work including location, scope, methodology and program
- Summarise the potential environmental impacts of the activity and outline mitigation strategies that would be implemented during the work
- Assist the Planning Secretary with a determination of the work as low impact work or otherwise as defined in Table 1 of the project approval and to demonstrate compliance with relevant CoA.

2. Activity description

The relocation of utilities (including decommissioning of utility infrastructure) and geotechnical investigations associated with the Approved Project are required as part of the pre-construction activities that will be carried out under the Approved Project. The relocation of utilities will safeguard the integrity of services and utilities and allow for construction activities to proceed. The relocation of utilities is an integral component of the Approved Project and is addressed within the Project EIS. The relocation of the relevant utilities would ensure efficient delivery of the Approved Project, hence supporting the delivery of state significant highway infrastructure. The geotechnical investigations are required to provide sufficient additional geotechnical and groundwater information for the preparation of representative geological, geotechnical and hydrogeological models enabling validation of the concept design and progression of development of the detailed design which are inputs into the eventual construction of the project.

The utilities design process identified the most suitable and efficient locations and techniques for installation of utilities infrastructure, whilst also considering the best solutions for the subsequent decommissioning of redundant utilities. Methods of installation and decommissioning that minimise cultural and environmental impacts have been considered and will be utilised where appropriate (e.g. under-boring).

The majority of required utilities relocations are located within the Approved Project corridor. However, some utilities installation and decommissioning would require works located directly adjacent to or outside of the approved corridor. This is to facilitate the most efficient and feasible utility connections. The noise and vibration, cultural heritage, biodiversity and clearing impacts of the proposed works, both inside and outside of the project boundary, are addressed within Section 4, with further detail and mapping provided in the corresponding Appendices.

The requirements for determining low impact work are set out in Table 1 Construction definition of the approval instrument. It details that the following activities in accordance with CoA A1 are permitted as low impact work:

- (b) investigations including investigative drilling, contamination investigations and excavation; and
- (h) relocation and connection of utilities where the relocation or connection has a minor impact to the environment as determined by the ER.

This submission covers all remaining utility relocation and geotechnical works located both inside and outside the approved Project boundary.

2.1 Location

The utility relocation works and geotechnical investigations, consist of numerous linear work areas located along the CHB alignment, starting south of the Englands Road intersection in the south and ending at Sapphire in the north.

The areas impacted by the proposed works consist primarily of farmland, cleared easements road reserves and public roads. Vegetation clearing will be required, consisting mainly of exotic species, with a small percentage of native vegetation requiring removal. Further details on clearing quantities and locations is provided in section 2.3 and section 3.

The topography of the work areas is variable, with a number of creeks and drainage lines crossing the project footprint. Temporary waterway crossings will be required for access into some work areas. Under-boring of creeks to facilitate the relocation of communication lines and electricity will also be required and is discussed in further detail in section 2.3 of this submission.

The location of the Coffs Harbour Bypass alignment is shown on Figure 2-1.

Figure 2-1 Location of Coffs Harbour Bypass alignment

2.2 Scope of activity

The general scope and sequence of work is described below. Further detail on each element and associated potential impacts is provided in section 2.3 and chapter 3, respectively. The sequence of work would generally include:

- Establishing site access
- Undertaking pre-clearing biodiversity survey of the areas to be cleared / trimmed and setting out the limit of impact. Pre-clearing surveys are to be completed with an ecologist present onsite
- Clearing / trimming of ground cover and/or shrub layer vegetation in nominated relocation / investigation areas
- Completing utility relocation / geotechnical activities
- Backfilling, shaping and stabilising disturbed ground surfaces to minimise the potential for erosion
- Demobilising from site.

2.3 Program and detailed activity description

A Utilities Relocation Strategy has been developed and is included as Attachment A. The geotechnical investigation scope and methodology has been assessed in the Stage 2 – Detailed Investigation Environmental impact Review prepared in March 2020 and in the Pre-Construction Early Works Geotechnical Investigations – Phase 2 Environmental File Note dated March 2021.

The utilities relocation and geotechnical investigation programs have been designed to meet the CoA, is consistent with the detail set out in the Coffs Harbour Bypass – Environmental Impact Statement (EIS), Submissions Report and Amendment Report and is in accordance with the Heritage Council of NSW's Archaeological Assessment Guidelines.

The relocation of utilities involves various construction techniques depending on the type of utility, location and surrounding environmental conditions / sensitivities. The proposed utility relocation areas are shown in Figures 2-2. The following construction methods would be utilised to undertake the required utilities relocations:

- Open Trench (maximum 3500mm deep & 1500mm wide)
- Under Bore (maximum of 450mm diameter x 1200mm deep);
- Aerial 20m wide (high voltage)
- Aerial 30m wide (66kV)
- Underground 2m (high voltage)

Note TfNSW have worked closely with the utility providers to reduce construction footprint of the utility relocation works as much as possible. By way of example multiple utilities will be located within the one trench (in separate conduits) to avoid the need for multiple trenches reduce construction footprint impacts.

The geotechnical investigations involve various construction techniques depending on the type of information required, location and surrounding environmental conditions / sensitivities. The following investigation methods would be utilised to undertake the required geotechnical investigations:

- Borehole drilling (vertical boreholes approx. 100mm diameter of N and H sizes)
- Test pits (by excavator to the limit of reach approx. 6m)
- Auger holes (depths of approx. 2m of up to 450mm diameter fitted to a hand auger where excavator access to the test location is not practicable/permitted).

The vast majority of site work would be performed during standard working hours which are:

- Monday to Friday, 7am to 6pm
- Saturday 8am to 5pm
- No work on Sundays or Public holidays

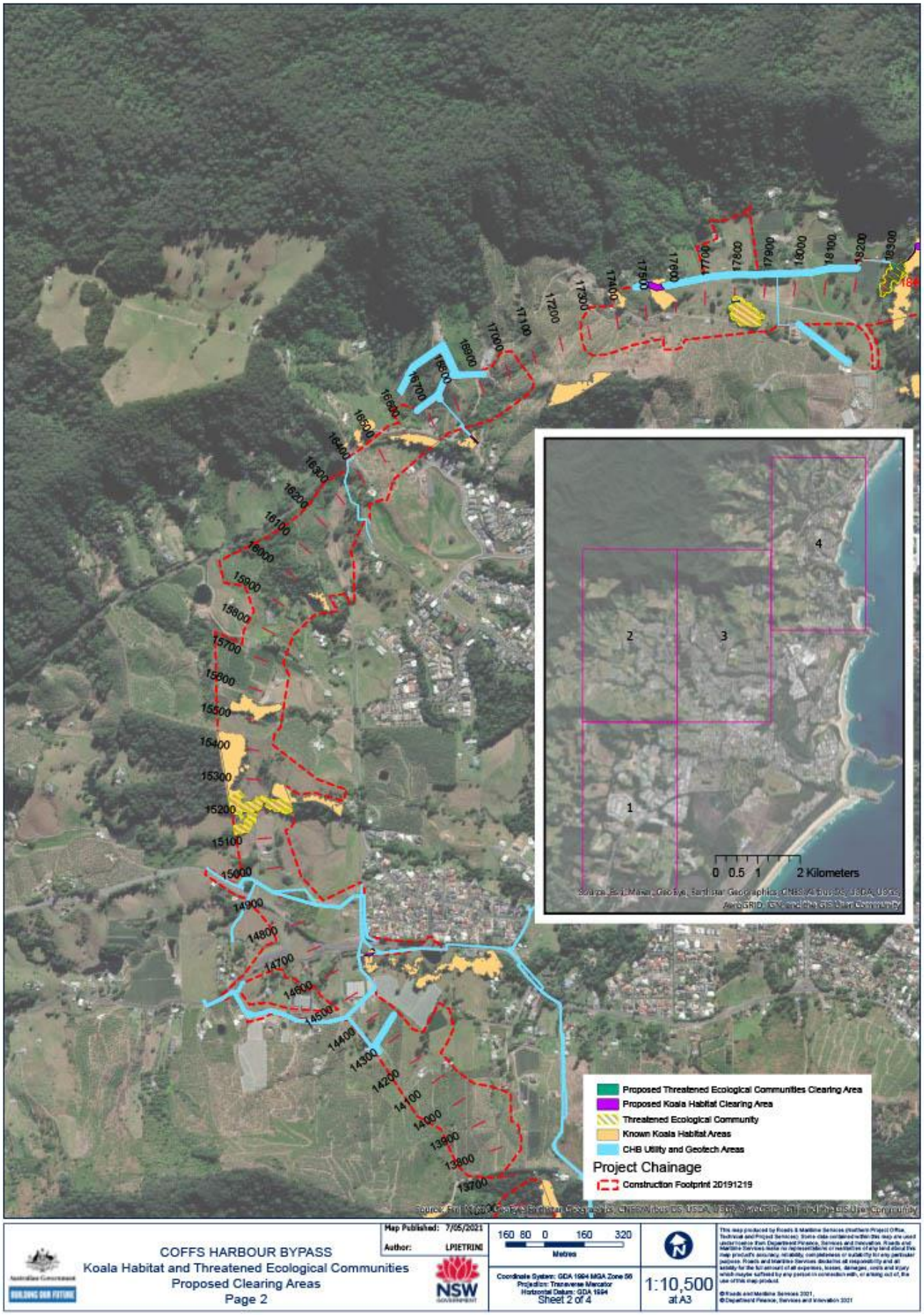
If any works are proposed outside the standard construction hours and they are not inaudible (such as optical fibre cut-overs), then the appropriate out of hours approval will be sort from the DPIE Approved Out of Hours Works Protocol – Work not subject to an EPL.

The utility relocation and geotechnical activities are expected to take approximately six months to complete and would commence in the second half of 2021.

When considered in the context of the Approved Project and Project EIS, the utility relocation and geotechnical activities are consistent with the CHB Project, the Project EIS and Approval.

Coffs Harbour Bypass

Utility Relocation and Geotechnical Activities – Low impact work submission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Proposed Koala Habitat Clearing Area
Threatened Ecological Community
Known Koala Habitat Areas
CHB Utility and Geotech Areas
Project Chainage
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COFFS HARBOUR BYPASS
Koala Habitat and Threatened Ecological Communities
Proposed Clearing Areas
Page 2
Map Published: 7/05/2021
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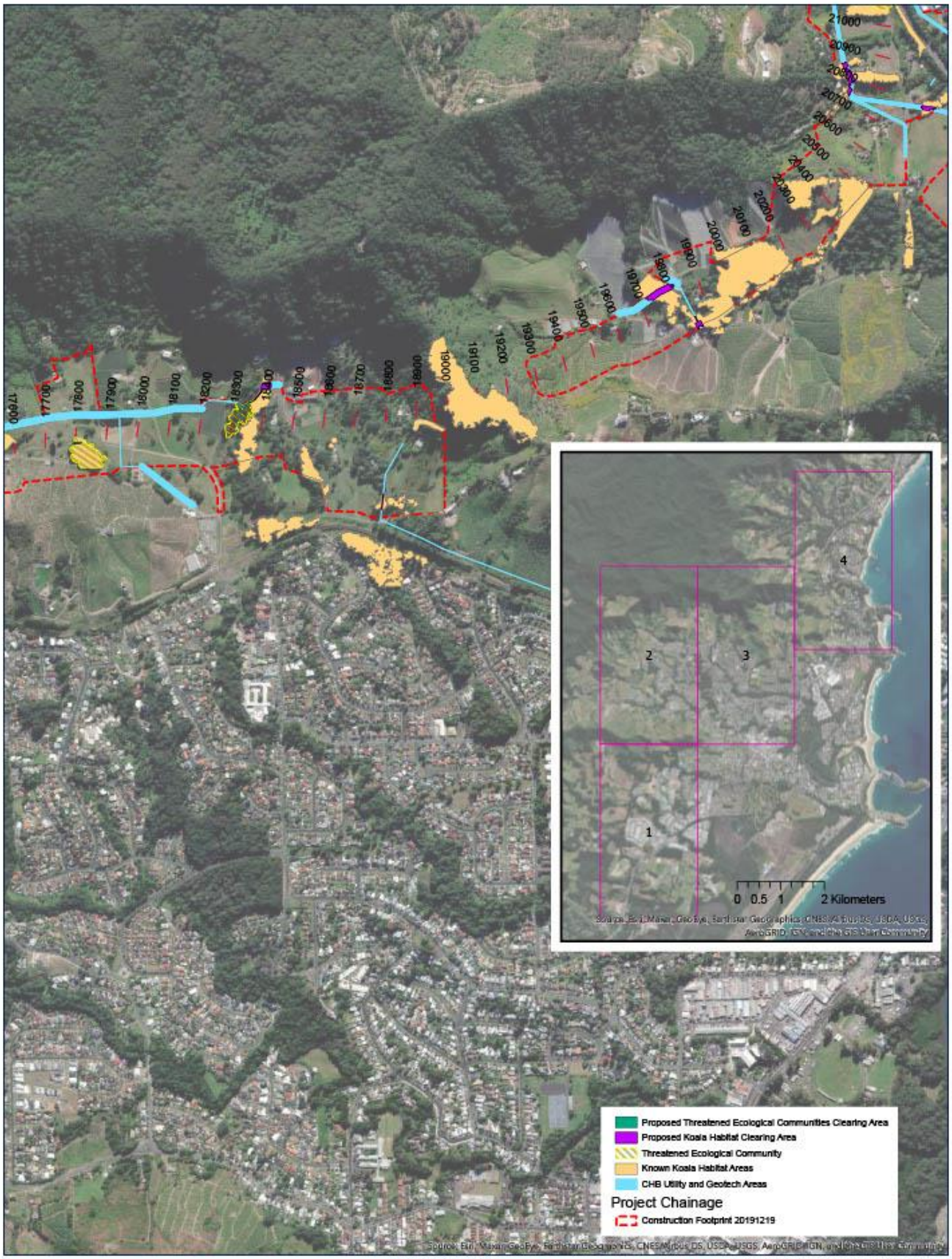
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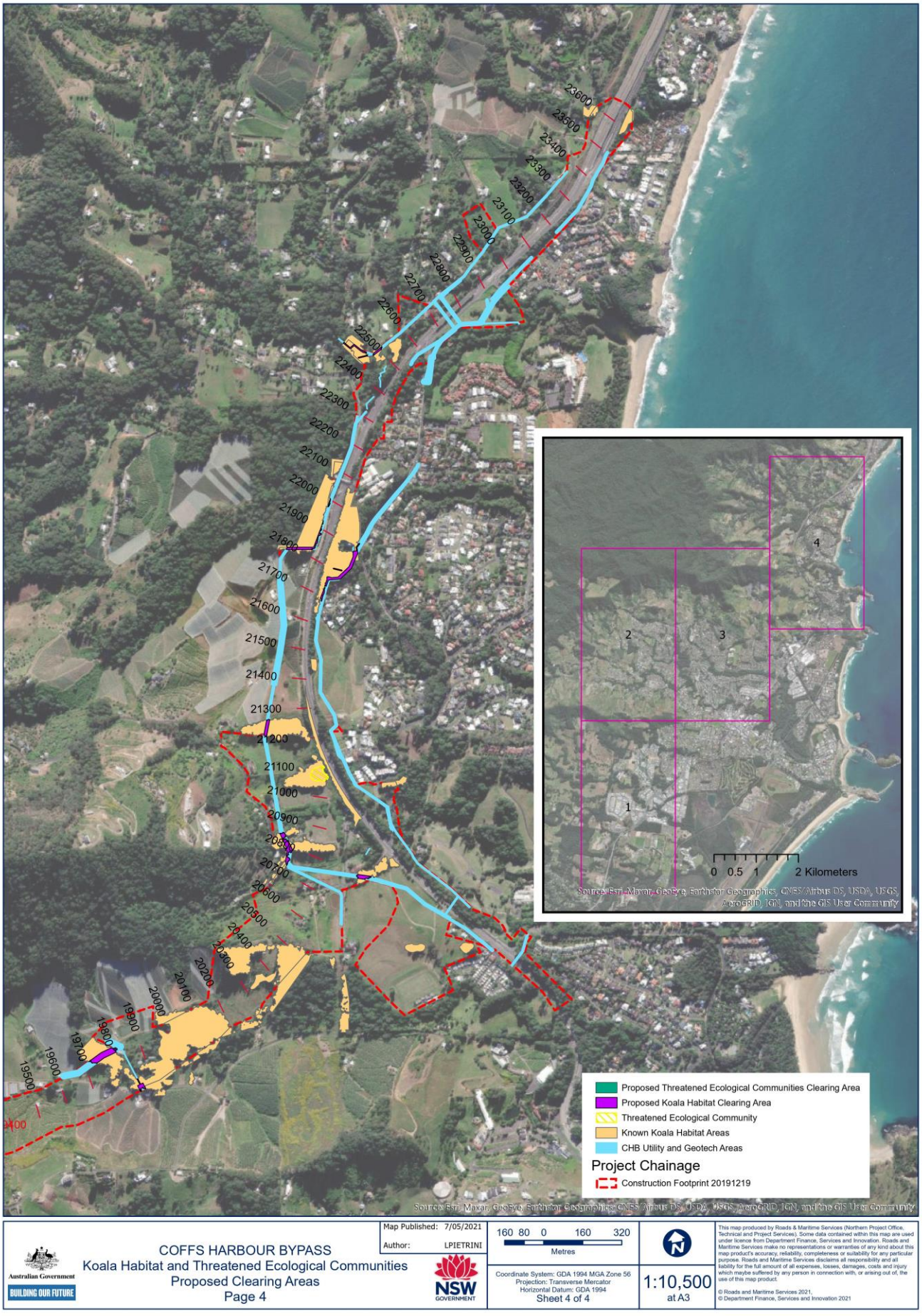


Figure 2-2 Proposed CHB Utility and Geotech areas

2.4 Consultation

Consultation requirements for determining low impact work are set out in Table 1 Construction definition of the approval instrument. It details that utility relocation and geotechnical activities in accordance with CoA A1 are permitted as low impact work. However, where heritage items or threatened species (excluding translocation of threatened species in accordance with a translocation plan developed in consultation with EESG) or threatened ecological communities (within the meaning of the *Biodiversity Conservation Act 2016 or Environment Protection and Biodiversity Conservation Act 1999*) are affected or potentially affected by any low impact work, that work is construction, unless otherwise determined by the Planning Secretary in consultation with Heritage NSW, EESG (and DPI Fisheries in the case of impact upon fish, aquatic invertebrates or marine vegetation).

Some elements of the proposed utility relocation and geotechnical activities programs would take place within vegetation mapped as a threatened ecological community. Accordingly, Transport for NSW has undertaken consultation with:

- The Department of Premier and Cabinet – Biodiversity Conservation Division
- The Department of Premier and Cabinet – NSW Heritage (also as a delegate of the Heritage Council of NSW)

Copies of the letters to and responses from these agencies are provided at Attachment B. A summary of the consultation is provided in Table 2-1.

Table 2-1: Summary of responses from agency consultation

Environmental Aspect	Response
Biodiversity – Endangered ecological communities	"*The BCD has no objection to the classification of the clearing for the purposes of geotechnical investigations and the relocation of utilities as 'low impact works'. As demonstrated by your letter, these works will still be subject to management, in accordance with the Clearing, Grubbing and Mulching Environmental Work Method Statement, and its supporting plans.*"
Aboriginal heritage	**On the 22 June 2021, Heritage NSW via email made the following statement:** • *HNSW supports the timely provision of advice regarding all proposed pre-construction early works to the RAPs. This is most important in those areas where they have indicated an interest in proposed cultural salvage.* • *We note the sad community recent events and your respectful response.* • *HNSW also supports the use of the Unexpected Finds Protocol to trigger any additional stop works and conversations with the RAPs required to protect Aboriginal objects and cultural values prior to construction and the implementation of the required CEMP Heritage Sub-Plan.* On 28 June 2021, TfNSW spoke with Heritage NSW. Heritage NSW stated the following points verbally: • Heritage NSW does not have an approval role for these works,

	• that the risk of impacting heritage items rests with TfNSW and the Unexpected Finds Procedure to be followed at all times, • on the information provided to date, Heritage NSW is comfortable with the proposed utility works noting we are proceeding on basis of low impact to Heritage and that RAPS will be consulted and involved as per Tim's email below and; • Heritage NSW are happy to discuss with DPIE about TfNSW low impact submission if required.

3. Environmental impacts

The potential environmental impacts from the proposed utility relocation and geotechnical work are described in Table 3-1 below.

The aspects of the testing and salvage program work and how they would be managed have been considered with reference to the Coffs Harbour Bypass – Environmental Impact Statement (EIS), Submissions Report and Amendment Report and related specialist assessment reports and are outlined in further detail in this section.

Table 3-1: Environmental impacts from the proposed works

Environmental Aspect	Potential impacts
Biodiversity	The Biodiversity Assessment Report within the EIS (Appendix H) identified and assessed the removal of 6.08 hectares of vegetation listed as TEC within the construction footprint of the project. This unavoidable direct impact is being offset with ecosystem credits as per the Framework for Biodiversity Assessment (OEH 2014) and NSW Biodiversity Offsets Policy for Major Projects (OEH 2014b) and for significantly impacted EPBC Act listed species under the Commonwealth EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2012) as documented in the approved CHB Biodiversity Offset Strategy. The amount of clearing identified for the works associated with utility relocations and geotechnical investigations is detailed in Attachment C and consists of the following: • EEC Plant Community Types – 0.35 Ha • Non-EEC Plant Community Types – 3.27 Ha The Department of Premier and Cabinet – Biodiversity Conservation Division has been consulted and have no objection to the classification of the clearing for the purposes of geotechnical investigations and the relocation of utilities as 'low impact works'. It is also noted by BCD that the applications for the creation of biodiversity stewardship sites are progressing well and the payment for supplementary measures in lieu of unavailable offset credits has been made to the Saving Our Species program. The correspondence received from BCD is included as Attachment B. It should be noted that the utilities relocation and geotechnical works programs have been developed to avoid vegetation clearing wherever possible. The proposed works would further seek to limit vegetation impacts and disturbance. The biodiversity impacts would be minor.
Traffic and transportation	The utility relocation and geotechnical investigation areas are located in numerous locations including public roads, service roads, road reserves and numerous greenfield locations. The movement of vehicles to and from the utility relocation and geotechnical investigation areas would be infrequent and short in duration. Any impact on pedestrians would be considered minor. There would be an anticipated work fleet of 5-10 people travelling at any on site along the utility relocation corridor travelling in light vehicles to and from the work site(s). This would result in light vehicles each day creating around at most 20 to 30 vehicles movements per day. Delivery of materials would be typically once or twice a week. Heavy machinery (excavators) are kept on site overnight. Given the very low construction traffic volumes it is not envisaged that there would be any likelihood for adverse impacts to a) parking on public roads

	b) queuing or idling on public roads c) spoil haulage There would be no operational impacts as a result of the proposed utility relocation and geotechnical investigations. The traffic and transport impacts would be short term and minor.
Noise and vibration	The utility relocation and geotechnical investigations will result in the generation of some noise from the use of equipment and light vehicles. Appendix G (Noise and vibration assessment) of the project EIS outlined measured noise levels and adopted noise management criteria for noise catchment areas across the project. The utility relocation and geotechnical investigations will be proximate to noise catchment areas (NCA) 03, 06, 19, 23 and 25. Day time background noise levels adopted for these NCAs are 58 dBA, 57 dBA and 45dBA (see Attachment D). A consideration of noise impacts based on equipment and the distance of the utility relocation and geotechnical activities to the nearest sensitive receivers in each NCA has been undertaken using the Transport NSW construction noise estimator (Attachment D). It is predicted under a worst case scenario where a harvester (tracked excavator) is operating within 26 metres of a sensitive receiver noise levels would be 71 dBA. It should be noted that road traffic noise is the predominant noise source in this area and exposure to the noise generating activity would be minimal in duration. Noise impacts attributable to the utility relocation and geotechnical investigations would be minor. Due the distance and equipment proposed for use, vibration impacts are not expected.
Soils, contamination and water quality	The utility relocation and geotechnical investigations will result in minor ground disturbance from trenching and access. The disturbance areas will be contained with limited constraints on the implementation of adequate erosion and sedimentation controls. There will be minimal potential for impacts on water quality as a result of release of sediment or pollutants. The potential for soils, contamination and water quality impacts are negligible subject to implementation of management measures.
Aboriginal heritage	All proposed areas for utility relocation and geotechnical investigation works have been assessed for heritage impacts as per the EIS and Amendment Report and Roads & Maritime Services *Procedure for Aboriginal cultural heritage consultation and investigation*. Archaeological salvage excavation has been undertaken within the PAD sites within the approved project boundary in accordance with the EIS and CoA. TfNSW has undertaken a preliminary assessment (Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation* (PACHCI) of the various locations outside the approved project boundary. The proposed utility relocation and geotechnical works were assessed as being likely to have a low impact on Aboriginal cultural heritage (see Attachment E). Impacts on Aboriginal heritage are therefore not expected. The project Unexpected Heritage Finds and Human Remains Procedure will be implemented should unknown items be discovered during the utility relocation and geotechnical activities.

Air quality	The utility relocation and geotechnical investigations will have potential for localised dust generation during earthworks. Given the minor nature of the work impacts on air quality from vehicle exhaust will be negligible. There will be no long-term impacts on air quality. The potential for air quality impacts are considered minor subject to implementation of management measures.
Resource use and waste management	The utility relocation and geotechnical investigations will result in the generation of small amounts of waste from recovered material that is not relevant to the relocation/investigation element of the works. Waste will be removed from site and disposed of appropriately. There would be no demand for resources with limited availability.

4. Environmental management

A number of mitigation measures, safeguards and management strategies have been identified in the project EIS and conditions of approval in order to avoid or minimise adverse environmental impacts that could potentially arise as a result of the project. Those relevant to the utility relocation and geotechnical investigations are detailed in Table 4-1

An Environmental Work Method Statement (EWMS) will be prepared to consolidate and detail the safeguards and management measures identified. The EWMS will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The EWMS will be prepared prior to the work and must be reviewed and approved by the Transport for NSW Environmental Officer prior to the commencement of any on-site work. The EWMS will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements.

4.1 Summary of relevant safeguards and project approval conditions

Environmental safeguards and management measures outlined in project EIS, Amendment Report and Conditions of Approval will be incorporated into an activity specific EWMS. These safeguards and management measures will minimise any potential adverse impacts arising from the work on the surrounding environment and community. The safeguards and management measures are summarised in Table 4-1.

Table 4-1 Summary of mitigation measures, safeguards and management strategies

Potential impact	Environmental controls	Approval document reference	Responsibility
General			
	The Proponent must carry out the CSSI in accordance with the conditions of approval and generally in accordance with the: (a) Coffs Harbour Bypass Environmental Impact Statement Volume 1A – 10, (TfNSW, September 2019); (b) Coffs Harbour Bypass Submissions Report Volume 1 – 3 (TfNSW, June 2020); and Coffs Harbour Bypass Amendment Report Volumes 1 – 6 (TfNSW, June 2020).	CoA A1	TfNSW / Contractor
	The CSSI may only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the documents listed in Condition 0 unless otherwise specified in, or required under, this approval.	CoA A2	TfNSW / Contractor
	The Proponent must comply with the written requirements or directions of the Planning Secretary, including in relation to: (a) the environmental performance of the CSSI; (b) any document or correspondence in relation to the CSSI (including the provision of such documentation or correspondence); (c) any independent appointment or withdrawal of an appointment made in relation to the CSSI; (d) any notification given to the Planning Secretary under the terms of this approval; (e) any audit of the construction or operation of the CSSI; (f) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval); (g) the carrying out of any additional monitoring or mitigation measures; and (h) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval.	CoA A4	TfNSW / Contractor
Site Establishment Work			

Potential impact	Environmental controls	Approval document reference	Responsibility
Minor construction ancillary facilities	Lunch sheds, office sheds, portable toilet facilities, and the like, can be established and used where they have been assessed in in the documents listed in Condition 0 or where they satisfy the following criteria: (a) located within or adjacent to the construction boundary; and (b) have been assessed by the ER to have - (i) minimal amenity impacts to surrounding residences and businesses, after consideration of matters such as compliance with the *Interim Construction Noise Guideline* (DECC, 2009), traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts, and (ii) minimal environmental impact with respect to waste management and flooding, and (iii) no impacts on biodiversity, soil and water, and heritage items beyond those already approved under other terms of this approval.	CoA A17	
Incident notification and reporting			
	The Department must be notified in writing via the Major Projects Website immediately after the Proponent becomes aware of an incident. The notification must identify the CSSI (including the application number and the name of the CSSI if it has one) and set out the location and nature of the incident.	CoA A39	
Complaints management system			
	A Complaints Management System must be prepared and implemented before the commencement of any work and maintained for the duration of construction and for a minimum for 12 months following completion of construction of the CSSI.	CoA B6	
	The following information must be available to facilitate community enquiries and manage complaints one (1) month before the commencement of work and for 12 months following the completion of construction: (a) a 24- hour telephone number for the registration of complaints and enquiries about the CSSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. This information must be accessible to all in the community regardless of age, ethnicity, disability or literacy level.	CoA B7	

Potential impact	Environmental controls	Approval document reference	Responsibility
	A Complaints Register must be maintained recording information on all complaints received about the CSSI during the carrying out of any work and for a minimum of 12 months following the completion of construction. The Complaints Register must record the: (a) number of complaints received; (b) the date and time of the complaint; (c) the method by which the complaint was made; (d) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect (e) nature of the complaint; (f) means by which the complaint was addressed and whether resolution was reached, with or without mediation; and (g) if no action was taken, the reason(s) why no action was taken.	CoA B9	
Biodiversity			
	The clearing of native vegetation must be minimised with the objective of reducing impacts to threatened ecological communities and threatened species habitat.	CoA E2	Contractor / TfNSW
	The Proponent must meet the biodiversity offset obligations for ecosystem and species credits as set out in **Error! Reference source not found.** and **Error! Reference source not found.** within 12 months of the commencement of construction. The retirement of the biodiversity credits must be carried out in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* and can be achieved by: (a) acquiring and retiring "biodiversity credits" within the meaning of the *Biodiversity Conservation Act 2016*; and/or (b) properties secured with the NSW National Parks and Wildlife Service (NPWS), on the basis of a draft credit report to show what the property would provide and written confirmation from NPWS that the financial contributions for acquisition and management have been received; and/or (c) making a payment into the Biodiversity Conservation Fund; and/or (d) a Biodiversity Offset Strategy prepared in consultation with EESG and DAWE that provides supplementary measures.	CoA E3	TfNSW
Removal / clearing of native vegetation (including riparian vegetation)	Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a).	EIS FF08	Contractor
	Vegetation clearing will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a).	EIS FF10	Contractor
	An unexpected species find procedure will be prepared and implemented in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a).	EIS FF12	Contractor

Potential impact	Environmental controls	Approval document reference	Responsibility
Edge effects on adjacent native vegetation and habitat	Exclusion zones will be set up at the limit of clearing in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a).	EIS FF18	Contractor
Invasion and spread of weeds	Biosecurity risk and weed species will be managed in accordance with Guide 6: Weed management of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a) and Guide 7: Pathogen Management (RTA 2011a). Specific protocols will be prepared and implemented to manage, Chytrid fungus, Phytophthora and Myrtle Rust.	EIS FF21	Contractor
Impacts to aquatic habitat and changed hydrological regimes	Aquatic habitat will be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a) and Section 3.3.2 Standard precautions and mitigation measures of the Policy and Guidelines for Fish Habitat Conservation and Management Update 2013 (DPI 2013) and with reference to Guidelines for Controlled Activities on Waterfront Land – Riparian corridors (DPI 2012d).	EIS FF24	Contractor
	Any machinery used during instream works should be verified as clean and free of potential weeds and pathogens to avoid biosecurity risk.	EIS FF26	Contractor
	Waterway crossings will be designed and constructed in accordance with Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull & Witheridge 2003) and will include maintaining existing nominal flow velocity where possible or at less than 0.3 m/sec to prevent damage to aquatic habitats.	EIS FF27	TfNSW / Contractor
Injury and mortality of fauna	Any fauna encountered during construction will be managed in accordance with Guide 9: Fauna handling of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011a).	EIS FF19	Contractor
Traffic and transport			
Impact on property access	Internal farm access impacted by the project will be reconfigured in consultation with affected property owners where reasonable and feasible.	EIS AG04	Contractor
	Existing property accesses will be maintained during construction. Where this is not feasible or reasonable, temporary alternative access arrangements will be provided following consultation with the affected property owners with consideration to existing farming practices.	EIS AG05	
Aboriginal heritage			
Impacts on known Aboriginal sites or places	Before any construction activity (including pre-construction activities of minimal environmental impact), a heritage site map will be prepared identifying Aboriginal sites to be excavated and avoided (for all sites in proximity to the construction footprint) and included in relevant induction training.	EIS AH02	TfNSW

Potential impact	Environmental controls	Approval document reference	Responsibility
Unexpected finds of Aboriginal objects	The Unexpected Heritage Items: Heritage Procedure 02 (Roads and Maritime Services 2015e) will be used in the event of uncovering an unexpected archaeological find during construction.	EIS AH06	Contractor
Unexpected finds of human remains	In the event that construction activity reveals possible human skeletal material (remains), all work is to halt at that location immediately and the steps outlined in the Unexpected Heritage Item: Heritage Procedure 02 (Roads and Maritime Services 2015e) will be followed. Identified knowledge holders will be notified within 24 hours of any confirmed discovery of Aboriginal skeletal remains.	EIS AH07	Contractor
Archaeological salvage	Archaeological salvage of sites CHB AFT 1, CHB AFT 5, CHB AFT 8, CHB AFT 11, CHB AFT 13, CHB AFT 16 and CHB PAD 27 must be undertaken in accordance with the methodology described in Appendix E of the Updated Aboriginal cultural heritage assessment report, May 2020 (Appendix G, Amendment Report).	CoA E23	TfNSW
Non-Aboriginal heritage			
Discovery of unexpected non-Aboriginal objects	Should any heritage items, archaeological remains or potential relics of non-Aboriginal origin be encountered, then construction work that might affect or damage the material will cease and notification provided in accordance with the Unexpected Heritage Items: Heritage Procedure 02 (Roads and Maritime Services 2015e). Work will only re-start once the requirements of that Procedure have been satisfied.	EIS NAH06	Contractor
Soils			
	All reasonably practicable erosion and sediment controls must be installed and appropriately maintained to minimise water pollution. When implementing such controls, any relevant guidance in the *Managing Urban Stormwater* series must be considered.	CoA E77	Contractor
Surface water quality			
Works within or adjacent to waterways	A detailed Environmental Work Method Statement will be prepared and implemented for all works undertaken within or immediately adjacent to waterways. The Environmental Work Method Statement will detail measures to avoid or minimise risks from erosion and sedimentation to water quality and biodiversity. It will be prepared in accordance with relevant guidelines including, but not limited to consideration of: • Biodiversity Guidelines – Protecting and managing biodiversity on RTA projects • Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004).	EIS SW04	TfNSW / Contractor

Potential impact	Environmental controls	Approval document reference	Responsibility
	The Proponent must consider the *Guidelines for controlled activities on waterfront land riparian corridors* (Department of Industry 2018) when carrying out work within 40 metres of a watercourse, including its bed.	CoA E106	TfNSW / Contractor
Groundwater			
Prevention of potential impacts on groundwater quality	Sites used for stockpiles, washdown areas, refuelling and chemical storage will be located away from areas of shallow groundwater or appropriately lined and bunded to protect groundwater.	EIS GW12	Contractor
Air quality			
Construction vehicle emissions	Where practicable, construction vehicles will be fitted with pollution reduction devices and switched off when not in use.	EIS AQ03	
Waste management			
	Waste generated during works will be dealt with in accordance with the following priorities: (a) waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced; (b) here avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of.	CoA E99	Contractor / TfNSW
	All waste must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	CoA E102	Contractor

5. Conclusion and approval

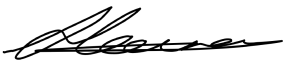
5.1 Conclusion

The low impact work submission has considered the various activities, potential impacts on the environment and community for the respective activities, and outlined mitigation measures and safeguards to avoid or minimise those potential impacts. The activities would result in some localised vegetation impacts, noise generation, ground disturbance and the generation of a small amount of waste.

Through the application of appropriate mitigation measures as outlined in Section 4, it is considered that the work would be consistent with the definition of low impact work as per Table 1 of the project Infrastructure Approval (SSI-7666).

5.2 Certification

This document provides a true and fair consideration of the scope and potential impacts of the work as outlined in the EIS, Submissions report, Amendment Report and the Ministers Conditions of Approval.

Signed		Signed	
Name	Scott Lawrence	Name	Greg Nash
Position	Environment Manager TfNSW Development and Delivery North	Position	Project Director, Coffs Harbour Bypass
Date	20/07/2021	Date	20/07/2021

Attachment A: Utilities Relocation Strategy

Utilities Relocation Strategy

Coffs Harbour Bypass Project

P.0005322

CHB URS Rev02

April 2021 | Version: 2

Contents

Appendices

Author:	Gary Bamberger – CHB Utility Coordinator
Date:	13 April 2021
Version:	Draft- for review only
Reference:	CHB URS Rev02
Division:	Infrastructure and Place
Review date:	October 2021

Abbreviations

Table 6-1: Abbreviations used within this report

Abbreviations	Descriptions
CH.	Chainage (m)
CHB	Coffs Harbour Bypass
CHCC	Coffs Harbour City Council
EE	Essential Energy
DIP	Design Information Package
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EEC	Endangered ecological community
GPR	Ground penetrating radar
IFC	Issued for Construction
PSC	Professional Services Contract
QA	Quality assurance
CPM	Construction project management
REF	Review of environmental factors
SUI	Subsurface utility information
EMI	Electro-magnetic induction
NDD	Non-destructive digging
RMP	Risk management plan
SOW	Scope of works
TfNSW	Transport for New South Wales

1 Introduction

1.1 Project overview

The Coffs Harbour bypass involves a 14 Kilometre dual carriage way upgrade of the Pacific Highway from south of England's Road to Korora Hill, bypassing the urban area of Coffs Harbour.

Key features of the proposal include:

- Around 14 km style motorway style upgrade that links the existing Lyons Rd to England's Rd dual carriage highway south of Coffs Harbour and the Sapphire to Woolgoolga upgrade that was opened in 2014.
- Three grade separated interchanges at England's Road to the south: Coramba Road: and Bruxner Park Road at the northern end of the project.
- Bridge structures along the route to provide drainage and creek crossings, in a rail crossing and local road crossings.

The Coffs Harbour Bypass Project has developed a 100% Concept Design with Arup Pty Ltd under a PSC contract..

1.2 Purpose of this Document

This report documents the strategy adopted for the relocation and/or protection of utility services which lie within the vicinity of the project works. The following elements are covered in this report:

- Details of the existing utility services in the project area;
- Discrepancies between Dial Before You Dig (DBYD) and TfNSW Utility Surveys;
- Approaches and measures considered in developing the utilities strategies;
- Consultation with utility authorities;
- Designs Status / recommendation of strategies for each utility service in the project area;
- Procurement status.

This report will form the basis of the Utilities Strategy for the Project and will be referenced in the Utility Services Works Report at 100 % Detailed Design.

2 Scope of Works

2.1 Project Utility Scope

The utilities scope of works on the Project includes:

- Identification for relocation and/or adjustment of existing utilities, including retaining and protection of critical utilities;
- Identify all services;
- Provision of proposed utilities designs as required;
- Cut over to new utility networks;
- Decommission of utilities.

2.2 Utilities Relocation Strategy Report Revisions

This strategy report will be revised and updated periodically (6 monthly), or as required for Project purposes. Updates will include:

- Further public utilities information and identification as available;
- Updated designs for public utility adjustment works;
- Completed construction works directly related to public utility adjustment works;
- Decisions / changes made on the strategy for utility relocation / protection work.

2.3 General Notes

2.3.1 Asbestos

- Some project areas are known to contain infrastructure (pits/pipes) that contain asbestos. TfNSW have consulted with utility providers in an attempt to identify which of their existing services contain asbestos. The information received has been collated as shown in Appendix F. It is anticipated that there will be additional service infrastructure containing asbestos materials that are not currently listed or known about.
- Where the construction of new utilities occurs in areas where there is asbestos pipes/pits, the constructor will be required to suitably recover and dispose of them in accordance with relevant legislation.

2.3.2 Utilities on bridges

Currently there are no designs or requirements that support the need to place utilities on new road bridges.

2.3.3 Tunnel feeds

The three tunnels on CHB will require electrical and water supplies.

JYW Consulting have recently been engaged on the Project to develop the Tunnel Operation Systems. JYW have confirmed preliminary Water and Electrical feed

requirements in order to progress the supply feed options assessments and progression of the designs.

The formal Essential Energy application process has commenced and Essential Energy are currently assessing the electrical feed options.

Water feed options were initially assessed and advised from Hunter h2o (Appendix I) in consultation with CHCC. These were based on initial feed requirements confirmed by TfNSW based on the St Helena project (tunnel of similar size). Locations and elevations of existing reservoirs have an impact on design options.

TfNSW will engage a Specialist Contractor to further progress the water feed options assessment in consultation with CHCC. Designs of the feeds will then be procured with CHCC.

3 Design criteria

3.1 Engineering Standards

The following design standards and guidelines have been primarily used in the detailed design:

- Project specific professional services detailed design and scope requirements plus other project specifications;
- Local Council Guidelines;
- Australian Standard - AS5488;
- NSW Streets Opening Conference Guide to Codes and Practices for Streets; Opening (Appendix A);
- Relevant TfNSW Technical Directions;
- Other sources, as agreed with TfNSW representatives;
- Background Information.

The following information has been included in the preparation of this Utility Services Strategy Report:

- TfNSW Ground Survey;
- Aerial imagery;
- Dial Before You Dig plans;
- Concept road design model;
- Cadastral information;
- Potholing survey undertaken from April 2020 (ongoing).

3.2 Dial Before You Dig (DBYD)

An initial request for DBYD within the project area was undertaken September 2019 to identify the underground utilities and their respective utility providers. The potentially affected service providers identified by DBYD have responded by providing the plans their utility assets within the project area. Copies of these plans can be found in Appendix E. These providers are as follows:

- Essential Energy / Essential Energy Fibre
- Coffs Harbour City Council – Water/Sewer – including CHCC comms
- ARTC
- City Smart Fibre
- Telstra
- OPTUS
- AARNET
- VOCUS (Nextgen)
- TPG

- NBN
- Transgrid

A review of utility information supplied by the service providers was undertaken to identify and describe the types and locations of utility services within the project area. A digital version of DBYD has been collated and used in CAD packages to enable early planning and PDF mark-ups.

TfNSW are currently progressing with the registration of the Project with DBYD and looking to engage the services of PelicanCorp to manage the DBYD responses. This will inform TfNSW of all proposed works within the project area to mitigate conflicts with Project future works and recently installed works yet to be registered on others DBYD responses.

4 Risk strategy

TfNSW identified early in project development that the utility relocations were a high-risk activity and on the critical path for the Project.

The key risks identified were:

- Clearly identifying all services above and below ground.
- The duration it takes for each utility service to gain relocation approval
- Costing of utility relocations
- Utilities impacting on construction program
- Future proof existing and relocated utilities against construction activities and final design

4.1 Methodology

An early investigation and strategy review was conducted to identify impact on utilities. Engagement with asset owners and utility authorities and design of the associated relocations is critical to the successful delivery of the project.

Service locating and potholing was started in April 2020 to improve reliability of service location data. EMI/Scan data and NDD investigations are ongoing. Identified services are surveyed and incorporated into a Live Service Model. The model is generated and updated in 12D Model software.

Space proofing is conducted to confirm which services require relocation and proximity to existing and new features. Project and property boundaries are checked to ensure they provide suitable space for construction and future access (service and maintenance access). Where space is limited, property acquisitions and easements are being progressed / undertaken.

The fundamental approach to the relocation of utilities, is to move existing utilities to the Project boundary, outside of the construction footprint. The following is considered for utilities that need to cross the new alignment:

- Common crossing points for multiple utility providers to reduce areas of risk during construction phase
- Agreed methods of protection to ensure that in the event of future utility failures, the new road is not impacted and integrity is maintained
- Road crossings are conducted outside of ‘cuttings’ where possible
- Under bores are used to reduce environmental impact where suitable and for difficult to access areas (Appendix G contains details of known Environmental constraints).

4.2 Strategy Going Forward

Table 4-1 below is a snapshot of progress regarding the utilities design and coordination, and strategy going forward.

Table 4-1: Utility Services - Design Strategy

No	Utility service	Where Design is at currently	Strategy going forward
1	Sewer / Water	• An initial Water design was drafted in PDF and digitised in 12D • CHCC engaged Hunter H20 to undertake a water strategy review which included investigating future water supply needs for the region as well as tunnel supply options • Water/sewer designs are generated in conjunction with other utilities to space proof. Regular design consultation & review - on screen and on site with CHCC designers/team leaders • Sewer in conflict appears to support relocation without the need of introducing pump stations. Sewer relocations will involve crossing the new alignment • Englands Rd Region – WM02 375mm Main is at 85% design.	Ongoing consultation with CHCC designers and team leaders to complete the designs for procurement of the relocation works. • Space proofing against new and existing services and location of new manholes close to the new project boundary • Continued potholing of existing services and development of Live Service Model • Following the construction phase a cut over process from the old water network to the new infrastructure will be required. This process will likely result in temporary water outages to community/businesses . CHCC will advise preferred timing and impacted areas. CHCC will also provide notification to those impacted • Out of hours works will be required at times to complete the cut overs • Property access progressing. Access to

	Geotech results are being assessed by CHCC designers with 100% design due in May 2021 • Remaining Englands Region Mains – Design progress at 25-50%. 85-100% design to follow final investigation works (awaiting property access). 100% designs on 600mm, 375mm, 200mm, 150mm are programmed for progressive completion during June/July/August 2021 • North Boambee Rd WM06 600mm main is at 100% IFC design with construction start estimated for June 2021 • Coramba Interchange water mains are at 100% IFC design and construction started • Korora Region Mains – WM14-18 and SE03 are due for progressive completion to 100% during June/July 2021 • Korora Region WM11 twin 500mm are due	property following fencing of acquisition boundary (APO 1, 1.1, 2) • Submission of G1 document and RFQ to CHCC for WM06 in April 2021 • Engage Geotech contractor for Stage 2 investigations – end April 2021 Investigations undertaken in May 2021 and will support designs in Korora and Englands regions

		for completion in August 2021	
2	Stormwater Drainage	• As provided in latest ARUP design 25th August 2020	• Stormwater location within current design is taken into consideration for space proofing, particularly for road crossings. It is acknowledged that changes are likely to occur so utility designs will offer an extended level of separation to provide flexibility in future drainage design/construction. Existing waterway inverts are reviewed to ensure utilities are below these levels
3	Telstra	• DBYD reviewed • Concept relocation strategy marked up on PDF plans • Plans digitised in 12D Model software • Project generally broken up into Southern / Central and Northern design sections • Sub Consultant CPM engaged to conduct network validation site investigations and generate a preliminary detailed design that is in line with Telstra network requirements and presented with details that support improved review	• Telstra to be engaged directly as non-contestable works • Telstra (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise • G1 documentation being prepared for the Southern and Central Sections and will be sent back with the Design reviews for Telstra Procurement – April 21. Telstra pricing due June 21. • G1 documentation will be prepared for issue

		and certification times • Final design certification is being completed by Ashworths (Telstra design partner) and will be submitted to Telstra for construction approval • The Englands region is proposed to include the use of a pipe nest that is capable of containing several carriers in a compact footprint (joint use trench and nest) – as opposed to individual trenches/larger separation • Southern and Central Sections designs have been completed by Ashworths and are pending TfNSW final review. • Northern section with CPM – 2nd iteration of design due May 21. Ashworth design to follow - due June 21.	to Telstra following review of Northern Design. Telstra to then progress procurement – Telstra pricing due August 21.
4	NBN	• DBYD reviewed • Concept relocation strategy marked up on PDF plans • Plans digitised in 12D Model software	• NBN design are engaged after the preliminary detailed designs are submitted by Telstra • NBN to be engaged directly as non-contestable works

		• NBN utilise Telstra infrastructure for their network • The Telstra design has been submitted to NBN for review, costing, certification • Utilises 95% of the Telstra Network in the CHB project footprint. • Ashworth Consulting is the design partner for NBN. Design fee has been paid. • Southern relocation design had previously been received by TfNSW, and is currently being modified due to alignment changes at Caltex Centre on Stadium Drive – Design due April 21 • Central relocation design is due May 21 • Northern relocation design will be end of July 21. (4 weeks after Telstra design)	• NBN overlay their network and identify the gaps and design solutions accordingly • NBN (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise • G1 documentation and design reviews will be concluded within a week of receipt of the NBN designs. NBN procurement will take approx. 4-6 weeks following receipt of G1 and confirmation of design acceptance.
5	OPTUS	• DBYD reviewed • Concept relocation strategy marked up on PDF plans	• Agreed to construct in joint use trench from Lindsay Transport to Englands Road

		• Plans digitised in 12D Model software • Engaged design process through corporate contact number. • Engaged on several occasions including field visits, design reviews and validation exercises. • Optus designs have been completed from southern section to central section.	• OPTUS to be engaged directly as non-contestable works • Will construct own network from Englands Rd to Coramba Road Interchange. • Banana Coast Caravan Park to Bruxner Park to be constructed as joint use trench Pacific Bay through to Sapphire is in Telstra conduits. • OPTUS (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise • Project requirements (G1 documentation) sent for procurement of Southern – Central section April 21. Prices due end May. • Northern section is reliant on the completed Telstra design (CPM 2nd Iteration- due end May 21) Designs due June 21. Pricing due end July 21.
6	VOCUS	• DBYD reviewed • Concept relocation strategy marked up on PDF plans	• VOCUS to be engaged directly as non-contestable works • Waiting on final design and SOW

		• Plans digitised in 12D Model software • Engaged with Area Fibre manager to review concept and provide design solution, this included field visitation and walkover • Project was handed off from QLD to NSW to project manage and this has changed their planned SOW • Meeting with NSW PM had agreed to insert additional fibre access points to accommodate interactions with AARNet, EE and TPG • Vocus Southern Design and pricing had been received and reviewed by TfNSW.	• AARNet, EE and TPG designs are reliant on the locked in VOCUS fibre access points for finalising their design, SOW and pricing • This is currently being finalised with VOCUS • VOCUS (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise. • Vocus Southern pricing - project requirements (G1 documentation) and design modifications have been sent back for Vocus review and re-pricing. Design and Price due May 21. • Northern section is reliant on the Telstra design to inform access points for Bruxner Park Rd (CPM due end May 21). Design due June 21 / Pricing due July 21.
7	AARNET	• DBYD reviewed • Concept relocation strategy marked up on PDF plans	• AARNET to be engaged directly as non-contestable works • AARNet has services in Stadium Drv (Southern Cross University) and Industrial Drive

		• Plans digitised in 12D Model software • AARNet design and quotation received and reviewed (Isles Drive to Stadium Drive).	(Vertel). These services currently access at TNT depot and Englands Road. This project will align to one access location as per below • Vocus Fibre access joint is to be located in Isles Drive adjacent to AARNet & EE services • AARNet (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise • Project requirements (G1 documentation) and design modification are back with AARNet for review and re-pricing - due May 21.
8	TPG	• Network detail not found on DBYD plans • Details discovered from VOCUS carrier as they supply fibre links to other carriers • TPG works to be completed by VOCUS as the carrier affecting their network.	• VOCUS to be engaged directly as non-contestable works • Was unknown at time of planning and concept phases as DBYD plans provided no indication of network • VOCUS to construct linking network and perform fibre jointing works • TPG (communications in general) operate an embargo period during

			holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • This will be priced in the VOCUS SOW and Construction cost • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise • Pricing for works are included in the Vocus pricing (TPG access point in North Boambee Road.)
9	ESSENTIAL ENERGY	• Network detail not found on DBYD plans • Details discovered from VOCUS carrier as they supply fibre links to other carriers • EE power design and VOCUS / AARNet design has been forwarded for design and SOW • EE design and quotation has been received for the access point in Isles Drive.	• EE to be engaged directly as non-contestable works • EE have their own fibre network terminated on EE power poles. Work requires removal of cable back from Englands Road to Isles Drive location • Make ready works will be done to facilitate access for AARNet and Transgrid Services • EE (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers

				are low impact / low noise • EE design and quotation has been reviewed and resubmitted with G1 Documentation for confirmation of pricing - due May 21.
	10	TRANSGRID	• Network detail not found on DBYD plans • Details discovered from VOCUS carrier as they supply fibre links to other carriers • Transgrid currently utilise the Telstra network to access the Handybin Site in Englands Road • Telstra design has been sent to Transgrid for review and SOW and design solution • Transgrid Works design has been submitted and quotation received for the Isles Drive access point.	• Transgrid to be engaged directly as non-contestable works • It is proposed that Telstra network will be utilised for the new work and access to the EE fibre cable at Isles Drive will be done by Transgrid link pit • TRANSGRID (communications in general) operate an embargo period during holiday season. The embargo will limit some types of works that can be completed – indirect works can continue e.g. greenfield sites • Cable cutovers are done out of hours to reduce impact on peak load times. Cutovers are low impact / low noise • A breakdown of quotation received 14042021. • G1 documentation has been forwarded to Transgrid for review with quotation due May 21.
	11	• CHCC	• CHCC have a separate identity – City Smart, that operate a fibre network along parts of their water	• CHCC have been requested to identify locations the fibre network currently operate. • CHCC have been requested to

		network. DBYD and locating has been conducted to improve location data • City Smart design has been completed – City Smart are going to market for the supply of materials. • City Smart are utilising joint use trench with Telstra with installation and cable hauling to be done internally. •	incorporate pits and conduits along with their water design • Pricing due May 21
12	Essential Energy	• **Completed Designs** • Dist. Package 1* (Lindsay's Transport) • Dist. Package 4 (100 England's Rd) • Dist. Package 5 (North Boambee Road) • Dist. Package 6 (Robert's Hill Tunnel) • Dist. Package 9 (Spagnolo's Road) • Dist. Package 12/13/14* (Mackay's Road) • Dist. Package 15* (North Boambee Basin) • Dist. Package 16 (89 Mackay's Road) • Dist. Package 17* (West Korora Road)	• **Procured Packages for Construction** • **Construction Package 1** • Distribution Package 4 • Distribution Package 5 • Distribution Package 6 • Distribution Package 9 • Subtransmission Package 1 • Subtransmission Package 2 • **Construction Package 2** • <u>(To be awarded WE 30/4/2021)</u> • Distribution Package 1 • Distribution Package 12/13/14

		• Subtrans Package 1 (North Boambee Rd 66kV) • Subtrans Package 2 (England's Road 66kV) • Subtrans Package 3* (Coramba Interchange 66kV) • **Detailed Designs** • Dist. Package 2/3 (England's Road Interchange) – 95% • Dist. Package 7/8 (Coramba Road Interchange) – 95% • Dist. Package 10 (Shephard's Lane) – 90% • Dist. Package 11 (North Shephard's Lane) – 75% • Dist. Packages 18-24 (Korora Interchange) – 85% • Subtrans Package 4 (Korora Interchange) – 85% *Reviewed by Essential Energy – cannot be certified until TfNSW own impacted land	• Distribution Package 16 • Distribution Package 17 • **Upcoming Procurement** • **Construction Package 3** • Distribution Package 2/3 • Distribution Package 7/8 • Distribution Package 10 • Distribution Package 11 • Distribution Package 15 • Subtransmission Package 3 • **Construction Package 4** • Distribution Packages 18-24 • Subtransmission Package 4
13	Street Lighting	• Preliminary review of locations for streetlighting • Provision made for future power supply as part of Utility Relocations	• N/A

	• Key areas are England's Road Interchange, Coramba Road Interchange and Korora Interchange	

5 Identification existing utility services

5.1 Potholing

Following review of DBYD data and early utility draft designs, a utility pothole plan was developed for the CHB site. The plan has then subsequently been further developed in line with the development of the utility designs to ensure all required asset data is captured as required for the progression of the utility designs.

The pothole plan includes proposed investigation areas which are assessed against known mapped Environmental, Cultural, Heritage, and Property constraints to determine design priorities and the staging of investigation works. Environmental, Cultural and Heritage constraints are shown in the CHB Induction Booklet – Appendix G.

Utility investigations are identified to have a minimal impact and currently require no clearing or special access.

A combination of investigation methods are used which include:

- Electromagnetic induction (EMI)
- Ground penetrating radar (GPR)
- Potholing/Non-destructive digging (NDD)

Located utilities are surveyed and submitted for modelling in 12D Model software. A live service model is generated which incorporates the various quality levels of utility locations ranging from DBYD data to positively identified services by potholing.

The live service model is used by TfNSW and utility designers/authorities to identify tie in locations and any potential clashes in road, drainage and future service design.

Spoil from potholing works is dumped on CHB project land in purpose built sediment basins that are located in Englands Rd, Boambee and Spagnolos Rd, Coramba.

A WHS Management Plan for the locating works is attached in Appendix B.

The Environmental Impact Review and assessment of the Panama risk for the initial Potholing scope is included in Appendix C and Appendix H respectively. This is being updated to account for the latest PH scope as indicated in Appendix D – Utilities Pothole Area Plan.

6 Utility authority consultation

6.1 Project Staff Contact list

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Stacey Williamson	Project Contract Officer	0427 578 194	Stacey.WILLIAMSON@transport.nsw.gov.au
Dawn Besant	Project Contract Officer	0418 683 390	Dawn.Besant@transport.nsw.gov.au
Hannah Frankel	Project Officer	0429 644 034	Hannah.Frankel@transport.nsw.gov.au

6.2 Relocations Contact list

Organisation	Category	Name	Title	Contact	Email
ARTC	Signalling	Michelle Caldwell-Shaw	Third Party Projects. Portfolio Manager	0403 387 057	MCaldwell-Shaw@ARTC.com.au
ARTC	Signalling	Stuart Lee	3rd Party Projects Snr Project Manager	0410 509 577	SLee3@ARTC.com.au
ARTC	Signalling	Derek Rogers	Property Manager Sydney Interstate Network	0423 563 344	drogers@artc.com.au
AARNet	Communications	Aleksander Ciric	Project Supervisor	0419727599	Aleksandar.Ciric@aarnet.edu.au
AARNet	Communications	Matthew Putland	General Manager	0457897158	Matt.putland@aarnet.edu.au

Essential Energy	Communications	Warren Ryan	Project Specialist	0265886560	Warren.ryan@essentialenergy.com.au
Essential Energy	Communications	Doug McKenzie	Project Manager	0429 373 409	doug.mackenzie@essentialenergy.com.au
Essential Energy	Communications	Glenn Smith	Project Manager		glenn.smith@essentialenergy.com.au
Telstra	Communications	Glen Foelz	Project Manager	0419727599	Glen.j.foelz@team.telstra.com
Telstra	Communications	Michael Rogan	Area Manager	N/A	Michael.D.Rogan@team.telstra.com
NBN	Communications	Todd Janus	Project Engineer	0419 400 958	toddjanus@nbnco.com.au
NBN	Communications	Kenny D'Kruz	Account Manager	0408179066	Kenny.dcruz@nbnco.com.au
Ashworths	Communications	Damon Parker	NBN Design	0420529396	Damon.parker@ashworthaustralia.com.au
Ashworths	Communications	Kurt Vecchiatto	Telstra Design	0448219614	Kurt.vecchiatto@ashworthaustralia.com.au
Ashworths	Communications	Greg Asworth	NBN Design	1300571670	greg@ashworthaustralia.com.au
CHCC (City Smart)	Communications	Jason O'Brien	CHCC fibre network	0417 716 946	Jason.obrien@chcc.nsw.gov.au
CPM	Communications	Paul Panzenhagen	Telstra Design	0409624419	Paul.panzenhagen@cpml.com.au
CPM	Communications	Scott Neilson	Telstra	0408251881	Scott.nielsen@cpml.com.au
CPM	Communications	Cody Storey	Telstra Design	0449199793	Cody.storey@cpml.com.au
Transgrid	Communications	Adam Pride	Project Development Manager	0428205928	Adam.Pride@transgrid.com.au
Transgrid	Communications	David Gardner	Project Manager	0439 168 779	David.Gardner@transgrid.com.au
Transgrid	Communications	Arumugam Sivabala (Siva)	Senior Designer		Arumugam.Sivabala@transgrid.com.au
Vocus	Communications	Michael Parker	Field Manager	0439 065 817	Michael.Parker@vocus.com.au
Vocus	Communications	Aidrian Moulds	Project Manager	0401 154 375	Aidan.moulds@vocus.com.au
Vocus	Communications	Willi Clarke	Team Leader	0434 782 864	William.Clarke@vocus.com.au
CPL	Service Locators	Adrian Simpson	Locator	0431 577 673	
CPL	Service Locators	Shane Buckley	Manager	0408 730 430	shane@cableandpipelocations.com.au
Hydro Digga	Service Locators	Anthony Lane	Manager	0447 774 141	office@hydrodigga.com
Hydro Digga	Service Locators	Emma Lane	Manager	0447 774 000	office@hydrodigga.com
NKW	Survey	Sam Andrews	Surveyor	0434 512 796	sam@nkwp.com.au
NKW	Survey	James Spagnolo	Surveyor/ Manager	0458 201 012	james@nkwp.com.au
Essential Energy	Electrical	Troy Dent	Contestable Works Design Officer	N/A	Troy.dent@essentialenergy.com.au
Essential Energy	Electrical	Darrin Edwards	Contestable Works Manager	N/A	Darrin.edwards@essentialenergy.com.au
Essential Energy	Electrical	Doug Wray	Planning (tunnels)	N/A	Doug.wray@essentialenergy.com.au
Gosling Electrical	Electrical	Tony Freeney	Design Manager	66523283	murph@goslingelectrical.com.au
Gosling Electrical	Electrical	Ben Hocking	Engineer/Designer	66523283	ben@goslingelectrical.com.au
Gosling Electrical	Electrical	Luke Horton	Designer	66523283	lukeh@goslingelectrical.com.au
Gosling Electrical	Electrical	Matt Gosling	Director	66523283	matta@goslingelectrical.com.au
Quanta Lines	Electrical	Darren Canfield	Design Manager	0459880259	Darren.canfield@quantalines.com.au

Quanta Lines	Electrical	Daniel Bower	Construction Manager	0423 570 453	Daniel.bower@quantalines
CHCC	Water/Sewer	Allan Hindmarsh	Group Leader		allan.hindmarsh@coastalworks.com.au
CHCC	Water/Sewer	Amy Roberts	Section Leader	0437 559 312	Amy.roberts@coastalworks.com.au
CHCC	Water/Sewer	Evan Williams	Project Engineer	0417 742 093	evan.williams@coastalworks.com.au
CHCC	Water/Sewer	Paul Barling	Project Leader Water and Sewer		Paul.barling@chcc.nsw.gov.au
CHCC	Water/Sewer	Nathan Crawford	Senior Engineering Designer	(02)66484476	Nathan.crawford@chcc.nsw.gov.au
CHCC	Water/Sewer	Brendan Stockdale	Senior Engineering Designer	(02)66484424	bpsbrenden@chcc.nsw.gov.au
CHCC	Water/Sewer	Col Cassells	Field Support	0427 296 922	N/A
CHCC	Water/Sewer	Terry Thorn	Section Leader Roads	0419 992 520	Terry.thorn@coastalworks.com.au
CHCC	Water/Sewer	Paul Shepherd	Water Services Team Leader	(02) 66484674	Paul.shepherd@chcc.nsw.gov.au
CHCC	Waste Centre	David Yarnold	Waste Centre- Site Contact	0417 226 985	
Construction Sciences	Geotech	Zev Gilmore	Graduate Engineer	0418 512 135	Zev.gilmore@constructionsciences.net

7 Utility relocation summary

7.1 Electrical relocations

Area/Region	Chainage	Utility	Description	Length
TNT/Lindsays	9700	Electrical	LV Underground	98
Englands Rd	10400	Electrical	11kV Underground	717
			11kV Overhead	447
			LV Underground	201
			LV Overhead	47
Industrial Drive	11400	Electrical	11kV Overhead	120
Industrial Drive	11750	Electrical	66Kv Overhead	158
North Boambee Rd	11900	Electrical	11kV Underground	400
North Boambee Rd	12200	Electrical	11kV Underground	342
North Boambee Rd	12600	Electrical	66kV Overhead	195
Roberts Hill	13700	Electrical	11kV Overhead	76
Sth Coramba Interchange	14800	Electrical	11kV Overhead	193
			LV Underground	91
Coramba Interchange	14500	Electrical	11kV Overhead	453
			11kV Underground	1962
Coramba Interchange	14500	Electrical	66kV Underground	671
Spagnolos Rd	15800	Electrical	11kV Overhead	148
Shephards Lane	16400	Electrical	11kV Underground	349
North Shephards Lane	16800	Electrical	11kV Overhead	330
			LV Overhead	90
Mackays Rd 1	17800	Electrical	11kV Overhead	534
			11kV Underground	177
			11kV Overhead	189
Mackays Rd 2	18400	Electrical	11kV Underground	176
			11kV Overhead	248
West Korora Rd	19700	Electrical	11kV Underground	165
			11kV Overhead	120
			LV Overhead	85
			LV Underground	76
Korora Interchange	20600	Electrical	66kV Underground	3050
			11kV Underground	3270
			11kV Overhead	600
			LV Overhead	600

			LV Underground	250
Tunnel Feed South	13200	Electrical	11kV Underground	2779
Tunnel Feed North	18200	Electrical	11kV Underground	1283
Tunnel Internal	13200	Electrical	11kV Underground	12930

7.2 Communications relocations

Region	Area	Start	End	Utility	Owner	Length
Southern	Lindsays to Cunninghams	9300	10600	Comms	Telstra NBN Vocus City Smart Optus AARNet	2215
Southern	TNT to Cunninghams	9700	10600	Comms	Optus	1600
Southern	Cunninghams to Isles Drv	10600	11200	Comms	Telstra NBN Vocus City Smart Optus AARNet	505
Southern	Isles Drive	10700	10700	Comms	Essential Fibre Transgrid Fibre	55 6
Southern	Isles Drive to new CMUX	11200	11300	Comms	Telstra NBN City Smart	125
Southern	Cunninghas to Stadium Drv	10600	10500	Comms	AARNet	385
Southern	Isles Drive to Handy Bin Englands Road	10600	11200	Comms	Telstra NBN City Smart	730
Southern	Isles Drive to CEV	10600	11200	Comms	Optus	525
Central	CEV to Bennetts Road	10600	15100	Comms	Optus	5385
Central	Isles Drive to Roberts Hill Splice Location	11200	14600	Comms	Vocus	2760
Central	Splice Location to TPG Splice Nth Boambee Rd	14600	13400	Comms	TPG / Vocus	1300
Central	Coramba Interchange	14700	15100	Comms	Telstra NBN	2510
Central	Shephards Lane Bridge	16200	16300	Comms	Telstra	300
Central	260A Shephards Lane	16300	16300	Comms	Telstra	315
Central	West Korora Road	19900	19900	Comms	NBN	200

Northern	BCCP to Sapphire [with Water Main Construction]	20500	23800	Comms	City Smart	2360
Northern	Bannana Coast Caravan Park [BCCP] to Bruxner Park Road	20500	20900	Comms	Telstra Optus Vocus	965
Northern	BCCP to James Small South	20500	21000	Comms	Telstra NBN Optus	600
Northern	James Small South to BCCP - Copper	21000	20500	Comms	Telstra NBN	440
Northern	James Small Drive South to James Small Drive opp School	21000	22100	Comms	Telstra NBN Optus	1550
Northern	James Small Drive North to Old Coast Road	22000	21000	Comms	Telstra NBN	730
Northern	James Small Drive North to Coachmans Place	22000	23600	Comms	Telstra NBN Optus	780

7.3 Water/ sewer relocations

Area/region	Chainage	Utility	Description	Length (m)
	10800	Water	WM01 600mm	1432
	10800	Water	WM02 375mm	1589
	10000	Water	WM02B 375mm	450
	9800	Water	WM03 200mm	1100
	10000	Water	WM04 200mm	242
	11000	Water	WM05 150	1097
	10800	Sewer	SE01	145
	10800	Sewer	SE02	334
	10800	Sewer	SE02B	62
North Boambee Rd	12400	Water	WM06 600mm	385
Coramba	14500	Water	WM07 100mm	790
		Water	WM08 300mm	212
		Water	WM09 600mm	203
	14800	Water	WM09 450mm	206
Korora	20400	Water	WM10 200mm	70

		Water	WM11 500mm	2225
	21000	Water (Reuse)	WM11 500mm	2360
		Water	WM12 450mm	1920
		Water	WM13 500mm	80
	22600	Water (Reuse)	WM13 500mm	80
		Water	WM14 500mm	190
	22800	Water (Reuse)	WM14 500mm	190
	22750	Water	WM15 150mm	190
	22850	Water	WM16 375mm	477
		Water	WM17 500mm	385
	23300	Water (Reuse)	WM17 500mm	385
	22750	Sewer	SE03	212
		Water	WM18 375mm	175
	23400	Water	WM19 250mm	140

Attachment B: Agency consultation

Dimitri Young
Senior Team Leader Planning, North East Branch
Biodiversity Conservation
Environment, Energy and Science Group of the Department of Planning Industry and Environment
Locked Bag 914
Coffs Harbour NSW
2450

Dear Dimitri

SSI:7666 Coffs Harbour Bypass: Infrastructure Approval Table 1 definitions- consultation regarding biodiversity impacts for early works associated with geotechnical investigation and utility relocations.

Transport for NSW (TfNSW) are currently undertaking utility relocations and further geotechnical investigations as part of the early works associated with the Coffs Harbour Bypass project. These works are being undertaken ahead of the main work to help inform design and allow for efficient delivery of mainline construction works. To date these works have not involved clearing of native vegetation.

The project approval instrument (Table 1 Definitions relevant to all CSSI projects) prescribes that any impact to threatened biodiversity is “construction”, unless determined by the NSW Planning Secretary that the works are suitably described as “low impact work”, in consultation with the Environment, Energy and Science Group (EEGS).

TfNSW is now planning to progress utility relocation and geotechnical activities that will involve minor clearing of native vegetation.

The attached figures show the extent of threatened ecological communities and koala habitat previously mapped within and adjacent to the approved project corridor, and the proposed clearing for utility relocation areas and geotechnical investigation areas. The locations have been surveyed by the project ecologists and no threatened plant species will be impacted by these works.

Across the 14km alignment the total of area of native vegetation clearing will be less than 3.62 Ha which includes 0.32 Ha of EEC. Table 1 (attached) provides a breakdown of the clearing by Plant Community Type (PCT). The clearing will be located in isolated areas and will be managed in accordance with the Threatened Species Management Plan (previously reviewed by your Department refer to correspondence dated 21 April 2021) and detailed Environmental Work Method Statement attached. All clearing will be offset in accordance the project conditions of approval.

The purpose of this correspondence is to consult on the impacts to threatened ecological communities associated with the utility relocation work and geotechnical activities and where

suitable, gain EEGS concurrence for TfNSW consideration that the proposed activity can be described as “low impact work”.

Any comments received, among other things, would be provided to the Planning Secretary to assist with a determination of a low impact work submission. For further information or to provide comments, please contact Scott Lawrence on 0419 248 583 or by email Scott.Lawrence@transport.nsw.gov.au.

Yours sincerely

6/5/21

Greg Nash
Director Coffs Harbour Bypass

Planning, Industry & Environment

Our Ref: DOC21/374101-5
Your Ref: Insert SSI 7666

Director – Coffs Harbour Bypass
Transport for NSW
76 Victoria Street
Grafton NSW 2460

Attention: Mr Scott Lawrence

Dear Mr Nash

RE: SSI: 7666 - Coffs Harbour Bypass – Utility Relocation and Geotechnical Works

Thank you for your letter dated 6 May 2021 consulting with the Biodiversity and Conservation Division (BCD) of the Biodiversity, Conservation and Science Directorate in the Environment, Energy and Science Group of the Department of Planning, Industry and Environment in relation to classification of the clearing of native vegetation for utility relocation and geotechnical investigations associated with the Coffs Harbour Bypass. I appreciate the opportunity to provide input.

The BCD has no objection to the classification of the clearing for the purposes of geotechnical investigations and the relocation of utilities as 'low impact works'. As demonstrated by your letter, these works will still be subject to management, in accordance with the Clearing, Grubbing and Mulching Environmental Work Method Statement, and its supporting plans.

In addition, we are confident that despite these works being classified as 'low impact works', this will not create a delay in the preparation of the Construction Environmental Management Plan, or its sub-plans, as required by the project's conditions of consent, or in the provision of biodiversity offsets.

We understand that applications for the creation of biodiversity stewardship sites are progressing well, and the payment for the supplementary measures in lieu of offsets for scrub turpentine (*Rhodamnia rubescens)* has already been made to the Saving Our Species program. We therefore anticipate that biodiversity offsets will be provided in a timely manner for the impacts of the project, including these low impact works.

If you have any questions about this advice, please do not hesitate to contact Ms Nicky Owner, Senior Conservation Planning Officer, at nicky.owner@environment.nsw.gov.au or 6659 8254.

Yours sincerely

Dimitri Young

26 May 2021

DIMITRI YOUNG
Senior Team Leader Planning, North East Branch
Biodiversity and Conservation

cc: Ms Lee McCourt – Planning and Assessment Group

Sam Higgs

Heritage NSW -Department of Planning Industry
and Environment
Aboriginal Cultural Heritage Regulation Branch
E-mail: *Heritagemailbox@environment.nsw.gov.au*

SF2017/107041
fA101965

Dear Sam

SSI:7666 Coffs Harbour Bypass: Infrastructure Approval Table 1 definitions- consultation regarding early works associated with geotechnical investigation and utility relocations.

Transport for NSW (TfNSW) are currently undertaking utility relocations and further geotechnical investigations as part of the early works associated with the Coffs Harbour Bypass project. The works to date have included areas that do not involve clearing of native vegetation or through identified potential archaeological deposit (PAD) sites. These works are being undertaken ahead of the main work to help inform design and allow for efficient delivery of mainline construction works.

The project approval instrument (Table 1 Definitions relevant to all CSSI projects) prescribes that where heritage items (excluding those impacted by activities relating to testing under the *Code of Practice for archaeological investigations of Aboriginal objects in NSW, DECCW, 2010* or archaeological or cultural salvage activities required by the projects condition of approval) are impacted that this work is "construction", unless determined by the NSW Planning Secretary that the works are suitably described as "low impact work", in consultation with Heritage NSW.

TfNSW is now planning to progress utility relocation and geotechnical activities that will involve excavation work in previously identified PAD sites that have already had archaeological salvage excavations completed. Works will only proceed in these areas after site clearance letters have been obtained by the project archaeologist.

All proposed areas for utility relocation and geotechnical investigation works been assessed for heritage impacts as per the EIS and Amendment Report and Roads & Maritime Services *Procedure for Aboriginal cultural heritage consultation and investigation.* The attached figures show the location of the PAD sites and the proposed clearing for utility relocation areas and geotechnical investigation areas. No new heritage sites are proposed to be impacted by the utility works. The projects unexpected heritage finds procedure will implemented should material be uncovered that is suspected to be of archaeological significance.

The purpose of this correspondence is to consult with Heritage NSW on the proposed utility relocation work and geotechnical activities and where suitable, gain NSW Heritage concurrence for TfNSW consideration that the proposed activity can be described as "low impact work".

Project Development and Delivery North: Transport for NSW
76 Victoria Street, Grafton 2460 NSW | **P** 02 6640 1300 | **W** roads-maritime.transport.nsw.gov.au | ABN 18 804 239 602

Any comments received, among other things, would be provided to the Planning Secretary to assist with a determination of a low impact work submission. For further information or to provide comments, please contact Scott Lawrence on 0419 248 583 or by email Scott.Lawrence@transport.nsw.gov.au.

Yours sincerely

17/05/2021

Greg Nash
Director Coffs Harbour Bypass

Cc: *E-mail: Sam.Higgs@environment.nsw.gov.au*
Cc: E-mail: Lee.McCourt@planning.nsw.gov.au

Premier & Cabinet

Reference: DOC21/430243

Mr Scott Lawrence
Transport for NSW
Scott.lawrence@transport.nsw.gov.au

Cc: Mr Lee McCourt
Department of Planning, Industry and Environment
Lee.McCourt@planning.nsw.gov.au

RE: SSI: 7666 Coffs Harbour Bypass: Infrastructure Approval Table 1 definitions- consultation regarding early works associated with geotechnical investigations and utility relocations.

Dear Mr Lawrence

Thank you for your agency's letter of 17 May 2021 about the definitions of the terms 'construction' and 'low impact work' for the approved Coffs Harbour Bypass within the Coffs Harbour local government area. I appreciate the opportunity to provide input.

Heritage NSW has reviewed the documentation and notes the project approval instrument, as described, prescribes that where heritage items (excluding those impacted by activities relating to testing under the Code of Practice or archaeological or cultural salvage activities required by the projects condition of approval) are impacted that this work is construction, unless determined by the NSW Planning Secretary that the works are suitably described as "low impact work" in consultation with Heritage NSW.

Heritage NSW further notes the plans for Transport for NSW to progress utility relocation and geotechnical activities that will involve excavation work into previously identified PAD sites that have already had archaeological salvage excavations completed following the issue of a site clearance letter from the project archaeologist.

Heritage NSW is concerned that this planned process does not clearly articulate how the planned "cultural salvage" areas are being considered as part of the proposed early works clearance proposal. If the area of the proposed utility relocation and geotechnical activities is not in an area identified by the RAPs as a potential area for cultural salvage the issue of an archaeological clearance would be sufficient. However, if the proposed works is in an area identified by the RAPs for proposed "cultural salvage" then a clearance from the RAPs would also be required to ensure Transport for NSW's commitment to minimising harm to Aboriginal cultural values during the critical infrastructure delivery.

Heritage NSW further recommends the unexpected finds protocol be expanded to cover cultural significance as well as archaeological significance in this case as both aspects are part of the approval.

If these matters are addressed Heritage NSW would be in a position to concur that the works are low impact.

If you have any questions about this advice, please do not hesitate to contact me via rosalie.neve@environment.nsw.gov.au or 02 6659 8221.

Yours sincerely

Dr Sam Higgs
Senior Team Leader
Aboriginal Cultural Heritage Regulation - Northern
Heritage NSW
Department of Premier and Cabinet

1 June 2021

Attachment C: Breakdown of clearing amounts by PCT

Table 1: Breakdown of clearing amounts for the early works associated with utility relocations and geotechnical investigation.

Clearing of Non-EEC Plant Community Types	**Area (Ha)**
Blackbutt - Tallowwood moist ferny open forest of the coastal ranges of the NSW North Coast Bioregion	1.61
Blackbutt - Turpentine - Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion	0.51
Brush Box - Tallowwood - Sydney Blue Gum tall moist forest of the ranges of the central NSW North Coast Bioregion	0.53
Sydney Blue Gum open forest on coastal foothills and escarpment of the North Coast	0.07
Tallowwood - Small-fruited Grey Gum dry grassy open forest of the foothills of the NSW North Coast	0.10
Turpentine moist open forest of the coastal hills and ranges of the NSW North Coast Bioregion	0.45
TOTAL	3.27 Ha
Clearing of EEC Plant Community Types	**Area (Ha)**
Black Booyong - Rosewood - Yellow Carabeen subtropical rainforest of the NSW North Coast Bioregion	0.02
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	0.32
White Booyong - Fig subtropical rainforest of the NSW North Coast Bioregion	0.01
TOTAL	0.35 Ha

Attachment D: Noise Impact Assessment

Noise Assessment - Utilities Clearing

Assessment Method:

6 locations have been assessed based on volume of clearing and proximity to receivers determined by GIS tool and mapping (CHB Utilities_Geotech Clearing Sheet 1-4 20210430), grinder included at locations 2, 4 and 5. Suggest broad assessment against highly Noise Affected Criteria: 75dB(A).

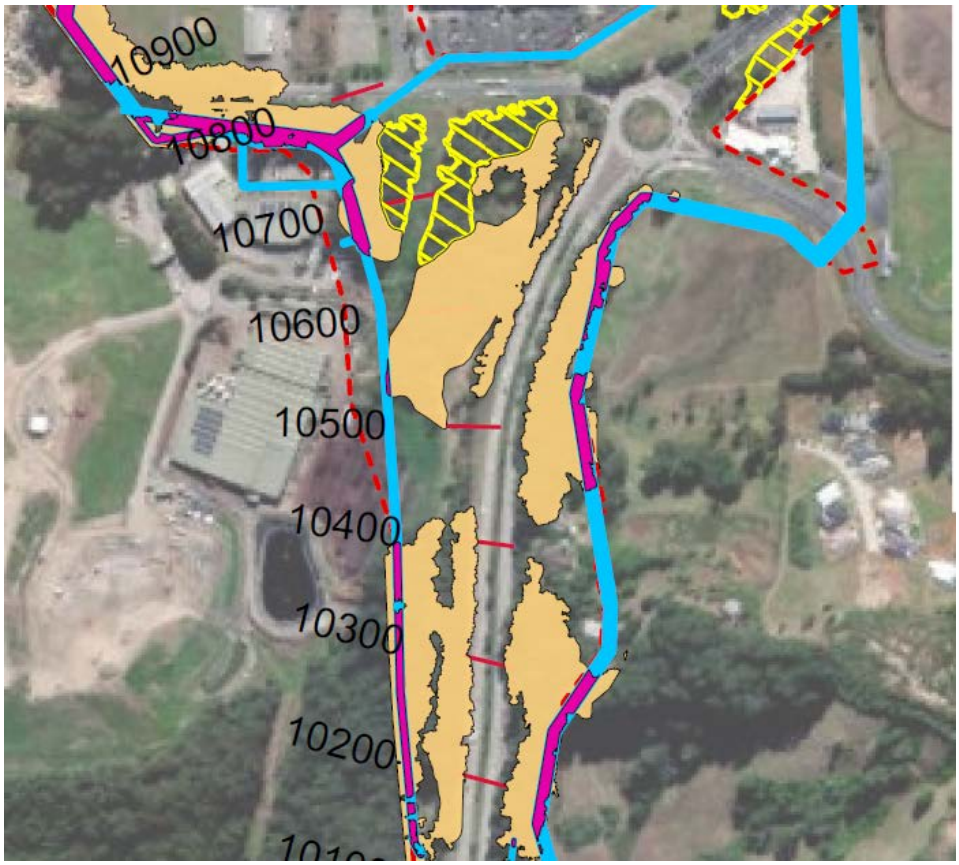
Note areas in clearing sheet follow legend below:

Location 1: NCA 03 Chainage: 10500

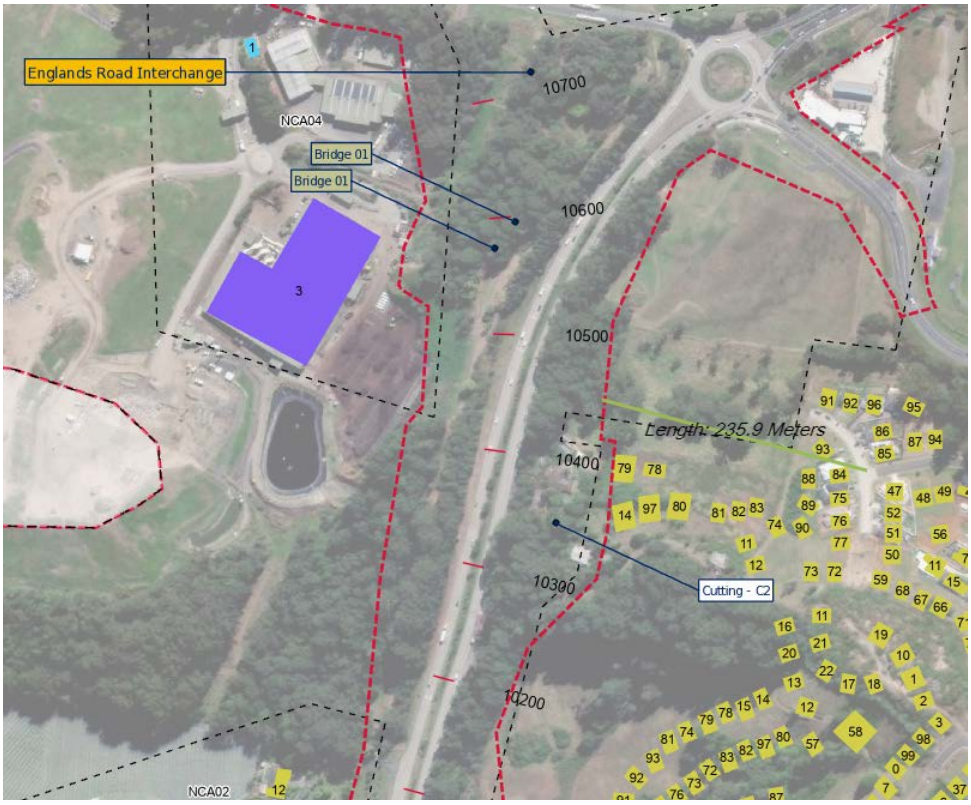
NML: 57db(A)

Assessment Criteria: 75dB(A), Highly Noise Affected (Standard Hours)

Predicted worst case noise level: (Harvester):47db(A)



Excerpt from CHB Utilities_Geotech Clearing Sheet 1-4 20210430



Excerpt from GIS tool

Construction Noise Estimator

Transport Roads & Maritime Services

Please input information into yellow cells
Please pick from drop-down list in orange cells

Project name	Utilities Clearing
Scenario name	Location 1 Chainage 10500
Receiver address	NCA03
Select area ground type	Undeveloped green fields (rural areas with isolated dwellings)
Select type of background noise level input	User Input

		Representative Noise Environment	User Input
Noise area category			
RBL or L_{A90} Background level (dB(A))	**Day**		47
	Evening		45
	Night		39
$L_{Aeq(15minute)}$ Noise mangement level (dB(A))	**Day**		57
	Day (OOHW)		52
	Evening		50
	Night		44

Is all plant at the same representative distance to the receiver? Y/N	Y	
Representative distance (m)	235	***All at Representative Distance***

Steps:
1. Enter project name (cell C9).
2. Enter scenario name (cell C10).
3. Enter receiver address (cell C11).
4. Select area ground type (cell C12) - water, undeveloped green fields (e.g. rural areas with isolated dwellings) or developed se
5. Select the type of background noise level input - Representative noise environment (to make assumptions) or user input (whe
   (a) where representative noise environment is selected - select the appropriate noise area category (cell C16). The work provides a number of examples to help select the noise area category.
   (b) where user input is selected - enter the measured background noise level for each time period (cells D17 to D19).
6. Is all plant at the same representative distance to the receiver? Select Y or N (cell C24):
   (a) where Y is selected - enter the representative distance in cell C25.
   (b) where N is selected - go to step #7
7. For the scenario (e.g. shallow excavation), select plant from the drop-down list in cells A28 to A47 (e.g. dump trucks + excava
   (a) enter quantity for each selected plant in cells D28 to D47.
   (b) where N is selected from step #6 - enter the distance to receiver for each individual plant in cells E28 to E47.
   (c) is there line of sight to receiver? select from drop down list in cells F28 to F47. Solid barrier can be in the form of roac curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are n
8. Identify the level above background and/or noise mangement level (see rows 57 to 62).
9. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as p changing the selection in the 'Is there line of sight to receiver' drop-down list.
10. Identify and implement feasible and reasonable additional mitigation measures (see rows 63 to 65).
11. Document a summary report detailing:
   (a) project description (including location, duration, hours of work, construction methodology, plant , potentially impacted
   (b) background noise levels.
   (c) noise management levels .
   (d) predicted noise levels for each time period.
   (e) sleep disturbance affected distance for night works.
   (f) mitigation measures.
   (g) team member responsible for implementing mitigation measures and managing noise and vibration.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estima

Type/ model plant (See Sources Sheet)	SWL L_{Aeq} (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver (m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calculation (m)	Contribution SPL (dB(A))
Tracked Excavator	110	85	1		Yes	0	0	235	47
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

Total SPL $L_{Aeq(15minute)}$ (dB(A))	**47**

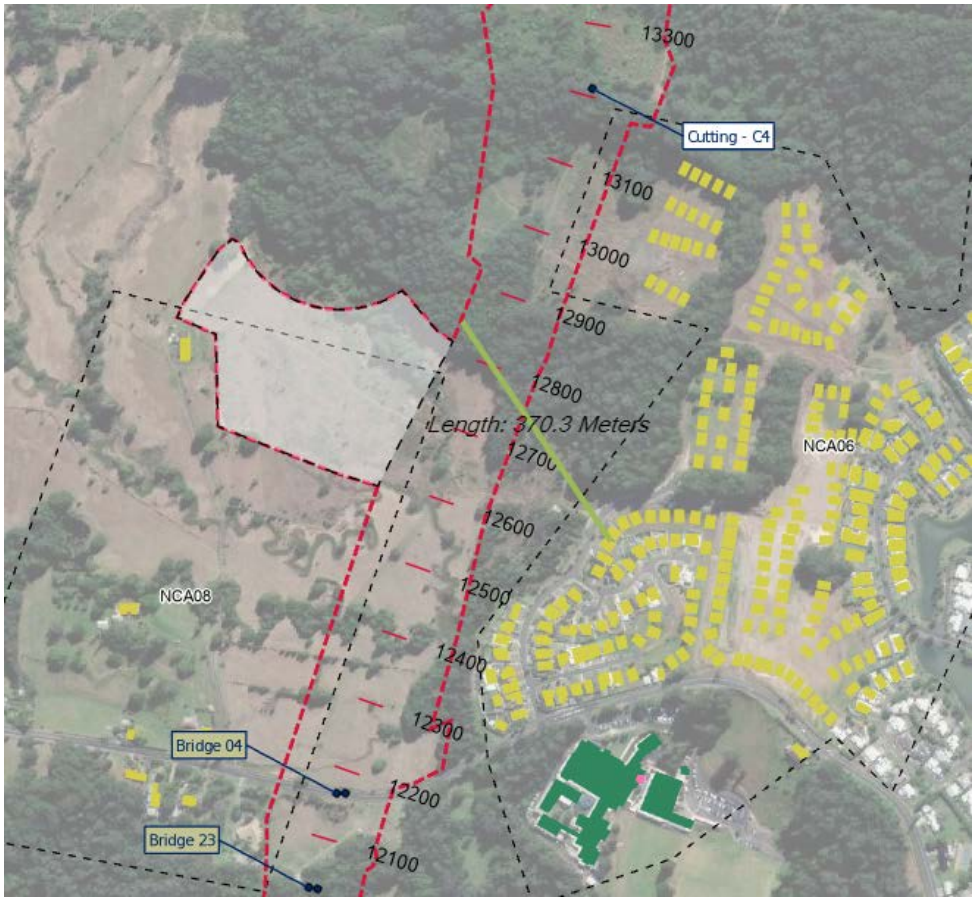
Location 2: NCA 06 Chainage: 12800

NML: 45db(A)

Assessment Criteria: 75dB(A), Highly Noise Affected (Standard Hours)

Predicted worst case noise level (Harvester and Tub Grinder/Mulcher): 48dB(A)

Excerpt from CHB Utilities_Geotech Clearing Sheet 1-4 20210430



Excerpt from GIS tool

Please input information into yellow cells
Please pick from drop-down list in orange cells

Project name	Utilities Clearing
Scenario name	Location2 Chainage 12800
Receiver address	NCA06
Select area ground type	Undeveloped green fields (rural areas with isolated dwellings)
Select type of background noise level input	User Input

		Representative Noise Environment	User Input
Noise area category			
RBL or L_{A90} Background level (dB(A))	Day		35
	Evening		32
	Night		31
$L_{Aeq(15minute)}$ Noise mangement level (dB(A))	Day		45
	Day (OOHW)		40
	Evening		37
	Night		36

Is all plant at the same representative distance to the receiver? Y/N	Y	
Representative distance (m)	370	***All at Representative Distance***

3. Enter receiver address (cell C11).
4. Select area ground type (cell C12) - water, undeveloped green fields (e.g. rural areas with isolated dwellings) or developed set
5. Select the type of background noise level input - Representative noise environment (to make assumptions) or user input (whe
   (a) where representative noise environment is selected - select the appropriate noise area category (cell C16). The works provides a number of examples to help select the noise area category.
   (b) where user input is selected - enter the measured background noise level for each time period (cells D17 to D19).
6. Is all plant at the same representative distance to the receiver? Select Y or N (cell C24):
   (a) where Y is selected - enter the representative distance in cell C25.
   (b) where N is selected - go to step #7
7. For the scenario (e.g. shallow excavation), select plant from the drop-down list in cells A28 to A47 (e.g. dump trucks + excavat
   (a) enter quantity for each selected plant in cells D28 to D47.
   (b) where N is selected from step #6 - enter the distance to receiver for each individual plant in cells E28 to E47.
   (c) is there line of sight to receiver? select from drop down list in cells F28 to F47. Solid barrier can be in the form of road curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are no
8. Identify the level above background and/or noise mangement level (see rows 57 to 62).
9. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as pa changing the selection in the 'Is there line of sight to receiver' drop-down list.
10. Identify and implement feasible and reasonable additional mitigation measures (see rows 63 to 65).
11. Document a summary report detailing:
   (a) project description (including location, duration, hours of work, construction methodology, plant , potentially impacted
   (b) background noise levels.
   (c) noise management levels .
   (d) predicted noise levels for each time period.
   (e) sleep disturbance affected distance for night works.
   (f) mitigation measures.
   (g) team member responsible for implementing mitigation measures and managing noise and vibration.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimat

Type/ model plant (See Sources Sheet)	SWL L_{Aeq} (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver (m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calculation (m)	Contribution SPL (dB(A))
Tracked Excavator	110	85	1		Yes	0	0	370	41
40-50hp Tub grinder & mulcher	116	91	1		Yes	0	0	370	47
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

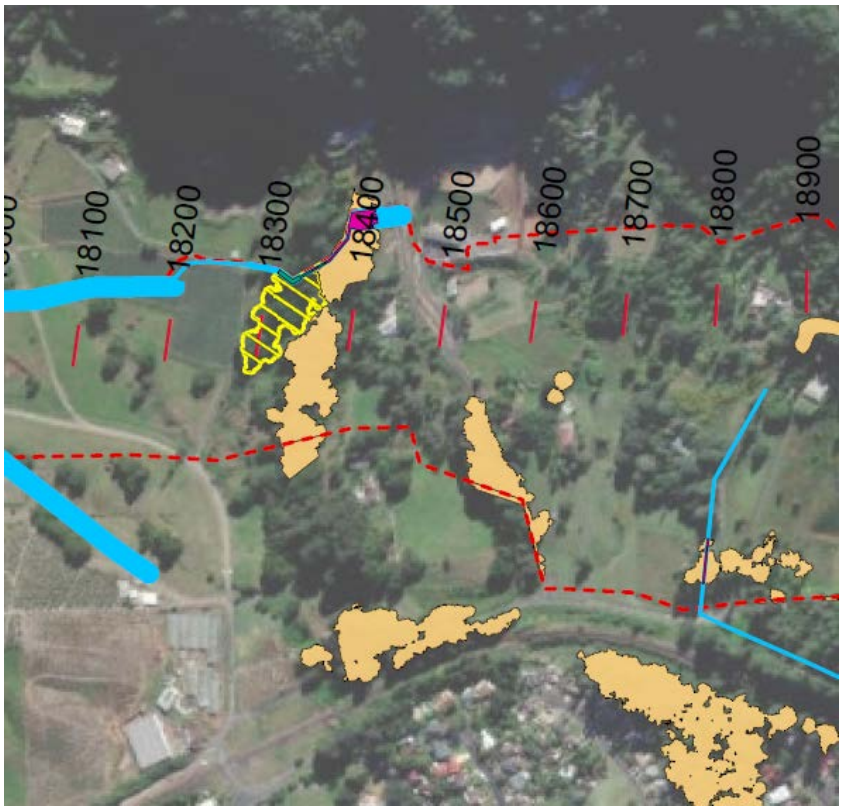
Total SPL $L_{Aeq(15minute)}$ (dB(A))	***48***

Location 3: NCA19 Chainage: 18400

NML: 45dB(A)

Assessment Criteria: 75dB(A), Highly Noise Affected (Standard Hours)

Predicted worst case scenario (Harvester and Tub grinder/mulcher): 60dB(A)



Excerpt from CHB Utilities_Geotech Clearing Sheet 1-4 20210430

Excerpt from GIS tool

Construction Noise Estimator

Please input information into yellow cells

Please pick from drop down list in orange cells

Project name	Utilities Clearing
Scenario name	Location 3 Chainage 18400
Receiver address	NCA19
Select area ground type	Undeveloped green fields (rural areas with isolated dwellings)
Select type of background noise level input	User Input

		Representative Noise Environment	User Input
Noise area category			
RBL or L_{A90} Background level (dB(A))	Day		35
	Evening		30
	Night		30
L_{Aeq} (Generally) Noise mangement level (dB(A))	Day		45
	Day (OOHW)		40
	Evening		35
	Night		35

Is all plant at the same representative distance to the receiver? Y/N	Y
Representative distance (m)	89

All at Representative Distance

Steps:

1. Enter project name (cell C8).
2. Enter scenario name (cell C10).
3. Enter receiver address (cell C11).
4. Select area ground type (cell C12) - water, undeveloped green fields (e.g. rural areas with isolated dwellings) or developed set
5. Select the type of background noise level input - Representative noise environment (to make assumptions) or user input (whe
   (a) where representative noise environment is selected - select the appropriate noise area category (cell C16). The works
   provides a number of examples to help select the noise area category.
   (b) where user input is selected - enter the measured background noise level for each time period (cells D17 to D19).
6. Is all plant at the same representative distance to the receiver? Select Y or N (cell C24).
   (a) where Y is selected - enter the representative distance in cell C25.
   (b) where N is selected - go to step #7
7. For the scenario (e.g. shallow excavation), select plant from the drop-down list in cells A28 to A47 (e.g. dump trucks + excavat
   (a) enter quantity for each selected plant in cells D28 to D47.
   (b) where N is selected from step #6 - enter the distance to receiver for each individual plant in cells E28 to E47.
   (c) is there line of sight to receiver? select from drop down list in cells F28 to F47. Solid barrier can be in the form of road
   curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are no
8. Identify the level above background and/or noise mangement level (see rows 57 to 62).
9. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as pa
changing the selection in the "Is there line of sight to receiver" drop down list.
10. Identify and implement feasible and reasonable additional mitigation measures (see rows 63 to 65).
11. Document a summary report detailing:
    (a) project description (including location, duration, hours of work, construction methodology, plant , potentially impacted
    (b) background noise levels.
    (c) noise management levels.
    (d) predicted noise levels for each time period.
    (e) sleep disturbance affected distance for night works.
    (f) mitigation measures.
    (g) team member responsible for implementing mitigation measures and managing noise and vibration.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimat

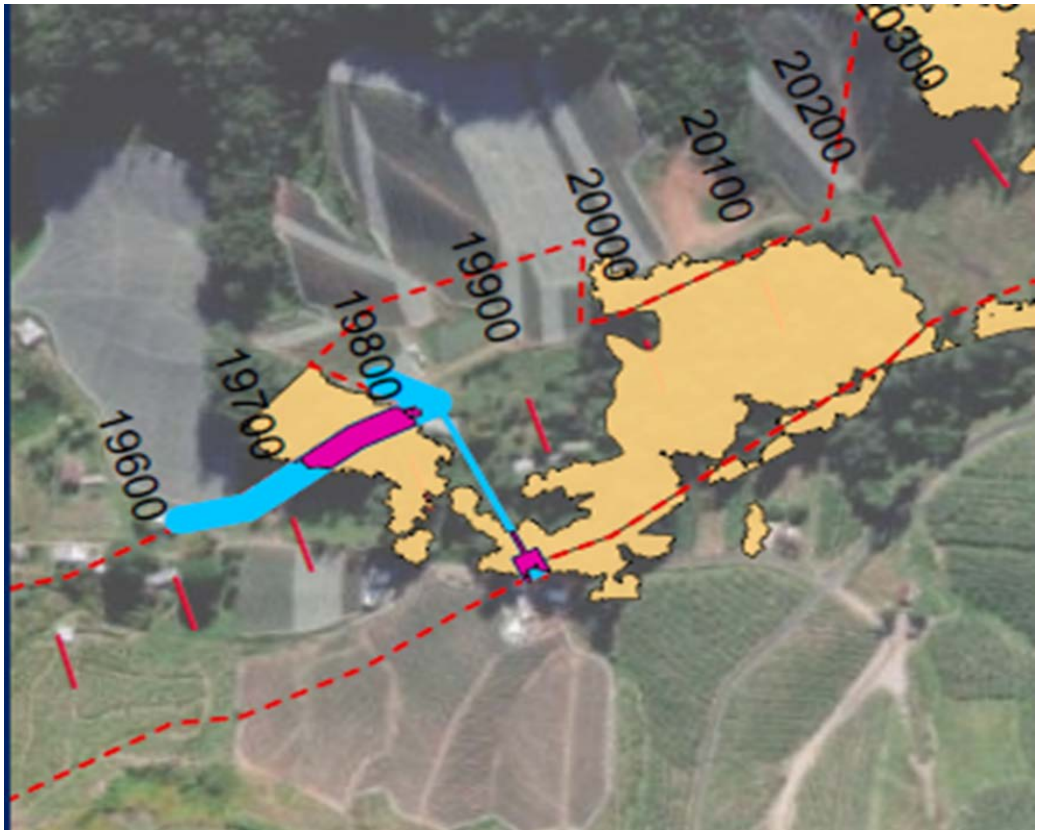
Type/ model plant (See Sources Sheet)	SWL L_{Aeq} (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver (m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calculation (m)	Contribution SPL (dB(A))
Tracked Excavator	110	85	1		Yes	0	0	89	60
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

Total SPL $L_{Aeq(15minute)}$ (dB(A))	***60***

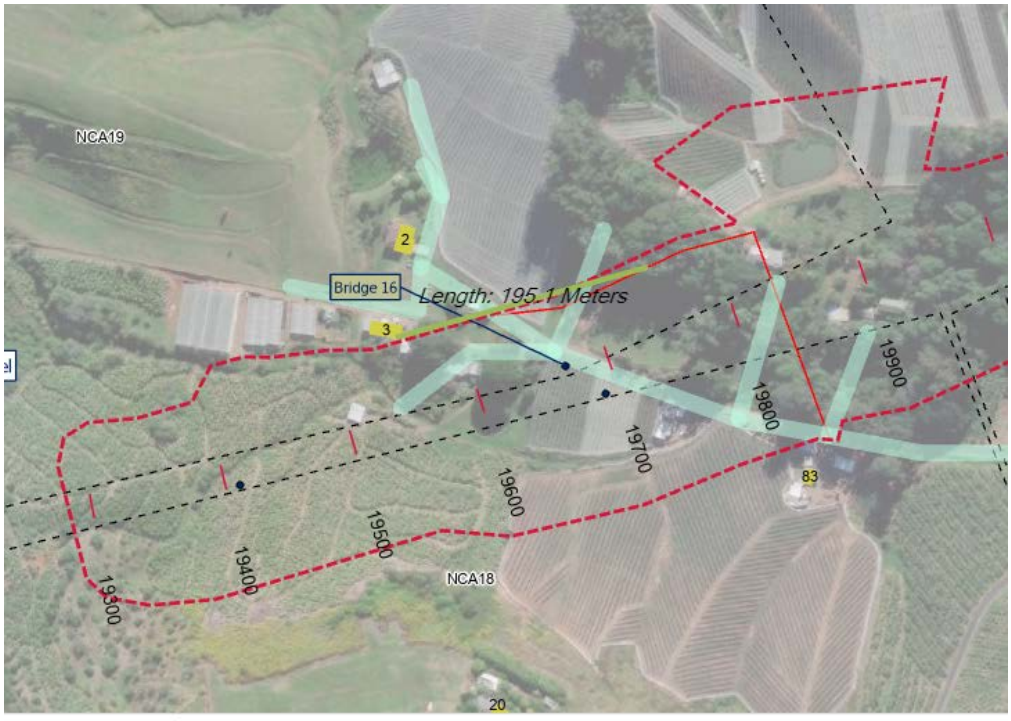
Location 4: NCA 19 Chainage: 19750

Assessment Criteria: 75dB(A), Highly Noise Affected (Standard Hours)

Predicted worst case scenario (Harvester and Tub Grinder/Mulcher): 57dB(A)



Excerpt from CHB Utilities_Geotech Clearing Sheet 1-4 20210430



Excerpt from GIS tool

Construction Noise Estimator

Please input information into yellow cells
Please pick from drop-down list in orange cells

Project name	Utilities Clearing
Scenario name	Location 4 Chainage 19700
Receiver address	NCA19
Select area ground type	Undeveloped green fields (rural areas with isolated dwellings)
Select type of background noise level input	User Input

		Representative Noise Environment	User Input
Noise area category			
RBL or L_{A90} Background level (dB(A))	**Day**		35
	Evening		30
	Night		30
$L_{Aeq(15minute)}$ Noise mangement level (dB(A))	**Day**		45
	Day (OOHW)		40
	Evening		35
	Night		35

Is all plant at the same representative distance to the receiver? Y/N	Y
Representative distance (m)	195

All at Representative Distance

Steps:
1. Enter project name (cell C9).
2. Enter scenario name (cell C10).
3. Enter receiver address (cell C11).
4. Select area ground type (cell C12) - water, undeveloped green fields (e.g. rural areas with isolated dwellings) or developed setl
5. Select the type of background noise level input - Representative noise environment (to make assumptions) or user input (whe
   (a) where representative noise environment is selected - select the appropriate noise area category (cell C16). The works provides a number of examples to help select the noise area category.
   (b) where user input is selected - enter the measured background noise level for each time period (cells D17 to D19).
6. Is all plant at the same representative distance to the receiver? Select Y or N (cell C24):
   (a) where Y is selected - enter the representative distance in cell C25.
   (b) where N is selected - go to step #7
7. For the scenario (e.g. shallow excavation), select plant from the drop-down list in cells A28 to A47 (e.g. dump trucks + excavat
   (a) enter quantity for each selected plant in cells D28 to D47.
   (b) where N is selected from step #6 - enter the distance to receiver for each individual plant in cells E28 to E47.
   (c) is there line of sight to receiver? select from drop down list in cells F28 to F47. Solid barrier can be in the form of road curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are no
8. Identify the level above background and/or noise mangement level (see rows 57 to 62).
9. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as pa changing the selection in the 'Is there line of sight to receiver' drop-down list.
10. Identify and implement feasible and reasonable additional mitigation measures (see rows 63 to 65).
11. Document a summary report detailing:
   (a) project description (including location, duration, hours of work, construction methodology, plant , potentially impacted
   (b) background noise levels.
   (c) noise management levels .
   (d) predicted noise levels for each time period.
   (e) sleep disturbance affected distance for night works.
   (f) mitigation measures.
   (g) team member responsible for implementing mitigation measures and managing noise and vibration.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimat

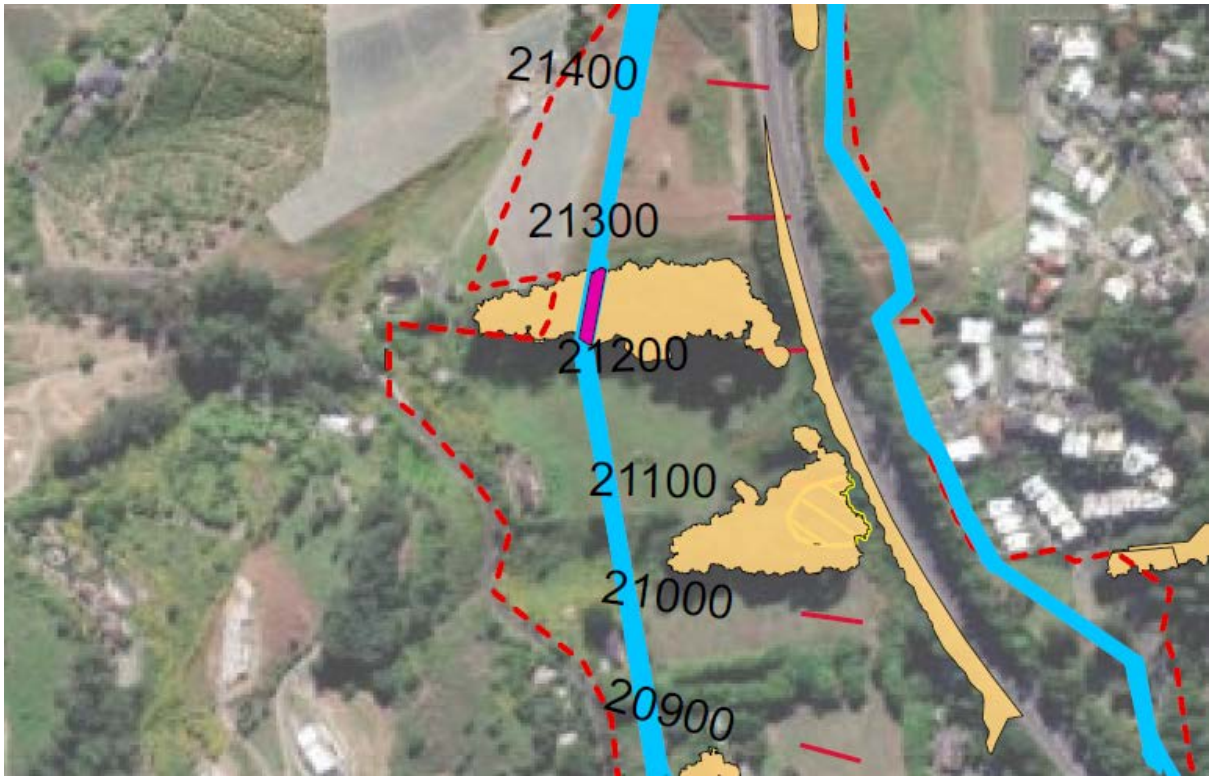
Type/ model plant (See Sources Sheet)	SWL L_{Aeq} (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver (m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calculation (m)	Contribution SPL (dB(A))
Tracked Excavator	110	85	1		Yes	0	0	195	50
40-50hp Tub grinder & mulcher	116	91	1		Yes	0	0	195	56
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

Total SPL $L_{Aeq(15minute)}$ (dB(A))	***57***

Location 5: NCA23 Chainage: 21250

Assessment Criteria: 75dB(A), Highly Noise Affected (Standard Hours)

Predicted worst case scenario (harvester and Tub Grinder/Mulcher): 61dB(A)



Excerpt from CHB Utilities_Geotech Clearing Sheet 1-4 20210430

Excerpt from GIS tool

Construction Noise Estimator

Please input information into yellow cells
Please pick from drop-down list in orange cells

Project name	Utilities Clearing
Scenario name	Location 5 Chainage 21200
Receiver address	NCA23
Select area ground type	Undeveloped green fields (rural areas with isolated dwellings)
Select type of background noise level input	User Input

		Representative Noise Environment	User Input
Noise area category			
RBL or L_{A90} Background level (dB(A))	**Day**		35
	Evening		30
	Night		30
$L_{Aeq(15minute)}$ Noise mangement level (dB(A))	**Day**		45
	Day (OOHW)		40
	Evening		35
	Night		35

Is all plant at the same representative distance to the receiver? Y/N	Y	
Representative distance (m)	136	***All at Representative Distance***

Steps:
1. Enter project name (cell C9).
2. Enter scenario name (cell C10).
3. Enter receiver address (cell C11).
4. Select area ground type (cell C12) - water, undeveloped green fields (e.g. rural areas with isolated dwellings) or developed set
5. Select the type of background noise level input - Representative noise environment (to make assumptions) or user input (whe
   (a) where representative noise environment is selected - select the appropriate noise area category (cell C16). The works provides a number of examples to help select the noise area category.
   (b) where user input is selected - enter the measured background noise level for each time period (cells D17 to D19).
6. Is all plant at the same representative distance to the receiver? Select Y or N (cell C24).
   (a) where Y is selected - enter the representative distance in cell C25.
   (b) where N is selected - go to step #7
7. For the scenario (e.g. shallow excavation), select plant from the drop-down list in cells A28 to A47 (e.g. dump trucks + excavat
   (a) enter quantity for each selected plant in cells D28 to D47.
   (b) where N is selected from step #6 - enter the distance to receiver for each individual plant in cells E28 to E47.
   (c) is there line of sight to receiver? select from drop down list in cells F28 to F47. Solid barrier can be in the form of road curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are no
8. Identify the level above background and/or noise mangement level (see rows 57 to 62).
9. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as pa changing the selection in the 'Is there line of sight to receiver' drop-down list.
10. Identify and implement feasible and reasonable additional mitigation measures (see rows 63 to 65).
11. Document a summary report detailing:
   (a) project description (including location, duration, hours of work, construction methodology, plant , potentially impacted
   (b) background noise levels.
   (c) noise management levels .
   (d) predicted noise levels for each time period.
   (e) sleep disturbance affected distance for night works.
   (f) mitigation measures.
   (g) team member responsible for implementing mitigation measures and managing noise and vibration.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimat

Type/ model plant (See Sources Sheet)	SWL L_{Aeq} (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver (m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calculation (m)	Contribution SPL (dB(A))
Tracked Excavator	110	85	1		Yes	0	0	136	55
40-50hp Tub grinder & mulcher	116	91	1		Yes	0	0	136	61
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

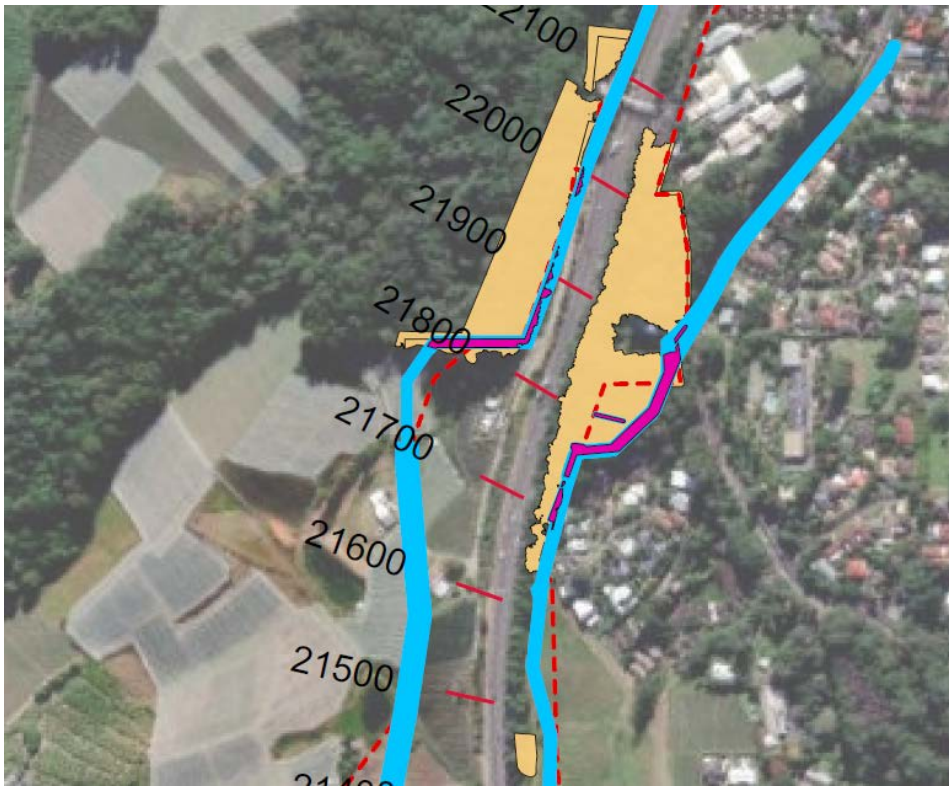
Total SPL $L_{Aeq(15minute)}$ (dB(A))	***61***

Location 6: NCA25 Chainage: 21800

NML: 58

Assessment Criteria: 75dB(A), Highly Noise Affected (Standard Hours)

Predicted worst case scenario (Harvester): 71dB(A) (note close proximity)



Excerpt from CHB Utilities_Geotech Clearing Sheet 1-4 20210430

Excerpt from GIS tool

Construction Noise Estimator

Please input information into yellow cells

Please pick from drop-down list in orange cells

Project name	Utilities Clearing
Scenario name	Location 5 Chainage 21800
Receiver address	NCA25
Select area ground type	Undeveloped green fields (rural areas with isolated dwellings)
Select type of background noise level input	User Input

		Representative Noise Environment	User Input
Noise area category			
RBL or L_{A90} Background level (dB(A))	**Day**		48
	Evening		40
	Night		34
$L_{Aeq(15minute)}$ Noise mangement level (dB(A))	**Day**		58
	Day (OOHW)		45
	Evening		39
	Night		49

Is all plant at the same representative distance to the receiver? Y/N	Y
Representative distance (m)	25

All at Representative Distance

Steps:

1. Enter project name (cell C9).
2. Enter scenario name (cell C10).
3. Enter receiver address (cell C11).
4. Select area ground type (cell C12) - water, undeveloped green fields (e.g. rural areas with isolated dwellings) or developed settlem
5. Select the type of background noise level input - Representative noise environment (to make assumptions) or user input (where nc
   (a) where representative noise environment is selected - select the appropriate noise area category (cell C16). The workshee provides a number of examples to help select the noise area category.
   (b) where user input is selected - enter the measured background noise level for each time period (cells D17 to D19).
6. Is all plant at the same representative distance to the receiver? Select Y or N (cell C24):
   (a) where Y is selected - enter the representative distance in cell C25.
   (b) where N is selected - go to step #7
7. For the scenario (e.g. shallow excavation), select plant from the drop-down list in cells A28 to A47 (e.g. dump trucks + excavator).
   (a) enter quantity for each selected plant in cells D28 to D47.
   (b) where N is selected from step #6 - enter the distance to receiver for each individual plant in cells E28 to E47.
   (c) is there line of sight to receiver? select from drop down list in cells F28 to F47. Solid barrier can be in the form of road cutti curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not cor
8. Identify the level above background and/or noise mangement level (see rows 57 to 62).
9. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of changing the selection in the 'Is there line of sight to receiver' drop-down list.
10. Identify and implement feasible and reasonable additional mitigation measures (see rows 63 to 65).
11. Document a summary report detailing:
    (a) project description (including location, duration, hours of work, construction methodology, plant , potentially impacted rece
    (b) background noise levels.
    (c) noise management levels .
    (d) predicted noise levels for each time period.
    (e) sleep disturbance affected distance for night works.
    (f) mitigation measures.
    (g) team member responsible for implementing mitigation measures and managing noise and vibration.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimator sh

Type/ model plant (See Sources Sheet)	SWL L_{Aeq} (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver (m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calculation (m)	Contribution SPL (dB(A))
Tracked Excavator	110	85	1		Yes	0	0	25	71
			1		Yes	0	0	25	-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

Total SPL $L_{Aeq(15minute)}$ (dB(A))	***71***

Attachment E: PACHCI Stage 1 areas outside construction corridor

Transport Roads & Maritime Services

Date: 14/05/20201

Attention: Garry Bamberger
Project Manager
Coffs Harbour Bypass project
Transport for NSW
191 Mackay's Road
COFFS HARBOUR NSW 2450

Dear Garry,

Preliminary assessment results for proposed for Coffs Harbour Bypass – Early Works Utilities Relocation – Various locations outside approved project boundary.

Based on Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation* (PACHCI). The recommended works are in relation to utility works that will be undertaken in the area and was assessed as being likely to have a low impact on Aboriginal cultural heritage.

The assessment is based on the following due diligence considerations:

- The project is unlikely to harm known Aboriginal objects or places.
- The AHIMS search **did** indicate known Aboriginal objects or places in the immediate project areas; however there will be no direct impacts of the identified Aboriginal sites that have been highlighted in the area.
- The study area **does** contain landscape features that indicate the presence of Aboriginal objects, based on the Office of Environment and Heritage's *Due diligence Code of Practice for the Protection of Aboriginal objects in NSW* and the Roads and Maritime Services' procedure.
- The cultural heritage potential of the study area appears to be reduced due to past disturbance.
- There is an absence of sandstone rock outcrops likely to contain Aboriginal art.

Safe Guards: Please be vigilant when work commences as there are identified cultural areas in close proximity of some of these works. Therefore, inspections may be required prior to works, to mark out a no-go zone area with flagging and signage.

Your project may proceed in accordance with the environmental impact assessment process, as relevant, and all other relevant approvals. If there are any changes, please contact me and your environmental team to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the course of the project, all works in the vicinity of the find must cease. Follow the steps outlined in the Roads and Maritime Services ***Unexpected Heritage Items, Heritage Procedure 02, November 2015.***

Transport for NSW

76 Victoria Street, Grafton NSW 2460|
T 02 66049396 | M 0437 315 554 **| E** Crystal.Donovan@transport.nsw.gov.au **13 22 13**

Project Overview

The Coffs Harbour Bypass is a 14km bypass of the urban area, from England's Road in the south to Sapphire in the north. The bypass seeks to improve connectivity, road transport efficiency and safety for local and interstate motorists. Early works for the bypass involves minor work along various locations of the project and it is important that the necessary work is complete in preparation for major construction.

Scope and extent of the proposed works

The works will involve the first round of relocation of utilities for the Coffs Harbour Bypass. The majority of required utilities relocations are located within the Approved Project corridor. However, some utilities installation and decommissioning would require works located directly adjacent to or outside of the approved corridor. This is to facilitate the most efficient and feasible utility connections.

The proposed works will involve trenching for new water main, communication lines and electricity;

- Underbore pits; and
- Installation of new electricity poles

The depth/width of the required excavation varies depending on the site.

This assessment will cover the identified works below:

Site	Width (mm)	Depth (mm)	Notes
1	500	1200	Trench
2a	500	1200	Trench
2b	900	1500	Trench
3	1000 x 1000	1200	2x Underbore Pits
4	500	1200	Trench
5a	6000 x 6000	3000	Anchor Block
5b	1200	2500	Trench
6	1200	2500	Trench
7	1000	1500	Trench
8	500	1200	Trench
9	500 x 500	2100	1 x new power pole
10	500 x 500	2100	2 x New power poles
11	500	1200	Trench
12	500	1200	Trench
13	500 x 500	2100	5 x new power poles
14	500 x 500	2100	3 x new power poles
15	500 x 500	2100	1 x new power pole
16	4000	2000	Trench
17	500	1200	Trench
20	600	1200	Trench
21	600	1200	Trench
22	1000	1500	Trench
23	600	1200	Trench
24	2000 x 2000	1500	2 x excavations

Site 1

AHIMS Web Service search for the following area at Lat, Long From : -30.3362, 153.0778 - Lat, Long To : -30.3322, 153.0841 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

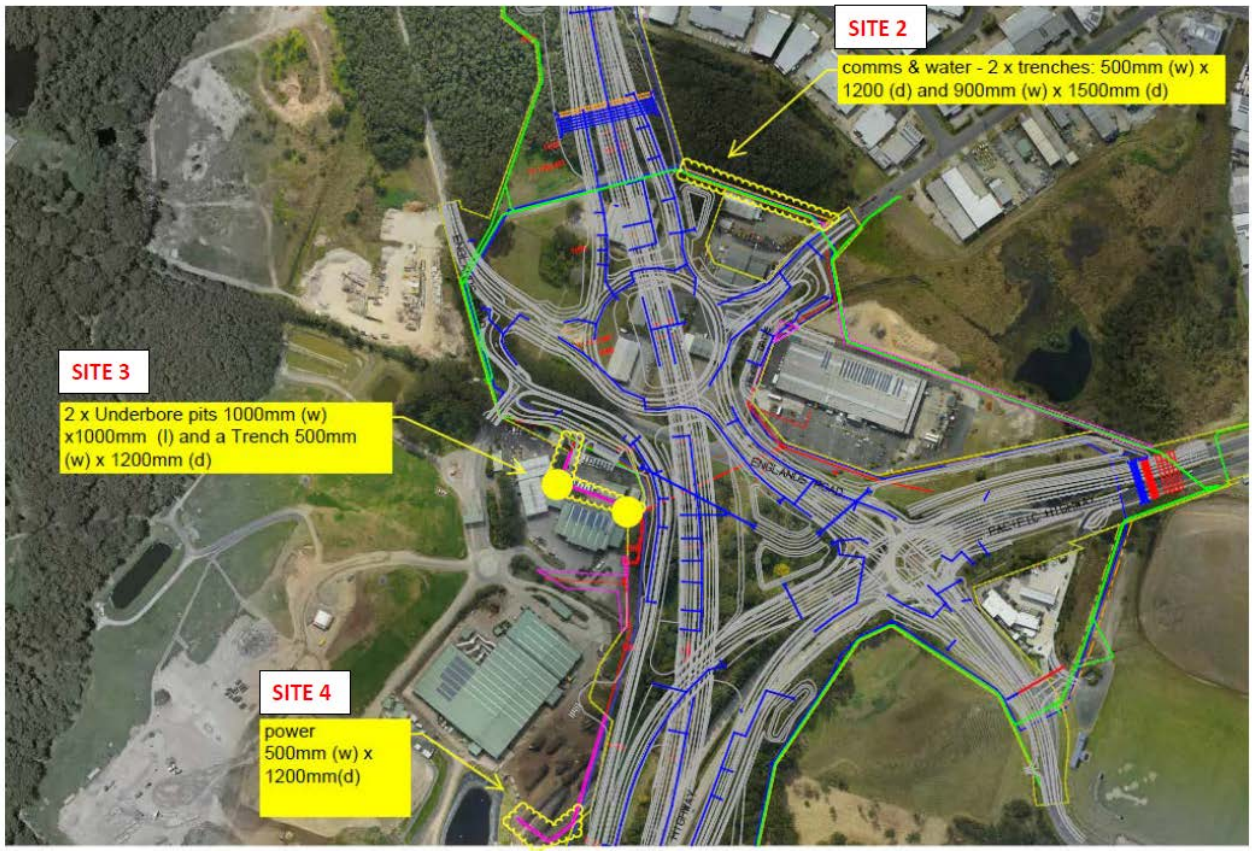
Site 2

AHIMS Web Service search for the following area at Lat, Long From : -30.3201, 153.0842 - Lat, Long To : -30.3181, 153.0873 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***



Site 3 & 4

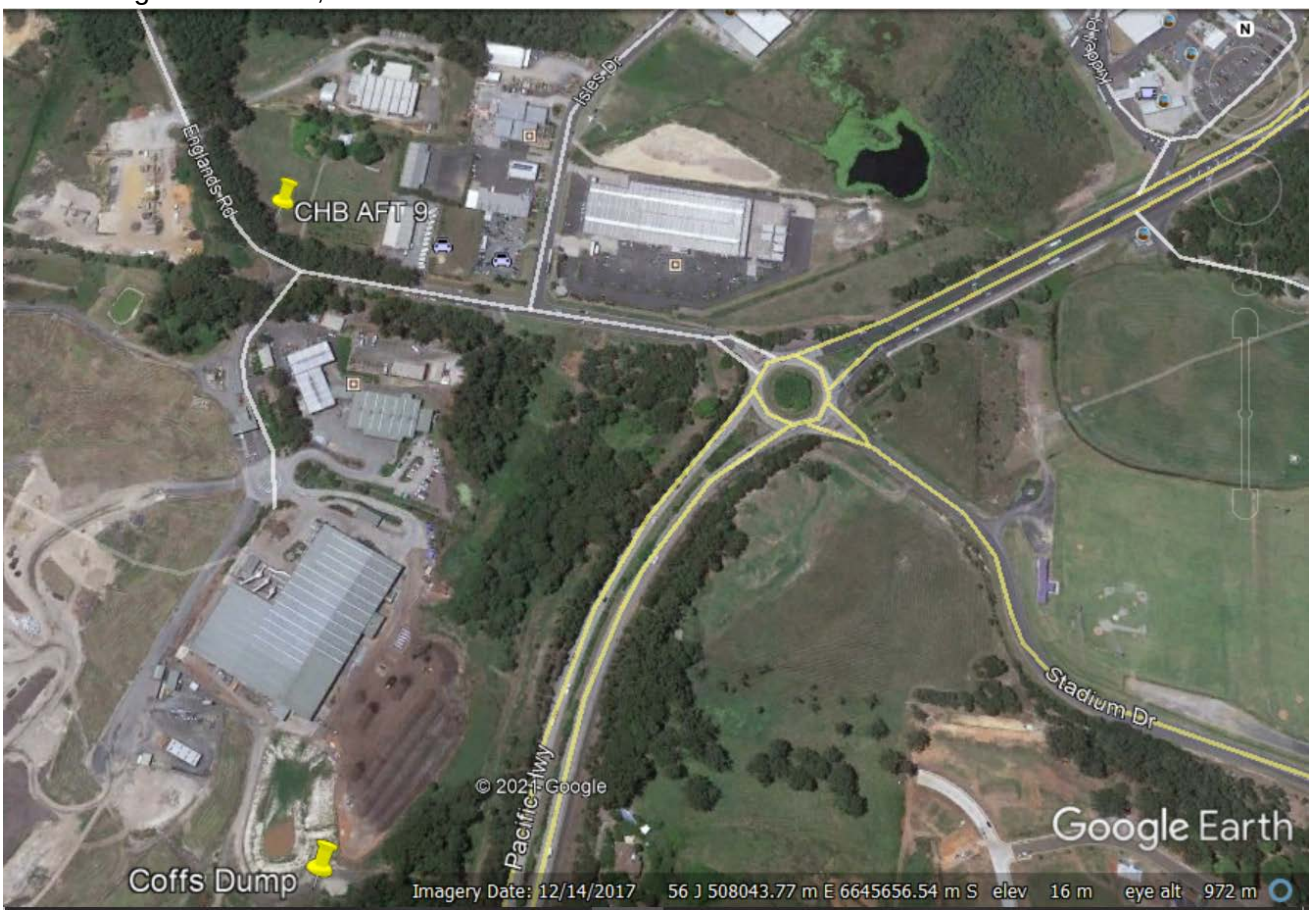
AHIMS Web Service search for the following area at Lat, Long From : -30.324, 153.0796 - Lat, Long To : -30.32, 153.086 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

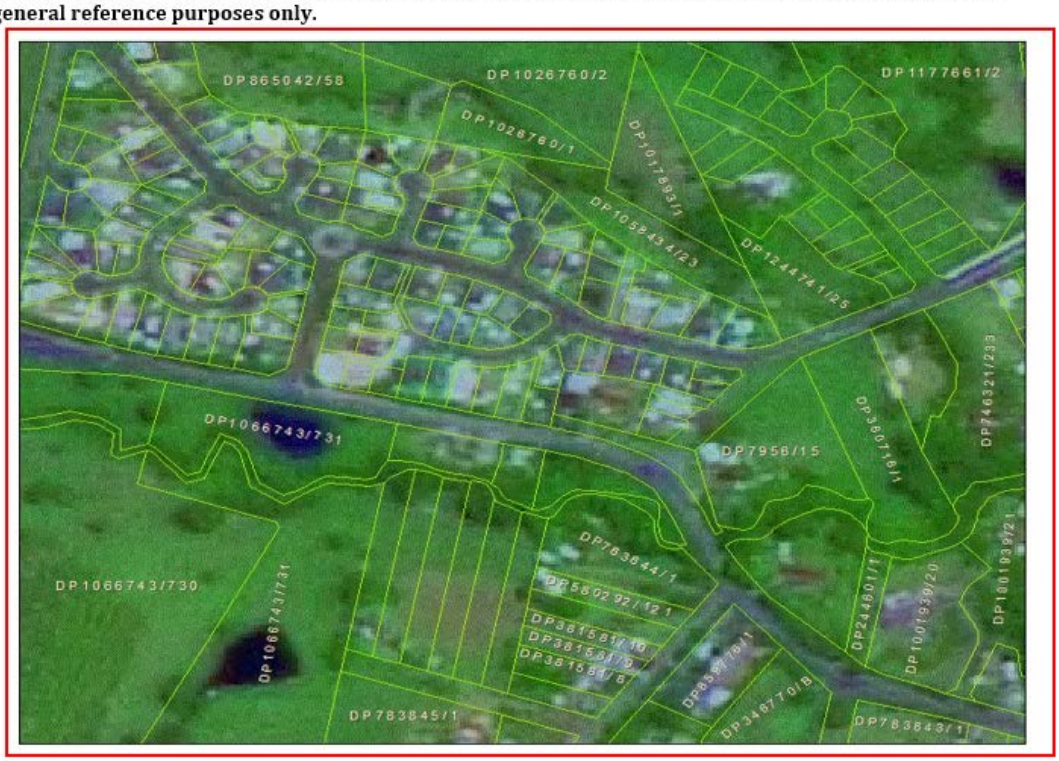
Extensive search indicates registered site below – Coffs Dump. The CHB AFT 9 was tested for an archaeological PAD site, but was deemed low risk.



Site 5 & 6

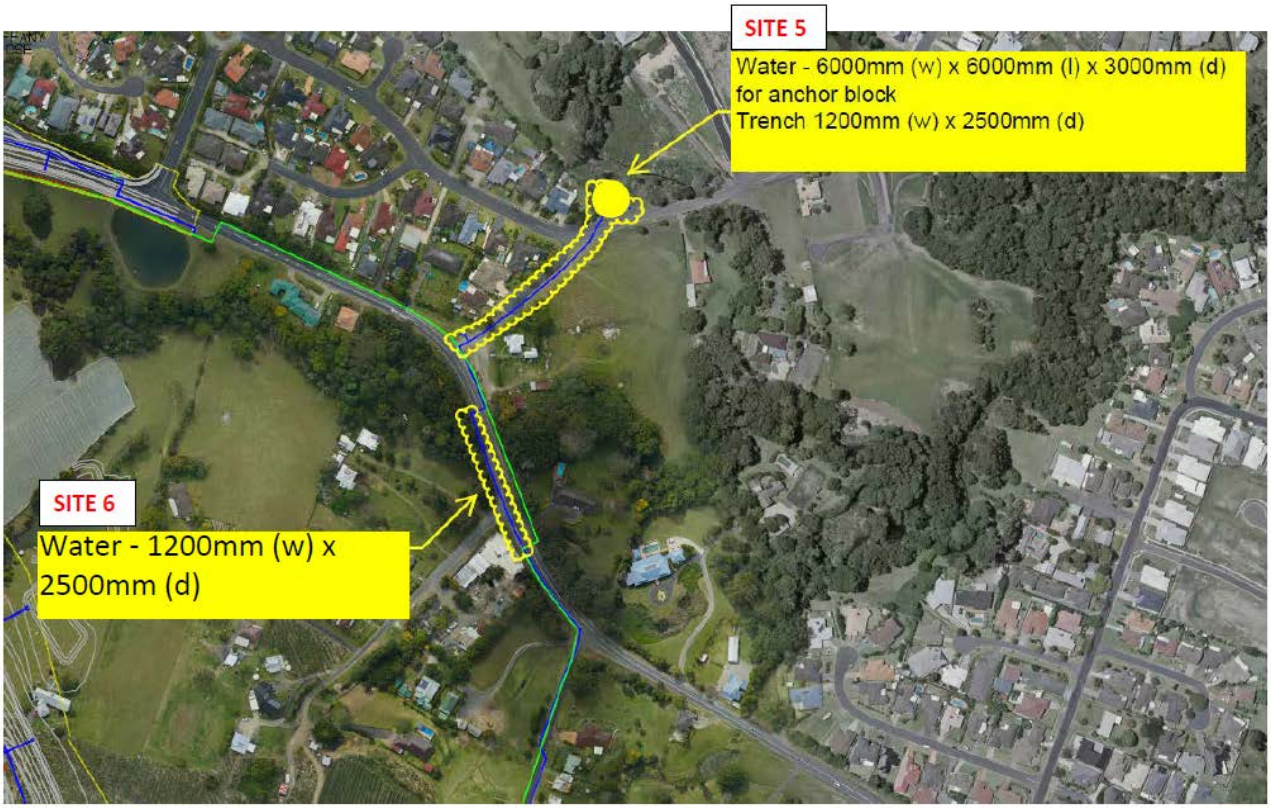
AHIMS Web Service search for the following area at Lat, Long From : -30.2897, 153.0828 - Lat, Long To : -30.2857, 153.0891 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***



Site 7 & 8

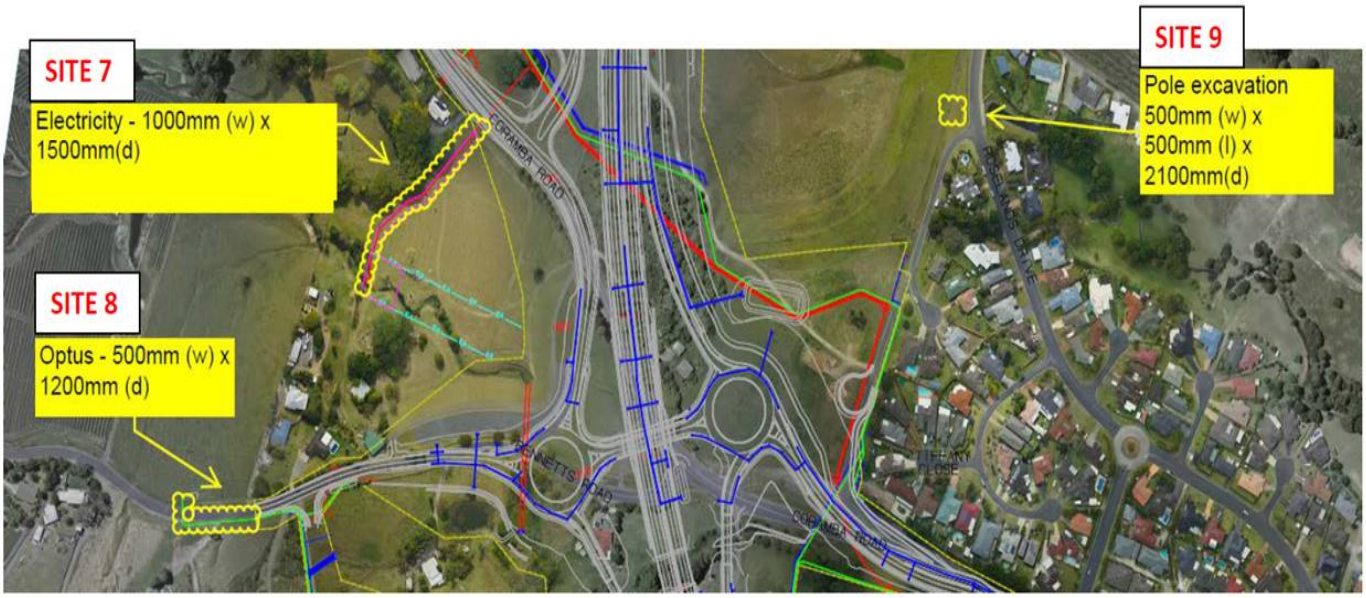
AHIMS Web Service search for the following area at Lat, Long From : -30.2882, 153.0741 - Lat, Long To : -30.2842, 153.0804 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

Extensive search indicates registered site below –CHB AFT 3 was tested for an archaeological PAD site, but was deemed low risk.



Site 9

AHIMS Web Service search for the following area at Lat, Long From : -30.2856, 153.0812 - Lat, Long To : -30.2836, 153.0844 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

Site 10, 11 & 12

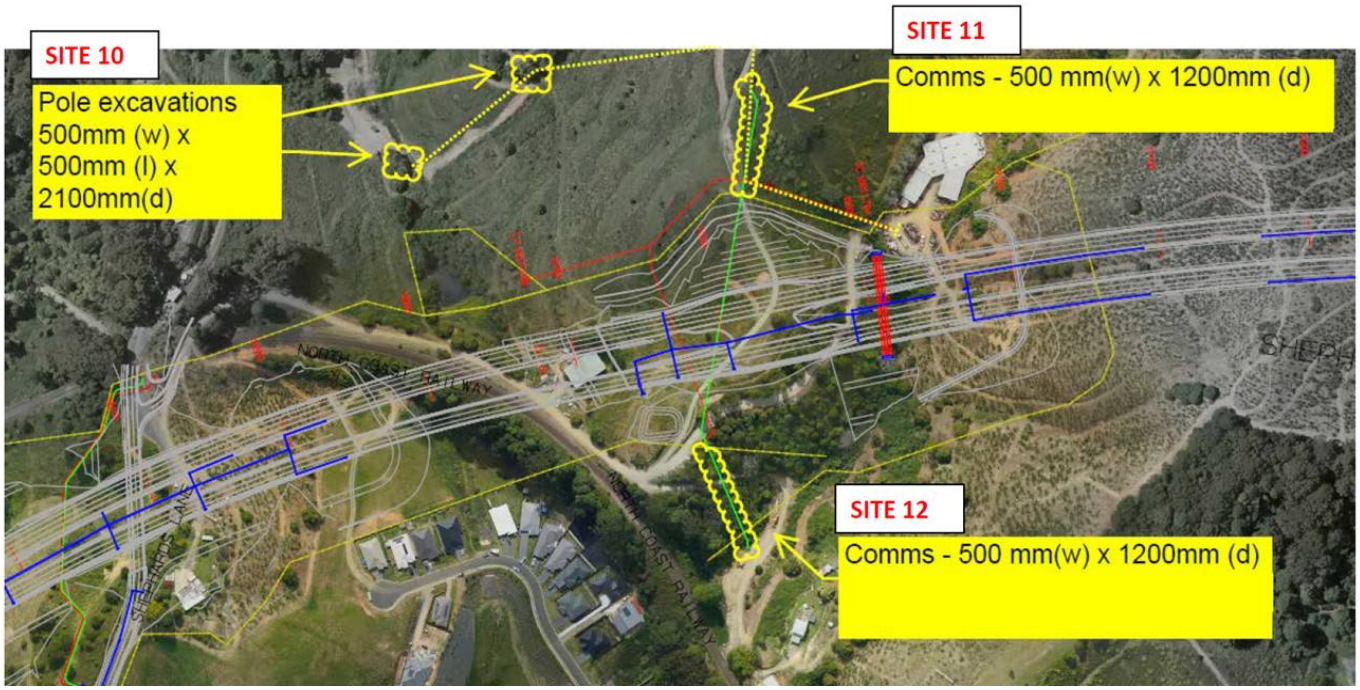
AHIMS Web Service search for the following area at Lat, Long From : -30.2756, 153.0818 - Lat, Long To : -30.2676, 153.0944 with a Buffer of 50 meters, conducted by Hannah Frankel on 07 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

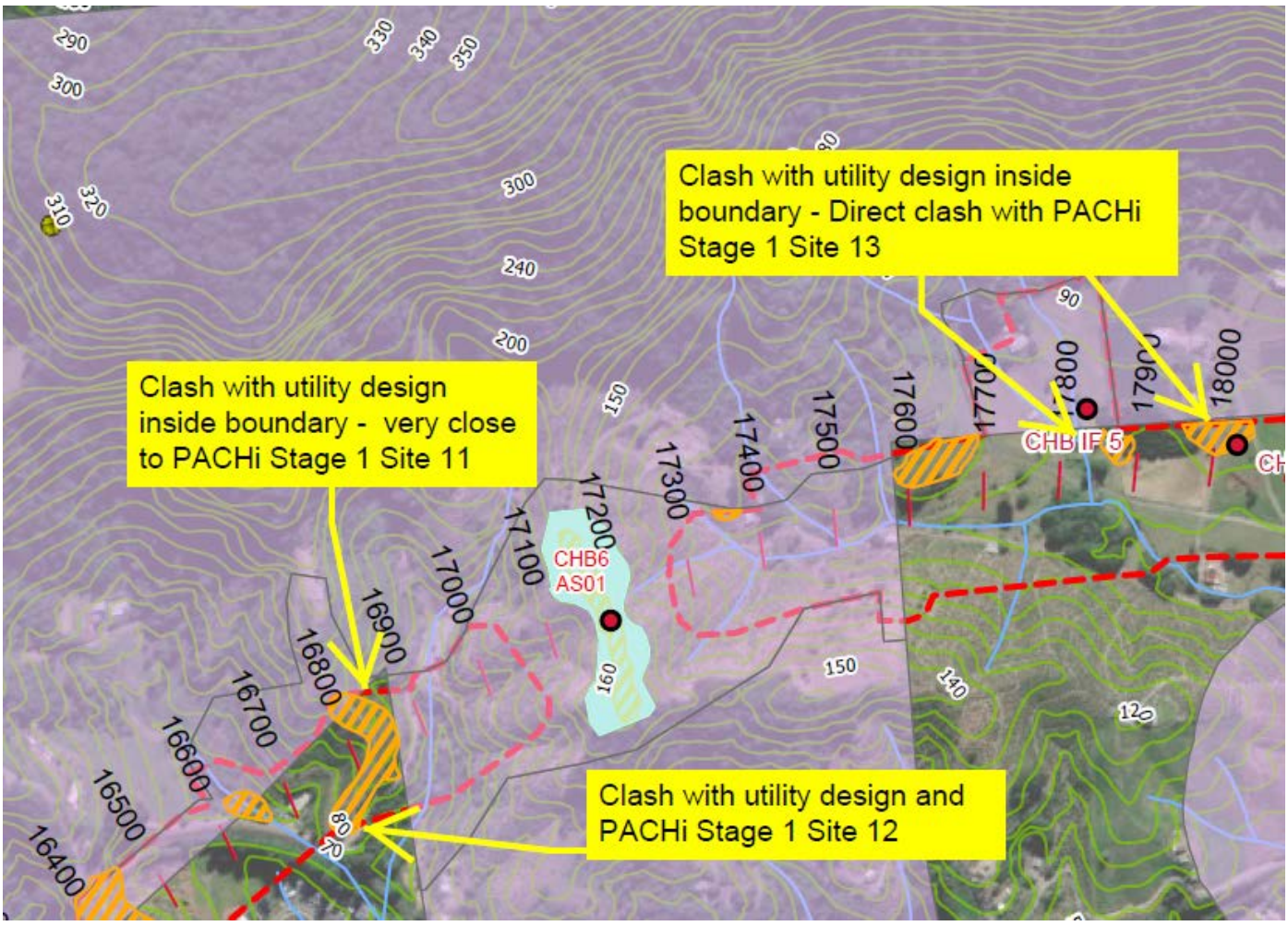
A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

2	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

Extensive search indicates registered site below –CHB AFT 10 was tested for an archaeological PAD site, but was deemed low risk. CHB6 AS01 is deemed an Aboriginal registered site.



Registered Aboriginal Parties (RAPs) of Coffs Harbour Bypass have identified a number of cultural areas that are both located within and outside the project boundary. In relation to Site 12 and Site 13, these two locations have identified cultural areas within these sites however sites are within the approved project boundary. Utility works can proceed and ensure that the Unexpected Heritage Finds policy is followed within these locations of work.



Site 13 & 14

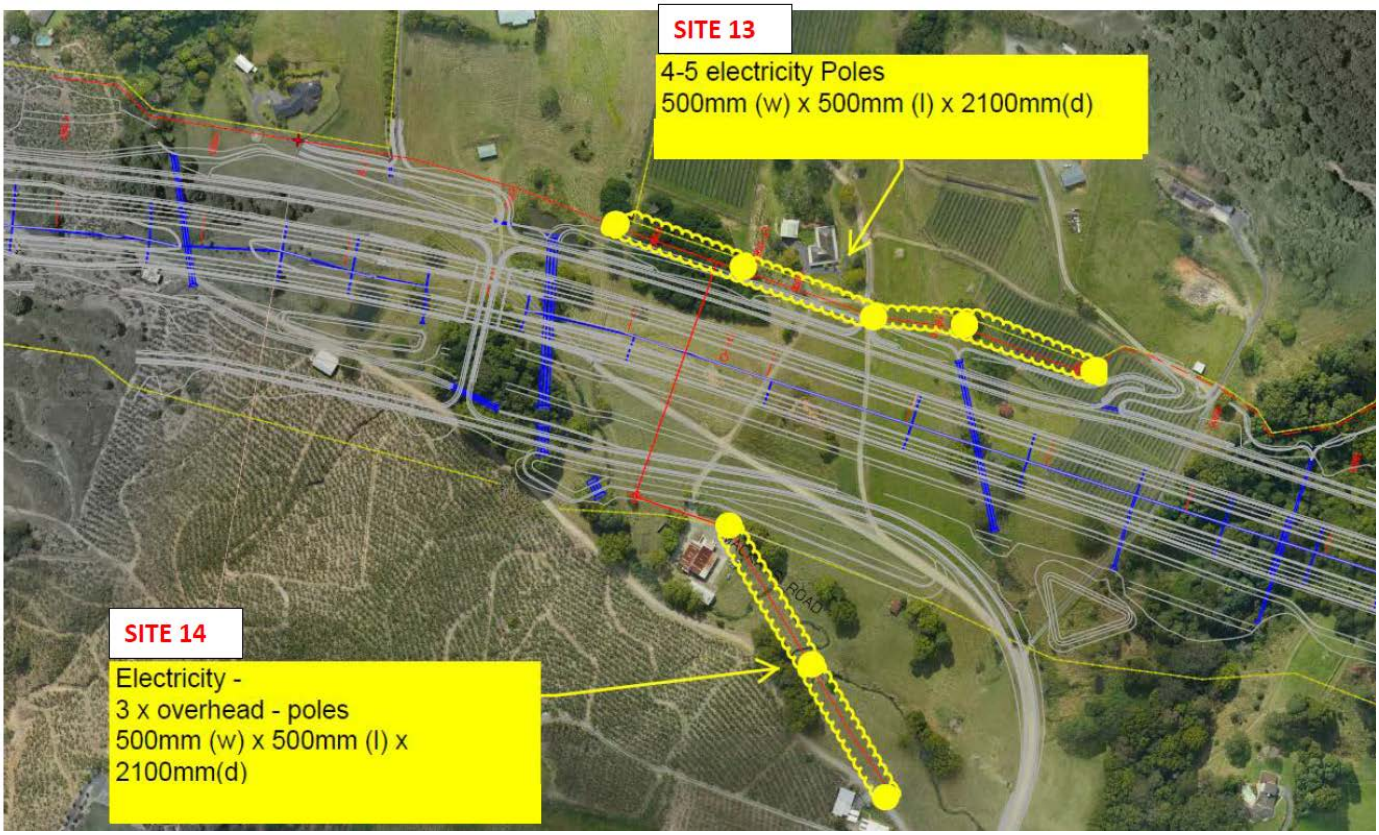
AHIMS Web Service search for the following area at Lat, Long From : -30.2735, 153.0983 - Lat, Long To : -30.2695, 153.1047 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

3	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

Extensive search indicates registered sites below – CHB AFT 6 was tested for an archaeological PAD site, but was deemed low risk, CHB AFT 5 and CHB AFT 1 are both archaeological PAD sites.



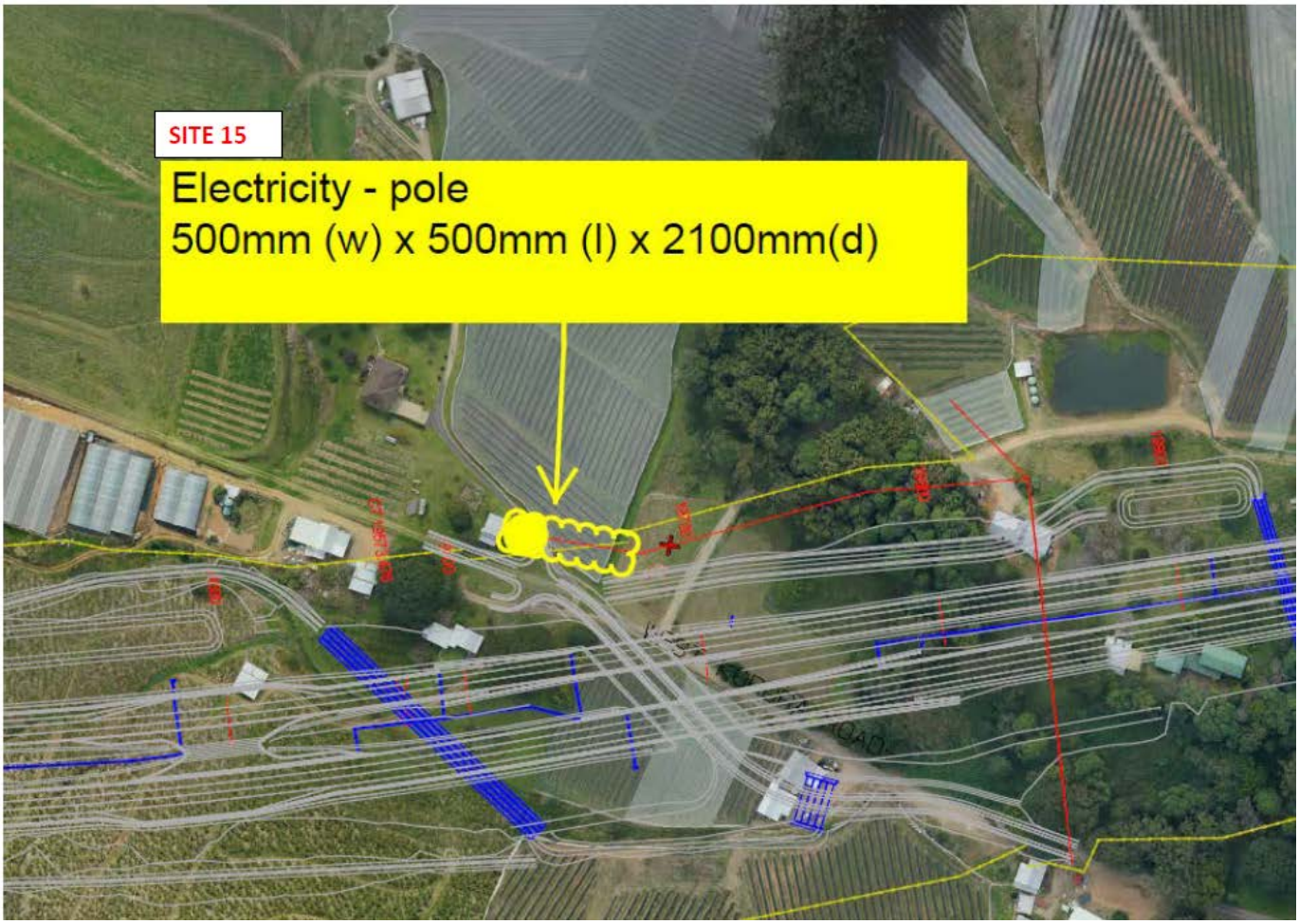
Site 15

AHIMS Web Service search for the following area at Lat, Long From : -30.2707, 153.1165 - Lat, Long To : -30.2687, 153.1196 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***



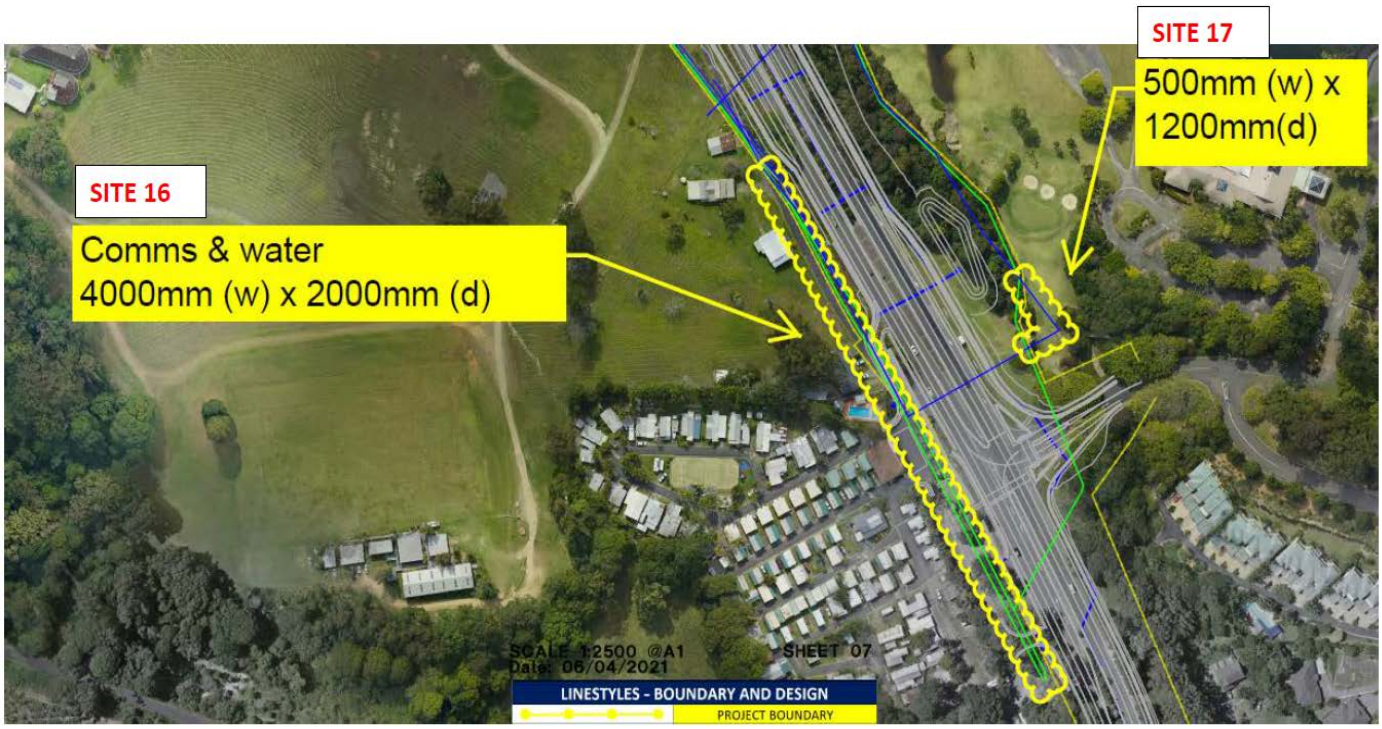
Site 16 & 17

AHIMS Web Service search for the following area at Lat, Long From : -30.2704, 153.1297 - Lat, Long To : -30.2664, 153.136 with a Buffer of 50 meters, conducted by Hannah Frankel on 07 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

3	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

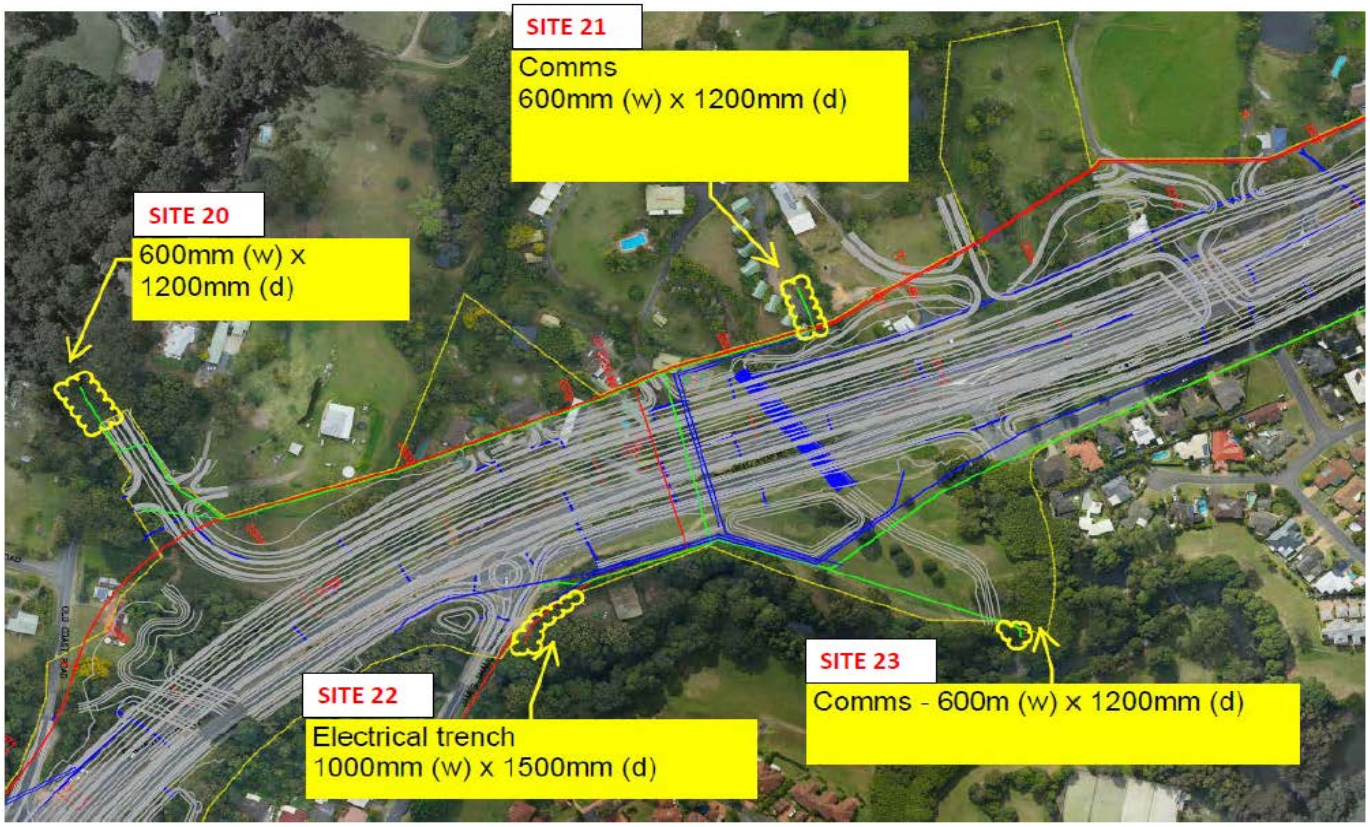


Extensive search indicates registered site below –CHB AFT 16 is an archaeological PAD site and two other registered sites known as Diggers Beach 2 and Diggers Beach 3.

Site 18 & 19

TfNSW is restricted gaining access to information from AHIMS and therefore, Site 18 and 19 will not be included in this assessment.

Site 20, 21, 22 & 23



AHIMS Web Service search for the following area at Lat, Long From : -30.251, 153.1316 - Lat, Long To : -30.247, 153.138 with a Buffer of 50 meters, conducted by Hannah Frankel on 07 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

2	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

Extensive search indicates registered site below – both CHB IF7 and CHSS -3 were tested for as archaeological PAD sites, but both were deemed low risk.

Site 24

AHIMS Web Service search for the following area at Lat, Long From : -30.2448, 153.1412 - Lat, Long To : -30.2428, 153.1443 with a Buffer of 50 meters, conducted by Crystal Donovan on 14 May 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

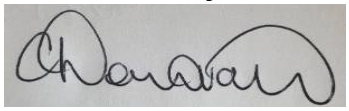
0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

Please note that there is no native title determination within or outside the Coffs Harbour Bypass boundary, however there is Registered Aboriginal Parties that we consult with in relation to cultural heritage matters for the duration of the project.

Further consultation will need to occur in relation Site 18 and Site 19 however works can proceed with the other 22 locations identified within this scope of works.

For further assistance in regards to Aboriginal Cultural Heritage matters please contact me on 0437 315 554.

Yours sincerely



Crystal Donovan
Project Manager
Coffs Harbour Bypass

Attachment A

Activity checklist

Procedure for Aboriginal cultural heritage consultation and investigation – Resource 1

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1. Project details

Project name: Coffs Harbour Bypass – Early Works Utilities Relocation – Various locations outside approved project boundary.

Name of Project Manager: Garry Bamberger

Name of Environment Officer: Hannah Frankel

Name of Aboriginal cultural heritage: Crystal Donovan

Project WBS#: P.0059347.03.001.005.032

2. Purpose of this assessment

This resource provides a checklist of actions associated with the four stages of the *Procedure for Aboriginal cultural heritage consultation and investigation.*

It can be used to:

- Assist Roads and Maritime Services staff to ensure that the appropriate actions have been completed for a particular project.
- Demonstrate that the Roads and Maritime Services have been duly diligent in considering potential harm to Aboriginal cultural heritage prior to project implementation.

A copy of this checklist must be kept on the project file.

3. Project Justification

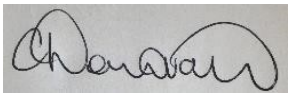
As part of the project approval, the works will involve the first round of relocation of utilities for the Coffs Harbour Bypass. The majority of required utilities relocations are located within the Approved Project corridor. However, some utilities installation and decommissioning would require works located directly adjacent to or outside of the approved corridor.

Glossary

The following terms are used in this resource:

ACHA – Aboriginal cultural heritage advisor
AFG – Aboriginal focus group meeting
AHIMS – OEH's Aboriginal heritage information management system
CHAR – Cultural heritage assessment report
OEH – Office of Environment and Heritage
PM – Project manager
RES – Regional environmental staff
SES(H) – Senior Environmental Specialist (Heritage)

4. Action checklist

Stage	Action	Completed ☑	Date completed and signature
Stage 1	**Action 1:** Is the activity exempt development in accordance with the *Environmental assessment procedure for routine and minor works*? If **yes**, the project may proceed in accordance with all other relevant approvals. If **no**, proceed to Action 2.		
	Action 2: Undertake a Basic Search of AHIMS. Are sites located in the study area? If **yes**, undertake an Extensive Search.	☑	**12/05/2021 Hannah Frankel and 14/05/2021 Crystal Donovan**
	Action 3: Provide project details and AHIMS results to ACHA and RES.	☑	**Information outlined in assessment**
	Action 4: ACHA and RES to advise PM whether the project is likely to harm Aboriginal objects or places.	☑	**Discussed 13/05/2021 during phone call**
	Outcomes: Are known or potential impacts to objects or places likely? If **no**, proceed in accordance with all other relevant approvals and environmental impact assessment processes. If **yes**, proceed to Stage 2. <u>Note:</u> For large or complex projects, it may not be feasible to do a Stage 2 survey. Has a cultural heritage constraints mapping been suggested instead? If **yes**, engage an archaeologist and Aboriginal stakeholders to prepare this.	**Proceed with caution**	**14/05/2021**  **Crystal Donovan**

ENVIRONMENTAL WORK METHOD STATEMENT

Clearing , Grubbing and Mulching (Inc. Tannin Management)

Rev: B
Date: 20 July, 2021
EWMS No. 01

Project: Coffs Harbour Bypass

1. Summary/Description of Activity

Clear, grub, and mulch involves the felling of trees, grubbing (digging out) roots and stumps and mulching of organic matter from topsoil. Clearing and grubbing will occur throughout the CHB alignment in all areas containing woody vegetation. Clearing in previously cleared habitat will be limited to mulching of saplings, topsoil stripping partly decomposed and fresh mulch mixed with topsoil. Equipment involved in the activity will include: harvester, excavator, bulldozer and tub grinder. All equipment will be appropriately sized to efficiently handle the vegetation present.

The purpose of clear, grub, and mulch is to prepare topsoil for stripping prior to bulk earthworks.

The typical sequence of the works is as follows:

- Obtain required approvals to commence activity.
- Undertake required community/landowner consultation.
- Provide training to personnel and Contractors involved (Ongoing).
- Delineate sensitive areas.
- Undertake pre-clearing assessments.
- Undertake phase 1 clear, grub and mulch to install erosion and sediment controls.

2. Objective of this EWMS

The clear, grub and mulch EWMS is intended as a supplement to the Early Works Construction Environmental Management Plan. The objectives of this EWMS include:

Detail the exact work method, processes and activities required to undertake clear, grub, and mulch.

Provide specific control measures to manage the potential environmental risk associated with clear, grub, and mulch and satisfy the requirements of project specifications and approval conditions.

Communicate the process, environmental risks and appropriate mitigation measures to all personnel undertaking the activity and to ensure all mitigation measures are implemented for the relevant duration of the works.

3. Area/Location of Activity/Site:

Work will occur within the Coffs Harbour Bypass project alignment. All work will occur within the clearing limits set out and agreed by TfNSW and the Project Ecologist.

4. Timing of works

The expected commencement of the clearing and grubbing works is August 2021.

5. Approvals Required

Release of Hold Point G40 2.4 by TFNSW. Having considered the submitted documents (i.e. management plans, method statements, pre-clearing assessment report), inspected the clearing limits, exclusion fencing, marked trees (including habitat trees, frog habitat, threatened flora) and verified vegetation community boundaries.

Release of Hold Point G38 3.1.1 by TFNSW. Having considered the submitted Erosion and Sediment Control Plan.

Early Works Permit - completed by the team proposing to undertake the works. The Environmental Manager (EM) will assess and sign-off on the Early Works Permit (including all required vehicle movement and access plans) prior to works commencing.

6. Consultation Requirements:

The TFNSW) Community Manager must be informed of all properties proposed to be accessed, and out of hours work to ensure that required consultation is undertaken and any required property access is approved. Consultation will occur in accordance with the Community Consultation Strategy.

7. Incident Response

In the event of an incident, such as unauthorised access to, or impacts to, threatened vegetation/sensitive areas, the Foreman will give directions to stop work and will contact the Environmental Manager immediately. The Environmental Manager or their delegate will then implement the Environmental Incident Classification and Reporting Procedure. TfNSW will notify relevant agencies (e.g. DP&I, EPA, OEH etc) in the event of a reportable incident, as required.

8. Monitoring and Compliance

The Environment Officer will undertake weekly environmental inspections of the works. Non-conformances with the EWMS and environmental risks identified during the inspection that cannot be addressed at the time will be prioritised in an environmental action list issued to the supervisor. The Environment Officer will monitor timely close out of actions through ongoing inspections.

In addition, regular monitoring, inspections and auditing against compliance with the EWMS will be undertaken by project management, quality, and environmental personnel to ensure that all controls are being followed and that any non-conformances are recorded and corrective actions implemented. Where non-conformances are found, the EWMS will be reviewed to ensure that any improvements are incorporated as required.

9. Typical Construction Sequence

i. Planning (ERSED, ecological requirements etc.).
ii. Clearing of approved areas (inc. temp ERSED controls).
iii. Grub and mulch timber
iv. Transport mulch to stockpile, where it cannot be placed as a primary erosion and sediment control measure.
v. Stick rake topsoil (

10. Related documents:

- Early Works CEMP.
- Early Works Permit, including vehicle access.
- Panama Disease Management Procedure.
- Sensitive Area Plans
- Toolbox signoff sheet.
- Plant wash-down and weed inspection checklist.
- Roads and Maritime Services Environmental Direction: Management of Tannins from Vegetation Mulch.
- Erosion and Sediment Control Plan (ESCP).
- . G40 2.4 and G38 3.1.1 Hold Point Releases
- Pre-clearing assessment report.
- Threatened species management plan
- TFNSW Biodiversity Guidelines: protecting and managing biodiversity on TFNSW projects.

11. Change Management

Should a change to the construction methodology, design, disturbance footprint or otherwise be required; Construction, Supervisory and Environmental personnel from TFNSW must be consulted prior to works occurring

Risk Analysis Risk Classification = Consequence x Likelihood		LIKELIHOOD				
		5 Very high* Almost certain to happen i.e. could occur daily or more frequently	4 High* Strong anecdotal evidence that it is likely to occur in the identified circumstances without any controls in place;	3 Medium* May occur in the identified circumstances without any controls in place	2 Low* Could occur at some time in the identified circumstances without any controls in place but not expected;	1 Very low* Highly unlikely to occur in the identified circumstances without any controls in place
CONSEQUENCE	5 Very large Major irreversible environmental harm on-site and/or off-site damage.	25 Critical	20 Significant	15 Significant	10 Moderate	5 Minor
	4 Large Major on-site and/or off-site impacts with clean up or remedy requires significant effort.	20 Significant	16 Significant	12 Moderate	8 Minor	4 Minor
	3 Medium Moderate on-site and/or off-site impacts (but no significant irreversible damage) with clean up or remedy work incurring a moderate level of effort	15 Significant	12 Moderate	9 Moderate	6 Minor	3 Minor
	2 Small Treatable on-site impact with clean up or remedy work incurring a small level of effort.	10 Moderate	8 Minor	6 Minor	4 Minor	2 Negligible
	1 Very small Reversible and insignificant environmental impact.	5 Minor	4 Minor	3 Minor	2 Negligible	1 Negligible

#	Sequence of work activities (How will the work be done)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility (Who will direct works to ensure compliance?)
Prior to commencement of works						
1	Ensure all necessary approvals are obtained including G40 Hold Points	Approval or contract conditions not met	Critical	Early Works Permit to be completed and reviewed by Project Manager and Environmental Manager. Mulch stockpile locations are to be identified and approved as per the ERSED Plan prior to commencing clearing.	Minor	Environmental Manager / Senior Project Engineer
2	Community Consultation	Community unaware of clearing	Moderate	Ensure Community Manager is aware and up to date with clear, grub, and mulch operations and that required notifications have been undertaken to affected residents as per requirements of the CHB Community Consultation Strategy.	Minor	Community Manager / Senior Project Engineer
3	Plan erosion and sediment controls (ESC)	Unnecessary environmental risks / water pollution.	Significant	Develop Erosion and Sediment Control Plan (ESCP) for all areas, ensuring both temporary and long-term control measures are considered and implemented in accordance with the required G38 Specification and industry standards (Blue Book, DEC2008 Guidance etc) prior to vegetation clearing. ESCP to be approved by the Project Environmental Manager. TfNSW to sign-off G38 Hold Point on ESCP. Clearing to not proceed in riparian areas with 10m of waterways until just before work commences in that area (i.e. 48 hours prior to work commencing) in accordance with the requirements of G40 Specification. Cut stump process to be implemented where appropriate to reduce erosion potential.	Moderate	Environmental Manager / Senior Project Engineer
4	Staff and sub-Contractor training	Breach of Management Plans and Approvals	Significant	Ensure all personnel undergo the Project induction. Ensure that site-specific induction clearly presents the environmental controls and restrictions that all personnel must follow. Ensure all personnel are familiar with who the Environmental Team are , and how to make contact regarding access in to areas, commencement of works and the mitigation measures required to be installed before works commence. Daily toolbox talks that may include: • Requirements of G40 Specification with regard to two-phase clearing (non-habitat vegetation removal, then 48hrs after habitat tree removal); Encourage reporting of identified fauna, and provide workforce with Project Ecologist contact details. • Encouraging LoC delineation checks amongst the entire workforce • Daily clearing prestart briefing sign-off.	Minor	Environmental Manager / Safety Manager / Senior Project Engineer
5	Mapping of vegetation communities	Uncertainty regarding the type and area of vegetation communities to be cleared.	Moderate	A plan (SAPs) showing the location and extent of each vegetation community within the LoC boundary, works and temporary works and working area is to be prepared for each clearing location. Sensitive Area Plans are to be updated to reflect any amendments to native vegetation clearing areas.	Negligible	Environmental Manager / Survey Manager
6	Monthly reports on clearing progress	Inaccurate records of area cleared	Significant	Monthly reports (as per G36) provided to Principal detailing: • Revised forecasts of vegetation clearing. • Areas cleared to date for each vegetation community.	Minor	Environmental Manager
Install Clearing Limits, exclusion zones and inspect						
7	Install and verify clearing limit (exclusion) fencing	Unapproved work outside of clearing limit	Significant	Clearing limit (exclusion) fence to be install at least 5 working days prior to commencement of clearing. All clearing limit (exclusion) boundary to be clearly pegged by survey. Each peg consecutively numbered. LoC boundary to be delineated using star pickets (at approx. 25m intervals and each change of direction, or closer depending on terrain and environmental sensitivity) and highly visible flagging (i.e. orange bunting. Install “Environmental Protection Area” signage in prominent positions at 200m intervals along each section of LoC fence. Brief LoC set-out team on protocols as per this EWMS. Fence to be picked up and verified by survey team independent of survey set-out team and Hold Points as per G71 Specification to be adhered to.	Moderate	Foreman / Survey Manager and Environmental Manager/ Ecologist
		Obstacle in the way of fence line	Moderate	Survey to mark immediately either side of obstacle. Fence line to be agreed during pre-clearing joint inspection with TfNSW, Project Ecologist and Project Environmental Manager/Representative.	Minor	Survey Team / Foreman

#	Sequence of work activities (How will the work be done)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility (Who will direct works to ensure compliance?)
8	Pre-clearing assessment	Requirements of Threatened Species Management Plan and are not met.	Significant	Appropriately experienced Ecologists and arborists will undertake pre-clearing assessment. The assessment will address: habitat tree mark-up, identification of trees with native beehives, targeted survey for additional threatened species and EEC, marking of threatened flora within 5m of the LoC boundary, identify and mark unsound trees, identify and locate grass trees, verify vegetation community boundaries, survey and map noxious and horticultural weeds as per Specification G40. European beehives are to be identified and subsequently destroyed during the two stage clearing procedure as detailed in G36 Prepare a Pre-clearing Assessment Report for review by TfNSW as/ when requested, and implement necessary actions e.g. weed control. Pre-clearing assessment report will include results and relevant actions for weed surveys and management, threatened flora survey, habitat tree identification, threatened species habitat assessment, vegetation community boundary verification, area of TEC/EEC clearing, unsound tree assessment, habitat tree mark-up.	Minor	Environmental Manager / Ecologist
9	Identify, survey and mark habitat trees	Impact on Fauna due to habitat tree not marked	Significant	Ecologist to survey and mark habitat trees. Habitat Trees are to clearly marked with an “x” in red spray paint and red and white flagging. Trees containing native bee-hives will be marked prior to clearing.	Minor	Ecologist / Environmental Manager / Engineer
10	Update SAP’s	Inaccurate SAP’s	Moderate	Update SAP’s with data collected during the pre-clearing assessment.	Negligible	Survey manager / Environmental manager.
11	Delineation of sensitive areas	Damage to sensitive areas or work outside of project boundary	Significant	Heritage areas, threatened flora and EEC within 5m of the LoC boundary clearly marked during pre-clearing assessment. Also refer to marking of clearing limits as per point 9 above. Implementation of Survey Protocol that specifies measures to ensure survey set out and corresponding pegging and flagging is accurate (for example sequential numbering of pegs).	Moderate	Ecologist / Foreman / Engineer/ Environmental Manager
12.	Control of Noxious weeds	Noxious weeds not controlled in accordance with legislation and management plan	Moderate	Ensure weed management and actions identified in Pre-clearing Assessment Report are implemented by treating any required high priority noxious weeds prior to clearing operations.	Minor	Environmental Manager / Senior Project Engineer
13	Management of Panama Disease	Potential spread of pathogen off site	Moderate	Ensure all activities are undertaken in accordance with the Panama Disease Management Protocol, records of actions undertaken are be provided to TfNSW on request	Minor	All site team members and Contractors
14	Ecologist / TfNSW pre-clearing joint inspection (G40 walk).	Catchment cleared prior to approvals and control measures in place.	Moderate	5 days prior to clearing the Project Engineer, Surveyor, Project Ecologist and TfNSW Environmental staff will undertake a joint pre-clearing inspection/walk. The inspection will involve a foot-based traverse of the clearing limits. Complete verification check lists for each lot (including project Engineer, and project Ecologist sign off)	Minor	Engineer / Environmental Manager / Foreman
Ecologist pre clearing checks						
15	Delineation of daily clearing areas	Ecologists inspect the wrong area	Significant	Each afternoon, the areas requiring ecological inspection for the following days clearing area will be delineated, by the Project Environmental Manager or delegated representative in consultation with the Project Ecologist, using highly visible red and white tape. The area identified for clearing shall be an accurate and reasonable prediction of the area that can be feasibly cleared in a day. The daily clearing extent will be progressively modified in response to clearing extents achieved, based on density of vegetation, quality of fauna habitat and other influencing features.	Minor	Environmental Manager / Ecologist
16	Undertake pre-clearing spotlight survey	Threatened species not detected	Critical	A team of two Ecologists will undertake a spotlight survey of each daily clearing area within the two hours prior to first light. This will maximize the opportunity to observe and capture nocturnal fauna.	Moderate	Approved Ecologists
17	Undertake pre-clearing diurnal survey	Other threatened species not detected	Critical	The daily clearing extent will be clearly delineated with red and white tape installed across (perpendicular to) the alignment previous evening. (Refer to point 15). Clearing shall not commence until the clearing area has been adequately by the Ecologist. Pre-clearing surveys to be in accordance with TFNSW Biodiversity Guidelines and G40.	Minor	Approved Ecologist
18	Clearing commences prior to pre-clearing inspection	Threatened species killed or injured.	Critical	Notify the Ecologist and TfNSW of any sick / Injured Fauna immediately. In the case of a breach of clearing procedures: An investigation will be undertaken to determine if/why clearing protocols were breached. The Environmental Incident Classification and Reporting Guideline will be implemented. Disciplinary action may follow dependent on the severity of the breach and outcome of injury/ damage to protected species/ habitat. Clearing Contractor required to be re-inducted and re-briefed on clearing protocols.	Moderate	Environmental Manager / Ecologist

#	Sequence of work activities (How will the work be done)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility (Who will direct works to ensure compliance?)
19	Koala identified in clearing area	Threatened species killed or injured	Significant	Where a Koala is identified within the demarcated clearing area the following will occur: • Suspension of clearing works must occur for a minimum of 48 hrs, • A clearing/work exclusion zone will be established around the koala. The exclusion zone will be determined by the Ecologist in consultation with Principal and will be delineated using orange bunting. • All clearing of koala habitat trees shall be undertaken in the presence of a koala spotter (Project Ecologist). • No machinery will enter the exclusion zone. • Any koala found will be given 48hrs to move out of the construction site on its own volition. • Clearing will continue outside the designated exclusion zone if deemed to not cause any potential harm to the koala in question at the discretion of the Ecologist and supported by TFNSW. • Each tree identified by the Ecologist as being a risk to a Koala if felled, will not be felled, damaged or interfered with until the Koala has moved from the clearing site.	Minor	Environmental Manager / Approved Ecologist
20	Clearing planning – process / toolbox / Prestart / maps	Clearing permit contains inaccurate material	Significant	Daily pre-start briefings are to be signed off by Environmental Manager / Representative / Ecologist / Clearing Contractor prior to commencement of clearing. During the daily Prestart/ toolbox meeting the clearing Contractor, site environmental representative must walk the entire boundary of that days clearing area. Pre- start briefing content is to be cross-referenced with on-ground boundaries & observations and must include a clear description of daily clearing extent and a map that clearly shows the daily clearing extent. Checklist is discussed with Ecologist, Clearing Contractor, Environmental Manager/Representative before clearing commences and shall be retained on file.	Minor	Environmental Manager
21	Capture and release of fauna	Inappropriate methods used resulting in breach of conditions and harm to fauna	Significant	Capture and handling of all fauna will be undertaken by experienced and TfNSW approved Ecologist.	Minor	Ecologist
Carrying out clear, grub, mulch works						
22	Mobilise plant to site & move plant around site	Spread of weeds and Panama Disease	Significant	Contractors to comply with the requirements of the Panama Disease Control Procedure and confirming all machinery, equipment or apparatus is clean and visually free for mud, seeds, organic material, oil and grease before mobilisation to site. Plant arriving onsite to be inspected by an Environmental Representative/Foreman.	Minor	Contractor / Foreman / Environmental Coordinator
23	Provide training to all personnel and Contractors involved in works	Non-compliance with EWMS / licensing requirements.	Significant	Ensure all personnel undertaking the works have signed onto this EWMS, ESCP and understand the risk and mitigation controls required and that no clearing can commence unless there is a signed and dated Clearing Permit. Ensure all personnel working on-site have been inducted and understand environmental risks.	Moderate	Engineer / Foreman
24	Install ESC prior to clearing	Uncontrolled discharge offsite	Significant	Install any temporary erosion and sediment controls required for clearing as per approved ESCP. Ongoing audits and inspections of control measures and their effectiveness to be undertaken. Continual improvement / upgrades to control measures will be undertaken where identified.	Minor	Foreman / Environmental Coordinator
25	Review upcoming weather forecast	Working in low lying areas during rain event	Significant	Continually review upcoming weather forecast. If there is a probability of 90% or greater that >10mm of rainfall is likely, rescheduling of clearing works be considered. Consider weather conditions prior to commencing work. The commencement of the works will be determined by the Superintendent/Foreman and Environmental Manager by the monitoring of online radar services. Prepare the work area for upcoming major rain event (audit controls, status of work area etc).	Minor	Contractor / Foreman / Engineer
26	Clear non-habitat trees (Stage 1 clearing)	Injury to fauna and/or damage to flora	Significant	Ensure above pre-clearing searches have been completed (see points 15-20). No felling of habitat trees during this phase, ensure habitat trees have been marked and are clearly visible in the field. Project Ecologist to be present at all times during clearing works to relocate affected fauna to nominated release points. If fauna is present during clearing the Ecologist will advise clearers to stop work until the individual has left the work area or it has been relocated. Fauna will be given the opportunity to leave the area unassisted. If not feasible, Ecologist will relocate fauna. Injured or killed fauna will be recorded in the clearing register. Injured fauna would be initially assessed by Ecologist before being transported to an appropriate vet or licensed wildlife carer for treatment. Treatment will be as per the NSW Code of Practice for Injured, Sick and Orphaned Protected Fauna (EPA 2011). All felling to be done within clearing limit (exclusion) fence. Mulch vegetation as soon as possible to minimise likelihood that fauna will occupy stockpiles.	Minor	Project Ecologist / Contractor / Engineer

#	Sequence of work activities (How will the work be done)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility (Who will direct works to ensure compliance?)
		Clearing adjacent to threatened flora and EEC	Moderate	Mark all threatened flora within 5m of the LoC boundary during the pre-clearing assessment. Plot threatened flora locations on SAP's and ensure that the relevant section of SAP is included in the daily clearing permit. Ensure all personnel are aware that threatened flora occurs nearby and how it is delineated during the daily pre-clearing walk/toolbox. Ensure LoC boundary is in place and clearing does not occur outside that boundary.	Minor	Contractor / Foreman / Engineer
		Unexpected threatened fauna or flora find	Moderate	Stop all work in the vicinity of the find. Immediately notify the Project Environmental Manager. Implement the TfNSW Unexpected Finds Procedure.	Negligible	Foreman / Environmental Manager
		Damage to vegetation outside of clearing limits	Moderate	Trees shall be felled inwards from the LoC boundary only. Ensure there is a clear area to fell the vegetation towards. Logs that cross the LoC will be cut flush with the boundary.	Minor	Contractor / Foreman
		Minimise impact to Threatened Frog Habitat	Moderate	Where possible, review opportunities to hand clear or use other low impact methods near any potential threatened frog habitat and leave grass cover, roots, etc.	Negligible	Contractor / Foreman / Engineer
		Erosion and sedimentation within waterways	Moderate	TfNSW to sign-off G38 Hold Point on ESCP. Grubbing to not proceed in riparian areas with 10m of waterways until just before work commences in that area (i.e. 48 hours prior to work commencing) in accordance with the requirements of G40 Specification. Cut stump process to be implemented where appropriate to reduce erosion potential. At bridge locations, trees within 5m of the bank of any stream or other waterway are to be cleanly cut off between 300-600mm above the adjacent ground level so that stable vegetation is retained on the banks. No vehicles to access through waterways unless on established temporary crossings. Should disturbed areas remain, erosion and sediment controls will be installed to ensure degradation of the drainage line is minimised. PESCP will be updated as required.	Negligible	Contractor / Foreman
		Uncontrolled discharge of water (turbid / tannins) from site	Significant	Temporary ESC measures (e.g. timber, mulch windrows, topsoil windrows, lined drains / waterways etc) to be installed progressively each day and prior to the completion of each days work. Cleared vegetation to be moved out of low-lying areas prior to rain. Unprotected mulch sediment controls should not be placed in concentrated flow lines where there is a risk that mulch may be washed away Any temporary sediment traps constructed from mulch must have a stable outlet point to minimise the potential for mulch to wash away during high rainfall events, and the possibility of control measure failure. Management of tannins shall be in accordance with RMS Environmental Direction: Management of Tannins from Vegetation Mulch. Minimise impacts to access tracks and maintain as required.	Minor	Contractor / Engineer
		Excessive dust	Significant	Trucks entering and exiting the project to be covered (excluding log trucks). Use water carts to dampen haul roads, stockpiles and cleared catchments, as required. Entry and exit via approved and stable access points.	Minor	Foreman
		Onsite refueling	Significant	Spill kit to be onsite at strategic locations and in locations where refueling is undertaken. Project Environmental Manager to be notified if a spill occurs. All refueling to be done 50m away from water course, creek, drainage line or boggy area and were possible offsite and to use a drip tray at all times. Plant and equipment to be regularly serviced and maintained.	Minor	Contractor / Engineer / Plant Manager
		Discovery of contaminated land/material (including asbestos)	Moderate	Stop work and report find to supervisor and environmental manager. Implement Unexpected Contaminated Land and Asbestos Find Procedure.	Minor	All
		Noise impact on community and/or stakeholders	Critical	Ensure works are undertaken between 7am and 6pm Monday to Friday and 8am to 1pm Saturday only. No work is to occur on Sunday or on public holidays. Ensure plant/equipment to be fitted with appropriate silencers and maintained. Minimise radio noise, yelling, and rowdy behaviour when near potentially affected receivers. Plan works to minimise reversing beepers. Do not undertake excessive reversing. All community complaints are to be referred to Community Team, recorded and actioned.	Minor	Community Relations Manager / Foreman / Engineer

#	Sequence of work activities (How will the work be done)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility (Who will direct works to ensure compliance?)
	Stage 1 clearing does not isolate habitat trees	Equipment unsuitable for removing habitat trees	Significant	Equipment must be appropriately sized to handle the majority of trees on-site and the operator skilled in removing habitat trees.	Minor	Project engineer / Environmental Manager
Carrying out Stage 2 clearing						
27	Clear habitat trees (Stage 2)	Fauna in habitat trees during felling	Significant	Ensure above pre-clearing searches have been completed. Habitat trees to be felled a minimum of two nights after stage 1 clearing. Project Ecologist to supervise felling of all habitat trees and discuss method of felling with operator. Habitat trees must be felled using appropriately sized machinery and experienced staff. Habitat trees must not be cut and pushed or felled using hand-held chainsaws. Where possible, retain and relocate hollow bearing tree sections in areas adjacent to the construction footprint or reuse in fauna underpass structures. Where possible, clear hollow bearing trees during the cooler parts of the day. Ecologist to provide advice during clearing of such trees. Ecologists to check hollows once tree has been placed safely on the ground and relocate fauna in accordance with the Fauna Handling and Rescue Procedure. Habitat tree inspections undertaken in accordance with TFNSW Biodiversity Guidelines.	Minor	Ecologist / Environmental Manager / Contractor / Foreman
		Inappropriate housing or release of fauna	Significant	Ensure that fauna are housed in accordance with ethics approval. Fauna will be released into adjoining areas of suitable habitat at an appropriate time of day that is consistent with the behaviour of the animal. Release locations will be recorded in the Post Clearing Reports.	Minor	Ecologist
		Fauna move into stockpiles	Significant	Stockpiled vegetation must be immediately crushed so there are no protruding branches. Ideally material shall be mulched in the same shift that it was felled. If stockpiled material remains undisturbed for more than 12 hours an Ecologist must inspect it before it is sheared or mulched.	Minor	Ecologist / Environmental Manager / Contractor / Foreman
28	Data collection	Data not collected in accordance with G36 and G40/reporting deficient	Significant	Prepare specific data sheets for clearing procedures, including: spotlighting, diurnal pre-clearing surveys (incl daily clearing observations), habitat tree removal, structures removal, register of fauna killed during clearing, weather conditions, and road kill. Each datasheet will record date, start and end time, and personnel. Pre-clearing and spotlighting datasheet will include: species and number, sex & age of individuals sighted, captured, or injured; location recorded and location released (GPS). Habitat tree & structure removal datasheet will include: species and number, sex & age of individuals sighted, captured, or injured, tree species present, size, height and depth of hollows, tree/feature location (GPS), and release location (GPS) and method (i.e. onto trunk, into logs). Mortality register data sheet will include: species (age & sex), location (GPS) and likely cause. Data collected on threatened frogs would include: species, age class, sex, breeding condition and snout-vent length. Larger individuals would be PIT tagged. All records to be stored for review by TFNSW at any stage.	Minor	Project Ecologist / Environmental Manager
29	Maintain clearing limit / exclusion fence	Clearing limit (exclusion) fence damaged during clearing	Significant	Maintain exclusion fence until the completion date of works. Immediately repair any fencing and/or signs damaged during clearing, as required. Make all staff and subcontractors involved in construction activities aware of the clearing limits as part of the project induction and aware that they are prohibited to encroach on areas beyond the boundaries of the identified clearing limits. Encourage staff to report degraded or damaged sections of LoC fence immediately. Ensure that the LoC boundary fence is inspected during the daily pre-clearing walk/toolbox. During the daily pre-clearing walk ensure that any damaged sections of the LoC fence are immediately repaired/replaced. Clearing will not commence until LoC boundary has been repaired.	Minor	Foreman / Environmental officer/ Coordinators

#	Sequence of work activities (How will the work be done)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Residual Risk	Responsibility (Who will direct works to ensure compliance?)
30	Final stick rake	Spread of weeds	Significant	Brush/wash off excessive soil and plant material from boots/clothing/plant/equipment prior to moving from high-risk weed infested areas to minimise potential for the spread of seeds. Carry out wash down procedure for plant before leaving weed area and at least 50m from waterway.	Minor	Contractor / Foreman / Engineer
31	Management of topsoil	Prevent future cultural salvage of material contained in the topsoil	Significant	Topsoil is not be removed from site. Topsoil is to be placed immediately adjacent to the utility relocation trench and kept separate to excavated subsoil. Utility trenches are to be progressively backfilled with sub soil placed first and topsoil placed last.	Minor	Contractor / Foreman / Engineer
32	Moving between locations	Damage to flora, fauna, threatened species, EEC, spread of Panama Disease	Moderate	Clearing works are not to commence without the approval of the Project Engineer and Environmental Manager. Early Works Permits will cover a specified area (chainage and location detailed on permit) where works can be carried out. Panama Disease controls to be implemented as pre procedure.	Negligible	Contractor / Foreman / Engineer
33	Tidy-up / Demobilise from site	Area left untidy	Minor	Classify all waste using the 'Waste Classification Guidelines 2008'. Ensure all materials are reused or recycled where possible. If reuse or recycling is not possible, then materials shall be disposed off-site, in accordance with above guidelines. Conduct regular inspections of the works areas by Foreman, Engineer, Environment Team.	Negligible	Foreman / All
		Re-growth of noxious weeds	Significant	Following clearing, grubbing or mulch, assess the edges of the work area for any noxious weed regrowth and treat as required in accordance with the Pre-clearing Survey Report.	Minor	Foreman /All
Reporting						
33	Post clearing report	Report not prepared	Moderate	At the completion of clearing activities, a post-clearing report must be provided to the Principal. This report must be provided within 28 days from the completion of substantial clearing as determined by the Principal as required by G36 and G40 Specifications. The post clearing report prepared, in consultation with the Project Ecologist, will include: • an assessment of habitat trees and the handling of the fauna affected by the clearing activities undertaken in accordance with the requirements of this clause; • the clearing and structures removal operations, including procedures, dates, times, weather, areas and information on the fauna specialist(s) present during the clearing and structures removal operations; • any live animals that were sighted, captured, released, injured or shocked including the location of fauna within clearing footprint (recorded with GPS) and release locations; • dead animals that were found as a result of clearing and structures removal operations and fauna rescue; • trees being used for breeding or roosting by fauna, including their species, locations, sizes, heights and depths of hollows in trees; • structures (e.g. bridges, culverts) being used for breeding or roosting by fauna, including their species, locations, sizes, gap heights and depths; • a register of hollow-bearing trees, and comparison of this data to the Nest Box Plan. • photo images of rescued fauna.	Negligible	Project Ecologist / Environmental Manager

WMS Approval

Revision Number	Approved By	Name	Signature	Date
A	Environmental Manager			

Toolbox (Attendees to sign attendance record below)

- Pre-clearing assessments completed prior to commencement of clearing. Pre-clearing assessment will include: habitat tree survey, native bee survey, noxious weed survey, grass tree survey, EEC verification, threatened flora survey, unsound tree assessment.
- Early Works Permit to be completed and approved by Project Manager / Environmental Manager / Survey manager / Project Ecologist for each clearing area.
- Daily clearing Pre-start checklist must have plan of daily work area attached and be signed by Ecologist / Environmental Managers representative / Clearing Contractor prior to clearing commencing.
- Each day prior to clearing the clearing Contractor, Environmental Managers representative and Principals representative must walk the entire days clearing boundary.
- Clearing limits, exclusion zones, heritage areas, threatened flora within 5m of boundary, and EEC vegetation adjoining boundary are to be marked/flagged prior to commencement of works to prevent impacts. Star pickets, highly visible bunting (fluorescent orange) and signage will delineate these areas. Ensure regular maintenance of flagging.
- Ensure all activities are undertaken in accordance with the Panama Disease Management Protocol, records of actions undertaken are be provided to TfNSW on request
- Check attached Sensitive Area Plans (SAPs) to identify sensitive area locations. Relevant section of SAP attached to each daily clearing checklist.
- No clearing permitted outside clearing limits. Ensure everyone is aware of the clearing limits and sensitive areas prior to commencing each day.
- Immediately report sections of damaged or broken LoC fence to Foreman, or environmental staff, or survey manager.
- Immediately report all koala and other fauna sightings to Foreman or Environmental Manager or Ecologist.
- Ensure pre-clearing inspections completed in timeframes nominated above in points 15-20.
- Ensure appropriately experienced Ecologist / wildlife carer is present during all clearing. Ecologist required to inspect habitat trees immediately after being felled. Appropriately sized machinery and experienced operators must be used to assist in the lowering of habitat trees.
- If fauna is present during felling, stop all work in the vicinity and notify Ecologist. Ecologist will capture and relocate fauna, as required.
- Trees shall be felled towards the project corridor and not away from. Ensure there is a clear area to fall vegetation into.
- If an injured animal is found, advise the Ecologist immediately.
- Consider weather conditions prior to commencing work. Continually review upcoming weather forecast. If there is a probability of 90% or greater that >10mm of rainfall is likely, rescheduling of clearing works be considered
- Ensure ESCPs are developed and implemented prior to commencing works.
- Minimise ground disturbance and install ERSED controls at the end of each day as required. Ensure ongoing maintenance and improvements as required.
- At bridge locations, trees within 5m of the bank of any stream or other waterway are to be cleanly cut-off between 300-600mm above the adjacent ground level so that stable vegetation is retained on the banks. Also where possible, hand clear/minimise disturbance to threatened frog habitats.
- No vehicle access into or through waterways unless on designated crossings (excluding dry waterways).
  - 7:00am to 6:00pm Monday to Friday;
  - 8:00am to 1:00pm Saturday; and
  - At no time on Sundays and Public Holidays.
- Works outside the hours specified above will not be conducted unless approval in writing has been granted by the Environmental Manager.
- The following noise mitigation measures should be implemented at all times:
  - Turn vehicle / plant and equipment off when not in use;
  - Minimise radio noise, yelling, no rowdy behaviour etc when near potentially affected receivers;
  - Plan works and design vehicle accesses to minimise reversing beepers;
  - Ensure plant/equipment is maintained in an efficient condition; and
- Prevent pollution of waterways due to spills/leaks. All refuelling to be done 50m away from water course, creek, drainage line or boggy area and where possible offsite. Report and clean up all spills. Spills must be reported to the Environmental Manager.
- Ensure spill kits are available during works and at refuelling locations.
- Report any complaints from neighbours to Community Team.
- Separate cleared vegetation containing noxious weeds and treat in accordance with pre-clearing assessment report.
- Plant arriving onsite to be inspected by an Environmental Coordinator/Foreman to be clean. Inspect and clean machinery after working in areas containing high priority noxious weeds to prevent further spread.
- All washdowns must be done away from waterways and ensure no risk of pollution waterways.

  Upstream and downstream controls are required around mulch stockpiles. Leachate from stockpiles to be collected in a bund/sump and used for dust suppression away from waterways.
- Mulch stockpiles to be lower than 2.0 m in height to prevent risk of combustion
- Trucks with loads to use dust covers on all local roads/highways (excluding log trucks).
- Ensure fire extinguishers are available at all times during tub grinding.
- In the event that human remains, unexpected heritage items are discovered or threatened flora/fauna observed or contaminated material such as asbestos, stop work immediately and contact the Environmental Manager.
- Minimise waste where possible. Ensure all materials are taken off site and reused, recycled. If reuse or recycling is not possible, then materials shall be disposed off-site. Ensure waste materials are collected and disposed of at licensed landfills or in project rubbish bins.
- In the event of an unexpected find, or an environmental incident the Environmental Incident Classification and Reporting Procedure is to be implemented.
- Contact project Environmental Team for advice on environmental matters.

Toolbox Attendance Record

We the undersigned, confirm that the Clearing, Grubbing and Mulching EWMS requirements that have been explained and its contents are clearly understood.

Name	Position	Employer	Signature	Date

ATTACHMENT A – Sensitive Area Plans

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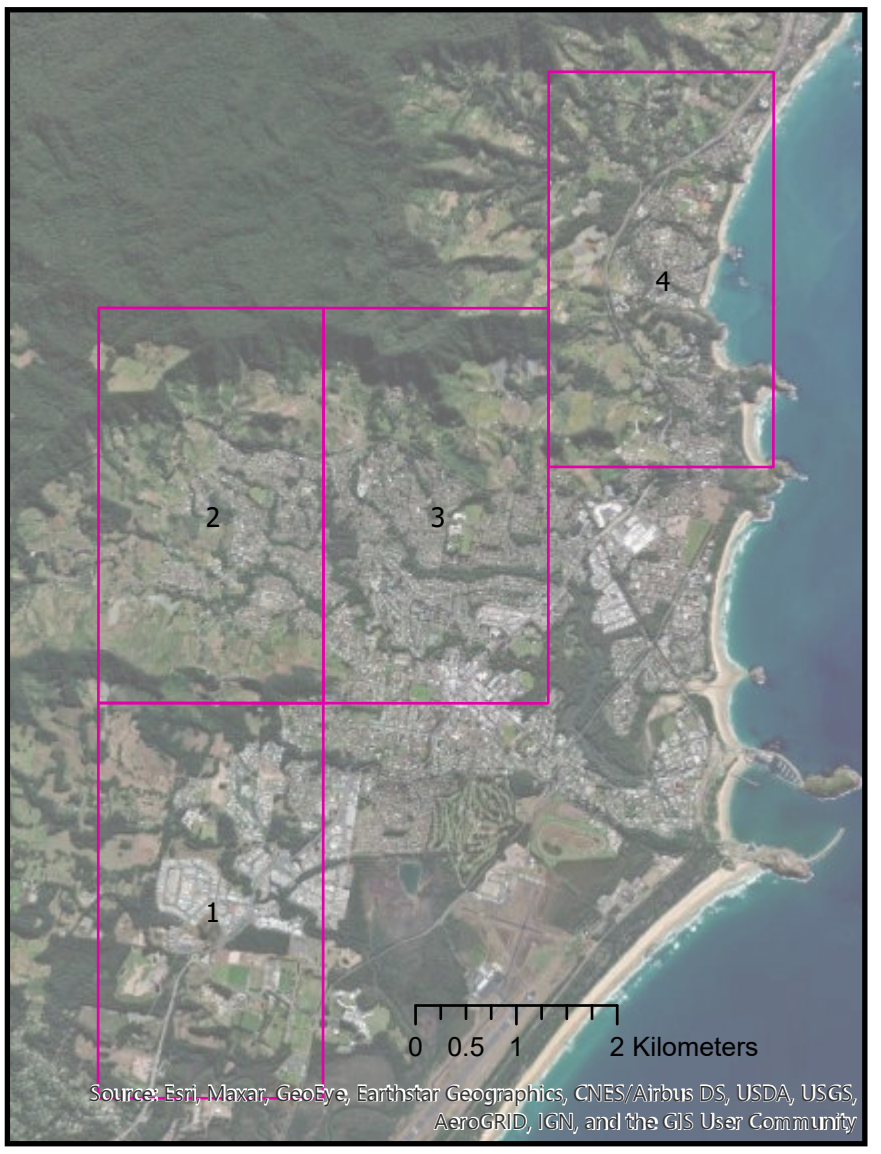
CHB AFT 14

CHB AFT 1

PAD21



Legend

- CHB PAD Clearing Impact Areas
- Archaeological site area
- CHB Utility and Geotech Areas
- Construction Footprint 20191219

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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BUILDING OUR FUTURE

COFFS HARBOUR BYPASS
Koala Habitat and Threatened Ecological Communities
Proposed Clearing Areas
Page 1

Map Published: 13/05/2021
Author: LPIETRINI

NSW GOVERNMENT

160 80 0 160 320
Metres

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Sheet 1 of 4

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at A3

CHB6 AS01
CHB AFT 10
CHB AFT 13
PAD 23
PAD 22
CHB AF

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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend
- CHB PAD Clearing Impact Areas
- Archaeological site area
- CHB Utility and Geotech Areas
- Construction Footprint 20191219

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COFFS HARBOUR BYPASS
Koala Habitat and Threatened Ecological Communities
Proposed Clearing Areas
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NSW GOVERNMENT

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160 80 0 160 320
Metres

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Sheet 2 of 4

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at A3

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CHB AFT 5

CHB AFT 12

CHB AFT 11

CHB AFT 15

CHB A

PAD 26

Legend

- CHB PAD Clearing Impact Areas
- Archaeological site area
- CHB Utility and Geotech Areas
- Construction Footprint 20191219

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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COFFS HARBOUR BYPASS
Koala Habitat and Threatened Ecological Communities
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Page 3

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NSW GOVERNMENT

160 80 0 160 320
Metres

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Sheet 3 of 4

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at A3

COFFS HARBOUR BYPASS
Koala Habitat and Threatened Ecological Communities
Proposed Clearing Areas
Page 4

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160 80 0 160 320
Metres

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Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Sheet 4 of 4

1:10,500
at A3

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Legend
- CHB PAD Clearing Impact Areas
- Archaeological site area
- CHB Utility and Geotech Areas
- Construction Footprint 20191219

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community