# Construction Environmental Management Plan

*(incorporating the Road Construction Management Plan)*

## Williamtown Sand Syndicate Pty Limited

Cabbage Tree Road Sand Quarry
(SSD 13_6125)
282B (398) Cabbage Tree Road,
Williamtown, NSW

30 August 2019

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## (*incorporating the Road Construction Management Plan*)

Cabbage Tree Road Sand Quarry

282B (398) Cabbage Tree Road, Williamtown, NSW

**Prepared for:**

**WILLIAMTOWN SAND SYNDICATE PTY LTD**



**Document Control:**

| Version | Description | Date | Author | Reviewer |
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| 1.0 | Draft | 17 June 2019 | J.Berry | J.Berry |
| 1.1 | Draft for community and agency consultation, updated with initial feedback | 30 July 2019 | J.Berry | J.Berry |
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# ABBREVIATIONS

| | |
|---|---|
| **mAHD** | Metres Australian Height Datum |
| **CEMP** | Construction Environmental Management Plan |
| **DPIE** | NSW Department of Planning, Industry and Environment |
| **EMP** | Environmental Management Plan |
| **EPA** | NSW Environment Protection Agency |
| **Kleinfelder** | Kleinfelder Australia Pty Ltd |
| **km** | Kilometres |
| **m** | Metres |
| **NMP** | Noise Management Plan |
| **mbgl** | Metres Below Ground Level |
| **NSW** | New South Wales |
| **PFAS** | Polyfluoroalkyl substances |
| **PFC** | Perfluorinated compounds |
| **PFOS** | Perfluorooctane Sulfonate |
| **PPE** | Personal Protective Equipment |
| **RAAF** | Royal Australian Air Force |
| **WSS** | Williamtown Sand Syndicate |

# 1. INTRODUCTION

Williamtown Sand Syndicate Pty Ltd (WSS), trading as Newcastle Sand are proposing to construct and operate a sand quarry on four lots of land located at 398 Cabbage Tree Road (282B at its eastern extent), Williamtown. The Project would extract up to 530,000 tonnes per annum of sand products over a period of up to 15 years. The subject land and resource extraction area is shown in **Figure 1**.

Development Consent (SSD-6125) was granted by the NSW Independent Planning Commission on 9 May 2018 for construction and operation of the quarry subject to a series of conditions. This *Construction Environmental Management Plan* (CEMP) has been prepared to address the following conditions:

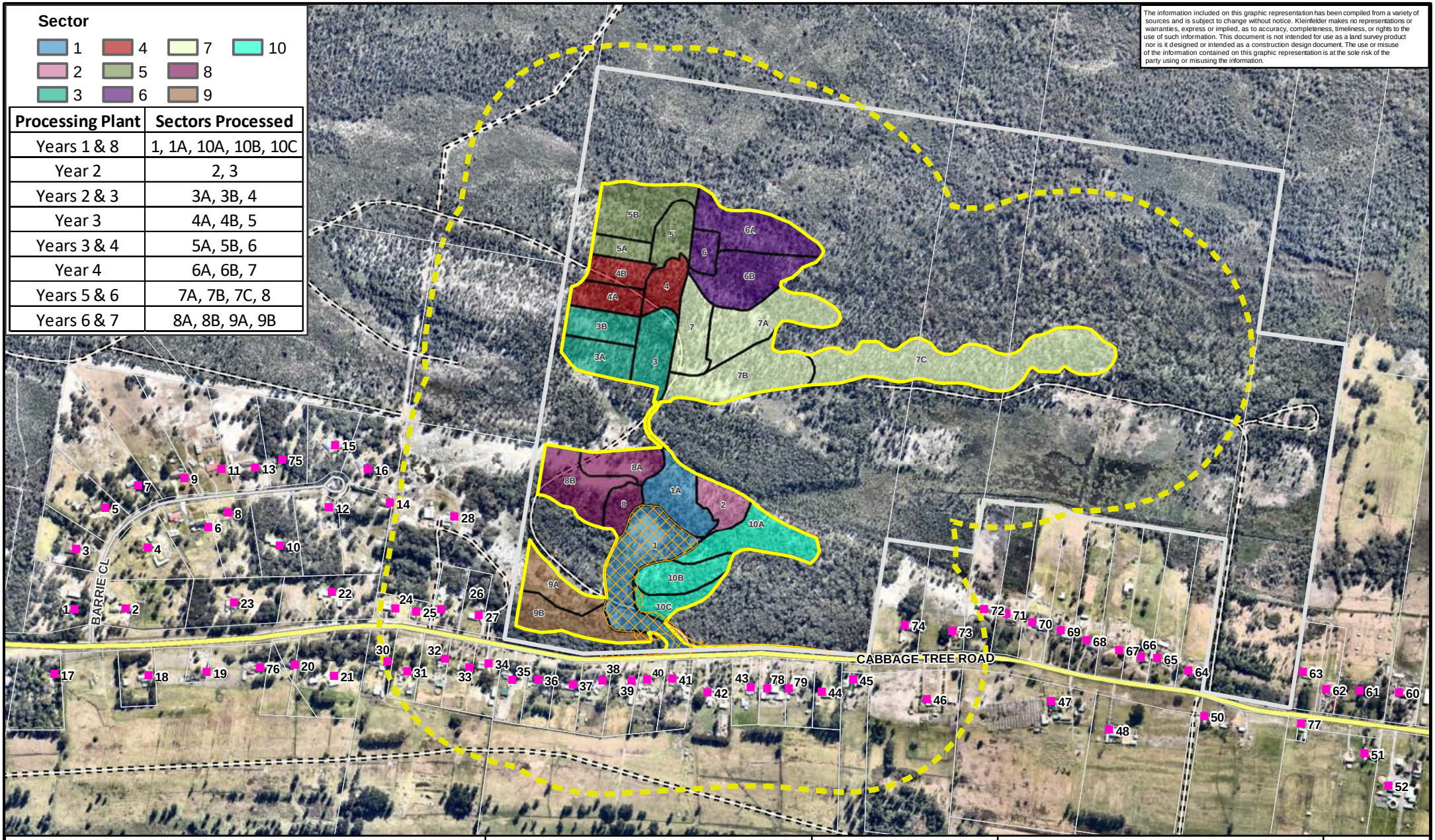
- Condition 29 (a) of Schedule 3 of the Development Consent requires the preparation and implementation of a Road Construction Management Plan
- Condition 15 (iii) requires a construction environmental management plan to manage the interaction with groundwater during construction to manage Per and Polyfluoroalkyl substances (PFAS) in the unlikely event they are present within the soil and water disturbed during construction activities. This is also addressed in the Site Water Management Plan.
- **Note:** Specific traffic management controls will be developed by the contractor engaged to construct the intersection, consistent with the requirements of the Roads & Maritime Service (RMS) and associated safety standards.
- **Note:** The final design of the intersection road works is required to meet RMS requirements under a Works Authorisation Deed (WAD) issued prior to construction.
- **Note:** Works on the utilities will be undertaken consistent with the requirements of the utility provider.
- **Note:** Construction activities completed by the contractor will have activity specific erosion and sediment control plans implemented prior to commencing works consistent with this plan.

This plan has been prepared to cover the area of the construction related areas of the project as shown by **Figure 2**.

This *Construction Environmental Management Plan* (CEMP) includes the requirements of the NSW Government, Office of the Chief Scientist & Engineer's Williamtown Contamination Water Working Group (WWG) to provide "*a mechanism to communicate the contamination risks and specify requirements for control measures*" with respect to PFAS, Air Quality, Water Quality and Land Contamination. Potential ancillary environmental impacts such as Noise, Vibration, Access, Waste, Visual Amenity and Fire Hazard during construction have also been considered and addressed.

This CEMP has been structured with regard to the following documents:

- The Independent Planning Commission NSW Application Number SSD-6125 Development Consent.
- ISO 14001, 2015, Environmental Management Systems.
- Department of Environment and Conservation NSW, 2006, A resource guide for local councils: erosion and sediment controls.
- Landcom, 2004, Managing Urban Stormwater: Soils and Construction.
- Department of Environment and Climate Change NSW, 2009, Interim Construction Noise Guideline.




**Legend**

- Subject Land Boundary
- Project Area Boundary
- Construction Area
- Baseline Structural Survey on Request (300m Buffer)
- Receptor
- Lot Boundary
- Arterial Road
- Local Road
- Track

Metres
0 50 100 200 300 400 500

N

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PROJECT REFERENCE: 20190803
DATE DRAWN: 16/08/2019 09:37 Version 1
DRAWN BY: GJoyce
DATA SOURCE:
NSW DFSI - 2018
Nearmap - 2019

# Subject Land and Receptors

Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

FIGURE:
1

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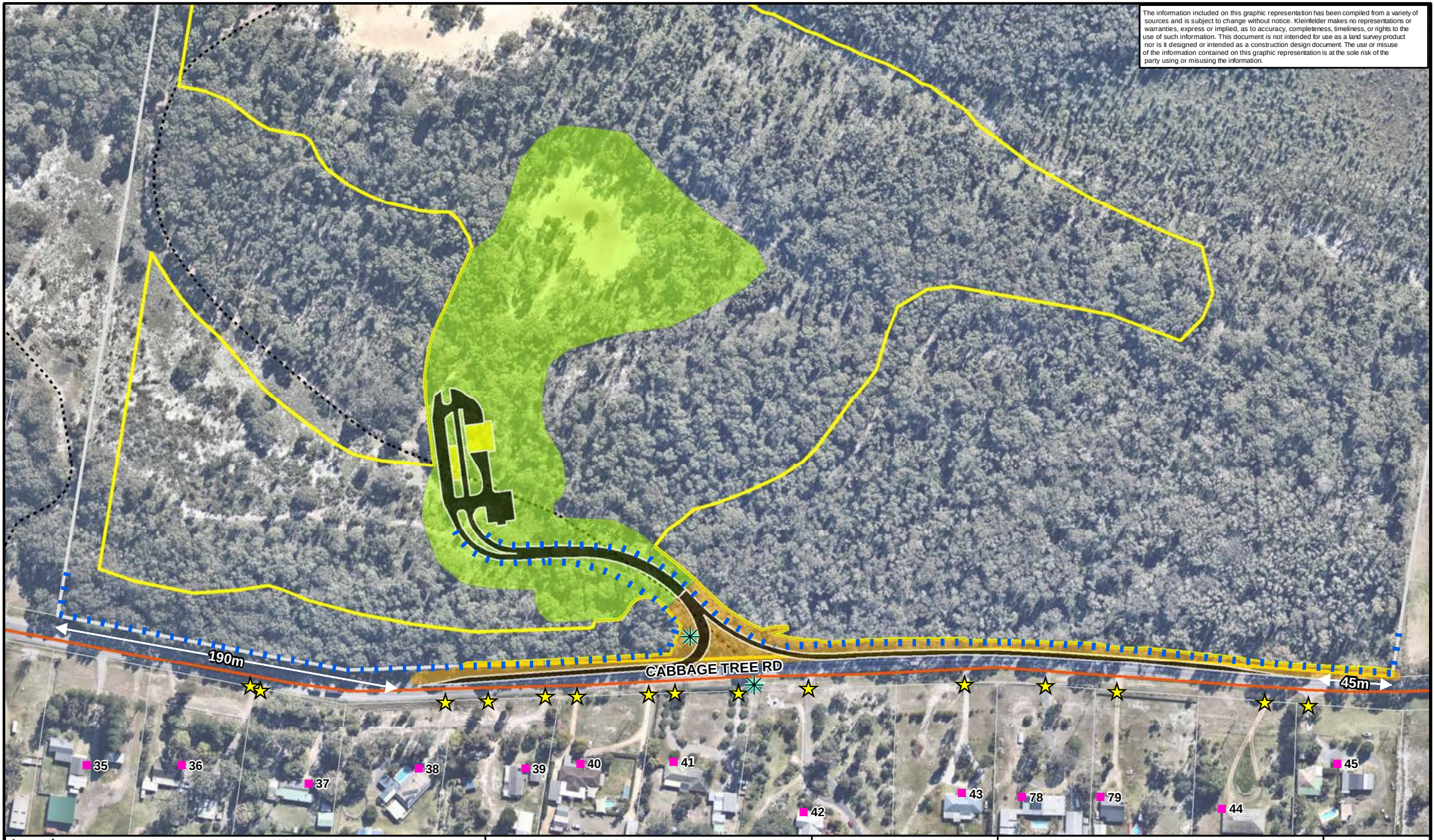




**Legend**

- Project Area Boundary
- Infrastructure Construction
- Intersection Construction
- Office and Workshop
- Sealed Road
- Subject Land Boundary
- Lot boundaries
- 1.2m Koala Exclusion Fence
- Arterial Road
- Track
- Street Lighting
- Potential for Change in Traffic Conditions
- Receptor

Metres
0 10 20 40 60 80 100

N

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PROJECT REFERENCE: 20190803
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DRAWN BY: GJoyce
DATA SOURCE:
NSW DFSI - 2018
Nearmap - 2019

# Construction Areas

Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

FIGURE:
2

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# 1.1 PROJECT OVERVIEW

The key details of the Project are shown within **Table 1.1** below. An overview of the Project Area is shown in **Figure 1.**

**Table 1.1: Key Aspects of the Cabbage Tree Road Sand Project**

| Aspect | Key Aspects of the Project |
|---|---|
| **Key elements** | Sand quarry extracting up to 530,000 tonnes per annum over a period of 6 to 15 years including the construction of an intersection with Cabbage Tree Road, sealed and gravel access roads, site office, workshop and weighbridges. Progressive rehabilitation of quarried land returning to native vegetation communities with potential future use of the facilities area. |
| **Location** | 398 Cabbage Tree Road, Williamtown, within the Port Stephens local government area. |
| **Property Titles** | Four titles within the Parish of Stockton, County of Gloucester including:<br>• Lot 1 DP 224587 at 398 Cabbage Tree Road, Williamtown<br>• Lot 121 DP 556403 at 282B Cabbage Tree Road, Williamtown.<br>• Lot 11 DP 629503 at 282A Cabbage Tree Road, Williamtown.<br>• Lot 1012 DP 814078 at 282 Cabbage Tree Road Williamtown. |
| **Land Owner** | Port Stephens Shire Council under lease to Williamtown Sand Syndicate Pty Ltd. |
| **Proponent** | Williamtown Sand Syndicate Pty Ltd, the owner of the quarry operator Newcastle Sand. |
| **Area** | Total Project Area of approximately 42.3 hectares from a Subject Land Area of approximately 176.2 hectares. |
| **Project Life** | Up to 15 years. At expected demand the quarry will have an eight (8) year life, or six (6) years at maximum extraction rates. |
| **Extraction Rate** | Maximum of 530,000 tonnes per annum, and maximum daily rate of 3,000 tonnes. |
| **Operating Hours** | <u>Construction of intersection, access and workshop and office:</u><br>• 7:00am to 5:00pm Monday to Friday.<br>• 8:00am to 1:00pm Saturday.<br>• No works on Sunday or public holidays.<br><u>Quarrying Operations:</u><br>• 7:00am to 5:00pm Monday to Friday.<br>• 7:00am to 4:00pm on Saturday.<br>• No quarrying on Sunday or a Public Holiday.<br><u>Loading and dispatch of trucks:</u><br>• 6:00am to 6:00pm Monday to Friday.<br>• 7:00am to 4:00pm Saturday.<br>• No works on Sunday or public holidays. |
| **Transport Rate** | • Up to 6 laden trucks per hour (12 trips per hour) during the hours of 6 am to 7 am Monday to Friday.<br>• Up to 10 laden trucks per hour (20 trips per hour) during hours of 7 am to 6 pm Monday to Friday (i.e. all haulage hours excluding the morning peak).<br>• Up to 10 laden trucks per hour (20 trips per hour) during hours of 7 am to 4 pm Saturdays.<br>• Haulage between 5 am and 6 am is subject to agreement from adjacent landowners as per Schedule 3, Condition 1.<br>• Up to 6 vehicles of employees would be expected to arrive from approximately 5:30 am to 7 am and leave between 5 pm and 7 pm. |

| Aspect | Key Aspects of the Project |
|---|---|
| **Resource and products** | Approximately 3.25 Mt of sand, comprising the following products to be extracted from site by truck onto Cabbage Tree Road for transport to markets:<br>• Raw fill sand.<br>• Screened sand.<br>• Sandy loam.<br>• Concrete sand.<br>• Glass sand (estimated at about 16% of total resource).<br>The Project covers approximately 42.3 hectares (including access roads) with extraction to a depth of not more than 1m above the highest predicted groundwater level. |
| **Extraction** | • Maximum extraction rate of 530,000 tonnes per annum.<br>• Excavator and/or bulldozer to clear vegetation and strip topsoil.<br>• Bulldozer or grader to windrow sand.<br>• Front-end loader to feed conveyors to convey sand to the processing plant.<br>• Front-end loader and haul truck to convey sand when conveyor unsuitable. |
| **Processing Methods** | • Raw sand product extracted directly from face with no processing.<br>• Sand fed into electrically powered screen.<br>• Screened sand sold as product or fed to electrically powered air separator.<br>• Products stockpiled for loading directly into truck or fill bulker bags for removal from the site by truck. |
| **Support facilities and utilities** | • Site office, workshop, stores, car parking.<br>• Power supply from local network<br>• Water supply from local network. |

## 1.2 SITE DESCRIPTION

The site is situated approximately 9 kilometres (km) north of Newcastle, with the RAAF base Williamtown located to the north east and Fullerton Cove and the Hunter River estuary to the south.

The proposed construction activities are situated in the southern portion of the site. Within the construction and project area there is effectively three landscape features:

- The undulating sand dunes proposed for sand extraction ranging from approximately 4 m AHD up to 23.5 m Australian Height Datum (m AHD). Within the construction area the dunes reach approximately 10.5 m AHD.
- The adjoining sand flats encompassing the land that ranges from 1.5 m to 4 m AHD. The area below 4 m AHD in the construction area is restricted to the area of the proposed intersection to Cabbage Tree Road.
- Cabbage Tree Road at approximately 3.2 m AHD forms the southern extent of the project and construction area, effectively providing a barrier to surface water flows to the south.

The construction area is predominantly vegetated, with exception to a gravel road and the verge of Cabbage Tree Road. Key environmental attributes relevant to the proposed construction are outlined below:

- The subject land does not contain any defined natural drainage lines, suggesting vertical infiltration into the sand is dominant over runoff and horizontal movement of water.
- Low lying areas adjoining the site are frequently water logged during high rainfall, due to increasing and shallow groundwater levels and a shallow groundwater gradient that slows

the percolation of surface water. Within the construction area this is limited to the area adjoining Cabbage Tree Road.
- Cabbage Tree Road has been built up during construction, with shallow table drains constructed partially along the northern side of the road and deeper drains constructed partially along the southern side. The nearest culvert is located at the eastern extent of the subject land, approximately 80 m beyond the proposed road construction area.
- Groundwater when at its highest is visible at or near the surface for land below 2.5 m AHD.
- Groundwater has a low hydraulic gradient moving generally in a north-south direction.

Residential dwellings are located to the east, south and west of the site. Most are small properties utilised as hobby farms (e.g. keeping horses, and chickens), some are larger and graze livestock as well. Potable water for dwellings is likely to comprise primarily reticulated water from the Hunter Water network and rain water.

### 1.2.1 PFAS Contamination

The site lies within the Williamtown Royal Australian Air Force (RAAF) base contamination investigation area as defined by the NSW Environment Protection Agency (EPA) (**Appendix 1**). The site is situated within an area undergoing long-term assessment for potential soil and groundwater contamination of per- and polyfluoroalkyl substances (PFASs) that includes perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Stage 2 and 2B investigations targeting the Williamtown PFAS Investigation Area (URS, 2014 and AECOM, 2016), has included sampling of soil, groundwater, surface water and a series of residential water samples (both bore and tank water) surrounding the site. Of the samples collected all reported below the level of laboratory reporting, with the exception of two isolated residential water samples that returned levels at the level of reporting.

Soil, surface water and groundwater sampling has been undertaken on behalf of WSS that has demonstrated PFASs were not detected in soil or water at the site. The soil results are presented in report *Per- and poly-fluorinated alkyl substances assessment* (Kleinfelder, 2017a) and groundwater results in *Groundwater Assessment, Cabbage Tree Road, Williamtown* (RCA, 2016) and groundwater and surface water in *Groundwater sampling for Per- and poly-fluorinated alkyl substances* (Kleinfelder, 2017b). Additional sampling conducted during 2019 has not identified any PFAS contamination on the Subject Land.

A high level of community interest is associated with the Williamtown RAAF base contamination investigation area and activities within the area, including the proposed sand quarry.

## 1.3 PURPOSE AND SCOPE

The objective of the CEMP is to outline practical and achievable management controls to ensure construction activities have minimal impact on human health and the environment and include consideration of PFASs (in event it is detected on site). The CEMP also considers and addresses potential ancillary environmental risks of the type normally encountered during construction of this type of development.

The scope of work conducted in completing the CEMP comprised:

- Provide management controls to minimise road construction related impacts to neighbouring residents.
- A description of the construction activities proposed, highlighting those actions that have potential to intercept the groundwater or disturb soils.
- Consideration of the risk associated with construction activities to evaluate the potential impact to human health and the environment in relation to any potential for increased exposure to PFAS.
- A description of management procedures (control measures, performance criteria and mitigation strategies) which aim to reduce any potential detrimental impacts.
- An outline of relevant monitoring and reporting procedures.

## 1.4 CONSULTATION

This plan is required to be prepared with input from potentially affected residents adjacent to the area of the intersection and associated construction activities. Consultation has included the following:

- Newsletter 4 delivered to properties in the local vicinity (approximately 1 km from the intersection, including Barrie Close) on 19 July 2019. The newsletter provided an overview of the proposed works associated with the intersection and contact details for further information. Including key aspects of the CEMP.
- Phone calls and meetings with interested residents.
- Provision of draft electronic and hard copy plans to residents where requested.
- Revision of the draft CEMP based on resident and DPIE comments.
- Newsletter 5 to be delivered prior to commencement of works.

Key concerns raised during construction related to:

- Noise.
- Vibration, (several properties requested structural baseline surveys).
- Management of traffic and access, and ensuring sufficient signage was present to encourage vehicles to reduce speed. It was generally understood that the works were likely to be typical of standard road works and that RMS requirements for construction and traffic control must be followed.
- Fauna controls during clearing.

Consultation will continue with interested parties and this plan updated as necessary to reflect additional controls developed through consultation with affected residents.

Copies of correspondence relating to the plan are included within **Appendix A**.

# 2. SITE OPERATIONAL ACTIVITIES

Construction will be effectively divided into three core activity areas:

1. Construction of the intersection with Cabbage Tree Road through to approximately 50m into the site from Cabbage Tree Road. This activity is expected to take approximately 12 weeks to complete.
2. Construction of the remainder of the access road to the office and workshop area. This activity is expected to be completed concurrently with the intersection over 12 weeks.
3. Construction of the koala fence around the perimeter of the construction activities will take 1-2 weeks and will be completed concurrently with the above activities where feasible.

Key aspects of the construction are shown within **Figure 2**.

Construction will comprise of the following key activities:

- Pegging and preliminary clearing of the works extents.
- Implement start of works traffic control (as shown within traffic control plan in Appendix D) prior to commencement of intersection, including:
  - Installation of road works signage.
  - Speed limit reduced to 60 km/h in both directions:
    - Warning 280 m before road works on east bound.
    - Warning 180 m before road works on west bound.
    - 60 km/h reduction applies for full extent of the road works area.
  - Concrete barrier placed on shoulder of east bound lane (may require temporary east bound lane closure), is placed a minimum of 0.5m from edge of travel lane.
  - Three access gates to construction area, western end, centre and eastern end of works areas.
- Clearing of vegetation and removal of sand to sufficient depth to establish the intersection, access road, and the office and workshop area.
- Relocation and management of existing utilities in the road reserve.
- Excavation of road pavement and shallow soils to a nominal depth of 0.6 metres below ground level adjacent to Cabbage Tree Road.
- Construction of the intersection pavement through levelling and compaction of gravel material and sealing with bitumen.
- Connection of water and electrical utilities to the office and workshop. Utilities will be conveyed above ground where feasible, or kept below ground but above the highest predicted groundwater level where possible (e.g. outside the immediate connection with the existing utility).
- Underboring of power may be required from the southern side of Cabbage Tree Road, to be completed in consultation with relevant land owner.
- Utility installation to be completed by an accredited company authorised by the utility owner and is to avoid disruption to utilities of neighbouring residences.
- Installation of permanent street lighting, designed consistent with RMS requirements and with regard to avoiding impact to neighbouring residences, to be located at:
  - Within the road reserve near boundary of 393 and 397 on southern side of Cabbage Tree Road.
  - On western side of intersection on northern side of Cabbage Tree Road.
- Construct sealed access road through to the office and workshop area.

- Construct, offices, workshops and weighbridges to support the operation, where all structural footings / excavation limits for those facilities maintained at 1.0m above the predicted maximum groundwater level. The current topography of the workshop and office area is more than 2 m above the predicted maximum groundwater.
- Remove and complete traffic related controls on Cabbage Tree Road to allow the cut-in of access road, that will include:
  - Short term closure (i.e. 1 day) of the eastbound lane and contraflow of traffic in the westbound lane.
  - Removal of concrete barriers.
  - Cold milling of existing pavement.
  - Sealing and asphalt works.
  - Line-marking and road furniture.
- Construction of a Koala exclusion fence fronting Cabbage Tree Road and the edge of the access road through to the workshop area, including a gate across the access road to limit after hours access.

During the construction phase, operating hours will be limited to:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm Saturday.
- No construction on Sunday or public holidays.

No construction of intersection to occur, unless required for safety, during standard Christmas close down periods as specified by RMS.

# 3. POTENTIAL ENVIRONMENTAL IMPACTS

As noted in Section 1.2 above there has been no PFAS identified in samples taken from the soil, surface or ground water on the subject site, as such there is no demonstrated potential for a risk of PFAS contamination to adjoining properties due to the proposed construction activities.

## 3.1 PFAS CONTAMINATION

### 3.1.1 Human Health Risk Assessment

To assist in the evaluation of potential risks relating to the project the RAAF Base Williamtown document dated 04 April 2017, titled *Addendum to Off-Site Human Health Risk Assessment - July 2016 – Sensitivity Assessment of Outcomes of Food Standards Australia New Zealand Tolerable Daily Intakes* was reviewed. The document provides an evaluation of potential risks to residents (including recreational and commercial fishers and beef farmers, non-resident commercial fishers, non-resident council workers and visitors) from exposure to PFAS impacts under both typical and upper exposure scenarios. Typical exposure scenarios are applicable to the majority of the population, while the upper exposure scenarios are applicable for those who undertake activities at higher frequency or ingest more than the average person ingests and are therefore applicable to a small percentage of the population.

The assessment determined **elevated exposure risks** within the "Offsite Stage 2B Investigation Area" (that is applicable to the Project area) are attributed to the following exposure pathways:

- **Ingestion of groundwater**, applicable to all residents (upper and typical scenarios) – recommends no drinking of groundwater.
- **Incidental ingestion of surface water**, applicable to some people (upper exposure scenarios) – recommends avoiding or minimising incidental ingestion when swimming in surface water bodies.
- **Consumption of locally sourced seafood**, applicable to some people (upper exposure scenarios) – recommends avoiding or minimising high consumption of finfish by a child.
- **Consumption of locally grown fruit and vegetables**, applicable to some people (upper exposure scenarios) – recommends avoiding or minimising consumption.
- **Consumption of beef from locally grown cattle, eggs from locally grown back yard chickens and milk from locally grown cows where the animals were exposed to surface water as their primary drinking water supply**, applicable to some people (upper exposure scenarios) – recommends restriction of consumption.

**Low and acceptable exposure risks** for the typical and upper exposure scenarios, where no suggested precautions are recommended were identified for the following exposure pathways:

- **Dermal contact or incidental ingestion of groundwater** as a result of indoor use (excluding drinking water), outdoor use (including swimming pools, dams and surface water bodies) and irrigation.

- **Dermal contact with surface water** as a result of outdoor use (including swimming pools, dams and surface water bodies) and irrigation.
- **Incidental ingestion or dermal contact with soil and sediment** as a result of outdoor activities.
- **Inhalation of dust as a result of indoor and outdoor activities** (from soil irrigated by PFAS impacted groundwater or flooded by PFAS impacted surface water).
- **Consumption of honey**.

For the detailed background and basis of assumptions, refer to the actual document available at http://www.defence.gov.au/ID/Williamtown/Documents.asp and the associated Human Health Risk Assessment (HHRA). Refer to **Appendix C** for current investigation area mapping and latest available advice to community at the date of this report.

### 3.1.2 Construction Risk Assessment

Based on the above analysis, the management of surface water appears to be of the highest sensitivity for PFAS exposure that the proposed construction activity has ability to control. Risks associated with contaminated groundwater (other than consumption) or dust exposure under the scenarios evaluated were considered low and acceptable.

Not-withstanding the above, and given the sand quarry was not directly considered in the HHRA, as the subject land is located within the RAAF Investigation Zone, there is a perceived risk relating to the dispersion of PFAS during construction. The perceived risks may relate to:

- Air quality. **If** soil or water was contaminated with PFAS, then construction activities, particularly those that may intercept contaminated groundwater or surface water, are perceived to have the potential to increase PFAS exposure to adjoining receptors or result in the spread of PFAS. It should be noted that the NSW EPA have noted the risks of PFAS exposure due to dust generation are considered very low, which is confirmed by the HHRA. In addition, management controls applicable to all typical construction projects and monitoring proposed by this project mean the potential for dust impacts are reduced.
- Water Quality. **If** water (surface or groundwater) was contaminated with PFAS, then construction activities could result in increased exposure to PFAS or contamination of previously uncontaminated soils if water left the construction area or were utilised during construction. Surface water on site (where present) is derived from one of three sources, ponded rainfall, a high groundwater table, or flooding, all of these sources are likely to be located in only the low lying areas that occupy a very small portion of the site. It should be noted that as the construction area is located within an area of high soil permeability the likelihood of substantial runoff from the site is very limited, and the drainage and flow directions within the site limit the potential for offsite movement.
- Land contamination. **If** soil was contaminated with PFAS, then construction activities are perceived to have the potential to spread the extent of PFAS contamination within the site or to surrounding public areas (e.g. through wheel traffic or spills of soil), or result in the contamination of groundwater or surface waters that were previously uncontaminated. Importantly given the low detection levels for PFAS, **imported materials for road construction will also be subject to some testing to avoid incidental contamination on the site.**

## 3.2 NOISE

Construction noise was assessed against the NSW EPA *Interim Construction Noise Guideline 2009* where it was determined that no residence would be considered "highly noise affected" (75 dBA $_{Leq(15minute)}$), with worst case noise levels assessed at 62 dBA $_{Leq(15minute)}$.

Construction activities are expected to be 12 weeks in duration and will be undertaken during the standard construction hours of:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm Saturdays.
- No work on Sundays or public holidays.

Management of noise from the project is addressed through the implementation of the Noise Management Plan.

## 3.3 VIBRATION

The construction of the intersection and operation of the project are not expected to have any vibration impacts on surrounding properties. However, vibration is most likely to be felt during the use of vibrating rollers that may be required at some stages of the construction to meet required compaction standards.

It is noted that residents on Cabbage Tree Road have felt vibration effects during past road works, while no reports of structural damage was reported. Not withstanding the limited potential for impact, Condition 40 of the Development Consent provides for any land owner within 300 m of the quarry or the intersection to request WSS to commission a suitably qualified person to assess the condition of the structure and measures required to minimise disturbance during construction. **Figure 2** illustrates those properties that are within 300 m of the intersection.

Condition 41 provides a mechanism for the resolution of claims relating to damage to private land owner property as a result of the development.

## 3.4 AIR QUALITY

Air quality impacts for construction were not exclusively modelled, however modelling was completed for sources within the Year 1 disturbance area at the maximum annual extraction rate (530,000 tonnes per year), which is well in excess of the excavation required for construction. Modelling was also completed for the Year 8 extraction area (immediately east of Year 1 extraction area), this included extraction at the peak daily capacity of 3,000 tonnes per day. For the maximum annual extraction rate, there were no exceedances of criteria for 24 hour or annual average $PM_{10}$. For the Year 8 maximum daily extraction, without a trigger action response air quality monitoring system, up to five receptors opposite the entry of the quarry were predicted to be impacted on one or two days per year (only when background dust levels are elevated).

The trigger response framework provides real-time assessment of weather conditions and measurement of dust levels to inform operational activities onsite.

These assessment scenarios provide a likely overestimate of emissions, as in practice, there is not this volume of resource to be extracted before the operation moves away from receptors. On this basis, it is unlikely that these receptors would be adversely affected during construction.

Management of air quality from the project is addressed through the implementation of the Air Quality Management Plan.

## 3.5 WATER

Aside from the above controls relating to PFAS, construction activities will require suitable erosion and sediment controls to limit transfer of sediment offsite. The risks of sedimentation offsite are minimal on account of the following:

- Low hydraulic gradient.
- High permeability when within sands above groundwater table.
- No direct connection to any permanent water body.
- Close proximity to one ephemeral ponded area north of the intersection area with no connection to other waters offsite.
- Very low gradient (<0.4%) and large distance (over 500 m) to surrounding permanent waters (e.g. Fullerton Cove).

In the area of the intersection the maximum predicted water table would be near the ground surface for road side excavation activities. However, during typical conditions the water table would be expected to be approximately 1.0 m to 1.3 m below the ground surface. During dry conditions (as per summer 2019) the water table is in excess of 1.6 m below the ground surface.

In typical and dry conditions, no intersection of groundwater would be expected. Only following periods of high rainfall would the groundwater table be expected to be elevated. Where the water table is elevated and the construction activities require excavation, additional management of intercepted water will be required, including testing for PFAS prior to disposal.

Management of potential surface and ground water impacts from the project is addressed through the implementation of the Soil and Water Management Plan and Maximum Extraction Depth Report.

## 3.6 BIODIVERSITY

Construction will result in the clearing of approximately 3 hectares (ha) of native vegetation. The vegetation communities are effectively split into two vegetation communities relative to the elevation, these are as follows:

- Coastal Apple Sand - Black Butt Forest on land above approximately 3.5 m AHD (primarily the western and northern extent of the construction area. The construction activity will

impact on approximately 2.8 ha of this community including the existing access road with a portion of the construction disturbance transitioning into operations.

- Swamp Mahoghany - Paperbark Swamp Forest on lands below 3.5 m AHD (primarily along the northern fringe of the acceleration lane or eastern extent of the construction area). This community is Preferred Koala Habitat and is a threatened ecological community. The construction activity will impact on approximately 0.13 ha of this community.

Clearing and impacts to biodiversity will be addressed through the implementation of the Biodiversity and Rehabilitation Management Plan and the project's offset strategy.

# 4. ROLES AND RESPONSIBILITIES

Assignment of roles, responsibility and accountability ensures resources are appropriately used to implement, maintain and improve the project CEMP. Environment, health and safety outcomes are a line management responsibility (a person or group of people who direct and control the organisation with direct responsibility and accountability for all aspects, operations, products and services).

Roles used within this plan are defined below, responsibilities are shown in Section 5 or otherwise defined below.

## 4.1 EMERGENCY CONTACTS

The following contacts are available in the event of a compliant, enquiry or emergency.

**Table 4.1: Key contacts in the event of a compliant, enquiry or emergency**

| Contact | Phone |
|---|---|
| Quarry Manager | 0402 648 079 |
| Intersection Construction Manager (Daniel Pitcher) | 0459 172 557 |
| EPA – Incidents Line | 131 555 |
| EPA – Newcastle Office | 02 4908 6800 |
| OEH – Regional Operations - Newcastle | 02 4927 3119 |

## 4.2 QUARRY OWNER

The Quarry Owner is WSS who operates the quarry under the Newcastle Sand entity. The Quarry Owner is responsible for the development and assignment of a suitably qualified Quarry Manager and to provide sufficient support to the Quarry Manager to undertake the required actions defined in this plan.

## 4.3 QUARRY MANAGER

The Quarry Manager is the person who manages the Quarry and is responsible for the day to day activities on the site. The Quarry Manager reports to the Quarry Owner.

The Quarry Manager must read, understand and implement the practical application of this plan. All activities being undertaken on the quarry site are the responsibility of the Quarry Manager. In the event of absence of the Quarry Manager, responsibility falls with the Quarry Owner.

The responsibilities of the Quarry Manager are defined by **Section 5**.

## 4.4 INTERSECTION CONSTRUCTION MANAGER

The Intersection Construction Manager is the person who manages road construction activities on the site. The Intersection Construction Manager reports to Quarry Manager and Quarry Owner.

The Intersection Construction Manager must read, understand and implement the practical application of this plan. All intersection construction activities being undertaken on the quarry site are the responsibility of the Intersection Construction Manager.

## 4.5 ONSITE PERSONNEL

Onsite personnel constitutes all employees and contractors working on the site.

Onsite personnel have the following responsibilities (minimum):

- Reports to the Quarry Manager or their delegate.
- Report any incidences or complaints immediately to the Quarry Manager or delegate.
- Ensure the implementation of this CEMP with respect to their specific work practices.
- Act in accordance with the management procedures or protocols outlined in this plan.
- Ensure any potential or actual issues, including environmental incidents, are reported to the Quarry Manager or delegate in a timely manner.

# 5. ENVIRONMENTAL MANAGEMENT PROCEDURES

The CEMP is designed to outline practical and achievable management controls to ensure construction activities have minimal impact on human health and the environment specifically relating to PFASs.

An occupier of a site has a duty to prevent dispersal of potential contamination of the land and waters upon which they occupy, and to responsibly manage their activities to prevent pollution.

The measures required to control construction phase activities to mitigate or reduce their impact on human health and the environment are outlined in the following tables. These control measures are based on environmental best practice and current technologies employed to minimise adverse environmental impacts.

# 5.1 COMMUNICATION

WSS recognise the importance of open and constructive community relationships to ensure the public and in particular adjoining land owners are aware of the activities proposed on the site and contact details for WSS in the event of complaint or inquiry.

The mechanisms for communication and consultation between WSS and the community are summarised below:

## 5.1.1 Management Controls

Management controls relating to communication internally and externally on the project during construction is shown below in **Table 5.1**.

**Table 5.1: Controls for communication**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.1.1.1 Internal Communication** | | | | |
| A | • Inductions for operators and contractors working onsite will provide a summary of the key environmental aspects of the project and the controls required to minimise impacts on the community and environment. | Prior to working onsite. | Quarry Manager / Intersection Construction Manager. | Induction Record. |
| B | • All contractors and employees will participate in tool-box talks and activity risk assessments prior to working onsite or on when conditions change. The tool-box talk will include an update of current issues relevant to the works proposed and briefing of any matters relating to works and controls that may need to be applied to minimise impacts to neighbouring properties or the environment. | Daily before work or when conditions change. | All personnel. | Nil. |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.1.1.2 Website** | | | | |
| A | The Project website will include the following information:<br>• Contact details.<br>• The documents listed in condition 2(a) of Schedule 2.<br>(a) The EIS.<br>(b) Response to Submissions.<br>(c) Conditions of this consent, Development Layout Plans and the Statement of Commitments.<br>• Current statutory approvals for the development.<br>o Environmental Protection Licence.<br>o Pollution Incident Response Management Plan.<br>o Hunter Water Approval for sand extraction in the sand beds.<br>• All approved strategies, plans and programs required under the conditions of this consent.<br>• A comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs.<br>• A complaints register, updated monthly.<br>• All Annual Reviews for the development.<br>• The Review of PFAS Exposure Pathways reports (at time of Annual Review unless agreed otherwise).<br>• Independent environmental audits as described in condition 12 above, and the Applicant's responses to the recommendations in any audit.<br>• Any other matter required by the Secretary.<br>• Project Newsletters. | Ongoing. | Quarry Manager. | As required by the Consent. |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.1.1.3** | **Community Consultation** | | | |
| A | **Community Consultative Committee:**<br>A community consultative committee (CCC) for the project will be established to facilitate regular meetings with representatives of the local community. The Independent Chairperson for Cabbage Tree Road Sand Quarry CCC is John Turner contactable at ctrsqccc@gmail.com. The CCC meeting location and timing will be determined by the CCC, consistent with the relevant guidelines. | As determined by CCC | Independent Chair of CCC | AEMR |
| B | **Newsletters**<br>Community information newsletters will provide awareness of:<br>• Project progress.<br>• Operating hours, contact information and details of how to provide feedback.<br>• Ways in which further information can be sought.<br>• Summary of project issues affecting community and the response and corrective actions to resolve those issues. | Annually unless determined otherwise. | Quarry Manager | AEMR |
| C | **Notice of Lane Closure**<br>Prior to any lane closure, residents of the residential properties within the area fronting the section of lane to be closed are to be notified (by phone or mailbox drop) 24 hours prior to the closure. | 24 hours prior to lane closure. | Intersection Construction Manager | Nil |
| **5.1.1.4** | **Complaints** | | | |
| A | All complaints are to be directed to the Quarry Manager (0402 648 079). This is a dedicated number that will be maintained throughout the life of the Project. | Ongoing | Quarry Manager | AEMR |
| B | Feedback, enquiries and complaints received will be recorded in a consultation register that will be established prior to the commencement of construction and maintained throughout the life of the Project. | Ongoing | Quarry Manager | AEMR |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| C | Complaints recorded in the consultation register will include:<br>• Date and time complaint was made.<br>• Name and contact details of complainant.<br>• Nature of complaint.<br>• WSS response and commitments to follow-up by whom and when. | Ongoing | Quarry Manager | Summary included in AEMR<br>Consultation Register |
| D | The following procedure will be followed whenever a complaint is received:<br>1. Liaison with the complainant to ascertain all details and to identify the nature and source of the complaint. Details recorded in the consultation register as per Item C above.<br>2. If applicable, undertake monitoring or other investigations to verify or otherwise the exceedance or non-compliance with approval or consent condition(s).<br>3. If applicable, initiate changes in operating practices or procedures.<br>4. Provide complainant with details of investigations and/or actions taken in response to complaint.<br>5. Conduct a follow-up interview with complainant to determine their level of satisfaction with the response and the resultant outcome.<br>6. All investigations and communications recorded in consultation register. | Ongoing | Quarry Manager | Summary included in AEMR<br>Consultation Register |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| E | In the event a landowner does not consider their complaint has been resolved, the following dispute resolution process will be adopted:<br>• Meeting with landowner and Quarry Manager to determine agreed outcome.<br>• If dispute not resolved, landowner may initiate an Independent Review process through DPIE (refer Schedule 4 Condition 2 of Development Consent SSD-6125 for detail) to reach an agreed outcome.<br>• If dispute not resolved, DPIE will consult independent facilitator to make final decision. | Ongoing | Quarry Manager | Summary included in AEMR<br>Consultation Register |

## 5.2 CLEARING, EXCAVATION AND SET OUT

The following controls apply to clearing and excavation within the construction disturbance area.

### 5.2.1 Management Controls

The Biodiversity and Rehabilitation Management Plan (BRMP) and Soil and Water Management Plan should also be referred to for management of matters relating to clearing, excavation and setout. The key controls particularly relevant to construction are included within **Table 5.2**.

**Table 5.2: Clearing, excavation and set-out controls**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.2.1.1 Notification and Set-Out** | | | | |
| A | At least one month prior to physically commencing development permitted under this consent, the Applicant must notify the Department in writing of the date on which it will commence the development. | 1 month prior to construction | Quarry Manager / Quarry Owner | DPIE Letter |
| B | One month prior to commencing quarrying operations, unless otherwise agreed with the Secretary, the Applicant must:<br>(a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction within the site; and<br>(b) submit a survey plan of these boundaries with applicable GPS coordinates to the Secretary. | 1 month prior to construction | Quarry Manager | Survey Plan |
| C | Using the pegged survey boundary as the outer limit, clear using suitable mulching machinery the minimum width path achievable to clearly define the pegged boundary. The mulched path will be installed against the following requirements:<br>• Mulch vegetation only within the boundary of the resource area.<br>• Avoid trees with diameter at breast height of more than 100 mm.<br>Avoid trees containing habitat hollows. | 1 month prior to construction | Quarry Manager | Nil |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| C | The Applicant must not construct quarry infrastructure within the Tomago Sandbeds Special Area. | Construction | Quarry Manager | As built plans |
| **5.2.1.2** | **Pre-Clearance Survey** | | | |
| A | • Confirmation and delineation of resource boundaries and extent of clearing.<br>• Undertaken by suitably qualified contractor.<br>• Habitat trees (containing hollows or nests) within the clearing area will be clearly marked using flagging tape or spray paint. Habitat trees are to be felled using the procedure outlined in the BRMP.<br>• Habitat trees (containing hollows or nests) within 3 m of the resource boundary will be marked for avoidance (where feasible), including the delineation of the tree drip line to limit compaction and excavation that may affect the tree.<br>• Areas of noxious weeds or environmental weeds will be marked to avoid mixing of weed containing road with weed-free topsoil (see **BRMP**).<br>• The following surveys will be conducted within the area proposed for removal within a one day period:<br>o Nocturnal surveys will be conducted the night before clearing, and diurnal surveys will be conducted the morning of clearing, prior to commencement; and<br>o The procedure for when a Koala is identified within the clearing area is outlined below.<br>o All clearing will be supervised by a suitably qualified ecologist.<br>• Any occupied trees will be clearly marked and will be left during clearing (See BRMP). Where a Koala is identified in a tree, the Koala Protocol will be followed in BRMP. | Construction | Quarry Manager | Letter of survey |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.2.1.3 Post Clearing** | | | | |
| A | An effective radiation survey is conducted by a suitably qualified and experienced expert, approved by the Secretary, for each area of the site following vegetation clearing and prior to commencing any other ground disturbing activities. | Construction | Quarry Manager / Intersection Construction Manager | Radiation Survey Report |
| B | A Registered Aboriginal Party (RAP) representative will inspect the disturbance area prior to excavation activities consistent with the Heritage Management Plan (HMP). | Construction | Quarry Manager / Intersection Construction Manager | Stakeholder sign on register |

## 5.3 AIR QUALITY

As noted in Section 3 above, exposure to PFAS through dust is not considered to be a significant pathway for PFAS exposure. It is proposed to regulate air quality emissions from the project using a real-time continuous air quality monitoring system that will allow the quarry to suspend activities onsite to ensure the project does not cause additional exceedances of the air quality criteria. Accordingly, should any PFAS be unexpectedly identified in the material its transmission from the site will be also minimised.

The continuous air quality monitoring and meteorological monitoring proposed for the quarry includes trigger levels that will ensure the project does not cause an exceedance of the cumulative 24-hour average $PM_{10}$ criterion of 50 µg/m$^3$. Where winds are blowing directly toward receptors this may include the temporary suspension of quarrying activities. The project alone is unlikely to result in an exceedance of the 24 hour $PM_{10}$ criterion at any residence.

### 5.3.1 Management Controls

The Air Quality Management Plan (AQMP) provides for the management of air quality emissions from the site. Air Quality controls particularly relevant to construction are detailed within **Table 5.3**.

**Table 5.3: Air Quality management controls**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.3.1.1 Dust suppression measures** | | | | |
| A | Utilise water carts for dust suppression of exposed areas and haul roads. | Ongoing | Quarry Manager / Intersection Construction Manager | Record water volume used and publish in AEMR. |
| B | Within the construction area, apply mulch, polymer suppressant or other equivalent ground cover over exposed earth or stockpiles where inactive for more than 10 days. | During Construction | Quarry Manager / Intersection Construction Manager | Nil |
| **5.3.1.2 Monitoring** | | | | |
| A | Install a suitable continuous air quality monitoring network. | Ongoing | Quarry Manager | Updated to website monthly. |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | | | | Results published in AEMR. |
| B | WSS will utilise local meteorological data to allow quarry personnel to access instantaneous wind speed and direction data and also generate site specific meteorological data records. | Ongoing | Quarry Manager | Summary in AEMR. |
| **5.3.1.3** | **Trigger Response Framework** | | | |
| A | Quarry operations will be subject to a staged shutdown of equipment based on rolling 24 hour average $PM_{10}$ concentrations, $PM_{10}$ concentration spikes and adverse background air quality and meteorological conditions. Indicative completion criteria are set out below, it is important to note that these triggers will be adapted and refined as the project progresses.<br>1. Review operations and ensure water dust suppression is active (haul roads and stockpile sprays). Conduct dust suppression when:<br>a) Wind is directed toward surrounding residences, that is the weather station indicates winds are blowing from the quadrants west (270 degrees), through North (0 degrees) to East 90 degrees.<br>b) The continuous $PM_{10}$ monitor shows rolling $PM_{10}$ 24 hour average exceeds the average background concentration of 22 µg/m$^3$.<br>2. No topsoil stripping or dozer push to occur where:<br>c) Wind is directed toward surrounding residences; AND<br>d) Rolling $PM_{10}$ 24 hour average exceeds 35 µg/m$^3$.<br>3. No sand processing to occur where:<br>e) Wind is directed toward surrounding residences; AND<br>f) Rolling $PM_{10}$ 24 hour average exceeds 40 µg/m3.<br>4. If levels continue to increase after two hours, suspend sand extraction from the face where: | Continuous | Quarry Manager | Summary of the effectiveness of trigger response mechanisms provided in the AEMR. |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | g) Wind is directed toward surrounding residences; AND<br>h) Rolling $PM_{10}$ 24 hour average exceeds 42.5 µg/$m^3$.<br>5. If levels continue to increase after two hours, suspend loading trucks (no machinery operating):<br>i) Wind is directed toward surrounding residences; AND<br>j) Rolling $PM_{10}$ 24 hour average exceeds 45 µg/$m^3$. | | | |
| **5.3.1.4 Compliance Evaluation** | | | | |
| A | Evaluate compliance with air quality monitoring consistent with the AQMP. | Ongoing | Quarry Manager | Summary in AEMR. |

## 5.4 WATER QUALITY MANAGEMENT

As noted in Sections 1.1.2 there has been no PFAS measured onsite in surface water or groundwater.

Testing by AECOM 2016 detected PFAS at the limit of detection of 0.2µg/L in one residential water sample opposite the construction area. Other samples on adjoining properties measured below detection, and the single 'limit of detection' sample result represents the highest recorded level on that property (irrespective of subsequent sampling that may have been below detection).

Assessments of exposure risks as noted in Section 3.1 show that incidental ingestion of surface waters within the investigation area may present risks of elevated exposure, dermal contact with surface or groundwater, or incidental ingestion of groundwater was not found to present elevated risks of PFAS exposure.

### 5.4.1 Management Controls

The Soil and Water Management Plan (SWMP) provides for the management of water on the site. Water quality management controls particularly relevant to construction are detailed within Table 5.4.

**Table 5.4: Management controls relating to water**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.4.1.1 Intersecting Groundwater** | | | | |
| A | • Prior to excavation, review of groundwater levels in that specific area should be undertaken via measuring the nearest groundwater monitoring well to understand the potential for intersection of groundwater. Should there be a high likelihood for intersecting groundwater, the following procedures should be followed: | During Construction | Quarry Manager | Location where groundwater intercepted.<br>Sample locations, laboratory results and volumes disposed offsite, |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | 1. Review latest PFAS modelling data (Department of Defence supplied data) to understand if the excavation area is within an area of likely PFAS contamination. No change to known data as of June 2019.<br>2. Intersected groundwater must be contained within close proximity to the excavation area with erosion control features situated down-gradient of any excavation point.<br>3. Collect representative sample/s of exposed groundwater or surface water and submit for laboratory analysis for PFAS constituents.<br>4. If PFAS is not identified, the water should be pumped and disposed to an adjacent area where infiltration can occur (i.e. a compensation basin or area with sufficient bunding to prevent runoff).<br>5. If PFAS is identified, the water should be pumped and disposed off-site to an approved waste facility.<br>6. Areas with detected PFAS concentrations are to be delineated and pegged to avoid incidental disturbance.<br>7. Should excavations in the same spatial area be required to be undertaken within 1 month of previous sampling at the same location, sampling is not required.<br>• In completing the control measure outlined above, it is recommended the Quarry Manager schedule excavation activities such that monitoring groundwater levels and sampling of water is undertaken with sufficient pre-planning to avoid disruption to construction activities. | | | including disposal location. |
| **5.4.1.2 Ponded surface waters** | | | | |
| A | • Surface water will be contained adjacent to construction areas via bunds aligned perpendicular to construction areas to enable infiltration. | Ongoing | Quarry Manager / Intersection Construction Manager | Sample locations, laboratory results and volumes disposed offsite, |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | • If significant surface water is expected, then the management procedure numbers 3 to 6 inclusive, outlined in section 5.4.1.1,should be implemented.<br>• Roads will include a trafficable mound that ensures all surface water or intersected groundwater will percolate vertically into the groundwater.<br>• All impervious areas will be shaped such that water sheds to infiltration areas constructed in areas adjoining rehabilitated sections.<br>• Maintain erosion and sediment controls consistent with the Erosion and Sediment Control Guide (Department of Environment and Conservation NSW, 2006) and the Code of Practice for Managing Urban Stormwater: Soils and Construction (Landcom, 2004). | | | including disposal location. |
| **5.4.1.3** | **Water Use** | | | |
| A | • Water for dust suppression is to be drawn from the Hunter Water's reticulated water supply at Cabbage Tree Road or from rainwater tanks situated adjacent to workshop and office.<br>• No groundwater will be extracted or utilised. | Ongoing | Quarry Manager / Intersection Construction Manager | Record water volume used and publish in AEMR. |
| **5.4.1.4** | **Monitoring** | | | |
| A | • Weekly inspections of construction site and erosion and sediment control features for integrity.<br>• Inspection of controls following major rainfall event. | As specified | Quarry Manager / Intersection Construction Manager | Evidence of inspections to be kept. |
| **5.4.1.5** | **Performance Evaluation** | | | |
| A | • No release of untested groundwater or surface water off-site.<br>• Water disposal documentation available for all water removed from site. | Reviewed following high rainfall and detection of PFAS. | Quarry Manager / Intersection Construction Manager | Results included within AEMR |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | • No increase in water pooling on adjoining properties or lands outside the construction area. | | | |
| **5.4.1.6** | **Corrective Actions and Improvement** | | | |
| A | • Non-conformance includes failure to implement above controls.<br>• Control measures to be implemented or rectified in the event of a non-conformance.<br>• Investigate incidents and their causes, and retain records of investigation. | Ongoing | Quarry Manager | Results included within AEMR |

# 5.5 LAND CONTAMINATION MANAGEMENT

As noted in Section 1.1.2 there has been no PFAS detected onsite in any soil samples, nearby testing of soils by AECOM 2016 also recorded no PFAS. It is also noted that with respect to the HHRA and associated assessments dermal contact with soils in the area are not considered to present an elevated exposure pathway. These controls provide for improved controls of soils onsite and will reduce potential for spread of PFAS if detected during construction.

## 5.5.1 Management Controls

Land management controls are detailed within Table 5.5.

**Table 5.5: Management controls relating to land contamination**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.5.1.1 Movement of soils** | | | | |
| A | • Prior to excavation in a certain area, review of groundwater levels in that specific area should be undertaken via measuring groundwater monitoring wells to understand the potential for intersection of groundwater. Should there be a high likelihood for intersecting groundwater, the procedures outlined in **Table 5.4** should be followed.<br>• Soils excavated from at or below the highest predicted groundwater level will be tested for the presence of PFAS, if detected, those soils will be segregated and disposed offsite at a licenced facility or contained onsite, revegetated and excluded from future extraction.<br>• Soils with detected PFAS concentrations are to be delineated and pegged to avoid incidental disturbance. | During Construction | Quarry Manager | Sample locations, laboratory results and volumes disposed offsite, including disposal location. |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.5.1.2** | **Imported materials** | | | |
| A | • Gravels imported for use onsite will be virgin excavated materials (VENM).<br>• Random testing of imported bulk products (e.g. gravels and bitumen) for PFAS. | Materials to be supplied onsite with appropriate certificates of VENM and PFAS testing where deemed necessary by Quarry Manager. | Quarry Manager / Intersection Construction Manager | VENM certificates, and/or sample locations and laboratory results. |
| **5.5.1.3** | **Incidental soil transfer** | | | |
| A | • Bare soils to be minimised to reduce erosion.<br>• Maintain erosion and sediment controls around works areas consistent with the Erosion and Sediment Control Guide (Department of Environment and Conservation NSW, 2006) and the Code of Practice for Managing Urban Stormwater: Soils and Construction (Landcom, 2004).<br>• All vehicles leaving site to be cleaned of excess loose material prior to leaving site.<br>• In the event PFAS is detected onsite, vehicle access to those areas is to be limited to only essential traffic.<br>• In the event of PFAS detection onsite, controls relating to wheel trafficked soil from contaminated areas to be reviewed and modified to further reduce incidental transfer of soils. | Ongoing | Quarry Manager / Intersection Construction Manager | Record water volume used and publish in AEMR. |
| **5.5.1.4** | **Monitoring** | | | |
| A | • Weekly inspections of construction site and erosion and sediment control features for integrity.<br>• Random daily inspection of vehicles prior to leaving site for loose soils where PFAS has been detected onsite. | As specified. | Quarry Manager / Intersection Construction Manager | Evidence of inspections to be kept. |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.5.1.5 Performance Evaluation** | | | | |
| A | • No visible evidence of soils from construction off-site (i.e. on Cabbage Tree Road or neighbouring properties).<br>• Where soil spills from construction area are located outside construction area, spills are removed within 24 hours – if PFAS has been detected onsite, these soils will be tested for PFAS.<br>• All soils with PFAS detected has record of its current location (onsite or offsite).<br>• Water disposal documentation available for all soils removed from site. | Reviewed weekly. | Quarry Manager / Intersection Construction Manager | Results included within AEMR |
| **5.5.1.6 Corrective Actions and Improvement** | | | | |
| A | • Non-conformance includes failure to implement above controls.<br>• Control measures to be implemented or rectified in the event of a non-conformance.<br>• Investigate incidents and their causes, and retain records of investigation. | Ongoing | Quarry Manager | Results included within AEMR |

## 5.6 NOISE MANAGEMENT

Two noise impact assessments have been completed for the proposed development, including modelled scenarios of impact during construction activities (Spectrum Acoustics 2016 and Global Acoustics 2015).

A Noise Management Plan (NMP) for the proposed site has been completed (Spectrum Acoustics/Kleinfelder 2019).

Noise management during construction will utilise the controls contained within the NMP to comply with the Development consent conditions for the project.

### 5.6.1 Management Controls

The Noise Management Plan (NMP) provides for the management of noise from the project. Controls particularly relevant to construction are shown below.

**Table 5.6: Management controls relating to noise**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| A | • The NMP should be reviewed as required based on updated information from Attended Noise Monitoring Reports carried out at the identified receptor locations in the NMP. | • During Construction | • Quarry Manager | • Nil |
| B | • The proponent will inform potentially noise affected residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details. | • Prior to commencement of construction | • Quarry Manager | • Nil |
| C | • Operating hours have been restricted to minimise impacts to neighbouring residences. Quarry activities will be undertaken in accordance with those hours outlined in **Table 1.1** of this plan. | • Ongoing | • Quarry Manager | • Nil |
| D | The following activities are permitted outside the hours specified in **Table 1.1**:<br>• Delivery or dispatch of material as requested by Police or other public authorities; and | • Prior to commencement of these activities or as soon as | • Quarry Manager | • Nil |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | • Emergency work to avoid the loss of lives, property or to prevent environmental harm.<br>• In such circumstances, WSS will notify DPIE and affected residents prior to undertaking the activities, or as soon as practicable thereafter. | practicable thereafter. | | |
| E | • All feasible and reasonable work practices will be implemented where possible to meet the noise affected level. | • During construction | • Quarry Manager / Intersection Construction Manager | • Nil |
| F | • Construction personnel will be made aware of the requirement to minimise noise, and to implement best practice operating techniques to minimise noise. | • During construction | • Quarry Manager / Intersection Construction Manager | • Nil |
| G | • Consideration should be given to operating low noise emission plant where possible. | • During construction | • Quarry Manager / Intersection Construction Manager | • Nil |
| H | • Use of broadband reversing beepers wherever feasible. | • During construction | • Quarry Manager / Intersection Construction Manager | • Nil |
| **Monitoring** | | | | |
| A | Monitoring undertaken during construction will include:<br>• Attended noise monitoring at the potentially most affected residences at commencement, or during the highest noise emitting period, of each construction activity. Indicatively, this will include the following activities:<br>o Earthworks and subgrade preparation for intersection.<br>o Road sealing of the intersection.<br>o Excavation for internal access road and compound area.<br>o Construction of office and workshop compound. | • During construction (at stages specified) | • Quarry Manager | • Attended Noise Monitoring Report |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | • If noncompliance is demonstrated, additional monitoring will be undertaken within one week following implementation of additional mitigation controls. | | | |
| **Performance Evaluation** | | | | |
| A | Attended monitoring results are to be assessed for performance using the following protocol and noise trigger values:<br>• Are results above level predicted in EIS of 62 dB(A), and less then 75 dB(A)?<br>o No – Continue work with existing controls<br>o Yes, then:<br>▪ Do standard meteorological conditions apply;<br>▪ If non-standard weather conditions apply (as per Section 5.2 / NPI), undertake follow-up monitoring if criterion is exceeded by more than 2 dB;<br>▪ Are the results considered to be directly related to activities onsite or are they from an unrelated source?<br>▪ If related to activities onsite and standard weather conditions apply, a review and improvement of controls are required.<br>• Results above the highly noise affected construction criteria (75 dB(A)):<br>o Suspend activity resulting in likely source of exceedance;<br>o Implement additional controls. | • When exceedance of noise trigger value | • Quarry Manager | • Results included in AEMR<br>• Incident Notification |
| B | • If exceedance of noise trigger values is demonstrated, additional monitoring will be undertaken within one week following implementation of additional mitigation controls. | • Following exceedance of noise trigger value | • Quarry Manager | • Results included within AEMR |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| C | • All complaints will be recorded in the Consultation Register and resolved in line with the project Complaints Procedure in Section 5.1.1.4 of the this CEMP. | • Ongoing | • Quarry Manager | • Summary in AEMR. |
| **Corrective Actions and Improvement** | | | | |
| A | If above 62 dB(A) or repeated concerns by residents regarding noise levels:<br>• Review controls to identify opportunity to reduce noise level.<br>• Discuss with the resident options to minimise affect of noise.<br><br>If above 75 dB(A), and operational practices cannot be improved, consult with the residents of impacted dwellings to discuss potential reasonable and feasible (mitigation measures, this may include:<br>• Discussions with the resident options to provide respite.<br>• Double glazing of windows or similar improvements to dwellings.<br>• Erection of a noise barrier (on resident's property or near source).<br>• Provide compensation to allow receptor to seek relief from noise emissions.<br>• If a non-compliance has occurred, additional monitoring will be undertaken within one week following implementation of relevant additional management controls listed above. | • Following exceedance of noise trigger value. | • Quarry Manager | • Incident Investigation and Corrective Actions Report provided to DPIE within 7 days of event. |

# 5.7 VIBRATION MANAGEMENT

Potential impacts to residential properties from vibration are considered unlikely and consistent with typical road works conducted by RMS or Council. Road works frequently occur with no impacts due to vibration at distances as little as 15-20 m from the house (i.e. typical residential area), where in this area road works will be more than 50 m from the nearest house. While impacts are considered unlikely, as vibrating rollers are to be used appropriate Management Controls have been developed (Table 5.7) to monitor their impact and provide opportunity for mitigation if necessary.

## 5.7.1 Management controls

Controls particularly relevant to construction are shown below. Management controls related to Vibration are listed in **Table 5.7**.

**Table 5.7: Vibration management controls**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| A | Consistent with Schedule 3, Condition 40, if the Applicant receives a written request from the owner of any privately-owned building or structure located within 300 metres of quarrying operations or the Cabbage Tree Road intersection works (whether those operations or works are proposed or existing) for an inspection to establish the baseline condition of the building or structure, then within 2 months of receiving this request the Applicant shall:<br>(a) Commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to:<br>• Establish the baseline condition of the building or structure.<br>• Identify the measures that should be implemented to minimise the potential impacts of the development on the building or structure.<br>(b) Give the landowner a copy of the property inspection report.<br>If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or landowner | On receipt of written request and within two months of request. | Quarry Manager | Baseline property report |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | disagrees with the findings of the independent property investigation, either party may refer the matter to the Secretary for resolution. | | | |
| B | Consistent with Schedule 3, Condition 41, if any owner of privately-owned land claims that a building or structure on their land has been damaged as a result of the development, then within 2 months of receiving this claim in writing from the landowner, the Applicant shall:<br>(a) Commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and<br>(b) Give the landowner a copy of the property investigation report.<br>If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damage to the satisfaction of the Secretary.<br>If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or landowner disagrees with the findings of the independent property investigation, either party may refer the matter to the Secretary for resolution. | During construction | Quarry Manager | As required by condition |
| C | Monitoring undertaken during construction will include:<br>• Vibration monitoring at the potentially most affected residences at commencement, or during the highest vibration emitting period, of Cabbage Tree Road intersection construction activity.<br>• If noncompliance is demonstrated, additional monitoring will be undertaken within one week following implementation of additional mitigation controls. | During construction | Quarry Manager | Attended Noise and Vibration Monitoring Report |

# 5.8 TRAFFIC AND PROPERTY ACCESS MANAGEMENT

Access to private properties off Cabbage Tree Road requires vehicles to either turn right across the opposite travel lane or turn left into the property. For vehicles turning right across the road, a narrow shoulder and road verge was available on for east bound vehicles to slow and overtake the stationary vehicle waiting to turn, during construction of the intersection, no shoulder or verge will be available for properties opposite to the intersection. Correspondence with land owners has identified this issue as an existing risk, with many opting to travel to the nearby roundabout on Nelson Bay road to make a safer left hand turn into the property.

Management of traffic during construction is subject to the implementation of traffic management and construction methodologies approved by the RMS within Works Authorisation Deeds for the intersection. A copy of the proposed intersection traffic control/ management plan is included in **Appendix D**. Key aspects of this plan include:

- Speed limit reduced to 60km/h.
- Concrete barrier placed on shoulder of east bound lane (may require temporary east bound lane closure).
- Road works signage.
- Temporary closure of east bound lane at completion of intersection construction to remove barriers and cut in intersection.

During operations, the road works associated with the intersection is expected to improve the quality of the road shoulder making east bound overtaking of stationary traffic safer. Operational traffic matters will be addressed by the Traffic Management Plan (TMP), which includes a driver Code of Conduct for sand haulage from the site.

## 5.8.1 Management Controls

Management controls related to management of property access during construction are detailed in **Table 5.8.**

**Table 5.8: Management controls relating to property access**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| A | • The proponent will inform potentially affected residents on the following aspects of the development:<br>o Nature of works to be carried out. | Prior to commencement of construction | Quarry Manager | Nil |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| | o Expected vibration and noise levels, including option for baseline property inspections.<br>o Duration of works.<br>o Contact details.<br>o Note the closure of the shoulder and potential change in risk of east bound traffic on Cabbage Tree road making right hand turns into private property. | | | |
| B | • Traffic control plans prepared by an accredited person are to be approved by the RMS prior to implementation by an accredited person for the construction of the quarry intersection. Refer to **Appendix D**. | Prior to intersection construction | Quarry Manager | Nil |
| C | **Notice of Lane Closure**<br>• Prior to any lane closure, residents of the residential properties within the area fronting the section of lane to be closed are to be notified (by phone or mailbox drop) 24 hours prior to the closure. | 24 hours prior to lane closure. | Quarry Manager / Intersection Construction Manager | Nil |
| D | • No parking of contractor vehicles within the road reserve on the southern side of Cabbage Tree Road unless under traffic control. | During Construction | Quarry Manager / Intersection Construction Manager | Nil |
| E | • All feasible and reasonable work practices will be implemented where possible to meet the noise affected level. | At all times | Quarry Manager / Intersection Construction Manager | Nil |
| F | • Construction personnel will be made aware of the requirement to minimise noise, and to implement best practice operating techniques to minimise noise. | During Construction | Quarry Manager / Intersection Construction Manager | Nil |
| G | • Consideration should be given to operating low noise emission plant where possible. | During Construction | Quarry Manager | Nil |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| H | • If non-compliance is demonstrated, additional monitoring will be undertaken within one week following implementation of additional mitigation controls. | Following non-compliance. | Quarry Manager | Results included within AEMR<br>DPIE notified where non-compliance identified. |
| I | • All complaints will be recorded in the Consultation Register and resolved in line with the project Complaints Procedure in Section 5.2.1.2 of the project EMP. | Ongoing | Quarry Manager | Summary in AEMR. |

# 5.9 WASTE MANAGEMENT

Controls related to waste management have been designed to ensure that the generation of waste does not impact on adjoining landowners, the community in general or the environment.

## 5.9.1 Management Controls

Management controls related to waste management during construction are detailed in **Table 5.9.**

**Table 5.9: Management controls relating to waste**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| A | Application to Port Stephens Council for installation of effluent management system. | During construction (prior to construction of ablutions and effluent management system). | Quarry Manager | Application to PSC |
| B | All wastes generated by Cabbage Tree Road Quarry will be managed by the way of Council collection services or via appropriately licensed waste contractors. | Ongoing | Quarry Manager | Waste tracking documentation |
| C | Waste is to be separated into appropriate waste streams for recycling and disposal. Waste receptacles must be secured and covered when not in use. | Ongoing | Quarry Manager | Waste tracking documentation |
| D | The on-site effluent system must be located and constructed in accordance with Port Stephens Councils *Development Assessment Framework* for on-site sewerage. | During Construction | Quarry Manager | AEMR |
| E | Temporary sewage receptacles (e.g. portaloos) must be appropriately maintained and disposed to a licenced waste disposal location. | During Construction | Quarry Manager | Nil |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| F | No onsite disposal of waste will occur. | Ongoing | Quarry Manager / Intersection Construction Manager | Nil |
| G | Scrap metal will be deposited into a dedicated receptacle for periodic collection and recycling. | Ongoing | Quarry Manager | Waste tracking documentation |
| H | Diesel fuel will be stored within self-bunded above ground tank and all refuelling will be undertaken on a bunded refuelling area. | Ongoing | Quarry Manager / Intersection Construction Manager | Nil |
| I | During excavation any foreign materials encountered will signal an immediate stop work in the proximate area until the nature of the object/s can be determined. In the case of uncovered potential asbestos sheeting or pipe laboratory testing may be required to determine if asbestos fibres are present in the surrounding sand. | Ongoing | Quarry Manager | AEMR |
| J | All waste oil will be collected and stored in containers within a covered and bunded area, and will be removed from the site by an appropriately licensed contractor with all relevant waste tracking documentation completed. | Ongoing | Quarry Manager / Intersection Construction Manager | Waste tracking documentation |
| K | Silt will be periodically removed from the various silt control structures and used in progressive rehabilitation of the site | Ongoing | Quarry Manager | Waste tracking documentation |
| L | Wastewater from the amenities, workshop and laboratory will be collected in a pump-out system and transported off-site by a licensed contractor. | Ongoing | Quarry Manager | Waste tracking documentation |

# 5.10 VISUAL AMENITY

Controls related to visual amenity have been designed to ensure that wherever possible, the development does not detract from the existing visual amenity of the surrounding area.

## 5.10.1 Management Controls

Management controls related to vidual amenity and construction are detailed in **Table 5.9.**

**Table 5.10: Management controls relating to visual amenity**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| A | All structures with the potential to be visible from off site will be finished in non-reflective natural tones which blend with natural vegetation. | During construction | Quarry Manager | Nil |
| B | Any required lighting will be directed downwards in accordance with relevant Australian Standards (AS 4282- Control of Obtrusive Effects of Outdoor Lighting). Lighting to be installed on southern and northern side of Cabbage Tree Road. | During construction | Quarry Manager / Intersection Construction Manager | Nil |
| C | Exclude resource extraction and manage clearing during construction to maintaining a vegetated screen, for the first 75m of the access road from Cabbage Tree Road. | During construction | Quarry Manager/ Intersection Construction Manager | Nil |
| D | Areas of disturbance are kept to the minimum practicable at any one point. | During construction and ongoing | Quarry Manager / Intersection Construction Manager | Nil |

## 5.11 Fire Management and Hazards

The development site and surrounding area have a significant history of impact from bushfire. Bushfire emanating from land external to the project site is not within the control of WSS. However, it is the legal responsibility of WSS to mitigate the risk of fire on land under their control.

### 5.11.1 Management Controls

Controls related to the mitigations of the identified risk are listed in **Table 5.11**.

**Table 5.11: Management controls relating to fire and hazards**

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.11.1.1 Ignition Controls** | | | | |
| A | Review bushfire danger ratings and when total fire bans are in place prior to undertaking clearing activities or other hot works onsite. Postpone activity where feasible or increase preparedness through having a fire tanker on standby. | Prior to undertaking clearing activities. | Quarry Manager / Intersection Construction Manager | Nil |
| B | All mobile machinery and fixed plant to include on-board fire extinguishers. | At all times. | All | Nil |
| **5.11.1.2 Asset Protection** | | | | |
| A | Maintain a 40 m asset protection zone (APZ) around the office and workshop area. | At all times. | Quarry Manager | Nil |
| B | Maintain access roads and mapping of those tracks. | At all times. | Quarry Manager | Nil |

| Item | Action | Trigger/Timing | Responsibility | Reporting |
|---|---|---|---|---|
| **5.11.1.3 Fuel Storage and Refuelling** | | | | |
| A | All dangerous goods will be stored in accordance with AS1940, AS1596 and the Dangerous Goods Code. | Ongoing | Quarry Manager | Nil |
| B | Procedures for refuelling and servicing of all plant and equipment will be undertaken in a manner to prevent spills and soil and water contamination, as per the Soil and Water Management Plan. | Ongoing | Quarry Manager / Intersection Construction Manager | Nil |

# 6. REFERENCES

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Department of Environment and Climate Change, 2009, Interim Construction Noise Guideline.

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Kleinfelder, 2017a, Per- and poly-fluorinated alkyl substances assessment, Proposed Williamtown Sand Quarry, 398 Cabbage Tree Road, Williamtown.

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Landcom, 2004, Managing Urban Stormwater: Soils and Construction.

RCA Australia, 2016, Groundwater Assessment, Cabbage Tree Road, Williamtown.

AECOM, April 2017 , *Addendum to Off-Site Human Health Risk Assessment - July 2016 – Sensitivity Assessment of Outcomes of Food Standards Australia New Zealand Tolerable Daily Intakes* for Department of Defence. Accessed at http://www.defence.gov.au/ID/Williamtown/Documents.asp

AECOM, 8 August 2016, *Off-Site Human Health Risk Assessment July 2016, RAAF Base Williamtown, Williamtown NSW* for Department of Defence. Accessed at http://www.defence.gov.au/ID/Williamtown/Documents.asp

AECOM, 30 June 2016, *Stage 2B Environmental Investigation Report, RAAF Base Williamtown, Williamtown NSW* for Department of Defence. Accessed at http://www.defence.gov.au/ID/Williamtown/Documents.asp

Spectrum Acoustics December 2016*, Noise Impact Assessment, Proposed Sand Quarry, Cabbage tree Road Williamtown*. Project ref; 161267

Global Acoustics 26 November 2015, *Noise Impact Assessment Cabbage Tree Road Williamtown Sand Quarry*. Project Ref; 14328_RO3

Spectrum Acoustics/Kleinfelder 9 November 2018. Noise Management Plan Williamtown Sand Syndicate Cabbage Tree Road Sand Quarry.

# 7. LIMITATIONS

The findings and conclusions contained within this Environmental Management Plan are made following a review of information, reports, correspondence and data previously reported by third parties. Kleinfelder does not provide guarantees or assurances regarding the accuracy and validity of information and data obtained by third parties in previously commissioned investigations. The recommendations presented in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report.

Kleinfelder has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality.

Kleinfelder does not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

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# APPENDIX A: CORRESPONDENCE

**Summary of corrections made during consultation.**

| Correspondence | Comment | Response |
|---|---|---|
| Email from DPIE regarding amendment of draft CEMP on 5 August 2019 | 1. Page 1, last paragraph; Page 6 References. As one of the main impacts, (most likely the main impact), of road construction will be the noise impacts generated by these works. Accordingly, I consider that the most relevant guideline to be that of Interim Construction Noise Guideline, Department of Environment and Climate Change July 2009 (ICNG). Please check the CEMP against this guideline. | • CEMP reviewed in line with requirements of*Interim Construction Noise Guideline, Department of Environment and Climate Change,* July 2009 |
| | 2. Page 2, Figure 1. Condition 40 of Schedule 3 refers to property inspections being available for owners of privately-owned buildings or structures located within 300 metres of quarrying activities or the Cabbage Tree Road intersection works. These works are displayed on Figure 2 and extend particularly to the east of the entry to the quarry. Accordingly, the yellow dashed line on Figure showing "*Baseline Structural Survey on Request (300m Buffer)*" is incorrect and should be extended to the east.<br>Comment: One of the main concerns about the construction of the intersection works is the vibration effects of vibrating compaction rollers used in road construction and whether these vibrations have an effect on residences and residents. It is quite possible that these vibration will be felt by residents and at the very least will be an amenity issue for some residents. | • Buffer distance presented at 300 m |
| | 3. Page 11, Section 3.3. Similar comment to that in Item 2. The issue of vibrating compactors needs to be addressed. | • Vibration caused by vibrating compactors is considered by the Vibration Management Controls which manage vibrations from the activity. |
| | 4. Page 11, Section 3.4, first paragraph. … *(immediately east of Year 1)* probably needs an extra word or two such as "*extraction areas".* | • Wording amended to capture '*extraction areas*'. |
| | 5. Page 13, Section 4.1. Table 4.1. This CEMP will not be approved by the Department unless it contains a working contact phone number for complaints during construction works, in accordance with the ICNG. (This ideally should extend to a complaints contact number for the life of the quarry). | • Working contact number has now been finalised and added to the CEMP |
| | 6. Page 18, Section 5.1.1.3, Row A. The Responsibly for the CCC should be shared with the Independent Chair, Mr John Turner. | • Updated to include responsibility of Independent Chair of CCC. |

| Correspondence | Comment | Response |
|---|---|---|
| | 7. Page 19, Section 5.1.1.4, Row A. Please establish and provide the dedicated complaints phone contact number . | • Working contact number has now been finalised and added to the CEMP |
| | 8. Page 20, Section 5.1.1.4, Row E. The reader is referred to Table 42 for detail. I cannot locate Table 42. Please correct and clarify. | • Amended to now correctly read 'Schedule 4-2'. |
| | 9. Page 22, Section 5.2.1.2, Row B; Page 23, Section 5.2.1.3, Row B. Remove "*An appropriately qualified*" and replace with *"A".* | • Amended |
| | 10. Page 23, Section 5.2.1.3, Row A. Replace "*Letter of Survey"* with *"Radiation Survey Report".* | • Amended |
| | 11. Page 25, Section 5.3.1.3, Row A. what does *"Conduct where SMS alert:"* mean? Please clarify and revise text. | • Changed to read *'Conduct dust suppression when:…'* |
| | 12. Page 27, Section 5.4, second paragraph. I do not understand the second sentence. Is the word *"since"* missing from in front of *"then"*? Even so, what is this sentence trying to convey? | • Entire sentence reworded for clarity |
| | 13. Page 29, first dot point on that page. The reference to Controls # 3-6 is unclear. Is this a reference to the *"procedures"* in Section 5.4.1.1, Row A? | • Yes it is a reference to procedure numbers, updated for clarity. |
| | 14. Page 31, Section 5.5.1.1, Row A. Where is Table 43 located? I could not locate it. | • Referencing error. Updated to reflect correct table number. |
| | 15. Page 34, Table 5.6, Row D. the reference to Table 1, is more correctly a reference to Table 1.1. | • Updated to Table 1.1. |
| | 16. Page 38, Section 5.7. This section should include a discussion of the use of vibration compactors and their effects. | • The use of vibration compactors is now directly linked to the management controls in place for vibration. |
| | 17. Page 38 and following. The identification of rows in Table 5.8 needs correction. It commences with three Row As and following Row E, recommences with Row A. | • Corrected. |
| | 18. Appendix A, July 2019 Newsletter. This newsletter incorrectly attributes approval of the quarry to the Joint Regional Planning Panel, rather than to the Independent Planning Commission.<br>The listed properties along Cabbage Tree Road under "Vibration" should be checked to ensure that they include all properties required by the consent to be offered property inspections.<br>The newsletter should also contain the information under "Noise" that the worst-case construction noise impact is predicted to be 62 dB(A). (see section 3.2 of the CEMP).<br>The Newsletter should contain a complaints contact phone number for a responsible on-site person. That is, someone who has the means and authority to | • Edition 5 of the Newsletter will be delivered which addresses each of these comments. Edition 5 of the Newsletter will be delivered prior to commencement of construction activities. |

| Correspondence | Comment | Response |
|---|---|---|
| | order any needed corrective actions, including that of stopping work.<br>If corrections are needed, then a revised Newsletter must be distributed prior to the commencement of construction activities. | |
| | One of the main features of a Construction noise Management Plan is that it is prepared in consultation with, and takes account of the needs of, individual residents. What one residents is seeking to lessen construction impacts, will be different to other residents. Factors such as whether the resident is home throughout the day, or works, whether they plan to be totally away for some of the construction period, whether respite could be offered, timing of certain works to reduce impacts should all be considered and incorporated into the final CEMP (incorporating the Road Construction Management Plan). | • Feedback received from individual residents on the draft CEMP, as requested and encouraged by Edition 4 of the Newsletter, along with wider consultation detailed within Appendix A of the CEMP has been addressed in the revised CEMP (dated 16 August 2019). |
| Email from Kieron Rochester on 13 August 2019, regarding meeting on 12 August 2019 | Jonathan, thank you for yours and Darren's time yesterday. As discussed below are the notes I have from our discussions.<br>• Notice of commencement to construct already provided to DPIE<br>• 3-4 other local residents have been consulted on the CEMP. This is all of the residents that have requested further information;<br>• Detailed discussion around the traffic management issues during road construction (signage, 60km/hr speeds etc);<br>• Cabbage Tree Road will be reduced to 1 lane with traffic controllers for ~ 1 day for cut in of the entrance;<br>• Design of entrance was changed to allow increased distance for truck acceleration and discourage right hand turns;<br>• 2 * permanent street lights will be included for construction;<br>• Construction excludes sundays & public holidays (incl RMS no access period over Xmas if construction delayed);<br>• Parking on south side of CTR during construction will not be required;<br>• Telephone and water will not be interrupted during construction;<br>• Community newsletter to be used for notices as well as phone calls to KR for major events<br>Actions:<br>• CTRSQ is happy for us to request attended noise monitoring if required<br>• CTRSQ will provide detail on the baseline building survey for vibration impacts | • Changes made to include additional street lighting information in Figure 2, Section 2 and Section 5.10.<br>• Changes made to include additional information on Traffic controls in Section 5.8 and Appendix D.<br>• Additional detail included in Section 2 relating to close down periods.<br>• Baseline survey to be organised prior to Intersection construction commencing.<br>• Comments from DPIE addressed as per Appendix A of this CEMP.<br>• Draft of this CEMP provided on 19 August 2019. |

| Correspondence | Comment | Response |
|---|---|---|
| | • CTRSQ will reissue the draft CEMP for review including the comments from DPIE as well as :<br>o Traffic Management Plan including changes in traffic conditions<br>o Location of permanent street lights<br>We look forward to reviewing the next draft. | |
| Email from Kieron Rochester on 21 August 2019 | - Page 8<br>: all permanent street lighting will be and designed to not impact on the residences and located beyond the boundaries of 393 & 397 CTR<br>: no interruption to residence utilities during construction phase<br>Traffic Control Plan - seems to be partly in the Site Activities and part in the back - shouldn't this be in the body of the CEMP with all the other Plans ? We were also expecting to see a description of it referencing the Daracon map rather than just the map - eg road down to 1 lane with traffic controllers for X days during cut in etc. | • Included additional text in Section 2 (page 8) regarding lighting and utilities.<br>• Added additional traffic control information within Section 2.<br>• Daracon map retained as an Appendix given it has been prepared by Daracon. |
| Email from Kieron Rochester on 27 August 2019 | Probably an oversight but the Plan does not say there is signage for the speed restriction westbound.<br>Also can you include a note that affected residents will be notified (through letter drop or phone call) when the road is to be part closed. | • Update to Section 2 to highlight speed reduction in both directions.<br>• Update to Appendix D Traffic Plan to make the speed limit change for both directions clearer.<br>• Add control in Section *5.1.1.3 - Communication* for notice prior to lane closure.<br>• Add control in Section *5.8.1 – Traffic and Property Access* for notice prior to lane closure. |

**Additional controls / correspondence applied during construction**

| Correspondence | Comment | Response |
|---|---|---|
| | | • |
| | | • |
| | | • |
| | | • |
| | | • |
| | | • |

Planning, Industry & Environment

**Energy & Resources**
**Planning & Assessment**
Contact: Colin Phillips
Telephone: 9274 6483
Email: colin.phillips@planning.nsw.gov.au

Mr Jonathan Berry
Senior Advisor
Kleinfelder Australia Pty Ltd
95 Mitchell Road
CARDIFF NSW 2285

Dear Mr Berry

**Cabbage Tree Road Sand quarry (SSD 6125)**
**Approval of Construction Environmental Management Plan**

I refer to your recent submission of a revised draft Construction Environmental Management Plan which incorporates a Road Construction Management Plan required by condition 29(a) of Schedule 3.

The Secretary has approved the Construction Environmental Management Plan and the Road Construction Management Plan.

Please contact Colin Phillips on the details above if you have any questions.

Yours sincerely

Howard Reed 26.8.19

Howard Reed
**Director Coal and Quarry Assessments**
**Energy and Resource Assessments**
As the Secretary's nominee

# APPENDIX B: ENVIRONMENT INSPECTION CHECKLIST

# Environmental Inspection Checklist

This checklist is not intended to show compliance with all management actions and management plans, but provide a simplified check list to assist the Project in minimizing environmental and community impacts.

Inspection should be completed at least weekly during construction, with records retained.

| | | | | | |
|---|---|---|---|---|---|
| Inspected by: | | | | | |
| Date: | | | | | |
| Time: | | | | | |
| **Weather Conditions** | | | | | |
| *Rain in last 24 hours* | *Clear* | *Overcast* | *Windy* | *Storms* | *Rain* |
| *Wind direction* | | | | | |

**Instructions:**
Provide a response to the questions below, placing a X in the Yes, No, N/A or Action column, comment as needed.

| ID | Inspection Item | Yes | No | N/A | Action | Comment / Required action description |
|---|---|---|---|---|---|---|
| **1** | **General** | | | | | |
| A | Have all actions raised in the previous inspections been closed out? | | | | | |
| B | Have all actions from any recent environmental incidents been adequately investigated and appropriately addressed? | | | | | |
| C | Is the boundary of the works area and Project boundary clearly visible and all works occurring within the Project boundary. | | | | | |
| D | Are all access roads essential for the works being undertaken? | | | | | *(if No – can they be closed and rehabilitated)* |
| **2** | **Vegetation Management** | | | | | |
| A | If clearing, are clearing protocols being followed (refer to Biodiversity Plan) | | | | | |
| B | Vehicles, equipment, stockpiles are not parked within trees' drip line for vegetation not being cleared. | | | | | |
| C | Boundary of clearing limits is clearly visible and has been set by surveyor and ecologist. | | | | | |

| ID | Inspection Item | Yes | No | N/A | Action | Comment / Required action description |
|---|---|---|---|---|---|---|
| D | Weeds, where present are managed consistent with Biodiversity Plan. | | | | | |
| **3** | **Post Clearing** | | | | | |
| A | Has the cleared area been inspected for Aboriginal artefacts? | | | | | |
| B | If working within previously mined area, has area been surveyed for radiation (i.e. potential monazite presence)? | | | | | |
| **4** | **Noise Management** | | | | | |
| A | Equipment turned off when not in use. | | | | | |
| B | Does equipment have broad band reversing beepers? | - | - | - | | |
| C | Can work practices improve to orientate exhaust into site, not toward residences? | | | | | |
| **5** | **Dust Management** | | | | | |
| A | Is the work area free from visible dust? | | | | | |
| B | What activity is creating the most dust? | - | - | - | | |
| C | Is dust being generated above wheel height? | | | | | *If YES – action required* |
| D | Is monitoring system operational? | | | | | |
| E | Has the trigger response plan been triggered in last 24 hours? | | | | | |
| **6** | **Erosion and sediment control** | | | | | |
| A | Is there any areas of bare sand/soil that are not within an active area? (active area is an area used in last 10 days) without suitable erosion control? | | | | | *If YES – action required* |
| B | Are sediment fences placed down gradient of works area? | | | | | |
| C | Are sediment fences installed correctly and maintained free of more than 30% silt? | | | | | |
| D | Are upgradient diversions in place where practical to limit inflow to work area? | | | | | |

| ID | Inspection Item | Yes | No | N/A | Action | Comment / Required action description |
|---|---|---|---|---|---|---|
| E | Are there any areas of erosion visible onsite? | | | | | |
| F | Are topsoil stockpiles less than 2 m in height? | | | | | |
| **7** | **Water Management** | | | | | |
| A | Is water level at nearest bore below base of excavations? | | | | | |
| B | Has PFAS been detected during monitoring? | | | | | |
| C | Do excavations have any ponded water? | | | | | |
| D | Has ponded water been analysed for PFAS? | | | | | |
| E | If PFAS measured onsite, are relevant controls in site as per the CEMP? | | | | | |
| **8** | **Traffic Management** | | | | | |
| A | Are adjacent public roads free of loose debris? | | | | | |
| B | Are truck loads coming to and leaving the site covered and drawbars and other sills free off loose dirt and sand | | | | | |
| C | Is there a traffic management plan in place? | | | | | |
| **9** | **Other Observations / Notes** | | | | | |

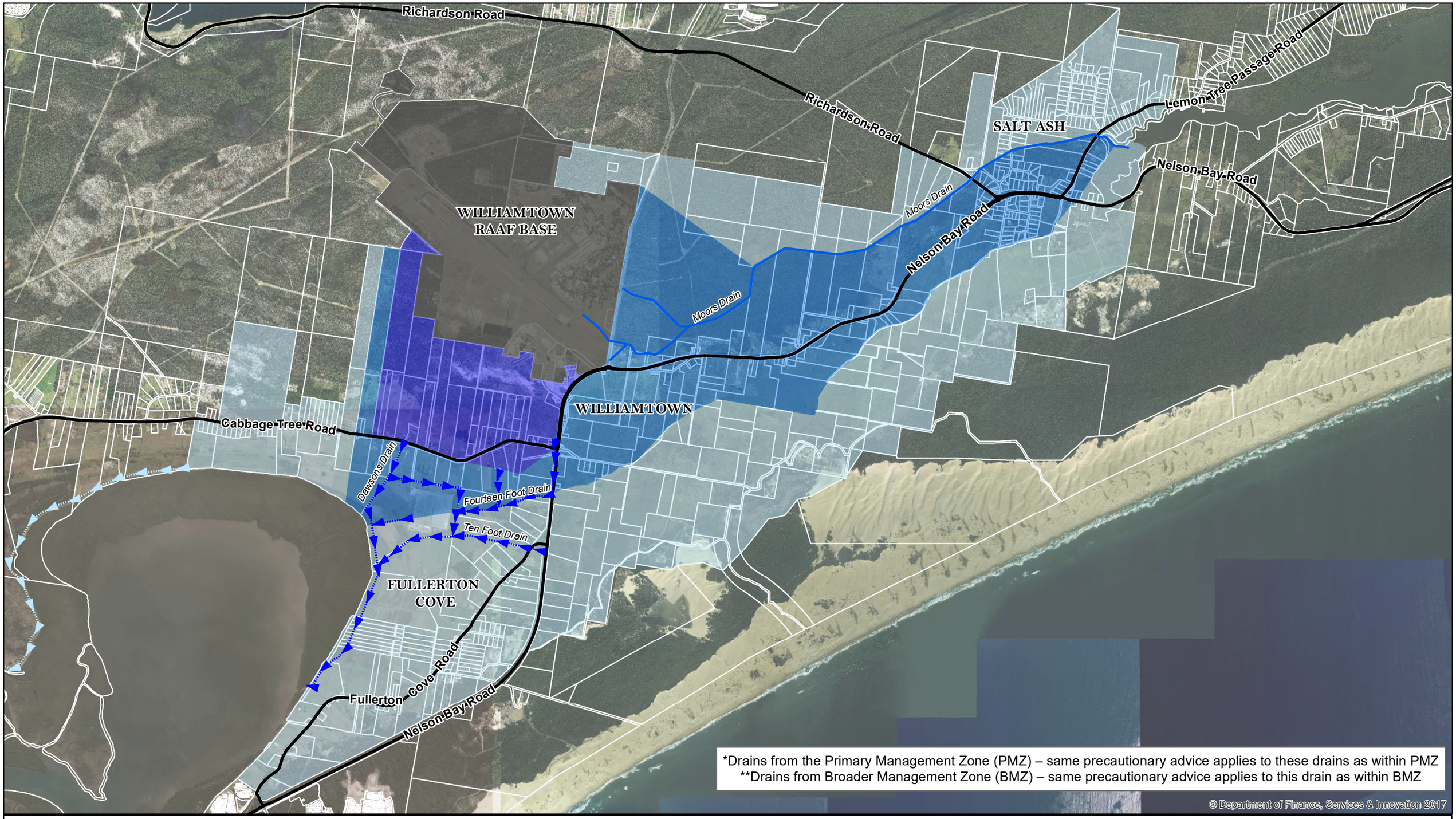
*Note any potential risks or actions in addition to the above to minimize impacts to environment and community.*

# APPENDIX C: WILLIAMTOWN RAAF CONTAMINATION INVESTIGATION AREA AND LATEST COMMUNITY ADVICE

http://www.portstephens.nsw.gov.au/your-council/news/williamtown-contamination-update

https://www.epa.nsw.gov.au/working-together/community-engagement/community-news/raaf-williamtown-contamination

http://www.defence.gov.au/environment/pfas/williamtown/




Primary Management Zone
Secondary Management Zone
Broader Management Zone
Williamtown RAAF Base
Property Boundary
Roads
Moors Drain
Drains from Primary Management Zone*
Drains from Broader Management Zone**

# Williamtown Management Area

Map Created: 19/12/2017



Base imagery: Nearmap 17 November 2017

N

0 1,000 2,000 Metres

Coordinate System: GDA 1994 MGA Zone 56

NSW GOVERNMENT

# Williamtown Management Area Map

The Williamtown Management Area comprises three zones:

- **Primary Management Zone –** this area has significantly higher levels of PFAS and therefore the strongest advice applies.
- **Secondary Management Zone –** this area has some elevated levels of PFAS.
- **Broader Management Zone –** the topography and hydrology of the area means PFAS detections could occur now and into the future.

Each zone has tailored precautionary advice for residents to minimise exposure to PFAS originating from the RAAF Base Williamtown.

The map is based on many sources of information, including:

- The Defence Human Health Risk Assessment monitoring data (released 5 December 2017)
- The location of drainage lines, creeks and other surface water features
- The height of land above sea level
- The location of property boundaries and roads
- Surface water and groundwater flow information based on actual measured data, and modelled data for where contamination may flow in the future.

The map also shows drains leading from the Primary Management Zone (marked as dark blue arrows) and Moors Drain in the Secondary Management Zone (marked with a blue line). The precautionary advice for the area in which the drain is located applies.

Following feedback from the community, the EPA has been working with a group of water experts and the Williamtown Community Reference Group to improve the maps for the various management zones:

- Property boundaries have been overlaid to easily identify individual properties.
- Names of main roads have been included for easy reference
- The three zones within the Management Area are now identified by three shades of blue, representing the concentrations of PFAS detected. This also improves ease of access for visually-impaired people.
- There are now three close-up versions of Fullerton Cove, Williamtown and Salt Ash

# WILLIAMTOWN COMMUNITY UPDATE

## FEBRUARY 2019

The Department of Premier and Cabinet as the Chair of the Williamtown Community Reference Group (CRG) provide this newsletter as a broad update of the meeting held on the 17th of January 2019 and other updates from Agencies involved in the CRG.

### Payment of Hunter Water Service Fee and Usage Charges

To facilitate payment of town water bills, Defence has asked residents to return a Payment Authorisation Form, which authorises Hunter Water to release details of their bills to Defence. Property owners are requested to return a completed Payment Authorisation Form to the below postal or email address:

RAAF Base Williamtown, Stage 2 Environmental Investigation Project,
williamtown.defence@aecom.com OR
C/ AECOM
Australia Pty Ltd, PO BOX 1307, Fortitude Valley QLD 4006.

Without this paperwork, Defence will be unable to pay water bills for your property.

To request a copy of the Form, please call the Williamtown Information Line during business hours on 1800 011 443 (freecall) or email williamtown.defence@aecom.com.

### Remediation and management works

Defence is continuing to remediate PFAS source areas at RAAF Base Williamtown. The aim of these remediation works is to remove PFAS from the environment and reduce the potential for PFAS to migrate off-site.

Early results of sampling of the groundwater under the former fire training area shows PFAS levels have reduced. This is to be expected given the works in the area. It is too early to assess how the works have affected off-base contamination. Defence's environmental consultant will be carrying out sampling of the broader area under the Ongoing Monitoring Plan later in the year. Over the next few years these results will be used to evaluate the impact of the remediation projects at Williamtown and recommend any improvements or further necessary works.

As at 6 February 2019, approximately 1608 million litres of water had been treated by water treatment plants across RAAF Base Williamtown

### Water conservation during drought

NSW is currently experiencing one of the most severe droughts on record. Water is a precious community resource, especially so during times of drought and extreme heat. With this in mind, DPC asks that community members continue to consider and prioritise the preservation of water.

# Precautionary Advice to minimise exposure to PFAS

A reminder that the NSW Government is recommending that residents within the Williamtown Management Area follow precautionary advice to minimise their exposure to PFAS chemicals originating from the RAAF Base Williamtown. If you are unsure of what advice applies to your property, please contact the NSW EPA on 131 555.

## Primary Management Zone

The NSW Government is recommending that residents within the Primary Management Zone follow this precautionary advice to minimise their exposure to PFAS chemicals originating from the RAAF Base Williamtown:

- Groundwater, bore water and surface water should NOT be used for ANY PURPOSE
- Additionally, do NOT do anything with groundwater, bore water or surface water (including in creeks and drains) that might lead to incidental ingestion (swallowing)
- Home grown foods produced in your area should NOT be consumed. This includes home-slaughtered meat, poultry, eggs, milk, fruit and vegetables.

## Secondary and Broader Management Zones

The NSW Government is recommending that residents within the Secondary and Broader Management Zones follow this precautionary advice to minimise their exposure to PFAS chemicals originating from the RAAF Base Williamtown:

- Do NOT use groundwater, bore water or surface water for drinking or cooking
- AVOID swallowing groundwater or surface water when bathing, showering, swimming and paddling (including in creeks and drains). Groundwater and surface water should NOT be used for swimming or paddling pools
- AVOID eating home grown food produced in your area – including home-slaughtered meat, eggs, milk, poultry, fruit and vegetables

# Williamtown PFAS Investigation - update

## Information for local residents and businesses

The investigation into PFAS contamination in the area surrounding at the RAAF Base Williamtown is now complete, and the NSW Government is in a position to provide long-term advice to the community to reduce potential exposure to PFAS. This follows a review of the Department of Defence's draft Human Health Risk Assessment (HHRA) by the Williamtown Expert Panel, led by the NSW Chief Scientist & Engineer Professor Mary O'Kane AC. The review of the latest data has resulted in some changes.

### What is the Human Health Risk Assessment?

The draft Human Health Risk Assessment (HHRA) examines possible pathways for human health exposure to PFAS arising from contamination at the Williamtown RAAF Base. This includes possible exposure through ground, surface and bore water through activities such as drinking and swimming, and through consumption of food such as home-slaughtered meat, poultry, eggs, milk, fruit and vegetables.

This report was undertaken after the NSW Government requested further, detailed studies to fill data gaps.

The Department of Defence recently provided the NSW Government with a draft Environmental Site Assessment (ESA) and Human Health Risk Assessment (HHRA) after we requested they undertake further, detailed studies to identify data gaps.

The Williamtown Expert Panel, led by the NSW Chief Scientist & Engineer Professor Mary O'Kane AC, has completed a review of the latest data which has resulted in some changes.

### Is the Investigation Area changing?

Yes. The boundaries of the Investigation Area, now known as the Management Area, will comprise three zones. This has seen a reduction in some areas and an expansion in other areas including Fullerton Cove and additional parts of Salt Ash.

There is now a Primary Management Zone, Secondary Management Zone and Broader Management Zone. Each zone has tailored precautionary advice for residents to minimise exposure to PFAS originating from the RAAF Base Williamtown.

The Primary Management Zone has significantly higher levels of PFAS detected and therefore, the strongest advice applies.

The zones have been mapped and can be viewed on the EPA website **www.epa.nsw.gov.au/MediaInformation/williamtown.htm**.

### Is the precautionary advice changing?

Yes. Although the precautionary advice in place since 2015 remains largely unchanged, it is tailored for residents depending on location. The advice continues to be precautionary in nature because the effects of PFAS are still unclear.

Importantly, reticulated water (often referred to as town water) is safe to drink across all zones.

### What is the advice for people living in the Primary Management Zone?

- It is SAFE to drink water from the reticulated supply (town water)
- Groundwater, bore water and surface water should NOT be used for ANY PURPOSE
- Additionally, DO NOT do anything with groundwater, bore water or surface water (including in creeks and drains) that might lead to incidental ingestion (swallowing)
- Home grown foods produced in this zone should NOT be consumed. This includes home-slaughtered meat, poultry, eggs, milk, fruit and vegetables should NOT be consumed
- The existing dietary advice for fish and seafood remains appropriate.

## What is the advice for people living in Secondary and Broader Management Zones?

- It is SAFE to drink water from the reticulated supply (town water).
- Do NOT use groundwater, bore water or surface water for drinking or cooking
- AVOID swallowing groundwater or surface water when bathing, showering, swimming and paddling (including in creeks and drains). Groundwater and surface water should NOT be used for swimming or paddling pools
- AVOID eating home grown food produced in this zone – including home-slaughtered meat, eggs, milk, poultry, fruit and vegetables
- The existing dietary advice for fish and seafood remains appropriate.

## Why is there a distinction between the Secondary and Broader Management Zone?

The Secondary Management Zone has some detected levels of PFAS. The topography and hydrology of the Broader Management Zone means PFAS detections could occur now and into the future.

## What does this mean for residents and local businesses?

Following your tailored advice is recommended to reduce your potential exposure to PFAS.

## Are my pets safe?

There are no proven adverse effects on animals from drinking water that may have been exposed to PFAS. If you would like to minimise your pet's exposure, it is recommended that you use an alternative water supply, other than ground, surface or bore water for drinking. This is also advised when washing your animals to reduce the risk of them swallowing water during the process.

## Can I sell any produce produced there to market?

Yes. There is no domestic or international limits for PFAS in food, nor any restrictions on sale or movement of primary produce. In Australia, the general community's exposure to PFAS is low and declining as most people source their food from a wide variety of types and locations and any PFAS levels that may be present in one source are diluted.

People living in affected areas are being advised to minimise their exposure. This is because people living in these areas are exposed to higher levels of PFAS and may be regular consumers of these products from this location.

## What will happen next?

It is the NSW Government's understanding that Defence will release the final reports in the coming weeks, and will undertake their own community engagement.

As the investigation phase is now complete, the NSW Government expects the Department of Defence will shift their focus to long term monitoring and consolidate remediation and management efforts for the contaminated land.

The NSW Government will continue to support the Williamtown Community and promoting the tailored advice. In the longer term, the NSW EPA will review the groundwater sampling periodically and update advice accordingly.

## Where can I find more information?

The tailored advice and latest information will be available on the EPA's website at **www.epa.nsw.gov.au/MediaInformation/williamtown.htm**

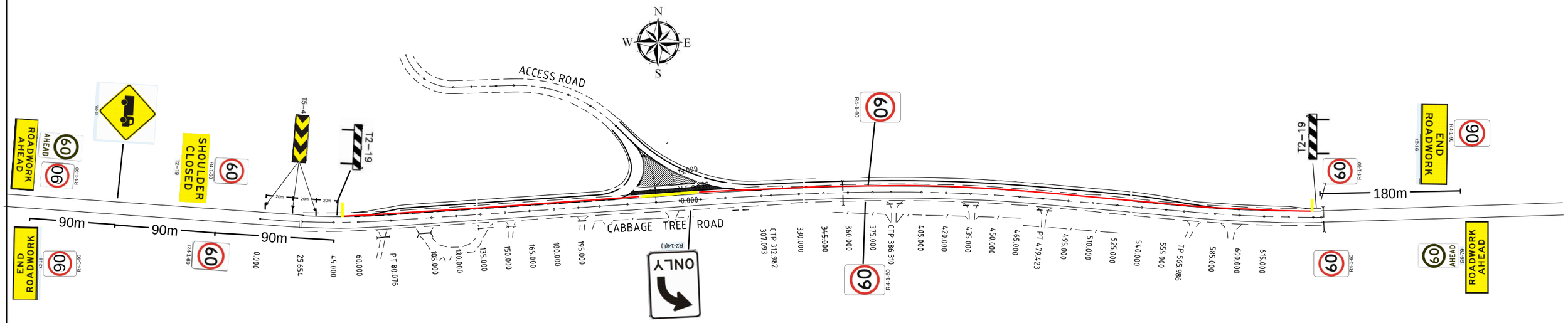
You can also book a one-on-one discussion with an EPA Officer by filling out the form at this page, or calling the Environment Line on **131 555**.

Published by the NSW Environment Protection Authority. Phone: (02) 9995 5000 (switchboard). Phone 131 555 (environment information & publications requests). Email: info@environment.nsw.gov.au. Website: www.epa.nsw.gov.au. Report pollution and environmental incidents: Environment Line: 131 555 (NSW only) or info@environment.nsw.gov.au. November 2017.

# APPENDIX D: TRAFFIC CONTROL PLAN

**LEGEND**

- Work Zone
- Concrete Barriers
- Site Access/ Egress





Notes;

1. This drawing is to be read in conjunction with AS1742.3 and TCAWS 2018.
2. All Traffic Control diagrams to be read in conjunction with TCAWS 2018.
3. Non-applicable existing signage shall be covered E.G speed signs due to temporary speed zone
4. All signage distance shall comply with AS1742.3 and TCAWS 2018
5. Signage shall be placed on the side of the road adjacent to the traffic flow.
6. Positioning of signs minimum of 10% less than the distance or lengths given and maximum 25% more than the distance or lengths given.
7. Lane widths to be a minimum 3m (3.5m desirable).
8. Concrete barriers to be placed minimum 0.5m from traffic edge face of barrier to edge line.
9. Access to site is left in and left out on the eastbound lane of Cabbage Tree Road at designated Access/Egress Points.
10. Adjust sign spacing to suit local constraints.
11. This is a long term TCP.

| REV | Revision | Date |
|---|---|---|
| | | |
| | | |
| | | |
| 1 | Westbound speed reduction to 60km/hr | 28.08.19 |
| 0 | Initial Issue | 26.07.19 |



Scale Datum **N.T.S**

Surveyed Drawn **Dane Mostyn** Checked

DARACON® Group

Project
**Williamtown Sand Syndicate - Cabbage Tree Road WAD Intersection**

Address **Cabbage Tree Road, Williamtown**

Title
# Stage 1 WAD Intersection Works Traffic Control Plan

Page Number 1

Drawing Number TCP-1631-001