RoadNet

Traffic Impact Assessment

Redevelopment of Existing Cotton Seed Facility

at "Shenstone",

2952 Culgoora Road, Wee Waa, NSW

for

Hill Lockart Architects

on behalf of

Cotton Seed Distributors Ltd (CSD)

July 2016

Document Control Sheet

Document Status	DRAFT	FINAL	
Version	1	2	
Date	12 July 2016	13 July 2016	
Issued to	Greg Hill, Hill Lockart Architects	Greg Hill, Hill Lockart Architects	
Prepared By	Steve Manton	Steve Manton	
Reviewed By	Craig Frazer	Craig Frazer	

Prepared by: ***RoadNet Pty Limited***

8 Sixth Avenue
PALM BEACH QLD 4221
07 5525 7377
gold.coast@roadnet.net.au

L12, 1 Pacific Highway
NORTH SYDNEY NSW 2060
02 9959 1080
sydney@roadnet.net.au

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APPENDICES

1. INTRODUCTION

RoadNet Pty Ltd (RoadNet) has been engaged by Hill Lockart Architects (HLA) on behalf of Cotton Seed Distributors Ltd (CSD) to prepare a Traffic Impact Assessment (TIA) for the proposed redevelopment of an existing cotton seed processing facility located on the site known locally as "Shenstone" at 2952 Culgoora Road, Wee Waa, New South Wales (NSW).

The proposed redevelopment of the CSD processing facility includes:

1. Construction of:
   - 1 x 1.289 ha Warehouse/Industrial Building;
   - 2816m^2 extension to existing Warehouse/Industrial Building;
   - Recladding of existing Warehouse Building;
   - 1 x 916m^2 Administration Building;
   - 1 x 815m^2 Laboratory Building;
   - Associated outbuildings, driveways/parking areas, site filling and augmentation of levee bank.
2. Demolition of Existing Administration Building and Laboratory.

A development application (DA) for the proposed redevelopment was recently lodged with Narrabri Shire Council (Council) in May 2016 (DA122/2016) and was accompanied by a Statement of Environmental Effects (SEE) prepared by Brown & Krippner Pty Ltd on behalf of CSD. The SEE examined the characteristics of the proposed development and provided an assessment of the likely impacts of the development in accordance with Section 79C of the Environmental Planning & Assessment (EP&A) Act 1979.

The SEE examined (amongst other matters) Access, Transport and Traffic Issues and determined that "*…No additional traffic will be created by the proposed development. The new facility will not increase production but simply be more efficient and more responsive to demand*." However, the DA was referred to Roads and Maritime Sevices (RMS) by Council for comment. The feedback received by Council from RMS was that the documentation submitted in support of the proposal was inadequate and that RMS was not able to thoroughly assess the impacts of the proposal without additional information in the form of a traffic study.

An email received from Council's Town Planner (Cara Stoltenberg) dated 10 June 2016 specifies the following requirements (on behalf of RMS) for the TIA:

> *"…Specifically, documentation is required to demonstrate how traffic volumes will remain unchanged to existing traffic generation volumes…"*
>
> *"Further, to enable a more thorough assessment of the proposed development, the following information is still requested:*
>
> *a) A traffic impact study prepared in accordance with the methodology set out in Section 2 of the RTA's Guide to Traffic Generating Developments 2002 and including:*
>
> *i. For the construction and operation of the project; road transport volumes and vehicle types broken down into:*
>
> - *Origin and destination including access/egress locations to Kamilaroi Highway (HW29).*
> - *Travel routes.*
> - *Peak hours.*
>
> *ii. The study is to provide details of projected transport operations including:*
>
> - *Traffic volumes.*
> - *Vehicle types used for transport.*
>
> *iii. Any over size and over mass vehicles and loads expected for the construction and operation of the development.*

iv. A comparison of current and proposed temporary and permanent staff numbers (including employees and contractors) and staff parking arrangements during construction and operation of the project.

b) Access locations and treatments need to be identified and should be in accordance with Austroads Guide to Road Design, including safe intersection sight distance."

This TIA has been prepared to address the RMS requirements above and with consideration to the relevant Council guidelines and policies, Austroads design guides and Australian Standards.

2. DEVELOPMENT CONTEXT

2.1 Site Details

The site is identified as Lot 1 in Deposited Plan (DP) 873839 and Lot 2 DP 612166.The site is addressed to 2952 Culgoora Road, Wee Waa, NSW 2388. It comprises approximately 137.96 hectares and is located on the northern side of Culgoora Road, approximately 2 kilometres southeast of the town of Wee Waa (see Figure 2.1). The property is known locally as 'Shenstone'.

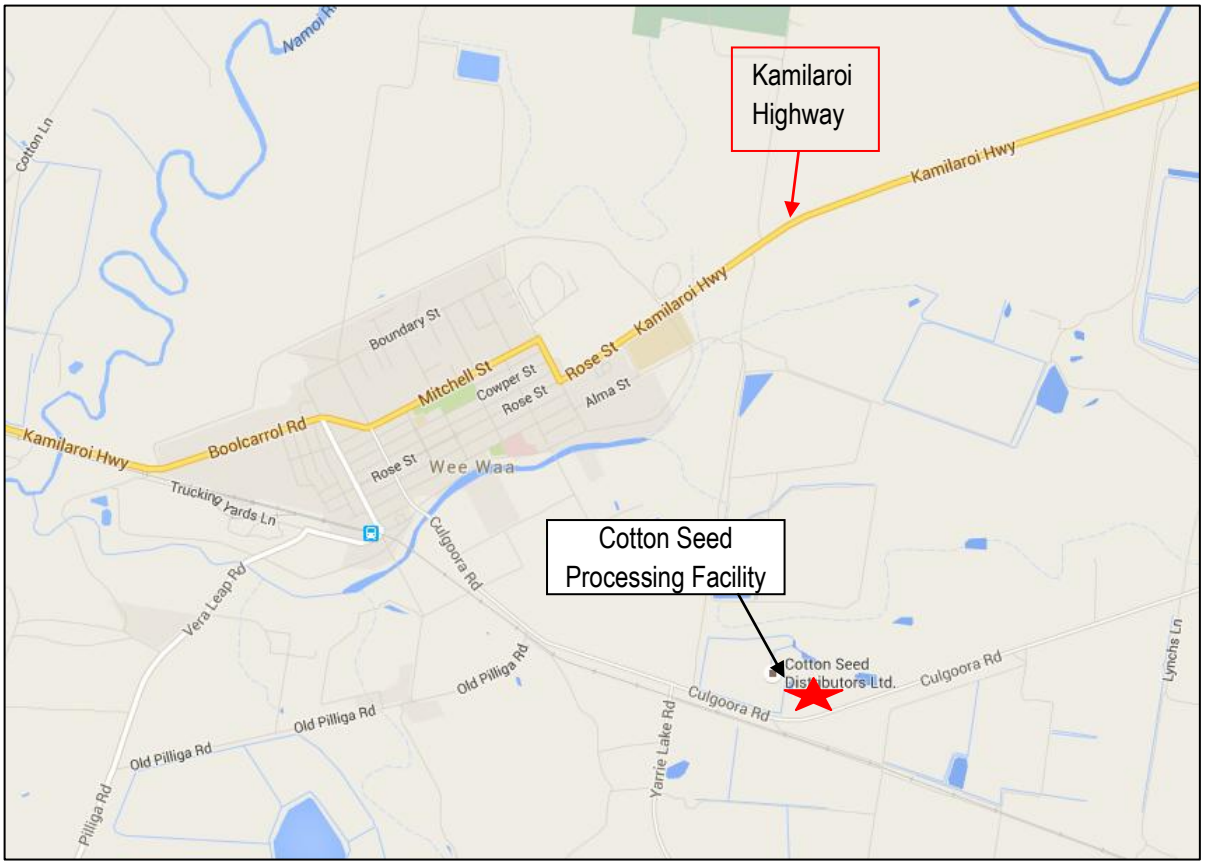


Figure 2.1: Locality Plan (Source – Google Maps).

The site is essentially level and is identified as typical north-west NSW flood plain. An existing levee bank provides flood protection to less than a 1 in 50 year flood frequency. The site is currently occupied by an existing cotton seed processing plant, which is to be upgraded by the proposed development. The existing facility comprises light industrial buildings, warehouses, an administration building, laboratory, gas/chemical storage, driveways, parking areas and detention ponds. A plan of the existing development is provided in Appendix A.

The site is surrounded by rural land uses in the form of extensive agriculture (i.e. grazing and cropping), with associated residential dwellings. The land to the north, west and east is zoned RU1 – Primary Production while to the south (across Culgoora Road) the land is zoned R5 – Large Lot Residential. This land is presently undeveloped and it is understood will be rezoned to an industrial zoning in due course.

2.2 Existing Development and Operation

2.2.1 Overview of Cotton Seed Production Process

The existing cotton seed processing facility at "Shenstone" supplies cotton planting seed to all Australian cotton growers and is the sole supplier to the Australian cotton industry.

The cycle of producing commercial volumes of cotton planting seed is described in detail in the Statement of Environmental Effects (SEE) report prepared by Brown & Krippner Pty Ltd dated 29 April 2016. A brief summary of the process is provided below, however, for a more thorough assessment the reader is referred to the SEE.

The existing facility receives what is called "fuzzy seed" as its raw product, which is what remains after the cotton has been picked from the plant at harvest time and transported to a facility called a cotton 'gin' where the cotton fibre (lint) is torn from the seed. The fuzzy seed byproduct is transported from a number of different cotton gins to CSD's processing facility at "Shenstone" where it is stored until required. At that point it then goes through a delinting process with the use of acid to remove the remaining lint from the outside of the seed. This intermediate product, which is called 'black seed', is graded to remove impurities and sorted by size and weight. The 'off grade' (poor quality seed and impurities) are removed and stored in a silo and sold as stock feed at a later date, while the graded black seed is bagged into 20kg paper bags and stored with the aid of robotic palletisers until the next stage of the process.

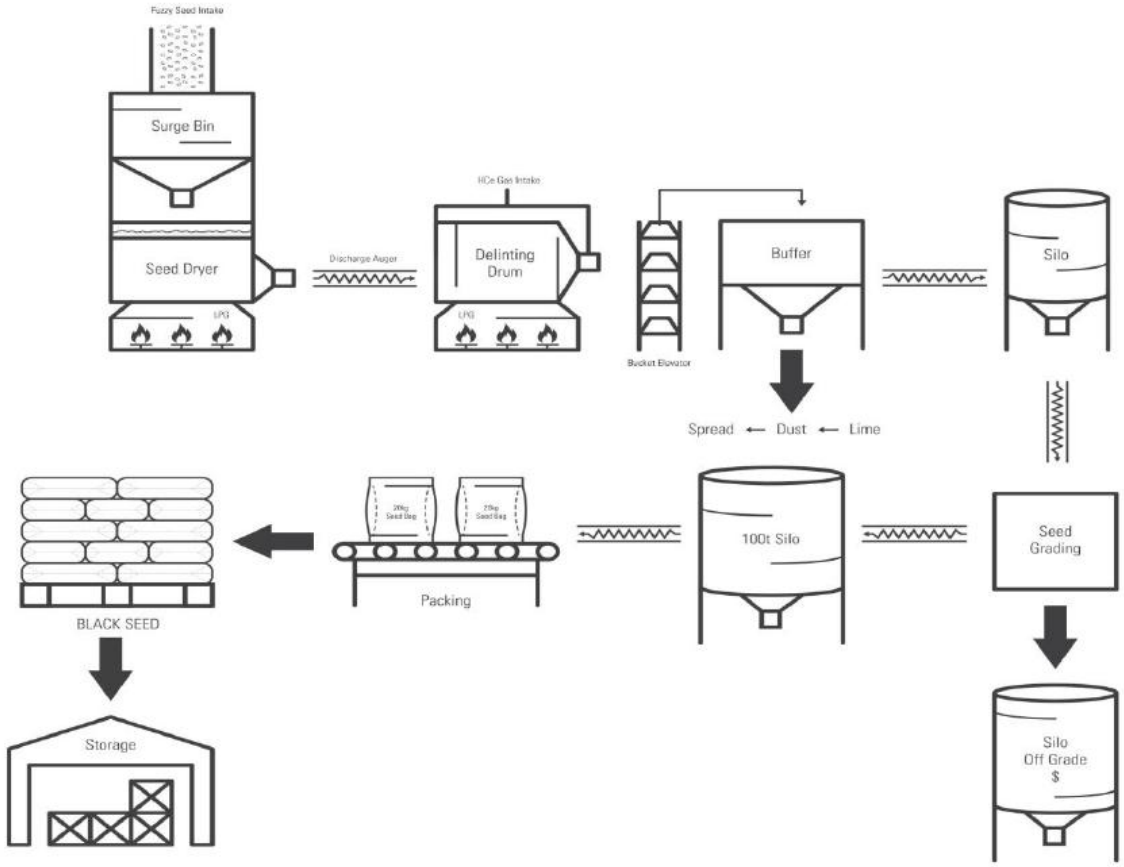


Figure 2.2: The Delinting Process (Source – Statement of Environmental Effects, Brown & Krippner, 29 April 2016)

The next stage of the process is the seed treatment process which commences once seed orders have been received. Seed is offered to growers with a range of treatments to ensure protection of the young seedling cotton plant, and to ensure its ease of handling both in the planter and in the soil. Black seed is retrieved from storage and de-bagged from its paper bags. Conforming black seed is then treated in a standard commercial seed treatment unit with the relevant seed treatment for that batch before being bagged, labelled, palletized and wrapped with a robotic handling system ready for dispatch. Any non-conforming black seed (identified from quality tests) is loaded out into a storage silo for sale as stock feed later in the treating season.

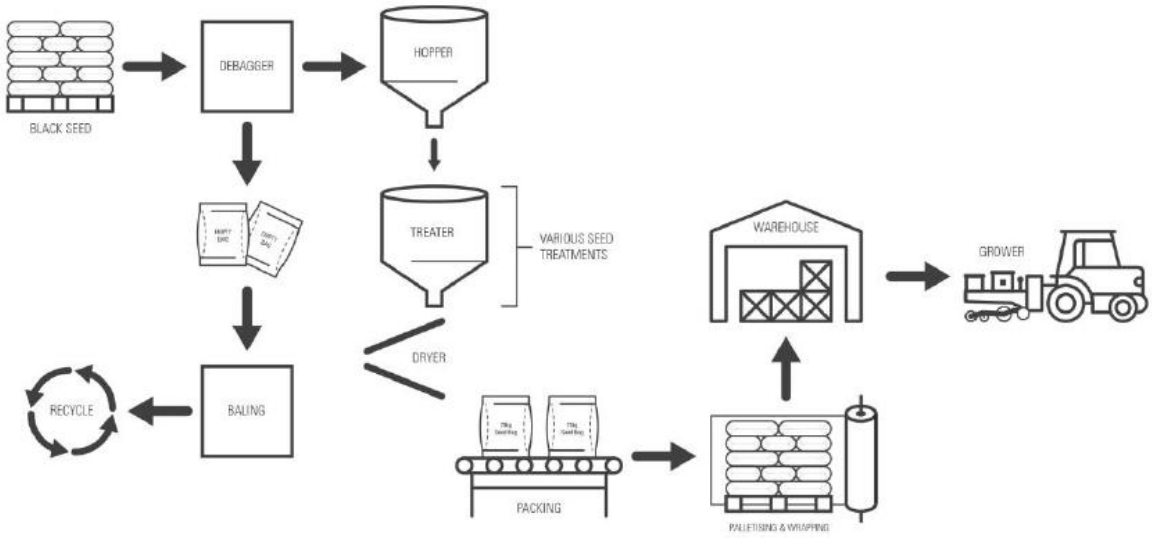


Figure 2.3: The Seed Treatment Process (Source – Statement of Environmental Effects, Brown & Krippner, 29 April 2016)

Quality assurance processes and testing by CSD's on-site laboratory team are carried out at all stages throughout the production cycle to ensure that the finished product is of the highest possible quality.

2.2.2 Operational Characteristics

Operations at the plant are very seasonal, with three distinct periods of activity as follows (note – months are approximate guide only):

- April to July – harvest commences in April/May with inbound fuzzy seed delivered to CSD facility for storage and subsequent delinting, grading, packing and storage of black seed. Operations at the facility during this period are carried out 24 hours per day, 7 days per week, with two shifts for production and laboratory staff between 7am to 7pm and 7pm to 7am. This is the busiest period at the facility, with casual staff hired to supplement the permanent production staff which number approximately 20 personnel.
- August to December – receipt of seed orders, seed treatment and dispatch of quality assured (QA) cotton planting seed to cotton growers. No fuzzy seed deliveries occur during this period. Operations at the facility during this period are carried out over 1 or 2 shift periods as above (to suit demand) for up to 24 hours per day, 5 days per week (i.e. weekdays only).
- January to March – off-season period during which the site goes into "care and maintenance" mode, with administration and research (laboratory) staff working regular office hours (i.e. 8am to 5pm, Monday to Friday) and production staff working reduced hours (7am to 3:30pm, Monday to Friday only).

Office/administration staff work all year around between the office hours of 8am to 5pm, Monday to Friday and number approximately 17 personnel in total.

In a typical year the existing facility produces approximately 4,500 to 5,500 tonnes of cotton planting seed as finished product. The traffic assessment presented in this report for the existing operations is based on data provided by CSD for 2015 which was a typical year. However, the amount of product produced in any given year can vary depending on a number of factors which affect the demand for seed by cotton growers (as mentioned previously, CSD primarily only treats seed to order). The most important of these factors include the availability of irrigation water (i.e. lower demand during periods of drought) and the world price for cotton.

CSD has advised that in its best year (2011) it produced 8,000 to 8,500 tonnes of product, but in its worst year (2007) it produced less than 1,000 tonnes of product. The amount of cotton planting seed that is produced and dispatched can therefore vary quite substantially in response to demand by cotton growers and other factors. However, the maximum number of production and laboratory staff on site at any given time remains constant throughout these periods of fluctuation, with increases in demand addressed by extending the hours of operation in the period from August to December to include night shifts if required (for example, in 2015 production and laboratory staff were not required to work night-shifts in the period from September to December).

Some additional heavy vehicle movements associated with the more frequent dispatch of cotton planting seed may arise during periods of higher activity; however, these movements are spread across the daylight hours and practical limitations (e.g. the time it takes to process one truck as described in the next section) restrict the extent to which these movements can vary on a daily basis. Overall, the peak traffic generation associated with the existing development remains relatively stable under periods of fluctuating demand and this is not expected to change as a result of the proposed redevelopment, as discussed in a later section.

2.2.3 Vehicle Movements and Types

- Freight and Deliveries

Inbound trucks carrying bulk loads of fuzzy seed generally comprise of 19m semitrailers or, more commonly, 25m B-Doubles. The occasional Road Train also services the facility, however, due to road use restrictions these vehicles are typically required to un-hitch one of their trailers prior to accessing the B Double-only access route to the site, thereby taking on the same characteristics as a B-Double vehicle (further discussion on the access routes and restrictions is provided in Section 3.2). CSD has no control over the types of vehicles used at any particular time to transport fuzzy seed to the site, with three separate transport companies currently used to service the different cotton gins in the region.

The process of receiving an inbound truck is time-consuming, with approximately 1 to 1.5hrs required to undertake the necessary sample testing for quality assurance purposes and then unload the truck. This places a practical limit on the number of inbound trucks that can be processed at the existing facility on any given day.

Outbound trucks used to distribute the treated cotton seed to cotton growers have a similar composition with respect to vehicle type to the inbound trucks carrying fuzzy seed, with mostly B-Doubles used for this purpose. Trucks are rostered in half hour time slots for the loading of outgoing product, with the dispatch of product occurring during daylight hours (7am to 7pm) only, Monday to Friday.

Waste products (e.g. off-grade seed used as stock feed) is also sold periodically and dispatched from site via either semitrailers or B-Doubles.

Trucks used for the transport of both the inbound fuzzy seed and the outgoing cotton planting seed (or waste products) are required to use the on-site weighbridge facility on entry and exit from the facility to accurately calculate the mass of the payload being transported.

In addition to the "weighbridge vehicles" described above, which are used for the transport of the raw product (fuzzy seed) and finished product (cotton planting seed) or waste products, a number of other vehicles service the site:

- General freight deliveries – these occur throughout the full production cycle to provide raw materials (e.g. packing materials) for the production, warehousing and laboratory activities. Pantechnicon trucks and other types of rigid trucks are generally used for these types of deliveries.
- Consumables deliveries – hydrogen and chlorine (which are used to produce hydrochloric acid) and liquid petroleum gas (LPG) are used during the delinting process to remove the lint from the fuzzy seed. These deliveries occur between April and July only. Raw hydrogen is generally delivered to the site in semi-trailers, while the chlorine and LPG is delivered using rigid trucks.
- Other deliveries – drinking water is delivered to the site once per week and office supplies are delivered approximately twice per month. These deliveries are typically made using utes or vans (i.e. predominantly light vehicles).

- Staff Movements

The two main centres of Narrabri (located to the southeast) and Wee Waa (located to the northwest) provide the main areas of residence for permanent staff working at the facility, with approximately half living in each of these areas based on advice provided by CSD. All staff travel to the site via car (i.e. light vehicle). Some car pooling currently occurs, however, specific details at the time of preparing this report were unknown and a conservative assessment which ignores this factor has been adopted for this assessment.

3. EXISTING ACCESS AND ROAD NETWORK

3.1 Site Access and Weighbridge Facilities

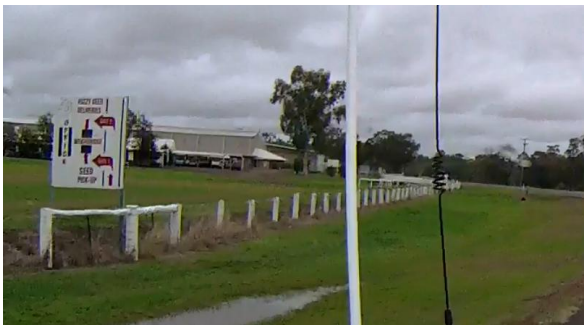
Access to the existing cotton seed processing facility is provided via three entry/exit points onto Culgoora Road adjacent to the site (see existing development layout in Appendix A):

- Western entry/exit – is predominantly used by production staff and by heavy vehicle operators for the pickup of treated seed, although in practice as the first gate encountered on approach from Wee Waa it does also get used by other heavy vehicle operators (including for fuzzy seed deliveries).
- Middle entry/exit – is used by administration and laboratory staff to enter and exit the site, as well as by visitors to the site for general freight and other deliveries (such as water and office consumables).
- Eastern entry/exit – is intended primarily for fuzzy seed deliveries, but in practice can also be used by other heavy vehicle operators.

Signage on Culgoora Road directing traffic to the appropriate entry point is provided on the westbound and eastbound approaches to the site.

Some photos of the approach signage and existing access points are provided in Figure 3.1 below.

Signage on Culgoora Rd (E/B Approach)



Signage on Culgoora Rd (W/B Approach)

Western Entry/Exit

Middle Entry/Exit

Eastern Entry/Exit

Figure 3.1: Existing Approach Signage and Site Access Arrangements

The existing weighbridge facility on site is located between the middle and eastern entry/exit points, and is used by all heavy vehicles delivering fuzzy seed or picking up treated seed or waste product. It can be used in either direction of travel to suit (i.e. depending on which entrance the truck used to access the site).

Figure 3.2: Existing Weighbridge Facility

3.2 Heavy Vehicle Access Routes

Access to the CSD facility by heavy vehicles is achieved primarily from the Kamilaroi Highway, a State Highway and approved B-Double & Road Train Route in New South Wales which runs in an easterly direction from Bourke in the west (where it connects to the Mitchell Highway) past Wee Waa to Narrabri in the east (where it connects to the Newell Highway). From Narribri the Kamilaroi Highway continues in a southeasterly direction until it terminates at Willow Tree (where it connects to the New England Highway).

Heavy vehicles travelling along the Kamilaroi Highway from either direction are directed to follow the designated B-Double route through Wee Waa via Warrior Street, from which they can then access Culgoora Road and the existing CSD facility via Vera Leap Road and Old Pilliga Road, all of which are also approved for use by B-Doubles (see Figure 3.3). Road Trains are required to unhitch a trailer near the Kamilaroi Hwy / Warrior Street intersection and can then follow the same route. Trucks follow the reverse route to re-access the State Highway. Some photos of the Heavy Vehicle Route signage at key locations are provided in Figures 3.4(a) to 3.4(d).

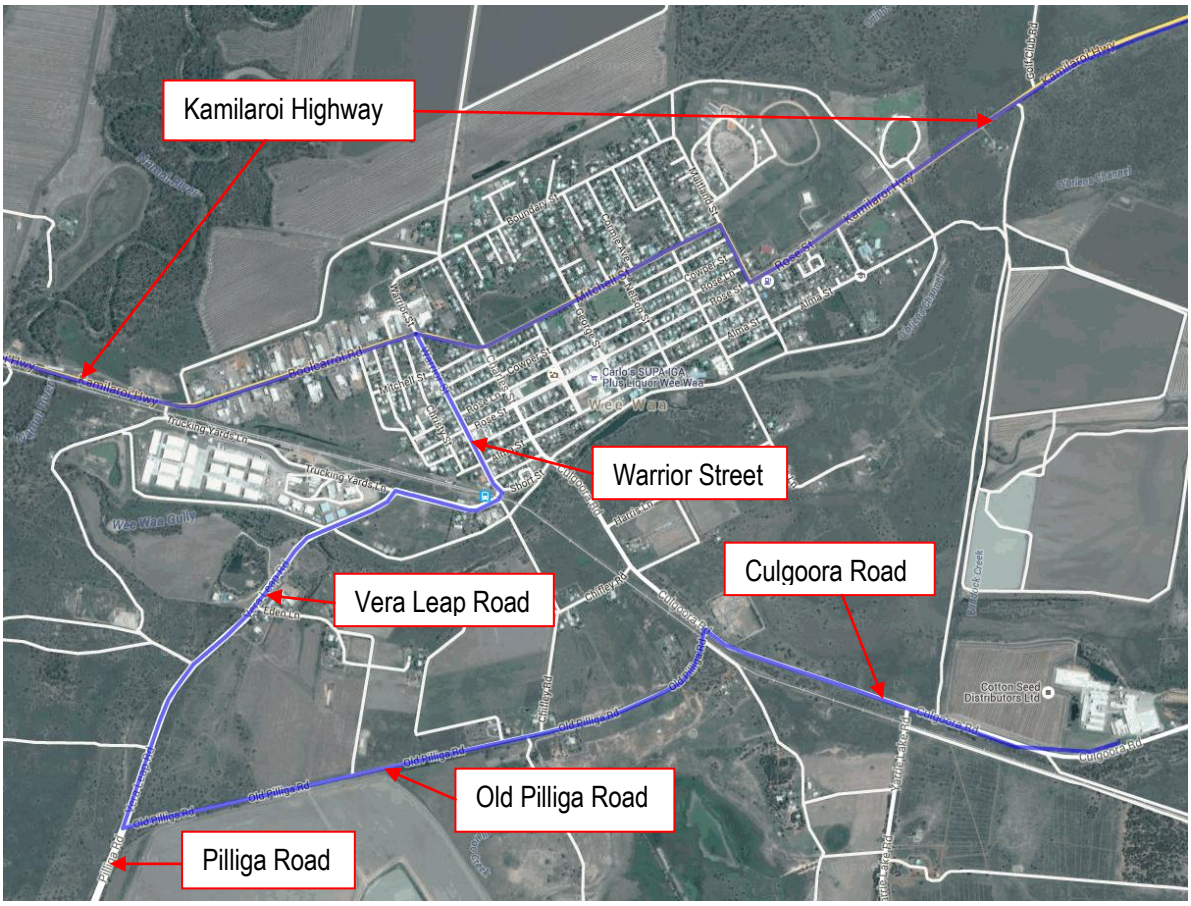


Figure 3.3: Primary Heavy Vehicle Transport Route

Figure 3.4a: WB Route Signage on Kamilaroi Hwy at intersection with Rose Street (i.e. WB entry to Wee Waa)

Figure 3.4b: WB Route Signage on Kamilaroi Hwy at approach to Warrior Street (LHS)

Figure 3.4c: EB Route Signage on Kamilaroi Hwy at approach to Warrior Street (RHS) (Source: Google Maps)

Figure 3.4d: WB Route Signage on Culgoora Road directing Heavy Vehicles to use Old Pilliga Road

Trucks approaching from the direction of Pilliga via Pilliga Road (refer Figures 2.1 and 3.3), which is another approved B-Double and Road Train Route, can also use Old Pilliga Road to access the site.

The designated heavy vehicle route through Wee Waa avoids the existing narrow timber deck bridge that crosses the Wee Waa Lagoon (Figure 3.5) at the northern end of Culgoora Road near the Short Street/Charles Street intersection in Wee Waa, which has a 10 tonne load limit and is therefore unsuitable for use by larger heavy vehicles.

Figure 3.5: Existing Bridge with 10t Load Limit across Wee Waa Lagoon (Source:Google Maps)

Other routes are potentially available for trucks approaching the site from the east at Narrabri, particularly those approaching from the south via the Newell Highway or southeast from the direction of Tamworth or Gunnedah. These routes include Culgoora Road itself, which connects to Yarrie Lake Road on the outskirts of Narrabri, and Yarrie Lake Road (Figure 3.6). However, a substantial section of Culgoora Road commencing from just east of the CSD facility is unsealed and located within a flood plain, which can lead to trucks getting bogged down during

wet periods (see Figure 3.7); while Yarrie Lake Road, although an approved B-Double Route (but not an approved Road Train Route) has some tight bends which make it less desirable for use by larger vehicles.

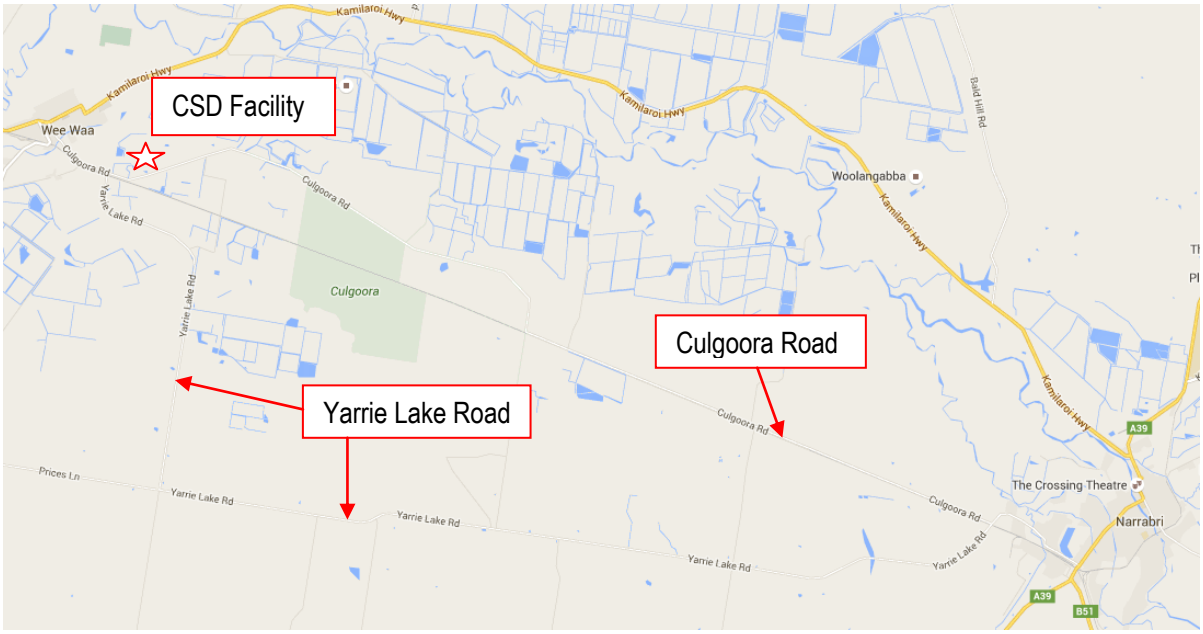


Figure 3.6: Other Potential Access Routes for Heavy Vehicles

Figure 3.7: Culgoora Road EB Approach to Gravel Section (near existing CSD facility)

3.3 Staff Access Routes

All staff use either their own private vehicle or a CSD company vehicle to travel to and from the site. Most staff travel along Culgoora Road to/from Wee Waa via the bridge over Wee Waa lagoon. For those staff that do not live in Wee Waa, access to and from the Kamilaroi Highway and hence points further afield is achieved via Charles Street or Rose Street. This includes those staff that live in the Narrabri area, although some staff may also choose to use Yarrie Lake Road and its connection to Culgoora Road near the CSD facility.

Staff using company vehicles are not permitted to use the unsealed section of Culgoora Road to the east of the CSD facility, while those using private vehicles also avoid this section of road to avoid getting their car dirty (at any time) or bogged in wet conditions.

3.4 Description of Key Roads in Study Area

3.4.1 Kamilaroi Highway

The Kamilaroi Highway is a State-controlled arterial road under the control of RMS, and is an approved B-Double & Road Train Route. It runs in an easterly direction from Bourke in the west (where it connects to the Mitchell Highway) past Wee Waa to Narrabri in the east (where it connects to the Newell Highway). From Narribri the Kamilaroi Highway continues in a southeasterly direction until it terminates at Willow Tree (where it connects to the New England Highway).

The section between Wee Waa and Narrabri is approximately 42km long and is a two lane, two way rural highway (sealed and linemarked) with 3.5m travel lanes. It generally has narrow sealed or unsealed shoulders outside of the urban areas, however, these become wider within the urban areas of Wee Waa and Narrabri and in some locations turn into wide parking lanes such as in the area between Trucking Yards Lane and Warrior Street in Wee Waa. The posted speed limit within the Wee Waa township is 50km/h (or 40km/h within school zones during relevant periods), transitioning to 80km/h and then 100km/h once outside the Wee Waa township. A similar transition occurs on the outskirts of Narrabri.

Figure 3.8: Kamilaroi Highway looking east from outskirts of Wee Waa

Figure 3.9: Kamilaroi Highway with wide parking lanes looking west from Warrior Street (LHS) in Wee Waa (Source: Google Maps)

3.4.2 Warrior Street

Warrior Street is an urban two lane, two way local road (sealed and unmarked) with very wide sealed shoulders along most of its length, running northwest to southeast between the Kamilaroi Highway and Vera Leap Road (approx. 750m in length) in Wee Waa. At its southern end it crosses the Wee Waa railway line at-grade. It has a posted speed limit of 50km/h and provides access to mainly residential properties (interspersed with some light industrial buildings) along the majority of its length. It is also an approved B-Double Route.

Figure 3.10: Warrior Street looking southeast

3.4.3 Vera Leap Road

Vera Leap Road is a rural two lane, two way local road (sealed and unmarked) with narrow unsealed shoulders running northeast to southwest between Warrior Street and the Pilliga Road / Old Pilliga Road intersection (approx. 2.4km in length) to the southwest of Wee Waa. It provides limited access to adjacent rural residential properties and some light industrial development. It has a posted speed limit of 50km/h within the outskirts of Wee Waa, increasing to 80km/h and then 100km/h as you travel further south. It is an approved B-Double & Road Train Route, as is Pilliga Road to which it connects further to the south.

Figure 3.11: Vera Leap Road looking southwest

3.4.4 Old Pilliga Road

Old Pilliga Road is a rural two lane, two way local road (sealed and unmarked) without shoulders running southwest to northeast between Vera Leap Road and Culgoora Road (approx. 2.7km in length) to the south of Wee Waa. It provides very limited access to adjacent rural residential properties. At its northern end it crosses the Wee Waa railway line at-grade. It has a posted speed limit of 80km/h or 100km/h depending on the section in question. It is an approved B-Double Route.

Figure 3.12: Old Pilliga Road looking northeast.

3.4.5 Culgoora Road

Culgoora Road is a rural two lane, two way local road without shoulders running northwest to southeast between Charles Street in Wee Waa and Yarrie Lake Road near Narrabri (approx. 32km in length). It is sealed between Wee Waa and a point just east of the CSD facility (approx. 3.1km) where it becomes a gravel road, and is linemarked between Wee Waa and its intersection with Old Pilliga Road. It provides limited access to adjacent rural properties. It has an open road speed limit (100km/h) near the site, reducing to 80km/h heading west on the approach to the intersection with Old Pilliga Road. The posted speed reduces further to 50km/h on the approach to the bridge crossing Wee Waa lagoon. The bridge itself has a posted speed limit of 40km/h. Culgoora Road is an approved B-Double Route between the CSD facility and Old Pilliga Road.

Figure 3.13: Culgoora Road looking west (eastern access to existing CSD facility on RHS in foreground)

Figure 3.14: Culgoora Road looking east on approach to CSD facility

3.4.6 Yarrie Lake Road

Yarrie Lake Road is a rural two lane, two way local road (sealed and unmarked for most of its length) without shoulders, running north to south between Culgoora Road and Prices Lane and then west to east from Prices Lane through to Goobar Street in Narrabri (total length approx. 39km). It provides limited access to adjacent rural properties. At each end of its alignment it crosses the railway line at-grade. It has an open road (100km/h) speed limit for the majority of its length, transitioning to 80km/h and then 50km/h on approach to Narrabri. Based on RMS data it is an approved B-Double Route (but not an approved Road Train Route).

Figure 3.15: Yarrie Lake Road looking south on section between Culgoora Road and Prices Lane

3.5 Key Intersections

All of the key intersections in the study area are at-grade and either uncontrolled or priority controlled as follows:

- Kamilaroi Highway / Warrior Street - 4-way intersection with priority to Kamilaroi Highway traffic and both approaches on Warrior Street controlled by Stop signs.
- Vera Leap Road / Old Pilliga Road – uncontrolled T- intersection with Old Pilliga Road as the side-road joining the Vera Leap Road/Pilliga Road through alignment.
- Old Pilliga Road / Culgoora Road – uncontrolled T- intersection with Old Pilliga Road as the side-road joining the Culgoora Road through alignment.
- Yarrie Lake Road / Culgoora Road – T-intersection with Yarrie Lake Road controlled by Give Way sign.

Each intersection provides good sight distance in each direction and has been widened to accommodate the designated heavy vehicle turn movements.

4. EXISTING TRAFFIC SITUATION

4.1 Kamilaroi Highway

Historical Annual Average Daily Traffic (AADT) volumes for the Kamilaroi Highway have been provided by RMS for the period 2006 to 2012 at Station No. 92732, which is the only representative count station available on the section between Wee Waa and Narrabri. The location of the site is shown in Figure 4.1 and the data is summarised in Table 4.1 and Figure 4.2.

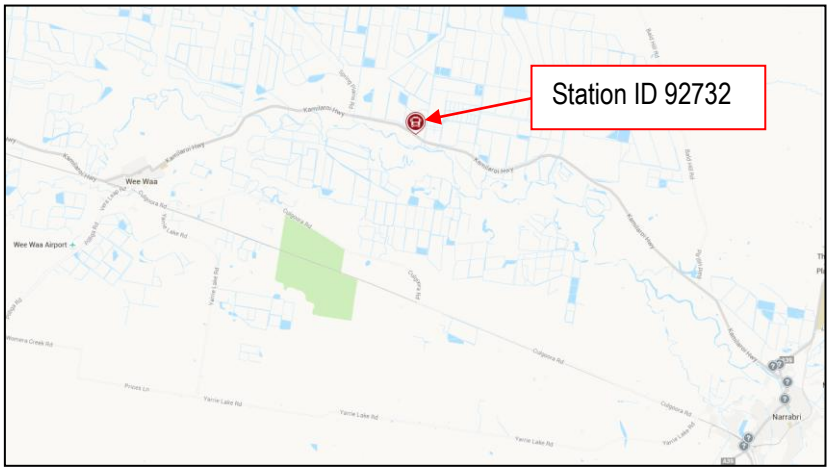


Figure 4.1: Location of traffic count station on the Kamilaroi Highway

Year	Light Vehicles		Heavy Vehicles		All Vehicles		
	EB	WB	EB	WB	LV	HV	ALL
2006	444	452	60	59	896	119	1015
2008	489	493	79	76	982	155	1137
2009	-	-	-	-	1041*	165*	1206
2012	533	499	98	96	1032	194	1226

**estimated from data for adjacent years*

Table 4.1: AADT Volumes on Kamilaroi Highway (two-way) at Station ID 92732

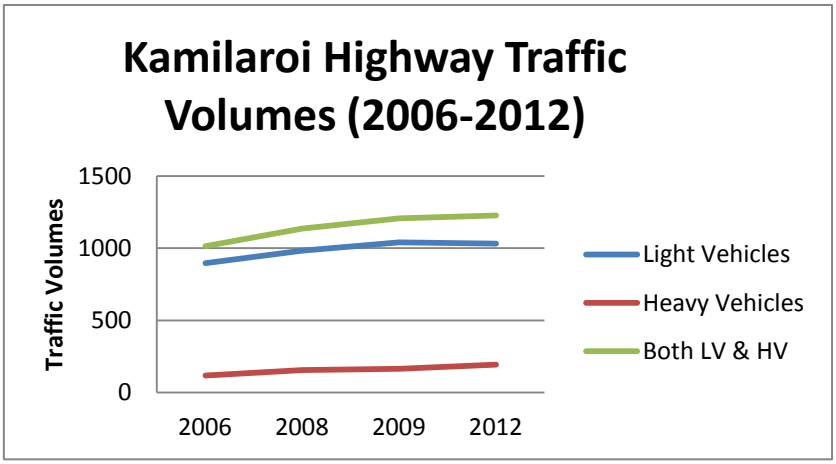


Figure 4.2: Change in AADT Volumes on Kamilaroi Highway 2006 - 2012

The traffic data shows that traffic volumes on the Kamilaroi Highway, which include traffic generated by the existing CSD facility, are approximately 1,200 vehicles per day (vpd) with approximately 16% heavy vehicles. This volume of traffic is very low and has changed little over the period surveyed, equating to a linear growth rate of approximately 2 to 3% depending on the base year (2006 or 2008) used for comparison. The traffic is easily accommodated on the Kamilaroi Highway with no capacity or level of service (LOS) issues.

An examination of the hourly profile for the 2012 data has been undertaken and the results are illustrated in Figure 4.3.

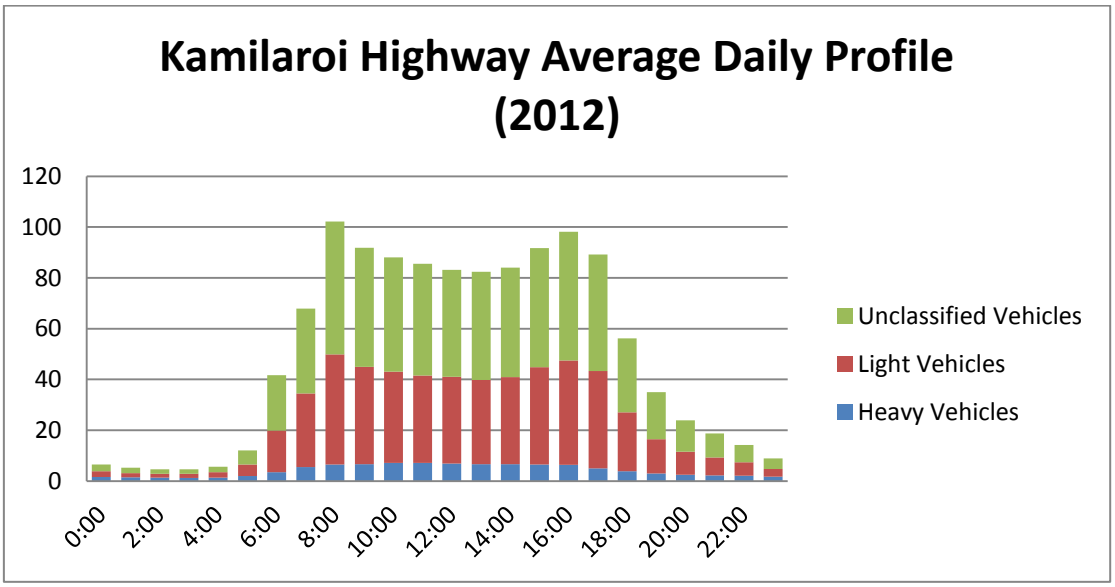


Figure 4.3: Hourly Traffic Profile on Kamilaroi Highway for an Average Day in 2012 (two-way)

The analysis shows that traffic volumes on the subject section of the Kamilaroi Highway peak at approximately 100 vehicles per hour (vph) two-way between 8am and 9am and then remain relatively steady at between 80 to 90vph through the middle section of the day before peaking again at approximately 100vph between 4pm and 5pm. These volumes are once again very low and do not give rise to any capacity or LOS issues.

4.2 Local Roads

Existing traffic data on local roads in the study area is limited. However, some recent traffic data has been supplied by Narrabri Shire Council at the following locations:

- Culgoora Road – north (west) of CSD facility;
  - ADT = 290
  - Heavy Vehicles = 8.50%
- Yarrie Lake Road – south of CSD facility;
  - ADT = 1354
  - Heavy Vehicles = 18.90%
- Rose Street – CBD district for Wee Waa;
  - ADT = 1216
  - Heavy Vehicles = 4.70%

The data illustrates that the existing traffic volumes on local roads in the study area are also currently low.

4.3 Trip Generation at Existing CSD Facility

An assessment of the trip generation associated with the existing CSD facility has been undertaken based on data provided by CSD from its operations in 2015 for each calendar month. This included actual data obtained from the weighbridge facility, which is used by all heavy vehicles making fuzzy seed deliveries or picking up treated seed or waste products; and estimates of staff numbers (administration, laboratory and operational staff) based on staff rosters and shift patterns. Provision for general freight deliveries, consumables deliveries and other deliveries (water and office supplies) was also included in the estimates.

CSD has advised that 2015 was a typical year for the facility, equating to the production of 4,500 to 5,500 tonnes of cotton planting seed as finished product. The operational data reflects this, with the plant operating 24/7 (i.e. over two 12hr shifts) between April and July, before reducing to 24/5 operations in August (still two 12hr shifts) and then 12/5 operations (i.e. one 12hr shift from 7am to 7pm) from September through to December. The normal off-season period occurred between January and March.

The results of the trip generation assessment are presented in Table 4.2 on the next page for each month of the calendar year, with daily and monthly estimates of the light vehicle and heavy vehicle movements generated by the development provided. For simplicity the assessment assumes that no car-pooling by staff occurs; however, in practice it is understood that this does occur to some extent and the results of the analysis are therefore conservative.

The analysis indicates that the peak daily activity occurred in July, with an average of 75 movements one-way (150 movements two–way) generated by the existing CSD facility each day (May was similar but with a slightly smaller daily average). This excludes additional movements made by staff during the day (e.g. lunchtime travel to Wee Waa to get lunch or attend to personal errands). Assuming that half of the daytime staff make an additional trip each way at lunchtime, this equates to an additional 40 movements (two-way) bringing the total daily trip generation to approximately 190vpd (two-way).

An examination of the typical daily profile for the peak month of July has also been undertaken based on the simplifying assumption that all staff arrive 15-30 minutes before their start time (8am for admin staff, 7am or 7pm for laboratory and operations staff) and depart approximately 15 minutes after their finish time (5pm for admin staff, 7pm or 7am for laboratory and operations staff). The resulting daily trip profile is illustrated in Figure 4.4, and shows the overlap between the end of one shift and start of the next shift for operations and laboratory staff at around 7am and 7pm, when a total two-way movement of approximately 45vph occurs to/from the facility. The profile also shows the separate peaks associated with administration staff, and the estimated "lunchtime" peak during the middle of the day as discussed above.

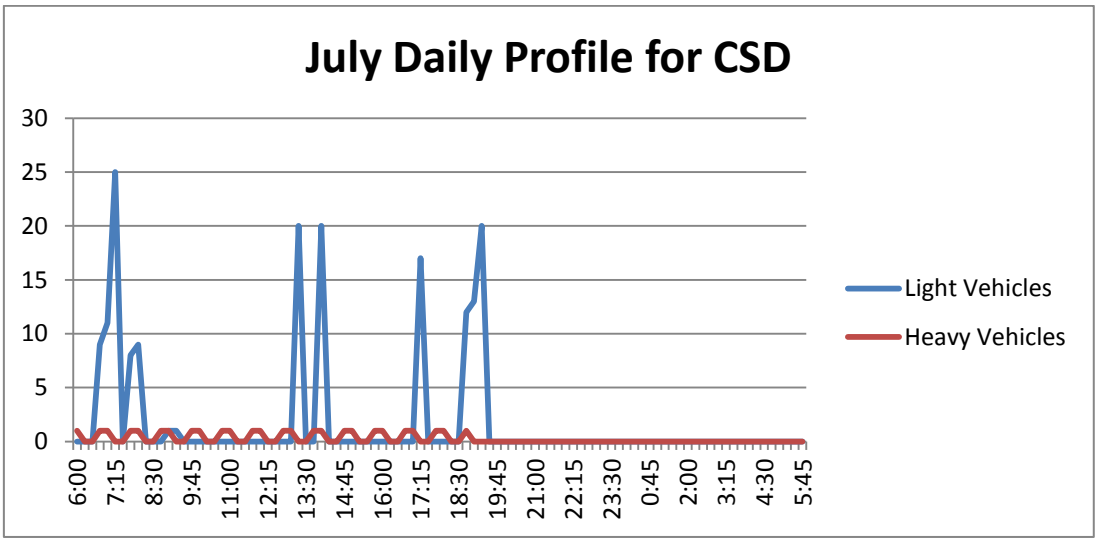


Figure 4.4: Traffic Profile for a Typical Day in July 2015 at CSD Facility (two-way)

Table 4.2 Existing (2015) Operational Traffic at CSD Facility

	January		February		March		April		May		June		July		August		September		October		November		December	
	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly
Weighbridge Vehicles (HV)	1	7	1	10	1	25	2	51	7	156	3	71	4	87	2	35	7	156	5	106	5	123	1	23
General Freight Deliveries (HV)	7	147	7	147	7	147	7	147	7	147	7	147	7	147	7	147	7	147	7	147	7	147	7	147
Consumables Deliveries (HV)							1	10	1	10	1	10	1	10										
Other Deliveries (LV)	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6
Operations Staff - General (LV)	20	420	20	420	20	420	7	147	7	154	7	154	4	88	4	88	27	594	27	594	20	440	20	440
Operations Staff - Day Shift (LV)							11	330	11	341	10	300	11	341	10	310								
Operations Staff - Night Shift (LV)							11	330	11	341	11	330	10	310	11	341								
Lab Staff - Day Shift (LV)	5	105	5	105	5	105	5	105	5	155	5	150	5	155	5	115	5	115	5	115	5	115	5	115
Lab Staff - Night Shift (LV)							5	105	5	155	5	150	15	315										
Administration Staff (LV)	17	357	17	357	17	357	17	357	17	357	17	357	17	357	17	357	17	357	17	357	17	357	17	357
Total LV Movements (one-way)	43	888	43	888	43	888	57	1380	57	1509	56	1447	63	1572	48	1217	50	1072	50	1072	43	918	43	918
Total HV Movements (one-way)	8	154	8	157	8	172	10	208	15	313	11	228	12	244	9	182	14	303	12	253	12	270	8	170
Total Movements (one-way)	51	1042	51	1045	51	1060	67	1588	72	1822	67	1675	75	1816	57	1399	64	1375	62	1325	55	1188	51	1088

4.4 Existing Pedestrian and Cyclist Facilities

The location of the existing CSD facility is rural in nature with the nearest township of Wee Waa more than 3km away. As a result (as illustrated in the photos presented in previous sections) there are no specific provisions for cyclists or pedestrians (e.g. cycle lanes or footpaths) on any of the surrounding local roads. All access to the existing site occurs via vehicle, with no pedestrian or cyclist movements observed to currently occur in the area.

4.5 Existing Public Transport

There are no existing public bus services currently servicing the CSD facility. School bus services appear to operate on the surrounding local road network during the school morning and afternoon peaks, however, no other public transport services were observed to operate in the area.

4.6 Parking at Existing CSD Facility

Unmarked parking spaces under canopy are currently provided on site for approximately 38 to 40 cars. While this is sufficient to accommodate the staff and visitor car parking requirements of the existing development most of the time, at certain times during peak operational periods a shortage of parking spaces can occur as staff movements overlap during the end of one shift and the start of the next. For example, as discussed in Section 4.3 there are approximately 45 vehicle movements (two-way) estimated to occur during the shift changeover periods in the peak month of July, which equates to the requirement for 45 parking spaces on site (not allowing for car pooling). While there is adequate space available on site to informally accommodate any overflow that occurs during these times, the shortage of parking for staff or visitors can be an inconvenience at certain times (e.g. when it is raining).

Formal parking areas for heavy vehicles up to the size of B-Doubles are also provided on site for the unloading of fuzzy seed and loading of treated seed or waste products. Generally the existing facilities are adequate for the 12 to 15 heavy vehicles that service the site on a daily basis during the busier periods (refer Table 4.2); however, due to the random nature of arrivals associated with the incoming fuzzy seed and the time it takes to inspect and unload one of these trucks, occasions do arise where there is insufficient room for parking or manoeuvring of heavy vehicles to occur on site. On those occasions some queuing of trucks on Culgoora Road adjacent to the site has been observed to occur while waiting for a spot on site.

As discussed in a later section, the additional parking and manoeuvring areas proposed on site as part of the redevelopment of the existing cotton seed facility will eliminate the parking issues that currently occur during certain periods.

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5. PROPOSED DEVELOPMENT

CSD has identified the need to redevelop and modernise the existing cotton seed facility at "Shenstone" in order to make it more efficient and more responsive to demand. This will be achieved through the provision of additional warehousing and industrial space for storage and processing; the replacement of outdated equipment and facilities with modern delinting, treatment and dispatch facilities; and the replacement of the existing administration building, laboratory and parking/manoeuvring areas with modern facilities. The existing system of mixing hydrogen and chlorine on site to make HCL gas for the delinting process will also be replaced with a much safer system which makes the gas directly from "pool acid".

The proposed redevelopment of the CSD processing facility includes:

1. Construction of:
    - 1 x 1.289 ha warehouse/industrial building for finished goods, treatment and dispatch;
    - 2816m^2 extension to existing delinter warehouse/industrial building;
    - Recladding of existing black seed warehouse building;
    - 1 x 916m^2 Administration Building;
    - 1 x 815m^2 Laboratory Building;
    - Other associated outbuildings and ancillary works including:
        - Fuzzy Seed silo;
        - Dump Pits 6 & 7;
        - Staff/visitor carpark, accessways and truck loading/unloading areas
        - Augmented flood levee bank and pond filling;
        - Fuel depot;
        - Fire Control Centre; and
        - HCL gas plant.
2. Demolition of existing Administration Building and Laboratory.

Full details of the scope of work associated with each of the above items are provided within the SEE. A plan of the proposed development is included in Appendix B.

As part of the redevelopment of the site, the three existing access points onto Culgoora Road will be closed off and replaced by two new access points catering separately for cars and trucks, thereby minimising conflict between light and heavy vehicles. Additional car parking spaces for staff and visitors, and manoeuvring areas for trucks will also be provided to address existing car parking shortages and queuing issues discussed in Section 4.6.

The redeveloped facility will continue to operate under the same hours as the existing one and will be seasonal. However, with increased production line efficiencies and improved storage capabilities it is anticipated that the current peaks and troughs of activity will be smoothed out. From April to August delinting will be carried out 24 hours per day, 7 days per week. From August to December seed treatment and production will be carried out for up to 24 hours per day, 5 days per week subject to demand. "Care and maintenance" mode will continue to apply from January to March each year.

No additional staff are proposed as part of the redevelopment and shift patterns will remain the same as at present. However, some staff positions will require additional levels of expertise with the introduction of more modern equipment and procedures.

The redeveloped facility is not expected to generate any additional light or heavy vehicle traffic during peak periods compared to the existing facility. Inbound trucks carrying fuzzy seed will still be subjected to the same checks and quality controls prior to unloading as currently occurs, thereby placing a practical restriction on the

rate at which trucks are able to be processed (approximately 1 truck every 1 to 1.5 hours). Trucks collecting treated seed will also continue to be rostered in 0.5hr intervals and the volume of treated seed being dispatched from the facility will continue to be a function of demand.

The SEE indicates that the redeveloped facility would have a theoretical capacity to produce up to 13,000 tonnes of finished seed per year. However, expected demand is only for a maximum of 7,000 to 9,000 tonnes per year, consistent with the previous maximum of 8,000 to 8,500 tonnes achieved in CSD's previous best year of 2011 (as discussed in Section 2.2.2); while in a typical year production is expected to remain around 4,500 to 5,500 tonnes of treated seed.

5.1 Proposed Access and Parking Area Design

As discussed above, two new access driveways onto Culgoora Road are proposed as part of the redevelopment to replace the three existing access points which will be closed. The new driveways will be located at the western end of the redeveloped site and will cater for cars and trucks separately, with suitable signage provided to advise motorists on which access they should use. All vehicle movements to and from the site will be in a forward direction.

All staff and visitor parking will occur from the westernmost access, which will be designed in accordance with Australian Standard *AS2890.1 Off-street car parking*; while heavy vehicles will use the 2nd access which will be designed in accordance with *AS2890.2 Commercial vehicles facilities*. Internal access roads, parking and manoeuvring areas will similarly be designed in accordance with these standards.

The requirements of *AS2890.6 Off-street parking for people with disabilities* and the *RMS Guide to Traffic Generating Developments* in relation to access and parking area design will also be incorporated into the designs.

Based on AS2890.1 the minimum stopping sight distance (SSD) requirement for an access driveway with a frontage road speed of 100km/h is 160m along the frontage road in each direction. Measurements taken on site at the approximate location of the proposed access driveways indicate that there is in excess of 300m available in each direction. The locations of the proposed access driveways are therefore considered to be suitable.

The proposed carparking area will provide 6 short-term visitor spaces (including 1 disabled parking space) and 74 long-term staff parking spaces (including 2 disabled spaces). The visitor parking spaces will be provided at the front of the facility near the administration building and are expected to easily cater for the few visitors currently experienced at the site (which is not expected to change for the redeveloped facility). Staff parking will be provided at the rear under shade cover. 8 existing covered spaces will also be retained near the old Administration building.

The amount of parking proposed for staff significantly exceeds the current demand for parking experienced during shift changeover times under peak operating conditions and, since staff numbers will not increase as part of the proposed redevelopment, is therefore expected to provide ample parking provision for staff at the redeveloped facility.

All loading and unloading of the proposed development will be via the new truck parking/manouevring area and weighbridge at the front of the site and the associated access loop road, thereby providing total separation from the car parking area. The proposed layouts have been checked by Hill Lockart Architects (HLA) using turn path templates to ensure that they can accommodate heavy vehicles up to the size of B-Doubles. The proposed truck manoeuvring and queuing hardstand area will be wide enough to allow a B-Double to make a 'U-turn', while also having sufficient area to accommodate queuing on-site by several B-Doubles if required. As a result no queuing on Culgoora Road is expected to arise with the new layout proposed for the redevelopment.

In the future once the existing Administration and Laboratory buildings have been demolished, an additional overflow area for staff and truck parking will also be available for use in the unlikely event that parking demand exceeds supply in the designated parking areas.

The carparks, access roads and manoeuvring areas will either be constructed of concrete or asphaltic concrete, or compacted gravel as shown on the HLA drawings submitted with the DA. All hardstand areas will be drained to the site stormwater drainage system. All car parking spaces will be linemarked, as will any other areas that require specific delineation. Paved pedestrian facilities will also be provided within the site to provide safe pedestrian access between buildings and facilities, with pedestrian crossings marked across the access road that separates the new Administration and Laboratory buildings from the Treatment and Finished Goods industrial/warehouse buildings.

6. CONSTRUCTION ACTIVITIES

While construction planning details are still in the early stages for this development, the information in this section seeks to provide a broad outline of the proposed construction activities and timing. A rough estimate of the traffic volumes associated with the most intensive of the construction activities is also provided.

It is proposed that construction of the redeveloped facility will occur in the 2017 calendar year, commencing in January with construction completed by December. The care and maintenance period at the beginning of 2018 will then be used to fully test the new equipment and sort out any problems prior to the harvest and start of processing in April 2018. Should any problems arise with the new equipment during the 2018 production year the existing operating plant will remain available to use as a backup, thereby ensuring that the CSD facility, on which the whole of the Australian cotton grower industry is dependent, continues to meet demand during this transitional phase. The existing operating plant will then be decommissioned in 2019.

Access to the site during the construction stage will initially be provided via the westernmost existing access driveway onto Culgoora Road until the new access driveways have been suitably constructed. All construction-related traffic (including light vehicles associated with construction workers) will park wholly within the site during the construction phase.

The first stage of construction will comprise of undertaking the site earthworks, for which heavy earthmoving equipment will need to be brought onto site. Once the earthmoving equipment is on site, workers will come to and from the site daily.

The proposed redevelopment will be constructed with a balance of cut and fill across the site, removing the need for earthworks haulage to and from the site during its construction.

In conjunction with the site earthworks it will also be necessary to undertake any required extensions of existing underground utility services, for which any materials such as pipes, culverts etc will need to be delivered to site and stockpiled until required.

Following substantial completion of the earthworks and utility extensions, construction of the buildings and associated facilities will commence. While the specific quantities of materials required are not known at this early stage, the architectural drawings and SEE identify a number of different building elements proposed for the works which can be broadly summarised as follows:

- Reinforced concrete floor slabs (and reinforced concrete walls and ramps for dump pits);
- Steel or timber framing;
- Brick external vaneer and plasterboard internal lining for new Administration and Laboratory buildings;
- Lightweight coloured metal insulating sandwich panels or external cladding for other buildings (with or without plasterboard internal lining at some locations);
- Light-weight coloured metal roof;
- Aluminium window frames;
- Coloured metal roller-doors or steel swinging doors;
- Compacted subgrade, compacted gravel basecourse, concrete, bitumen or DGB wearing course, concrete kerb and guttering, stormwater drainage, and painted line marking for access roads, parking and manoeuvring areas;
- Metal water tanks for Fire Control Centre; and
- Specialised plant equipment (e.g. the proposed HCL Gas Plant will include a liquid storage tank, high pressure boiler, evaporator towers, Glycol driller, dryer, gas accumulation tank, gas absorption system, waste water treatment and storage tanks, etc; other proposed facilities will also have their own specialised equipment).

It is envisaged that most of these building materials will be delivered to order on rigid trucks, semi-trailers or B-Doubles (depending on their size) throughout the duration of the construction period. However, some materials will likely also be delivered in bulk and stockpiled on site until required.

Specialised vehicles may be necessary for the one-off delivery of some of the equipment for which oversize or over-mass vehicle permits would be obtained if and when required. This may include construction equipment such as a crane, however, specific details are not available at this stage.

It is anticipated that as far as possible building materials will be sourced locally from places such as Narrabri or Tamworth. However, some items (e.g. structural steel and specialised equipment) will likely need to be sourced from places further afield such as Sydney or Brisbane. In all cases it is assumed construction-related heavy vehicles will access the site via the Kamilaroi Highway and the same route (i.e. Warrior Street, Vera Leap Road, Old Pilliga Road and Culgoora Road) currently used by operations-related heavy vehicles servicing the existing facility.

Given the limited information available on quantities at this stage it is not possible to accurately determine the construction traffic volumes. However, the most intensive construction activity in terms of truck movements to and from the site is expected to be associated with concrete deliveries, assuming that this is not batch-mixed on site.

Based on the areas provided for the new buildings or building extensions (see beginning of Section 5), a total area of concrete of approximately 17,500m^2 is proposed for the major building floor slabs. Concrete will also be required for ancillary structures (including the fuzzy seed silo, dump pits, fuel depot, Fire Control Centre, and HCL Gas Plant), as well as for some of the access driveways, carparking areas etc; however, the most intensive pours are likely to be associated with the main building slabs. Assuming an average quantity of 6m^3 per concrete truck (typical) and a total volume of 17,500m^2 x 200mm depth (say) = 3,500m^3 of concrete required for the floor slabs in total, this equates to a total of 583 truckloads (i.e. 1,167 trips in/out). Assuming the floor slabs are collectively poured in 4 or 5 sections over the course of two working weeks, this would require a total of approximately 117 trips per day or approximately 12 trips per hour (average 6 in / 6 out) assuming a 10hr working day.

This level of activity would only arise during the slab pours. Apart from this there would be a few trucks delivering other materials throughout the course of a typical day over the 11 month construction period, and a small number of light vehicle trips, mostly concentrated around the construction shift start and end times, associated with construction workers.

Overall, it is concluded that the construction activities will generate only low traffic volumes, possibly in the order of approximately 15-20 trips per day (two-way) for the development excluding concrete deliveries, and will occur for a duration of approximately 11 months. While higher volumes of traffic will occur during the major concrete pours, adding an additional 12 trips per hour on average, these will be concentrated over a shorter period of approximately 2 weeks only and will be able to be easily accommodated on the adjoining road network which has plenty of spare capacity. Overall, the impacts arising from construction traffic are therefore expected to be low.

7. IMPACT ASSESSMENT

This section examines the potential traffic impacts arising from the proposed redevelopment of the existing cotton seed production facility.

7.1 Traffic Volumes

Existing traffic volumes on the Kamilaroi Highway and the adjacent road network used by the existing CSD facility are currently very low with no known capacity or LOS issues.

As previously discussed in section 4.3, in a typical year the existing facility produces approximately 4,500 to 5,500 tonnes of finished cotton planting seed and generates an average of 190vpd (two-way) during the peak operating month of July. The corresponding peak hourly activity occurs during the shift changeover periods at 7am and 7pm when a total two-way movement of approximately 45vph occurs to/from the facility.

The redeveloped facility will continue to operate under the same hours as the existing development and will be seasonal. However, with increased production line efficiencies and improved storage capabilities it is anticipated that the current peaks and troughs of activity will be smoothed out.

No additional staff are proposed as part of the redevelopment and shift patterns will remain the same as at present. However, some staff positions will require additional levels of expertise with the introduction of more modern equipment and procedures.

The redeveloped facility is not expected to generate any additional light or heavy vehicle traffic during peak periods compared to the existing facility. Inbound trucks carrying fuzzy seed will still be subjected to the same checks and quality controls prior to unloading as currently occurs, thereby placing a practical restriction on the rate at which trucks are able to be processed (approximately 1 truck every 1 to 1.5 hours). Trucks collecting treated seed will also continue to be rostered in 0.5hr intervals and the volume of treated seed being dispatched from the facility will continue to be a function of demand.

The redeveloped facility is therefore not expected to have any material impact on the adjacent road network with respect to the traffic that it generates.

7.2 Vehicle Types and Travel Routes

The same types of vehicles that currently service the existing development will continue to service the redeveloped facility. That is, staff movements will continue to be made by car, while heavy vehicles up to the size of B-Doubles (and the occasional Road Train) will continue to be used for the primary activities of delivering fuzzy seed and collecting treated seed or waste products. No oversize or over-mass vehicles are proposed as part of the operation of the redeveloped facility.

The proposed redevelopment will also not cause any changes to occur in the origin or destination of movements to/from the facility. The existing development services the entire Australian cotton grower industry and this will continue with the redeveloped facility. At its core the same raw ingredients (fuzzy seed) are required and the same outputs (treated seed) are produced. The redevelopment simply modernises the existing facility and will make it more efficient and responsive to demand.

In tandem with the above, no changes to the routes currently used by staff or heavy vehicles to access the site are expected to arise. The majority of heavy vehicle movements to and from the site are currently made via the Kamilaroi Highway – Warrior Street – Vera Leap Road – Old Pilliga Road – Culgoora Road route and this is not expected to change with the proposed development.

The redeveloped facility is therefore not expected to have any material impact on the adjacent road network with respect to the types of vehicles or access routes used.

7.3 Pedestrians and Cyclists

There are no pedestrian or cyclist facilities (footpaths, cycle lanes etc) currently provided on the external road network to service the site. Given the nature and location of the development and its surrounding rural land uses, it is unlikely staff would travel to the site via bicycle or walking. Therefore the provision of cycle and pedestrian facilities to and from the site as part of the proposed redevelopment is not considered necessary.

Within the site adequate provision should be made for pedestrians to move safely around the site. The proposed measures to achieve this are illustrated on the drawings prepared by HLA and discussed in Section 7.5 below.

7.4 Public Transport

There are no existing public bus services currently servicing the CSD facility and none are proposed. Given the nature and location of the development and its surrounding rural land uses, it is not expected that the redeveloped facility will generate any demand for the provision of bus services.

7.5 Access Driveways and Internal Layout

Two new access driveways onto Culgoora Road are proposed as part of the redevelopment to replace the three existing access points which will be closed. The new driveways will be located at the western end of the redeveloped site and will cater for cars and trucks separately, thereby eliminating the potential for conflict. Suitable signage will be provided to advise motorists on which access they should use. All vehicle movements to and from the site will be in a forward direction.

The access driveways and internal access roads, parking and manoeuvring areas will be designed (where applicable) in accordance with *AS2890.1 Off-street car parking, AS2890.2 Commercial vehicles facilities, AS2890.6 Off-street parking for people with disabilities* and the *RMS Guide to Traffic Generating Developments.*

Based on AS2890.1 the minimum stopping sight distance (SSD) requirement for an access driveway with a frontage road speed of 100km/h is 160m along the frontage road in each direction. Measurements taken on site at the approximate location of the proposed access driveways indicate that there is in excess of 300m available in each direction. The locations of the proposed access driveways are therefore considered to be suitable.

The carparks, access roads and manoeuvring areas will either be constructed of concrete or asphaltic concrete, or compacted gravel as shown on the HLA drawings submitted with the DA. All hardstand areas will be drained to the site stormwater drainage system. All car parking spaces will be linemarked, as will any other areas that require specific delineation. Paved pedestrian facilities will also be provided within the site to provide safe pedestrian access between buildings and facilities, with pedestrian crossings marked across the access road that separates the new Administration and Laboratory buildings from the Treatment and Finished Goods industrial/warehouse buildings.

7.6 Parking

The existing development provides parking spaces under cover for 38 to 40 cars. While this is sufficient to accommodate the staff and visitor car parking requirements of the existing development most of the time, at certain times during the peak shift changeover periods a shortage in available spaces can occur. The redeveloped facility will provide 6 short-term visitor spaces (including 1 disabled parking space) and 74 covered long-term staff parking spaces (including 2 disabled spaces). 8 existing covered spaces will also be retained near the old Administration building.

The amount of parking proposed for staff and visitors significantly exceeds the current demand for parking experienced during shift changeover times under peak operating conditions and, since staff numbers will not

increase as part of the proposed redevelopment, is therefore expected to provide ample parking provision for staff and visitors at the redeveloped facility.

Formal parking areas for heavy vehicles up to the size of B-Doubles are also provided at the existing site for the unloading of fuzzy seed and loading of treated seed or waste products. Generally the existing facilities are adequate for the 12 to 15 heavy vehicles that service the site on a daily basis during the busier periods; however, due to the random nature of arrivals associated with the incoming fuzzy seed and the time it takes to inspect and unload one of these trucks, occasions do arise where there is insufficient room for parking or manoeuvring of heavy vehicles to occur on site. On those occasions some queuing of trucks on Culgoora Road adjacent to the site has been observed to occur while waiting for a spot on site.

All loading and unloading for the redeveloped facility will occur via the new truck parking/manouevring area and weighbridge at the front of the site and the associated access loop road, thereby providing total separation from the car parking area and removing the associated potential for conflict. The proposed truck manoeuvring and queuing hardstand area will be wide enough to allow a B-Double to make a 'U-turn', while also having sufficient area to accommodate queuing on-site by several B-Doubles if required. As a result no queuing on Culgoora Road is expected to arise with the new layout proposed for the redevelopment.

In the future once the existing Administration and Laboratory buildings have been demolished, an additional overflow area for staff and truck parking will also be available for use in the unlikely event that parking demand exceeds supply in the designated parking areas.

7.7 Construction Traffic

It is proposed that construction of the redeveloped facility will occur in the 2017 calendar year, commencing in January with construction completed by December. The care and maintenance period at the beginning of 2018 will then be used to fully test the new equipment and sort out any problems prior to the harvest and start of processing in April 2018. Should any problems arise with the new equipment during the 2018 production year the existing operating plant will remain available to use as a backup, thereby ensuring that the CSD facility, on which the whole of the Australian cotton grower industry is dependent, continues to meet demand during this transitional phase. The existing operating plant will then be decommissioned in 2019.

Access to the site during the construction stage will initially be provided via the westernmost existing access driveway onto Culgoora Road until the new access driveways have been suitably constructed.

All construction-related traffic (including light vehicles associated with construction workers) will park wholly within the site during the construction phase.

The proposed redevelopment will be constructed with a balance of cut and fill across the site, removing the need for earthworks haulage to and from the site during its construction.

A wide range of different building materials and equipment will need to be transported to the site. It is envisaged that most of this will be delivered to order on rigid trucks, semi-trailers or B-Doubles (depending on their size) throughout the duration of the construction period. However, some materials will likely also be delivered in bulk and stockpiled on site until required.

Specialised vehicles may be necessary for the one-off delivery of some of the equipment for which oversize or over-mass vehicle permits would be obtained if and when required. This may include construction equipment such as a crane, however, specific details are not available at this stage.

It is anticipated that as far as possible building materials will be sourced locally from places such as Narrabri or Tamworth. However, some items (e.g. structural steel and specialised equipment) will likely need to be sourced from places further afield such as Sydney or Brisbane. In all cases it is assumed construction-related heavy vehicles will access the site via the Kamilaroi Highway and the same route (i.e. Warrior Street, Vera Leap Road, Old Pilliga Road and Culgoora Road) currently used by operations-related heavy vehicles servicing the existing facility.

Given the limited information available on quantities at this stage it is not possible to accurately determine the construction traffic volumes. However, the most intensive construction activity in terms of truck movements to and from the site is expected to be associated with concrete deliveries (assuming that this is not batch-mixed on site), and in particular the slab pours associated with the main building slabs. It is estimated that a total of approximately 117 trips per day, or approximately 12 trips per hour (average 6 in / 6 out) assuming a 10hr working day, will be required over a 2 week (10 day) period for this activity.

This level of activity would only arise during the slab pours. Apart from this there would be a few trucks delivering other materials throughout the course of a typical day over the 11 month construction period, and a small number of light vehicle trips, mostly concentrated around the construction shift start and end times, associated with construction workers.

Overall, it is concluded that the construction activities will generate only low traffic volumes, possibly in the order of approximately 15-20 trips per day (two-way) for the development excluding concrete deliveries, and will occur for a duration of approximately 11 months. While higher volumes of traffic will occur during the major concrete pours, adding an additional 12 trips per hour on average, these will be concentrated over a shorter period of approximately 2 weeks only and will be able to be easily accommodated on the adjoining road network which has plenty of spare capacity. Overall, the impacts arising from construction traffic are therefore expected to be low.

8. CONCLUSIONS

CSD has identified the need to redevelop and modernise the existing cotton seed facility at "Shenstone" in order to make it more efficient and more responsive to demand.

The redeveloped facility will continue to operate under the same hours as the existing development and will be seasonal. However, with increased production line efficiencies and improved storage capabilities it is anticipated that the current peaks and troughs of activity will be smoothed out.

No additional staff are proposed as part of the redevelopment and shift patterns will remain the same as at present. However, some staff positions will require additional levels of expertise with the introduction of more modern equipment and procedures.

The redeveloped facility is not expected to generate any additional light or heavy vehicle traffic during peak periods compared to the existing facility. Inbound trucks carrying fuzzy seed will still be subjected to the same checks and quality controls prior to unloading as currently occurs, thereby placing a practical restriction on the rate at which trucks are able to be processed (approximately 1 truck every 1 to 1.5 hours). Trucks collecting treated seed will also continue to be rostered in 0.5hr intervals and the volume of treated seed being dispatched from the facility will continue to be a function of demand.

As part of the redevelopment of the site, the three existing access points onto Culgoora Road will be closed off and replaced by two new access points catering separately for cars and trucks, thereby minimising conflict between light and heavy vehicles. Additional car parking spaces for staff and visitors, and manoeuvring areas for trucks will also be provided to address existing car parking shortages and queuing issues.

The redevelopment of the site will generate some additional traffic during the construction period, which is currently scheduled for the 2017 calendar year. However, for the most part the construction activities are expected to generate only low traffic volumes, possibly in the order of approximately 15-20 trips per day (two-way) for the development excluding concrete deliveries, and will occur for a duration of approximately 11 months. While higher volumes of traffic will occur during the major concrete pours, adding an additional 12 trips per hour on average, these will be concentrated over a shorter period of approximately 2 weeks only and will be able to be easily accommodated on the adjoining road network which has plenty of spare capacity. Overall, the impacts arising from construction traffic are therefore expected to be low.

In conclusion, the proposed development is not expected to cause any significant traffic impacts on the adjacent road network and there are no issues associated with traffic to reject the proposal.

APPENDIX A

Existing Development Layout


NORTH
Lot 1 DP 873839
Lot 2 DP 812166
W1
W2
W3
W5
W6
TREATING PLANT
IRRIGATION FIELD
C U L G O O R A R O A D
To Wee Waa
EXISTING LOCALITY PLAN
SCALE 1:1000 @ A1
D A I S S U E O N L Y
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Hill Lockart Architects
PROPOSED RE-DEVELOPMENT OF EXISTING FACILITY
FOR COTTON SEED DISTRIBUTORS LTD.
"SHENSTONE", 2952 CULGOORA ROAD, WEE WAA
EXISTING LOCALITY PLAN
C0114 DA-01-100

APPENDIX B

Proposed Development Layout

D A I S S U E O N L Y
N O T T O B E U S E D F O R C O N S T R U C T I O N P U R P O S E S

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PROPOSED LOCALITY PLAN

CH14-DA-01-101