SMK

CONSULTANTS

surveying – irrigation – environmental – planning

ABN 63 061 919 003

39 Frome Street
PO Box 774
Moree NSW 2400
Ph 02 6752 1021
Fax 02 6752 5070
ptaylor@smk.com.au

www.smk.com.au

Arrow Commodities Rail Freight Terminal

Planning Report to Modify Operating Hours

Arrow Commodities Pty Ltd

12,169 Newell Highway Narrabri, NSW 2390

December 2020

SMK

CONSULTANTS

surveying – irrigation – environmental – planning

ABN 63 061 919 003

DOCUMENT CONTROL

Project Name	**Modification to Narrabri Rail Freight Terminal - Receival Operating Hours**
Proponent	Arrow Commodities Pty Ltd
Project Reference	20-190
Report Number	20-190-1
Prepared for	Arrow Commodities 12,169 Newell Highway Narrabri, NSW 2390
Prepared by	SMK Consultants 39 Frome Street Moree, NSW 2400
Contact	Peter Taylor ptaylor@smk.com.au 02 6752 1021

Author	
	Peter Taylor
Name	**Peter Taylor** BSc. MEIANZ CIAg LAA
Position	Director
Company	SMK Consultants
Reviewed By	
	Kyra O'Sullivan
Name	**Kyra O'Sullivan** BEng. (Hon) MIEAust
Position	Environmental Engineer
Company	SMK Consultants

Revision History			
Version Number	**Date**	**Authority**	**Details**
0	16-11-2020	P. Taylor	Release to Client
1			

Executive Summary

Arrow Commodities has engaged SMK Consultants to prepare a planning submission to assess a proposal to modify their Development Application 15/2011 for their Rail Freight Terminal located on the northern edge of Narrabri. The activity on the site consists of receival and storage of a range of grains, grown in the Narrabri region. The grain is then despatched via the adjoining rail network.

The Development Application was granted in 2010 and the site was operational in 2011. Condition No. 15 of the Approval describes the permissible operating hours, mainly:

- *The hours of operation of the business (receive grain and associated activities) shall be restricted to Monday to Friday 7am – 6pm and Saturday 8am – 5pm.*
- *The bulk loading of trains may be carried out on a 24-hour basis subject to noise control limitations as contained with the consent conditions DA15/2011.*

The proponent wishes to extend these operational hours to 24 hours per day, 7 days per week for receival of grain. This will reflect the rail loading hours and allow truck deliveries at the terminal to align with the grain harvesting, including opportunities for delivery of grain during loading of trains if this occurs at night. The proposal is expected to allow an increase in throughput from the current estimate of 150,000 tonnes per year to an estimated 300,000 to 400,000 tonnes per year, during a good grain production year. The tonnage of grain transferred through this site will always be subject to local grain production conditions. Subsequently, utilising extended operational hours will only occur as necessary.

The proposal will enable the facility to take advantage of their access to the existing rail activity and allow a potential throughput volume increase once the Inland Rail network can provide significantly larger train capacities for delivery to additional Shipping Ports which will become accessible.

Narrabri Shire Council provided the proponent with Pre-lodgement advice which outlined the requirements for information to allow Council to consider the proposed increase in operating hours for receival of grain. The primary concerns of Council related to traffic, noise, dust and Hazardous/Offensive development.

Traffic impacts will be limited as the rate of traffic moving to and from the site is limited by the ability of the facility to process and unload trucks. No changes are occurring to the facility other than the proposal for extending potential operating hours and therefore traffic impacts are not considered to change from existing impacts. No impacts of concern were identified.

The Noise Impact report concluded that noise levels associated with the modification are expected to be within the Project Trigger Noise Levels if appropriate mitigation measures are adopted during worst case weather conditions.

Further discussions with Council resulted in the queuing lanes being widened and bitumen sealed. This will significantly reduce potential traffic dust from this site. The transfer of grain will be limited to avoid offsite emissions of grain husk by utilising controlled flow and enclosed conveyance systems in accordance with the existing approval conditions.

The development was assessed in accordance with SEPP 33 and it was concluded that the development is not considered as hazardous or offensive. In conclusion, extending the hours for grain receival to the same hours for train loading can occur without significant additional impact if appropriate mitigation measures are adopted.

CONTENTS

1 Introduction and Scope of Works

Arrow Commodities has engaged SMK Consultants to prepare a submission to Narrabri Shire Council to modify Development Approval 15/2011. Arrow Commodities operate a Rail Freight Terminal located on the northern edge of Narrabri. The activity on the site consists of receival and storage of a range of grains grown in the Narrabri region. The grain is then despatched via the adjoining rail network to a range of destinations.

The Development Application for the operation was granted in 2010 and the site was operational in 2011. Condition No. 15 of the site DA states:

- The hours of operation of the business (receive grain and associated activities) shall be restricted to Monday to Friday 7am – 6pm and Saturday 8am – 5pm.
- The bulk loading of trains may be carried out on a 24-hour basis subject to noise control limitations as contained with the consent conditions DA15/2011.

The proponent wishes to extend these operational hours to 24 hours per day, 7 days per week for receival of grain. This will reflect the rail loading hours and allow an increase in truck deliveries at the terminal to align with the grain harvesting industry operating hours and delivery of grain during loading of trains. The proposal would allow an increase in throughput from the current estimate of 150,000 tonnes per year to an estimated 300,000 to 400,000 tonnes per year.

The proposal will enable the facility to take advantage of their access to the existing rail activity and allow a throughput volume increase once the Inland Rail network can provide significantly larger train capacities for delivery to additional Shipping Ports which will become accessible. At present, the majority of grain is exported via the Port of Newcastle. Inland Rail will provide access to Ports in both Melbourne and Brisbane.

The following report presents an assessment of the proposal in terms of Section 4.15 of the Environmental Planning & Assessment Act 1979.

2 Site Details

2.1 Land Use

The grain facility is located between the Newell Highway and the Narrabri-Moree railway line within a mainly industrial area on the northern edge of Narrabri. The site encompasses Lot 31 DP 1184780 and is zoned as IN2 - Light Industrial under the Narrabri Shire Council Local Environmental Plan 2012. The land incorporates an area of 6.2 Ha of flat ground which drains to the west via constructed table and stormwater drains. An aerial image of the site is presented in Appendix 1.

The site is approved for the receival and despatch of grain. No other activities are approved or proposed for this site.

Grain is delivered to the site via the road-train approved access from the Newell Highway. Each load of grain is weighed and sampled. Once documented, the grain can be loaded into storage. The grain is stored in 12-separate silos constructed on the site. Grain is loaded into the silos from a below ground hopper and then distributed via a system of enclosed augers and elevators.

The silo system that is present allows for some fumigation of grains. The silos can be sealed when this occurs, avoiding the potential spillage of fumigants on the surrounding ground.

The site adjoins a rail spur which is utilised for loading of trains from both the Arrow Commodities facility and the adjoining Auscott cotton and grain storage facility. The rail spur has a total length of approximately 2.5 km and therefore this would allow a full train length for the proposed 1.8 km long trains to utilise the Inland Rail network. Trains are presently loaded via an overhead hopper system above the rail spur. A total of approximately 700m of track is available for shunting between the hopper and the southern end of the rail spur.

The silo complex is located at the northern end of the Lot. The office and weighbridge are located centrally. The entrance yard and three lane truck queuing area extends from the office back to the Newell Highway intersection. The remainder of the land is unused apart from storage of some equipment.

The surrounding yard area is kept in a mown state. Some herbicides are used on the site to control weeds. These herbicides are generally restricted to short-term knockdown products that readily decay within a short-half-life of several weeks or less.

2.2 Site Condition and History

Natural soil on site consists of a grey clay typical of the northern floodplains of the Naomi River and its tributaries. The land is not traversed by any streams. Drainage works have been undertaken as part of the site development to encourage drainage of local rainfall runoff. The adjoining Newell Highway forms an artificial levee to limit local stormwater flows onto the site.

Prior to the grain silo development, the land was vacant as it had issues with highway access. The land was occasionally utilised for storage of agricultural related machinery and equipment. The property was located between the rail line and the highway. The original access to the site occurred via easements from adjoining private properties to the west. This restricted the use of the land.

No known industrial activity occurred on the land prior to development of the grain receival facility.

2.3 Adjoining Land Use

Land to the west of the receival facility is used for storage and packaging of mainly cotton bales. The cotton is stored in sheds and then loaded into containers for despatch via truck or rail. The activity of cotton bale processing does not involve any hazardous materials other than small quantities of diesel used to fuel equipment. The site is maintained in a relatively clean condition to avoid contamination of the cotton.

The rail spur runs along the western boundary of the Arrow Commodities site. This line is used for loading of grain and containers. Land to the north and further west is used for broadacre agriculture, but includes the Narrabri sewage treatment plant approximately 450m north of the grain silos.

The eastern boundary is formed by the Newell highway. This is a heavily utilised interstate transport route carrying a wide range of goods. The eastern side of the Newell highway is occupied by the Narrabri industrial precinct. Activities in this precinct include car dealerships, steel fabrication works, agricultural machinery workshops, light industry and general agricultural sales facilities. Drainage from this area is directed to the south and therefore any local contamination from this precinct would not flow toward or onto the grain receival facility under normal circumstances.

Wee Waa Road is located to the south of this site. Development along this road to the edge of Narrabri includes a mixture of light industry, trucking facilities and residences. Approximately 10-residences have frontage to Wee Waa Road. These residences are within the light industrial area. Wee Waa Road changes name to the Kamilaroi Highway on the edge of the town area. The Kamilaroi Highway is the main transport route for commodities produced in the lower Namoi Valley and provides a transport connection to Walgett and beyond. The majority of agricultural produce from the lower Namoi region is transported to the Newell Highway via the Kamilaroi Highway. Wee Waa Road residences are therefore impacted by extensive seasonal truck traffic associated with the cotton and grain industries to the west of Narrabri.

3 Proposed Development

The proposed development involves changes to operating hours for receival of grain. The intent is to align operations on site with the approval to load trains on a 24-hour basis. The modification will allow grain receival to occur on a 24-hour and 7-day per week basis when required. The extended hours would allow the site some flexibility in receiving grain during harvest periods when harvesting continues through the night. Harvest is restricted at times when grain cannot be moved off-farm to receival facilities.

The operations on a 24-hour basis would generally be limited to grain harvest periods. This generally occurs between mid-October through to mid-December for winter cereals and in March-April for summer crops such as sorghum.

Outside of these harvest periods, grain may be delivered to the site on occasions when large trains exceed the capacity of grain stored on the site. For most train loading operations, sufficient grain can be delivered to the site during normal operating hours and therefore night deliveries for train loading can be limited to transfer of grain between silos and into the rail loading hopper, which occurs at present.

The potential for 24-hour operations would allow the site to increase their potential throughput of grain from an estimated 150,000 tonne average at present, to as much as 400,000 tonne per annum. These estimates are based on the potential increase in use of rail to carry grain as a result of the Inland Rail and access to additional shipping ports including the Ports of Brisbane and Melbourne.

The resulting increase in annual throughput will increase the total number of trucks entering and leaving this site. In order to facilitate this increase in truck movements the entrance road between the Newell Highway intersection and the weighbridge has been widened and bitumen sealed. This section of road was widened by approximately 12.5m to provide a total width of 16.5m of bitumen sealed road formation. This allows for 3-lines of trucks to queue while waiting to be processed. A fourth lane is kept clear for trucks leaving the site. The road has been sealed to control dust generated by truck movements. The original road was gravel paved only and dust was controlled by sprinklers during busy periods. The bitumen will now eliminate the requirement for constant watering of this road. The bitumen can be washed down to remove wheel dust from trucks that have travelled to the site via local gravel and black soil roads directly from paddocks. This wheel dust is an issue during busy harvest periods.

Figure 1: Recently sealed and widened bitumen access road to the weighbridge and office at Arrow Commodities grain receival terminal in Narrabri

The widened road will ensure that the intersection area onto the Newell Highway will remain clear to allow trucks to enter or exit. No trucks will be allowed to park along the Newell Highway while waiting to be unloaded. At present, the queuing of trucks is controlled by site management who control the level of incoming trucks via two-way radio communications. Once the queuing line reaches a set limit, trucks are turned away or redirected to other sites.

Sprinklers will be retained around the silo area to suppress road dust.

No other changes will occur on this site other than the change in hours for receival of grain. All buildings on this site were approved under the existing consent.

The current development consent does not include an annual throughput limit and therefore this application does not require a modification of throughput tonnage.

No change will occur to the type and operation of trucks within the site. The existing management process for noise, dust and safety processes will be maintained in accordance with existing operational conditions and Council consent conditions.

3.1 Operational Changes

If the facility is approved for 24-hour receival of grain, the only change that is predicted will be an increase in total truck numbers to deliver a larger quantity of grain. The applicant is expecting to increase throughput of grain from approximately 150,00 tonnes per annum to between 300,000 and 400,000 tonnes per annum.

The majority of trucks delivering grain to this site are road trains with a load weight of 50-tonnes. The use of B-triples with the capacity of 65-tonne or more is increasing as a response to changes in vehicle configurations and improvements in transport efficiencies.

The following calculations have been undertaken to assess the total number of trucks entering and leaving this site if throughput of grain is increase. Calculations are based on an average load of 50-tonnes.

Table 1: Existing and Predicted truck movements for increased throughput of grain

	Current throughput of 150,000 tonnes	**300,000 tonne throughput**	**400,000 tonne throughput**
Average truck load	50-tonnes	50-tonnes	50-tonnes
Number of truck movements to and from the site per annum	3,000	6,000	8,000
Internal turn-around time	20-minutes	20-minutes	20-minutes
Maximum daily operating hours	11	24	24
Potential peak truck movements per day	33	72	72
Peak daily receival tonnage	1,650	3,600	3,600
Total days of operation to receive the throughput of grain at maximum daily receival rate	91	83	111

Based on the above table, 24-hour operations will result in a similar number of days of operation for this facility over a 12-month period when compared to current operating hours. However, it should be noted that the grain receival is subject to many factors during harvest and potential peak receival periods. Grain moisture will dictate hours of harvest and therefore the site would only operate on a 24-hour basis for a limited periods when dry conditions remain throughout the night, or a large train is being loaded during the night.

For train loading operations outside of the grain harvest period, the majority of grain will be hauled to the site for the additional throughput during normal hours of operation (7am to 6pm Monday to Friday). During periods of loading trains at night, the intent is to limit the throughput of trucks delivering grain to the site. Under worst case weather conditions where noise travels further, site operations will be restricted to two trucks per hour. This is based on noise mitigation objectives. This will therefore force the bulk of grain loading operations outside of harvest periods to daylight hours only.

In general, the rate of receival of trucks will be limited by the ability of the site to process and unload trucks. No changes are included to this receival process and therefore the frequency of trucks entering and leaving the site will remain the same as existing operations or similar.

3.1.1 Personnel/Staffing

Staff and personnel will need to be increased to accommodate the increased grain receival. When operating on a 24-hour basis, a minimum of two staff shifts will be required. Staff needed to operate the site include an administration person, a sampler at the weighbridge, two or more staff at the grain silos to operate the grain receival and storage facility, in addition to a site manager. A minimum of 5-staff will be required to operate the site when grain is being received. For 24-hour operations, the site will require up to 10-staff in addition to the overall manager and logistics staff.

For loading of trains, the operation requires up to 3-staff in addition to rail related staff. These would be additional staff if the site is receiving grain at the same time. Trains will be loaded at varying times to suit rail schedules and therefore the number of staff onsite at any one time will range between 3 and 14.

The operation will include the potential doubling of truck movements. It will not alter the tonnage of grain grown in the region and therefore these additional truck movements to and from the site will result in the redirection of existing trucks moving grain around the region. There is potential for more permanent trucking contracts to be available outside of grain harvest seasons for the purpose of moving grain from other grain storage facilities to load onto trains at the Arrow Commodities facility. This will result in more permanent positions for local trucking contractors.

3.1.2 Plant and Equipment

Arrow Commodities will utilise existing infrastructure to handle increased grain movement. No additional onsite storage in the form of grain bunkers form part of this application.

The site operates without the need for front end loaders to move or load grain. The process of receiving grain at the below ground hopper and loading grain via the overhead rail hopper will remain the same.

No additional equipment is predicted to be required.

Watering of gravel roads around the silo area is undertaken using portable sprinklers as the path for trucks is defined by a strict traffic management plan on the site. No water truck is required.

3.1.3 Traffic and Parking

The access intersection into the site was designed for road train access and approved by NSW RTA (Transport NSW). No changes will be made to this intersection other than normal maintenance of this bitumen surface.

All vehicles will exit the site in a forward direction. No queuing will occur outside of the facility that would impede or create a traffic conflict on the Newell Highway. This is strictly controlled by management for trucks involved in the delivery of grain to this site.

The truck parking area between the entrance and the weighbridge has been widened and bitumen sealed. This was specifically undertaken as a dust mitigation measure. Additional trucks can park within the site whilst waiting to be unloaded. Allowing for three lines of waiting road trains, up to 15-road trains can be accommodated on the entrance parking area, based on a maximum truck length of 36.5m.

Staff parking is provided at the office and adjoining open paddock area. Up to 2-Ha remains available for staff parking on this site. During peak operations, there is a potential for 10-staff vehicles to be onsite. Parking for these vehicles was developed during the original construction period.

3.1.4 Lighting

The existing lighting on the site will not require modification. Lighting has been installed for night un-loading operations for trucks. This includes directional lights for the weighbridge and sampling platform as well as lights around the unloading hopper.

The overhead rail hopper has lighting to allow for night loading of trains. This lighting will not be altered.

No complaints have been received in relation to lighting.

3.1.5 Vermin

The facility has existing vermin management procedures. These include baiting if mice become an issue.

The silos on this site are sealed and therefore vermin do not have access to grain in the silos.

Management tasks include cleaning up of any spilt grain from trucks or around the unloading area.

3.1.6 Occupational Health and Safety

The facility has a strict OH&S plan as required under various legislative provisions. The site is busy during grain harvest and therefore management have adopted a strict policy for management of staff and truck contractors to eliminate the potential accidents as a result of site operations. The movement of trucks within the site is strictly controlled.

4 Statutory Matters

4.1 Permissibility

The Arrow Commodities site is approved as a "Rail Freight Terminal" under DA 15-2011. This approval was issued by Narrabri Shire Council and therefore the continuing operation of this site as a Rail Freight Terminal is permissible.

4.2 Commonwealth Legislation and Regulations

The proposed changes to the operating hours on this site do not trigger any Commonwealth legislation or regulations. No physical changes are occurring to the structures on this site.

4.3 State Legislation, Regulations and Policies

4.3.1 Environmental Planning and Assessment Act 1979

The change in operating hours triggers the provisions of the Environmental Planning and Assessment Act 1979. The requirement involves submission of an application to modify the existing consent conditions. This report and the accompanying documents are considered to satisfy the requirement of the application process.

4.4 State Environmental Planning Policies and Development Codes

4.4.1 State Environmental Planning Policy No. 33 – Hazardous and Offensive Developments

The proposed development is not considered to alter the characteristics of the existing site operations and therefore does not trigger a requirement to re-assess the potential of whether the site is considered a hazardous or offensive development as the rate of activity on this site

will remain similar to the current approval. The development was not considered as an offensive or hazardous activity when initially approved by Council.

The development at present and as proposed does not involve the use of hazardous materials. The commodity being received and despatched from the site is a food product and therefore no hazardous materials should be present on this site that may contaminate the grain.

The grain facility can undertake fumigation of grain that is impacted by weevils. If this is required, the chemical used for this process would be brought to the site and used immediately. There are no requirements to store such chemicals onsite.

The operation of the grain freight terminal is not considered to generate offensive odours. Site management protocols include the clean-up of any spilt grain and therefore the risk of spoilt grain or rotten grain on this site can be eliminated.

5 Environmental Impact

5.1 Dust Impact

Dust impacts can occur as a result of truck traffic and grain handling. Sensitive receivers around this site include a car sales centre on the eastern side of the Newell Highway in addition to a range of industrial and residential areas to the south and east.

Arrow Commodities discussed the issue of dust with Council. As a response, Arrow Commodities invested in bitumen sealing of the entrance road and installation of a road watering system around the remainder of the site.

The bitumen sealed area will be utilised to queue trucks in the entrance area. The issue of wheel dust being dropped from the trucks has also been considered. This dust can be washed off the bitumen into the adjoining grass and settled in the grass.

The truck circuit around the silos is a defined single lane route and is kept wet by sprinklers during grain receival periods.

Grain dust can be generated during unloading into the below ground hopper and from the overhead hopper onto trains. The below ground grain hopper is shielded to capture grain dust. This minimises the emission of grain husk and dust during unloading from truck chutes.

The overhead grain hopper is fitted with an appropriate loading chute to contain the dust in a single stream. The grain chute is designed to minimise losses during the loading of trains.

When possible, the handling of grain is limited during periods of high wind which would impact the transfer of grain and the potential for grain husk to blow away from the site.

The grain silos, auger and internal grain transfer system is fully enclosed and therefore does not provide a potential source of dust.

The existing DA 15-2011 includes conditions for minimisation of grain dust emissions. These conditions have been adopted and existing grain dust minimisation procedures will not be altered.

5.2 Noise Impact

The potential noise impact from this facility was assessed by an Acoustic Engineer using attended noise monitoring to measure existing background noise levels and generate the potential noise impacts using acoustic modelling to calculate the travel of noise from the operations.

The activities on this site were assessed in accordance with the NSW Noise Policy for Industry (2017) as requested.

The Noise Impact Report is presented in Appendix 2 (Noise Impacts Assessment – Arrow Grain Facility Narrabri, Advitech 2020).

This report provides all details obtained to calculate the Project Trigger Noise Levels for assessment within the model. Additional assessment was undertaken to characterise traffic noise in the local area. Receptors in the local area are impacted by traffic along the Wee Waa Road and the Newell Highway. Both of these transport routes carry a significant volume of vehicles throughout the year. Both of these major roads have a relatively continuous flow of traffic and therefore would represent an existing impact for 24-hours/7-day period.

The report concluded that:

- Modelling indicates that noise levels associated with the modification are expected to be within the Project Trigger Noise Levels
- Adverse impacts are not expected
- While adverse operational noise impacts are not expected during the day or evening periods, this activity may be audible at some locations under adverse meteorological circumstances during the night period.
- It is recommended that operational mitigation measures outlined in the report be put in place to ensure the effective response to any concerns raised by adjacent receivers.

Noise modelling along Wee Waa Road was identified as an issue on the basis of determining whether additional truck traffic would be generated along this road as a result of the change in the operations on the site. It is noted that the operations will result in the redirection of existing traffic. The highly variable issue relates to where the additional grain will be sourced. In some years, grain may be hauled from the Lower Namoi region and therefore utilise Wee Waa Road. In other years, the grain will be brought from other local grain facilities via the Newell Highway.

The report identified the issue of night time noise exceedances under worst case weather conditions. Such conditions would include no wind or slight northerly winds, and inversion layers during winter. The recommended mitigation measure under such circumstances is to reduce the rate of truck movements on this site. The recommendation in such conditions or in response to concerns from a local resident will be to reduce night-time truck movements to 2-trucks per hour to enter and leave the site.

Other mitigation measures can be adopted including that all trucks waiting on the site need to turn their engines off whilst waiting. This could eliminate the noise from up to 15-engines.

Speed limits on the site are currently low and therefore no modification of speed limits is offered as this is already undertaken for safety and noise reduction.

The noise assessment has indicated that the modification as proposed to allow 24-hour operations will be acceptable in relation to noise emission criteria.

5.3 Traffic Impact

The following provides details of traffic impact. The section is based on the Guide to Traffic Generating Development. The existing intersection was designed to Austroads standards when it was constructed in 2010-2011 after approval was obtained from NSW RTA.

5.3.1 Location

The facility is located on the northern edge of Narrabri. It obtained approval as a Rail Freight Terminal on the basis that it receives grain from the local region, stores it, and then loads it directly for transport by rail. The site is located on the edge of Narrabri and adjoins a facility that undertakes similar operations for agricultural commodities.

Access to the site is via the Newell Highway. No alternative access is available other than for trains. The existing access was designed and approved by NSW RTA. The requirement of the original development consent conditions involved a Works Authorisation Deed to be obtained from RTA for work on the Highway. All plans for the intersection were submitted to RTA for review and approval prior to construction and operations commencing.

5.3.2 Site Classification

The site is approved as a rail freight terminal. In accordance with State Environmental Planning Policy (State and Regional Development) 2011, the following description can be applied.

5 Private infrastructure and community facilities over $5 million

Development that has a capital investment value of more than $5 million for any of the following purposes—

(a) air transport facilities, electricity generating works, port facilities, rail infrastructure facilities, road infrastructure facilities, sewerage systems, telecommunications facilities, waste or resource management facilities, water supply systems, or wharf or boating facilities,

The site has an existing approval under previous SEPPs and therefore the change to operations as identified in this application are not considered to trigger a requirement for a new development consent and surrender of the existing consent. The amendment will involve a change of hours and not a change of site activity.

5.3.3 Site Access

Based on the geometry of the intersection which has been assessed in relation to the AustRoads standards, the intersection is designed for road train access as a minimum. The use of B-Triples was not permitted in 2010 when the intersection was designed. The intersection includes a left-hand and right-hand turning lane in accordance with AustRoads standards. A preliminary assessment of the intersection geometry indicates that the intersection has sufficient dimensions to allow B-triple access if required, however this would be subject to discussion with Transport NSW and potentially Council Engineers.

The proposed development does not involve or require any changes to the existing intersection. No change in speed limits have occurred on this section of Highway. Sight distance has not altered from 2010 as a result of other developments. The Highway has not been altered other than standard road maintenance works since the intersection was constructed.

5.3.4 Traffic Flow – Existing and Proposed

The rate of trucks entering and leaving the rail freight terminal will remain the same. Peak traffic periods are limited to grain harvest periods when growers can deliver directly to the silos from harvesters. Throughout the remainder of the year, trucks can be more organised with timed deliveries based on train schedules.

Some upgrades have occurred within the site in the form of widening the queuing approach to the weighbridge. The upgraded section of road between the entrance and the weighbridge now allows for 3-lanes of trucks to queue and potentially 4-lanes if required. The entrance area has been bitumen sealed to improve access and limit any dust generation in the queuing area.

No changes will occur to infrastructure on this site under this development application. The ability of the site to receive grain is controlled by the time it takes to process each truck load and then auger the grain into silos. During efficient operations, the ideal turn-around time for a truck delivering grain to this site is 20-minutes. However, the average may be in the order of 30-minutes.

The facility at present is able to store more grain onsite that what a train can carry. This means that a train can be loaded without the need for external deliveries. It is unclear of what carrying capacities for trains utilising the Inland Rail will have. However, the current onsite capacity is expected to be sufficient to fill a significantly larger train than the existing trains.

The grain to be stored and despatched from this site is expected to be delivered from two main haul routes. Trucks will utilise the Newell Highway from both north and south grain sources. Grain from the west will be hauled along the Kamilaroi Highway-Wee Waa Road.

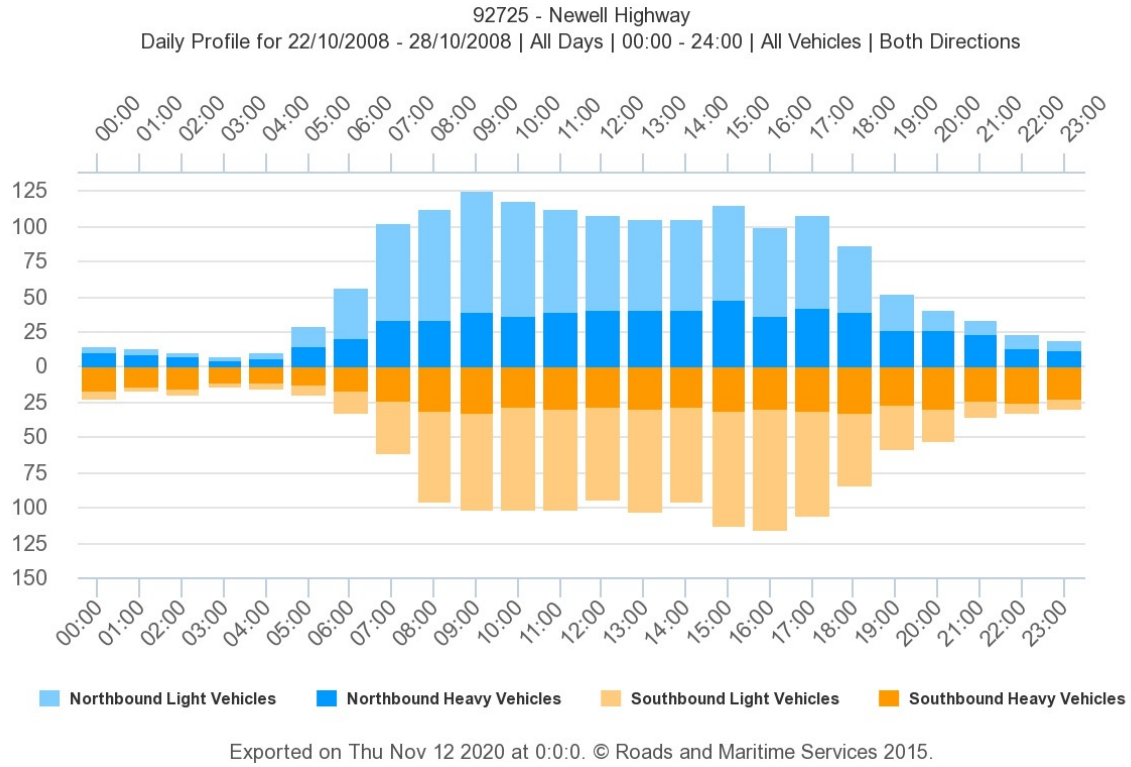
Annual average daily traffic (AADT) of the Newell Highway on the northern edge of Narrabri is available from 2008. The following table presents a summary of this information prepared by Transport NSW.

Table 2: 2008 Newell Highway Traffic Data

Direction	Classification	Daily Total
Northbound	Light Vehicles	966
Northbound	Heavy Vehicles	651
Northbound	All Vehicles	**1606**
Southbound	Heavy Vehicles	576
Southbound	Light Vehicles	939
Southbound	All Vehicles	**1501**

The 2008 data is the most recent information available. The data shows total daily movements of 3,107 vehicles per day. Of this, approximately 1,227 were classified as heavy vehicles. The following figure provides the average daily distribution of vehicle movements from the 2008 data.

Figure 2: 2008 Newell Highway Vehicle Movements



The data shows that traffic movements start to increase at about 6am and decline at 6pm. The represents a normal working day related to the rural industries utilising this road.

Traffic numbers during the night period appear to be dominated by southbound vehicles but hourly traffic numbers decline to possibly 20-vehicles in total per hour in comparison to 225 per hour peaks during the day.

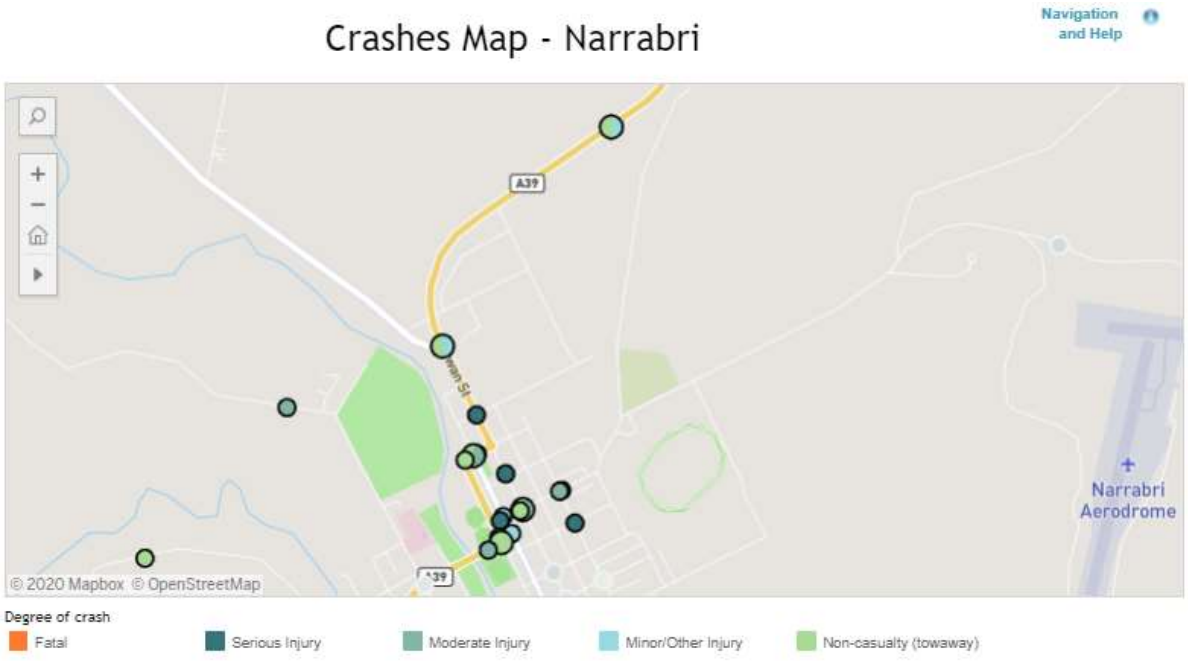
The most recent truck traffic data available for the Kamilaroi Highway is from 2012. The data shows 80 to 100 trucks travelling each way per day. This is only a slight increase since 2006 data.

The proposed development is competing with another similar facility in Narrabri that is used to load grain onto trains. The applicant intends to attract additional grain to this site but the storage limit on this site will remain the same. The additional hours of operation will enable more trucks to deliver grain, but these trucks would consist of existing traffic. The proposed development would therefore involve the redirection of existing truck movements from other rail facilities to the applicant's facility.

5.3.5 Impact on Road Safety

The NSW Crash map data base for crashes at Narrabri was accessed to identify the location and frequency of crash incidences on the northern side of Narrabri. The following map provides the data.

Figure 3: NSW Crash Map, Northern Narrabri NSW



The map identifies a non-casualty (towaway) crash incident at the intersection of Newell and Kamilaroi Highways. No crash incidents have occurred at the intersection into the development site according to the data base. This would suggest that road safety is satisfactory to date.

The rate of trucks moving to and from this site will be similar to existing activity. No significant changes are identified as this rate is controlled by the ability of the site to unload trucks. This

is not changing and therefore no changes are expected for the rate of trucks turning into or out of this site.

The intersection does not have street lights; however, it is clearly identified for trucks to turn into or out of at night. No requirements are foreseen to install overhead lighting at the intersection into the site.

5.3.6 Parking

No trucks remain onsite. Once trucks are unloaded, they must leave the site. This requirement will remain in place.

Sufficient light vehicle parking space is available adjacent to the existing site office and adjoining area for additional staff that may be required for extended hours of operation. The site would be capable of providing 15-20 car park sites for light vehicles. This is considered in excess of standard parking requirements.

5.3.7 Pedestrians

No pedestrian traffic occurs along the Newell Highway. There are no destinations that would attract pedestrian traffic along the Newell Highway at this site.

5.3.8 Internal Traffic Movements

Trucks entering this site firstly queue in three lines once they straighten up past the intersection. A clear zone is maintained between this queue and the highway intersection so that any truck entering or leaving the site is not impacted by a queue.

The three lines of trucks wait in line until they can be weighed, sampled and documented. Once this is done, the trucks continue along a dual lane road toward the unloading hopper. Once unloaded, the trucks move in single file back across the weighbridge. Once re-weighed, the trucks utilise the eastern lane of the entry road to drive to the Newell Highway intersection. The trucks are then free to turn left or right onto the highway.

Internal traffic movements are managed by the site supervisor and the weighbridge controller. Each truck movement occurs under supervision. This is done by two-way radio communication which include contact with incoming trucks to control the number of trucks on this site at any one time. Truck speed limit within the site is 5 km/h within the site.

No changes will occur to internal truck movements as a result of the change in operating hours.

5.3.9 Traffic Impact on Local Area

Based on the operating scenario, daily peak truck movements may increase from approximately 33 per day to 72 per day when the site operates for 24-hours. This may only occur during dry harvest periods. For the remainder of the year, the site would operate with trucks moving to and from the site for normal operating hours. Subject to train scheduling, this may involve truck movements between 7am and 7pm if a large train is expected. This would involve approximately 36-truck movements for delivery of up to 1,800 tonnes of grain.

The frequency of trucks moving to and from the site will remain similar to existing movements. On this basis, the existing roads and intersections have proven to have no crash issues and therefore roads are considered suitable for the existing frequency of truck movements. No required changes have been identified.

The delivery of larger volumes of grain to this site will result in extending the number of days of operations as per Table 1. This is not expected to have an impact on road safety.

6 Mitigation Measures

This investigation has identified two potential impacts from extending operation hours of this site. These relate to noise and dust emissions. Noise emissions identified in the existing approval were obtained from the NSW Industrial Noise Policy 2000. These emission levels have been updated in the Noise Impact Assessment report to meet current policy which is the Noise Policy for Industrial and Road Noise.

As a result of this re-assessment which includes acoustic modelling, the following mitigation measures will be adopted on this site to ensure noise emissions are within permissible threshold criteria:

- Internal speed limits to be maintained as slow as possible with no revving of trucks
- Trucks waiting in queue for any extended period during peak harvest periods are to turn their engine off to reduce idle noise
- Under adverse weather conditions during night-time operations (10pm to 7am), the rate of truck movements on site should be restricted to two trucks at any one time.
- Any other truck onsite during adverse weather conditions during the night-time period will be required to turn their engine off until one of the trucks moving onsite, leaves the site.
- All augers and grain moving equipment within the silo structure should maintain existing covers/baffling to minimise noise emissions from any high structure.

The existing consent conditions include the following recommendations from Council for dust emission minimisation:

- Enclosing all load out systems on the plant; and/or
- Providing a sealed system where grain is dispatched onto a stockpile under a blanket or cover type arrangement; and/or
- Keeping the head of the auger within 500mm of the bulk pile; and

- Cessation of grain transfer/handling/particulate operations in windy conditions and where there is likely air pollution to an adjoining property as a result.
- Should the emission of dust and particulate matter onto neighbouring residential properties become a nuisance particularly in prevailing westerly, north westerly, and south westerly winds, all open grain handling (including loading, unloading) shall cease.

These operational conditions have been adopted on this site by current management. Some issues of grain husk emissions have occurred; however, appropriate mitigation actions were adopted to limit such emissions in accordance with current approval conditions.

Additional actions have been adopted for dust emission management in the form of:

- Bitumen sealing of queuing area within the site
- Installation of sprinkler system to mitigate dust emissions from any internal sections of gravel road.

7 Conclusion

The proposal involves obtaining permission to receive grain at the Arrow Commodities Rail Freight Terminal on a 24-hour basis, when this is required. The proposal does not involve operation of the site for 365-days per year on a 24-hour basis. The maximum operating days predicted by the applicant in a large grain harvesting year with the Inland Rail in operation is 111-days per year to allow receival of up to 400,000 tonnes of grain. This can be compared with up to 91-days per year under the existing limited receival hours included in DA 15-2011.

An assessment of dust and noise impacts has indicated that with appropriate mitigation measures, the proposed development can operate within required emission thresholds. Mitigation measures recommended for this site are presented within the report. The measures are relatively simple and easy for management to adopt without any significant modification to operations and no modifications to the existing facility.

Traffic impacts are relatively limited as the movement of trucks to and from this site are governed by the ability of the operation to process and unload trucks. This takes an estimated 20-minutes per truck under ideal conditions once a truck reaches the weighbridge for processing to commence. Additional queuing areas have been created on a newly bitumen sealed entrance section to allow a minor accumulation of trucks on this site. The accumulation and therefore traffic safety within and the immediate intersection area are managed. This includes two-way contact for any trucks delivering grain to the site. Trucks must obtain management permission to access the site in busy receival periods (harvest periods) and if space is not available, trucks are redirected, and access is denied until queuing space is available.

The potential changes to the operation will result in the redirection of existing truck movements as the development will not have any impact on the local production of grain. The potential exists for this site to become one of several major train loading sites within

Narrabri once the Inland Rail is completed and Narrabri grain growers and merchants have access to Shipping Ports other than Newcastle. The intended outcome of the Inland Rail project includes a reduction of the number of trucks hauling grain to Ports from our local regional centres.

The proposal is considered permissible with the Consent of Council as the development will utilise an existing facility approved by Council. No changes will occur to the structure on this site other than the potential hours for receival of grain.

Peter Taylor

Peter Taylor B.Sc. MEIANZ CIAg LAA
Director
SMK Consultants

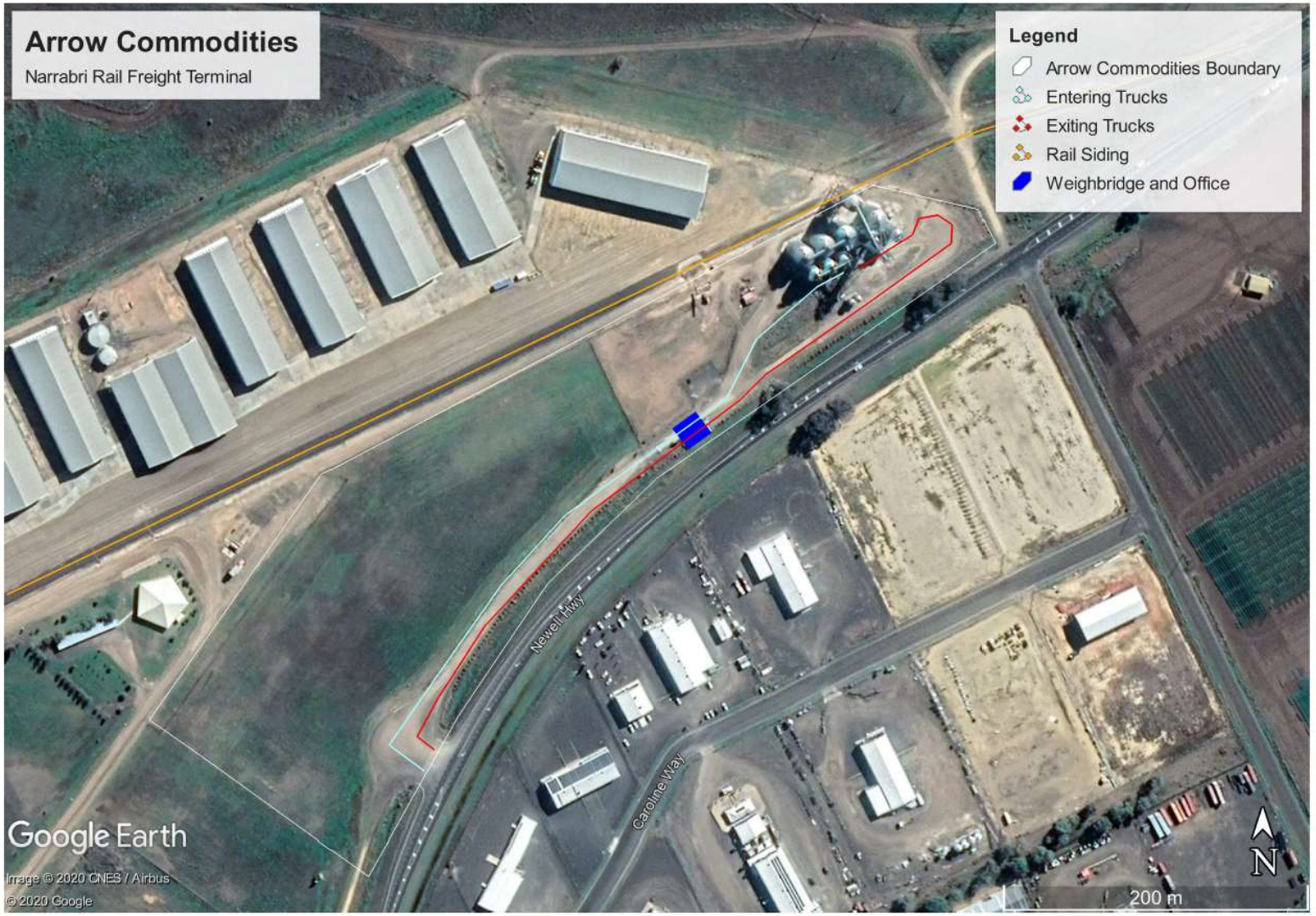
Kyra O'Sullivan

Kyra O'Sullivan BEng. (Hon) MIEAust
Environmental Engineer
SMK Consultants

Limitations

This report is based on observation at the time of the investigation and history of the site provided by the property owner. The conclusions and recommendations are based on the scope of works adopted and the methodology presented in this report.

Appendix 1 – Aerial Image of Arrow Commodities site



Appendix 2 – Arrow Commodities Noise Impact Assessment