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surveying – irrigation – environmental - planning

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Gwydir Shire Council
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Attention: Alex Eddy
By email: aeddy@gwydir.nsw.gov.au

5th February 2020

Re: DA29-2019 Pearlman Quarry – Traffic Distribution

Dear Mr Eddy,

The applicant has requested that we provide additional detail in relation to the predicted traffic distribution along the identified haulage routes to assist Council in calculating the appropriate Section 94 contribution fees.

The calculations presented within this document have been prepared in good faith based on information provided by third parties, as detailed in the limitation section. It should be noted that the projected average traffic volumes and distribution are subject to changes based on specifications and volumes required for project delivery.

Potential Haulage Route

As discussed within the Traffic Impact Assessment (SMK Consultants, 2019) (TIA) the Pearlman Quarry intends to supply quarry materials to the general market which at this time includes the Inland Rail Project, associated RMS road projects and other general construction projects in the market area that might occur as a result of the additional economic investment in the region. As such, the location and distance to client delivery points cannot be specified at this time.

The potential haulage route is expected to include the following:

- Croppa Moree Road
- Croppa Creek Road
- North Star Road
- I B Bore Road
- Bruxner Way
- Buckie Road
- Tucka Tucka Road
- Tumba Road
- Boonery Park Road
- Crooble Road

Traffic volume data was only available for the following roads:

- Croppa Creek Road
- I B Bore Road

- North Star Road
- Bruxner Way
- Croppa Moree Road
- Newell Highway

Traffic Generation

The TIA calculated that heavy vehicle traffic is expected to average 47 trucks/day (94 truck movements) when operating at peak capacity. It has since been determined that not all of this traffic would utilise gazetted roads and a significant proportion would be delivered along the rail corridor. The tables have therefore been based on the projected volumes for each financial year:

- 2020-2021 – 250,000 tonnes
 - **150,000 tonnes delivered by gazetted roads**
 - 100,000 tonnes delivered along rail corridor
- 2021-2022 – 400,000 tonnes
 - **240,000 tonnes delivered by gazetted roads**
 - 160,000 tonnes delivered along rail corridor
- 2022-2023 – 300,000 tonnes
 - **260,000 tonnes delivered by gazetted roads**
 - 40,000 tonnes delivered along rail corridor

It was therefore necessary to recalculate the total number of heavy vehicle movements generated from the Pearlman Quarry predicted to utilise the proposed gazetted roads along the haulage route (Tables 1 -3). The following assumptions have therefore been made with regard to traffic calculations:

- Haulage vehicles will be either truck & dog or road trains. The tables are based on the more conservative truck & dog configuration.
- The General Mass Limit (GML) is 55.95 tonnes for truck & dog configurations. A 38-tonne haulage capacity per trip has been assumed.
- Hours of operation for loading of trucks to haul material are 6.00am to 6.00pm. However, given loading times it is assumed that trucks will only be operational for 11 hours a day.
- There will be 50 working weeks/year.
- There will be 5.5 working day/week.
- Movement is one-way (i.e. a truck entering and leaving is considered two movements).

Table 1: Average Heavy Vehicle Movements along Proposed Haulage Route – 2020-2021

Traffic Calculations	
Tonnes Processed	150,000 tonnes/year
	3,000 tonnes/week
	546 tonnes/day
Trucks	3,948 trucks/year
	79 trucks/week
	15 trucks/day
Truck Movements	7,896 truck movements/year
	158 truck movements/week
	30 truck movements/day

Note: These figures have been rounded up to the nearest whole number. These calculations do not include the use of Double Road Trains – Prime Mover Hauling Unit's. These vehicles may be used and would reduce the number of truck movements calculated above.

Table 2: Average Heavy Vehicle Movements along Proposed Haulage Route – 2021-2022

Traffic Calculations	
Tonnes Processed	240,000 tonnes/year
	4,800 tonnes/week
	873 tonnes/day
Trucks	6316 trucks/year
	126 trucks/week
	23 trucks/day
Truck Movements	12,632 truck movements/year
	252 truck movements/week
	46 truck movements/day

Note: These figures have been rounded up to the nearest whole number. These calculations do not include the use of Double Road Trains – Prime Mover Hauling Unit's. These vehicles may be used and would reduce the number of truck movements calculated above.

Table 3: Average Heavy Vehicle Movements along Proposed Haulage Route – 2022-2023

Traffic Calculations	
Tonnes Processed	260,000 tonnes/year
	5,000 tonnes/week
	910 tonnes/day
Trucks	6,843 trucks/year
	137 trucks/week
	25 trucks/day
Truck Movements	13,686 truck movements/year
	274 truck movements/week
	50 truck movements/day

Note: These figures have been rounded up to the nearest whole number. These calculations do not include the use of Double Road Trains – Prime Mover Hauling Unit's. These vehicles may be used and would reduce the number of truck movements calculated above.

Traffic Distribution based on Project

Newell Highway Project

The applicant has asked SMK to assume a scenario where the Tikitere Quarry is the primary source of material for the Newell Highway project and the Pearlman Quarry (if approved) would only play a supporting role to the Tikitere Quarry. Tables 4-6 outline this scenario involving the Pearlman Quarry supporting the Tikitere Quarry to supply materials to the Newell Highway Project via the road network. It is projected that this would comprise the following laden trucks being directed to the Newell Highway Project along I B Bore Road:

- 2020-2021 - 15% (of 150,000 tonnes)

- This would be equivalent to 4.5 truck movements per day of the total 30 truck movements per day.
- 2021-2022 – 10% (of 240,000 tonnes)
 - This would be equivalent to 4.6 truck movements per day of the total 46 truck movements per day.
- 2022-2023 – 5% (of 260,000 tonnes)
 - This would be equivalent to 2.5 truck movements per day of the total 50 truck movements per day.

Inland Railway Project

All remaining traffic would be hauling material to the Inland Rail Project. It is assumed that this traffic would be distributed evenly north and south from the existing Quarry access on Croppa Creek Road and further distribute evenly among the various potential haulage routes.

Distribution along Haulage Route and Impact on Traffic Volumes

Tables 4-6 calculate the distribution of heavy vehicle movements predicted to occur per day along the haulage routes for both the Inland Railway and Newell Highway projects. This includes the predicted percentage increase in movements along the identified roads.

Table 4 (2020-2021) assumes 150,000 tonnes being delivered via gazetted roads with a predicted 30 truck movements per day, 15% of which would be delivering to the Newell Highway Project. The remaining vehicles would be delivering to the Inland Railway Project and would therefore disperse evenly north and south along Croppa Creek Road. The roads which are predicted to experience noticeable (>10%) increases in heavy vehicle traffic are as follows:

- Croppa Creek Road – predicted increase between 60% - 107%;
- I B Bore Road – predicted increase between 70% - 185% depending on the season;
- North Star Road – predicted increase between 2% - 46% depending on the season;
- Bruxner Way – predicted increase between 41% - 54%; and
- Croppa Moree Road – predicted increase of between 34% - 60% depending on the season.

Table 5 (2021-2022) assumes 240,000 tonnes being delivered via gazetted roads with a predicted 46 truck movements per day, 10% of which would be delivering to the Newell Highway Project. The remaining vehicles would be delivering to the Inland Railway Project and would therefore disperse evenly north and south along Croppa Creek Road. The roads which are predicted to experience noticeable (>10%) increases in heavy vehicle traffic are as follows:

- Croppa Creek Road – predicted increase between 92% - 156%;
- I B Bore Road – predicted increase between 72% - 189% depending on the season;
- North Star Road – predicted increase between 3.2% - 77% depending on the season;
- Bruxner Way – predicted increase between 67% - 88%; and
- Croppa Moree Road – predicted increase of between 56% - 98% depending on the season.

Table 6 (2022-2023) assumes 260,000 tonnes being delivered via gazetted roads with a predicted 50 truck movements per day, 5% of which would be delivering to the Newell Highway Project. The remaining vehicles would be delivering to the Inland Railway Project and would therefore disperse evenly north and south along Croppa Creek Road. The roads which are predicted to experience noticeable (>10%) increases in heavy vehicle traffic are as follows:

- Croppa Creek Road – predicted increase between 100% - 179%;
- I B Bore Road – predicted increase between 39% - 103% depending on the season;
- North Star Road – predicted increase between 4% - 88% depending on the season;
- Bruxner Way – predicted increase between 77% - 101%; and

- Croppa Moree Road – predicted increase of between 64% - 113% depending on the season.

Potential Conditions of Development Consent

The applicant has advised SMK that:

- it understands that Council has an obligation to manage the local road network; and
- that the Council has previously raised some concerns with traffic impacts on IB Bore Road; and
- to assist Council in the assessment of the development, no objection would be raised to:
 - a similar condition package to that for the nearby Tikitere Quarry; and
 - a condition prescribing a maximum of 20 truck movements per day from the Pearlman Quarry on the IB Bore Road; and
 - a Section 94 contribution rate of \$0.8/tonne of material hauled on the Gwydir Shire Council local road network from the Pearlman Quarry; and
 - a Section 94 contribution rate of \$0.129/tonne of material haulage on the Moree Plains Shire Council local road network from the Pearlman Quarry; and
 - a condition that Gwydir Shire Council or Moree Plains Shire Council may request a report on the heavy vehicle movements and tonnages for reconciliation with the Section 94 contributions paid.

The applicant has advised SMK that is committed to working with Council to find a mutually agreeable solution that satisfies the interests of Council whilst maintaining the commercial viability of the development for the applicant.

Limitations

It should be noted that the calculations and description of average truck movements detailed in this document have been based on the most current information available from ARTC and RMS on the Inland Railway Project and Newell Highway Project in relation to the required volumes and projected delivery schedules. It is the applicants assumption that the contractor for ARTC will construct the Inland Railway Project from north to south and that these projects will be on time and that the volumes required are accurate at the time of this report. It is also assumed that ARTC will allow use of the rail corridor for delivery of materials, and that the rail corridor route will be suitable for heavy vehicle use, with no restrictions accounted for due to possible weather conditions. The average truck movements are therefore subject to changes in specifications and volumes for each project.

Conclusion

It is understood that ARTC agreed to covert the costs of road impacts on secondary roads that are required to access the rail corridor for the Parkes to Narromine section. It is our assumption that this would also apply for the Narrabri to North Star section. SMK are aware that Council recently considered these matters in the assessment of the Tikitere Quarry and believe this information is sufficient for Council to finalise the assessment of the development.

Kind regards,

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Environment and Resource Consultant

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Table 4: 2020-2021 – Predicted Average Heavy Vehicle Movements

Road	Date of Observation	Current Heavy Vehicle Movements/Day	Proposed Heavy Vehicle Movements/Day from Quarry	Total Heavy Vehicle Movements/Day	% Increase in Heavy Vehicle Movements
Croppa Creek Road	March 2011	29.5	30	59.5	102%
	Dec/Jan 2017	28	30	58	107%
	July 2019	50	30	80	60%
I B Bore Road	Oct 2014	6.39	4.5	10.89	70%
	March 2017	2.43	4.5	6.93	185%
Newell Highway	2015	1,329.7	4.5	1,334.2	0.3%
	2016	1,234.6	4.5	1239.1	0.4%
	2017	1,336.8	4.5	1,341.3	0.3%
	2018	1,299.5	4.5	1,304	0.3%
	2019	1,185.8	4.5	1,190.3	0.4%
North Star Road	Sep 2011	51.45	12.75	64.2	25%
	June/July 2013	644.54	12.75	657.29	2%
	March 2014	49.3	12.75	62.05	26%
	March 2017	55.69	12.75	68.44	15%
	July 2019	27	12.75	39.75	47%
Bruxner Way	June/July 2013	23.49	12.75	36.24	54%
	July 2019	31.04	12.75	43.79	41%
Croppa Moree Road	Sep 2014	23.9	12.75	36.65	53%
	March/April 2015	37.14	12.75	49.89	34%
	March/April 2017	21.1	12.75	33.85	60%
	July 2019	31.6	12.75	44.35	40%

Table 5: 2021-2022 – Predicted Average Heavy Vehicle Movements

Road	Date of Observation	Current Heavy Vehicle Movements/Day	Proposed Heavy Vehicle Movements/Day from Quarry	Total Heavy Vehicle Movements/Day	% Increase in Heavy Vehicle Movements
Croppa Creek Road	March 2011	29.5	46	75.5	156%
	Dec/Jan 2017	28	46	74	164%
	July 2019	50	46	96	92%
I B Bore Road	Oct 2014	6.39	4.6	10.99	72%
	March 2017	2.43	4.6	7.03	189%
Newell Highway	2015	1,329.7	4.6	1,334.3	0.3%
	2016	1,234.6	4.6	1,239.2	0.4%
	2017	1,336.8	4.6	1,341.4	0.3%
	2018	1,299.5	4.6	1,304.1	0.3%
	2019	1,185.8	4.6	1,190.4	0.4%
North Star Road	Sep 2011	51.45	20.7	72.15	40%
	June/July 2013	644.54	20.7	665.24	3.2%
	March 2014	49.3	20.7	70	42%
	March 2017	55.69	20.7	76.39	37%
	July 2019	27	20.7	47.7	77%
Bruxner Way	June/July 2013	23.49	20.7	44.19	88%
	July 2019	31.04	20.7	51.74	67%
Croppa Moree Road	Sep 2014	23.9	20.7	44.6	87%
	March/April 2015	37.14	20.7	57.84	56%
	March/April 2017	21.1	20.7	41.8	98%
	July 2019	31.6	20.7	52.3	66%

Table 6: 2022-2023 – Predicted Average Heavy Vehicle Movements

Road	Date of Observation	Current Heavy Vehicle Movements/Day	Proposed Heavy Vehicle Movements/Day from Quarry	Total Heavy Vehicle Movements/Day	% Increase in Heavy Vehicle Movements
Croppa Creek Road	March 2011	29.5	50	79.5	170%
	Dec/Jan 2017	28	50	78	179%
	July 2019	50	50	100	100%
I B Bore Road	Oct 2014	6.39	2.5	8.89	39%
	March 2017	2.43	2.5	4.93	103%
Newell Highway	2015	1,329.7	2.5	1,332.2	0.2%
	2016	1,234.6	2.5	1,237.1	0.2%
	2017	1,336.8	2.5	1,339.3	0.2%
	2018	1,299.5	2.5	1,302	0.2%
	2019	1,185.8	2.5	1,188.3	0.2%
North Star Road	Sep 2011	51.45	23.75	75.2	46%
	June/July 2013	644.54	23.75	668.29	4%
	March 2014	49.3	23.75	73.05	48%
	March 2017	55.69	23.75	79.44	43%
	July 2019	27	23.75	50.75	88%
Bruxner Way	June/July 2013	23.49	23.75	47.24	101%
	July 2019	31.04	23.75	54.79	77%
Croppa Moree Road	Sep 2014	23.9	23.75	47.65	99%
	March/April 2015	37.14	23.75	60.89	64%
	March/April 2017	21.1	23.75	44.85	113%
	July 2019	31.6	23.75	55.35	75%