Our Ref: 14s1572000

18 June 2014

Boral Property Group
Lot 107, Clunies Ross Street
PROSPECT NSW 2148

Attention: Ms Kate Jackson

Dear Kate

RE: BORAL GREYSTANES ESTATE – SOUTHERN EMPLOYMENT LANDS, GREYSTANES PROPOSED PART 3A MODIFICATION REQUEST - LANDFORM REHABILITATION TRAFFIC ASSESSMENT OF MODIFICATIIONS

GTA Consultants (GTA) has been engaged by Boral Property Group to consider the traffic implications of proposed modification to the existing Part 3A consent relating to the remaining western precinct (only) of the Greystanes Estate - Southern Employment Land.

The proposed modification relates to land form works of the former Boral Quarry, namely the need to import fill material to the site to achieve the final rehabilitation.

Importation of fill will generate heavy vehicle flows to and from the former quarry. This report presents the findings of this assessment.

At the time of approval it was anticipated that a cut to fill balance could be achieved across the quarry precinct. However it is understood that there is to be a shortfall in cut material on site thus requiring fill material to be imported to the site.

Background

A Part 3A consent was granted to the development of the Greystanes Estate - Southern Employment Lands in July 2007. The consent granted concept approval for development of industrial and commercial uses on the estate and project approval for roads and services.

The landform works represent the final rehabilitation of the former quarry and as such were not specifically included in the approval. At the time, it was expected that a cut to fill balance could be achieved across the quarry precinct rehabilitation area.

However the final design of batter and landform rehabilitation has been completed and it is anticipated that there may be shortfall of fill material to achieve the required contours to facilitate proper drainage of stormwater and sewer.

The material import quantity is in the order of up to 350,000m^3 (or approximately 700,000 tonnes).

It is noted that the quarry extraction quantities in the final years of the quarry were in the order of 1,000,000 tonnes per annum.

Traffic Generation and Distribution of Fill Vehicles

The potential generation of heavy vehicle flows to and from the former quarry site have been based on the following assumptions:

- Volume of fill to be imported: Up to 350,000m^3
- Tonnage of fill to be imported: 700,000 tonnes
- Truck tonnage for fill: 28 tonnes / truck (mainly truck & dog with some trailer tippers)
- Hours of Importation: 7am-6pm Monday to Friday and 7am-5pm Saturday
- Duration of fill importation: 12 months (say 288 days which allows for closures on public holidays, site shutdowns etc.)

Based on the above assumptions, it is estimated that up to 25,000 truck movements will be required for the importation of the fill for landform rehabilitation works. This equates to an average 86 trucks per day or 9 trucks two way per hour (i.e. 9 in + 9 out).

It is not yet known exactly where fill be sourced. However it is expected that sites to the west and northwest of the former quarry will be the primary areas from where fill will be sourced. The primary access route will be via the M7 and M4 Motorways, the Great Western Highway and Reconciliation Road (north). As such no significant volumes of fill are expected to arrive via the newly constructed southern link of Reconciliation Road to Widemere Road.

The proposed primary route for the importation of fill is consistent with the route used by former quarry trucks during the final years of operation and traverses through industrial land uses (not residential) along the route to the arterial roads.

Site Access Arrangements

Access to the former quarry site for fill vehicles will be via the existing signalised intersection on Reconciliation Road with the Quarry access road and Basalt Road.

At the intersection Reconciliation Road is a 4 lane road with a central median dividing the two carriageways. This intersection provides dedicated right turn lanes on both Reconciliation Road approaches.

The site access intersection has been appropriately designed to accommodate heavy vehicle turning movements on all approaches and reflects the nature of vehicle movement types of the surrounding industrial land uses.

Traffic Assessment of Proposed Fill Importation

Base Conditions

Traffic counts have recently been completed at the intersection of Reconciliation Road / Boral Recycling Facility access. These counts have recorded traffic conditions following the opening of the southern link of Reconciliation Road to Widemere Road. These counts are provided at Attachment A.

The traffic surveys indicate that Reconciliation Road carries in the order of 700 – 800 vehicles in the peak hours. These flows are considerably lower than the carrying capacity of a 4 lane major collector road.

Assessment Scenarios

For the purpose of this assessment, GTA has considered 3 traffic generation and distribution assumptions.

- Scenario 1 – Average generation (9 fill trucks / hour) all accessing the site from the north
- Scenario 2 – Average generation (9 fill trucks / hour) all accessing the site from the south
- Scenario 3 – Peak Generation 18 fill trucks / hour) all accessing the site from the north.

Scenario 1 is considered to be the appropriate scenario for the majority of fill activities over the course of the 12 month period.

Scenario 2 has been assessed to determine the implication on intersection operation should fill arrive from the south.

Scenario 3 has been assessed to determine the implication on intersection operation should in the unlikely event that twice the average fill movements were to occur.

Site Access Intersection Operation

The implications of proposed fill activities on the site access intersection have been analysed using the Sidra intersection operation modelling software.

The results of the analysis are presented in Table 1.

Table 1: site Access Intersection Analysis.

	AM Peak Hour			PM Peak Hour		
	Level of Service	Average Delay (sec/veh)	Degree of Saturation	Level of Service	Average Delay (sec/veh)	Degree of Saturation
Base (Existing Conditions)	B	17	0.33	B	17	0.36
With Fill Truck Scenario 1	B	17	0.33	B	17	0.36
With Fill Trucks Scenario 2	B	17	0.33	B	18	0.37
With Fill Trucks Scenario 3	B	18	0.33	B	18	0.37

The results of the intersection assessment indicate that there is no discernable impact on the operation of the intersection under any of the traffic generation scenarios for the importation of fill for the landform rehabilitation works.

The analysis also indicated that all existing turning bays were of a sufficient length to accommodate the additional turning movements associated with fill activities without impacting on through movements.

The analysis indicates that the site access and surrounding roads have been designed with significant capacity to accommodate future industrial land uses, namely land uses to be developed on the former quarry site. In this regard, trucks associated with fill activities for the landform rehabilitation are essentially using the capacity in the road network which has been constructed ahead of future industrial land uses.

Road Network Distribution Implications

As noted above the primary access of fill trucks is anticipated to be via the arterial roads to the north. This route is through industrial land uses and was the route used for the transport of some 1,000,000 tonnes of quarry product in the recent past.

The proposed importation of fill will be less than the previous quarry activities and as such the fill activities would be consistent with previous uses on the former quarry site and the generation and distribution of heavy vehicles to the surrounding road network.

Summary

In summary, this traffic assessment of the proposed importation of fill materials to the former Boral quarry site has indicated that the volume of trucks to be generated can be adequately accommodated within the surrounding road network will no significant impacts to existing levels of service or capacity.

Naturally, should you have any questions or require any further information please do not hesitate to contact the undersigned.

Yours sincerely

GTA CONSULTANTS

Jason Rudd
Associate

Attachment A

Traffic Counts

R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : EMGA
Job No/Name : 5040 Wetherill Park Boral Quarry Access
Day/Date : Thursday 13th March 2014