

## 7.0 SITE INTERNAL TRAFFIC MOVEMENTS

Vehicle access to the main production area will be restricted at the site office/weighbridge. A car park will be provided prior to this location. Based on a maximum of 40 employees & 16 visitors the recommended number of car parking spaces is

Employees ½ employees	= 20
Visitors Max stay 2hrs	= 4
Total	= 24

KFW plan KF110816-C15 shows the internal traffic movements for deliveries to the site and sales/pick up. All vehicles will enter and leave via the weighbridge. The processing area will be out of bounds to the public.







Note: Vehicle volumes/peak hour  
Shown in equivalent passenger  
car units (14)



K.F. Williams & Associates Pty Ltd  
28 Auburn Street  
Wollongong NSW 2500  
A.C.N. 000 654 417  
Project Management, Surveying,  
Civil, Structural, Water & Sewer

© (02) 4228 7844  
 © (02) 4226 2004  
 email@tw.net.au  
 www.tw.net.au

Surveyor	—	Date	August 2013
Date of Survey	—	Drawn	DWD
Design Notes	ASD	Designed	
Sign		Checked	D. DOWDY

50 WYLLIE RD  
KEMBLA GRANGE  
PROPOSED ROAD NETWORK - ZONING  
*Future Transport Routes*

Project No.	KF110816
Control No.	T04
Sheet	1 of 1
Revision	

## **8.0 ACCESS ROUTES**

### **8.1 Existing Road Infrastructure**

As discussed previously 80% of vehicle generation movements will be from the north and 20% from the south. The development of the site to accommodate 230,000t/pa will occur over the next 5 years, this will be prior to the Wyllie Road extension to Northcliffe Drive being completed and is considered to be the worst case for traffic impact. Plan KF110816-T03 shows the predicted transport routes on the existing road network.

### **8.2 Future Road Network**

The future road network is shown on WCC – DCP2009-D16, copy of overall plan included in Appendix C. Discussion with Council traffic engineers indicate they would only support one access point from the development onto the future north/south link road which would be 2 lanes in either direction. Due to site constraints the site entry is proposed to be offset from the present Wyllie Road reserve by 70m.

KFW plan KF110816-T04 shows the predicted transport routes on the future road network.



## 9.0 IMPACT ON EXISTING ROAD NETWORK

The potential impact on the existing road network was analysed in the intersection modelling programme SIDRA for the following scenarios –

Existing traffic flows

100,000t/pa

150,000t/pa

230,000t/pa

Existing traffic volumes were predicted to increase by 1%pa, the 230,000t/pa production rate is to be achieved within five (5) years.

The existing site entry and the intersection of Wyllie Road/West Dapto Road were investigated. The remaining road network has been analysed by Wollongong City Council to allow for the re-zoning of the West Dapto release area in their Tracks Model. The 2036 volumes were provided by Council for our review.

The impact on the intersection of West Dapto Road/Princes Highway intersection has been extensively modelled by Wollongong City Council as part of the West Dapto re-zoning process. A report (November 2011) was prepared by Council & lodged with the RTA, which recommended upgrading of the intersection, as a result the intersection is presently being upgraded (refer Appendix G – Copy of Report) Section 2 of the report details to predicted traffic increase, Council proposes to monitor the intersections performance, this will define when the Northcliffe Drive extension will be implemented. The report concludes

*“The actual timeframe for this work is largely dependent on market forces driving demand for new development with resultant increases in traffic volumes”.*

It cannot be estimated when the impact of this sole development will impact on the intersection, the current upgrading will be more than adequate to cater for the traffic generation from the development for the next 10 years.

Section 6.0 of this report outlines the predicted vehicle generation for each of the scenarios.

## 9.1 Existing Road Network

It is not anticipated that Wyllie Road will be extended to connect with Northcliffe Drive in the next five (5) years and hence the impact of the development on the existing intersections, i.e. site entry off Wyllie Road and Wyllie Road/West Dapto Road was investigated.

### 9.1.1 Site Entry Off Wyllie Road

The predicted traffic volumes together with a 1% pa increase in the existing traffic in Wyllie Road were analysed in the SIDRA intersection program. Table 5 below outlines the results. The level of service of an intersection is an index of the operational performance of the traffic on a given lane or leg of the intersection. It is based on measures such as delays, degree of saturation and speed during a given flow period. Values range from "A" (very good) to "F" (fail or fully saturated).

**Table 5**

<b>Intersection – Level of Service (Degree of Saturation) Site Entry/Wyllie Road</b>			
<b>Scenario</b>	<b>Site Entry</b>	<b>Wyllie Road North</b>	<b>Wyllie Road South</b>
<b>Existing</b>	A (0.01)	A (0.01)	A (0.01)
<b>100,000t/pa</b>	A (0.03)	A (0.01)	A (0.02)
<b>150,000t/pa</b>	A (0.04)	A (0.01)	A (0.03)
<b>230,000t/pa</b>	A (0.06)	A (0.01)	A (0.05)

For SIDRA printout/traffic volumes refer Appendix D. All legs of the intersection operate at a level of service of A for the existing and proposed traffic volumes.

The intersection is at the northern tangent of a curve in Wyllie Road. The curve radius is 50m and hence has a comfortable speed of 40km/hr. The SISD required for 40km/hr is 66m, the posted speed is 80km/h (or SISD of 170m).

Sight distance of 80m is available to the south and in excess of 170m to the north.



**Wyllie Road – Sight Distance Looking South**





**Wyllie Road – Sight Distance Looking North**

It is recommended vegetation be removed from the existing verge and the curve speed limit be posed at 40km/hr.

#### 9.1.2 Wyllie Road/ West Dapto Road Intersection

Existing traffic volumes in West Dapto Road were provided by Wollongong City Council. The intersection was analysed for both the AM and PM peak periods with the predicted traffic generation by the development added. Table 6 below outlines the results.

**Table 6**

<b>Intersection - Wyllie Road/West Dapto Road Level of Service (Degree of Saturation)</b>			
<b>AM Peak</b>			
<b>Scenario</b>	<b>Wyllie Road</b>	<b>West Dapto Road East</b>	<b>West Dapto Road West</b>
<b>Existing</b>	A (0.00)	A (0.08)	A (0.13)
<b>100,000t/pa</b>	A (0.04)	A (0.10)	A (0.13)
<b>150,000t/pa</b>	A (0.05)	A (0.11)	A (0.13)
<b>230,000t/pa</b>	A (0.08)	A (0.13)	A (0.13)
<b>PM Peak</b>			
<b>Existing</b>	A (0.02)	A (0.14)	A (0.11)
<b>100,000t/pa</b>	A (0.04)	A (0.15)	A (0.12)
<b>150,000t/pa</b>	A (0.05)	A (0.16)	A (0.12)
<b>230,000t/pa</b>	A (0.07)	A (0.18)	A (0.12)



All legs of the intersection operate at a level of service of A.

Wollongong City Council in their letter 14<sup>th</sup> May 2014 (refer Appendix F) have also requested the capacity of this intersection be reviewed just prior to the Northcliffe Drive extension being completed. Council provided their TRACKS model data for 2031 which models this situation (refer Appendix H). The council data did not include Wyllie Road traffic volume increase, the existing traffic volumes in Wyllie Road was estimated to be 500VPD (Refer Section 3.2) in the absence of any definitive information it has been assumed this value could increase by 100% to 1000 VPD.

The intersection was again analysed for both the AM & PM peak periods, Table 7 below summarizes the results for full details refer Appendix I.

**Table 7**

<b>Intersection – Wyllie Road/West Dapto Road – Year 2031 Level of Service (Degree of Saturation)</b>			
<b>Scenario</b>	<b>Wyllie Road</b>	<b>West Dapto Rd North</b>	<b>West Dapto Rd South</b>
<b>2031 – AM Peak</b>	A (0.18)	A (0.41)	A (0.32)
<b>2031 – PM Peak</b>	A (0.18)	A (0.32)	A (0.48)

All legs of the intersection still operate at a level of services of A, the degree of saturation rises from (0.18) to (0.48), i.e. the intersection operation is still satisfactory.

The posted speed limit is 80km/hr requiring a SISD of 170m. Available SISD is 85m to the west and in excess of 170m to the east. It is recommended the existing vegetation be removed from the road verge towards the west to increase sight visibility.



**West Dapto Road/Wyllie Road  
Sight Distance Looking West**



**West Dapto Road/Wyllie Road  
Sight Distance Looking East**



## **9.2 Future Road Network**

The future road network for the West Dapto release area is shown on the Wollongong City Councils plan attached.

The plan shows the Northcliffe Drive extension traverses the site along its southern boundary, this road will have 2 lanes in either direction, the site entry will have to be re-designed to gain access to this road. Council currently support the construction of a roundabout at this location (refer plan). This roundabout would need to be designed to take this and the other adjacent developments into consideration.

## **9.3 Construction Impact**

Section 4.0 of this report describes the proposed site layout which is shown on K F Williams Plan KF110816-C10/J, copy appendix B.

Construction activities in order to upgrade the existing facility would include:

- A) Civil Works
  - Cut/fill earthworks
  - Stormwater Drainage Construction
- B) Structural Works
  - Building footings/ concrete slab
  - Building steelwork erection
  - Building cladding and final fit out
- C) Services
  - Upgrade existing water/ sewer infrastructure
  - Upgrade electrical infrastructure

Traffic generation as a result of the above activities is shown in table 8 below.  
The construction period is estimated to be 4 months.

[illegible]



**Table 8**

<b>Traffic Generation – Construction</b>			
<b>Activity</b>	<b>Description</b>	<b>Vehicle Types</b>	<b>Frequency</b>
<b>A – Civil Works</b>	Excavation/ earthworks including pipe trench excavations	All machines currently on-site	Nil
<b>B – Building Construction</b>	Concrete works	HRV/Concrete deliveries	8/ pour total 4 pours
	Steel work	HRV/crane	1/ day over 2 months
	Construction workers 4/6 Workers per day	Standard Vehicles	6/day for 2 months
<b>C – Services</b>	Services/ personnel 2/4 Work	2 SRV	2 SRV/ day for 1 month

It can be seen from table 8 above that an average of 4/6 workman will attend the site during the construction period of approx. 4 month. This number is similar to the additional staff required to operate the upgraded facility and hence will have little impact.

All large earthmoving machines are presently on-site and will remain so. The major traffic impact will be the deliveries of concrete, steelwork, pipes and building cladding and erection.

The largest impact will be during a concrete pour with approx. 8 HRV delivery trucks over a 4 hour period, with a total frequency of 4 times in the second month of construction.

Heavy vehicles presently frequent the site, this impact will have little effect on the adjacent road system which has been designed to cater for the total West Dapto release area in the future.

## 10.0 RECOMMENDATIONS & CONCLUSIONS

It is proposed to upgrade an existing re-cycling facility at 50 Wyllie Road, Kembla Grange from its present capacity of 30,000t/pa to 230,000t/pa. This Statement investigates the traffic impact of the development. It is anticipated that the development will occur within the next 5 years. The future upgrading of the adjacent road system is not anticipated to occur in this timeframe and hence the impact on the existing road system was investigated.

The investigation revealed that the predicted traffic generation will have little effect on the existing road system. Minor vegetation clearing of the verges is recommended to upgrade the existing safety of the present road system.

Report by



DW Dowey  
M.A.I.T.P.M