BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

Traffic report for Planning Application

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

Proposed New Entrance Junction at Benryan, Rathcooney Road, Banduff and Claireview Cottage, Lota More, Glanmire (R615)

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

CLAIREVIEW COTTAGE, LOTA MORE, GLANMIRE (R615)

CONTENTS

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

1. INTRODUCTION

1.1. Purpose of this Report

Barry Murphy have commissioned us to undertake a traffic and access study in support of a planning application for the provision of a new junction and entrance road to their property at the Cottage, Lota More, Glanmire (R615), Co. Cork

The purpose of this report is to evaluate the existing traffic. The impact of traffic generated by the Barry Murphy facility has been assessed and recommendations made as to the possible new entrance junction to the facility.

1.2. Structure of this report

The report will be structured as follows:

Section 2: Receiving Environment

This section will describe the existing road network, both regional and local, and will focus on the current traffic flows on the roads in question. A brief evaluation will be undertaken on the roads objective contained in the Mayfield Local Area Plan with respect to their effect on the roads infrastructure in the vicinity of the site.

Section 3: Assessment of the various junction types and selection of preferred option

This section will include a preliminary assessment of various types of junctions to provide an alternative access into the property. A full assessment will be carried out for the two most suitable junction forms and these will be compared and contrasted to ascertain the preferred option.

Section 4: Future Assessment of the preferred option

This section will assess whether the preferred option coincides with the Cork Traffic Management Study.

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

Section 5: Geometric Design Characteristics

This section will discuss the process carried out to determine the geometric layout and design characteristics of the preferred option.

Section 6: Summary

This section will provide a synopsis of the key finding of this report.

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

2. RECEIVING ENVIRONMENT

2.1. Existing Facility

The property is located approximately 5.0km to the North East of Cork City centre. The entrance to the property is located 370 m west of Lauriston, Glanmire, Co. Cork. Our proposed road will pass through several properties of different owners, for which we have an agreement with all owners. On the property we are cultivating, there will be an entrance on the south side and on the north side the entrance will be on another property. Our suggestion is that both entrances will be designed equally because our entrances exit onto local roads. Our research will deal with the entrance that exits the road Cottage, Lota More, Glanmire (R615) , Co. Cork

The property facility is located within a 14.2-hectare site as indicated on Drawing Ref. No.: 4176-1010-A Site Layout. The houses on the site will occupy most of the land. The proposal is to build 34 houses per hectare, which is 476 houses. The rest of the land will be used for access roads and greenery (Grass and trees).

If we assume that an average of three members will live in each house, that is about 1430 people, and if we assume that we need at least two parking spaces for each house, we will need about 950 parking spaces.

2.2. Existing Road Network

The R615 road is regional road. The R615 now forms the most direct road from Mayfield to Cork City and provides access to the M8 motorway.

The R615 is a double lane road with about 3.5m running lanes with a footpath of around 1.0m on the property side of the road and such a profile of the road continues along its entire length.

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

To establish the existing traffic flows on the local road network, it would be necessary to conduct a 12-hour traffic count.

With the current data at our disposal, we can assume that traffic on the R615 road will increase by a minimum of 300 cars and a bus-lane that would pass through our proposed road.

We can also assume that the highest flow of traffic would be in the morning when going to work and taking children to school, as well as in the afternoon when people return from work.

Freight traffic should not increase because only residential buildings are being built, so it should remain unchanged.

2.3. Future Roads Infrastructure

We are not aware that future new roads have been proposed in the current Cork Local Area Plan.

3. ASSESSMENT OF VARIOUS OPTIONS AND SELECTION OF THE PREFERRED OPTION

The principal forms of junctions considered for the new entrance are a priority junction and traffic signals.

The existing road traffic on the R615 will be further increased using the NRA growth figure of 3% for the year. The application of the factors will give a fully robust analysis of the junction.

3.1. Priority Junction

Of the three junction types assessed, priority junctions have the least impact on the capacity of the major road traffic, however they do not perform well when there is a significant volume of minor arm traffic.

With traffic volumes on the main road at over 600 vehicles in the peak hour in each direction the potential gaps in traffic would be down. These times will be below the minimum gap acceptance

criteria set out by the NRA guidelines. Furthermore, the introduction of a right-turn facility would be necessary to accommodate the turning traffic.

3.2. Traffic Signals

In running the model, a preliminary design of the traffic junction has been carried out. Figure 3.1 below illustrates the stage details designed for the traffic signal junction.

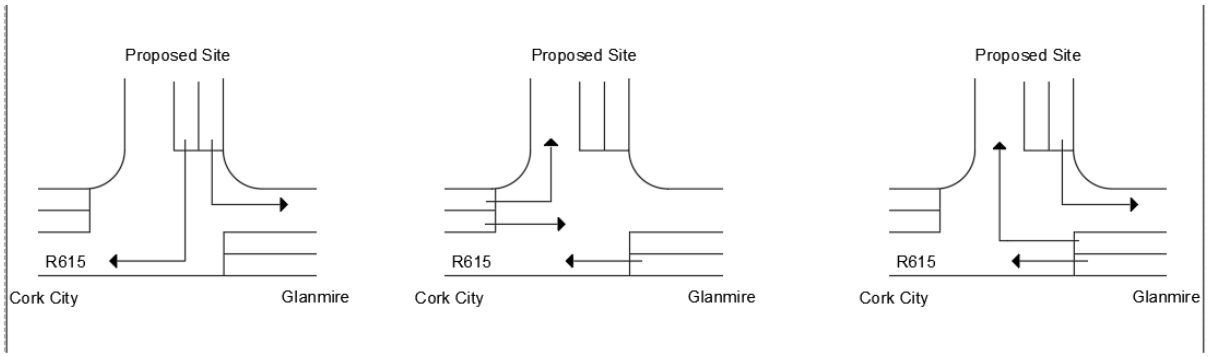


Figure 3.1

The above drawings show that the proposed new traffic hub would operate satisfactorily in evening and morning peak hours.

3.3. Preferred junction option

If traffic growth of this proportion arises, then a signalised junction will undoubtedly be the best form of junction to accommodate these flows.

The Department of Transports "Traffic Management Guidelines" recommends that all standalone signal junctions should be operated by vehicle actuated devices. This allows the signal timings of a junction to be continually modified based on the traffic flows at the time.

At present the lands to the south and east of the site are primarily agricultural, and therefore do not generate significant volumes of pedestrian movements. Although, the preliminary design of the traffic signal junction does not specifically accommodate pedestrian and cyclists, there would be scope in the future to facilitate vulnerable road uses should the demand arise.

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

In summary, it is proposed that the new entrance onto the R615 take the form of a signalised junction for the following reasons:

- Signalised junctions can retain higher capacities than roundabouts.
- A Vehicle Actuated Signalised junction will have minimal impact on the R615 traffic flow during off peak times as compared to a roundabout which would impact at all times.
- Traffic Signals can easily be modified if required to accommodate the safe movement of pedestrian and cyclists.

3.4. Location of the proposed junction

It is proposed that the new access road will link into the R615 at the southern extremity of the holding as indicated on Drawing No. 4176-1010A. The location of this junction will allow the provision of a vehicle-stacking lane within the site to allow residents to clear through the security arrangements off the public highway.

With respect to adjacent properties, the new junction would also be located an acceptable distance from the site entrance on the opposite side of the R615.

In the interests of our client, this junction location will also allow an integrated development of the remainder of the site.

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

4. FUTURE ASSESSMENT OF THE PREFERRED OPTION

Within the future years' analysis we have included a 30% increase in residents.

4.1. Future traffic Growth

For the future year scenario's, traffic figures on the network were initially extracted from the "Cork Traffic Management Study". A further assessment of this report highlighted some concerns as to the predicted future traffic generation of the town. Some of these concerns are detailed below:

- The Traffic Management Study summates the arrival and departure traffic generation figures for the various future developments. This appears to assume that all trips arriving in Cork will have originated from outside of the study area and that all trips starting in Mayfield will leave the study area.
- The study calculates the traffic generation of future land uses, and then applies traffic growth figures obtained from the NRA. Traffic growth figures produced by the NRA have already accounted for an area wide growth in traffic partially due to increases in development (as well as increases in car ownership etc).
- The study indicates that new residents in the town will generate a proportion of the traffic to the new retail areas. Some allowance should be made for traffic already on the network using the new retail areas via diverted trips and pass by traffic i.e. workers doing their shopping on their way home from work or on their way to work.

Following the concerns detailed above, future flows on the R615 have been determined using conventional traffic growth figures obtained from the NRA. Traffic analysis of the proposed junction has been undertaken using these figures and figures derived from the "Cork Traffic Management Study".

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

Construction Traffic

It is intended initially that the proposed junction would be used only for construction traffic. The engineers for the proposed project have estimated that there will be approximately 100 personnel on site at the peak of construction. It is estimated that this peak will continue for approximately 36 months and approximately 80% of personnel will arrive by car. The majority of traffic generated by the construction crew will arrive at the site from 7.00am to 8.00am and leave between 5:00pm and 7.00pm. For the analysis of the junction the trips have been distributed pro rata based on the flows on the R615. All HGV construction traffic to and from the site will be restricted to off peak hours so as to minimise disruption to the existing road traffic.

5. GEOMETRIC DESIGN CHARACTERISTICS

The geometric layout of the proposed traffic signal junction will be designed in accordance with the DMRB's 'The Geometric Layout of Signal Controlled Junctions and Signalized Roundabouts (TD50 / 99)', with acknowledgment being made to the NRA's addendum to this design standard. With regards to traffic signal control and installation, further advice will be sought from the Highways Agencies Traffic Advisory leaflet TA 16/81 'General Principles of Control by Traffic Signals 'and the DETR's Local Transport Note l / 98 'The Installation of Traffic Signals and Associated Equipment'.

We will consult with Cork County Councils Technical Staff and a Gateway feature will be designed to the east of the proposed junction in line with the Councils proposal to reduce the speed limit on the R615 road from 6O km/h to 30km/h. This design has been undertaken in accordance with the NRA's "Guidelines on traffic calming for towns and villages on national routes"1 999.

5.1. Visibility on approach to the junction

In accordance with the design requirements of DMRB 6.1.1 (NRA's TD g/00), the Desirable Minimium Stopping Sight Distance (DMSSD) required on approach to the junction for 50km/h Major Road speed limit is 70m. The stopping sight distance along the major road from the east of the site to the proposed junction is in excess of 380 metres, whilst the stopping sight distance from the west of the proposed site entrance is approximately 265m, therefore this design criteria is easily achieved.

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

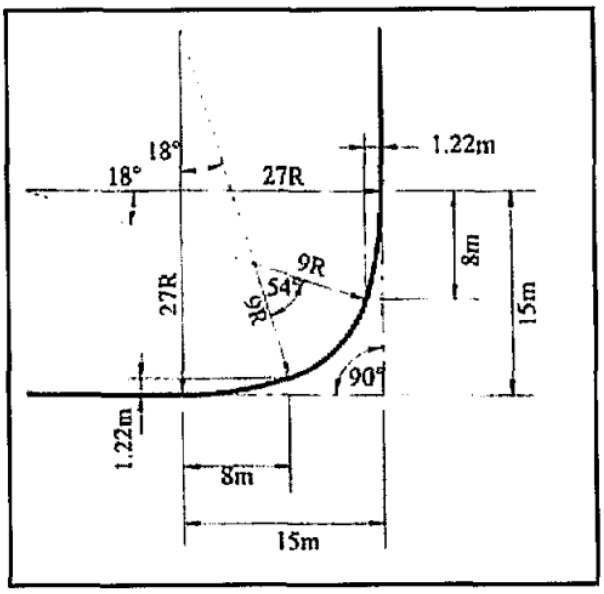
Telephone: 021 2348524 Email: boyle.mick@gmail.com

5.2. Junction Intervisibility Zone

The purpose of assessing the junction intervisibility zone is to provide drivers with a clear line of vision to other vehicles at each of the junctions stop lines. When locating the proposed junction, care has been taken to ensure that the inter-visibility zone falls within the public highway or land in ownership. Although no pedestrian crossing facilities will be provided in the design of the junction, sufficient space will be provided within the intervisibility zone for a pedestrian crossing adjacent the stop line, should the need arise in the future.

5.3. Corner Radii

Due to the scale of the site, the corner radii of the junction will be designed to accommodate a significant proportion of heavy commercial vehicles. The design of the corner radii has been undertaken using the compound curve set out in figure 7/3, of the NRA's 'Geometric Design of Major/Minor Priority Junctions.



Notwithstanding the above design recommendation, the suitability of each of the junction radii will be tested with a 16,5m length articulated vehicle using the Auto Track vehicles tracking program. The results of the analysis must be able to show that the articulated vehicle can access and egress the junction in a safe manner.

5.4. Carriageway and Entry Widths

The width must be falls within the desirable parameters set out in TD50/99, allowing for safe passage of large goods vehicles without encouraging vehicular speeds above the limit of the road.

All of widths must be fall within the design parameters set out in TD 50199.

BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

5.5. Storage Lengths - Right and Left Turn Entry Lanes

The length of the dedicated right and left turn storage lane must be designed meet the capacity requirements of the junction.

5.6. Location of Stop Lines

The stop lines on all arms of the junction will be set back to allow large commercial vehicles to complete all permissible turning manoeuvres without encroaching into the opposing lane. As previously stated, these turning movements will be simulated using a 16.5m articulated vehicle using the Auto Track program.

5.7. Traffic Signs and Road Markings

All signing and lining will be designed in accordance with the Department of the Environments 'Traffic Signs Manual', Chapters 6, 7 and 9.

5.8. Location of Signals

In keeping with the requirements of TD 50/99, a minimum of one primary and secondary signal has been provided for each arm of the junction. The primary signal head for each arm has been located approximately 2m beyond the stop line, whilst all secondary signal heads have been sited in the direct line of sight of the driver within a distance of 50m.

5.9. Drainage

The new access road leading from the R615 will be designed with a longitudinal fall of 0.5% away from the main road to ensure that all storm water is collected within the new road drainage system and not the existing gullies on the R615. Gullies within the new road will be spaced to facilitate 200m* of road surface each.

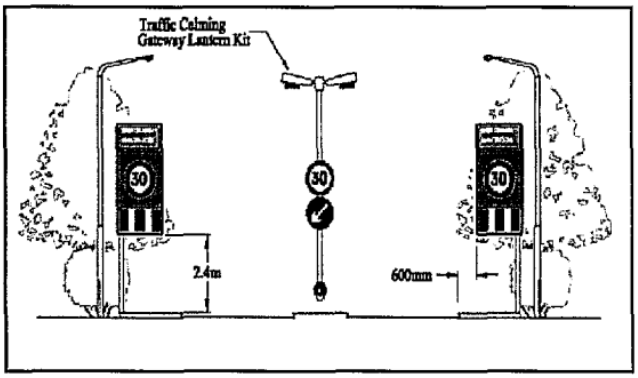
BCE CONSULTANT ENGINEERS CORK

Unit P5, Marina Commercial Park, Centre Park Road, Cork T12 PN7F

Telephone: 021 2348524 Email: boyle.mick@gmail.com

5.10. Design and location of the Gateway Feature

Gateway features are often used at the entrance to towns to alert drivers that they are entering an urban environment. Gateways are most effective when they are highly conspicuous to the oncoming vehicle, however they can be designed sympathetically with hard and soft landscaping to fit in with the local environment. Gateway features usually consist of a physical road narrowing incorporating lighting and examples of Gateway feature appropriate signing and lining. A preliminary design of the proposed gateway will be designed according to the NRA's "Guideline on traffic calming for towns and villages on national routes"1 999. The final design of the feature will be subject to approval by the County Council Technical Staff.



Example of Gateway feature

6. SUMMARY

In summary, it is proposed that the new Wyeth entrance onto the R445 take the form of a signalised junction for the following reasons:

- Signalised junctions can retain higher capacities than roundabouts.
- A Vehicle Actuated Signalised junction will have minimal impact on the R615 traffic flow during off peak times as compared to a roundabout which would impact at all times.
- Traffic Signals can easily be modified if required to accommodate the safe movement of pedestrian and cyclists.