

5.0 TRAFFIC AND TRANSPORTATION

5.1 Introduction

5.1.1 This Traffic and Transportation section provides an assessment of the potential traffic impacts on the local road network for road users to and from the Proposed Civic Amenity Facility at Labre Park. The study aims to assess the following:

- Existing Road Conditions
- Proposed access arrangements for the scheme
- Traffic volumes generated by the scheme
- The effect on the local road network and all road users of generated traffic by the functioning of the proposed development
- The potential environmental impacts associated with traffic generated by the scheme.
- Mitigation measures for the environmental impacts associated with traffic generated by the scheme.

5.1.2 The study is based on the findings of site visits, traffic observations, on-site traffic counts, and consultation with the Design Team.

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5.2 Methodology

5.2.1 The following steps were undertaken as part of the compilation of the transportation assessment for the EIS: -

- Reference was made to the site layout drawings issued by the lead Consultant and the proposed plans for the site.
- Consultation was made with the Roads Department of Dublin City Council in order to establish key network information which was employed in the design of the Traffic Survey.
- Traffic survey locations were chosen so as to best reflect the likely traffic generation from the subject development.
- Standard traffic forecasting methods and modelling techniques were adopted for analysis.
- Reference was made to other relevant studies undertaken elsewhere in Ireland and the United Kingdom such as the TRICS database (Trip Rate Information Computer System).

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5.3 Receiving Environment

Site Location

- 5.3.1 The subject site for the proposed Labre Park Civic Amenity Facility is located in an area of the waste ground at Labre Park, Ballyfermot, in the administrative area of Dublin City Council.
- 5.3.2 The site lies on waste ground within a predominantly industrial area, which is bounded to the north by Kylemore Park Industrial Estate, and to the south by the Grand Canal. Kylemore Road lies to the east of the site at an approximate distance of 180 metres.
- 5.3.3 Development potential for the site is limited as it lies within a corridor of ESB High Voltage Transmission lines. Provision for 38kv, 110kv and 220kv pylons lie within, or run immediately adjacent to the site.
- 5.3.4 Due partly to set back of the site from the public highway, it has fallen victim in the past to a high level of illegal dumping and 'fly-tipping'. Consequently the area has been historically littered with refuse.
- 5.3.5 There are a number of social housing residential properties located to the north of the proposed facility in Labre Park. It is proposed that as part of the overall re-development of the area a number of new residential units will be constructed.
- 5.3.6 The proposed site access to the site will be from Kylemore Park West. Currently there is no access from this road and entrance can only be made from the Grand Canal via Kylemore Road and across the 6th Lock gates.

Surrounding Road Network

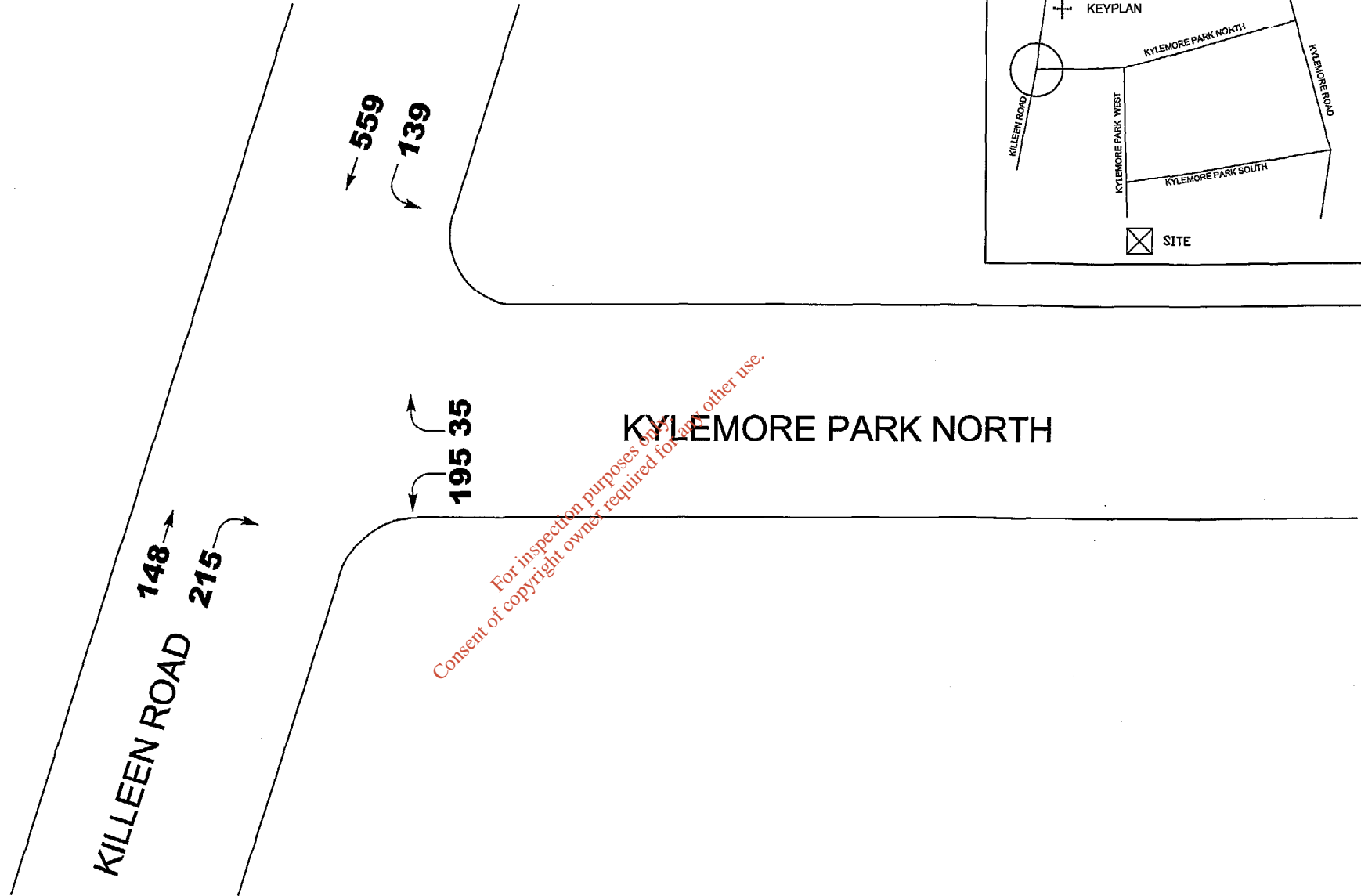
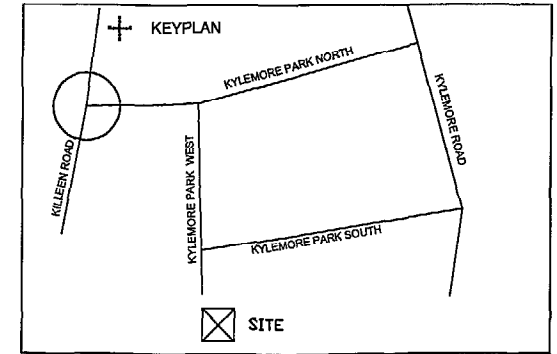
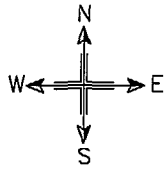
- 5.3.7 The subject site is well serviced by the surrounding road network from all directions and access. Lying within the industrial park, Kylemore Park West will provide the local road access to the site.
- 5.3.8 Kylemore Park West is a wide two-way *cul-de-sac* servicing the industrial estate; it is approximately 9.2 metres wide. The road runs from its junction with Kylemore Park North in a southerly direction to its termination point in the vicinity of the proposed site entrance. There are a number of industrial unit accesses opening onto the road and there is also a T-Junction with Kylemore Park South on the eastern side of its approach to the termination.
- 5.3.9 Public lighting is provided along the full length of Kylemore Park West, on the eastern side between its junction with Kylemore Park North and Kylemore Park South, and then two public lights on both sides of the road after the junction with Kylemore Park South. No parking restrictions apply to either side of the road and consequently local road users avail of the opportunity to park where possible on both sides of the road during business hours.
- 5.3.10 Footpath provision along Kylemore Park West is good with a continuous 3-metre footpath serving both sides of the road.
- 5.3.11 Kylemore Park North is a wide two-way local road with a kerb-to-kerb pavement width in the order of 9.35 metres. It runs in an east-west orientation linking Killeen Road to Kylemore Road. Footpath provision along Kylemore Park North is good with a continuous 3-metre footpath serving both sides of the road.

- 5.3.12 Kylemore Park South runs parallel and to the south of Kylemore Park North. Having a kerb-to-kerb pavement width in the order of 9.20 metres, it provides a direct link to the subject site from Kylemore Road onto Kylemore Park West.
- 5.3.13 There are currently no line markings or method of priority junction control on Kylemore Park West, Kylemore Park North and Kylemore Park South or their intersections. The posted speed limit along all roads in the vicinity of the proposed site is 30 miles per hour. Public lighting is provided along the full length of Kylemore Park North and Kylemore Park South.
- 5.3.14 A pedestrian refuge is provided on Killeen Road at the junction of Kylemore Park North and Killeen Road. Traffic signals are located further north at the junction of Killeen Road/Le Fanu Road/Kylemore Avenue/Raheen Park. There are also two sets of traffic signals located on Kylemore Road between Kylemore Park North and Kylemore Park South, one for a signalised pedestrian crossing and one for access to a large industrial unit.
- 5.3.15 Kylemore Road is a two-way local distributor road with a road pavement width of approximately 9.3 metres. It runs from the Naas Road south of the subject site, northwards along the eastern side of the site, through Ballyfermot Roundabout and on to the Chapelizod Bypass to the north. There is a 1.5 metre wide cycle track on both sides of the road from the junction with the Naas Road, ceasing between the junctions with Kylemore Park South and Kylemore Park North.
- 5.3.16 Killeen Road is a two-way local distributor road. It runs from a newly constructed roundabout on the Nangor Road south west of the subject site, continuing northwards along the western side of the site to its junction with Le Fanu Road/Kylemore Avenue/Raheen Park.
- 5.3.17 Killeen Road has recently been realigned and widened from the Nangor Road to the western side of the site and has a road pavement width of approximately 10 metres. Public lighting and footpath provision are good, and a continuous 2.00 metre wide cycle track serves Killeen Road in both directions from its intersection with the Nangor Road to the termination of the new alignment just south of its intersection with Kylemore Park North.

5.4 Traffic Surveys and Analysis

- 5.4.1 To determine the current traffic behaviour in the vicinity of Labre Park, a number of turning movement surveys were carried out at key junctions with Kylemore Road and Killeen Road.
- 5.4.2 A series of traffic counts were carried out in the morning peak between 08:00 hours and 09:30 hours and the evening peak between 16:30 hours and 18:00 hours on Wednesday 8 December 2004. This date was chosen as, traditionally, the 8th December is associated with increased traffic in the Dublin region due to seasonal shoppers. Aligning the traffic counts with this day will provide a worst-case scenario and provide a robust engineering assessment of the existing conditions.
- 5.4.3 The following junctions were surveyed in the morning and evening peak of Wednesday 8 December 2004:
- Killeen Road and Kylemore Park North
 - Kylemore Road and Kylemore Park North
 - Kylemore Road and Kylemore Park South
- 5.4.4 Results of the Traffic Count Survey for the above junctions, shown for the morning and evening peaks, are given in Figures 5.1 to Figures 5.6 inclusive.

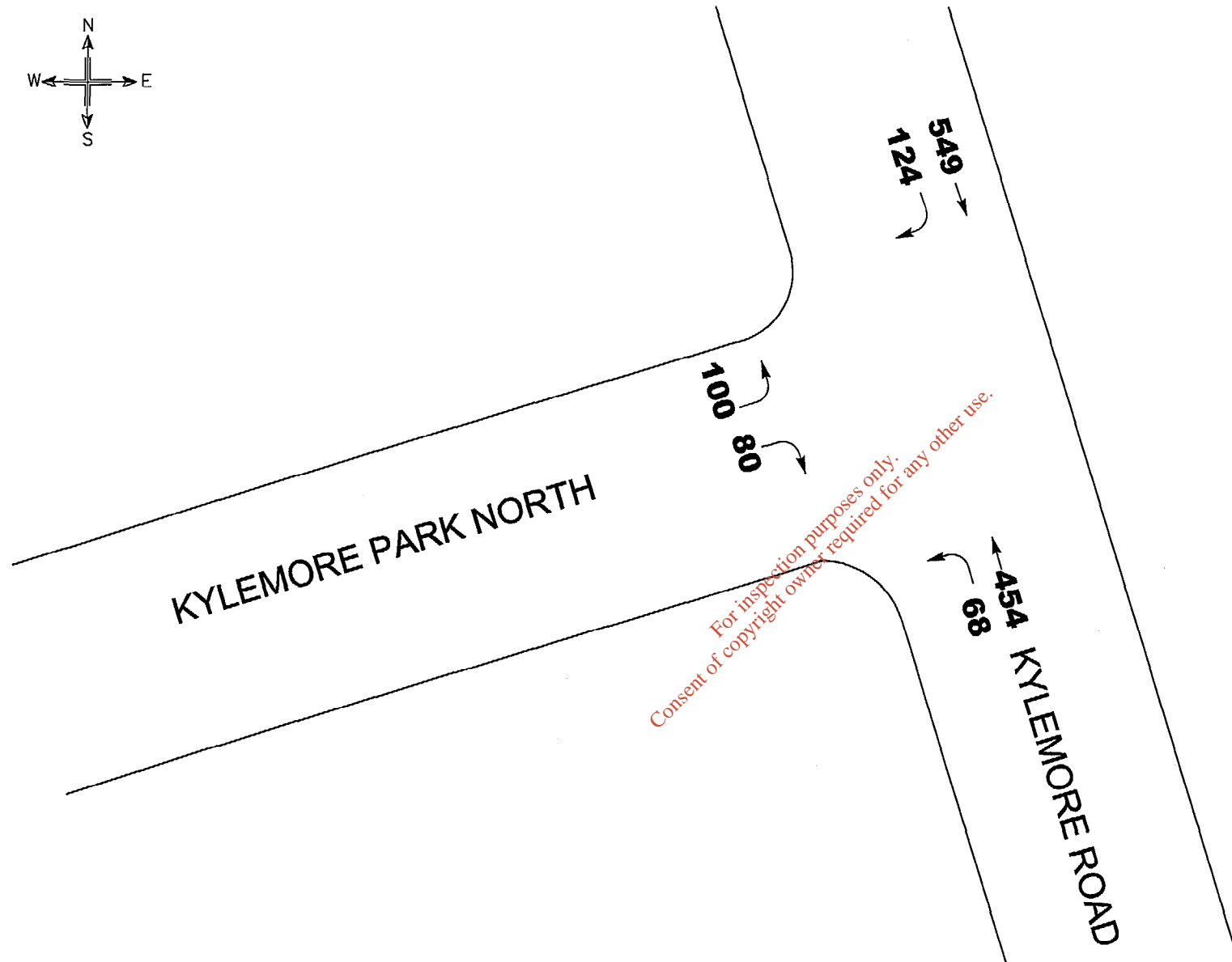
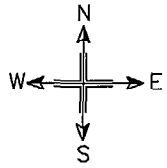
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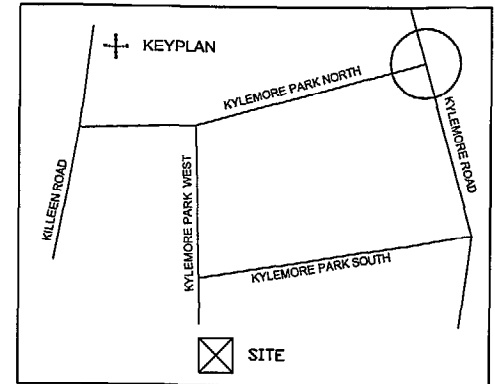
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PROPOSED CIVIC AMENITY FACILITY AT LABRE PARK
EXISTING SURVEYED TRAFFIC FLOWS
JUNCTION OF KILLEEN ROAD AND KYLEMORE PARK NORTH
WEDNESDAY 08th DEC. 2004 **MORNING PEAK HOUR**

PROJECT NO. Y4139
FIGURE 5.1
NOT TO SCALE



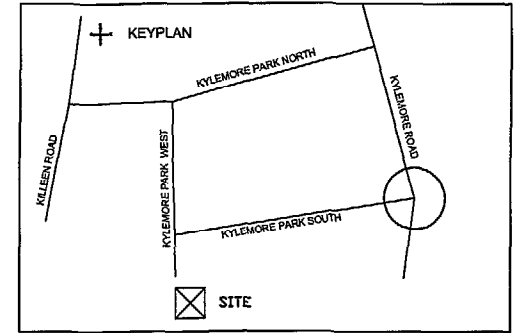
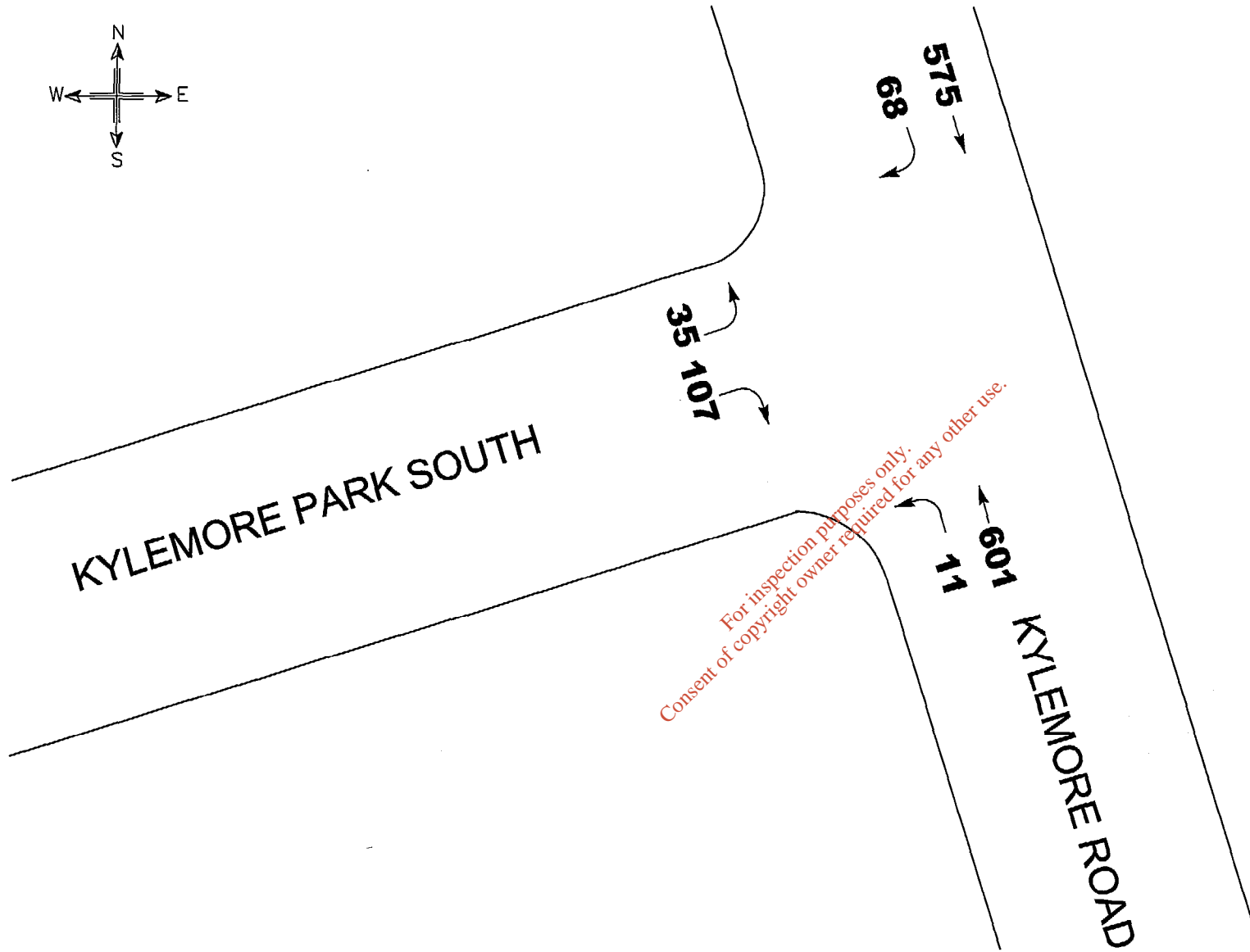
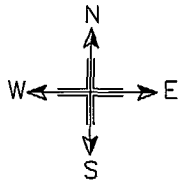
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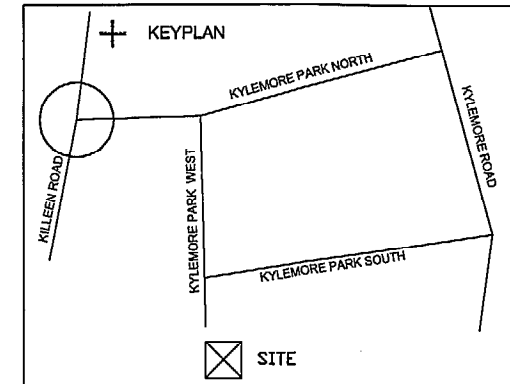
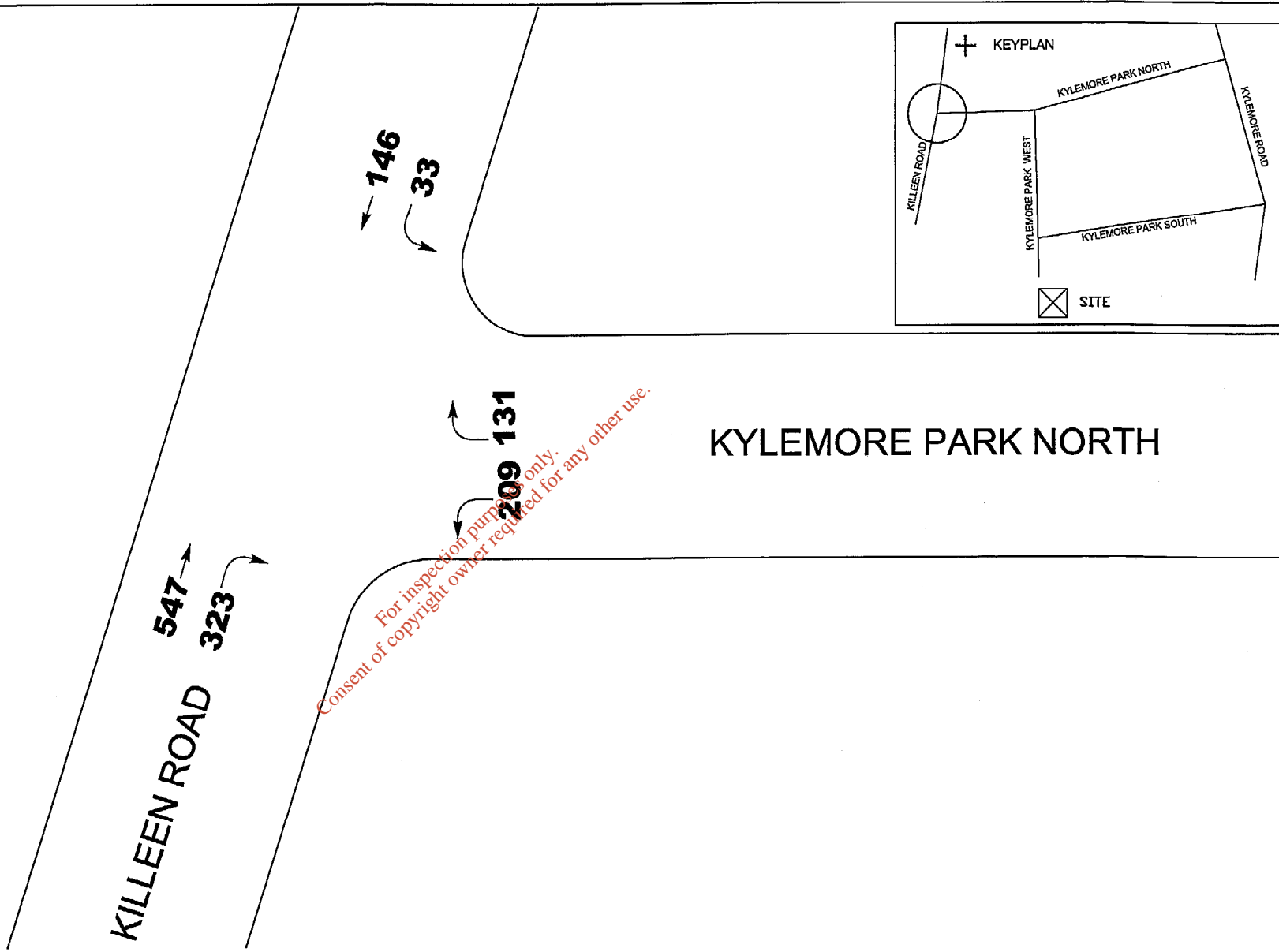
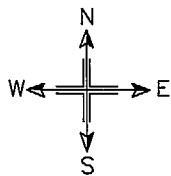
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PROPOSED CIVIC AMENITY FACILITY AT LABRE PARK
EXISTING SURVEYED TRAFFIC FLOWS
JUNCTION OF KYLEMORE ROAD AND KYLEMORE PARK NORTH
WEDNESDAY 08th DEC. 2004 **MORNING PEAK HOUR**

PROJECT NO. Y4139
FIGURE 5.2
NOT TO SCALE



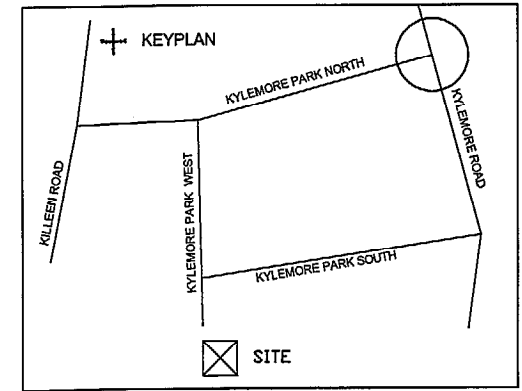
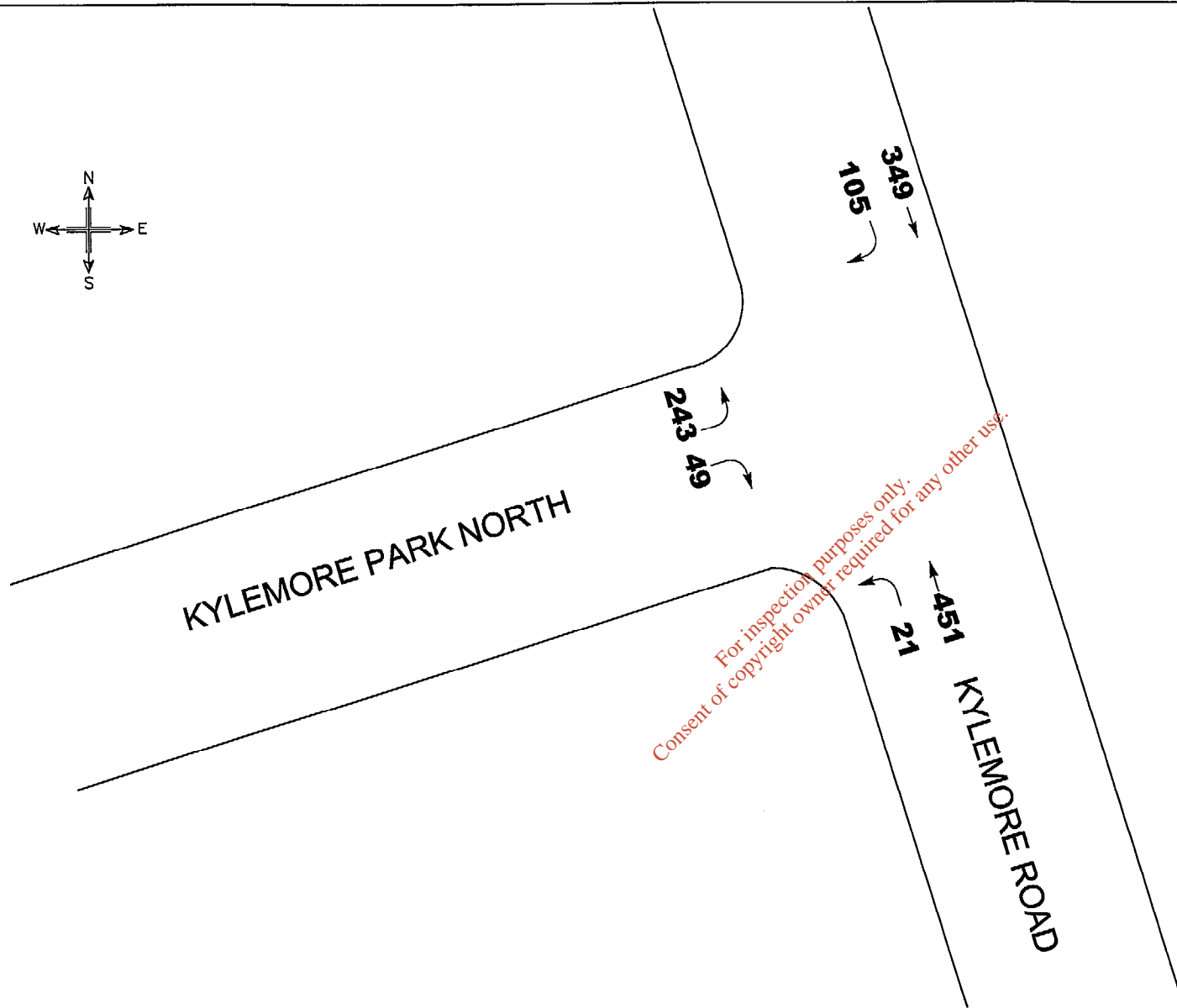
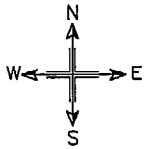
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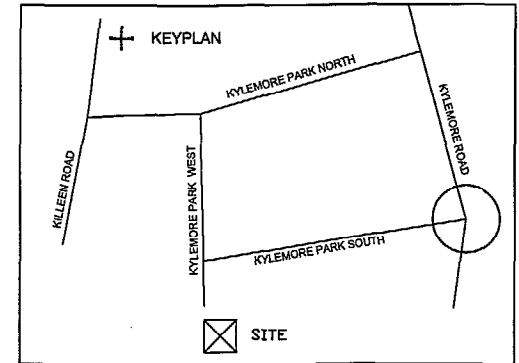
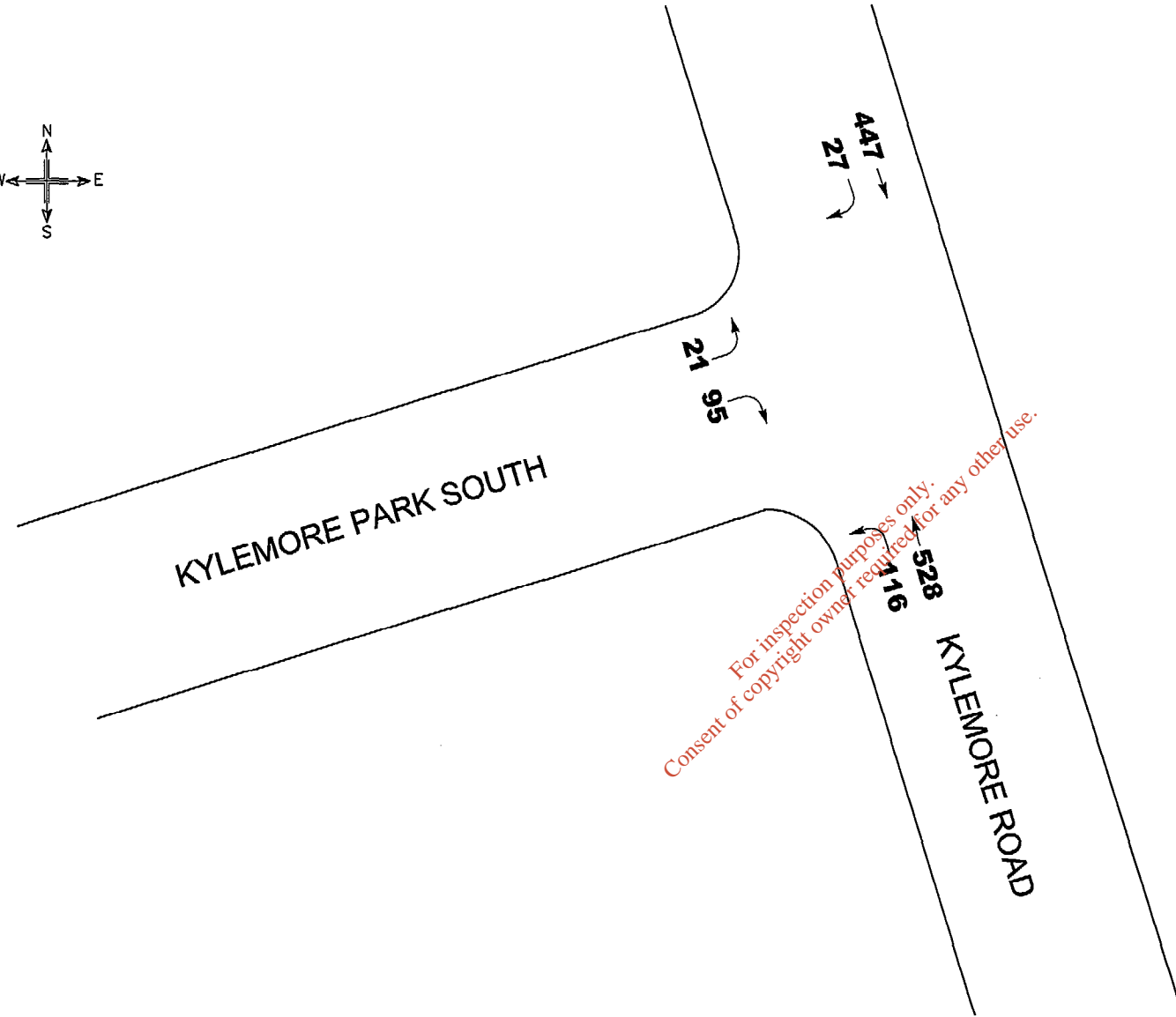
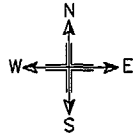


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PROPOSED CIVIC AMENITY FACILITY AT LABRE PARK
EXISTING SURVEYED TRAFFIC FLOWS
JUNCTION OF KILLEEN ROAD AND KYLEMORE PARK NORTH
WEDNESDAY 08th DEC. 2004 **EVENING PEAK HOUR**

PROJECT NO. Y4139
FIGURE 5.4
NOT TO SCALE





- 5.4.5 The results of the morning peak hour survey reveal the following:
- A two way flow of 707 vehicles per hour pass along Killeen Road;
 - A two way flow of ¹584 vehicles per hour pass along Kylemore Park North;
 - A two way flow of 221 vehicles per hour pass along Kylemore Park South.
 - A two way flow of ²1176 vehicles per hour pass along Kylemore Road.
- 5.4.6 The results of the evening peak hour survey reveal the following:
- A Two way flow of 693 vehicles per hour pass along Killeen Road;
 - A two way flow of ³696 vehicles per hour pass along Kylemore Park North;
 - A two way flow of 259 vehicles per hour pass along Kylemore Park South.
 - A two way flow of ⁴975 vehicles per hour pass along Kylemore Road.
- 5.4.7 Traffic intensity on the local distributor roads Killeen Road and Kylemore Road was found to be greater in the morning peak hour. However, traffic to and from the industrial park on Kylemore Park North and Kylemore Park South was observed to be greater during the evening peak.
- 5.4.8 Higher trip generation to the industrial park in the evening peak will result in higher demand for right turns from the local distributor roads. This should produce more queuing from Kylemore Road & Killeen Road for vehicles wishing to turn right into the Industrial Park. This deduction correlates with observations made on site during the survey.
- 5.4.9 It has been established that the industrial park generates more trips during the evening peak hour. Observations made on site have shown that queuing on the local distributor roads was greater and traffic movements to and from the industrial park were more intense during the evening peak hour. In light of these facts, it can be concluded that delays to motorists in the area of the subject site are greater during the evening peak hour.
- 5.4.10 The evening peak hour may therefore be considered the critical peak. In representing the worst-case scenario for driver delay, the modelling exercise for traffic movements to and from the subject site will be based on traffic flows recorded for the **evening peak hour**.

¹ Recorded at the intersection of Killeen Road, which represents the highest flows recorded on this Road.

² Recorded at the intersection of Kylemore Park South.

³ As note 1 above

⁴ As note 2 above.

5.4.11 Reference to RT201 "Expansion Factors for Short Period Traffic Counts", published by the NRA, specifies an evening peak hour expansion factor of 15.13 (plus or minus 20% at the 68% confidence level)⁵ to obtain an Annual Average Daily Traffic (AADT) flow. Based on this, the AADT flows for each Road in Turn are as follows:

- Killeen Road: 10,485 AADT
- Kylemore Park North: 10,530 AADT
- Kylemore Park South: 3,918 AADT
- Kylemore Road: 14,752 AADT

5.4.12 In order to establish the existing traffic capacity of the surrounding roads, reference is made to TA 79/99 "Traffic Capacity of Urban Roads" (Vol. 5, Sect. 1, Part 3 of the Design Manual for Roads and Bridges).

5.4.13 Therein existing one-way traffic capacity for the each road in turn may be defined as follows:

- Killeen Road: 1620 vehicles per hour (vph)
- Kylemore Park North: 1530 vph
- Kylemore Park South: 1530 vph
- Kylemore Road: 1530 vph

5.4.14 The traffic survey has shown that Kylemore Road has the highest two-way traffic flow in the evening peak, and therefore represents the worst-case scenario from the perspective of capacity. Table 5.1 demonstrates Kylemore Road's existing traffic capacity based on the previously supplied analysis:

Table 5.1: Kylemore Road PM Peak Existing Capacity

AADT	Existing Two Way Flow vph	⁶ Existing Two Way Capacity vph
14,752	975	3,060

5.4.15 Representing the worst case, Kylemore Road's existing two-way flow is well within its theoretical capacity. It can be surmised therefore that the existing road network is well within capacity.

5.4.16 In order to quantify the operation of the existing priority junctions, a capacity assessment was undertaken using the UK Department of Transport program PICADY (Priority Intersection Capacity and Delay) and the surveyed results outlined above. A summary of the results of the analysis for the existing evening peak hour is shown in Tables 5.2, 5.3 and 5.4 following.

⁵ Reference is made to Table 1b "Urban Commuter Routes".

⁶ From TA 79/99 "Traffic Capacity of Urban Roads" 1,530 vph x 2 (converted to two way).

Table 5.2: PICADY Capacity Analysis Results for the Existing Evening Peak Hour, Killeen Road and Kylemore Park North

Approach	Degree of Saturation (RFC)	Average Queue (Vehicles)	Average Delay (Seconds)
Killeen Road (North)	-	-	-
Kylemore Park North	0.63	2	28.8
Killeen Road (South)	0.66	2	15.0

Table 5.3: PICADY Capacity Analysis Results for the Existing Evening Peak Hour, Kylemore Road and Kylemore Park North

Approach	Degree of Saturation (RFC)	Average Queue (Vehicles)	Average Delay (Seconds)
Kylemore Road (South)	-	-	-
Kylemore Park North	0.51	1	11.4
Kylemore Road (North)	0.22	1	7.8

Table 5.4: PICADY Capacity Analysis Results for the Existing Evening Peak Hour, Kylemore Road and Kylemore Park South

Approach	Degree of Saturation (RFC)	Average Queue (Vehicles)	Average Delay (Seconds)
Kylemore Road (South)	-	-	-
Kylemore Park South	0.33	1	13.8
Kylemore Road (North)	0.06	1	7.2

5.4.17

The normal design threshold for the 'Ratio of Flow to Capacity' (abbreviated to RFC) in PICADY is 0.85 (for Level of Service D)⁷. The results shown in Tables 5.2, 5.3 & 5.4 therefore demonstrate that the intersections are currently operating well within their capacity during the evening peak hour, with no significant queuing or delay to motorists. The results of this analysis concur with observations recorded during site visits.

⁷ A junction providing a Level of Service lower than Level D is considered not to meet acceptable design standards, as the junction may be congested. Where possible, drivers will naturally find alternative routes in these cases.

5.5 Characteristics of the Proposed Development

- 5.5.1 The proposed new Civic Amenity Facility will cover an entire area of ca. 11,053m². It is proposed that the site will include three main functions consisting of a Civic Amenity Facility, a deposit area for Dublin City Council street cleansing vehicles, a storage area for waste electrical and electronic equipment and a C&D waste deposit area for a small number of local residents. The proposed design of the overall site can be seen in the Site Layout Drawing (ref. 24014-001).
- 5.5.2 The dimensions of the various areas within the proposed site are:
- Waste electrical and electronic equipment storage area - ca. 435m²
 - DCC Street Cleansing Area - ca. 1,010m²
 - Construction/Demolition Deposit Area - ca. 985m²
 - General Civic Amenity and Green Waste Area - ca. 4,412m²
 - Remainder (CA site, Roads, weighbridge & Site Buildings) - ca. 4,211m²
- 5.5.3 The Dublin City Council street cleansing outdoor yard area will be used by Dublin City Council street cleansing vehicles for the deposit of waste collected in the area. The main vehicles depositing in this area will be small vans used for servicing litterbins and street sweeping trucks. The contents will be deposited to a compactor located in this area.
- 5.5.4 The outdoor yard deposit area for Construction/Demolition Waste will be used by 8-10 members of the Travelling Community, resident in Labre Park, who are legally engaged in the collection of C&D rubble and household bulky waste.
- 5.5.5 Traffic on site will be controlled primarily by the design and layout of the site, along with signage, road markings, barriers and verbal instructions from staff. On arrival at the site vehicles will be weighed at the site office entry area and/or then proceed around the roundabout in a clockwise direction to the designated waste deposit areas. Traffic will then leave the site via the roundabout and the site office/weighbridge and back onto the surrounding network.

5.6 Potential Traffic Impact of the Proposed Development

Construction Phase

- 5.6.1 The construction stage of the proposed Labre Park Civic Amenity Facility is expected to be in the order of 12 months.
- 5.6.2 During the construction stage it is expected that between 10-20 people will be employed on the site. Normal working hours will be between 8.00am and 6.00pm, five days per week with probable working on Saturday mornings. Assuming each of the construction workers arrives to work by car, and assuming 20 people are employed on the site, a maximum of 20 cars will arrive at the site between 7.45 and 8.00am, and the same number will leave between 6.00 - 6.30pm.
- 5.6.3 During construction, trucks and vans will be delivering materials to the site daily. It is estimated that this could amount to 10-15 trucks per day coming to site depending on the construction activity. The arrivals of trucks and vans to the site are expected to be evenly spread throughout the day.
- 5.6.4 In summary, it is expected that during the construction period, a maximum of up to 15 trucks per day could be arriving at, and leaving the site and up to 20 cars could arrive in the morning and leave in the evening.

Operational Phase

- 5.6.5 The potential environmental impacts generated by traffic associated with the proposed Labre Park Civic Amenity Facility are in relation to the existing road system and inhabitants within the surrounding area. This will apply at both the construction and operational stages.
- 5.6.6 This increased volume of traffic will have potential impacts on humans such as:
- Increased noise and vibration levels
 - Visual Impact
 - Community Severance
 - Pedestrian Stress, Delay and Amenity
 - Cyclist Delay
 - Driver Delay
 - Increased Accident Potential
 - Increased Air Pollution
 - Increased Dust & Litter Generation
- 5.6.7 The above impacts, although not necessarily significant, require consideration to determine their extent. Certain groups of people whose immune systems are suppressed, that is the very young and the elderly or those in sensitive locations, (i.e. hospitals, schools, etc.) may be affected more than others. Others who may be affected are those at home, work, walking or cycling.
- 5.6.8 The impact on the above groups will depend on various factors such as:
- Volume of traffic
 - Speeds and operational characteristics
 - Composition of traffic (e.g. the heavy vehicle content)

- 5.6.9 The perception of traffic change on humans will depend on factors such as:
- Existing traffic
 - Traffic route
 - Time of day
 - Variation of traffic volume
 - Design and layout of roads in the vicinity
 - Land use activities adjacent to the route
- 5.6.10 Below is a discussion on each of the previously noted potential impacts on humans from the traffic component of the scheme. This following information is pertinent to both the construction and operational phases of the development.
- 5.6.11 The environmental impact of noise generated by the proposed development is addressed in detail in section 6 of this EIS.

Visual Impact

- 5.6.12 In this case the main visual impact will be from the surrounding businesses within the industrial park. This will be associated mainly with the additional HGV traffic associated with the site. As this industrial park currently absorbs a high number of HGV trips, the visual effects of the additional traffic are considered minimal. Landscape and visual impacts are examined in greater detail in section 11 of the EIS.

Community Severance

- 5.6.13 Community severance for the development may be considered negligible as no new roads are proposed, and no significant traffic increases in the vicinity of housing are anticipated. The development and the associated access may have some impact on the existing community centre. The impact on the community centre will depend on the phasing of construction of the new community centre in Labre Park, but in any event access will be maintained at all times. Any adverse impact on the existing centre will be temporary.

Pedestrian Stress, Delay & Amenity

- 5.6.14 Pedestrian stress is usually associated with the passing of articulated trucks, and delay relates to the volume of passing traffic. The present road system is already subject to heavy goods vehicles generated to the site. There is expected to be a slight increase in trucks generated to the site associated with the removal of civic amenity waste in skips and large bins, however this will have an insignificant impact on the present situation.
- 5.6.15 Although it is anticipated that the number of individuals delivering civic waste to the site by foot will be negligible, pedestrian facilities will be provided for their safe progression.
- 5.6.16 The traffic generated by the proposed development will have no significant environmental effect on the existing pedestrian amenity in the area.

Cyclist Delay

- 5.6.17 The proposed development is not likely to have any significant negative impact on cyclists.

Driver Delay

- 5.6.18 This relates to the impact on those present users, taking into consideration both those who live in the vicinity and the existing passing traffic. Delays relate to the available capacity of the road and the percentage of heavy vehicles using it.
- 5.6.19 Residual capacity within the surrounding road network is high. Notwithstanding this, a slight increase in driver delay is expected at the intersections with the surrounding local distributor roads Killeen Road and Kylemore Road, most noticeably for right turning vehicles into the industrial park.
- 5.6.20 The layout of the site has been designed to ensure there is sufficient space to allow vehicles to queue on-site and not extend back into the industrial park.

Accidents

- 5.6.21 The industrial park currently generates high levels of both cars and HGV truck traffic. The generous road widths and continuous footpath facilities provide a reasonable level of mitigation against conflicts between road users. The expected traffic generated to the site following construction of the Civic Amenity Facility is not expected to have any significant impact on the road network from a safety perspective. This is also expected to be the case during the construction phase.
- 5.6.22 The layout of the site has been designed to ensure optimum traffic management and ease for users. Adequate space is provided on site to allow trucks and other vehicles to circulate the site and exit in forward manoeuvres.

Dust & Litter

- 5.6.23 During the construction phase of the project there is potential problem of dust and slurry generated by Contractors' trucks. Control of dust and slurry generated by trucks will be included in the Contract Specification.
- 5.6.24 During the operational phase the operators will ensure all vehicles depositing green or civic amenity waste adequately cover trailers and other open-back vehicles, to control potential littering impacts.

5.7 Expected Traffic Generation & Distribution

Construction Phase

- 5.7.1 **Refer back to Section 5.6 herein.** In summary, it is expected that during the construction period, a maximum of up to 15 trucks per day could be arriving and leaving the site, and up to 20 cars could arrive in the morning and leave in the evening.

Operational Phase

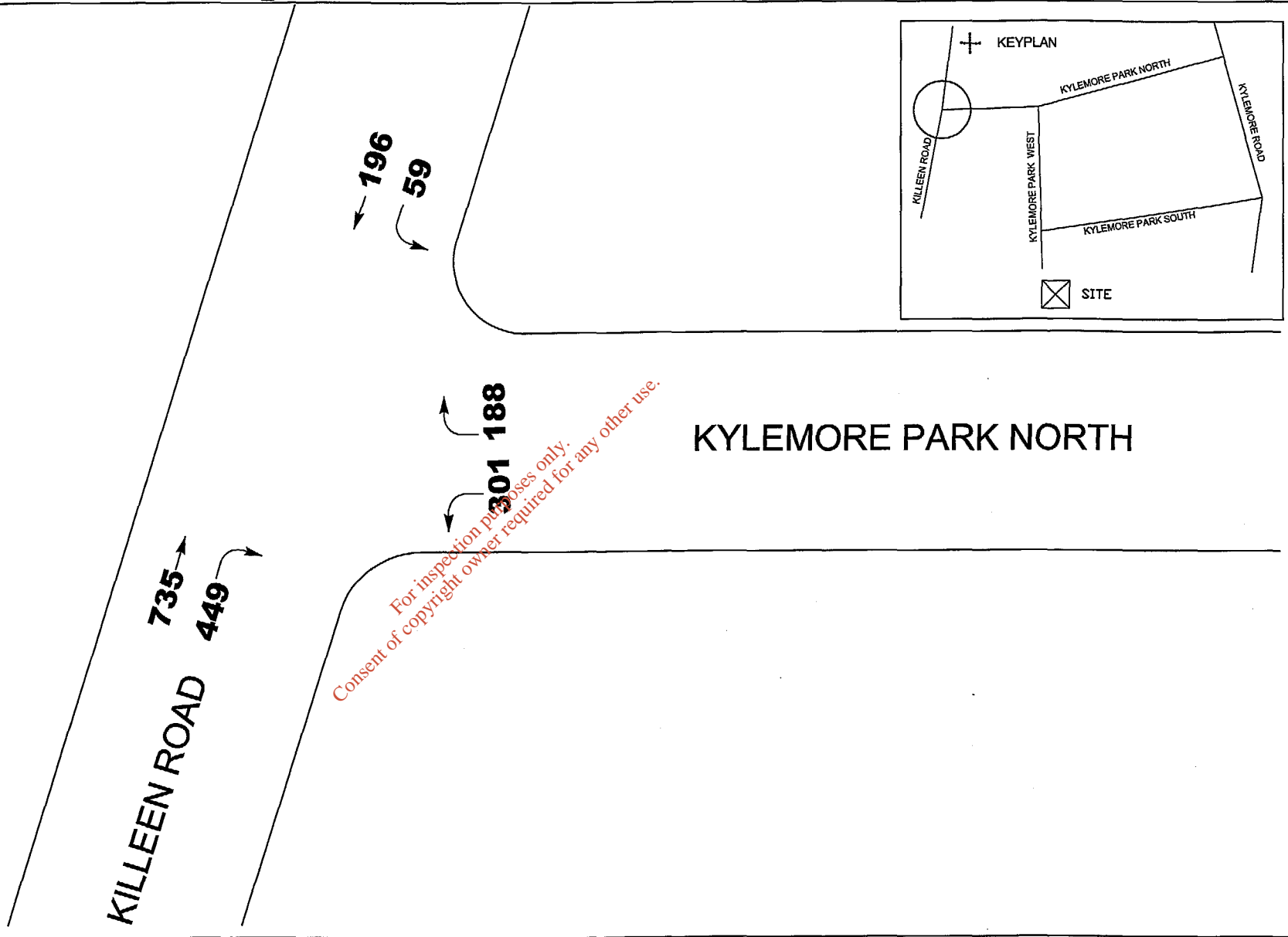
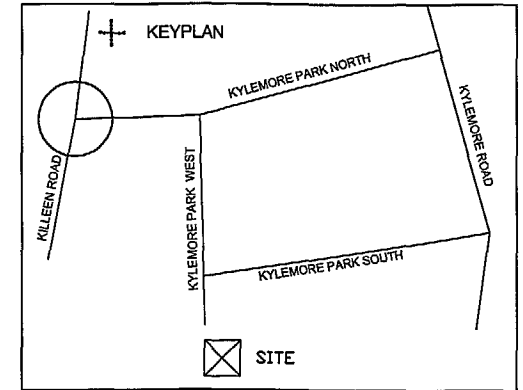
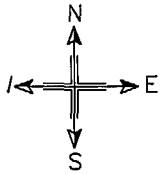
- 5.7.2 In order to assess the impact of traffic generated by the proposed development on the surrounding network, it is first necessary to predict the likely traffic volumes that will be generated by the proposed development during the evening peak hour.
- 5.7.3 As noted in **Section 5.4**, the evening peak hour has been shown to be the critical peak. Traffic generation for the scheme has been calculated for the evening peak. This combination represents the worst-case scenario, and therefore provides a robust engineering assessment of the schemes potential traffic impact.
- 5.7.4 To determine the likely traffic generation associated with the proposed development, a survey was undertaken of trip generation information for **existing** civic amenity and green waste deposit facilities in Dublin to produce an accurate expectation of traffic flows generated by the proposed facility for the evening peak hour.
- 5.7.5 By using recent live trip generation data for similar facilities within the Dublin catchment area, the likelihood of predicting an accurate trip generation profile is greatly increased.
- 5.7.6 Trip generation data was retrieved for Civic Amenity sites from the Ringsend Recycling Centre and Shamrock Terrace, North Strand Road. The green waste facility in St. Anne's Park Raheny was used to obtain data for the green waste area of the proposed facility.
- 5.7.7 Based on the desk study of similar sites, discussions with employees of Dublin City Council and site observations, expected traffic generation to the proposed Labre Park facility in the evening peak hour are summarized in Table 5.5 below:

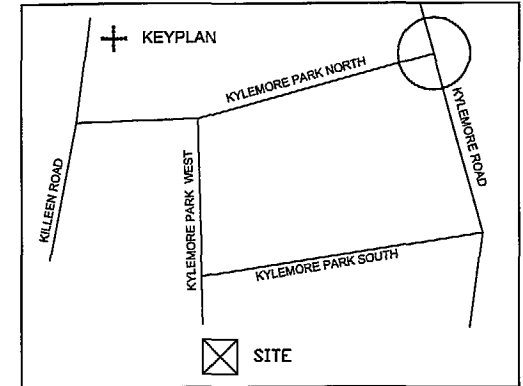
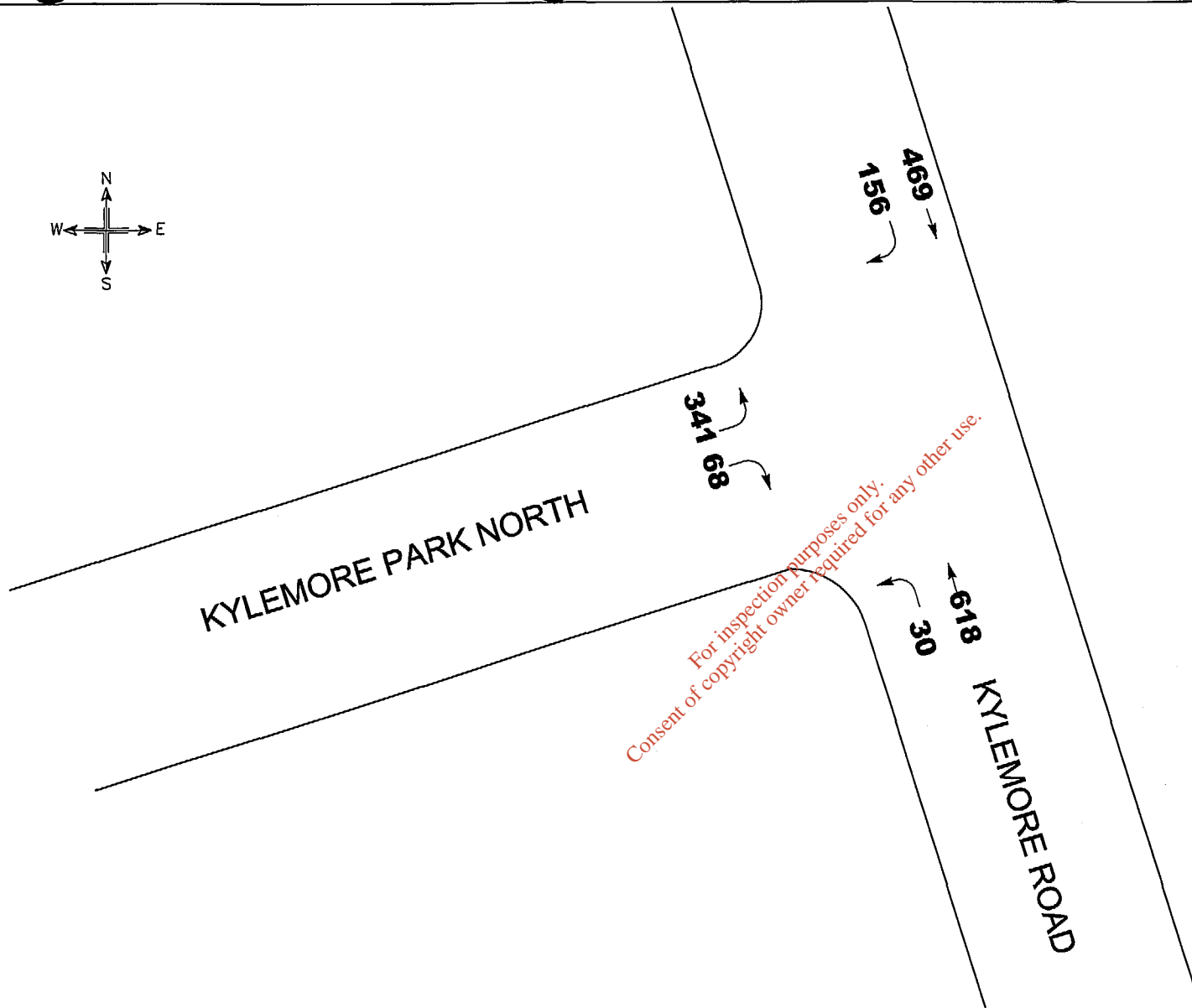
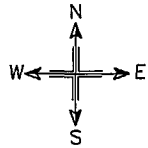
Table 5.5 Estimated Trip Generation

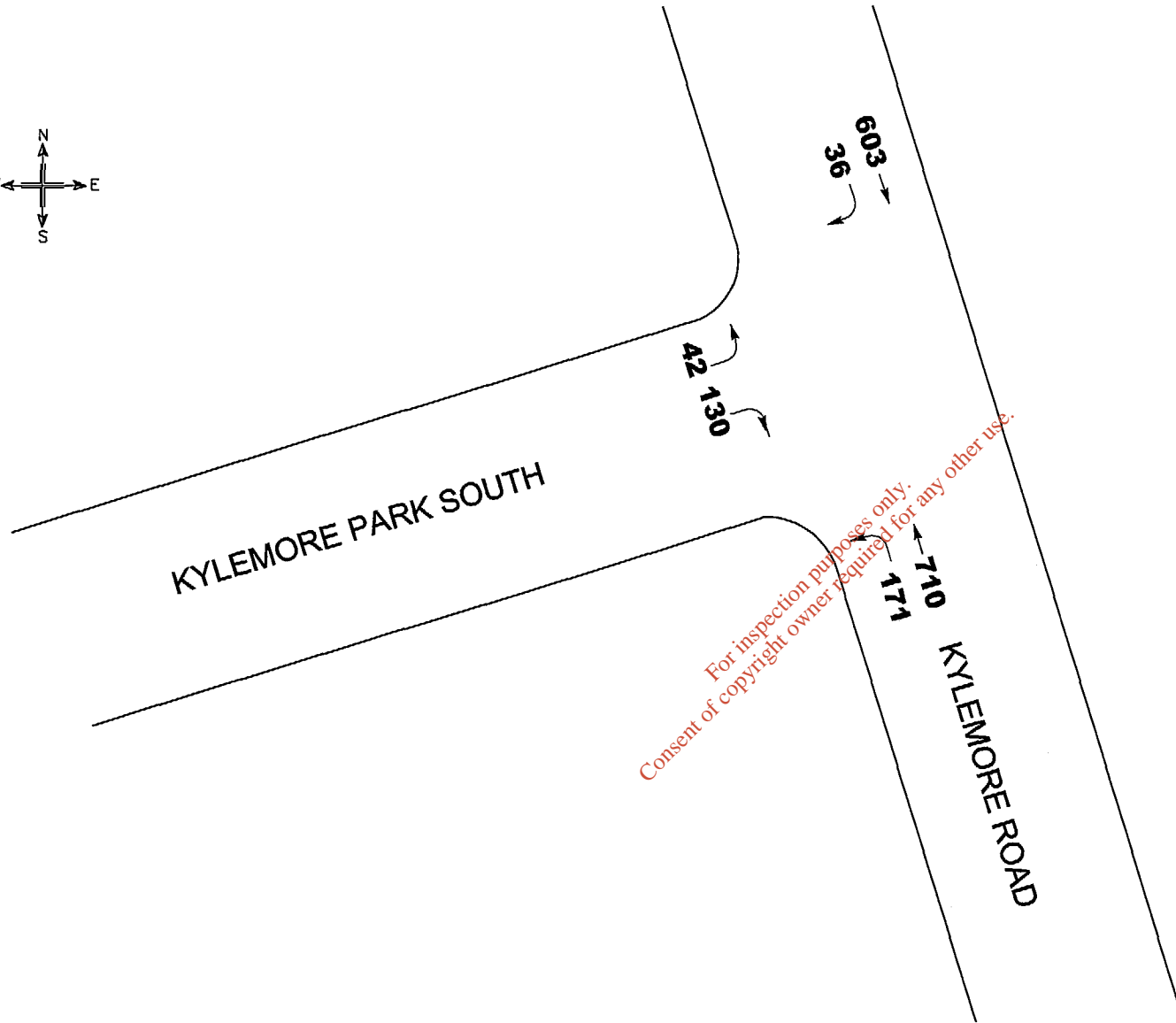
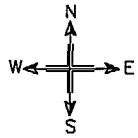
Landuse	Evening Peak Hour	
	Arrivals	Departures
Civic Amenity Site Delivery (Private Cars)	36	36
Civic Amenity Site Removal (Trucks)	4	4
Green Waste Delivery (Private Cars)	14	14
Green Waste Removal (Trucks)	2	2
DCC Street Cleansing Vehicles	5	5
Staff Cars	0	4
Total Trips in Peak Hour	61	65

- 5.7.8 Based on the surrounding road network and site observations, it is expected that 50% of traffic generated to the site will be from Killeen Road to the west and 50% of the traffic will be attracted from Kylemore Road to the east.
- 5.7.9 Figures 5.7, 5.8 and 5.9 in show the expected future traffic flows at the junctions in the 2014 Design Year.

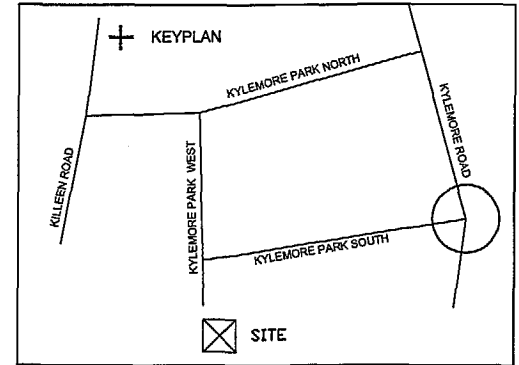
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- 5.7.10 Turning movements at the junctions have been based on the surveyed traffic flows based on the Existing Surveyed Traffic Flows for the 2004 Evening Peak in Figures 5.4, 5.5 and 5.6.
- 5.7.11 The Projected 2014 Evening Peak Flows shown in Figures 5.7, 5.8 and 5.9 assume a network traffic growth rate of 3% per annum over a 10-year period to the Design Year (2014), in addition to the expected traffic flows generated by the proposed development.
- 5.7.12 In order to determine the future operation of the junctions, a modelling exercise was carried out on each junction in turn using **PICADY** software based on the Projected 2014 Design Year Traffic Flows.
- 5.7.13 A summary of the results of the analysis for the future Design Year evening peak hour are shown in Tables 5.6, 5.7 and 5.8 following.

Table 5.6: PICADY Capacity Analysis Results for the 2014 Design Year Evening Peak Hour, Killeen Road and Kylemore Park North

Approach	Degree of Saturation (RFC)	Average Queue (Vehicles)	Average Delay (Seconds)
Killeen Road (North)	-	-	-
Kylemore Park North	0.94	14.1	97.8
Killeen Road (South)	1.05	9.5	36.6

Table 5.7: PICADY Capacity Analysis Results for the 2014 Design Year Evening Peak Hour, Kylemore Road and Kylemore Park North

Approach	Degree of Saturation (RFC)	Average Queue (Vehicles)	Average Delay (Seconds)
Kylemore Road (South)	-	-	-
Kylemore Park North	0.84	5	25.2
Kylemore Road (North)	0.36	1	10.2

Table 5.8: PICADY Capacity Analysis Results for the 2014 Design Year Evening Peak Hour, Kylemore Road and Kylemore Park South

Approach	Degree of Saturation (RFC)	Average Queue (Vehicles)	Average Delay (Seconds)
Kylemore Road (South)	-	-	-
Kylemore Park South	0.54	2	20.4
Kylemore Road (North)	0.09	1	7.8

- 5.7.14 As noted before, the normal design threshold for the 'Ratio of Flow to Capacity' (abbreviated to RFC) in PICADY is 0.85 (for Level of Service D)⁸.
- 5.7.15 The results shown in Tables 5.6, 5.7 and 5.8 therefore demonstrate that with the exception to the junction of Killeen Road and Kylemore Park North, the remaining junctions will continue to operate within capacity in the 2014 Design Year. The expected queuing and delays to motorists are all within acceptable limits.
- 5.7.16 The junction of Killeen Road and Kylemore Park North (refer to Table 5.6) is marginally over the industry norm with respect to Degree of Saturation. In this instance, this may be considered acceptable for the following reasons:
- Road marking and lane delineation the approach to the stop line on Kylemore Park North can be improved to clearly define a two-lane approach. This will greatly increase discipline and therefore junction operation.
 - The CIE railway bridge on Killeen Road (spanning over the Kildare Line) immediately north of the junction is due to be replaced as part of CIE's cyclic repair and improvement programme. It is anticipated that this will happen in the next 5 years. The opportunity can be taken at this point to provide a right turning pen on Killeen Road for vehicles entering the industrial park. There is currently sufficient carriageway width for this to be implemented. The replacement of the bridge will greatly reduce visibility for right turning vehicles also, providing benefits in improved junction operation and reduced accident risks.
 - The traffic generation estimate noted herein is based on similar facilities within the Dublin catchment area. These figures are based on the provision of facilities being **free of charge**. Meaning that traffic generated to the sites was attracted there on the basis that waste could be dumped without consideration to payment. The recent introduction of an entrance charge to the Shamrock Terrace and Ringsend facilities has yielded a dramatic drop in patronage. Recent data indicates that following the introduction of a charging regime, trips to the site have been reduced by 40%. As the facility at Labre Park will be charging for waste delivery from its inception, traffic generation will undoubtedly be lower than estimated within this report, and therefore the junction is likely to operate well within acceptable levels of delay.

⁸ A junction providing a Level of Service lower than Level D is considered not to meet acceptable design standards, as the junction may be congested. Where possible, drivers will naturally find alternative routes in these cases.