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TII Design Report

Development of a Multi-Use Park at The Common, Lifford, Co. Donegal

PREPARED BY	CHECKED BY	APPROVED BY	ISSUE	DATE
R Wade	D Williams	P Alcorn	V1	18/03/2022
D Williams	P Alcorn	P Alcorn	V2	31/03/2022
P Alcorn	P Alcorn	P Alcorn	V3	13/04/2022

Contents

1 Forward

This document has been prepared in accordance with Transport for Infrastructure Ireland (TII) publication DN-GEO-03030: Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal Schemes and Local Improvements Schemes (https://www.tiipublications.ie/library/DN-GEO-03030-03.pdf), which is the appropriate process to follow and as identified by Local Improvement Schemes (LIS).

DN-GEO-03030 Standard sets out the procedures to be followed for the technical aspects of the Design Phase of the following scheme types: -

- Road Safety Improvement Schemes (RSIS) that have already been approved at Feasibility and Options Stage of TII Publications (Standards) GE-STY-01037.
- Urban Renewal Schemes (URS) i.e. schemes that are designed in accordance with The Design Manual for Urban Roads and Streets (DMURS).
- Road Safety Improvement aspects (i.e. design elements) of Pavement Asset Repair and Renewal (PARR) Schemes. TII Publications (Standards) AM-PAV-06049.
- Local Improvement Schemes (LIS) e.g. local authority general improvement schemes which have not been identified as Road Safety Improvement Schemes, schemes led, funded or partly funded by other agencies, development led schemes and/or community schemes

2 Introduction

The proposed Multi-Use Park 10-acre green field site at The Common, Lifford, Co. Donegal in the Stranorlar Municipal District includes proposals for the construction of approximately 720m of access road (6.0m wide road (3.0m lanes)) and shared footways/cycleways throughout (3.0m wide) to facilitate access to future developments within adjoining lands.

It is proposed that an access will be constructed onto the existing N14 National Primary Road to accommodate the proposed development. The scheme includes a proposed right-hand turn lane (RHTL) which can be accommodated within the existing N14 road widths / existing central hatched area.

The development will further consist of:

- Wastewater pumping station and associated pipe networks to service proposed developments.
- Stormwater drainage facilitating potential future connections.
- Services and utilities to service proposed developments.
- Future linkages that will facilitate access to adjoining lands to enable potential future development proposals and facilitate future road layout proposals that will increase the overall connectivity to the town centre for both pedestrians and road users.

The site is located adjacent to the National Primary Road (N14) and is within the defined settlement framework boundary of Lifford. Lifford is identified as a Layer 2B: Strategic Town due to its special economic function and its proximity to the border with Northern Ireland and the associated cross border context. The wider area is identified as an 'Opportunity Site' as set out in the County Development Plan 2018- 2024 and the proposed site area as identified is contained within this zone. The proposed road network will facilitate the future development of the opportunity site, an indicative layout of the opportunity site is contained within the proposed Masterplan, which accompanies the planning application.

To the northwest and west of the site is an area of established residential type development, to the south of the proposed site entrance there is a petrol station (Applegreen). The site is within a 60km/hr speed zone and enjoys road frontage for approximately 220 metres along the National Primary Route. The site opens up to a large undeveloped green field area to the north/northeast.

A site location map is provided below and included within the drawing package in Appendix 1.

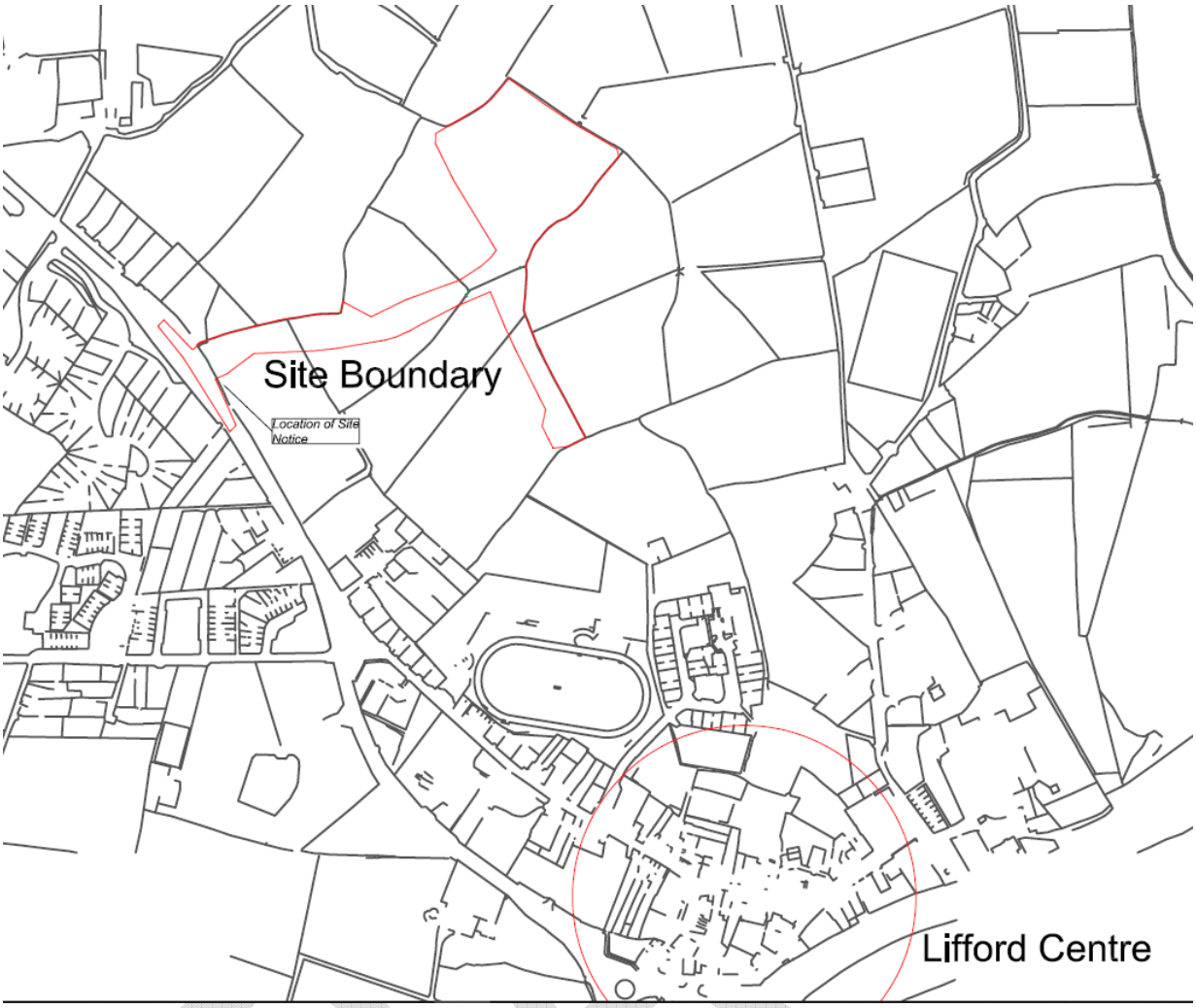


Figure 1 – Site Boundary

3 Scheme / Safety Objectives

It is the primary objective of Donegal County Council to provide safe transport and pedestrian facilities in the park and at the RHTL junction with the N14 National Primary road by:-

- Providing refuge for right turning vehicles on the N14 to reduce the likelihood of rear-end collisions.
- Providing safe routes for pedestrians and cyclists through the proposed junction with the N14.
- Providing advanced warning signage to inform users of the new junction and lining on the existing N14.

4 Existing Conditions

4.1 Speed

The posted speed limit at this section of the N14 is 60km/hr.

A traffic survey was carried out and as part of that survey follow on speed surveys were undertaken. The 85th percentile speed in the northbound carriageway was 54km/hr and the 85th percentile speed in the southbound carriageway was 51km/hr.

4.2 Traffic Volumes

A traffic statement has been generated by Hoy Dorman taking into account the traffic generation for the relocation of the Lifford Celtic Facility.

The full report can be seen in Appendix 2.

4.3 Horizontal Alignment

There is no alteration to the existing N14 carriageway therefore this section is not applicable.

4.4 Vertical Alignment

There is no alteration to the existing N14 carriageway therefore this section is not applicable.

4.5 Cross Section Crossfall & Superelevation

There is no alteration to the existing N14 carriageway therefore this section is not applicable.

4.5.1 Cross Section

There is no alteration to the existing N14 carriageway therefore this section is not applicable.

4.5.2 Crossfall

There is no alteration to the existing N14 carriageway therefore this section is not applicable.

4.5.3 Superelevation

There is no alteration to the existing N14 carriageway therefore this section is not applicable.

4.6 Junctions and Accesses

There are a number of existing private residential accesses along the frontage of the site ascertained for the proposed development. There will be no alteration / interference with any of these entrances as part of the works including construction of the RHTL.

4.7 Facilities for Vulnerable Road Users

This is an urban section of the N14, just outside the town limits of Lifford. Pedestrians and cyclists can avail of existing footways on both sides of the carriageway.

The Southbound footway varies in width between 1 – 2m with the Northbound footway a Pedestrian / Cyclist Greenway which is 3m wide. The Greenway is intermittently provided between existing private accesses along the route heading northbound. Both footways extent into the town centre of Lifford. There are a number of uncontrolled pedestrian crossings along the stretch of N14 carriageway.

4.8 Visibility and Sightlines

There is good visibility along this stretch of N14 carriageway for all the accesses present.

4.9 Active Travel Facilities

The proposed entrance is on the opposite side of the N14 to the recently constructed North West Greenway which along this line of carriageway consists of a 3m foot / cycleway and a number of uncontrolled crossings.

5 Environmental, Archaeological and other Constraints

5.1 Appropriate Assessment

An Appropriate Assessment Screening was undertaken by Blackstaff Ecology Ltd on behalf of Donegal County Council. This confirmed that a Natura Impact Statement (NIS) was required. This concluded that with mitigation there will be no significant impacts on Natura 2000 sites.

5.2 Ecological Assessment

A Preliminary Ecological Appraisal (PEA) has been undertaken. The PEA found there was moderate potential for habitats at the site to support protected species, however no protected species were observed at the site.

5.3 Other Environmental Assessments

Not Applicable.

5.4 Archaeological Constraints

A desktop study was carried out and concluded that the field boundaries within the site have a moderate potential for sub surface archaeological features. Prior to development licenced archaeological testing will be necessary on the site to ascertain if any sub surface archaeological features are present.

6 Proposed Design

6.1 General

The Design elements associated and considered as part of the development are the junction with the N14 and the RHTL junction and internal development roads.

The N14 is the major arterial route connecting Strabane and Letterkenny, it bounds the proposed development site of Lifford Common to the north east. A junction off the N14 will be required to access the proposed development and at the location of the proposed junction the speed limit is 60 kph.

The N14 consists of single lane carriageway with central 'hatched' reserve with multiple private accesses to both sides of the carriageway. Any proposed development will require careful consideration regarding the junction type and layout with traffic flows both existing and proposed considered appropriately.

Given the existing lane constraints it is proposed a RHTL junction will facilitate access to the proposed site. The traffic capacity of the junction has been determined within the Transport Statement illustrated within Appendix 2.

The proposed works will facilitate the development of sports facilities for the relocation of Lifford Celtic. The proposals will also contain services to facilitate the future development of this opportunity site. Any future development will require its own internal layout and design, in accordance with appropriate design standards and its individual planning approval. These are not included within this design report.

6.2 The site / Land Acquisition

The site is currently owned by Donegal County Council and until recently has been used for agricultural cattle grazing.

The proposed development is located within the settlement envelope of Lifford as per the County Development Plan, the site is outlined as an opportunity site.

Local removal of field boundary hedgerow will be required to accommodate the proposed development.

No additional land is required to provide the RHTL junction, this can be accommodated within the existing footprint of the N14.

6.3 Geometry / Alignment

6.3.1 Junction Design

The proposed RHTL junction will be designed in accordance with Transport Infrastructure Ireland document TII-DN-GEO-03060-02: Geometric Design of Junction.

The provision of the RHTL will include consideration of the existing road geometry, markings, traffic Islands and existing accesses. Based on these constraints on the following geometry can be provided:-

- Existing N14 Speed limit: 60 kph.
- Junction Radii: 13.0m (Paragraph 5.6.5).
- Diverging and merging tapers and 0.5m strip to be provided (Paragraph 5.6.5).
- Turning Lane Length: 10.0m (Paragraph 5.6.11.1).
- Direct Taper Length: 5.0m (Paragraph 5.6.11.2).
- Through Lane Width: 3.2m (Paragraph 5.6.11.3).
- Turning Lane Width: 3.15m (Paragraph 5.6.11.3).
- Deceleration Lane Length: 25.0m (Paragraph 5.6.11.4).
- Visibility Splay: 'X' distance = 9.0m; 'Y' distance = 90.0m (Table 5.4 and 5.5).

The vertical geometry and footways of the N14 will remain unchanged from existing apart from at the bell mouth of the proposed junction into the development land. At this location the existing footway will be removed, the carriageway entrance to the proposed development formed and the existing footways connected into the proposed development with provision of an uncontrolled pedestrian crossing.

6.3.1.1 *Junction Location Considerations*

The existing stretch of N14 carriageway adjacent to the scheme development lands consists of several private residential entrances, existing turning lanes, uncontrolled crossings, including a recently constructed Pedestrian / Cycle Greenway. The location of these crossings and entrances, along with the potential future use of the development lands dictate where the proposed junction needs to be formed.

The road markings at the location of the proposed entrance consist of 2 traffic lanes and a central 'hatched' area in between (See figure 2 below).

Figure 2 – Existing road markings at proposed junction location

Although not required by the proposed traffic flows as illustrated within the Traffic Statement the RHTL has been proposed to future proof the development lands & provide enhanced safety to the junction. Furthermore, no alterations to existing kerblines / carriageway alignment is required to form the RHTL, merely alteration to road markings necessary.

6.3.1.2 *Active Travel Connectivity*

The Pedestrian / Cycle Greenway along this stretch of N14 has recently been constructed and consists of a 3m Pedestrian / Cycle pavement with several uncontrolled crossings across existing housing development entrances and to facilitate access to accommodation on both sides of the N14.

The proposed site entrance is on the opposite side of the carriageway to the Greenway pavement. As per figure 3 below the existing central island on the N14 provides linkage to these lands via an uncontrolled crossing. The existing pavement this uncontrolled crossing links to is approximately 1m wide and would not be adequate to extend the Active Transport Corridor to facilitate an appropriate connection to our site.

Figure 3 – Existing uncontrolled crossing linking Greenway

To mitigate the reduced width of pavement the scheme proposals allow for an increased width of pavement at this crossing extending to the proposed internal 3m footway. This connection to the existing uncontrolled crossing on the N14 provides connectivity to the recently constructed Greenway. See design drawings within Appendix A illustrating this connectivity.

6.3.2 Internal Roads Design

The proposed internal roads will be designed in accordance with the Design Manual for Urban Roads and Streets, Department of Transport Tourism and Sport, Chapter 4: Street Design. As the internal junction is to provide a possible future link this will be design in accordance with Transport Infrastructure Ireland document TII-DN-GEO-03060-02: Geometric Design of Junction.

- Design speed: 50kph (Table 4.1: Design speed for suburban and Business/industrial Arterial and link roads).
- Footway/verge width: 3.0m, allowance for 1.0m verge and 2.0m footway (Paragraph 4.3.1).
- Carriageway width: 6.0m (Paragraph 4.4.1).
- Horizontal Curvature: 105m (Table 4.3).
- Vertical Curvature (K-factor): Crest 4.7, Sag 6.4 (Table 4.3).
- Max Gradient: 8% (Paragraph 4.4.6).
- Minimum Gradient: 0.5% (Paragraph 4.4.6).
- Crossfall/camber: 2.5% (Paragraph 4.4.6).
- Junction Radii: 10.0m, internal junction with possible future link to Lifford (Paragraph 5.6.5, TII).
- 0.5m hard strip to be provided through junctions (Paragraph 5.6.5, TII).
- Visibility Splay: 'X' distance = 9.0m; 'Y' distance = 70.0m (Table 5.4 and 5.5, TII).

6.3.2.1 Sports Facilities parking layout

- Junction radii: 6.0m.
- Parking spaces - 2.5m wide x 5.0m long.
- Access road - 6.0m wide.
- Footway - 2.0m wide.
- Max gradient - 2.5%.
- Crossfall/camber - 2.5%.

6.4 Drainage

The drainage strategy for the proposed scheme will be as below.

- Foul / Sewage
    - The foul infrastructure will be over designed to accommodate the potential for a changing facility at the recreational pitches and any future developments within the wider site, given the opportunity site zoning requirements contained within the County Plan.
    - The Foul infrastructure will consist of a network of manholes and pipelines traversing down the roadway under gravity flow where achievable. These will convey flows to a Wastewater Pumping station which will be located adjacent to the junction within the site along the Eastern site boundary. This pump will convey the flows to the Irish water pipelines within the main road (Subject to Irish Water Approvals).
- Stormwater
    - The stormwater infrastructure will be designed to accommodate the flows within the new roadway, the pitches and giving an allowance for flows from the wider opportunity site.
    - The stormwater infrastructure will consist of a network of manholes and pipelines under gravity flow where possible collected by trapped road gullies along the road kerbline. Earthwork embankments / cuttings will be drained by Filter Drains / Infiltration Trenches.
    - All stormwater flows will be conveyed to the Watercourse to the East of the proposed pitches.
    - The stormwater will be restricted to flow rates which are determined by Greenfield runoff calculations which will be agreed with the statutory authority and outlined within the Flood Risk Assessment Report. The flows will be restricted via Flow Control Devices and attenuated by a series of SUDs infrastructure such as Filter drains / Infiltration Trenches and Geocellular SUDs tank infrastructure which will be located beneath the pitches adjacent to the watercourse.

By way of water quality mitigation it will be the intention within the design to install a bypass petrol interceptor to mitigate the 'first flush' rainfall from the proposed roadway and the car park.

6.5 Pavement

A site investigation has been procured to determine the existing capacity of the ground to determine the design depths of the pavement capping / sub-base. The surfacing course proposed is Stone Mastic Asphalt.

6.6 Safety Barrier Risk Assessment and Provision

All banks are proposed at a 1 in 3 slope therefore no VRS systems will be required.

6.7 Traffic Signs and Road Markings

Traffic signs and road markings where required will be designed in accordance with the Traffic Signs Manual.

6.8 Accommodation Works

Existing street furniture (Lifford Welcome Statue/ornament) will be relocated outside of the proposed junction and out of the visibility envelope of the junction, local boundary treatments between the N14 and proposed development will also be required in the vicinity of the proposed junction.

The layout of the wider opportunity site will be subject to its own future planning approval(s). However, an indicative layout has been provided within the proposed masterplan. The location of the junction(s) to the masterplan roads have been carefully considered to ensure visibility splays, junction radii and access road widths are in accordance with appropriate design criteria.

6.9 Lighting

Existing street lighting columns on the existing N14 will require relocation as part of the proposed junction design.

It is proposed that street lighting will be provided for the roads within, and flood lighting to the proposed pitches will be provided.

6.10 Departure from Standards / Relaxation of Standards

The scheme proposed to utilise existing carriageway kerblines with the RHTL proposed within the existing whitelining / central hatched area along the road. This RHTL stretches from an existing uncontrolled crossing until the proposed entrance junction. The existing road markings allow for 3.5m wide lanes and a 3.15m wide Turning lane. This would be a reduction to the desired width of 3.5m but within the desired minimum width of 3.0m. As such a Departure to the standard has been raised as below.

Table e – Departure from Standards / Relaxation of Standards

Departure/Relaxation Reference	Location	Type	Details	TII Standard Requirement
R001	RHTL	Cross Section	Turning lane width of 3.15m achievable within existing road footprint	3.5m to be provided with a 3.0m desirable minimum in accordance with Clause 5.6.11.3

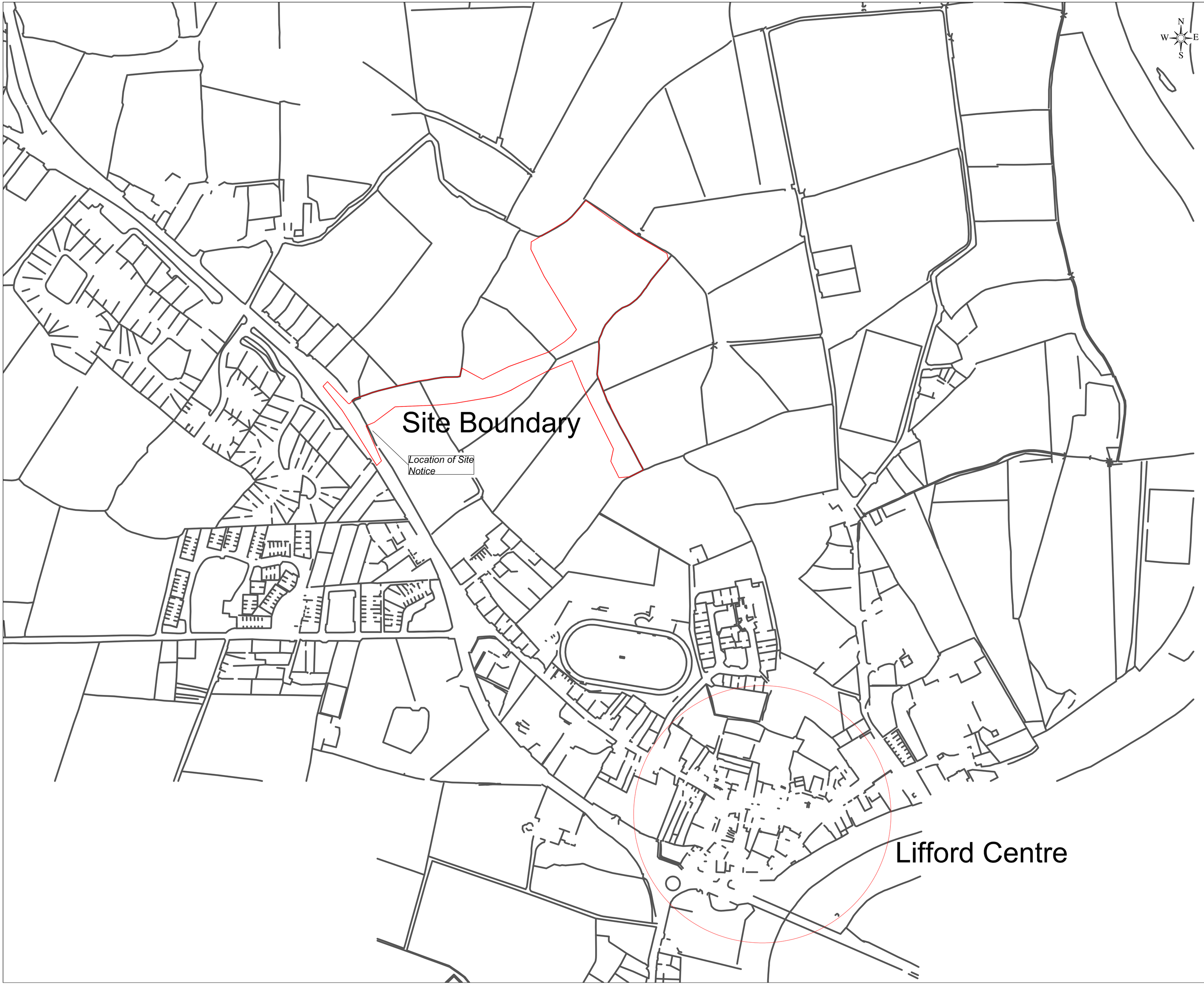
7 Road Safety Audit

A Stage 1 Road Safety Audit has been carried out in April 2022. The final, signed report is provided in Appendix 3.

Several problems were identified by the Audit Team mainly with reference to visibility indicated in accordance with DN-GEO-03060, existing street furniture, signage and road markings. All comments / recommendations were accepted by the Design Team and where required will be further assessed upon design development. Where possible minor scheme amendments have been incorporated into the design drawings appended to this report. The final audit report has been uploaded to the RSAAS.

A Stage 1 Road Safety Audit was deemed appropriate as the level of detail provided at this stage and it is not anticipated that the tender drawings will include additional design elements other that those that may arise from the Statutory Processes. If those changes are substantial, then a revised audit will be undertaken.

Appendices



NOTES

1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated

2. All Coordinates are to Irish Grid, unless otherwise noted.

Rev	Issue Date	Description	App
P3	31/03/2022	Site Notice Note Added	PA
P2	01/03/2022	Red Line Amendment	PA

Status: PRELIMINARY

Client: Donegal County Council

Project: The Common, Lifford
Multi-Use Development

Drawing: Site Location Plan

Scale: 1:2500 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

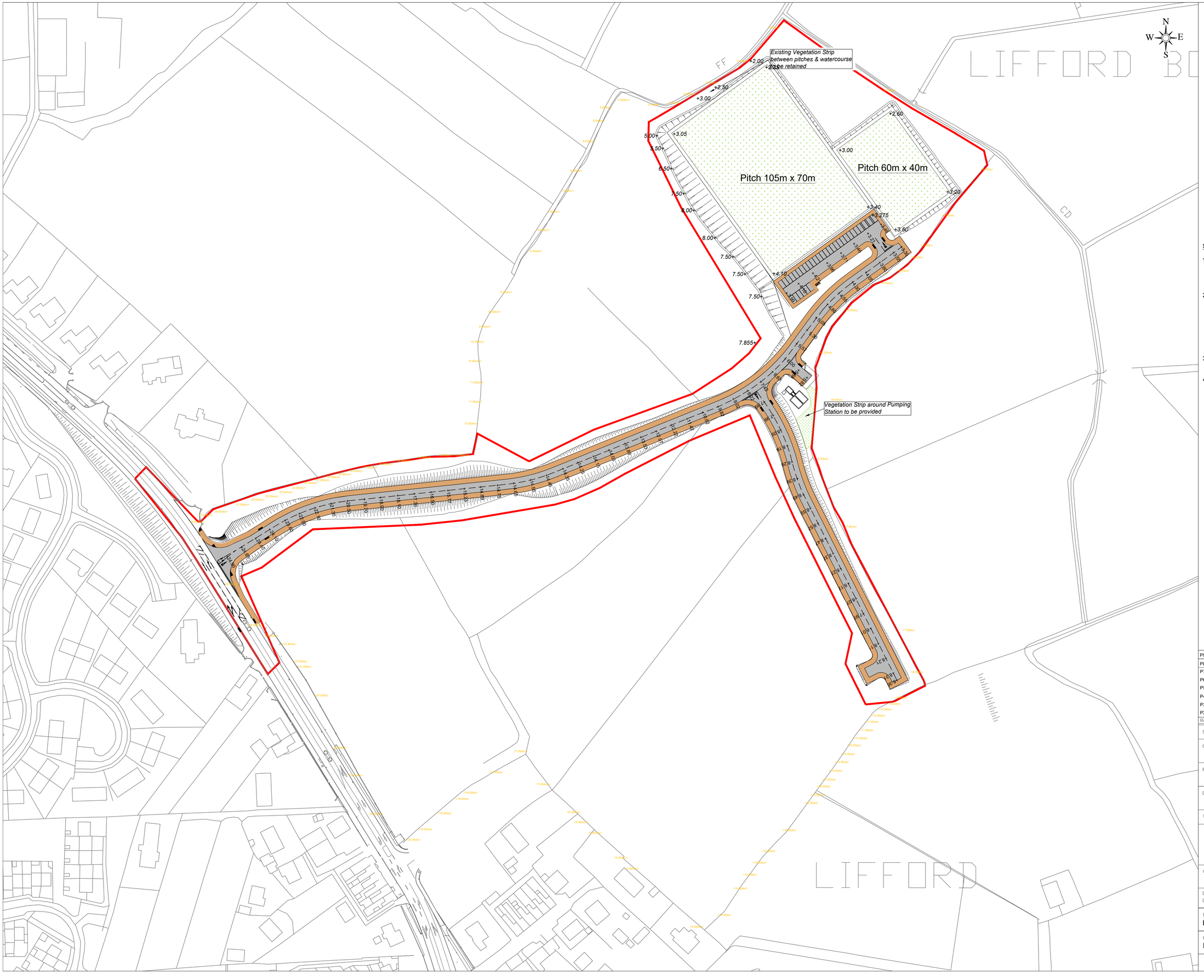
Contact Details
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-02-09	Date 2022-02-09	Date 2022-02-09

Project	- Organisation	- Zone	- Level	- Type	- Role	- Number	- Revision
LIF	- MCA	- ST1	- 00	- DR	- C	- 1000	- P3

Project Number: E2324

Status code & Description: S2 - For Information



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NOTES:

1. *All levels and dimensions are in meters unless stated otherwise.*
2. *The mapping illustrated on this drawing is the proposed site layout which will be subject to change following design development.*
3. *This drawing should be read in conjunction with all relevant drawings (Architectural and Engineering).*
4. *The landscaping proposals illustrated on this drawing are indicative only.*
5. *All levels shown are for illustration purposes only and will require refinement at detailed design.*

LEGEND

- +4.10 *Proposed Level*
- *Existing Level / Contour*
- Proposed Vehicular Pavements
- Proposed Footpaths
- Proposed Grass Soccer Pitches
- Site Boundary

Site Plan Notes.

1. Right hand turn lane
   Design traffic to be determined.
   Assumed lane widths as existing with central hatched area used for right turn pocket.

2. Roads within development - Design speed 50 kph
   Widths indicated at 6.0m wide (3.0m lanes).
   Footway/verge indicated at 3.0m.
   Junction radii with N14 10m.
   Junction within development 6.0m.
   Horizontal radii 105m.
   Vertical 'K' factor 5 used.
   Embankments to access roads 1 in 3.

3. Development sites
   Embankments indicated at 1 in 3.

4. Site 5
   Site 5 is extensively within the flood plain as illustrated within the Flood Risk Assessment.

Rev	Issue Date	Description	App
P9	13/04/2022	Amendments Following Stage 1 RSA	PA
P8	30/03/2022	Background Mapping Amended	PMcM
P7	28/02/2022	Site Layout Amendments	PA
P6	20/02/2022	Building Amendment	PA
P5	09/02/2022	Red Line Boundary Amended	PA
P4	01/02/2022	Minor Layout Amendments	PA
P3	06/12/2021	Levels Building Amended	PA
P2	23/11/2021	Road Dimensions Altered	PA

Status	PRELIMINARY
Client	Donegal County Council
Project	The Common, Lifford Multi-Use Development
Drawing	Proposed Site Layout
Scale	1:1000 @ A1

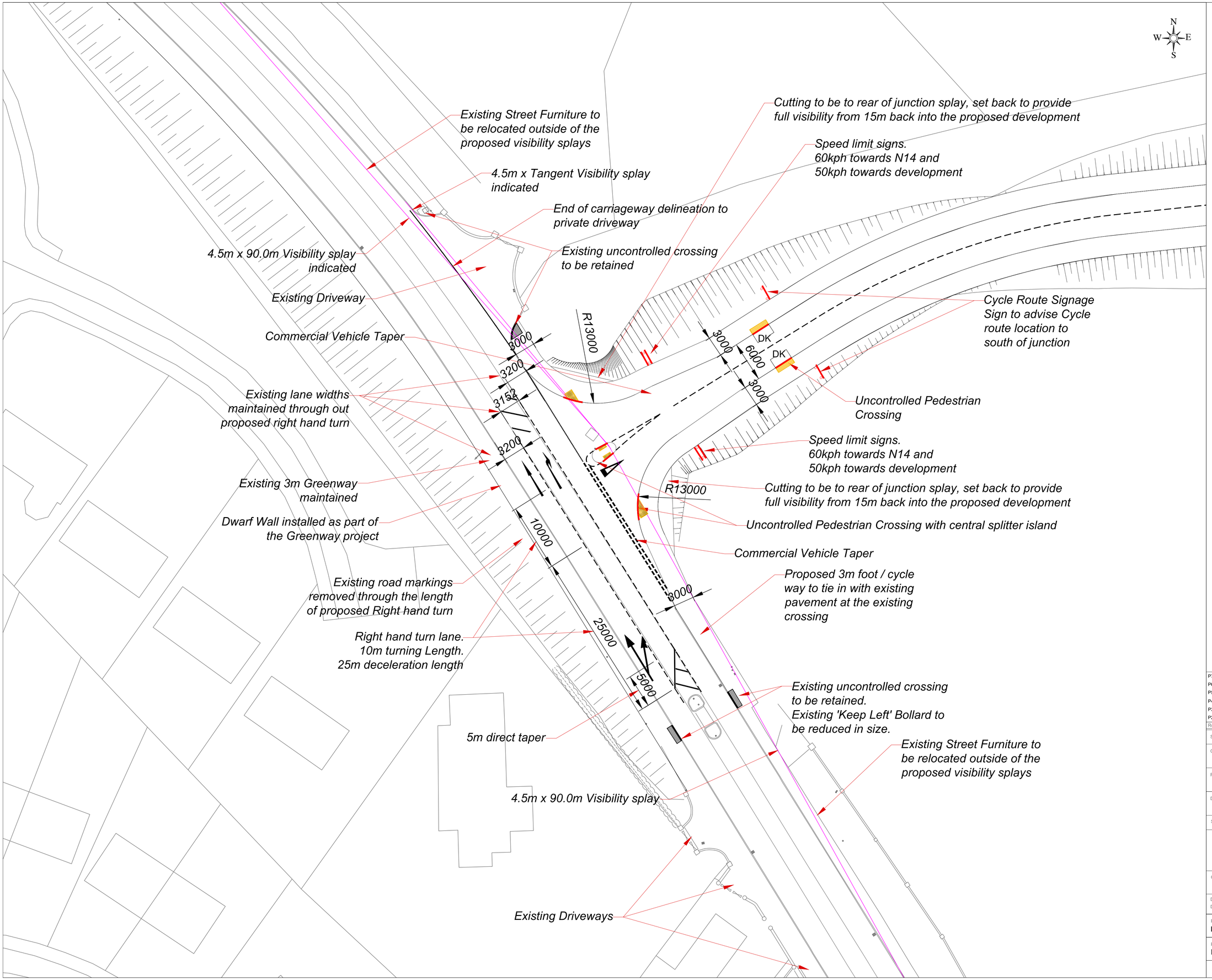
McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	DWW	Checked	PA	Approved	PA
Date	2021-09-21	Date	2021-09-21	Date	2021-09-21

Project	- Organisation	- Zone	- Level	- Type	- Role	- Number	- Revision
LIF	- MCA	- ST1	- 00	- DR	- C	- 1003	- P9

Project Number	Status code & Description
E2324	S2 - For Information



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Rev	Issue Date	Description	App
P7	13/04/2022	Alterations Following Stage 1 RSA	PA
P6	31/03/2022	Additional Notes Added	PA
P5	24/03/2022	Greenway and Crossing Points Added	PMcM
P4	18/03/2022	Minor Text Amendment	PA
P3	01/03/2022	Entrance Width Amendment	PA
P2	19/01/2022	Revised Site Road Width	PA

Status: PRELIMINARY

Client: Donegal County Council

Project: The Common, Lifford
Multi-Use Development

Drawing: Right Hand Turn - N14

Scale: 1:250 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	DWW	Checked	PA	Approved	PA
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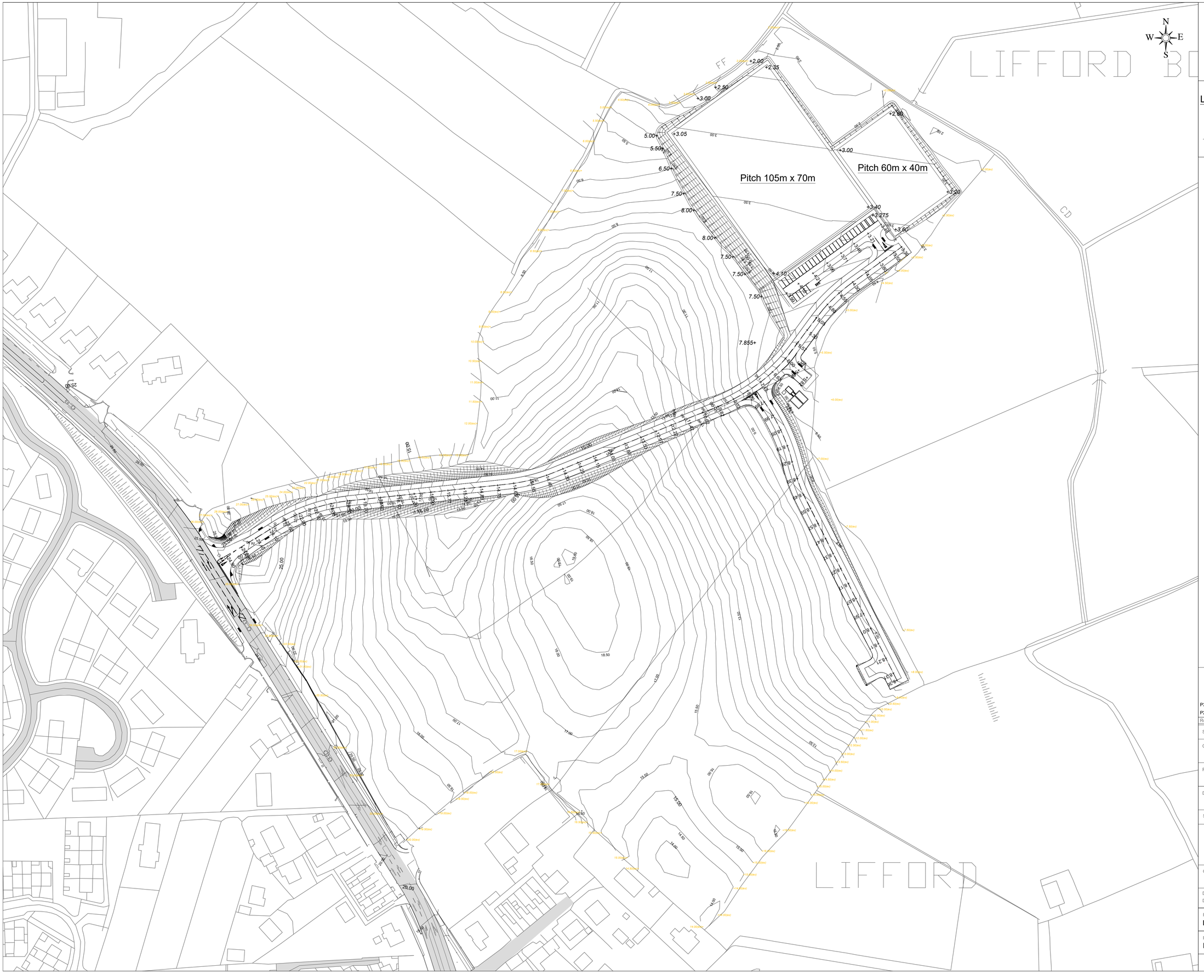
Project	Organisation	Zone	Level	Type	Role	Number	Revision
LIF	MCA	ST1	00	DR	C	1004	P7

Project Number: E2324

Status code & Description: S2 - For Information



NOTES

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LEGEND

4.21	*Proposed Level*
+6.00(ex)	*Existing Level / Contour*
~~18.00~~	

Rev	Issue Date	Description	App
P3	13/04/2022	Alterations Following Stage 1 RSA	PA
P2	31/03/2022	Minor Layout Amendments	PA

Status: PRELIMINARY

Client: Donegal County Council

Project: The Common, Lifford
Multi-Use Development

Drawing: Proposed Site Levels

Scale: 1:1000 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

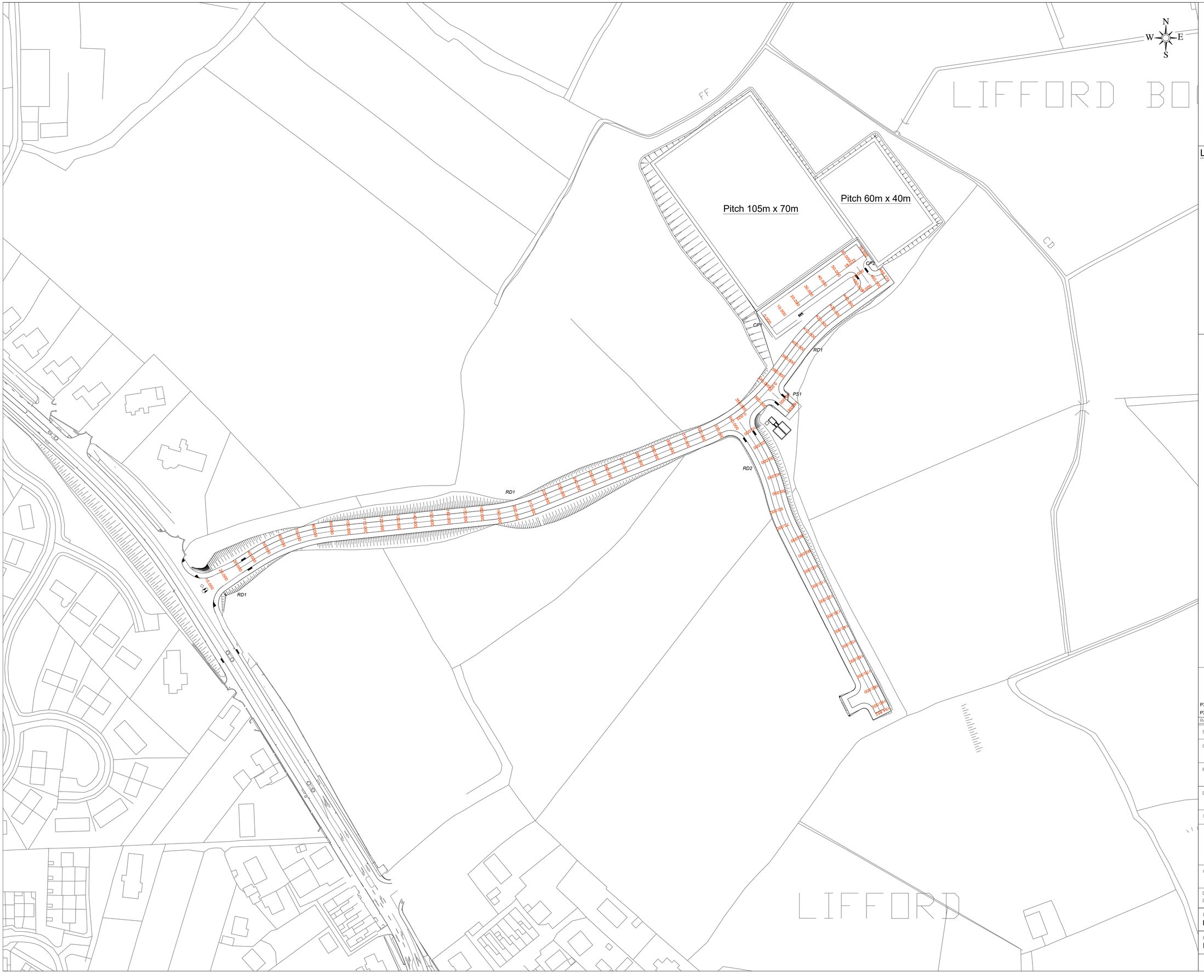
Contact Details
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-03-01	Date 2022-03-01	Date 2022-03-01

Project	Organisation	Zone	Level	Type	Role	Number	Revision
LIF	MCA	ST1	00	DR	C	1100	P3

Project Number: E2324

Status code & Description: S2 - For Information



NOTES

1. This drawings illustrates chainage references for longitudinal section profiles along the access roads.
2. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
3. All Coordinates are to Irish Grid, unless otherwise noted.
4. These sections need to be read in conjunction with the proposed site layout & levels drawings. Any discrepancy in levels need to be informed to the Engineers prior to construction
5. For Longitudinal Sections Relating to these chainage references please refer to drawings LIF-MCA-ST1-00-DR-C-1111 / 1112-Proposed Road Longitudinal Sections

LEGEND

0.000 *Proposed Chainage Marker*

Rev	Issue Date	Description	App
P3	13/04/2022	Alterations Following Stage 1 RSA	PA
P2	24/03/2022	Car Park Extension	PA

Status	PRELIMINARY
Client	Donegal County Council
Project	The Common, Lifford Multi-Use Development
Drawing	Proposed Road Longitudinal Sections Plan
Scale	1:1000 @ A1

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Contact Details
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

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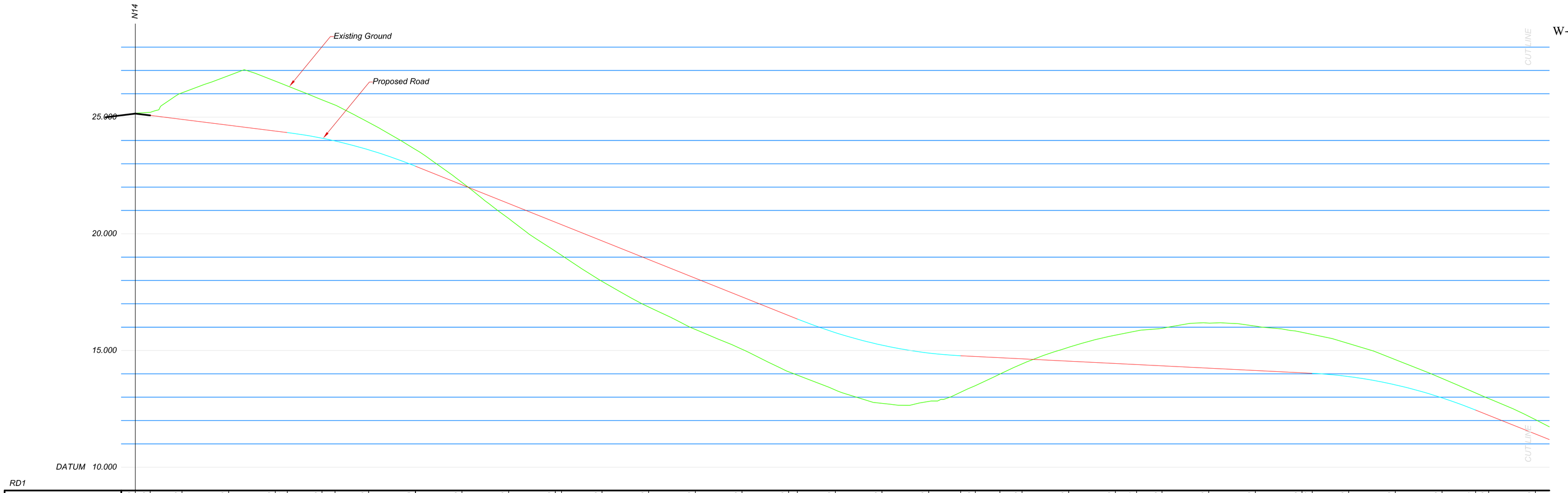
Date	2022-02-14	Date	2022-02-14	Date	2022-02-14

Project	- Organisation	- Zone	- Level	- Type	- Role	- Number	- Revision
LIF	- MCA	- ST1	- 00	- DR	- C	- 1110	- P3

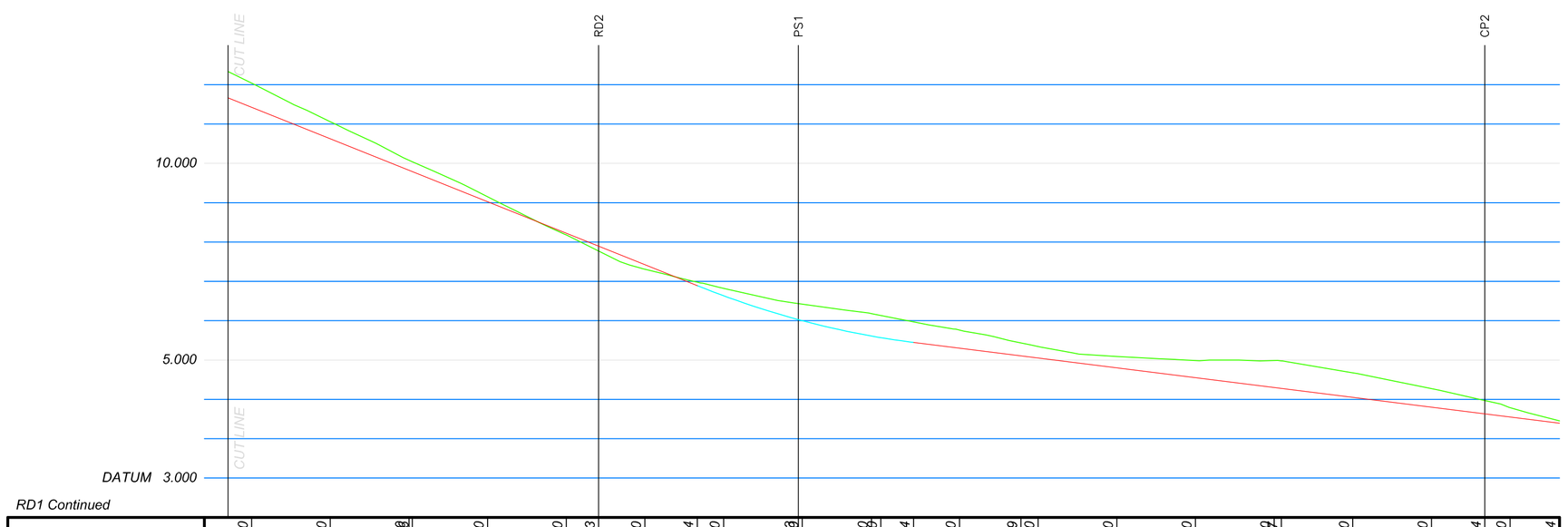
Project Number	Status code & Description
E2324	S2 - For Information



RD1

CHAINAGE	0.000	3.200	10.000	20.000	30.000	32.567	40.000	42.791	50.000	60.000	70.000	80.000	90.000	91.319	100.000	110.000	120.000	130.000	140.000	141.854	150.000	160.000	170.000	176.854	180.000	185.264	190.000	200.000	210.000	214.553	220.000	230.000	240.000	250.000	252.193	260.000	270.000	280.000	287.193	290.000	300.000
EXISTING GROUND LEVEL	25.167		26.040	26.779	26.540		25.740		24.780	23.621	22.203	20.656	19.257		17.963	16.866	15.904	15.054	14.088		13.305	12.737	12.818		13.492		14.427	15.141	15.659		15.953	16.174	16.043	15.780		15.299	14.608	13.803		12.941	12.041
ALIGNMENT LEVEL	25.073		24.903	24.653	24.403	24.338	24.097		23.599	22.900	22.100	21.300	20.500		19.700	18.900	18.100	17.300	16.500	16.352	15.766	15.229	14.892	14.777	14.745		14.645	14.545	14.445		14.345	14.245	14.145	14.045	14.023	13.884	13.528	12.972		12.224	11.424
VERTICAL ALIGNMENT		G= -2.500% 1: -40.0				L= 27.500 KF= -5.0					G= -8.000% 1: -12.5									KF= 5.0 L= 35.000					G= -1.000% 1: -100.0											L= 35.000 KF= -5.0					
HORIZONTAL ALIGNMENT						R= 105.000																							R= 105.000											

Vt 5/1 Hz exaggeration



RD1 Continued

CHAINAGE	300.000	310.000	321.926	330.000	340.000	344.123	350.000	356.654	360.000	368.563	370.810	380.000	384.154	390.000	397.819	400.000	410.000	420.000	430.000	430.992	440.000	450.000	456.774	460.000	466.274
EXISTING GROUND LEVEL	12.041	11.059	10.078	9.149	8.182		7.309		6.822	6.417	6.134			5.761	5.347	5.088	4.988	4.986	4.675	4.272		3.791	3.454		
ALIGNMENT LEVEL	11.424	10.624	9.824	9.024	8.224		7.424	6.891	6.635	6.002	5.569	5.448	5.302	5.052	4.802	4.552	4.302	4.052	3.802	3.552	3.395				
VERTICAL ALIGNMENT	G= -8.000% 1: -12.5									KF= 5.0 L= 27.500											G= -2.500% 1: -40.0																	
HORIZONTAL ALIGNMENT						R= 105.000																		R= 105.000													

Vt 5/1 Hz exaggeration

NOTES

1. This drawings illustrates longitudinal section profiles along the access road. All levels / chainages shown along the road centreline.
2. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
3. All Coordinates are to Irish Grid, unless otherwise noted.
4. These sections need to be read in conjunction with the proposed site layout & levels drawings. Any discrepancy in levels need to be informed to the Engineers prior to construction
5. For chainage references please refer to drawing LIF-MCA-ST1-00-DR-C-1110-Proposed Road Longitudinal Sections Plan

Rev	Issue Date	Description	App

Status PRELIMINARY

Client Donegal County Council

Project The Common, Lifford
Multi-Use Development

Drawing Proposed Road Longitudinal Sections
(1 of 2)

Scale 1:500 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

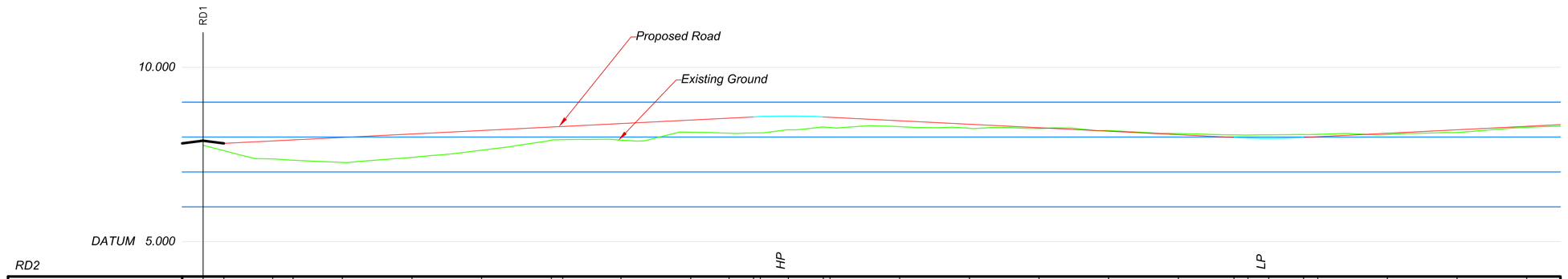
Contact Details
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-02-14	Date 2022-02-14	Date 2022-02-14

Project	Organisation	Zone	Level	Type	Role	Number	Revision
LIF	MCA	ST1	00	DR	C	1111	P1

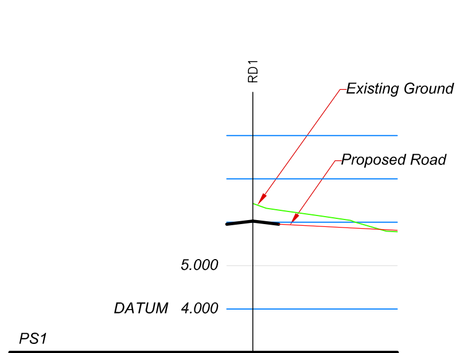
Project Number E2324

Status code & Description S2 - For Information



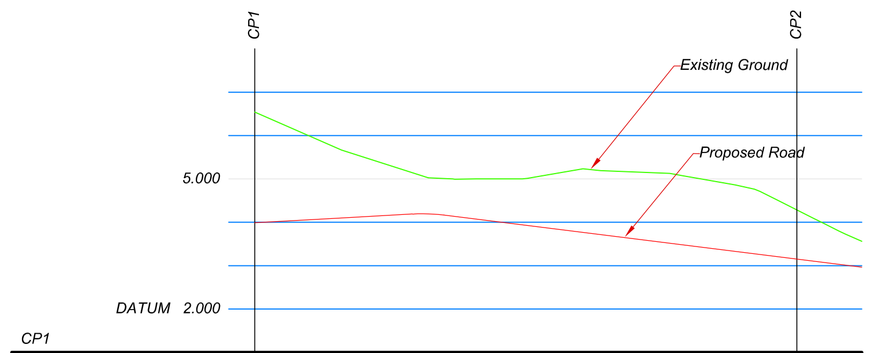
RD2																														
CHAINAGE	0.000	3.000	10.000	12.922	20.000	30.000	40.000	50.000	51.631	60.000	70.000	75.504	79.026	80.000	84.026	88.026	89.026	100.000	110.000	120.000	130.000	140.000	147.979	150.000	152.979	157.979	160.000	170.000	180.000	190.000	194.852
EXISTING GROUND LEVEL	7.763		7.372		7.270	7.413	7.617	7.906		7.912	8.142		8.120			8.273		8.298	8.252	8.249	8.187	8.100	8.059			8.078		8.073	8.132	8.279	8.309
ALIGNMENT LEVEL	7.819		7.889		7.989	8.089	8.189	8.289		8.389	8.489		8.579	8.588	8.604	8.569		8.469	8.369	8.269	8.169	8.069	7.990	7.974	7.965	7.990	8.010	8.110	8.210	8.310	8.358
VERTICAL ALIGNMENT			G= 1.000% 1: 100.0												L= 10.000 KF= -5.0				G= -1.000% 1: -100.0						KF= 5.0 L= 10.000			G= 1.000% 1: 100.0			
HORIZONTAL ALIGNMENT					R= 105.000					R= 105.000																				

Vt 5/1 Hz exaggeration



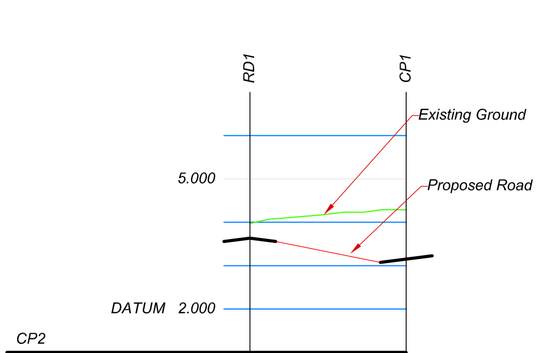
PS1				
CHAINAGE	0.000	3.000	10.000	16.658
EXISTING GROUND LEVEL	6.432		6.090	5.781
ALIGNMENT LEVEL		5.953	5.883	5.816
VERTICAL ALIGNMENT			G= -1.000% 1: -100.0	
HORIZONTAL ALIGNMENT				

Vt 5/1 Hz exaggeration



CP1								
CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	62.494	70.000
EXISTING GROUND LEVEL	6.541	5.663	5.025	5.000	5.190	5.051	4.537		3.559
ALIGNMENT LEVEL	3.990	4.100	4.213	3.963	3.713	3.463	3.213		2.963
VERTICAL ALIGNMENT				G= -2.500% 1: -40.0					
HORIZONTAL ALIGNMENT									

Vt 5/1 Hz exaggeration



CP2				
CHAINAGE	0.000	3.000	10.000	18.032
EXISTING GROUND LEVEL	3.971		4.211	4.286
ALIGNMENT LEVEL		3.557	3.277	3.076
VERTICAL ALIGNMENT			G= -4.000% 1: -25.0	
HORIZONTAL ALIGNMENT				

Vt 5/1 Hz exaggeration

NOTES

1. This drawings illustrates longitudinal section profiles along the access road. All levels / chainages shown along the road centreline.
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3. All Coordinates are to Irish Grid, unless otherwise noted.
4. These sections need to be read in conjunction with the proposed site layout & levels drawings. Any discrepancy in levels need to be informed to the Engineers prior to construction
5. For chainage references please refer to drawing LIF-MCA-ST1-00-DR-C-1110-Proposed Road Longitudinal Sections Plan

Rev	Issue Date	Description	App
P2	24/03/2022	Car Park Extension	PA

Status: PRELIMINARY

Client: Donegal County Council

Project: The Common, Lifford
Multi-Use Development

Drawing: Proposed Road Longitudinal Sections
(2 of 2)

Scale: 1:500 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

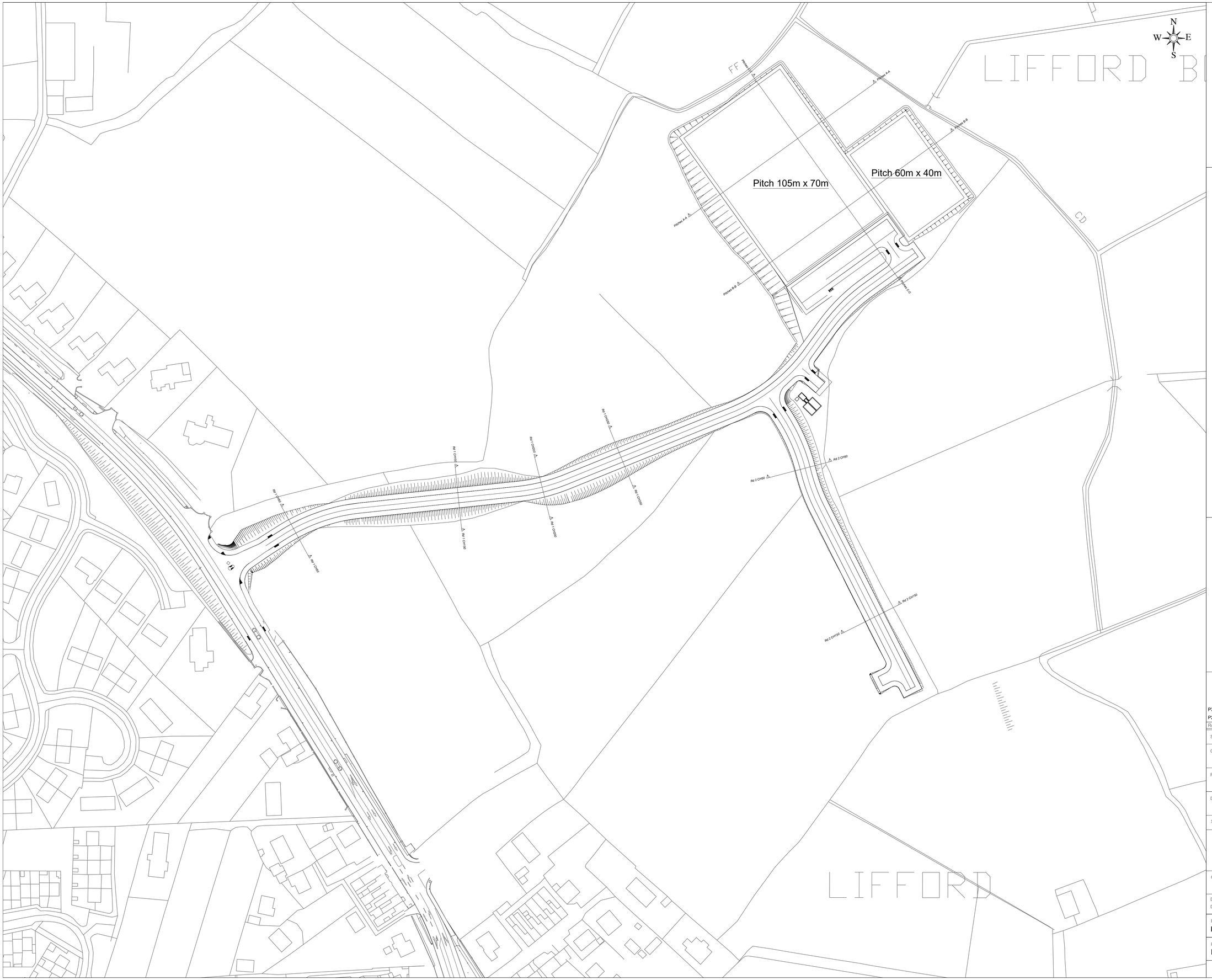
Contact Details: 1c Montgomery House, 478 Castlereagh Road, Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-02-14	Date 2022-02-14	Date 2022-02-14

Project	Organisation	Zone	Level	Type	Role	Number	Revision
LIF	MCA	ST1	00	DR	C	1112	P2

Project Number: E2324

Status code & Description: S2 - For Information



N
W E
S

NOTES

1. This drawing illustrates locations for section section profiles along the scheme.
2. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
3. All Coordinates are to Irish Grid, unless otherwise noted.
4. These sections need to be read in conjunction with the proposed site layout & levels drawings. Any discrepancy in levels need to be informed to the Engineers prior to construction
5. For Cross Sections Relating to these profile references please refer to drawing LIF-MCA-ST1-00-DR-C-1116-Proposed Site Cross Sections

Rev	Issue Date	Description	App
P3	13/04/2022	Layout Alterations Following RSA	PA
P2	24/03/2022	Car Park Extended	PA

Status	PRELIMINARY
Client	Donegal County Council
Project	The Common, Lifford Multi-Use Development
Drawing	Proposed Site Cross Sections Location Plan
Scale	1:1000 @ A1

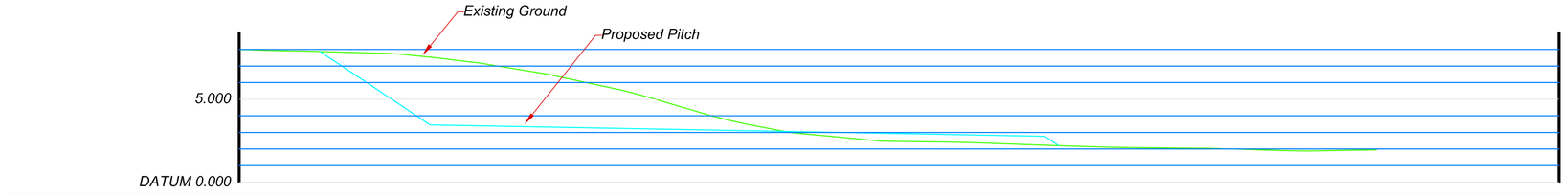
McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details: 1c Montgomery House, 478 Castlereagh Road, Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-02-14	Date 2022-02-14	Date 2022-02-14

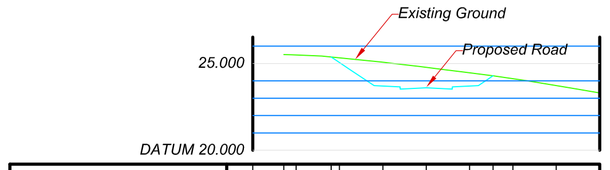
Project	Organisation	Zone	Level	Type	Role	Number	Revision
LIF	MCA	ST1	00	DR	C	1115	P3

Project Number	Status code & Description
E2324	S2 - For Information



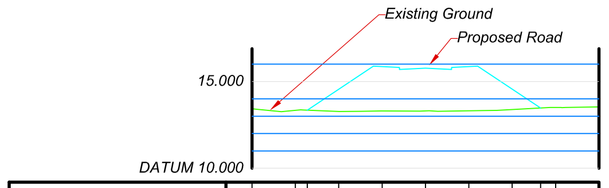
CHAINAGE	0.000	5.000	9.749	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	98.684	100.000	105.000	110.000	115.000	120.000	125.000	130.000	135.000	136.902	140.000	145.000	150.000	155.000	159.000
EXISTING LEVEL	7.995	7.928	7.864	7.795	7.678	7.413	7.092	6.684	6.191	5.654	5.018	4.275	3.616	3.121	2.822	2.584	2.451	2.415	2.350	2.263	2.180	2.104	2.066	2.041	1.994	1.917	1.893	1.933	1.948							
PROPOSED 220201 LEVEL			7.868	7.789	6.117	4.451	3.432	3.386	3.339	3.293	3.246	3.200	3.153	3.107	3.060	3.014	2.967	2.921	2.874	2.828	2.781	2.201														

Pitches A-A Vt 2/1 Hz exaggeration



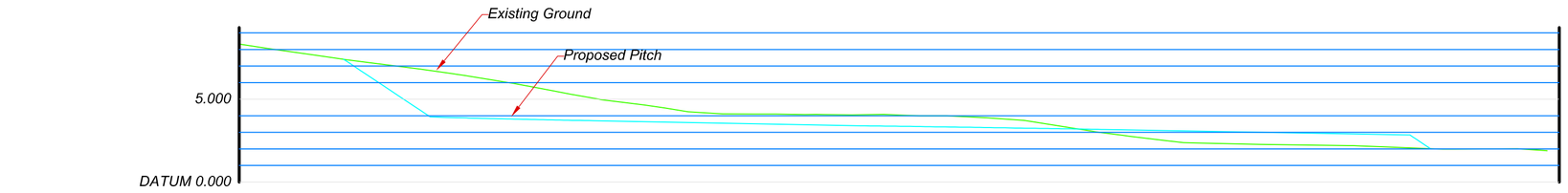
CHAINAGE	0.000	3.578	5.000	9.043	10.000	15.000	20.000	25.000	27.708	30.000	35.000	40.000
EXISTING LEVEL	25.518	25.489	25.327	25.076	24.780	24.466	24.124	23.725	23.301			
PROPOSED 220201 LEVEL			25.374	25.055	23.699	23.599	23.699	24.291				

Rd 1 CH50 Vt 2/1 Hz exaggeration



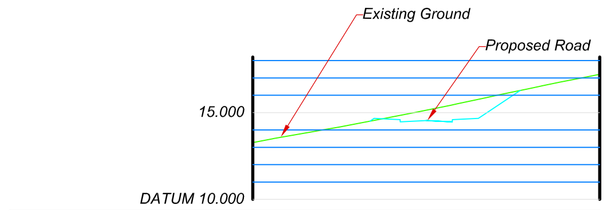
CHAINAGE	0.000	5.000	6.364	10.000	15.000	20.000	25.000	30.000	33.269	35.000	40.000
EXISTING LEVEL	13.430	13.337		13.272	13.299	13.305	13.312	13.382		13.500	13.532
PROPOSED 220222 LEVEL		13.348		14.560	15.866	15.766	15.866	14.560	13.470		

Rd 1 CH150 Vt 2/1 Hz exaggeration



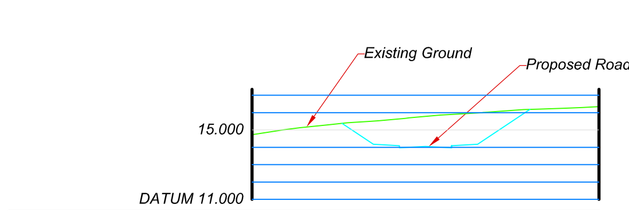
CHAINAGE	0.000	5.000	10.000	12.571	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	105.000	110.000	115.000	120.000	125.000	130.000	135.000	140.000	143.492	145.000	150.000	155.000	157.536	159.000
EXISTING LEVEL	8.327	7.950	7.593	7.246	6.929	6.590	6.200	5.771	5.296	4.887	4.565	4.212	4.112	4.099	4.080	4.059	4.038	4.000	3.881	3.682	3.287	2.909	2.601	2.361	2.304	2.257	2.222	2.181	2.082	1.984		2.000	1.977	1.893		
PROPOSED 220201 LEVEL				7.409	6.601	4.932	3.902	3.835	3.780	3.729	3.683	3.635	3.587	3.539	3.492	3.444	3.397	3.365	3.328	3.291	3.250	3.213	3.167	3.122	3.078	3.033	2.988	2.943	2.898	2.853	2.014					

Pitches B-B Vt 2/1 Hz exaggeration



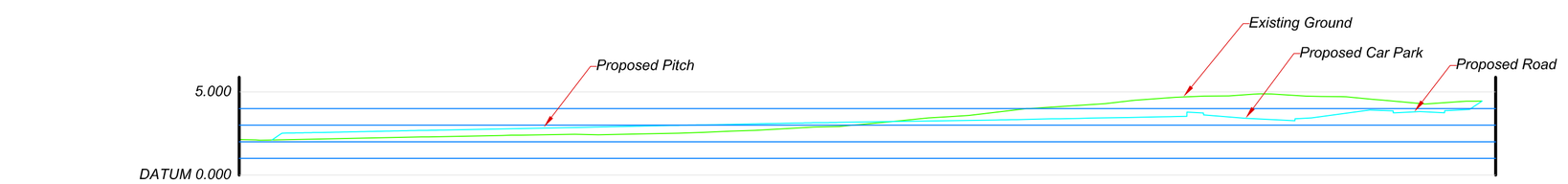
CHAINAGE	0.000	5.000	10.000	13.501	15.000	20.000	25.000	30.000	30.831	35.000	40.000
EXISTING LEVEL	13.275	13.730	14.172	14.651		15.141	15.658	16.194	16.713	17.205	
PROPOSED 220222 LEVEL				14.506	14.645	14.545	14.645	16.002	16.279		

Rd 1 CH200 Vt 2/1 Hz exaggeration



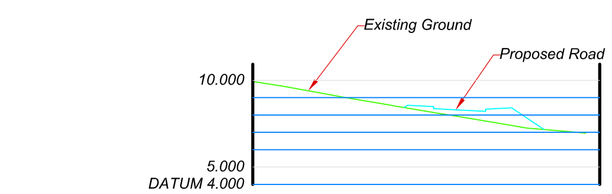
CHAINAGE	0.000	5.000	10.000	10.366	15.000	20.000	25.000	30.000	32.055	35.000	40.000
EXISTING LEVEL	14.729	15.093	15.361		15.547	15.780	15.953	16.125		16.231	16.344
PROPOSED 220222 LEVEL		15.380		14.145	14.045	14.145	15.502	16.187			

Rd 1 CH250 Vt 2/1 Hz exaggeration



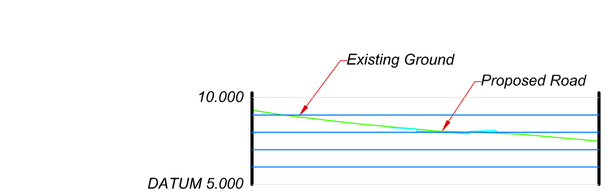
CHAINAGE	0.000	3.926	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	105.000	110.000	115.000	120.000	125.000	130.000	135.000	140.000	145.000	148.640	149.693	151.000	151.397
EXISTING LEVEL	2.133	2.120		2.169	2.219	2.270	2.317	2.362	2.411	2.453	2.436	2.485	2.554	2.649	2.763	2.891	3.045	3.287	3.495	3.707	4.000	4.152	4.330	4.573	4.722	4.786	4.852	4.727	4.626	4.399	4.345	4.449			
PROPOSED 220201 LEVEL			2.109	2.467	2.564	2.613	2.663	2.712	2.761	2.810	2.859	2.908	2.957	3.007	3.056	3.105	3.148	3.188	3.226	3.264	3.302	3.347	3.398	3.444	3.490	3.813	3.874	3.317	3.623	4.050	3.765	3.749	4.448		

Pitches C-C Vt 2/1 Hz exaggeration



CHAINAGE	0.000	5.000	10.000	15.000	17.447	20.000	25.000	30.000	33.601	35.000	38.379	40.000
EXISTING LEVEL	9.934	9.520	9.066	8.640		8.216	7.808	7.383	7.104		6.948	
PROPOSED 220222 LEVEL				8.432		8.510	8.260	8.365	7.165			

Rd 2 CH50 Vt 2/1 Hz exaggeration



CHAINAGE	0.000	5.000	10.000	15.000	15.825	20.000	25.000	28.538	30.000	35.000	39.894	40.000
EXISTING LEVEL	9.279	8.918	8.618	8.365		8.138	8.008	7.916		7.717	7.500	
PROPOSED 220222 LEVEL				8.328		8.046	7.921	7.943				

Rd 2 CH150 Vt 2/1 Hz exaggeration

NOTES

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4. These sections need to be read in conjunction with the proposed site layout & levels drawings. Any discrepancy in levels need to be informed to the Engineers prior to construction
5. For plan illustration the location of these Cross Section Profiles please refer to drawing LIF-MCA-ST1-00-DR-C-1115-Proposed Site Cross Sections - Location Plan

Rev	Issue Date	Description	App

Status: PRELIMINARY

Client: Donegal County Council

Project: The Common, Lifford
Multi-Use Development

Drawing: Proposed Site Cross Sections

Scale: 1:500 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details: 1c Montgomery House, 478 Castlereagh Road, Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-02-14	Date 2022-02-14	Date 2022-02-14

Project	Organisation	Zone	Level	Type	Role	Number	Revision
LIF	MCA	ST1	00	DR	C	1116	P1

Project Number: E2324

Status code & Description: S2 - For Information

Storm Water Flow Control Manhole
Hydrobrake Chamber - Unit reference MD-SHE-0243-3200-1000-3200 (Hydro International)
To restrict design flows to 32/s. To be confirmed upon consultation with the relevant statutory authorities.
Subject to change following design development & Approvals/ Consultations.
Discharge limited to QBar rate equivalent to 3.5 l/s/ha. Equivalent contributing area to proposed road drainage network approximately 9.14Ha

Headwall Discharge to ditch drain.
Note: preliminary design figures, subject to detailed design and consultation with relevant statutory authorities.

Attenuation Tank - Polypipe Polystorm-R (Or Similar Approved)
Tank Depth 0.4m
Tank to have minimum storage Volume of 680m3.
Please refer to manufactures guidelines for construction details.
Tank size for illustration purposes. Tank will be drawn to scale upon design development and confirmation of manufacturer.
Attenuation tank subject to allowable discharge figure which is to be confirmed with relevant statutory authority

Pitch 105m x 70m

Pitch 60m x 40m

Klargester Class 1 Bypass Separator NSBE075 with alarm (or similar approved). Separator subject to NIEA review/ approval. Refer to manufacturers specification for inlet and outlet manhole infrastructure.

Storm & Foul Manholes designed / to be installed future development potential

Car park to be of porous surfacing

Storm & Foul Manholes designed / to be installed future development potential
Discharge limited to 3.5 l/s/ha
Site 4 Approx 2.4 Ha =8.4l/s Allowable Flow

225 mm Dia Culvert Crossing to convey natural catchment flows

Soakaway to receive natural catchment flows restricting to Predevelopment runoff rates. Size / details to be confirmed following Site investigation data

Foul Pumping Station
Preliminary design levels
Cover = 6.00m
Invert = 1.4m
Incoming Dia = 150mm
Note: preliminary design, subject to detailed design and consultation with relevant statutory authorities.

Infiltration Trench designed along toe of embankment. To maintain flows from embankment to existing nautral catchment rates

Soakaway to receive natural catchment flows restricting to Predevelopment runoff rates. Size / details to be confirmed following Site investigation data

150mm Dia Connection from infiltration trench

Storm & Foul Manholes designed / to be installed future development potential
Discharge limited to 3.5 l/s/ha
Site 2 Approx 2.7 Ha = 9.5l/s Allowable Flow

225mm Dia Culvert Crossing to convey natural catchment flows

Storm & Foul Manholes designed / to be installed to allow future development potential
Discharge limited to 3.5 l/s/ha
Site 1 Approx 2Ha = 7l/s Allowable Flow

Indicative location of connection to existing Irish Water foul sewer infrastructure. Connection subject to Irish Water Approvals

225 mm Dia Culvert Crossing to convey natural catchment flows

Storm & Foul Manholes designed / to be installed future development potential
Discharge limited to 3.5 l/s/ha
Site 3 Approx 2 Ha =7l/s Allowable Flow

Storm & Foul Manholes designed / to be installed future development potential. If future connection flow control devices required to limit flow

LIFFORD BOG

C.D

Notes:

1. *This drawing should be read in relation to the subject of the title. All other details illustrated on the drawing (e.g. The proposed layout) are indicative only and are subject to change. For updated details of the proposed layout and finished levels see Proposed Layout & Levels drawings.*
2. *The mapping illustrated on this drawing is taken from the existing topographical survey received from the client with amendments made to illustrate the proposed site layout for the scheme.*
3. *All storm & foul drainage designed in accordance with BS EN 752: 2008 drain and sewer systems outside buildings & The Building Regulations 2010, HM Government, Approved Document H (latest version).*
4. *Drainage works to carried out in accordance with Civil Engineering Specification for the Water Industry 6th Edition; published by WRC plc 2004.*
5. *Manholes to be constructed from precast concrete rings (unless otherwise stated / approved) to BS EN 1917:2002 & BS 5911-3:2002 with a D400 heavy duty cover for driveway/carpark and B125 for remaining surface (in accordance with BS EN 124:1994).*
6. *Pipes to be uPVC to BS EN 1401-1:1998 for sizes Ø100 & Ø150mm. Pipes to be uPVC to WIS 4-35-01, for sizes Ø225 & Ø300mm.*
7. *Pipes for storm drainage to be Polypipe Rigidrain (or similar approved).*
8. *All measurements shown are in meters, and all levels are to ordnance datum unless otherwise indicated.*
9. *All Coordinates are to Irish Grid, unless otherwise noted.*
10. *For indicative location for all sewers and services please see Existing Site Services drawings. It shall be the contractor's responsibility to verify position and level prior to commencing construction. The contractor shall also be responsible for the arrangement of all necessary permits as required prior to commencement.*
11. *Min cover to Clay / Concrete drainage Pipes to be 1200mm under roads/footpaths and 600mm under landscaping. Min cover to Thermoplastic drainage Pipes to be 900mm under roads/footpaths and 600mm under landscaping. Where adequate cover cannot be provided pipes are to be protected with a lean mix concrete surround.*
12. *Changes in invert levels at a manhole (not requiring a drop manhole) shall be graded evenly through the manhole in order to avoid an abrupt change in invert level.*
13. *Where concrete surround is specified for pipes the pipes shall be first wrapped with an approved plastic membrane. Flexibility at joints shall be maintained by insertion of 25mm 'flexcell' (or similar approved) at each joint to break the continuity of the concrete surround. However the plastic membrane shall be continuous at these locations to protect rubber jointing rings from ingress of grout. The minimum thickness of the concrete surround should be 150mm or the diameter of the pipe whichever is the greater.*
14. *Compressible boards to be laid between crossing pipes where cover between pipes limited.*
15. *Existing sewers to be maintained and kept in service at all times.*
16. *This drawing should be read in conjunction with proposed drainage schedule drawings, construction details drawings and all other relevant drawings.*
17. *All drainage channels and outfalls to be constructed in accordance with manufactures specifications.*
18. *All details/ dimensions to be checked by the contractor. Any discrepancies to be reported to the engineer immediately.*
19. *Invert levels of catchpit chambers shown denote approximate invert levels of the lowest pipe and do not include for catchpit sump depth.*

LEGEND

- SW → SW — PROPOSED STORM SEWER
- FW → FW — PROPOSED FOUL SEWER
- PROPOSED PITCH DRAINAGE
- PROPOSED CHANNEL DRAINAGE
- SW SW SW — PROPOSED PERFORATED FILTER / LAND DRAIN
- SW — PROPOSED INFILTRATION TRENCH
- PROPOSED CHANNEL DRAINAGE OUTFALL
- Fxxx — PROPOSED FOUL MANHOLE
- Sxxx — PROPOSED STORM MANHOLE
- 600mm Dia CATCHPIT CHAMBERS (LAND DRAINAGE) - 1.2m Deep
- FRSM → FOUL SEWER RISING MAIN / INSPECTION CHAMBER
- PROPOSED TRAPPED GULLY
- ATTENUATION TANK / PETROL INTERCEPTOR / SOAKAWAY (REFER TO NOTES)
- PERMEABLE PAVEMENT

Rev	Issue Date	Description	App
P3	13/04/2022	Amendments Following Stage 1 RSA	PA
P2	31/03/2022	Minor Car Park Layout Amendment	PA

Status: PRELIMINARY

Client: Donegal County Council

Project: The Common, Lifford
Multi-Use Development

Drawing: Proposed Drainage Overview

Scale: 1:1000 @ A1

McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details: 1c Montgomery House, 478 Castlereagh Road, Belfast, BT5 6BQ
T: 028 9040 2000
E: admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Drawn	Checked	Approved
DWW	PA	PA
Date 2022-03-01	Date 2022-03-01	Date 2022-03-01

Project - Organisation - Zone - Level - Type - Role - Number - Revision
LIF - MCA - ST1 - 00 - DR - C - 2000 - P3

Project Number: E2324

Status code & Description: S2 - For Information

HoyDorman

McAdam Design

Lifford Common
Recreational Facility & Spine Road
Traffic Statement

April 2022

HoyDorman

Document Information and History

Project:	Lifford Common Recreational Facility
Client:	McAdam Design
Client Representative:	Peter Alcorn
Hoy Dorman Job Number:	2021011
Filename:	Lifford Common Traffic Statement
Project Director:	Martin Hoy
Author:	Martin Hoy

Version	Date	Description	Created by:	Verified by:	Approved by:
0	04/04/2022	Traffic Statement	MH	KD	MH

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1 Introduction

Hoy Dorman have been commissioned by McAdam Design to produce a Traffic Statement (TS) for the proposed relocation of Lifford Celtic Facility to include two sports pitches (one at 7,350sqm one at 2400sqm) with associated floodlighting and car parking.

The proposed Multi-Use Park 10-acre green field site at The Common, Lifford, Co. Donegal in the Stranorlar Municipal District includes proposals for the construction of approximately 720m of access road (6.0m wide road (3.0m lanes)) and shared footways/cycleways throughout (3.0m wide) to facilitate access to future developments within adjoining lands.

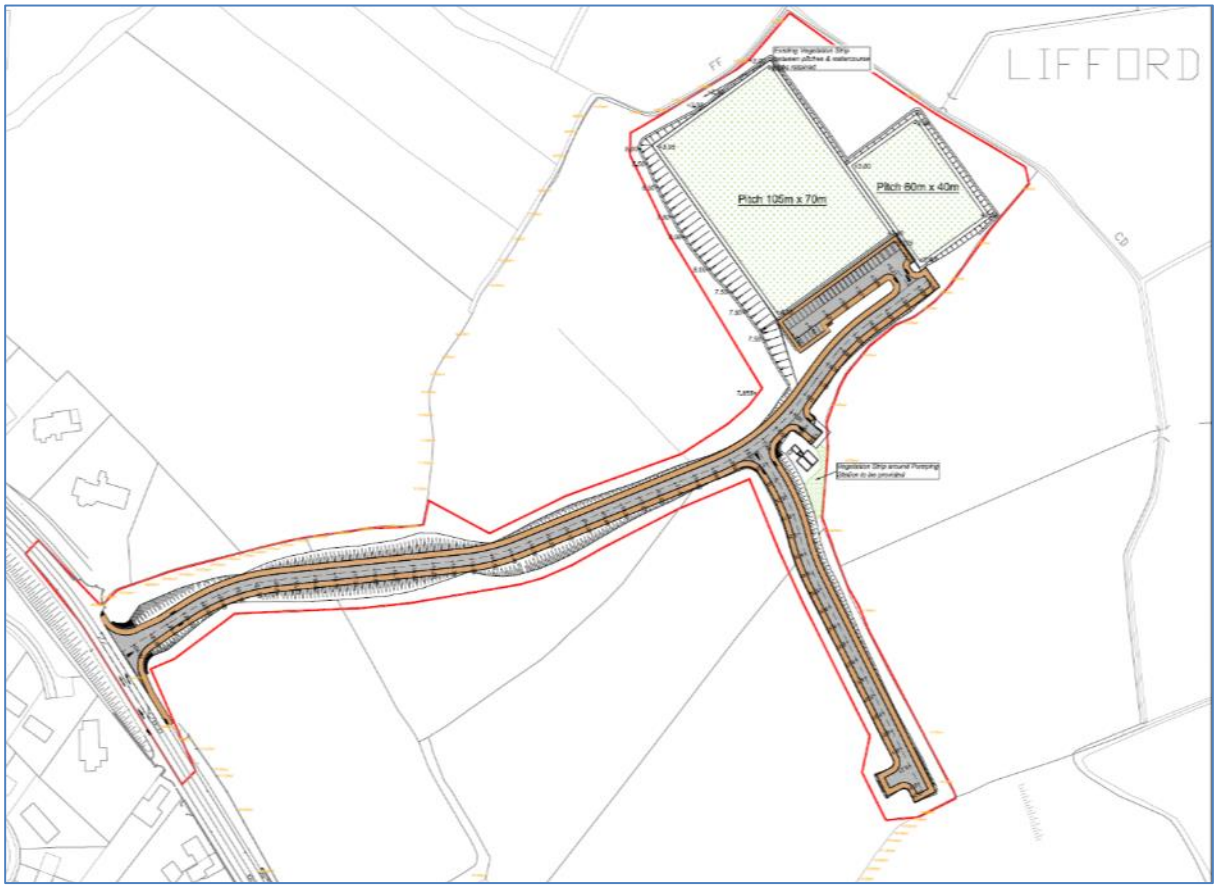
It is proposed that an access will be constructed onto the existing N14 National Primary Road to accommodate the proposed development. The scheme includes a proposed right-hand turn lane (RHTL) which can be accommodated within the existing N14 road widths / existing central hatched area.

The development will further consist of:

- Wastewater pumping station and associated pipe networks to service proposed developments.
- Stormwater drainage facilitating potential future connections.
- Services and utilities to service proposed developments.
- Future linkages that will facilitate access to adjoining lands to enable potential future development proposals and facilitate future road layout proposals that will increase the overall connectivity to the town centre for both pedestrians and road users.

The site is located adjacent to the National Primary Road (N14) and is within the defined settlement framework boundary of Lifford. Lifford is identified as a Layer 2B: Strategic Town due to its special economic function and its proximity to the border with Northern Ireland and the associated cross border context. The wider area is identified as an ‘Opportunity Site’ as set out in the County Development Plan 2018- 2024 and the proposed site area as identified is contained within this zone. The proposed road network will facilitate the future development of the opportunity site, an indicative layout of the opportunity site is contained within the proposed Masterplan, which accompanies this planning application.

Figure 1: Site Location / Red Line Planning Boundary



2 Policy Context

The following policies and guidance will be consulted during the writing of the TIA

- Traffic and Transport Assessment Guidelines, National Roads Authority, May 2014;
- Design Manual for Urban Roads and Streets (DMURS), Department of Transport, Tourism and Sport (DTTAS), March 2013;
- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, Environmental Protection Agency (EPA), August 2017;
- Pedestrian Crossing Specification and Guidance, NRA, April 2011;
- DN-GEO-03060: Geometric Design of Junctions, Transport Infrastructure Ireland (TII), June 2017;
- DN-GEO-03031: Rural Road Link Design, TII, June 2017.
- Donegal County Development Plan

Predicted traffic generation figures for the construction and operational phases of the proposed development are based on information provided by Lifford Celtic Facility.

3 Existing Conditions / Receiving Environment

Methodology

To inform the TS various site visits to Lifford were conducted alongside desktop studies and consulting historical data. Due to the proximity of the site to the ROI / NI border the relevant jurisdictions will be consulted regarding traffic generation and any potential impacts and mitigation throughout the planning process should it be required.

Lifford is a town in Donegal which according to the 2016 Republic of Ireland Census has a population on circa 1,626 people. There are excellent footway links from the residential areas to the various town amenities, these footway links benefit from both street lighting and dropped kerbs with tactile paving.

Existing Facility

The current facilities for Lifford Celtic Football are accessed via Station Road which is a narrow lane with no white lining, no passing bays and no street lighting which leads to a small carpark.

Traffic Surveys

Traffic surveys were undertaken on the 28/09/2022 on the N14 / St Judes Court location approximately 200m from the proposed access indicating 'arm references'. Figures below taken from Trafficlenz software.

Figure 1: Traffic Survey Location

Figure 2: Traffic Profile Throughout the Day

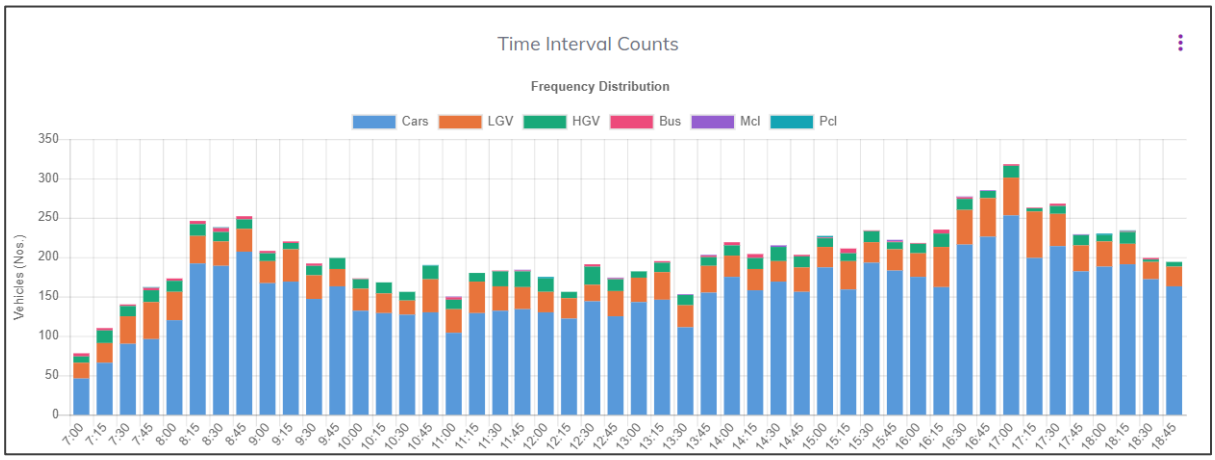
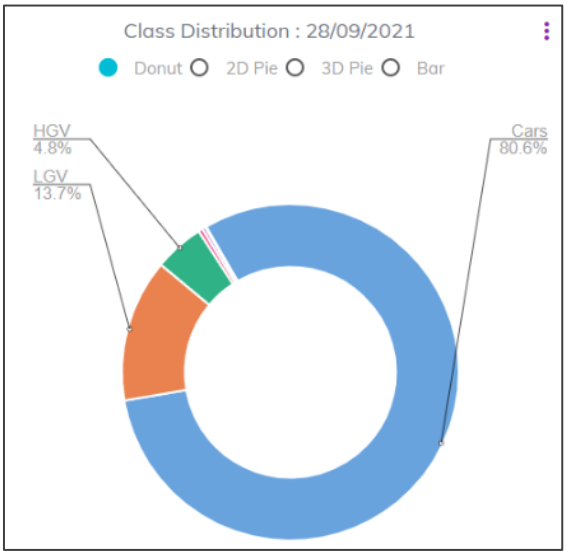


Figure 3: AM & PM Peak Hour Traffic

	AM – 0800 - 0900			PM – 1700 - 1800		
	A (N14)	B (St Judes Ct)	C(N14)	A (N14)	B (St Judes Ct)	C(N14)
A (N14)	0	12	366	0	30	522
B (St Judes Ct)	26	0	5	21	0	5
C(N14)	498	2	0	492	8	0

Figure 4: Class Distribution



Speed Survey

The posted speed limit at this section of the N14 is 60km/hr. A traffic survey was carried out and as part of that survey follow on speed surveys were undertaken. The 85th percentile speed in the northbound carriageway was 54km/hr and the 85th percentile speed in the southbound carriageway was 51km/hr.

Description of Junctions within the Area of Influence

The N14 Letterkenny Road is a National Primary Road. At the proposed site entrance location, the N14 is single carriageway in both directions with white lining along its entirety with a speed limit of 60kph.

There are wide well-maintained footways on both sides of the carriageway which benefit from dropped kerbs and tactile paving.

Figure 5: N14 Letterkenny Road Proposed Site Entrance (to the right just at grey car)

Committed Development

There was no significant committed development within the area of the proposed development.

4 Proposed Scheme

It is proposed to move Lifford Celtic Facility recreational pitches approximately 1km to the northwest of its current location, please refer to Figure 6. There are two pitches proposed; one at 7350sqm; one at 2400sqm with associated floodlighting and car parking. The proposal includes the construction of approximately 720m of access road (6.0m wide road (3.0m lanes)) and shared footways/cycleways throughout (3.0m wide) to facilitate access to future developments within adjoining lands

It is proposed that an access will be constructed onto the existing N14 National Primary Road to accommodate the proposed development. The scheme includes a proposed right-hand turn lane (RHTL) which can be accommodated within the existing N14 road widths / existing central hatched area. The right turning lane is illustrated in Figure 7.

The wider development will further consist of:

- Wastewater pumping station and associated pipe networks to service proposed developments.
- Stormwater drainage facilitating potential future connections.
- Services and utilities to service proposed developments.
- Future linkages that will facilitate access to adjoining lands to enable potential future development proposals and facilitate future road layout proposals that will increase the overall connectivity to the town centre for both pedestrians and road users.

Figure 6: Location of Current and Proposed Lifford Celtic Pitches

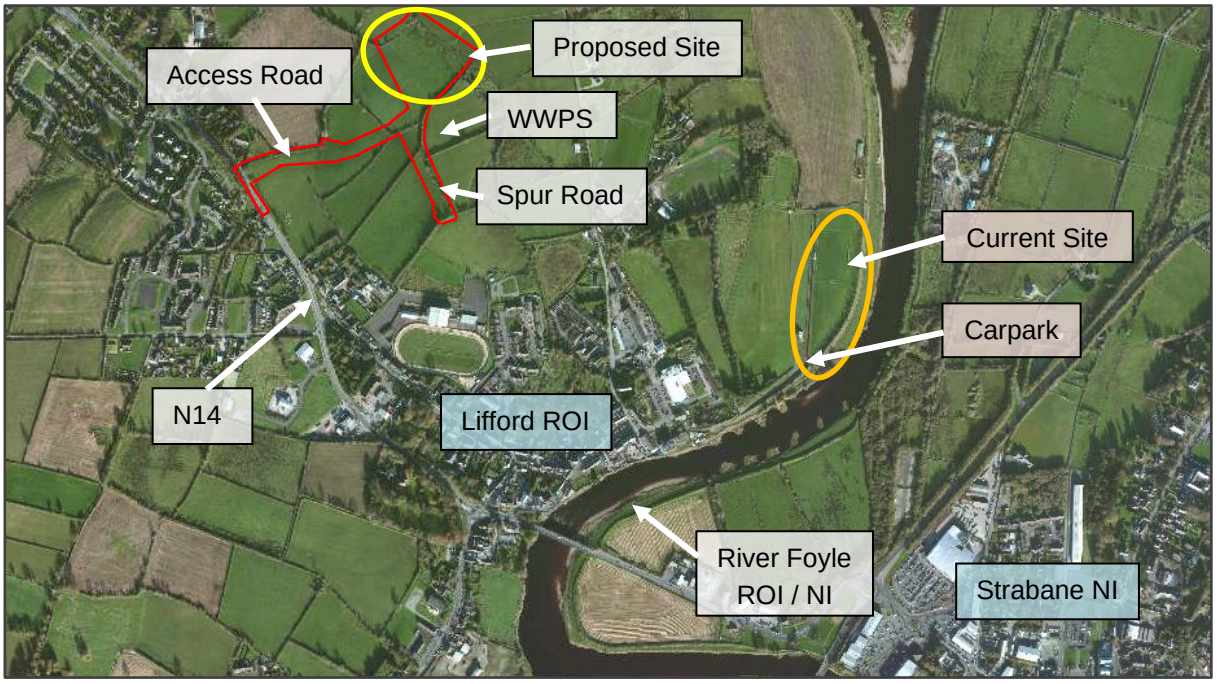
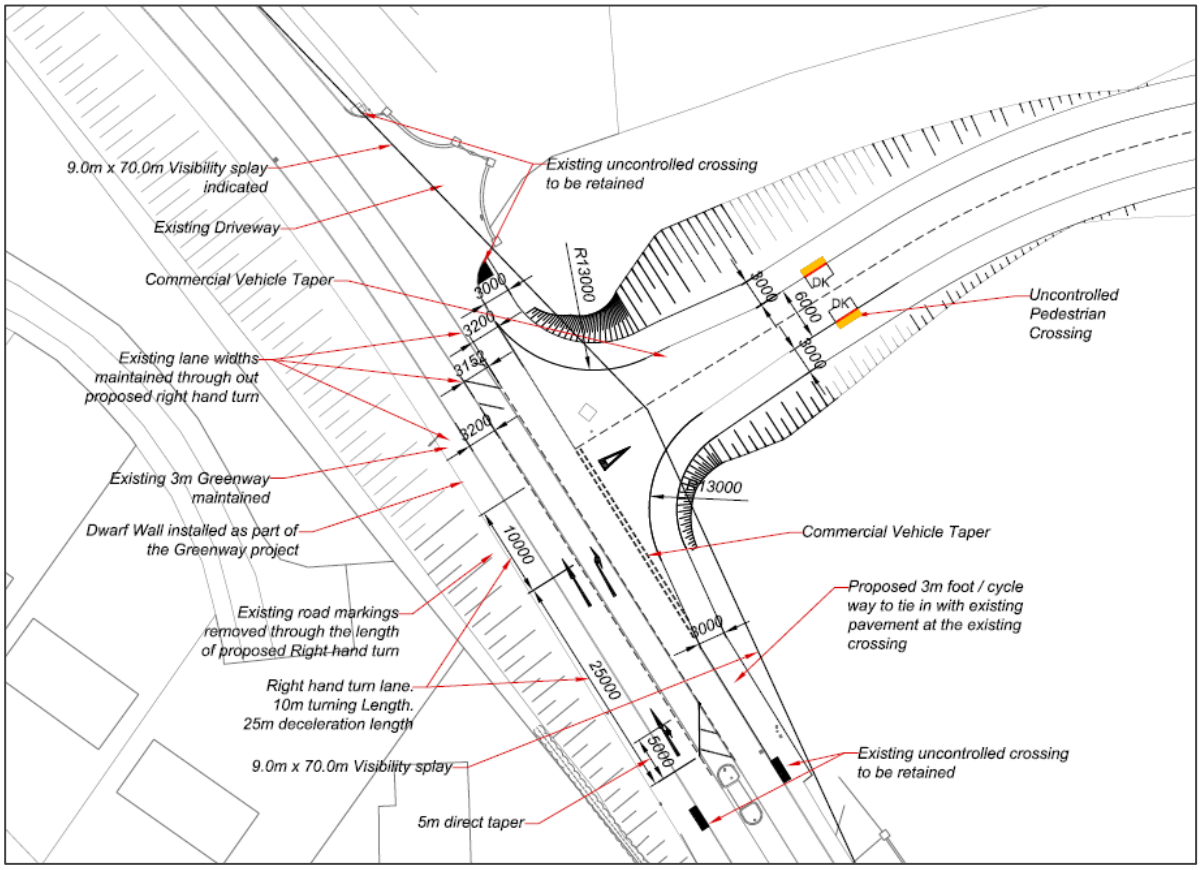


Figure 7: Proposed Right Turning Lane



5 Trip Generation / Distribution

Methodology

The recreational pitches are being relocated approximately 1km northwest of its current location. As the traffic associated with the pitches is already existing on the local and wider road network these trips can be classed as diverted rather than new. The Lifford Celtic Facility through Donegal County Council have provided Hoy Dorman with an average number of vehicles that attend.

Vehicles

During weekdays on average 20veh arrive at 17:30, these vehicles stay and then leave the grounds at 19:00. A further 20veh arrive at 19:00 stay and then leave the grounds at 20:30 resulting in an AADT of 80veh.

During the weekend on average 30veh arrive at 14:00, stay and depart the grounds at 16:30 resulting in an AADT of 60 vehicles.

Table 1: Vehicle Trips Associated with Lifford Celtic Facility

	Arriving	Departing	Arriving	Departing	Arriving	Departing	AADT
Time	**14:00**	**16:30**	**17:30**	**19:00**	**19:00**	**20:30**	
Tuesday			20	20	20	20	80
Wednesday			20	20	20	20	80
Thursday			20	20	20	20	80
Saturday	30	30					60
Sunday	30	30					60

TRICS

There was minimal comparable data on the TRICS database therefore in line with best practice the information from Lifford Celtic Facility, as provided in the table above, has been used to inform the junction assessment.

Assignment to the Road Network

As demonstrated in Table 1 the majority of the trips occur outside of the peak hour. Those arriving at 17:30 within the peak hour are minimal (20veh) and are already existing on the local and wider road network therefore are classed as diverted rather than new. As there are no vehicles that arrive or depart in the AM peak hour only the PM peak has been assessed.

Distribution

It has been assumed that 25% of the vehicles are coming from the hinterlands north of the proposed site and 75% are coming from Lifford south of the proposed site.

6 Junction Operational Assessments

Methodology

The maximum number of vehicles entering the proposed development in the PM peak was 20veh (one way within the peak PM hour). This is significantly below the 10% threshold which would require further assessment.

However, the junction has been modelled with the 20veh entering and leaving in all directions therefore ensuring a sensitivity based robust assessment of development traffic on the N14 surrounding road network. The traffic surveys were undertaken during COVID lockdown which are expected to be low compared to pre-COVID. However, if applying additional traffic on the N14 i.e. pre COVID the percentage impact of the proposed development will reduce hence reinforcing the fact no need for modelling.

Junctions 10 software was used to model the respective junction's performance and informed this study of existing and proposed residual capacity remaining.

Flow Diagram Summary of Results & Impact Thresholds

Flow Diagrams have not been completed as the modelling is provided for information only as the percentage impact falls well below the 10% threshold. However, the baseline traffic, growth factors, development flows and future assessment years have been in included in the modelling and modelling date contained in Appendix A.

Assessment Years

The TS will consider the operation of each junction with the base traffic conditions factored +5, + 15 year assessment periods.

- 2021 – Survey traffic year
- 2023 – Estimated Opening Year Baseline Traffic
- 2028 – Design Year (+5 years from estimated opening year)
- 2038 – Design years (+15 years from estimated opening year)

The proposed opening year for the development is anticipated to be 2023. In line with TII Guidelines design years of 2028 and 2038 have been used in this assessment to represent a 5-year and 15-year design horizon for studying any identified impacts of the development on the existing surrounding roads network.

Traffic Growth Rates

The derived traffic growth used for the TS will be factored to the design years of 2028 and 2038, using the TII central growth rates.

- Survey Traffic year 2021 + 2years to opening year 2023 factor of 1.0222 which equates to a factor of 102%.
- Survey Traffic Assessment year + 5years - 2023 to 2028 (seven years from 2021 to 2028) TII factor of 1.0777 which equates to a factor of 106%
- Assessment year + 15years - 2023 to 2038 TII factor of 1.1311 which equates to a factor of 1.1089 this is rounded up on the flow diagrams and shown as 113.0%

Assessment Time Period

The peak hour of 08:00 – 09:00 and 17:00 – 18:00 has been used in the assessments of the junctions as this represents the busiest time periods of existing traffic and the most onerous in regard to the traffic modelling.

Table 2: Proposed scheme junction with the N14

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
Lifford Mixed Use, N14 Access - FD_01 = 2021 Baseline Traffic (08:00-09:00)																		
Stream B-AC	D1	0.0	~1	0.00	0.00	A	0.00	A	900 % []									
Stream C-B		0.0	~1	0.00	0.00	A												
Lifford Mixed Use, N14 Access - FD_02 = 2021 Baseline Traffic (17:00-18:00)																		
Stream B-AC										D2	0.0	~1	0.00	0.00	A	0.00	A	900 % []
Stream C-B											0.0	~1	0.00	0.00	A			
Lifford Mixed Use, N14 Access - FD_03 = Factored Baseline Traffic = 2023																		
Stream B-AC	D3	0.0	~1	0.00	0.00	A	0.00	A	900 % []									
Stream C-B		0.0	~1	0.00	0.00	A												
Lifford Mixed Use, N14 Access - FD_04 = Factored Baseline Traffic = 2023																		
Stream B-AC										D4	0.0	~1	0.00	0.00	A	0.00	A	900 % []
Stream C-B											0.0	~1	0.00	0.00	A			
Lifford Mixed Use, N14 Access - FD_05 = Development Flows (2023)																		
Stream B-AC	D5	**0.1**	**0.5**	**6.42**	**0.07**	**A**	**4.37**	**A**	**900 % []**									
Stream C-B		**0.0**	**0.5**	**4.63**	**0.03**	**A**												
Lifford Mixed Use, N14 Access - FD_06 = Development Flows (2023)																		
Stream B-AC										D6	0.1	0.5	6.42	0.07	A	4.37	A	900 % []
Stream C-B											0.0	0.5	4.63	0.03	A			
Lifford Mixed Use, N14 Access - FD_07 = Development Flows + Factored Traffic (2023)																		
Stream B-AC	D7	0.1	0.5	9.06	0.10	A	0.50	A	125 % [Stream B-AC]									
Stream C-B		0.0	0.5	5.72	0.03	A												
Lifford Mixed Use, N14 Access - FD_08 = Development Flows + Factored Traffic (2023)																		
Stream B-AC										D8	0.1	0.5	9.45	0.10	A	0.44	A	106 % [Stream B-AC]
Stream C-B											0.0	0.5	5.71	0.03	A			
Lifford Mixed Use, N14 Access - FD_09 = Factored Base Traffic + Dev + 5years = (2028)																		
Stream B-AC	D9	0.1	0.5	9.37	0.10	A	0.48	A	112 % [Stream B-AC]									
Stream C-B		0.0	0.5	5.83	0.03	A												
Lifford Mixed Use, N14 Access - FD_10 = Factored Base Traffic + Dev + 5years = (2028)																		
Stream B-AC										D10	0.1	0.5	9.83	0.11	A	0.43	A	93 % [Stream B-AC]
Stream C-B											0.0	0.5	5.81	0.03	A			
Lifford Mixed Use, N14 Access - FD_11 = Factored Base Traffic + Dev + 15years = (2038)																		
Stream B-AC	D11	0.1	0.5	9.59	0.11	A	0.47	A	104 % [Stream B-AC]									
Stream C-B		0.0	0.5	5.91	0.03	A												
Lifford Mixed Use, N14 Access - FD_12 = Factored Base Traffic + Dev + 15years = (2028)																		
Stream B-AC										D12	0.1	0.5	10.11	0.11	B	0.42	A	86 % [Stream B-AC]
Stream C-B											0.0	0.5	5.89	0.03	A			

This junction has significant residual capacity for current and future operating levels of traffic.

Sensitivity Testing

Sensitivity testing of traffic modelling was accounted for by the following

- Within the traffic modelling all 20veh have been modelled approaching and leaving from all directions.
- No reduction was made in relation to the existing or pass by trips in association to vehicles travelling to the current site of Lifford Celtic pitches.

7 Construction Phase Assessment

Methodology

The section considers the potential impacts during construction phase of the project. Construction programme is considered and will be influenced by the final detailed design. The key elements of the proposed development, transport routes, construction compounds are considered. Potential Impacts During the Construction Phase are highlighted, estimates of temporary construction HGV traffic are provided together with mitigation measures and construction phase conclusion.

Works Staging

The staging of the construction works will be subject to a detailed programme by the successful contractor in advance of commencement of works. It will be cognisant of a list of timeline constraints included in the Contract Documents.

Construction Programming

The aim is to have the entire project completed within 6months. This timescale has been used to assess the worst-case scenario in terms of the potential for traffic impacts. The construction timeline is dependent on the approach taken by the contractor, risk assessments and detailed design.

Several constraints have been identified which will impact upon the programme. These include:

- Minimising disruption to traffic on the N14 at all times
- Minimise disruption and nuisance to local businesses, traders and those living in residential properties close to any works area who could be adversely affected during the construction phase
- Ensuring all construction mitigation measures as identified
- Phasing and timing of any works be in line with guidance
- Archaeological assessment if deemed required
- Encountering areas with invasive species (Himalayan Balsam). Refer to invasive species management plan
- Health and Safety – as in any works project Health and Safety will be specifically addressed.

The relevant constraints will be referenced in the Contract Documents and will form part of the procurement process.

The sequence of Works will broadly be as follows:

- Establish Compounds and environmental measures
- Cut back scrub and brush
- Construct temporary fencing
- Undertake excavation and drainage works
- Construct the pitches, spine roads and WWPS
- Bring pavement to formation and form verges
- Pavement construction
- Construct permanent fencing, remove temporary fencing, and install signage/fixtures

Working hours shall be 07:00 to 19:00 Monday to Friday and 08:00 to 14.00 on Saturday.

Construction Compound

A single construction compound will be established. The purpose of the compound is to provide adequate storage space and welfare facilities to allow the construction of project in an efficient and safe manner. The compound will have safe access to the public road network. The approach to the compound junction will be adequately signed indicating construction traffic.

Potential Impacts During the Construction Phase

The proposed construction works will lead to temporary additional construction related traffic on the existing public road network over the duration of the construction works. These impacts will be associated with:

- HGV's transporting materials to and from the site compound, including materials for the construction of drainage infrastructure, pavement construction, temporary hard standings, particular pavement construction elements relating to the pitch and carpark construction.
- HGV's transporting conventional earthworks machinery such as excavators, dumper trucks, rollers etc.
- Fuel trucks transporting fuel (for plant) to the site compound during the works
- Light goods vehicles (LGVs) such as cars, 4x4s and vans used by the workers and supervisory staff involved in the construction works
- Cranes for lifting structure components

Without appropriate mitigation measures, the proposed works have the potential to lead to a negative impact on the road network including:

- Delay and disruption to road users
- Road safety issues should the works not be carried out in line with good traffic management practices
- Inappropriate parking of construction related vehicles along the route of the works
- Soiling of the public road leading to a general lack of cleanliness and poor skid resistance on roads

It is considered the construction of the works is normal construction activity, there are no special aspects of the construction that warrant further assessment.

Additional Temporary Construction Traffic

The volume of additional traffic will vary over the 6months period in accordance with the construction programme. The main elements of construction are the spins roads, playing pitches & carpark, WWPS and the right turning lane. These elements of construction are not large in terms of physical buildings or heavy civil engineering and will not require a large number of operatives during construction.

Furthermore, there it is not expected to be significant import or export of fill material and other construction material.

During the peak of construction, it is anticipated some 15HGV movements / day (one way). There will be the usual mix of vehicles associated with a construction site i.e., fuel trucks, light goods vehicles (LGVs) such as cars, 4x4s and vans used by the workers and supervisory staff involved in the construction works. These vehicle numbers are expected to be low as the number of operatives required will be relatively low during the normal operation of the construction phase.

Construction Phase Mitigation

Dust and Dirt

During the construction phase the increase in dust and dirt will be minimised by effective site management. The construction routes will be discussed and agreed with respective roads departments and disruption will be mitigated, however as the project is next to the N14 construction routes are expected to be very good in both directions. The construction routes and the phasing of the scheme will be agreed with respective roads departments.

Wheel washing facilities will be provided for all construction vehicles and construction areas will be fenced-off. It should be noted that a OCEMP has been undertaken and has been included as part of the planning submission.

Any impact will be ameliorated using best practice including damping down excavated material and haul roads when the roads are dry and covering loads of surplus material leaving and entering the site. Wheel washing will be provided on site.

Construction Days & Hours

Working hours shall be 07:00 to 19:00 Monday to Friday and 08:00 to 14.00 on Saturday.

Operatives Travel Behaviour

The Contractor will be required to develop a Construction Travel Plan to ensure operatives vehicles use are kept to a minimum with the use of mini-buses and shared vehicle trips where appropriate.

Construction Phase Conclusion

On the basis of this assessment, it is expected that the impact this activity will have on the surrounding road network will be ‘temporary’ / ‘short-term’ in duration, and ‘slight’ in significance.

8 Quality Audit (Including Non-Motorised Users)

Introduction

Given the relatively small scale of the proposed development a summary Quality Audit has been undertaken to demonstrate that appropriate consideration has been given to all of the relevant aspects of the design. The key benefits of a Quality Audit are:

- A transparent process that demonstrates that the needs of all user groups and the design objectives.
- Enables the projects objectives to be delivered by putting in place a check procedure.
- Contributes to cost efficiency in design and implementation.
- Encourages engagement with stakeholders.

Quality Audits generally consist of a number of individual and overlapping audits that may include:

- an audit of visual quality;
- a review of how the street is/may be used by the community;
- a road safety audit, including a risk assessment;
- an access audit;
- a walking audit;
- a cycle audit;
- a non-motorised user audit;
- a community street audit (in existing streets); and
- a place check audit.

The extent to which these processes are undertaken will vary according to the scale and scope of any given project. The intention of a Quality Audit is not to 'pass' or 'fail' a design. Rather it is intended as an assessment tool that highlights the strengths and weaknesses of a design and a documented process of how decisions were made. Non-motorised users will be assessed by looking at pedestrian desire lines, bus timetables and cycle routes.

Visual Quality

As this application is for two sports pitches and an access road visual quality has not been considered.

Community Use

Lifford Celtic will benefit from the proposed pitches; the pitches are being displaced by the proposed Riverine Development. Therefore, there will be a community use aspect to the proposed development.

Road Safety Audit

A Stage 1 Road Safety Audit (RSA) will be undertaken as part of the planning submission. A stage 1 Road Safety Audit was deemed appropriate as the level of detail provided at this stage and it is not

anticipated that the tender drawings will include additional design elements other that those that may arise from the Statutory Processes. If those changes are substantial, then a revised audit will be undertaken.

Access Audit

Proposals for the construction of approximately 720m of access road (6.0m wide road (3.0m lanes)) and shared footways/cycleways throughout (3.0m wide) to facilitate access to future developments within adjoining lands. The geometric details of the access are provided in the planning package.

The recreational facility will benefit from improved access and facilities to what they currently have at their grounds on Station Road which is a narrow lane with no white lining, no passing bays and no street lighting and a small carpark.

Recommendations:

It is proposed that an access will be constructed onto the existing N14 National Primary Road to accommodate the proposed development. The scheme includes a proposed RHTL which can be accommodated within the existing N14 road widths / existing central hatched area. The provision RHTL will futureproof the site based on what can be provided at this location. Any potential future sites will be assessed and submit their own planning applications and considered on their own merit.

Non-Motorised User Audit

The following walking and cycling audits overlap and form the non-motorised user audit. Recommendations for each of the NMU modes can be found below.

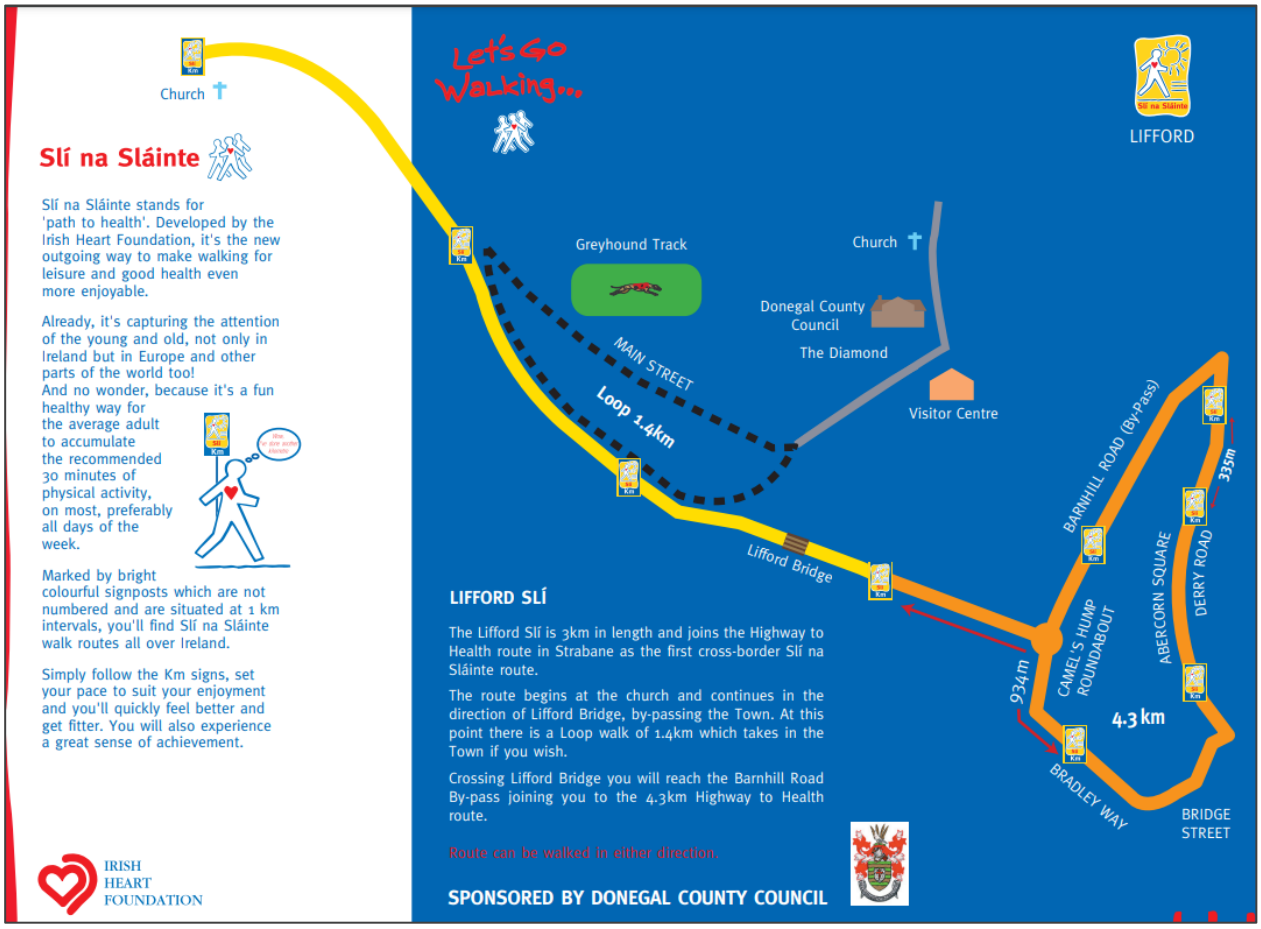
Walking Audit

The proposed site can be described as easily accessible on foot, all footways within the area are well maintained and benefit from dropped kerbs, tactile paving and street lighting on the N14 within the vicinity of the proposed entrance.

There is a dedicated pedestrian greenway - The Lifford Slí which is 3km in length. This joins the Highway to Health route in Strabane as the first cross-border Slí na Sláinte route.

The route begins at the church and continues in the direction of Lifford Bridge, by-passing the Town. At this point there is a Loop walk of 1.4km which takes in the Town if you wish. Crossing Lifford Bridge you will reach the Barnhill Road By-pass joining you to the 4.3km Highway to Health route.

Figure 8: Strabane to Lifford Greenway / Slí na Sláinte route



Recommendations

The crossing point on the N14 is existing as a ghost pedestrian island, which is lit. As this application is for the pitches there are no plans to upgrade this crossing. Any future developments on the site will be subject to their own Traffic Assessments and audits.

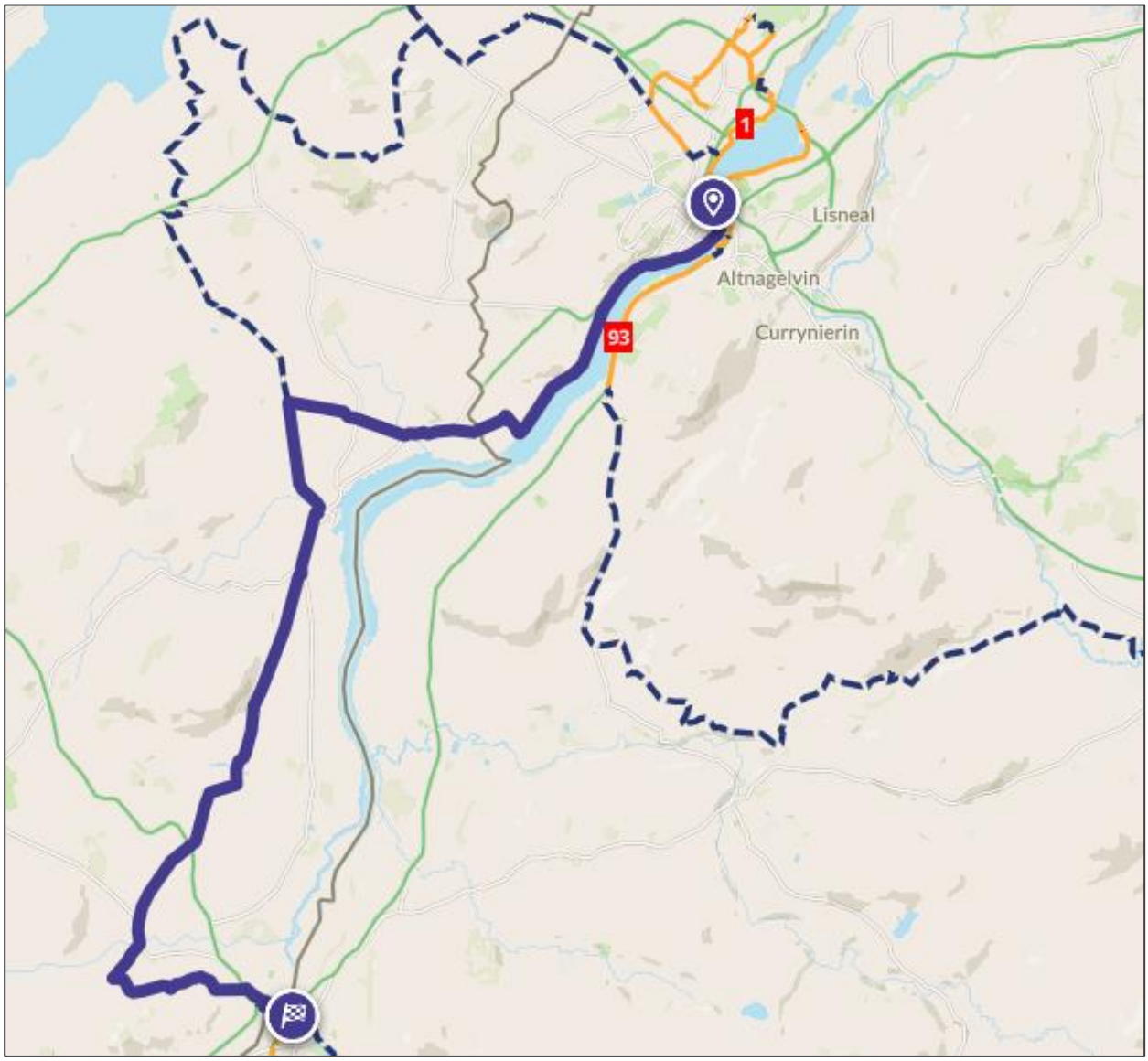
The proposed link roads include 3.0m wide shared footways/cycleways to facilitate access to future developments on adjoining lands, thus non-motorised modes of transport have been accommodated for.

Cycle Audit

The proposed site can be described as easily accessible by cyclists. The N14 from Lifford to the proposed site benefits from street lighting with single carriageway in each direction with white hatching along the central reservation which would allow for safe overtaking of cyclists along large sections of its length.

There is a dedicated cycleway the Foyle Valley Cycle Route which connects Derry City to the border towns of Lifford and Strabane. This cycle route is a mixture of traffic-free paths and quiet country roads and lanes which crosses between Northern Ireland and the Republic of Ireland. The route is 33.9 kilometres and 26.5% Traffic-free.

Figure 9: Foyle Valley Cycle Route



Recommendations

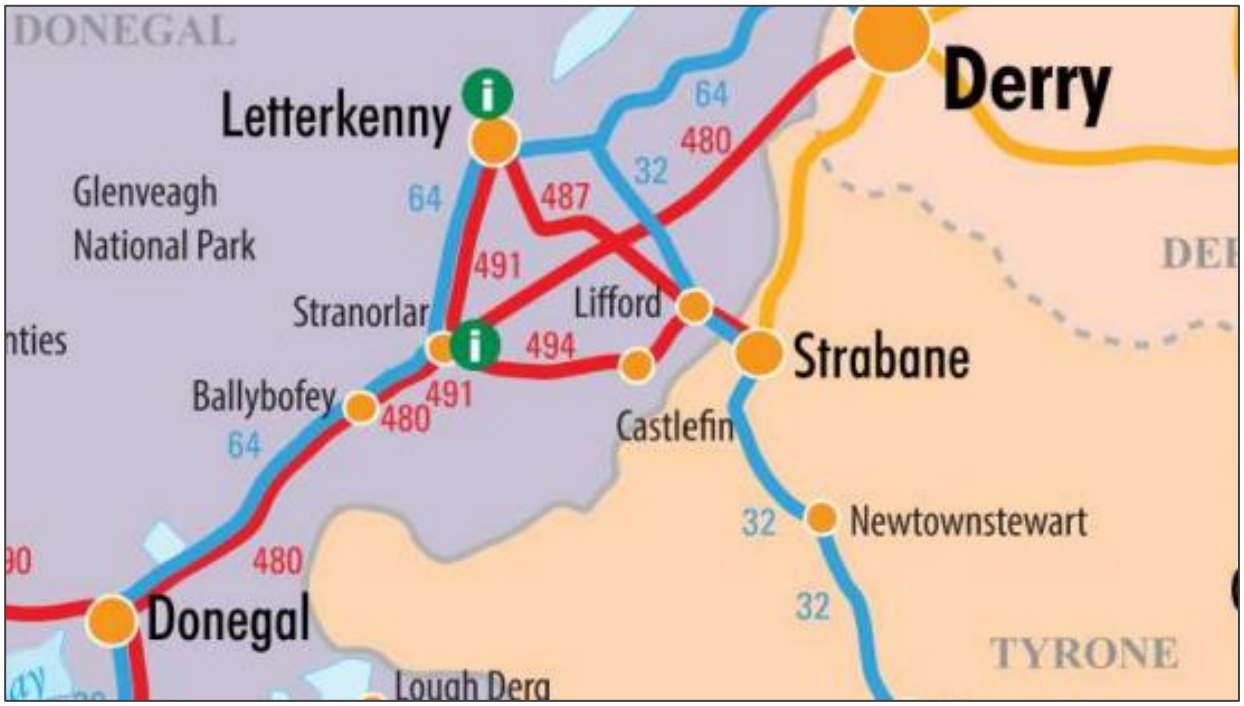
As the proposed site is already well served by cycleways and next to a greenway there is no plan to upgrade these externally to the red line boundary, with the acceptance of the existing pedestrian crossing.

Internally the proposals include 3.0m wide shared footways/cycleways to facilitate access to future developments on adjoining lands.

Bus

Lifford can be classed as well served by public transport with regular links from Strabane, Letterkenny, Derry and Donegal as well as further afield.

Figure 10: Lifford Bus Routes



Recommendations

There are no plans to increase bus services to the proposed site as this application is for two pitches, any potential future developments will be required to re look at this as part of their application.

Community Streets Audit

This is not applicable as part of this application

Place Check Audit

This has not been assessed within this document however, this was assessed during the site selection process.

9 Conclusions

Existing Road Network

The existing road network can easily accommodate the proposed development in terms of traffic capacity at opening year 2023 and future assessment years.

Future Capacity

There is significant future vehicular traffic capacity at the proposed junction with the N14 for future development in relation to the wider opportunity site lands.

Future Applications

The wider lands will be subject to their own planning assessment and application including traffic / access.

Existing Greenway Adjacent

The proposed access is well served for walking, cycling and public transport as it runs parallel to an existing greenway, an appropriate crossing point is proposed to facilitate connectivity from the greenway to the proposed site for non-motorised users.

Construction Phase impact Short Term & Slight

The construction impact of the proposed development is considered ‘temporary’ / ‘short-term’ in duration, and ‘slight’ in significance

Appendix 1: Junction 1 - Modelling

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.1.1519

For sales and distribution information, program advice and maintenance, contact TRL Software:
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

Filename: 220401_Access_N14_Junction_Pitches.j10
Path: C:\Users\MartinHoy\Hoy & Dorman Ltd\Hoy Dorman - Documents\Civils\2021011_Lifford Mixed_Use_TS\Traffic\Modelling
Report generation date: 03/04/2022 22:00:59

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Netwo Resid Capac
Lifford Mixed Use, N14 Access - FD_01 = 2021 Baseline Traffic (08:00-09:00)																		
Stream B-AC	D1	0.0	~1	0.00	0.00	A	0.00	A	900 %									
Stream C-B		0.0	~1	0.00	0.00	A			[]									
Lifford Mixed Use, N14 Access - FD_02 = 2021 Baseline Traffic (17:00-18:00)																		
Stream B-AC										D2	0.0	~1	0.00	0.00	A	0.00	A	900
Stream C-B											0.0	~1	0.00	0.00	A			[]
Lifford Mixed Use, N14 Access - FD_03 = Factored Baseline Traffic = 2023																		
Stream B-AC	D3	0.0	~1	0.00	0.00	A	0.00	A	900 %									
Stream C-B		0.0	~1	0.00	0.00	A			[]									
Lifford Mixed Use, N14 Access - FD_04 = Factored Baseline Traffic = 2023																		
Stream B-AC										D4	0.0	~1	0.00	0.00	A	0.00	A	900
Stream C-B											0.0	~1	0.00	0.00	A			[]
Lifford Mixed Use, N14 Access - FD_05 = Development Flows (2023)																		
Stream B-AC	D5	0.1	0.5	6.42	0.07	A	4.37	A	900 %									
Stream C-B		0.0	0.5	4.63	0.03	A			[]									
Lifford Mixed Use, N14 Access - FD_06 = Development Flows (2023)																		
Stream B-AC										D6	0.1	0.5	6.42	0.07	A	4.37	A	900
Stream C-B											0.0	0.5	4.63	0.03	A			[]

	Lifford Mixed Use, N14 Access - FD_07 = Development Flows + Factored Traffic (2023)																		
Stream B-AC	D7	0.1	0.5	9.06	0.10	A	0.50	A	125 % [Stream B-AC]										
Stream C-B		0.0	0.5	5.72	0.03	A													
	Lifford Mixed Use, N14 Access - FD_08 = Development Flows + Factored Traffic (2023)																		
Stream B-AC										D8	0.1	0.5	9.45	0.10	A	0.44	A	106 [Strea B-AC	
Stream C-B											0.0	0.5	5.71	0.03	A				
	Lifford Mixed Use, N14 Access - FD_09 = Factored Base Traffic + Dev + 5years = (2028)																		
Stream B-AC	D9	0.1	0.5	9.37	0.10	A	0.48	A	112 % [Stream B-AC]										
Stream C-B		0.0	0.5	5.83	0.03	A													
	Lifford Mixed Use, N14 Access - FD_10 = Factored Base Traffic + Dev + 5years = (2028)																		
Stream B-AC										D10	0.1	0.5	9.83	0.11	A	0.43	A	93 [Strea B-AC	
Stream C-B											0.0	0.5	5.81	0.03	A				
	Lifford Mixed Use, N14 Access - FD_11 = Factored Base Traffic + Dev + 15years = (2038)																		
Stream B-AC	D11	0.1	0.5	9.59	0.11	A	0.47	A	104 % [Stream B-AC]										
Stream C-B		0.0	0.5	5.91	0.03	A													
	Lifford Mixed Use, N14 Access - FD_12 = Factored Base Traffic + Dev + 15years = (2028)																		
Stream B-AC										D12	0.1	0.5	10.11	0.11	B	0.42	A	86 [Strea B-AC	
Stream C-B											0.0	0.5	5.89	0.03	A				

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

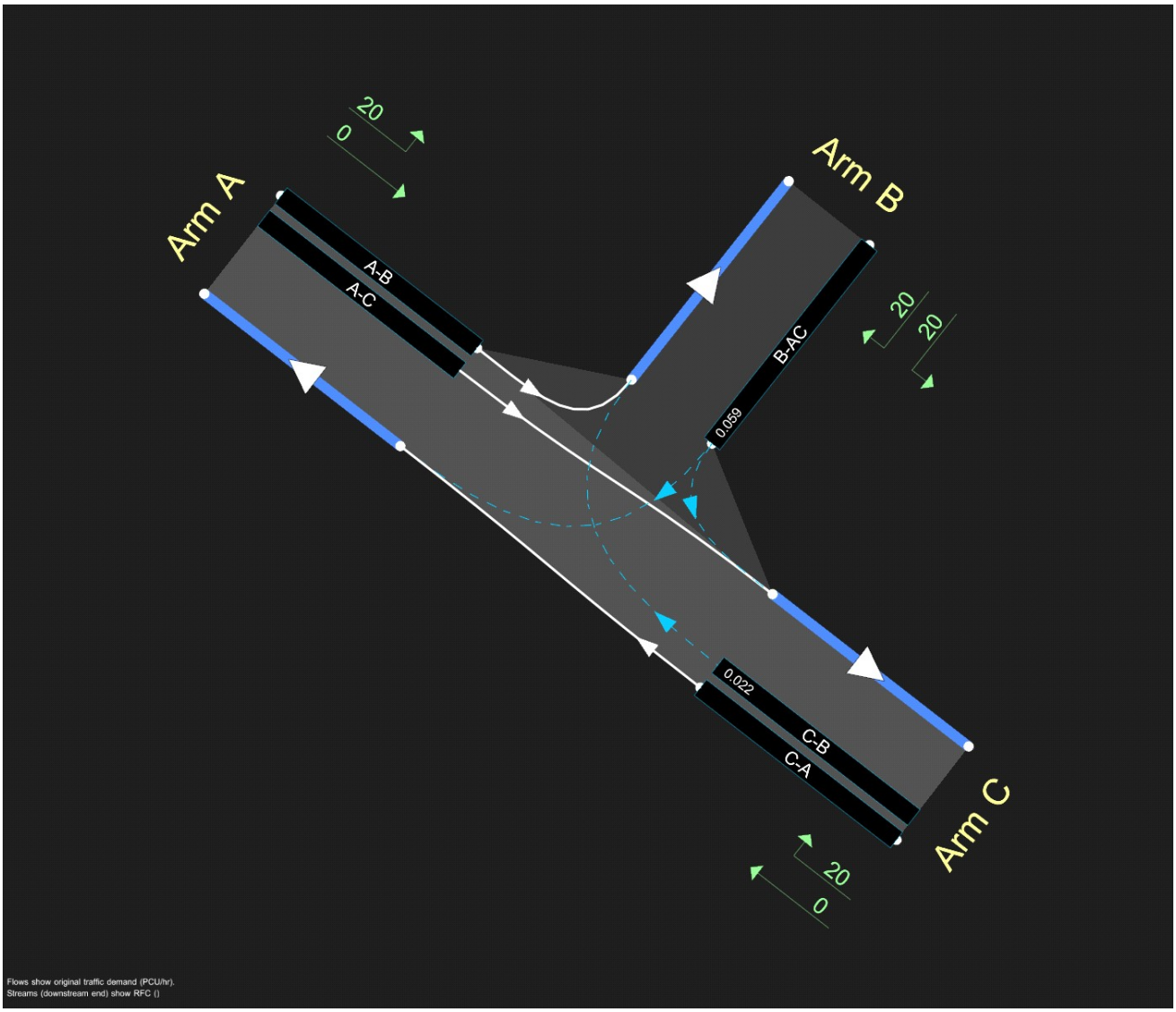
File summary

File Description

Title	
Location	
Site number	
Date	05/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	AzureAD\MartinHoy
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D1	FD_01 = 2021 Baseline Traffic (08:00-09:00)	AM	ONE HOUR	08:00	09:30	15	✓	✓		
D2	FD_02 = 2021 Baseline Traffic (17:00-18:00)	PM	ONE HOUR	17:00	18:30	15	✓	✓		
D3	FD_03 = Factored Baseline Traffic = 2023	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	D1*G1
D4	FD_04 = Factored Baseline Traffic = 2023	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	D2*G1
D5	FD_05 = Development Flows (2023)	AM	ONE HOUR	08:00	09:30	15	✓	✓		
D6	FD_06 = Development Flows (2023)	PM	ONE HOUR	17:00	18:30	15	✓	✓		
D7	FD_07 = Development Flows + Factored Traffic (2023)	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	D3+D5
D8	FD_08 = Development Flows + Factored Traffic (2023)	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	D4+D6
D9	FD_09 = Factored Base Traffic + Dev + 5years = (2028)	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	(D3*G2)+D5
D10	FD_10 = Factored Base Traffic + Dev + 5years = (2028)	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	(D4*G2)+D6
D11	FD_11 = Factored Base Traffic + Dev + 15years = (2038)	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	(D3*G3)+D5
D12	FD_12 = Factored Base Traffic + Dev + 15years = (2028)	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	(D4*G3)+D6

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	Opening Year 2023		1.0222
G2	Assessment Year + 5 = 2028		1.0777
G3	Assessment Year + 15 = 2038		1.1311

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Lifford Mixed Use, N14 Access	✓	100.000	100.000

Lifford Mixed Use, N14 Access - FD_01 = 2021 Baseline Traffic (08:00-09:00), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D1 - FD_01 = 2021 Baseline Traffic (08:00-09:00), AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		0.00	A

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.50		✓	3.30	250.0		-

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.65	50	40

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	547	0.084	0.213	0.134	0.305
B-C	691	0.090	0.227	-	-
C-B	805	0.264	0.264	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D1	FD_01 = 2021 Baseline Traffic (08:00-09:00)	AM	ONE HOUR	08:00	09:30	15	✓	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	498	100.000
B		ONE HOUR	✓	0	100.000
C		ONE HOUR	✓	366	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	498
	B	0	0	0
	C	366	0	0

Proportions

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	08:00-08:15	375	375
	08:15-08:30	448	448
	08:30-08:45	548	548
	08:45-09:00	548	548
	09:00-09:15	448	448
	09:15-09:30	375	375
B	08:00-08:15	0	0
	08:15-08:30	0	0
	08:30-08:45	0	0
	08:45-09:00	0	0
	09:00-09:15	0	0
	09:15-09:30	0	0
C	08:00-08:15	276	276
	08:15-08:30	329	329
	08:30-08:45	403	403
	08:45-09:00	403	403
	09:00-09:15	329	329
	09:15-09:30	276	276

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	~1	A	0	0
C-A						366	366
C-B	0.00	0.00	0.0	~1	A	0	0
A-B						0	0
A-C						498	498

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	482	0.000	0	0.0	0.0	0.000	A
C-A	329	82			329				
C-B	0	0	686	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	448	112			448				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	452	0.000	0	0.0	0.0	0.000	A
C-A	403	101			403				
C-B	0	0	660	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	548	137			548				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	452	0.000	0	0.0	0.0	0.000	A
C-A	403	101			403				
C-B	0	0	660	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	548	137			548				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	482	0.000	0	0.0	0.0	0.000	A
C-A	329	82			329				
C-B	0	0	686	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	448	112			448				

Queue Variation Results for each time segment

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Lifford Mixed Use, N14 Access - FD_02 = 2021 Baseline Traffic (17:00-18:00), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D2 - FD_02 = 2021 Baseline Traffic (17:00-18:00), PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		0.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D2	FD_02 = 2021 Baseline Traffic (17:00-18:00)	PM	ONE HOUR	17:00	18:30	15	✓	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	492	100.000
B		ONE HOUR	✓	0	100.000
C		ONE HOUR	✓	522	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	492
	B	0	0	0
	C	522	0	0

Proportions

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	17:00-17:15	370	370
	17:15-17:30	442	442
	17:30-17:45	542	542
	17:45-18:00	542	542
	18:00-18:15	442	442
	18:15-18:30	370	370
B	17:00-17:15	0	0
	17:15-17:30	0	0
	17:30-17:45	0	0
	17:45-18:00	0	0
	18:00-18:15	0	0
	18:15-18:30	0	0
C	17:00-17:15	393	393
	17:15-17:30	469	469
	17:30-17:45	575	575
	17:45-18:00	575	575
	18:00-18:15	469	469
	18:15-18:30	393	393

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	~1	A	0	0
C-A						522	522
C-B	0.00	0.00	0.0	~1	A	0	0
A-B						0	0
A-C						492	492

Main Results for each time segment

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	470	0.000	0	0.0	0.0	0.000	A
C-A	469	117			469				
C-B	0	0	688	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	442	111			442				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	436	0.000	0	0.0	0.0	0.000	A
C-A	575	144			575				
C-B	0	0	662	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	542	135			542				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	436	0.000	0	0.0	0.0	0.000	A
C-A	575	144			575				
C-B	0	0	662	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	542	135			542				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	470	0.000	0	0.0	0.0	0.000	A
C-A	469	117			469				
C-B	0	0	688	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	442	111			442				

Queue Variation Results for each time segment

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Lifford Mixed Use, N14 Access - FD_03 = Factored Baseline Traffic = 2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D3 - FD_03 = Factored Baseline Traffic = 2023, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		0.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D3	FD_03 = Factored Baseline Traffic = 2023	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	D1*G1

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	509	100.000
B		ONE HOUR	✓	0	100.000
C		ONE HOUR	✓	374	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	509
	B	0	0	0
	C	374	0	0

Proportions

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	08:00-08:15	383	383
	08:15-08:30	458	458
	08:30-08:45	560	560
	08:45-09:00	560	560
	09:00-09:15	458	458
	09:15-09:30	383	383
B	08:00-08:15	0	0
	08:15-08:30	0	0
	08:30-08:45	0	0
	08:45-09:00	0	0
	09:00-09:15	0	0
	09:15-09:30	0	0
C	08:00-08:15	282	282
	08:15-08:30	336	336
	08:30-08:45	412	412
	08:45-09:00	412	412
	09:00-09:15	336	336
	09:15-09:30	282	282

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	~1	A	0	0
C-A						374	374
C-B	0.00	0.00	0.0	~1	A	0	0
A-B						0	0
A-C						509	509

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	479	0.000	0	0.0	0.0	0.000	A
C-A	336	84			336				
C-B	0	0	684	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	458	114			458				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	448	0.000	0	0.0	0.0	0.000	A
C-A	412	103			412				
C-B	0	0	657	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	560	140			560				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	448	0.000	0	0.0	0.0	0.000	A
C-A	412	103			412				
C-B	0	0	657	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	560	140			560				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	479	0.000	0	0.0	0.0	0.000	A
C-A	336	84			336				
C-B	0	0	684	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	458	114			458				

Queue Variation Results for each time segment

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Lifford Mixed Use, N14 Access - FD_04 = Factored Baseline Traffic = 2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D4 - FD_04 = Factored Baseline Traffic = 2023, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		0.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D4	FD_04 = Factored Baseline Traffic = 2023	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	D2*G1

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	503	100.000
B		ONE HOUR	✓	0	100.000
C		ONE HOUR	✓	534	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	503
	B	0	0	0
	C	534	0	0

Proportions

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	17:00-17:15	379	379
	17:15-17:30	452	452
	17:30-17:45	554	554
	17:45-18:00	554	554
	18:00-18:15	452	452
	18:15-18:30	379	379
B	17:00-17:15	0	0
	17:15-17:30	0	0
	17:30-17:45	0	0
	17:45-18:00	0	0
	18:00-18:15	0	0
	18:15-18:30	0	0
C	17:00-17:15	402	402
	17:15-17:30	480	480
	17:30-17:45	587	587
	17:45-18:00	587	587
	18:00-18:15	480	480
	18:15-18:30	402	402

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	~1	A	0	0
C-A						534	534
C-B	0.00	0.00	0.0	~1	A	0	0
A-B						0	0
A-C						503	503

Main Results for each time segment

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	466	0.000	0	0.0	0.0	0.000	A
C-A	480	120			480				
C-B	0	0	685	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	452	113			452				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	432	0.000	0	0.0	0.0	0.000	A
C-A	587	147			587				
C-B	0	0	658	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	554	138			554				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	432	0.000	0	0.0	0.0	0.000	A
C-A	587	147			587				
C-B	0	0	658	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	554	138			554				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	466	0.000	0	0.0	0.0	0.000	A
C-A	480	120			480				
C-B	0	0	685	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	452	113			452				

Queue Variation Results for each time segment

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-B	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Lifford Mixed Use, N14 Access - FD_05 = Development Flows (2023), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D5 - FD_05 = Development Flows (2023), AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		4.37	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		4.37	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D5	FD_05 = Development Flows (2023)	AM	ONE HOUR	08:00	09:30	15	✓	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	20	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	20	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	0
	B	20	0	20
	C	0	20	0

Proportions

		To		
		A	B	C
From	A	0.00	1.00	0.00
	B	0.50	0.00	0.50
	C	0.00	1.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	08:00-08:15	15	15
	08:15-08:30	18	18
	08:30-08:45	22	22
	08:45-09:00	22	22
	09:00-09:15	18	18
	09:15-09:30	15	15
B	08:00-08:15	30	30
	08:15-08:30	36	36
	08:30-08:45	44	44
	08:45-09:00	44	44
	09:00-09:15	36	36
	09:15-09:30	30	30
C	08:00-08:15	15	15
	08:15-08:30	18	18
	08:30-08:45	22	22
	08:45-09:00	22	22
	09:00-09:15	18	18
	09:15-09:30	15	15

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	6.42	0.1	0.5	A	40	40
C-A						0	0
C-B	0.03	4.63	0.0	0.5	A	20	20
A-B						20	20
A-C						0	0

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	606	0.059	36	0.1	0.1	6.317	A
C-A	0	0			0				
C-B	18	4	800	0.022	18	0.0	0.0	4.602	A
A-B	18	4			18				
A-C	0	0			0				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	605	0.073	44	0.1	0.1	6.421	A
C-A	0	0			0				
C-B	22	6	799	0.028	22	0.0	0.0	4.633	A
A-B	22	6			22				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	605	0.073	44	0.1	0.1	6.421	A
C-A	0	0			0				
C-B	22	6	799	0.028	22	0.0	0.0	4.633	A
A-B	22	6			22				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	606	0.059	36	0.1	0.1	6.319	A
C-A	0	0			0				
C-B	18	4	800	0.022	18	0.0	0.0	4.603	A
A-B	18	4			18				
A-C	0	0			0				

Queue Variation Results for each time segment

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.02	0.02	0.25	0.45	0.48			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.00	0.00	0.08	0.08			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-B	0.02	0.00	0.00	0.02	0.02			N/A	N/A

Lifford Mixed Use, N14 Access - FD_06 = Development Flows (2023), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D6 - FD_06 = Development Flows (2023), PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		4.37	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		4.37	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D6	FD_06 = Development Flows (2023)	PM	ONE HOUR	17:00	18:30	15	✓	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	20	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	20	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	0
	B	20	0	20
	C	0	20	0

Proportions

		To		
		A	B	C
From	A	0.00	1.00	0.00
	B	0.50	0.00	0.50
	C	0.00	1.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	17:00-17:15	15	15
	17:15-17:30	18	18
	17:30-17:45	22	22
	17:45-18:00	22	22
	18:00-18:15	18	18
	18:15-18:30	15	15
B	17:00-17:15	30	30
	17:15-17:30	36	36
	17:30-17:45	44	44
	17:45-18:00	44	44
	18:00-18:15	36	36
	18:15-18:30	30	30
C	17:00-17:15	15	15
	17:15-17:30	18	18
	17:30-17:45	22	22
	17:45-18:00	22	22
	18:00-18:15	18	18
	18:15-18:30	15	15

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	6.42	0.1	0.5	A	40	40
C-A						0	0
C-B	0.03	4.63	0.0	0.5	A	20	20
A-B						20	20
A-C						0	0

Main Results for each time segment

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	606	0.059	36	0.1	0.1	6.317	A
C-A	0	0			0				
C-B	18	4	800	0.022	18	0.0	0.0	4.602	A
A-B	18	4			18				
A-C	0	0			0				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	605	0.073	44	0.1	0.1	6.421	A
C-A	0	0			0				
C-B	22	6	799	0.028	22	0.0	0.0	4.633	A
A-B	22	6			22				
A-C	0	0			0				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	605	0.073	44	0.1	0.1	6.421	A
C-A	0	0			0				
C-B	22	6	799	0.028	22	0.0	0.0	4.633	A
A-B	22	6			22				
A-C	0	0			0				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	606	0.059	36	0.1	0.1	6.319	A
C-A	0	0			0				
C-B	18	4	800	0.022	18	0.0	0.0	4.603	A
A-B	18	4			18				
A-C	0	0			0				

Queue Variation Results for each time segment

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.02	0.02	0.25	0.45	0.48			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.00	0.00	0.08	0.08			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-B	0.02	0.00	0.00	0.02	0.02			N/A	N/A

Lifford Mixed Use, N14 Access - FD_07 = Development Flows + Factored Traffic (2023), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - FD_07 = Development Flows + Factored Traffic (2023), AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.50	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	125	Stream B-AC	0.50	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D7	FD_07 = Development Flows + Factored Traffic (2023)	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	D3+D5

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	529	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	394	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	509
	B	20	0	20
	C	374	20	0

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.50	0.00	0.50
	C	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	08:00-08:15	398	398
	08:15-08:30	476	476
	08:30-08:45	583	583
	08:45-09:00	583	583
	09:00-09:15	476	476
	09:15-09:30	398	398
B	08:00-08:15	30	30
	08:15-08:30	36	36
	08:30-08:45	44	44
	08:45-09:00	44	44
	09:00-09:15	36	36
	09:15-09:30	30	30
C	08:00-08:15	297	297
	08:15-08:30	354	354
	08:30-08:45	434	434
	08:45-09:00	434	434
	09:00-09:15	354	354
	09:15-09:30	297	297

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.10	9.06	0.1	0.5	A	40	40
C-A						374	374
C-B	0.03	5.72	0.0	0.5	A	20	20
A-B						20	20
A-C						509	509

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	473	0.076	36	0.1	0.1	8.229	A
C-A	336	84			336				
C-B	18	4	679	0.026	18	0.0	0.0	5.445	A
A-B	18	4			18				
A-C	458	114			458				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	441	0.100	44	0.1	0.1	9.055	A
C-A	412	103			412				
C-B	22	6	651	0.034	22	0.0	0.0	5.724	A
A-B	22	6			22				
A-C	560	140			560				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	441	0.100	44	0.1	0.1	9.059	A
C-A	412	103			412				
C-B	22	6	651	0.034	22	0.0	0.0	5.724	A
A-B	22	6			22				
A-C	560	140			560				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	473	0.076	36	0.1	0.1	8.235	A
C-A	336	84			336				
C-B	18	4	679	0.026	18	0.0	0.0	5.445	A
A-B	18	4			18				
A-C	458	114			458				

Queue Variation Results for each time segment

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.03	0.26	0.47	0.50			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.00	0.00	0.08	0.08			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Lifford Mixed Use, N14 Access - FD_08 = Development Flows + Factored Traffic (2023), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.44	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	106	Stream B-AC	0.44	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D8	FD_08 = Development Flows + Factored Traffic (2023)	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	D4+D6

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	523	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	554	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	503
	B	20	0	20
	C	534	20	0

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.50	0.00	0.50
	C	0.96	0.04	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	17:00-17:15	394	394
	17:15-17:30	470	470
	17:30-17:45	576	576
	17:45-18:00	576	576
	18:00-18:15	470	470
	18:15-18:30	394	394
B	17:00-17:15	30	30
	17:15-17:30	36	36
	17:30-17:45	44	44
	17:45-18:00	44	44
	18:00-18:15	36	36
	18:15-18:30	30	30
C	17:00-17:15	417	417
	17:15-17:30	498	498
	17:30-17:45	610	610
	17:45-18:00	610	610
	18:00-18:15	498	498
	18:15-18:30	417	417

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.10	9.45	0.1	0.5	A	40	40
C-A						534	534
C-B	0.03	5.71	0.0	0.5	A	20	20
A-B						20	20
A-C						503	503

Main Results for each time segment

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	461	0.078	36	0.1	0.1	8.475	A
C-A	480	120			480				
C-B	18	4	681	0.026	18	0.0	0.0	5.433	A
A-B	18	4			18				
A-C	452	113			452				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	425	0.104	44	0.1	0.1	9.441	A
C-A	587	147			587				
C-B	22	6	653	0.034	22	0.0	0.0	5.708	A
A-B	22	6			22				
A-C	554	138			554				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	425	0.104	44	0.1	0.1	9.446	A
C-A	587	147			587				
C-B	22	6	653	0.034	22	0.0	0.0	5.708	A
A-B	22	6			22				
A-C	554	138			554				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	461	0.078	36	0.1	0.1	8.483	A
C-A	480	120			480				
C-B	18	4	681	0.026	18	0.0	0.0	5.433	A
A-B	18	4			18				
A-C	452	113			452				

Queue Variation Results for each time segment

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Lifford Mixed Use, N14 Access - FD_09 = Factored Base Traffic + Dev + 5years = (2028), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D9 - FD_09 = Factored Base Traffic + Dev + 5years = (2028), AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.48	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	112	Stream B-AC	0.48	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D9	FD_09 = Factored Base Traffic + Dev + 5years = (2028)	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	(D3*G2)+D5

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	569	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	423	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	549
	B	20	0	20
	C	403	20	0

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.50	0.00	0.50
	C	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	08:00-08:15	428	428
	08:15-08:30	511	511
	08:30-08:45	626	626
	08:45-09:00	626	626
	09:00-09:15	511	511
	09:15-09:30	428	428
B	08:00-08:15	30	30
	08:15-08:30	36	36
	08:30-08:45	44	44
	08:45-09:00	44	44
	09:00-09:15	36	36
	09:15-09:30	30	30
C	08:00-08:15	319	319
	08:15-08:30	380	380
	08:30-08:45	466	466
	08:45-09:00	466	466
	09:00-09:15	380	380
	09:15-09:30	319	319

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.10	9.37	0.1	0.5	A	40	40
C-A						403	403
C-B	0.03	5.83	0.0	0.5	A	20	20
A-B						20	20
A-C						549	549

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	463	0.078	36	0.1	0.1	8.432	A
C-A	362	91			362				
C-B	18	4	670	0.027	18	0.0	0.0	5.523	A
A-B	18	4			18				
A-C	493	123			493				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	428	0.103	44	0.1	0.1	9.363	A
C-A	444	111			444				
C-B	22	6	639	0.034	22	0.0	0.0	5.831	A
A-B	22	6			22				
A-C	604	151			604				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	428	0.103	44	0.1	0.1	9.368	A
C-A	444	111			444				
C-B	22	6	639	0.034	22	0.0	0.0	5.831	A
A-B	22	6			22				
A-C	604	151			604				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	463	0.078	36	0.1	0.1	8.440	A
C-A	362	91			362				
C-B	18	4	670	0.027	18	0.0	0.0	5.526	A
A-B	18	4			18				
A-C	493	123			493				

Queue Variation Results for each time segment

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.03	0.26	0.47	0.50			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.04	0.03	0.25	0.45	0.48			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.04	0.00	0.00	0.04	0.04			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Lifford Mixed Use, N14 Access - FD_10 = Factored Base Traffic + Dev + 5years = (2028), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D10 - FD_10 = Factored Base Traffic + Dev + 5years = (2028), PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.43	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	93	Stream B-AC	0.43	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D10	FD_10 = Factored Base Traffic + Dev + 5years = (2028)	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	(D4*G2)+D6

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	562	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	595	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	542
	B	20	0	20
	C	575	20	0

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.50	0.00	0.50
	C	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	17:00-17:15	423	423
	17:15-17:30	505	505
	17:30-17:45	619	619
	17:45-18:00	619	619
	18:00-18:15	505	505
	18:15-18:30	423	423
B	17:00-17:15	30	30
	17:15-17:30	36	36
	17:30-17:45	44	44
	17:45-18:00	44	44
	18:00-18:15	36	36
	18:15-18:30	30	30
C	17:00-17:15	448	448
	17:15-17:30	535	535
	17:30-17:45	655	655
	17:45-18:00	655	655
	18:00-18:15	535	535
	18:15-18:30	448	448

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.11	9.83	0.1	0.5	A	40	40
C-A						575	575
C-B	0.03	5.81	0.0	0.5	A	20	20
A-B						20	20
A-C						542	542

Main Results for each time segment

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	449	0.080	36	0.1	0.1	8.716	A
C-A	517	129			517				
C-B	18	4	671	0.027	18	0.0	0.0	5.510	A
A-B	18	4			18				
A-C	487	122			487				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	410	0.107	44	0.1	0.1	9.820	A
C-A	633	158			633				
C-B	22	6	641	0.034	22	0.0	0.0	5.813	A
A-B	22	6			22				
A-C	597	149			597				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	410	0.107	44	0.1	0.1	9.826	A
C-A	633	158			633				
C-B	22	6	641	0.034	22	0.0	0.0	5.813	A
A-B	22	6			22				
A-C	597	149			597				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	449	0.080	36	0.1	0.1	8.725	A
C-A	517	129			517				
C-B	18	4	671	0.027	18	0.0	0.0	5.512	A
A-B	18	4			18				
A-C	487	122			487				

Queue Variation Results for each time segment

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.04	0.03	0.25	0.45	0.48			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.04	0.00	0.00	0.04	0.04			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Lifford Mixed Use, N14 Access - FD_11 = Factored Base Traffic + Dev + 15years = (2038), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D11 - FD_11 = Factored Base Traffic + Dev + 15years = (2038), AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.47	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	104	Stream B-AC	0.47	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D11	FD_11 = Factored Base Traffic + Dev + 15years = (2038)	AM	ONE HOUR	08:00	09:30	15	✓	✓	Simple	(D3*G3)+D5

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	596	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	443	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	576
	B	20	0	20
	C	423	20	0

Proportions

		To		
		A	B	C
From	A	0.00	0.03	0.97
	B	0.50	0.00	0.50
	C	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	08:00-08:15	449	449
	08:15-08:30	536	536
	08:30-08:45	656	656
	08:45-09:00	656	656
	09:00-09:15	536	536
	09:15-09:30	449	449
B	08:00-08:15	30	30
	08:15-08:30	36	36
	08:30-08:45	44	44
	08:45-09:00	44	44
	09:00-09:15	36	36
	09:15-09:30	30	30
C	08:00-08:15	334	334
	08:15-08:30	398	398
	08:30-08:45	488	488
	08:45-09:00	488	488
	09:00-09:15	398	398
	09:15-09:30	334	334

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.11	9.59	0.1	0.5	A	40	40
C-A						423	423
C-B	0.03	5.91	0.0	0.5	A	20	20
A-B						20	20
A-C						576	576

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	456	0.079	36	0.1	0.1	8.578	A
C-A	380	95			380				
C-B	18	4	663	0.027	18	0.0	0.0	5.578	A
A-B	18	4			18				
A-C	518	129			518				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	419	0.105	44	0.1	0.1	9.589	A
C-A	466	116			466				
C-B	22	6	631	0.035	22	0.0	0.0	5.907	A
A-B	22	6			22				
A-C	634	158			634				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	419	0.105	44	0.1	0.1	9.595	A
C-A	466	116			466				
C-B	22	6	631	0.035	22	0.0	0.0	5.907	A
A-B	22	6			22				
A-C	634	158			634				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	455	0.079	36	0.1	0.1	8.587	A
C-A	380	95			380				
C-B	18	4	663	0.027	18	0.0	0.0	5.581	A
A-B	18	4			18				
A-C	518	129			518				

Queue Variation Results for each time segment

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.03	0.26	0.46	0.49			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.04	0.03	0.25	0.45	0.48			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.04	0.00	0.00	0.04	0.04			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Lifford Mixed Use, N14 Access - FD_12 = Factored Base Traffic + Dev + 15years = (2028), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D12 - FD_12 = Factored Base Traffic + Dev + 15years = (2028), PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Demand Set Relationship	D8 - FD_08 = Development Flows + Factored Traffic (2023), PM	Demand Set relationships are chained. This may slow down the file.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.42	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	86	Stream B-AC	0.42	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D12	FD_12 = Factored Base Traffic + Dev + 15years = (2028)	PM	ONE HOUR	17:00	18:30	15	✓	✓	Simple	(D4*G3)+D6

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	589	100.000
B		ONE HOUR	✓	40	100.000
C		ONE HOUR	✓	624	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	569
	B	20	0	20
	C	604	20	0

Proportions

		To		
		A	B	C
From	A	0.00	0.03	0.97
	B	0.50	0.00	0.50
	C	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	7
	B	0	0	0
	C	7	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.067	1.000	1.000

Detailed Demand Data

Demand for each time segment

Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)
A	17:00-17:15	443	443
	17:15-17:30	529	529
	17:30-17:45	648	648
	17:45-18:00	648	648
	18:00-18:15	529	529
	18:15-18:30	443	443
B	17:00-17:15	30	30
	17:15-17:30	36	36
	17:30-17:45	44	44
	17:45-18:00	44	44
	18:00-18:15	36	36
	18:15-18:30	30	30
C	17:00-17:15	469	469
	17:15-17:30	561	561
	17:30-17:45	687	687
	17:45-18:00	687	687
	18:00-18:15	561	561
	18:15-18:30	469	469

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.11	10.11	0.1	0.5	B	40	40
C-A						604	604
C-B	0.03	5.89	0.0	0.5	A	20	20
A-B						20	20
A-C						569	569

Main Results for each time segment

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	441	0.082	36	0.1	0.1	8.888	A
C-A	543	136			543				
C-B	18	4	665	0.027	18	0.0	0.0	5.564	A
A-B	18	4			18				
A-C	511	128			511				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	400	0.110	44	0.1	0.1	10.097	B
C-A	665	166			665				
C-B	22	6	633	0.035	22	0.0	0.0	5.887	A
A-B	22	6			22				
A-C	626	157			626				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	400	0.110	44	0.1	0.1	10.109	B
C-A	665	166			665				
C-B	22	6	633	0.035	22	0.0	0.0	5.887	A
A-B	22	6			22				
A-C	626	157			626				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	36	9	441	0.082	36	0.1	0.1	8.898	A
C-A	543	136			543				
C-B	18	4	665	0.027	18	0.0	0.0	5.565	A
A-B	18	4			18				
A-C	511	128			511				

Queue Variation Results for each time segment

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.03	0.03	0.25	0.45	0.48			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.03	0.26	0.47	0.49			N/A	N/A
C-B	0.04	0.03	0.25	0.45	0.48			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.03	0.25	0.45	0.48			N/A	N/A
C-B	0.04	0.00	0.00	0.04	0.04			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-B	0.03	0.00	0.00	0.03	0.03			N/A	N/A

HoyDorman

Lifford Common Multi-Use Development Park

Stage 1 Road Safety Audit Report

12 April 2022

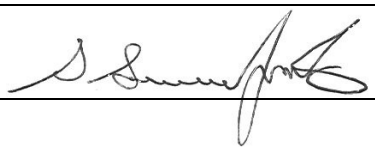
Hoy & Dorman Limited
Moira Lakes
32B Old Church Lane
Aghalee
BT67 0EY

t. +44 (0) 28 9694 9524
e. info@hoy-dorman.com
w. www.hoy-dorman.com

Client Contact and Audit Brief Details

Client	Name: McAdam Design Address: 1c Montgomery House 478 Castlereagh Road Belfast BT5 6BQ			
Contact	Name: Mr Peter Alcorn Tel: +44 (0) 28 9040 2000			
Audit Brief Details	**Document Title**	**Document Number**	**Revision Number**	**Date of Issue**

Approved for Issue

	Prepared / Approved for Issue	**Reviewed**
Name	Karl Dorman (Certificate of Competency in Road Safety Audit, awarded August 2016)	Stuart Summerfield (Certificate of Competency in Road Safety Audit, awarded July 2015)
Position	Audit Team Leader	Audit Team Member
Date	12 April 2022	12 April 2022
Signature		
Job No.	2021011	
Report No.	RSA ST1 001	
Issue No.	1	
Scheme Title	Lifford Common Multi-Use Development Park	
Document Title	Stage 1 Road Safety Audit Report	
Document Status	FINAL	

Contents

1.0 Introduction

1.1 Hoy Dorman were commissioned by McAdam Design to carry out a Stage 1 Road Safety Audit (RSA) of a proposed multi-use park located on a 30-acre green field site at The Common, Lifford, Co. Donegal.

1.2 To the northwest and west of the proposed site is an area of established residential type development, to the south of the proposed site access there is a petrol station (Applegreen). The site is located within a 60 km/hr speed limit and has a road frontage of approximately 220 metres along the N14. The site opens up to a large undeveloped green field area to the north/northeast.

1.3 The proposed scheme includes the construction of an access onto the existing N14 National Primary Road with a right turning lane to be accommodated within the existing central hatching of the N14. Internal to the site, the proposed scheme consists of two recreational playing pitches; one at 7350 sq m and the other at 2400 sq m with associated floodlighting and car parking. The proposal includes the construction of approximately 600m of access road (6.0m wide road) and shared footways/cycleways throughout (3.0m wide) to facilitate access to future developments within adjoining lands.

1.4 The scope of this RSA is confined to the proposed road access at the N14 interface, including the proposed right turn lane, and does not consider the internal development roads or any future development or linkages associated with the lands served by the proposed access road from the N14.

1.5 The Audit has been carried out generally in accordance with the relevant sections of the Transport Infrastructure Ireland (TII) Publication (Standard) GE-STY-01024 (Dec 2017) 'Road Safety Audit'.

1.6 The Audit was undertaken at the offices of the Audit Team Leader and Team Member listed below, both of whom were not involved in the design of the proposed development to be audited:

- Karl Dorman MEng CEng Eur Ing FICE FIEI FCIHT
  Audit Team Leader – Certificate of Competency in Road Safety Audit, awarded August 2016
- Stuart Summerfield HNC FSoRSA FCIHT
  Audit Team Member - Certificate of Competency in Road Safety Audit, awarded July 2015

1.7 No previous Road Safety Audits have been carried out in relation to this proposed scheme.

1.8 A formal Stage 1 Road Safety Audit brief was provided by the design team (ref. E2324 RSA1, dated 30.03.2022). The Audit comprised of an examination of the documents provided within the brief along with an examination of the site during the hours of daylight.

1.9 A site visit was undertaken separately by the Auditors. The Team Member visited the site on the afternoon of 15 March 2022 to document impressions of the proposed scheme prior to the

reviewing of the audit report. The weather conditions during the site visit were sunny with clear conditions overhead. The road surface was dry and visibility good. Traffic volumes were moderate with generally cars and light goods vehicles. Pedestrian use of footpath was observed on the southern side of N14 only. No cyclists were observed during the site visit.

1.10 The Team Leader visited the site on afternoon of 22 March 2022 to document impressions of the proposed scheme prior to the writing of the audit report. The weather conditions during the site visit were sunny with clear conditions overhead. The road surface was dry and visibility good. Traffic volumes were moderate with generally cars and light goods vehicles. Pedestrian use of footpath was observed on the southern side of N14 only. No cyclists were observed during the site visit.

1.11 The Audit comprised an examination of design drawings/information as listed in Appendix A. No other information was made available for the purposes of this Audit.

1.12 The scheme has been examined, and this report compiled, only with regard to the safety implications to road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may, on occasion, have referred to a design standard without touching on technical audit.

1.13 An absence of any comment relating to specific road users / modes in this report does not imply that they have not been considered; instead, the Audit Team feel that they are not adversely affected by the proposed changes.

1.14 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this audit.

1.15 Any problems that are described in this report are considered by the Audit Team to require action in order to improve the safety of the scheme and minimise collision occurrence.

1.16 Where recommendations are included within this report, it should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with GE-STY-01024 (Dec 2017) ‘Road Safety Audit’. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report. In raising road safety issues relevant to the scheme proposals, the Audit Team are not assigning responsibility for resolving actions to any particular party. The designer, the highways authority and any other relevant stakeholders are required to agree where action is required to implement these recommendations. Where recommendations are not implemented, this should be agreed and the

justification for this decision recorded.

1.17 The locations of problems are marked on the drawing located in Appendix B.

2.0 Findings

2.1 COLLISION DATA

2.1.1 Collision data has not been supplied with this scheme.

2.1.2 Road Collision Data available on the Road Safety Authority Database, within the period 2005 to 2016, recorded no collisions within the immediate vicinity of the proposed site. Refer to Figure 1 below.

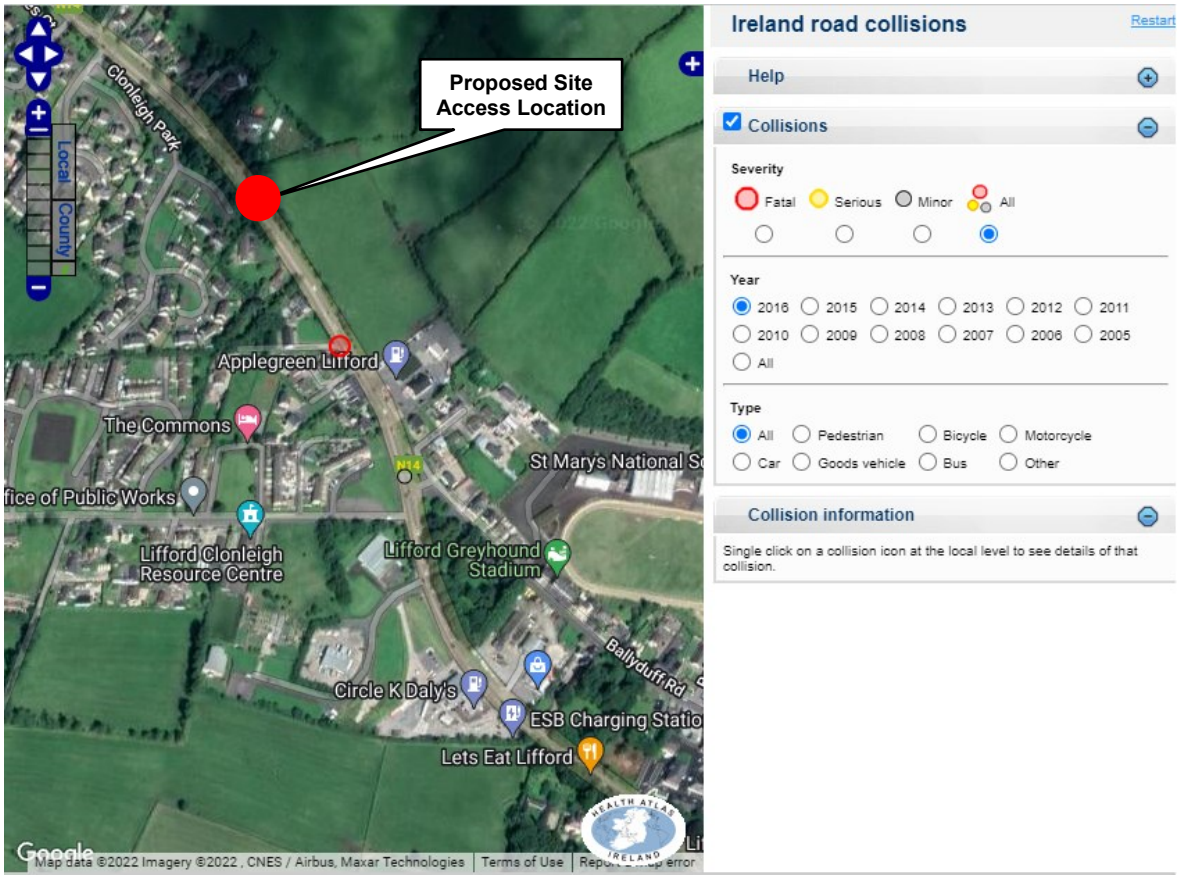


Figure 1: Road Collision Location Map

2.1.3 Two collisions have been recorded along the frontage of the proposed development as identified in Table 1 below.

	Severity	Year	Vehicle	Circumstances	Day	Time	Causalities
1	Minor	2007	Car	Unknown	Monday	0300-0700	1
2	Fatal	2016	Car	Other	Tuesday	1000-1600	1

Table 1: Collision Information

2.1.4 No collision trend has been identified that would influence the problems reported for the proposed scheme.

2.2 GENERAL PROBLEMS / PROBLEMS AT MULTIPLE LOCATIONS

2.2.1 PROBLEM

Location: Throughout scheme.

Summary: Vehicle speeds.

Detail: There were no 85th percentile speed surveys provided to the Audit Team, however some vehicle speeds on the N14 appeared to exceed the posted speed limits, which may present risks for vulnerable road users accessing the site. A 60 km/hr posted speed limit is applicable on the N14 adjacent to the proposed site access. There were no details provided on proposed access road speed limit, however advisory reduced speed limit signage is advisable throughout access road, particularly as vulnerable road users are likely to be present within this area. There is no provision for speed control measures on the proposed access road, within the vicinity of the proposed junction with N14.

RECOMMENDATION
Free flow vehicle speeds should be considered in the provision of sufficient visibility and stopping sight distance. Additional traffic calming measures should be considered where necessary to ensure consistent traffic speeds and road user behaviour throughout the site. Advisory reduced internal speeds limits would also be recommended within the proposed access road. The permanent speed limit of 60kph should be signed on the proposed access road approach to the junction with N14.

2.2.2 PROBLEM

Location: Throughout scheme.

Summary: Street lighting provision.

Detail: Vulnerable road users are at increased risk of impact from other traffic if the area has insufficient artificial lighting.

RECOMMENDATION
Ensure the public road on approach to the proposed access (in each direction) is illuminated to suitable lux levels considering the presence of a new junction.

2.3 PROBLEMS AT SPECIFIC LOCATIONS

2.3.1 PROBLEM

Location: Proposed site access.

Summary: Lack of junction visibility.

Detail: A 9.0m x 70m visibility has been indicated at the junction. However, visibility for a speed limit of 60 kph is 90m as per DN-GEO-03060 Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions). As noted in Problem 2.2.1, observed vehicle speeds were higher than the posted speed limit. A lack of suitable junction visibility may increase the risk of failure to give way type collisions.

RECOMMENDATION
Provide suitable junction visibility splays from the proposed access based on approaching vehicle speeds on N14.

2.3.2 PROBLEM

Location: Proposed site access.

Summary: Lack of junction visibility.

Detail: A 9.0m ‘x’ distance has been indicated at the junction which appears excessive as the junction will be lightly used. An excessive ‘x’ distance may increase approach speeds to the junction. A driver may misjudge the speed of an oncoming vehicle failure to give way type collisions may occur.

RECOMMENDATION
Provide a suitable junction visibility ‘x’ distance to reduce the risk of excessive vehicle speeds on approach to the junction. Refer to Problem 2.3.1 where a reduction in ‘x’ distance may provide increased visibility ‘y’ distance.

2.3.3 PROBLEM

Location: Proposed site access on southern side.

Summary: Lack of junction visibility.

Detail: A 9.0m x 70m visibility has been indicated at the junction. There are a number of warning signs, unauthorised advertising signs and street lighting columns that are likely to be located within the visibility splay. This may interrupt clear visibility to approaching vehicles or non-motorised users. A lack of suitable junction visibility may increase the risk of failure to give way type collisions.

RECOMMENDATION

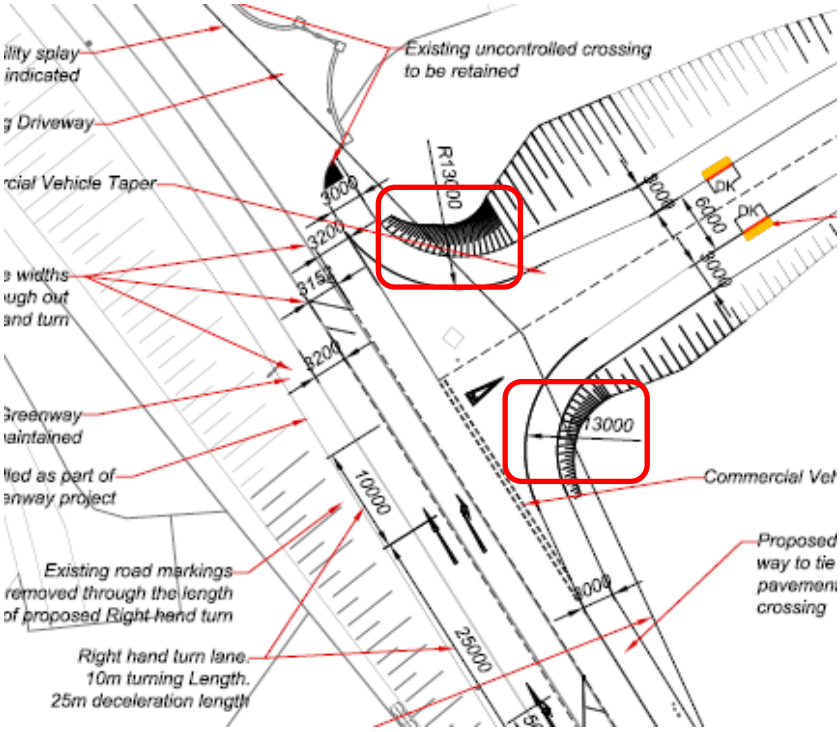
Existing street furniture should be relocated outside of proposed visibility splay.

2.3.4 PROBLEM

Location: Proposed site access.

Summary: Lack of junction visibility.

Detail: A 9.0m x 70m visibility has been indicated at the junction. However, the proposed visibility splays appear to pass through an area of cutting which could restrict full junction visibility. A lack of suitable junction visibility may increase the risk of failure to give way type collisions. On the left turn entry to the junction (travelling south along N14), the cutting may restrict stopping sight distance on entry resulting in increased risk of rear end shunt type collisions.



RECOMMENDATION

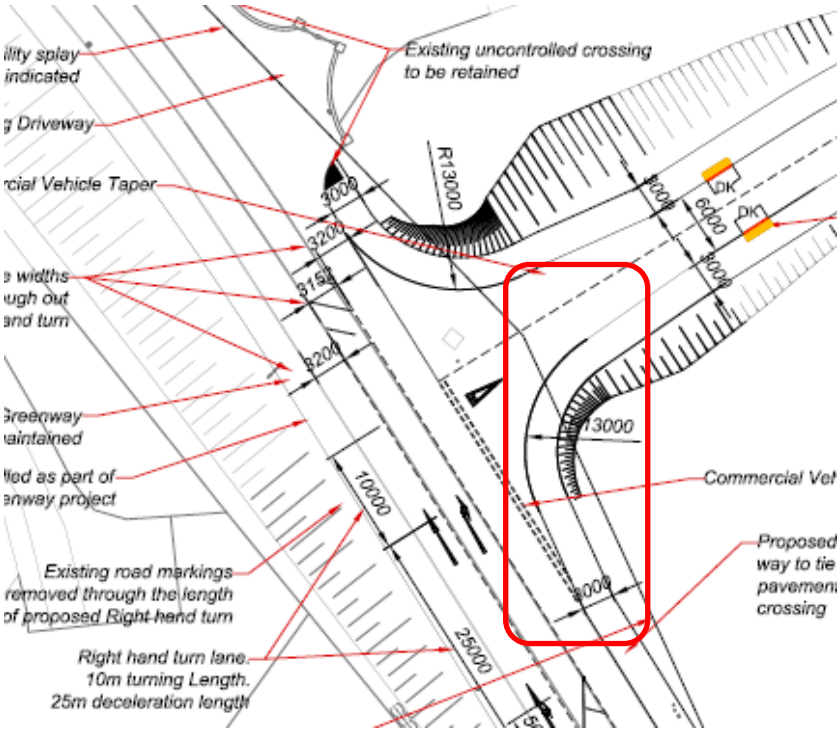
Regrade areas adjacent to proposed access road to provide suitable visibility splays to N14. Suitable stopping sight distance should be provided on the left turn entry to the access road from N14.

2.3.5 PROBLEM

Location: Proposed site access on southern side.

Summary: Lack of junction visibility.

Detail: On approach to the junction with N14 along the proposed access road, a driver may not have full visibility of the junction form due to an earthwork cutting on the southern side of the proposed junction. The provision of appropriate junction visibility will provide the driver with an idea of the junction form, possible movements and conflicts, and possible required action before reaching the major road. A lack of visibility may result in a driver not being aware of road conditions ahead and increase collision risk.



RECOMMENDATION

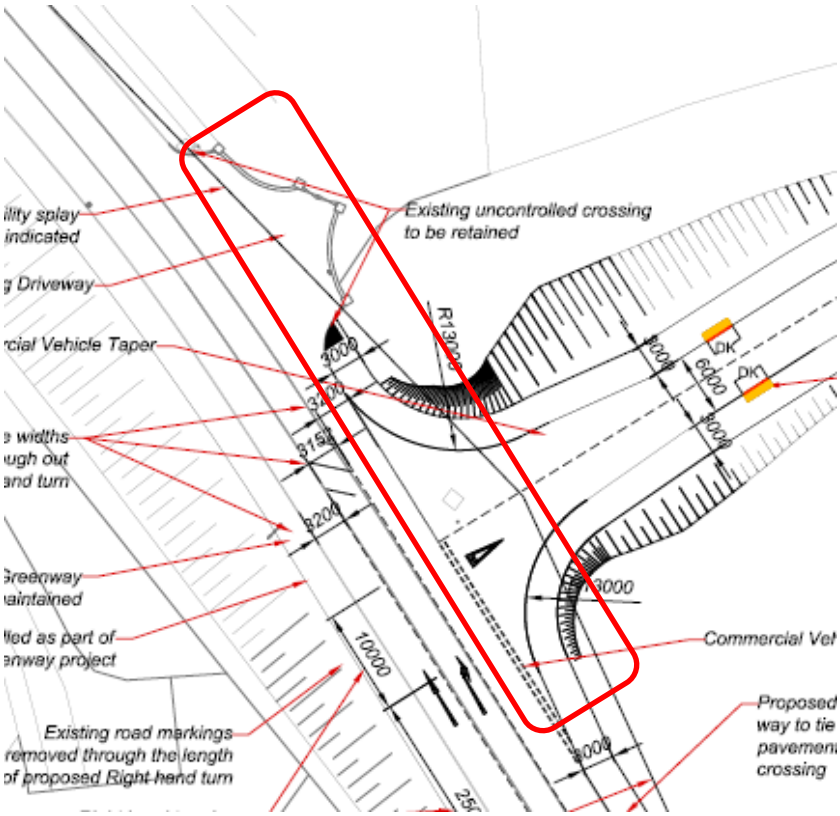
From a point measured 15m along the centreline of the proposed access from the continuation of the line of the nearside edge of the paved surface of the N14, ensure an approaching driver has full visibility of the proposed junction form.

2.3.6 PROBLEM

Location: Proposed site access on northern side.

Summary: Lack of junction visibility.

Detail: A private dwelling access is located directly adjacent to the proposed junction on the northern side. If vehicles attempt to exit both junctions at the same time the users may block visibility for each other. A vehicle may park within this private access, behind the existing footway. This may further restrict visibility from the proposed junction as the visibility splay passes behind the existing footway. A lack of suitable junction visibility may increase the risk of failure to give way type collisions.



RECOMMENDATION

Ensure the proposed visibility splay to the north can be protected to reduce the risk of obstruction. An assessment of vehicle movements out of the existing private access should be carried out to determine the likelihood of a vehicle emerging at the same time as a vehicle is emerging from the proposed access road that could block visibility for both users.

2.3.7 PROBLEM

Location: Adjacent to proposed site access on northern side.

Summary: Lack of guidance for blind/partially sighted users.

Detail: The proposed development that will be accessed by the new road will likely increase non-motorised activity in the area, with an increase in footway usage. A private dwelling access is located directly adjacent to the proposed junction on the northern side. This is a wide junction with tactile paving located at each side. Carriageway edge markings are not provided across the private access. A lack of carriageway edge delineation increases the risk of a blind or partially sighted user entering the live carriageway with potentially fatal consequences.

RECOMMENDATION

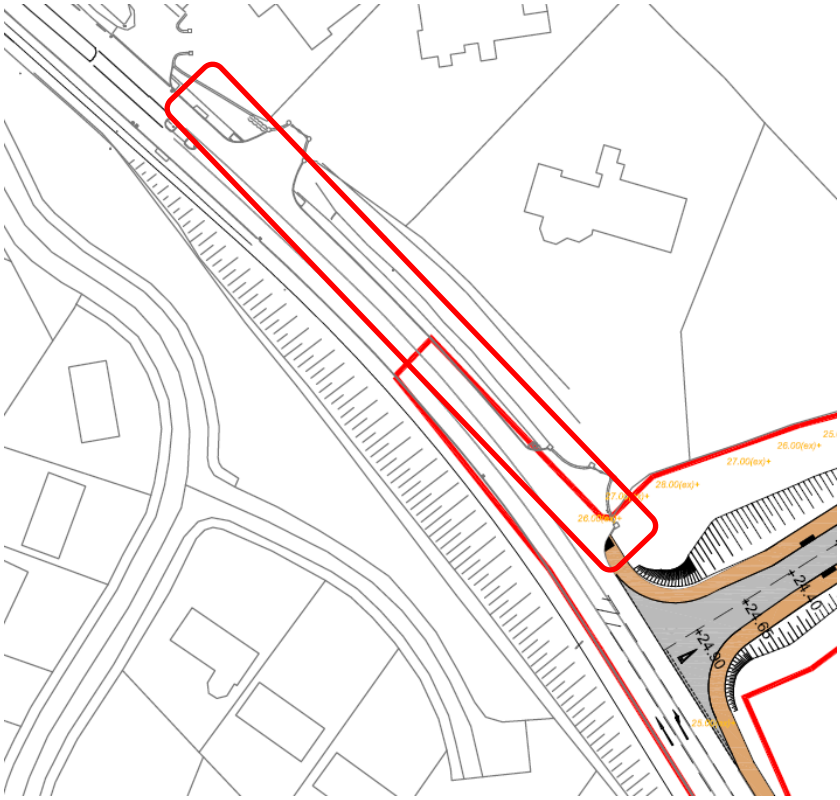
Provide suitable carriageway edge delineation.

2.3.8 PROBLEM

Location: North of proposed access on eastern side of N14.

Summary: Lack of facilities for cyclists.

Detail: The proposed access road indicates 3.0m wide combined cycleway / footway on both sides of the carriageway. The cycleway appears to start/end at the northern side of the proposed junction with the N14. However, cyclists on the northern side of the proposed access road that are travelling north are likely to continue north on along the eastern side of the N14 which is currently a 2.0m wide footway. Collisions may occur between pedestrian and cyclists due to the restricted width of existing footway. A cyclist or pedestrian may fall into the live carriageway as a result of conflict, resulting in potentially fatal consequences.



RECOMMENDATION

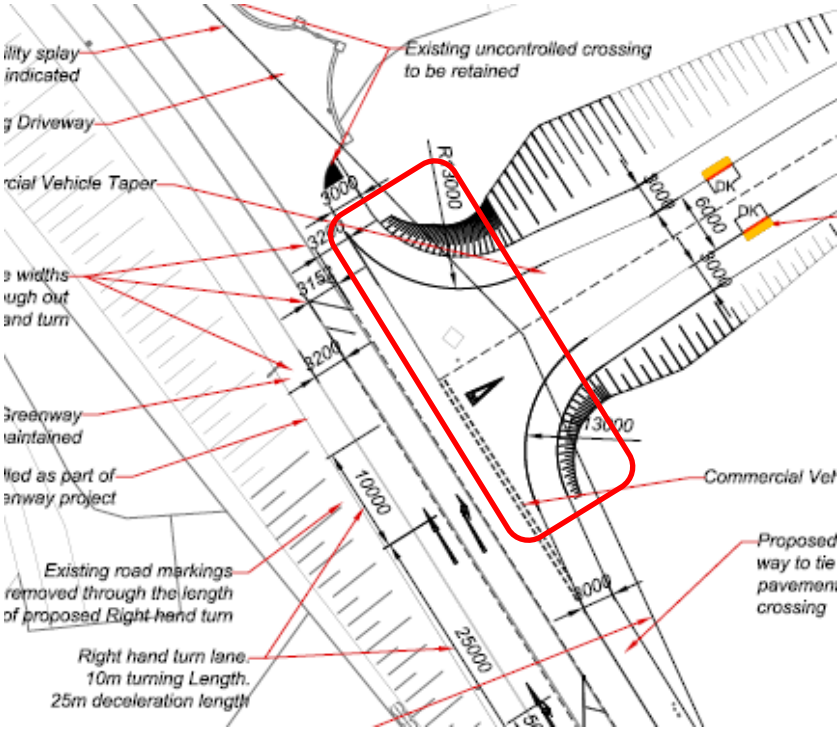
Provide suitable signage and road markings within the proposed site access to direct cyclists to the appropriate crossing point (to the south). However, this will not be a natural desire line for cyclists wishing to travel north. Consider widening the existing footway to the north to provide a combined footway / cycleway up to an existing crossing point approximately 100m north of the proposed access location. Suitable signage and road markings should be provided to indicate provision of a combined footway / cycleway.

2.3.9 PROBLEM

Location: Proposed site access.

Summary: Lack of suitable non-motorised user crossing facilities.

Detail: No provision has been made for pedestrians to cross at the entrance to the development, which is in excess of 20m width. It is acknowledged that crossing facilities have been provided approx. 30m east of the junction, but this would be located outside the pedestrian desire line. Failure to provide an appropriate crossing point may lead to pedestrians and or visually impaired users misinterpreting priority at junctions resulting in collisions with entering and exiting vehicles.



RECOMMENDATION

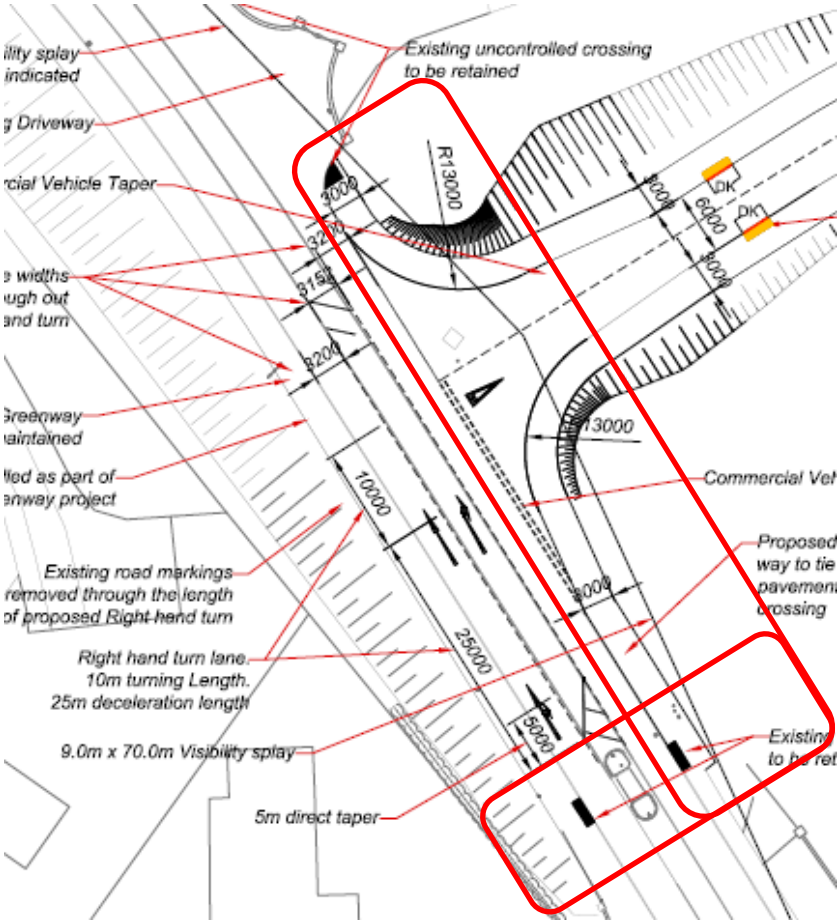
Provide an appropriate crossing point for pedestrians and all vulnerable road users in accordance with the relevant guidelines. A raised entry treatment should be considered along with splitter/channelisation island to segregate traffic flows and provide a safe refuge for vulnerable road users within the junction. Appropriate signage, road markings and tactile paving layout should be provided.

2.3.10 PROBLEM

Location: Proposed junction and combined footway / cycleway.

Summary: Lack of signage and road markings.

Detail: No signage details or road markings have been indicated at the proposed junction onto the N14 or on the combined footway / cycleway. Inadequate road markings or signage could lead to collisions between vehicles and/or collisions between vehicles and pedestrians/cyclists due to a lack of understanding of priorities by road users.



RECOMMENDATION

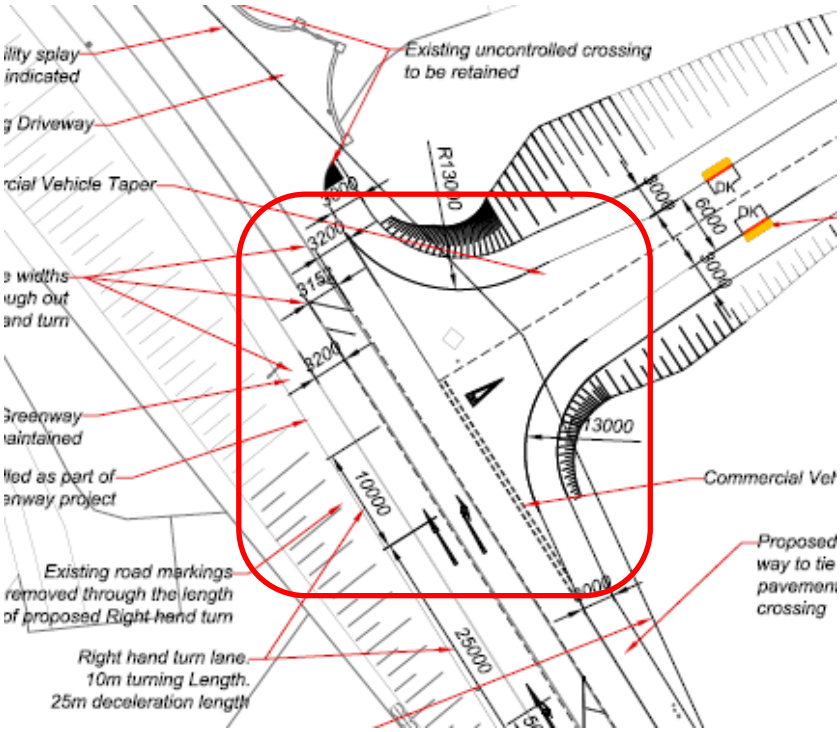
Provide adequate design of signage and road markings at the proposed road junction and crossing point on N14 for both vehicular and non-motorised user traffic. All signs should be located outside of sightline splays area.

2.3.11 PROBLEM

Location: Proposed right turn lane entry and exit from proposed access.

Summary: Vehicle swept path.

Detail: The proposed junction has been designed to accommodate commercial vehicles. The through lane widths provided on the N14 are proposed as 3.2m and the right turn lane width proposed as 3.152m. A commercial vehicle swept path may encroach into the through lane due to tail swing on entry resulting in risk of vehicle conflict or loss of control type collisions. On exit, turning left from the proposed access, a commercial vehicle may encroach into the right turn lane and collide with an oncoming, right turning vehicle.



RECOMMENDATION

Carry out a swept path analysis for all expected vehicle manoeuvres to ensure suitable carriageway space is available for commercial vehicles entering and exiting the proposed access.

2.3.12 PROBLEM

Location: Proposed crossing point on N14, travelling northbound.

Summary: Lack of visibility to non-motorised users.

Detail: An existing pedestrian refuge island is located on the southern side of the proposed access. Travelling northbound on approach to the island, a keep left bollard is located within the island. The size of the bollard may restrict driver visibility to a waiting non-motorised user and vice versa. A proposed combined footway / cycleway will cross the N14 at this location which will increase the frequency of crossing movements. A lack of visibility increases the risk of conflict in this area.

RECOMMENDATION

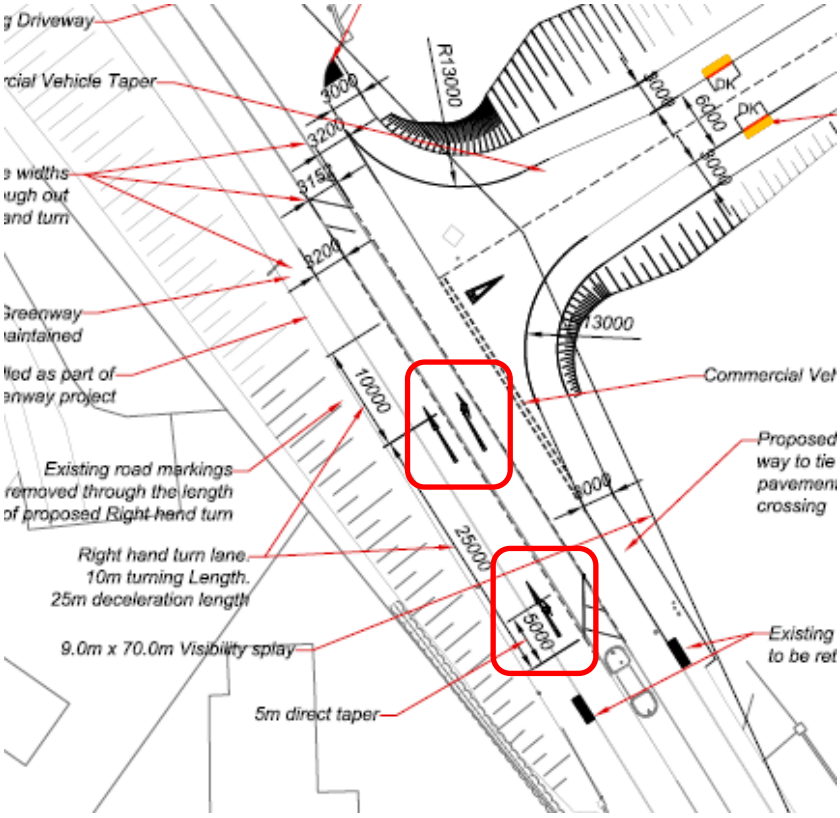
Provide a suitable bollard size to reduce the risk of obstructed visibility to/from the refuge island.

2.3.13 PROBLEM

Location: Proposed right turn lane entry and through lane travelling northbound.

Summary: Road markings.

Detail: A combined right turn and ahead arrow (M 125) has been provided in place of a bifurcation arrow (M 102) on the northbound approach to the proposed right turn lane. This may result in driver confusion as they may assume the junction is immediately at the entry point of the right turn lane. This may result in rear end shunt type collisions due to sudden braking. The proposed ahead and right turn road markings are located at the exit lane from the proposed access. Driver confusion may occur as a result of misplaced road markings. A driver may enter the exit lane of the access resulting in head-on type collisions within the access. A driver may hesitate on entry which may result in rear end shunt type collisions or side impact type collisions with vehicles travelling in the opposite direction.



RECOMMENDATION

Provide suitable road markings as per Chapter 7, Traffic Signs Manual.

3.0 Auditor Statement

Declaration and Signature

We certify that we have examined the proposals as presented on the listed drawings in the Annex and considered their impact on the adjacent road network and surrounding land. The examination has been carried out with the sole purpose of identifying any features of the proposals that could be modified to improve the safety of the scheme and is in accordance with the relevant sections of the Transport Infrastructure Ireland (TII) Publication (Standard) GE-STY-01024 (Dec 2017) 'Road Safety Audit'.

Audit Team Leader

Karl Dorman MEng CEng Eur Ing FICE FIEI FCIHT
(Certificate of Competency in Road Safety Audit, awarded August 2016)
Hoy Dorman
Moira Lakes
32B Old Church Lane
Aghalee, BT67 0EY

Signed……

Date…… 12 April 2022

Audit Team Member

Stuart Summerfield HNC FSoRSA FCIHT
(Certificate of Competency in Road Safety Audit, awarded July 2015)
CST Group Chartered Consulting Engineers
1 O'Connell St
Sligo, F91 W7YV

Signed……

Date…… 12 April 2022

Appendix A

LIST OF DRAWINGS RECEIVED

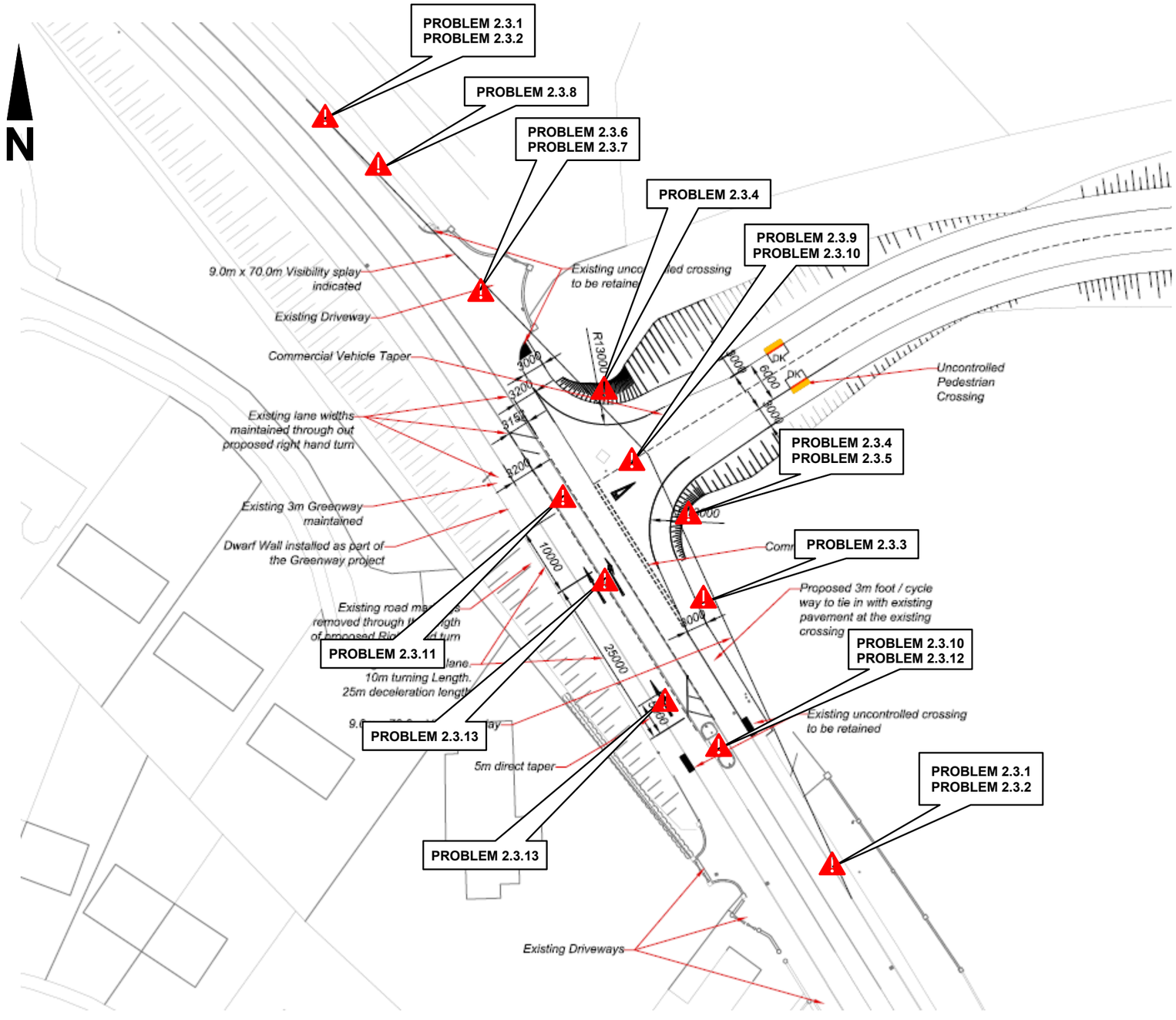
Number	***Rev***	***Title***	***Scale***	***Date***
LIF-MCA-ST1-00-DR-C-1000	P3	Site Location Plan	1:2500 @ A1	31.03.2022
LIF-MCA-ST1-00-DR-C-1003	P8	Proposed Site Layout	1:1000 @ A1	30.03.2022
LIF-MCA-ST1-00-DR-C-1004	P6	Right Hand Turn – N14	1:250 @ A1	31.03.2022
LIF-MCA-ST1-00-DR-C-1100	P2	Proposed Site Levels	1:1000 @ A1	31.03.2022
LIF-MCA-ST1-00-DR-C-1110	P2	Proposed Road Longitudinal Sections Plan	1:1000 @ A1	24.03.2022
LIF-MCA-ST1-00-DR-C-1111	P1	Proposed Road Longitudinal Sections (1 of 2)	1:500 @ A1	14.02.2022
LIF-MCA-ST1-00-DR-C-1112	P2	Proposed Road Longitudinal Sections (2 of 2)	1:500 @ A1	24.03.2022
LIF-MCA-ST1-00-DR-C-1115	P2	Proposed Site Cross Sections Location Plan	1:1000 @ A1	24.03.2022
LIF-MCA-ST1-00-DR-C-1116	P1	Proposed Site Cross Sections	1:500 @ A1	14.02.2022
LIF-MCA-ST1-00-DR-C-2000	P2	Proposed Drainage Overview	1:1000 @ A1	31.03.2022

LIST OF INFORMATION RECEIVED

Title	***Date***
Road Safety Audit Brief GE-STY-01024 - Revision V2 Ref. E2324 RSA1	30.03.2022
TII Design Report Development of a Multi-use Park at The Common, Lifford, Co Donegal Issue V2	31.03.2022
Lifford Common Recreational Facility & Spine Road Traffic Statement	04.04.2022

Appendix B

PROBLEM LOCATION DRAWING



HoyDorman

Hoy & Dorman Limited
Moira Lakes
32B Old Church Lane
Aghalee
BT67 0EY

t. +44 (0) 28 9694 9524
e. info@hoy-dorman.com
w. www.hoy-dorman.com

Application for a Departure from the TII Publications as part of the Tender Design Process for Design and Build and PPP Schemes

Application for a Departure from TII Publications (Standards)

Includes all documents classified as Standards on www.tiipublications.ie including the Requirements for Measuring and Pricing (RMP)

General Information for Application No. _____:

Route Number:	Scheme:	Contract Type:
N14	The Common Lifford	

Design Speed:	Traffic Flow and Composition (if applicable):
_60__ km/h	Approx. _____ (Design Year)

Carriageway Type / Road Cross Section:

Type 2. 3.2m through lanes and 3.15m turning lane

Applicant Information:

Applicant Name:	Contact Person and Contact Details:
McAdam Design	Name: Peter Alcorn Email: PAlcorn@mcadamdesign.co.uk
Applicants Departure Reference No:	
E2324-01	

Departure Information:

Departure Location and Chainage *(as relevant):*

Proposed junction, Right Hand Turn Lane for access to development lands.

Publication Stream:

Geometry (GEO)

Publication:

Geometric Design of Junctions. DN-GEO-03060

Publication Paragraph:
5.6.11.3 Turning Lane Width.
Departure Type:
Reduced turning lane width.
Standard Required:
The width of a ghost island turning lane shall be 3.5m, but a Relaxation to 3.0m is permissible.
Standard Provided:
Proposed turning lane width to be 3.15m, as existing central hatched area.
Justification:
Proposal is to provide through lanes and turning lanes within the existing road section, thus existing accesses including driveway visibility splays will remain unchanged.
Other Departures or Relaxations at same location:
None.
Additional Information:
No.
Comments:

Supporting Documentation:
Status:

BELFAST
478 Castlereagh Road
Belfast
BT5 6BQ
Northern Ireland

T +44 (0) 28 9040 2000

admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk