PINNACLE
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Outline Construction Traffic Management Plan

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STRUCTURAL · CIVIL · DUE DILIGENCE · ENGINEERING MASTERPLANNING
FLOOD MANAGEMENT · INFRASTRUCTURE DESIGN
PRE-DEVELOPMENT ENGINEERING · BIM · TRANSPORTATION

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0	Ronan Kearns	06/06/21	First Draft
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CONTENT

Tables

Figures

1 INTRODUCTION

1.1 Introduction

This Outline Construction Traffic Management Plan (CTMP) has been prepared in consultation with Applicant and their contractors. It is as a key construction contract document, the implementation of which aims to reduce possible impacts which may occur during the construction of the proposed development.

The applicant is responsible for ensuring construction activities are managed in accordance with this CTMP.

Objectives and measures are also included for the management, design and construction of the project to control the traffic impacts of construction insofar as it may affect the environment, local residents and the public in the vicinity of the construction works.

1.2 Implementation

Key to the implementation of this CTMP is the dedication of the on-site construction manager who will regularly liaise with and update the Applicant's resident representative and associated team on all environmental and construction programming issues relating to the site. All site personnel are charged with following good practice and encouraged to provide feedback and suggestions for improvements. All site personnel are also required to ensure compliance with the requirements of the site's CTMP.

1.3 Scope

The objective of this CTMP is to ensure that the residual impacts to the public road network during the construction phase of the project which have been identified in the application documentation are minimised and that transport related activities are carried out as safely as possible and with minimum disruption to other road users.

The CTMP has also been prepared for the purpose of identifying appropriate and safe methods of access for construction traffic to the proposed development. This CTMP describes the traffic management for the transportation of construction materials, equipment and personnel along the public road network to facilitate the construction of the proposed development. Light vehicles, such as cars and vans, will be used by site operatives travelling to and from the site. Heavy Construction Vehicles (HCV) will be required to deliver general construction materials, such as concrete, to the site.

This CTMP remains a live document that will be reviewed by the contractor and expanded upon, where necessary, throughout the construction phase of the project. However, this version is considered to be wholly relevant for the expected works.

1.4 Consultation

The Applicant, and their connected companies, has a number of active construction sites. It has engaged in detail consultation with their incumbent contractors to review and sense check the measures contained in this outline CTMP.

While the measures contained in this CTMP are subject to detailed design and the appointment of a main contractor, all the pertinent issues have been reviewed by a number of contractors to ensure holistic approach has been taken with regard to the proposed CTMP measures.

2 PROJECT DESCRIPTION

2.1 General

The development will consist of

- *Construction of a 3 storey (part 4 storey) data centre known as "DB8" to include data halls, electrical/plant rooms, offices, lobbies, ancillary staff areas including break rooms and toilets, stores, stair/lift cores throughout and photovoltaic panels at roof level. The total gross floor area excluding hot air plenums and external staircase is c.9,601sqm. The overall height of the data centre ranges from c.16m to c.20m to roof level and c.20m to c.24m including roof top plant, flues and lift overrun;*
- *Provision of 5 no. external generators, 8 no. fuel tanks and ancillary plant contained within a plant yard to the north of DB8;*
- *Provision of a water tank plant room, air cooled chillers and ancillary plant contained within a chiller plant yard to the south of DB8;*
- *Provision of a sprinkler pump room (c.23sqm), 2 no. sprinkler tanks (c.12m high each), heat recovery plant room (c.17sqm), ESB substation (c.44sqm), waste/bin stores (c.52sqm). Total floor area of ancillary structures and plant (c.303sqm);*
- *Provision of a delivery yard and loading bays, 64 no. car parking spaces, 5 no. motorcycle spaces, bicycle shelter serving 14 no. spaces, smoke shelter, internal access roads and footpaths, vehicular and pedestrian access to the west from Falcon Avenue and closure of existing vehicular entrances from Falcon Avenue;*
- *All associated site development works, services provision, drainage works including attenuation, landscape and boundary treatment works including berming, hedgerow protection areas and security fencing;*

2.1 Site Access

The lands are part serviced by 2 No. access points.

Figure 1 Existing Access

The site will be accessed from the existing left in/left out junction (Access No. 1) from the development on to the Profile Park Road. This access is located on the southwest boundary of the development.

Note that the access (Access No. 1) located on the northwest boundary of the site is the closed as part of this application.

Access to the development during the constriction phase will be via Access No. 2.

2.2 Servicing

An AutoTrack analysis has been carried on the internal service access to demonstrate its capability to cater for staff, visitor and third party access, in conjunction with the proposed control system.

The results of this analysis show that the proposed development can accommodate the anticipated service vehicles that will serve the proposed development.

Refer to Pinnacle Consulting Pinnacle Consulting Engineers drawings for the proposed swept path analysis for the service arrangements.

2.3 Overview

The construction site will be organised so that, where possible, vehicles and pedestrians using site routes are segregated and can move around safely. The access routes need to be suitable for the persons or vehicles using them, in suitable positions and sufficient in number and size, this is so that incidents can be prevented by the effective management of transport operations throughout the construction process.

Pedestrians and vehicles can be kept apart by management of the following:

- **Entrances and exits** - provide separate entry and exit gateways for pedestrians and vehicles;
- **Walkways** - provide firm, level, well-drained pedestrian walkways that take a direct route where possible;
- **Crossings** - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
- **Visibility** - make sure drivers driving out onto public roads can see both ways along the footway before they move on to it; the existing entrance has a visibility splay to enable this;
- **Obstructions** – walkways not to be blocked so that pedestrians have to step onto the vehicle route; and
- **Barriers -** Where needed, a barrier between the road and walkway.

Vehicle movement will need to be minimised on site due to the restricted areas in which the contractor will have to work. This can be minimised by management of the following:

- Provide car and van parking for the workforce and visitors away from the work area;
- Control entry to the work area;
- Plan storage areas so that delivery vehicles do not have to cross the site;
- People who direct vehicle movements (banksmen) must be trained and authorised to do so;
- Make sure that all drivers and pedestrians know and understand the routes and traffic rules on site;
- Use standard road signs where appropriate;
- Provide induction training for drivers, workers and visitors and send instructions out to visitors before their visit.

This management of the processes will be greatly assisted by utilising the following:

- **Banksmen** - who can be appointed to control manoeuvres and who are trained in the task;

- **Clothing** - pedestrians on site should wear high-visibility clothing as well as other relevant P.P.E.
- **Gatekeeper**- A gate keeper will be employed to restrict access to authorised personnel only and manage access to the site.
- **Speed limits**- speed limits to be restricted on site for all vehicles.

3 ENVISAGED CONSTRUCTION TRAFFIC GENERATION

3.1 Introduction

There are multiple factors that influence the traffic generation as a result of construction activities. These factors include, but are not limited to:

- Market conditions
- Detailed design/final cut and fill models
- Program
- Availability of materials
- Availability of staff
- Improvements in construction methodologies i.e. the use of soil stabilisation rather than the importation of suitable material.

An estimate of the construction traffic generation is outlined in Section 3.10 of this report. In the final CTMP, the traffic generation will be calculated based upon final scheme design and construction program. Staffing levels, material deliveries and envisaged plant requirements, and the associated access and traffic and transport impacts, will be calculated based on similar project activities.

Automatic Traffic Counts were sourced from Reg. Ref. SD20A/0124 to determine typical existing traffic volumes currently using the roads which will be potentially impacted by the construction of the proposed development. Details of the Automatic Traffic Counts are detailed in Traffic & Transport Assessment.

3.2 Phasing

Subject to market conditions, the development will be constructed over a single phase with a construction period of up to 2 year.

3.3 Days and Hours of Construction/Delivers

All deliveries will be notified to the Contractor's Project Manager/Traffic Management Co-ordinator in advance with specific times identified. These will be collated and held in a diary by the Co-ordinator who will manage the deliveries daily. The Co-ordinator will highlight any clashes and anticipated busy periods to streamline the processing of deliveries.

On arrival at the agreed locations, drivers must wait and ring for attention in accordance with the relevant site signage. They will then be escorted to the appropriate location for unloading by the contractor's Banksmen. No waiting will be permitted on the public road network.

Unloading will be carried out at one of the material storage areas. All deliveries, where possible, must be able to be unloaded by forklift or mechanical means.

Deliveries of materials to site will generally be between the hours of 07:00 and 19:00 Monday to Friday, and 09:00 to 13:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays.

There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times. These will be kept to a minimum.

All access roads used by contractors will be monitored for mud and any construction materials and cleared using a shovel/broom and if required a mechanical road sweeper.

3.4 Public Transport

3.4.1 Background

Local public transport infrastructure is illustrated in Figure 2 below.

Figure 2 Local Public Transport Infrastructure

3.4.2 Bus

There are a number of bus stops within 500-600m / 6-min walking distance of the application site. The nearest stops are on route no. 68 that connects Newcastle with the city centre. These stops are some 700m to the south of the subject site.

The bus stops within the Profile Park, such as those serving the no. 13 and 151 buses also have the ability to serve the site and contain stops within 800m of the site. The following table illustrates that there are regular services on all days which route to the existing bus stops on routes 13, 151 and 68.

Table 1 illustrates local bus routes.

No.	Route	Service		Mon-Fri	Sat	Sun
13	Harristown – Dublin City Centre – Clondalkin Village – Grange Castle	Harristown	First	05:30	06:05	08:00
			Last	23:15	23:15	23:30
		Grange Castle	First	06:00	06:00	08:00
			Last	23:30	23:30	23:30
		Frequency		15min	15min	15min
151	Docklands – Dublin City Centre – Clondalkin – Profile Park – Lucan	Docklands	First	06:30	07:10	08:30
			Last	23:20	23:20	23:20
		Grange Castle	First	06:00	06:30	07:30
			Last	23:30	23:30	23:30

		Frequency		20min	20min	30min
68	Newcastle / Greenogue Business Park - Cherrywood Villas - Clondalkin Village - Bulfin Rd. - Camden St. - Hawkins St.	Newcastle	First	06:25	06:40	09:15
			Last	23:30	23:30	23:30
		Hawkins St	First	06:25	06:40	10:10
			Last	22:30	23:30	00:00
		Frequency		60min	70 min	115m

Table 1 Local Bus Routes

Dedicated bus lanes are provided in both directions on the R136 Outer Ring Road and the R134 Nangor Road east of the Profile Park roundabout. These routes are part of Dublin's Quality Bus Corridor (QBC) network.

2.2 Walking and Cycling

The realignment of the Profile Park Road created cycle paths on either side of the road that will connect into other cycle paths along the realigned R134.

There is a current planning application proposed to the north of the canal to the immediate north of the site by South Dublin County Council to extend the greenway to the west of the lock and bridge. A cycle greenway already runs along the Royal Canal with access on to the R136. In addition, pedestrian and cycleways are available on all internal roads within Profile Park, and along the R136.

Existing cycle routes identified by the National Transport Authority (NTA) in the vicinity of the application are indicated in Figure 3 below.

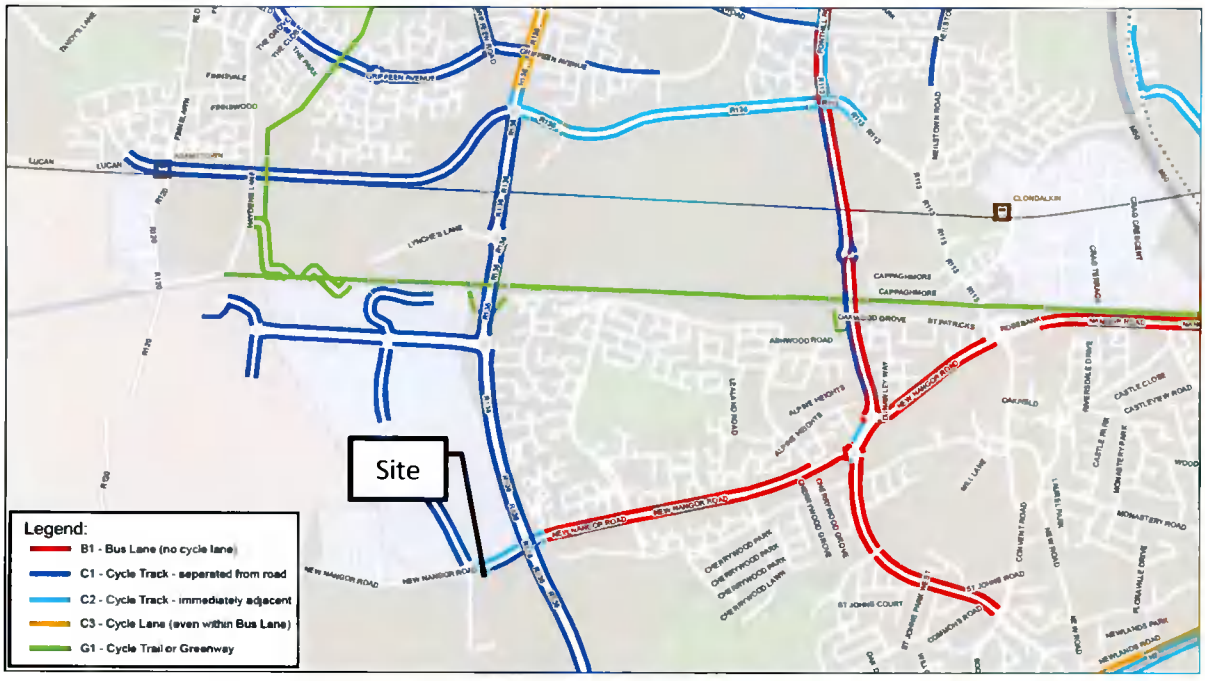

Figure 3 Existing cycle routes (Source: NTA)

The Grand Canal Greenway runs from east to west immediately north of the site. This pedestrian and cycle route provides an 8.5km off-road route from 12th Lock, Newcastle Road to Davitt Road, Inchicore. The route also links north to Adamstown and Lucan, via a walking and cycling bridge over the Grand Canal. The route can be accessed from the R136, approximately 1km from the site.

3.4.3 Summary

It is reasonable to conclude that with such direct pedestrian linkage to public transport surrounding the development, there is the opportunity to cultivate increased bus by construction workers to/from the site.

3.5 Car pooling

It is well recognised that construction workers tend to make greater use of carpooling than traditional '9-5' workers, possibly due to shared accommodation and travelling from further afield/lower levels of car ownership, which results in a greater level of sharing journeys.

Notwithstanding this, it is proposed that within the site offices or on the staff welfare notice board there will be information on car sharing and a contact number for the main contractor welfare officer who will have a list of site operatives and their willingness to share journeys so that opportunities for car sharing can be maximised. In the event that a lift to work or home becomes unavailable a registered member of the scheme will be offered an alternative lift home or failing that a taxi/public transport ticket will be provided.

For staff that chooses to travel to site using cars or other motorised vehicle a vehicle a pooling system will be put in operation by the contractor. Such measures shall be adopted in order to reduce traffic levels on the local road networks

3.6 Construction Parking

Parking of construction staff vehicles on the public road network will not be permitted.

All construction traffic will access the site via the already permitted access on the Profile Park Road. Car parking will be provided for all workers who travel to site using a car in or adjacent to the site compounds, as determined by the construction program.

This car park will be temporary in nature and will be created by laying of a temporary surface for vehicles.

This number of construction vehicle movements is considered to be relatively low compared to the wider road network and operational traffic.

3.7 Walking

The contractor will ensure construction staff are provided access from the footpath on the Profile Park Road via the permitted access.

3.8 Cycling

Cycle parking spaces will be provided on the site for construction staff, in addition lockers will be provided to allow cyclists store their cycling clothes.

3.9 Haul Route

3.9.1 Background

Materials such as steel and concrete required in the construction of the proposed development are likely to be sourced from manufacturers that are not situated within the immediate vicinity of the proposed development.

The total number of vehicular traffic movements between site location will be determined by the contractor based on the phasing of the proposed development. The use of local roads will be minimised as much as possible, particularly to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities.

3.9.2 Route Selection

The proposed development is located on The Profile Park Road. The haul route will be designed to ensure demolition waste, construction materials and construction waste is brought to the M50 in the shortest route possible while avoiding as many schools as possible (primary, secondary and Third Level).

This will ensure that HGVs and other larger construction and delivery vehicles will spend a minimum amount of time on regional roads and local streets whilst avoiding schools.

Figure 4 School Locations

Based on the most direct route to the M50 whilst avoiding as many schools as possible it is proposed the use the Profile Park Road, R134, R136 and N7 as the main haul route to/from the development to/from the M50.

3.9.3 Haul Routes

A description of the haulage routes are offered below:

From Development to N7 ~ 4 km, 6 minutes

From Profile Park ->Head southwest on Profile ParkRestricted usage road ->At the roundabout, take the 4th exit and stay on Profile ParkRestricted usage road ->At the roundabout, take the 3rd exit onto New Nangor Road/R134Go through 1 roundabout -> Turn right onto R136 ->At the roundabout, take the 2nd exit and stay on R136 -> Enter N7 at Junction 2.

Green Isle Road, Bedlesshill, Dublin, Ireland

Figure 5 Haul Route to Site

From N7 to Development ~ 4 km, 4 minutes

Exit Junction 2,, N7 -> Head southwest on Naas Rd/N7 toward Exit 2 -> At junction 2, take the R136 exit to Grange Castle/Kingswood -> At the roundabout, take the 3rd exit onto R136 -> At the roundabout, take the 2nd exit and stay on R136 -> At the roundabout, take the 2nd exit and stay on R136 -> Turn left onto New Nangor Road/R134Go through 1 roundabout -> At the roundabout, take the 1st exit onto Profile Park Road.

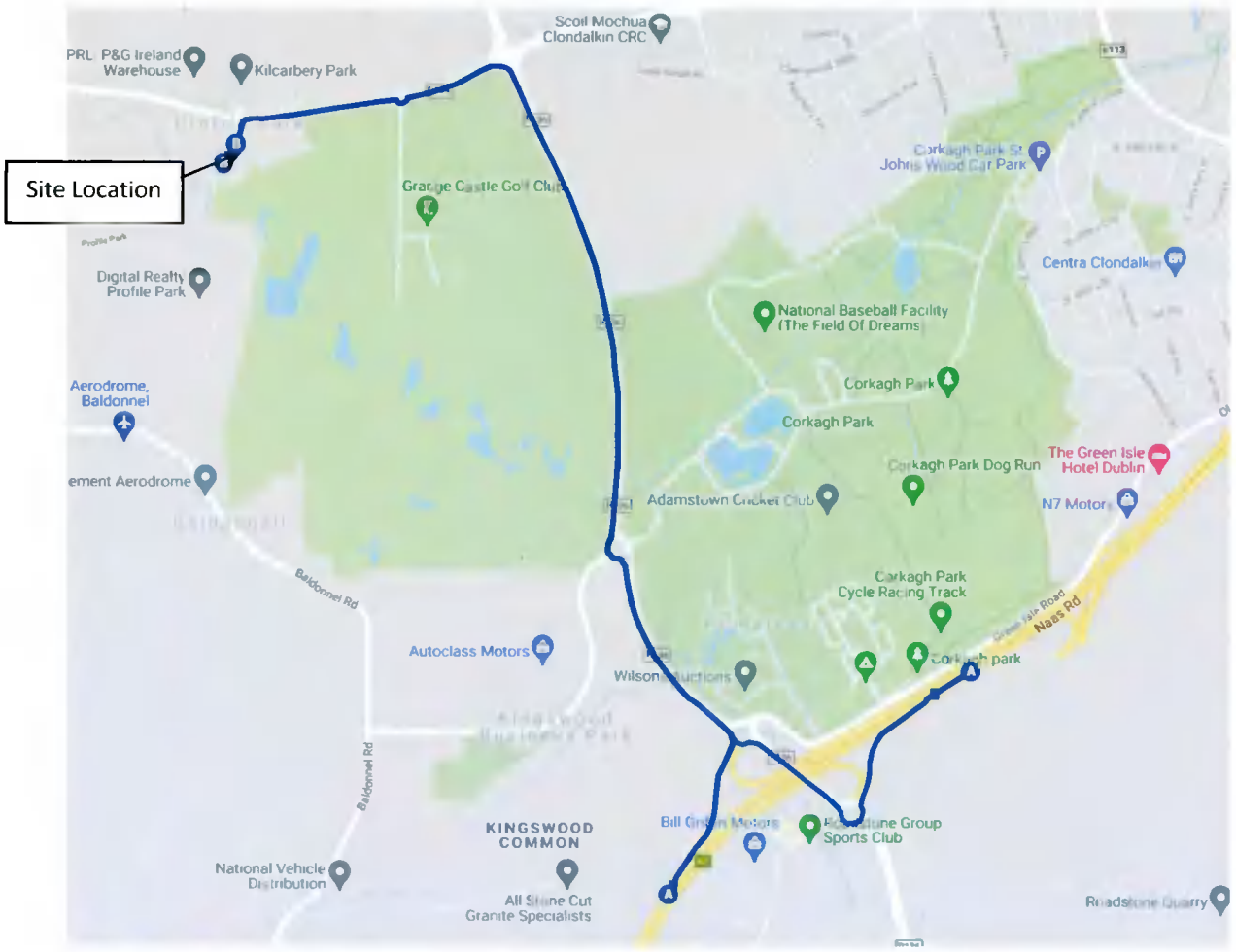

Figure 6 Haul Route from Site

Arrivals and departures to the site compound are to be carried out in as few vehicle movements as possible in order to minimise potential impacts on the road network.

3.10 Traffic Generation

3.10.1 General

It should be noted that the majority of such vehicle movements would be undertaken outside of the traditional peak hours, and it is not considered this level of traffic would result in any operational problems on the local road network.

Care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided within the site for contractor's vehicles. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure.

The envisaged traffic generated during the construction period will depend the phasing of the construction which will be determined by the Applicant. It is anticipated there will not be any likely significant effects as a result of the construction of the development when compared to the operational traffic volumes.

The majority of traffic generated by delivering materials during the project are envisaged to occur during the following construction elements:

- Site clearance

- Laying of internal road
- Concrete, steel, and other material deliveries to site during the construction of structures

For the construction of the proposed development it will be necessary to transport the construction materials, equipment, and personnel to and from the work sites.

This includes (but is not limited to):

- Establishing the construction site compounds;
- The removal of surplus soil material, suitable surplus excavated material for reuse and unsuitable excavated material, which will be taken offsite to a site permitted for deposition;
- Exportation of demolition waste
- The importation of suitable soil material where required;
- The importation of relevant construction materials and equipment;
- The exportation of construction waste;
- Transportation of workers to and from the site;

Several construction traffic movements will be undertaken by heavy goods vehicles, though there will also be vehicle movements associated with the appointed contractors and their staff.

3.10.2 Ground Works

A 3d terrain model has been generated to optimise the site levels. Where possible, the model seeks to balance the amount of cut and fill required on site to create a plateau. It is anticipated in the worst-case scenario that up to. 17,633 cu. m of soil will be exported off site.

This is expected to take up to 2 months to complete. This equates to, on average, 5 soil removal related trips per day/10 two-way trips over a 2/3 month period. The actual number of soil related HGV movements is expected to be lower as alternative uses is found for the soil i.e. landscaping, berm formation and used on other phases of the development.

This spoil will be mounded to create a berm and in turn will allow for the material to be deposited onto the HGVs by excavator. The HGVs will only reverse onto site to a hard standing area, receive the load and leave site. This negates the need for vehicles to drive into site to the dig site and receive the load from the point of excavation and in turn reduce unnecessary spoil being brought onto the public road. The haulage contractor will be required to organise the HGVs in an efficient manner to prevent the build-up of vehicles waiting outside the curtilage of the site.

The road marshal appointed will be responsible to ensure that there is no disruption to traffic or pedestrians and that roadways and paths are kept clean and free of debris.

Whilst it is not possible at this stage to accurately identify the day to day traffic movements associated with the construction activities, based on experience of similar sites it is considered that the number of construction related heavy goods vehicle movements to and from the application site will be approximately 10 arrivals and departures during the first 2-3 months of works and decreasing to 3 to 5 thereafter.

3.10.3 Demolition & Construction Waste

Whilst it is not possible at this stage to accurately identify the day to day traffic movements associated with the construction activities, based on experience of similar sites it is considered that the number of construction related heavy goods vehicle movements to and from the application site will be on average 2 arrivals/departures per day over a 2 year construction period.

3.10.4 Proposed Material Deliveries Storage Yard/Site Compound

Whilst it is not possible at this stage to accurately identify the day to day traffic movements associated with the construction activities, based on experience of similar sites it is considered that the number of construction related heavy goods vehicle movements to and from the application site will be approximately 10 arrivals and departures during the first 2-3 months of works and decreasing to 3 to 5 thereafter.

3.10.5 Construction Workers

At the peak of construction, it is anticipated that there will be a requirement for approximately c.100-120 construction workers, which with an allowance for shared journeys could equate to a maximum of around 60-80 arrivals and departures per day. This will vary over the lifetime of the project.

3.10.6 Material handling

The development will be served by cranage, given the construction method and site confines. Lifting capacities will be predicated on the maximum loading requirements. A material and plant loading schedule will be undertaken to evaluate these needs.

All material scheduling and ordering will be communicated to the necessary personnel on site at the end of every day for the following day. It is imperative that deliveries are timely and executed efficiently to avoid unnecessary waiting.

3.10.7 Construction Impact

For illustrative purposes only, it is assumed that all trips will arrive/depart in each of the peak periods. This is illustrated in the table below.

Two-Way Link	AM Peak Hour (08:00hrs-08:59hrs)	PM Peak Hour (17:00hrs-17:59hrs)
Ground Works	10	10
D&C Waste	2	2
Deliveries	10	10
Workers	80	80
Total	**102**	**102**

Table 2 Peak Construction Trips

The construction phase of the proposed development will increase traffic at the Profile Park Road/New Nangor Road by 3.5% in the AM Peak and up to 4.0% in the PM Peak as illustrated below.

Two-Way Link	AM Peak Hour (08:00hrs-08:59hrs)			PM Peak Hour (17:00hrs-17:59hrs)		
	Baseline	Dev Flows	% Impact	Baseline	Dev Flows	% Impact
Overall	**2886**	**102**	**3.5%**	**2523**	**102**	**4.0%**

Table 3 Percentage Impact of Development on Roundabout

These figures are the worst case scenario and assumes that all trips to/from the development during the construction phase will arrive/depart during the peak period. This is highly unlikely to occur.

3.10.8 Summary

Arrivals and departures to the sites are to be carried out in as few vehicle movements as possible to minimise parking requirements and potential impacts on the local road network.

The proposed development will have a dedicated loading and unloading area within the curtilage of the proposed development.

The site will be access from the existing left in/left out junction (Access No. 1) from the development on to the Profile Park Road. This access is located on the southwest boundary of the development.

Construction traffic will be restricted to the primary routes and will not be permitted to use residential routes. Material scheduling will dictate the timely delivery of supplies to site during off peck periods when traffic flow has eased, and pedestrian numbers are lower.

All offloading of deliveries to site will occur within the curtilage of the site boundaries and no roadside offloading will be permitted.

All scheduled deliveries will be supplied with the appropriate site location details in advance to prevent wandering in the locality. A dedicated site marshal will be appointed to ensure that delivery vehicles securely access and vacate the site. The site marshal shall also be responsible to ensure that clean road and pathway conditions are maintained for the public users.

4 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

4.1 Introduction

This section outlines the content of the final Construction Traffic Management Plan (CTMP) which shall be prepared prior to construction of the proposed development. It shall be a requirement of the contract that, prior to construction, the appointed contractor shall liaise with the relevant authorities including the Transport Infrastructure Ireland (TII), Local Authorities and Emergency Services for the purpose of finalising the CTMP, which will encompass all aspects of this outline Construction Traffic Management Plan.

The CTMP shall be termed a 'Live Document ', such that any changes to construction programme or operations can be incorporated into the CTMP.

The contractor will be contractually required to ensure that the elements of this outline CTMP shall be incorporated into the final CTMP. The contractor shall also agree and implement monitoring measures to confirm the effectiveness of the mitigation measures outlined in the CTMP. On finalisation of the CTMP, the contractor shall adopt the plan and associated monitoring measures. The final CTMP shall address the following issues (including all aspects identified in this outline CTMP):

- Site Access & Egress;
- Traffic Management Signage;
- Routing of Construction Traffic / Road Closures;
- Timings of Material Deliveries to Site;
- Traffic Management Speed Limits;
- Road Cleaning;
- Road Condition;
- Road Closures;
- Enforcement of Construction Traffic Management Plan
- Details of Working Hours and Days;
- Details of Emergency plan;
- Communication;
- Construction Methodologies; and
- Particular Construction Impacts

These items are explained in detail in the remainder of this section of the report.

4.2 Site Access and Egress

The site will be access from the existing left in/left out junction (Access No. 1) from the development on to the Profile Park Road. This access is located on the southwest boundary of the development.

Access to the site will be gated. The gate will be set back off the external road network to ensure that vehicles entering the site can do so without causing an obstruction on the main carriageway.

The contractor shall provide advanced warning signs, in accordance with Chapter 8 of the Department of the Environment's Traffic Signs Manual 2019, on the approach to proposed site access locations a minimum of one week prior to construction works commencing at the site.

There will be heras fencing secured to a minimum height of 2 metres surrounding the construction site or solid panel hoarding in areas with high/low viewing panels to help reduce unauthorised access to the constriction compound.

This fence will be checked daily and maintained as necessary and it will be the responsibility of the Site Manager to open and lock the gates each working day to ensure the site is not left open and unattended at any time.

Access to the construction site will only be to authorised persons. During afterhours, security will be employed by the main contractors to ensure no unauthorised access.

Where possible, construction traffic and non-construction traffic will be separated for all modes of transport. Where the construction programme requires mixing of traffic, additional temporary traffic management measures will be put in place.

4.2.1 National Road Network

Access to the site along the National Road Network will be via the M50/M7/N7. It is anticipated that the majority of construction related traffic will travel along the M50/M7/N7 at which point construction traffic will enter the regional/local road network i.e. Profile Park Road.

4.2.2 Regional & Local Road Network

The majority of access / egress to proposed sites shall be facilitated from the local road networks. To mitigate against possible restrictions in visibility requirements, it is proposed that the contractor shall use a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location, if required.

The permitted access from Profile Park Road will be used for works traveling via public transport.

4.3 Traffic Management

4.3.1 Signage

The contractor shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Such signage shall be installed prior to works commencing on site.

Proposed signage may include warning signs to provide warning to road users of the works access / egress locations and the presence of construction traffic. All signage shall be provided in accordance with the Department of Transport's Traffic Signs Manual, Chapter 8 – Temporary Traffic Measures and Signs for Roadworks.

In summary, the contractor will be required to ensure that the following elements are implemented:

- Consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements;
- Provision of temporary signage indicating site access route and locations for contractors and associated suppliers; and
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including project contact details.

4.3.2 Traffic management for road works.

If required, a specific Traffic Management Plan (TMP) will be required by the Local authority in conjunction with the application for a road opening licence, in advance of carrying out these road works. The TMP design and service will be provided by an independent specialist and will deal with the efficient management of traffic and pedestrians, mitigating all potential safety risks to users, whist maintaining effective operation of the carriage way.

4.4 Programming

In order to reduce impacts on local communities and residents adjacent to the proposed sites, it is proposed that:

- The contractor will be required to liaise with the management of other construction projects and the Local Authorities to co-ordinate deliveries.
- The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g. avoiding pouring of concrete on the same day as material deliveries in order to reduce the possibility of numbers of construction delivery vehicles arriving on site simultaneously, resulting in build-up of traffic on road network.
- The contractor will be required to schedule deliveries to and from the proposed materials storage yard such that traffic volumes on the surrounding road network are kept to a minimum.
- HGV deliveries to the development site will be suspended on the days of any major event in the area that have the potential to cause larger than normal traffic volumes.
- The contractor will be required to interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as funerals.
- HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practicable.

The construction period for the proposed development is anticipated to be approximately 2 years from the commencement of the site works. This is subject to change and dependent on market conditions.

4.5 Recommended Traffic Management Speed Limits

Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and contractors during induction training.

Drivers of construction vehicles / HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

4.6 Road Cleaning

It shall be a requirement of the works contract that the contractor will be required to carry out road sweeping operations to remove any project related dirt and material deposited on the road network by construction / delivery vehicles. All material collected will be disposed to a licensed waste facility.

4.7 Road Condition

The extent of the heavy vehicle traffic movements and the nature of the payload may create problems of:

- Fugitive losses from wheels, trailers or tailgates; and
- Localised areas of subgrade and wearing surface failure.

The contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to:

- Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss; and
- Utilisation of enclosed units to prevent loss.

- The roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

In addition, the contractor shall, in conjunction with the local authority:

- Undertake additional inspections and reviews of the roads forming the haul routes one month prior to the construction phase to record the condition of these roads at that particular time.
- Such surveys shall comprise, as a minimum, a review of video footage taken at that time, which shall confirm the condition of the road corridor immediately prior to commencement of construction. This shall include video footage of the road wearing course, the appearance and condition of boundary treatments and the condition of any overhead services that will be crossed. Visual inspections and photographic surveys will be undertaken of bridges and culverts that are along the haul roads.
- Where requested by the local authority prior to the commencement of construction operations, pavement condition surveys will also be carried along roads forming part of the haul route. These will record the baseline structural condition of the road being surveyed immediately prior to construction.
- Throughout the course of the construction of the proposed development, on-going visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant local authority is notified. Arrangements will be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.
- Upon completion of the construction of the proposed development, the surveys carried out at preconstruction phase shall be repeated and a comparison of the pre and post construction surveys carried out.

4.8 Road Closures

During the course of the works, it is not envisaged that road closures will be required for any extended period of time. Temporary or partial road closures maybe required to facilitate utility connections such as watermain, foul water, surface water etc.

Should works be required on the external road network, road opening licences will be sought from the Local Authority via the Road Management Office.

In areas where existing carriageways are narrow, it is envisaged that Traffic Management measures such as temporary traffic lights will be utilised to facilitate traffic.

4.9 Enforcement of Construction Traffic Management Plan

All project staff and material suppliers will be required to adhere to the final CTMP. As outlined above, the contractor shall agree and implement monitoring measures to confirm the effectiveness of the CTMP.

4.10 Details of Working Hours and Days

Deliveries of materials to site will generally be between the hours of 07:00 and 19:00 Monday to Friday, and 08:00 to 13:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays.

There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

All access roads used by contractors will be monitored for mud and any construction materials and cleared using a shovel and broom and if required a mechanical road sweeper.

4.11 Emergency Procedures During Construction

The contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The contractor shall provide to the local authorities and emergency services, contact details of the contractor's personnel responsible for construction traffic management. In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112;
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer;
- All construction traffic shall be notified of the incident (where such occurs off site);
- Where required, appointed site first aiders will attend the emergency immediately; and
- The Safety Officer will ensure that the emergency services are en-route.

4.12 Communication

The contractor shall ensure that close communication with the relevant local authorities and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval;
- On-going reporting relating to the condition of the road network and updates to construction programming; and
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The contractor shall also ensure that the local community is informed of proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures etc. which may conflict with proposed traffic management measures.

4.13 Particular Construction Impacts

None noted at this stage but subject to review.

5 CONCLUSION

5.1 Conclusion

This Construction Traffic Management Plan will form part of the construction contract and is designed to reduce possible impacts which may occur during the construction of the proposed development.

The outline Construction Traffic Management Plan shall be used by the appointed contractor as a basis for the preparation of a final Construction Traffic Management Plan and shall detail, at a minimum, the items detailed in this outline Construction Traffic Management Plan and any subsequent requirements of the local authorities.

The Applicant shall be responsible for ensuring that the contractor manages the construction activities in accordance with this outline Construction Traffic Management Plan and shall ensure that any conditions of planning are incorporated into the final Construction Traffic Management Plan prepared by the appointed works contractor.

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