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Outline Construction Management Plan

Proposed Office Development

Ballsbridge, Merrion Road,

Dublin 4.

Client: RGRE Ballsbridge Developments Ltd

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Outline Construction Management Plan

Proposed Office Development,

Ballsbridge, Merrion Road Dublin 4.

1.0 Introduction

In conjunction with the multi-disciplinary Design Team, Cronin & Sutton Consulting were commissioned by RGRE Ballsbridge Developments Ltd, to input and coordinate a "Outline Construction Management Plan" to accompany a planning application for the site at Merrion Road, Ballsbridge, Dublin 4.

The development will consist of the demolition of the existing four no. office blocks with a total gross floor area of 9,789 sq. m. on the site and the construction of 2 no. 6 storey office buildings (with set backs at 4th and 5th floor) over three levels of basement, with office accommodation at upper basement level, parking and ancillary facilities at lower basement level and a sub-basement area to accommodate a gym, ancillary to the proposed office use and plant room areas. The total gross floor area of the offices, including basement levels is 52,350 sq. m. The gross floor area of the proposed office accommodation is 40,382 sq. metres.

Vehicular and cycle access to the basement car park is proposed from the existing vehicular access off Merrion Road on the southern boundary of the site. The development includes the provision of 164 no. car parking spaces, 405 no. bicycle parking spaces (in the lower basement) and 58 additional visitor

spaces (at surface level), 7 no. motorcycle spaces, showers, changing and locker space at lower basement level.

The proposed development comprises of the new development of the full Site. A full description of the scheme is outlined in the *Planning Report* prepared by John Spain & Associates which accompanies this submission.

The existing site is occupied by four separate office blocks, namely Block A, B, C and D. (Fig 1.) Blocks A and C are three storey over basement construction whereas Block B and D are four storey over basement construction. Blocks A and B are physically linked at all floor levels, similarly Block C and D are linked at all floor levels. The buildings are in-situ concrete frame construction, with a ground bearing basement slab floor and in-situ concrete upper floors. We understand that the property was constructed in 1979.

Access to the existing building was limited to a visual inspection of one floor in each block.

Figure 1: Existing Site: Block Naming

This Outline Construction Management plan identifies an indicative sequence of the works from the initial enabling works through to sub-structure and superstructure construction. It is noted that this can only be considered an outline plan and the final Construction Management Plan would be agreed with Dublin City Council (by the appointed Contractor) prior to construction commencing.

The Construction Management Plan defines the physical and legal limitations within which a person or persons can carry out development works that affect the existing nature of public roads, footpaths and the surrounding environment for a duration of time.

2.0 Outline Construction Management Plan

2.1 SITE LOCATION AND DESCRIPTION

2.1.1 Site Location

The site is located in the south inner city of Dublin, on the east side of Merrion Road.

The site is bounded to the north by the existing AIB Bankcentre,

The site is bounded to the west by Ballsbridge Business park, bounded to the east by Serpentine Avenue, to the south by Merrion Road.

Pedestrian access to the site is from Merrion road to the south, with AIB bankcentre staff accessing the site to the west by a shared Pedestrian and

Vehicular access road off Merrion road with Pedestrians also accessing AIB Bankcentre through the pedestrian plaza off Merrion road.

See below figure 2 – Indicative Site Location Map.

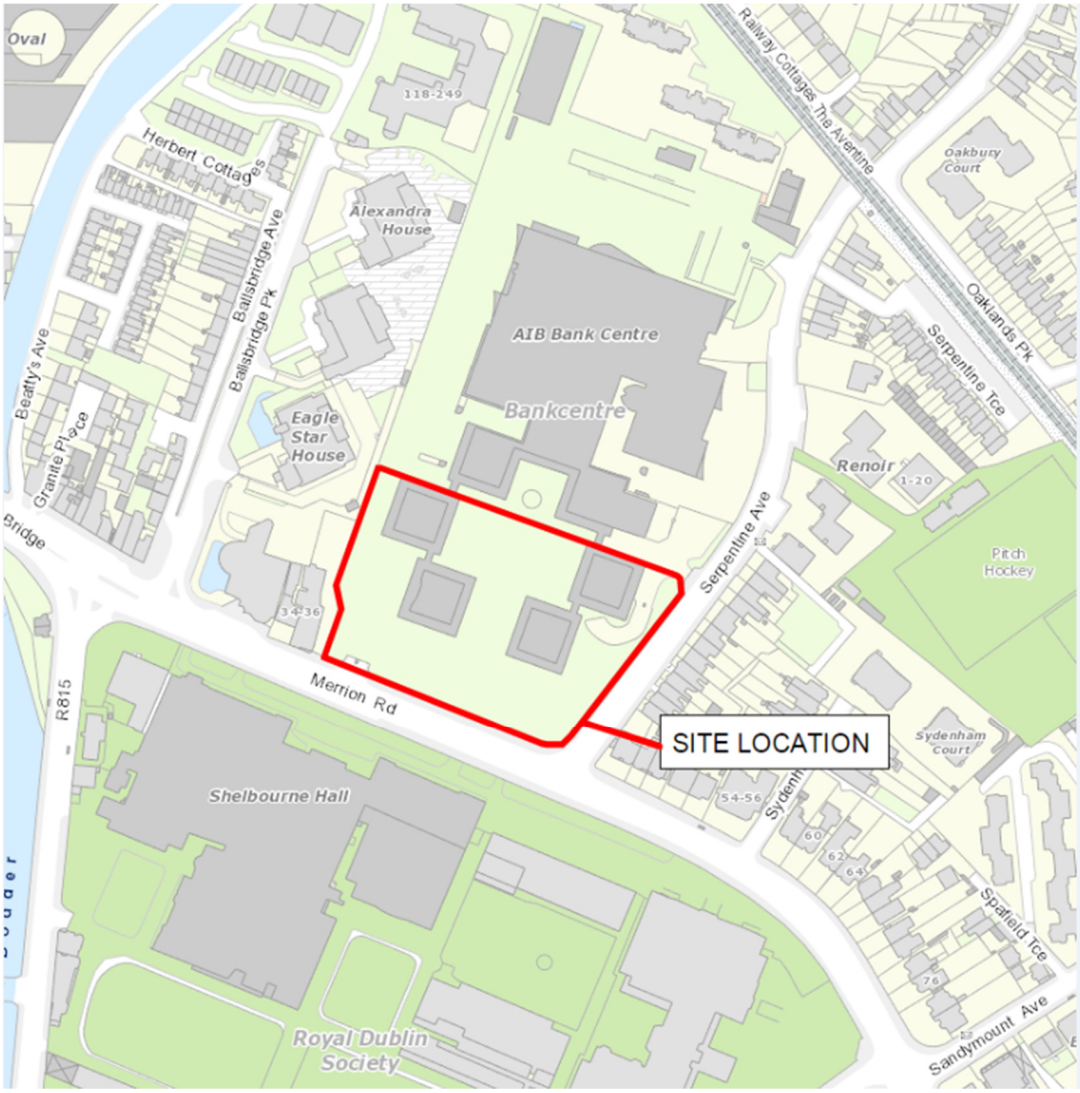

Figure 2: Indicative Site Location plan (source osi.ie)

2.1.2 Existing Land Use

The land is currently occupied by AIB staff parking, with the buildings unoccupied. Pedestrian access is provided through the site from Merrion Road

through the central external plaza area to AIB bank premise. Access to the site is via one vehicular entrance from Merrion Road.

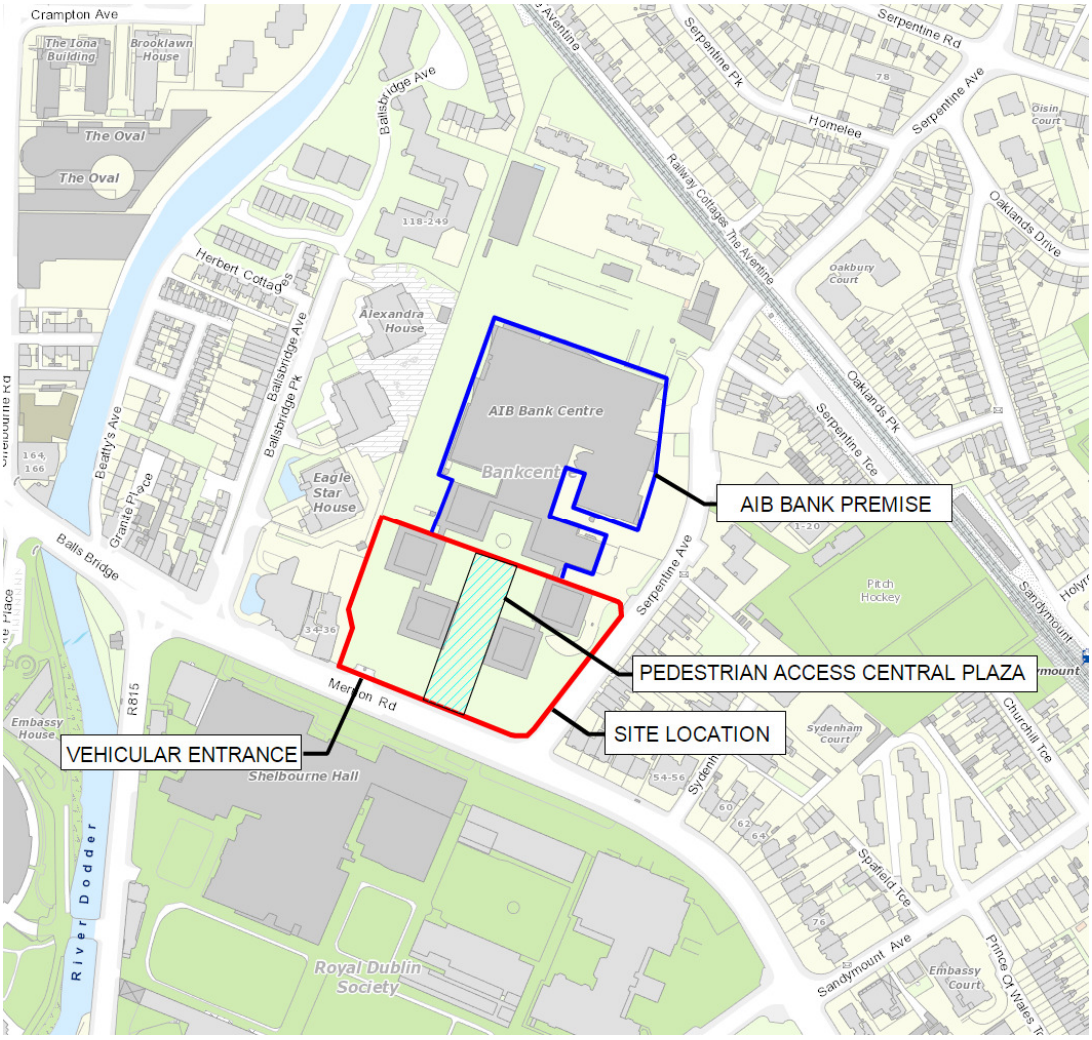

Figure 3: Indicative Site Location plan – Refer to HJL Site Plan (source osi.ie)

2.1.3 Proposed site works

The development will consist of the demolition of the existing four no. office blocks with a total gross floor area of 9,789 sq. m. on the site and the construction of 2 no. 6 storey office buildings (with set backs at 4th and 5th

floor) over three levels of basement, with office accommodation at upper basement level, parking and ancillary facilities at lower basement level and a sub-basement area to accommodate a gym, ancillary to the proposed office use and plant room areas. The total gross floor area of the offices, including basement levels is 52,350 sq. m. The gross floor area of the proposed office accommodation is 40,382 sq. metres.

The key elements of the proposed development are as follows:

- Demolition of existing buildings (13, 089sq.m gross including basement levels) on the site.
- The development of an office development 2 no 6 storey (with set backs at 4th and 5th) over three levels of basement. The total gross floor area of the offices, including basement levels is 52,350 sq. m. The gross floor area of the proposed office accommodation is 40,382 sq. metres.
- Provision of a landscaped open space area of circa 2,000 sq.m to Merrion Road and Serpentine Avenue.
- The development includes all associated site development works, hard and soft landscaping and all other ancillary works.
- The proposed development comprises of a total gross office floor space of 52,350 sq.m including basement levels.

2.2 EXTENT OF WORKS

The construction works will involve an indicative sequence of works, with a brief description outlined below. The Contractor will clearly outline works which impact public spaces within the Construction Management Plan that shall be submitted and agreed with Dublin City Council.

2.2.1 Hoarding, site set-up and Formation of site access / egress points

The site area will be enclosed with hoarding details of which are to be agreed with DCC. Hoarding panels will be maintained and kept clean for the duration of the project.

This will involve erecting the hoarding around the proposed site perimeter in line with the finished development description.

The restricted confines of the site will require the contractor to set up an off-site Construction Staging Area. This off-site facility should be suitably located to allow efficient delivery of materials and personnel to site. A "Just in Time" approach will be required for the delivery of particular building materials such as concrete formwork and reinforcement cages for the piles. The location of this facility should be highlighted within the Construction Management Plan.

The Contractor will be responsible for the security of the site. The Contractor will be required to;

- Operate a Site Induction Process for all site staff;
- Ensure all site staff shall have current 'Safe Pass' cards;

- Install adequate site hoarding to the site boundary;
- Maintain Site Security staff at all times;
- Install access security in the form of turn-styles and gates for staff;
- Separate public pedestrian access from construction vehicular access;
- Ensure restricted access is maintained to the works.

2.2.2 Site clearance and Demolition

We were provided with some early lease plans for each block that were developed by HJL Architects. The building consists of a reinforced concrete framed structure clad in precast panels/ brick slips. The frame consists of a reinforced concrete slab supported by reinforced concrete columns. There are two number concrete lifts and one concrete staircore in each block. The flat roof consists of loose stone on an asphalt / insulation build-up on a concrete slab. The undercroft basement areas has a ground bearing slab. All internal partitions are lightweight and there is a suspended ceiling throughout.

The following is a high level method statement for the demolition of the building;

- Establish a site set-up and welfare facilities;
- Carry out an intrusive asbestos to identify the presence of any carcinogenic materials, in particular as possible fire protection to steel work, and in plant areas;

- Carry out a detailed services survey of the site to identify all buried services, determine what services are live, redundant and potentially serve neighbouring properties; To be performed before any demolition is performed on site. As noted in the "Justification & Outline Method Statement for Demolition of existing building"
- Carry out any necessary services diversions and decommissioning works;
- Carry out a soft strip of the building to remove free-standing units, office furniture, floor finishes, ceiling tiles, window blinds, partitions, doors and door frames, ceiling bulkheads, M&E services, radiators, light fittings, fixtures and fittings, first fix joinery, kitchens and toilet areas;
- Demolish the building using high reach concrete crushing machines such as Liebher 954 High Reach (70 ton) demolition excavators and Liebher 934 (40 ton) demolition excavators. These excavators use a variety of attachments such as rotating sorting grabs, steel shear, rock hammers, concrete pulverisers and digging buckets.
- The High Reach Demolition Excavator fitted with a concrete pulveriser will process the walls, columns, roof & floor slabs in-situ at high level and will continue to work down the floors towards the ground level. Once the building has been reduced down to lower level of approx. two storeys the Liebherr 934 excavators will be deployed to demolish and remove the remaining section of building at low level.

2.2.5 Installation of Pile Wall

The site level will be reduced to a uniform level following demolition and removal of the building foundations and redundant services. The temporary secant pile wall around the footprint of the basement will involve the installation of interlocking male and female augered piles. The augering of the piles will generate spoil that must be disposed at an appropriate licensed land fill site. The concrete operations associated with the pile wall will require concrete deliveries to site.

2.2.6 Bulk Excavation

The basement area will involve the excavation and removal from site of approximately 97,062m^3 of material. A desk-top study of historic information relating to the vicinity notes the ground comprising of the following build-up:

- Made Ground on;
- Brown Boulder Clay on;
- Black Boulder Clay on;
- Weathered Limestone Bedrock.

The basement formation level is at c-8.55mOD, so it is not envisaged that rock will be encountered during excavation.

The Contractor must prepare a Construction and Demolition Waste Management Plan in accordance with the "*Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition*

Projects" (Department of Environment, Heritage and Local Government, 2006) and ensure that all material is disposed of at an appropriately licensed land fill site. The Contractor must also outline detailed proposals within the Construction Management Plan to accommodate construction traffic.

2.2.7 Construction Sequence of Substructure

The nature and type of the proposed development with its single level of basement indicates that to prevent any potential risk of groundwater intrusion into the lower structure the basement will be constructed as a water tight box, the proposed grade for the basement is Grade 1, as per BS 8102:1990. The proposed structural integrity of the basement and its ability to prevent groundwater intrusion into the site is deemed sufficient to mitigate the potential risk to acceptable limits. The concrete works will involve concrete deliveries to site and adequate wash-down and wheel wash facilities must be provided for the concrete wagons.

2.2.8 Construction Sequence of Superstructure

The construction of the superstructure will involve complex sequencing of activities and various construction methodologies could be adopted to deliver the Contract. The nature of the building, the column grid and economic factors, among other issues, would suggest that the building will be constructed utilising a reinforced or post tensioned concrete frame. The façade may consist

of a unitised system to limit the extent of scaffold required, or a more traditional 'stick' system.

As noted the construction methodology and therefore the programme of the construction activities will be dictated by the Contractor.

The following outlines a general construction sequence for the superstructure:

Building Structure:

- Construction of the foundation basement slab and permanent retaining wall structures
- Construction of rising elements to Level 0 and construction of Level 0 floor slab;
- Similar sequence of construction of rising elements and floor slabs

Envelope / Cladding:

- Commencement of envelope works to Level 1 when structure has progressed to approximately Level 2/3;
- Advancing of Cladding two or three levels behind the structure.

Mechanical & Electrical fit-out:

- First fix will commence at each level behind structure;
- This will be followed by the second fix and the final connections;

Fit-out:

- Initial installation of stud work when cladding is complete and floor is weather tight;
- Installation of equipment and associated connection to services;
- Completion of finishes.

Commissioning:

- The final commissioning period will commence during fit-out.

The above is an indicative construction sequence. The final sequence will be dictated by the Contractor. The Contractor must issue a detailed construction programme outlining the various stages prior to commencement of works.

It is envisaged that two tower cranes will be temporarily erected to accommodate the construction works for the distribution of reinforcing steel, concrete skips, concrete formwork elements and general building materials. The Contractor will need to obtain all necessary licences from the Local Authority. A "mast climber" maybe installed at some local areas to facilitate particular façade features. The mast climber is essentially a climbing platform that allows the user safely access any level without the requirement for a full scaffold tower.

3.0 ENVIRONMENTAL ISSUES

3.1 Dust

Dust prevention measures shall be included for control of any site airborne particulate pollution. The Contractor shall put in place and monitor dust levels in the vicinity using a Bergerhoff gauge instrument. The minimum criteria to be maintained shall be the limit for Environmental Protection Agency (EPA) specification for licensed facilities in Ireland, which is 350mg/m2/day. The Contractor shall continuously monitor dust over the variation of weather and material disposal to ensure the limits are not breached throughout the project. It is proposed to use a "Dust Boss" spray cannon machine in order to contain dust on site. The cannon is capable of spraying a water mist up to 45m and has been used in Dublin during the demolition of buildings up to 8 storeys in height. This dust suppression method is very successful in containing dust on-site. The machine has a range of controls and adjustability to accurately target sources of dust generated from demolition works.

3.2 Dirt

Given the volumes of construction traffic generated by the Site Works it shall be a requirement that the Contractor shall ensure that:

- A "Full-Body Self Contained" wheel wash shall be constructed and located within the site confines;
- All vehicles will be required to pass through the wheel wash before exiting the site to the public road network. The wheel wash must be kept in place

and used throughout the construction works. If conditions require it then a manned power washer shall be put in place to assist the wheel wash system;

- A dedicated road sweeper shall be retained for the duration of the haulage works; and Water supplies shall be recycled for use in the wheel wash. All waters shall be drained through appropriate filter material prior to discharge from the site.

3.3 Noise

The Contractor will be required to monitor base noise levels at the site location before commencement of the project. Noise monitoring will be required throughout the project. Variation of noise levels from those experienced as part of everyday life in an area can result in extreme disruption, in particular at this sensitive site adjacent to office / Hotel areas. The Contractor shall implement measures to eliminate where possible and reduce noise levels where not. The proposed development shall comply with BS 5228 "Noise Control on Construction and open sites Part 1: Code of practice for basic information and procedures for noise control" (or such further limits as imposed by Dublin City Council).

3.4 Vibration

The Contractor shall provide and maintain vibration monitoring equipment for the duration of the works. Condition surveys of adjoining buildings will be

required before excavations commence. Vibrations shall be monitored in accordance with BS 7385-1:1990 "Evaluation and Measurement for Vibration in Buildings", with a limit of 5mm/s ppv.

3.5 Harmful Materials

Harmful materials shall be stored on site for use in connection with the construction works only. These materials shall be stored in a controlled manner. Where on site fuelling facilities are used there shall be a bunded filling area using a double bunded steel tank at a minimum.

4.0 CONTENTS OF CONTRACTORS CONSTRUCTION MANAGEMENT PLAN

4.1 Temporary Signage

The Contractor is required to provide appropriate signage which must conform to the requirements of Chapter 8 of the Traffic Signs Manual.

4.2 Temporary Road Markings

The Construction Management Plan shall include proposals for any proposed Temporary Road Markings. These markings must conform to the requirements of Chapter 8 of the Traffic Signs Manual.

4.3 Operation of a Contra Flow

There are no proposals to operate a Contra Flow system.

4.4 Temporary Road Closure

There are no proposals to introduce temporary road closures. Any proposals should conform to the requirements of Chapter 8 of the Traffic Signs Manual.

Any road closure can only be operated under agreement with the Local Authority.

4.5 Temporary Traffic Signals

There are no proposals to operate Temporary Traffic Light Signals. Any proposals should conform to the requirements of Chapter 8 of the Traffic Signs Manual.

4.6 Arrangements for Local Access, Pedestrian and Cyclist Access

There are no proposals to alter the existing local access to the surrounding areas. The temporary hoarding along the site perimeter will necessitate the erection of temporary footways. Covered footways if required shall be built in accordance with Traffic Management Guidelines.

4.7 Proposed Lighting Arrangements

There are no proposals to alter the existing lighting arrangements in the area. Any proposals to alter existing lighting arrangements can only be carried out under agreement with the Local Authority. Adequate lighting should be provided within the temporary hoarded walkway.

4.8 Proposed Use of Flag Men

The use of Flag Men/Banks Men is to be incorporated into the Construction Management Plan to direct vehicles accessing/egressing and shall be agreed with the Local Authority as part of the Contractors construction management plan. There will be a requirement for a Flag man/Banks man at each point of entry and point of exit at all times. This requirement will be on a permanent basis during site opening times regardless of traffic movements. The method of control for access/egress traffic will be by means of a "stop/go" board.

4.9 Proposed Use of Barriers

The use of barriers is to be referred to in the Traffic Management Plan and the details of which are laid out in accordance with Chapter 8 of the Traffic Signs manual.

5.0 CONSTRUCTION TRAFFIC

5.1 Construction Traffic Impact

It is estimated that the construction of the proposed development would be 36 months. The major construction items include demolition, excavation, basement and superstructure construction and fit out. It is anticipated that the peak of HGV movements to and from the site will be during the excavation and construction of the basement. The peak LGV movements to and from the site will be during the basement construction and superstructure construction. It is anticipated that the construction traffic during the AM and PM peaks will not exceed the turning movements observed at the Merrion Road and Site

Access therefore the construction traffic impact on the surrounding local road network to proposed development site will be minimal.

5.2 Haulage Route

The Contractor must submit a Construction Traffic Management plan to the Local Authority for approval. Haulage vehicle movements should be fully coordinated to comply with the requirements of the Layout and requirements herein.

- At no time should construction associated vehicles be stopped or parked along the routes;
- Haulage vehicles should not travel in convoys of greater than two vehicles at any time;
- Haulage vehicles should be spaced by a minimum of 250M at all times;
- Strictly at no time should haulage vehicles be parked or stopped at the entrance to the site.
- All loading of excess material will occur within the site boundary.
- All off-loading of deliveries will take place within the site, away from the public road and will access via the construction site access.

The routes to and from the site shall depend on where the demolition material and excavated material will be taken to and from where construction material will be brought into the site. The above locations will be identified at a later stage and appropriate routes will be agreed with Dublin City Council as part of the Contractors more detailed construction management plan.

The increase in traffic as a result of construction shall be minor and can be readily accommodated within the existing road network. However, the site is located in an urban area where restricted road and junction space is shared with vulnerable road users and the flow of construction traffic will need to be marshalled and regulated to ensure that potential conflicts are avoided as much as possible.

5.3 Working Hours

The construction traffic will occur outside of peak background traffic hours within a six day week with minimal impact on the operation of the existing road network. As part of the Contractors construction management plan the hours of operation are to be agreed with Dublin City Council prior to the start of works.

6.0 CONCLUSION

This Outline Construction Management plan identifies an indicative sequence of the works from the initial enabling works through to sub-structure and superstructure construction. It is noted that this can only be considered an outline plan and the final Construction Management Plan would be agreed with Dublin City Council (by the appointed Contractor) prior to construction commencing.

The Construction Management Plan defines the physical and legal limitations within which a person or persons can carry out development works that affect the existing nature of public roads, footpaths and the surrounding environment for a duration of time.

Mark McEntee

For Cronin & Sutton Consulting