

## 4.0 BASELINE PROGRAMME

The current Baseline Programme that DCGP is working to for the project can be summarised in Figure 13:

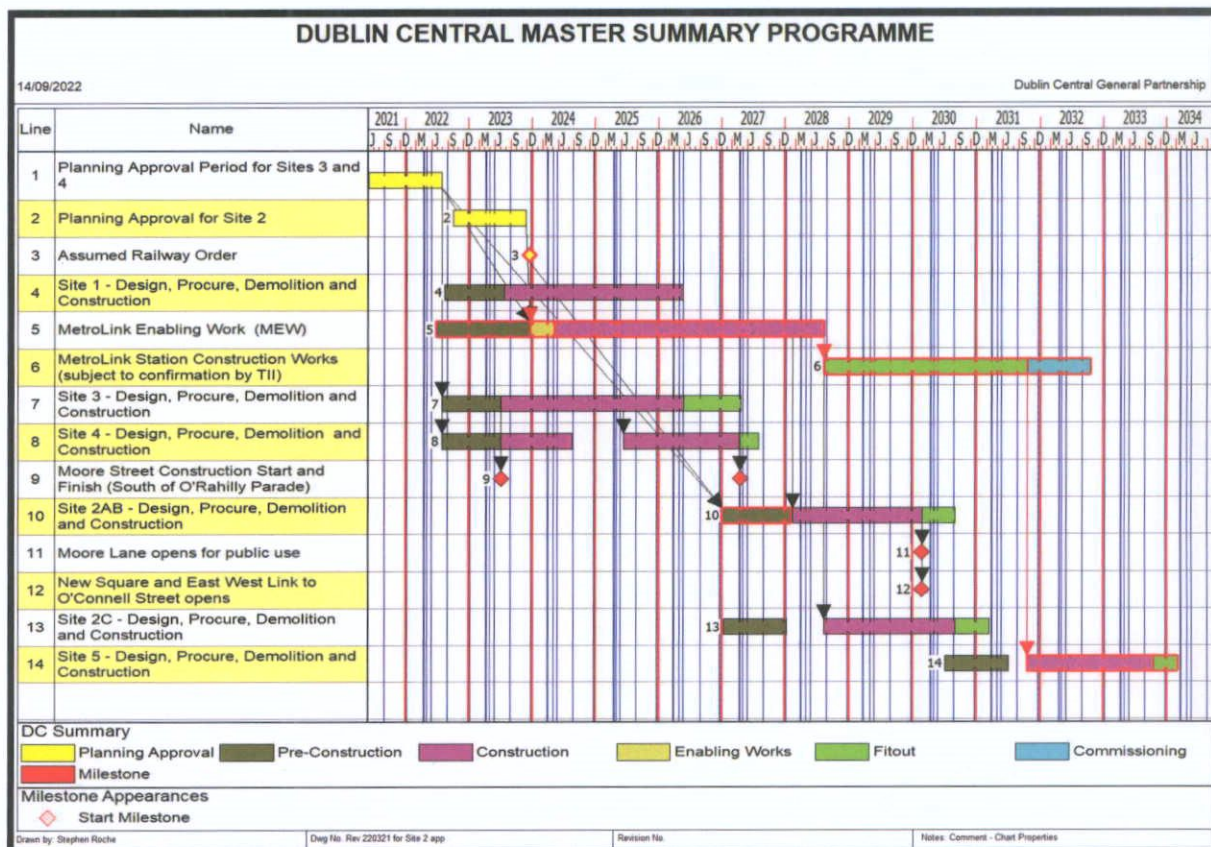


Figure 13 – Master Summary Programme

This programme assumes that a series of planning applications will be submitted in three tranches, as follows:

1. Sites 3, 4 and 5 as three stand-alone applications, submitted concurrently in June 2021 with Sites 3 and 4 having Planning Approval granted on 12<sup>th</sup> January 2022 and Site 5 with Planning Approval granted on 28<sup>th</sup> June, but all subject to reduced planning permission duration periods from those which were applied for and were assumed in the Original Document and again in this document. Note that all three permissions are currently on appeal to An Bord Pleanála.
2. Sites 2AB and Site 2C as one stand-alone application submitted together in September 2022 with an assumed Approval dated of September 2023. Nr 61 O'Connell Street may form an additional separate application.
3. Site 1 submitted as two stand-alone applications on a date yet to be determined, but with the first (Site 1A) likely to be March 2023 comprising 42 O'Connell Street and O'Connell Hall at the rear.

## 5.0 KEY RISKS TO PROGRAMME

Key risks that the project is exposed to include:

- Depth of excavation that may discover unexpected issues / challenging ground conditions.
- Significant design variations that may arise from third parties.
- Challenging ground conditions.
- Delayed programme arising from caution in working adjacent to the National Monument and other Protected/retained structures.
- Contaminated ground in excess of what the ground investigation reports suggest exist.
- The high water table and all the risks associated with dewatering to enable construction.
- Archaeological finds and all the risks associated with recording, etc.
- Restricted site access and egress points leading to slower progress.
- Site congestion due to significant number of contractors on site, leading to slower programme.
- Ministerial Consent requirement.
- Protracted planning delays for one or multiple Sites will present programme risk across the Estate due to the interconnected nature of the Sites.

The above risk factors have all been given due consideration in determining the proposed planning durations, set out below, on a risk-adjusted basis.

## 6.0 SITE 2AB PROGRAMME

Proposed duration of planning permission: 11 years.

With reference to the Masterplan Summary Programme (Figure 13) as well as the constraints and risks outlined:

- Site 2AB works cannot commence until the Enabling Works for MetroLink are complete in this part of Site 2 (targeted for 14-2028).
- Target completion date of September 2030: 7 years from receipt of Planning Approval.
- Risk adjusted duration of 11 years is being sought from the date of the Planning Approval.

## 7.0 SITE 2C PROGRAMME

Proposed duration of planning permission: 11 years.

With reference to the Masterplan Summary Programme (Figure 13) as well as the constraints and risks outlined:

- Site 2C works cannot commence until the advanced works for MetroLink are complete in this part of Site 2 (targeted for Q3-2028).
- Target completion date of March 2031: 7.5 years from receipt of Planning Approval.
- Risk adjusted duration of 11 years is being sought from the date of the Planning Approval.

## 8.0 SITE 3 PROGRAMME

Proposed duration of planning permission: 7 years.

With reference to the Masterplan Summary Programme (Figure 13) as well as the constraints and risks outlined:

- Likely to be the first phase of construction on the Overall Site (along with Site 4).
- Structurally independent of the Enabling Works for Metrolink and therefore can be progressed more quickly.
- Can be progressed independently of heavy works in Site 2 (albeit, programme likely to be impacted by scope of Site 2 works).
- Construction to commence in August 2023.
- Target completion date is April 2027 (5 years from Planning Approval).
- Risk adjusted duration of 7 years is being sought from the date of the Planning Approval.

## 9.0 SITE 4 PROGRAMME

Proposed duration of planning permission: 7 years.

With reference to the Masterplan Summary Programme (Figure 13) as well as the constraints and risks outlined:

- Likely to be the first phase of construction on the Overall Site (along with Site 3).
- Ministerial Consent must be sought and granted.
- Structurally independent of the Enabling Works for Metrolink and therefore can be progressed more quickly.
- Construction to commence in August 2023.
- Likely to be constructed by the same contractor as for Site 3.
- Target completion date is July 2027 (5.5 years from Planning Approval).
- Risk adjusted duration of 7 years is being sought from the date of the Planning Approval, in line with Site 3 above.

## 10.0 SITE 5 PROGRAMME

Proposed duration of planning permission: 15 years.

With reference to the Masterplan Summary Programme (Figure 13) as well as the constraints and risks outlined:

- Demolition is required early in the Baseline programme to necessitate site access.
- Construction commencement is dependent on all the other works being substantially completed before this can commence construction.
- Construction to commence in October 2031.
- Target completion date is December 2033 (12 years from Planning Approval).
- Risk adjusted duration of 15 years is being sought from the date of the Planning Approval.

## 11.0 SITE 1 PROGRAMME

The current intention is to bring forward two Planning Applications for Site 1:

- Site 1A – Nr 42 O’Connell Street and O’Connell Hall, to be lodged in 2Q23
- Site 1B – the remainder of the site, to be lodged in 4Q23.

This report includes programme assumptions for Site 1 for completeness, but as noted elsewhere is the dates will be subject to change.

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## 12.0 PHASING INTENTION FOR THE PUBLIC REALM

This section of the report provides a chronological timeline for the development of the various sites by showing a time-bar progression indicating how the site will be developed and delivered. This demonstrates when each portion of the public realm and streetscape will be completed and available for public use.

The key dates taken from the programme and delivery sequence are indicated in Figure 14 with the red highlighting indicating the key public realm delivery dates in the current indicative programme:

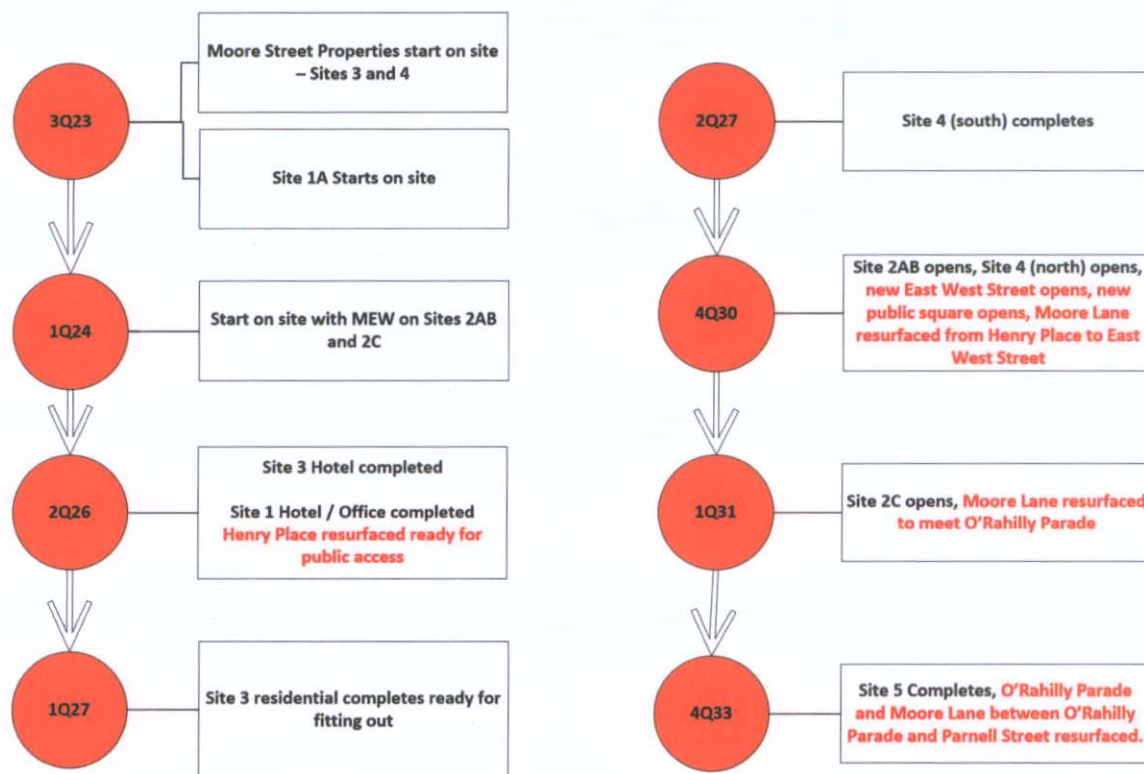


Figure 14

Appendix A gives further details.

## 13.0 UPDATES TO CONSTRUCTION PROGRAMME VS. INITIAL 'PRORAMME REPORT'

This section of the report provides a brief diagrammatical explanation of how the construction programme that was included as the basis of the Programme Report dated 25<sup>th</sup> May 2021 (the Original Report) which was issued as part of the Planning Applications for Sites 3, 4 and 5 in June 2021.

Since the drafting of this Original Report in May 2021 it has taken longer than previously envisaged in the preparation of the Site 2 Planning Application following detailed coordination with TII with respect to the MEW. The revised construction periods that have been used for the basis of this updated report are compared against those of the Original Report in Figure 15.

Revised periods for Site 1 have been indicated for completeness to reflect the developing thinking, however this Planning Approval is yet to be prepared.

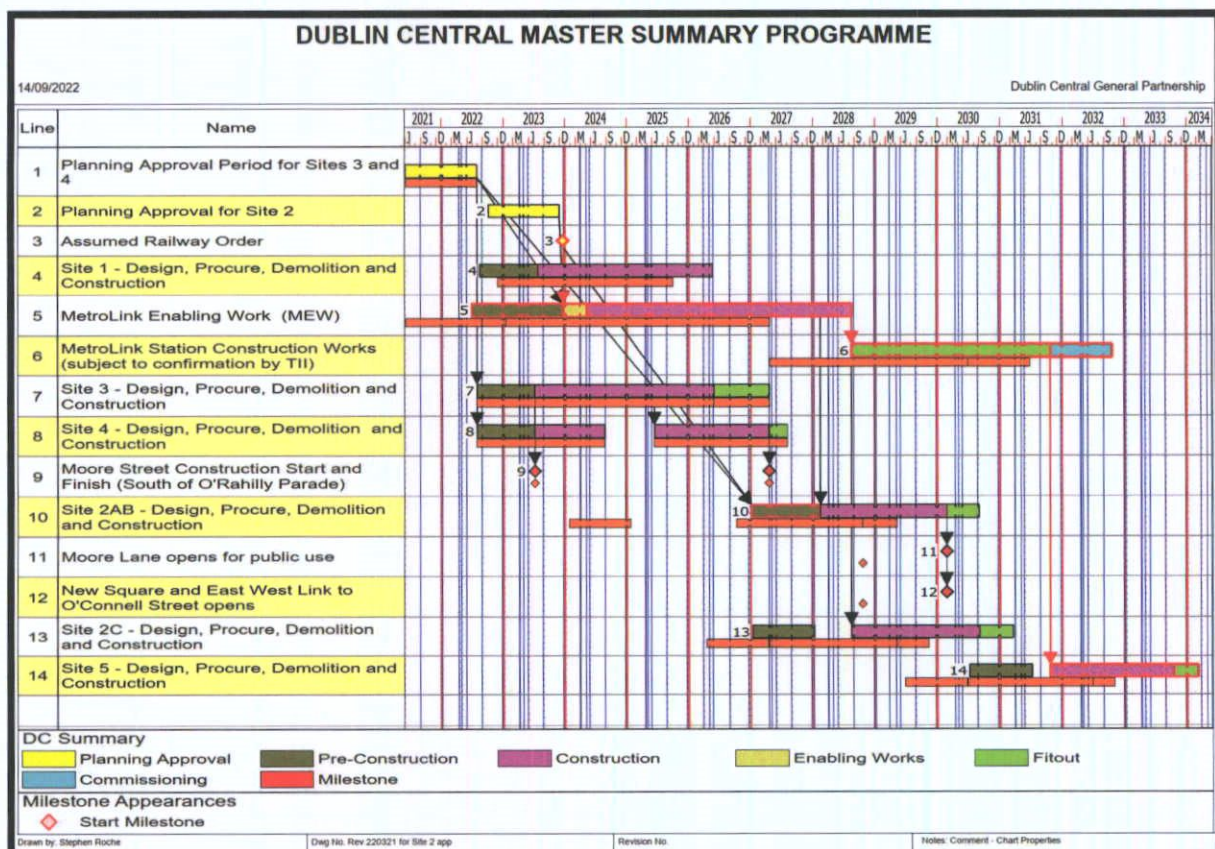


Figure 15 – Comparison of the updated construction periods in September 2022 (Non orange bars) set against the construction periods shown in May 2021 (Orange bars)

## 14.0 THE NEED FOR AN ELEVEN YEAR PERMISSION FOR SITE 2

The duration of planning permission that has been applied for is 11 years.

The Risk Analysis carried out in the Original Report has been re-run using the current updated programme and the same modelling approach, i.e. the project has been assessed again using computer software which has run a defined number of Monte Carlo simulations (an industry standard technique) to predict the probability of different outcomes given the intervention of the risk variables present, see Figure 16.

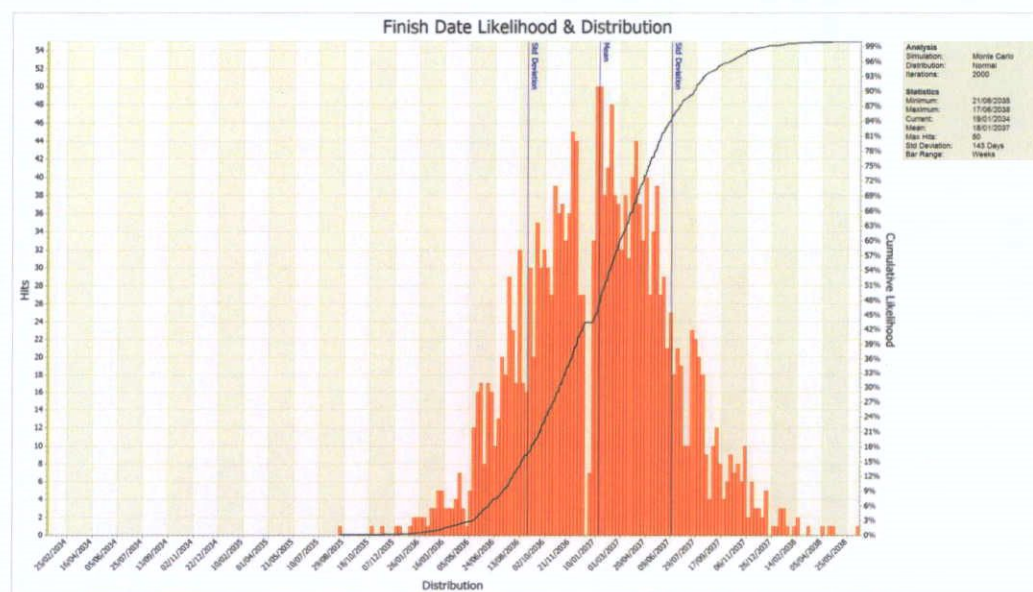


Figure 16 – Monte Carlo simulation results for the likely finish date

To understand the effect on the completion dates of all the Sites, it was necessary to consider the predicted programme for any given percentile of probability and compare this to the Baseline Programme. Two different percentiles were used for this exercise to determine how sensitive the difference might be. Because this exercise is being applied to determine the correct duration of the Planning Approval period to be applied for, an extremely high percentile of probability was considered necessary and therefore the two percentile values that were used were 80% and 100%. The 80% percentile assumes that most of the predicted risk events have been realised, but not all of them to their fullest degree, whereas the 100% percentile predicts the most likely statistical outcome for the worst case situation.

The results can be seen in the Gantt Chart in Figure 17. The "Hatched Green" bars broadly show the baseline programme (shown in Figure 13) before the analysis was applied. The "Yellow" bars show the first position, i.e., the 80% percentile that the sites will be completed by the dates shown with the "Solid Dark Green" bars showing the second position, i.e., the 100% percentile.

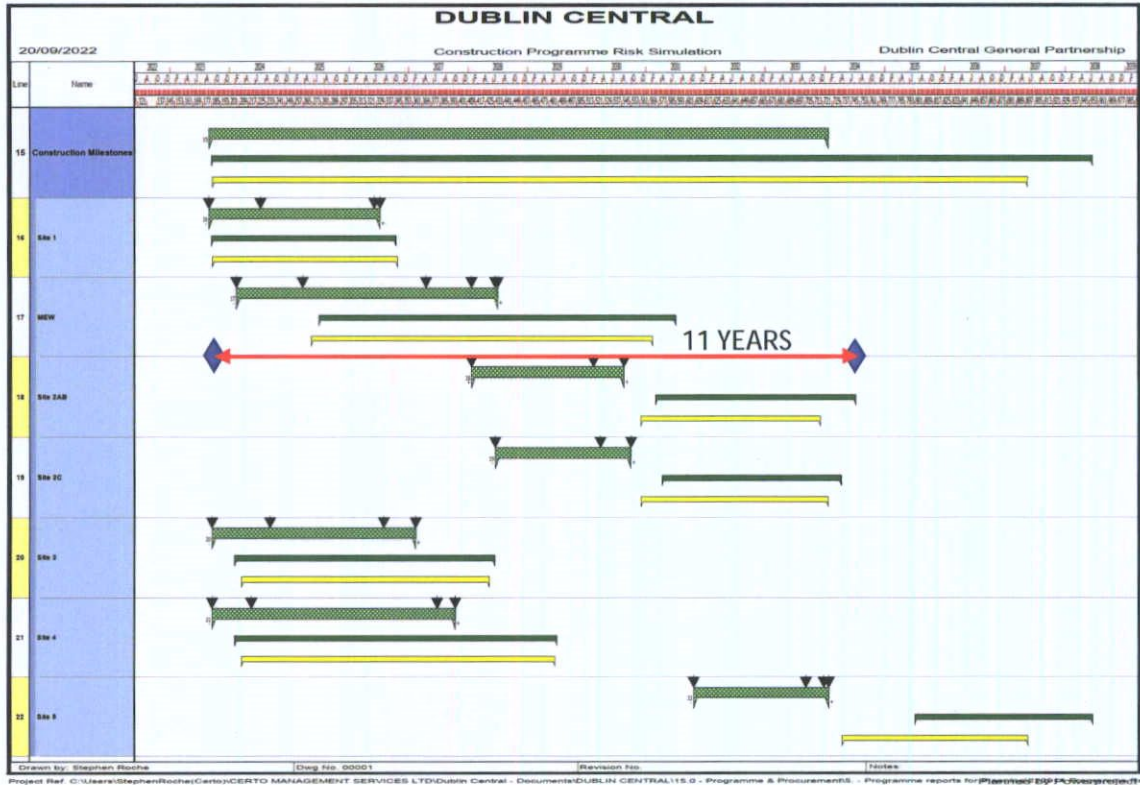


Figure 16 – Monte Carlo 80% (yellow bars) and 100% percentile (solid green bars) modelling results overlaid on the current base programme (green shaded bars).

The modelled completion date for Site 2 shows an 11 year duration is necessary.



Appendix A - Public Realm Phasing Approach - Demonstrating Availability of the Public Realm when delivering the Dublin Central Masterplan

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## DUBLIN CENTRAL

Public Realm Phasing Approach -  
Demonstrating Availability of the  
Public Realm when delivering the  
Dublin Central Masterplan  
for Dublin Central GP Ltd

- 14<sup>th</sup> September 2022

# DUBLIN CENTRAL – PHASING TIMESLICE DIAGRAMS

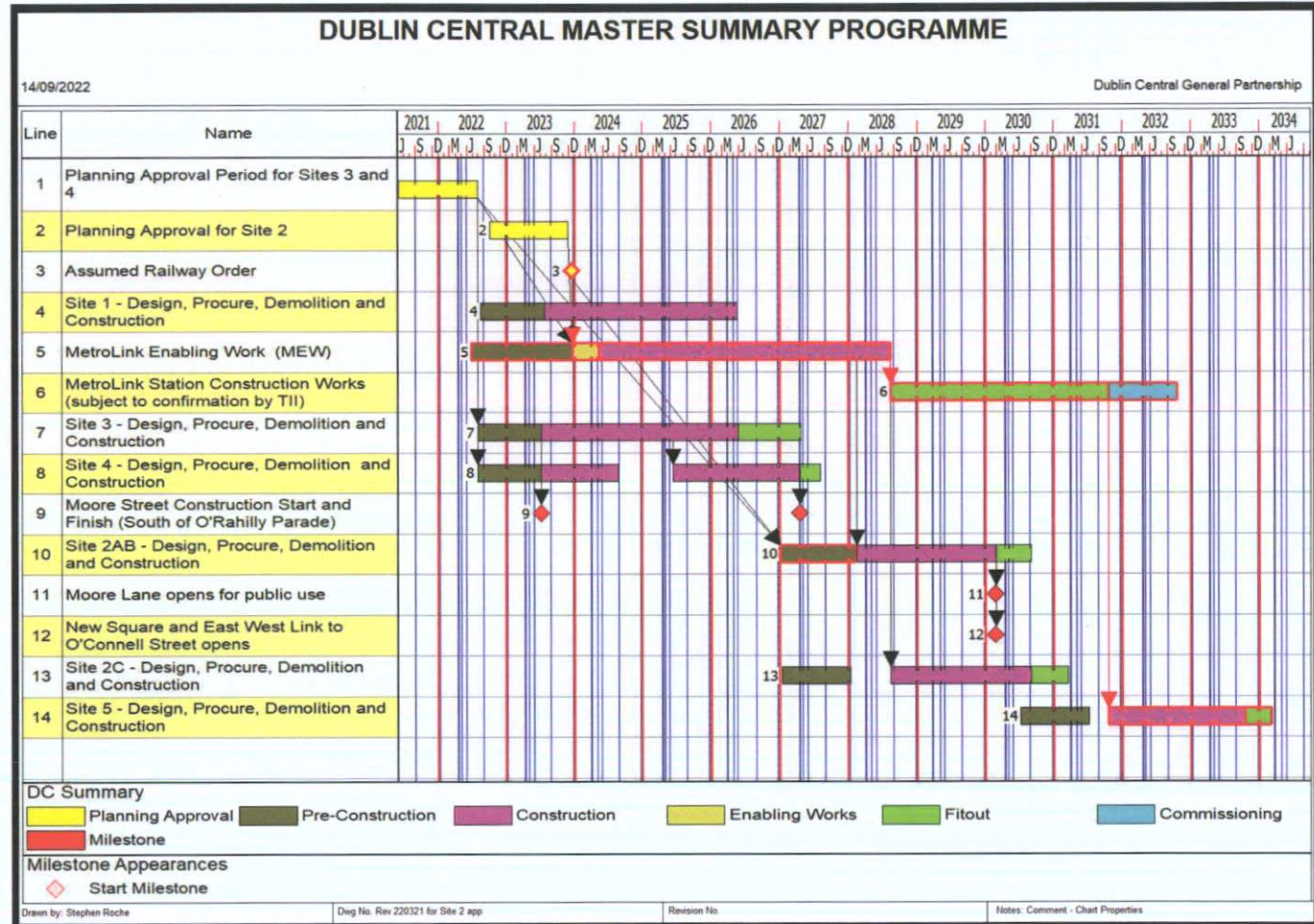
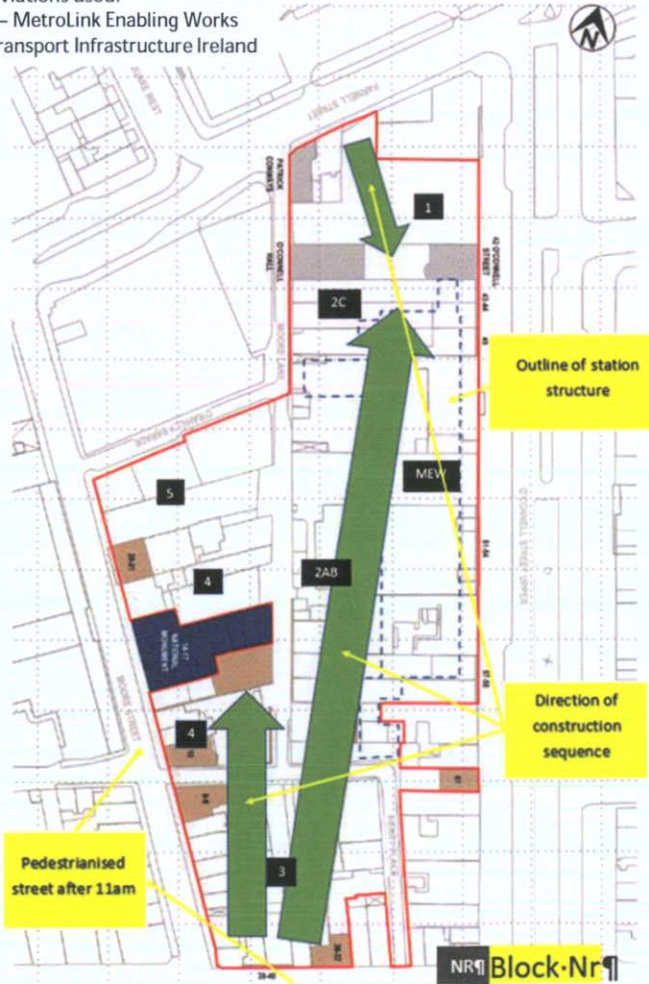
## Introduction and purpose of this document

- This document has been prepared to demonstrate the approach and assumptions that have been made when compiling the programme and phasing approach for the delivery of the Dublin Central Masterplan.
- It sets out the information using a timeline bar at the top of each page to demonstrate the activity that is scheduled for each site during that period of time.
- Indicative hoarding positions have been shown (blue dotted lines) to show how each of the construction areas will be delineated from each other
- The images demonstrate when areas can be opened to public use at the earliest practical time when working from a southerly to northerly construction direction (see next page).



# THE CONSTRUCTION APPROACH AND MASTER PROGRAMME

Abbreviations used:  
 MEW – MetroLink Enabling Works  
 TII – Transport Infrastructure Ireland















The programme indicated above is an indicative programme showing the general intent at this stage.

## TIMESLICE IMAGES APPROACH

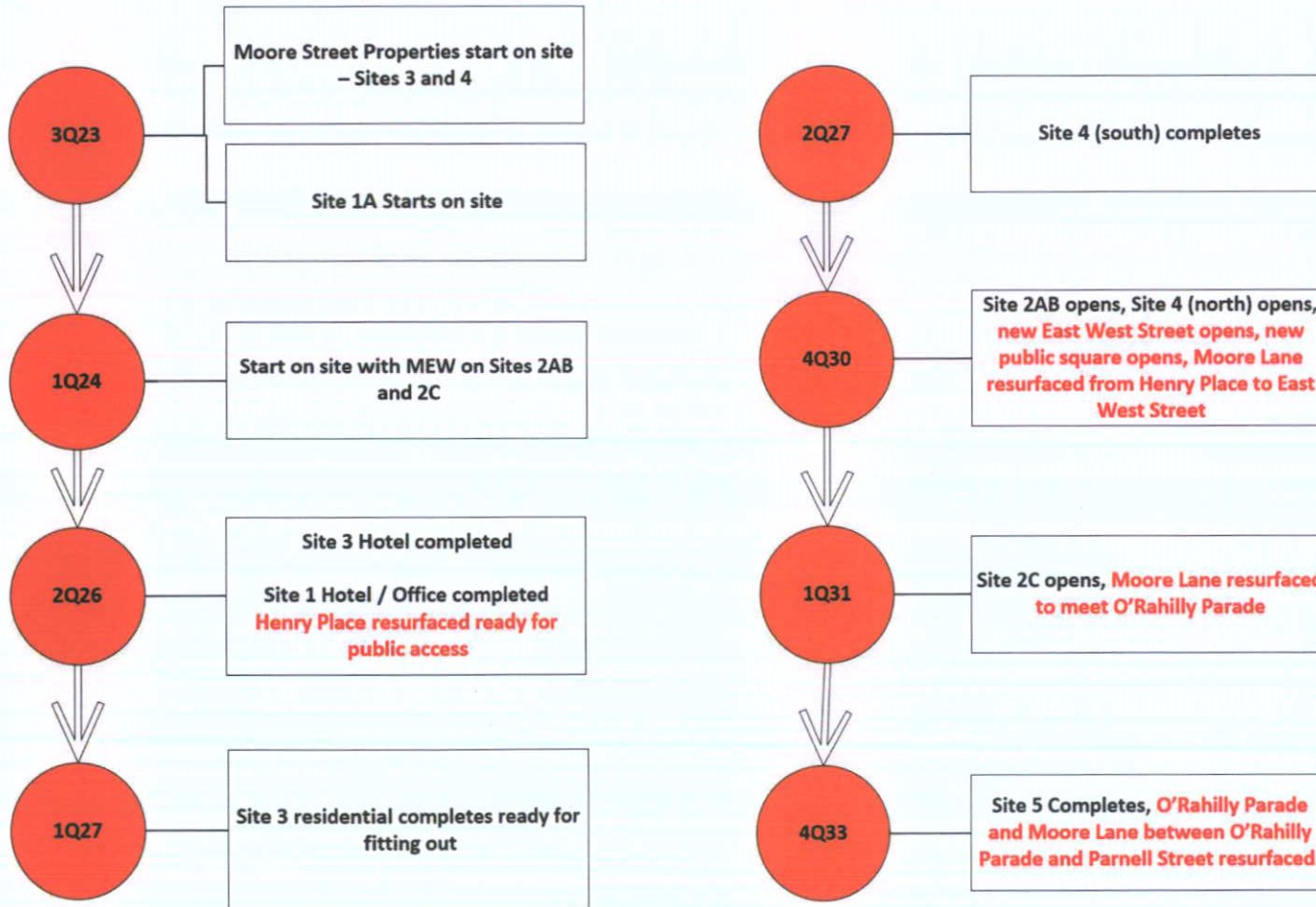
The phasing sequence will be demonstrated by using a series of timeslice images that will portray, for the period shown in the time bar at the bottom of the image, what activity will be being carried out on each portion of the site, and more importantly when the various parts of the public realm will become open and free for the public to use.

The key to the various colours that have been used in the images that follow is opposite.

Whilst the timeslice diagrams include Site 1 for completeness, the programme for these works is still provisional at this stage and likely to change. This will be addressed in the Site 1 Planning Application in due course.

KEY:	
	Area under strip out, asbestos removal, demolition, site preparation, archaeological investigation, structural strengthening works or façade retention.
	National Monument.
	Protected structure.
	Area under construction.
	Area used for site logistics / vehicle management.
	Temporary haul road.
	Buildings being fitted out internally.
	Construction and fitout work complete.
	Zone around the National Monument where any works will be subject to a permit to work regime.
	Outline of the MEW
	Temporary site hoarding
	Accessways open to the public

## KEY OPENING DATES TAKEN FROM THE MASTER SUMMARY PROGRAMME



The key dates from the programme are indicated opposite. These are the programmed target dates extracted from the Baseline Programme.

They assume Planning Approvals will be granted in September 2023 to allow a start on the MEW in 1Q24 after an enforceable Railway Order has been granted.

The dates for Site 1 are subject to change once commercial terms are agreed with an operator.

# TIMESLICE IMAGES FOLLOW

- Assumes Planning Approval Granted in September 2023
- A protected zone will be established around the National Monument and a temporary haul road will be installed.
- The Construction Management Plan provides further detail as to the approach to be taken and therefore reference should be made to that document when considering this.



Principal activities taking place:

This image demonstrates the site as it currently exists. It shows the proximity of the National Monument together with other Protected Structures and Non-Protected structures of historical significance to be retained.



2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

**Principal activities taking place:**

Construction work commences on Sites 1, 3 and 4 during this period, and Site 5 is hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

**Principal activities taking place:**

At the start of this period the demolition and construction work for the MEW commences.

Construction work continues on Sites 1, 3 and 4 during this period, and Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

**Principal activities taking place:**

Site 1 completes, the construction of the MEW continues, Site 3 enters its fitting out phase, and Site 4 remains under construction.

Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



**Principal activities taking place:**

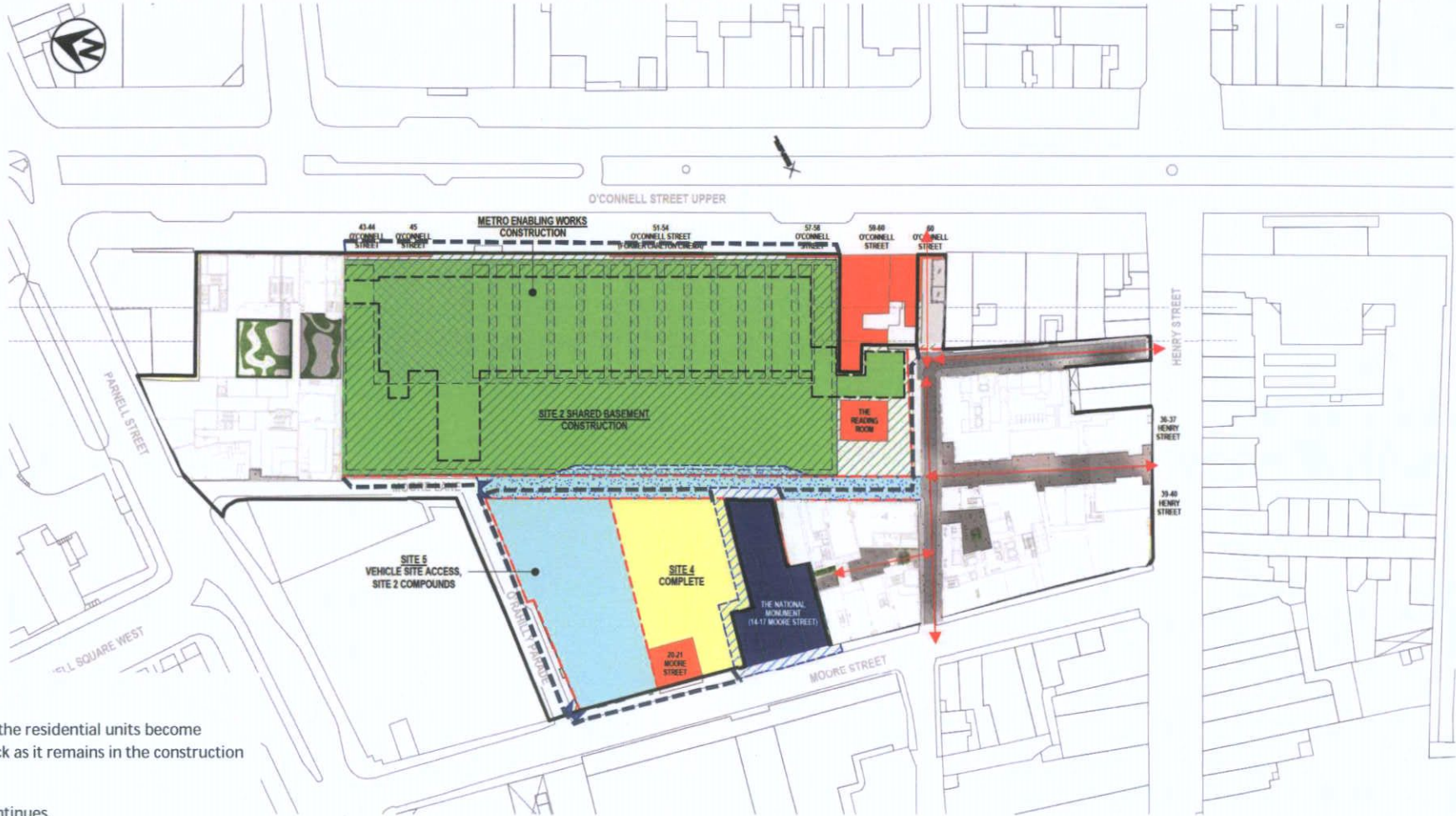
Site 3 now completes together with the public realm around it. Henry Place is opened up to public use together with the central passageway through Site 3.

The construction of the MEW continues, and Site 4 enters its fitting out phase.

Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

**PRELIMINARY PROJECT PROGRAMME - INDICATIVE ONLY**

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



Principal activities taking place:

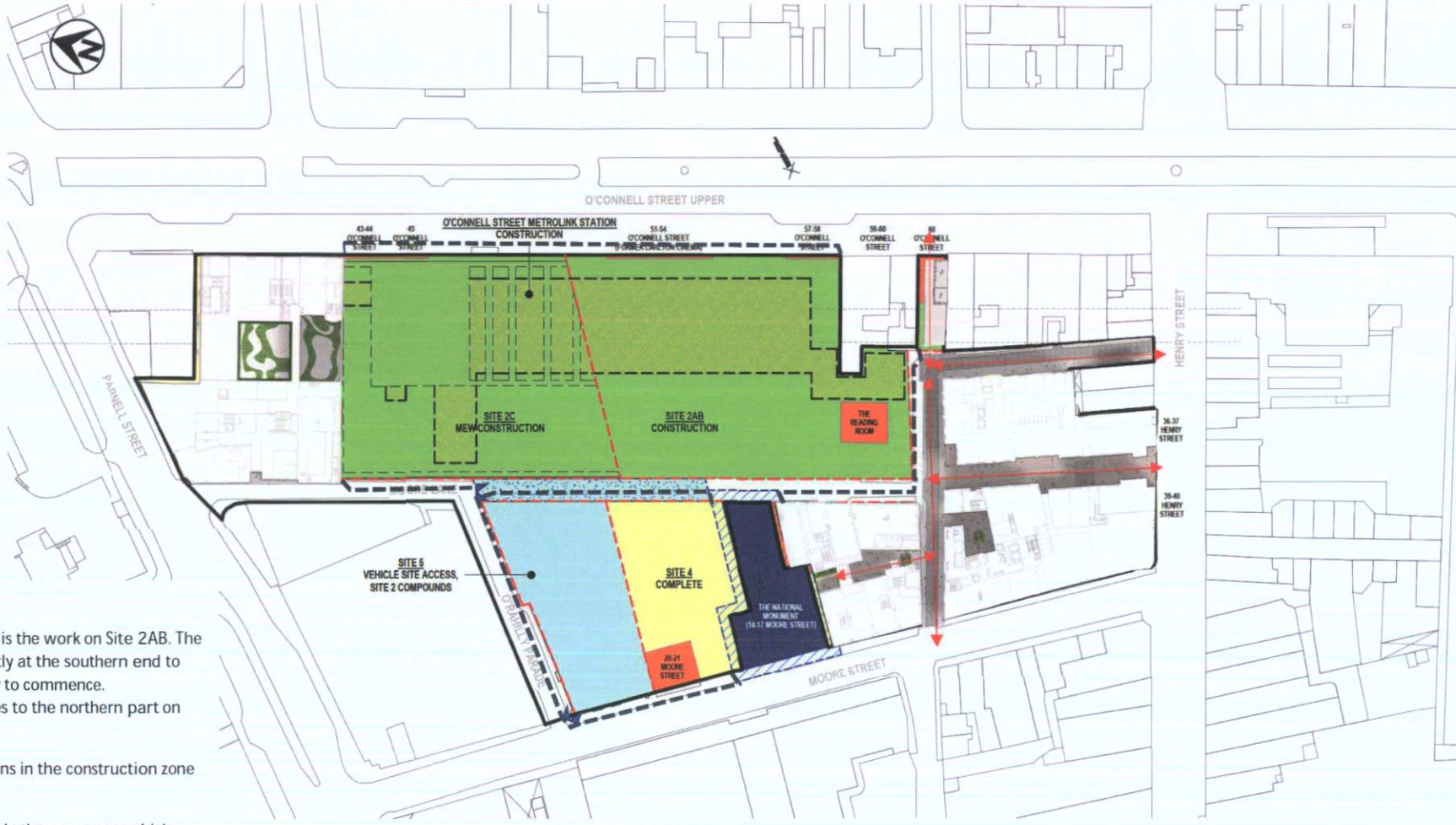
Site 4 South now completes and the residential units become occupied. Site 4 North is held back as it remains in the construction zone without safe public access.

The construction of the MEW continues.

Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



**Principal activities taking place:**

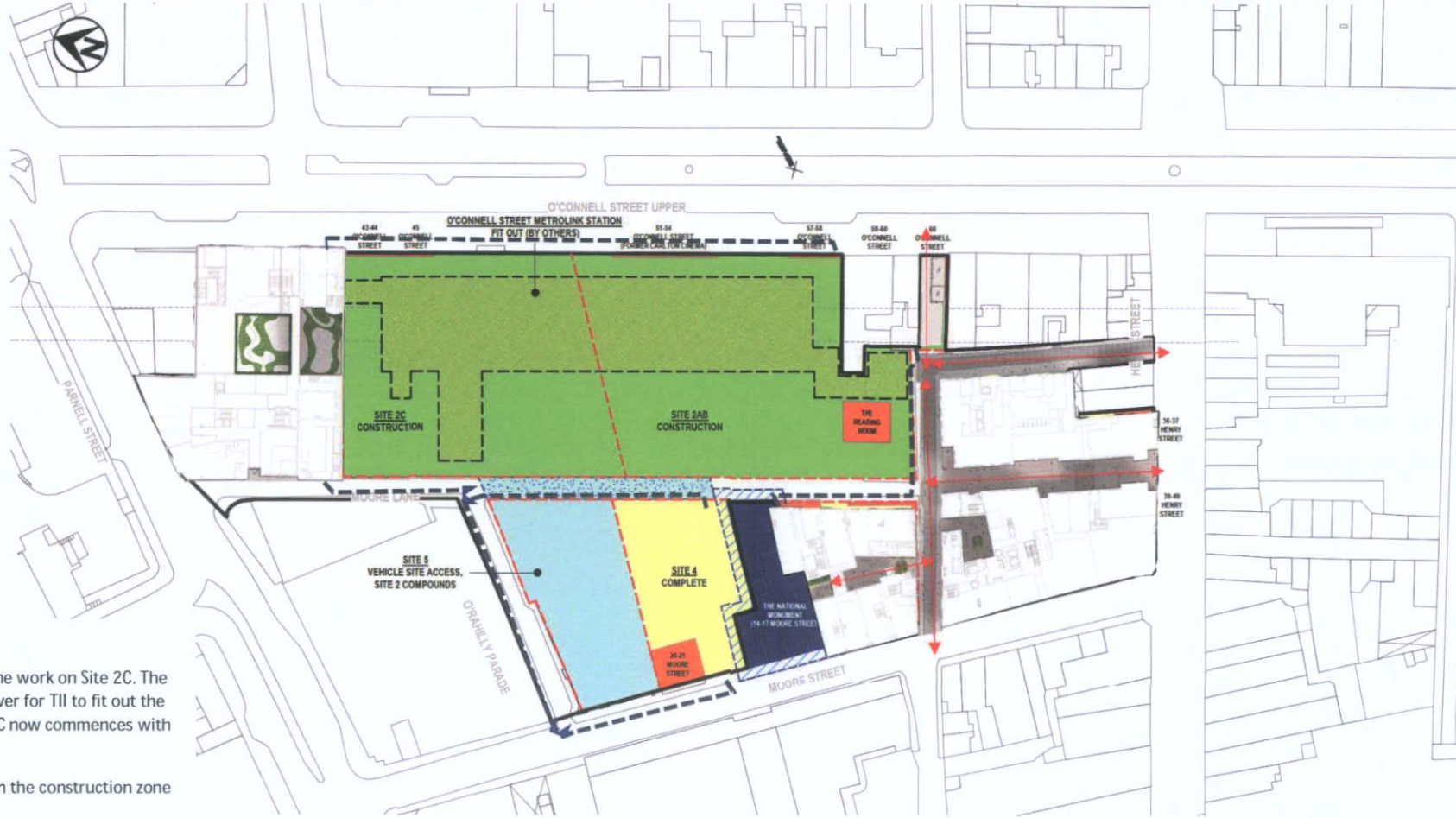
The principal change on this image is the work on Site 2AB. The MEW are now completed sufficiently at the southern end to allow Site 2AB construction activity to commence. Construction on the MEW continues to the northern part on Site 2C.

Site 4 North is held back as it remains in the construction zone without safe public access.

Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

**PRELIMINARY PROJECT PROGRAMME - INDICATIVE ONLY**

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



PRELIMINARY PROJECT PROGRAMME - INDICATIVE ONLY

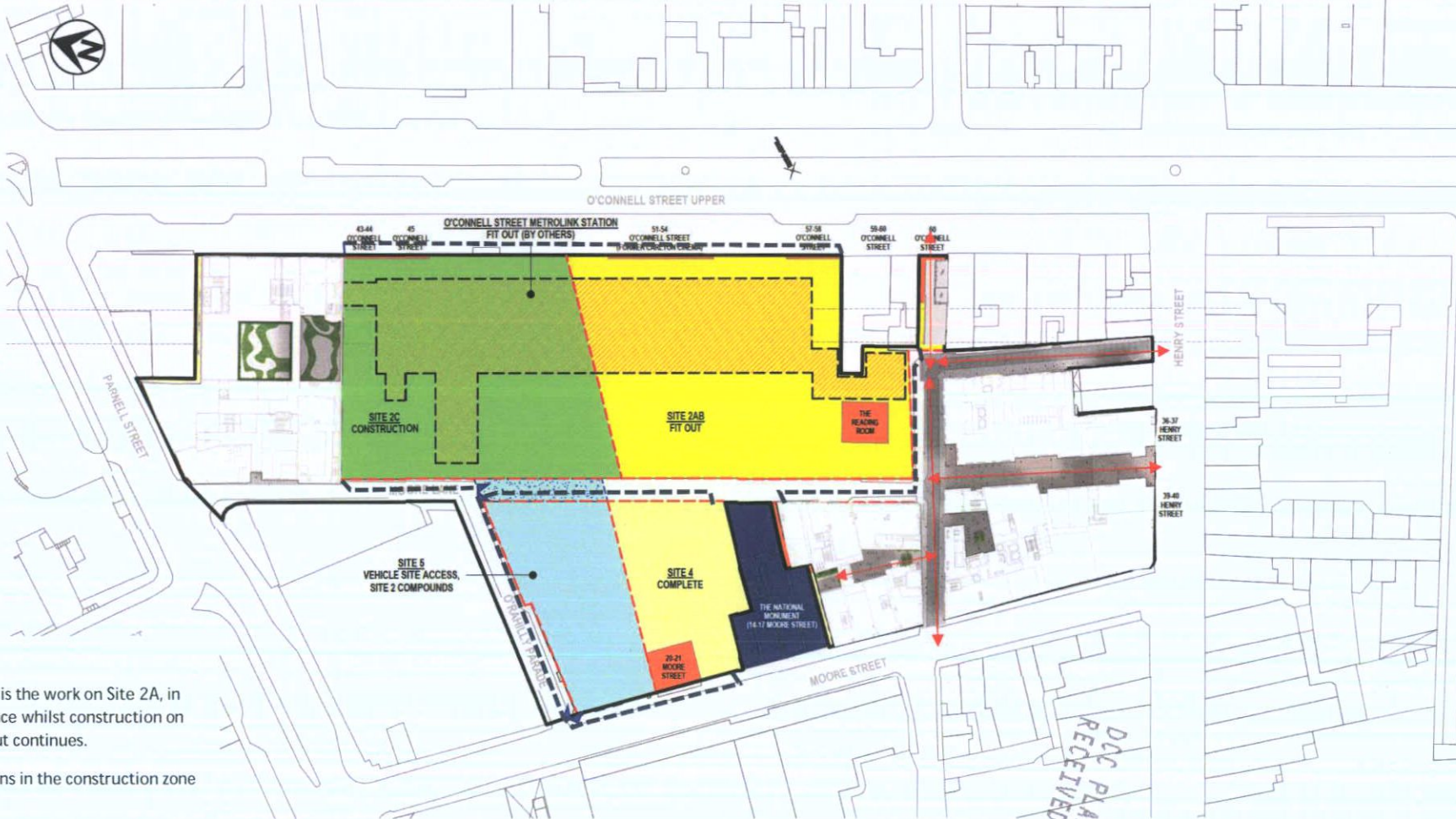
**Principal activities taking place:**

The principal change on this image is the work on Site 2C. The MEW are now complete and handed over for TII to fit out the station, connect the tunnels etc. Site 2C now commences with its construction activity.

Site 4 North is held back as it remains in the construction zone without safe public access.

Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033											
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4												



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Principal activities taking place:

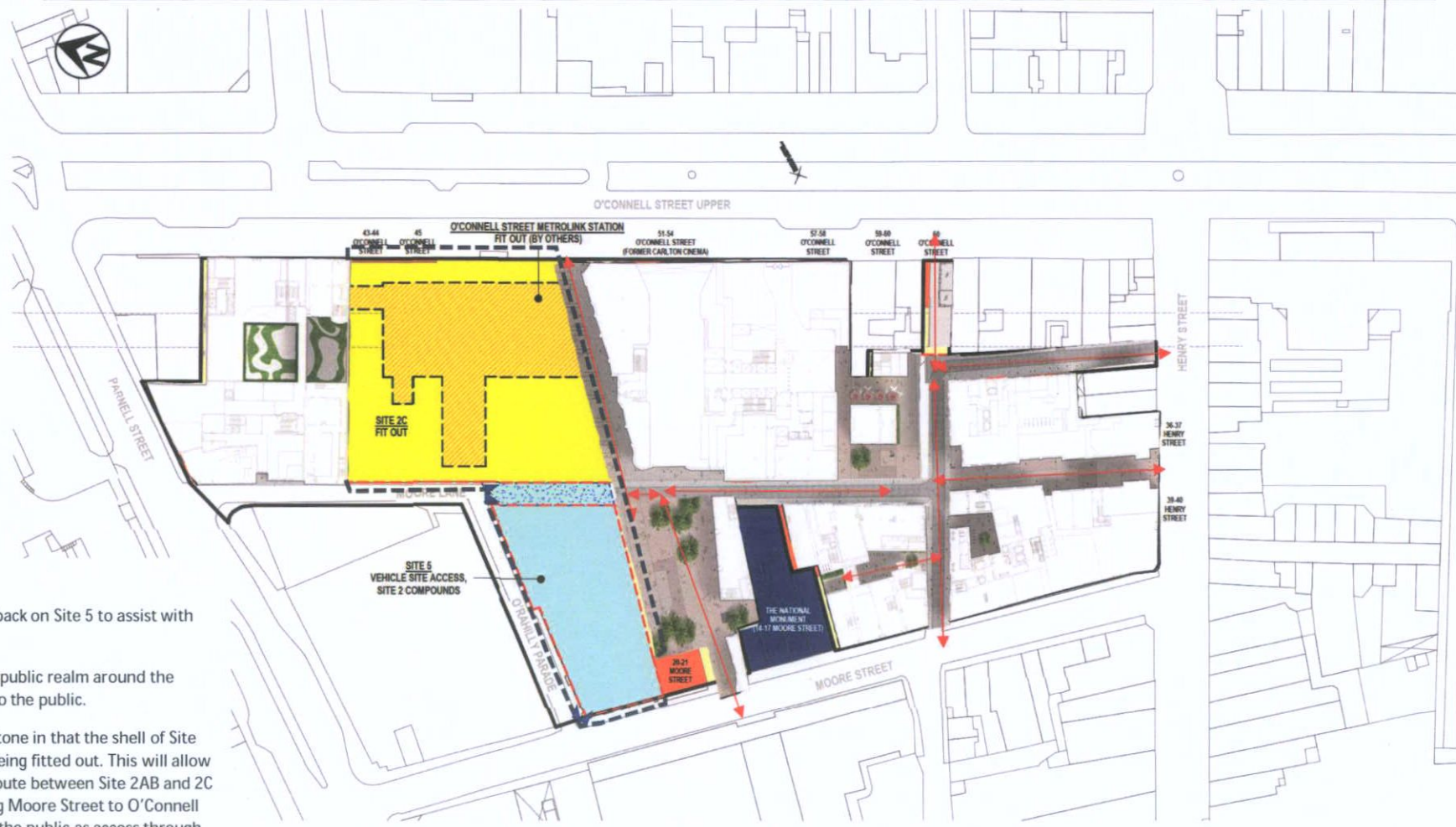
The principal change on this image is the work on Site 2A, in that fitting out works now commence whilst construction on Site 2C continues. The Station fit out continues.

Site 4 North is held back as it remains in the construction zone without safe public access.

Site 5 remains hoarded off to provide the necessary vehicle unloading area to service all of the construction sites.



2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033											
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4												



PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

**Principal activities taking place:**

This image shows the works held back on Site 5 to assist with the Station fit out as necessary.

Site 2AB will be complete and the public realm around the Reading room will be opened up to the public.

It also shows another major milestone in that the shell of Site 2C will now be complete and be being fitted out. This will allow the full extent of the pedestrian route between Site 2AB and 2C to be opened for public use linking Moore Street to O'Connell Street. Site 4 North now opens to the public as access through the new square is provided.

The Station fit out continues.



2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033							
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								



PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

**Principal activities taking place:**

This image shows the works continuing with the construction of Site 5

The Station is now being commissioned.





HOK

acme grafton architects MOLA **RKD**

**BDP.**



**GROSS. MAX.**  
LANDSCAPE ARCHITECTS

STUDIOFRACTAL



**CourtnyDeary**

JENSEN HUGHES **Linesight**

**SLA** STEPHEN LOBE & ASSOCIATES

**CERTO**

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Appendix B - DUBLIN CENTRAL MASTERPLAN PROGRAMME REPORT for Dublin Central GP Ltd dated 25th May 2021 – The Certo programme report submitted as part of Sites 3, 4 & 5 applications, lodged 1 June 2021

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# DUBLIN CENTRAL MASTERPLAN PROGRAMME REPORT

for Dublin Central GP Ltd

25<sup>th</sup> May 2021

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CERTO

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Management Services

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Appendix A - Public Realm Phasing Approach - Demonstrating Availability of the Public Realm when delivering the Dublin Central Masterplan

### Glossary of terms used:

Dublin Central	Name given to a proposed mixed-use development situated upon a 2.2ha site, located in Dublin 1
Overall Site	Comprises Sites 1, 2, 3, 4 & 5 in totality
Individual Sites	Individual components of the Overall Site
Advanced Works	Works that will include asbestos removal, demolition, archaeological investigations to Site 2
Enabling Works for MetroLink (MEW)	The MetroLink 'shell' of approximate dimensions 120m x 26m x 25m (length x width x depth)



# 1.0 INTRODUCTION

The purpose of this report is to set out the overall programme for the delivery of the inter-related sites (the 'Individual Sites') within the Dublin Central site (the 'Overall Site') and the resultant impact upon the duration required for each planning permission being sought.

The Overall Site (c. 2.2 ha) is located within a constrained, historically sensitive urban context with a variety of important stakeholders. Delivery of the project has necessitated careful planning from the outset, to ensure that it is delivered sensitively but also without undue delay.

The Overall Site encompasses almost entirely three urban blocks. The area is bounded generally by O'Connell Street Upper and Henry Place to the east, Henry Street to the south, Moore Street to the west, and O'Rahilly Parade and Parnell Street to the north. Moore Lane extends south from Parnell Street through the centre of the Overall Site, as far as its junction with Henry Place.

The project, by its very nature, necessitates a phased delivery strategy to suit the constraints and complexities tied to the Overall Site. A site-by-site phasing strategy has been adopted as the optimal solution in delivering the works, which, in summary leads to the construction of the Individual Sites on a phased basis in a south to north direction.

The Individual Sites that are covered by this development are as indicated in Figure 1 below:

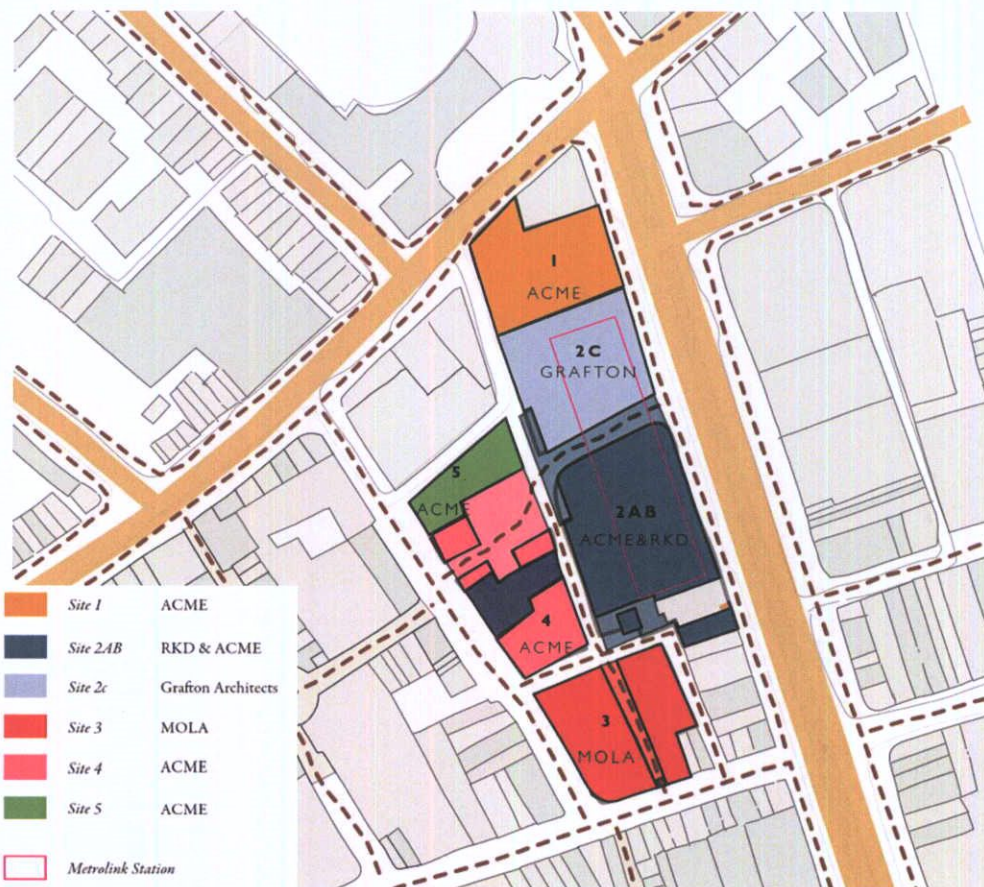


Figure 1: The Dublin Central Masterplan: Individual Sites.

In devising a delivery strategy, five key constraints have been considered<sup>1</sup>:

1. Restricted access arising from the surrounding road network and the narrow existing lanes within the Overall Site.
2. Restricted access arising from two major pedestrianised streets flanking the Overall Site.
3. Protected Structures and non-protected structures proposed to be retained.
4. Neighbours including residents and local businesses.
5. The scale and nature of construction works to be undertaken.

The carefully considered strategy is borne out of these key constraints, resulting in a co-dependent construction approach that provides a realistic, sequential and most importantly, deliverable, scheme.

As this report sets out, the challenge will be to deliver the Dublin Central project and related works as quickly as possible being cognisant of the constraints and risks to programme that may arise. For several of the individual sites, above normal construction programmes necessitate above normal planning permission durations being proposed.

The approval periods that are sought are as follows:<sup>2</sup>

Site 2AB	-	11 years	
Site 2C	-	11 years	
Site 3	-	7 years	} These will be constructed in tandem
Site 4	-	7 years	
Site 5	-	15 years	

This report seeks to provide a rationale as to these requested durations, bearing in mind the following:

- i) Where one commences a development that has been permitted under Section 34 of the Planning & Development Act 2000, as amended, the requirement is that it is completed within the lifetime of that permission.
- ii) Amendments to The Planning & Development Act 2000, while yet to be implemented, restrict the ability to seek an extension of duration of any permission where an EIAR was submitted with the planning application (as is the case with Dublin Central applications).

This report includes the general programme intention for Site 1 for completeness, but as noted elsewhere the date for the application is yet to be determined and hence the detail included within this report for Site 1 is subject to change.

<sup>1</sup> These constraints are discussed further in Section 2.0.

<sup>2</sup> The proposed programme assumes final grant of planning permission by June 2022 for each Site.

## 2.0 SITE CONSTRAINTS

A range of constraints are present on the Overall Site that have an impact on the proposed programme for the delivery of the Dublin Central development. The previously identified five key constraints are now discussed in more detail below:

1. Restricted access arising from the surrounding road network and the narrow existing lanes within the Overall Site.

The Overall Site is bounded to the east with O'Connell Street, a busy thoroughfare that accommodates the Luas along its central median. The street has a restricted vehicular traffic and servicing regime, relatively high footfall and is a confluence of Luas, Dublin Bus and leisure transportation (open top buses).

Constraints arising from the existing street network effectively dictate that the bulk of construction traffic must access the Overall Site, from Parnell Street, onto Moore Street, east along O'Rahilly Parade before egressing north up Moore Lane. It is preferable to have a counter-clockwise access route as far as Moore Street is concerned as the vehicles used to take muck away will be empty when using Moore Street, hence this will help to minimise dust on Moore Street.

Figures 2 and 3 below show how traffic is proposed to access and egress the Overall Site.

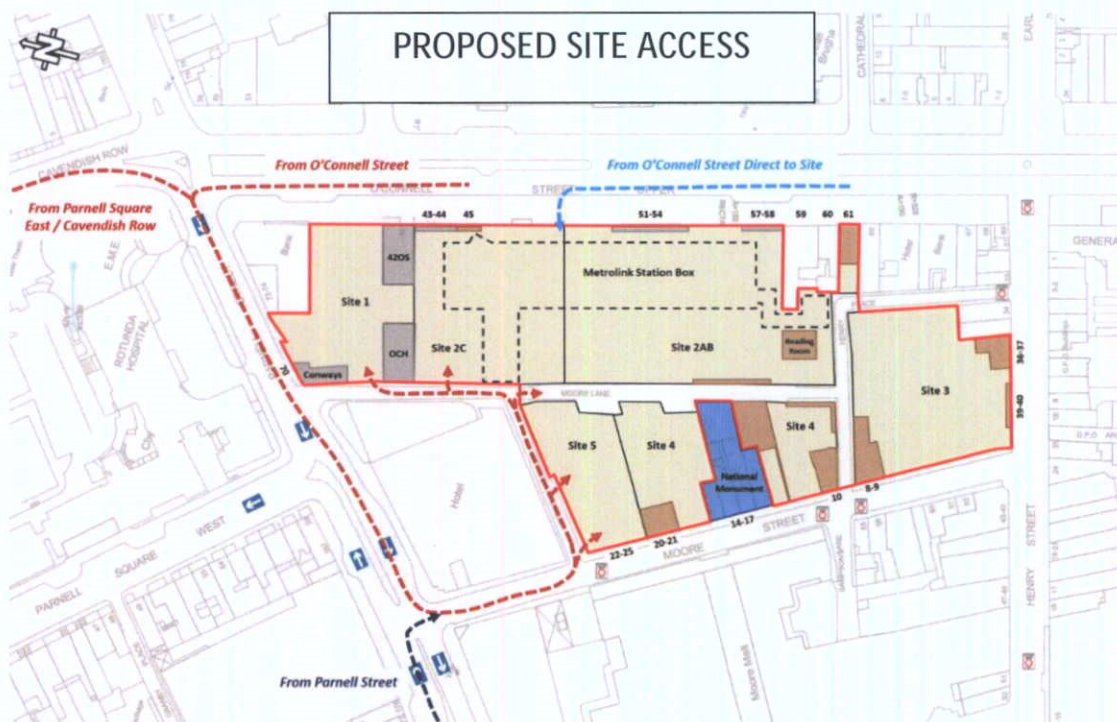


Figure 2 – Proposed site access

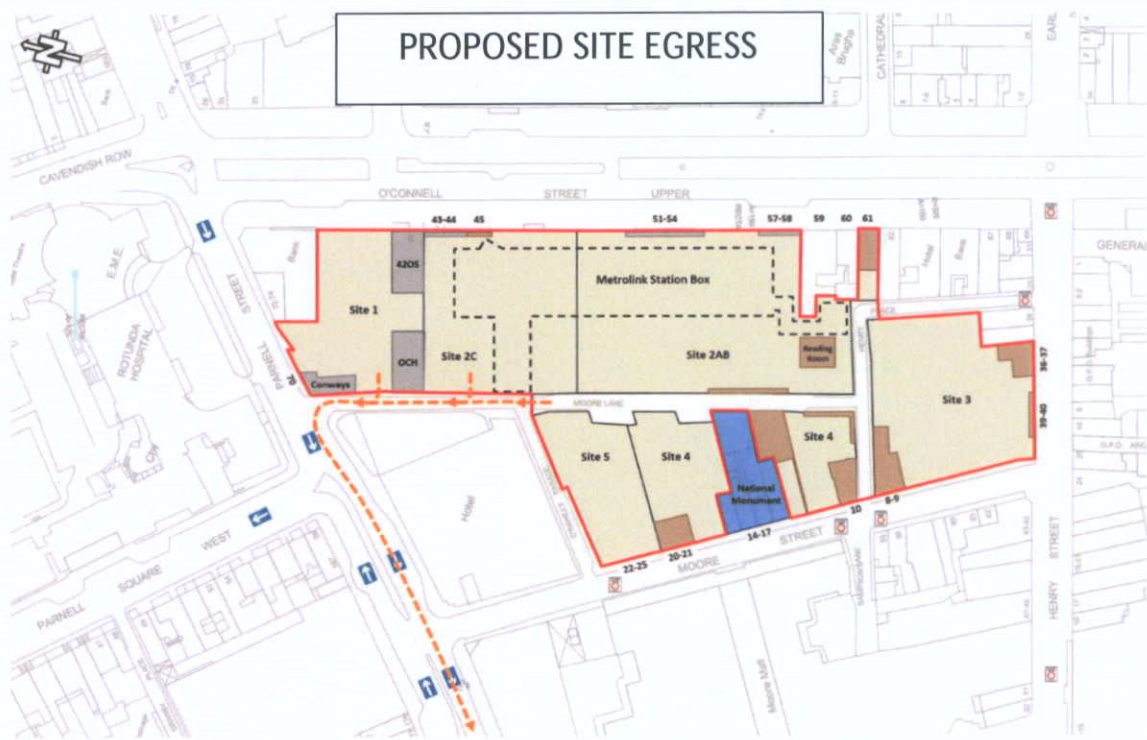


Figure 3 – Proposed site egress

The internal laneways within the Overall Site of Moore Lane, O’Rahilly Parade and Henry Place are narrow in nature and have a number of tight corners that restrict the ability of large vehicles to manoeuvre freely and quickly around the site.

The narrowness of the existing traffic access ways dictates that some temporary junction improvement works will be required to be carried out to facilitate vehicular access – these areas are shown below with green circles in Figure 7.

Once construction activity starts it will be necessary to provide a temporary haul road as shown below on Figure 8 to take heavy traffic away from the National Monument and other retained structures, predominantly in Site 4.

2. Restricted access arising from two major pedestrianised streets flanking the Overall Site.

Henry Street, one of the city's busiest pedestrianised thoroughfares, flanks the Overall Site to the south. Henry Street is pedestrianised after 11:00 am daily (service vehicles only prior to 11:00 am daily).

Moore Street, home to the long-standing street-market flanks the Overall Site to the west and is similarly pedestrianised after 11:00am (service vehicles only prior to 11:00 am daily).

In terms of streets available for vehicular construction access, this leaves only Parnell Street and O'Connell Street as primary options to access the Overall Site.



Figure 4: Henry Street, Dublin 1

3. Protected Structures and non-protected structures proposed to be retained.

Owing to the long and varied history of the Overall Site, there are several structures of heritage significance that must be carefully managed during works. These are shown in Figures 5 and 6 below:

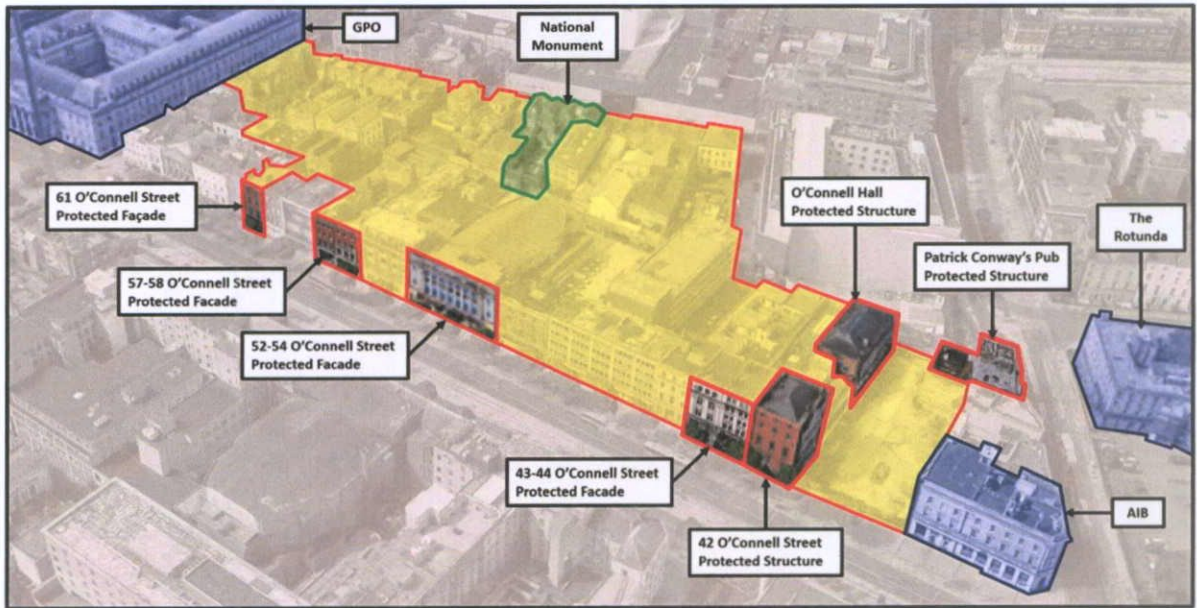


Figure 5- Protected Structures in and around the Overall Site.

Figure 6 below shows in plan form Protected Structures as well as non-protected structures anticipated to be retained, as follows:

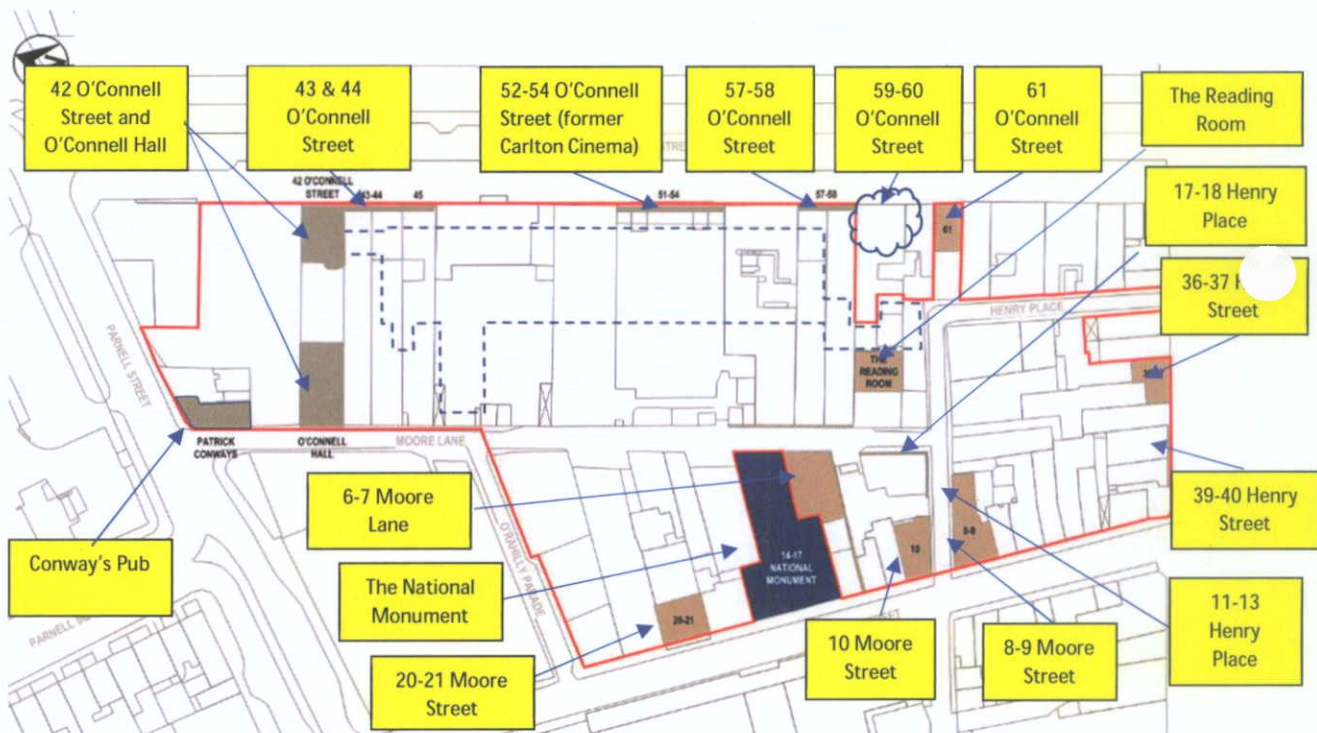


Figure 6 - Protected Structures and non-protected structures proposed to be retained.

Protected structures along O'Connell Street that are within the development lands are as follows:

- i) 42 O'Connell Street & O'Connell Hall (to the rear)
- ii) 52-54 O'Connell Street (former Carlton cinema; façade above ground floor only)
- iii) 43 & 44 O'Connell Street (façades above ground floor only)
- iv) 57-58 O'Connell Street (façades above ground floor only)
- v) 61 O'Connell Street (façades above ground floor only)
- vi) 70 Parnell Street (Conways Pub)

Non-Protected structures to be retained:

- i) 8-9 Moore Street
- ii) 10 Moore Street
- iii) 20-21 Moore Street
- iv) 17-18 Henry Place
- v) 6-7 Moore Lane
- vi) 11-13 Henry Place
- vii) 36-37 Henry Street
- viii) 39-40 Henry Street (upper floor facades only)
- ix) 'The Reading Room' located to the Rear of No. 59 O'Connell Street
- x) Buildings fronting 59/60 O'Connell Street (whilst outside of the Overall Site, they must be considered to ensure impacts are managed).
- xi) 61 O'Connell Street (whilst only the façade is protected, it is currently being assessed as to whether the building will be retained or solely the façade).

Note that works in proximity to the National Monument require Ministerial Consent.

#### 4. Neighbours including residents and local businesses.

In addition to the many shop traders on Moore Street, Moore Street is home of the Moore Street Market. The construction approach needs to take cognisance of the market traders and other retailers to allow for continuity of trading.

An active market and retail environment necessitates that construction vehicles must move off Moore Street / O'Rahilly Parade quickly, to avoid queuing on the street, and should progress to site immediately. Site 5 has been designated as the area to be used to receive the construction traffic before it progresses to a designated workforce, compound or materials storage area, see Figure 7 below:

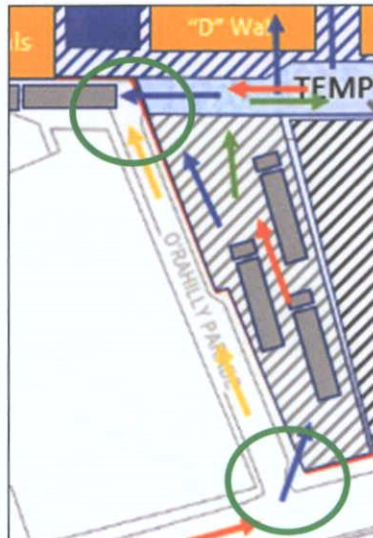


Figure 7 – Area to be used to receive construction traffic

5. The scale and nature of construction works to be undertaken.

The Dublin Central Masterplan anticipates delivering 77,090 sqm GFA in commercial and residential development. In isolation, delivering such a quantum in the context of the constraints noted above already puts significant pressure on any programme for delivery.

The 13No. months of the Advanced Works at Site 2 will consist of asbestos removal, soft strip and demolition, together with temporary works including protection of fabric proposed to be retained. This will be followed by an archaeological assessment in the normal way.

The Enabling Works for MetroLink on Site 2 that follow will require significant excavation followed by the construction of a MetroLink 'shell' of approximate dimensions 120m x 26m x 25m (length x width x depth), to be delivered within Site 2, as part of the Dublin Central GP Ltd.'s scope of works.

Unsurprisingly, the scope of the Enabling Works for MetroLink add considerably to the overall construction programme and carry additional inherent risks to programme. The Enabling Works for MetroLink must be substantially complete in order for the Sites 2AB and 2C Oversight Developments to proceed; approximately 3 and 2 years respectively after the commencement of the Enabling Works for MetroLink (on a risk adjusted basis, this timeline moves out to 6 years and 4 years, respectively).

Construction traffic volumes through the centre of the Overall Site during the above will constrain the pace of progress of Site 3 and Site 4, which will be progressed in tandem with Site 2. This constraint arises as a consequence of the single arterial road running in a north/south direction through the Overall Site (Moore Lane); acting as the sole point of access to each of the Individual Sites, as demonstrated in Figure 8.





Figure 8 – Necessary site area for construction and access / egress points.

With respect to Figure 8, the following should be noted:

- Separate contractors may be required for some/all of the Individual Sites, particularly given the variety of uses and the specialist nature of certain works. Each of these will have their own welfare and logistical needs.
- For Site 2, a considerable volume of excavated material must be disposed of offsite (estimated at 111,900m<sup>3</sup>), requiring a significant number of vehicular movements along the temporary haul road (Moore Lane).
- For Site 2, specialist construction works will necessitate significant additional space on-site for plant including a specialist compound for bentonite plant, reinforcement cages and dewatering equipment.
- The upshot of the above will lead to congestion on the Overall Site, which will in turn reduce construction efficiencies.

### 3.0 CONSTRUCTION SEQUENCE

In the context of Sections 1 & 2 above, the optimal construction approach can be shown graphically in Figure 9 as follows:

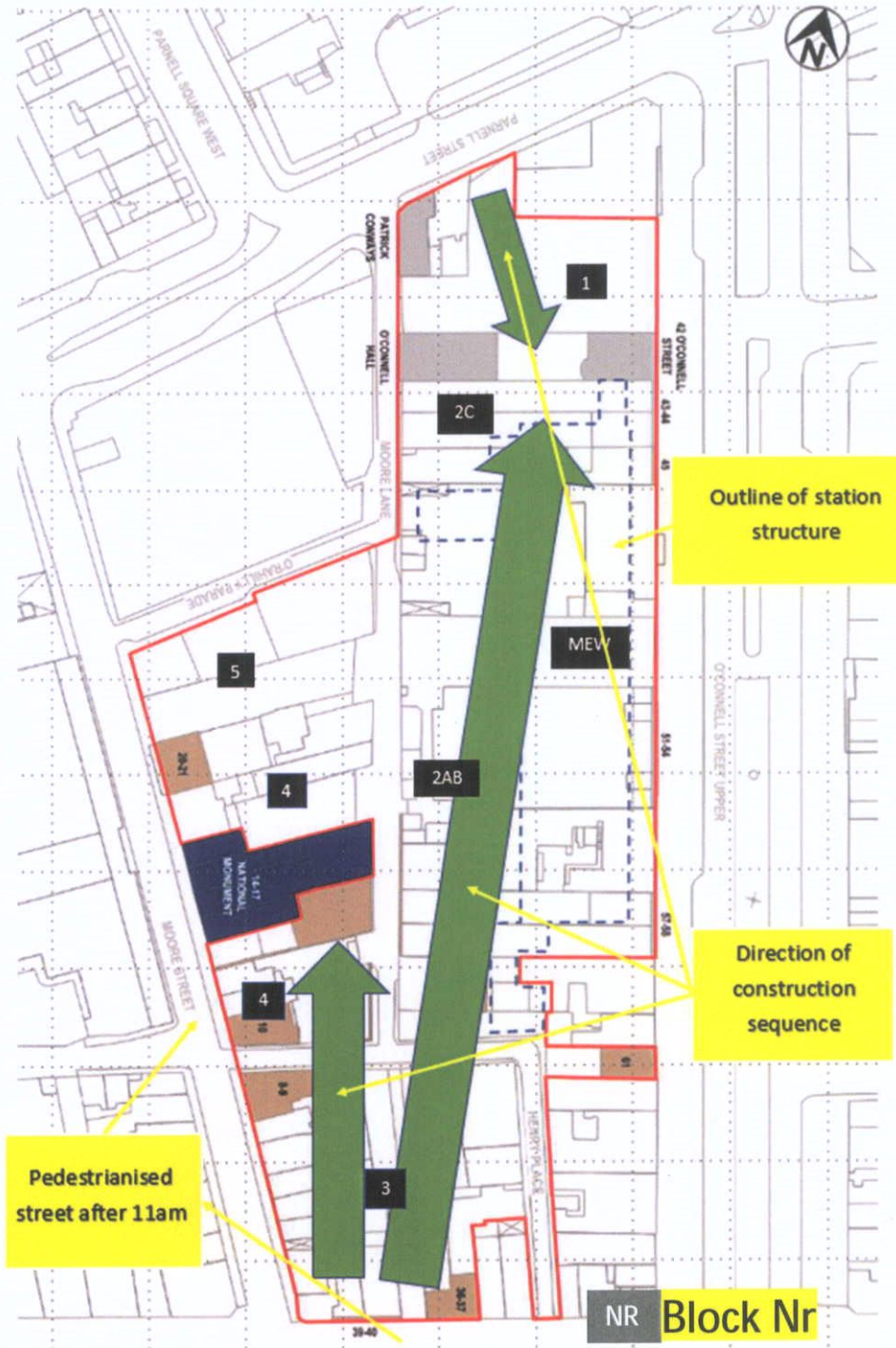


Figure 9 – Direction of construction approach.

This construction sequence proposed above reflects the following conditions:

1. The existing traffic regime whereby no vehicular traffic is allowed onto Moore Street (South of O'Rahilly Parade) or on Henry Street after 11:00 am daily.
2. In light of No. 1 above, Sites 3 and 4 are challenging access-wise and therefore must be developed first, as the direction of construction moves from south to north, with construction traffic utilising Moore Lane.
3. Site 5 should be considered the front and back "door" for all development works and so will be last to be constructed as it is the main arterial connection to the access / egress point on O'Rahilly Parade.
4. Site 2 works require a significant area to accommodate construction plant, materials and site offices.
5. The imperative to protect the National Monument at Nos. 14-17 Moore Street.
6. DCGP acknowledges that the market traders and retailers have had a long-standing contribution to the vibrancy, vitality, and uniqueness to the local area. Consequently, DCGP recognise the need to minimise disruption to the Moore Street Market Traders during the works whilst facilitating the needs of the construction process.

## 4.0 BASELINE PROGRAMME

The Baseline Programme that DCGP is working to for the project can be summarised in Figure 10:

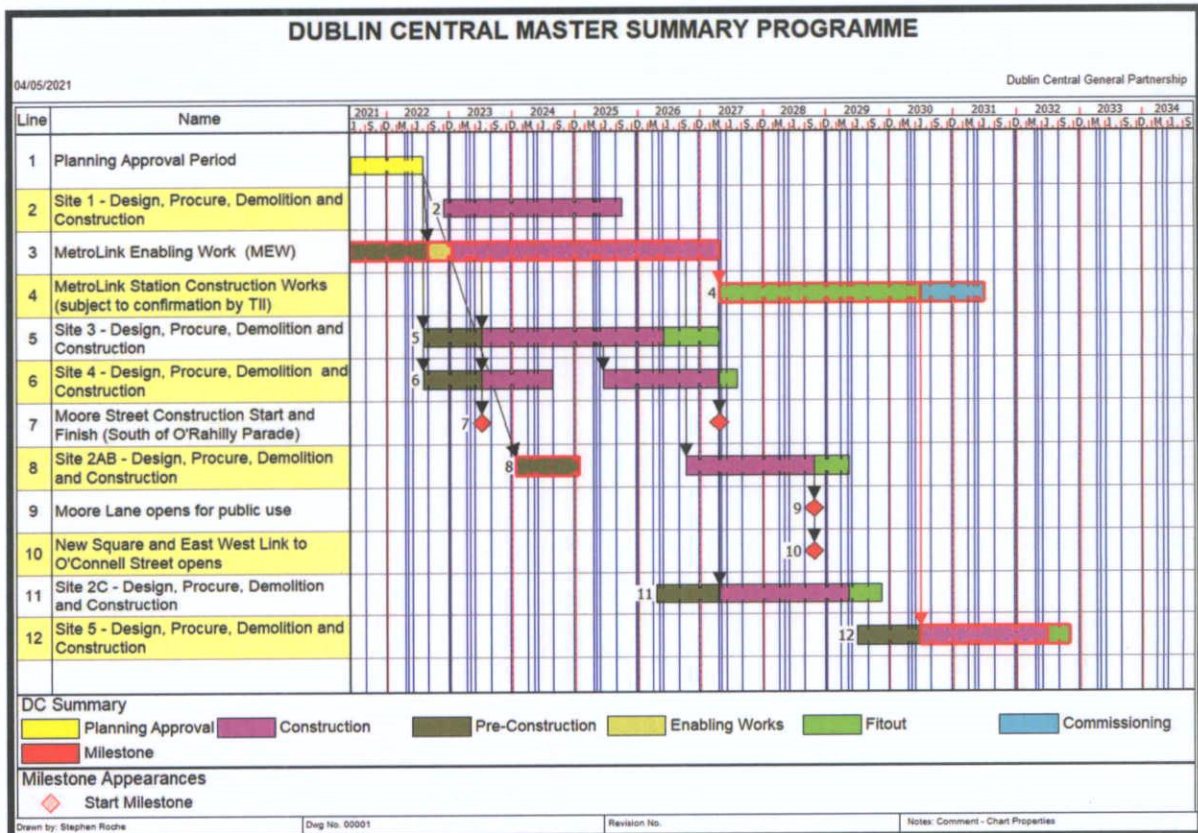


Figure 10 – Master Summary Programme

This programme assumes that Planning Applications will be submitted in three tranches as follows:

1. Sites 3, 4 and 5 as three stand-alone applications, to be submitted concurrently in May 2021.
2. Sites 2AB and Site 2C as two stand-alone applications but submitted together end of August 2021.
3. Site 1 submitted as a stand-alone application on a date yet to be determined.

## 5.0 KEY RISKS TO PROGRAMME

Key risks that the project is exposed to include:

- Depth of excavation that may discover unexpected issues / challenging ground conditions.
- Significant design variations that may arise from third parties.
- Challenging ground conditions.
- Delayed programme arising from caution in working adjacent to the National Monument and other Protected/retained structures.
- Contaminated ground in excess of what the ground investigation reports suggest exist.
- The high water table and all the risks associated with dewatering to enable construction.
- Archaeological finds and all the risks associated with recording etc.
- Restricted site access and egress points leading to slower progress.
- Site congestion due to significant number of contractors on site; leading to slower programme.
- Ministerial Consent requirement.

The above risk factors have all been given due consideration in determining the proposed planning durations, set out below, on a risk-adjusted basis.

## 6.0 SITE 2AB PROGRAMME

Proposed duration of planning permission: 11 years.

With reference to the Masterplan Summary Programme (Figure 10) as well as the constraints and risks outlined:

- Site 2AB works cannot commence until the Enabling Works for MetroLink are complete in this part of Site 2 (targeted for Q4-2026)
- Target completion date of May 2029: 7 years from receipt of Planning Approval.
- Risk adjusted duration of 11 years is being sought from the date of the Planning Approval.

## 7.0 SITE 2C PROGRAMME

Proposed duration of planning permission: 11 years.

With reference to the Masterplan Summary Programme (Figure 10) as well as the constraints and risks outlined:

- Site 2C works cannot commence until the advanced works for MetroLink are complete in this part of Site 2 (targeted for Q2-2027)
- Target completion date of November 2029: 7.5 years from receipt of Planning Approval.
- Risk adjusted duration of 11 years is being sought from the date of the Planning Approval.

## 8.0 SITE 3 PROGRAMME

Proposed duration of planning permission: 7 years.

With reference to the Masterplan Summary Programme (Figure 10) as well as the constraints and risks outlined:

- Likely to be the first phase of construction on the Overall Site (along with Site 4).
- Structurally independent of the Enabling Works for Metrolink and therefore can be progressed more quickly.
- Can be progressed independently of heavy works in Site 2 (albeit, programme likely to be impacted by scope of Site 2 works).
- Construction to commence in August 2023.
- Target completion date is April 2027 (5 years from Planning Approval)
- Risk adjusted duration of 7 years is being sought from the date of the Planning Approval.

## 9.0 SITE 4 PROGRAMME

Proposed duration of planning permission: 7 years

With reference to the Masterplan Summary Programme (Figure 10) as well as the constraints and risks outlined:

- Likely to be the first phase of construction on the Overall Site (along with Site 3).
- Ministerial Consent must be sought and granted.
- Structurally independent of the Enabling Works for Metrolink and therefore can be progressed more quickly.
- Construction to commence in August 2023.
- Likely to be constructed by the same contractor as for Site 3
- Target completion date is April 2027 (5 years from Planning Approval).
- Risk adjusted duration of 7 years is being sought from the date of the Planning Approval, in line with Site 3 above.

## 10.0 SITE 5 PROGRAMME

Proposed duration of planning permission: 15 years

With reference to the Masterplan Summary Programme (Figure 10) as well as the constraints and risks outlined:

- Demolition is required early in the Baseline programme to necessitate site access.
- Construction commencement is dependent on all the other works being substantially completed before this can commence construction.
- Construction to commence in August 2030.
- Target completion date is October 2032 (10.5 years from Planning Approval).
- Risk adjusted duration of 15 years is being sought from the date of the Planning Approval.

## 11.0 SITE 1 PROGRAMME

This report includes the general programme intention for Site 1 for completeness, but as noted elsewhere the date for the application is yet to be determined and hence the detail included within this report for this site is subject to change.

## 12.0 PHASING INTENTION FOR THE PUBLIC REALM

This section of the report provides a chronological timeline for the development of the various sites by showing a time-bar progression indicating how the site will be developed and delivered. This demonstrates when each portion of the public realm and streetscape will be completed and available for public use.

The key dates taken from the programme and delivery sequence are indicated in Figure 11 with the red highlighting indicating the key public realm delivery dates in the current indicative programme:

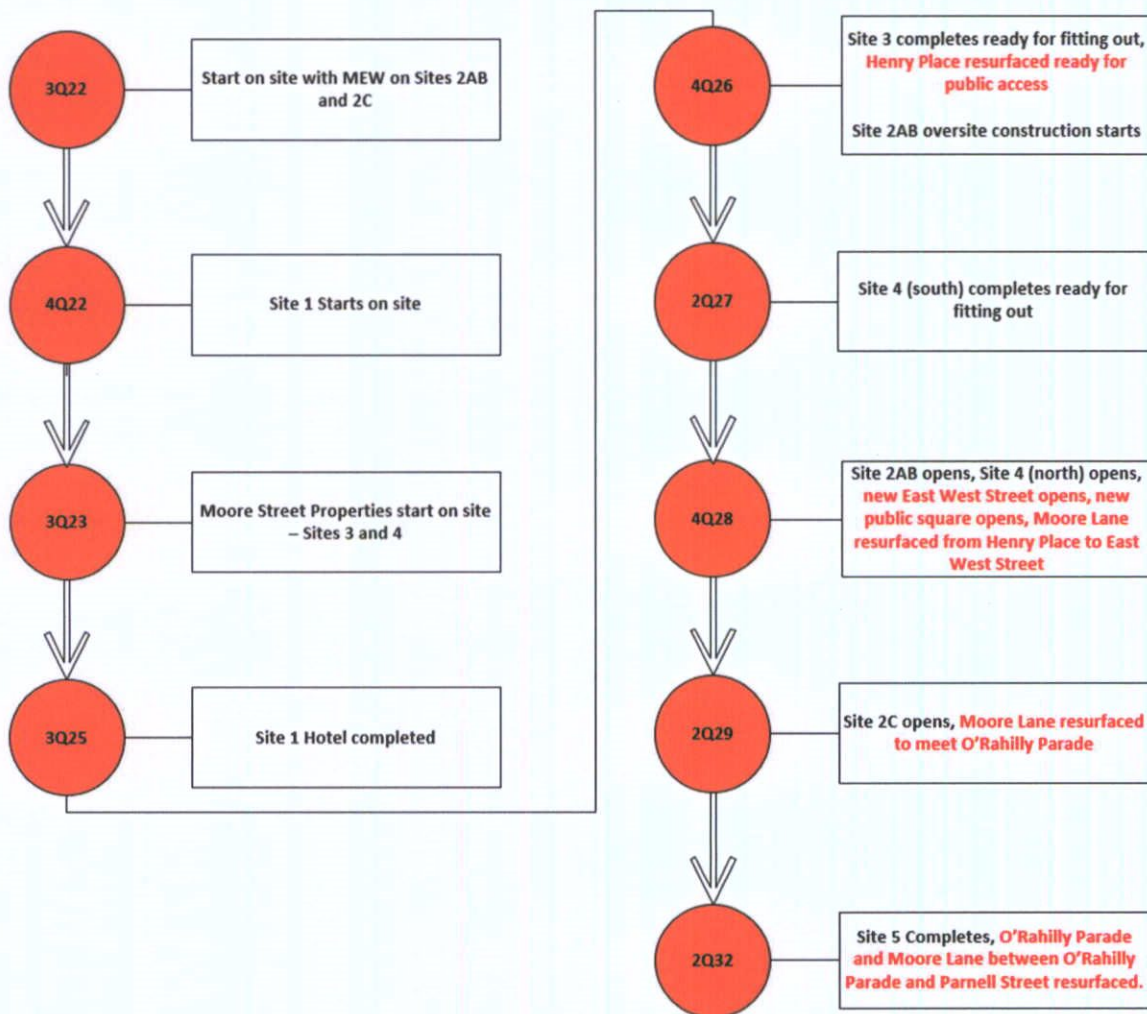
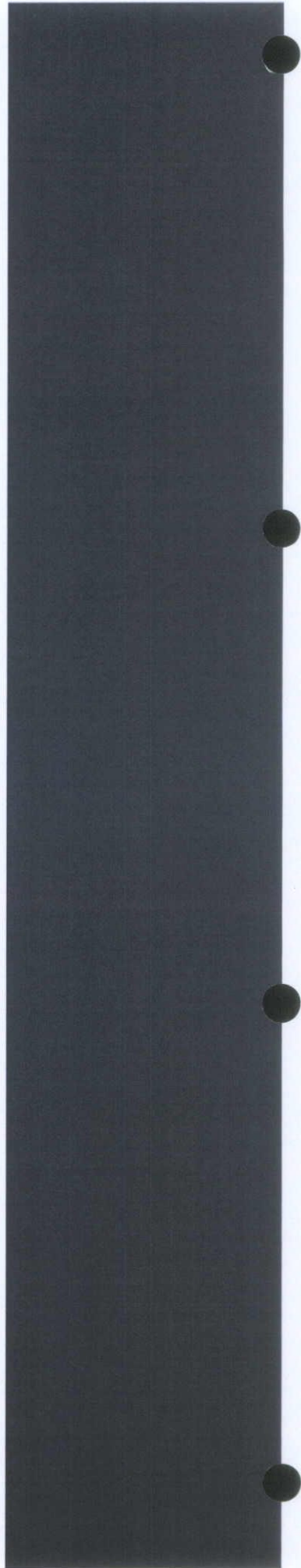
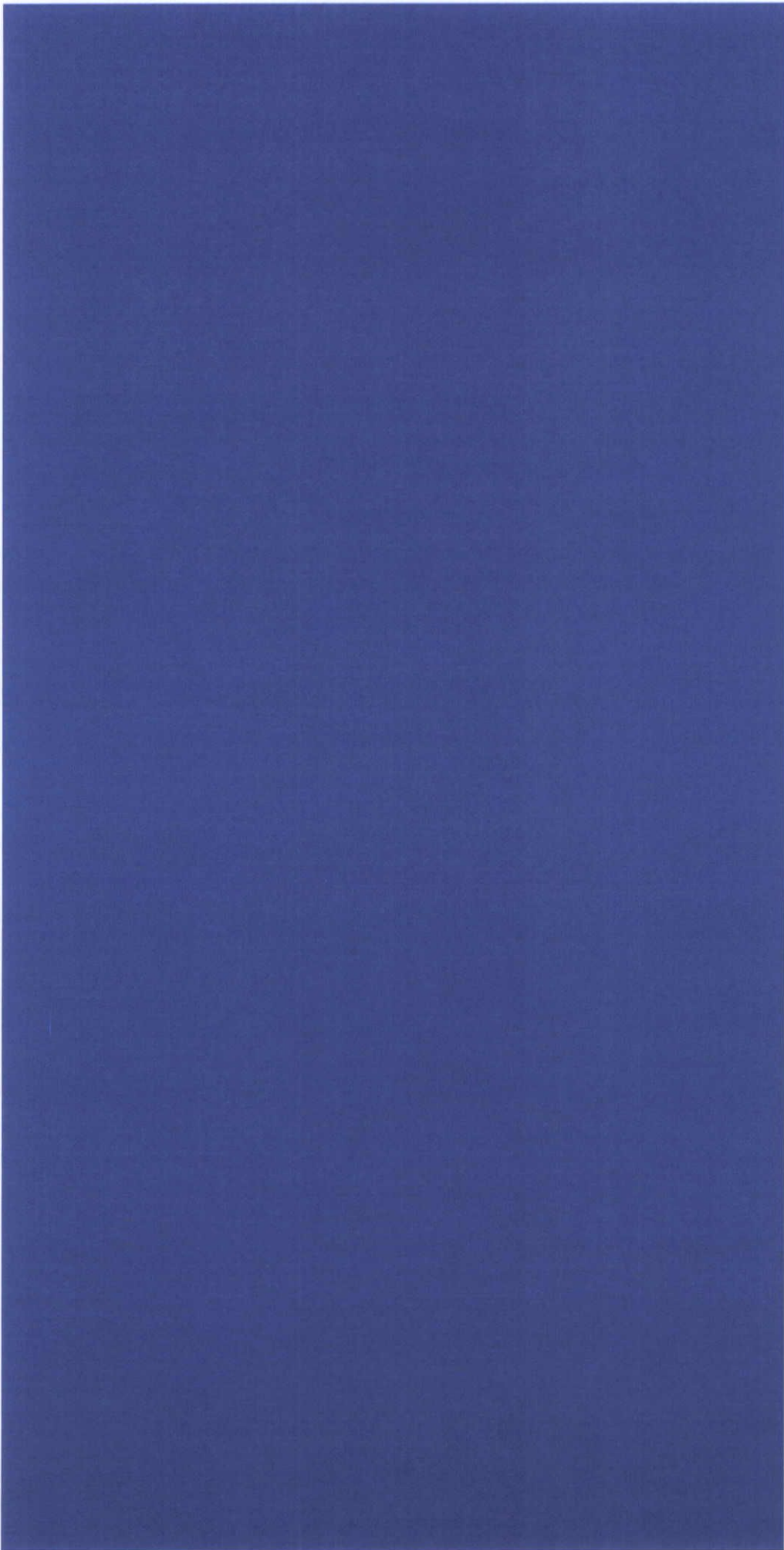


Figure 11

Appendix A gives further details.





Appendix C - DUBLIN CENTRAL MASTERPLAN ADDENDUM PROGRAMME  
REPORT Site 5 - RFI Response to Item 1 of 6 dated October 2021 – The Certo  
addendum programme report submitted in response to a RFI seeking  
justification as to why a 15 year duration was required for Site 5.



# DUBLIN CENTRAL MASTERPLAN

## ADDENDUM PROGRAMME REPORT

### Site 5 - RFI Response to Item 1 of 6

Client: Dublin Central GP Ltd (DCGP)

October 2021

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**CERTO**

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Management Services

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### Glossary of terms used:

Dublin Central	Name given to a proposed mixed-use development situated upon a 2.2ha site, located in Dublin 1
Overall Site	Comprises Sites 1, 2, 3, 4 & 5 in totality
Sites	Individual components of the Overall Site
Advanced Works	Works that will include asbestos removal, demolition, archaeological investigations to Site 2
Enabling Works for MetroLink (MEW)	The MetroLink 'shell' of approximate dimensions 120m x 27m x 35m (length x width x depth)

## 1.0 INTRODUCTION

This report has been prepared as a supplement to the Programme Report dated 25<sup>th</sup> May 2021 (the Original Report), and has been drafted specifically to address the Further Information request (Number 1 of 6) that was received in relation to the Site 5 Planning Application No 2863/21 dated 26<sup>th</sup> July 2021 as follows:

*"While the complex nature of redevelopment of a large scale inner city block is fully recognised by the Planning Authority, the provision of the 15 year planning consent is not considered to be acceptable and cannot be supported. Accordingly, the applicant is requested to revise the proposed development programme and site construction strategy so as to propose a reduced planning permission period."*

This addendum report will briefly outline the complexity inherent in the development that must be considered when deriving the programme for delivery. These aspects are then expanded upon in order to underpin the rationale for a 15-year planning duration for Site 5 (the 'Primary Option').

An 'Alternative Option' is also proposed within this report, for the consideration of the Planning Authority.

## 2.0 BACKGROUND

The Original Report set out a rationale for the planning durations requested, with the Site 5 duration being the longest, at 15 years, as this will be the last site to be constructed.

The Site 5 application has been lodged at this early stage, alongside the other planning applications as it is inextricably linked to the delivery of each of the other Sites, acting as the primary access and egress to and from the Sites.

An early permission is also required to allow for Site 5 demolition to take place. This will enable Site 5 to provide logistical support to the construction of the other Sites, critical to the logistical operation of the Overall Site.

To make the delivery strategy stack-up, Site 5 will need the longest duration: always requiring circa three years longer than the next longest duration to allow ultimately for its own construction, once the other Sites are complete.

It must be noted early in this report that an Extension of Duration of a permission for a project requiring an Environmental Impact Assessment (EIA) is no longer available. Section 42(8) of the Planning and Development Act 2000, as amended states that: -

*"A planning authority shall not extend the appropriate period under this section in relation to a permission if an environmental impact assessment or an appropriate assessment would be required in relation to the proposed extension concerned."*

The above Section of the Planning and Development Act 2000, as amended, came into effect on 8 September 2021.

This is relevant as the Site 5 planning application is accompanied by an Environmental Impact Assessment (EIA), thus removing the ability to gain an Extension of Duration, should one be required.

For this reason, it is imperative that a sufficient duration is achieved to provide for a robust chance of delivering the Project within an achievable timeframe.

### 3.0 THE CONSTRUCTION SEQUENCE AND ITS EFFECT ON THE PROGRAMME.

The optimum construction approach has been described in the Original Report and is shown again here in Figure 1.

This construction sequence proposed reflects the following conditions and/or constraints:

1. The existing traffic regime, whereby no vehicular traffic is permitted on Moore Street (South of O’Rahilly Parade) or on Henry Street after 11:00 am daily.
2. Considering No. 1 above, Sites 3 and 4 are challenging access-wise and therefore must be developed first, as the direction of construction moves from south to north, with construction traffic utilising Moore Lane.
3. Site 5 must be considered the front and back “door” for all development works. It is the sole arterial connection to the access / egress point on O’Rahilly Parade. It cannot be constructed until all other Sites are complete.

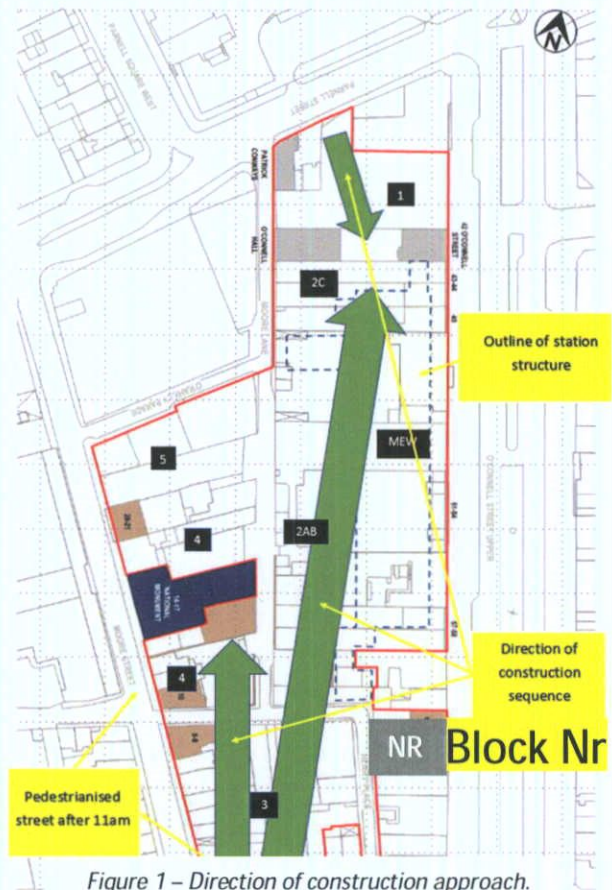


Figure 1 – Direction of construction approach.

4. Site 2 works, which include enabling works for Metrolink require a significant area to accommodate construction plant, materials, and site offices.
5. The imperative to protect the National Monument at Nos. 14-17 Moore Street.
6. DCGP acknowledges that the market traders and retailers have had a long-standing contribution to the vibrancy, vitality, and uniqueness to the local area. Consequently, DCGP recognise the need to minimise disruption to the Moore Street Market Traders during the works whilst facilitating the needs of the construction process.

#### The significance of Site 5 in the chosen construction sequence.

To understand the programme, it is important to understand the constraints that exist on the Overall Site and how Site 5 plays such a critical role in addressing these. There are eight key types of constraint that have been considered when formulating the construction strategy, each of these are discussed in more detail below. Site 5 has been a fundamental plank in the thinking behind deriving the optimum construction sequence, and as a result it will be the last site to be delivered and so it needs the 15-year Planning Duration. To alter this strategy will impact in an adverse way many of the eight types of constraint now discussed.

### *1. Restricted site access – peripheral busy roads.*

The Overall Site is bounded to the east with O'Connell Street which is a busy street with a high pedestrian footfall as well as a restricted traffic and servicing regime. Along with cycle and vehicular transport, the street is a confluence of Luas, Dublin Bus, and leisure transportation (open top buses).

Site 5 gives the best opportunity to get construction traffic to and from the Overall Site as it is the only part of the site that is not facing onto a pedestrianised street or a street with high pedestrian footfall. Hence why it is so significant for ALL developments within the Overall Site.

### *2. Restricted site access – peripheral pedestrianised streets.*

Henry Street, one of Dublin's busiest pedestrianised streets, borders the Overall Site to the south. Henry St. is pedestrianised after 11am in the morning (service vehicles only prior to 11am). Moore Street, to the west of the Overall Site, is similarly pedestrianised after 11am (service vehicles only prior to 11am). See note for constraint nr 1 above which apply to this constraint.

### *3. Restricted access – narrowness of the existing lanes within the site.*

Moore Lane, O'Rahilly Parade and Henry Place are all narrow lanes that do not facilitate large vehicles manoeuvring around the tight turns necessary to access the site.

There are no formal on-street loading bays on Moore Lane or O'Rahilly Parade.

There is minimal available width for drivers to pass stationary vehicles.

Some vehicles currently temporarily block roads such as Moore Lane and O'Rahilly Parade when loading and unloading in the street.

Two way movement along Moore Lane, Henry Place and O'Rahilly Parade is not possible.

Site 5 gives the best opportunity to relieve some of these constraints by allowing direct access onto Site 5 from Moore Street without having to navigate the tight lanes of O'Rahilly Parade and Moore Lane, particularly the impossible right turn for HGV's needed from O'Rahilly Parade into Moore Lane without it.

### *4. Neighbouring traders.*

In addition to the many shop traders on Moore Street, Moore Street is home of the Moore Street Market. The construction approach needs to take cognisance of the market traders and retailers to allow for continuity of trading.

Site 5 will allow some vehicle holding area before the vehicles' loads are dispatched to the area of construction where needed. This will help mitigate, amongst other measures, queuing traffic on Moore Street which may be to the detriment of existing traders in Moore Street.

### *5. Structures of heritage significance.*

There are several structures of heritage significance that must be protected during works as demonstrated in Figures 2 and 3 below:

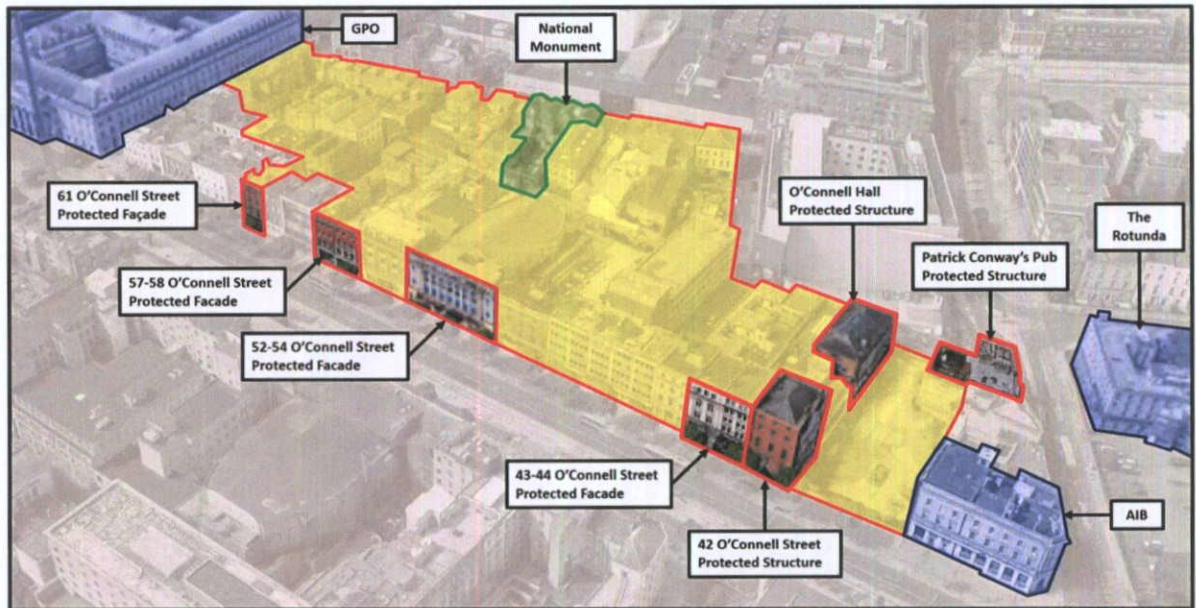


Figure 2 – Structures of heritage significance

These can be further demonstrated in plan form in Figure 3 as follows:

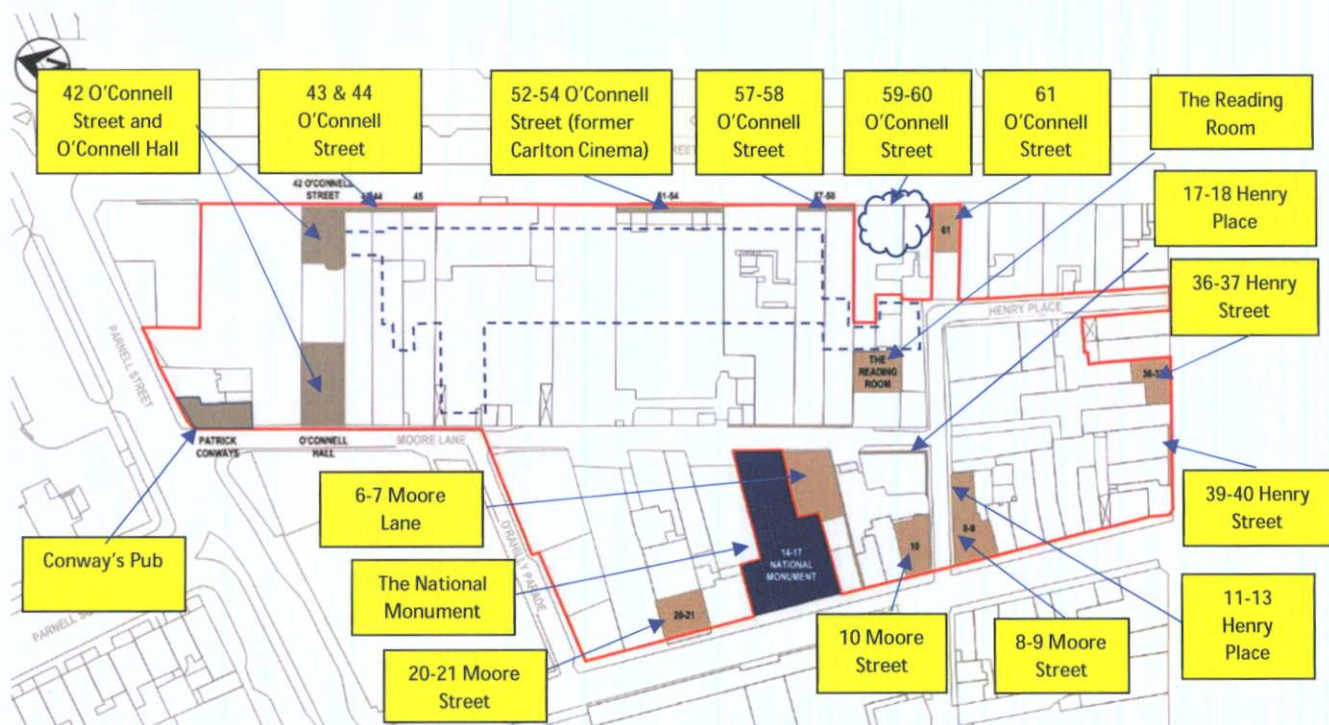


Figure 3 – Structures of heritage significance

The National Monument is located at Nos. 14-17 Moore St, extending east to Moore Lane. Significant separation zones and other anti-vibration measures will need to be incorporated into the construction methodology when in the immediate proximity of the National Monument, due to its friable condition. The structural underpinning works planned to be carried out by the OPW will need to be co-ordinated



with the DCGP programme to see that these works are preferably done in advance of the MEW construction works in the vicinity of the National Monument.

Site 5 plays a part in assisting to protect these structures because it takes larger construction vehicles away from Moore Street as soon as possible and handles them in an area that is furthest away from any protected structures.

6. The MetroLink Enabling Works.

The MEW comprises significant subterranean infrastructure as can be seen in the two cross-sectional drawings (Figures 4 and 5) below:

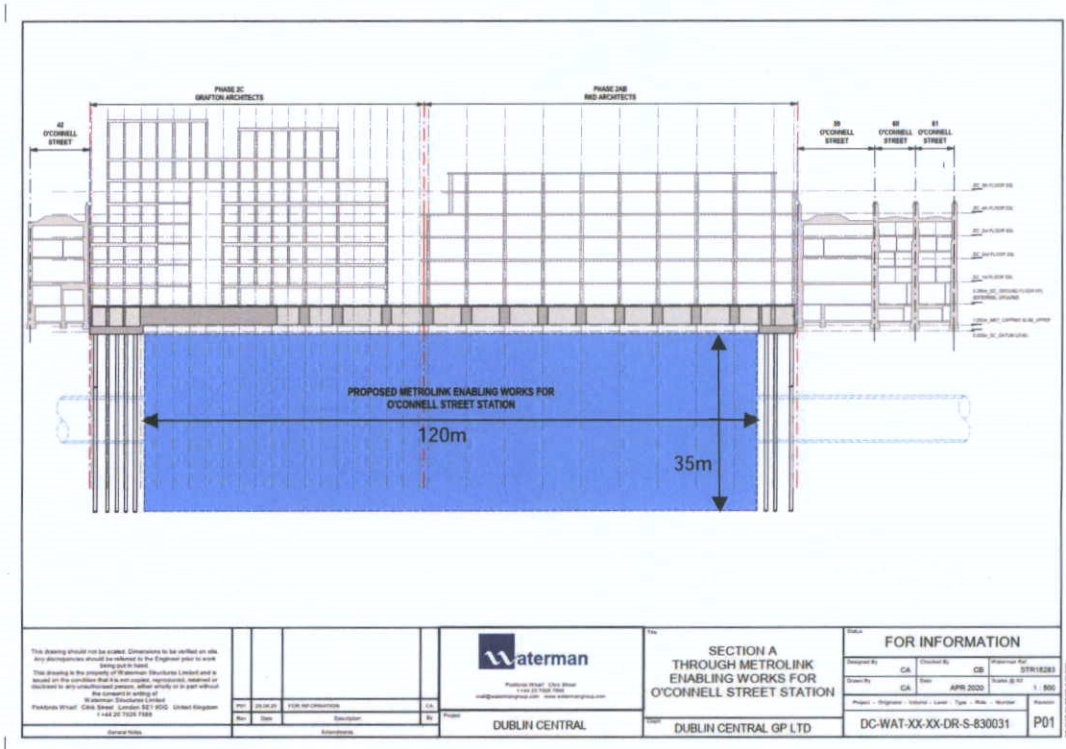


Figure 4 – Indicative Longitudinal cross-section of the MEW

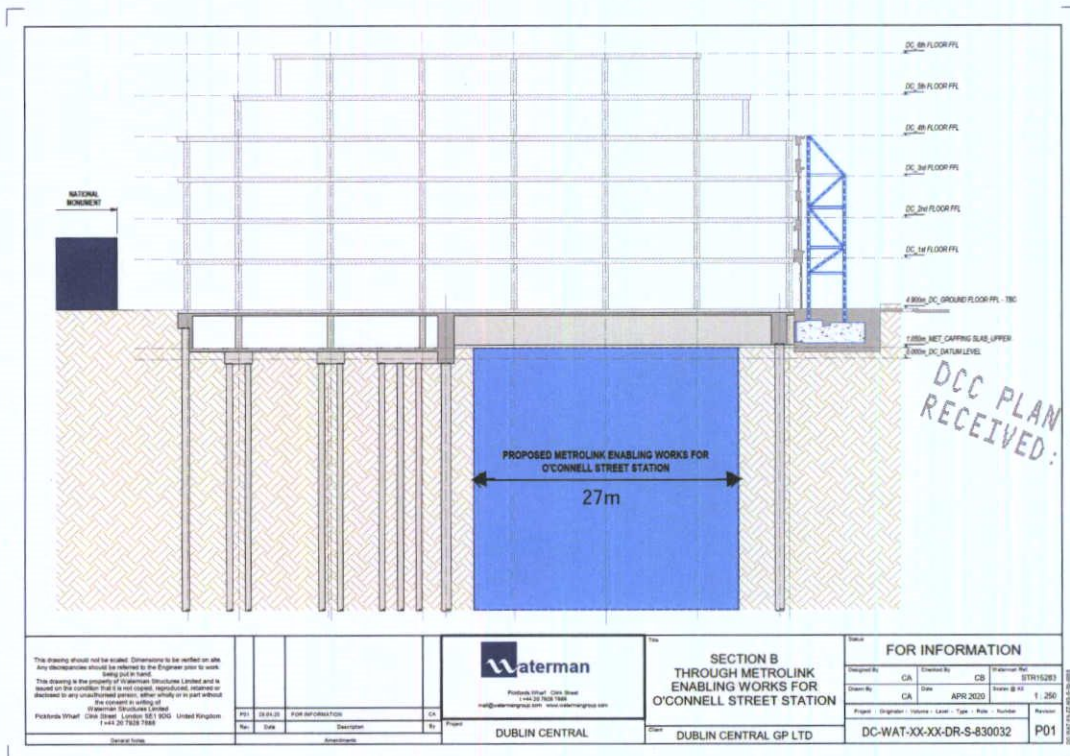


Figure 5 – Indicative Transverse cross section of the MEW

(Note – these images have been included to illustrate the approximate depth and nature of the MEW beneath Sites 2AB and 2C. The MEW are largely limited to the provision of concrete enabling works to facilitate TII to be able to build an operational station at a later date.)

The MEW 'box' dimensions are approximately 120m x 27m x 35m (length x width x depth) located under Sites 2AB and 2C. The construction is planned to be delivered via an open excavation construction approach.

Demolition, excavation, and construction of the MEW must be substantially completed before the oversite developments on Sites 2AB and 2C can commence.

Construction traffic volumes through the centre of the Overall Site, for both the MEW and the construction of the other phases, will constrain the speed of all the construction programmes, because of the sole arterial road within the Overall Site which acts as the backbone for construction of all sites (see Figure 6).

Site 5 is critical to the management and control of this arterial road because it provides an "holding point" for traffic before proceeding onto Moore Lane (rather than blocking up Moore Street itself with traffic waiting to gain access to Moore Lane).

### 7. Constrained space to carry out construction works.

Figure 6 below illustrates how the site might be set up and demonstrates how constrained the site is for carrying out the construction activities:

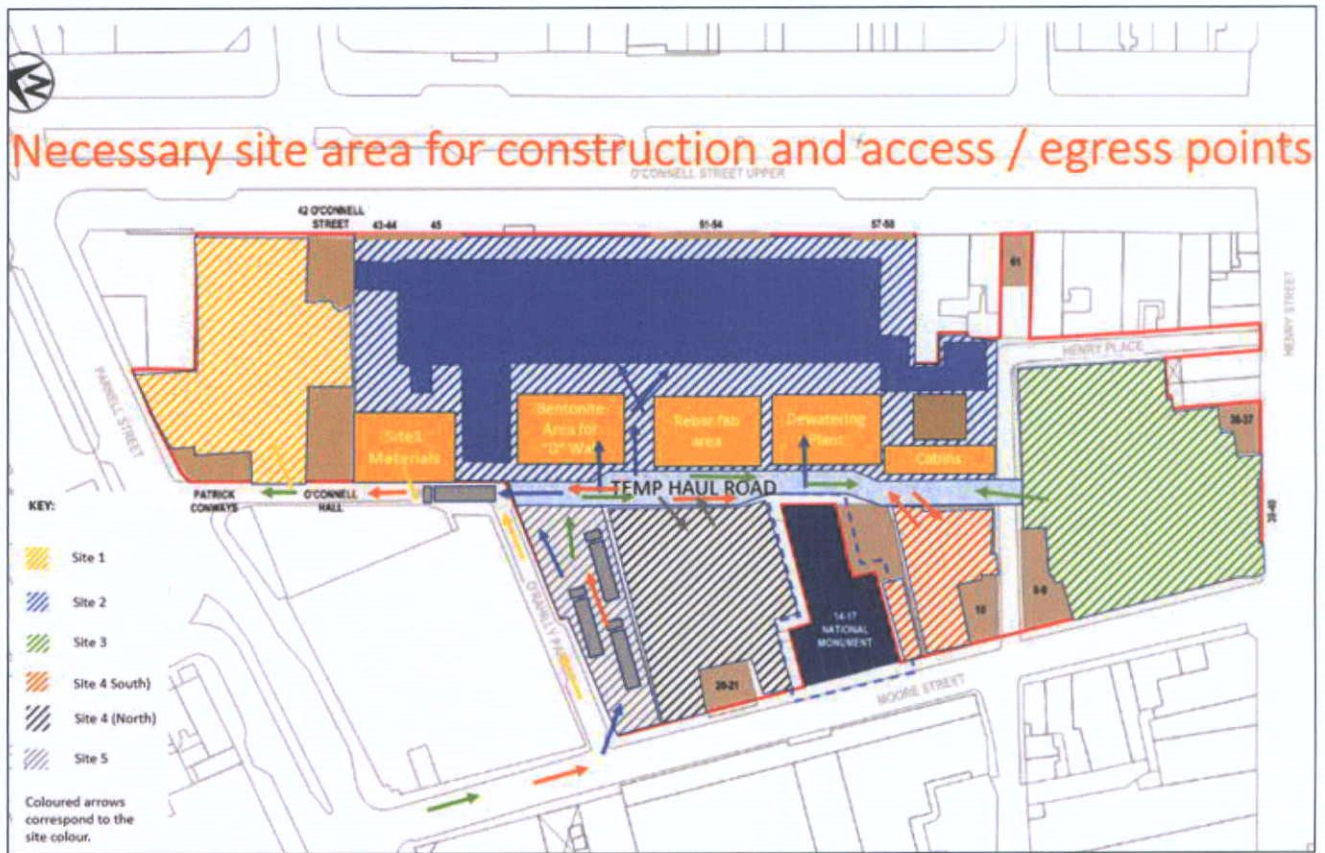


Figure 6

Site layout that depicts the arterial significance of Moore Lane and the need for Site 5 to feed the whole of the construction for Overall Site

Of particular interest is the requirement to cater for the following:

- Separate contractors potentially for the various sites, each with their own welfare and logistics needs.
- The MEW diaphragm walling which is hungry for plant space and will require a specialist compound for a lengthy duration for the bentonite plant, reinforcement cages and dewatering equipment.
- A considerable volume of excavated material to be disposed of offsite (111,900m<sup>3</sup>) which will require space for frequent vehicular movements.

#### 8. The sheer volume of construction activity

The sheer volume of construction activity will be a constraint. The intention will be to package up the various construction lots into separate contracts using several different contractors, depending on their recognised expertise. However, because there is in effect only one route into the site and one route out of the site there will be congestion which will reduce the efficiency of delivering the works.

Without Site 5 playing a pivotal role in managing this congestion the situation will be far worse.

## Option to deliver a shorter programme

Considerable time has been spent by the DCGP team in analysing how to shorten the construction programme including various permutations of sequencing the works as will be seen in the next section with the results of the Monte Carlo simulation modelling that has been applied.

Per above, Site 5 will be the final Site to be constructed. Site 5 is the only area in the Overall Site with a direct connection to a public highway that is accessible 24 hours a day, 7 days a week. It is the only part of the Overall Site that affords access without restriction to construction traffic requiring unhindered access to use the main arterial route in and out of the Overall Site via Moore Lane.

All other areas are either bounded by pedestrianised zones (Moore Street, Henry Street) or busy pedestrian zones with an intensity of vehicular traffic and public transport infrastructure (O'Connell Street Upper).

Therefore, to change the sequence will remove the connection for vehicular access as the Site 5 area will become a construction zone. This will therefore make vehicular access to the other sites extremely challenging which, in turn, will lengthen their construction programmes (putting further pressure on the larger Sites including O'Connell Street); adding significant cost, and a far less palatable profile of disturbance that the construction activity will then have on primary streets such as Henry Street, Moore Street and O'Connell Street.

Altering the strategy will potentially lead to construction traffic requiring access to Site 3 via Moore Street during the working day, which would affect the local traders to an unacceptable degree. It would also lead to a major construction access position being required directly from O'Connell Street to build the Site 2 buildings.

The construction strategy that has been developed is the preferable option given the constraints. Two major contractors have reviewed the strategy and confirmed this to be the case.

Figure 6 demonstrates the significance of Moore Lane to the construction strategy and the importance of Site 5 in accessing it.

This strategy allows for the build out of Sites 1, 3 and 4 while the MetroLink Enabling Works are also on-site. This is a key advantage as it allows the Moore Street and Henry Street facing properties to be expedited with Site 5 (being the least visible plot at the rear of the Site) being finished last.

Completing Site 5 as the final phase enables the rest of the Sites to be delivered with the least disturbance and disruption overall and critically, enables the most expedient programme to deliver the entire development.

## 4.0 THE NEED FOR A 15 YEAR PERMISSION FOR SITE 5

The duration of planning permission that has been applied for is 15 years.

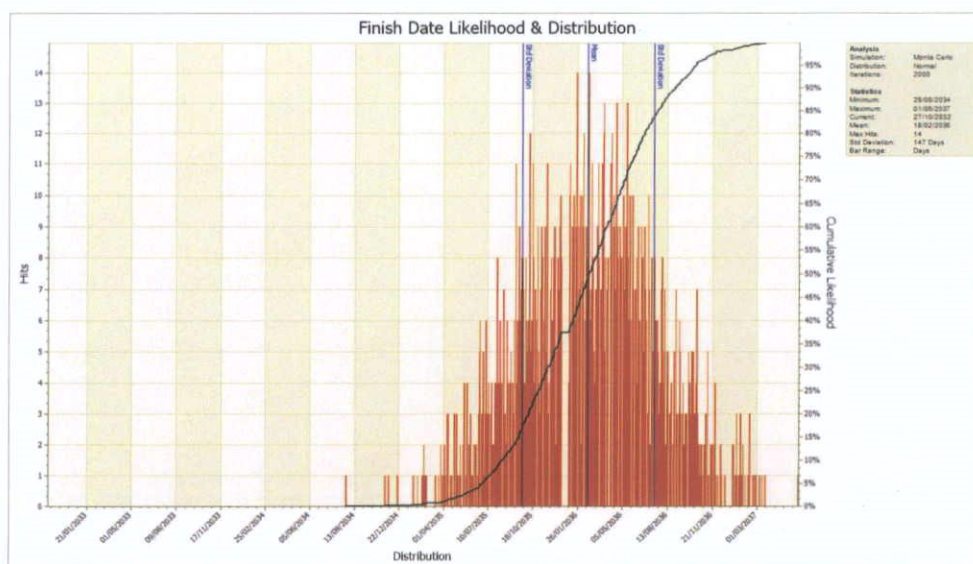
As Site 5 will be the last to be developed, the critical path for progressing this site runs through the procurement and construction of the MEW, the construction of Sites 2AB and 2C and the eventual construction of Site 5 itself. Because of the strategy developed, Sites 1, 3 and 4 can be progressed in tandem with the MEW, thereby affording an earlier completion date. An understanding of the critical path is important, because when the risks with the potential to impact the critical path are considered, such risks do not apply solely to Site 5 but also have a direct impact on Sites 2AB and 2C including the MEW.

Risks have the potential to delay or even stop works entirely. Therefore, any project needs to have a risk management plan in place that includes a continuous assessment on programme impacts given the constantly changing risk profile for the project.

A key risk to this project is a Planning duration that expires before the development is completed and therefore a careful assessment of this risk at this juncture is an essential mitigation measure.

The Risk Analysis carried out in May has been reviewed further upon receipt of the RFI request to see if the programme could be shortened. The risk analysis was indicating a forecast completion date for Site 5 could be delayed by between 3.7 years and 7.5 years (i.e., on top of the 10.5 years forecast in the target programme). To get a statistically modelled risk profile, the project has now been assessed using computer software which has run a defined number of Monte Carlo simulations (an industry standard technique) to predict the probability of different outcomes given the intervention of the risk variables present, see Figure 7.

Figure 7 –  
Monte Carlo  
simulation  
results



The results of this modelling indicate the latest (maximum) finish date likelihood for Site 5 to be 18/08/36, some 14.5 years after the Base Programme assumption that Planning Approval would be granted by mid-2022 for Sites 2, 3, 4 & 5. Site 2 has not yet been submitted for Planning Approval because of further discussions being held with TII to co-ordinate the application with their work, and hence this Planning Approval assumption date has been adjusted in the revised target programme shown in Figure 8. This programme has the risk allowances built into it for each site that the modelling

suggested. Whilst the risk allowances have notionally been shown at the beginning of the demolition and construction process, the risk can and will, of course, occur anywhere within the process and not just where notionally shown.

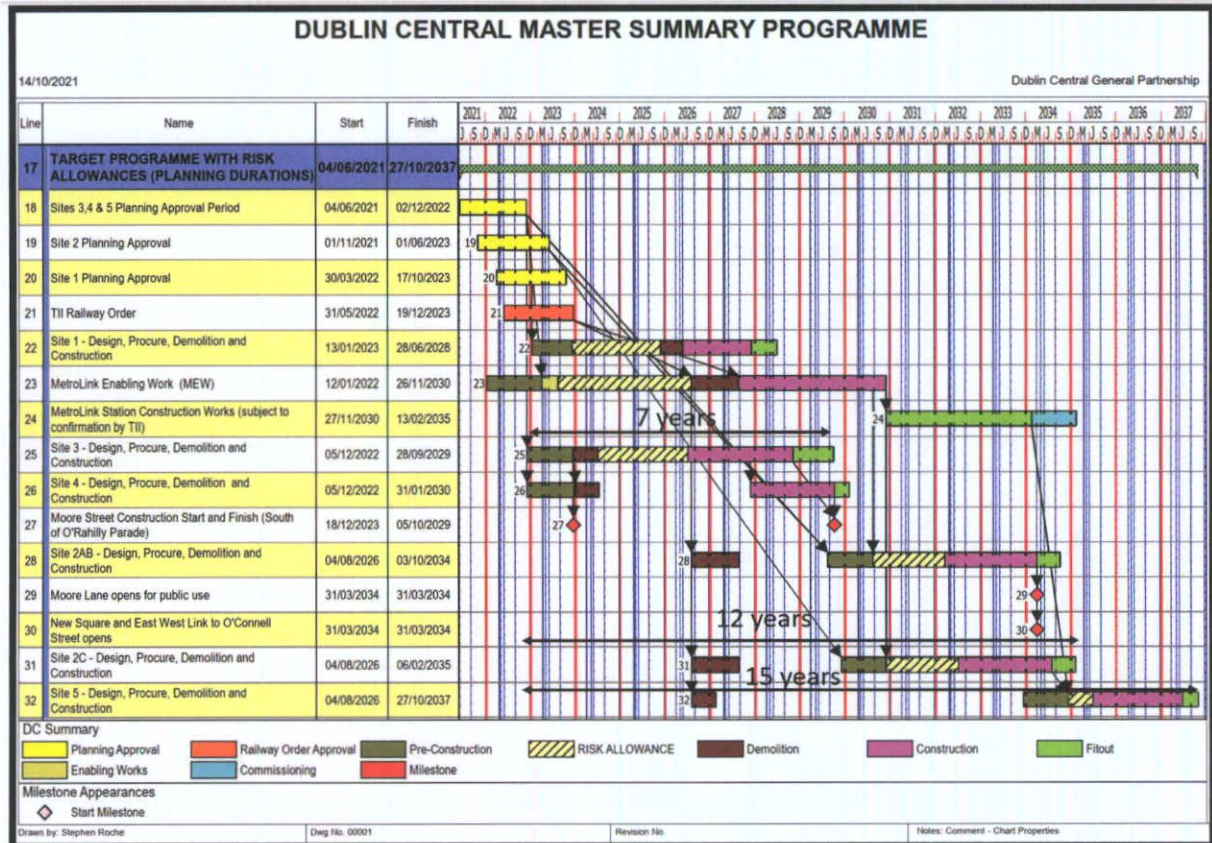


Figure 8 – Master Summary Programme with risk allocation indicating Planning Durations required

## 5.0 LESSONS FROM A COMPARABLE PROJECT: CROSSRAIL IN LONDON

Crossrail's initial programme had a start on site of 1Q2012 and a target completion date of 4Q2018, i.e., a six-year construction period.

Crossrail is now due to open in 2Q2022, some four years late. This equates to an over-run in time of 66%.

The National Audit Office prepared a report in 2019 to investigate the delays and cost over-runs. Some of their findings can be summarised as follows:



- The increase in programme is not the result of one project or contract.
- Some of the biggest delays are associated with the construction of the new stations
- Delays tended to occur because of the complexities of interfaces with systemwide contractors
- Attempts to accelerate the programme had little impact on productivity.
- Risks need to be managed effectively.
- There was a prevalence of delays caused by the interface of multiple contractors.
- Access to work sites for contractors caused late handovers.

Crossrail's has many similarities to the Dublin Central project as it too will have many different building contracts that will create interfaces that will each carry risks, a constrained site access, close neighbours, difficult property acquisition, extensive subterranean works that are linked by tunnels, one overarching programme of works that will be significant Nationally and that will carry great public interest, few opportunities to accelerate effectively the programme should delays occur, extensive risks to be managed and many stakeholders.

Crossrail experienced a four-year delay on a six-year programme. This however is only during the construction delivery period. Many delays that the Dublin Central project could experience will be before the construction stage is commenced. The Crossrail delay of four years in six was for the whole of the works which included station construction, tunnelling, track installation and signalling works. The MEW represent only part of these elements as it is for the concrete structure only, but many of the risks remain.

The delay on Crossrail is for four years in six years of construction. This delay is across the whole of the construction, M&E installations, signalling and commissioning and not just for the civils works of creating the concrete shell that will later house the station, as is the case at Dublin Central.

However, it is understood that many of the delays were associated with the station construction.

The timeframe for the Planning Permission on Dublin Central assumes a risk allocation period of 4.5 years, but this is not just the construction risks, it also includes land acquisition, funding, procurement, design, and approvals risks. This 4.5 years on 10.5 years (taken from the target programme) represents a 42% risk allocation and therefore as a benchmark against the Crossrail project, it compares favourably.

## 6.0 AN ALTERNATIVE CONSTRUCTION STRATEGY

Considering the Request for Further Information from Dublin City Council with respect to the extended duration being sought, an Alternative Approach to the site construction strategy has been considered with a view to expediting the Site 5 development.

### Stage 1 Layout

This revised strategy assumes that the Overall Site is configured, as per Figure 6 above, for the construction duration of Sites 1, 3, 4 and the MEW construction stage of Site 2.

These works will be constructed in years 1 to 8.

### Stage 2 Layout

Upon completion of works under the Stage 1, the Overall Site layout is changed as per that shown in Figure 9 (the 'Stage 2 Layout').

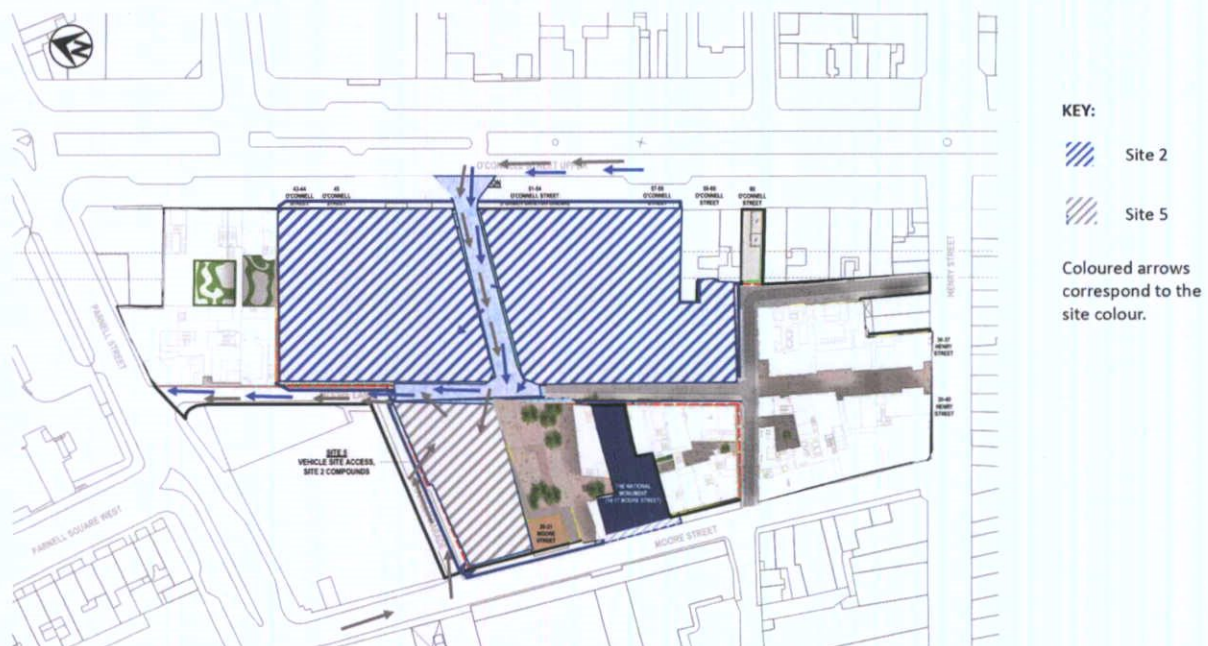


Figure 9 – Alternative Site Layout

Within the Stage 2 Layout, the primary access/egress route for the Overall Site relocates to O'Connell Street Upper. This will enable the construction of Site 5 to proceed earlier than would otherwise be possible; with access/egress to Site 5 construction via Moore Street and O'Rahilly Parade. Stage 2 Layout can only commence once the Site 2 MEW are completed with associated podium in place.

Under the Stage 2 layout, access via O'Rahilly Parade followed by a right turn onto Moore Lane will not be possible, thereby necessitating the O'Connell Street access for Site 2 oversite construction.

The Stage 2 Layout enables Site 5 to be constructed in parallel with the Site 2 oversite development. This approach would enable the planning duration for Site 5 to be reduced from 15 years to 12 years as it would no longer be required to complete Site 2 before Site 5 commences.



The challenge created by the Alternative Approach is that construction access for Site 2 (and some of construction traffic for Site 5) will require access from O'Connell Street, egressing via Moore Lane, north onto Parnell Street. Such a sequence will have the benefit of removing Site 2 construction traffic entirely from Moore Street and O'Rahilly Parade. Site 5 construction traffic will have exclusive site access via Moore Street/O'Rahilly Parade from the west and occasionally O'Connell Street from the east.

This will also mean that all construction traffic for Site 2 needs to approach the Site from the south, journeying north up O'Connell Street, as approaching from the north and making a right hand turn into Site 2 is not possible.

The other challenge to this approach is that the vehicle holding and handling facility, located in Site 5 in the Stage 1 Layout is subsequently lost. Therefore, with a more constrained Overall Site, there is greater risk to the Site 2 construction programme, resulting in a planning duration of 12 years being required for this Site. The programme in Figure 10 indicates this.

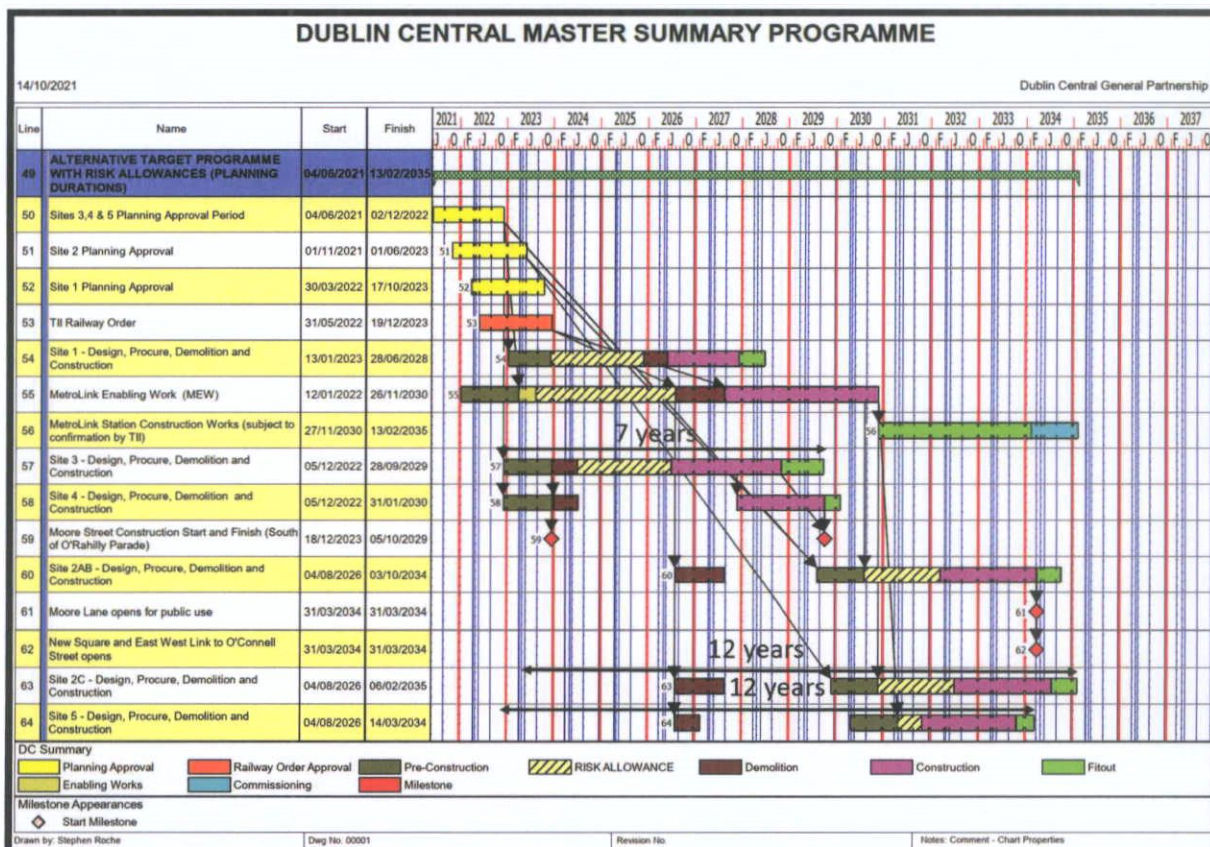


Figure 10 – Alternative Master Summary Programme with risk allocation indicating Planning Durations required

Again, whilst the risk has notionally been shown at the beginning of the construction stage, it can and will occur anywhere within the overall timescale for each project.

Whilst the Alternative Approach could be adopted to reduce the Planning duration for Site 5, it is not considered by DCGP to reflect the best approach, given the Overall Site constraints, which have been well documented here and in prior reports.