DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 6

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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 work on Site 1 now being principally complete, with fitting out activities now being carried out internally to complete the hotel and offices together with the ground floor retail.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 7

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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 work on Site 1 continuing with the fitting out activities internally to complete the hotel and offices together with the ground floor retail.

The other major change is the work to the MEW now starts to involve the basement construction under Sites 2AB and 2C. This demonstrates further how constrained the site is to enable the construction to be carried out.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 8

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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

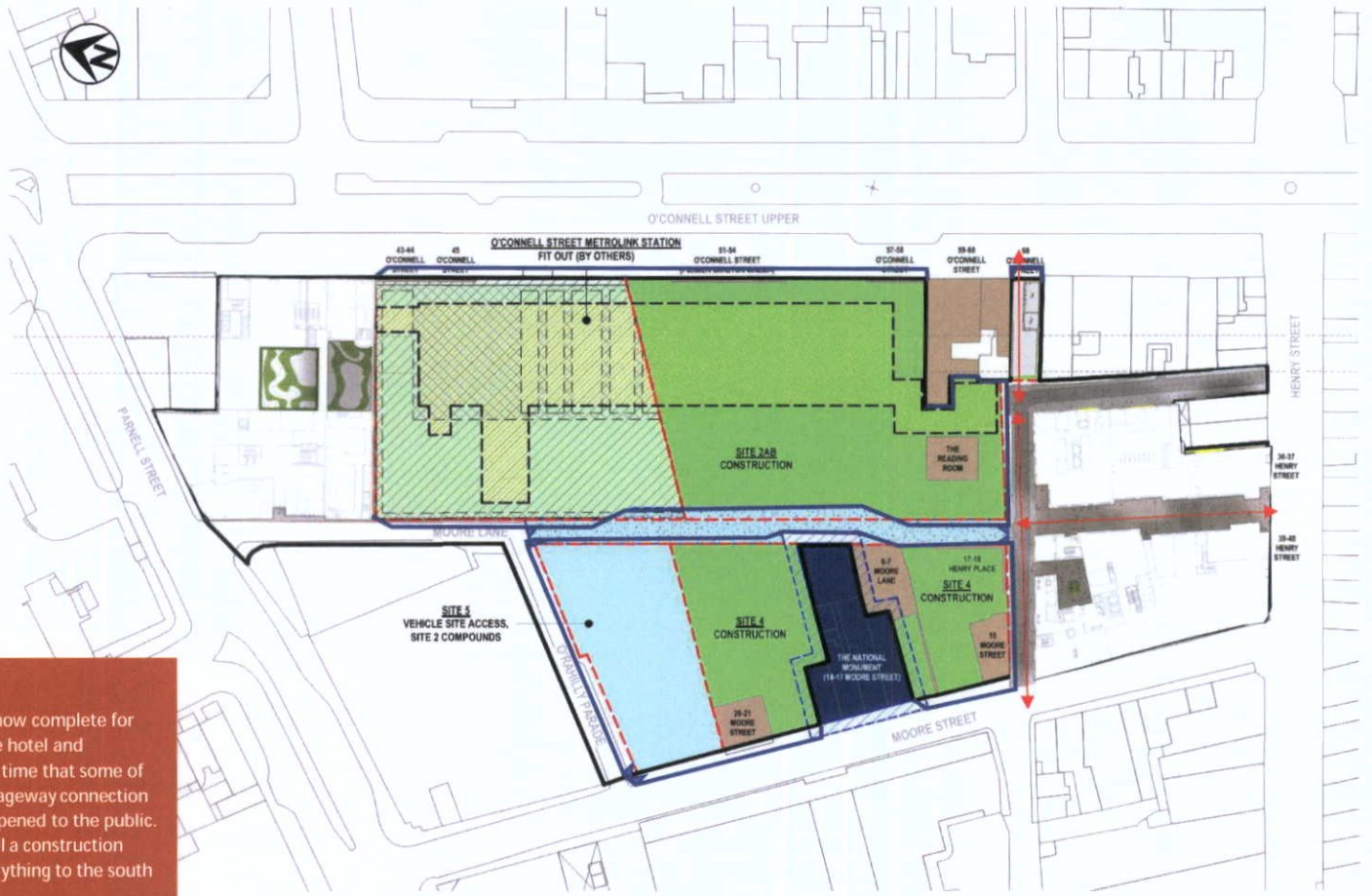
PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

Principal activities taking place:

This image shows that the work to the MEW beneath Site 2AB is now sufficiently advanced that works can now commence with the construction of the Site 2AB offices and retail.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 9

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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

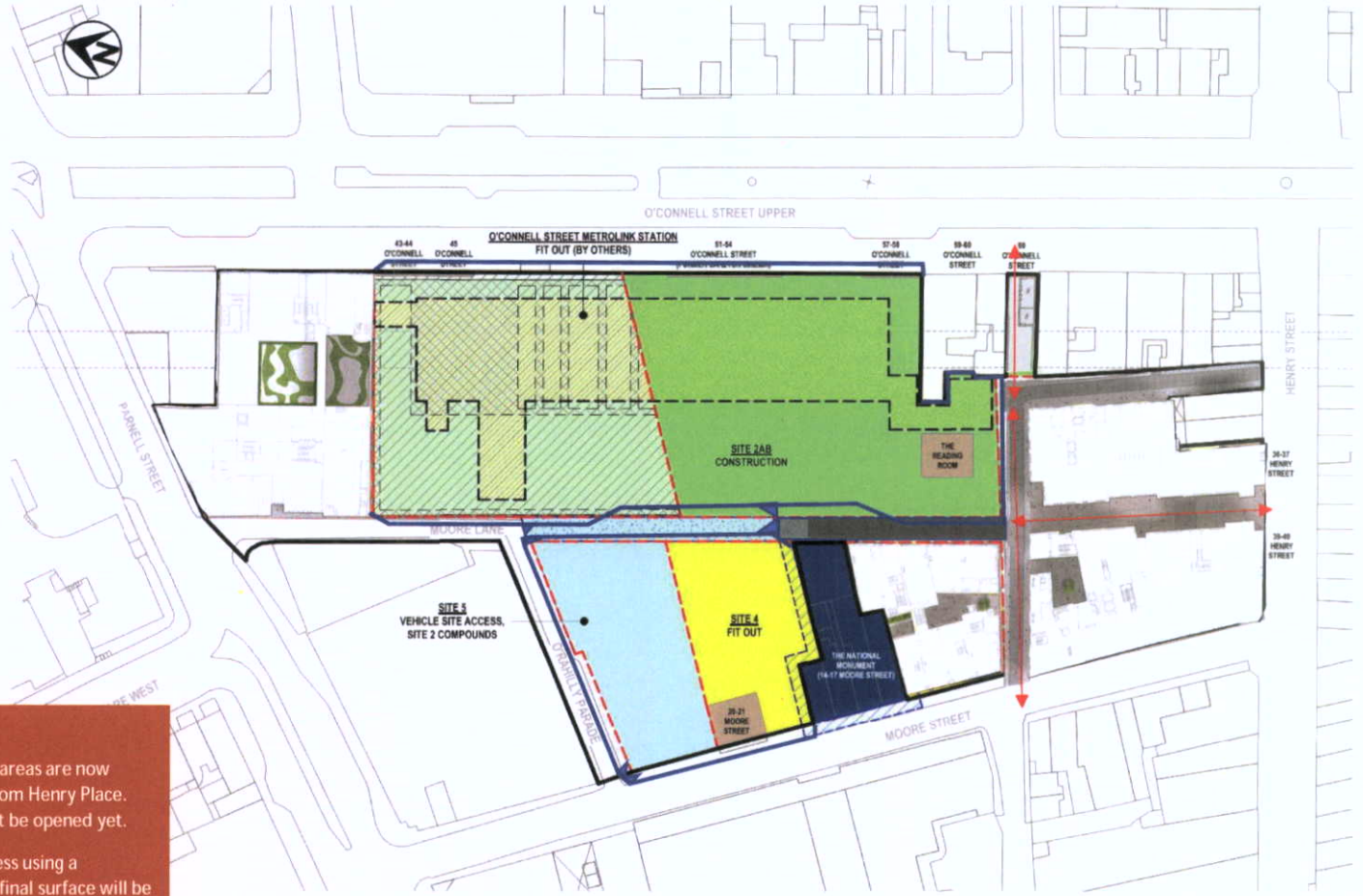
Principal activities taking place:

This image shows that the work to Site 3 is now complete for the shell which enables the fitting out of the hotel and residential to be carried out. This is the first time that some of the public realm around Site 3 and the passageway connection from Henry Place onto O'Connell Street is opened to the public. Everything to the north of Henry Place is still a construction zone and within the site hoardings, but everything to the south is now opened for public use.

Henry Place will have been resurfaced to its completed form.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 10

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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

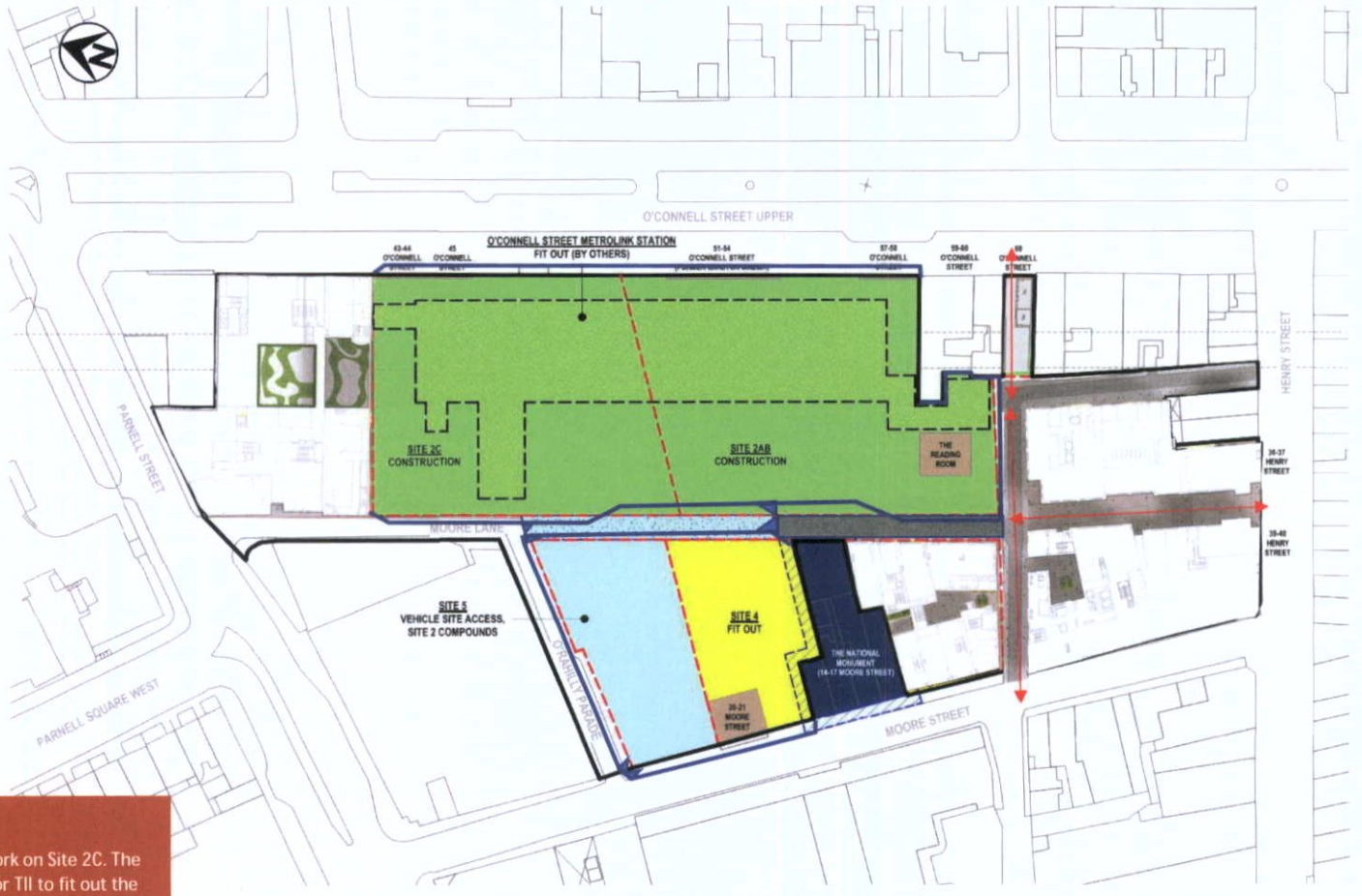
Principal activities taking place:

This image shows that the Site 4 residential areas are now completed and capable of being accessed from Henry Place. The retail on Moore Lane in Site 4 would not be opened yet.

The south of Moore Lane is available to access using a temporary tarmac surface at this stage (the final surface will be applied once the rest of Moore Lane can be surfaced with the existing setts and new materials.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 11

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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



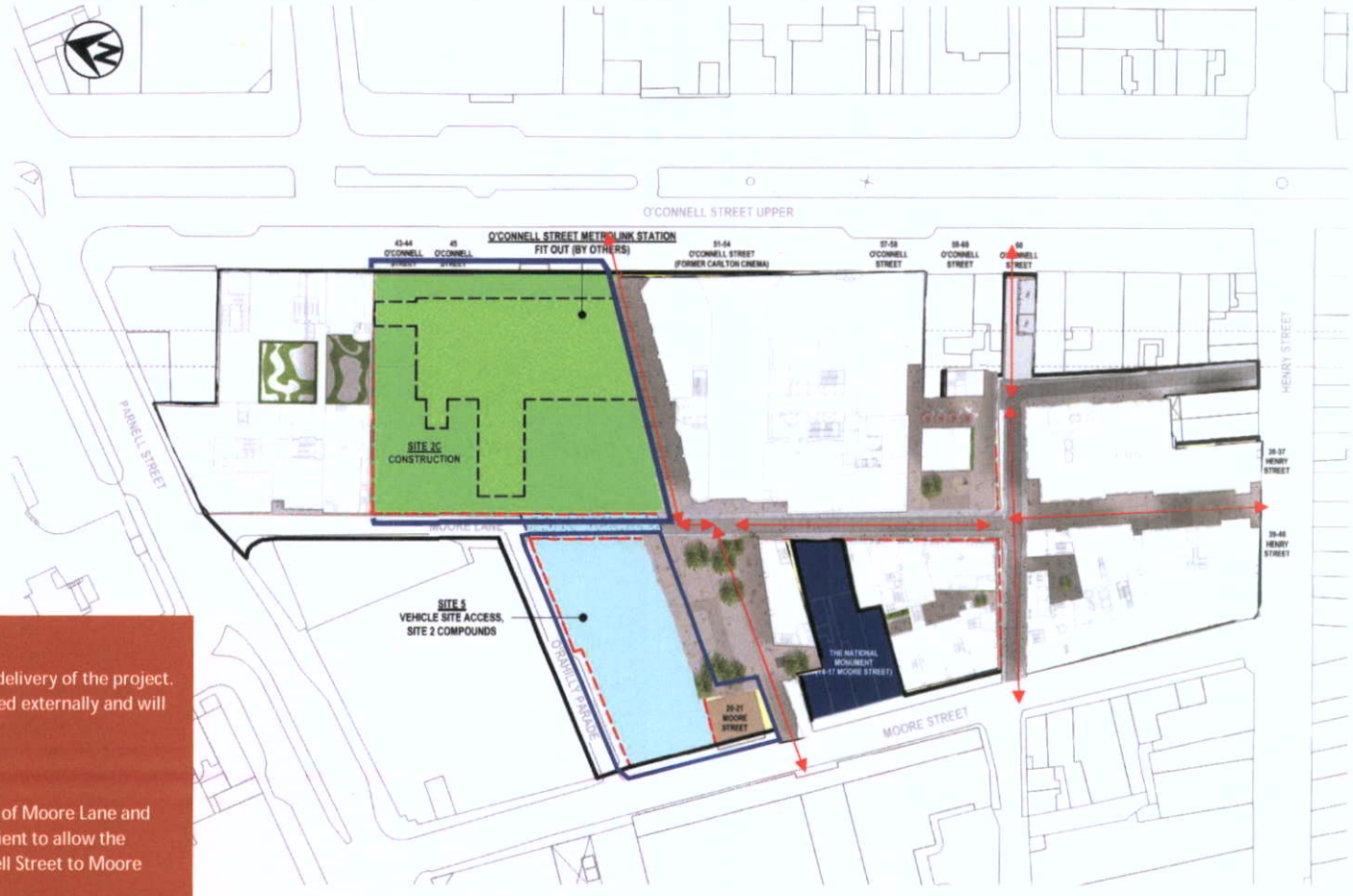
PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

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.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 12

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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 a major milestone in the delivery of the project. At the end of 2028 Site 2AB will be completed externally and will be being fitted out ready for occupation.

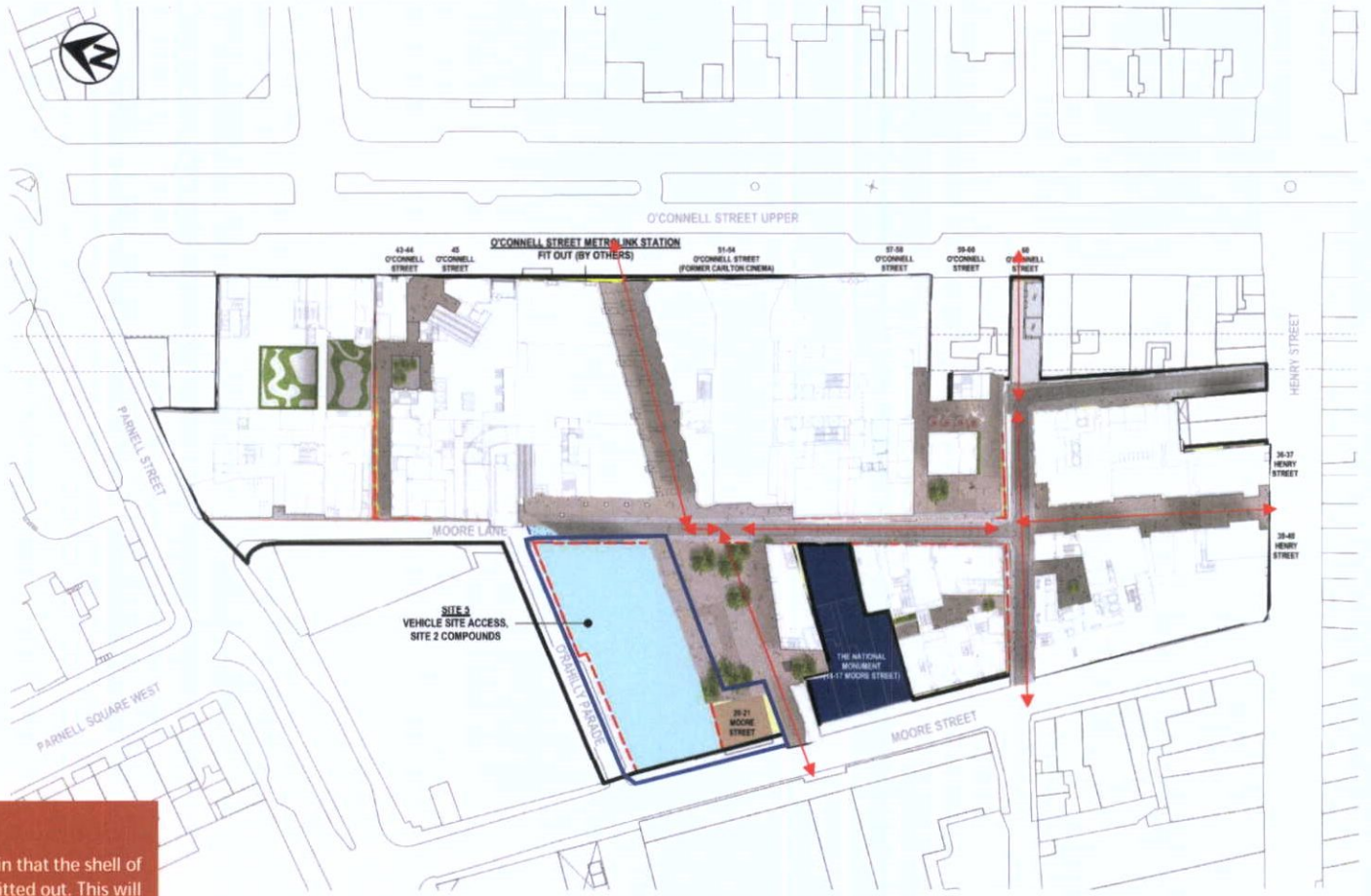
Site 4 north will also be completed.

The major milestone will be the resurfacing of Moore Lane and the creation of the new public square sufficient to allow the pedestrian connection across from O-Connell Street to Moore Lane at the end of 2028.

Construction of Site 2C will continue.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 13

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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 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.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 14

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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 commencement of the construction of Site 5. The site will be discreetly hoarded off.

Site 2C will still be being fitted out.

Note:
This shows the earliest start and finish date for site 5 which is 9 months earlier than shown in the Master Summary Programme. The Master Summary Programme assumes a later start to facilitate MetroLink construction access which is yet to be defined and agreed with TII.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 15

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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

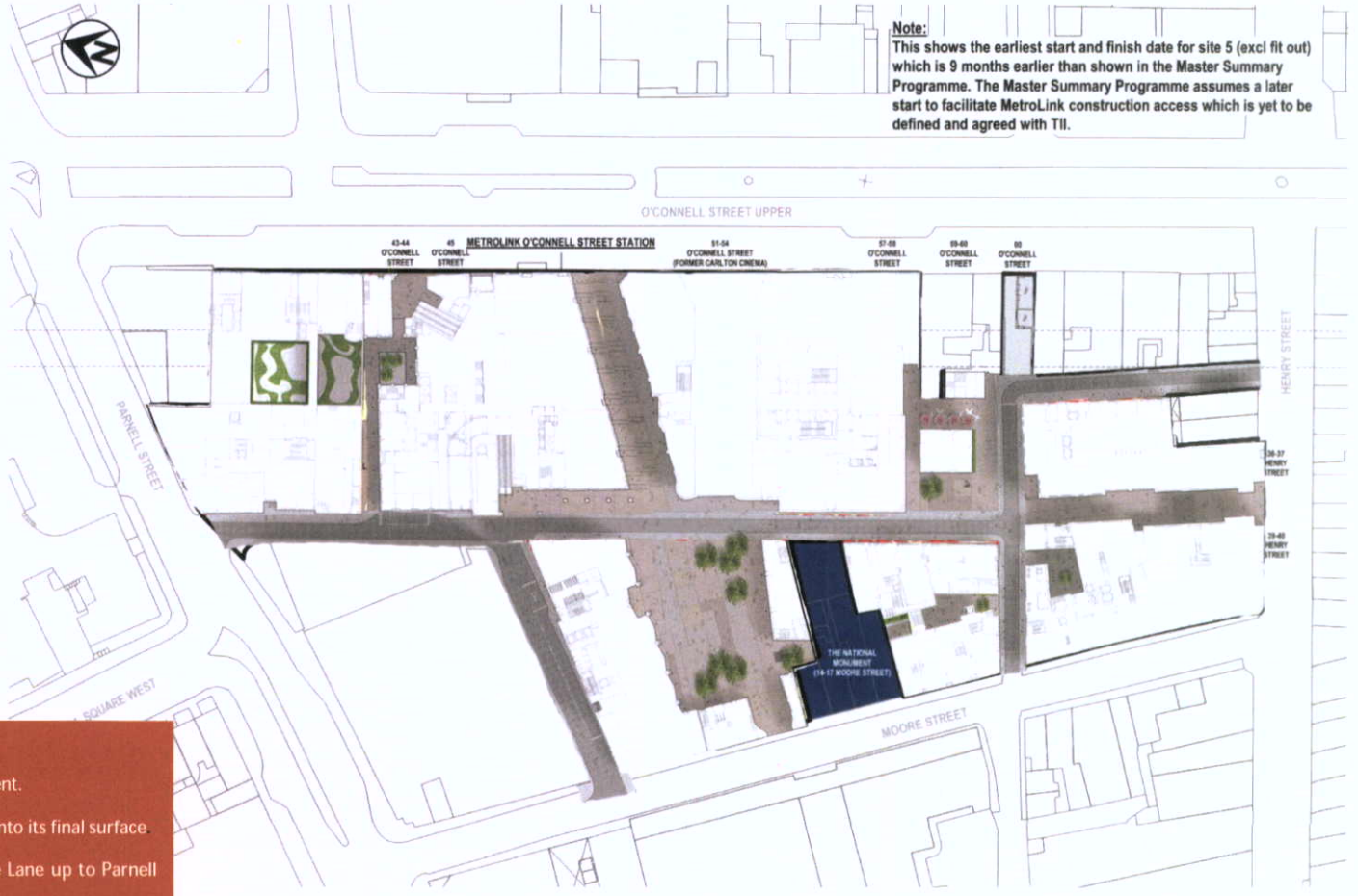
Site 2C will now be complete.

Note:
This shows the earliest start and finish date for site 5 which is 9 months earlier than shown in the Master Summary Programme. The Master Summary Programme assumes a later start to facilitate MetroLink construction access which is yet to be defined and agreed with TII.

DUBLIN CENTRAL – INDICATIVE TIMESLICE SEQUENCE DIAGRAM NUMBER: 16

2022				2023				2024				2025				2026				2027				2028				2029				2030				2031			
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
																																		◆			

Note:
This shows the earliest start and finish date for site 5 (excl fit out) which is 9 months earlier than shown in the Master Summary Programme. The Master Summary Programme assumes a later start to facilitate MetroLink construction access which is yet to be defined and agreed with TII.



Principal activities taking place:

This image shows the completed development.

O'Rahilly Parade will have been resurfaced into its final surface.

Resurfacing the northern section of Moore Lane up to Parnell Street will have been completed.

PRELIMINARY PROJECT PROGRAMME – INDICATIVE ONLY

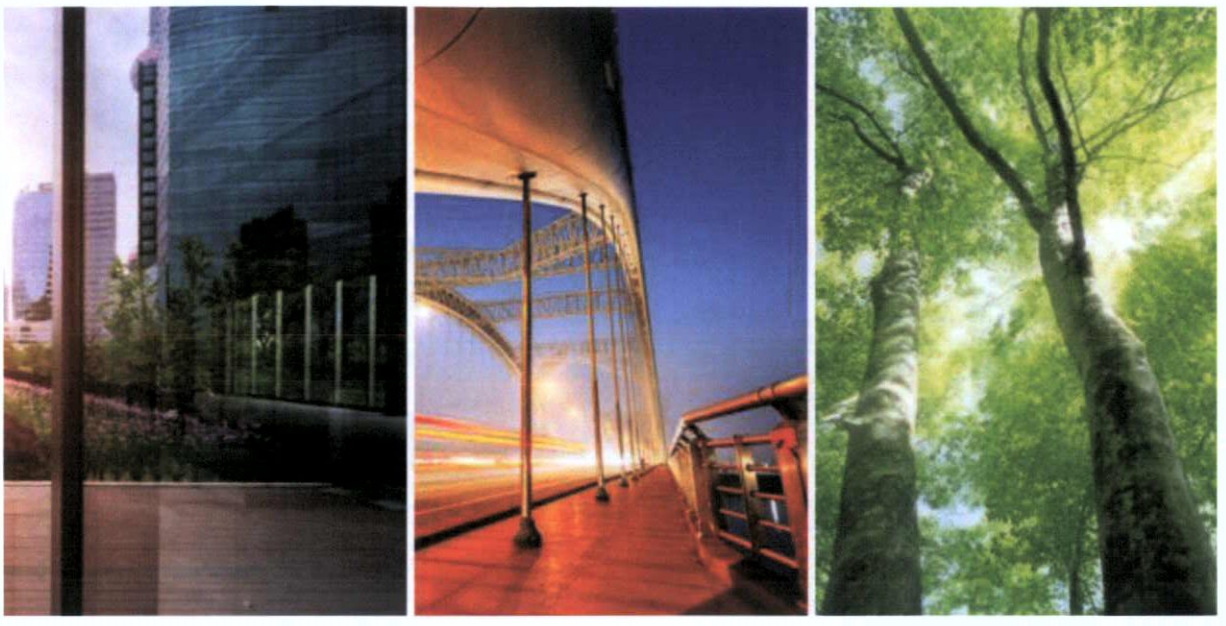
acme grafton architects MOLA RKD

BDP. Waterman GROSS. MAX. STUDIOFRACTAL MOLLOY & ASSOCIATES CourtneyDeery

JENSEN HUGHES Linesight SLA CERTO

UK and Ireland Office Locations

APPENDIX 3.2 OUTLINE CONSTRUCTION & DEMOLITION MANAGEMENT PLAN – SITE 3



Dublin Central

Outline Construction & Demolition Management Plan – Site 3

Dublin Central GP Limited

DC-WAT-3X-XX-RP-C-001011

May 2021

Waterman Moylan Consulting Engineers Limited
Block S, Eastpoint Business Park, Alfie Byrne Road, Dublin D03 H3F4.
www.waterman-moylan.ie

Waterman Moylan
Engineering Consultants

Client Name: Dublin Central GP Limited
Document Reference: DC-WAT-3X-XX-RP-C-001011
Project Number: 19-021

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

Issue	Date	Prepared by	Checked by	Approved by
P1	07.05.21	R. Nelson	C. Beresford	R. Osborne
P2	10.05.21	R. Nelson	C. Beresford	R. Osborne
P3	11.05.21	R. Nelson	C. Beresford	R. Osborne
P4	18.05.21	R. Nelson	C. Beresford	R. Osborne
P5	19.05.21	R. Nelson	C. Beresford	R. Osborne

Comments

FINAL ISSUE

Disclaimer

Content

1. Introduction

Waterman Moylan have prepared the following Outline Construction and Demolition Management Plan for the implementation of the construction stages of the proposed Dublin Central development. It is noted that the development will be constructed in phases which are outlined in this report. This plan is prepared for Site 3 relating to the relevant Planning Application.

Dublin Central GP Limited are aware of the challenges that exist in delivering such a large and complex development within the city centre.

The plan sets out typical arrangements and measures which may be undertaken during the demolition and construction stages of the project in order to mitigate and minimise disruption and disturbance to the area around the site. Of particular note, are the protected and retained buildings and facades within the site, and the adjoining National Monument.

This plan will be used to guide the Main Contractor/Contractors who will have ultimate responsibility for developing a more detailed demolition and construction management plan for formal agreement with Dublin City Council in advance of them commencing the demolition or construction works on site. This plan will provide Dublin City Council with an outline proposal of how construction will be managed to comply with Local Authority and statutory requirements and will be updated post award of planning to reflect specific planning conditions which may be applied to the development.

This plan should be read in conjunction with all other planning stage reports included as part of this planning application.

2. Site Master Plan

2.1 Overall Site Development

A site wide cumulative masterplan encompassing an area of c2.2 Ha has been prepared by the Applicant to set out the overall development vision for the Dublin Central project. 'The Masterplan' area 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 masterplan area, as far as its junction with Henry Place.

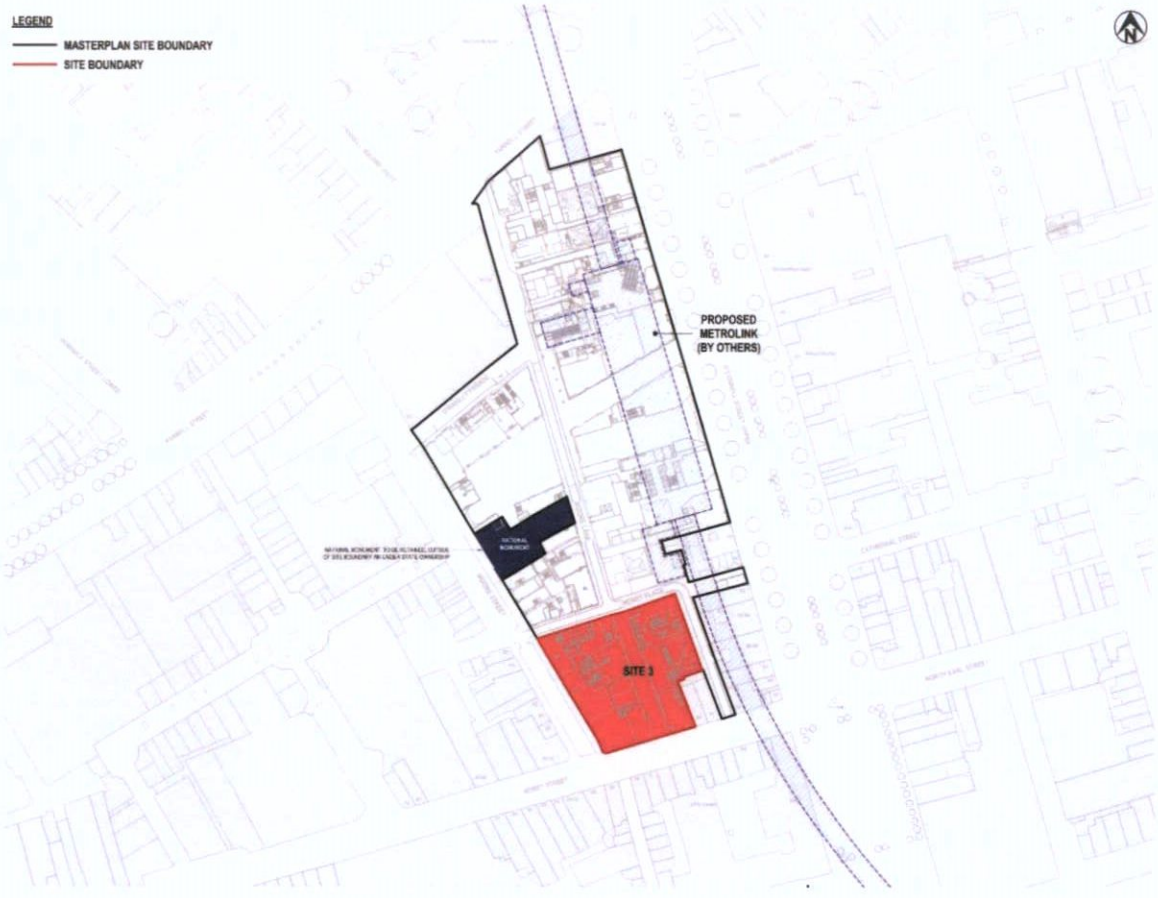


Figure 1 - Site 3 Location within Masterplan

'The Masterplan' area includes structures of heritage significance that will be retained. Nos.14-17 Moore Street are under the ownership of the Irish Government's Office of Public Works and are not part of the Masterplan area. The buildings have been designated National Monument status and are subject to a preservation order.

The area will include a new Metrolink Station, to be the subject of a separate application by TII. The structure of the Metrolink Enabling Works (MEW) will be designed by the DCGP Ltd. civil/structural designer given the complex interface involved. The MEW is to be undertaken as part of the Dublin Central Development.

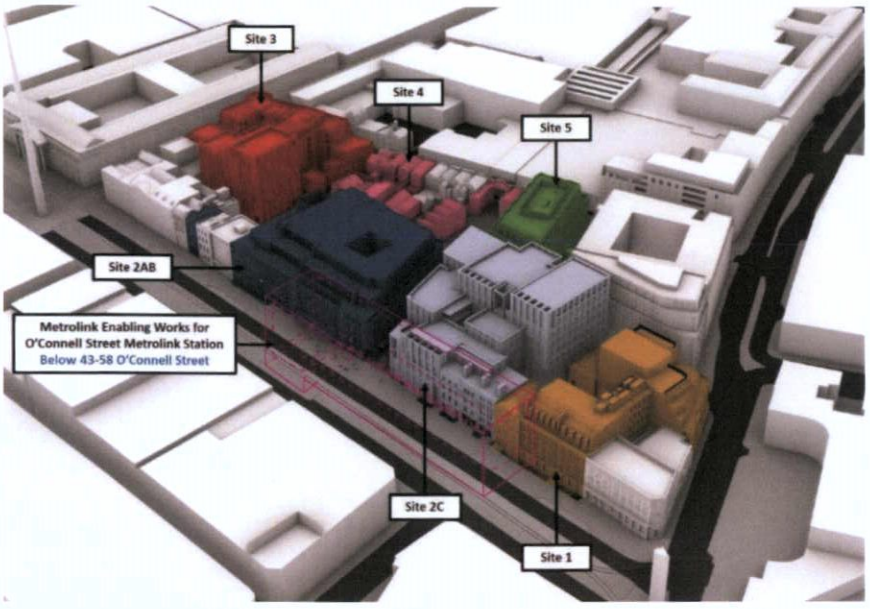


Figure 2 Phasing Strategy

The Masterplan represents the cumulative development planned by the Applicant. Those elements outside the planning application site boundaries for Dublin Central Site 3, Site 4 and Site 5 are not fixed and remain simply an aspirational part of the 'the Masterplan' overall vision at this time. The Masterplan area has been divided into six identifiable sites for the purpose of making planning applications. The adopted site numbering is shown In Figure 2.

2.2 Site 3 Location

Site 3 is located in the south west corner of 'the Masterplan' area, Site 3 is bounded by Henry Street to the south, Moore Street to the west and Henry Place to the north and east. Site 3 includes Nos. 36 – 41 Henry Street, Nos. 1 – 9 Moore Street and Nos. 3 – 13 Henry Place. Site 3 lies within the O'Connell Street ACA. The proposed development generally comprises a mixed-use scheme accommodating a hotel, residential units and associated amenities, cultural, retail and café / restaurant uses in 2no. blocks ranging in height from 1 – 9 storeys over existing and new single storey basements. Provision of a new street/laneway linking Henry Street with Henry Place/Moore Lane.

Site 3 is currently occupied by a variety of existing 3 and 4 storey masonry buildings which mainly comprise of retail units at ground floor along Moore Street and Henry Street with offices above. Along Henry Place there are existing warehouse of 2 and 3 storey.

The existing retained buildings within Site 3 are not Protected Structures and therefore do not fall under the same limitations for change although there is an ambition to maintain as much of the original structural fabric as practically possible. There are a number of structures that are of heritage significance and are to be retained in the proposed scheme. The retained structures within Site 3 are:

- 36 and 37 Henry Street
- The façades of 39 and 40 Henry Street
- 8-9 Moore Street
- 11-13 Henry Place

Figure 3 - Site 3

2.3 Key Milestones

Key Milestone Date	Site 3 Works
(Q3) 2023	Site Preparation
(Q4) 2024	Construction
(Q1) 2027	Fit-Out Works
(Q2) 2027	Completion

3. Site 3: Site Setup

3.1 Site 3 Boundary

Hoarding will be required to the Site 3 boundary. This will be located along the Site 3 boundary to Henry Street, Moore Street and Henry Place.

Vehicle gates with barriers will likely be accommodated at a security hut combined with a secure turnstile to control pedestrian and vehicle access.

Figure 4 Site 3 Proposed Site Setup

3.1.1 Site 3 Hoarding

The hoarding will be designed at a later date by the Main Contractor/Contractor and will be designed to minimise impact to the footpaths along Henry Street, Moore Street and Henry Place. Where necessary, the hoarding may be designed to incorporate covered walkways and elements of temporary works as part of the façade retention systems, to the agreement and approval of Dublin City Council.

The hoarding line will be maintained at all times during demolition and construction. In the event of any of the hoarding having to move outwards to facilitate construction activities, this will be done with the agreement of Dublin City Council including obtaining new hoarding licenses as required. If this encroaches on minimum footpath widths, the Main Contractor/Contractor will erect diversions to opposite footpaths to the agreement of Dublin City Council.

Figure 5 Typical Pavement Hoarding with Street Lighting

Where there are ESB/telecommunication kiosks, light poles and traffic signage on the footpaths these will be maintained by the Main Contractor/Contractor where practical. The hoarding will be constructed around traffic lights and the kiosks to maintain visibility and access to the agreement of Dublin City Council.

3.1.2 Site 3 Compound

The site compound will consist of:

- Offices
- Meeting Rooms
- Toilet / Shower Rooms
- Drying Rooms
- Canteens
- Storage Containers

All cabins will be steel securi-type with steel lockable shutters to windows and steel lockable door. All cabins will come to site in good condition and will be maintained in good order throughout the project. Double / triple stacking of cabins may be required with safe stairs and walkways provided to the upper levels of offices.

3.1.3 Access & Egress

Safety and ease of access to the site are to be provided for by the Main Contractor/Contractor when planning the works. Separation of vehicular and heavy plant traffic from pedestrians and operatives will be implemented as far as is practical when considering the layout of the site infrastructure and access points.

Where a site access crossing is required on a pavement this will require a dedicated pedestrian management setup to ensure there are no incidents of crossovers between pedestrians and site vehicles. This may require a turtlegate barrier in addition to with semi-permanent barriers along the kerb edge, flagmen to control barriers and flagmen to watch truck movement and pedestrians.

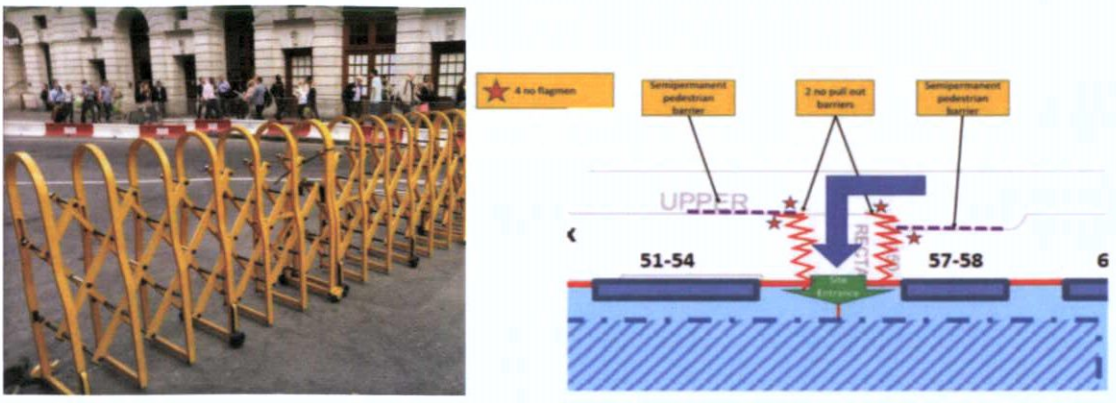


Figure 6 - Typical Pavement Crossover System

3.1.4 Logistics

Each development site will require dedicated tower cranes to service the construction activities. This will include all stages of construction including the building envelope and fit-out lifting requirements. These may be complemented with teleporters, mobiles cranes, hoists and mobile concrete pumps as required.

The construction traffic and pedestrian routes are outlined in the Construction Traffic Management Plan. In general, trucks will be off loaded from the designated laydown areas. Deliveries will typically be on a just in time basis and this system will be strictly controlled by Main Contractor/Contractors who will organise the deliveries. The Main Contractor/Contractors will advise their suppliers on the delivery routes, ensuring the drivers are made aware of the site location and the correct route to site in accordance with the Dublin City Council heavy goods vehicles cordon restrictions.

If any plant setups are required outside the site, a road lane closure may be required. The road closure license will be obtained from Dublin City Council and an agreed traffic management plan will be implemented as required. Any traffic management measures will be designed by qualified personnel in accordance with Chapter 8 of the Traffic Signs Manual and implemented by Signing, Lighting & Guarding (SLG) trained operatives.

The logistics plan will be presented to workers during the site induction. Refresher training in the logistics plan will be presented in toolbox talks.

3.1.5 Proposed Craneage Strategy

Tower cranes will be required during each of the construction phase of the development. The Main Contractor will nominate the location(s) of these once appointed but indicative locations are shown in Appendix A – Proposed Site Setup. Mobile cranes may also be utilised on a short-term basis throughout the construction period.

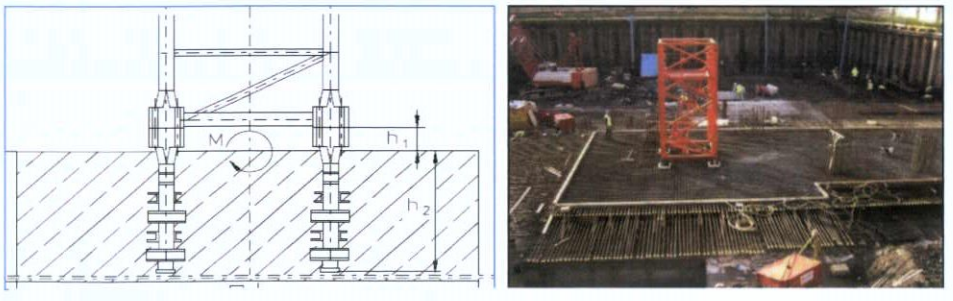


Figure 7 Typical Tower Crane Anchors

3.1.6 Power, Waste & Drainage

A power supply from ESB Networks to power both the compound and the construction site will be applied for by the Main Contractor/Contractors. The size of supply will be calculated to ensure it is sufficient to power both the site compounds and construction site activities. A dedicated power supply will be provided for the tower cranes, task lighting, power tools and charging stations for plant such as electric hoists.

In the event of any delays securing the required power supply to power offices and cranes, generators may be required. Diesel generators will have sound enclosures and will be regularly serviced to prevent noise and odour pollution and setup in a spill tray to prevent any spillage contaminating the ground. Temporary site lighting will be installed to provide safe and well-lighted walkways around the site compounds and task lighting to the construction sites.

Water and drainage will be required to service the site toilets and canteen facilities. The Main Contractor/Contractors will carry out a site survey to identify the locations of the water and foul drainage connections to each of the sites. It will be the Main Contractor/Contractors responsibility to apply to Irish Water for connections to the water main and foul drain, ideally utilising existing connections.

3.1.7 Working Hours

The working hours will be dictated by the planning conditions and are expected to be as follows:

Days	Start Time	Finish Time
Monday-Friday	8:00	18:00
Saturday	8:00	14:00
Sunday	No work permitted	No work permitted
Bank or Public Holiday	No work permitted	No work permitted

Working times will be within the hours permitted by the Planning Decision for the development. It may be necessary to work outside these hours at times, for example for early morning concrete pours and late evening concrete finishing. The Contractor will consult Dublin City Council regarding out of hours working and local residents and businesses will be informed of any out of hours works required. A planning derogation will be applied for to Dublin City Council when out of hours working is required. The terms and conditions of the planning derogation will be strictly adhered to at all times.

3.1.8 Car Parking

In general, there will not be car parking for operatives on site. Personnel will be encouraged and informed of the numerous public transport options available to access the works.

3.1.9 Wheel Washing Facility Requirement

The Main Contractor/Contractors will ensure that the enabling works package will include provisions for a wheel washing facility with water collection and filtering before any discharge to the public surface water drainage system. Trucks discharging concrete should have a wash out area to clean the chute prior to entering the wheel wash.

Figure 8 - Typical Wheel Washing Facility

3.1.10 Expected Vehicle Movement

An outline construction traffic management plan has been prepared and details access routes, site signage, haulage license protocols and environmental control procedures. Reference should be made to the Construction Traffic Management Plan submitted as part of the planning documents.

Once the construction programme is finalised by the appointed Main Contractor/Contractors, a detailed breakdown of the expected vehicle movements will be available.

3.1.11 Security

In additional to the hoard to the Site 3 perimeter the following measures will be adopted by the Main Contractor/Contractors:

- A dedicated site security team with 24hr access to the site and direct contact with the local An Garda Siochana station.
- Each person on site will have been inducted and fingerprint access control will be used for site entry and exit. The Contractor will know who is on site at all times.
- There will be a site CCTV system which may be extended to cover the footpaths and roads around the site (depending on the GDPR regulations).
- Hoarding lighting will be incorporated to increase the general illumination levels around the site.
- Siting the cabins behind the hoarding with windows overlooking the streets will provide a greater degree of natural surveillance to the area to ward against anti-social behaviour.

Figure 9 _Typical Site Security Measures

4. Site 3: Construction Methodology:

4.1 Description of the works

Site 3 is proposed as a mixed-use scheme over 2 separate buildings. Above ground, Block A consists of 4 to 8 stories containing circa 150 hotel bedrooms and Block B consists of 6 stories containing circa 80 residential units. Both blocks include retail, cultural, and food and beverage units at ground floor. A new street/laneway between the block's links Henry Street with Henry Place and Moore Lane. Single storey basements beneath block accommodate associated amenities for the buildings above.

Block A incorporates the existing buildings at 36 and 37 Henry Street, where the 4-storey section to the front of the building is to be retained. Block B incorporates the retained existing building at 8-9 Moore Street and the existing facades at 39 and 40 Henry Street and 11-13 Henry Place.

Figure 10 - Architectural Layout - MOLA Drawing DC-MLA-3X-02-DR-A-201002

4.2 Site Surveys Required

Ahead of the demolition activities commencing, extensive site surveys will be required, including:

- Opening-up works to confirm existing buildings load-paths;
- Opening-up works to confirm existing materials & historic alterations and adaptations made;
- Opening-up works to areas covered, unexposed or inaccessible;
- Conditions/dilapidation surveys of the existing retained/protected structures;
- Additional Geotechnical Investigations (if required);

At the next stage of the project, intrusive structural investigations will be undertaken to the structures/facades to be retained. These have not been possible at this stage because of the restrictions on travel and access due to the COVID-19 pandemic. Investigations will include sampling and testing of

the structural fabric to determine current condition, strength and material properties. Structural works will be based on the desire to conserve the structures with intervention limited to the essential works required to enable the buildings to provide the required performance and long-term durability. As the approach for these particular buildings is refurbishment and conservation rather than replacement, consideration will also be given to the need for ongoing and potentially increasing maintenance given the age of the existing structures.

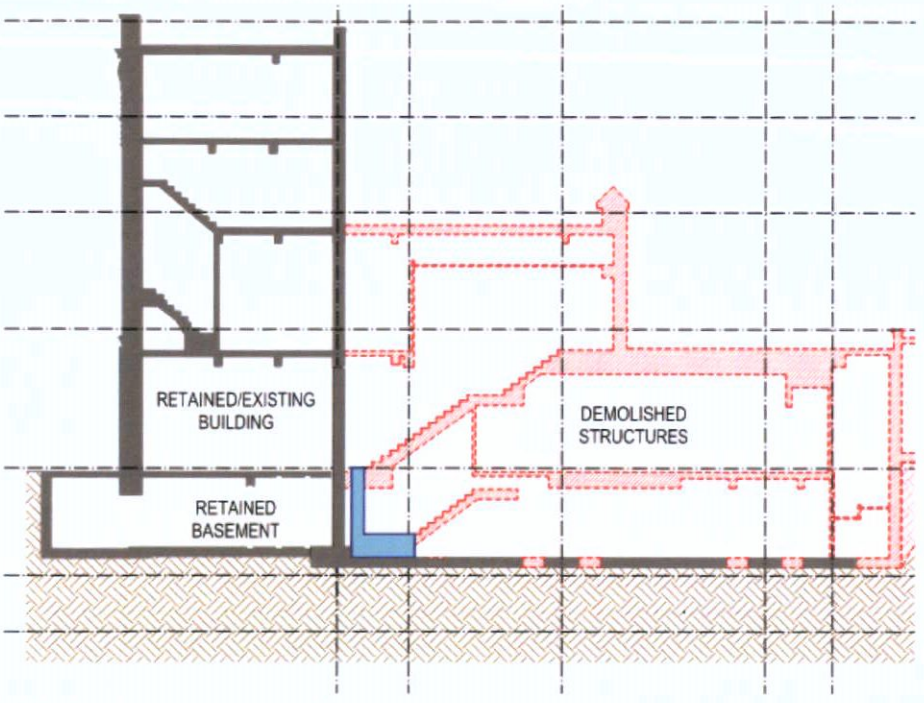
4.3 Demolition & Enabling Works

The sequence of works for Site 3 is typically as follows:

STAGE 1 – INSTALLATION OF TEMPORARY / ENABLING WORKS

- Temporary works will be required to the retained facades, structures and adjoining party/boundary walls that rely on the existing building for lateral restraint.
- Back propping will be required within the existing retained basements along Henry Street to allow for the demolition of the existing internal cross walls at Basement and Ground Floor levels.

STAGE 2 – DEMOLISH EXISTING BUILDINGS & PROBE/BREAK OUT FUTURE PILE LOCATIONS

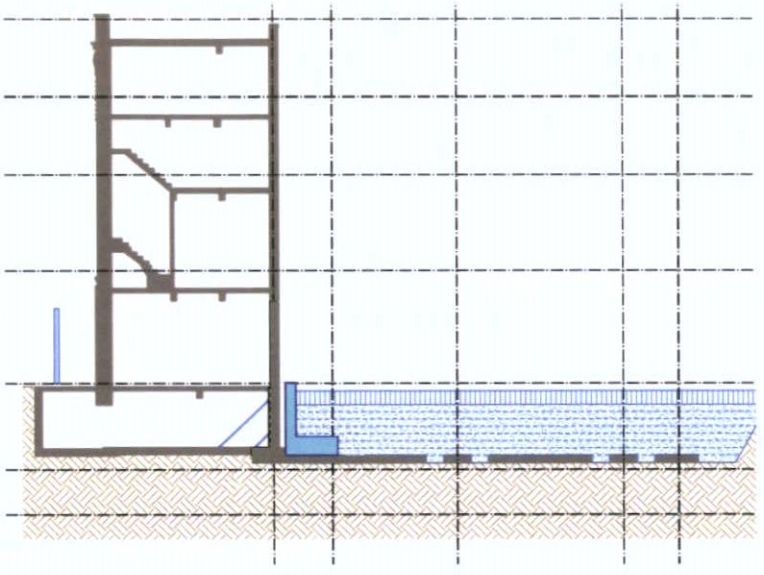


- Demolition of the existing buildings will be undertaken top-down using traditional methods with all demolition arising segregated and removed from site. The extent of demolition is shown on the Architect's drawings.
- Portions of the existing Basement Level slab, foundations and obstructions will be removed at proposed pile locations.
- Structure adjacent to retained elements or boundary/party walls will be demolished using non-percussive methods. This will likely involve saw-cutting the slabs/walls first to isolate the members before commencing the demolition activities.
- The retained basements will require a new basement retention system to avoid surcharging the existing structure. This may involve new precast reinforced concrete retaining walls located

against the existing basement walls included as part of the enabling works to support the follow-on piling activities.

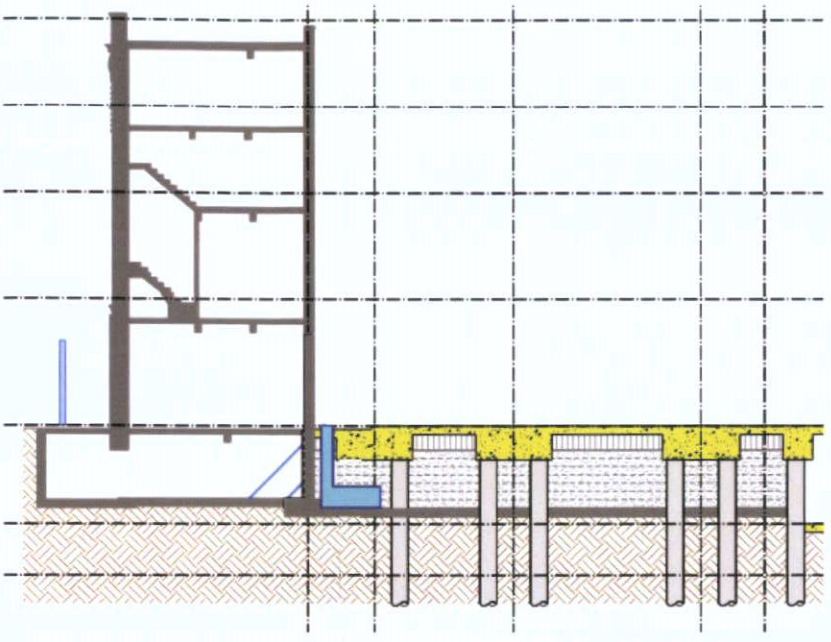
- In consultation with the conservation Architect, it is envisaged that a breather membrane and compressible filler will be installed between the new retaining wall and the existing basement wall to protect the existing wall.
- A void between the new retaining walls and existing basement walls may be accommodated and will be to the Conservation Architect requirements and details.

STAGE 3 – EXISTING BASEMENTS WILL BE BACKFILLED WITH WELL GRADED HARDCORD IN COMPACTED LAYERS TO SUIT PILING MAT REQUIREMENTS



- The piling mat will be well graded hardcore to the Piling Contractors requirements and subject to design by the Temporary Works specialist. This will provide a level platform from which the piling operation will be undertaken.
- The existing basements will be infilled with well graded hardcore that is suitable for piling and conforms to SR:21 Annex E requirements.

STAGE 4 – INSTALL BEARING PILES AND SECANT PILED BASEMENT WALL



- Piling will comprise of continuous flight auger (CFA) or rotary bored methods to minimise ground borne vibrations during piling.
- Piling will also include a secant piled wall that will form the enclosure to the new basement perimeter wall.
- Reinforced concrete will form the new pile caps, basement slab and ground floor structure.

4.4 Sub-Structure & Foundations

In order to minimise the excavation to form the basement level it is proposed to construct the single storey basement via a 600mm diameter secant pile wall.

The secant piled wall comprises interlocking hard (male) and firm (female) piles, which will provide an inherently stiff wall which will enable a robust temporary works solution to be adopted. The secant wall will also provide resistance to water penetration and loss of any fine material from behind the wall which could affect adjacent buildings and infrastructure. Piles will be spaced to be ensure interlock to below base excavation level and of sufficient length to achieve hydraulic cut-off for construction. The secant wall will also provide direct support for the superstructure, with the capping beam distributing substantial vertical loads on to the embedded retaining wall and using the inherent vertical load capacity of the wall and thus minimising bearing pile requirements.

The top of the piled wall will be tied together with a 1050x1000m reinforced concrete capping beam which will allow the transfer of vertical frame and floor loads onto the piles. The secant wall will be designed by the piling specialist for the lateral pressures due to earth, water and surcharge plus vertical loads both in the temporary and permanent conditions. The specialist will also be responsible for all temporary propping prior to completion of the permanent works for final load transfer.

The secant wall will be designed by the piling specialist for the lateral pressures due to earth, water and surcharge plus vertical loads both in the temporary and permanent conditions. The specialist will also be responsible for all temporary propping prior to completion of the permanent works for final load transfer. A 300mm thick reinforced concrete floor at basement level will be tied to and supported by the secant wall.

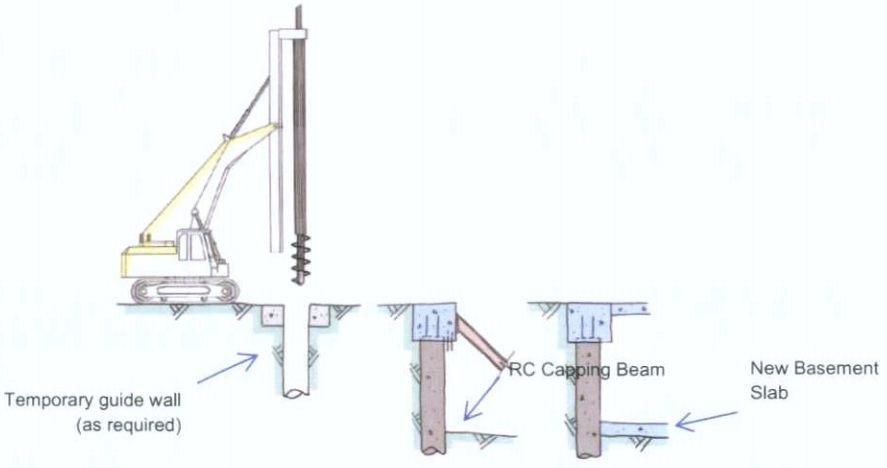


Figure 11 Typical Secant Piled Wall Installation

Where columns are not located above the secant pile wall of the basement, based on the ground conditions identified in geotechnical investigations and the anticipated loads, the Site 3 structures will be supported on piled foundations. Piles are anticipated to be traditional non-displacement rotary bored piles, end bearing into the Calp Limestone formation. Based on the ground conditions identified and the building frame loads, our conceptual design assumes 3 piles per column. 1200mm deep pile caps above the piles transfer the load from the columns over.

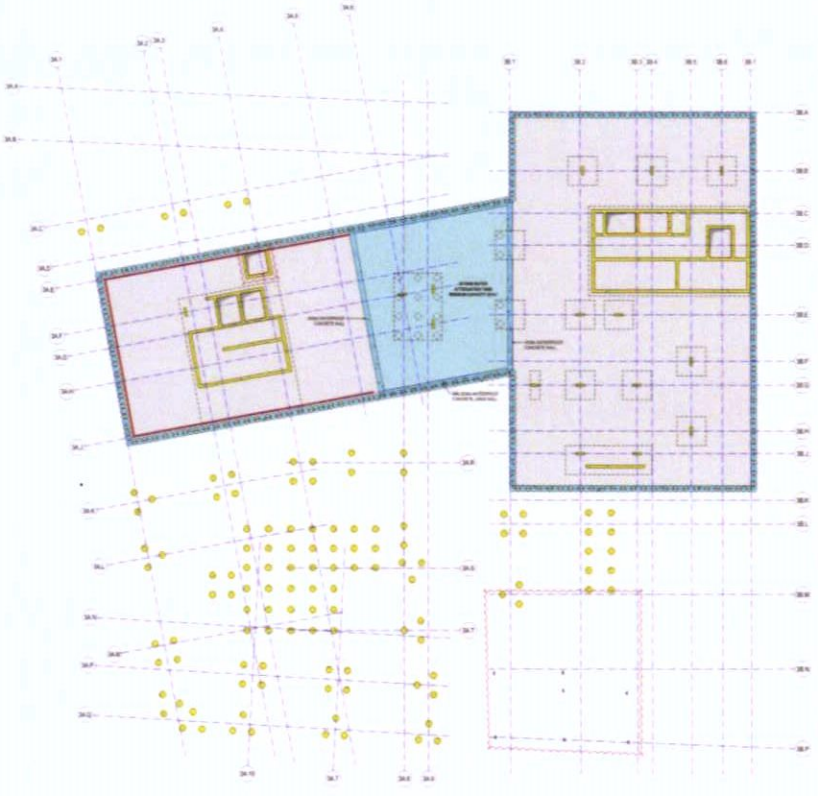


Figure 12 - Site 3 Preliminary Pile Layout

4.5 Super-Structure

The proposed structural solution for Site 3 is a reinforced concrete frame with flab slabs. This provides a flat soffit to maximise horizontal services distribution and minimise floor to floor heights, whilst providing inherent acoustic and inertial mass to mitigate against noise and vibration transmission in the residential areas. The columns have been sized to resist the applied loads for the proposed structural grid and floor heights and achieve a fire resistance period of 90 minutes. In situ concrete column sizes are 450x450mm or 400x400mm at basement and ground floor within the plant and retail areas. Columns at upper floors are 200x800mm to sit within wall lines between residential or hotel units.

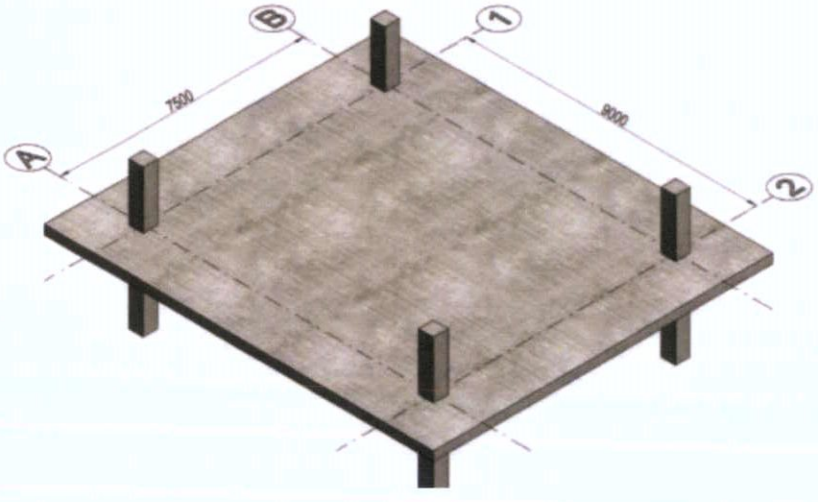


Figure 13 - Typical RC Structural Grid

The super-structure will likely use traditional construction techniques. The sequence of pouring the concrete stair and lift core and columns followed by the floor slab will continue on a sequential floor by floor basis.

The suspended slabs at each floor level above will likely use a proprietary formwork system (Peri Skydeck or similar). The decking will be erected complete with edge handrails and access towers to each level. Steel reinforcement will then be installed on the deck. Lifting of decking and rebar will be done using the tower cranes while static concrete pumps will be used to pour the concrete.

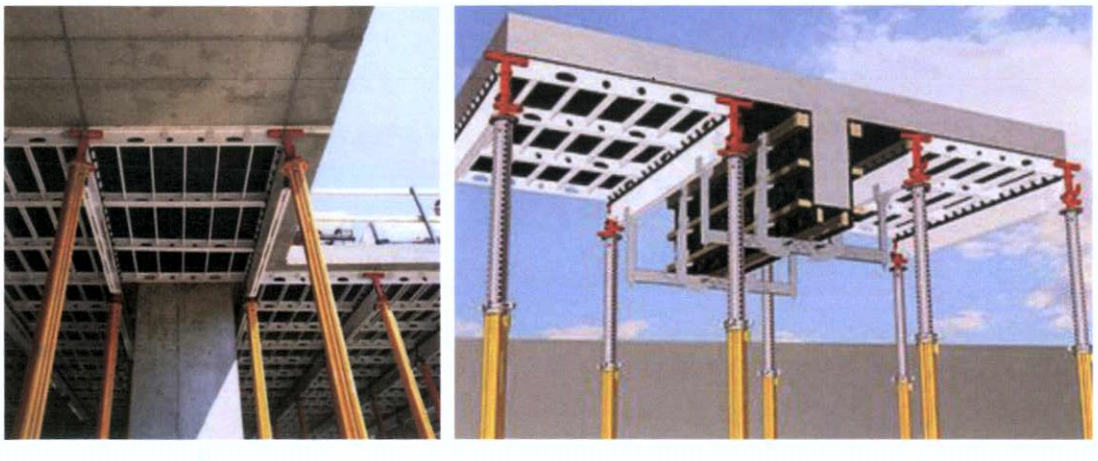


Figure 14 - Typical RC Formwork (Skydeck)

After curing of the slab, the formworks will be removed for reuse on the next floor above while the supports remain in place as back propping. Back props will be removed at a later date once the building has progressed and the concrete has cured sufficiently to remove the props.

Concrete placement will typically be via pumping for all large pours to free up the crane for other lifting operations. Wind and weather will be monitored and crane usage will be restricted as required during inclement weather to ensure safety of all personnel.

Figure 15 - Typical Concrete Placement

4.6 Existing Buildings

Site 3 is occupied by a variety of 3 and 4 storey buildings which mainly comprise retail units at ground floor along Moore Street and Henry Street with offices above. Block A incorporates the existing buildings at 36 and 37 Henry Street, where the 4-storey section to the front of the building is to be retained. Block B incorporates the retained existing building at 8-9 Moore Street and 11-13 Henry Place and the existing facades at 39 and 40 Henry Street.

Figure 16 - Site 3 Retained Structures

While these buildings are not Protected Structures, their significance is appreciated and the approach for their integration into Site 3 is to preserve these structures, with intervention limited to the essential works required to enable the buildings to provide the required performance and long-term durability. We recognise the importance of these buildings with respect to the heritage of the area. The approach is refurbishment and conservation rather than replacement, but considerations will also be given to the need for ongoing and potentially increasing maintenance given the age of the existing structures.

The extent of the works will be dependent on the condition and integrity of the structural elements discovered when the buildings internal finishes are opened up and the structural elements can be examined and assessed. Structural design strategies, construction methodology and sequencing, and temporary works strategies have been reviewed and proposed in order to protect retained structures on and adjacent to the site.

Investigations will include trial pits at the foundation/footing level of existing masonry walls and along building frontages and rear elevations to determine the nature of the foundations.

The structures will be monitored for movement during the course of the demolition and reconstruction works. Prior to demolition of the existing buildings an external survey control system is to be established. This will be carried out using traditional closed traverse surveying techniques and will involve the setting up of sufficient external control stations to allow monitoring of the neighbouring structures during and after demolition. The control stations are to have co-ordinates which are directly correlated to the building grids and datum levels related to those shown on the Land Survey drawings, issued by the Architect. The initial control survey is to be carried out by the Contractor and may be independently checked and verified by the appointed survey contractor.

In addition to the impact of adjacent demolition and sub-structure works, great care will be taken during the works to protect retained structures from exposure to weather and general construction activities. This is particularly relevant to the flank wall surfaces of the retained structures which will become exposed upon the demolition of adjacent structures, or the opening up of existing structures for new connections to the proposed structure or extensions. Typical temporary measures included the application of felt and battening to the exposed walls as demolition proceeds from top down, or to erect a covering scaffold over the locations where waterproofing and finishes have been removed. This strategy will be developed further during the detailed design stages and will be set out to the main contractors at tender and into construction stages.

After the demolition and excavation of the proposed works further investigations to re-assess the existing structures will be undertaken. The design details will be reviewed on an individual building basis and the strategy revised and adjusted where necessary to suit the conditions found.

4.6.1 36 & 37 Henry Street Building (Retained)

Within Site 3, the buildings at 36 and 37 Henry Street are to be retained and linked to the new Hotel (Block A). Although inspection has not been possible at this time, the existing structure is believed to

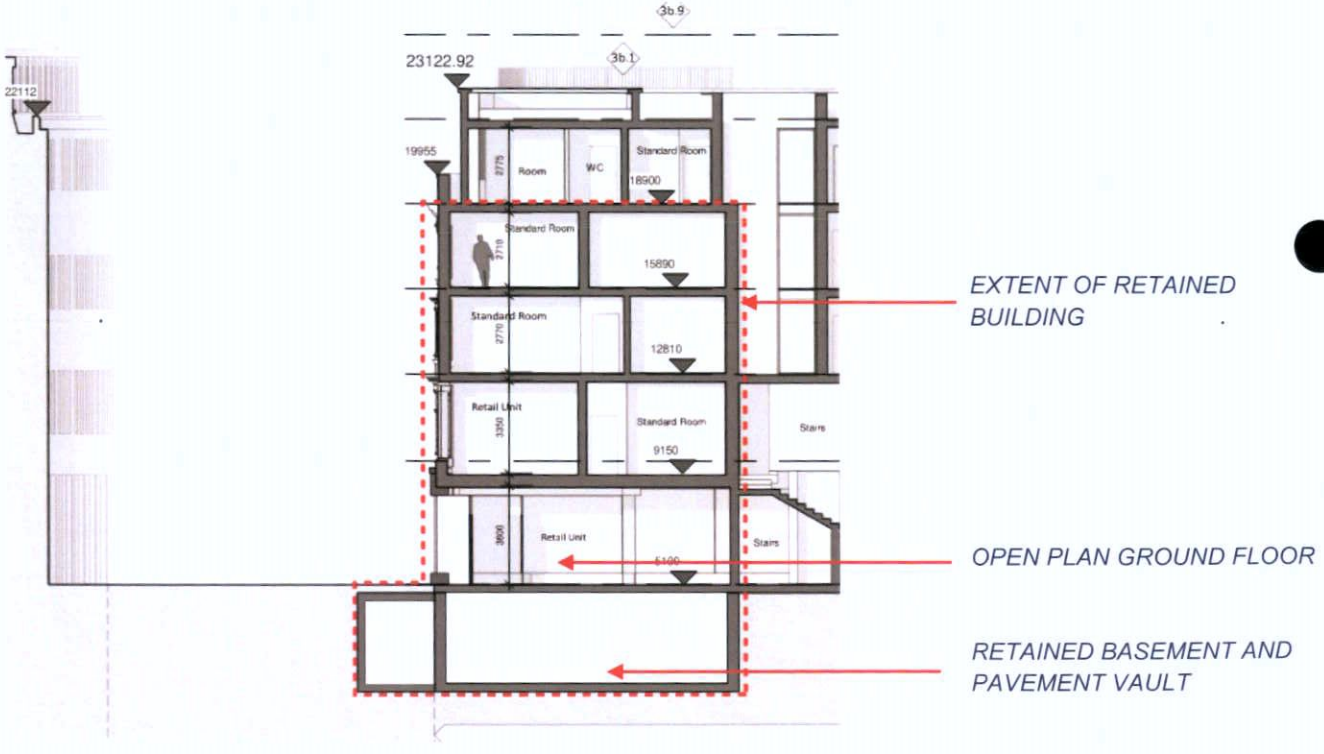


Figure 17 Cross Section 36-37 Henry Street

consist of load bearing perimeter and internal walls supporting steel beams with timber joist floors and potentially a concrete slab at roof level. The structural proposals considered in this report take account of the various floor constructions, details are to be confirmed following opening up works in the future stages of design.

The new architectural design requires the ground floor space to be opened up requiring the removal of the rear elevation at ground floor level and the internal party wall between 36 and 37 Henry Street at ground floor and basement level.

Perimeter walls are also to be removed to provide the new shop frontages onto Henry Street and the new passageway into the site.

A system of back propping and temporary works will be required to enable the structure to be supported during the removal of the walls. A method statement will be developed to consider the best sequence of work wall by wall, re-supporting the wall above at each location before proceeding to the next wall.

Steel transfer structures will be designed with limits on vertical deflections to reduce movement of the structure. The transfer structures may also be preloaded by jacking or precambered to further control structural movement at the time the load is transferred to the new supporting structure.

This temporary works will need to be designed by the contractor undertaking the work in accordance with their construction sequence and method statement. The temporary works may also need to consider the introduction of some pre-stress in the props to minimise the movement during the demolition stage which will form part of the structural specification.

As with any alteration of an existing structure where elements are being removed and re-supported to create clear spans, there will be movement and stresses induced in the masonry walls. Once the new steel transfer structures have been incorporated and the loads re-supported any movement related cracking can then be made good.

There is also a possibility that existing cracking may be found upon opening up the structures, if this is severe some pre-commencement repairs may be required prior to the above work commencing.

Generally, the proposed buildings within Site 3 will have limited areas of basement, however where existing buildings have basements such as at 36-37 Henry Street, these will be retained and incorporated into the scheme.

The following figures provide further detail of the above.

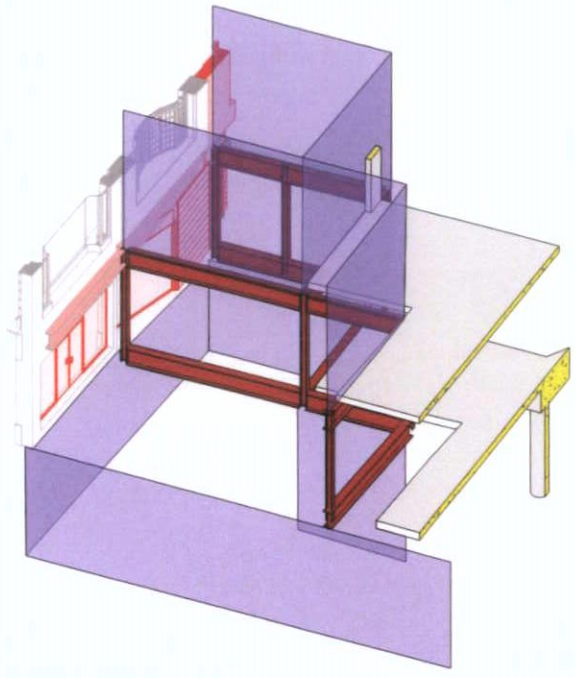


Figure 18 36-37 Henry Street New Transfer Structures

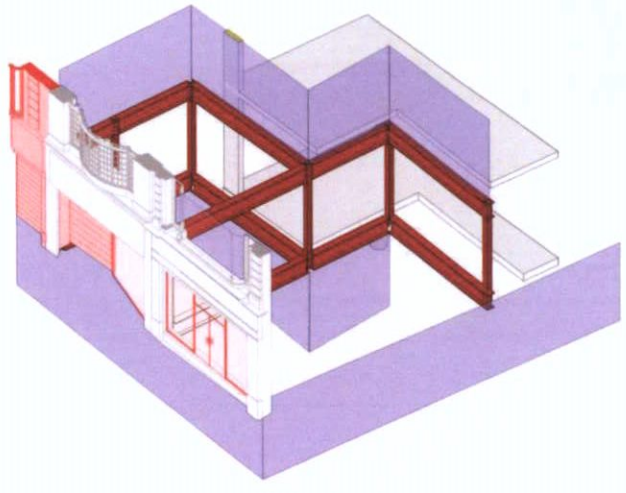


Figure 19 36-37 Henry Street Transfer Structures

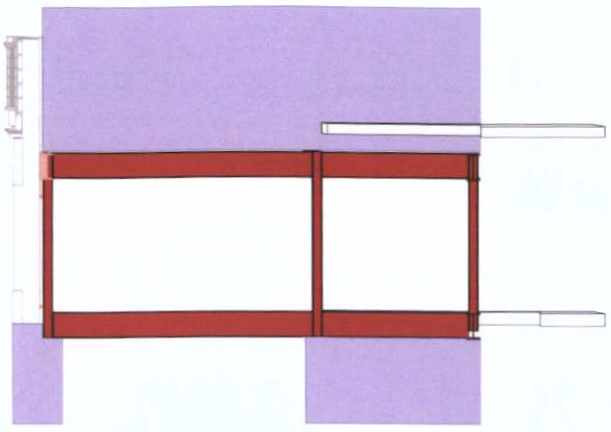


Figure 20 36-37 Henry Street New Transfer Structures

The following sequence of works is proposed. This is to be reviewed following site investigations to confirm the existing construction and condition and following discussions with the contractor. By staging the installation sequence of the new 1st floor frame stresses and movement within the retained building can be minimised.

Frame numbers relate to those shown in Figure 21 and Figure 22.

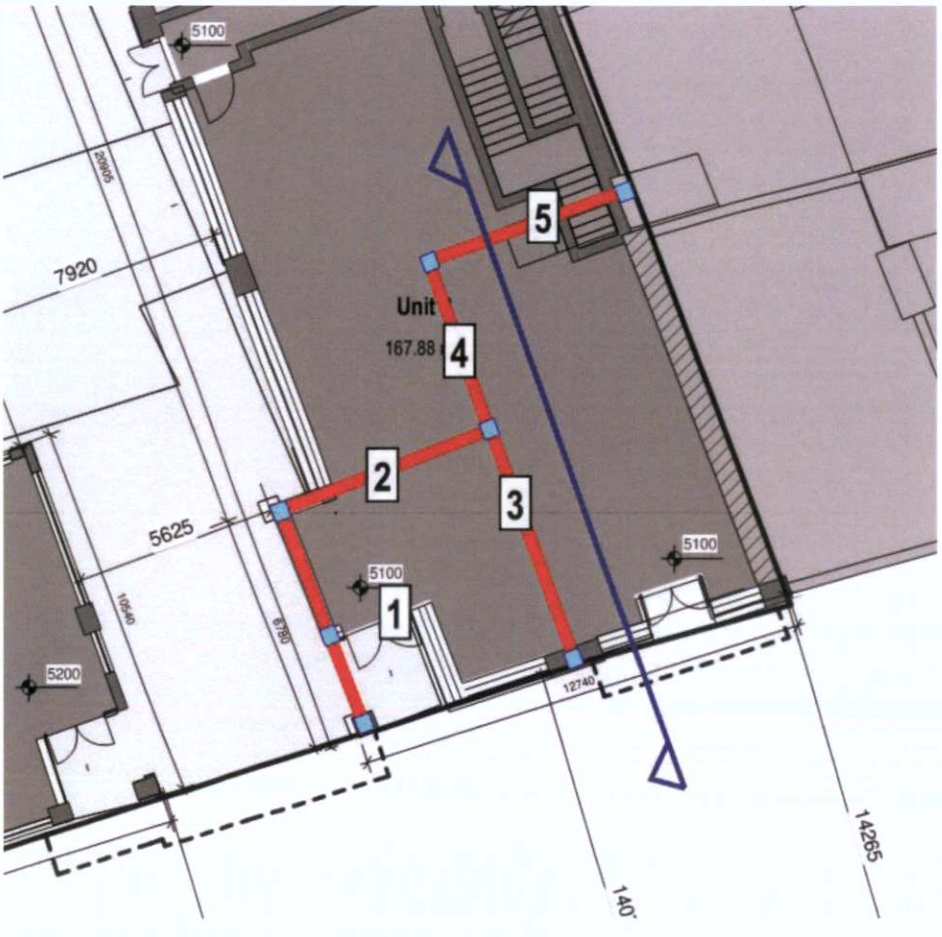


Figure 21 36-37 Henry Street New Steel Layout Ground Floor