DART+ West

Iarnród Éireann

Docklands Station Options Study Summary Report

MAY-MDC-ARC-RS00-RP-A-0002

19 August 2020

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Executive Summary

The purpose of this report is to present the findings of the study of options for Docklands DART station. The objectives of the study are:

- To provide terminating capacity for Midlands Great Western Railway (MGWR), Great Southern & Western Railway (GSWR) and Northern Line.
- To identify the preferred location for Docklands Station to provide the best service for the passengers, locating the station at the most demanded location and maximising the potential interchange with the LUAS.
- To increase the number of services without a substantial increase in land occupation for the rail infrastructure.
- To improve punctuality and reliability with an increased number of trains.
- To provide adequate integration with other transport facilities in the vicinity, taking into account the Master Plans approved for this area.
- To analyse the consequences that the different options have regarding the interface with the potential DART Underground Station.

The next step will be to produce a Multi-Criteria Analysis (MCA) that can assist in decision making of selection of one of the four options that are studied in this report.

1. Abbreviations and Acronyms

The following definition of acronyms and abbreviations shall apply within this document:

TERM	DEFINITION
CIÉ	Córas Iompair Éireann (Ireland's National Public Transport provider)
DCDP	The Dublin City Development Plan
DU	Dart Underground
GSWR	Great Southern & Western Railway
IÉ	Iarnród Éireann / Irish Rail
MCA	Multi-Criteria Analysis
MGWR	Midlands Great Western Railway
OSD	Over Station Development
SDZ	Strategic Development Zone
TBM	Tunnel Boring Machine

2. Docklands Station

The AECOM report titled 'Docklands Station Options Study – Sift 2 Report' was taken as the starting point for this study. The AECOM study aimed to identify an Emerging Preferred Option to allow further concept design, development and costing.

Station options were developed for each of the A, B, C, and M sites brought forward from Sift 1 Report. The engineering assessment concentrated particularly on those issues that differentiated the locations, and were therefore most relevant to the selection of a preferred option.

Figure 1. AECOM's 'Docklands Station Options Study

The Multi-Criteria Analysis (MCA) used in the AECOM report consisted of three main criteria: Economy, Integration and Environment; with additional sub-criteria for each. The figure below indicates the result of the MCA performed in AECOM's Sift 2 Report for Options A, B, C, and M.

Main Criterion	Sub-Criterion	Option A	Option B	Option C	Option M
Economy	Overall assessment				
Integration	Overall assessment				
Environment	Overall assessment				
	Combined overall assessment				

Figure 2. AECOM's Sift 2 Report MCA Results

Overall, Options A and B were assessed and providing advantages over the other options.

While Option A benefits from a lower level of investment required to develop the site, the adjacent dedicated cycle routes and the presence of attractive walking routes along the canal, Option B performs strongly given its closer proximity to higher density employment zones on the southern and western side of the study area.

Option C has some disadvantages due to its location at the periphery of the higher density development area. Option M also has some disadvantages, primarily driven by the development currently taking place on the third-party-owned site and the costs associated with the purchase of non-CIÉ lands.

In summary, Option A would cost less to develop, whereas Option B would better serve more potential users.

NORTH LOTTS & GRAND CANAL DOCK SDZ

The Dublin City Development Plan (DCDP) 2016-2022 sets the framework for all future developments in the city in order to meet the needs and aspirations of citizens. The approach is based on the principles of sustainability and resilience on social, economic and environmental fronts. The implementation of the measures in the city development plan is pursued by active land management.

The DCDP 2016-2022 defines a series of Strategic Development, and Regeneration Areas (SDRA) and designates the Docklands area as a Strategic Development and Regeneration Area, providing for the continued physical and social regeneration of that part of the city. The Docklands SDRA includes the North Lotts & Grand Canal Special Development Zone (SDZ) Planning Scheme.

Part IX of the Planning and Development Act 2000-2011 provides for the designation of a Strategic Development Zone (SDZ) to facilitate development which in the opinion of the Government is of economic or social importance to the State. Lands located at North Lotts and Grand Canal Dock in the Dublin Docklands were designated by the Government as a site for an SDZ on 18 December 2012 and a Planning Scheme was prepared.

The North Lotts and Grand Canal Dock SDZ has been assessed throughout the following documents:

- North Lotts & Grand Canal Dock Planning Scheme.

Each block is subdivided by smaller local streets and spaces which bring permeability to the large City Blocks and divide each block into four or more robust urban blocks.

One of the sites proposed for Docklands Station is placed in City Block Nº 2 of the planning scheme. It is this that corresponds to Option B.

The documentation describes City Block Nº 2 as largely undeveloped with a small terrace of 2 storey houses on Mayor Street frontage. Figure 3 illustrates SDZ Block Nº2.

Figure 3. North Lotts & Grand Canal Dock SDZ Planning Scheme. Block 2

The main objectives described for City Block Nº 2 are:

- 40 Residential / 60 Commercial use mix over City Block. Following the successive Planning applications submitted for the City Block 2 (DSDZ289618, DSDZ411119 and DSDZ259020) 2B and 2D Blocks will be residential use, while 2A and 2C (where Option B is located) remain commercial.
- Commercial uses to be concentrated on 2C, fronting Station Square, and west side of 2D to form a commercial hub at confluence of Luas line and DART Inter-connector.
- Residential to be concentrated to east side of 2D.
- Blocks 2A and 2C on DART Underground line shall be used as location for temporary pavilion structures.
- Ground floor active uses to be provided fronting Station Square.
- Block 2C to be 12 storey commercial and remaining blocks to be range between 5 storey commercial / 6 storey residential and 6 storey commercial / 7 storey residential. According to the “Review of Building Height & Proposed Amendments to North Lotts and Canal Dock Planning Scheme” published on October 2019, the remaining blocks could go up to 10 residential storey / 8 storey commercial at some points as illustrated in Figure 4.

Figure 4. Proposed Amendments to the North Lotts & Grand Canal Dock SDZ Planning Scheme in relation to Building Heights

- City Block 2 to include East-West street linking existing pedestrian street in STUV block to New Wapping Street approximately mid-way along block.
- City Block 2 to include landscape plaza fronting Block 2C to provide for attractive space adjacent the LUAS stop.
- City Block 2A & 2C shall be retained as a reservation strip for the future provision of the DART Underground Station. No permanent structures shall be built over this until the position of the DART Underground Station has been confirmed. In the interim period, temporary uses and/or pavilion structures will be considered. Any future over-site development must incorporate the smoke ventilation and air intake provisions into their design, and that temporary buildings should not pose a risk to the delivery of the station.

Therefore City Block 2C affords an opportunity for a landmark building facing the LUAS station and provides an entrance for the Docklands Station. North Lotts Masterplan foresees a 12 storey (maximum) 10 storey (minimum) commercial building, to achieve a balance between hub quantum and view lines from Georgian mile. On the southern façade of the landmark building, a plaza will integrate the LUAS station at street level and the entrance to Docklands Station, giving intermodality to the new hub created at this location.

The North Lotts & Grand Canal Dock Planning Scheme also establishes five main hubs in the SDZ. One of them is located in Spencer Dock LUAS station area.

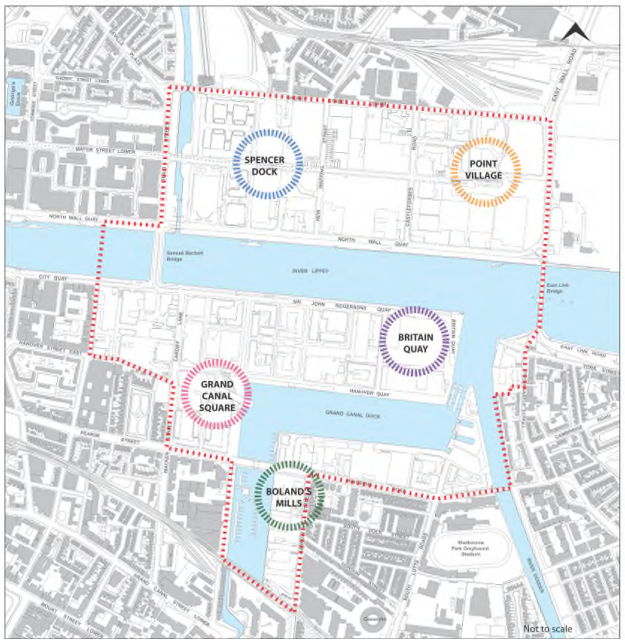

Figure 5. North Lotts & Grand Canal Dock Planning Scheme

2.1 Description of options

Taking the MCA developed by AECOM as the starting point for the assessment the best performing option, Options A and B, have been developed further.

Regarding the operational aspect of Docklands Station, the preferred solution is to increase the number of tracks and platforms to a minimum of five and to install crossovers and turnouts which make access to each platform from each direction possible. There is a necessity of at least three platform tracks accessible from MGWR line and at least two platform tracks accessible from GSWR line.

For service reasons both MGWR and GSWR lines or platform tracks should also be mutually interconnected, and access to Northern Line (towards East Wall Jct.) should be provided from at least one platform track of MGWR and GSWR lines.

Freight connections to East Wall Yard should be retained, and access using at least a single-track connection should be provided. Assuming freight traffic to be carried out at night and off-peak times such connection should provide access to Northern Line and alternatively MGWR line or GSWR line.

All the elements in Permanent Way must be designed to with safety as a priority, and to achieve least intrusive and most cost-effective capacity enhancement and SET development. Hence, track alignment has been based on the following minimum requirements:

- Desirable minimum horizontal radius of 200m according to CCE-TMS-340 Horizontal Curvature Design.
- Platform length of 184m, of which 169m due to the length of a DART EMU in an 8-cars configuration, 5m of leeway and a buffer stop exclusion zone of 10m as described in CCE-TMS-345 Engineering Requirements for Passenger Platforms and Barrow Paths.
- Horizontal alignment of the platforms to be straight, to minimise the gaps between train and platform as per CCE-TMS-345.
- High-performance buffer stops to safeguard people (both on the ground and in trains, including passengers, staff and the public) against serious injury should a train overrun the end of a line as defined in CCE-TMS-386 Requirements for Buffer Stops.

For each of the locations, A and B, two different options have been studied. The four options are described below.

2.1.1 Option A

The proposed location for Option A is at Spencer Dock, North of Sheriff Street Upper. The existing Docklands Station is currently located at this parcel of land. Due to this fact, this location requires a lower investment to develop the site as station building and platforms already exist.

Figure 6. Option A

This land is owned entirely by CIÉ, and it is classified as Zone Z1 (to protect, provide and improve residential amenities) in the Dublin City Development Plan 2016-2022. However, the current station has been granted permanent planning permission by Dublin City Council.

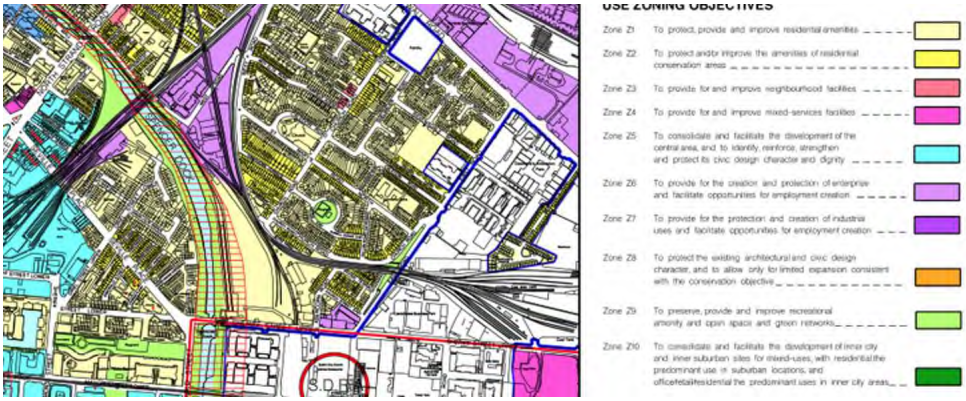

Figure 7. Dublin City Development Plan 2016-2022. Volume 3. Map E.

2.1.1.1 Option A1

This option involves maintaining the station at the current location, retaining the existing platforms and canopy. The existing platforms will be the ones located closest to the Royal Canal (Westside) in the new layout. The upgraded demand and the connections with the above-described lines requires enlarging the station building to allow access to four new platforms located to the East of the existing.

The current station is formed by an island platform covered with a canopy and a station building in the head of the platform. The existing accesses to the station from the Royal Canal, below Sheriff Street Upper overbridge and from the Sheriff Street Upper overbridge are maintained. The first provides levelled access to the platforms, and the second is 4.5 metres above the platform level, connecting with it by means of a two-way staircase and a lift.

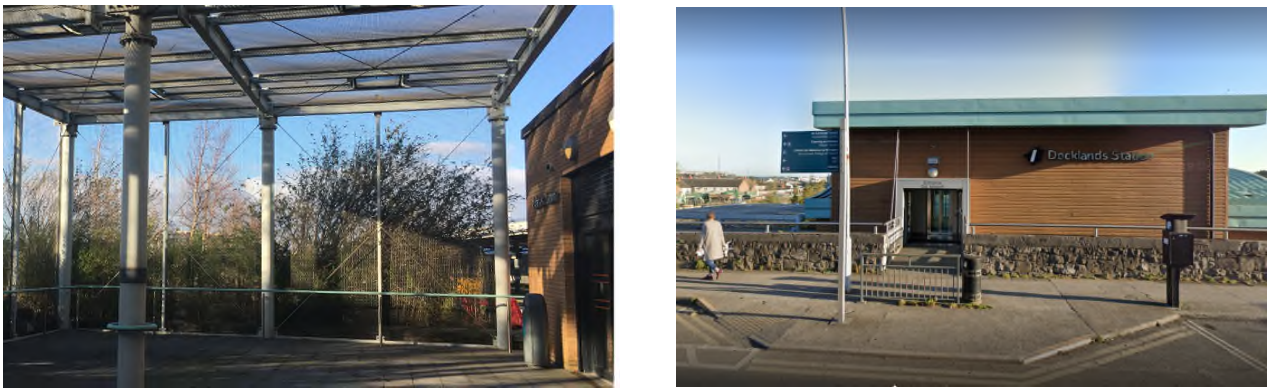

Figure 8. Access from the Royal Canal / Access from Sheriff Street Upper Overbridge

The current station needs to be extended eastwards to allow for the four new platforms and their respective tracks that the new station will contain. It will also need to be extended northwards to provide sufficient space between the start of the platforms and the turnstiles of the station in order to guarantee a fluid flow of passengers.

The enlargement of the station is illustrated in blue in Figure 9, and shows the area that the station would occupy to accommodate the four additional platforms. They will be joined by two island platforms, optimising the land occupation. Third access to the station could be provided from the east side to allow for better connection towards the LUAS station, to improve the accessibility of the station.

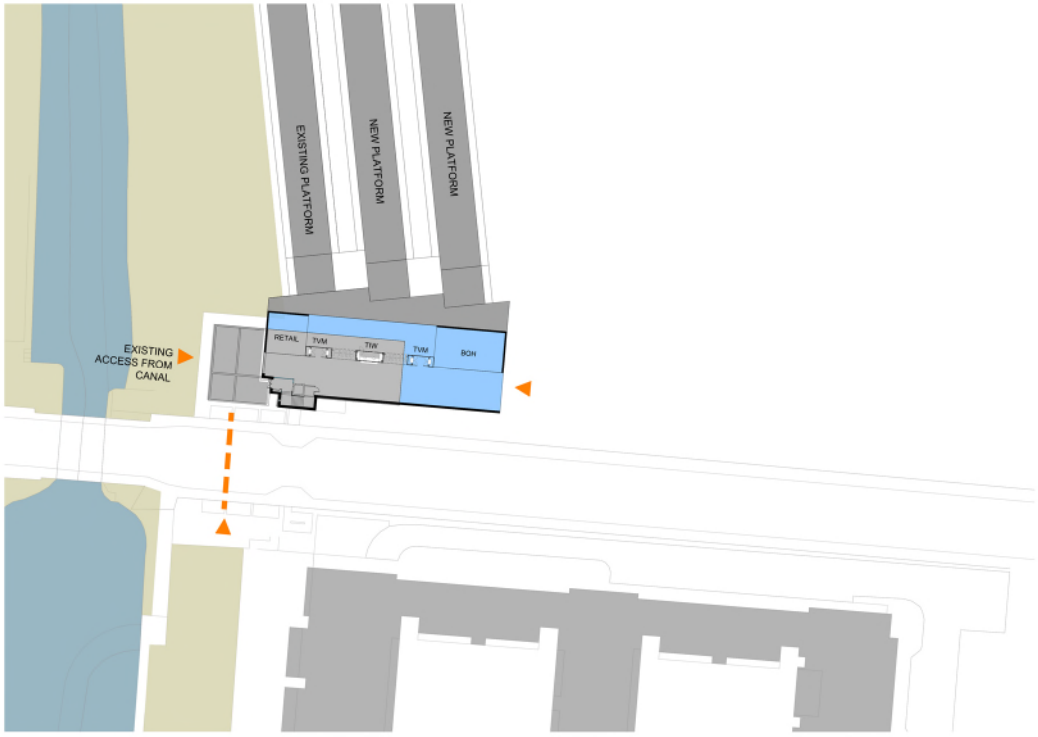

Figure 9. Option A1. Accesses to Docklands Station

Docklands Station Option A1 would consist of six tracks and three island platforms. The addition of an extra track and platform to the five minimum platform tracks required allows this option to:

- Overcome connection constraints between the existing MGWR tracks and the Northern line. Minimum horizontal radius is too large to be accommodated, and a connection from the MGWR existing tracks would clash with a large portion of the Ossory Company Limited yard.

- Interconnect MGWR, GSWR and Northern Lines, fully complying with operational requirements.
- Enhance station capacity and operational flexibility.

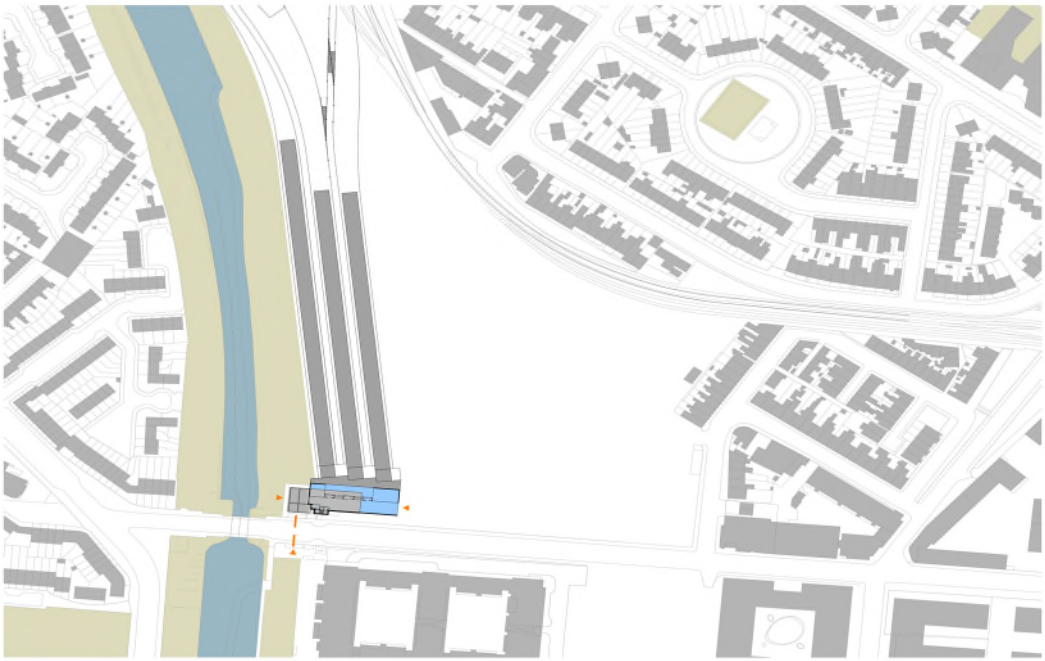

Figure 10. Option A1 general layout

The station building operation (entry and exit flow, means of egress location, fare collection systems, etc.) will be maintained as far as possible. However some modifications will be required as the number of trains, and consequently the number of passengers, will increase significantly.

Regarding the impact on the DART Underground TBM portal area, there is a significant clash between the DART Underground soil stockpiles and the new platforms. On one hand, the area occupied by the platforms overlaps with that dedicated for soil stockpiles therefore an alternative construction strategy should be studied. On the other hand, the TBM portal is not affected, meaning this Option is less adverse for DART Underground construction.

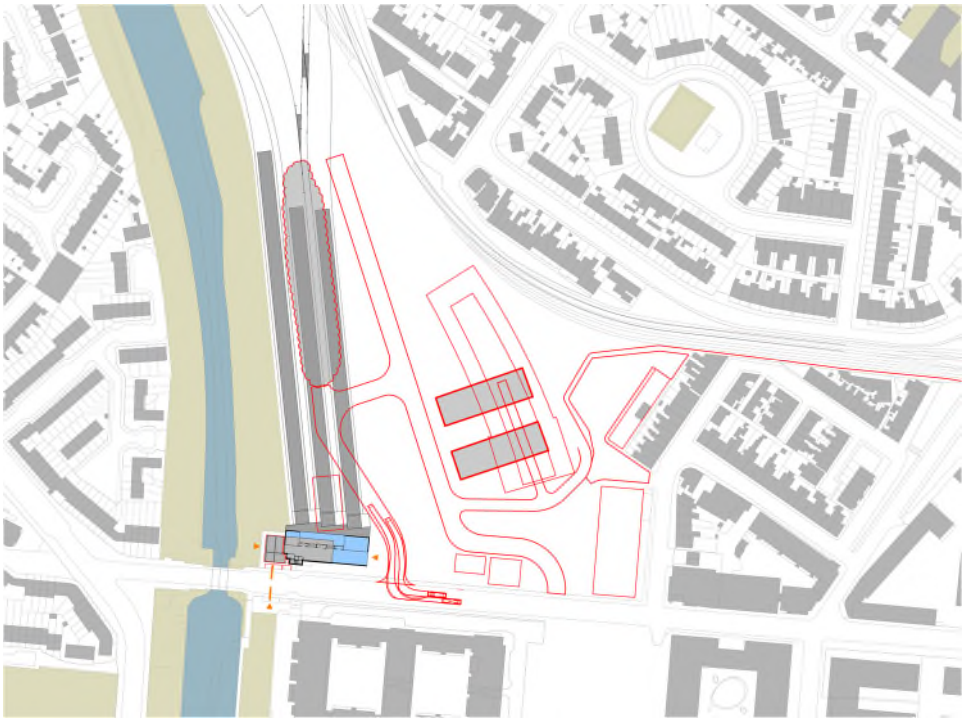

Figure 11. Option A1. DART Underground TBM portal interface

2.1.1.2 Option A2

Option A2 considers moving the station to the East, at the end of Park Lane, to allow for an improved track alignment solution and better connection towards the Spencer Dock LUAS station. This Option avoids the short distance between the northern end of the platforms and the divergence of the three rail routes the station serves.

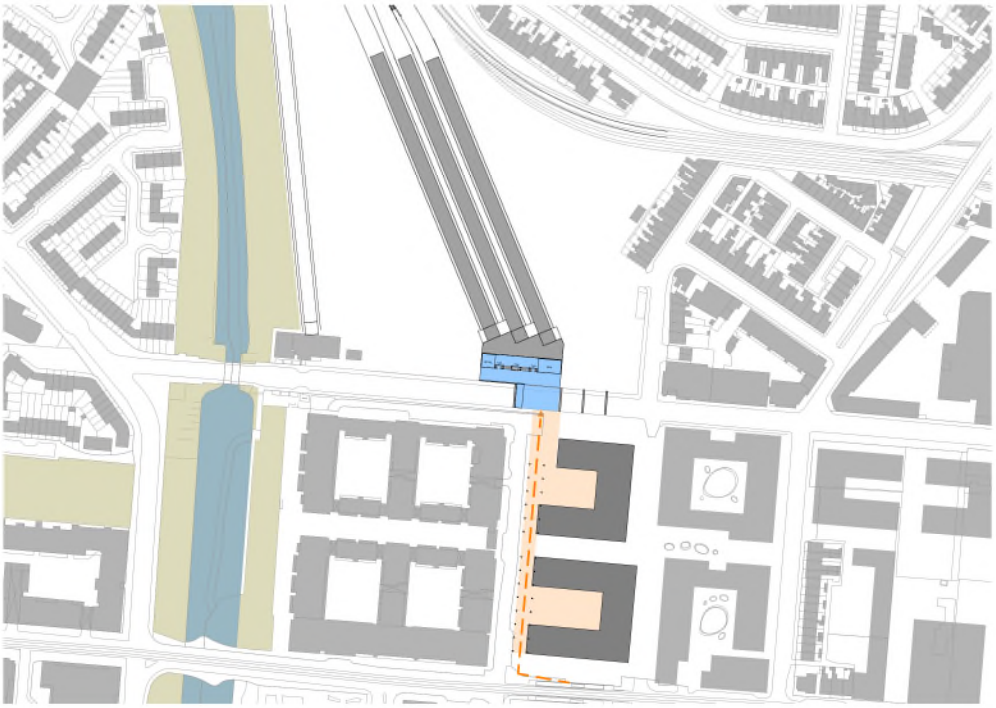

Figure 12. Option A2 general layout

Platforms and tracks will be angled relative to the existing platforms of Docklands Station. This will ensure:

- Smoother track alignment tie-ins with the three rail routes the station is to serve.
- Preservation of the connection to East Wall Yard.

The addition of an extra track and platform to the 5 minimum platform tracks required will allow:

- Interconnection of MGWR, GSWR and Northern Lines, fully complying with operational requirements.
- Enhanced station capacity and operational flexibility.

The station building will be located to the North of Sheriff Street Upper, adjacent to the arches of the overbridge. The access to the station will be directly through the underbridge area to allow a direct connection with a possible new commercial porched boulevard that would provide a covered link to Spencer Dock LUAS station. Option A1 station location provides the opportunity to create a commercial axis in Park Lane.

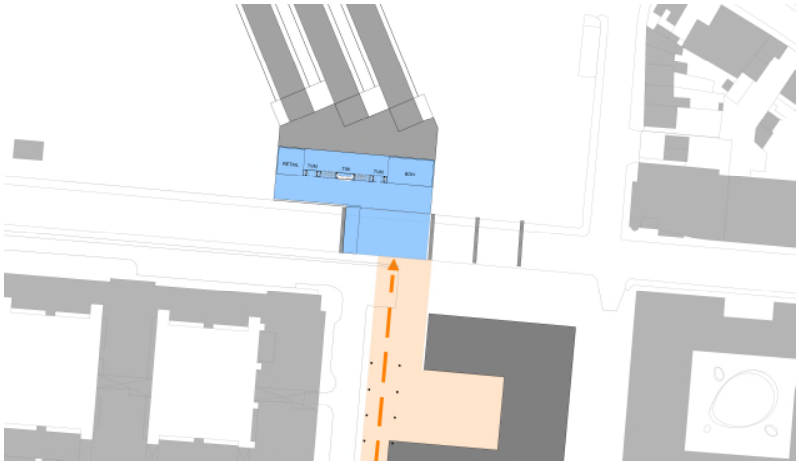

Figure 13. Option A2 station access

Regarding the impact on the DART Underground TBM portal area, there will be a clash between the DART Underground portal tunnel and the new platforms. Figure 14 shows the footprint of the platforms and the DART Underground portal area. This solution is not compatible with having the TBM portal site placed in the location proposed in the DART Underground project.

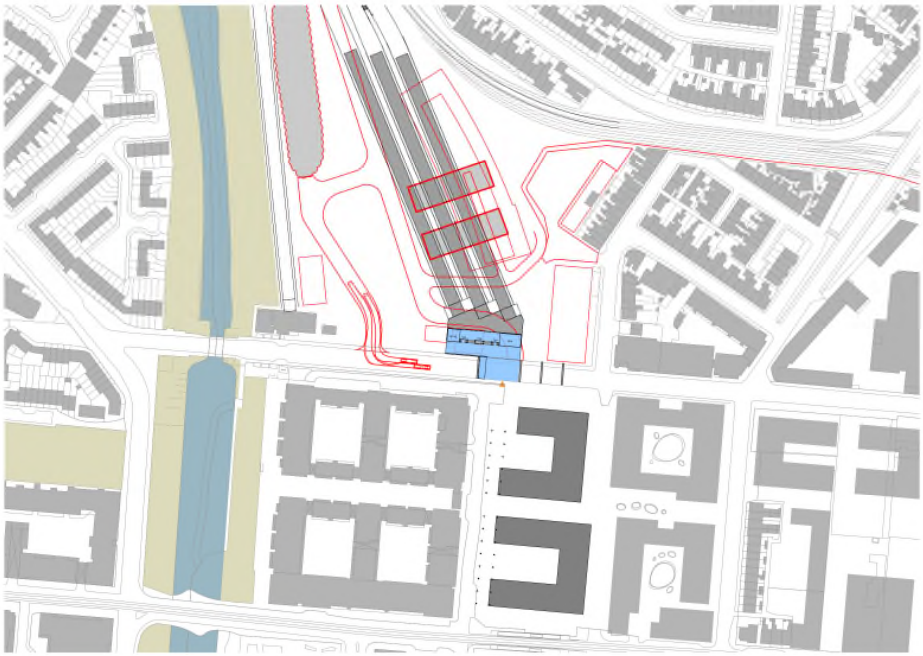

Figure 14. Option A2. DART Underground TBM portal interface.

2.1.2 Option B

Option B site is located at Spencer Dock South of Sheriff Street Upper and north of the current Spencer Dock LUAS station. The site is part of the North Lotts & Grand Canal Dock Planning Scheme. It is envisages that two blocks be built in the plot, one containing a twelve floors landmark building facing South, allowing space for a plaza between the building and Spencer Dock LUAS station.

Figure 15. Option B site location and volumetric view of the buildings planned for the site in the North Lotts & Grand Canal Dock Planning Scheme

The site is mainly owned by CIÉ as represented with a green hatch in Figure 16. It includes a section of Mayor Street Upper, in addition to Sheriff Street Upper bridge and associated land. The unhatched area to the north-east of the Docklands Option B plot is a land parcel in the ownership of Spencer Dock Development Company Limited, previously acquired from Green Sunrise Waste management.

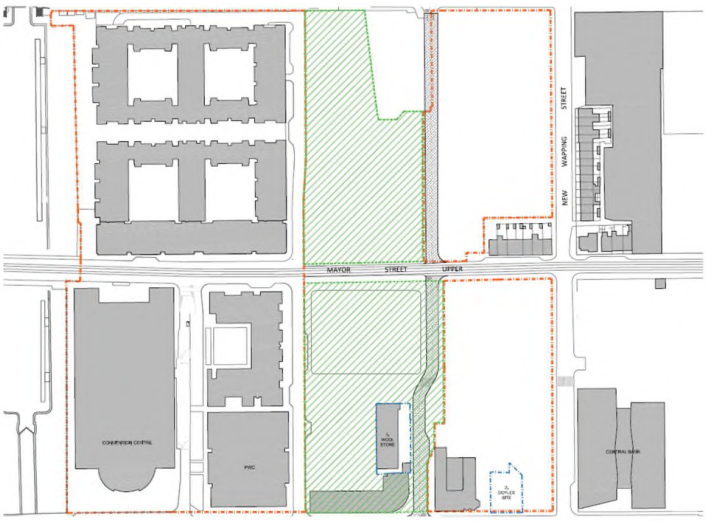

Figure 16. Extract of Spencer Dock MDA Lands - Overall Boundary Site Plan

The location of the station in Option B is more complicated than in Option A, as it must cater for two buildings proposed in the North Lotts planning scheme above, and with the Dart Underground station beneath.

Also, there is a significant constraint in the Sheriff Street Upper overbridge due to the lack of height clearance for trains passing. There are currently 4.61 metres of clearance.

In addition, there is a difference of level between the LUAS stop and the bridge underpass of around 2.5 metres. The LUAS station is at level +3.00, and the underpass is at level +0.30.[1]

Figure 17. Longitudinal section of the site.

These constraints will result in a difference of level between the station's platform level and the LUAS station level that will be addressed in different ways for Option B1 and for Option B2.

2.1.2.1 Option B1

The first Option considered for the Option B location, Option B1, attempts to minimise the excavation of the works needed to construct the tracks and platforms. The track level is placed at level -1.60 to permit the minimum height clearance below Sheriff Street Upper overbridge.

[1] These levels are approximate are subject to final confirmation.

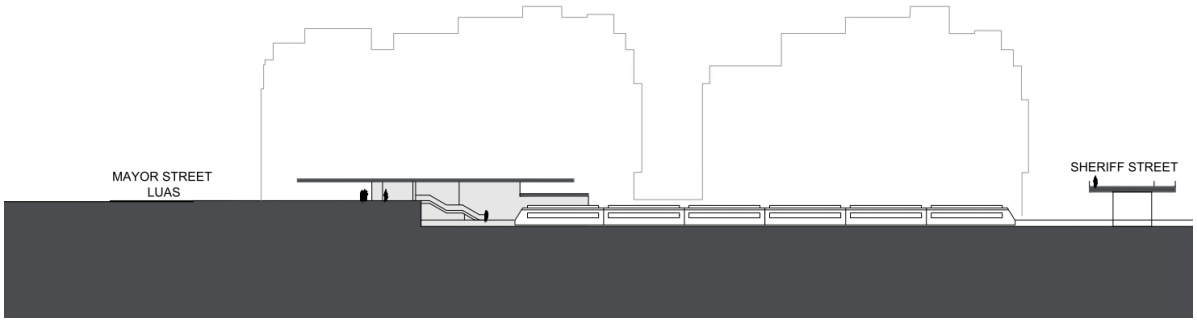

Figure 18. Option B1 general layout section

Platforms and tracks will be angled relative to Park Lane. This will ensure the limiting of curves outside the platform to a 200 metre desirable radius. Platforms and tracks are kept to the five minimum platform tracks required, due to width constraints dictated by the position of piers of the Sheriff Street Upper overbridge. The overbridge would be demolished and reconstructed within that section in order to accommodate the new track layout.

Interconnection of MGWR, GSWR and Northern Lines is feasible; thus the station's full compliance with operational requirements is achieved.

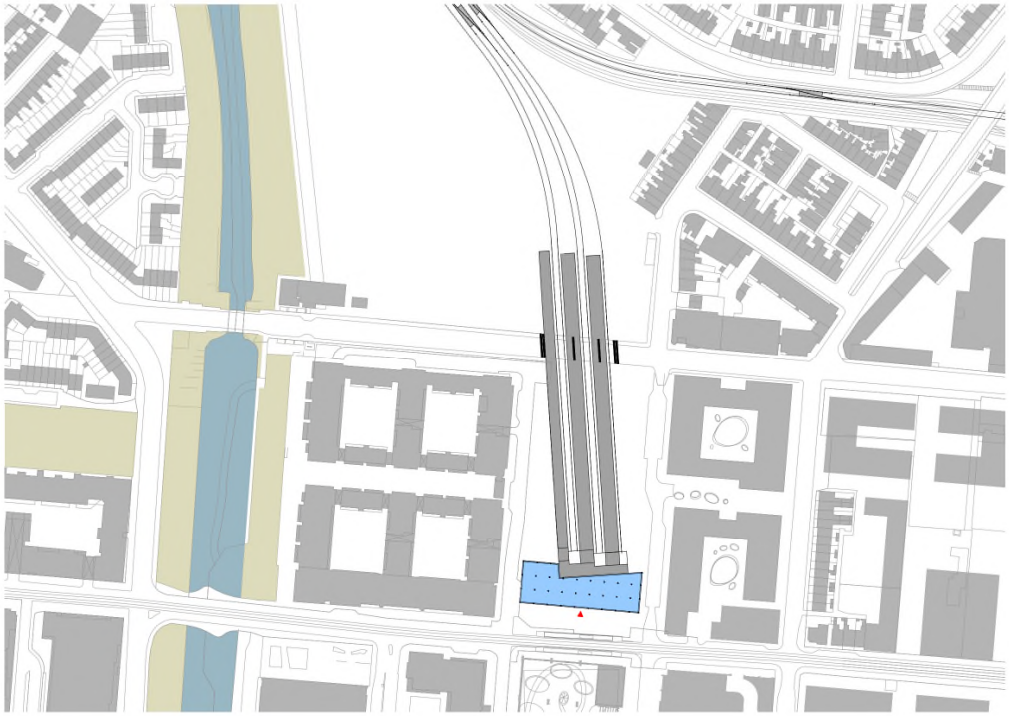

Figure 19. Option B1 general layout plan

The station access is on the ground floor of the landmark building that faces the LUAS station plaza, providing a direct interchange between the two means of transport.

The future OSD will be developed around the station platforms, allowing the platforms and their canopies to be open for ventilation purposes.

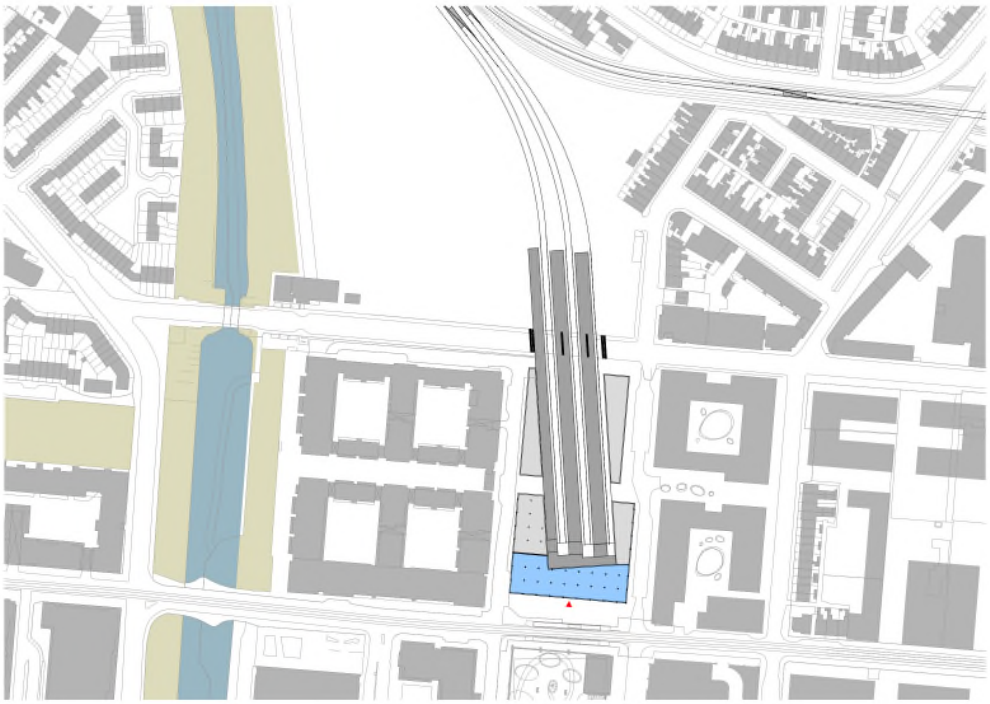

Figure 20. Option B1. Ground floor including OSD

The impact of this solution on the DART Underground project is very significant. On one hand, the layout of the track would make it impossible to build the TBM portal without removing the tracks temporarily while the DART Underground project is being constructed.

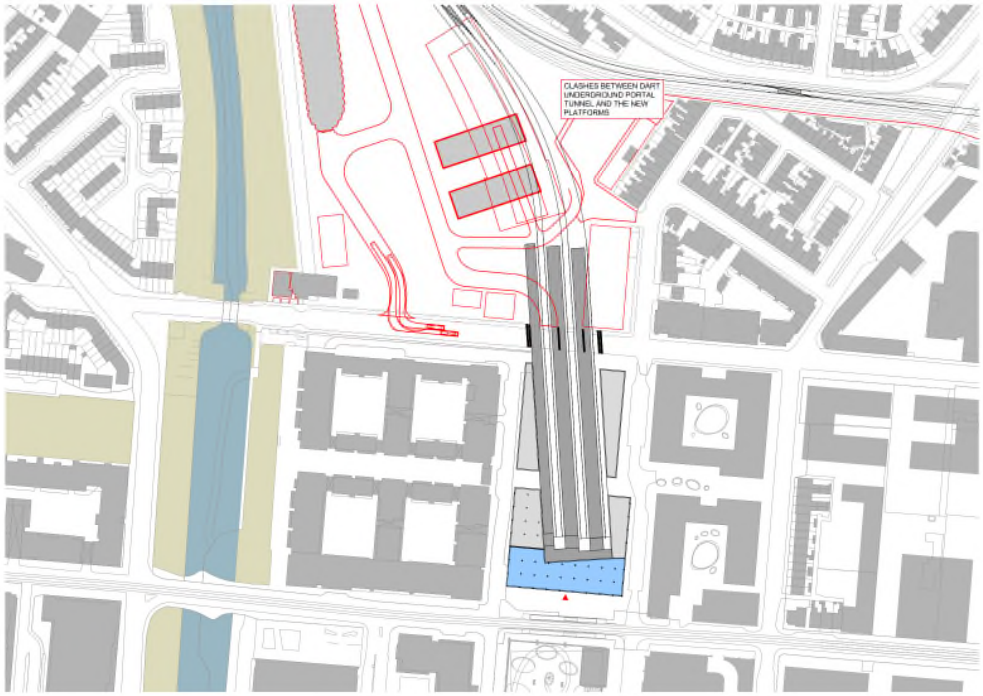

Figure 21. Option B1. Clash between the station and the future DU project TBM portal site

On the other hand, all the tracks, platforms and canopies would need to be demolished to excavate and build the DART Underground station. However, the station building could be maintained by excavating the part of the DU that is beneath the station building, using a tunnel system.

This solution would allow construction of the station and the landmark building before the DU station works. The construction phasing of this Option should be as indicated in Figure 22 and Figure 23:

Figure 22. Option B1. Construction phase 1 and 2

Figure 23. Option B1. Construction phase 3 and 4

Phase 1: Docklands Station construction 4 metres below Major Street level at the site of Block 2A and 2C.

Phase 2: Construction of the landmark building above the Docklands Station being the first step for the over station development included in the North Lotts and Grand Canal Dock Planning Scheme.

Phase 3: DART Underground tunnel construction utilising Tunnel Boring Machines (TBM), except in the area between Block 2A and 2C where a cut and cover excavation would be undertaken. During the works, the Docklands Station track and platform would be demolished, and its operation moved to the current Docklands Station until the fourth phase is completed.

Phase 4: DART Underground excavation and construction process is completed, and Docklands Station will be able to re-commence opertion. The over-station development can then be finalised.

2.1.2.2 Option B2

Option B2 solution provides better integration with adjacent building by aligning the platforms of the station to the North Lotts planning scheme gridlines. This alignment also makes the layout more compatible with the layout of the buildings above. To achieve this, the platforms need to be pushed southwards so the tracks can connect with the different lines while achieving the radius required.

The only way of being able to push the platforms southwards is by lowering the TOR so the tracks can be placed below the plaza between the building and the LUAS station. The resulting level for the platforms, in this case, is -3.60 metres.

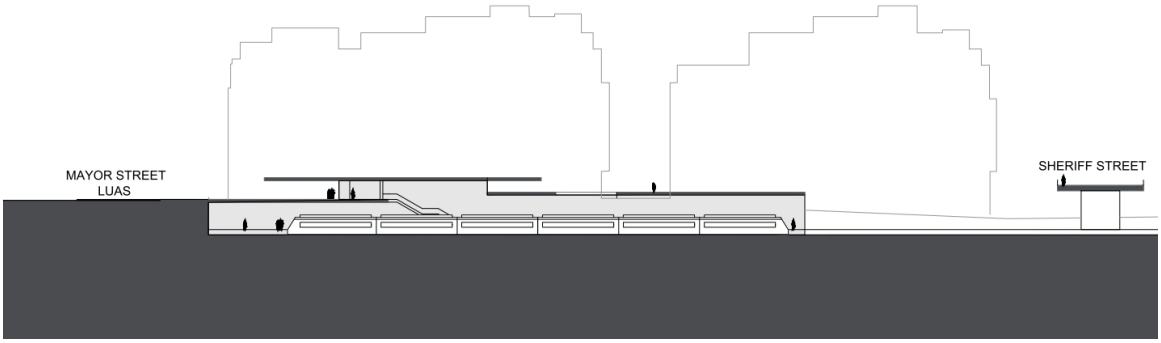

Figure 24. Option B2 general layout section

With this alignment, platforms and tracks can be aligned to the structural grid of the OSD buildings that will be built above and can also be centred on the site.

This configuration will ensure the limiting of curves outside the platform to a 200 metres desirable radius. As per Option B1, platforms and tracks are kept to the five minimum platform tracks required due to width constraints dictated by Sheriff Street Upper overbridge piers. The overbridge must be demolished and reconstructed in that section in order to accommodate the new track layout.

Interconnection of MGWR, GSWR and Northern Lines is still feasible; thus the station's full compliance with operational requirements is achieved.

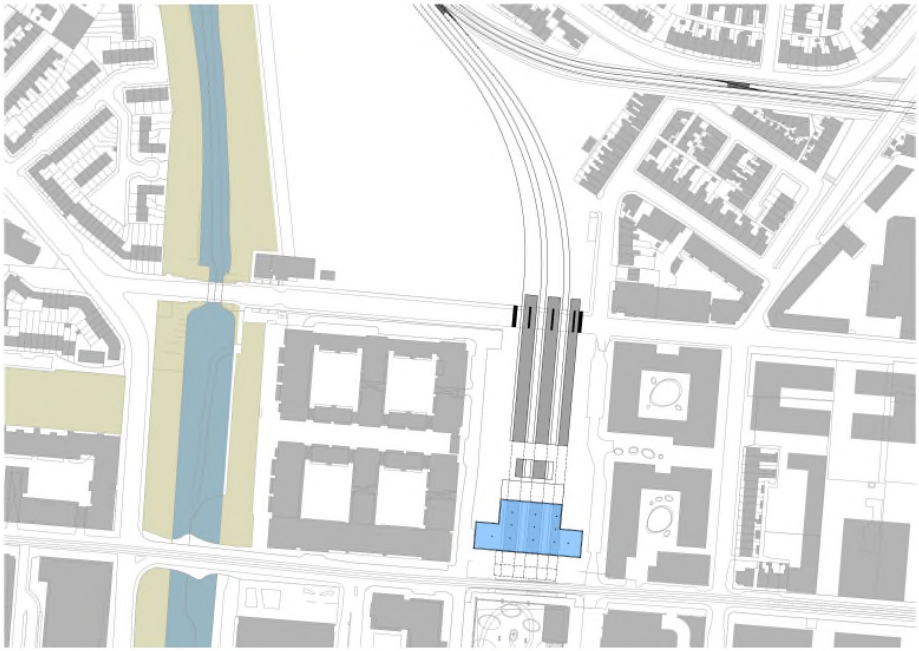

Figure 25. Option B2 general layout plan

The station access is in the same location as Option B1, at the ground floor of the landmark building that is facing the LUAS station plaza. This provides a direct interchange between the two means of transport.

The future OSD will be developed in the two lateral sides of the platforms, thus minimising the interference between the structure of the station and the structure of the OSD buildings. The open space above the platforms can also be maintained open to allow the ventilation of the station.

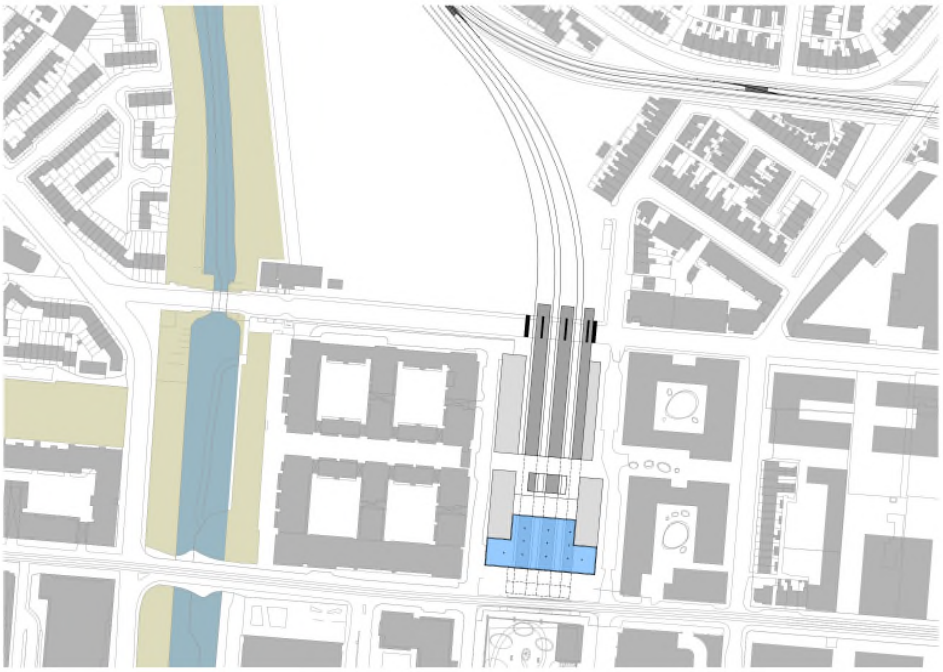

Figure 26. Option B.2 Ground floor including OSD

The impact of this solution in the DART Underground project, in this case, is also very significant. However, a solution is being analysed to allow the building of a definitive station prepared to connect with the DU project in the future.

Although the proposed alignment impacts with the TBM portal tunnel, an assseement is being made on the possibility of slightly modifying the alignment and the TBM portal project to avoid that clash.

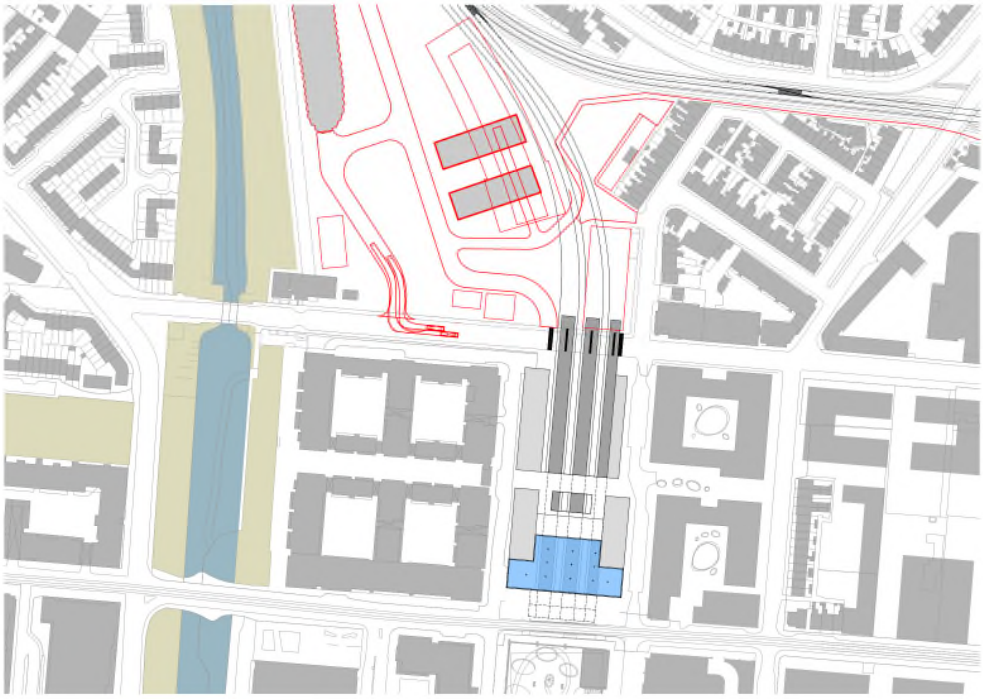

Figure 27. Option B2. Clash between the station and the future DU project TBM portal site

There is a clear clash between the proposed station and the DU station as it will be located beneath. It is not possible to construct the DU station once the Docklands Station is built because the soil does not have suitable

characteristics to allow excavation of a cavern beneath the station at the level the DU station platforms are located.

The only way of designing the required layout for this Option and avoiding the demolition of the platforms to construct the DU project is to undertake first the civil works of the DU station that are not excavated as a tunnel. The space between the DART Maynooth station and the DU station can be used as the parking for the OSD development. Figure 28 and Figure 29 represent the phasing of the works in case the DU project is taken into consideration since the construction of the DART Maynooth station:

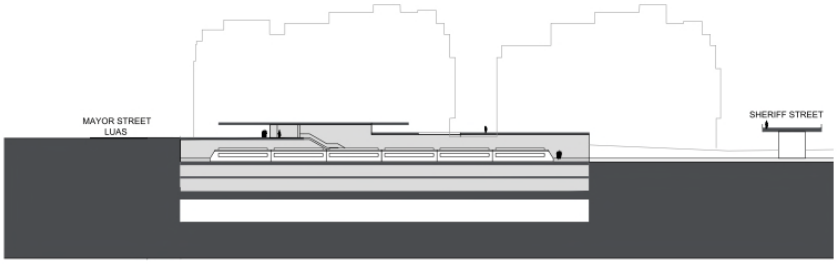

Figure 28. Option B2. Construction Phase 1

Figure 29. Option B2. Construction Phase 2 and 3

Phase 1: Docklands Station construction will anticipate the future DART Underground station, and before its construction a cut and cover excavation will be carried out in order to ease the DART station construction.

Phase 2: The landmark building facing Major street and LUAS station will be built as the first aspect of the over station development with the Docklands Station already operating.

Phase 3: DART Underground excavation will be completed with TBM system.

This solution requires a high capital cost for the project of the DART Maynooth station. However, it provides the opportunity of building the complete OSD, thus avoiding a temporary situation of that part of the city until the DU project is constructed.

3. Preliminary Options Assessment

A preliminary assessment of the four options has been undertaken. A full MCA is being prepared to assist with the decision between options. However, the information about the main strengths and weaknesses of each Option is presented below.

3.1 Option A1

Strengths

- The interference with the DART Underground TBM portal site is less significant than in other options. It only affects the area dedicated to the soil stockpiles and the access road for the trucks.
- The stakeholders' engagement process would be less complicated than the solutions proposed in Option B since the Option A site is owned entirely by CIÉ and no coordination is needed to prepare the station for the North Lotts and Grand Canal Dock planning scheme.
- This solution would have low capital cost as the current station building and platforms are maintained.

Weaknesses

- Option A1 solution does not provide the desired intermodality between the DART station and Spencer Dock LUAS station. Passengers would need to walk 400 metres to change the means of transport.
- There would be limited operational access to GSWR (Drumcondra) and Northern lines.
- The station would not be part of the five city hubs proposed in the North Lotts and Grand Canal Dock planning scheme.
- Taking into consideration a future commercial development of the site, this solution does not allow a residential development facing the Royal Canal.

3.2 Option A2

Strengths

- The option A2 solution has the potential to create a porched commercial boulevard between the station and Spencer Dock LUAS station, thus turning the lack of a direct interchange between the stations into an opportunity.
- Taking into consideration a future commercial development of the site, this solution does allow a residential development facing the Royal Canal.
- This solution is optimal in terms of operations. It provides good track layout connecting the station to the three lines (MGWR, GSWR and Northern lines).
- The coordination with stakeholders would be easier than in the solutions proposed in Option B since the Option A site is owned entirely by CIÉ.
- This solution would have low capital cost than the solutions provided for the Option B site.

Weaknesses

- Option A2 solution does not provide the desired intermodality between the DART station and Spencer Dock LUAS station. The passengers would need to walk 250 metres to change the means of transport.
- The station would not be part of the five city hubs proposed in the North Lotts and Grand Canal Dock planning scheme.
- This solution is not compatible with having the TBM portal site placed in the location proposed in the DART Underground project.

3.3 Option B1

Strengths

- The desired intermodality of the station with Spencer Dock LUAS station and the future DU station is achieved.
- The station would be part of the five city hubs proposed in the North Lotts and Grand Canal Dock planning scheme, thus creating commercial opportunities in a high-quality public space in the centre of Docklands and, therefore, attracting more passengers.
- Option B1 provides the possibility of constructing the landmark building before the works for the DART Underground.
- This solution is optimal in terms of operations. It provides good track layout connecting the station to the three lines (MGWR, GSWR and Northern lines).
- It would require a lower capital cost than the solution provided for Option B2.

Weaknesses

- It creates a challenging complexity for the construction of the OSD due to the angled track alignment.
- Current Docklands Station will be temporarily required if the construction of the Dart Underground. Platforms and tracks require demolition to build the North Shaft and the DART Underground platforms.
- The options at this location would need more coordination with stakeholders.
- This solution would need a higher investment than Option A solutions.

3.4 Option B2

Strengths

- The desired intermodality of the station with Spencer Dock LUAS station and the future DU station is achieved.
- The station would be part of the five city hubs proposed in the North Lotts and Grand Canal Dock planning scheme, thus creating commercial opportunities in a high-quality public space in the centre of Docklands, therefore attracting more passengers.
- It might be possible to design a definitive solution for the station that does not need to be demolished if the DART Underground station is built. It should also be possible to build the OSD before the arrival of the DU (still under study).
- This solution is optimal in terms of operations. It provides good track layout connecting the station to the three lines (MGWR, GSWR and Northern lines).

Weaknesses

- In the case that the clash with the DU TBM portal cannot be avoided, the current Docklands Station will be temporarily required when constructing the Dart Underground. Also, platforms and tracks would need to be demolished (still under study).
- The options at this location would need more coordination with stakeholders.
- This solution would need a higher investment than any other option; very high in the situation that the DU station needs to be taken into consideration.

4. Summary and Recommendations

In summary:

- Options A1 & A2 are favoured in terms of cost and interference with the DU station project, but they are very limited from an urban analysis point of view.

- Options B1 & B2 are favoured from mobility and urban perspectives, but the works are more challenging and thus require mayor investment and coordination with numerous stakeholders.

In order to make the decision on which Option should progress to concept design level, it is crucial to know whether the DART Underground project will be implemented.

The MDC will produce a full MCA and will thereafter be able to give further recommendations. The most appropriate option would be the one that solves the urban and mobility issues without jeopardising the project in terms of cost.