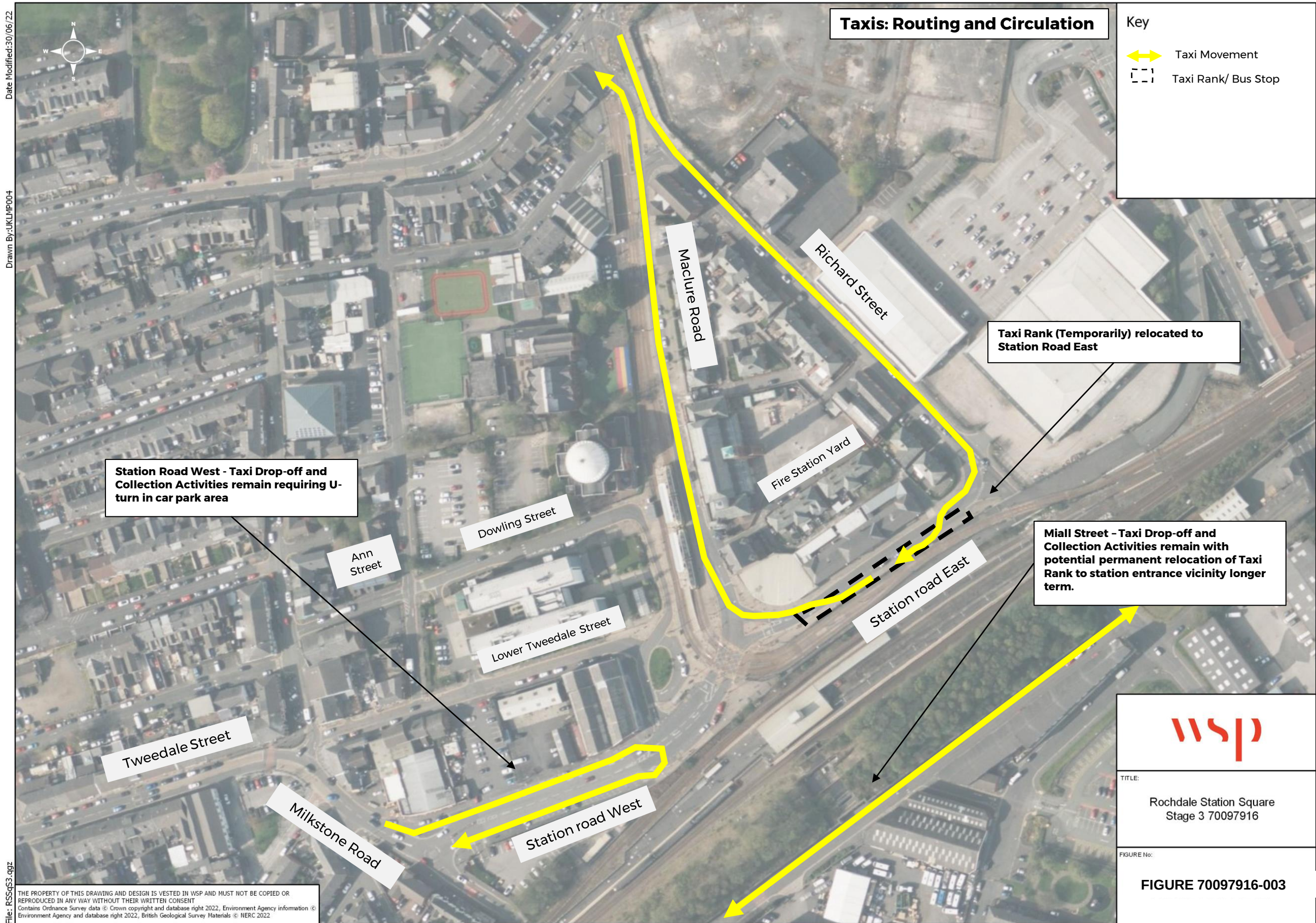
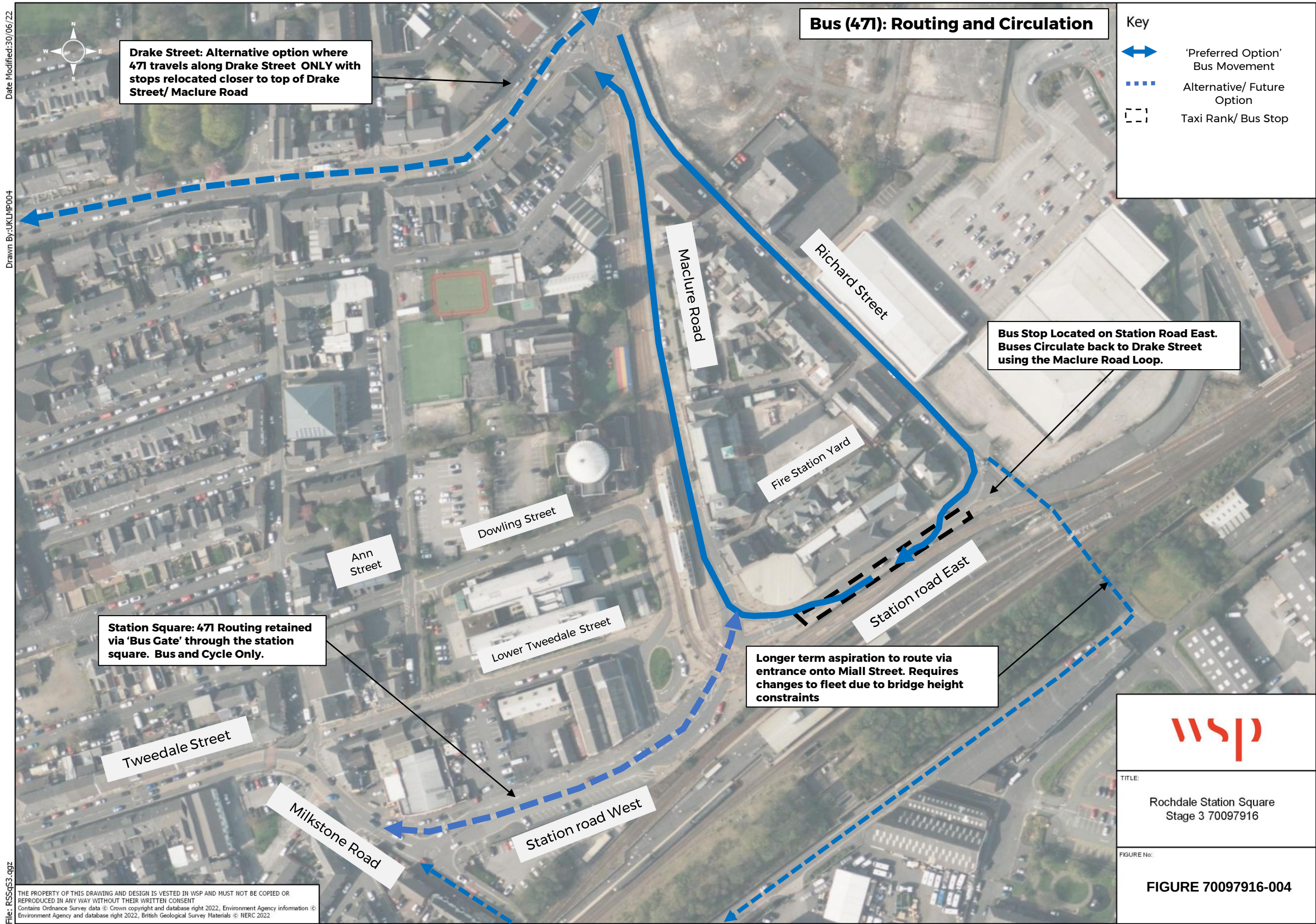


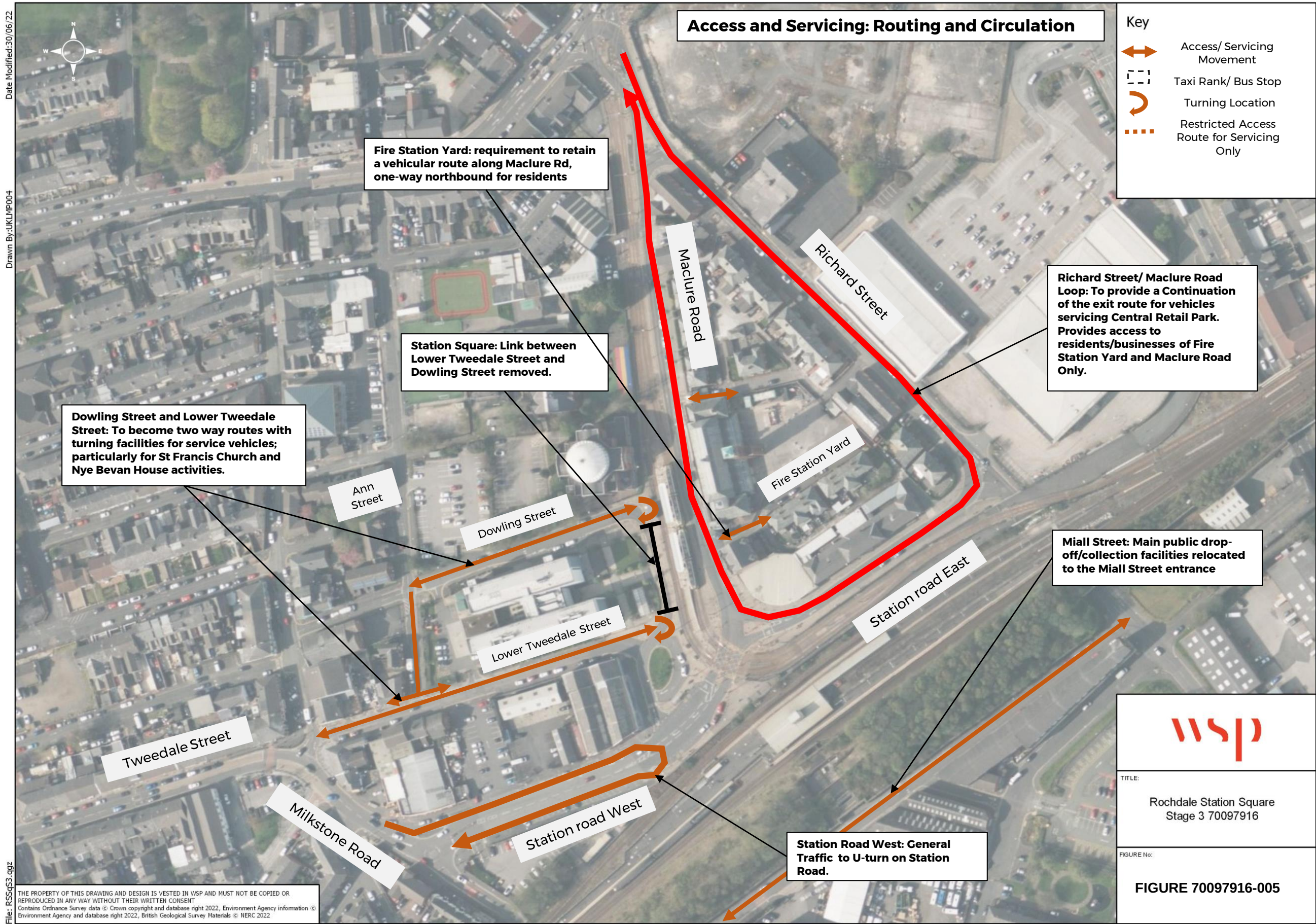
Engineering Design Strategies . Vehicular Movement



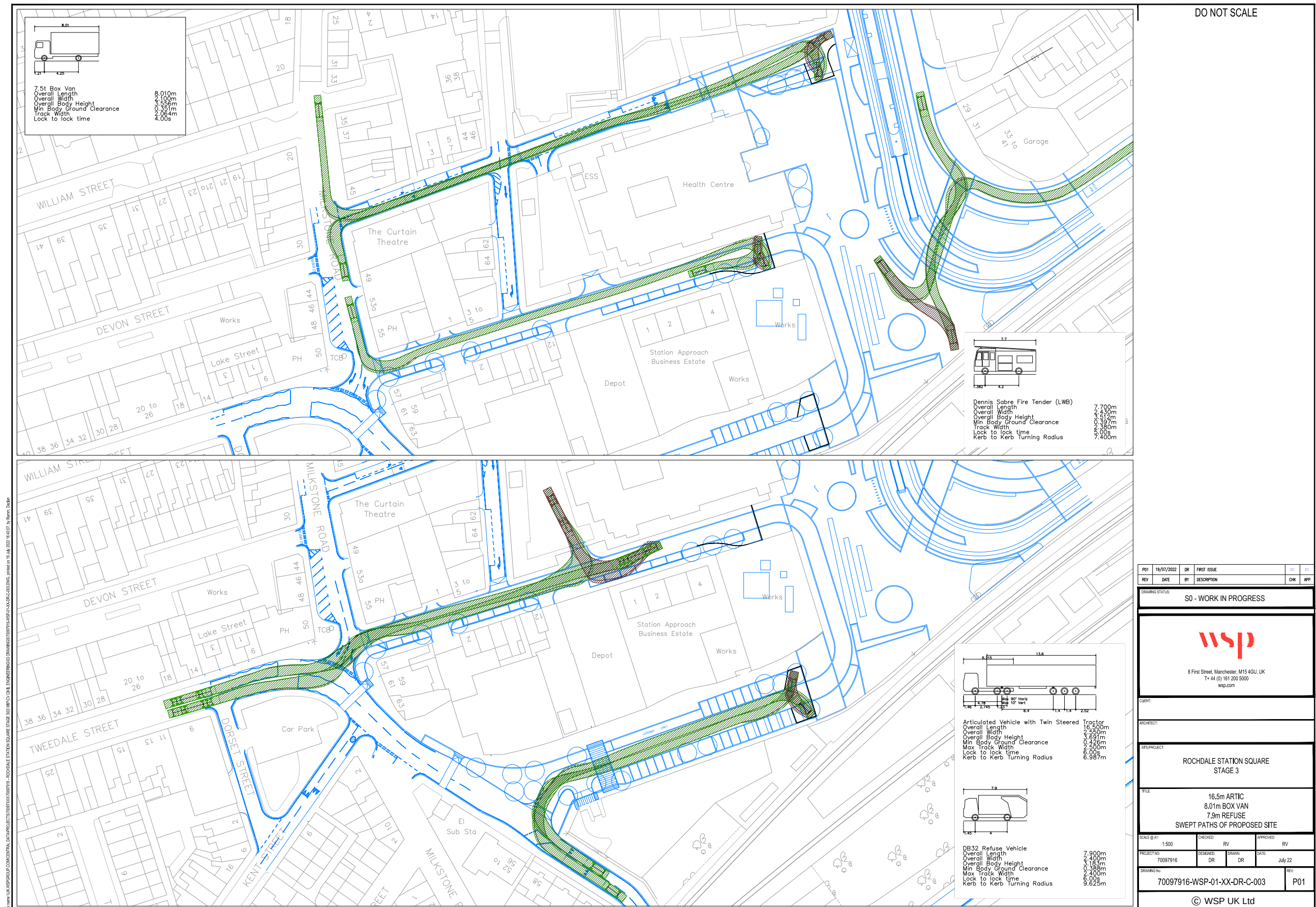
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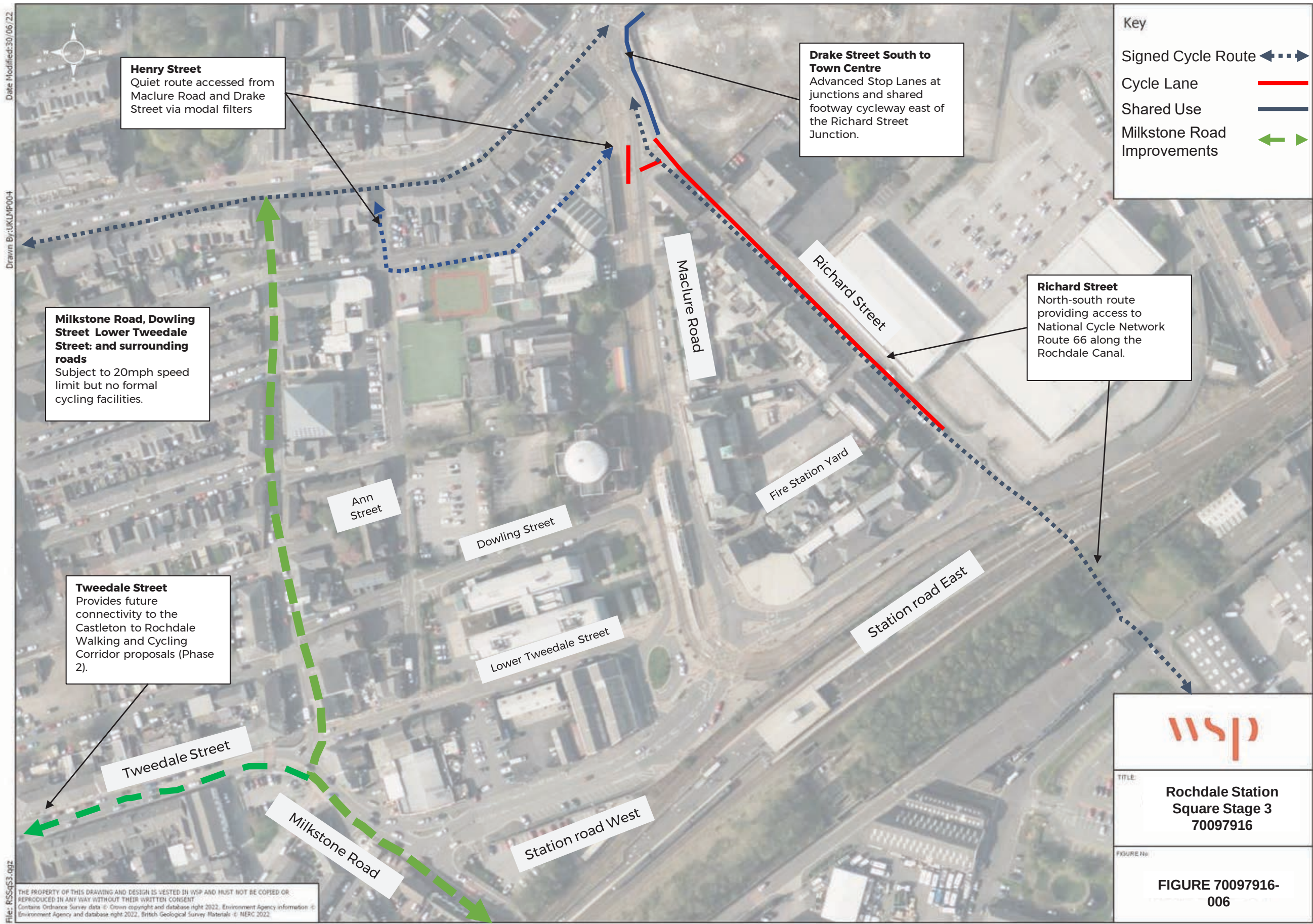
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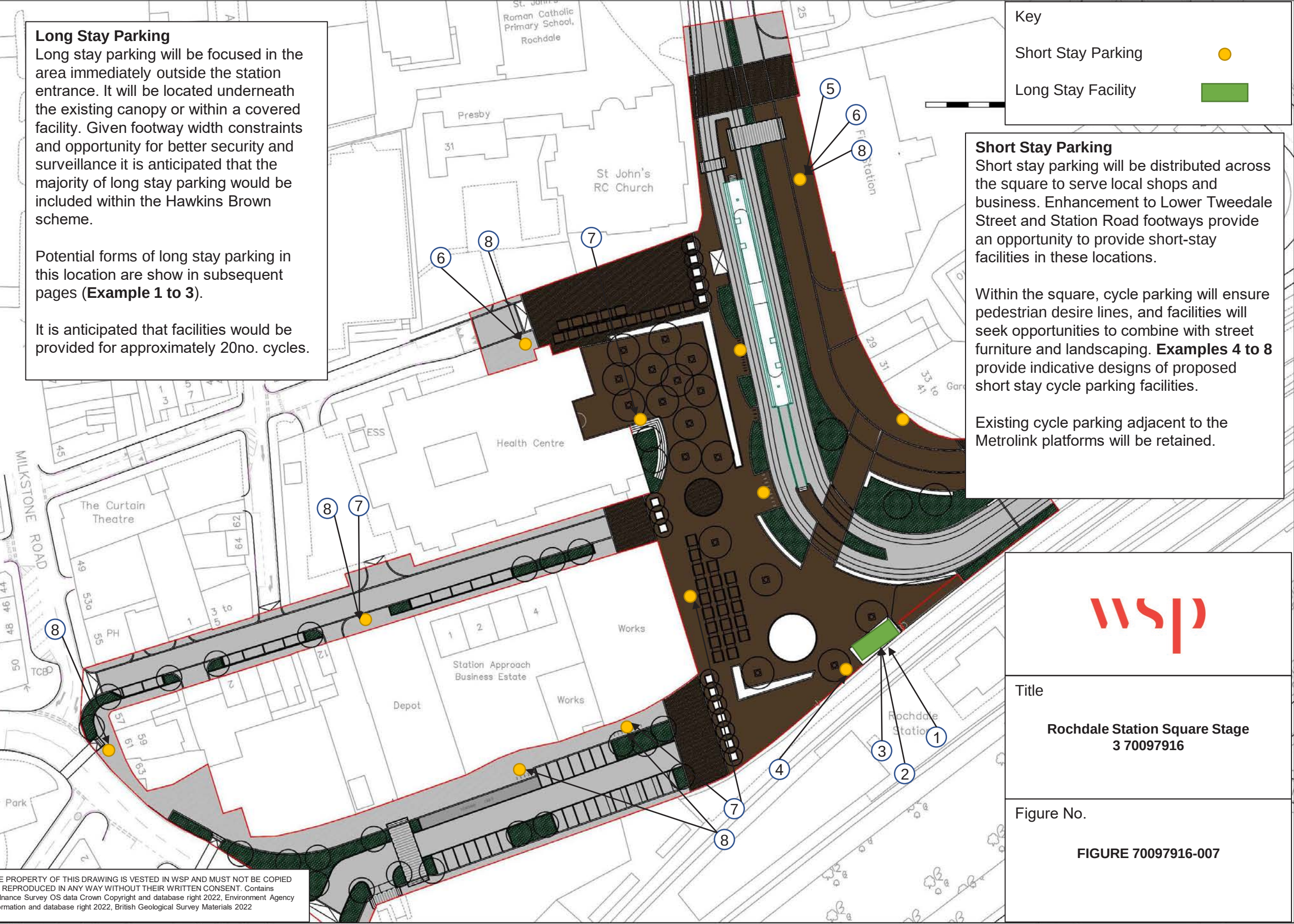
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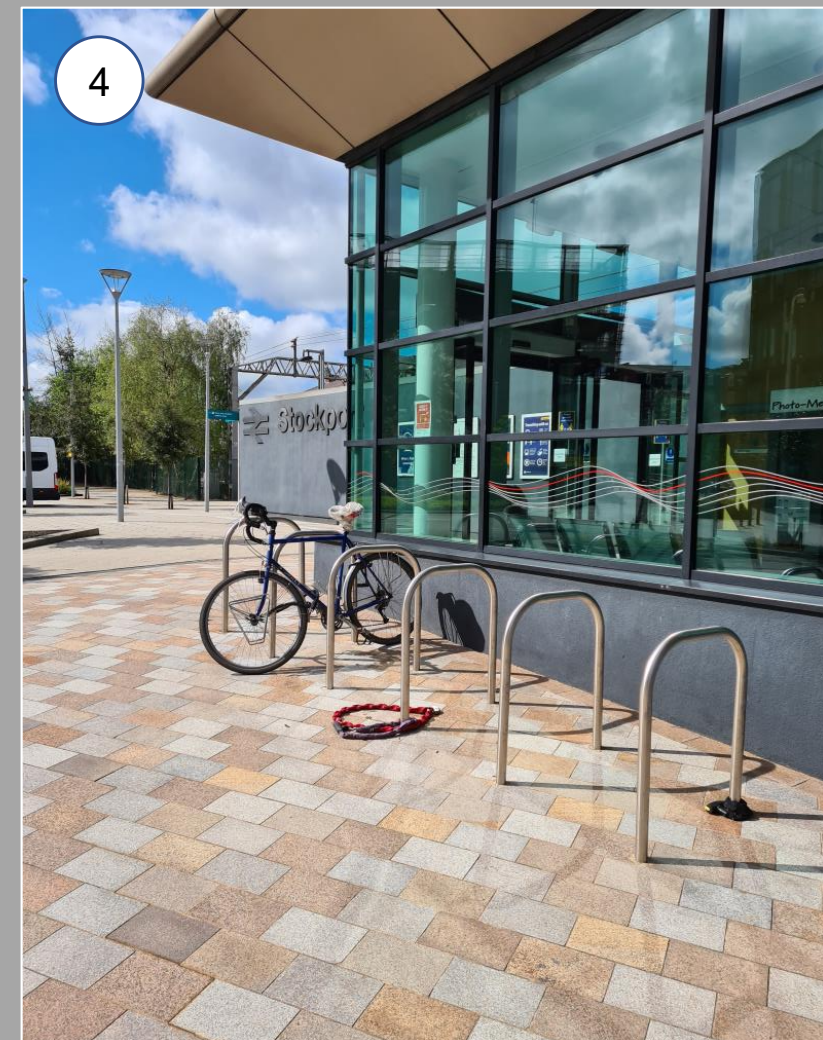
Engineering Design Strategies . Cycling Movement



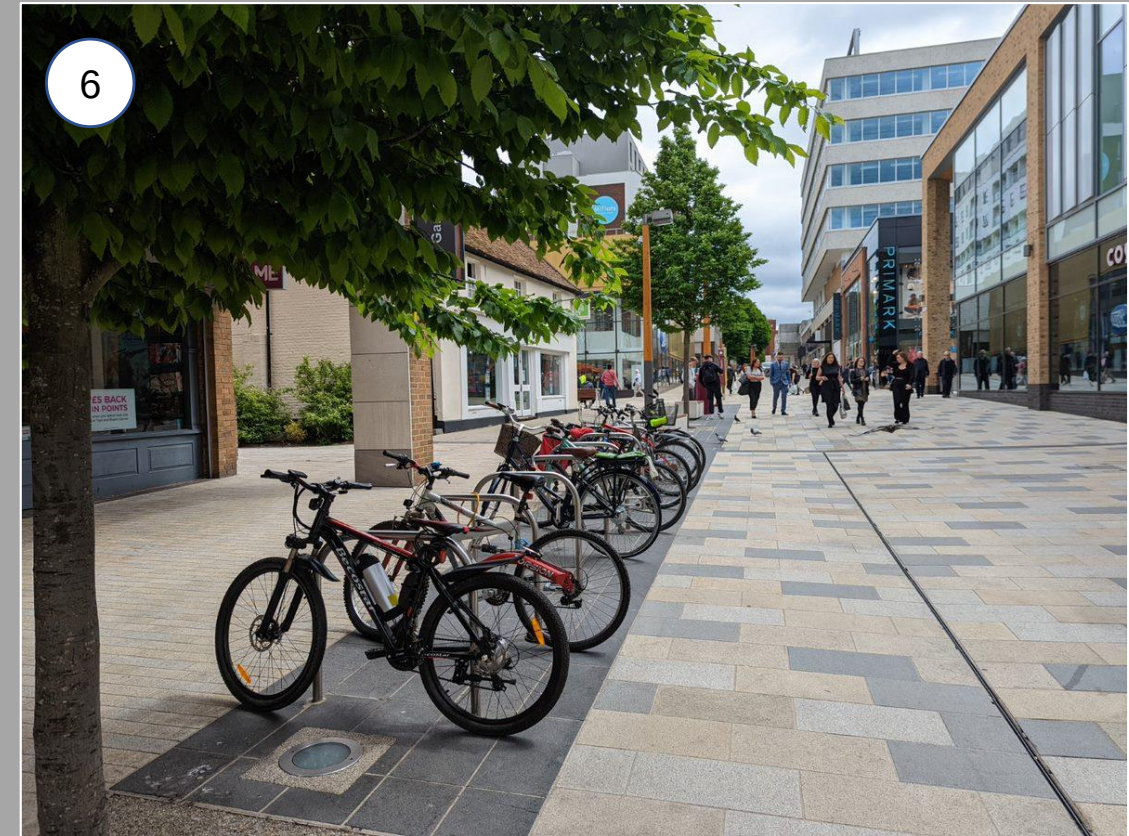
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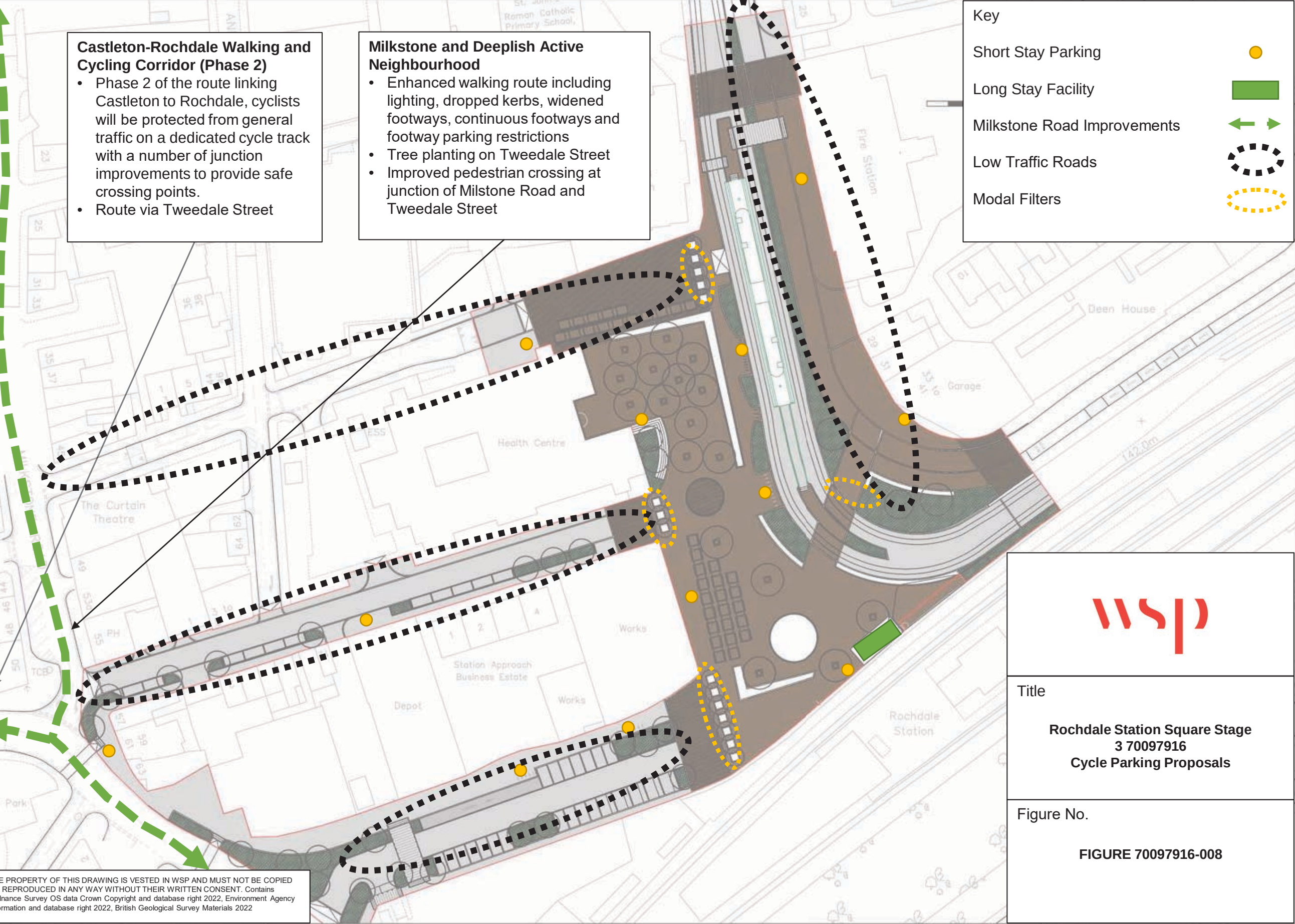
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Engineering Design Strategies . Cycling Movement

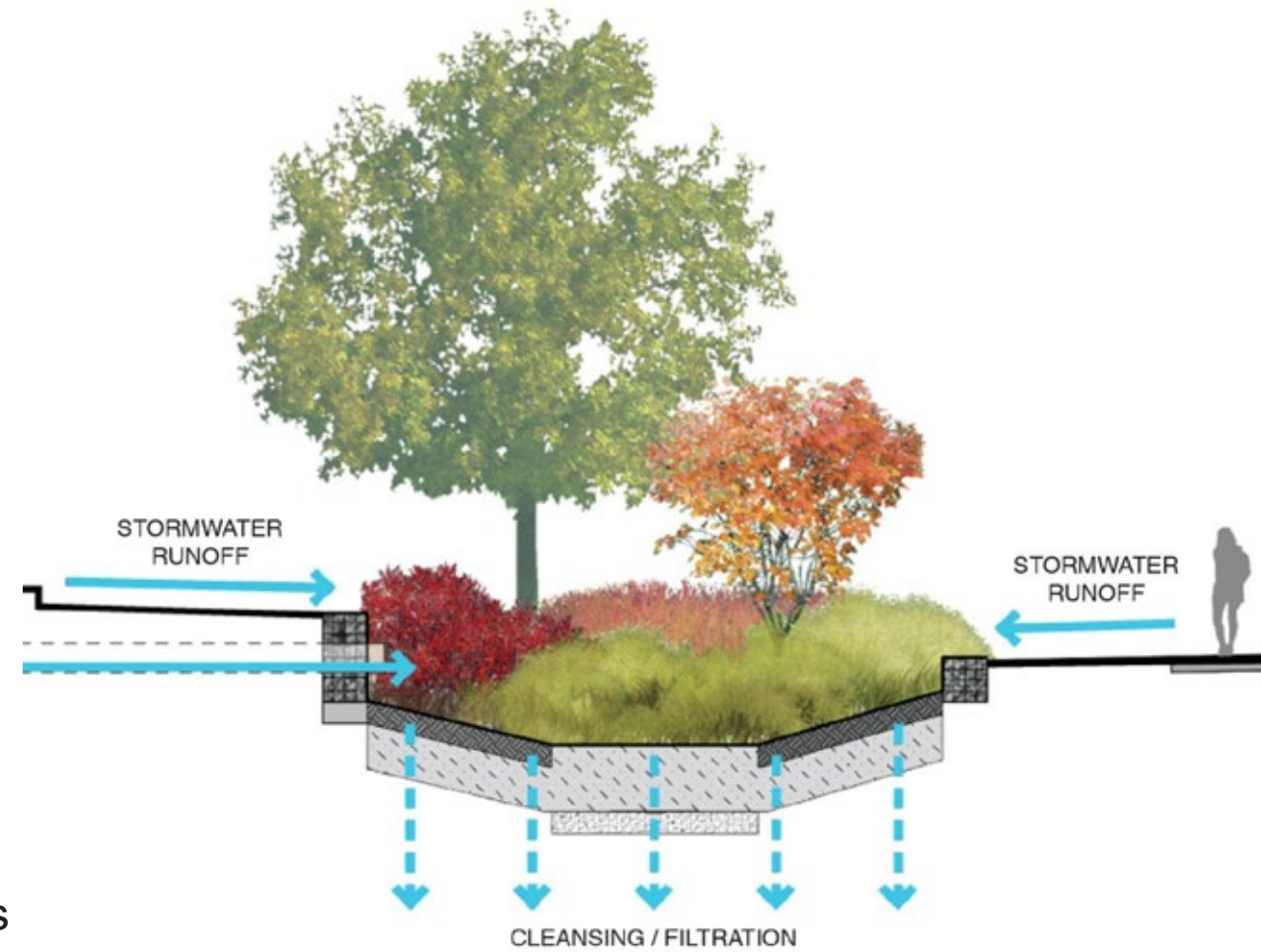


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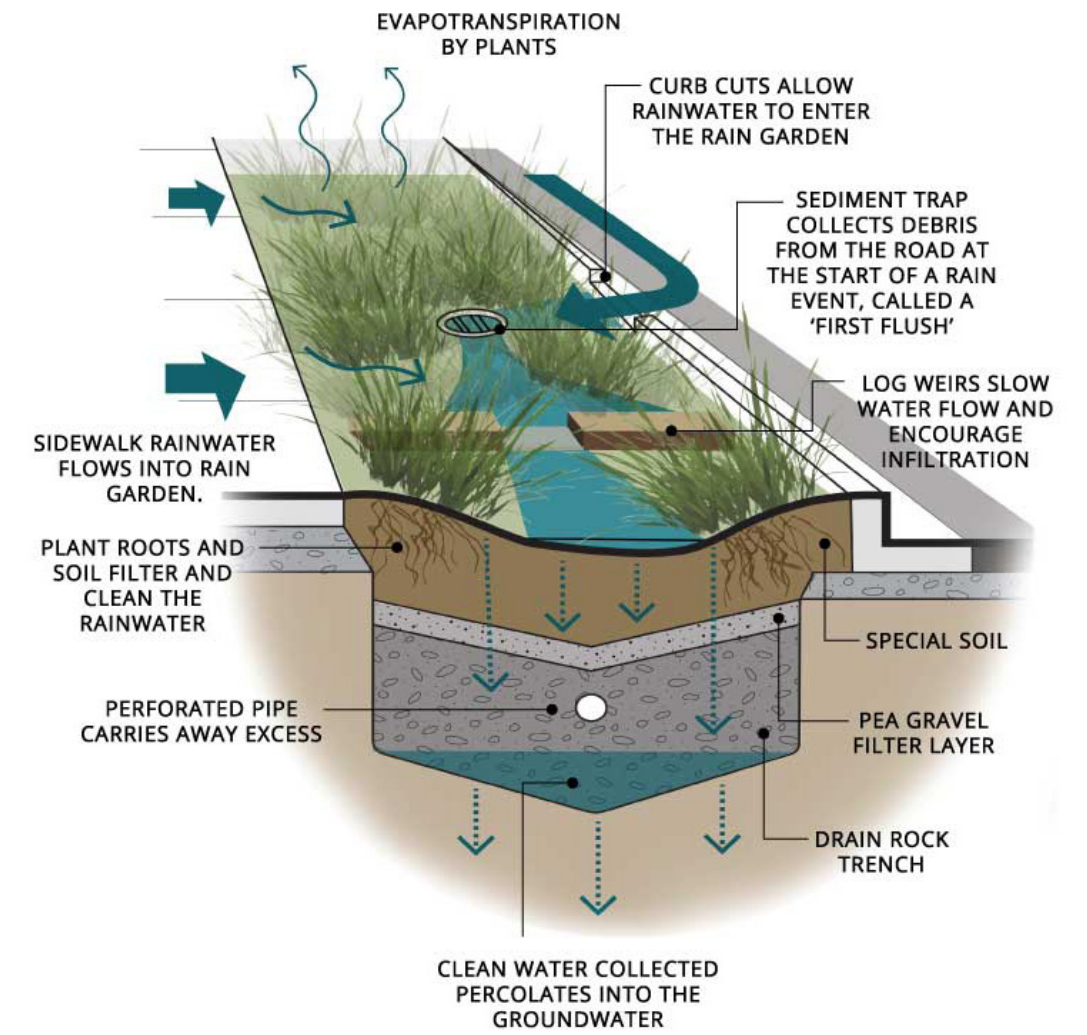


Engineering Design Strategies . SUDS

1 Roadside Bioswale



2 Rain Garden

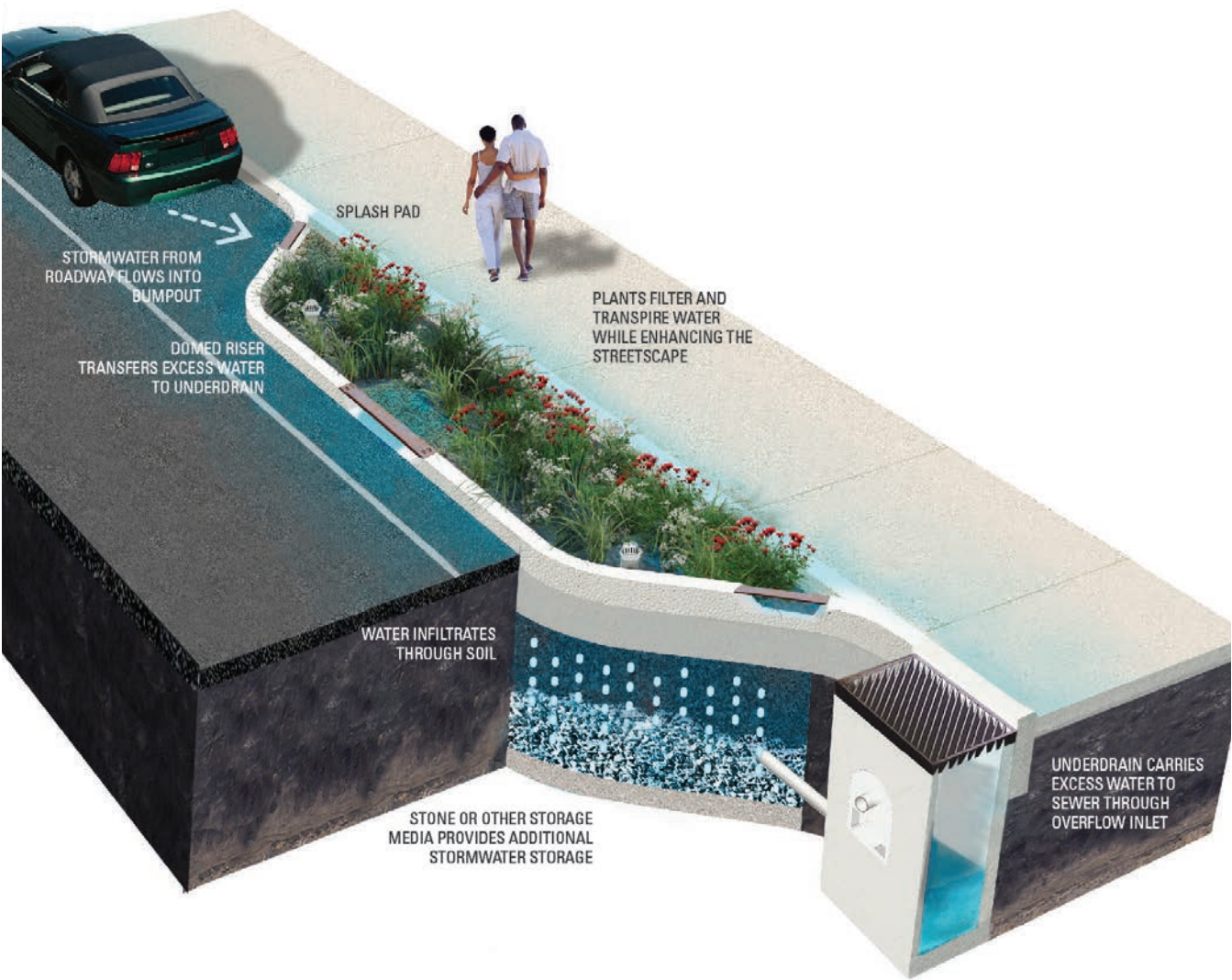


SUDS: Possible Solutions

1. Roadside Bioswale
2. Rain Garden

Engineering Design Strategies . SUDS

1 Attenuation Tank



2 Pit Collection



SUDS: Possible Solutions

- 1. Attenuation Tank
- 2. Pit Collection

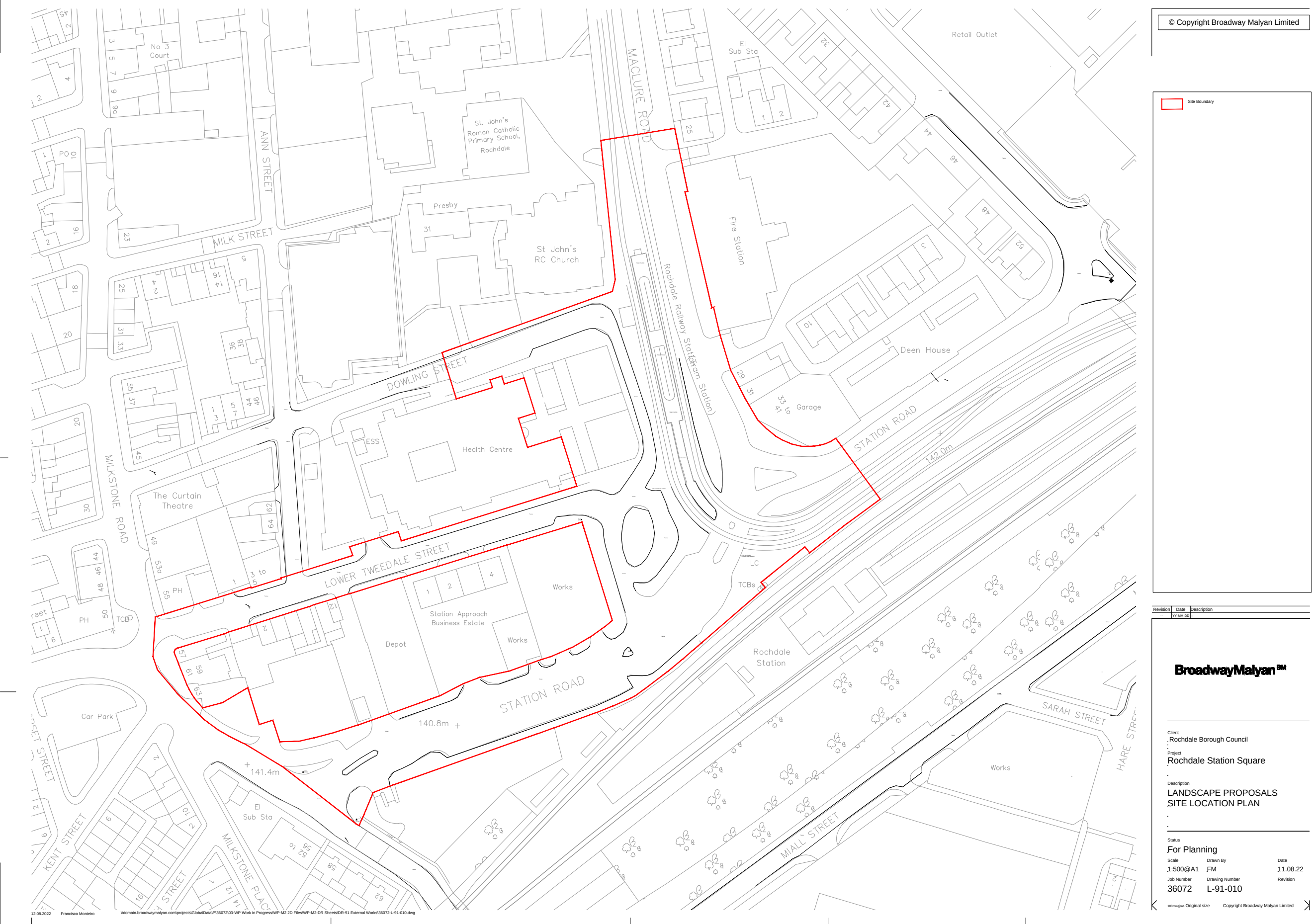
Appendix



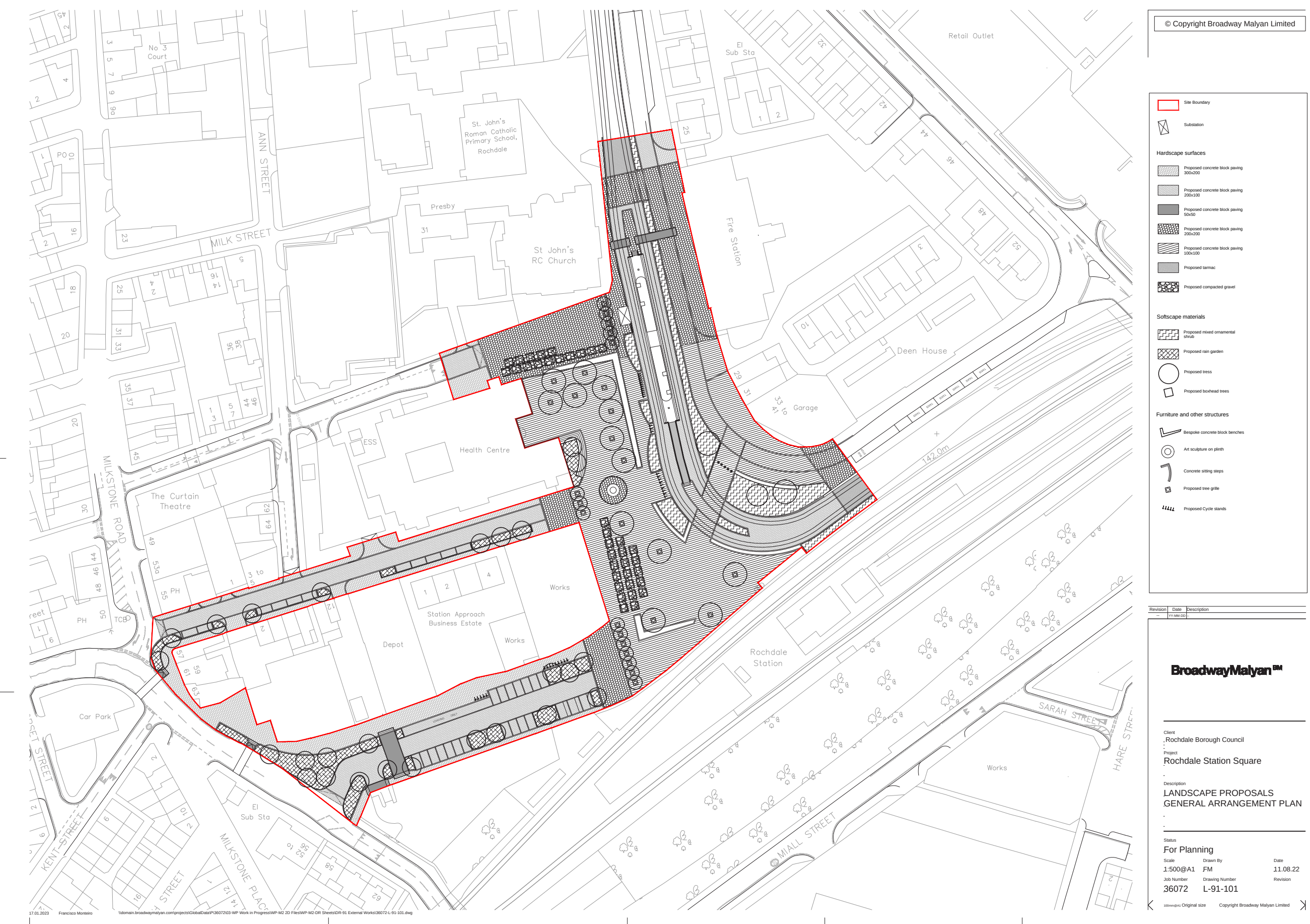
Selected Drawings

The following pages contain a selection of key drawings submitted. A full set of submitted drawings accompanies this Planning Application.

Select Drawings . Site Location Plan



Select Drawings . GA



Engineering Materials

The following pages contain a selection
of Engineering key drawings submitted. .

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INTRODUCTION

This Strategy Note summarises the proposed project strategy in relation to drainage, lighting, utilities, paving and movement for vehicular and non-vehicular traffic.

This information is to be included in Broadway Malyan’s ‘Design Statement’ issued alongside the Levelling up Fund bid. This note has been informed by Swept Path Analysis carried out by WSP, discussions with Rochdale Borough Council, Broadway Malyan, Faithful & Gould, and Rochdale Borough Council/ Rochdale Development Agency’s “Vehicular Access and Movement Strategy’ Note (29th June 2022).

WSP has also provided Baseline Review Technical Note WSP (27th June 2022) which included recommended advisory actions for the project team and Rochdale Borough Council to support the next stage of design. Those identified relating to the movement strategy have been largely addressed in the development of the stage 3 designs however remaining engineering strategy advisory actions are listed at the end of the relevant sub section of this Strategy Note.

Figures supporting this Strategy Note are presented in **Appendix A**.

MOVEMENT STRATEGY

The station square area is characterised by a significant range of land uses including residential, commercial, industrial, and Healthcare; accessed in different ways, at different times of days, by different modes/vehicle types across a diverse range of user groups. The movement strategy for the Stage 3 proposals has therefore been developed primarily to balance the competing access requirements of these users and land uses, whilst achieving the overall Station Square Strategy Vision. The development of the Stage 3 proposals has focused on delivering this strategy whilst ensuring deliverability; taking into consideration stakeholder views, political acceptability, project team feedback and engineering feasibility.

To inform the final movement strategy, RBC identified every property and user impacted by the proposed scheme and recorded:

- Type of property;
- Type of user;
- Type of access;
- Type of vehicle(s);
- Other operational needs;
- Likely timing of access;
- How the Station Square (full vision) impacts their access; and
- The range of options to address and mitigate these needs

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This approach has informed considerations around the physical requirements for access for these users, as well as ensuring that routes maintain an appropriate level of accessibility and convenience; balanced across the area. This approach has also helped identify where some options – particularly to deliver a completely traffic free Station Square – would not be deliverable, due to the absence of alternative access. This strategy therefore represents the best achievable and deliverable solution, taking into account community access needs and the scheme objectives.

The proposed movements strategy is summarised as follows:

- The key principle of the access and movement strategy is to minimise vehicular traffic in and across the square; prioritising safe, comfortable, and coherent pedestrian space to move and dwell. Consequently all but emergency access is prohibited from the square east to west; bisecting Station Road with new areas of public realm (**Figure 70097916-001 and Figure 70097916-002**).
- Richard Street and Station Road will retain their existing one-way arrangement to create the ‘Maclure Road Loop’; a clockwise one way system from the Richard Street/ Drake Street Junction and the Drake Street/ Maclure Road junction (**Figure 70097916-002 to Figure 70097916-005**).
- Vehicular traffic will only be permitted for Buses, Taxis, HGVs associated with Matalan and Argos Retail Park, and Residents (at Fire Station Yard for example). This route would prohibit through movements and maintain a low speed, traffic calmed environment; one in which drivers will feel a guest in a pedestrian-oriented space.
- At Station Road East, a taxi rank will be provided in this location. Bus boarding and alighting will take place in this area; facilitating direct interface between the Rail Station and bus services. An area will also be provided to serve short stay drop/off and collection activity for passengers
- Parking on existing roads such as Lower Tweedale Street and Dowling Street – subject to existing on street parking and loading/unloading – will be better managed and controlled via formalised on street parking bays and loading areas. Street planting will be used to break up continuous sections of parking and footways widths will be maximised where possible in spaces created by these modifications to the streetscene.
- Lower Tweedale Street and Dowling Street would be two-way along their entirety. Turning areas will be provided for us associated with the Nye Bevan House Loading areas and St Francis Church on Dowling Street (**Figure 70097916-005**).
- Access for the mobile testing unit at Nye Bevan House would remain. This would be carried out via Milkstone Road and Lower Tweedale Street.
- Enhanced pedestrian crossing facilities will be provided on Tweedale Street and Milkstone Road to improved connectivity between the Station Square area and communities to the south and west. These changes will signal the arrival into a pedestrian oriented space and support traffic calming on these routes

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ACTIVE TRAVEL STRATEGY

Busy Beeways: Castleton-Rochdale Walking and Cycling Corridor (Phase 2)

Phase 2 of the route Busy Beeways Route linking Castleton to Rochdale is located on the A58 Manchester Road approximately 700m west of Rochdale Station. As part of this scheme cyclists will be protected from general traffic on a dedicated cycle track with a number of junction improvements to provide safe crossing points. This will significantly enhance the safety and convenience of cycling along this corridor and promote trips from communities in the west, along Tweedale Street, to the station. The scheme is due for completion in late 2023. This scheme, alongside the Milkstone and Deeplish Active Neighbourhoods proposal, is presented on **Figure 70097916-006**.

Active Neighbourhoods: Milkstone and Deeplish Active Neighbourhood

TfGM are proposing the development of an ‘Active Neighbourhood in the Milkstone and Deeplish areas of Rochdale. The proposals comprise an area bounded by Drake Street in the north, Manchester Road in the west, the Rochdale Bypass to the south, and Richard Street in the East. The area includes the station itself and the station square. Measures include

The proposed Active Neighbourhood will:

- Reduce traffic speeds and volume
- Create safer routes and attractive areas for local people to enjoy, spend time chatting or for children to play
- Help everyone get around more easily and safely, walking, cycling, and wheeling* especially for short journeys, leaving the car at home
- Improve the area, with more greenery, street art, benches, and lighting

There are a number of elements that are particularly relevant to the Station Square proposals, summarised below. The Station Square proposals have sought to promote synergies with these projects and provide walking and cycling links that strengthen and enhance the opportunities provided by the Active Neighbourhoods and Castleton-Rochdale corridor scheme.

- Enhanced walking route including lighting, dropped kerbs, widened footways, continuous footways and footway parking restrictions
- Tree planting on Tweedale Street
- Improved pedestrian crossing at junction of Milstone Road and Tweedale Street

The proposed walking and cycling proposals are discussed further under the below subheadings.

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Proposals

The Station Square proposals have sought to provide streets that support walking and cycling, and bring people into the square for commuting, business, and leisure purposes. The project team has considered existing infrastructure (**Figure 70097916-006**) and constraints and sought to maximise opportunities presented by the aforementioned scheme, and removal of traffic from the square itself.

Lower Tweedale Street, Dowling Street, and Station Road West would become two-way cul-de-sacs. Their function would be to provide vehicular access only. In doing so, volumes of traffic will be minimised. Parking bays will be provided to minimise the prevalence of footway parking, and space will be provided for cycle parking and planting to make these routes more attractive to pedestrians and cyclists.

At the eastern end of each of these roads, modal filters (e.g. bollards or planters) will be provided to prevent vehicular access but allow pedestrians and cyclists to access the square.

Walking and considerate cycling would be permitted throughout the square itself. Again, modal filters would be provided across the Metrolink tram line between the station and the Maclure Road loop to prevent all but emergency vehicle access and ensure that pedestrian and cycle desire lines are maintained.

These proposals are summarised in **Figure 70097916-008**. A key feature of the cycling strategy is the provision of extensive cycle parking for long and short stay trips throughout the scheme. This is discussed in further detail below.

Parking

Long and short stay parking will be provided through the square to serve a variety of local land uses, including the station. Short stay parking will be located in areas of high surveillance close to local amenities such that they maintain pedestrian desire lines and remain convenient for cyclists. The types of stands could include Sheffield type stands

Existing stands serving the Metrolink platform would be removed. The existing cycle hub outside Nye Bevan house is no longer in use. As part of the proposals, short stay facilities would be located on Dowling Street, serving the pharmacy, and within the square adjacent to Nye Bevan house, to serve the main entrance.

Long stay parking will be provided outside the station in a covered and lockable store. It is anticipated that in the region of 20n0. Cycle parking spaces would be provided. In order to ensure that street clutter is minimise and sufficient space remains for pedestrians outside the station entrance, any further long stay parking for the station would be located within the station building itself.

The proposals, including examples of the types of parking facility, and suggested locations are summarised in **Figure 70097916-007**.

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PARKING STRATEGY

Parking has been located throughout the scheme to maintain, as far as possible, existing provision. Currently, parking is largely controlled by Traffic Regulation Orders (TROs), leading to significant signage requirements, street clutter and reduced pedestrian space.

Existing parking facilities will be retained on Dowling Street. On the southern side of Lower Tweedale Street parking bays will be provided to better manage and control the parking that is required by the local community and businesses. This will in turn create greater areas of footway for planting and cycle parking, as well as reducing carriageway widths to slow vehicle speeds. An existing loading ban TTRO would be retained on the northern side of the carriageway to prevent inconsiderate and obstructive parking and loading and maintain safe access.

At Station Road west, parking will be provided on a link for like basis in the form of perpendicular parking bays. These bays would provide an area of short stay parking serving the station. Bays would be interspersed with cycle parking, planting, and street furniture such as seating.

Disabled parking would be provided at a minimum of 5% of the total parking proposed at Station Road west, in accordance with "*Design Standards for Accessible Railway Stations*" (DfT 2015). This parking would be located on the eastern end of Station Road, at the location closest to the station entrance.

ENGINEERING STRATEGIES

Pavement Construction

Extensive re-surfacing of the scheme area is proposed. It is understood that the majority of surface will be concrete flags for both vehicular and pedestrian areas. Some bituminous surfacing may be used in Station Road and Lower Tweedale Street. Consideration of appropriate skid resistance (PSV) will need to be made through liaison with the highway authority.

To facilitate better pedestrian movement, it is proposed to reduce kerb upstand heights where possible. Discussions with the highway authority have identified that full height (125mm) berk upstand will eb required on the outside of the Station Road East / Maclure Road bend, adjacent to the Metrolink. Further discussion regarding kerb upstands will be needed with the highway authority in due course.

Adjustments to finished levels to suit the proposed layout and amended kerb upstand heights will be required. Wherever possible, levels should be at or above existing levels to limit any full depth re-construction of the pavement. This may not always be feasible and so an assessment of existing pavement construction thicknesses should be carried out through excavation of pavement core samples.

In existing vehicular areas, it is assumed that the current pavement thickness is sufficient as there are no obvious signs of failure. However, in areas which are currently pedestrian only, but are to become

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vehicular, an increase in pavement construction depth is likely to be required. Consequently, it may be necessary to lower/ divert any shallow utilities in these areas.

New pavements constructed from concrete paving units should be designed in accordance with BS 7533-101:2021. However, subject to confirmation of existing pavement construction, this may require full depth re-construction of the pavement to provide a compliant design. To limit cost, the existing pavement foundation may be left in-situ with the upper layers replaced only.

Construction depths will vary across the scheme due to the nature of the existing pavement construction, anticipated vehicle loading, and surface type (flags / slabs / setts, etc). As an initial assessment, in vehicular areas a replacement depth of 200mm (80mm flag, 40mm laying course, and 80mm bituminous binder) is suggested for costing purposes. In nominally pedestrian areas (subject to occasional vehicle overrun), a replacement depth of 150mm (60mm flag, 30mm laying course, and 60mm bituminous base) can be assumed.

Surface Water Drainage

In most areas, the scheme proposals will require relocation of kerbs and channels and thus existing gullies will need to be abandoned and replaced with suitable drainage features to suit the proposed 3D design. A summary of the likely scope of works is provided below.

STATION SQUARE / MACLURE ROAD

- Abandon existing gullies and replace with new gullies / linear drainage channels / combined kerb drains to suit layout and finished levels.
- New connections to public sewers required. Connections could be lengthy.

STATION ROAD

- Abandon existing gullies and replace with new to suit new kerb/channel location.
- Re-use of existing gully tails is likely in most cases, though some new connections to public sewer may be required.
- Adjustment to manhole cover and frames to suit minor amendments to finished levels

LOWER TWEEDALE STREET

- Existing drainage to be retained.
- Adjustment to gully frames and gratings may be required subject to minor level changes (e.g. kerb upstand height)

DOWLING STREET

- Existing drainage to be retained.
- Adjustment to gully frames and gratings may be required subject to minor level changes (e.g. kerb upstand height)

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Sustainable Drainage Systems (SuDS)

The scheme provides an opportunity to introduce SuDS measures to reduce surface water discharge into the receiving public sewerage system as well as improving the water quality of the discharge.

It is not considered feasible to provide a single large attenuation system given the extent of drainage works to re-direct surface water to it, the space required below ground, and maintenance liabilities of such a system. Instead, the introduction of localised areas of soft landscaping can be used to provide small volumes of attenuation and filtration of runoff to improve discharge quality. In some locations they may directly accept runoff from adjacent paved areas (rain gardens) eliminating the need for road gullies.

A detailed SuDS strategy for the scheme should be prepared. However, rain gardens with geocellular storage tanks below are suggested as an appropriate means of maximising the SuDS potential of the scheme. Rain gardens would be lined and may be linked to each other via below ground pipework, with connection into the public sewer. Discussion with the highway authority has indicated that this approach to SuDS may be suitable, subject to further studies.

Utilities

In general, the aim is to limit any impact on utilities from the scheme proposals. The location of tree pits, SuDS and any other deep excavations (e.g. lighting columns, signage, foundations for art installations) should be co-ordinated around existing location of buried services such that diversions are not required.

Changes to finished levels will be required as a result of the scheme proposals. To avoid a reduction in cover to buried utilities, triggering a need for their lowering, finished levels should be at or above existing wherever possible (refer to Pavement Construction above). Utility works would then generally be restricted to adjusting cover and frames to suit finished levels and surfacing. Recessed covers are to be used to better integrate with the landscape scheme, although agreement with utility companies is required due to potential manual handling concerns.

An assessment of utility depths under areas which are currently pedestrian only, but are due to accommodate vehicular traffic should be carried out. It is possible that in such areas, that utility depths are insufficient and lowering / diversion will be required.

New electrical connections will be required for any EV charging points and lighting columns. It is likely that sufficient capacity for this is available within the local network and that points of connection can be found close to the appliance.

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Lighting

A review of the lighting provision throughout the scheme is required. Within the Station Square / Maclure Road area, it is possible a change in lighting class is required due to change in nature of this area towards a pedestrian focus. A summary of likely interventions is provided below:

STATION SQUARE / MACLURE ROAD

- Review lighting strategy. New columns, lanterns and connections to suit revised layout and change in lighting class.
- Some existing lanterns are mounted on support posts for Metrolink overhead cables. These should be retained if possible.

STATION ROAD

- Retain existing column locations (back of footway)
- Replace columns and lanterns if necessary to suit required lighting standards following layout changes.

LOWER TWEEDALE STREET

- Retain existing column locations (back of footway)
- Replace columns and lanterns if necessary to suit required lighting standards following layout changes.

Engineering Strategy: Advisory Actions

It is recommended that the following actions are completed in order to progress designs.

- Assessment of pavement strategy required, considering existing pavement construction depths, traffic loading, preferred surface finishes, utilities, maintenance liability and budget constraints.
- Prepare SuDS strategy.
- Complete utilities survey in missing areas and establish locations / depths where survey information is incomplete.
- Review impact of scheme on utilities.
- Prepare lighting strategy in consultation with RBC.

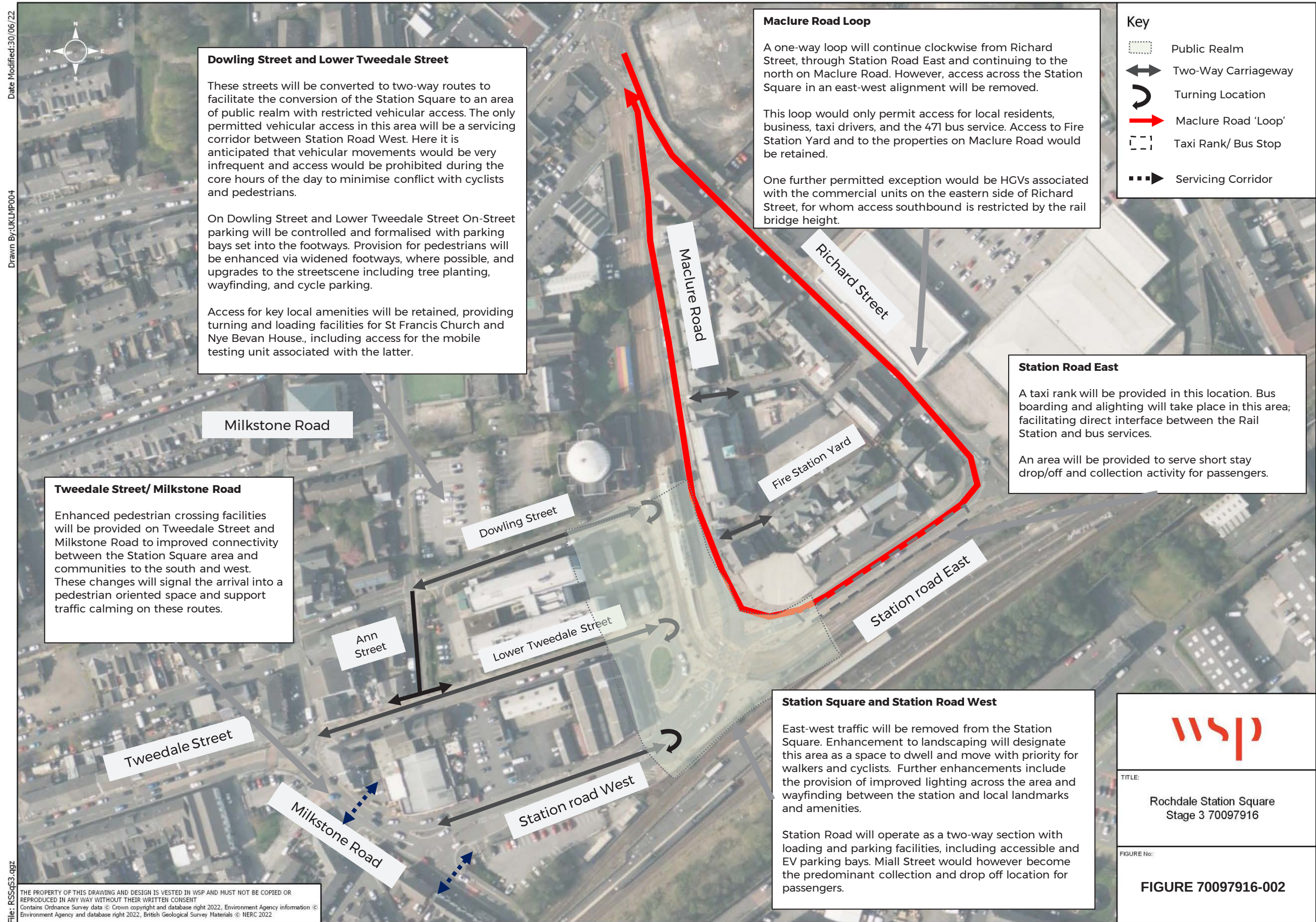
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APPENDIX A: FIGURES

WSP. Engineering Strategy





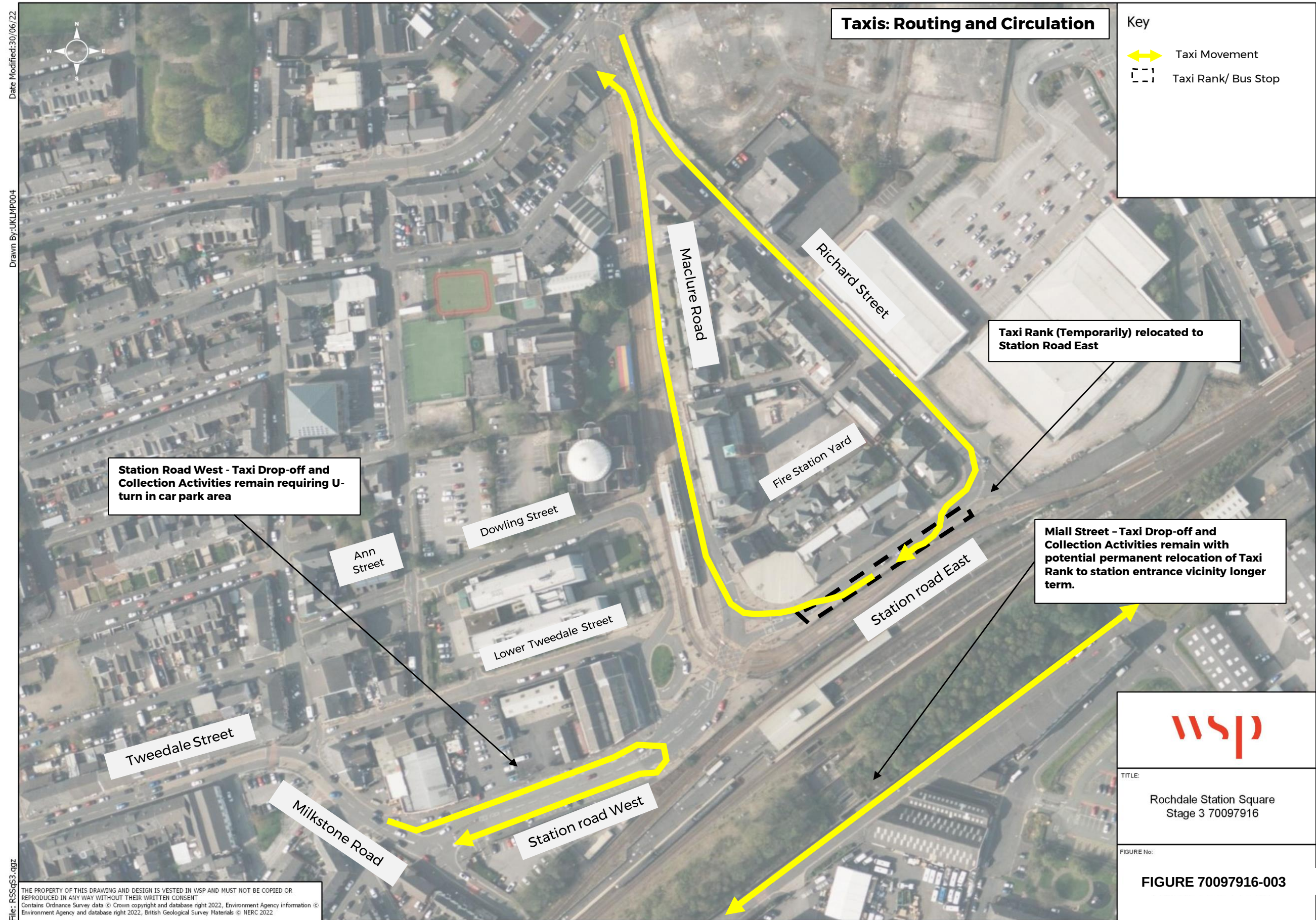
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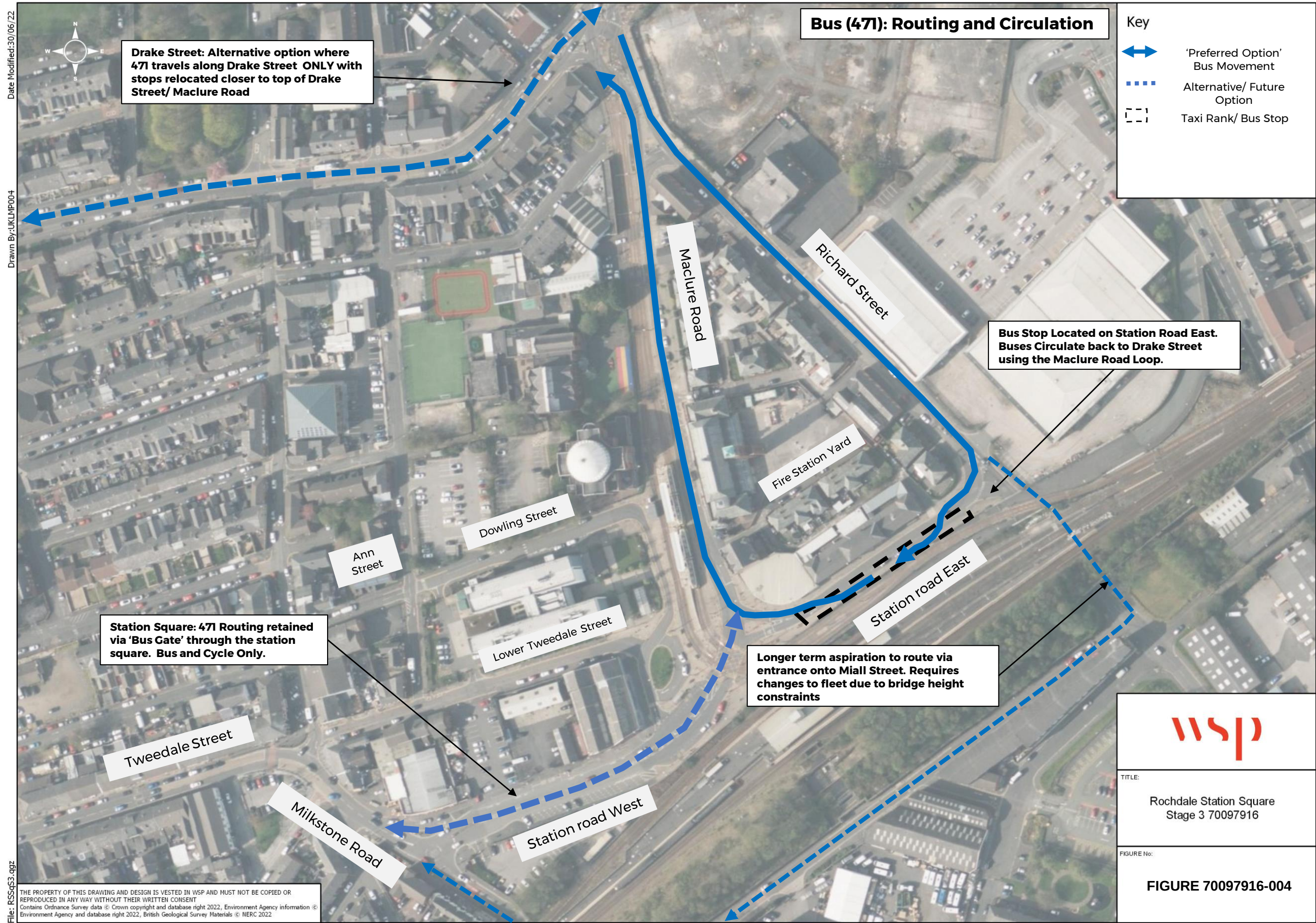
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FIGURE 70097916-002

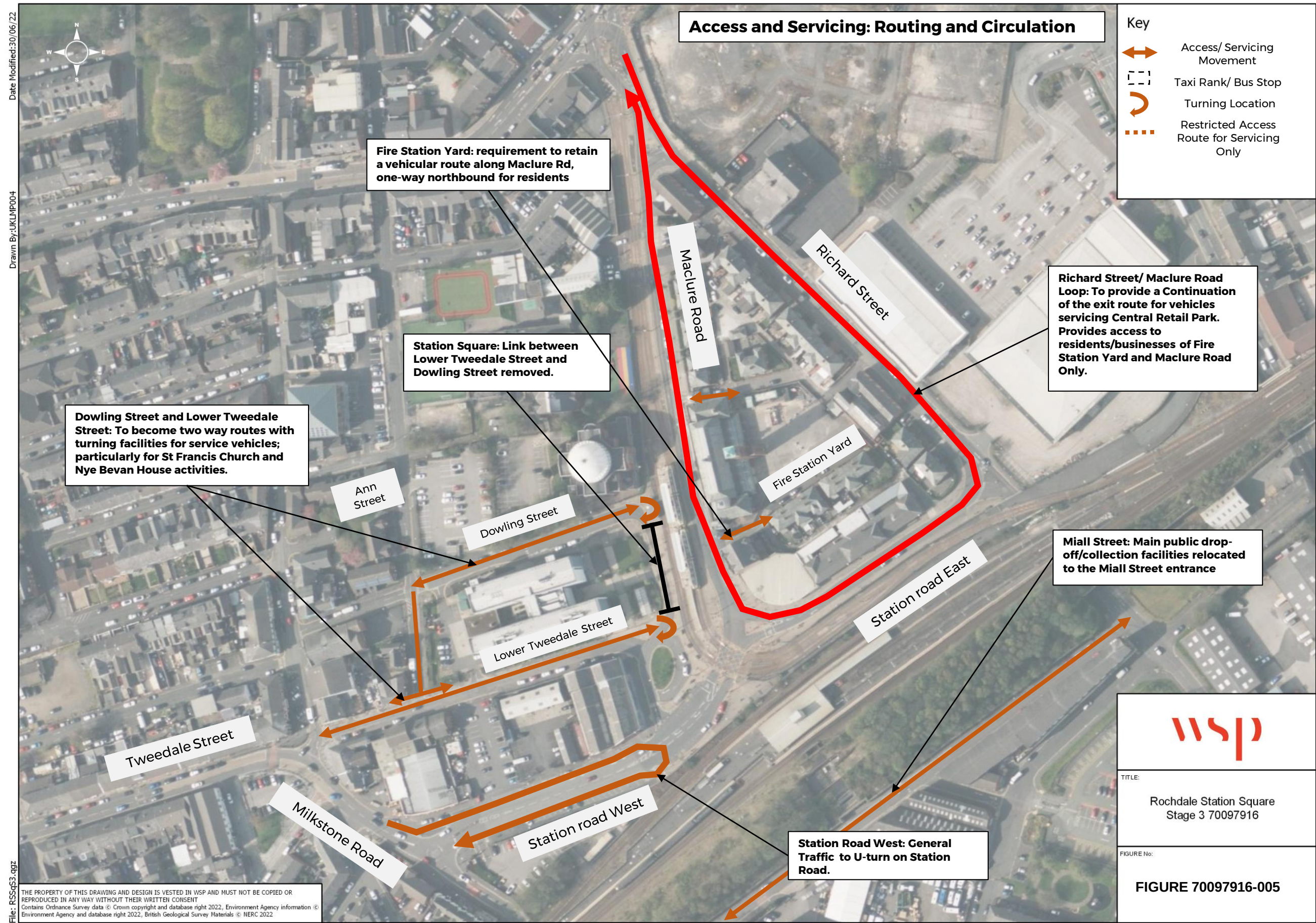
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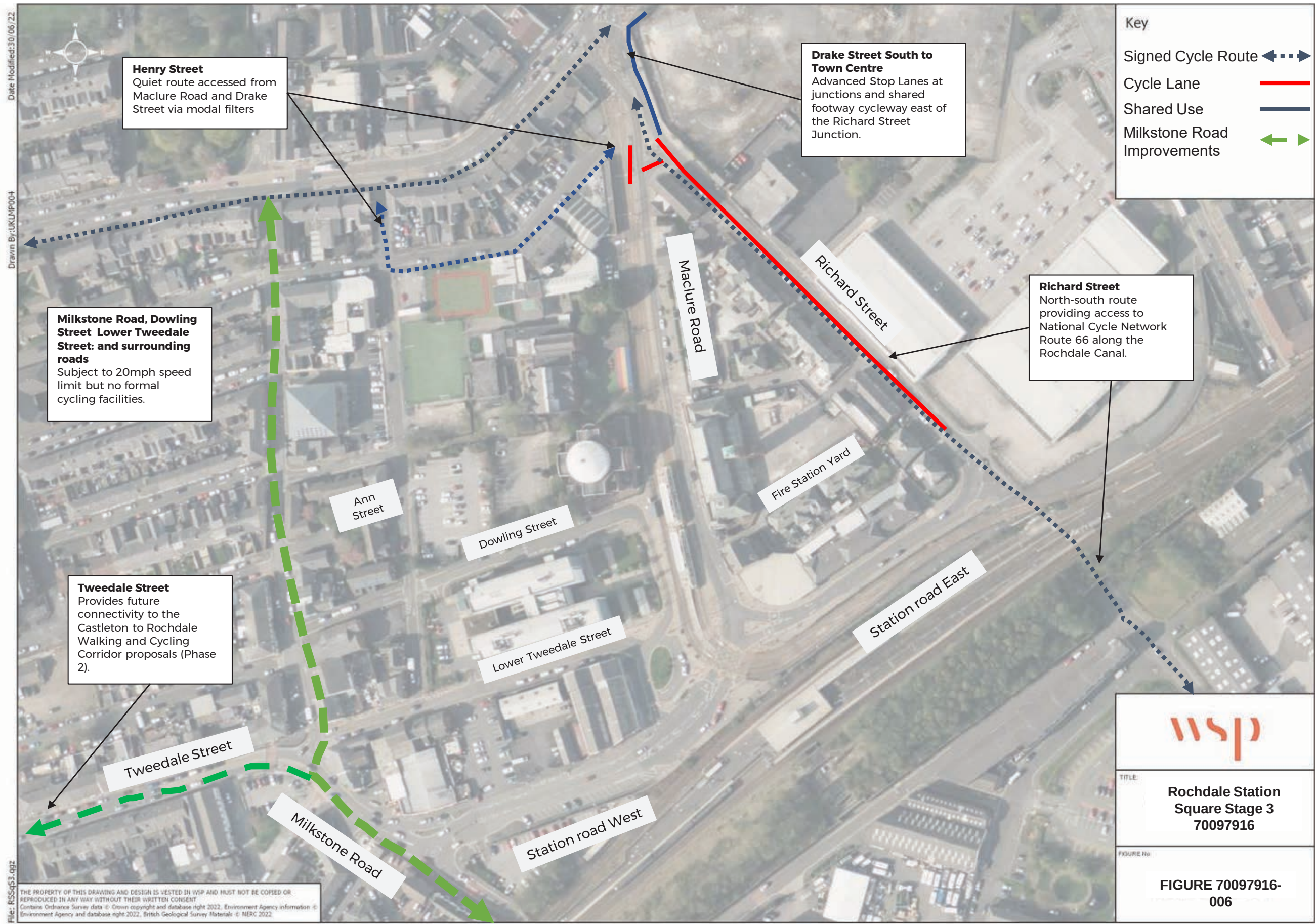
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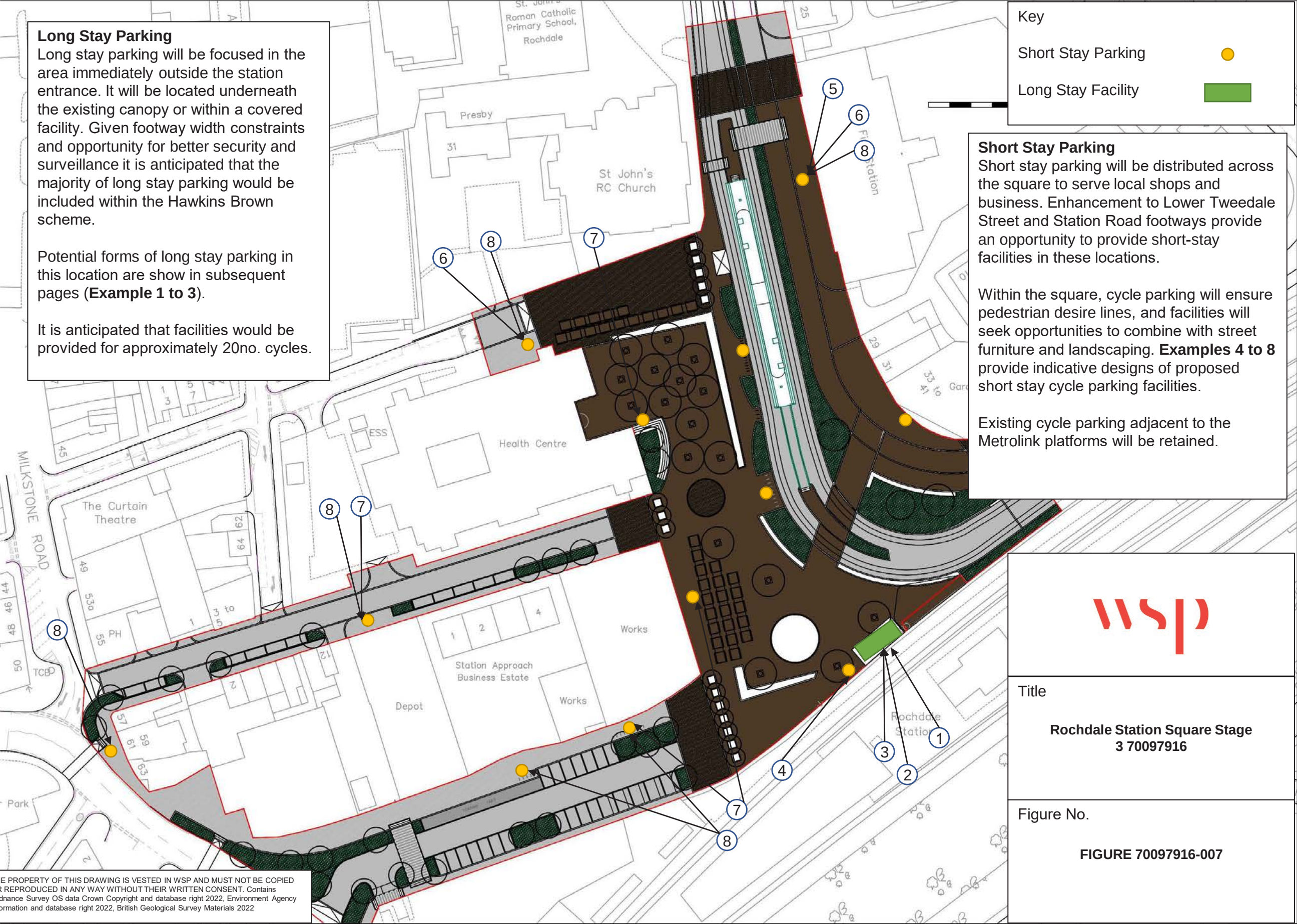


WSP. Engineering Strategy



WSP. Engineering Strategy





WSP. Engineering Strategy

