CANEPARO ASSOCIATES
Transport Planning & Highway Design

Sharpe Refinery Service (Hydro-Carbons) Ltd

Arlington Works, Twickenham

Transport Statement

August 2018

Caneparo Associates Limited
21 Little Portland Street
London W1W 8BT
Tel: 020 3617 8200

www.caneparoassociates.com

Registered in England: 9930032

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1 INTRODUCTION

1.1 Caneparo Associates has been appointed by Sharpe Refinery Service (Hydro-Carbons) Ltd ('the Applicant') to provide traffic and transport advice in relation to their development proposals for the Arlington Works site which is located in St Margarets, within the London Borough of Richmond upon Thames (LBRuT).

1.2 The application site currently contains a number of commercial / industrial tenants including an oil recycling plant and the development proposal seeks the demolition of the existing buildings except the Victorian cottages as they are Buildings of Townscape Merit (BTM) and the redevelopment of the site to provide 24 residential units and 610 sqm of flexible office / commercial floorspace. The Architects layout plans are included at **Appendix A**.

1.3 This report examines the transport related effects of the proposal and considers matters such as accessibility, trip generation, access, parking provision, refuse, and servicing.

1.4 The remainder of this report is structured as follows:

- Section 2 summarises the existing site conditions
- Section 3 details the accessibility of the site via various modes of travel
- Section 4 summarises the relevant transport planning policy
- Section 5 describes the development proposal
- Section 6 assesses the effects of the development proposal
- Section 7 summarises and concludes.

2 EXISTING SITUATION

The Site and Surrounding Area

2.1 The site is located in St Margarets, within a 7-minute walk of St Margarets railway station, and is bound by Arlington Road to the east, railway tracks to the west and residential properties to the north and south. The location of the site is shown at **Figure 1**.

2.2 The site currently contains a number of commercial / industrial tenants including an oil recycling plant. Existing vehicular access to / from the site is provided via Arlington Road.

2.3 The existing site generate a number of vehicle movements per day including HGV movements (existing vehicle movements are set out at **Table 2.1**). Vehicles access / egress the site via St Margarets Road, Rosslyn Road and Arlington Road (HGVs use Ellesmere Road to access the site and Arlington Road to exit).

Local Highway Network

2.4 Arlington Road is a residential two-way single carriageway road located between Ravensbourne Road to the north and Rosslyn Road to the south. In the vicinity of the site, Arlington Road contains a combination of Resident Permit Holder parking bays, combined Voucher Parking and Resident Permit Holder parking bays and single yellow line parking / waiting restrictions.

2.5 Rosslyn Road is a residential two-way carriageway that runs parallel and connects to St Margarets Road to the east and west. Rosslyn Road contains a combination of Resident Permit Holder parking bays, combined Voucher Parking and Resident Permit Holder parking bays and single yellow line parking / waiting restrictions.

2.6 St Margarets Road forms part of the A3004 and is a two-way carriageway located between Richmond Road / Talbot Road to the north and Richmond Road (A305) to the south.

Controlled Parking Zone

2.7 The site is located within Controlled Parking Zone (CPZ) F – East Twickenham. The CPZ is operational Monday to Friday between 10:00 and 16:30. The site also borders CPZ S – St. Margarets South which is also operational Monday to Friday between 10:00 and 16:30.

Parking Beat Survey

2.8 An on-street overnight parking beat survey was undertaken in accordance with the Richmond Methodology, to understand the residential parking characteristics on local roads surrounding the site.

2.9 The survey includes Arlington Close, Ravensbourne Road, Ellesmere Road and Arlington Road. Surveys were undertaken in 2018 on Wednesday 13th June, Friday 15th June and Sunday 17th June at 01:45, 02:45 and 05:00 respectively. A summary of the results is provided in **Table 2.1** while the full survey results are included at **Appendix B**.

Table 2.1: Summary of Parking Beat Survey

Location	Vehicles Parked	Observed Spaces	Parking Demand
Wednesday 13th June 2018			
Arlington Road	56	9	86%
200m Catchment	99	30	77%
Friday 15th June 2018			
Arlington Road	59	9	87%
200m Catchment	111	22	84%
Sunday 17th June 2018			
Arlington Road	56	10	85%
200m Catchment	97	32	75%

2.10 The parking demand has been assessed by taking into consideration the actual number of observed available spaces on-street, as opposed to the calculated available space on street. This approach is considered to provide a robust assessment of parking demand in the local area and a true representation of on-street parking availability.

2.11 Parking demand was comparable for all three survey periods within the survey range with 77% of spaces occupied on Wednesday, 84% of spaces occupied on Friday and 75% of spaces occupied on Sunday. The number of actual available spaces remaining was recorded as 30 spaces, 22 spaces and 32 spaces respectively.

2.12 The results demonstrate that even when demand was highest (on Friday) there was still an acceptable level of available spaces, with 22 remaining spaces and a demand of 84%. This is below the threshold at which LBRuT consider there to be parking stress (85%).

Car Clubs

2.13 Car clubs provide the flexibility of using a private vehicle without the financial and logistic constraints of owning a car. There are several car club bays in the vicinity of the site, the closest bay is on Arlington Road (Zipcar, 210m south from the site).

2.14 Car clubs offer a viable alternative to owning a car for people living / working in the vicinity, particularly for those that require the use of a car infrequently.

Existing Vehicle Activity

2.15 A CCTV camera was installed in order to record movements to / from the site on Tuesday 19th June 2018 from 00:00-24:00. The existing site operations generate vehicle activity throughout a typical working day. A summary of the vehicle activity generated by the existing site is summarised in **Table 2.2**. It is pertinent to note that the applicant has confirmed that the site can generate significantly more vehicle trips than recorded.

2.16 The results demonstrate that the site has two peak hours, with the AM peak at 08:00-09:00 and the PM peak hour at 16:00-17:00. A total of 9 vehicles were recorded entering or exiting the site during the AM peak and 8 vehicles during the PM peak.

Table 2.2: Existing Hourly Vehicle Activity (Two-way)

Time	Vehicles	LGV	OGV1	OGV2	PSV & MTB	Cycle
06:00-07:00	4	1	0	0	0	0
07:00-08:00	2	1	2	0	0	0
08:00-09:00	**3**	**0**	**5**	**1**	**0**	**0**
09:00-10:00	2	4	1	1	0	2
10:00-11:00	6	3	0	1	0	0
11:00-12:00	2	3	0	1	0	0
12:00-13:00	1	1	0	2	0	0
13:00-14:00	3	2	0	0	0	0
14:00-15:00	4	3	0	0	0	0
15:00-16:00	0	2	0	0	0	0
16:00-17:00	6	2	0	0	0	0
17:00-18:00	0	0	0	0	0	0
18:00-19:00	**0**	**0**	**0**	**0**	**0**	**0**
19:00-20:00	0	0	0	0	0	0
Daily	33	22	8	6	0	2

3 ACCESSIBILITY

3.1 The site is accessible by all modes being within walking and cycling distance of a number of local amenities. There are also public transport services in the vicinity of the site, with regular bus routes which run along St Margarets Road. Additionally, there are National Rail services available from St Margarets railway station.

Walking

3.2 A person's willingness to walk is dependent on many factors including: access to a car, safety, road congestion, weather, gradients, parking, health, direction of route, and purpose of journey. It is generally accepted that for journeys of up to 10 minutes' walk time, walking is an appropriate mode to replace car trips and this is set out in the Chartered Institute of Highways and Transport (CIHT) Guidelines.

3.3 In the vicinity of the site, there is a good network of footpaths that benefit from having street lighting columns that are located at regular intervals.

3.4 A summary of the local amenity and public transport services available within convenient walking distances of the site is provided at **Table 3.1**. Walking duration is calculated assuming a walk speed of 80 metres per minute.

Table 3.1: Approximate Distances to Local Amenities

Amenity	Location	Distance (metres)	Approximate Walking Time (minutes)
Public Transport Opportunities			
Bus stops	St Margarets Road, Sandycoombe Road (westbound)	450	6
	St Margarets Road, Rosslyn Road (eastbound)	470	6
St Margarets Rail Station	St Margarets Road, Amyand Park Road	660	8
Local Amenities			
Pharmacy	Crown Road	500	6
Public House	St Margarets Road	500	6
Post Office	St Margarets Road	550	7
Tesco Express	St Margarets Road	650	8

Cycling

3.5 It is generally accepted that 8km (or 5 miles) is an acceptable cycling distance, representing a journey time on average of 30 minutes ("TfL Analysis of Cycling Potential" 2010), although in London, longer journeys are commonplace. Much of southwest London is located within 5 miles of the site, including Richmond, Teddington, Kingston upon Thames and Hampton Court.

3.6 Transport for London (TfL) provides cycle route guidance in the form of cycle maps for different areas. Local Cycling Guide 9 provides information on the cycle routes in the vicinity of the site. Arlington Road, Rosslyn Road, Beaconsfield Road and Park House Gardens are identified by TfL as '*routes signed or marked for use by cyclists on a mixture of quiet or busier roads*'. Additionally, part of St Margarets Road is marked as local '*roads that are recommended by cyclists'*.

Bus Services

3.7 There are six bus routes that operate in the vicinity of the site, with the closest eastbound and westbound bus stops located on St Margarets Road approximately 450 metres and 470 metres south of the site respectively.

3.8 A list of these bus routes, alongside a summary of the frequency of service, is provided in **Table 3.2**.

Table 3.2 Local Bus Services

Route Number	Route	Frequency (in minutes)		
		Weekday Frequency	Saturday Frequency	Saturday Frequency
33	Fulwell – Hammersmith	6-10	7-10	13-17
490	Heathrow T5 – Richmond	8-14	9-13	18-32
H22	Hounslow – North Sheen	11-13	12-13	18-22
H37	Hounslow – Richmond	5-10	6-10	7-17
R68	Hampton Court – Kew	13-17	13-17	13-17
R70	Hampton – North Sheen	9-12	6-10	13-17

Rail Services

3.10 St Margaret's railway station is located approximately 660m from the site (an approximate 8-minute walk). The station is located in Travelcard Zone 4. The typical off-peak service of eight trains per hour all terminating at London Waterloo comprises of:

- 4 direct via Richmond and Clapham Junction
- 2 circuitously via Kingston and Wimbledon
- 2 circuitously via Hounslow.

Public Transport Accessibility Level (PTAL)

3.11 Public Transport Accessibility Levels (PTALs) are a theoretical measure of the accessibility of a given point to the public transport network, taking into account walking time and service availability. The method is essentially a way of measuring the density of the public transport network at a particular point.

3.12 The PTAL is categorised in six levels, 1 to 6 where 6 represents a high level of accessibility and 1 a low level of accessibility. The PTAL levels 1 and 6 are further subdivided into 'a' and 'b' levels, with level 'a' indicating the location is rated towards the lower end of the PTAL category and 'b' towards the higher end.

3.13 According to TfL's web based PTAL calculator, the site has a PTAL of 3 meaning it has an 'average' accessibility to public transport when compared to other London sites. A copy of the site's PTAL Assessment is provided at **Appendix C**.

4 PLANNING POLICY

National Transport Policy

National Planning Policy Framework

4.1 The second National Planning Policy Framework (NPPF) was published in July 2018 and sets out the Government's planning policies for England and how these are expected to be applied.

4.2 Chapter 9 – 'Promoting Sustainable Transport' sets out central government national transport policy.

4.3 The Chapter notes at Paragraph 102 that transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

a) *"The potential impacts of development on transport networks can be addressed*

b) *Opportunities from existing or proposed transport infrastructure, and changing technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated*

c) *Opportunities to promote walking, cycling and public transport use are identified and pursued*

d) *The environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for new environmental gains*

e) *Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places."*

4.4 The Chapter continues at Paragraph 103 by stating *"the planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

4.5 When considering development proposals Paragraph 108 notes that *"in assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

a) Appropriate opportunities to promote sustainable transport modes can be – or have been- taken up, given the type of development and its location

b) Safe and suitable access to the site can be achieved for all users

c) Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree".

4.6 As with the first NPPF, paragraph 109 of the Promoting Sustainable Transport Chapter states: *"development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. Within this context applications for development should:*

a) Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second -so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use

b) Address the needs of people with disabilities and reduced mobility in relation to all modes of transport

c) Create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards

d) Allow for the efficient delivery of goods, and access by service and emergency service vehicles

e) Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."

4.7 The Chapter concludes at Paragraph 111 that *"all developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should*

be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."

Regional Transport Policy

The London Plan

4.8 The London Plan provides policies and advice on matters that are of strategic importance to Greater London. It is a requirement that local policies, as set out in Unitary Development Plans (UDPs) and emerging Local Development Frameworks (LDFs), should be in accordance with it. The transport aspects of the London Plan, relevant to the proposed development, are discussed in the following paragraphs.

4.9 Policy 6.1 Strategic Approach states that:

'The Mayor will work with all relevant partners to encourage the closer integration of transport and development … encouraging patterns and nodes of development that reduce the need to travel, especially by car.'

4.10 Policy 6.13 Parking states that:

'The Mayor wishes to see an appropriate balance being struck between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use.'

Local Transport Policy

Development Management Plan (DMP)

4.11 Richmond's Development Management Plan (DMP) was adopted in November 2011. The DMP includes the detailed policies which are used to determine new development planning applications. The DMP takes forward the Core Strategy's three inter-related themes:

i) A Sustainable Future;

ii) Protecting Local Character; and

iii) Meeting People's Needs.

4.12 Policy DM TP 2: Transport and New Development requires that the impact of new development on the transport network is assessed against other plan policies and transport standards. Planning applications for smaller developments should be accompanied by a Transport Statement and prepared using DfT and TfL guidance.

4.13 Policy DM TP 8: Off Street Parking, notes that developments will have to demonstrate that the new scheme provides an appropriate level of off street parking to avoid an unacceptable impact on on-street parking.

4.14 Provision of on-site parking seeks to strike the balance between providing suitable parking while encouraging the use of more sustainable forms of travel, while the provision of controlled parking on local roads will prevent overspill parking. The proposed parking provision is in accordance with regional planning guidance.

Refuse and Recycling Storage Requirements (RRSR)

4.15 The Refuse and Recycling Storage Requirements document Development was adopted in April 2015.

4.16 The 'access to bin areas section' of the document discusses the operative access, carry / push distances and vehicle access for refuse stores. The document states that *"waste collection operatives should not be required to carry waste sacks, dustbins or move wheeled bins more than 20 metres in total."*

4.17 As further discussed in Section 6 of this document, the proposed refuse store is located within a convenient drag distance for refuse collection operatives.

Local Plan

4.18 The Local Plan was adopted in July 2018.

4.19 Policy LP 45 discusses car parking, and includes the following statement:

'The Council will require new development to make provision for the accommodation of vehicles in order to provide for the needs of the development while minimising the impact of car based travel including on the operation of the road network and local environment, and ensuring making the best use of land.'

5 DEVELOPMENT PROPOSAL

5.1 The proposal envisages the demolition of the existing buildings and the redevelopment of the site to provide 24 residential units and 610sqm (NSA) of replacement commercial floorspace.

5.2 It is worth noting that the proposal seeks to retain the existing terrace style buildings located to the rear of the site which have been identified as 'buildings of townscape merit (BTM)'. The buildings of townscape merit will be refurbished for use as the site's commercial floor space. In keeping with the terrace buildings, an additional commercial unit will be constructed to the south of the site.

5.3 **Table 5.1** sets out the type of residential unit.

Table 5.1 Residential Units Summary	
No. of Beds	**Units**
1 bed	5
2 bed	12
3 bed	7
Total	24

5.4 A copy of the architect's ground floor layout plan has been included at **Appendix A**

Car Parking

5.5 A total of 23 on-site car parking spaces (including three disabled spaces) will be provided on-site; 21 spaces for the residential units and two spaces for the commercial units. Car parking is discussed further within Section 6.

Cycle Parking

5.6 On-site cycle parking will be provided in accordance with London Plan (2016) stands for both commercial floor space (8 spaces) and the residential units (43 spaces).

5.7 The cycle parking is shown on the architect's ground floor layout.

Access

5.8 Vehicle and pedestrian access to the site would be via Arlington Road, as per the existing situation. The proposed vehicle access arrangements and layout enables all deliveries and refuse collection to be undertaken off-street.

5.9 Access is discussed further within Section 6.

6 EFFECTS OF DEVELOPMENT PROPOSAL

6.1 This Section of the report considers the effects of the proposal in terms of trip generation, access, parking and servicing / refuse collection.

Trip Generation

6.2 Given the nature of the existing uses at the development site, the proposed residential use and re-provision of flexible office floor space is anticipated to result in a net benefit for the operation of the local highway network.

Residential

6.3 The TRICS data has been utilised in order to generate a trip generation assessment for the proposed residential units. The TRICS assessment provides a prediction of the number of trips, and associated mode of transport. A summary of the results are shown in **Table 6.1**, while a copy of the TRICS data output is provided at **Appendix D**.

Table 6.1: Summary of Two-way Trip Rate Data (24 Residential Units)

Time Period	Vehicles	Taxis	Cyclists	Pedestrians	Public Transport Users	Total People
AM Peak 08:00-09:00	3	0	0	3	4	11
PM Peak 17:00-18:00	4	0	0	2	2	10

6.4 **Table 6.1** indicates that the trip generating potential of the proposed residential element would be very low and would not be noticeable to other transport users or have a material impact on the operation of local transport. In addition, when compared to existing vehicle activity at the site, as set out in Section 2, the proposed scheme would generate significantly fewer vehicle trips.

Commercial

6.5 Given the scale of the commercial floor space, the number of person movements likely to be generated will be low and will not have any material impact on the operation of the public transport network.

Parking

Residential

6.6 The proposal includes 21 car parking spaces for the 24 residential (0.87 spaces per unit). Given the sites accessibility to public transport, in our view, the provision of 21 parking spaces provides an appropriate balance between enabling adequate parking provision whilst not undermining the use of alternative transport modes.

6.7 In addition, it should be noted that all local roads surrounding the site are subject to on-street parking controls, restricting parking to residential permit holders. The applicant is willing to accept a Condition / legal agreement that will restrict all future residents from applying for an on-street parking permit to park a vehicle on the public highway.

6.8 The controlled on-street parking surrounding the site is operational Monday to Friday between 10:00 and 16:30 and, therefore, it is very unlikely that a resident living at the site could park a car on the adjacent streets and work around the restricted hours (i.e. over a long period of time). However, the parking beat survey set out at Section 2, illustrates that there is sufficient overnight capacity to accommodate overspill parking if this did occasionally occur.

6.9 Furthermore, residents at the site will be provided with two-year car club membership. Zipcar's proposal for the site is included at **Appendix E**. As set out in Section 2 of this report, there are a number of car club vehicles on local roads surrounding the site, include one located on Arlington Road.

Commercial

6.10 The proposal includes two car parking spaces for the commercial units, in line with planning policy.

Parking Changes to the Site Access Road

6.11 The proposal includes changing the parking layout on the site access road, as shown on the architects plans provided at **Appendix A**.

6.12 The changes facilitate seven parking spaces for the residential element and five spaces that will be provided to the adjacent site (Twickenham Studios) who currently use some of the existing parking spaces on the site access road.

Servicing and Refuse Collection

6.13 Commercial and residential refuse and recycling will be stored in separate designated storage areas.

6.14 All refuse collection and deliveries will be accommodated off-street, with vehicles entering and exiting the development site in forward gear, in accordance with best practice guidance. Swept path analysis provided at **Appendix F** illustrates the Council's large refuse vehicle entering and exiting the site.

6.15 Research suggests that residential developments generate approximately 15 deliveries per 100 units, per day. Accordingly, the proposed 24 units are predicted to generate four deliveries each day.

6.16 Research suggests that commercial floor space generates approximately 0.22 servicing trips per 100sqm per day. Accordingly, the proposed 610sqm of commercial floor space is predicated to generate two deliveries each day.

6.17 In total, the site will generate a total of 6 deliveries per day.

7 SUMMARY AND CONCLUSION

Summary

7.1 Caneparo Associates has been appointed by Sharpe Refinery Service (Hydro-Carbons) Ltd ('the Applicant') to provide traffic and transport advice in relation to their development proposals for the Arlington Works site which is located in St Margarets, within the London Borough of Richmond upon Thames (LBRuT).

7.2 The application site currently contains a number of commercial / industrial tenants including an oil recycling plant and the development proposal seeks the demolition of the existing buildings except the Victorian cottages as they are Buildings of Townscape Merit (BTM) and the redevelopment of the site to provide 24 residential units and 610 sqm of flexible office / commercial floorspace.

7.3 The proposal has been assessed taking into consideration policy and existing conditions and can be summarised as follows;

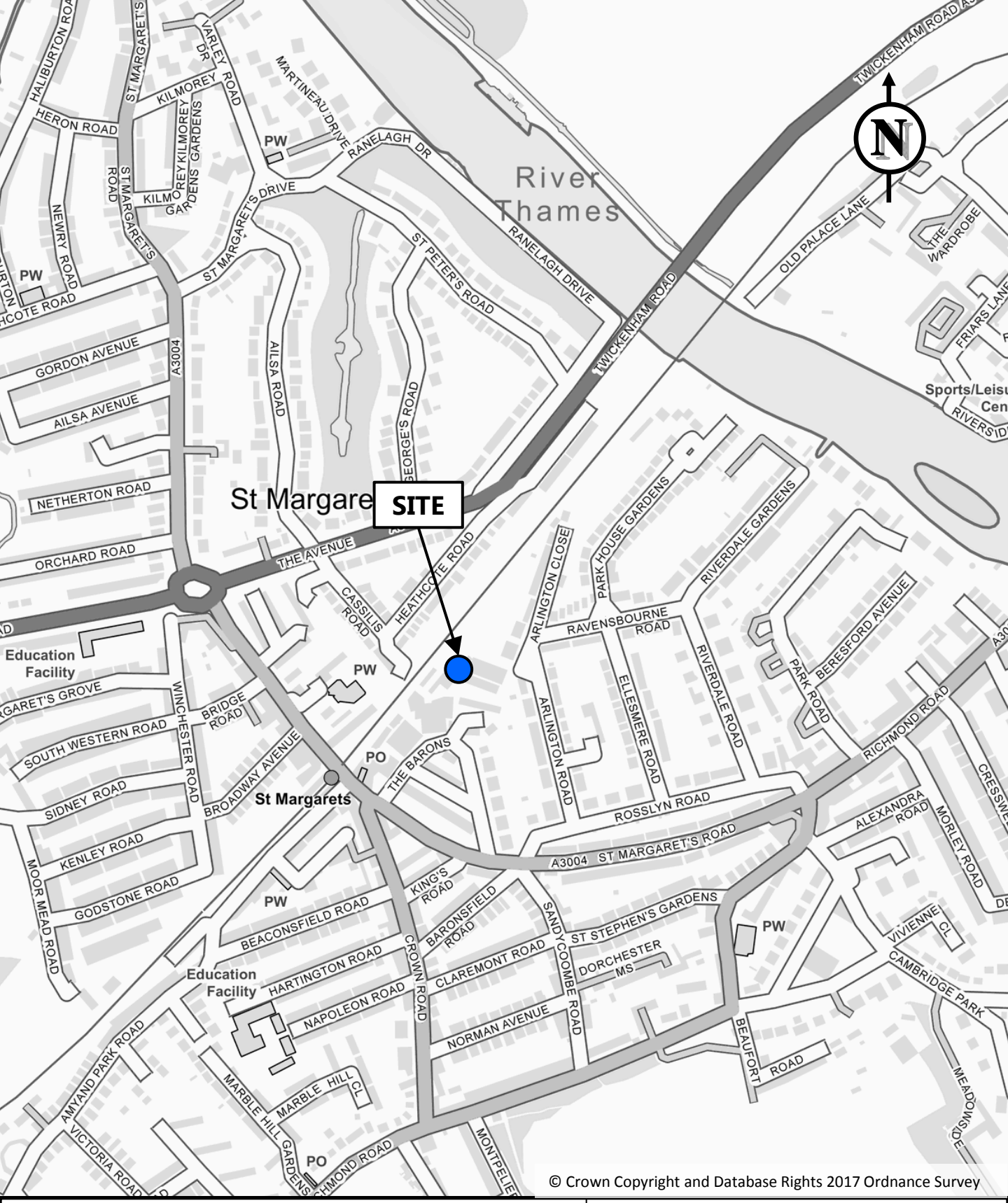
- Given the scale of the residential and commercial floor space, the number of person movements likely to be generated will be low and will not have any material impact on the operation of the public transport networks
- When compared to existing vehicle activity at the site, the proposed scheme would generate fewer vehicle trips and therefore the proposal will have a beneficial impact on the local highway network
- The proposal includes 21 on-site car parking spaces for the 24 residential (0.87 spaces per unit). Given the sites accessibility to public transport, in our view, the provision of 21 parking spaces provides an appropriate balance between enabling adequate parking provision whilst not undermining the use of alternative transport modes.
- The proposal includes two car parking spaces for the commercial units, in line with planning policy.
- The applicant is willing to accept a Condition / legal agreement that will restrict all future residents from applying for an on-street parking permit to park a vehicle on the public highway. Therefore, future residents would not be able to park on-street on the roads surrounding the site.

- Each residential unit at the site will be provided with two-year car club membership;
- Cycle parking will be provided in accordance with London Plan (2016) standards;
- The site's refuse storage and collection strategy is in accordance with best practice guidance; and,
- Delivery and servicing activities will be undertaken off-street, with suitable manoeuvring space provided for vehicles to turn on-site.

Conclusion

7.4 In conclusion, it is considered that the development proposal is appropriate for the location, will have no net improvement for the operation of the local highway network, and is in accordance with relevant adopted national, regional and local policy guidance.

Figures



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TITLE:

Site Location Plan

PROJECT:

Arlington Works

CLIENT:

Sharpe Refinery Service (Hydro-Carbons) Ltd

CANEPARO ASSOCIATES
Transport Planning & Highway Design
21 Little Portland Street
London W1W 8BT
Tel: 020 3617 8200
www.caneparoassociates.com
Registered in England: 9930032

DRAWN:	CHECKED:	DATE:	SCALE:
L.D	P.C	08.06.2018	NTS

DRAWING REFERENCE: Figure 1

Appendix A

Architect's Layout Plans

Do not scale from this drawing

Car Parking

Site PTAL: 3

Site Density: 79.2 units/ha

Average Unit has 3 Habitable Rooms

Table 6.2 of The London Plan (MALP) March 2016 - Urban setting requires up to 1 space per unit as per car parking standards matrix

Refuse and Recycling Storage

Commercial
2.6 cubic meters per 1,000m²
= 1.7 cubic meters (1 x 1,100l eurobin)

Residential
70l per bedroom refuse + 2 x 1,100l recycling
= 5630l (6 x 1,100l eurobin)

Cycle Storage

Commercial
1 per 90m² + 1 per 500m² (visitor)
= 8 cycles

Residential
1 per 1 bed unit + 2 per 2 bed unit + 1 per 40 units (visitor)
= 42 cycles

1 Proposed - Ground Floor Site Plan
1 : 200

Area Schedule - Commercial			
Level	Type	GIA (m²)	GIA (ft²)
C1			
00 - Ground Floor	Office / Commercial	67 m²	716 ft²
01 - First Floor	Office / Commercial	67 m²	716 ft²
C2			
00 - Ground Floor	Office / Commercial	67 m²	720 ft²
01 - First Floor	Office / Commercial	67 m²	720 ft²
C3			
01 - First Floor	Office / Commercial	67 m²	716 ft²
00 - Ground Floor	Office / Commercial	67 m²	716 ft²
C4			
00 - Ground Floor	Office / Commercial	67 m²	725 ft²
01 - First Floor	Office / Commercial	67 m²	725 ft²
C5			
00 - Ground Floor	Office / Commercial	38 m²	405 ft²
01 - First Floor	Office / Commercial	38 m²	405 ft²
Total		610 m²	6566 ft²

Area Schedule - Residential					
Number	Type	No beds	No persons	NSA (m²)	NSA (ft²)
Unit 1	Residential	2	3	74 m²	797 ft²
Unit 2	Residential	2	3	62 m²	667 ft²
Unit 3	Residential	2	3	62 m²	667 ft²
Unit 4	Residential	1	2	51 m²	545 ft²
Unit 5	Residential	3	4	76 m²	819 ft²
Unit 6	Residential	3	4	76 m²	823 ft²
Unit 7	Residential	1	2	51 m²	545 ft²
Unit 8	Residential	2	4	76 m²	822 ft²
Unit 9	Residential	2	4	76 m²	822 ft²
Unit 10	Residential	1	2	51 m²	545 ft²
Unit 11	Residential	3	4	76 m²	819 ft²
Unit 12	Residential	3	4	76 m²	823 ft²
Unit 13	Residential	1	2	51 m²	545 ft²
Unit 14	Residential	2	4	76 m²	822 ft²
Unit 15	Residential	2	4	76 m²	822 ft²
Unit 16	Residential	1	2	51 m²	545 ft²
Unit 17	Residential	3	4	76 m²	819 ft²
Unit 18	Residential	2	3	72 m²	776 ft²
Unit 19	Residential	2	3	71 m²	769 ft²
Unit 20	Residential	2	4	78 m²	840 ft²
Unit 21	Residential	2	3	62 m²	672 ft²
Unit 22	Residential	2	3	62 m²	672 ft²
Unit 23	Residential	3	4	101 m²	1088 ft²
Unit 24	Residential	3	4	101 m²	1088 ft²
Total Units: 24				1686 m²	18149 ft²

Area Schedule (Total Residential GIA)	
GIA (m²)	GIA (ft²)
2109 m²	22701 ft²

Site Area Approx. 3030m²

All areas are approximate

PLANNING

Rev	Description	Issued	Dwn	Chk
A	Planning Issue	30/07/2018	PF	CH

Client
Sharpe Refinery Service Ltd.

Project
Redevelopment of:
Arlington Works
Twickenham TW1 2BB

Drawing
PROPOSED
Mixed Use Scheme
Ground Floor Site Plan

Scale	Date	Drawn	Checked
1 : 200@A1	30/07/18	PF	CH

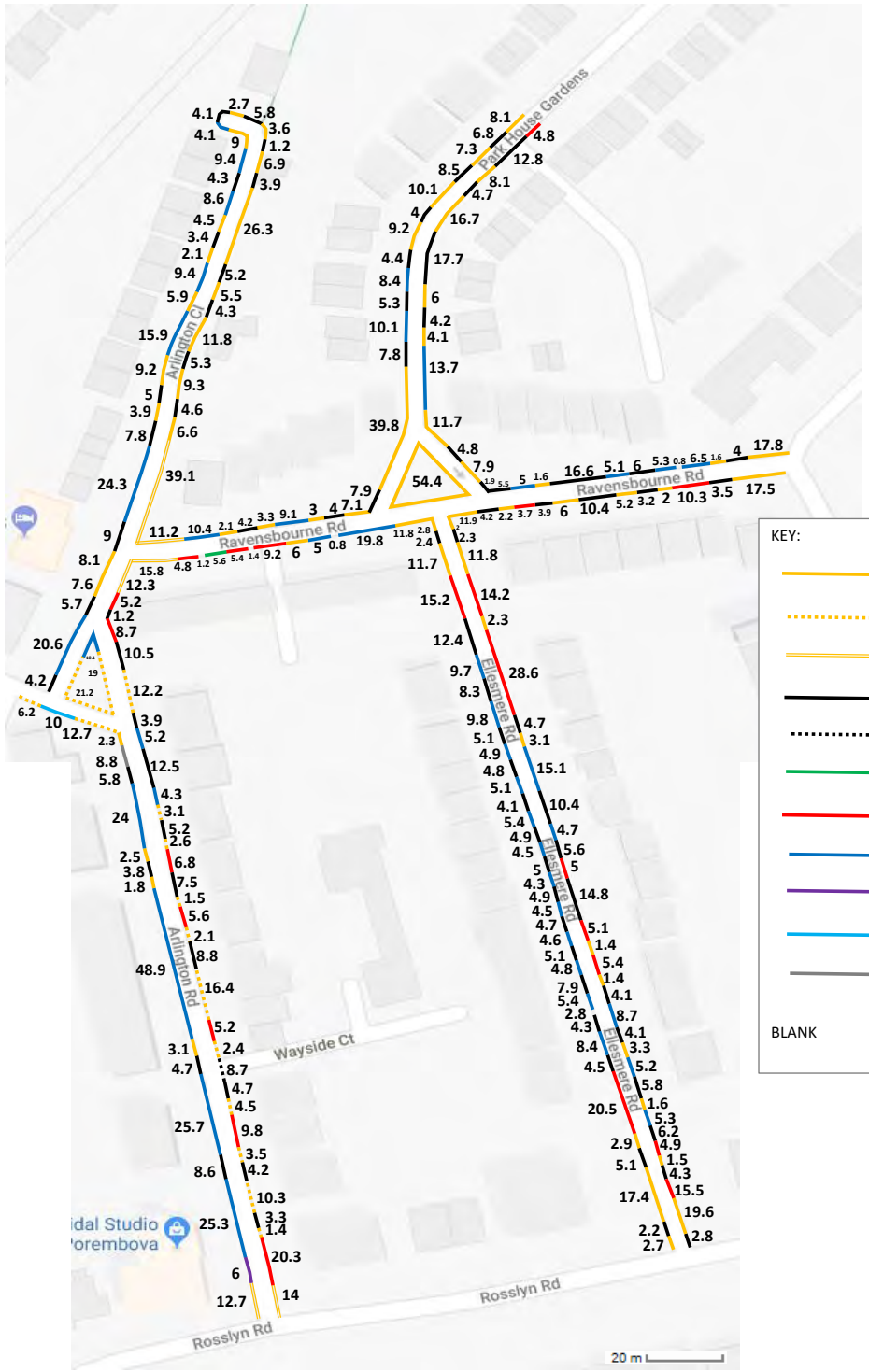
BrookesArchitects
Upstairs at The Grange
Bank Lane, London SW15 5JT
T 020 8487 1223
F 020 8876 4172
E info@brookesarchitects.co.uk
www.brookesarchitects.co.uk

4786	3	10	Rev. No. A

Appendix B

Parking Beat Survey


9
Park House Gardens
13
8
Arlington Cl
10
12
15
14
11
Ravensbourne Rd
Ravensbourne Rd
16
2
7
6
5
Ellesmere Rd
3
17
1
Arlington Rd
4
Wayside Ct
Ellesmere Rd
Rosslyn Rd
Rosslyn Rd
20 m



KEY:

= SINGLE YELLOW LINE

= SINGLE YELLOW LINE MON-FRI 0700-1900 SAT 0700-1300

= DOUBLE YELLOW LINE

= DROPPED KERB

= DROPPED KERB ACCESS

= DISABLED BAY

= VOUCHER PARKING 4 HOUR & RESIDENT PERMIT HOLDER ONLY MON-FRI 1000-1630 BUY VOUCHER FROM SHOPS

= RESIDENT PERMIT HOLDER

= CAR CLUB RESIDENT PERMIT HOLDER ONLY AT ANY TIME

= RESIDENT PERMIT HOLDER MON-FRI 1000-1630

= RESIDENT PERMIT HOLDER ONLY ON PATH

BLANK = UNRESTRICTED

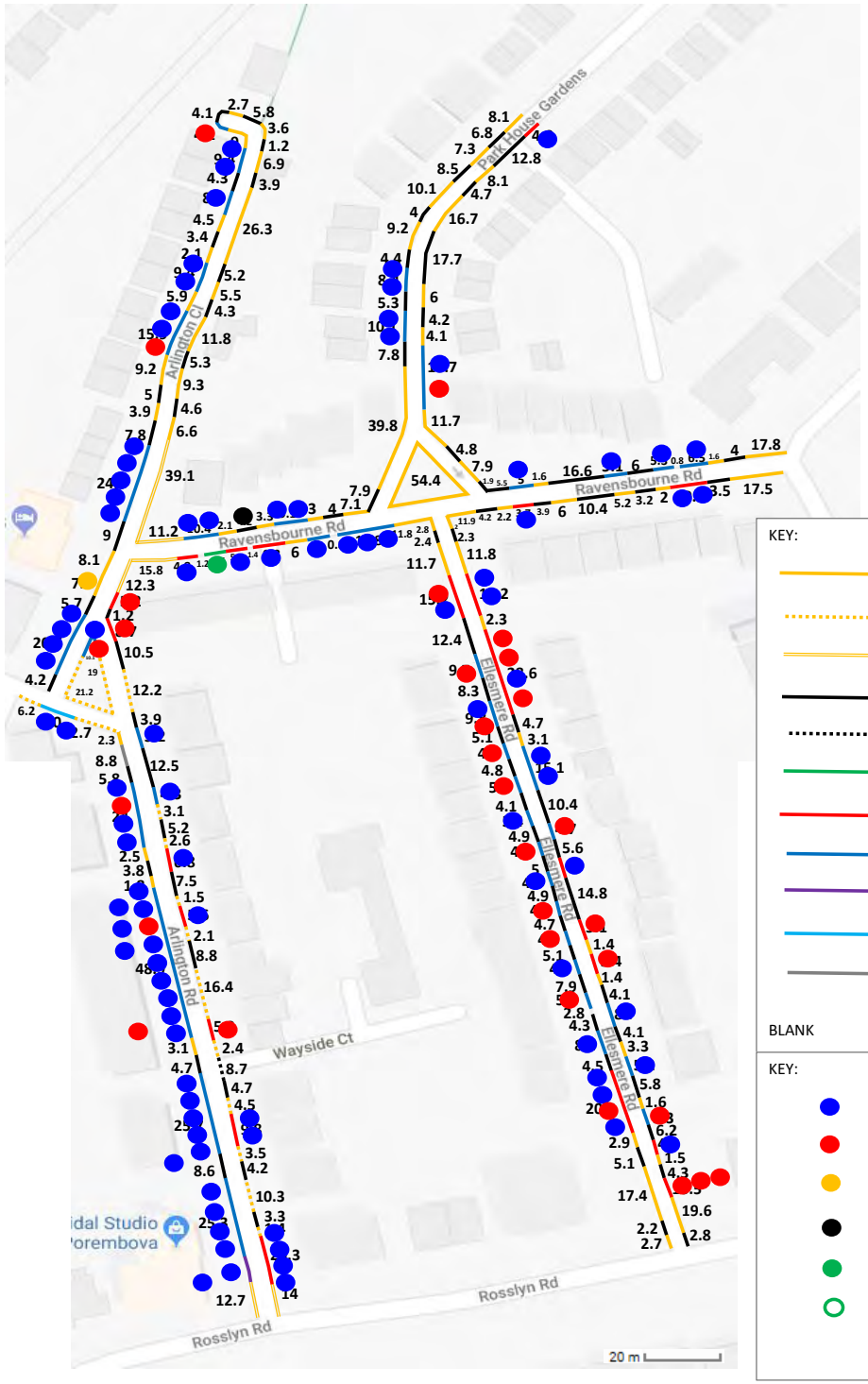
K&M TRAFFIC SURVEYS

DATE : 13th & 15th & 17th JUNE 2018

DAY : WEDNESDAY, FRIDAY AND SUNDAY

LOCATION : RAVENSBOURNE RD, ST MARGARETS, TWICKENHAM.

					WEDNESDAY 13th JUNE 2018			FRIDAY 15th JUNE 2018			SUNDAY 17th JUNE 2018		
					TIME : 0145			TIME : 0245			TIME : 0500		
ROAD NAME	ZONE	RESTRICTION	METRES	5 METRES = 1 SPACE (includes marked bays of less than 5metres)	PARKED	OBSERVED SPACES	%STREET STRESS	PARKED	OBSERVED SPACES	%STREET STRESS	PARKED	OBSERVED SPACES	%STREET STRESS
ELLESMERE RD	1	SINGLE YELLOW LINES	42.9										
		DROP KERB	85.7										
		A) MON-FRI 1000-1630 VOUCHER PARKING 4HR& RESIDENT PERMIT HOLDER ONLY-BUY VOUCHER FROM SHOPS	35.7	7	4	2	66.7%	4	2	66.7%	2	4	33.3%
		B) RESIDENT PERMIT HOLDER ONLY	66	11	5	8	38.5%	8	4	66.7%	7	6	53.8%
		UNRESTRICTED	2.8										
RAVENSBOURNE RD	2	SINGLE YELLOW LINES	17.8										
		B) RESIDENT PERMIT HOLDER ONLY	24.8	4	4	0	100.0%	4	0	100.0%	4	0	100.0%
		UNRESTRICTED	3.4										
		DISABLED BAY	5.6	1	1	0	100.0%	1	0	100.0%	1	0	100.0%
		DOUBLE YELLOW LINES	15.8										
		A) MON-FRI 1000-1630 VOUCHER PARKING 4HR& RESIDENT PERMIT HOLDER ONLY-BUY VOUCHER FROM SHOPS	19.4	3	3	0	100.0%	3	1	75.0%	2	2	50.0%
ARLINGTON RD	3	DOUBLE YELLOW LINES	26.3					1					
		A) MON-FRI 1000-1630 VOUCHER PARKING 4HR& RESIDENT PERMIT HOLDER ONLY-BUY VOUCHER FROM SHOPS	61.6	10	8	3	72.7%	8	3	72.7%	8	3	72.7%
		MON-FRI 7-7 SAT 7-1PM SINGLE YELLOW LINES	61.2										
		B) RESIDENT PERMIT HOLDER ONLY	9.5	2	2	0	100.0%	2	0	100.0%	2	0	100.0%
		DROP KERB	60.6										
		ACCESS DROP KERB	8.7										
	4	DOUBLE YELLOW LINES	12.7										
		C)CAR CLUB PERMIT HOLDER ONLY AT ANY TIME	6	1	1	0	100.0%	1	0	100.0%	0	1	0.0%
		B) RESIDENT PERMIT HOLDER ONLY	123.9	23+6 on path	25	3	89.3%	27	2	93.1%	26	3	89.7%
		DROP KERB	22.9										
		SINGLE YELLOW LINES	9.7										
	5	MON-FRI 7-7 SAT 7-1PM SINGLE YELLOW LINES	18.9										
		D) RESIDENT PERMIT HOLDER MON-FRI 10-1630	10	2	2	0	100.0%	2	0	100.0%	2	0	100.0%
	6	MON-FRI 7-7 SAT 7-1PM SINGLE YELLOW LINES	23.1										
		B) RESIDENT PERMIT HOLDER ONLY	10.1	2	1	1	50.0%	2	0	100.0%	2	0	100.0%
	7	DROP KERB	9.9										
		B) RESIDENT PERMIT HOLDER ONLY	20.6	4	4	0	100.0%	3	1	75.0%	4	0	100.0%
		SINGLE YELLOW LINES	7.6		1						1		
	8	SINGLE YELLOW LINES	33.7										
		DROP KERB	29.5					1					
		B) RESIDENT PERMIT HOLDER ONLY	67.6	10	12	1	92.3%	11	2	84.6%	11	0	100.0%
	9	NOSE IN PARKING-RESIDENT PERMIT HOLDER ONLY	4.1	1	0	1	0.0%	1	0	100.0%	0	1	0.0%
		DROP KERB	11.1										
		SINGLE YELLOW LINES	15.3										
	10	SINGLE YELLOW LINES	66.4										
		DROP KERB	23.3										
		DOUBLE YELLOW LINES	39.1										
RAVENSBOURNE RD	11	DOUBLE YELLOW LINES	11.2										
		B) RESIDENT PERMIT HOLDER ONLY	19.5	3	4	0	100.0%	4	0	100.0%	4	0	100.0%
		SINGLE YELLOW LINES	15.5					1					
		DROP KERB	8.2		1								
PARK HOUSE GARDENS	12	DROP KERB	44.7										
		SINGLE YELLOW LINES	74.5										
		B) RESIDENT PERMIT HOLDER ONLY	18.5	3	4	0	100.0%	4	0	100.0%	4	0	100.0%
	13	A) MON-FRI 1000-1630 VOUCHER PARKING 4HR& RESIDENT PERMIT HOLDER ONLY-BUY VOUCHER FROM SHOPS	4.8	1	1	0	100.0%	1	0	100.0%	1	0	100.0%
		DROP KERB	46.1										
		SINGLE YELLOW LINES	54.5										
		B) RESIDENT PERMIT HOLDER ONLY	13.7	2	1	1	50.0%	2	0	100.0%	2	0	100.0%
	14	SINGLE YELLOW LINES	54.4										
RAVENSBOURNE RD	15	DROP KERB	32.1										
		B) RESIDENT PERMIT HOLDER ONLY	21.9	4	4	0	100.0%	4	0	100.0%	4	0	100.0%
		SINGLE YELLOW LINES	21										
		UNRESTRICTED	0.8										
	16	SINGLE YELLOW LINES	44.8										
		DROP KERB	25.2										
		A) MON-FRI 1000-1630 VOUCHER PARKING 4HR& RESIDENT PERMIT HOLDER ONLY-BUY VOUCHER FROM SHOPS	14	3	3	0	100.0%	2	1	66.7%	3	0	100.0%
ELLESMERE RD	17	SINGLE YELLOW LINES	48										
		DROP KERB	65.1										
		A) MON-FRI 1000-1630 VOUCHER PARKING 4HR& RESIDENT PERMIT HOLDER ONLY-BUY VOUCHER FROM SHOPS	78.7	14	5	8	38.5%	10	4	71.4%	5	8	38.5%
		B) RESIDENT PERMIT HOLDER ONLY	39	7	4	2	66.7%	4	2	66.7%	2	4	33.3%



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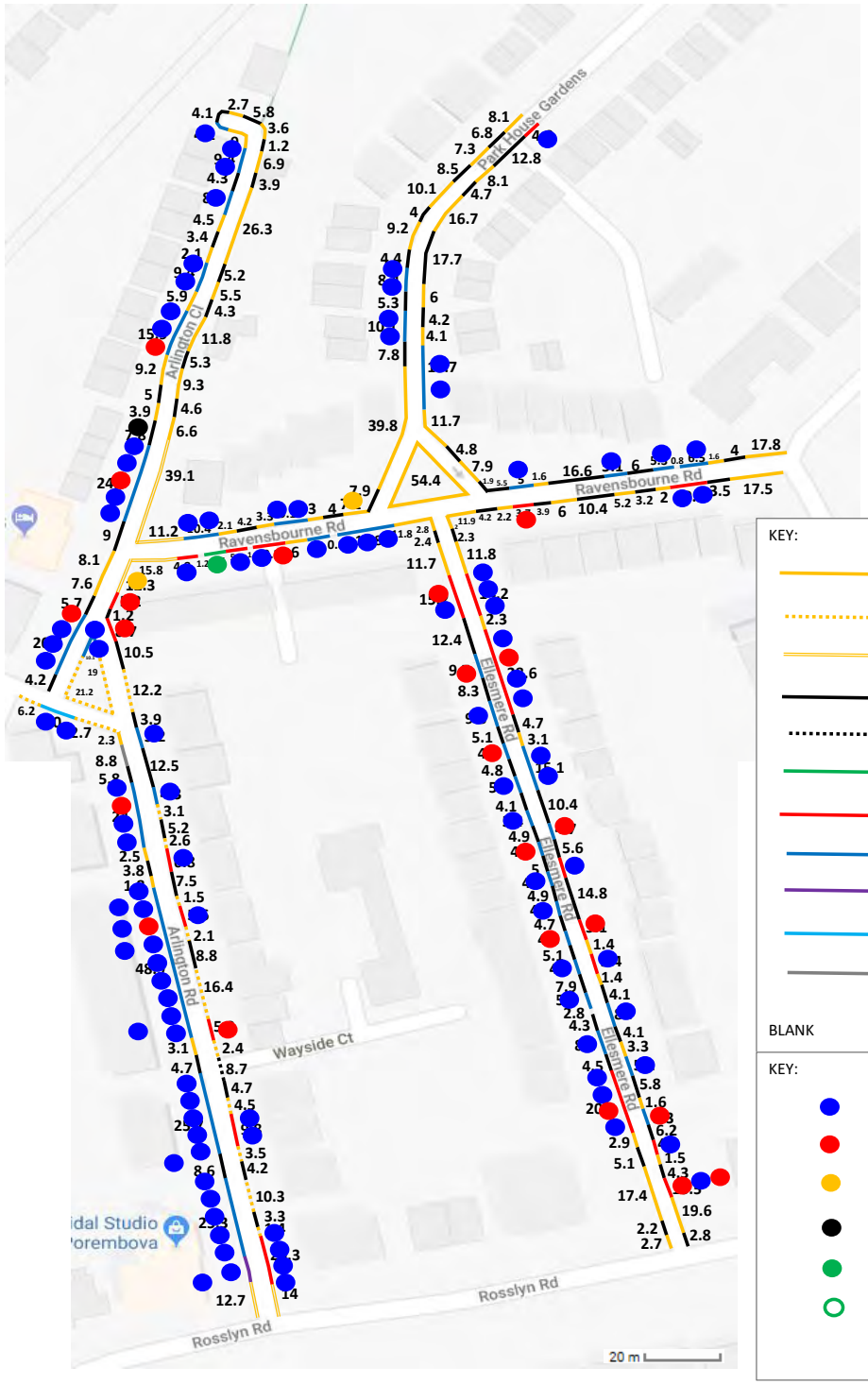
- = RESIDENT PERMIT HOLDER ONLY ON PATH

BLANK = UNRESTRICTED

KEY:

- = PARKED VEHICLE
- = OBSERVED SPACE
- = YELLOW LINES
- = DROPPED KERB
- = DISABLED BAY (OCCUPIED)
- = DISABLED BAY (SPACE)



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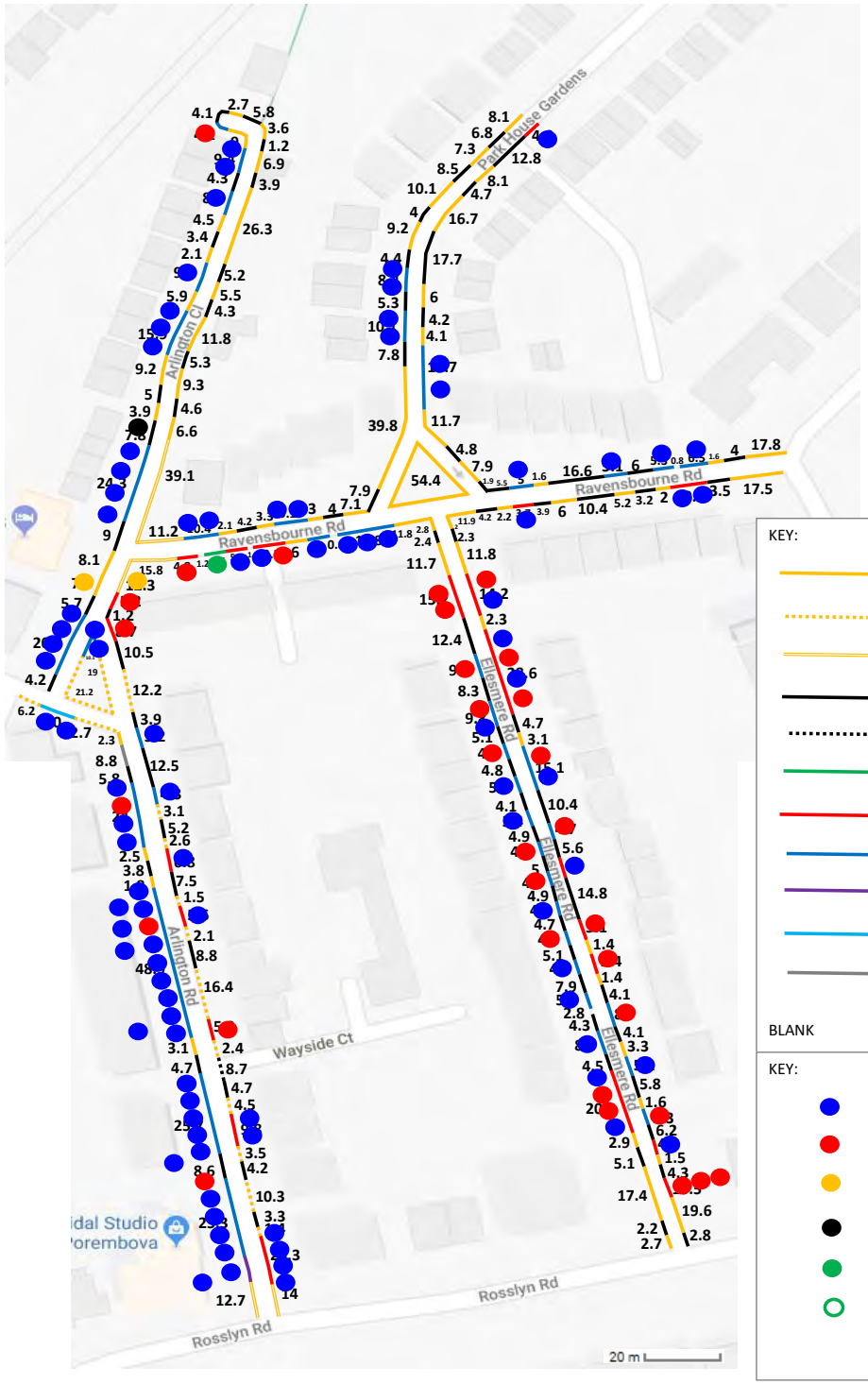

KEY:

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BLANK = UNRESTRICTED

KEY:

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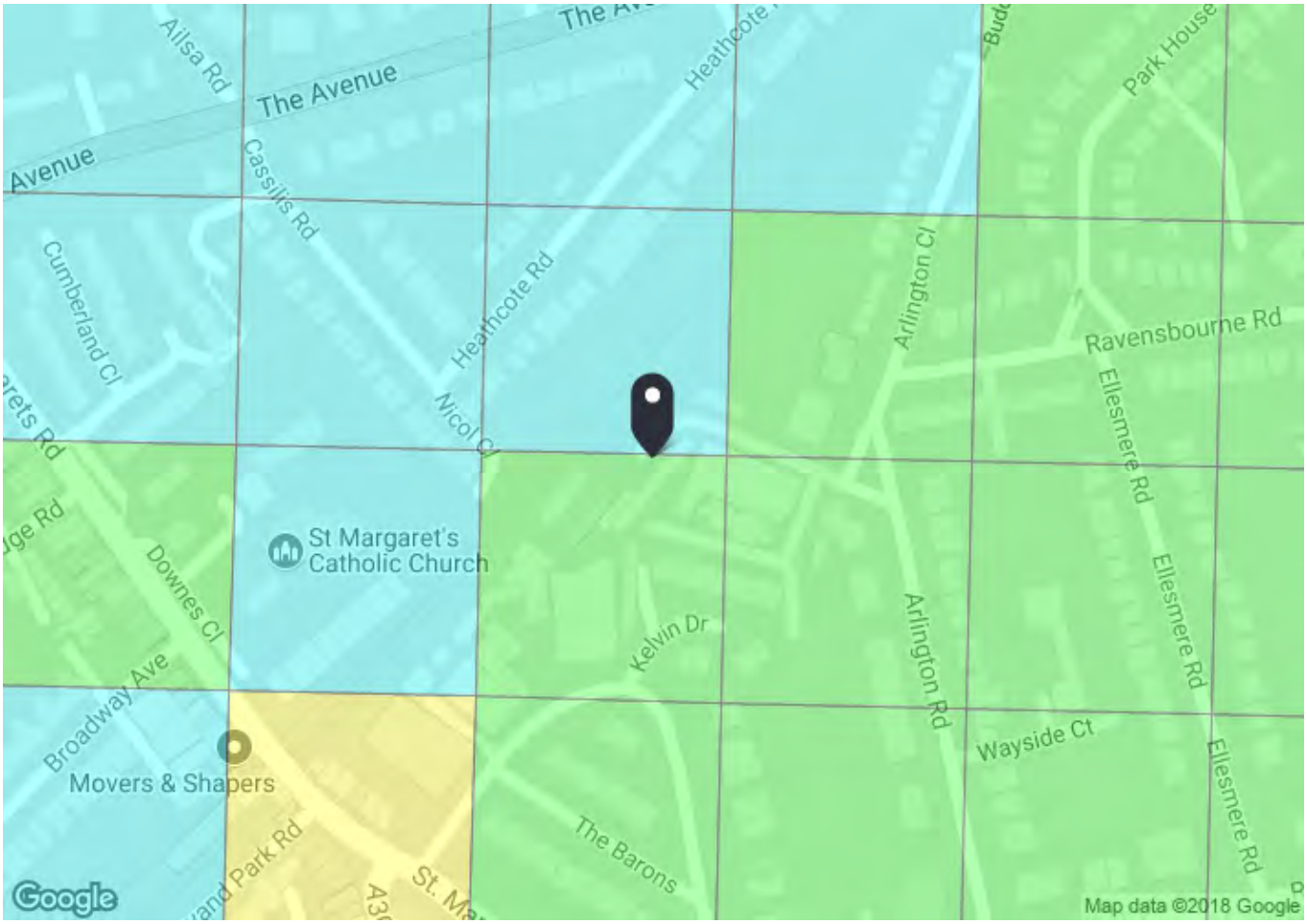
- = OBSERVED SPACE
- = YELLOW LINES
- = DROPPED KERB
- = DISABLED BAY (OCCUPIED)
- = DISABLED BAY (SPACE)

Appendix C

PTAL Assessment

TRANSPORT FOR LONDON



PTAL output for Base Year
3

23 Arlington Rd, Twickenham, Richmond TW1, UK
Easting: 516967, Northing: 174393

Grid Cell: 50290

Report generated: 07/06/2018

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

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Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	ST MARGARETS STATION	H37	269.44	10	3.37	5	8.37	3.59	1	3.59
Bus	RICHMOND RD SANDY COOMBE RD	33	549.56	7.5	6.87	6	12.87	2.33	0.5	1.17
Bus	RICHMOND RD SANDY COOMBE RD	490	549.56	5	6.87	8	14.87	2.02	0.5	1.01
Bus	RICHMOND RD SANDY COOMBE RD	R68	549.56	4	6.87	9.5	16.37	1.83	0.5	0.92
Bus	RICHMOND RD SANDY COOMBE RD	R70	549.56	6	6.87	7	13.87	2.16	0.5	1.08
Bus	RICHMOND RD SANDY COOMBE RD	H22	549.56	5	6.87	8	14.87	2.02	0.5	1.01
Rail	St Margarets	'SHEPRTN-WATRLMN 2H92'	264.74	1	3.31	30.75	34.06	0.88	0.5	0.44
Rail	St Margarets	'WDON-WATRLMN 2K03 '	264.74	0.33	3.31	91.66	94.97	0.32	0.5	0.16
Rail	St Margarets	'WATRLMN-WATRLMN 2K09'	264.74	2	3.31	15.75	19.06	1.57	1	1.57
Rail	St Margarets	'WATRLMN-WATRLMN 2O09'	264.74	2	3.31	15.75	19.06	1.57	0.5	0.79
Rail	St Margarets	'WATRLMN-WATRLMN 2R09'	264.74	2	3.31	15.75	19.06	1.57	0.5	0.79
Rail	St Margarets	'HOUNSLW-WATRLMN 2V05'	264.74	0.33	3.31	91.66	94.97	0.32	0.5	0.16
									Total Grid Cell AI:	**12.68**

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Appendix D

TRICS Data Output

Calculation Reference: AUDIT-358901-180625-0642

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BT	BRENT	1 days
	EN	ENFIELD	1 days
	HG	HARINGEY	1 days
	HO	HOUNSLOW	1 days
	HV	HAVERING	1 days
	KI	KINGSTON	1 days
	NH	NEWHAM	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
Actual Range: 12 to 493 (units:)
Range Selected by User: 9 to 493 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 30/11/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Tuesday	1 days
Wednesday	2 days
Thursday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	4
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	2
Residential Zone	3
Built-Up Zone	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

10,001 to 15,000	1 days
25,001 to 50,000	4 days
50,001 to 100,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	1 days
500,001 or More	6 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	4 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	3 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

2 Poor	4 days
3 Moderate	2 days
4 Good	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BT-03-C-01 BLOCKS OF FLATS BRENT
LAKESIDE DRIVE

PARK ROYAL
Suburban Area (PPS6 Out of Centre)
Development Zone
Total Number of dwellings: 170
Survey date: WEDNESDAY *28/09/16* *Survey Type: MANUAL*

2 EN-03-C-01 BLOCK OF FLATS ENFIELD
SOUTH STREET

ENFIELD
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of dwellings: 16
Survey date: MONDAY *16/11/15* *Survey Type: MANUAL*

3 HG-03-C-02 BLOCK OF FLATS HARINGEY
HIGH ROAD
WOODSIDE PARK
WOOD GREEN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 30
Survey date: WEDNESDAY *01/10/14* *Survey Type: MANUAL*

4 HO-03-C-03 BLOCKS OF FLATS HOUNSLOW
COMMERCE ROAD

BRENTFORD
Edge of Town Centre
Development Zone
Total Number of dwellings: 150
Survey date: FRIDAY *18/11/16* *Survey Type: MANUAL*

5 HV-03-C-02 BLOCKS OF FLATS HAVERING
WATERLOO ROAD

ROMFORD
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of dwellings: 493
Survey date: TUESDAY *22/11/16* *Survey Type: MANUAL*

6 KI-03-C-03 BLOCK OF FLATS KINGSTON
PORTSMOUTH ROAD

SURBITON
Edge of Town Centre
Residential Zone
Total Number of dwellings: 20
Survey date: MONDAY *11/07/16* *Survey Type: MANUAL*

7 NH-03-C-01 BLOCK OF FLATS NEWHAM
ARTHINGWORTH STREET

STRATFORD
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 12
Survey date: THURSDAY *14/11/13* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	127	0.044	7	127	0.081	7	127	0.125
08:00 - 09:00	7	127	0.030	7	127	0.095	7	127	0.125
09:00 - 10:00	7	127	0.045	7	127	0.049	7	127	0.094
10:00 - 11:00	7	127	0.046	7	127	0.062	7	127	0.108
11:00 - 12:00	7	127	0.038	7	127	0.058	7	127	0.096
12:00 - 13:00	7	127	0.046	7	127	0.043	7	127	0.089
13:00 - 14:00	7	127	0.058	7	127	0.062	7	127	0.120
14:00 - 15:00	7	127	0.043	7	127	0.049	7	127	0.092
15:00 - 16:00	7	127	0.075	7	127	0.062	7	127	0.137
16:00 - 17:00	7	127	0.095	7	127	0.063	7	127	0.158
17:00 - 18:00	7	127	0.110	7	127	0.062	7	127	0.172
18:00 - 19:00	7	127	0.108	7	127	0.065	7	127	0.173
19:00 - 20:00	3	113	0.103	3	113	0.076	3	113	0.179
20:00 - 21:00	3	113	0.088	3	113	0.068	3	113	0.156
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.929			0.895			1.824

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	12 - 493 (units:)
Survey date date range:	01/01/10 - 30/11/16
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix E

Zipcar Quote

Arlington Works

London Borough of Richmond upon Thames

Caneparo Associates

Proposal: June 2018

David Lang DD: 0203 004 7860
UK Property Developments dlang@zipcar.co.uk

zipcar

Zipcar & Property Developments

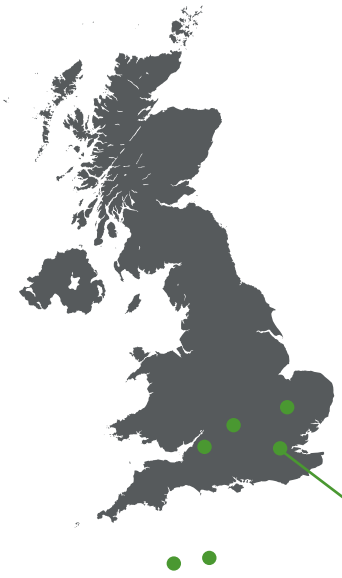
Zipcar works with an ever increasing number of Property Developers, Transport Consultants and Housing Associations across the UK to:

- ✓ Increase the likelihood of gaining planning permission on a site.
- ✓ Addressing specific Section 106 or Travel Plan requirements.
- ✓ Reducing the need to provide costly private parking.
- ✓ Act as a useful marketing tool to help sell properties with a limited parking provision.

Working with Zipcar – 5 Simple Steps

What is Zipcar?

Zipcar is a pay-as-you-go car club designed to provide members with access to cars and vans as quickly and conveniently as possible with the least amount of hassle. Our team is passionate about bringing this innovative concept to every urban street as a simpler, more efficient, more sustainable way to use a car.



2010
Zipcar merged with Streetcar and is the World's largest car-sharing club

Over 1,000,000 members
worldwide

6 UK cities
London, Bristol, Cambridge, Oxford, Glasgow & Edinburgh

London is the largest UK network with 1,500 bays; 5 times more locations than Starbucks!

Zipcar users are ABC1 adults aged between 25-44 yrs old.

71% use Zipcar for leisure/spontaneous & activities.

Zipcar users are urban-dwellers that like to explore the city & jump at the chance to engage with nature and the outdoors.

Members use Zipcar as an alternative to the costs and hassles of owning or hiring a car.

Best of both worlds

Zipcar is the only operator that give residents access to both a flexible per minute hire and long term hourly and daily model. Residents can just pick and choose whichever suits their trip. The Flex model has launched in six boroughs and we are looking to roll this across the city over the next 18 months.

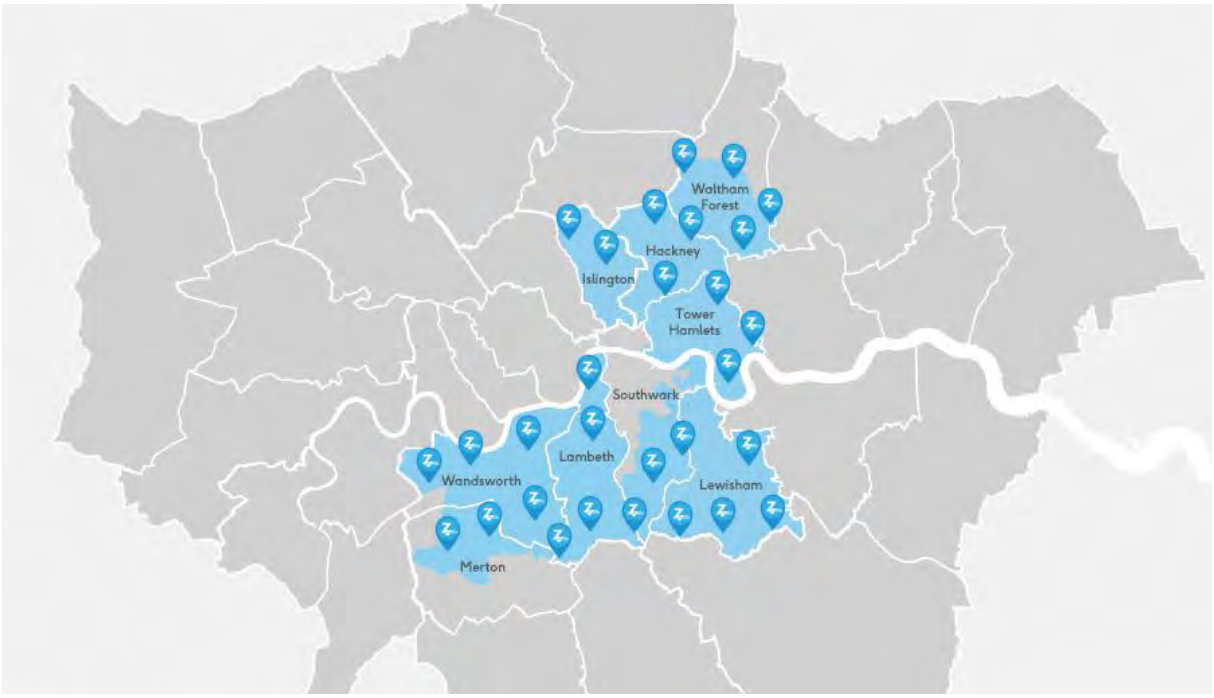
Roundtrip

Perfect for longer trips that go full circle. Need to lug some flat-pack back from Ikea? Or escaping to the country for a weekend? A Roundtrip is the easy way to do it. Book a vehicle, drive and return to the bay you picked it up from.

Flex

Ideal for spontaneous one-way journeys. Pick up a Flex vehicle from the home zone and your friends enroute. Dashing to a meeting across town? Flex it in no time.

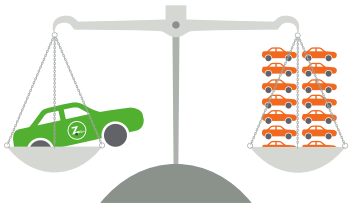
Current Flex Home Zone



A Sustainable Transport Solution

A large proportion of your future residents may have a private vehicle, but may not really need one. They may commute to work using public transport and just have a car for occasional use. A relationship with the world's largest car sharing club would definitely assist in reducing the carbon footprint of your residents, provide a convenient and easily-used service, and save them a substantial amount of money.

Every Zipcar takes an average of 10-15 privately owned cars off the roads of the UK, because members often sell (or don't replace) a car when they join.



Zipcar is a service that benefits the whole community. We have found that car club members choose to drive a car less after joining Zipcar; the average car club member only actually clocks up between 403 and 414 miles a year which is significantly less than private vehicle owners. This is because they both make better use of public transport and think much harder about their transport options according to what they need to achieve and the cost associated with that decision.

Not only this but car club vehicles are typically between 10% and 33% more efficient in terms of carbon dioxide emissions per KM travelled, in comparison to the average car, because operators chose new and fuel efficient models.

Using Zipcar

The Zipcar process has been designed to provide simplicity and little administration – there are no depots or deposits involved (headaches typically found with regular car hire). Once the person has become a member there is no further form filling required to hire a vehicle anywhere in the world.

Development Viability

Zipcar has been operating in the borough of Richmond since 2006 and is now working in partnership with the council to provide car clubs on-street to residents. We currently have 52 vehicles in the borough and over 4,527 members. The cars are performing well, being used approximately 8-10 hours a day.

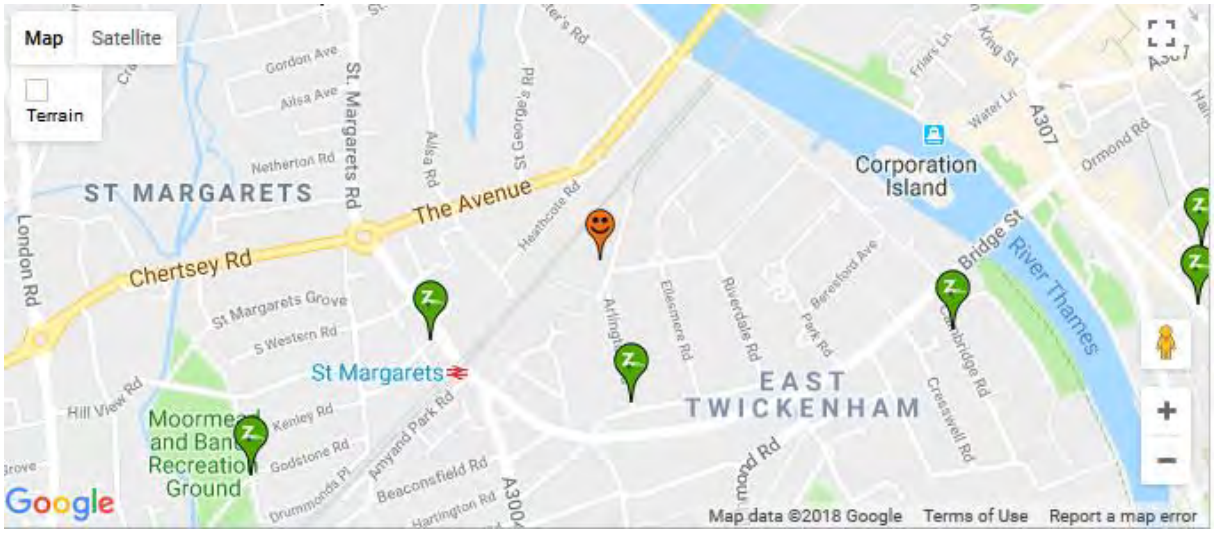
In our opinion a car club could work well at this location given support from the developer in the early phases of the development. The current proximity to local transport links is good (approximately PTAL 3) which is encouraging for the car club's chances of success, as synergy with public transport links is a key contributor to good car club performance. This makes it likely that the residents of this development will not need a car for work – essential to the success of the scheme.

The low parking on site should ultimately ensure good uptake of the car club. We normally rely on a parking ratio of less than 0.7 to guarantee car club success.

A developer funded marketing package will help ensure demand for the car club on site; the more we are able to incentivise people to try the service

As the map below indicates, there is a very strong network of Zipcar vehicles in the vicinity of the development and as a result, Zipcar would not seek to immediately add further vehicles on site. We currently a vehicle on Arlington Road, within a five-minute walk of the development which development residents could utilize.

Existing Network



Arlington Works Proposal

Zipcar recommends that residents use the existing network in the area. Zipcar will provide a fully managed service, which includes the following:

- Offering two years membership to all 24 homes
- Designing all marketing collateral for the development communications team
- Managing the sign-up process (including licence and insurance eligibility processes)
- Monitoring resident and development queries and providing reports (if required as part of S106 requirements) post launch

This comes to a total contribution of £1,900 +VAT. This sum is to be paid prior to the date of first occupation.

In exchange Zipcar would commit to a contractual obligation to run the car club operation at the development for a minimum of three years. Each resident that signs up during the three years will receive two years' free membership and Zipcar will offer £25 +VAT driving credit per unit at no further cost to the developer. **A contribution of £600 +VAT from Zipcar**.

Zipcar will provide 1 year's free business account (usually £119) for any commercial entity operating from or in conjunction with the site at no further cost to the developer.

The Zipcar development product

Zipcar have over 10 years of experience working with developers, travel planners and local authorities and have met the car club commitment on over 500 sites, ranging from ten to thousands of new homes. You will have dedicated support from our London based development specialists and we will support you from planning stage, through to installation and activation at the development.

Zipcar will create bespoke marketing collateral for the development managers and residents and work with our marketing partners to deliver a package that will create awareness of the car club on-site. Where required, Zipcar's operation team will install signage and branding for the Zipcar bays at no further cost to the developer.

Post launch, Zipcar will conduct regular letter drops and marketing activity on-site and ensure that there are vehicles in the area to support development trip requests, not a feature of the standard product. We will also provide any necessary reporting data that is required to discharge any reporting clauses of the S106.

Marketing Proposal

A free membership to Zipcar is an excellent marketing tool to utilise with prospective buyers who, due to low parking ratios and parking restrictions, are unable to have their own vehicle on site. We would market the free memberships as a benefit paid for by the developer that provides residents with a cheaper, greener more convenient alternative to private car ownership. In this way Zipcar adds real value to the development and is an excellent solution to the recurring problem of prospective residents not being able to have their own vehicle on site due to a lack of space.

Developer communication

It is vital that the development's communications team promotes and supports the growth of the car club on site. Having a presence online either on the development website or through the residents' portal will ensure that all residents are aware of the transport modes and offers available to them and speed up uptake. Historically we have found most residents will use the service either to move into the property or for the subsequent furniture run within the first three months of occupation. Our marketing team will be able to provide copy or banners for the site, all of which will direct residents to a bespoke landing page educating them about the service.

Zipcar would promote its service to the residents of the development through a number of ways.

Bespoke marketing material: This would outline the offers your residents are entitled to. We find that this is crucial in generating early interest in the scheme; these would be part of each residents welcome pack. Additionally we would recommend that a mail shot is sent at a later date reminding residents of the service.

Advertising within the development: Zipcar would advertise within the development itself through posters and leaflets in communal areas.

The Zipcar Fleet

Zipcar has a vehicle type for every occasion. This will ensure that your residents get the best possible service, and can find a vehicle to suit their needs. Zipcar membership also includes Zipvan membership – providing our members with convenient access to larger vehicles when required.

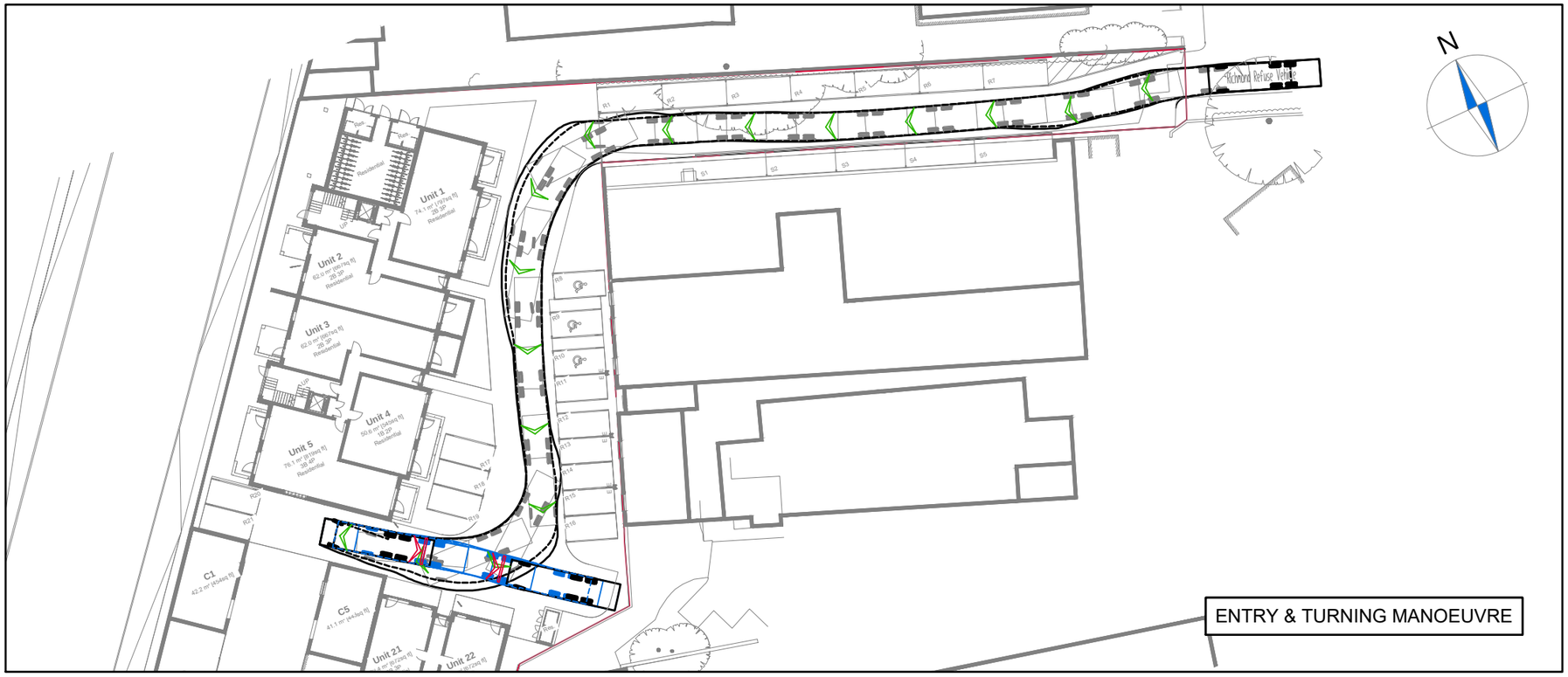
Our vehicles are best in class from an emissions perspective. A Zipcar lives in the fleet for a maximum of eight months, ensuring our members are diving the most modern and efficient fleet in any car club across the world.

Model	Weekday Hourly / Daily	Weekend Hourly / Daily
Toyota Yaris / Ford Fiesta	£6 / £54	£7.50 / £65
VW Golf / Ford Focus	£7 / £64	£8.50 /£75
Toyota Prius (PHEV)	£7 / £64	£8.50 /£75
Audi A3	£8 / £74	£9.50 / £85
Ford CMAX (7 Seater)	£10 / £94	£11.50 / £105
VW Transporter	£10 / £89	£11.50 / £105

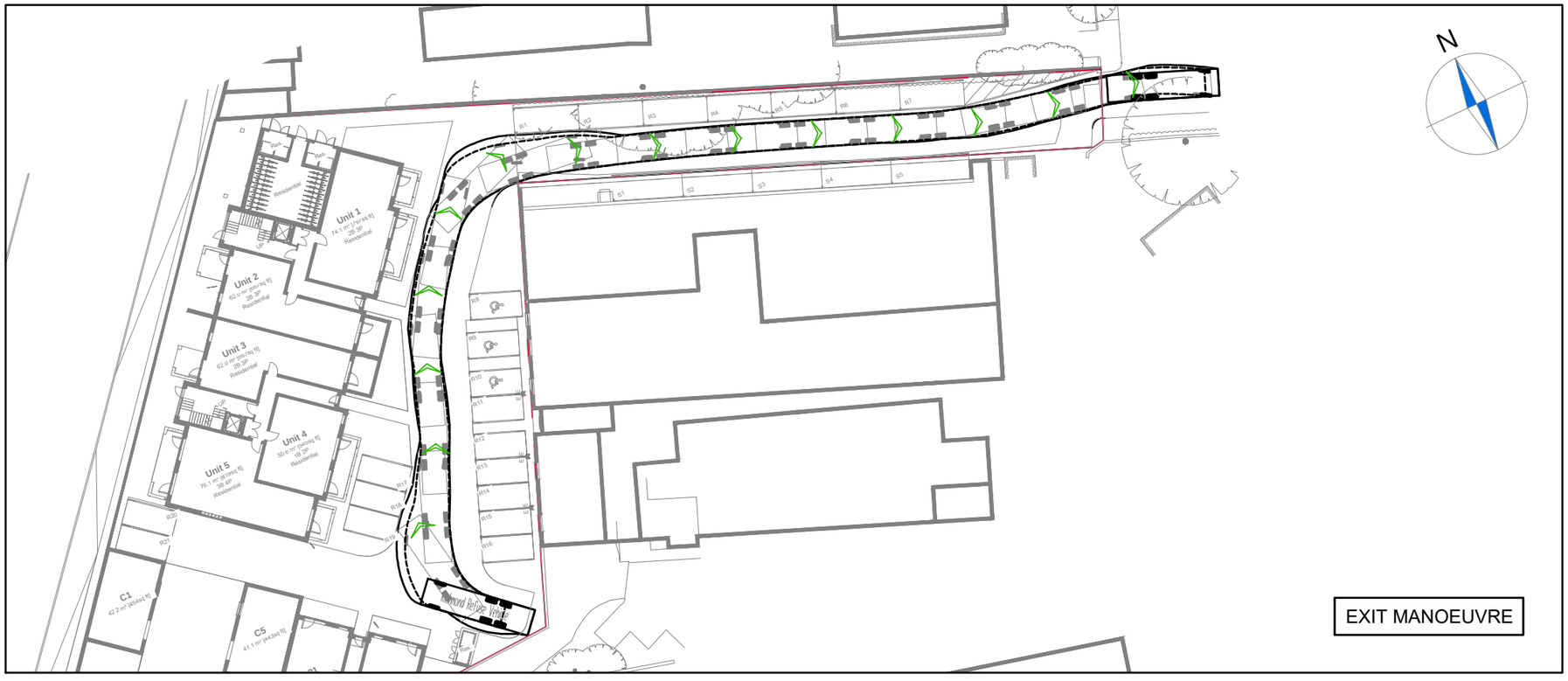
Fuel, insurance and 60 free miles per 24 hours are included. Additional miles are 25p per mile (29p for premium vehicles and vans).

Appendix F

Swept Path Analysis



ENTRY & TURNING MANOEUVRE



EXIT MANOEUVRE

NOTES

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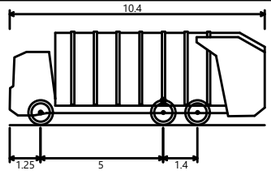
10.4m Refuse Vehicle



Overall Length	10.400m
Overall Width	2.500m
Overall Body Height	3.800m
Min Body Ground Clearance	0.366m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.350m

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

Rev	Details	Drawn	Checked	Date
B	Revised scheme layout.	HE	MT	11.07.2018
A	Revised parking layout.	HE	MT	06.07.2018

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client: ...

Project: Arlington Works
Arlington Road, Twickenham

Drawing Title: Swept Path analysis using a 10.4m Large Refuse Vehicle

Scale:	Size:	Drawn by:	Checked by:	Date:
1:500	A3	HE	MT	03.07.2018

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21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

Scheme Ref:	Drawing No:	Sheet :	Rev:
CA3743	TR003	1 of 10	B

CA3743_TR003 B - SWEPT PATH ANALYSIS.DWG

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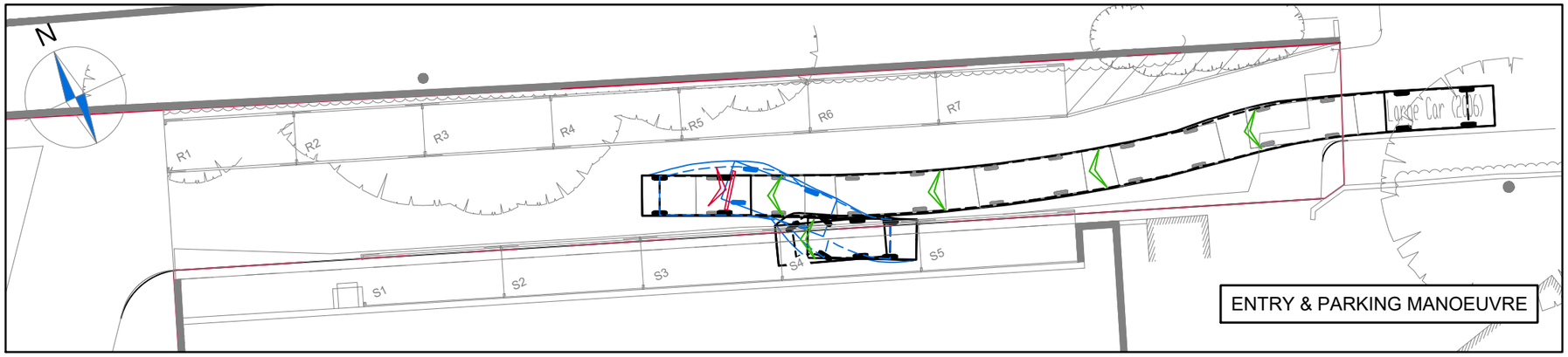

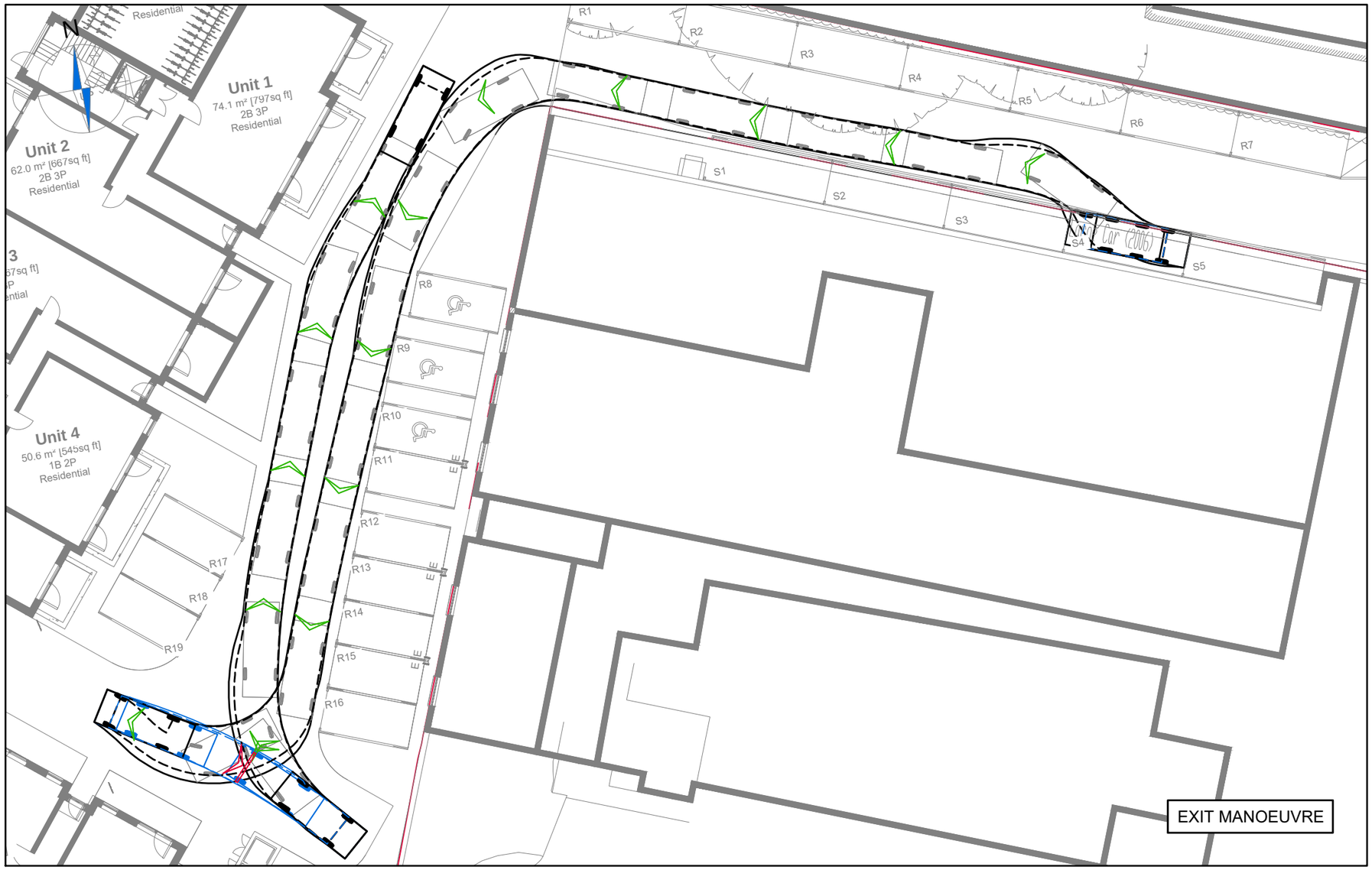

NOTES

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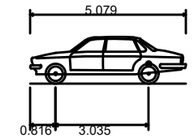
LARGE CAR



Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

Rev	Details	Drawn	Checked	Date
B	Revised scheme layout.	HE	MT	11.07.2018
A	Revised parking layout.	HE	MT	06.07.2018

REVISION HISTORY

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Client:

...

Project:

Arlington Works
Arlington Road, Twickenham

Drawing Title:

Swept Path analysis using a 5m Large Car

Scale:	Size:
1:250	A3

Drawn by:	Checked by:	Date:
HE	MT	03.07.2018

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21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

Scheme Ref:	Drawing No:	Sheet :	Rev:
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CA3743_TR003 B - SWEPT PATH ANALYSIS.DWG

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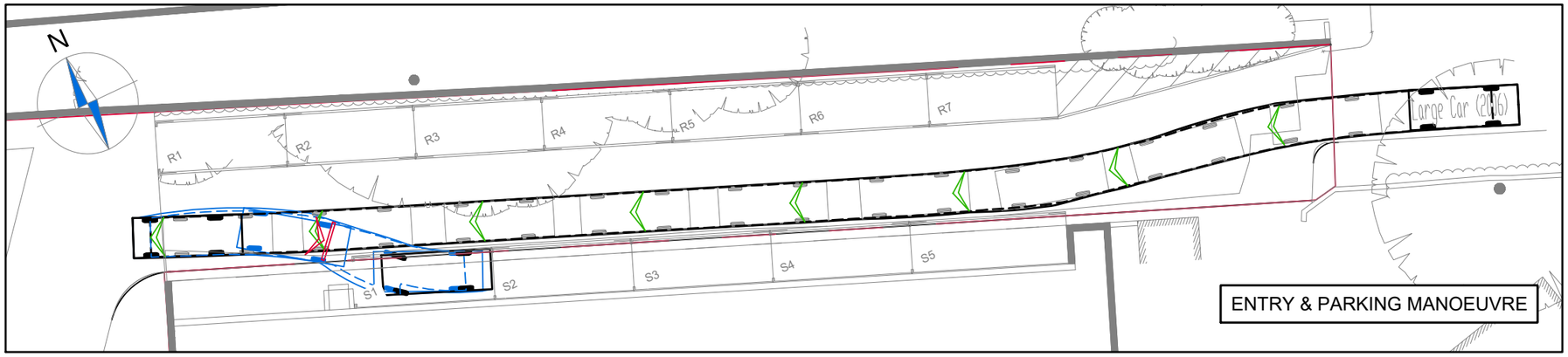

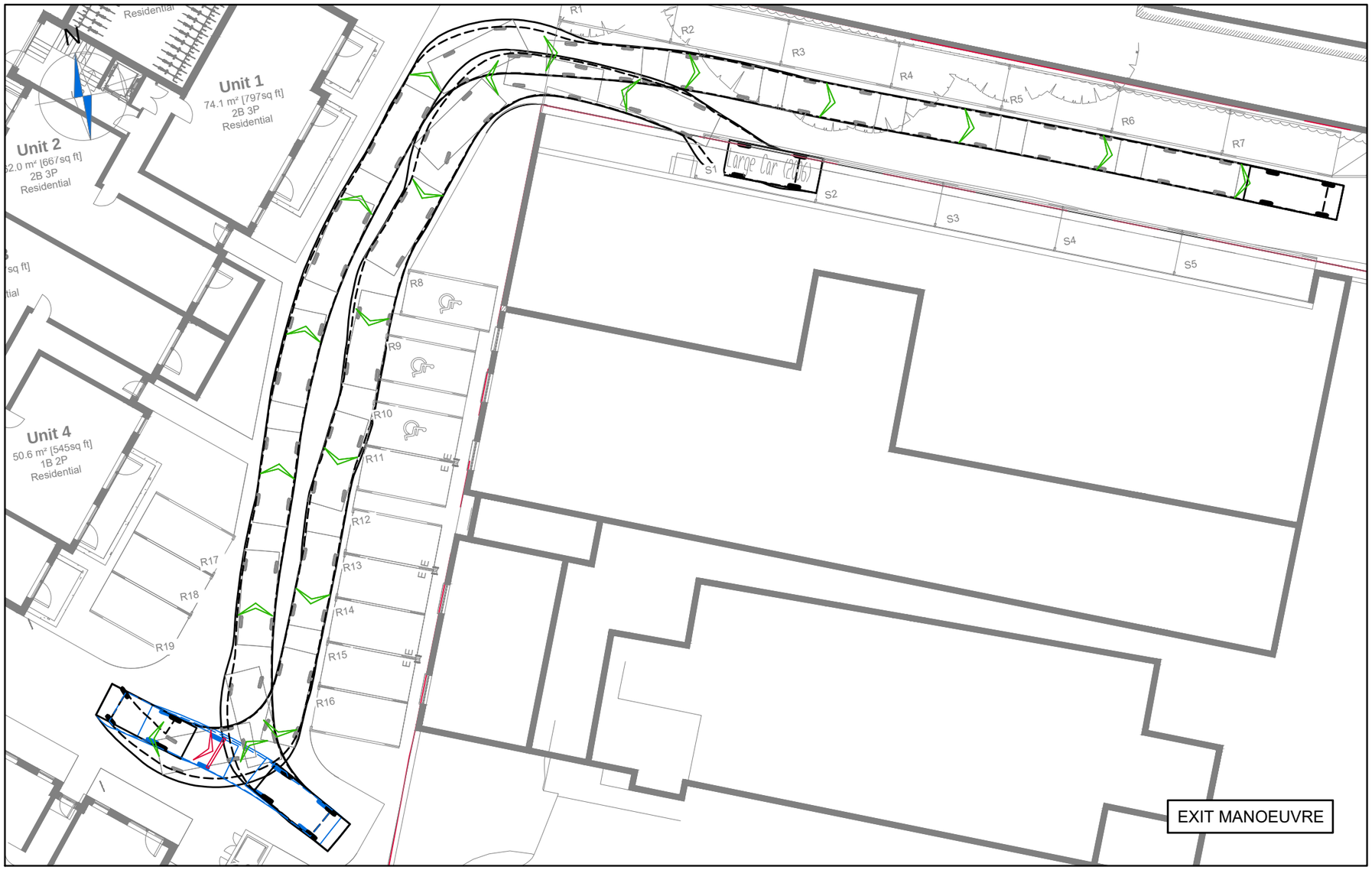

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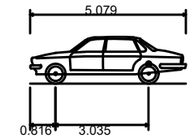

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Client:

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Project:

Arlington Works
Arlington Road, Twickenham

Drawing Title:

Swept Path analysis using a 5m Large Car

Scale:	Size:
1:250	A3

Drawn by:	Checked by:	Date:
HE	MT	03.07.2018

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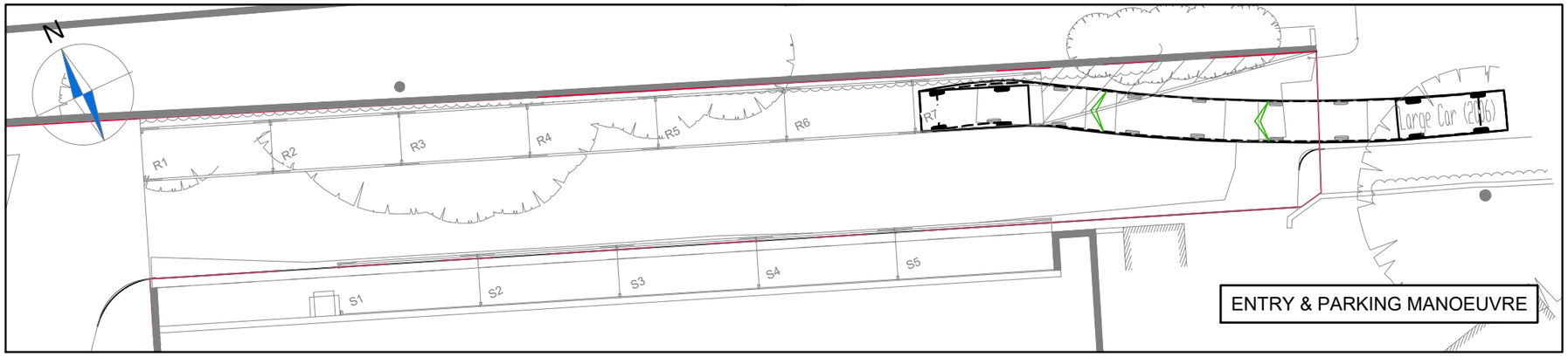

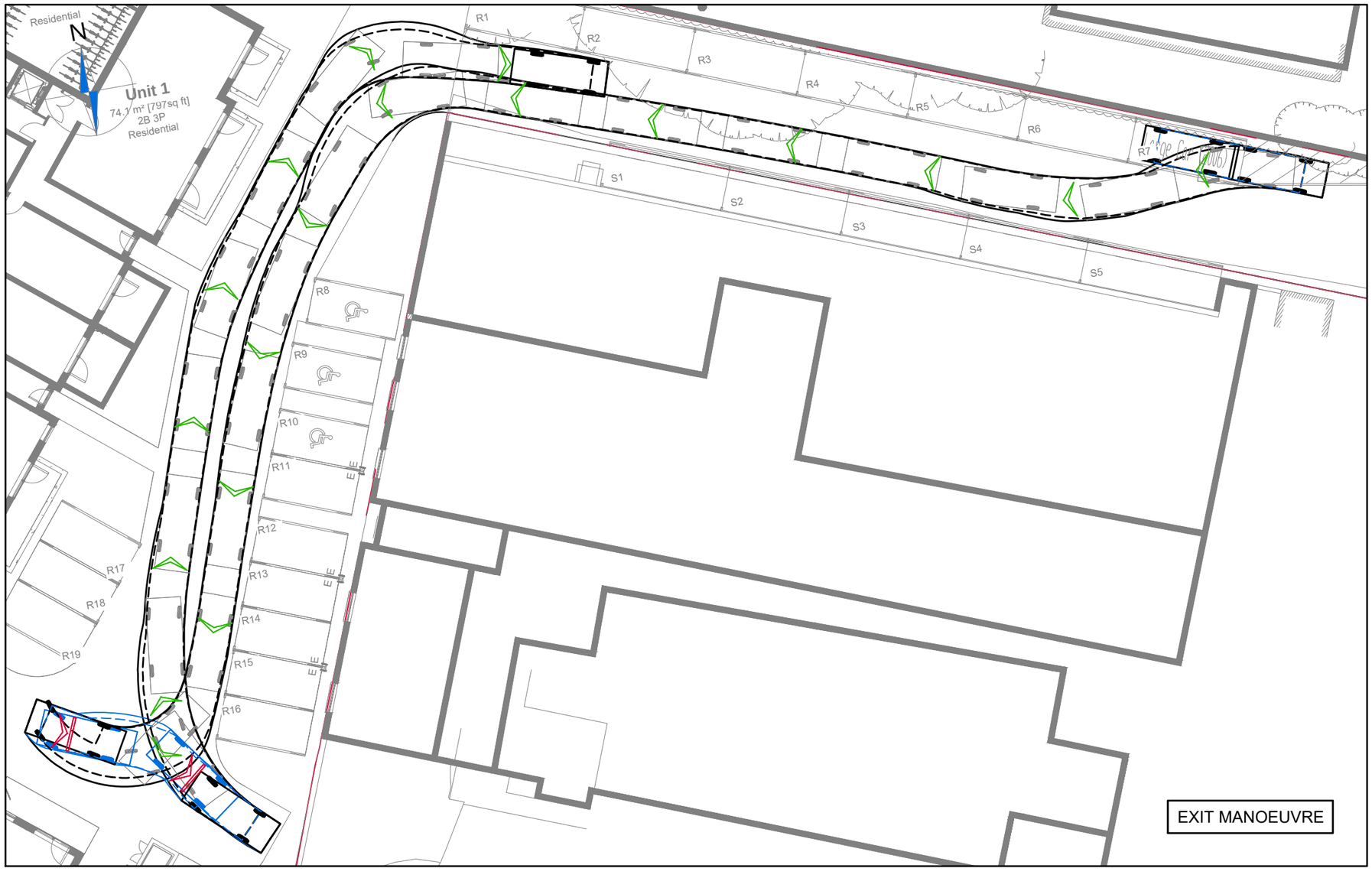

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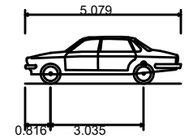

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Swept Path analysis using a 5m Large Car

Scale:	Size:	Drawn by:	Checked by:	Date:
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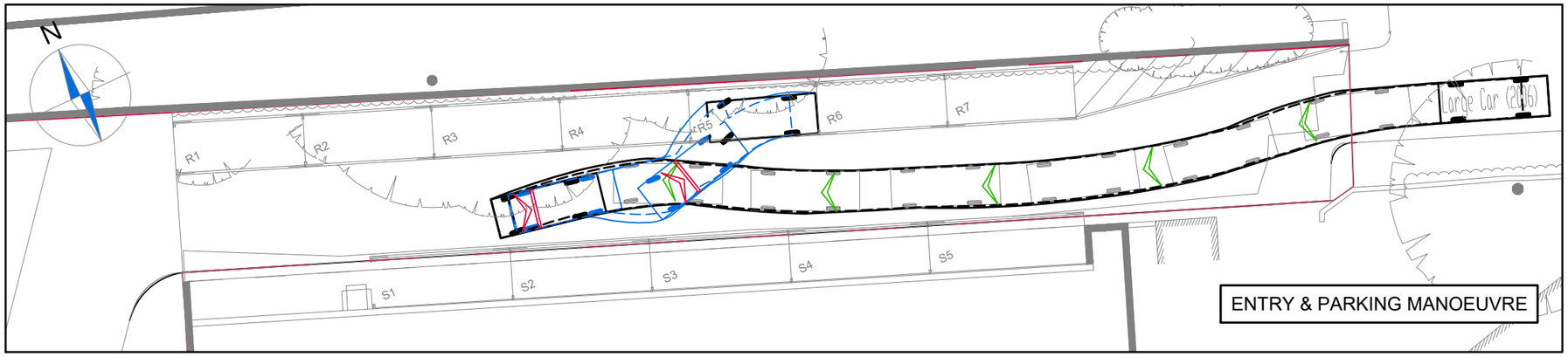

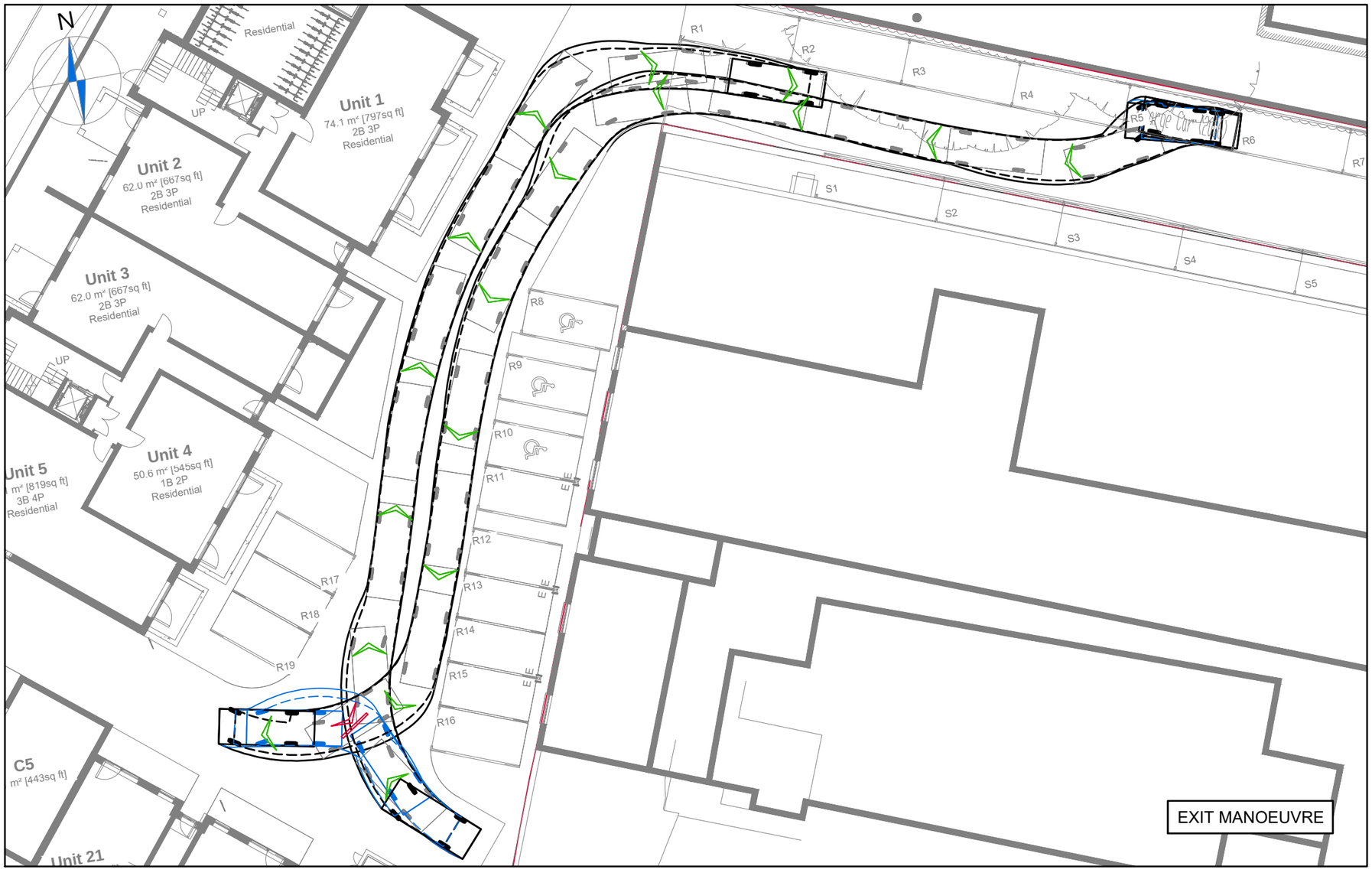

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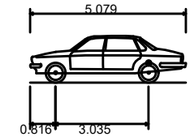

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Swept Path analysis using a 5m Large Car

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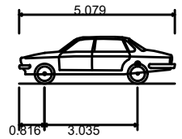

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Client:

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Project:

Arlington Works
Arlington Road, Twickenham

Drawing Title:

Swept Path analysis using a 5m Large Car

Scale:	Size:
1:250	A3

Drawn by:	Checked by:	Date:
HE	MT	03.07.2018

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Scheme Ref:	Drawing No:	Sheet :	Rev:
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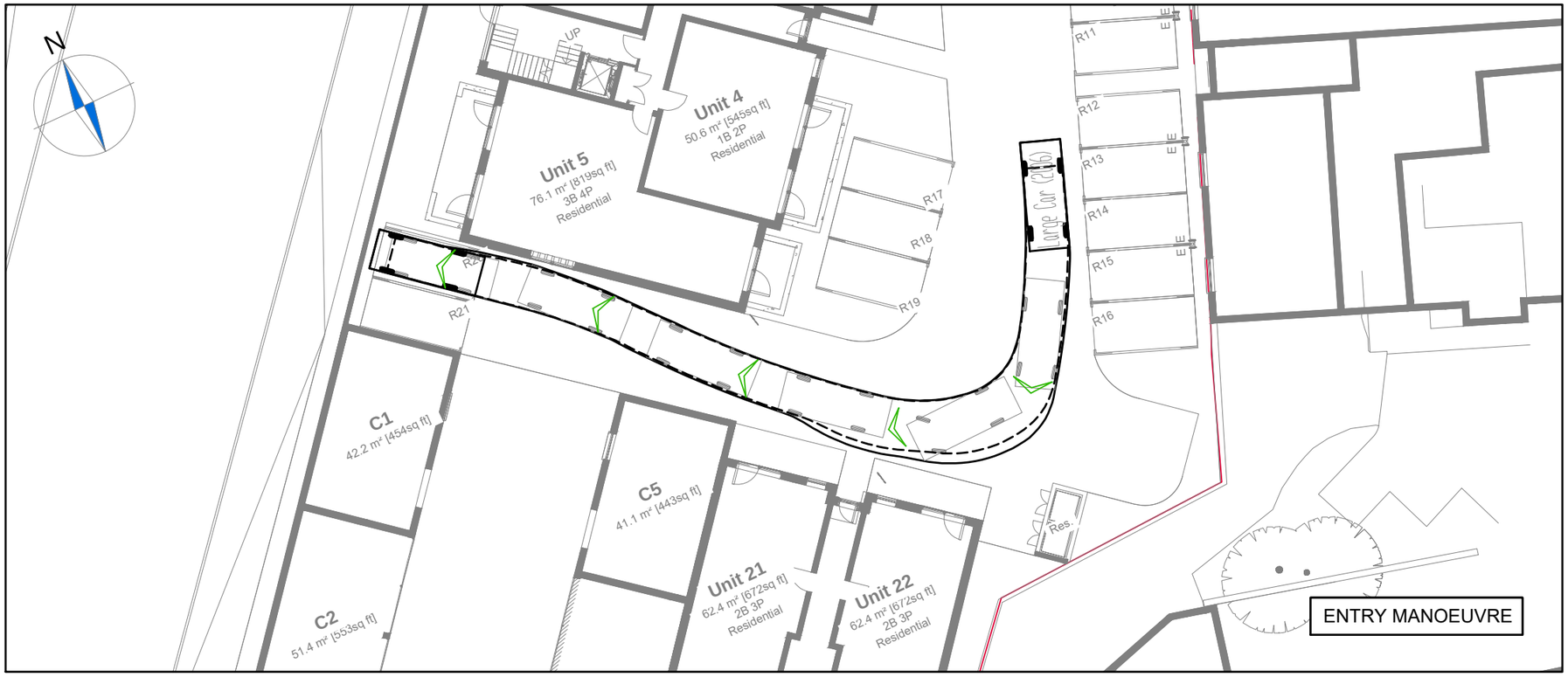

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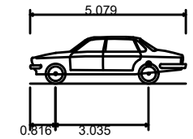

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Arlington Works
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Drawing Title:

Swept Path analysis using a 5m Large Car

Scale:	Size:
1:250	A3

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Scheme Ref:	Drawing No:	Sheet :	Rev:
CA3743	TR003	7 of 10	B

CA3743_TR003 B - SWEPT PATH ANALYSIS.DWG

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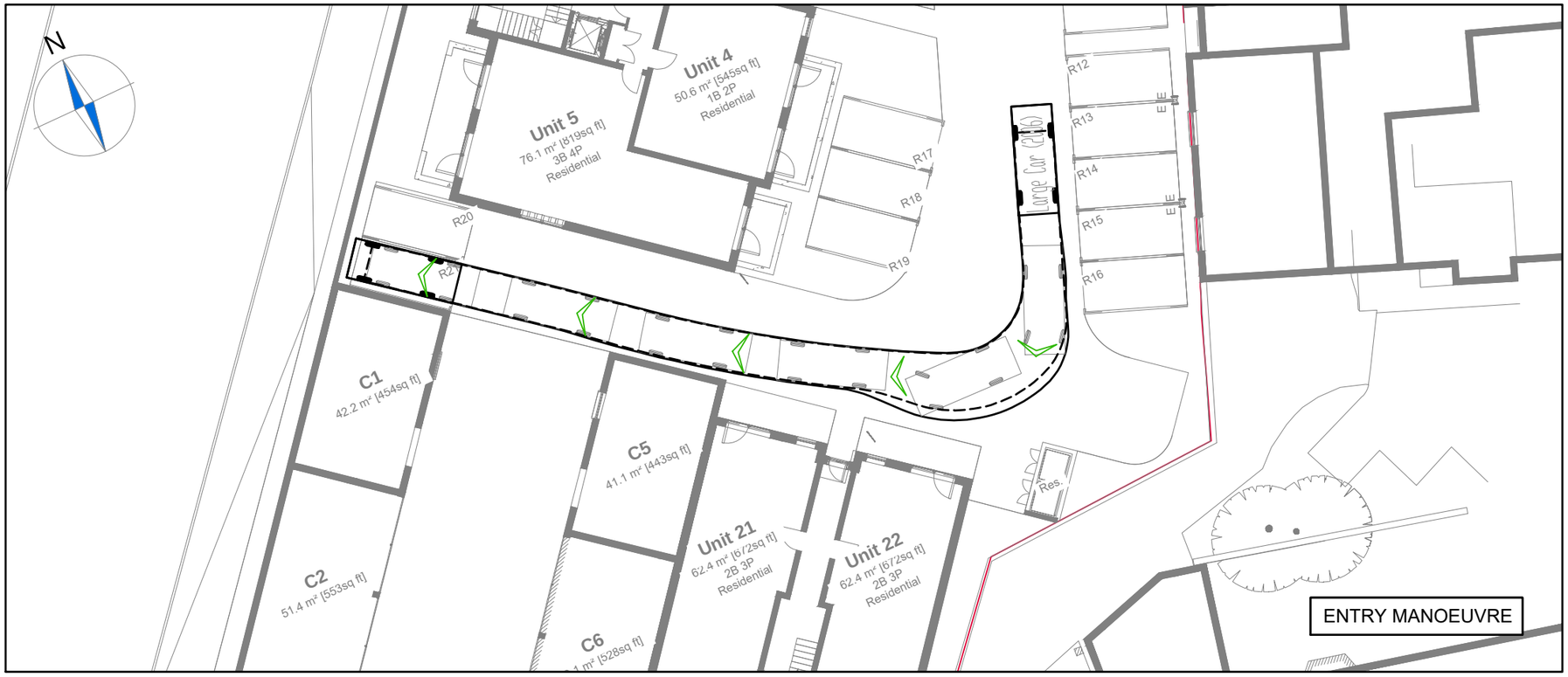

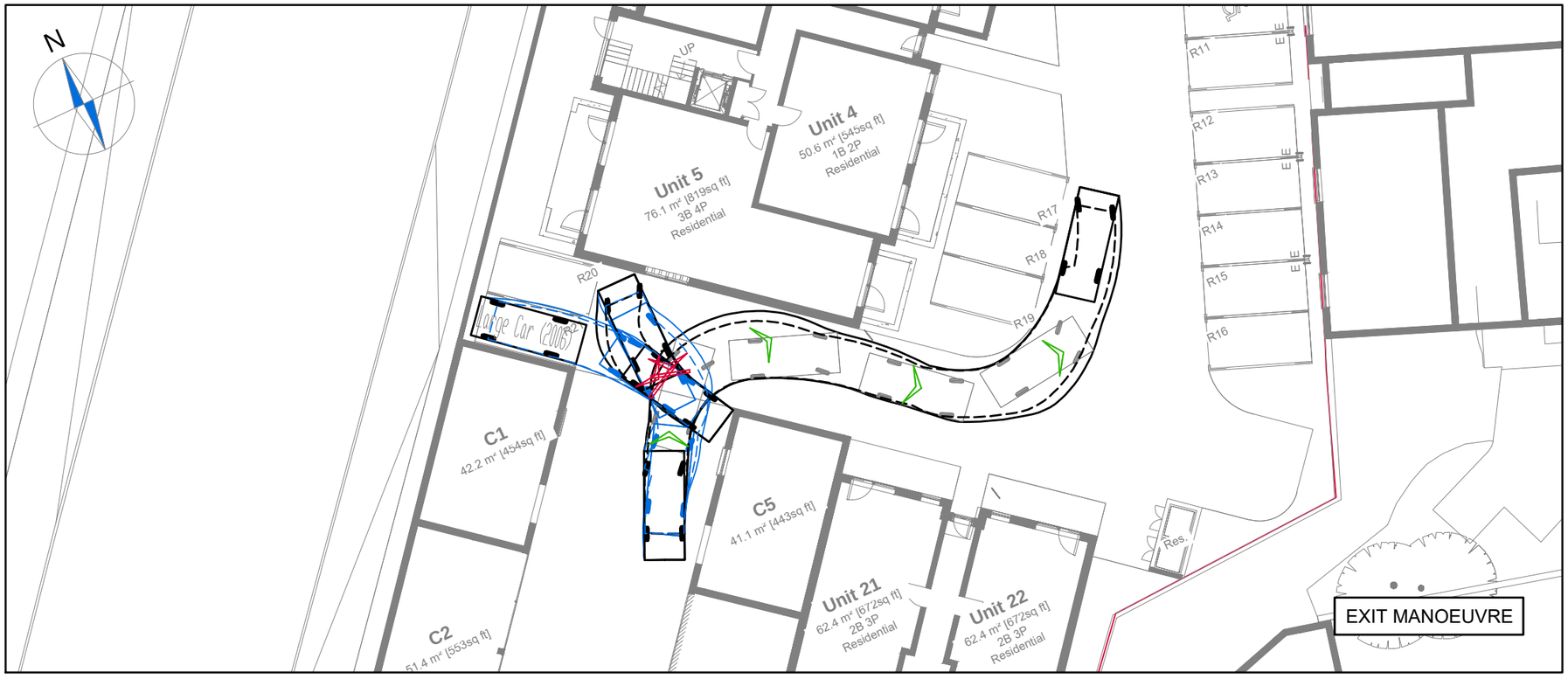

NOTES

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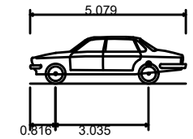
LARGE CAR



Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

Rev	Details	Drawn	Checked	Date
B	Revised scheme layout.	HE	MT	11.07.2018
A	Revised parking layout.	HE	MT	06.07.2018

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client: ...

Project: Arlington Works
Arlington Road, Twickenham

Drawing Title: Swept Path analysis using a 5m Large Car

Scale:	Size:	Drawn by:	Checked by:	Date:
1:250	A3	HE	MT	03.07.2018

CANEPARO ASSOCIATES
Transport Planning & Highway Design
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

Scheme Ref:	Drawing No:	Sheet :	Rev:
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CA3743_TR003 B - SWEPT PATH ANALYSIS.DWG

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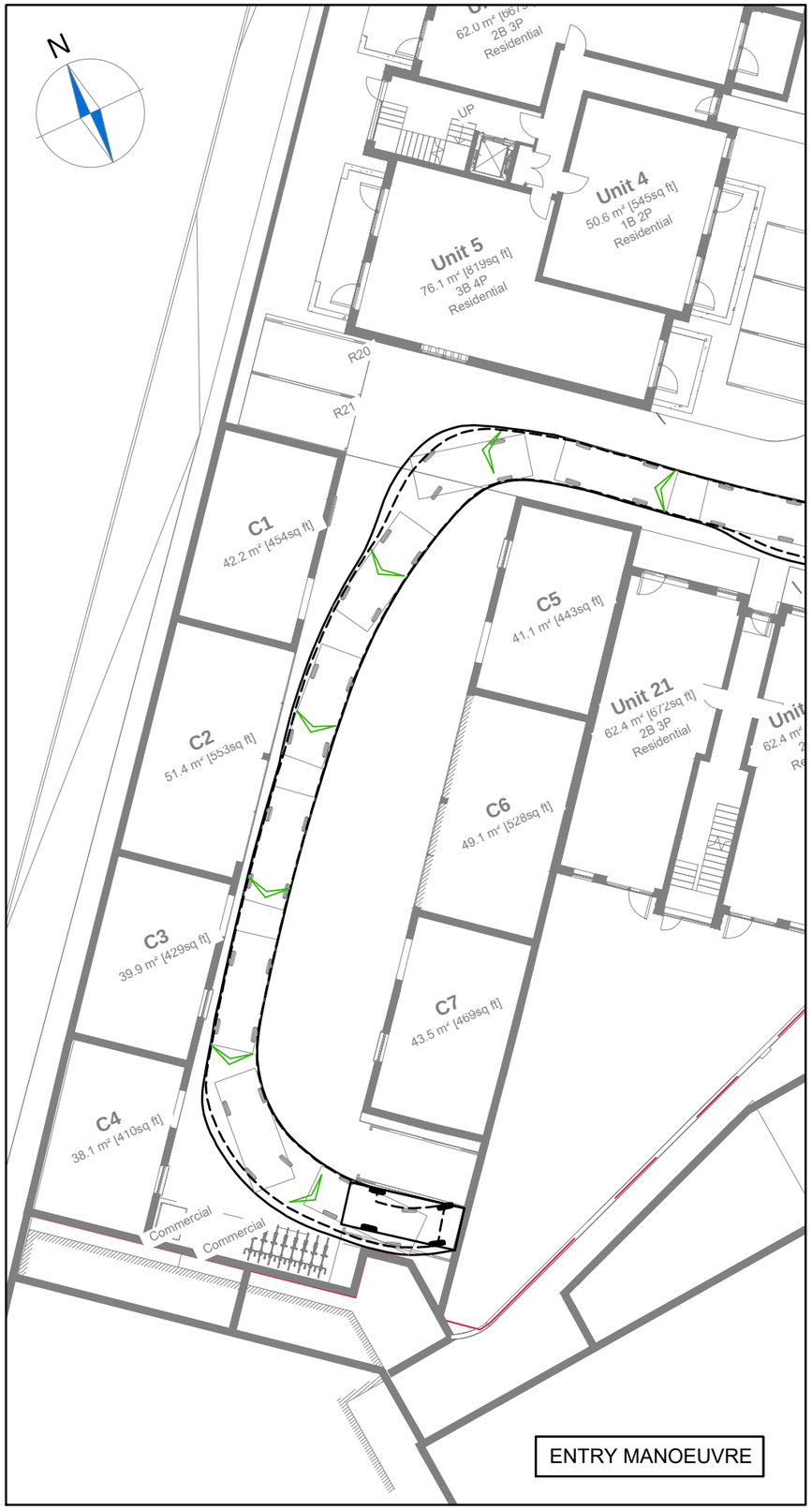

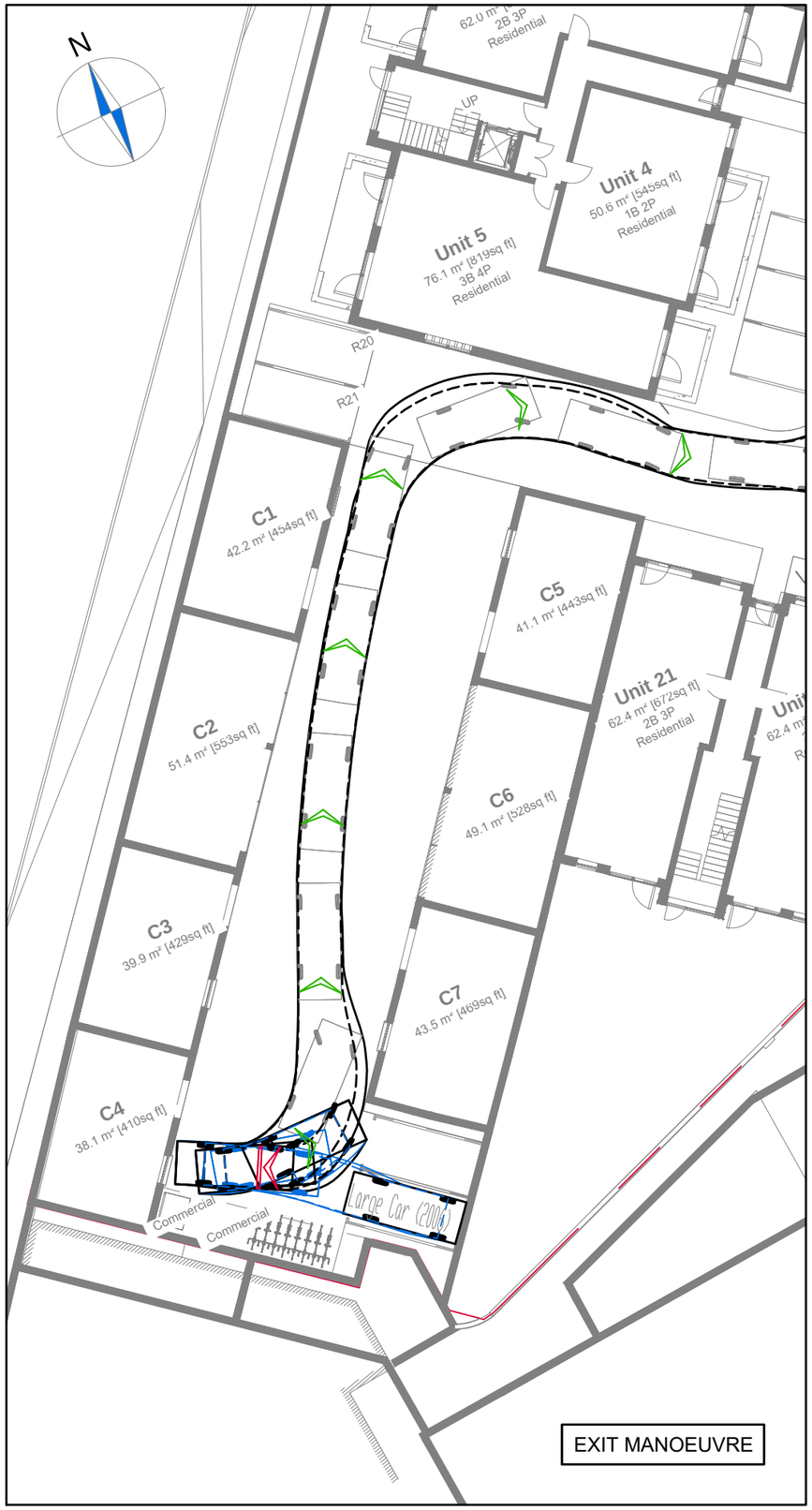

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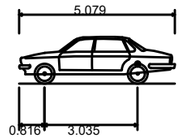

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Client:

...

Project:

Arlington Works
Arlington Road, Twickenham

Drawing Title:

Swept Path analysis using a 5m Large Car

Scale:	Size:
1:250	A3

Drawn by:	Checked by:	Date:
HE	MT	03.07.2018

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Scheme Ref:	Drawing No:	Sheet :	Rev:
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CA3743_TR003 B - SWEPT PATH ANALYSIS.DWG

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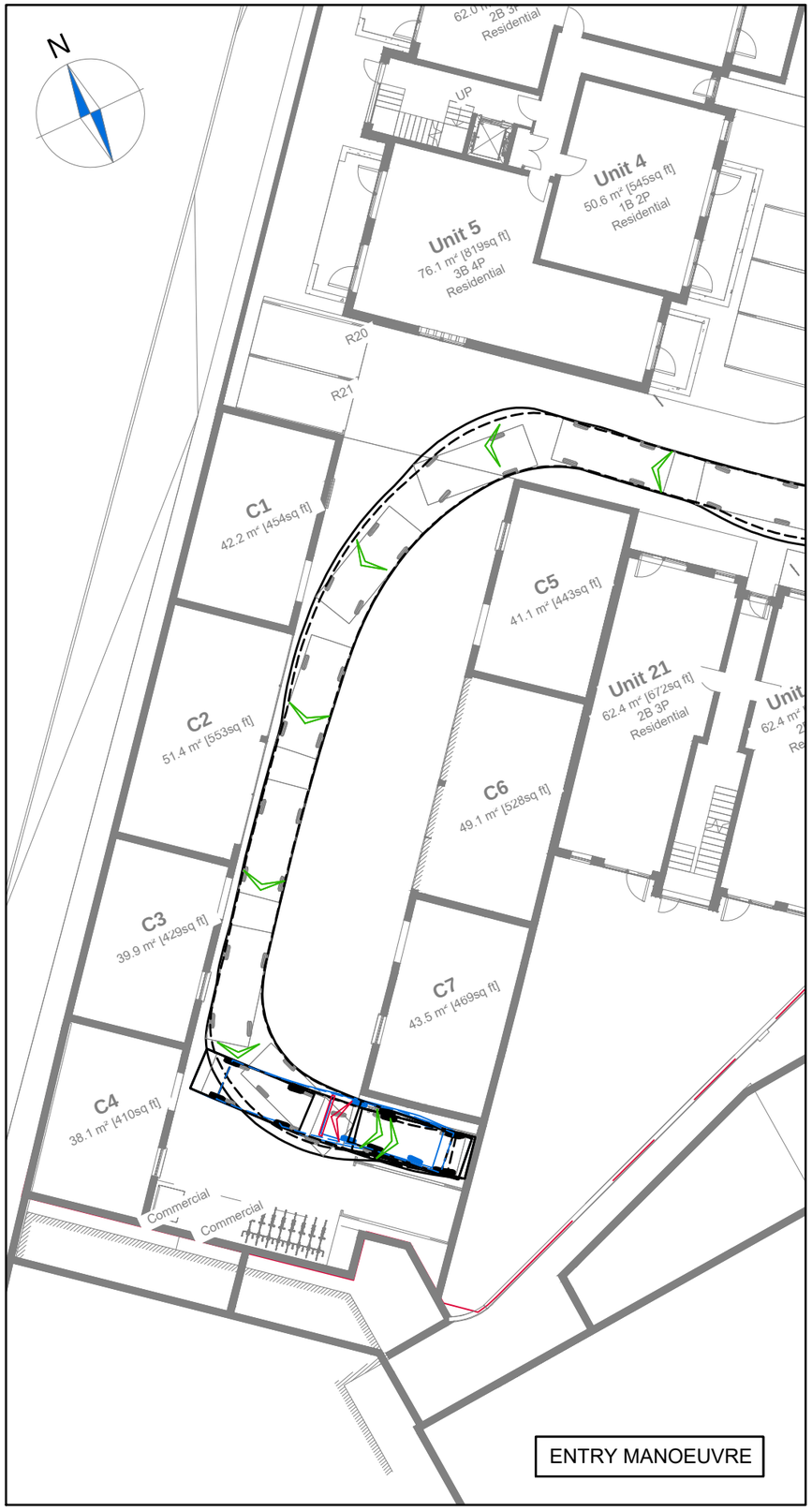

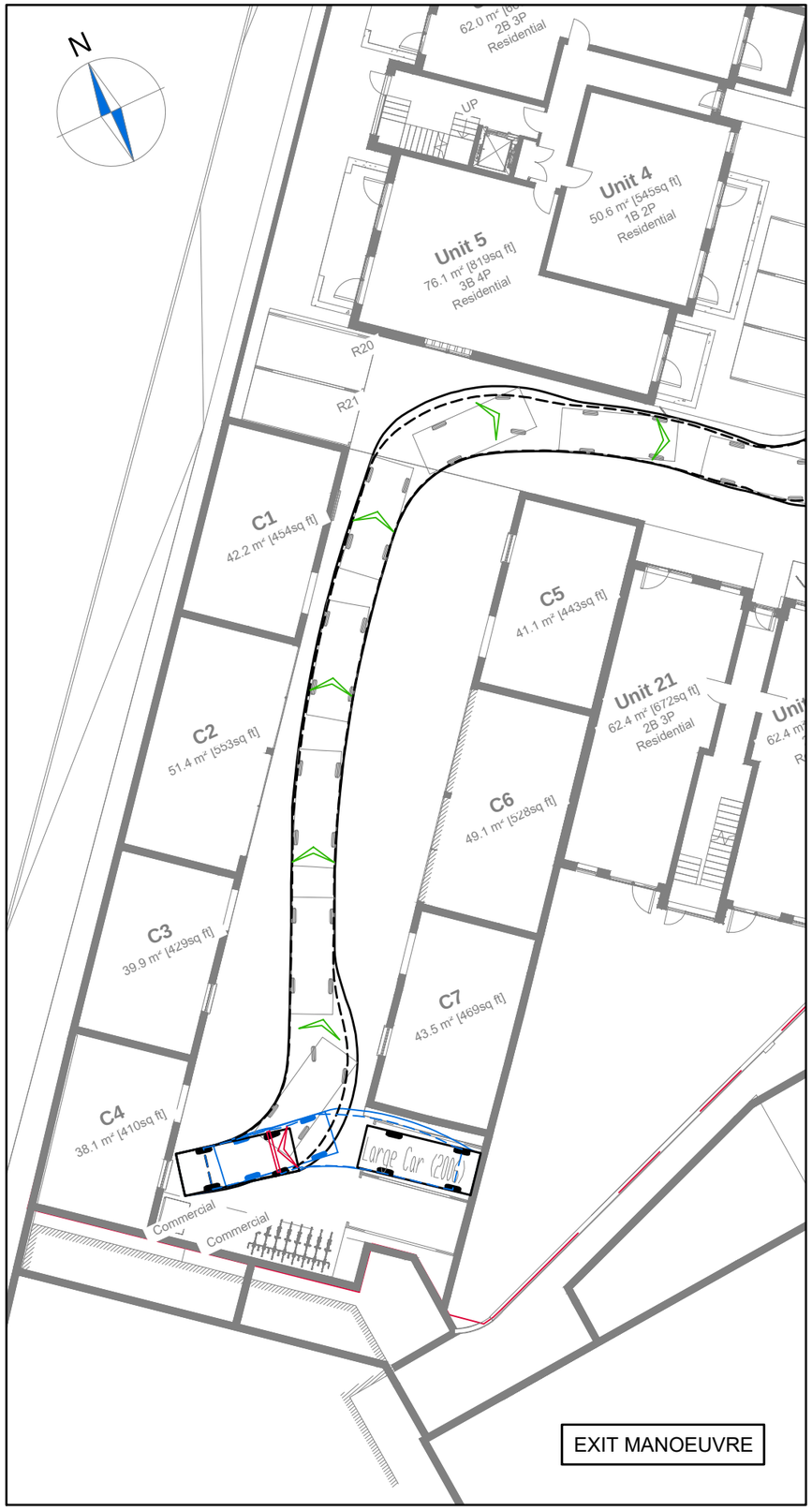

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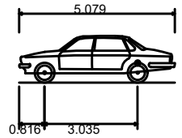

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Project:

Arlington Works
Arlington Road, Twickenham

Drawing Title:

Swept Path analysis using a 5m Large Car

Scale:	Size:
1:250	A3

Drawn by:	Checked by:	Date:
HE	MT	03.07.2018

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Scheme Ref:	Drawing No:	Sheet :	Rev:
CA3743	TR003	10 of 10	B

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