

September 2014

TRANSPORT ASSESSMENT

SITE SR4.3

MOSS LANE, CHURCHTOWN,

SOUTHPORT

Sefton Council

287492A-PTM

[Draft]

Transport Assessment

Site SR4.3

Moss Lane, Churchtown, Southport

287492A-PTM

Prepared for

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EXECUTIVE SUMMARY

Parsons Brinckerhoff was commissioned by Sefton Council to provide an independent Transport Assessment (TA) for 538 residential dwellings at Land South of Moss Lane, Churchtown, Southport, to assist the determination of the site's suitability for inclusion in Sefton's Local Plan.

This report does not serve as a full TA, but rather provides a more detailed and robust review of specific TA elements that were not appropriately addressed in the Transport Assessments previously delivered for the site by Redrow Homes and the Churchtown Greenbelt Action Group.

The existing transportation conditions for the local area were reviewed during a site visit undertaken on 3rd September 2014. A number of infrastructure shortcomings were found on Moss Lane with regard to:

- Sub-standard or non-existent pedestrian footways and crossings
- Limited road space for cyclists
- No access to the site via public transport
- Narrow road width
- A sluice bridge on Moss Lane with room for one-directional traffic only.

Limited space and land ownership issues could make mitigation measures difficult to successfully implement.

A particular need to deliver the site is a minimum 6 metre wide carriageway and a minimum 2 metre wide continuous footway, all the way along from the proposed site entrance to the Lane End roundabout.

Trip generation was undertaken that showed that the development would be estimated to generate at most 418 trips during the PM Peak hour. A gravity model showed that the majority of these trips would utilise the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout.

An ARCADY model of this junction was produced and found that the roundabout will operate with the added development within capacity. There is however a case to survey and model further junctions based on the outcome of the trip distribution calculations.

To conclude, the principle of development for this site remains unclear as although cumulative traffic impacts in the study area are not severe there is a case for widening the study area. Also the review of existing site conditions has raised issues with regards to providing safe access to the site to all.



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INTRODUCTION

Commission

- 1.0.1 Parsons Brinckerhoff was commissioned by Sefton Council to provide an independent Transport Assessment (TA) for 538 residential dwellings at Land South of Moss Lane, Churchtown, Southport, to assist the determination of the site's suitability for inclusion in Sefton's Local Plan.
- 1.0.2 Although Transport Assessments have presently been for 450 homes, the figure of 538 homes has been assessed as per the worst case to be set out in the Sefton Local Plan.
- 1.0.3 This report does not serve as a full TA, but rather provides a more detailed and robust review of specific TA elements that were not appropriately addressed in the Transport Assessments previously delivered for the site by Redrow Homes and the Churchtown Greenbelt Action Group.
- 1.0.4 The aspects therefore reviewed within this Transport Assessment are:
 - Existing Transport Conditions
 - Traffic Growth
 - Review of Traffic Data
 - Trip Generation
 - Trip Distribution
 - Junction Modelling of Mill Lane / Moss Lane / High Park Place / Roe Lane

Background

1.1.1 The proposed site is located in the Norwood Ward to the east of Churchtown, northeast of the Southport local centre on land bounded by Moss Lane and Pitts House Lane. Figure 1 and Figure 2 show the location of the proposed site.





Figure 1: Site Location





Figure 2: Site Location (Close)

- 1.1.2 Two Transport Assessments have previously been submitted for the site.
- 1.1.3 The first TA was produced by SCP on behalf of Redrow Homes, who seek to develop 450 residential developments on the site.
- 1.1.4 A second TA was produced by Hydrock on behalf of the Churchtown Green Belt Action Group, presenting a case against including the site in the Sefton Local Plan.
- 1.1.5 A review was undertaken by Parsons Brinckerhoff of both Transport Assessments on behalf of Sefton Council and both were found to have limitations.
- 1.1.6 For the SCP TA, this was in terms of:
 - the review of existing traffic conditions
 - the suitability of identified mitigation
 - the lack of robustness in the technical evidence submitted to demonstrate the traffic impact of the development

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- 1.1.7 For the Hydrock TA, limitations were in terms of:
 - Non-provision of any suggested mitigation measures should the site be developed
 - Lack of any junction modelling
 - Limited robustness of technical assumptions
- 1.1.8 This Transport Assessment will therefore focus on delivering an independent response that addresses these shortcomings.

Structure of Report

- 1.2.1 The report has been structured as follows:
 - Chapter 2 Existing Conditions: Identifies existing limitations of existing transport provision to the site and assesses the realism of implementing mitigatory measures
 - Chapter 3 Future Conditions: Assesses the transportation impact of the development in terms of trip generation and trip distribution, with ARCADY used to model the impacts of traffic on the Mill Lane / Moss Lane / High Park Place / Roe Lane junction
 - Chapter 4 Conclusions

EXISTING TRANSPORTATION CONDITIONS

Introduction

2.0.1 The review of existing transportation conditions is based upon a site visit to the proposed development site on 3rd September 2014.

Pedestrian

2.1.1 The proposed site access is presently served by a single footpath on Moss Lane on the access side of the development (the south side of Moss Lane). The footpath, westbound between the proposed site entrance and Churchtown, is flat, but is unevenly surfaced and narrow, with overgrown wildflowers and with limited lighting up to the point where the existing residential area is located.



Figure 3: Narrow Footway at Site Access

2.1.2 This footpath on the south side of Moss Lane, from the proposed site entrance to Churchtown local centre, is discontinuous. The existing footpath takes pedestrians from the proposed site entrance to Old Links Close. Shortly after this the footpath ends and forces pedestrians to cross the road, where there is a footpath available on the north side of Moss Lane. The land to the south side of Moss Lane, where there is currently no footpath, is owned by Southport Old Links Golf Club.





Figure 4: Lack of footway at golf course

- 2.1.3 On the north side of Moss Lane, for the first 400 metres, west of the proposed site entrance, there is no footpath on the north side of Moss Lane. Where there is no footpath, there is either a grass verge or a drainage ditch and an agricultural field beyond this. The footpath on the north side becomes available from Pitts House Lane. This footpath, although narrow in places, is well lit, flat and even.
- 2.1.4 There are no pedestrian crossing facilities across Moss Lane, exacerbating the issue of a non-continuous footpath on either side of Moss Lane. Crossing from the south side of Moss Lane to the north side has restricted visibility to both pedestrians and oncoming drivers due to the curvature of the road.
- 2.1.5 The existing golf course signage on the eastern entrance also limits visibility when crossing Moss Lane.





Figure 5: Visibility issues at road curvature

- 2.1.6 To the west of the golf course entrance, pedestrian footways become wider and continuous on both sides of the road.
- 2.1.7 Dropped kerbs are present across Pitts House Lane, Old Links Close, Farm Close and Warren Road, aiding pedestrian travel along Moss Lane.
- 2.1.8 According to the IHT's 'Providing for Journeys on Foot'¹, an acceptable walking distance to employment sites, shops and services is 800m. This means the local centre of Churchtown, at 1.9km away is outside of the considered acceptable walking distance.
- 2.1.9 There are a few local facilities, including a small grocery store, bakers and library available within a 1km walking distance at the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout. Likely pedestrian routes are shown in

2.1.10 Figure 6.

Кеу			
Proposed Site Entrance			
	Pedestrian and Cycle Desire Lines		

¹ <u>http://www.google.co.uk/url?url=http://www.ciht.org.uk/download.cfm/docid/D66AD936-281C-4220-BF109289B5D01848&rct=j&frm=1&q=&esrc=s&sa=U&ei=qncJVPbvMM3kaNrBgDg&ved=0CBsQFjA A&sig2=E62s2z-JIME-YUuWIETbSQ&usg=AFQjCNFQSnixK5nZFSMFWdTvizQeZ5zHUg</u>



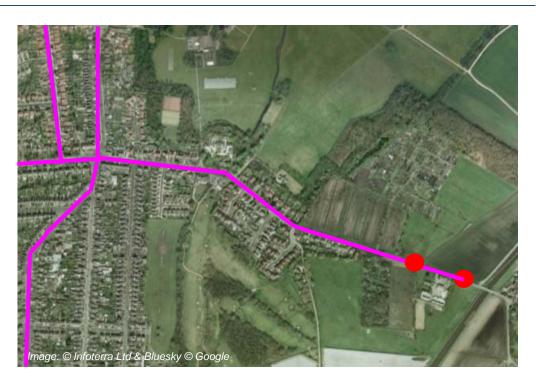


Figure 6: Pedestrian and Cycle Desire Lines

Кеу			
Proposed Site Entrance			
Pedestrian and Cycle Desire Lines			

- 2.1.1 In summary, pedestrian access to the site is insufficient both in terms of the present standard of the footpath and crossing facilities and the lack of any significant employment or local amenities within walking distance of the site.
- 2.1.2 A minimum 6 metre wide carriageway and a minimum 2 metre wide continuous footway will be needed all the way along from the proposed site entrance to the Lane End roundabout.

Cycling

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- 2.2.1 The width of Moss Lane at the proposed site entrance and certain sections between the Golf Club and the single lane bridge is 5 metres or less which is a particularly narrow space for shared usage between cyclists and cars in the event of high traffic flows and on a 30mph carriageway.
- 2.2.2 To the west of the golf course, Moss Lane becomes wider and there becomes more space available for cyclists and motor vehicles to share the road, possibly including a cycle lane, although the presence of parked cars adjacent to residential properties would be an issue.
- 2.2.3 There are no alternative cycle routes that could be used to access the site. Moss Lane requires better provision for cyclists given that the road is too narrow and there are no nearby cycle routes at present.
- 2.2.4 To widen the highway, agreement would need to be made with the agricultural land owners and residential property owners as the highway would likely encroach on privately owned land.
- 2.2.5 Additional mitigation measures should include a widened shared foot/cycle path along sections of Moss Lane and deliver appropriate traffic calming measures to create a more residential feel on Moss Lane and encourage drivers and cyclists to share the roadspace.
- 2.2.6 The nearest cycle route is National Cycle Route 62, which is located in Southport centre, a 3 mile cycle away. Nevertheless, the local area is relatively flat and residential and is suitable for cycle trips if safe access from the site was improved to accommodate cycle journeys.
- 2.2.7 In summary, the narrow width of the eastern section of Moss Lane currently presents a hazard to cyclists and would require a segregated / shared cycle path or widening of the carriageway to allow for cycling to and from the proposed development site.
- 2.2.8 However widening may be difficult due to the limited availability of additional land. Therefore traffic calming measures along Moss Lane may be required to mitigate this.



Public Transport

Bus

- 2.3.1 The nearest bus stops are at the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout, a 1km walking distance from the proposed site entrance. This walking distance is above the IHT's acceptable walking distance to public transport of 400 metres. Given that the distance exceeds the acceptable walking distance, provision of a new bus route or the rerouting of an existing bus route, to accommodate the proposed development would be beneficial to encourage sustainable travel and allow greater accessibility for non-car drivers.
- 2.3.2 This would require a loop and bus stop within the site so that the bus is able to perform its turning movement for the return journey to Southport, whilst avoiding blocking traffic on Moss Lane.
- 2.3.3 It should be noted that any rerouting of existing services would add to the current service journey times.
- 2.3.4 Figure 8 shows the location of the bus stops in relation to the proposed site entrance. **Error! Reference source not found.** provides information on the bus services provided on the A5267 / Roe Lane and High Park Place.
- 2.3.5 The bus stops situated on A5267 / Roe Lane include shelter, seating and timetables. The northbound High Park Place bus stop includes a shelter and timetable whereas the southbound stop provides a timetable only.



Figure 7: High Park Place / Roe Lane Bus Stop



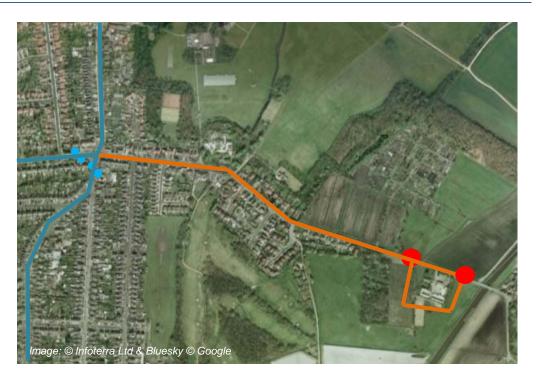


Figure 8: Public Transport Facilities

Кеу			
Proposed Site Entrance			
Immediate Bus Stops			
Current Bus Routes			
Possible Additional Bus Route			

2.3.6 Table 1 shows the route number and frequency of current bus services. Which has a mixture of 10 and 20 minute service frequency. With connections to the local Meols Cop train station and Southport town centre.



Table 1: Public Transport Bus Services

Route Number	Route	First Service	Last Service	Weekday Frequency
43/43A	Carr Lane – Southport – Meols Cop – Blowick – Russel Road – High Park	0632	2252	Every 20 minutes
49	Crossens – High Park – Southport – Birkdale – Hillside – Ainsdale – Woodvale	0739	2318	Every 10 minutes

Rail

2.3.7 Meols Cop rail station provides hourly services to Southport and Manchester. It is 2km walking/cycling distance away from the site and has 10 sheltered cycling storage stands but no CCTV. The station can also be reached by the 43/43A bus service.

Road Network

- 2.4.1 The site access is on Moss Lane, an unclassified two-way rural carriageway with a 30 mph speed limit. Moss Lane is narrow at the proposed site entrance, at 5 metres. Moss Lane carries traffic to the A5267, approximately 0.6km to the west. The A5267 takes traffic between the north-east of Southport to the south of Southport. The local road network connects the site to Churchtown and Southport, 1.5km and 4km away respectively.
- 2.4.2 The Mill Lane / Moss Lane / High Park Place / Roe Lane Place 4-arm roundabout located 1km west of the proposed site entrance is a critical junction that distributes traffic on different routes, towards the centre of Southport, and towards the A570 and A565, and Liverpool Road, which between them connects Southport with Merseyside and Lancashire. This roundabout will be assessed as part of this TA. This roundabout can be seen in Figure 9.
- 2.4.3 The Mill Lane arm to the north of the roundabout has a left turn only lane as well as a combined straight and right turn lane. High Park Place also has the same layout. The other arms have a single exit and entry lane for all directions.





Figure 9: Mill Lane / Moss Lane / High Park Place / Roe Lane Place Roundabout

- 2.4.4 SCP carried out a classified turning count on 10th September 2013 at this roundabout. It found that the AM peak hour for the roundabout was 08:00 to 09:00. The PM peak hour was found to be 17:00 to 18:00.
- 2.4.5 The full results of this survey can be found in Appendix A, with a flow diagram showing the flows in the context of the roundabout in Appendix B.
- 2.4.6 At present, the heaviest traffic flow during the AM Peak is 581 PCUs travelling from Moss Lane to High Park Lane and 321 PCUs travelling from High Park Place to Mill Lane. 228 PCUs travel from Roe Lane to Mill Lane, with 175 PCUs moving in the opposite direction. Traffic flows elsewhere are relatively low, with 129 PCUs eastbound and 72 PCUs westbound on Moss Lane.
- 2.4.7 During the PM Peak, the heaviest traffic flow is from High Park Place to Moss Lane at 594 PCUs with 337 PCUs in the opposite direction. 205 PCUs travel from Mill Lane to Roe Lane with 160 PCUs moving in the opposite direction. 105 PCUs and 144 PCUs travel eastbound and westbound respectively.

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- 2.4.8 During PB's own site visit there was a constant stream of vehicles but the roundabout was operating well within capacity.
- 2.4.9 A single lane bridge is located on Moss Lane to the east of the site access which would likely be a pinch-point for further delay as vehicles wait for oncoming traffic to clear the bridge. Beyond the bridge in the eastern direction Moss Lane has a priority junction with Wyke Lane.
- 2.4.10 As traffic flows increase as a result of the development there would be an increase in the number of delays and conflicts. Installation of traffic calming or traffic signals may be required to mitigate the delay and improve road safety on both approaches to the bridge.



Figure 10: Moss Lane Bridge

- 2.4.11 A road safety audit would be beneficial on determining whether site and mitigation measures can be delivered without a significant impact on road safety.
- 2.4.12 Swept path analysis for service vehicles should be undertaken on Moss Lane to ensure that the site is accessible.

Summary

- 2.5.1 In this section, the existing conditions for pedestrians, cyclists, public transport and the road network has been reviewed. Whilst the highway appears to operate well, there are a number of shortcomings of the site in terms of sustainable access.
- 2.5.2 The local centre of Churchtown is one mile away, equating to an excess of the IHT's acceptable walking distance of up to 800 metres.
- 2.5.3 It has been found that the footpath between the proposed site and local centre is discontinuous and would require a complete 2 metre wide footpath for the development to provide safe walking for pedestrians and be compatible with walking policy.
- 2.5.4 The curvature of Moss Lane at the Golf Club eastern entrance presents a hazard to crossing pedestrians and would require mitigation in the form of a safe crossing if a continuous footpath could not be achieved.
- 2.5.5 Moss Lane requires specific safe measures for cyclists, or traffic calming measures to slow traffic speeds, especially given that traffic levels would increase with the development of the site for residential use.
- 2.5.6 Approaches to and the bridge on the east of Moss Lane require mitigation to reduce the impact of increased traffic flows and to improve road safety.
- 2.5.7 The nearest bus stop currently exceeds the IHT's acceptable walking distance of 400 metres, at 1km. An existing bus service would require rerouting onto the site to facilitate public transport use or a new service serving the site would be required.
- 2.5.8 Therefore there are a number of necessary mitigation that will be required to support the safe sustainable accessibility of the site and encourage sustainable modes of travel.

FUTURE CONDITIONS

Traffic Growth

- 3.0.1 Growth factors from 2013 to 2023 were applied to the baseline traffic survey data supplied in the SCP Transport Assessment.
- 3.0.2 This is in line with the assessment years used in the SCP TA, as whilst the SCP TA did not justify the use of this year, without further justification of development timescales from SCP, 2023 remains an appropriate use of a five year future traffic forecast, assuming development is undertaken before 2018.
- 3.0.3 The growth factors shown in Table 2 were calculated by SCP using TEMPRO and have been checked by PB:

Table 2: 2013 – 2023 Growth Factors

АМ	1.0604
РМ	1.0634

3.0.4 Baseline traffic flows for the study area for 2023 in the AM (0800-0900) and PM (1700-1800) peak hours, with growth factors applied is included in Appendix B.

Trip Generation

- 3.1.1 TRICS was used to derive trip rates for edge of town residential developments in England.
- 3.1.2 The following site selection parameters were used to derive these trip rates:
 - All English regions excluding London
 - Sites Consisting of 6 to 4334 dwellings
 - Surveys undertaken from 2003 to 2013
 - Weekday survey dates
 - Suburban, edge of town, and neighbourhood centres only
- 3.1.3 Full site selection criteria and trip rates are included in Appendix C.
- 3.1.4 Given the out of town location and the identified deficiencies in the local transport network to support sustainable access to the development, 85th percentile trip rates have been used to represent a worst case in terms of trip generation on site during the AM and PM Peak Periods.
- 3.1.5 Table 3 shows the estimated 85th percentile vehicular trip rates and what this would equate to for 538 dwellings the maximum allocation put forward in the local plan.



Table 3: Estimated Vehicular Trip Rates

	85 th Percentile Trip Rates per Dwelling			d Trips for wellings
	Inbound Outbound		Inbound	Outbound
AM Peak (0800 – 0900)	0.287	0.454	154	244
PM Peak (1700 – 1800)	0.556 0.222		299	119



Trip Distribution

Generated trips have been distributed onto four routes on the local road network, from the site access the site access onto Moss Lane as described in Figure 11: Trip Distribution Routes



3.2.1 Table 4: Trip Distribution Routes and shown in Figure 11:

Figure 11: Trip Distribution Routes



Table 4: Trip Distribution Routes

Ref	Route	Wards	Districts
A	Eastbound via Moss Lane and Wyke Lane	Derby Ford Linacre Litherland Molyneux Netherton and Orrell Park St. Oswald Sudell and Victoria	Merseyside Lancashire Greater Manchester
В	Westbound via Moss Lane, turning north up Mill Lane	Cambridge Meols	Lancashire Blackburn Blackpool Cumbria
С	Westbound via Moss Lane continuing westbound on Roe Lane	Ainsdale Birkdale Blundellsands Cambridge Church Derby Dukes Ford Harington Kew Linacre Litherland Manor Norwood Ravenmeols Victoria	Cheshire Liverpool
D	Westbound via Moss Lane, turning southbound on High Park Place/Old Park Lane	Kew Norwood	

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- 3.2.2 2001 Census Travel to Work data for the Norwood Ward was used to determine the proportion of generated traffic travelling to and from each ward and district. These destinations were then used to assign the traffic onto each route.
- 3.2.3 Whilst a further census has since been undertaken in 2011, travel to work data has not yet been made available at ward level, which is required for more accurate traffic distribution calculations.
- 3.2.4 Full calculations and distribution of traffic is included in Appendix D. It is estimated that 87% of inbound and 84% of outbound traffic will use the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout.
- 3.2.5 Figure 12 and Figure 13 show the calculated distribution of trips onto the local highway network for the AM and PM peak hours. The trip distribution shows that a minimum of 50 trips will be added to the following junctions outside of the study area including:
 - Albert Road / Manchester Road / Lord Street / Leicester Street roundabout
 - Roe Lane / Norwood Avenue junction
 - Manor Road / Botanic Road junction
 - Cambridge Road / Manor Road / Denmark Road roundabout
 - Marshside Road / Preston New Road / Cambridge Road junction
- 3.2.6 Consideration should be given to the impact of the development on the operation of the above junctions.

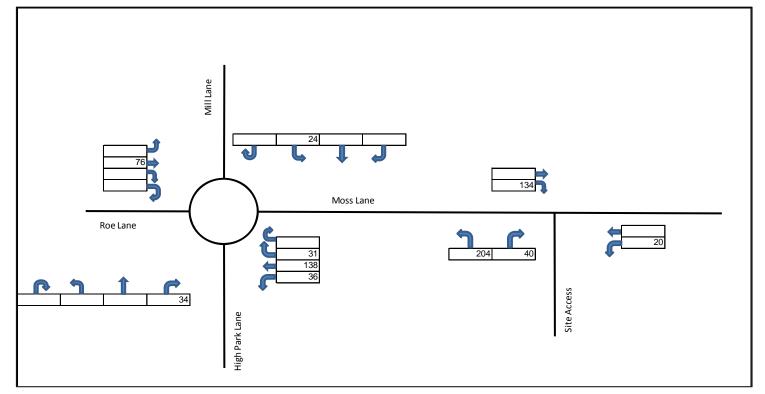


Figure 12: AM Peak Development Traffic Flows

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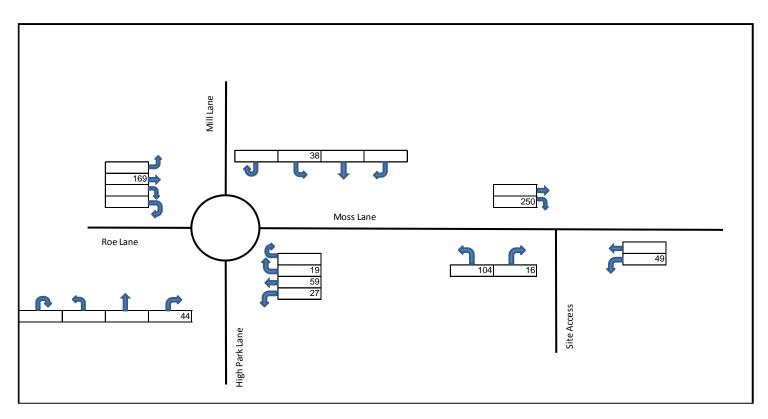


Figure 13: PM Peak Development Traffic Flows

2023 Do Nothing

- 3.3.1 The capacity of the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout in 2023 was assessed without the additional development from the site using ARCADY.
- 3.3.2 As it is not possible to cross the roundabout centre, the roundabout was modelled as a standard roundabout.
- 3.3.3 Table 5 and



Table 6 shows the ARCADY results for junction capacity, delay, and queue length for each lane during the AM and PM Peak hours in 2023 without the development of the site. Model output files are included in Appendix E.

Table 5: ARCADY Results 2023 Do Nothing AM Peak

Arm	RFC	Queue (PCU)	Delay (min)
Mill Lane	0.46	0.86	0.05
Moss Lane	0.14	0.17	0.12
High Park Place	0.38	0.63	0.09
Roe Lane	0.01	0.01	0.05

Table 6: ARCADY Results 2023 Do Nothing PM Peak

Arm	RFC	Queue (PCU)	Delay (min)
Mill Lane	0.33	0.52	0.05
Moss Lane	0.24	0.32	0.11
High Park Place	0.66	2.00	0.16
Roe Lane	0.01	0.01	0.06

3.3.4 All junction arms are operating below capacity, with the High Park Place arm during the PM Peak experiencing a maximum queue length of 2 PCUs.



2023 With Development

3.4.1 Table 7 and Table 8 shows the ARCADY results for junction capacity, delay, and queue length for each lane during the AM and PM Peak hours in 2023 should the site be developed. Model output files are included in Appendix E.

Table 7: ARCADY Results 2023 Do Something AM Peak

Arm	RFC	Queue (PCU)	Delay (min)
Mill Lane	0.48	0.93	0.06
Moss Lane	0.53	1.12	0.22
High Park Place	0.44	0.82	0.10
Roe Lane	0.01	0.01	0.05

Table 8: ARCADY Results 2023 Do Something PM Peak

Arm	RFC	Queue (PCU)	Delay (min)
Mill Lane	0.36	0.58	0.05
Moss Lane	0.41	0.68	0.14
High Park Place	0.73	2.73	0.21
Roe Lane	0.01	0.01	0.06

- 3.4.2 There have been increases in used capacity on all arms. However RFC on all arms is below 0.85, indicating that the junction will continue to operate without any real significant delay or queue lengths.
- 3.4.3 The most significant increase of used capacity is on the Moss Lane arm with RFC increasing from 0.14 to 0.53 during the AM Peak.
- 3.4.4 High Park Place during the PM Peak has the greatest RFC of 0.73, with queue lengths of 2.73 PCUs.

Summary

- 3.5.1 The development would be expected to generate a maximum of 398 trips in the AM peak hour and 418 trips in the PM Peak Hour, with the majority of traffic distributed onto the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout.
- 3.5.2 The ARCADY models have demonstrated that this junction will continue to operate within capacity.



CONCLUSIONS

- 4.0.1 Parsons Brinckerhoff was commissioned by Sefton Council to undertake an independent Transport Assessment of site SR4.3 Moss Lane, Churchtown for inclusion in the Sefton Council Local Plan.
- 4.0.2 This report does not serve as a full TA, but rather provides a more detailed and robust review of specific TA elements that were not sufficiently addressed in the Transport Assessments previously delivered for the site by Redrow Homes and the Churchtown Greenbelt Action Group.
- 4.0.3 A review of existing transportation infrastructure has shown significant shortcomings in terms of the lack of safe and direct pedestrian, cycle or public transport access to the site.
- 4.0.4 Mitigation measures that would resolve these shortcomings include:
 - Provision of continuous footways on Moss Lane
 - Provision of a bus service to serve the development
 - Provision of widened footpaths to the site access
 - Installation of traffic calming along Moss Lane
 - Provision of a safe pedestrian crossing point on Moss Lane
 - Improved road safety measures to the single lane bridge
- 4.0.5 Delivery of these mitigation measures may be difficult due to the required land availability.
- 4.0.6 A particular need to deliver the site is a minimum 6 metre wide carriageway and a minimum 2 metre wide continuous footway, all the way along from the proposed site entrance to the Lane End roundabout.
- 4.0.7 The development is estimated to generate 418 two way trips during the PM peak hour. An ARCADY junction assessment of the site has shown that the Mill Lane / Moss Lane / High Park Place / Roe Lane roundabout will continue to operate within capacity with the additional traffic generated by the development.
- 4.0.8 However junctions outside of this study area may require further assessment.
- 4.0.9 To conclude, it is considered that with regard to paragraph 32 of the National Planning Policy Framework, the principle of development remains unclear. Whilst this TA has shown that opportunities for sustainable access are limited and that safe and suitable access for all is not presently available, junction capacity models have shown no severe residual cumulative effects of development. Further work is required to understand whether this is the case for the other junctions outside of the study area that have not been considered within this report.



APPENDIX A

TRAFFIC SURVEYS



APPENDIX B

TRAFFIC FLOW CHARTS



APPENDIX C

TRICS OUTPUTS



APPENDIX D

TRIP DISTRIBUTION CALCULATIONS



APPENDIX E

ARCADY MODEL OUTPUTS