



J000370-HTN06
November 2023

Upper Brook Street, Masterplan (Williams Motor Co (Holdings) / Alliance UBS Limited)

Planning Ref: 137401/FO/2023

Full planning application for the demolition of existing buildings and erection of three ground floor + 12/14/29 storey buildings to be used for Purpose Built Student Accommodation (Use Sui Generis), comprising 983 bedrooms in total and 506sqm of ground floor ancillary uses (café/ commercial and convenience store - Use Classes E (a)/(b)/(c)), three buildings comprising ground floor + 5/7/9 storeys for Science and Innovation uses (Use Class E (g)(i) & (ii)) and 834sqm ground floor community uses (retail/ cafés and medical facility (Use Classes E (a)/(b) and (e)), and the provision of new public realm, two new public squares, new access and parking, and associated works.

Improvements to Kincardine Road Corridor Between Brunswick Street & Grosvenor Street

Highways Technical Note 06

Prepared on behalf of:

PROPERTY ALLIANCE GROUP
MODA LIVING
WILLIAMS MOTOR CO (HOLDINGS)

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1.0 INTRODUCTION & CONTEXT

- 1.1 This Highways Technical Note (HTN) has been prepared by Focus Transport Planning (Focus TP) on behalf of Property Alliance Group / Moda Living / Williams Motor Co (Holdings) to set out details of proposed amendments to development related highways works on the Kincardine Road corridor between Brunswick Street and Grosvenor Street to support the mixed use regeneration of land at Upper Brook Street, Manchester (Planning Application Ref: 137401/FO/2023). The amendments set out in this report have been prepared to take on board comments received from stakeholders during the planning application consultation period and the results of a subsequent Independent Stage 1 Road Safety Audit. Incorporation of these technical comments has allowed for the identification of an updated 'preferred' layout junction scheme that maximises pedestrian / cycle accessibility in line with prevailing government policy.

Planning Application Principles

- 1.2 The prevailing planning application (Ref: 137401/FO/2023) seeks the comprehensive redevelopment of land at Upper Brook Street to deliver a mixed-use regeneration scheme, including Purpose Built Student Accommodation (PBSA) & Life Sciences based employment development, along with ancillary commercial & community uses, on-site landscaping and public open space. The proposals envisage car-free development and include for a package of supporting local highways and transport works to enhance site permeability and overall accessibility by sustainable / active travel modes. These supporting works include for the closure of Inchley Road to general traffic to deliver a new public square and associated changes to the local highway network to maintain necessary vehicle connections to the application site and wider Brunswick residential estate, such as one-way operation of Kincardine Road and changes to layout arrangements at the junction of Upper Brook Street / Booth Street East / Inchley Road.
- 1.3 Details of key elements of these supporting highway works were set out in the formal Transport Assessment (TA) report, prepared by Focus TP (Doc Ref: J000370-TA01c, June 2023) and submitted as part of the suite of planning application

documents. The June 2023 TA report (paragraph 6.2.3) identified that the closure of Inchley Road and creation of the new public square would require local amendments to Kincardine Road, to remove the existing mini-roundabout junction with Inchley Road and the extension of one-way operation of Kincardine Road, between Whitekirk Close and Grosvenor Street, to deliver full one-way northbound controls between Brunswick Street & Grosvenor Street. Associated improvements would also be required at the Upper Brook Street / Booth Street East / Inchley Road traffic signal junction to accommodate the closure of Inchley Road and the provision of new right turn arrangements from Upper Brook Street (N) to Booth Street East.

- 1.4 Details of the nature of this supporting local highway improvement strategy were presented in plan format in the June 2023 TA report as Figures TA16 & TA17 (Bus stop amendments and Upper Brook Street / Booth Street East / Inchley Road junction layout) and Appendix TA7 (Kincardine Road corridor).

Development of Proposed Amendments

- 1.5 Following submission of the planning application, Focus TP have undertaken further consultation with local technical stakeholders (representatives of Manchester City Council Highways Department (MCC Highways), Transport for Greater Manchester (TfGM) and Active Travel England (ATE)), including a design workshop session, to identify potential amendments to the core improvement layouts illustrated in the TA, primarily to deliver additional pedestrian / cycle user enhancements. These improvements do not change the core principles of the proposed supporting highways works package, but rather respond to detailed technical comments from stakeholder groups and to allow for the incorporation of emerging best practice, where appropriate and practical
- 1.6 As part of these consultation discussions, MCC Highways requested that any updated highways drawings be subject to an Independent Stage 1 Road Safety Audit (RSA1) review, in order to confirm the general suitability of the proposed works. Undertaking an RSA1 represents the first stage in the standard four-stage Road Safety Audit process and is typically undertaken prior to planning consent, in order

to validate key scheme principles and provide a reference point for detailed construction design. To allow ease of review, MCC highways requested that separate RSA1 exercises were undertaken to consider:

- A. Proposed arrangements at the junction of Upper Brook Street / Booth Street East / Inchley Road, including proposed changes to the bus lay-by to northern site frontage to Upper Brook Street.
- B. Proposed one-way arrangements for the Kincardine Road corridor from the terminal connections of Brunswick Street and Grosvenor Street.

1.7 This HTN report considers those matters associated with the proposed amendments to the one-way arrangement along the Kincardine Road corridor between Brunswick Street and Grosvenor Road. The remainder of the report includes for the presentation of the following matters:

- A review of the main amendments to the proposed junction layout as developed during the stakeholder consultation process.
- Details of the Independent RSA1 review of the amended scheme.
- Details of the Designers Response Report prepared following review of the RSA1 and any subsequent amendments to the scheme to respond to specific recommendations.
- Presentation of final post audit ‘preferred’ scheme layout plans.

Implication of Proposed Changes to the Wider Planning Application

1.8 It is noted that proposed changes to the wider Upper Brook Street mixed-use application scheme were submitted to Manchester City Council Planning Department during early November 2023. These proposed changes were as follows:

- Block A1 reduced in height from GF + 41 storeys to GF + 29 storeys with change to the massing (removal of stepped form).
- Block A1 to incorporate a mezzanine (included within the ground storey).

- The total quantum of PBSA beds within Blocks A1/A2 reduced to 763 beds (down by 117), beds within Block A3 remain unchanged. The revised scheme provides 983 student beds across the three proposed PBSA buildings.
 - Changes to elements of building cladding and gable end materiality.
 - Revisions to supporting elements to reflect the reduction in PBSA bed numbers.
 - Minor change to the northwestern elevation of proposed Life Science Building B2, resulting in reduction of 34sqm (14,045sqm from 14,079sqm).
- 1.9 The implications of these proposed changes on the core highways and transport impact case set out in the June 2023 TA report are directly considered in TA Addendum report J000370-TA02a. This addendum report concludes that, in practice, the proposed changes would give rise to a strictly marginal scale change in development related traffic when compared to that set out in the June 2023 TA, and therefore would not result in discernible changes to the ‘with application scheme’ network conditions identified. No amendments to the core supporting local highway improvement strategy (i.e. closure of Inchley Road, one-way operation of Kincardine Road, change to Upper Brook Street / Booth Street East / Inchley Road junction layout) are required in response to the proposed wider scheme changes.
- 1.10 The technical amendments set out in this HTN are therefore unrelated to the proposed changes to the wider planning application and represent an evolution of the originally presented scheme designs, in order to directly respond to specific points of technical detail identified via stakeholder and RSA1 review of the core highway works packages.

2.0 REVIEW OF PROPOSED CORE LAYOUT AMENDMENTS

2.1 Details of Proposed Layout Amendments

2.1.1 This section of the HTN sets out the nature of the layout amendments proposed for the Kincardine Road corridor between Brunswick Street and Grosvenor Street. These layout changes have been identified through the review of comments provided by technical stakeholders and layout options discussed during a Design Workshop session with representatives of TfGM and ATE reference consultant.

2.1.2 Plans of the proposed amended corridor layout (Wilde CE Drawing Refs: 766-042-WCL-018-P01, 766-042-WCL-019-P01, 766-042-WCL-020-P01) are included as **Appendix HTN1** to this report, along with additional supporting plans illustrating the improvements in the context of the wider Upper Brook Street regeneration scheme. These plans represent the scheme details supplied to the independent RSA1 audit team for formal review (see section 3 to this note). Key layout changes when compared to the scheme details included in the June 2023 TA report are as follows (**Appendix HTN1** also includes for a supporting numbered plans based on the bullet points below, to assist review):

1. Amended pedestrian / cycle crossing details to Grosvenor Road - ‘flipping’ of crossing arrangements to allow cycle crossing on site closest to Upper Brook Street. Identification that further amendments may be required in this location to allow for more comprehensive tie-in to emerging scheme details for future Bee-Line improvements to Grosvenor Street cycle lane arrangements (understood to be still in development).
2. Introduction of raised carriageway over-run strip along Kincardine Road to limit practical carriageway width to 3.2m for day-to-day vehicles such as pedal cycle, motor-cycle, car and light van, but allow over-run by larger service vehicles as necessary. Extension of this over-run area through Kincardine Road termination point to Grosvenor Street (including marked section to allow northbound cycle movements). Overrun strip to be provided at raised level to main carriageway and demarcated by alternative surface treatment.

3. Introduction of separately marked pedestrian and contra-flow cycle lane arrangements to non-site side of Kincardine Road corridor. Section of 1.5m contra-flow cycle lane and 1.5m restricted width footway for circa 30-35m, on section of restricted road corridor width at northern end of Kincardine Road (on approach to Grosvenor Road termination), replacing previously proposed section of 3m shared surface. *NB - It is not possible to deliver additional footway width in this location, due to the need for minimum 4m corridor width (including overrun area) adjacent to loading bays to ensure practical vehicle manoeuvring space.*
4. Introduction of separately marked pedestrian and contra-flow cycle lane arrangements to remainder of non-site side of Kincardine Road corridor, with cycle / footway 'flipped' to ensure cycle path closer to nearside kerb and footway to the outer edge of the corridor. Footway / cycleway corridor width over majority of route deliver at minimum 4m corridor, to include 1.5m* - 2.0m contra-flow cycle lane and 2.0m footway. **Reduced width cycle lane adjacent to parking bays to include for 0.5m buffer strip, in line with good practice guidance set out in LTN1/20.*
5. Revised priority arrangements at contra-flow cycle lane / footway crossing of Hanworth Close, to ensure that vehicle traffic 'gives way' to pedestrian / cycle movements. Additional give way road markings to Hanworth Close on approach to crossing points.
6. Longitudinal parking bays included in the raised over-run area to provide clear demarcation between operating carriageway and designated over-run / parking zones. Effective through vehicle carriageway width limited to 3.2m in sections adjacent to parking bays.
7. Revised termination arrangements of the off-carriageway section of contra-flow cycle lane to the immediate north of Whitekirk Close, to provide more logical re-join arrangements to vehicle carriageway. Revised priority arrangements at contra-flow cycle lane crossing of Whitekirk Close, to ensure that vehicle traffic 'gives way' to contra-flow cycle movements. Additional give

way road markings to Whitekirk Close approaches to cycle crossing point.
Introduction of additional planting / landscaping feature within the highway at
the corner of Whitekirk Close / Kincardine Road.

3.0 INDEPENDENT STAGE 1 ROAD SAFETY AUDIT

3.1 Principles of Road Safety Audit

3.1.1 A Road Safety Audit (RSA) is a procedure adopted that allows the independent overview of the road safety implications of proposed highway improvements or new road schemes. The objective of the process is to minimise potential future road collision occurrence and severity once the scheme has been built and the proposals come into operation. RSA's take into account the requirements of all road users, particularly vulnerable users such as pedestrians and pedal cyclists. Having identified potential road safety problems, the audit includes for practical recommendations for layout amendment / improvement. It should be stressed, however, that an RSA does not represent a technical design check.

3.1.2 The RSA process also includes for response by the designer / contractor (see chapter 4 to this HTN) allowing identification as to how the issues identified by the audit might be resolved going forward or will be highlighted to necessary elements of the design / contractor team.

3.1.3 RSA reviews are carried out at a number of key stages of the project design / delivery process, viz:

- Stage 1 (RSA1) - Preliminary Design
- Stage 2 (RSA2) - Detailed Design
- Stage 3 (RSA3) - Completion of Construction
- Stage 4 (RSA4) - Post Opening Monitoring (if required)

3.1.4 A RSA1 is undertaken at the completion of the preliminary scheme design, prior to granting of planning consent, and includes for the consideration of general road safety matters and in particular those issues that could impact on land take or practical scheme deliverability.

3.1.5 The RSA1 for the Kincardine Road corridor was undertaken by independent consultancy 'Highway Associates'. The audit was undertaken based on the supplied

scheme layout details presented in **Appendix HTN2** to this report (Wilde CE Drawing Refs: 766-042-WCL-018-P01, 766-042-WCL-019-P01, 766-042-WCL-020-P01) and informed by audit team review of other relevant supplied plans and documentation, including historical road safety information, and the undertaking of a detailed site visit during early November 2023.

3.2 RSA1 Findings & Recommendations

3.2.1 A copy of the RSA1 report for the proposed Kincardine Road corridor improvements is included as **Appendix HTN2** to this note. The key findings and recommendations set out in this report are summarised as follows:

- 3.1.1 - Recommendation to include for additional traffic calming to ensure managed low speeds.
- 3.1.2 - Query regarding arrangements at Hanworth Close access to allow for two-way vehicle traffic and 'turn-in' to side road.
- 3.1.3 - Query regarding manoeuvring space at Kincardine Road termination with Grosvenor Street to accommodate large vehicle exit from side road.
- 3.1.4 - Query regarding manoeuvring space for vehicles entering / exiting parking bays and loading bays.
- 3.1.4 - Query regarding nature of buffer width provision between parking bays and contra-flow cycle lane.
- 3.2.1 - Highlight proximity of Greek Street side road access to proposed tiger crossing and potential lack of awareness of drivers accessing Grosvenor Street from Greek Street.

4.0 RESPONSE TO ROAD SAFETY AUDIT

4.1 Designers Response Report

4.1.1 The formal Designers Response (DR) Report, prepared by Wilde CE in response to the matters highlighted in the RSA1, is included as **Appendix HTN3** to this note. The DR sets out a commentary as to additional design amendments and recommendations to be incorporated into updated layouts and to be considered during any subsequent construction design stage. The details of these matters are set out below:

- Provide additional traffic calming where practical. Aim to deliver calming feature at least every 90m.
- Minor amendment of Hanworth Close side road approach alignment to improve vehicle positioning and allow easier two-way vehicle passage.
- Minor amendment (signs, lines & kerb re-alignment) to Greek Street access to deliver greater driver awareness of existing contra-flow cycle lane and proximity to pedestrian / cycle crossing point. Highlight matter to detailed design team.
- Additional swept path assessments, as relevant.

4.2 Identification of Final 'Preferred' Scheme Layout

4.2.1 The above design amendment to address matters raised in the RSA1 have been incorporated into the final 'preferred' scheme layout included as **Appendix HTN4** to this note (Wilde Drawing Refs: 766-042-WCL-018-PO2, 766-042-WCL-019-PO2, 766-042-WCL-020-PO2). **Appendix HTN4** also includes for updated supporting plans illustrating the Kincardine Road corridor layout in the context of the wider Upper Brook Street mixed use proposals, including the new public square feature and parallel junction improvements at Upper Brook Street / Booth Street East / Inchley Road (Wilde CE Drawing Refs: 766-042-WCL-009to012-PO3). The works relating to

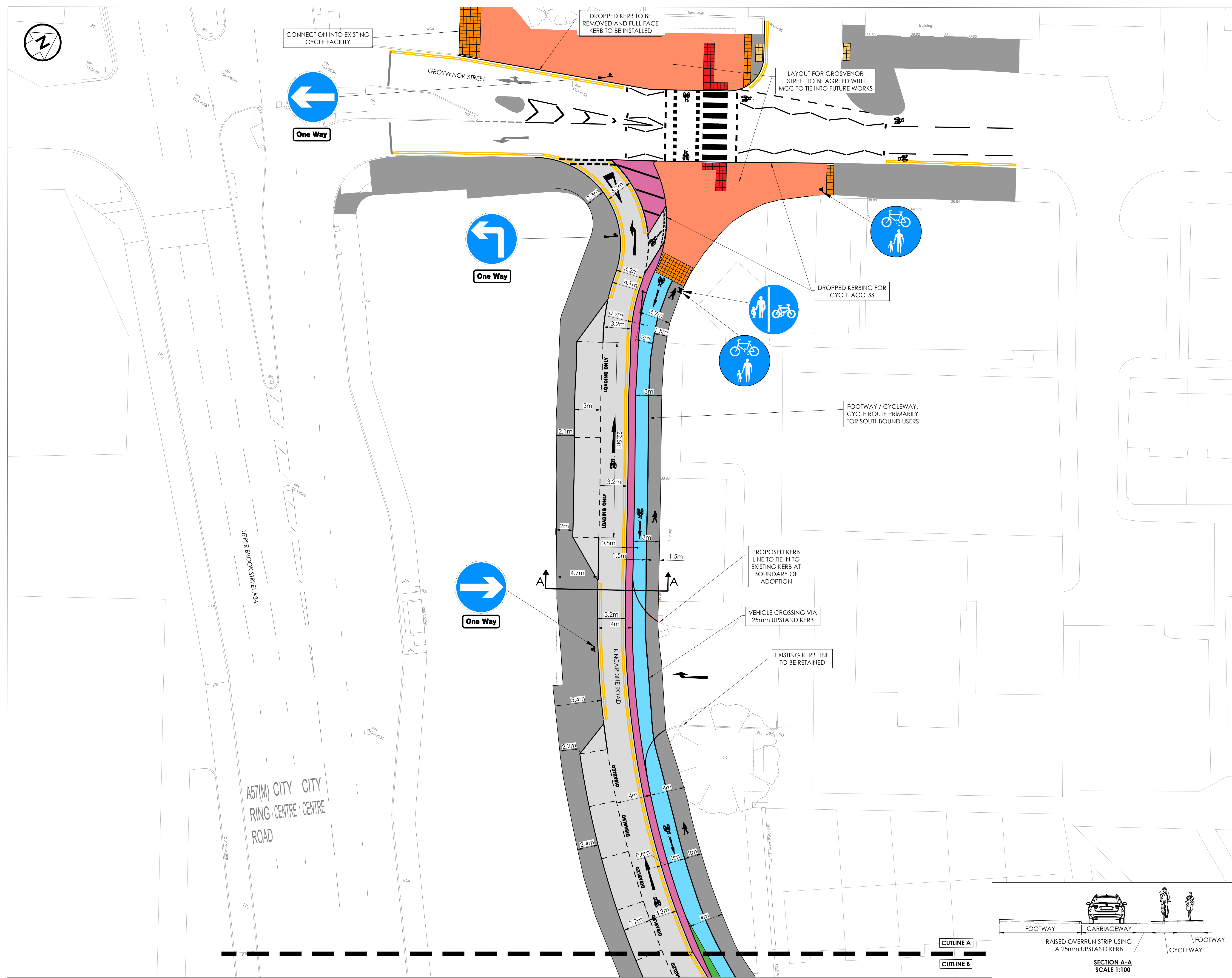
the Upper Brook Street / Booth Street East junction are the subject of a separate RSA1 and HTN review (**Focus TP Doc Ref: J000370-HTN05**).

5.0 SUMMARY AND CONCLUSIONS

- 5.1 This Highways Technical Note (HTN) has been prepared to set out details of amendments to the development related highway works proposed for the Kincardine Road corridor between Brunswick Street and Grosvenor Street to support the mixed use regeneration of land at Upper Brook Street, Manchester (Planning Application Ref: 137401/FO/2023). The amendments set out in this report have been prepared to take on board comments on the initial scheme drawings presented in the June 2023 Transport Assessment (TA) report, as received from stakeholders during the planning application consultation period and the results of a subsequent Independent Stage 1 Road Safety Audit. Incorporation of these technical comments has allowed for the identification of an updated ‘preferred’ corridor scheme.
- 5.2 Initial suggested layout changes were identified through the review of comments provided by technical stakeholders and the consideration of layout options via a Design Workshop session. These changes represent an evolution of the originally presented scheme designs set out in the June 2023 TA, and respond to specific points of technical detail. They do not alter the key principles of the highway strategy supporting the Upper Brook Street redevelopment proposals and are unaffected by the proposed changes to the wider regeneration scheme. The nature of the proposed amendments to the Kincardine Road corridor layout includes for introduction of an over-run strip to narrow the effective vehicle carriageway width, improved segregation of footway / contra-flow cycle lane to the non site-side and revised priority arrangements and the Hanworth Close / Whitekirk Close side road connections.
- 5.3 The proposed scheme amendments were agreed in principle with key highways stakeholders, subject to Independent Stage 1 Road Safety Audit review. The comments and recommendations identified as part of the RSA1 exercise have been incorporated into final ‘preferred scheme’ layouts, which are presented in this note for final review and agreement with the Council.







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KEY – GENERAL

CARRIAGEWAY

- RAISED OVERRUN STRIP
- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
- RAISED PLATEAU
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- HAZARD WARNING PAVING
- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND

REV	DRN	CHK	APP	DATE	DESCRIPTION

Wilde

Consulting Civil & Structural Engineers

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www.wildcivil.co.uk
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Client

PROPERTY ALLIANCE GROUP

Project

UPPER BROOK STREET
MANCHESTER
M13 9XH

Title

GENERAL ARRANGEMENT (OPTION 3)
KINCARDINE ROAD STAGE 1 RSA
SHEET 1 OF 3

Scale 1:200	Drawn TP	Date 31/10/23	Chkd DC	Approved ML
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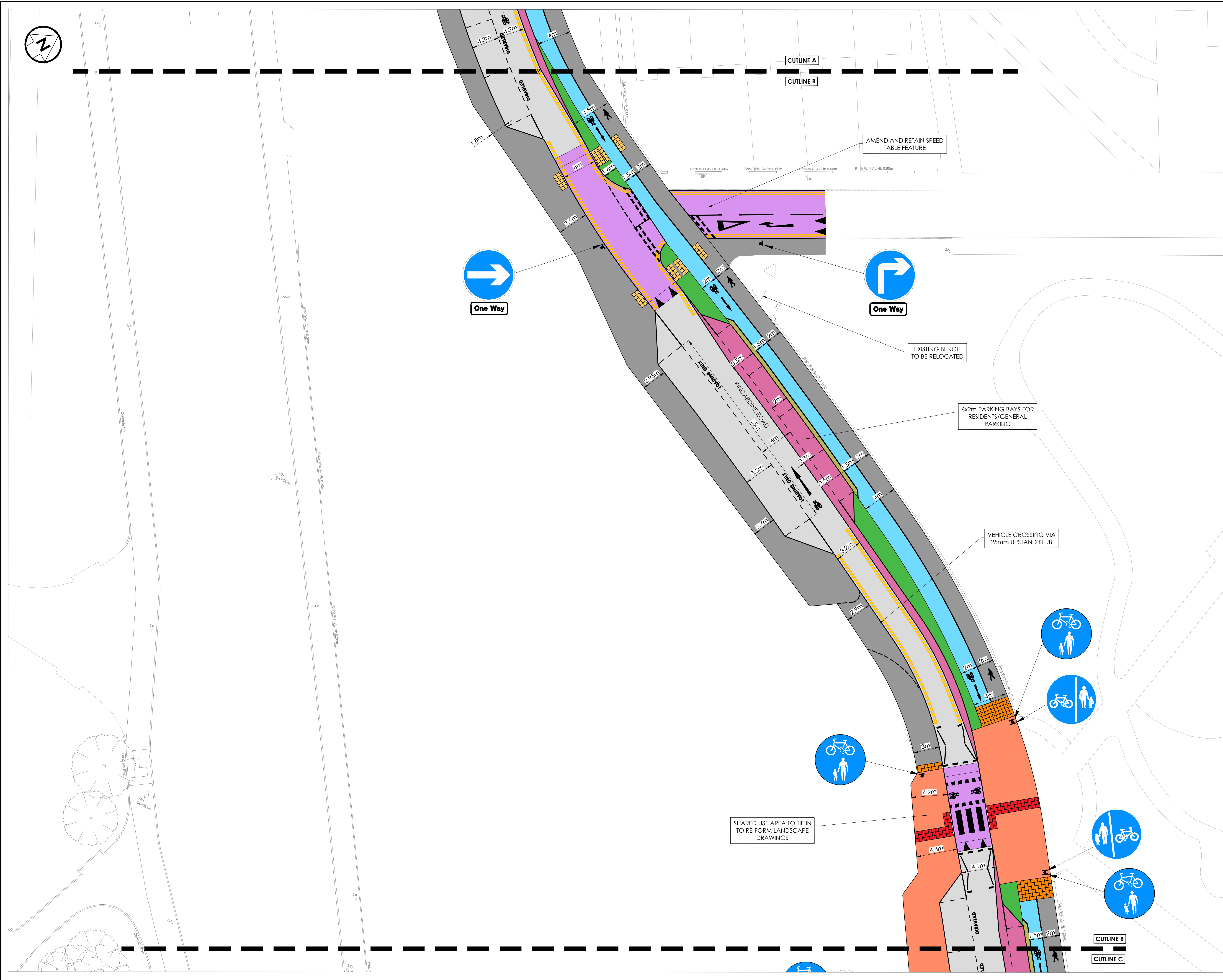
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CARRIAGEWAY

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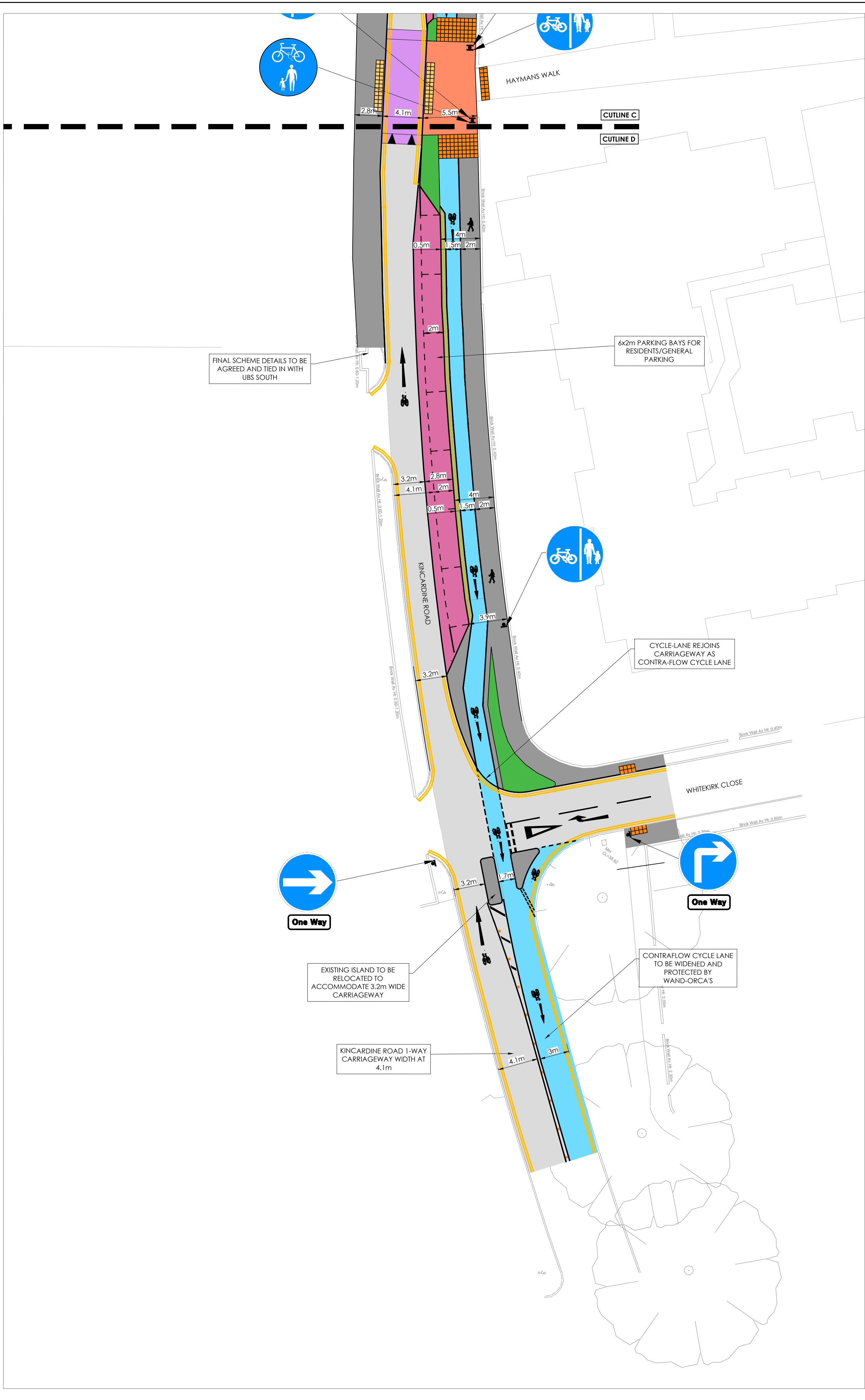
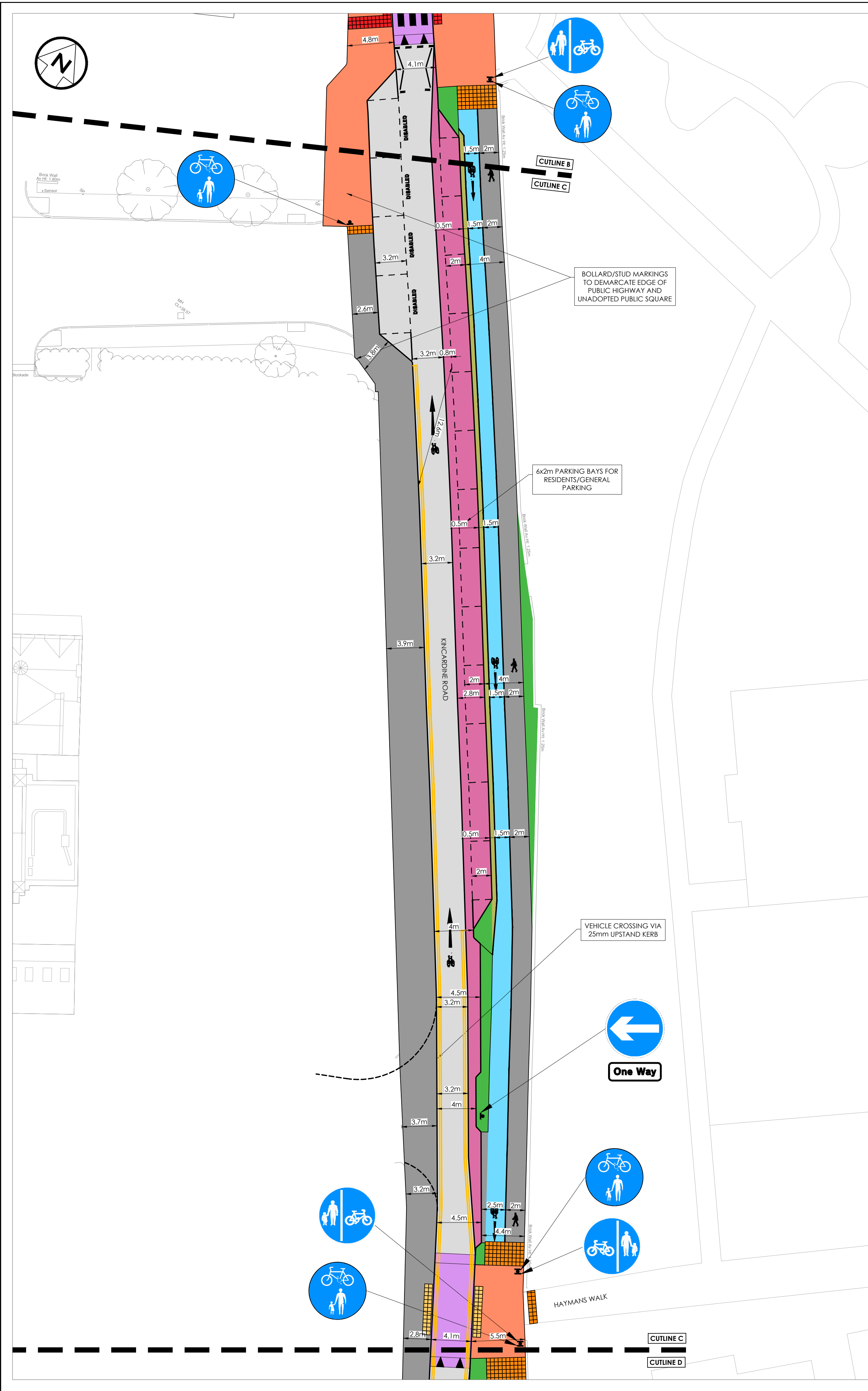
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- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
- RAISED PLATEAU
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- HAZARD WARNING PAVING
- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND

REV	DRN	CHK	APP	DATE	DESCRIPTION

Wilde
Consulting Civil & Structural Engineers

Brindley Lodge,
Adcroft Street,
Stockport, Cheshire,
SK1 3HS.
www.wildcivil.co.uk
Tel: 0161-474-7479
Fax: 0161-474-7492

Client
PROPERTY ALLIANCE GROUP

Project
**UPPER BROOK STREET
MANCHESTER
M13 9XH**

Title
**GENERAL ARRANGEMENT (OPTION 3)
KINCARDINE ROAD STAGE 1 RSA
SHEET 3 OF 3**

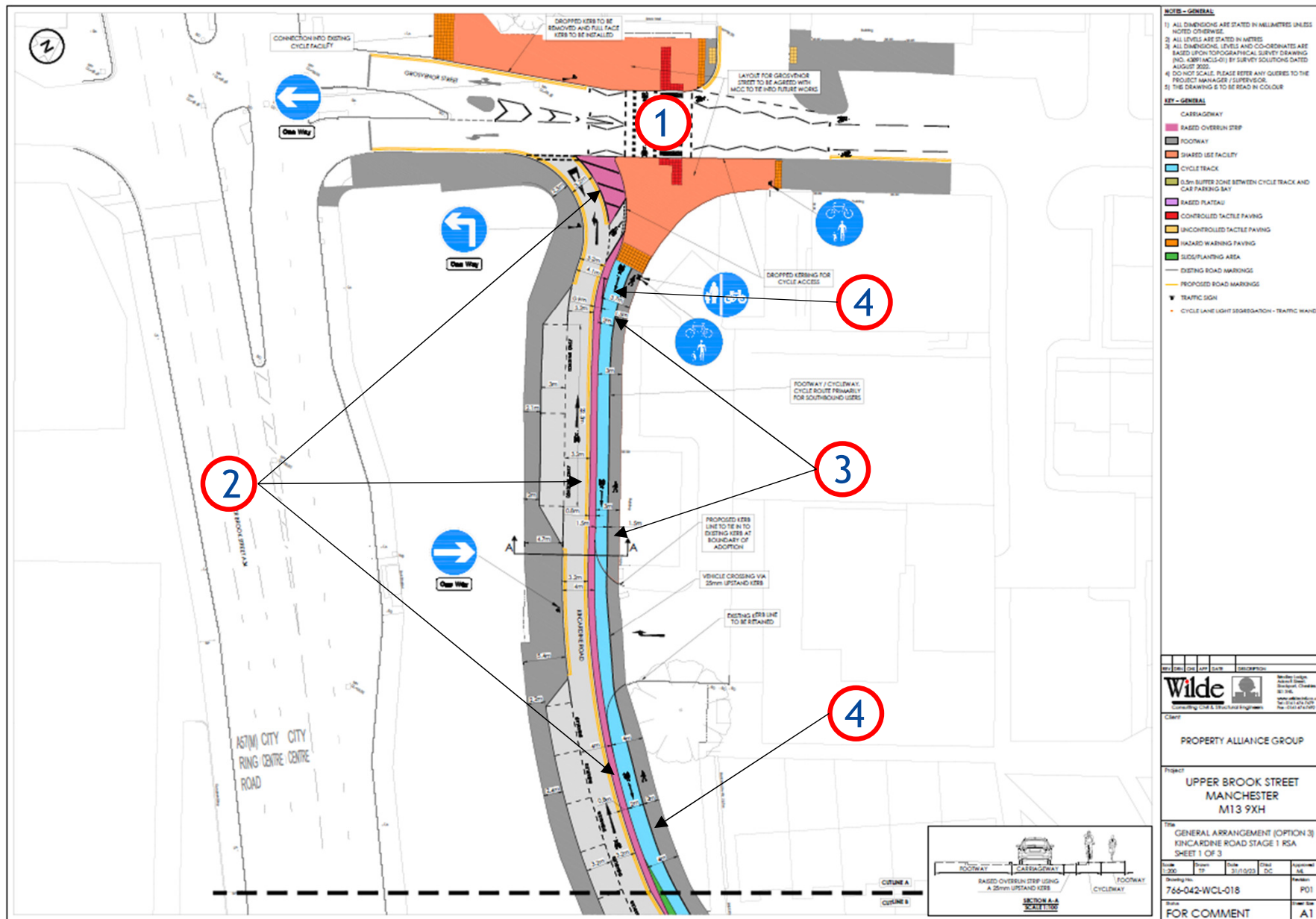
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Drawing No.
766-042-WCL-020

Status
FOR COMMENT

Revision
P01

Sheet Size
A1



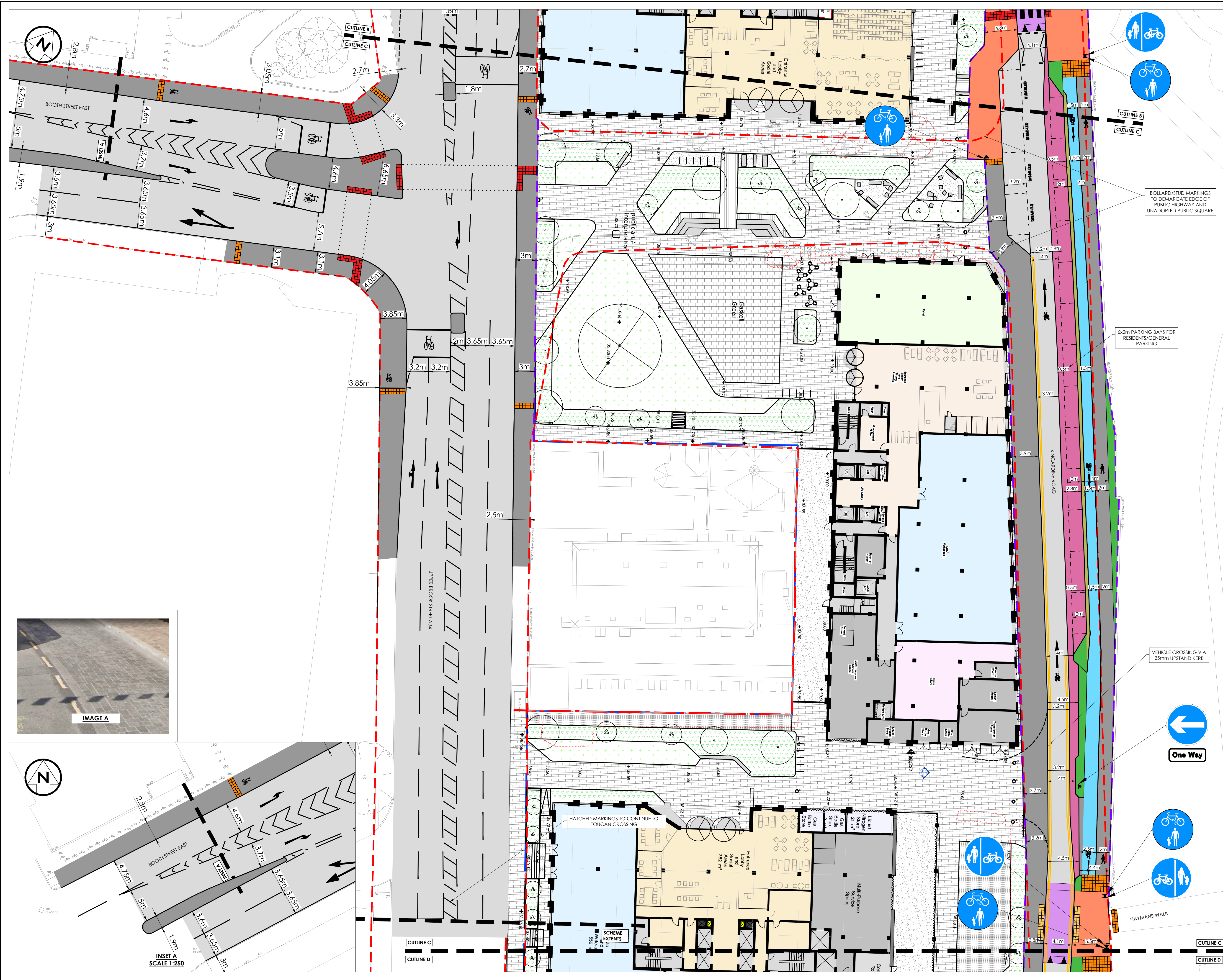




- NOTES – GENERAL:**
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 - 2) ALL LEVELS ARE STATED IN METRES
 - 3) ALL DIMENSIONS, LEVELS AND CO-ORDINATES ARE BASED UPON TOPOGRAPHICAL SURVEY DRAWING (NO. 43891MCLS-01) BY SURVEY SOLUTIONS DATED AUGUST 2022.
 - 4) DO NOT SCALE. PLEASE REFER ANY QUERIES TO THE PROJECT MANAGER / SUPERVISOR.
 - 5) THIS DRAWING IS TO BE READ IN COLOUR

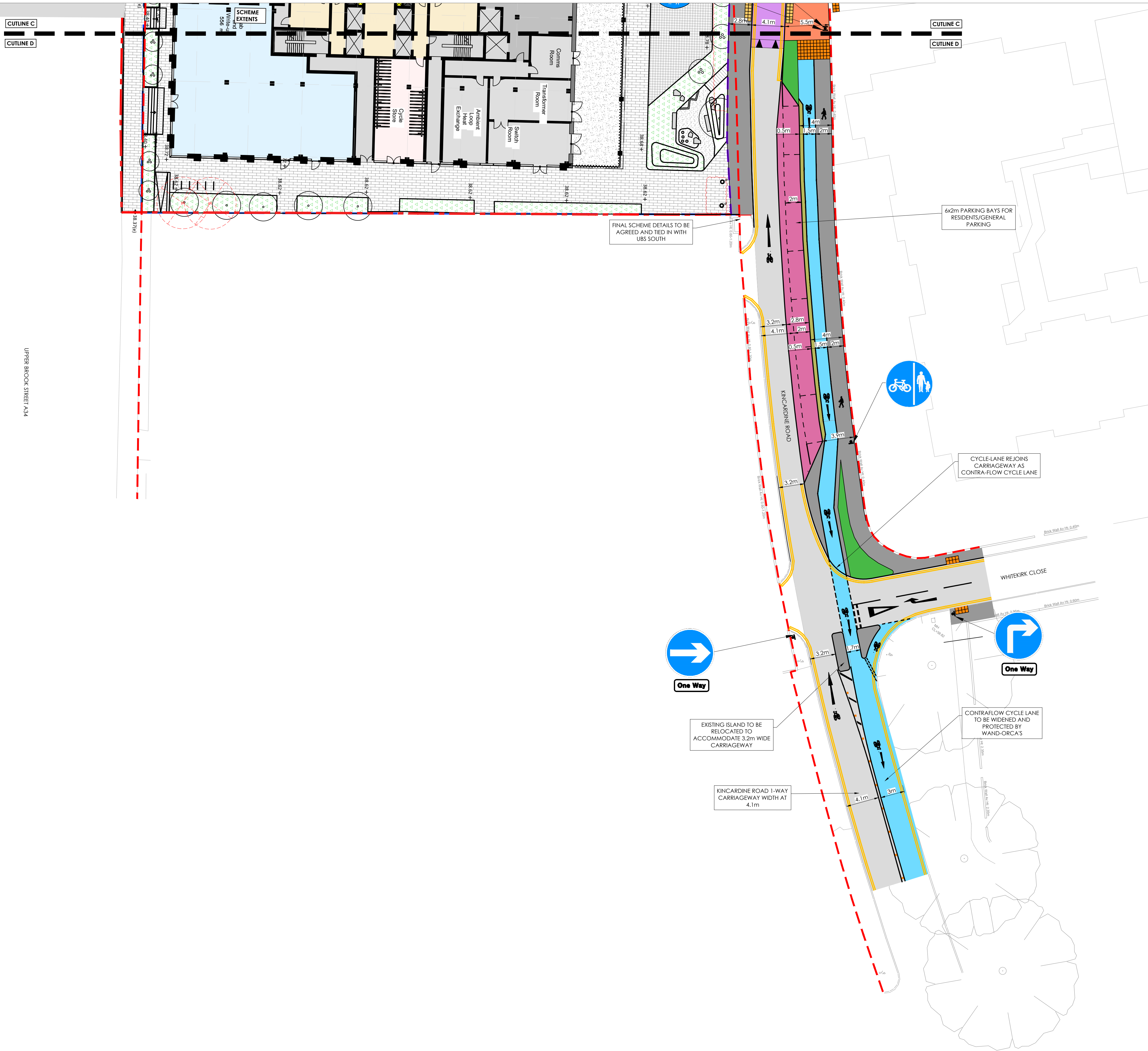
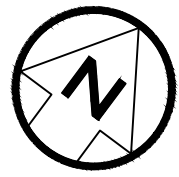
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 - NEW HIGHWAY BOUNDARY
 - CARRIAGEWAY
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 - PROPOSED ROAD MARKINGS
 - TRAFFIC SIGN
 - CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND
 - BUS SHELTER

P02	TP	DC	ML	31/10/23	AMENDED FOLLOWING REVIEW
REV	DRN	CHK	APP	DATE	DESCRIPTION
					 Brindley Lodge, Adcroft Street, Stockport, Cheshire, SK1 3HS. www.wildcivil.co.uk Tel: 0161-474-7479 Fax: 0161-474-7492
Client					
PROPERTY ALLIANCE GROUP					
Project					
UPPER BROOK STREET MANCHESTER M13 9XH					
Title					
GENERAL ARRANGEMENT (OPTION 3) SHEET 2 OF 4					
Scale	Drawn	Date	Chkd	Approved	
1:200	TP	13/10/23	DC	ML	
Drawing No.					Revision
766-042-WCL-010					P02
Status					Sheet Size
FOR COMMENT					A1



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 - BUS SHELTER

P02	TP	DC	ML	31/10/23	AMENDED FOLLOWING REVIEW
REV	DRN	CHK	APP	DATE	DESCRIPTION
					Wilde Consulting Civil & Structural Engineers
					Brindley Lodge, Adcroft Street, Stockport, Cheshire, SK1 3HS. www.wildcivil.co.uk Tel: 0161-474-7479 Fax: 0161-474-7492
Client					
PROPERTY ALLIANCE GROUP					
Project					
UPPER BROOK STREET MANCHESTER M13 9XH					
Title					
GENERAL ARRANGEMENT (OPTION 3) SHEET 3 OF 4					
Scale	1:250	Drawn	TP	Date	13/10/23
Drawing No.	766-042-WCL-011	Chkd	DC	Approved	ML
Status	FOR COMMENT	Revision			P02
		Sheet Size			A1



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KEY – GENERAL

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P02	TP	DC	ML	31/10/23	AMENDED FOLLOWING REVIEW
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REV	DRN	CHK	APP	DATE	DESCRIPTION
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Consulting Civil & Structural Engineers



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Client
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Project
**UPPER BROOK STREET
MANCHESTER
M13 9XH**

Title
**GENERAL ARRANGEMENT (OPTION 3)
SHEET 4 OF 4**

Scale 1:200	Drawn TP	Date 13/10/23	Chkd DC	Approved ML
Drawing No. 766-042-WCL-0012				Revision P02
Status FOR COMMENT				Sheet Size A1



IMAGE A



Kincardine Road, Manchester Proposed Highway Works Stage 1 Road Safety Audit

Prepared by



Distribution List

1. Andrew Bell - Focus
2. File Copy

REPORT NUMBER 2023/F/2024

CONTACT

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
FINAL	17/11/23	N Madhavan	R Sawczyn	T Madhavan	For Issue

CONTENTS

1	INTRODUCTION	1
2	ITEMS RAISED BY PREVIOUS AUDITS AND REPORTS.....	3
3	ITEMS RAISED BY THIS AUDIT	4
4	AUDIT TEAM STATEMENT.....	7

Appendix A: Drawings and documents provided

Appendix B: Plans of items raised by this audit

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1 INTRODUCTION

1.1 This report results from a Stage 1 Road Safety Audit carried out relating to the proposed highway works in the form of remodelling works primarily along Kincardine Road, Manchester in the form of VRU improvements including tiger crossings and segregated cycleway footway/shared spaces. The audit was carried out during November 2023.

1.2 The audit team consisted of:

Team Leader: Naresh Madhavan MCIHT, MSoRSA EU RSA Cert. Comp
Director
Highway Associates

Team Member: Robin Sawczyn BEng MCIHT MSoRSA
Senior Road Safety Engineer
Highway Associates

1.3 The audit took place at the offices of Highway Associates, Chester. The Road Safety Audit was undertaken in accordance with the Road Safety Audit Brief provided by Andrew Bell of Focus. The Road Safety Audit comprised an examination of the documents provided and these are listed in Appendix A.

The site was visited by the audit team at the following times/conditions:

Day/Date	Time	Weather Con	Traffic Flow
Mon 6 th Nov 2023	11:10 – 12:10hrs	Damp/Drizzle	Ave

1.4 The terms of reference for this audit are as given in GG119, Design Manual for Roads and Bridges. The scheme has been examined and this report compiled only with regard to the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. Any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.

- 1.5 If relevant within this report the generic term “pedestrians” can include walking pedestrians, wheelchair users, dismounted cyclists, the blind, partially sighted, mobility impaired and people with prams or pushchairs. Highway Maintenance Operatives are also included within this term. Where a problem is specific to one or more of these vulnerable groups then appropriate reference will be made in the report.
- 1.6 Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems identified. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with GG119, and in no way imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.
- 1.7 This Road Safety Audit makes allowance for the fact that strategic decisions on matters such as route choice, junction type, standard of provision and approved Departures from Standards already reflect an appropriate balance of a number of factors including road safety.
- 1.8 The Audit Team have not been made aware of any possible geometric departures or relaxations from standards.
- 1.9 The reader is reminded that a Road Safety Audit is not limited to the new works alone where there are features that are considered by the Audit Team to affect the general safety in the area. Section 3 of this report lists ‘Problems’ identified from the drawings and as a result of the site visit relating to the proposed changes to the highway layout that are directly, or indirectly, related to the area (e.g. features/matters within the proposed works or immediate surrounds which the Audit Team feel should be brought to the attention of the Designer or other organisations even though they might not pose an immediate risk associated with the proposed works), and which are considered by the Audit Team to warrant attention under the subject proposals, generally by the maintaining authority. On occasions there are more sensitive issues or issues that fall outside the audit brief but which are of such a nature that Auditors feel should be specifically brought to the attention of the authorities - such issues, if they arise, are usually dealt with in detail in separate correspondence.

2 ITEMS RAISED BY PREVIOUS AUDITS AND REPORTS

- 2.1 It is understood that no previous road safety audits have been undertaken in relation to this scheme.

3 ITEMS RAISED BY THIS AUDIT

3.1 General

3.1.1 PROBLEM

LOCATION: Kincardine Road

SUMMARY: Insufficient traffic calming could result in higher than desired speeds

Speed/junction tables, have been proposed, however it is noted that these are spaced relatively far apart. Given that this road is substantial in length, concern is expressed that drivers may be encouraged to travel at inappropriate speeds increasing the risk of loss of control or conflicts with VRUs or manoeuvring vehicles.

RECOMMENDATION

Additional traffic calming measures should be provided to ensure a safe distribution of vehicular speeds.

3.1.2 PROBLEM

LOCATION: Kincardine Road junction with Howarth Close

SUMMARY: Insufficient manoeuvring space

Due to the proposed alignments, it is unclear as to whether there is sufficient manoeuvring space for a vehicle to turn right into Howarth Close whilst another waits at the giveway line increasing the potential for conflicts such as those involving loss of control due to kerb over-running or vehicle to vehicle conflicts.

RECOMMENDATION

Undertake swept path analysis to determine the exact nature of the problem. If necessary, the kerb alignments should be adjusted to allow sufficient manoeuvring space for turning vehicles.

3.1.3 PROBLEM

LOCATION: Kincardine Road junction with Grosvenor Street

SUMMARY: Insufficient manoeuvring space

Due to the proposed alignments, it is unclear as to whether there is sufficient manoeuvring space for a large vehicle such as an HGV to turn left onto Grosvenor Street without increased risk of kerb over-running which could result in loss of control conflicts.

RECOMMENDATION

Undertake swept path analysis to determine the exact nature of the problem. If necessary, the kerb alignments should be adjusted to allow sufficient manoeuvring space for all likely visiting vehicles.

3.1.4 PROBLEM

LOCATION: Kincardine Road – Proposed parking and loading bays

SUMMARY: Insufficient manoeuvring space

Due to the proposed alignments, it is unclear as to whether there is sufficient manoeuvring space for vehicles to access and egress the proposed parking and loading bays should adjacent bays be occupied without increased risk of striking adjacent vehicles or kerb over-running which could result in loss of control conflicts.

RECOMMENDATION

Undertake swept path analysis to determine the exact nature of the problem. If necessary, the alignments should be adjusted to allow sufficient manoeuvring space for all likely visiting vehicles.

3.1.5 PROBLEM

LOCATION: Kincardine Road – Proposed westside parking bays

SUMMARY: Risk of conflicts with passing cyclists

Concern is expressed that due to the close proximity of the cycle lane to the kerb edge that drivers or passengers of parked vehicles could inadvertently open a car door and strike a passing cyclist causing personal injury. Whilst it is accepted that a 0.5m margin/buffer zone strip is proposed, this is deemed to be insufficient segregation.

RECOMMENDATION

The proposed margin/buffer zone strip should be suitably increased in size.

3.2 **Non Motorised Road User Provision**

3.2.1 PROBLEM

LOCATION: Grosvenor Street – Proposed tiger crossing

SUMMARY: Close proximity to junction could cause conflict

It is proposed to install a tiger crossing between the side road junctions of Kincardine Street and Greek Street. Due to the close proximity to Greek Street, concern is expressed that drivers turning right out of Greek Street may not sufficiently appreciate a crossing VRU due to being fixated on the view to the left resulting in vehicle to VRU conflicts. The situation is exacerbated by the one-way nature of Grosvenor Street in this location, potentially giving drivers a false sense of security that they should prioritise the view to the left.

RECOMMENDATION

The crossing should be relocated to a suitable position away from the junction.

3.3 Road Signs and Markings

No comments at this stage

3.4 Lighting and Signals

No comments at this stage

3.5 Landscaping

No comments at this stage

3.6 Protective Aids

No comments at this stage

3.7 Surface Characteristics and Drainage

No comments at this stage

4 AUDIT TEAM STATEMENT

We certify that this Audit has been carried out in accordance with the guidelines in GG119.

AUDIT TEAM LEADER

Naresh Madhavan MCIHT MSoRSA EU RSA Cert. Comp
Director
Highway Associates
International House
Aviation Park
Flint Road
Chester
CH4 0GZ

Signed:



Date:

17/11/23

AUDIT TEAM MEMBER

Robin Sawczyn BEng MCIHT MSoRSA
Senior Road Safety Engineer
Highway Associates
International House
Aviation Park
Flint Road
Chester
CH4 0GZ

Signed:



Date:

17/11/23

APPENDIX A

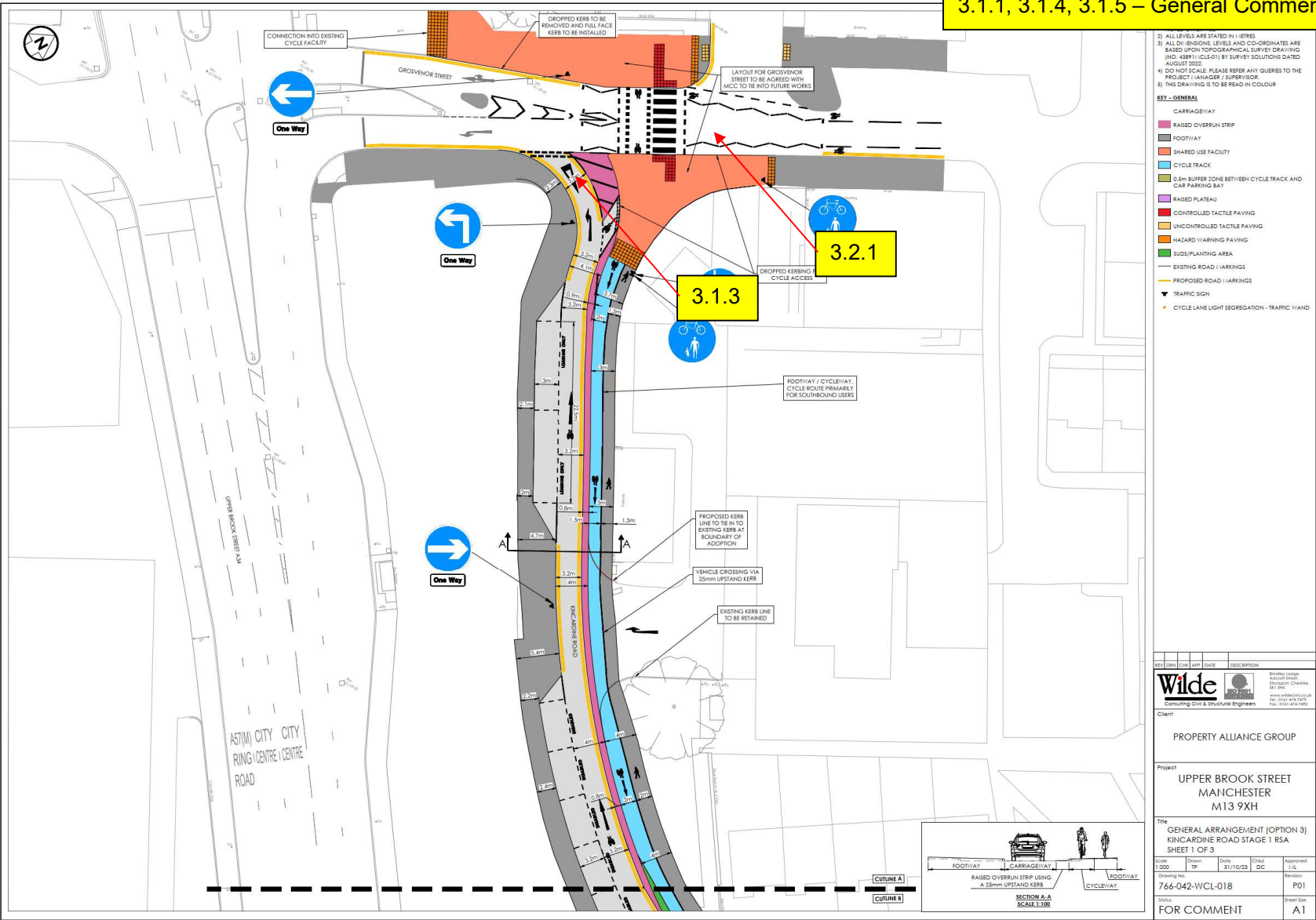
DRAWINGS AND DOCUMENTS PROVIDED

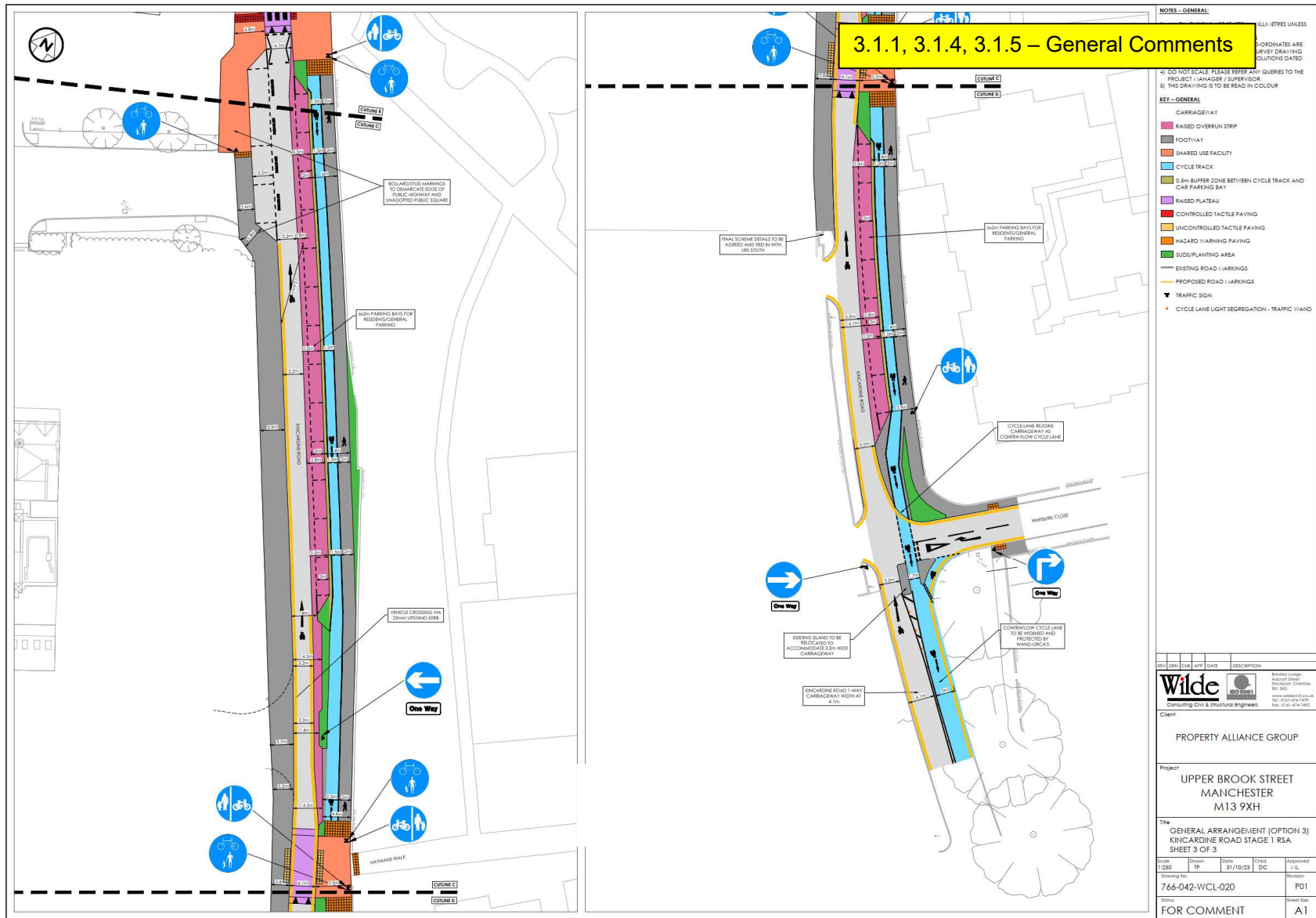
-  766-042-WCL-009 - 012 (P02) General Arrangement (Option 3)
-  766-042-WCL-017 (P01) Upper Brook Street General Arrangement for Stage 1 RSA
-  766-042-WCL-018 - 020 (P01) General Arrangement for Stage 1 RSA (Option 3)
-  766-042-WCL-024 (P01) Upper Brook Street Tracking

APPENDIX B

PLANS OF ITEMS RAISED BY THIS AUDIT

3.1.1, 3.1.4, 3.1.5 – General Comments









Civil, Structural, Rail and Transportation Engineers

PROPERTY ALLIANCE GROUP, MODA LIVING & WILLIAMS MOTOR
CO (HOLDINGS)

UPPER BROOK STREET, MANCHESTER

SECTION 278 AGREEMENT

KINCARDINE ROAD

766-042-DOC-002 [P01]

ROAD SAFETY AUDIT STAGE 1 – RESPONSE REPORT

Stockport
Brindley Lodge
Adcroft Street
Stockport
Cheshire
SK1 3HS
T: 0161 474 7479

REPORT CONTROL SHEET

Version	Date	Status	Prepared By	Checked By	Approved By
P01	22/11/23	FINAL	D Campbell	M Lundy	M Lundy

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LIST OF APPENDICES

- 1 Road Safety Audit Report Stage 1
- 2 Supporting Drawings

1.0 INTRODUCTION / SCOPE

Wilde Consulting Engineers have been appointed by Focus Transport Planning for a project involving associated highways and public realm improvements for the proposed development on Kincardine Road, Manchester.

This report provides the responses against the Road Safety Audit Stage 1 report prepared by Highway Associates. A copy of the report and supporting addendum is available within **Appendix 1** of this document.

Supporting sketches referenced within the design organisation's response have been included within **Appendix 2** of this document, where applicable.

2.0 ROAD SAFETY AUDIT RESPONSE

2.1 Project Details

Table 2.1.A – Project details

Report title	Road Safety Audit Stage 1 – Response Report
Date	22/11/23
Document reference and revision	766-042-WCL-DOC-002
Prepared by	Wilde Consultants Ltd
On behalf of	Focus Transport Planning

Table 2.1.B – Authorisation sheet

Project	Kincardine Road, Manchester
Report title	Road Safety Audit Stage 1 – Response Report
Prepared by	
Name	Daniel Campbell
Position	Assistant Engineer
Signed	
Organisation	Wilde Consultants Ltd
Date	22/11/23
Approved by	
Name	Mark Lundy
Position	Associate Director
Signed	
Organisation	Wilde Consultants Ltd
Date	21/11/23

2.2 Introduction

Scheme summary

Proposed improvements including:

1. Closure of Inchley Road for vehicular traffic.
2. New one-way operation on Kincardine Road incorporating cycling facilities.
3. Review of cycleway connectivity, including junction of Grosvenor Street and Whitekirk Close.
4. Traffic calming.
5. Parking/loading areas.
6. Landscaping / planting areas.

2.3 Key Personnel

Table 2.3.A – Key personnel

Overseeing Organisation	Manchester City Council
RSA team	Highway Associates
Design organisation	Wilde Consultants Ltd

2.4 Road safety audit decision log

RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
3.1.1 LOCATION: Kincardine Road SUMMARY: Insufficient traffic calming could result in higher than desired speeds Speed/junction tables, have been proposed, however it is noted that these are spaced relatively far apart. Given that this road is substantial in length, concern is expressed that drivers may be encouraged to travel at inappropriate speeds increasing the risk of loss of control or conflicts with VRUs or manoeuvring vehicles	Additional traffic calming measures should be provided to ensure a safe distribution of vehicular speeds	Response: Accepted It is considered that the relatively narrow effective lane width proposed for the Kincardine Road one-way corridor (3.2m width measured from nearside kerb to proposed raised over-run strip), will encourage general slow speed operation along the route. The spacing of the proposed speed restraint features is currently as follows: Terminal Junction with Grosvenor Street to Hanworth Close Junction Table: 100m Hanworth Close Junction Table to Park Access Crossing: 65m Park Access Crossing to Haymans Walk Crossing: 120m Haymans Walk Crossing to Whitekirk Close Junction Carriageway Narrowing: 85m The design team are happy to incorporate additional traffic calming measures to the scheme layout as necessary, as part of future design iterations.	MCC/TfGM Response	
3.1.2 LOCATION: Kincardine Road junction with Howarth Close SUMMARY: Insufficient manoeuvring space Due to the proposed alignments, it is	Undertake swept path analysis to determine the exact nature of the problem. If necessary, the	Response: Partially Accepted Amendments to the southern kerbline on the exit from Hanworth Close have been made to increase the available carriageway width. This allows for a small section of hatching in the centre of the carriageway which can then be used as a area to overrun	MCC/TfGM Response	

	unclear as to whether there is sufficient manoeuvring space for a vehicle to turn right into Howarth Close whilst another waits at the give way line increasing the potential for conflicts such as those involving loss of control due to kerb overrunning or vehicle to vehicle conflicts	kerb alignments should be adjusted to allow sufficient manoeuvring space for turning vehicles.	should any vehicles require. This slightly increases crossing widths for pedestrians and cyclists but due to the continuous footway arrangement these crossings have priority. It is possible for two private cars to pass on the entrance / exit to Hanworth Close to Kincardine Drive (see Drawing 766-042-WCL-027). In practice there may be occasions where traffic seeking to access Hanworth Close from Kincardine Road might ultimately stop to let exit traffic from the side road proceed, before undertaking the right turn movement, as this is not unusual in more space constrained locations. Ultimately should this occur, it is not anticipated that it would result in a significant road safety issue and is no different for a vehicle stopping to allow active travel users (ATU) to utilise the priority crossing arrangements to the side roads. The immediate section of Kincardine Road on the approach to the Hanworth Close junction offers good forward visibility and can be expected to be subject to low speed operation (circa 65m between local vertical table features). It should also be noted that entry / exit traffic demand on Hanworth Close is predicted to be low – 63 (35 in, 28 out) movements for AM Peak 'With Cumulative Development' rush hour peak & 86 (57 in, 29 out) movements during the PM peak. It is acknowledged that larger light access to Hanworth Close from Kincardine Road would require traffic wishing to turn right into the side road to wait for any approaching side road traffic to		
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			exit the junction. The layout design would also not allow for practical right turn access by large service vehicles, albeit that the layout does allow for left exit from the site road for such larger vehicles. Such access arrangements for light van / large service vehicles are similar in nature to those that have been in operation for many years at the nearby junction of Kincardine Road / Whitekirk Close. Opportunities for alternative access to Hanworth Close for larger vehicles are available via connecting routes through the main Brunswick Estate.		
3.1.3	LOCATION: Kincardine Road junction with Grosvenor Street SUMMARY: Insufficient manoeuvring space Due to the proposed alignments, it is unclear as to whether there is sufficient manoeuvring space for a large vehicle such as an HGV to turn left onto Grosvenor Street without increased risk of kerb over-running which could result in loss of control conflicts.	Undertake swept path analysis to determine the exact nature of the problem. If necessary, the kerb alignments should be adjusted to allow sufficient manoeuvring space for all likely visiting vehicles.	Response: Reviewed & Further Information Provided It is confirmed that there is sufficient manoeuvring space for large vehicle left turn exit movements from Kincardine Road to Grosvenor Street, without the need for nearside kerb over-run. Example swept path runs are illustrated in Drawing 766-042-WCL-028. These plans illustrated that large HGV access can be accommodated by vehicle paths utilising the raised HGV over-run area included as part of the junction design. There is no requirement for additional kerb re-alignment.	MCC/TfGM Response	
3.1.4	LOCATION: Kincardine Road – Proposed parking and loading bays SUMMARY: Insufficient manoeuvring space Due to the proposed alignments, it is unclear as to whether there is sufficient manoeuvring space for vehicles to access and egress the	Undertake swept path analysis to determine the exact nature of the problem. If necessary, the alignments should be adjusted to	Response: Reviewed & Further Information Provided The proposed car parking bays and loading bays have been provided to MCC standards for longitudinal features, viz: parking bays at 2m by 6m, disabled parking bays at 3.2m by 6m and loading bays at 3.0m & 3.5m width. These features are of sufficient dimension to allow suitable vehicle access in combination with the total effective adjacent carriageway width	MCC/TfGM Response	

	proposed parking and loading bays should adjacent bays be occupied without increased risk of striking adjacent vehicles or kerb over-running which could result in loss of control conflicts.	allow sufficient manoeuvring space for all likely visiting vehicles	to Kincardine Road of 4.0m (3.2m lane and 0.8m over-run area). Suitable example swept path runs for access to / from the proposed bay features are illustrated in Drawing 766-042-WCL-0025. There is no requirement for any amendments to the dimensions of the proposed parking / loading features or adjacent kerblines.		
3.1.5	LOCATION: Kincardine Road – Proposed westside parking bays SUMMARY: Risk of conflicts with passing cyclists Concern is expressed that due to the close proximity of the cycle lane to the kerb edge that drivers or passengers of parked vehicles could inadvertently open a car door and strike a passing cyclist causing personal injury. Whilst it is accepted that a 0.5m margin/buffer zone strip is proposed, this is deemed to be insufficient segregation	The proposed margin/buffer zone strip should be suitably increased in size	Response: Rejected The proposed 0.5m buffer zone adjacent to the 1.5m contraflow cycle lane has been designed to be directly in accordance with guidelines for such buffer zones as set out in prevailing DfT good practice guidance LTN1/20 ‘Cycle Infrastructure Design’. Table 5-2 to LTN 1/20 identifies a minimum width of 1.5m for one-way cycle track facilities in space constrained locations. Figure 6.15 to the guidance recommends at 0.5 buffer zone for a cycle track adjacent to parking bays and paragraph 6.4.19 states that “Cycle lanes can be designed to continue past parking and loading bays, provided there is a buffer zone of at least 0.5m width between the cycle lane and the bay”. Furthermore, it is noted that the highlighted cycle track with buffer zone is a contra-flow facility and therefore cyclists approaching the bays will be directly facing drivers / passengers looking to enter / exit vehicles. It is considered that this on-coming approach nature of the cycle facility would further reduce the potential for door strike events occurring as such incidents	MCC/TfGM Response	

			are typically associated with cyclists approaching parked vehicles from the rear. No changes are proposed to the proposed buffer strip width of 0.5m.		
3.2.1	LOCATION: Grosvenor Street – Proposed tiger crossing SUMMARY: Close proximity to junction could cause conflict It is proposed to install a tiger crossing between the side road junctions of Kincardine Street and Greek Street. Due to the close proximity to Greek Street, concern is expressed that drivers turning right out of Greek Street may not sufficiently appreciate a crossing VRU due to being fixated on the view to the left resulting in vehicle to VRU conflicts. The situation is exacerbated by the one-way nature of Grosvenor Street in this location, potentially giving drivers a false sense of security that they should prioritise the view to the left.	The crossing should be relocated to a suitable position away from the junction	Response: Partially Accepted Greek Street is a short cul-de-sac route (circa 20m length) that solely serves an area of private hardstanding that was historically been utilised for the storage of vehicles associated with the vehicle sales businesses previously operating from the Upper Brook Street development site. At the time of preparation of this report, the hardstanding area is redundant and therefore Greek Street is currently characterised by virtually no daily vehicle entry / exit movements. Even should the hardstanding area be re-utilised, it is not anticipated that any resultant daily trip demand would be of a significant level. To improve the distance (and visibility) between the parallel crossing and the Greek Street junction a build out of the kerb line has now been proposed from the West to reduce the carriageway width in this location to 6m. This provides 4m of separation between the end of the radius kerb at Greek Street and the stop line for the parallel crossing. An additional sign has been proposed to Diagram 963.1 which alerts the vehicles exiting from Greek Street to look right due to presence of the cycle lane.	MCC/TfGM Response	

			Also, there are additional road markings proposed to keep exiting vehicles to the East of Greek Street which will provide a greater separation between these vehicles and the proposed parallel crossing. Ultimately, as highlighted on the submitted scheme drawings, any final implemented ATU crossing arrangements in this location are likely to be subject to further amendment, as a result of the need to incorporate potential changes to the wider Grosvenor Street corridor layout to be delivered as part of future 'Bee Line' cycle network improvements. The nature of any such Bee Line improvements is still to be resolved.		
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2.5 Design organisation and Overseeing Organisation statements

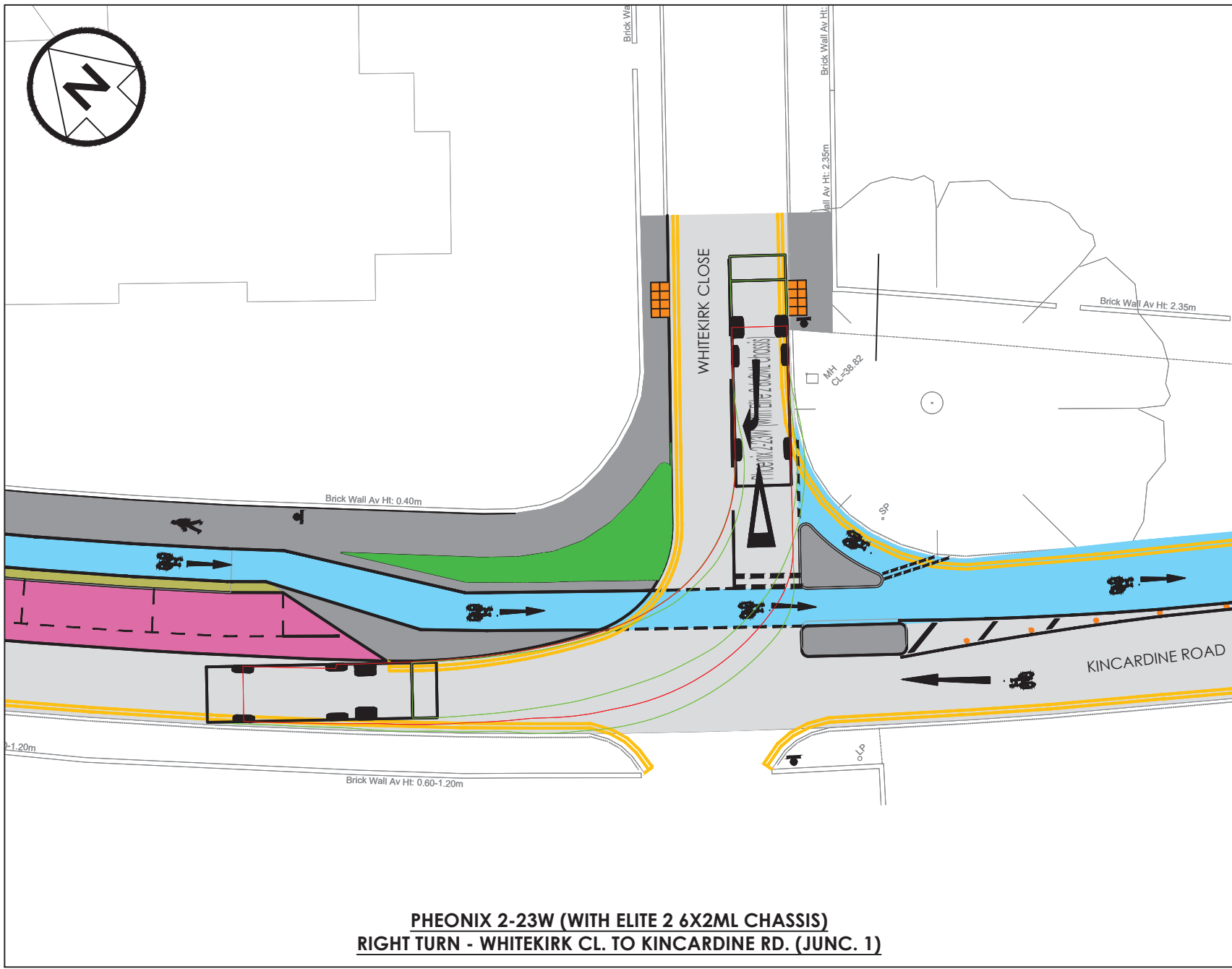
The following joint authorisations indicate both parts are in agreement with the RSA actions detailed within the above RSA decision log.

Table 2.5.A – Design organisation statement

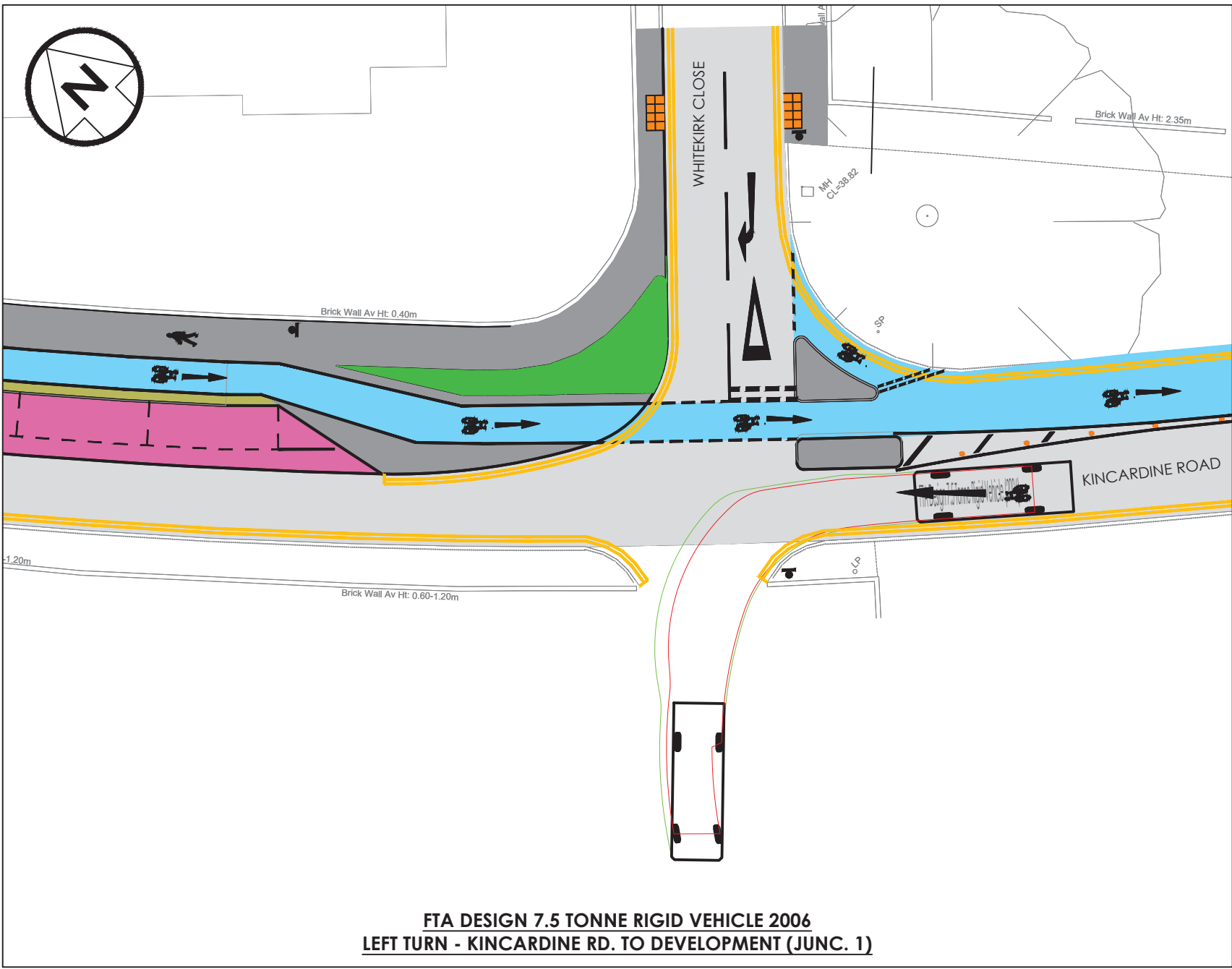
On behalf of the design organisation I certify that:	
1) The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.	
Name	Mark Lundy
Position	Associate Director
Signed	
Organisation	Wilde Consultants Ltd
Date	

Table 2.5.B – Overseeing Organisation statement

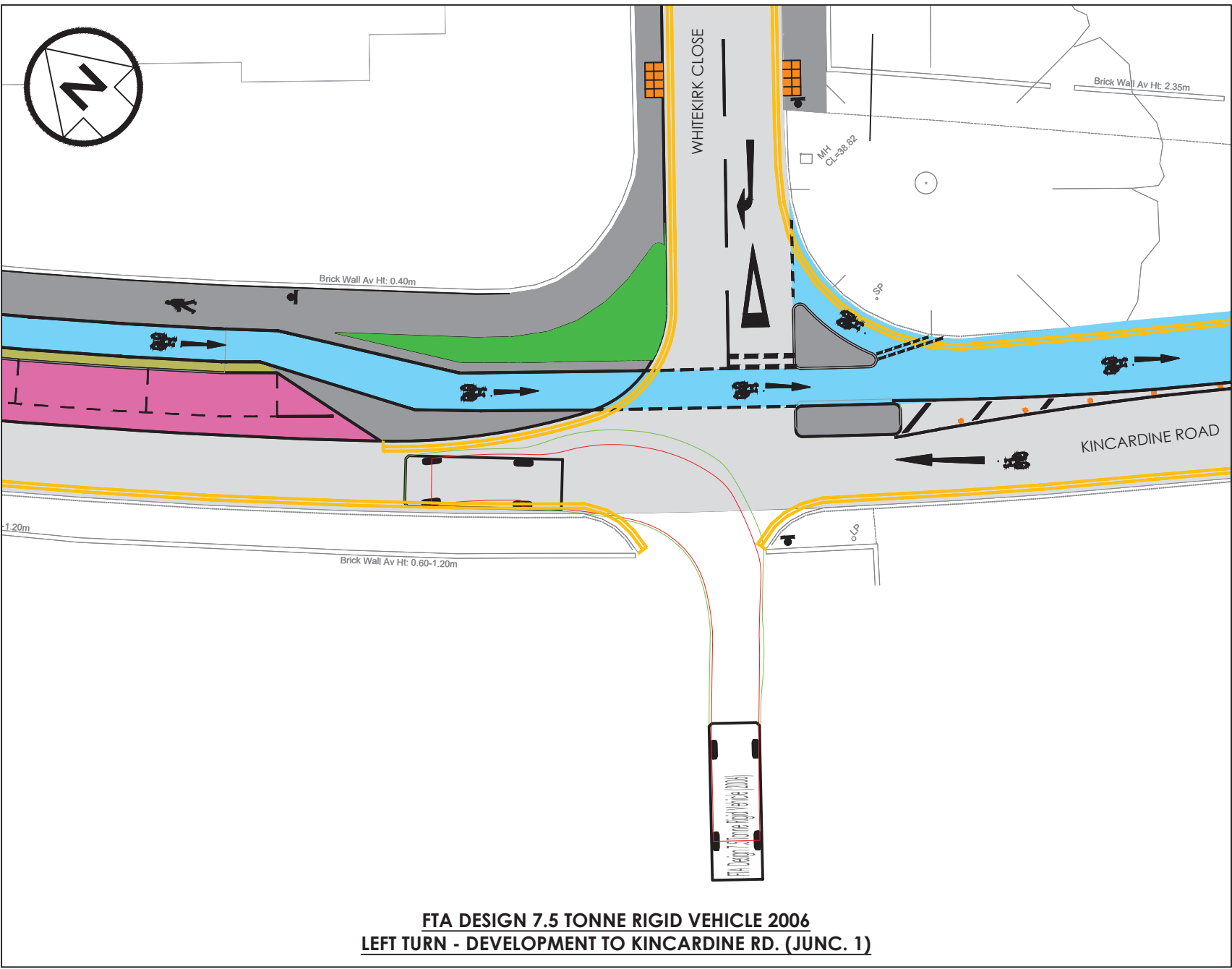
On behalf of the Overseeing Organisation I certify that:	
1) The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and	
2) the agreed RSA actions will be progressed	
Name	
Position	
Signed	
Organisation	
Date	



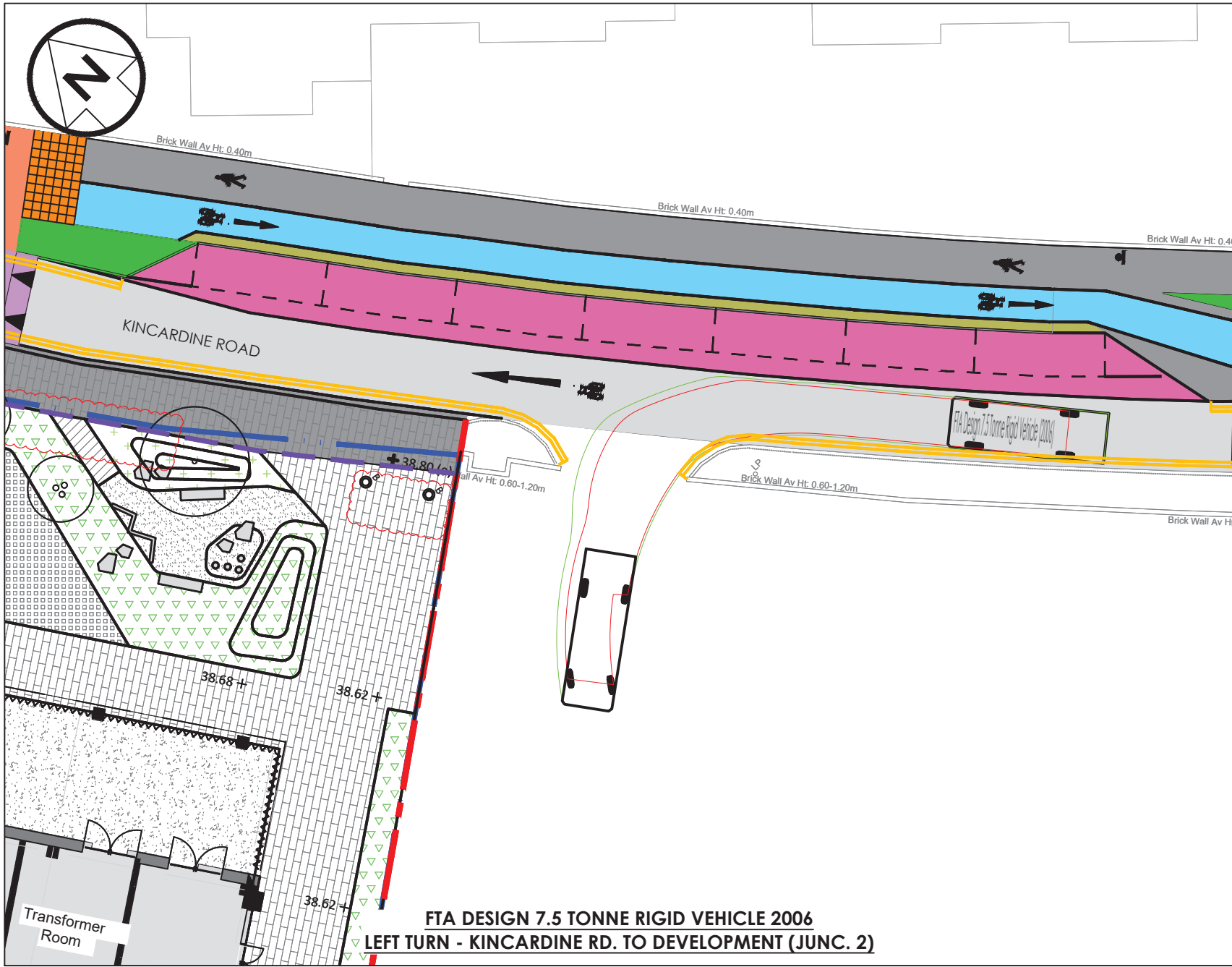
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RIGHT TURN - WHITEKIRK CL. TO KINCARDINE RD. (JUNC. 1)



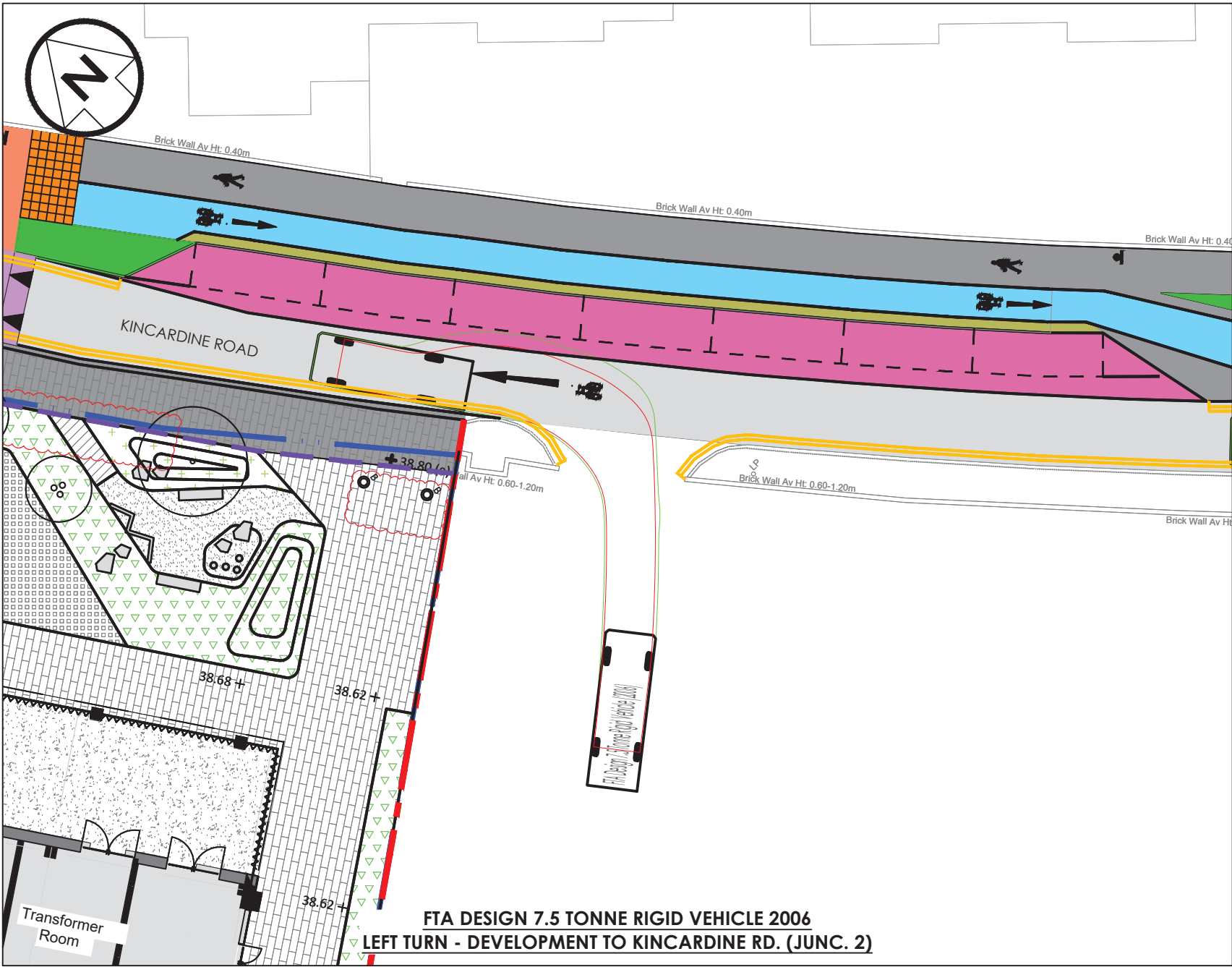
FTA DESIGN 7.5 TONNE RIGID VEHICLE 2006
LEFT TURN - KINCARDINE RD. TO DEVELOPMENT (JUNC. 1)



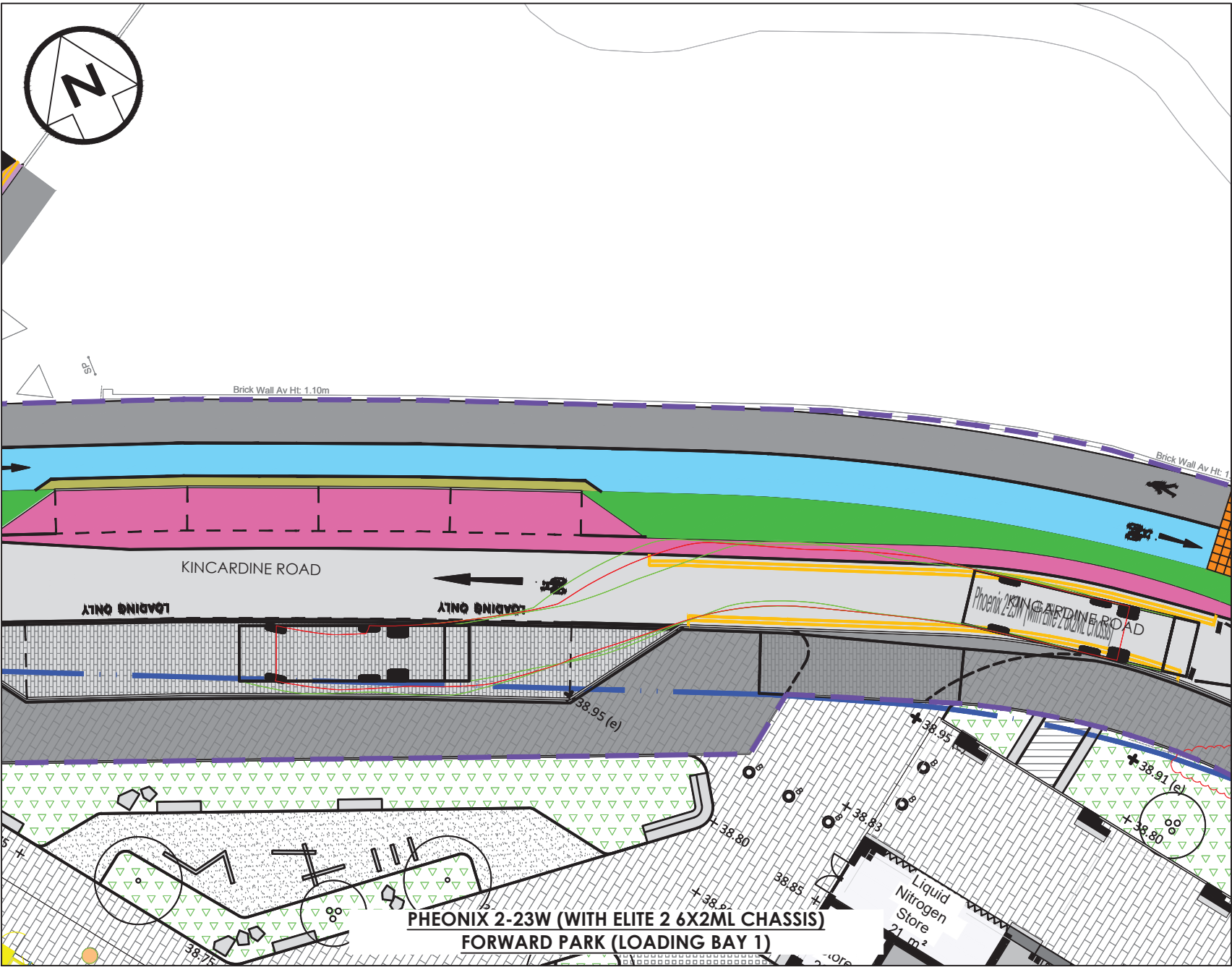
FTA DESIGN 7.5 TONNE RIGID VEHICLE 2006
LEFT TURN - DEVELOPMENT TO KINCARDINE RD. (JUNC. 1)



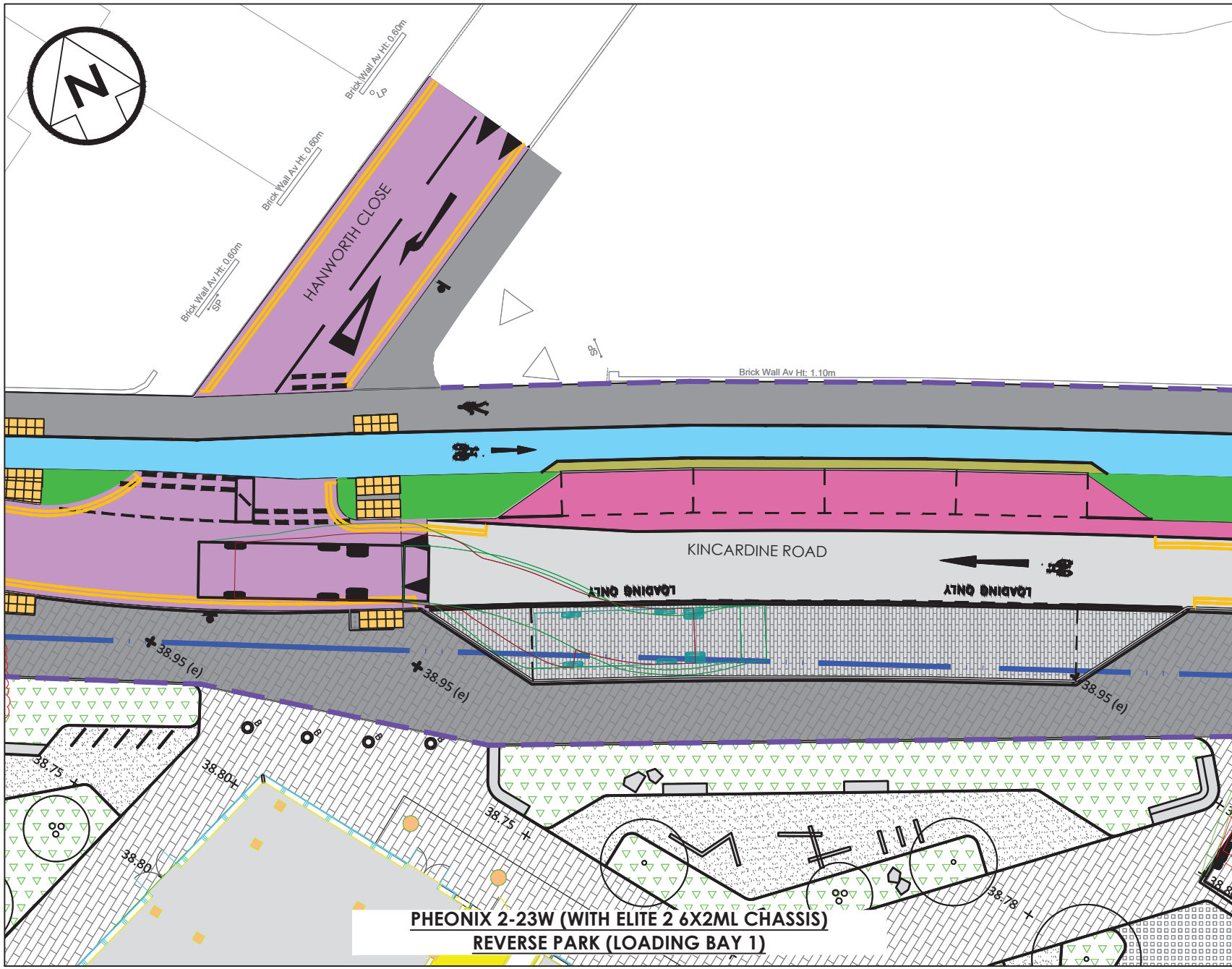
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LEFT TURN - KINCARDINE RD. TO DEVELOPMENT (JUNC. 2)



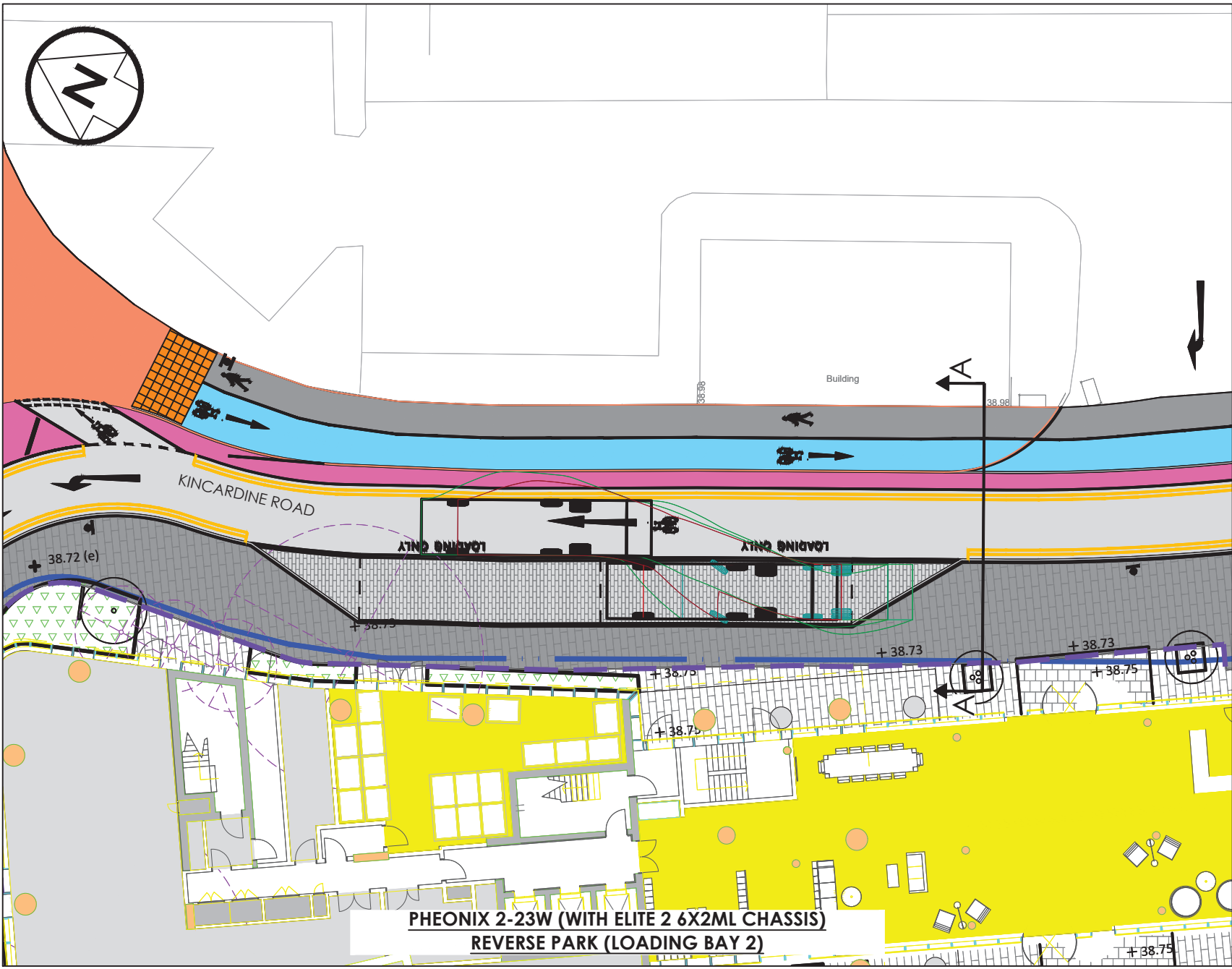
FTA DESIGN 7.5 TONNE RIGID VEHICLE 2006
LEFT TURN - DEVELOPMENT TO KINCARDINE RD. (JUNC. 2)



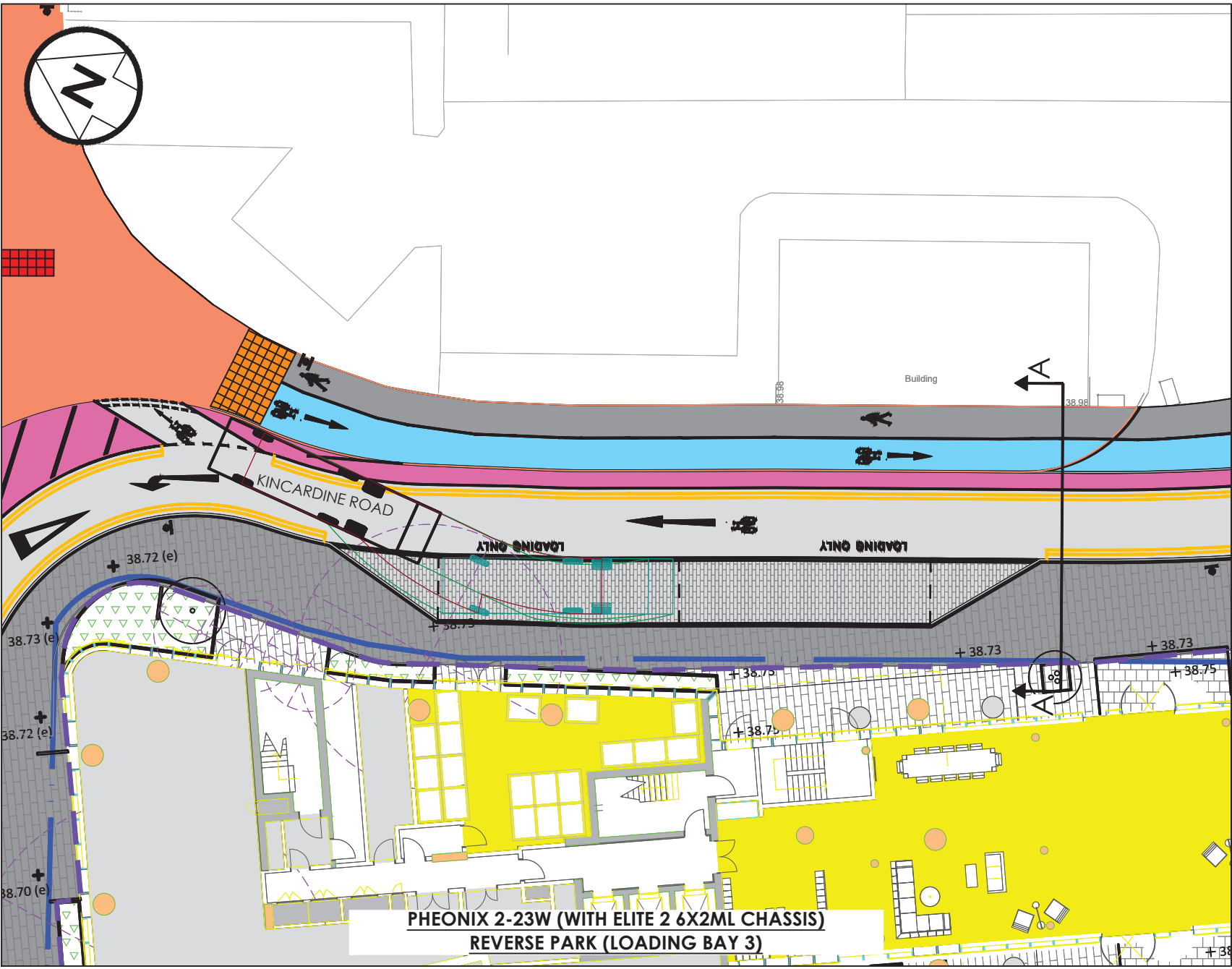
PHEONIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
FORWARD PARK (LOADING BAY 1)



PHEONIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
REVERSE PARK (LOADING BAY 1)



PHEONIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
REVERSE PARK (LOADING BAY 2)



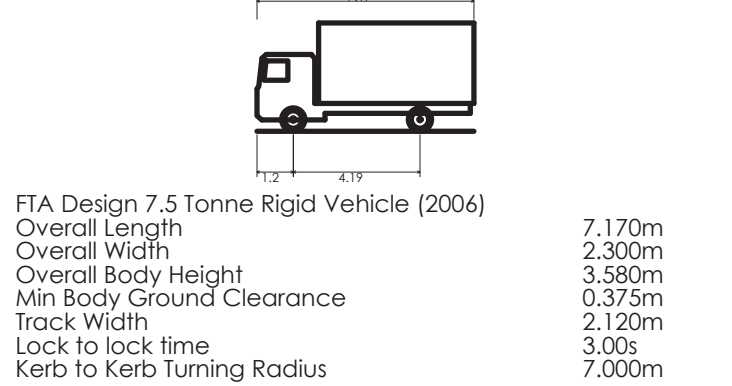
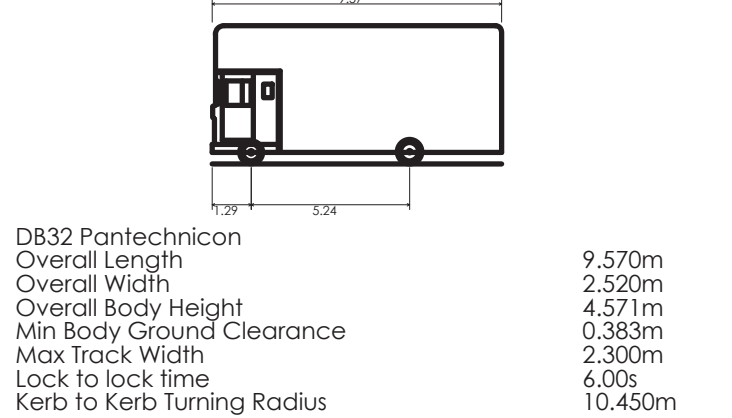
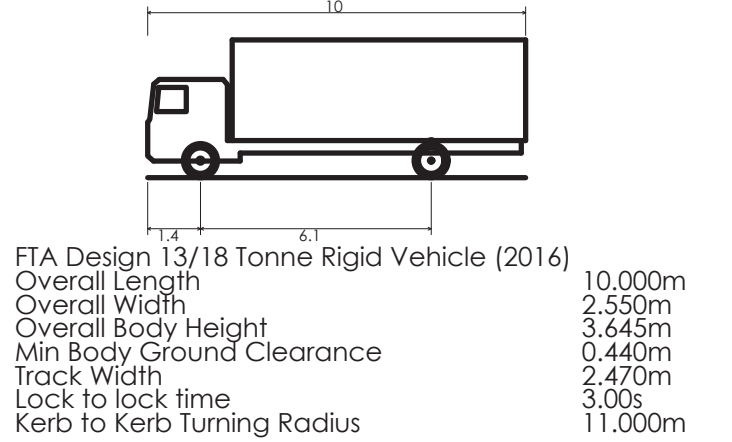
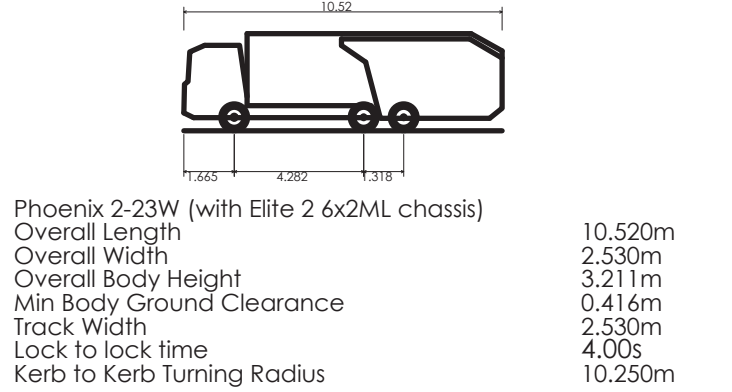
PHEONIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
REVERSE PARK (LOADING BAY 3)

NOTES - GENERAL:

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- 3) THIS DRAWING IS TO BE READ IN COLOUR

KEY - GENERAL

- CARRIAGEWAY
- RAISED OVERRUN STRIP
- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
- RAISED PLATEAU / SPEED CUSHION AS SHOWN
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- HAZARD WARNING PAVING
- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND



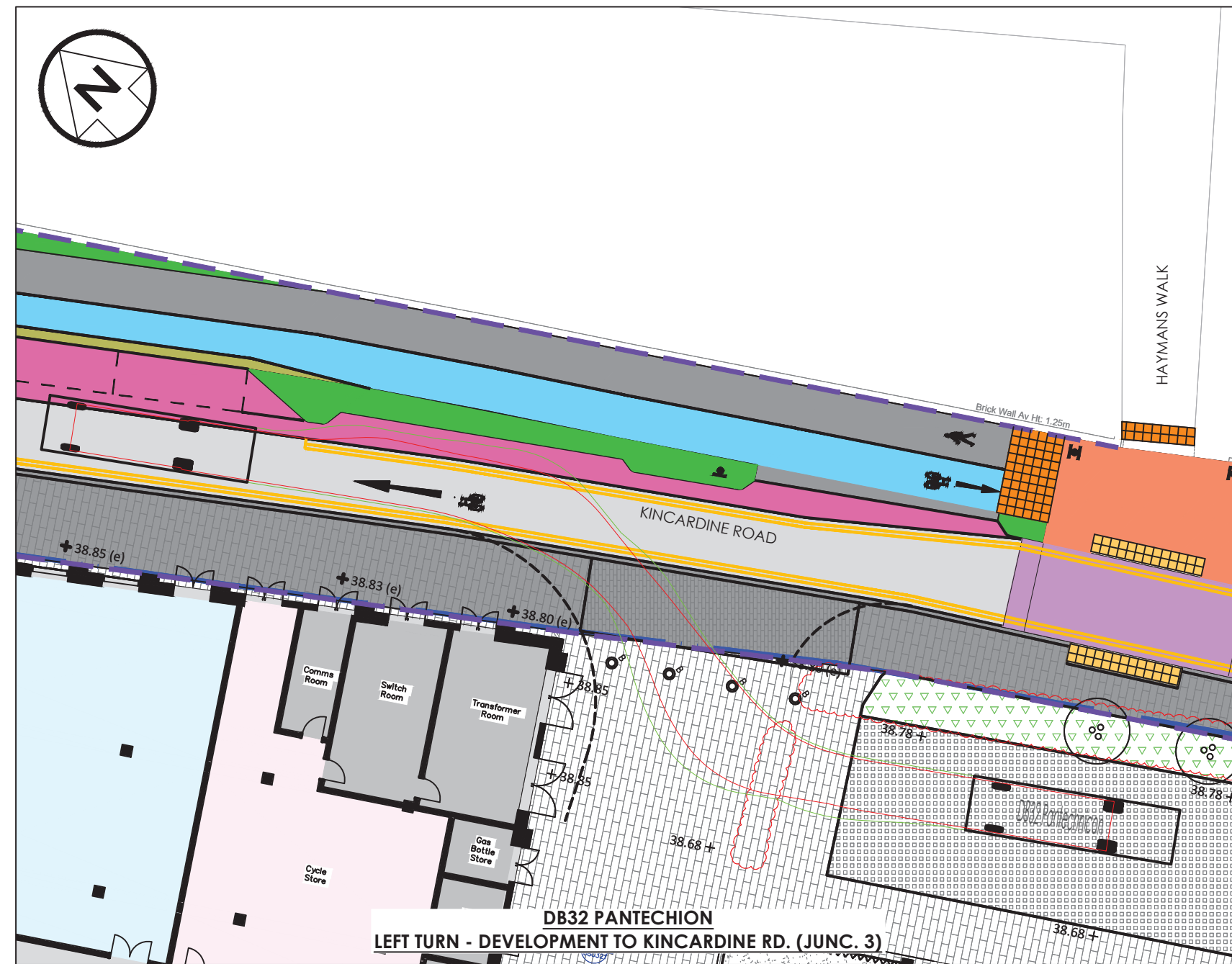
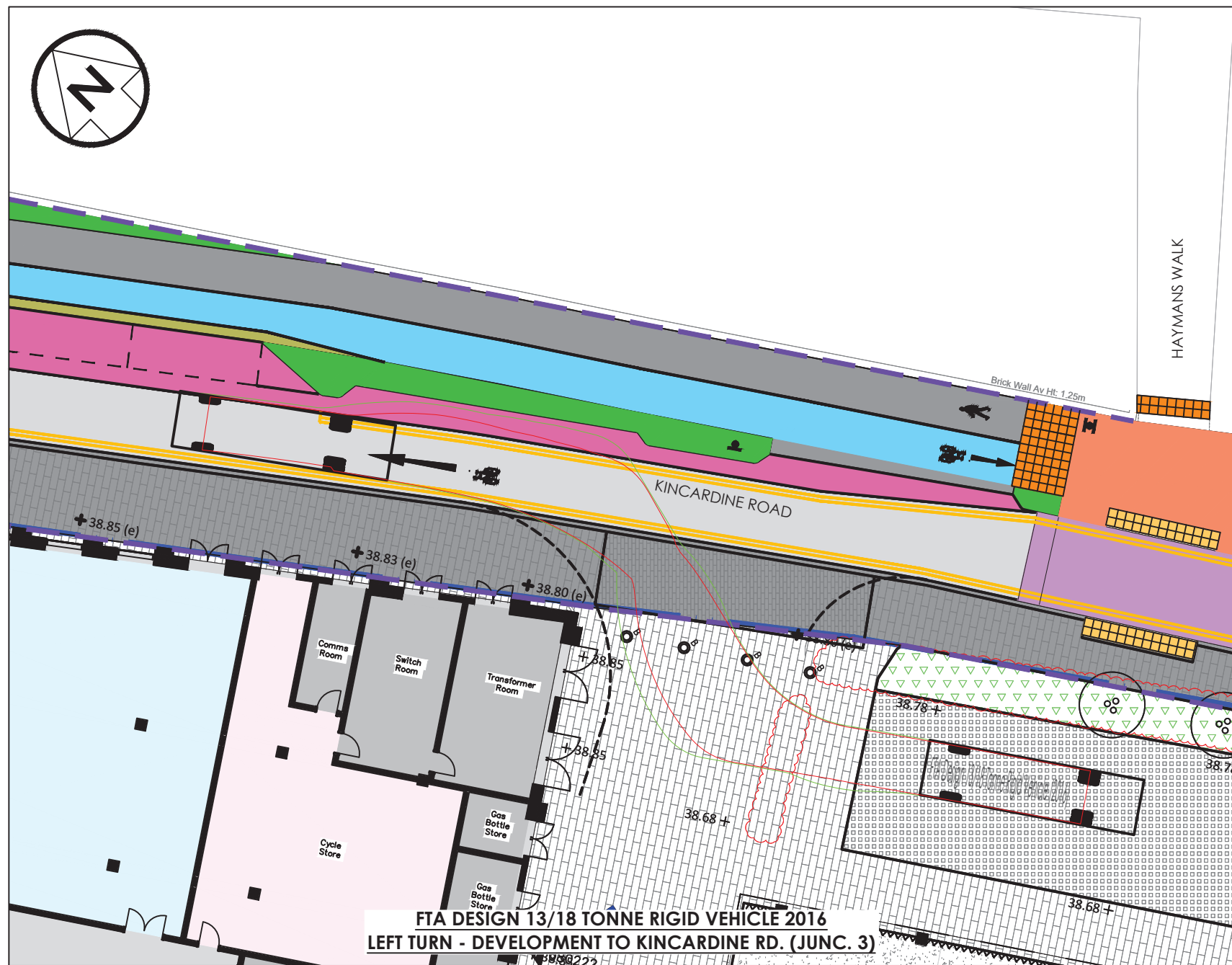
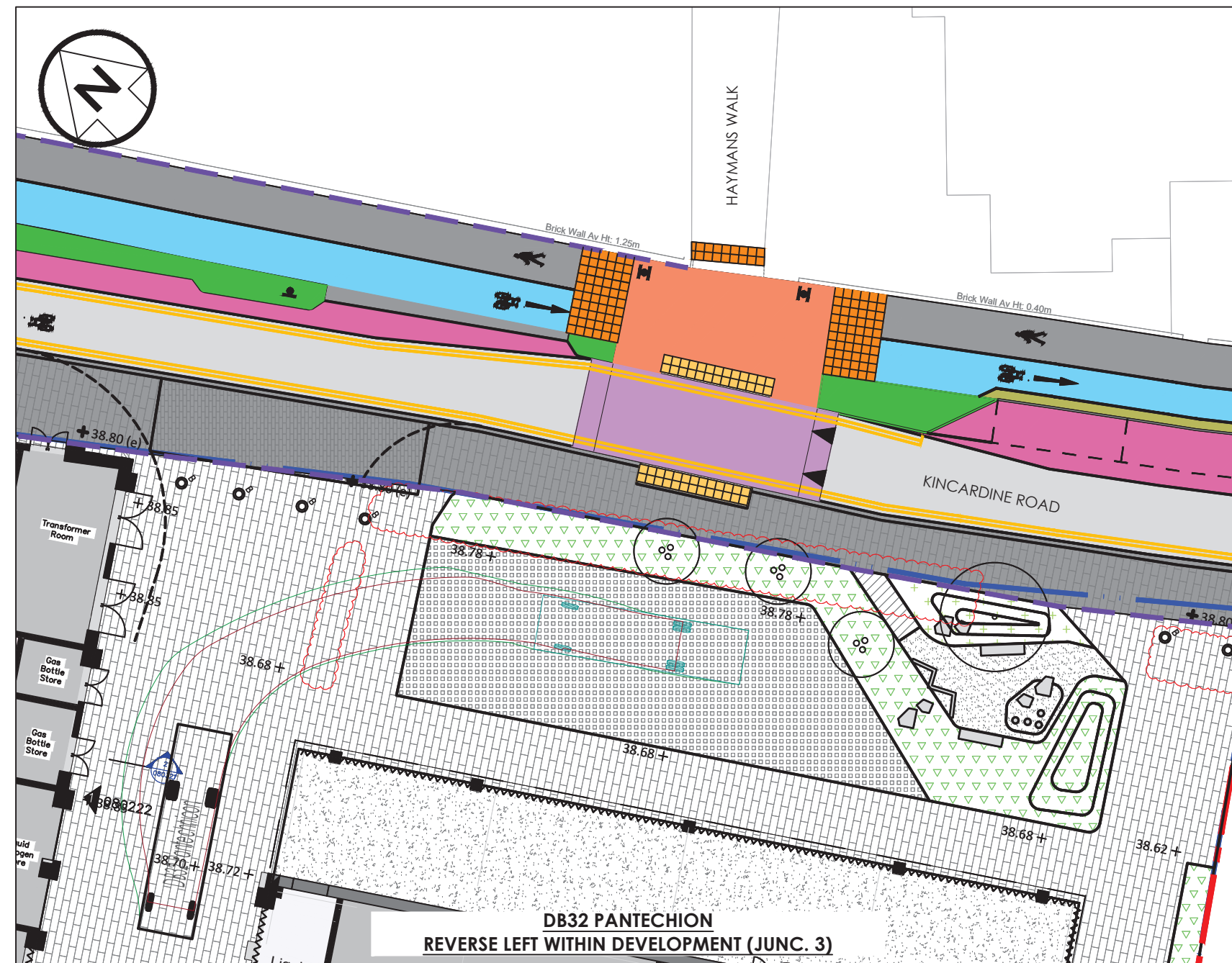
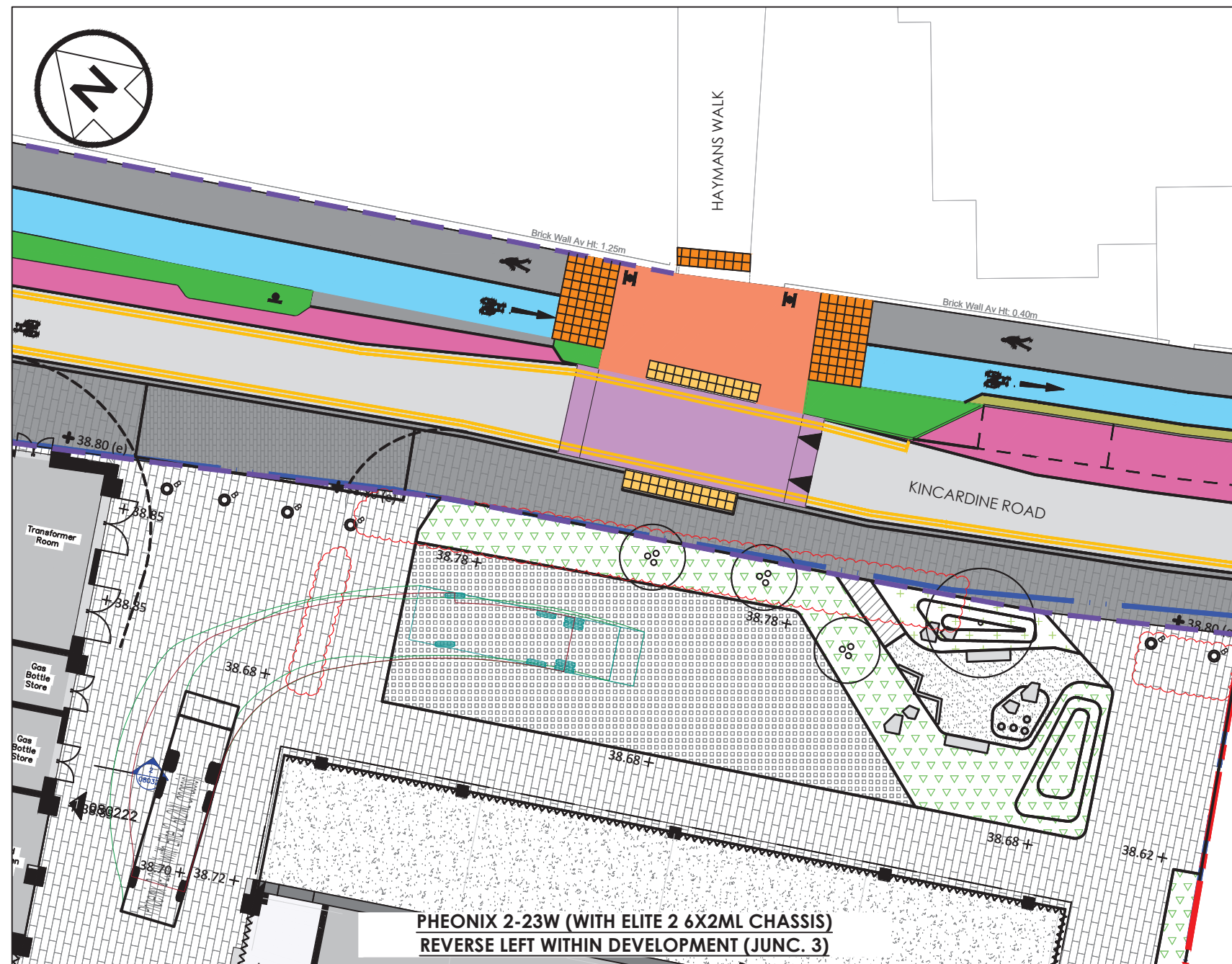
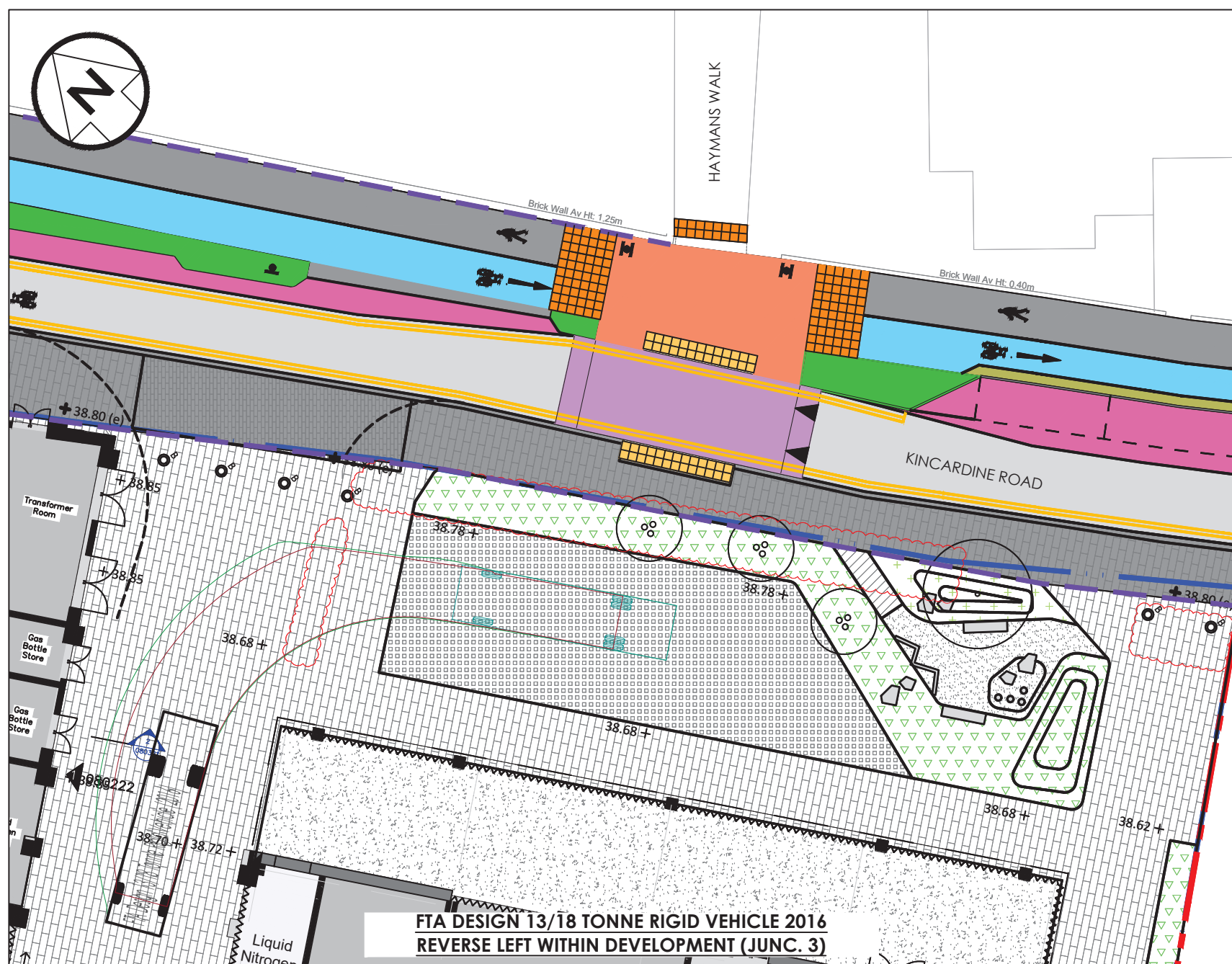
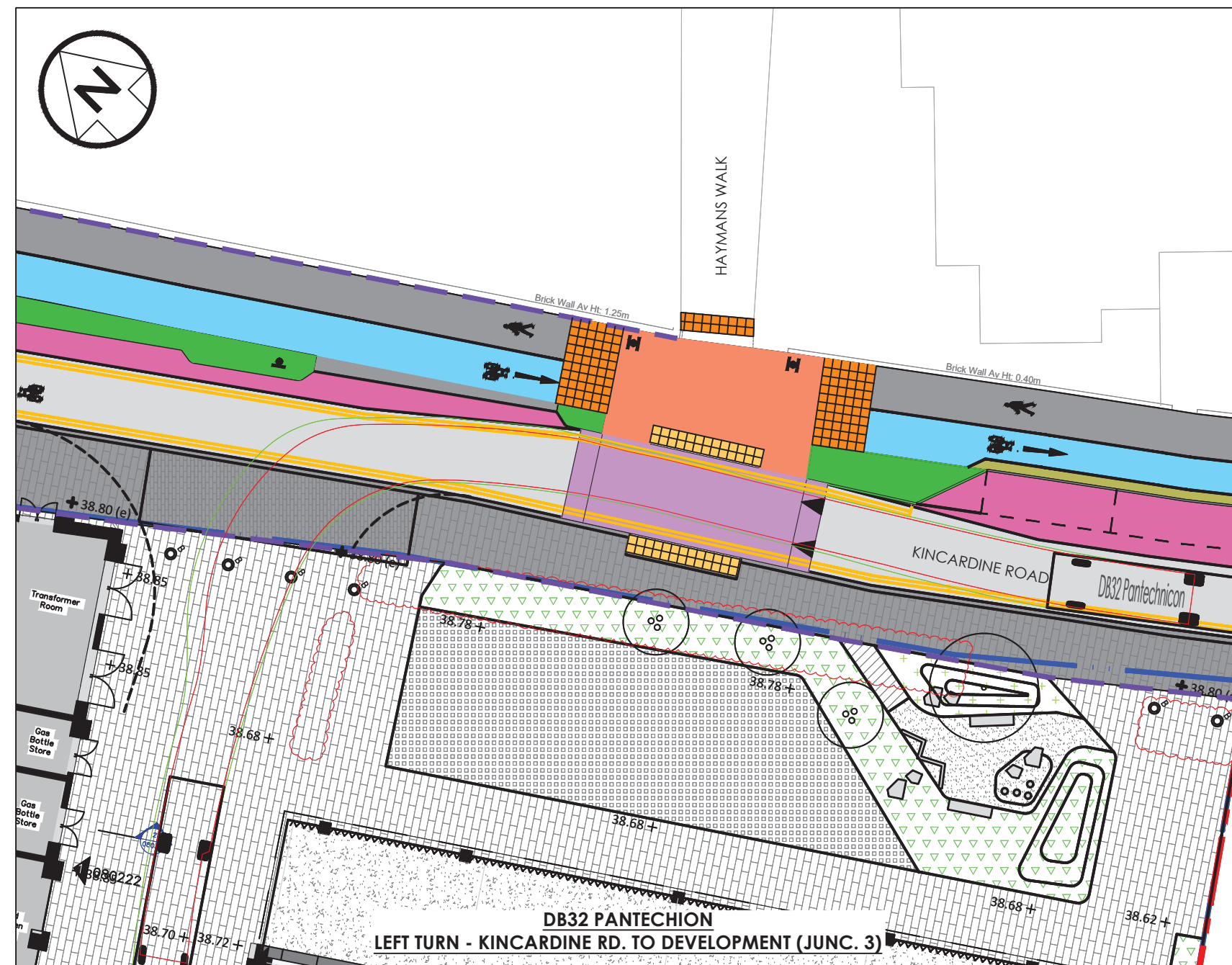
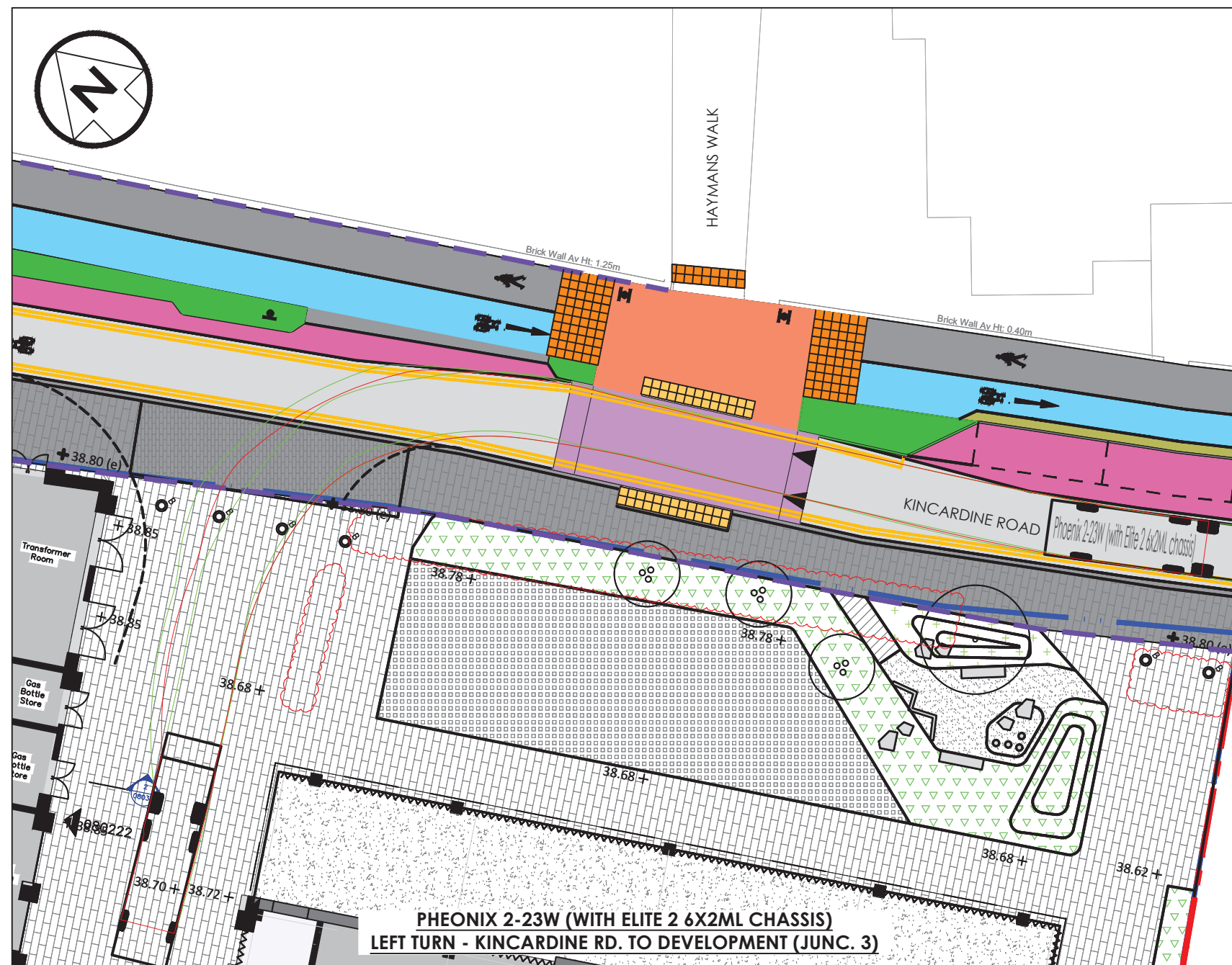
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1					Brindley Lodge, Adcroft Street, Stockport, Cheshire, SK1 3HS.

Client
PROPERTY ALLIANCE GROUP
MODA LIVING
WILLIAMS MOTOR CO (HOLDINGS)

Project
UPPER BROOK STREET
MANCHESTER
M13 9XH

Title
SWEEP PATH ANALYSIS
KINCARDINE ROAD OPTION 3
SHEET 1 OF 4

Scale 1:250	Drawn TP	Date 01/11/23	Chkd DC	Approved ML
Drawing No. 766-042-WCL-025				Revision P02
Status FOR INFORMATION				Sheet Size A1

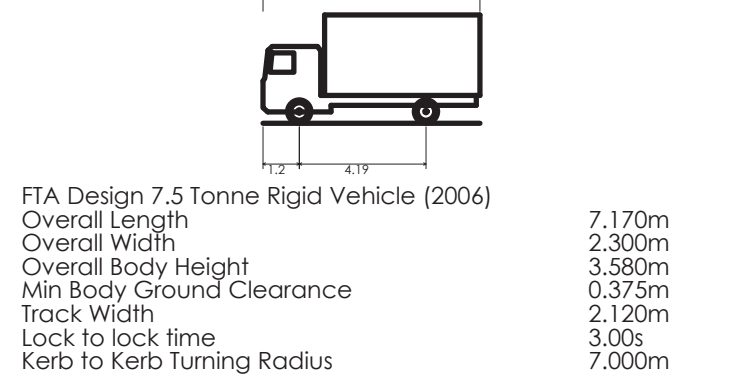
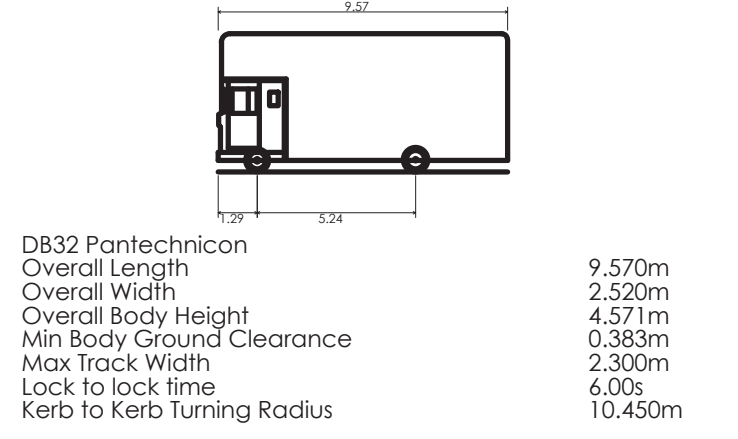
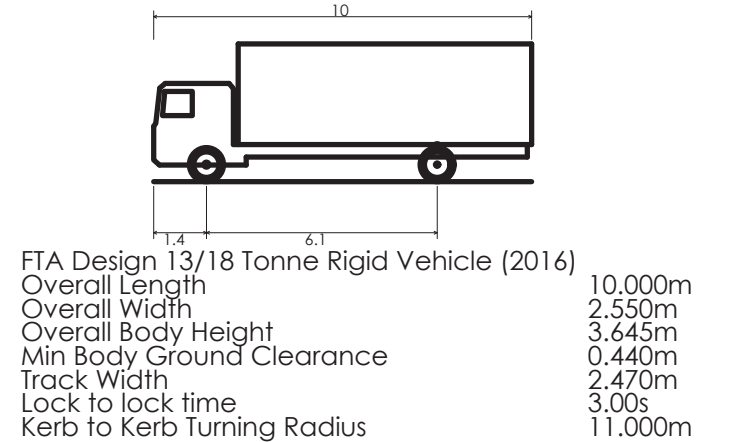
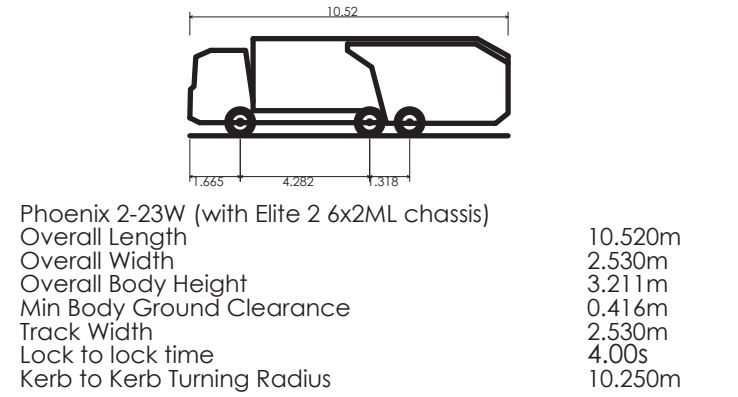


NOTES - GENERAL:

- 1) ALL DIMENSIONS, LEVELS AND CO-ORDINATES ARE BASED UPON TOPOGRAPHICAL SURVEY DRAWING (NO. 43891MCLS-01) BY SURVEY SOLUTIONS DATED AUGUST 2022.
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- 3) THIS DRAWING IS TO BE READ IN COLOUR

KEY - GENERAL

- CARRIAGEWAY
- RAISED OVERRUN STRIP
- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
- RAISED PLATEAU / SPEED CUSHION AS SHOWN
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- HAZARD WARNING PAVING
- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND



Wilde Consulting Civil & Structural Engineers

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Client: PROPERTY ALLIANCE GROUP
MODA LIVING
WILLIAMS MOTOR CO (HOLDINGS)

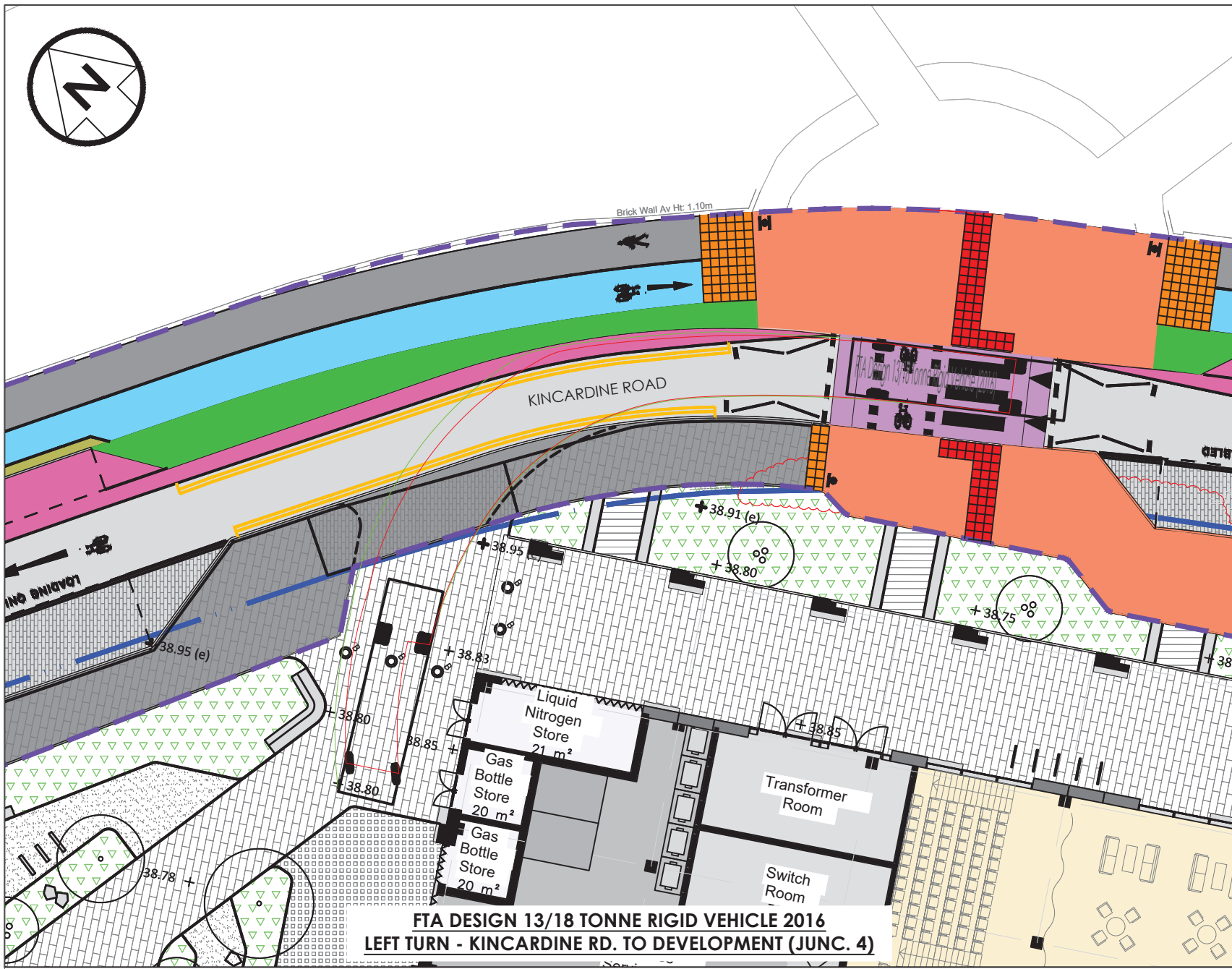
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MANCHESTER
M13 9XH

Title: SWEEP PATH ANALYSIS
KINCARDINE ROAD OPTION 3
SHEET 2 OF 4

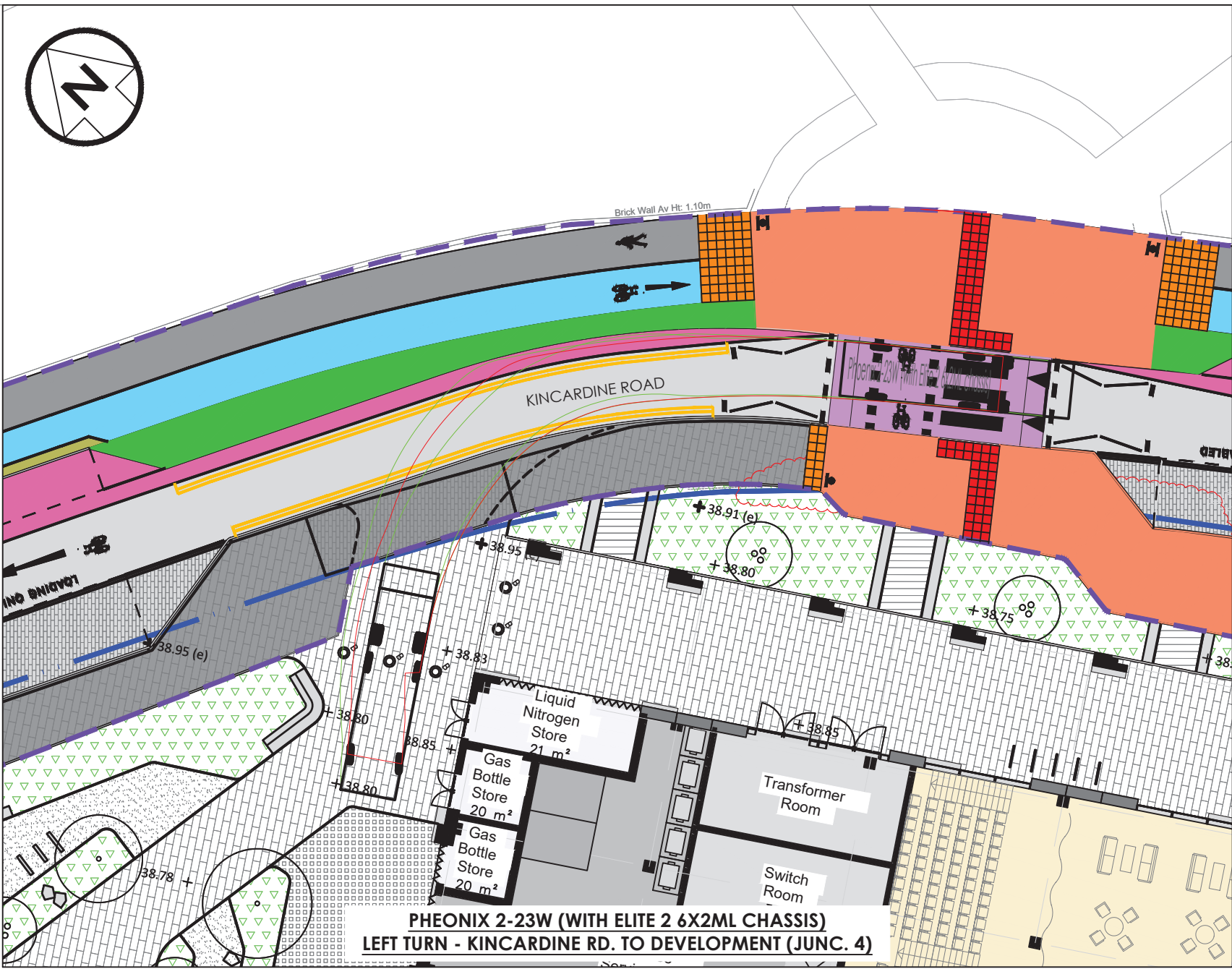
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Drawing No.	766-042-WCL-026							Revision	P02

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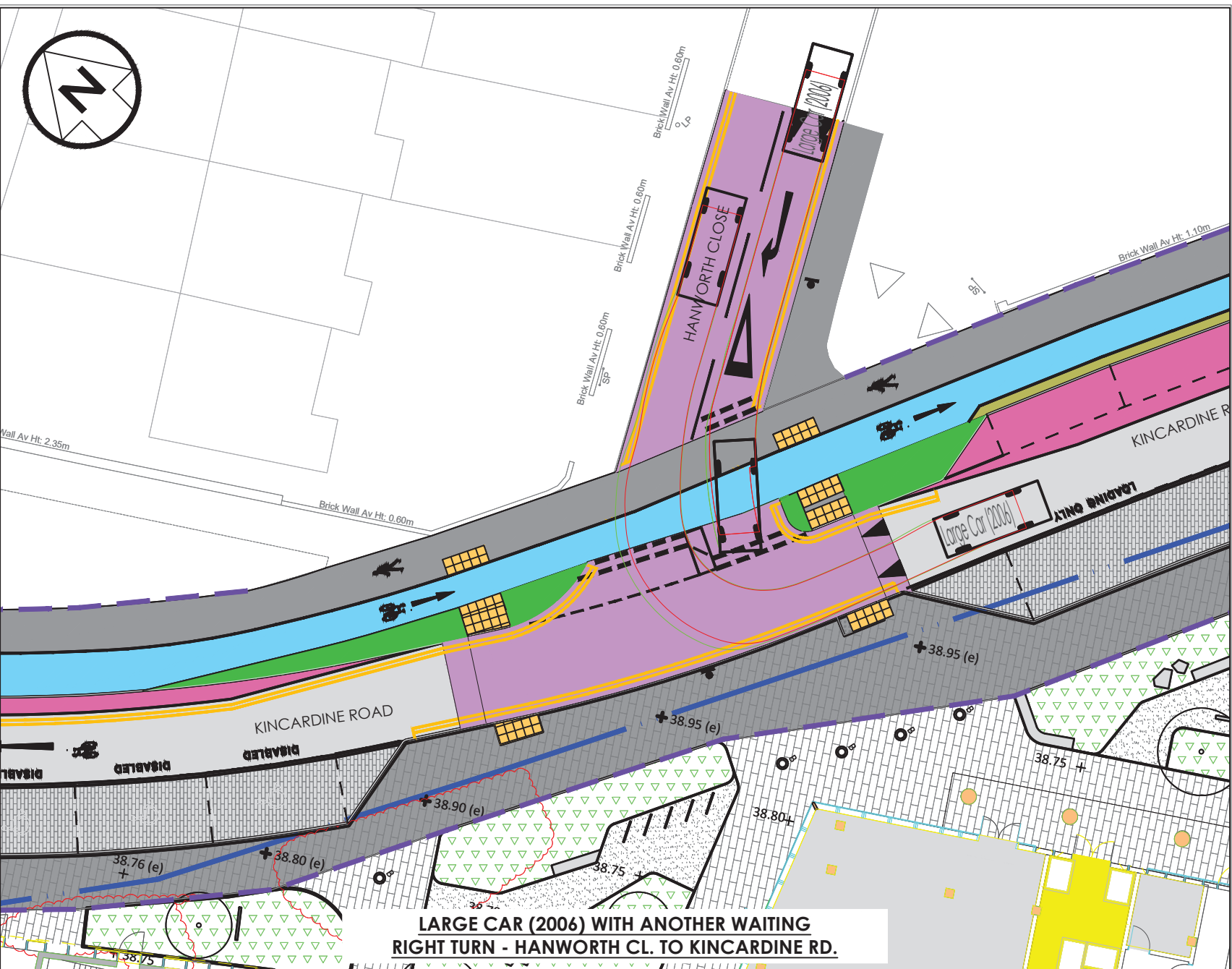
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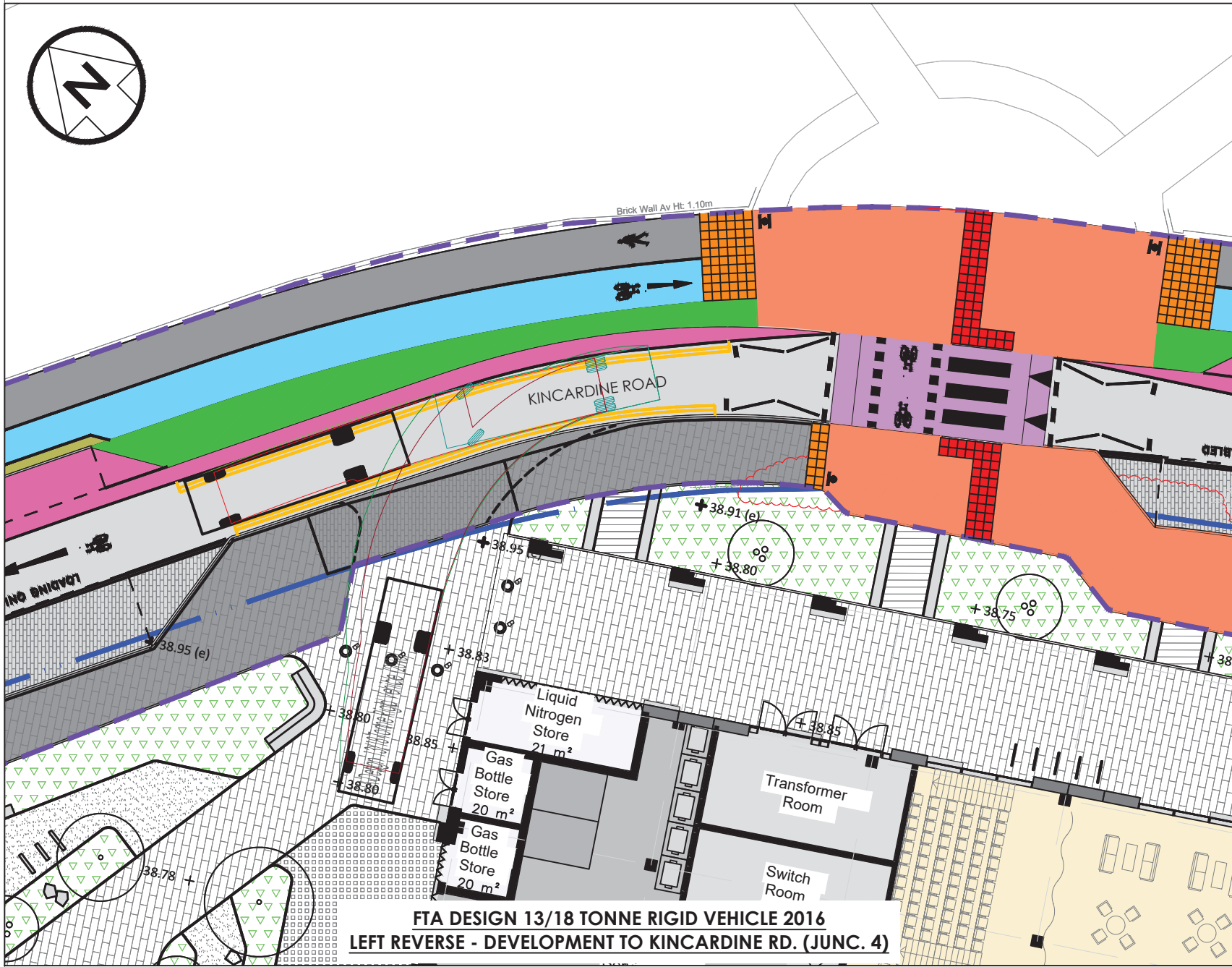
FTA DESIGN 13/18 TONNE RIGID VEHICLE 2016
LEFT TURN - KINCARDINE RD. TO DEVELOPMENT (JUNC. 4)



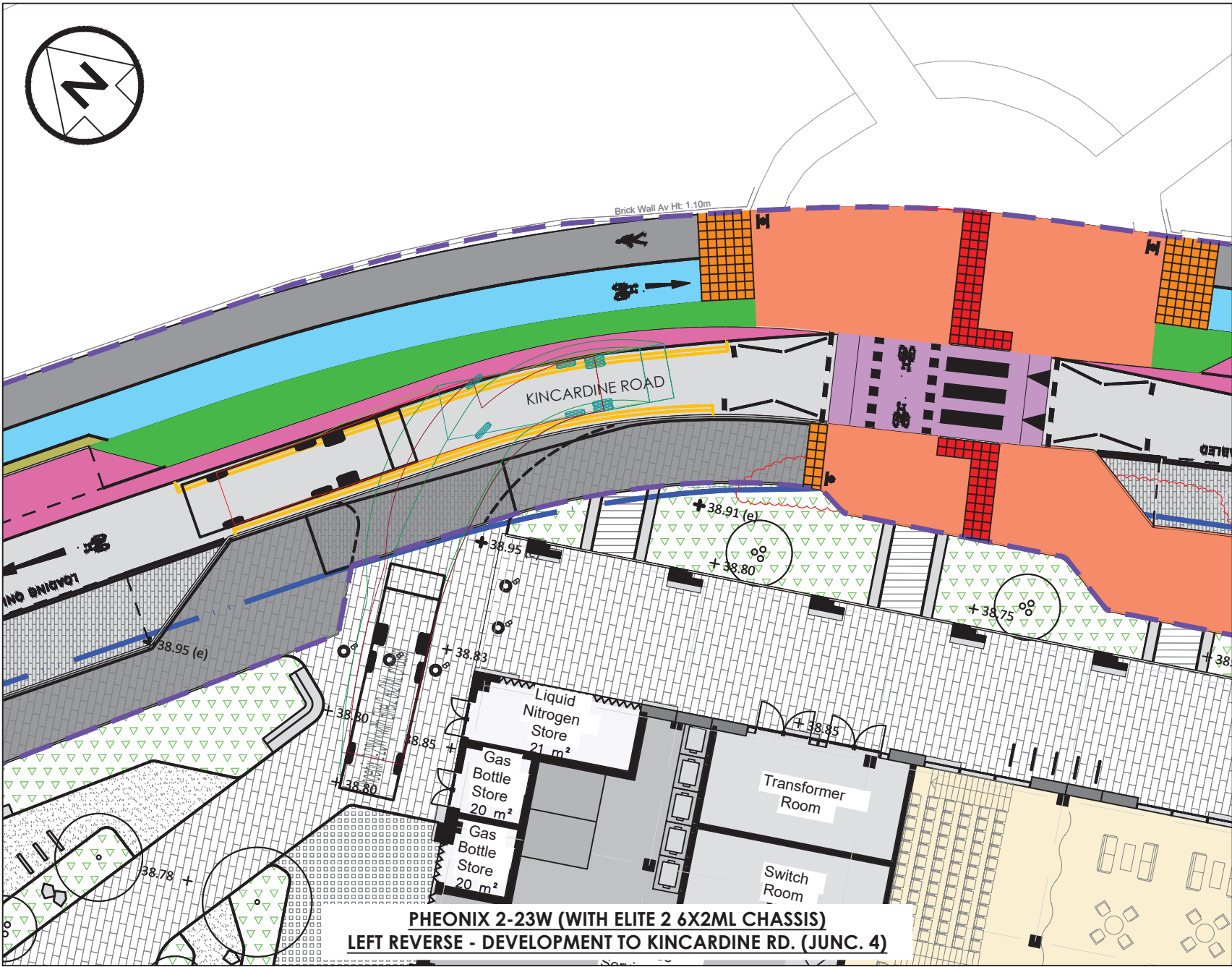
PHOENIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
LEFT TURN - KINCARDINE RD. TO DEVELOPMENT (JUNC. 4)



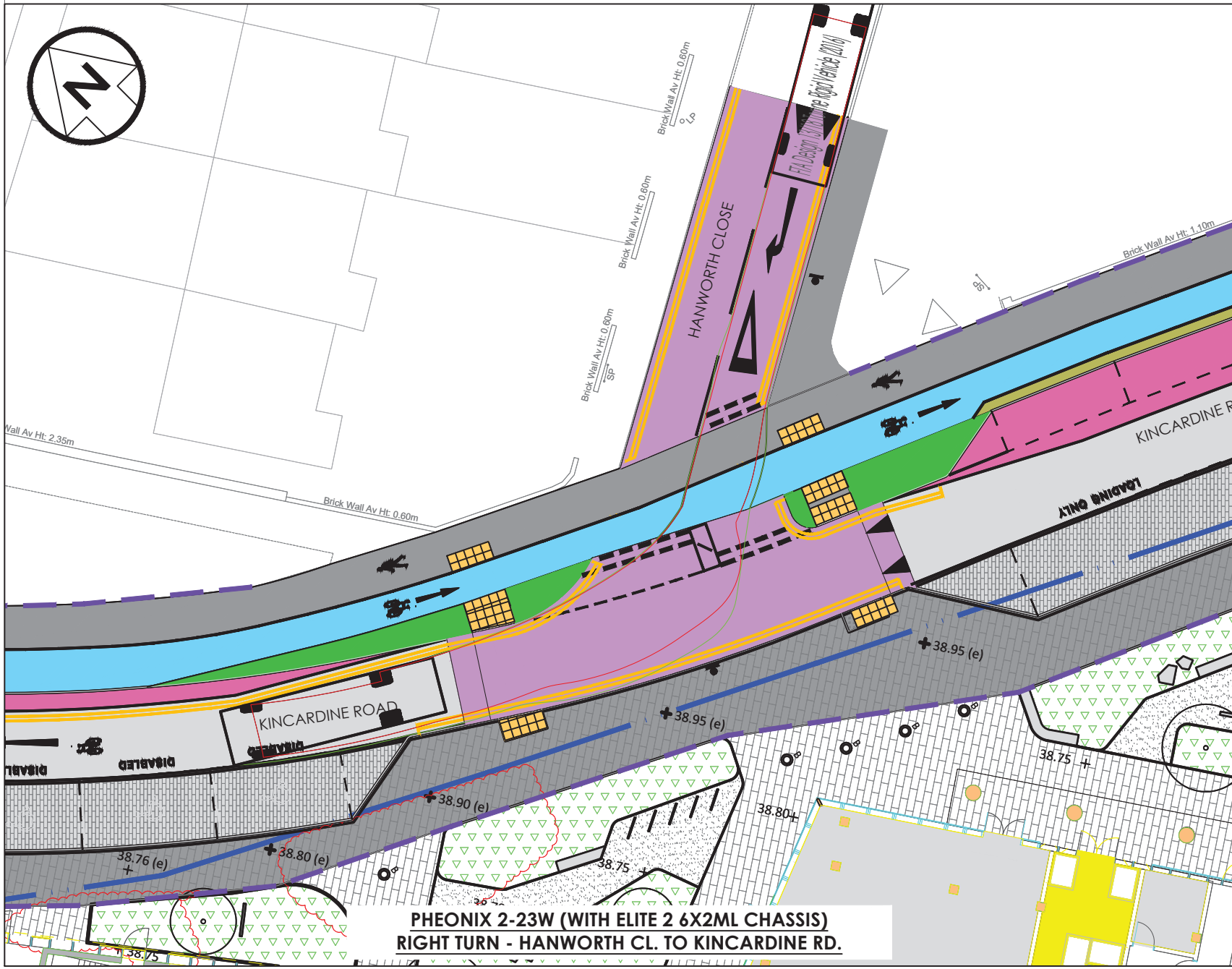
LARGE CAR (2006) WITH ANOTHER WAITING
RIGHT TURN - HANWORTH CL. TO KINCARDINE RD.



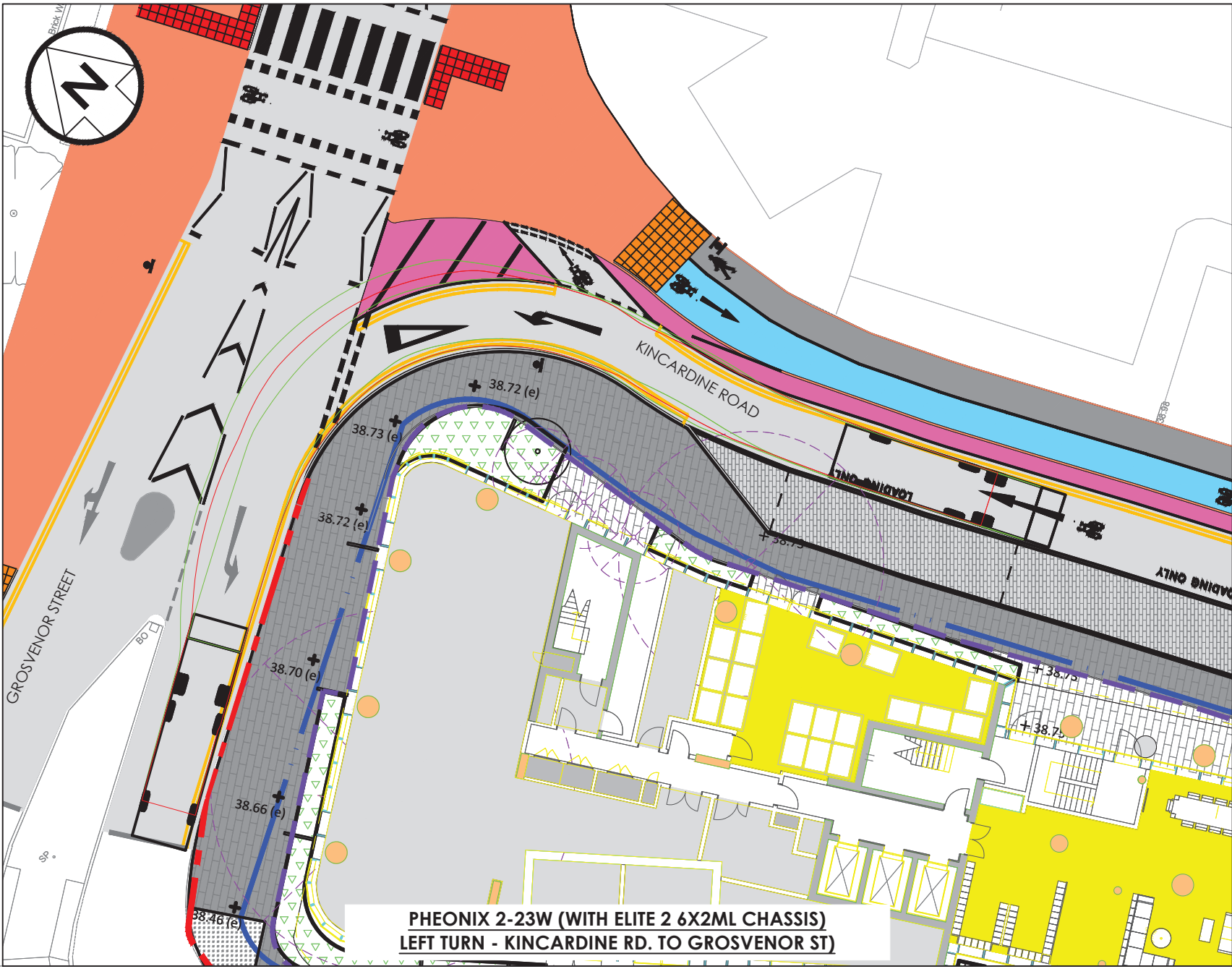
FTA DESIGN 13/18 TONNE RIGID VEHICLE 2016
LEFT REVERSE - DEVELOPMENT TO KINCARDINE RD. (JUNC. 4)



PHOENIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
LEFT REVERSE - DEVELOPMENT TO KINCARDINE RD. (JUNC. 4)



PHOENIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
RIGHT TURN - HANWORTH CL. TO KINCARDINE RD.



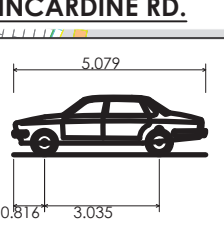
PHOENIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
LEFT TURN - KINCARDINE RD. TO GROSVENOR ST

NOTES - GENERAL:

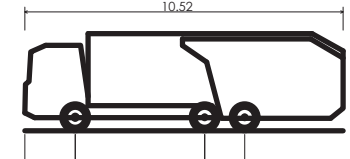
- 1) ALL DIMENSIONS, LEVELS AND CO-ORDINATES ARE BASED UPON TOPOGRAPHICAL SURVEY DRAWING (NO. 43891MCLS-01) BY SURVEY SOLUTIONS DATED AUGUST 2022.
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KEY - GENERAL

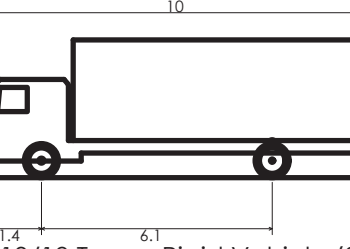
- CARRIAGEWAY
- RAISED OVERRUN STRIP
- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
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- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND



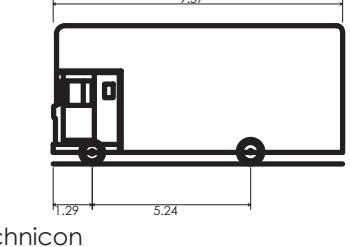
Large Car (2006)
Overall Length 5.079m
Overall Width 1.872m
Overall Body Height 1.525m
Min Body Ground Clearance 0.310m
Max Track Width 1.831m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 5.900m



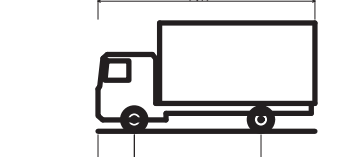
Phoenix 2-23W (with Elite 2 6x2ML chassis)
Overall Length 10.520m
Overall Width 2.530m
Overall Body Height 3.211m
Min Body Ground Clearance 0.416m
Track Width 2.530m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 10.250m



FTA Design 13/18 Tonne Rigid Vehicle (2016)
Overall Length 10.000m
Overall Width 2.550m
Overall Body Height 3.645m
Min Body Ground Clearance 0.440m
Track Width 2.470m
Lock to lock time 3.00s
Kerb to Kerb Turning Radius 11.000m



DB32 Pantechon
Overall Length 9.570m
Overall Width 2.520m
Overall Body Height 4.571m
Min Body Ground Clearance 0.383m
Max Track Width 2.300m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 10.450m



FTA Design 7.5 Tonne Rigid Vehicle (2006)
Overall Length 7.170m
Overall Width 2.300m
Overall Body Height 3.580m
Min Body Ground Clearance 0.375m
Track Width 2.120m
Lock to lock time 3.00s
Kerb to Kerb Turning Radius 7.000m

REV DRN CHK APP DATE DESCRIPTION

Wilde ISO 9001 Registered
Consulting Civil & Structural Engineers

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Adcroft Street,
Stockport, Cheshire,
SK1 3HS.
www.wilddecivil.co.uk
Tel: 0161-474-7479
Fax: 0161-474-7492

Client
PROPERTY ALLIANCE GROUP
MODA LIVING
WILLIAMS MOTOR CO (HOLDINGS)

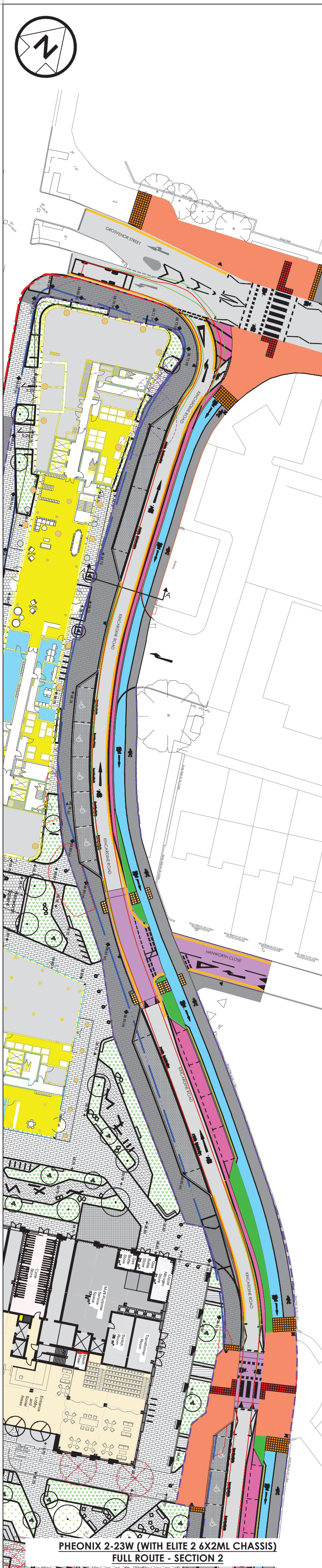
Project
UPPER BROOK STREET
MANCHESTER
M13 9XH

Title
SWEEP PATH ANALYSIS
KINCARDINE ROAD OPTION 3
SHEET 3 OF 4

Scale 1:250	Drawn TP	Date 01/11/23	Chkd DC	Approved ML
Drawing No. 766-042-WCL-027				Revision P02
Status FOR INFORMATION				Sheet Size A1



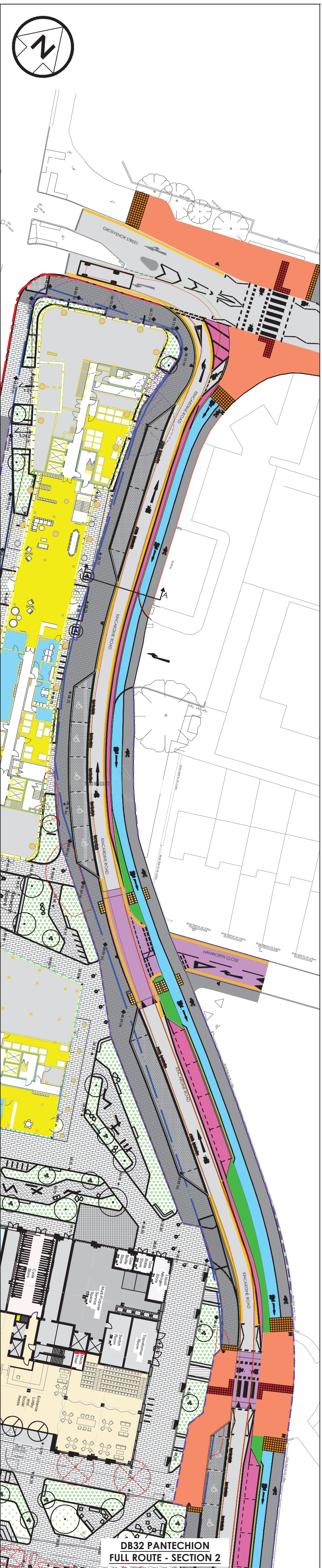
PHEONIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
FULL ROUTE - SECTION 1



PHEONIX 2-23W (WITH ELITE 2 6X2ML CHASSIS)
FULL ROUTE - SECTION 2



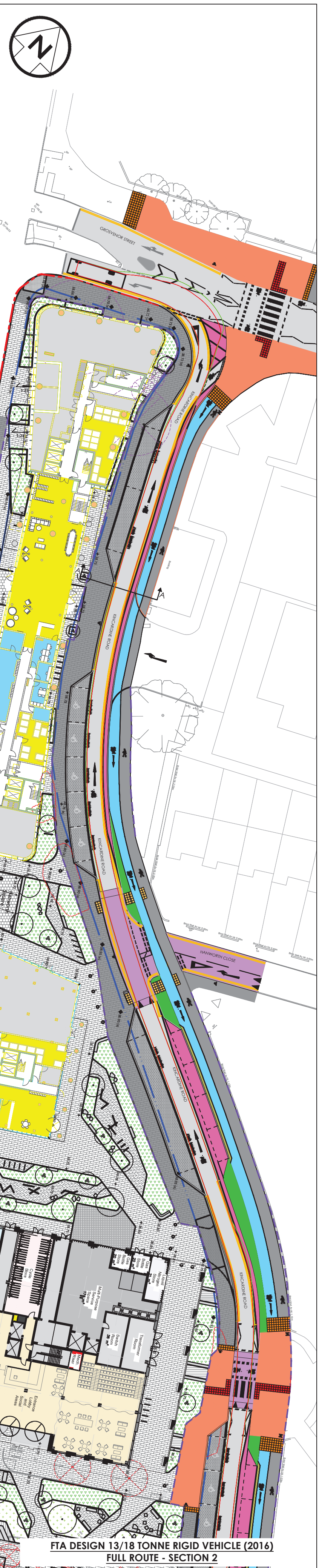
DB32 PANTECHION
FULL ROUTE - SECTION 1



DB32 PANTECHION
FULL ROUTE - SECTION 2



FTA DESIGN 13/18 TONNE RIGID VEHICLE (2016)
FULL ROUTE - SECTION 1



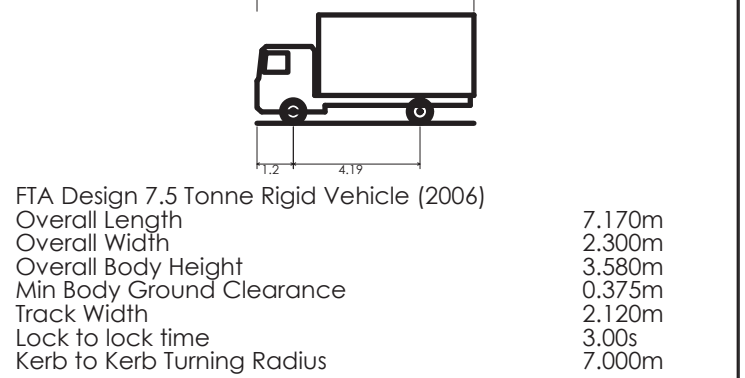
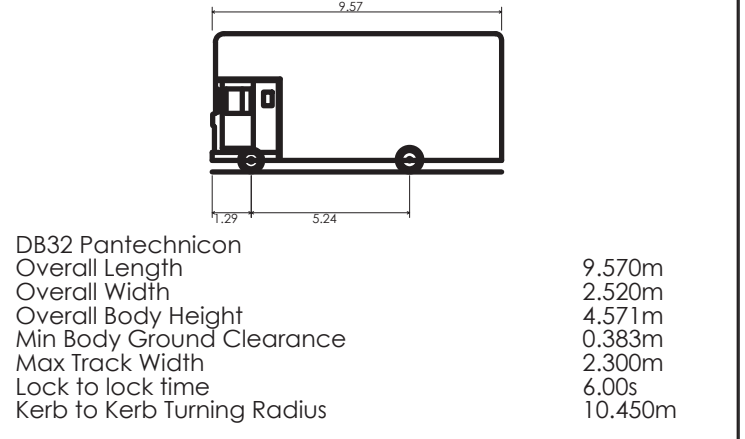
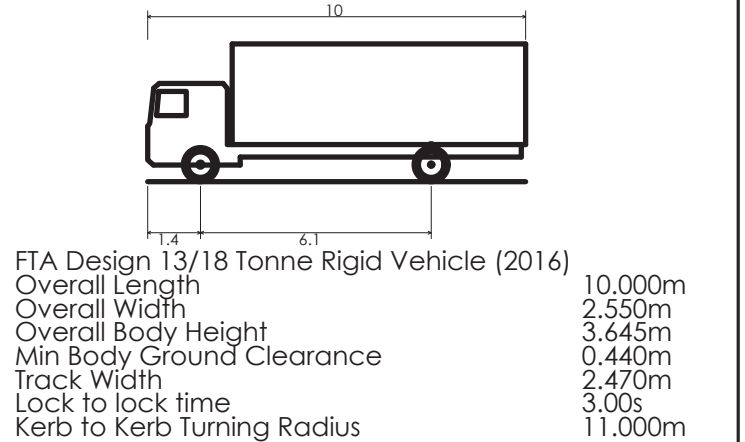
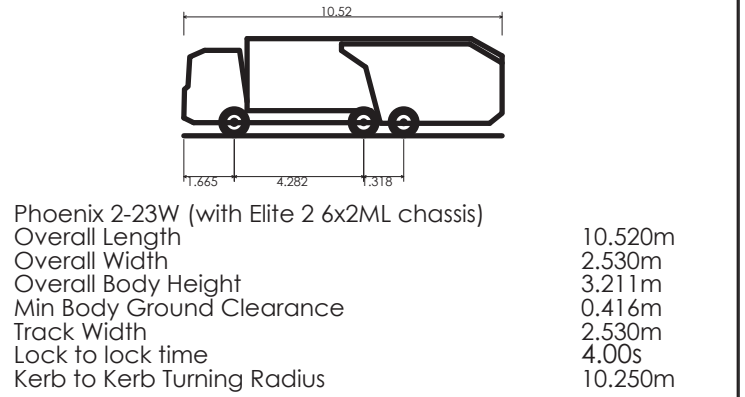
FTA DESIGN 13/18 TONNE RIGID VEHICLE (2016)
FULL ROUTE - SECTION 2

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KEY – GENERAL

- CARRIAGEWAY
- RAISED OVERRUN STRIP
- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
- RAISED PLATEAU / SPEED CUSHION AS SHOWN
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- HAZARD WARNING PAVING
- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND



REV| DRN | CHK | APP | DATE | DESCRIPTION

Wilde

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SK1 3HS.
www.wildecivil.co.uk
Tel: 0161-474-7479
Fax: 0161-474-7492

Consulting Civil & Structural Engineers

Client

PROPERTY ALLIANCE GROUP
MODA LIVING
WILLIAMS MOTOR CO (HOLDINGS)

Project

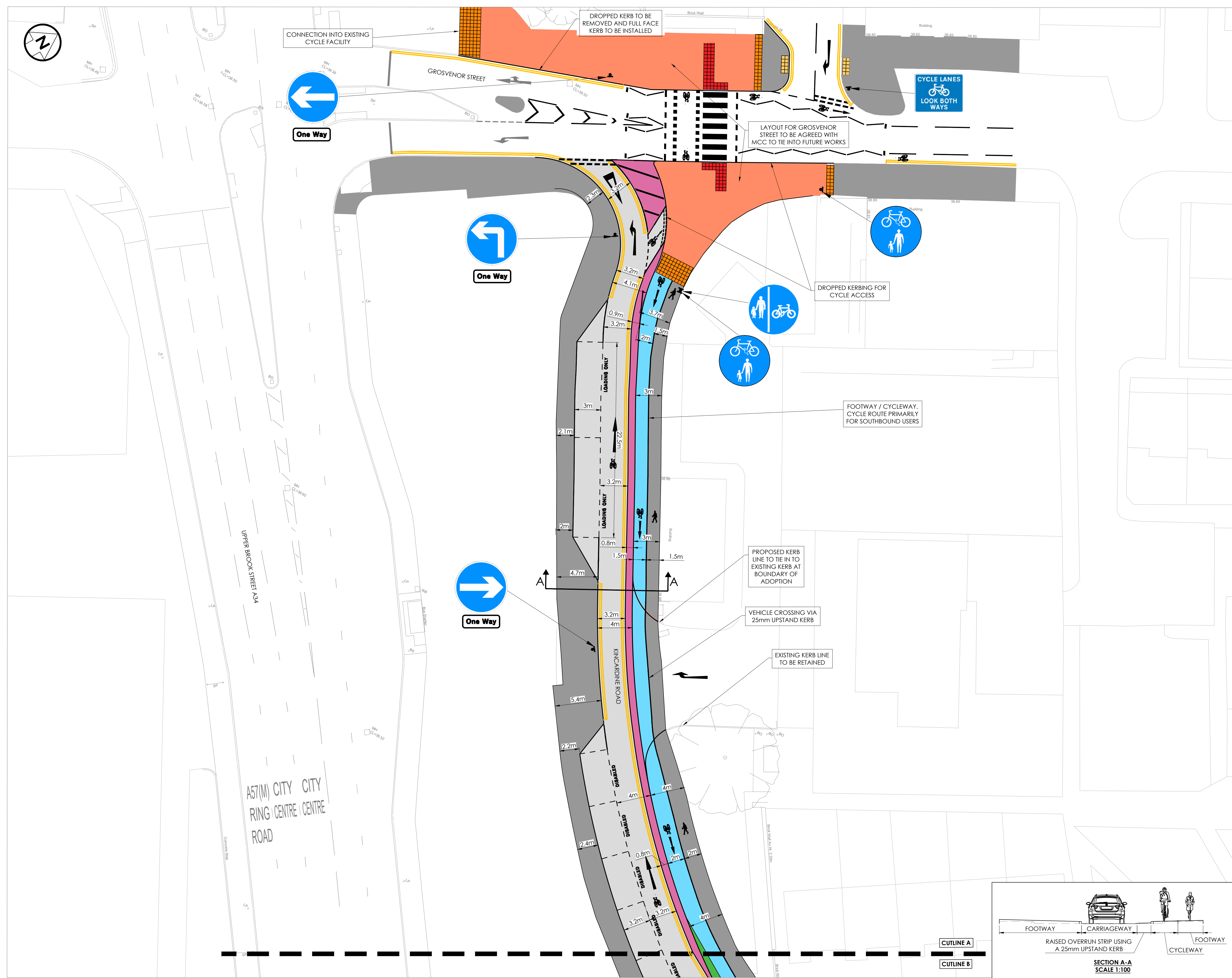
UPPER BROOK STREET
MANCHESTER
M13 9XH

Title

SWEPT PATH ANALYSIS
KINCARDINE ROAD OPTION 3
SHEET 4 OF 4

Scale 1:250	Drawn TP	Date 01/11/23	Chkd DC	Approved ML
Drawing No. 766-042-WCL-028				Revision P02
Status FOR INFORMATION				Sheet Size A1





NOTES - GENERAL:

- 1) ALL DIMENSIONS ARE STATED IN MILLIMETRES UNLESS NOTED OTHERWISE.
- 2) ALL LEVELS ARE STATED IN METRES
- 3) ALL DIMENSIONS, LEVELS AND CO-ORDINATES ARE BASED UPON TOPOGRAPHICAL SURVEY DRAWING (NO. 43891MCLS-01) BY SURVEY SOLUTIONS DATED AUGUST 2022.
- 4) DO NOT SCALE. PLEASE REFER ANY QUERIES TO THE PROJECT MANAGER / SUPERVISOR.
- 5) THIS DRAWING IS TO BE READ IN COLOUR

KEY - GENERAL

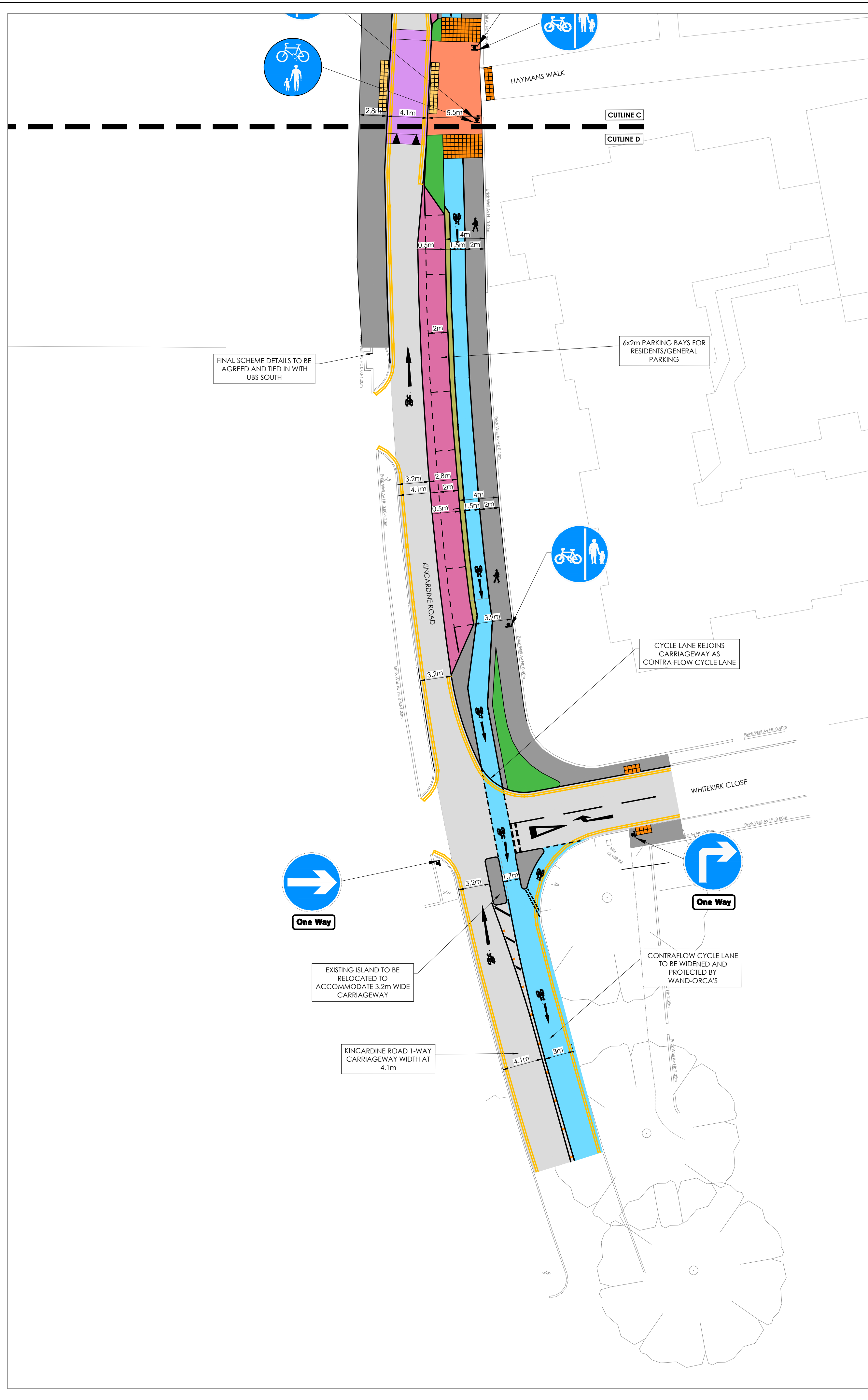
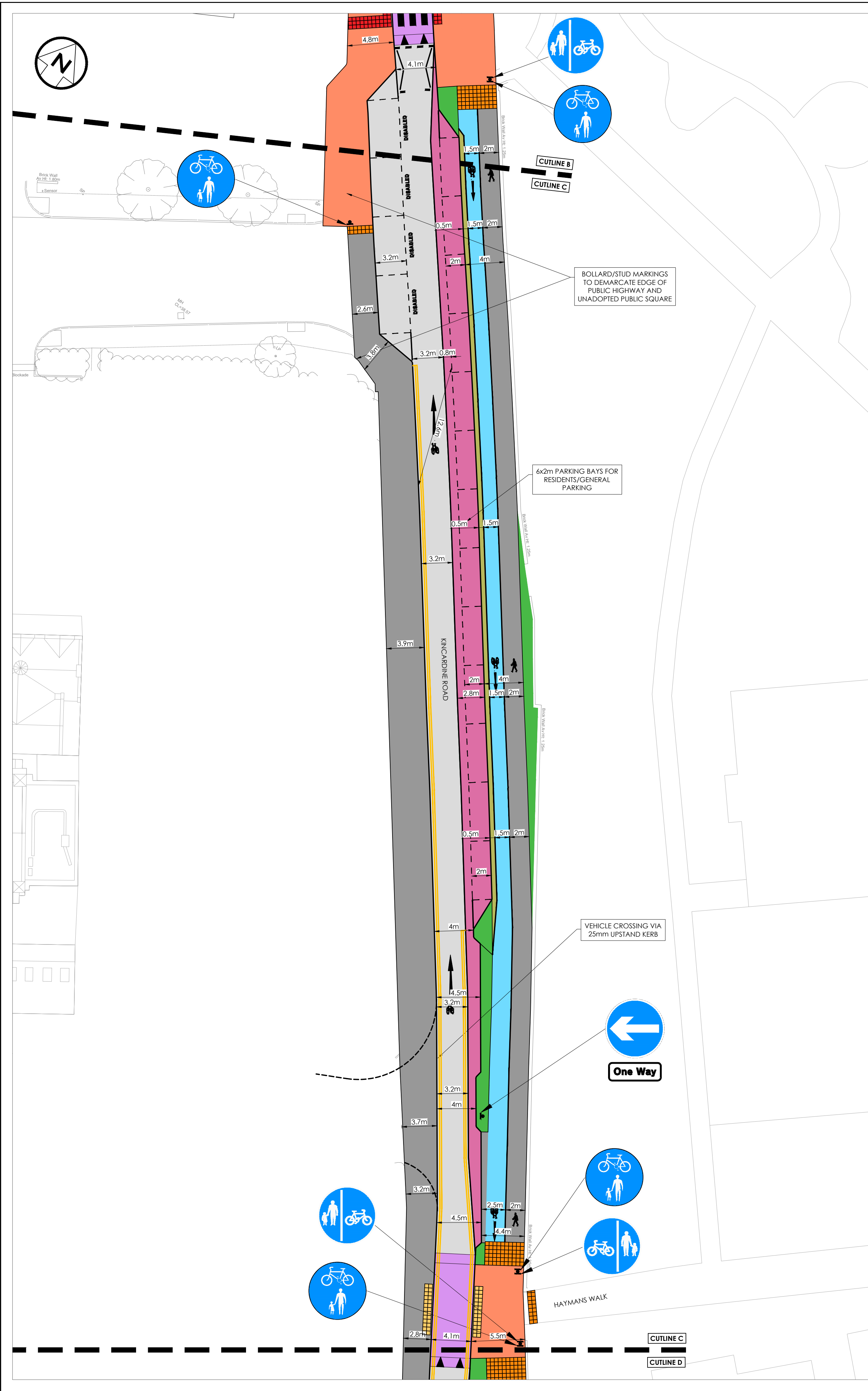
- CARRIAGEWAY
- RAISED OVERRUN STRIP
- FOOTWAY
- SHARED USE FACILITY
- CYCLE TRACK
- 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
- RAISED PLATEAU
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- HAZARD WARNING PAVING
- SUDS/PLANTING AREA
- EXISTING ROAD MARKINGS
- PROPOSED ROAD MARKINGS
- TRAFFIC SIGN
- CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND

REV	DRN	CHK	APP	DATE	DESCRIPTION
					Wilde Consulting Civil & Structural Engineers
					Brindley Lodge, Adcroft Street, Stockport, Cheshire, SK1 3HS. www.wildcivil.co.uk Tel: 0161-474-7479 Fax: 0161-474-7492
Client					
PROPERTY ALLIANCE GROUP MODA LIVING WILLIAMS MOTOR CO (HOLDINGS)					
Project					
UPPER BROOK STREET MANCHESTER M13 9XH					
Title					
GENERAL ARRANGEMENT (OPTION 3) KINCARDINE ROAD STAGE 1 RSA SHEET 1 OF 3					
Scale 1:200	Drawn TP	Date 31/10/23	Chkd DC	Approved ML	
Drawing No. 766-042-WCL-018				Revision P02	
Status FOR COMMENT				Sheet Size A1	

SECTION A-A
SCALE 1:100

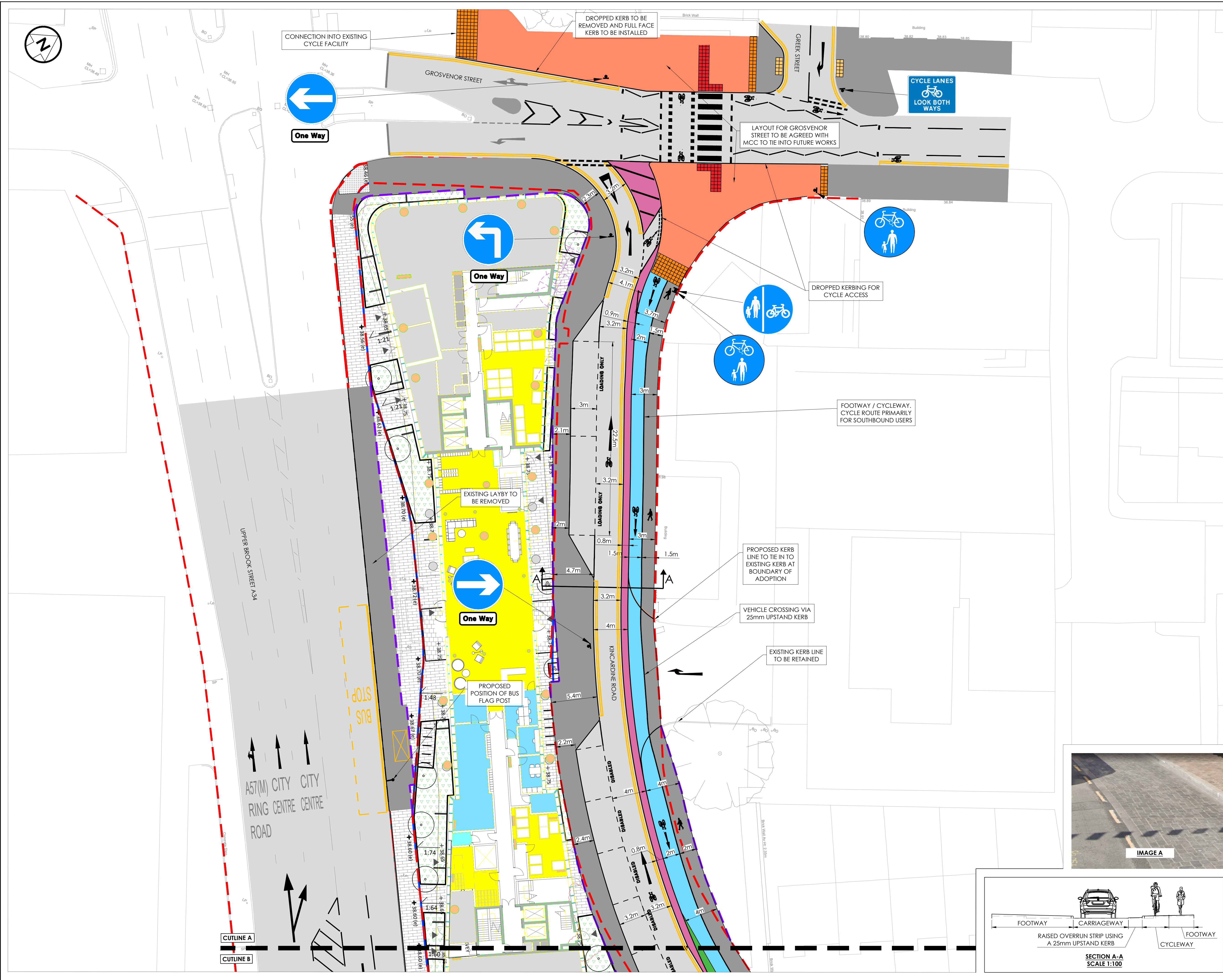
FOOTWAY
CARRIAGEWAY
FOOTWAY
CYCLEWAY

RAISED OVERRUN STRIP USING
A 25mm UPSTAND KERB



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- KEY – GENERAL**
- CARRIAGEWAY
 - RAISED OVERRUN STRIP
 - FOOTWAY
 - SHARED USE FACILITY
 - CYCLE TRACK
 - 0.5m BUFFER ZONE BETWEEN CYCLE TRACK AND CAR PARKING BAY
 - RAISED PLATEAU
 - CONTROLLED TACTILE PAVING
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 - SUDS/PLANTING AREA
 - EXISTING ROAD MARKINGS
 - PROPOSED ROAD MARKINGS
 - TRAFFIC SIGN
 - CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND

REV	DRN	CHK	APP	DATE	DESCRIPTION
1				31/10/23	Client
2				31/10/23	PROPERTY ALLIANCE GROUP MODA LIVING WILLIAMS MOTOR CO (HOLDINGS)
3				31/10/23	Project
4				31/10/23	UPPER BROOK STREET MANCHESTER M13 9XH
5				31/10/23	Title
6				31/10/23	GENERAL ARRANGEMENT (OPTION 3) KINCARDINE ROAD STAGE 1 RSA SHEET 3 OF 3
7				31/10/23	Scale
8				31/10/23	1:250
9				31/10/23	Drawn
10				31/10/23	TP
11				31/10/23	Date
12				31/10/23	31/10/23
13				31/10/23	Chkd
14				31/10/23	DC
15				31/10/23	Approved
16				31/10/23	ML
17				31/10/23	Revision
18				31/10/23	P02
19				31/10/23	Status
20				31/10/23	FOR COMMENT
21				31/10/23	Sheet Size
22				31/10/23	A1



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- KEY – GENERAL**
- EXISTING HIGHWAY BOUNDARY
 - NEW HIGHWAY BOUNDARY
 - CARRIAGEWAY
 - RAISED OVERRUN STRIP
 - FOOTWAY
 - SHARED USE FACILITY
 - CYCLE TRACK
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 - PROPOSED ROAD MARKINGS
 - TRAFFIC SIGN
 - CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND
 - BUS SHELTER

P03	TP	DC	ML	22/11/23	AMENDED FOLLOWING RSA1
P02	TP	DC	ML	31/10/23	AMENDED FOLLOWING REVIEW
REV	DRN	CHK	APP	DATE	DESCRIPTION

Wilde
Consulting Civil & Structural Engineers

ISO 9001
REGISTERED

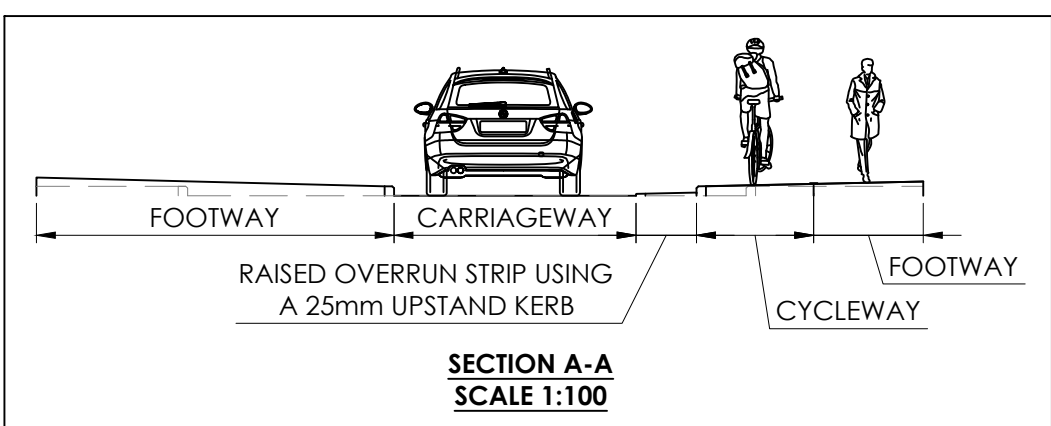
Brindley Lodge,
Adcroft Street,
Stockport, Cheshire,
SK1 3HS.
www.wildcivil.co.uk
Tel: 0161-474-7479
Fax: 0161-474-7492

Client
**PROPERTY ALLIANCE GROUP
MODA LIVING
WILLIAMS MOTOR CO (HOLDINGS)**

Project
**UPPER BROOK STREET
MANCHESTER
M13 9XH**

Title
**GENERAL ARRANGEMENT (OPTION 3)
SHEET 1 OF 4**

Scale 1:200	Drawn TP	Date 13/10/23	Chkd DC	Approved ML
Drawing No. 766-042-WCL-009				Revision P03
Status FOR COMMENT				Sheet Size A1

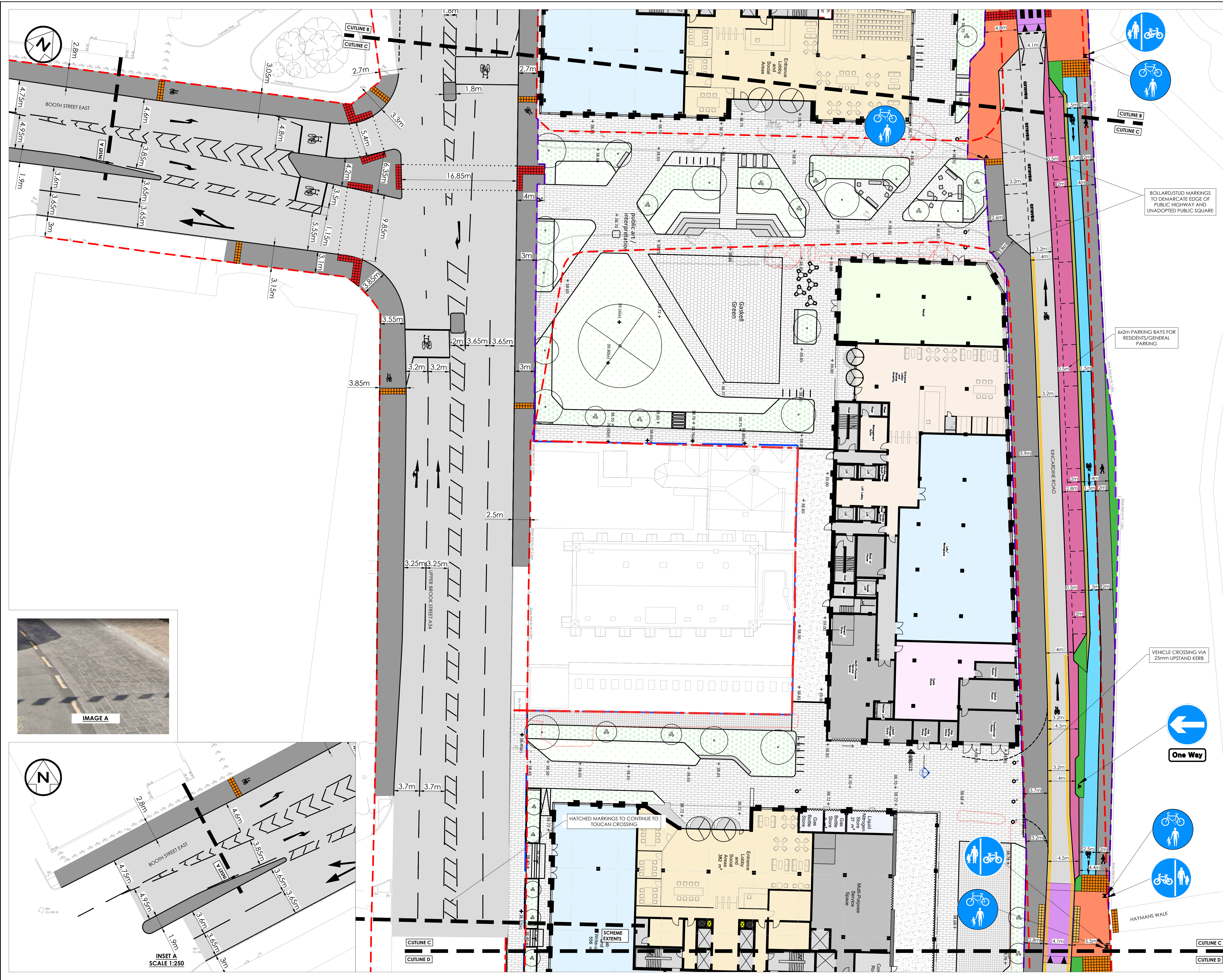




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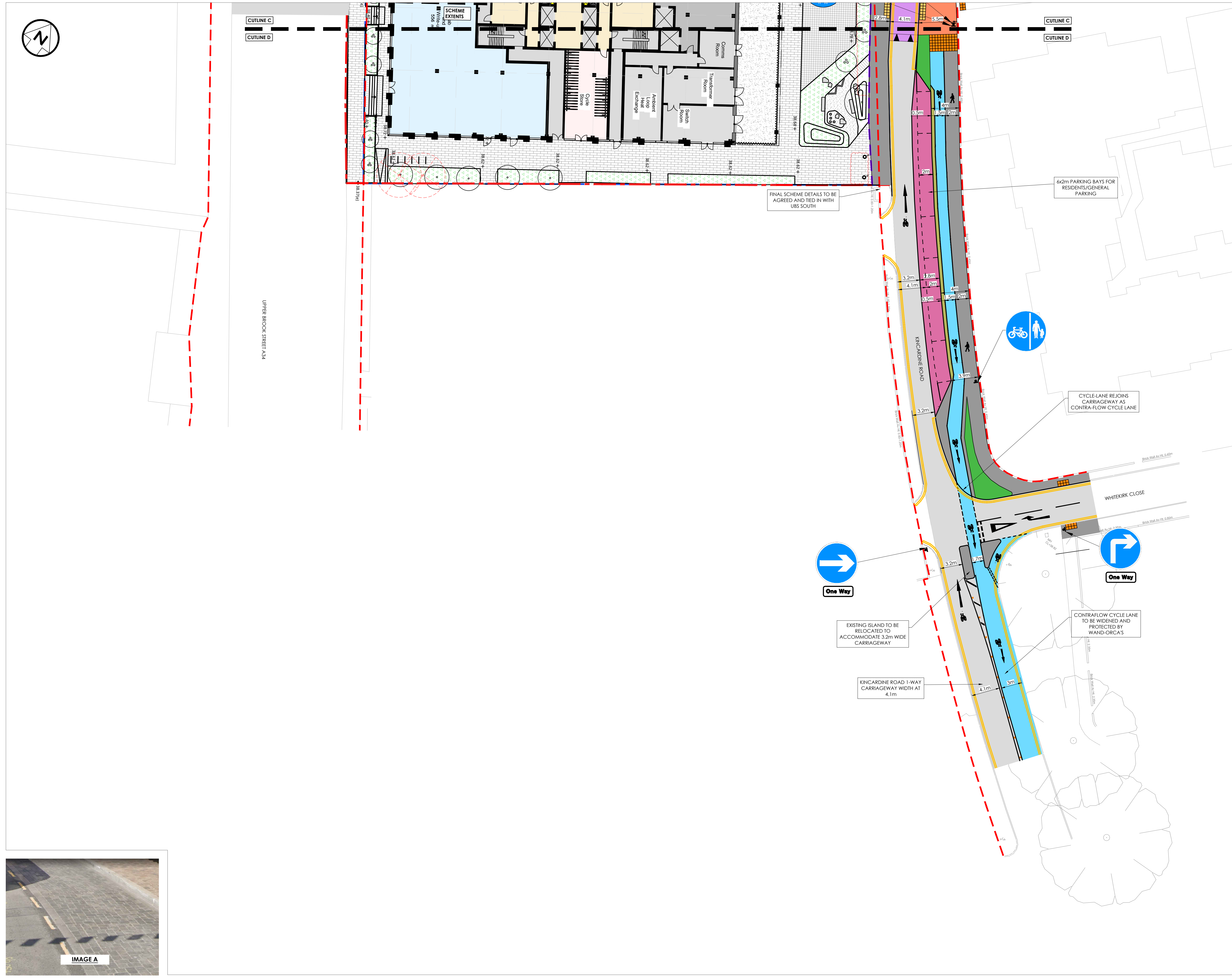
- KEY – GENERAL**
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 - CYCLE LANE LIGHT SEGREGATION - TRAFFIC WAND
 - BUS SHELTER

P03	TP	DC	ML	21/11/23	AMENDED FOLLOWING RSA1
P02	TP	DC	ML	31/10/23	AMENDED FOLLOWING REVIEW
REV	DRN	CHK	APP	DATE	DESCRIPTION
					Brindley Lodge, Adcroft Street, Stockport, Cheshire, SK1 3HS. www.wildcivil.co.uk Tel: 0161-474-7479 Fax: 0161-474-7492
Client					
PROPERTY ALLIANCE GROUP MODA LIVING WILLIAMS MOTOR CO (HOLDINGS)					
Project					
UPPER BROOK STREET MANCHESTER M13 9XH					
Title					
GENERAL ARRANGEMENT (OPTION 3) SHEET 2 OF 4					
Scale	Drawn	Date	Chkd	Approved	
1:200	TP	13/10/23	DC	ML	
Drawing No.				Revision	
766-042-WCL-010				P03	
Status				Sheet Size	
FOR COMMENT				A1	



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P03	TP	DC	ML	21/11/23	AMENDED FOLLOWING RSA1
P02	TP	DC	ML	31/10/23	AMENDED FOLLOWING REVIEW
REV	DRN	CHK	APP	DATE	DESCRIPTION
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Project					
UPPER BROOK STREET MANCHESTER M13 9XH					
Title					
GENERAL ARRANGEMENT (OPTION 3) SHEET 3 OF 4					
Scale	Drawn	Date	Chkd	Approved	
1:250	TP	13/10/23	DC	ML	
Drawing No.					Revision
766-042-WCL-011					P03
Status					Sheet Size
FOR COMMENT					A1



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EXISTING HIGHWAY BOUNDARY
NEW HIGHWAY BOUNDARY

-  CARRIAGEWAY
-  RAISED OVERRUN STRIP
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Client

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Project

UPPER BROOK STREET
MANCHESTER
M13 9XH

GENERAL ARRANGEMENT (OPTION 3)
SHEET 4 OF 4

Scale 1:200	Drawn TP	Date 13/10/23	Chkd DC	Approved ML
Drawing No. 766-042-WCL-0012				Revision P03
Status FOR COMMENT				Sheet Size A