

A316/Langhorn Drive Junction, Twickenham, Middlesex

Proposed Development Access

Stage 1 Road Safety Audit

Ref: SG/MF/15-1109

Prepared for:

Transport Planning Practice

By:

Gateway TSP

Prepared by: Steve Giles, Audit Team Leader

Checked by: Mike Fuller, Audit Team Member

Approved by: Steve Giles

Version	Status	Date
2.1	Audit report issued to Client	09/12/15
2.2	Audit report reissued to Client with minor format changes	11/12/15

1.0 INTRODUCTION

1.1 Commission

- 1.1.1 This report results from a Stage 1 Road Safety Audit carried out on proposed highway works at the A316 Chertsey Road/Langhorn Drive junction, Twickenham. The works are associated with Richmond Education and Enterprise Campus scheme, which seeks to redevelop the site to provide a replacement college, Tech Hub, residential development, a sports centre, a secondary school and a special needs school.
- 1.1.2 The Audit was undertaken by Gateway TSP in accordance with the Audit Brief issued by the Client Organisation on 4th December 2015. It took place at the offices of Gateway TSP on 8th December 2015 and comprised an examination of the documents provided, as listed in **Appendix A**, and a visit to the site of the proposed scheme.
- 1.1.3 The visit to the site of the proposed scheme was made on Tuesday 8th December 2015. During the site visit the weather was overcast and the existing road surface was wet. Traffic congestion was observed on the approaches to Whitton Road roundabout, whilst the A316 Chertsey Road fronting the site was free flowing.

1.2 Terms of Reference

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, 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 without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.

1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the design drawings and the locations have been indicated on the plan located in **Appendix B**.

1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

1.3 Main Parties to the Audit

1.3.1 Client Organisation

Client contact details: Richmond College
Egerton Road
Twickenham
Middlesex
TW2 7SJ

Tel: 020 8607 8000

Design Organisation

Design contact details: Corey Russell
Transport Planning Practice Limited
70 Cowcross Street,
London
EC1M 6EL

1.3.2 Audit Team Approval

The Audit Team specified in 1.3.3 below were given approval to undertake this Audit by Andrew Coventry of TfL Road Safety Audit on 4th December 2015.

1.3.3 Audit Team

Audit Team Leader: Steve Giles – Gateway TSP
Audit Team Member: Mike Fuller – Cotswold Transport Planning

1.3.4 Other Specialist Advisors

Not Applicable

1.4 Purpose of the Scheme

1.4.1 The purpose of the scheme is to provide an improved access to serve the proposed development. The highway works involve converting the existing priority left in/left out junction to a traffic signal controlled junction. The new junction will permit left/right movements out of Langhorn Drive and a left turn into Langhorn Drive from the A316

A316 Chertsey Road/Langhorn Drive Junction

Twickenham, Middlesex

Stage 1 Road Safety Audit Report

(westbound). Traffic wishing to turn right into Langhorn Drive from the A316 Chertsey Road (eastbound) will use Whitton Road roundabout to perform a U-turn and then turn left into Langhorn Drive at the new traffic signal controlled junction.

- 1.4.2 The junction is required for all vehicular access and egress onto the A316 Chertsey Road which forms part of the TLRN for the Replacement College, Tech Hub, Residential development and Sports Centre, and delivery vehicles for the Secondary School and Special Educational Needs School.
- 1.4.3 The signal controlled junction will incorporate a new pedestrian crossing across the A316 and a toucan crossing across Langhorn Drive.

1.5 Special Considerations

- 1.5.1 The Audit Team has no special considerations to raise.

1.6 Collision Analysis

- 1.6.1 Personal Injury Collision (PIC) data has been provided for the 3-year period up to 30th July 2014. The collision data identifies that 43 accidents were recorded for the wider local highway network with seven serious accidents recorded and the remainder being of slight severity. Analysis of the collision data has identified two clusters (14 collisions) recorded at the Chertsey Road/ Whitton Road junction and on London Road outside Twickenham Station. Two serious collisions were recorded on Chertsey Road, however no accidents were recorded at the Langhorn Drive/A316 Chertsey Road Junction. A review of the collision data indicates that common contributory factors include poor driver awareness, pedestrians failing to judge vehicle paths and speeds and poor pedestrian/driver behaviour. Based on the collision data for this 3-year period there is no inherent road safety issue associated with the existing junction.

2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS

The Audit Team is not aware of any other Audits having been carried out on the proposals.

3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

3.1 JUNCTIONS

3.1.1 PROBLEM

Location: A316 Chertsey Road approaches to Traffic Signal Junction

Summary: Potential vehicle collisions associated loss of control

The A316 Chertsey Road is subject to a 40mph speed limit in the vicinity of the proposed traffic signal controlled junction. During the site inspection the Audit Team noted that vehicle speeds broadly comply with the posted speed limit, but during off peak periods vehicle speeds may be higher. The introduction of the traffic signal controlled junction may increase the risk of loss of control type collisions arising from high speed vehicles suddenly braking when the lights change from green to red.

RECOMMENDATION

Review the Polished Stone Value (PSV) of the carriageway surface on the A316 Chertsey Road approaches to the traffic signal controlled junction. If necessary, a colour contrasting / high friction surface should be applied to improve skid resistance of the road surface and highlight the presence of the traffic signal controlled junction. In addition, vehicle speed detection loops should be used to trigger an extended amber signal to vehicles exceeding the speed limit on their approach to the signals.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>The PSV assessment can be dealt with at the detailed design stage. However, contrasting colour anti-skid surface treatments are the most likely option to be used to prevent loss of control as they provide an additional warning to drivers that they are approaching a junction / crossing.</p> <p>Additionally, if deemed required by the Stage 2 RSA, speed detection loops could be installed to trigger an extended amber for vehicles detected in excess of the speed limit on the approaches to the junction.</p>	
Client Organisation Comments	
<p>Fusion Project Management Limited accept the above proposals put forward by the Designer on behalf of the client Richmond College.</p>	

3.1.2 PROBLEM

Location: A316 eastbound approach to A316/Langhorn Drive junction

Summary: Potential collisions associated with illegal right turn

No details of carriageway markings and signs have been provided. The absence of signs and markings may encourage A316 Chertsey Road eastbound traffic to perform an illegal right turn into Langhorn Drive or a U-turn. This could increase the risk of collisions with traffic travelling west along the A316 or traffic turning right out of Langhorn Drive.

RECOMMENDATION

Advance road signs and carriageway markings should be provided to inform A316 Chertsey Road eastbound traffic of the permitted movements at the junction.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>Road markings have been shown on drawing 30713/AC/038 Rev C including lane direction arrows. However, in order to provide further detail, stop lines will be provided in accordance with Diagram 1001, lane markings will be provided in accordance with Diagram 1004 and 1005, the central reservation marking will be provided in accordance with Diagram 1009 and pedestrian crossing markings will be provided in accordance with Diagram 1055.1.</p> <p>Additionally, lane direction arrows on the eastbound carriageway of the A316 Chertsey Road will be in accordance with Diagram 1036.2. Similarly, lane direction arrows on the two ahead lanes on the westbound carriageway of the A316 Chertsey Road will be in accordance with Diagram 1036.2, with the left turn lane being in accordance with Diagram 1036.1.</p> <p>The left turn lane on Langhorn Drive will be in accordance with Diagram 1036.1 and the right turn lane will be in accordance with Diagram 1037.1.</p> <p>Advance road signing and road signing at the junction including Diagram 606: 'Vehicular traffic must proceed in the direction indicated by the arrow', Diagram 612: 'No right turn' and Diagram 614: 'No U-turns' will be used to prevent vehicles turning right into Langhorn Drive from the eastbound carriageway of the A316 and U-turning on the A316 for both for both carriageways.</p> <p>Additionally, the signal heads on the eastbound carriageway of the A316 could be fitted with green arrows rather than standard green lamps to enforce the straight ahead nature of the arm. Diagram 606 and Diagram 612 could also be added to the signal heads.</p>	
Client Organisation Comments	
<p>Fusion Project Management Limited accept the above proposals put forward by the Designer on behalf of the client Richmond College.</p>	

3.1.3 PROBLEM

Location: A316 westbound approach to A316/Langhorn Drive junction

Summary: Potential collisions associated with poor visibility

It is unclear from the drawings provided if forward visibility to the nearside traffic signal head on the A316 Chertsey Road westbound approach will be visible to traffic

approaching the junction. The existing structure associated with the overhead pedestrian bridge may restrict forward visibility to the nearside signal head. Poor visibility to the traffic signal heads could increase the risk of shunt type collisions as left turning vehicles brake.

RECOMMENDATION

Ensure that the nearside traffic signal head on the A316 Chertsey Road westbound approach will be visible to traffic approaching the junction.

Design Organisation Response	Accepted / Part Accepted / Rejected
As per DMRB, Vol. 6, Section 2, Part 3, TD50/04, paragraph 2.7: <i>Each traffic lane shall have clear vision of at least one primary signal associated with its particular movement, from a distance equivalent to the DMSSD.</i> The primary signal head on the central reservation of the A316 is visible from the desirable minimum stopping site distance of 120m. The primary signal head on the nearside edge of the carriageway is visible 75m back from the nearside kerb-line and a 120m from the centreline of the carriageway. Additionally, a secondary signal head mounted on the island on Langhorn Drive would be visible 121m from the nearside kerb, therefore meeting the Desirable Minimum Stopping Sight Distance.	
Client Organisation Comments	
Fusion Project Management Limited accept the above proposals put forward by the Designer on behalf of the client Richmond College.	

3.2 PEDESTRAINS

3.2.1 PROBLEM

Location: Amendments to pedestrian overbridge

Summary: Potential for pedestrian trip or fall

It is understood that the pedestrian overbridge stepped ramp on the southern side of the A316 is to be modified and reduce in length to facilitate the new junction arrangement. No further details relating to the revised gradient/steps associated with the amended layout of the pedestrian ramped section of the overbridge have been provided. Inadequate provision for non-motorised users of the overbridge may result in a hazard for pedestrian which could result in a trip or fall type of injury.

RECOMMENDATION

Ensure that any modifications associated with the pedestrian overbridge stepped ramp comply with highway standards and do not cause a trip/fall hazard for pedestrians.

Design Organisation Response	Accepted / Part Accepted / Rejected
The new crossing over the A316 will provide a fully DDA compliant crossing. Details of the gradients of the stepped section can be provided at the detailed design stage at the detailed design stage. However, signing at the start of the	

pedestrian steps on the northern side of the A316 will advise less ambulant persons to use the new pedestrian crossing and warn of standard steps off the bridge on the southern side of the carriageway rather than a stepped ramp.

Client Organisation Comments

Fusion Project Management Limited accept the above proposals put forward by the Designer on behalf of the client Richmond College.

3.2.2 PROBLEM

Location: Pedestrian crossing on Langhorn Drive

Summary: Potential vehicle/pedestrian collisions

No traffic signal timings have been provided. The new single-stage crossings will significantly increase the distance pedestrians have to cross. Inadequate inter-green periods could lead to pedestrians becoming stranded, increasing the risk of vehicle/pedestrian collisions.

RECOMMENDATION

Provide adequate inter-green periods to ensure that pedestrians are able to clear the crossing without becoming stranded.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>The signal phasing allows for a pedestrian stage where all traffic at the junction is held on red. Sufficient inter-green times have been allowed for vehicles to clear the central conflict areas of the junction before the pedestrian phase is run.</p> <p>The pedestrian island on the A316 carriageway is sufficiently long enough to provide protection of the eastbound carriageway crossing from vehicles turning out of Langhorn Drive and enable the implementation of a stop line if this is deemed required at the detailed design stage.</p>	
Client Organisation Comments	
<p>Fusion Project Management Limited accept the above proposals put forward by the Designer on behalf of the client Richmond College.</p>	

End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit

4.0 ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

The Audit Team has no issues to raise within this section.

5.0 SIGNATURES AND SIGN-OFF

5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A. to this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

AUDIT TEAM LEADER:

Name: Stephen Giles
BEng (Hons), IEng, FIHE, MCIHT,
MICE, CMILT, MSoRSA

Signed:



Position: Road Safety Audit Consultant Date: 11th December 2015
Organisation: Gateway TSP
Address: Surrey Technology Park, 40 Occam Road, Guildford, GU2 7YG
Contact: sgiles@gateway-tsp.co.uk, Tel:01483 685220

AUDIT TEAM MEMBER:

Name: Mike Fuller
BSc (Hons) IEng, MCIHT, MSoRSA

Signed:



Position: Road Safety Audit Consultant Date: 11th December 2015
Organisation: Cotswold Transport Planning
Address: Pennant Cottage, Hambrook, Bristol, BS16 1RF

6.0 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 1 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisations endorsement of my proposals.

Name: Corey Russell

Position: Director

Organisation: Transport Planning Practice

Signed:  Dated: 11th December 2015


CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

Name: Nolan Smith

Position: Director

Organisation: Fusion Project Management acting on behalf of client Richmond College

Signed:  Dated: 14 / DECEMBER / 2015

APPENDIX A

Documents Forming the Audit Brief

Documents Forming the Audit Brief

DRAWING NUMBER

30713/AC/038 Revision B
30713/AC/057 Revision A
30713/AC/058 Revision A
30713/AC/059 Revision A

DRAWING TITLE

A316/Langhorn Drive Scheme Layout
Swept Path Analysis of 10m Rigid HGV
Swept Path Analysis of 15m Coach
Swept Path Analysis of 16.5m Articulated HGV

DOCUMENTS

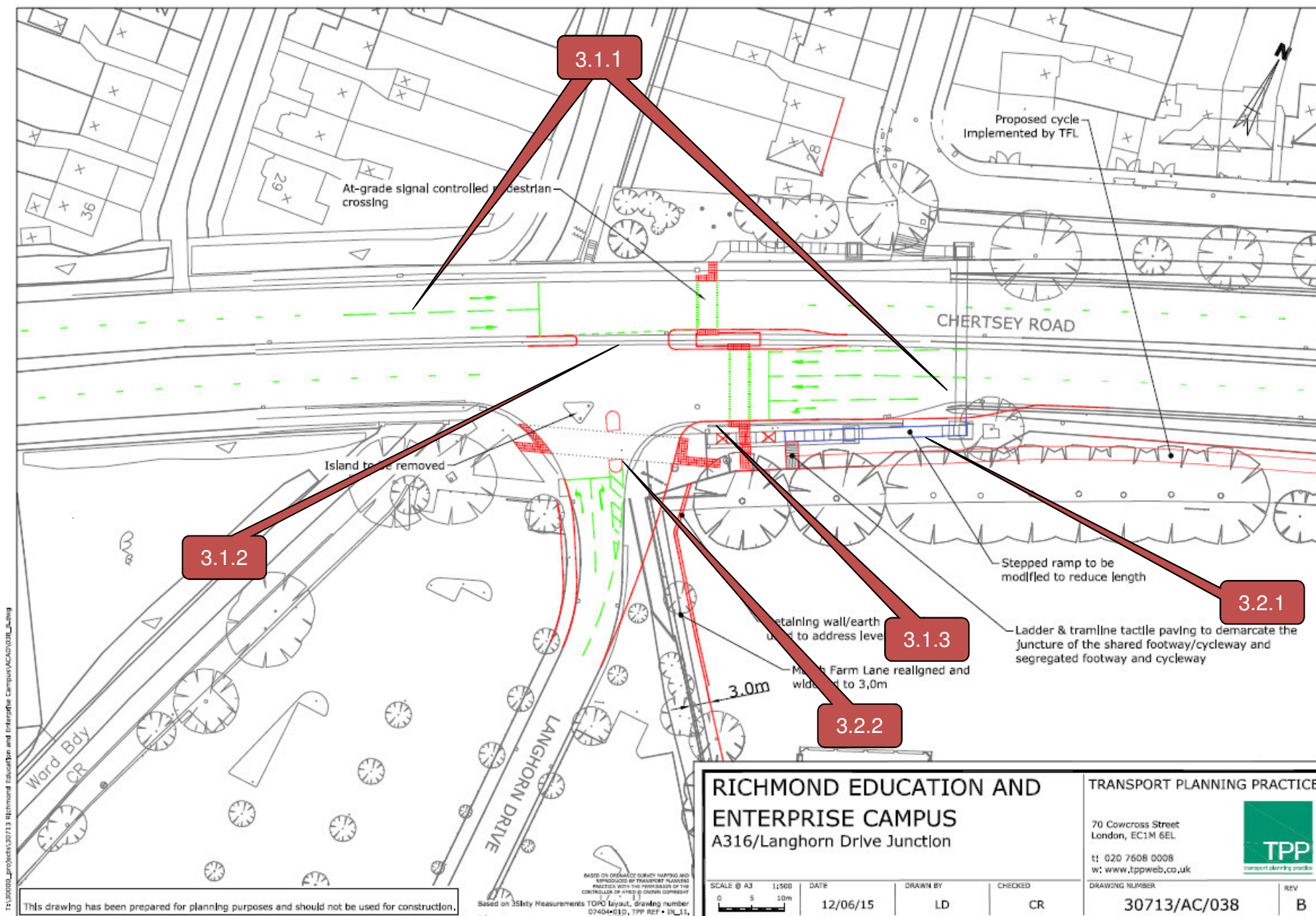
- ☒ Safety Audit Brief
- ☐ Site Location Plan
- ☐ Traffic signal details
- ☐ TfL signal safety checklist
- ☐ Departures from standard
- ☐ Previous Road Safety Audits
- ☐ Previous Designer Responses
- ☒ Collision data
- ☒ Collision plot
- ☒ Traffic flow / modelling data
- ☐ Pedestrian flow / modelling data
- ☐ Speed survey data
- ☒ Other documents

DETAILS (where appropriate)

Transport Assessment for Richmond upon Thames
College - Richmond Education and Enterprise
Campus

APPENDIX B

Problem Locations



RICHMOND EDUCATION AND ENTERPRISE CAMPUS A316/Langhorn Drive Junction

TRANSPORT PLANNING PRACTICE

70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk



SCALE @ A3 1:500
0 5 10m

DRAWING NUMBER
30713/AC/038

DATE 12/06/15

REV B

DRAWN BY LD

CHECKED CR