Technical Note

Project: **Former Masonic Hall and Old Telephone Exchange Site, Elmsleigh Road, Staines**

Subject: **Response to Highway Comments and SCC RSA**

Client:	Inland Homes Ltd	**Version:**	A
Project No:	04550	**Author:**	LS
Date:	15/02/2021	**Approved:**	MF

1 Introduction

1.1.1 This Technical Note (TN) has been prepared by PJA in response to comments received from Surrey County Council (SCC) in relation to a planning application for the redevelopment of the Old Telephone Exchange, Masonic Hall and Adjoining Land on Elmsleigh Road in Staines-upon-Thames (application number 20/01199/FUL).

1.1.2 This Technical Note also includes the Designer's Response to the Stage 1 Road Safety Audit (RSA) undertaken by SCC, dated November/December 2020.

1.1.3 The development proposals are for:

"Demolition of the former Masonic Hall and redevelopment of site to provide 206 dwellings together with car and cycle parking, hard and soft landscaping and other associated works."

1.2 Highway Design Scheme

1.2.1 The proposed development will take access from Elmsleigh Road. As part of this, a number of changes to Elmsleigh Road are proposed:

- Removal of the roundabout adjacent to the junction with the A308 Thames Street, and realignment of the Elmsleigh Road arm of the signalised junction between Elmsleigh Road and Thames Street.
- New pedestrian courtesy crossings with contrasting surfacing.
- Vehicle access to the development to the east of the site, with new pedestrian footway build outs.

2 SCC Comments

2.1.1 Comments were received by email from Charlie Cruise at Surrey County Council (SCC) dated the 1st February 2021, with a subsequent discussion via Teams undertaken on Friday 12th February 2021.

2.1.2 These comments were in response to a previous Response to Highways Comments Technical Note prepared by PJA and dated December 2020. The previous response is hereafter referred to as the December 2020 Technical Note.

3 Road Safety Audit

3.1.1 The highway design undertaken by PJA was reviewed as part of a Stage 1 RSA, undertaken by SCC. The qualified auditors were:

- M C Smith
- N Pond

3.1.2 The Stage 1 RSA was carried out between the 23rd November and 8th December 2020. A site visit was undertaken on the 25th November 2020.

3.1.3 It should be noted that a previous Stage 1 RSA was commissioned by PJA and undertaken by TMS Consultancy on Thursday 17th December 2020 following a site visit on Tuesday 15th December 2020. A Designer's Response was prepared by PJA in relation to this previous RSA, dated January 2021 (hereafter referred to as January 2021 Designer's Response). The SCC audit was undertaken based on drawings prepared prior to amendments being made in relation to the comments received from SCC in December 2020 and following the previous RSA. Therefore, some of the problems identified were found to no longer be relevant.

3.1.4 The designer can respond to the comments made in the Road Safety Audit by either:

- Acknowledging the auditor's comments and amending the design accordingly, or;
- Acknowledging the auditor's comments, but not making any changes, setting out the reason for not taking on-board the auditors' comments.

3.1.5 This document has been prepared in response to the Stage 1 RSA comments.

4 Comments and PJA Response

4.1.1 Table 1 sets out each comment raised by SCC, by email or as part of the RSA, with PJA's responses.

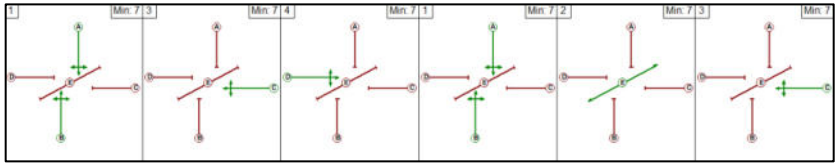
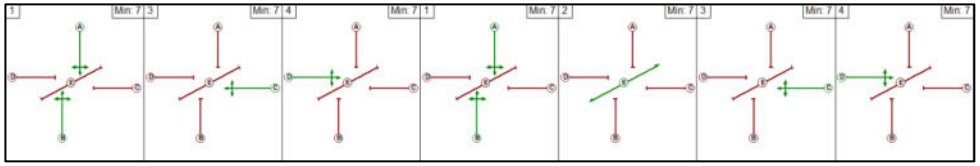
Table 1: SCC Comments and PJA Response

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
PJA Previous Response: The northern loading bay has been altered so it will now take the form of a loading pad inset with reinforced footway, shown on the updated highway works plan included in Appendix B. This will be suitable for use by pedestrians when it is not in use by vehicles. Therefore, the footway width in this location will only be reduced for short periods of time. SCC Response: How would this be designed to provide suitable footway gradients and retain passable width when a vehicle is in place?	N/A	The stairs adjacent to the loading pad are required for flood access to the building, and thus will be very rarely, if ever, used. Pedestrian numbers past the loading pad are expected to be very low, and the reduced width of 1.4m for a length of approximately 4m alongside the stairs will subsequently be acceptable. Different surfacing will be provided for the loading pad, to differentiate it from the footway. This will encourage vehicles to park within the designated area, thus retaining the passable width for pedestrians. Additionally, bollards will be provided at either end of the loading pad, to ensure that vehicles do not overrun the footway. Details of the bollards will be provided at detailed design stage. Details of the footway gradients will be considered as part of the detailed design stage.		
PJA Previous Response: The re-use of existing carriageway should not be discounted at this stage until the full extent of works is known and the condition of existing carriageway is assessed. This will therefore be reviewed at detailed design stage. SCC Response: Agreed that this can be further considered at detailed design stage but please remove references to retained tarmac from the drawings.	N/A	The reference to retained tarmac has been removed in the most recent drawings, so no changes are necessary.		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
The splay drawings provided appear to show pedestrian visibility measured to the kerbline. In practice, pedestrians are likely to stand approximately 0.5m back from the edge of carriageway when they check for oncoming traffic. Please could these drawings be updated to show a set back of 0.5m?	N/A	An updated pedestrian visibilities plan has been prepared, with the visibility measured to 0.5m back from the edge of the kerb, included as **Appendix A**. This shows that the required visibilities can be achieved with this offset (details of the rationale behind the required visibilities is provided in the December 2020 Technical Note).		
A1.1. Summary: restricted visibility for and of pedestrians at uncontrolled crossing. Visibility for and of pedestrians using the proposed uncontrolled crossing on the west side of Elmsleigh Road is restricted to the south, despite the proposed kerb build-out, by the building line and fencing of the adjacent property. Pedestrians attempting to cross the carriageway via the uncontrolled crossing to the central refuge, are at risk of conflict with northbound drivers proceeding within Elmsleigh Road. This is of particular concern for the visually impaired, the mobility impaired and pedestrians with pushchairs.	Provide visibility for and of pedestrians in accordance with current advice at the proposed uncontrolled crossing. Increase the width of the western footway and reduce the running lane width at the proposed uncontrolled crossing to improve visibility for and of pedestrians.	The pedestrian visibilities plan included as **Appendix A** demonstrates that the building line and fencing do not encroach on the visibility splay for pedestrians using the crossing on the west side of Elmsleigh Road. This is measured from the likely position of a pedestrian to the likely position of a driver. There is therefore no need for the western footway width to be increased.		
A1.2. Summary: risk of pedestrian conflict at contrasting 'courtesy crossings'. Pedestrians may believe that the proposed 'courtesy crossings' which are proposed to have contrasting surfacing are controlled crossings, or that they have priority over approaching traffic. Pedestrians entering the carriageway expecting vehicles to stop / slow are at risk of conflict.	Omit the proposed contrasting coloured carriageway surfacing at each 'courtesy crossing, to provide a uncontrolled crossing with bituminous surfacing, as per the adjacent carriageway.	Contrasting surface is used as a means to make drivers more aware of the presence of the pedestrian crossings. The contrasting surfacing has been removed from the drawings at present (an updated highway works plan is included as **Appendix B**), and the suitability of this will be reviewed at detailed design stage.		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
A1.3. Summary: risk of vehicular conflict with kerb build-out. Northbound drivers within Elmsleigh Road are at risk of striking the kerbs of the proposed kerb build-out on the nearside of the carriageway. This is due to the severity of the taper and the lack of markings to guide drivers towards the centre of the running lane.	Widen the western Elmsleigh Road footway further to the south to provide a smooth taper to widen the western footway prior to and at the proposed uncontrolled crossing.	The severity of the taper has been reduced to guide drivers to the centre of the lane, as shown on the plan in **Appendix B**. Additionally, bollards will be provided on the splitter islands and pedestrian refuges. The locations of these will be determined as part of the detailed design.		
A1.4. Summary: risk of surface water ponding at proposed kerb build-out. Surface water is likely to pond at the kerbs of the proposed kerb build-out. This increases the risk of vehicle loss of control as well as pedestrian slips / falls in wet / icy conditions.	Provide appropriate drainage facilities adjacent to the proposed kerb build-out to ensure surface water is discharged from the carriageway, and / or; Widen the western Elmsleigh Road footway further to the south to provide a smooth taper to widen the western footway prior to and at the proposed uncontrolled crossing.	The gulleys on Elmsleigh Road are currently on the opposite side to the proposed build out. It is therefore expected that the proposed build-out wouldn't obstruct the channel line. This will be considered further as part of the detailed design. Notwithstanding the above, it is proposed to provide a smoother taper on the approach to the pedestrian crossing as set out previously.		
A1.5. Summary: risk of pedestrian conflict. Pedestrians approaching or waiting at the proposed uncontrolled crossing on the western Elmsleigh Road footway, are at risk of conflict with vehicles turning left to enter the existing vehicular access. The existing vehicular access is directly to the north of the proposed uncontrolled crossing and hence there is a risk that vehicles, especially long-wheel based vehicles, may traverse the kerbs of the proposed kerb build-out, placing pedestrians in the vicinity at risk of conflict.	Confirm turning circles of all expected vehicles are able to enter the existing vehicular access without conflicting with the proposed uncontrolled crossing. Provide physical measures to deter vehicles traversing the western footway in the vicinity of the proposed uncontrolled crossing / kerb build-out.	As part of the previous revisions to the plan the build-out and pedestrian crossing have been relocated slightly further south, so that they do not conflict with the service access or the disabled parking bay. Additionally, bollards will be provided on the splitter islands and pedestrian refuges as appropriate. The locations of these will be determined as part of the detailed design.		
A1.6. Summary: risk of driver confusion. Drivers are required to pass to the offside of the central island to proceed on the up-ramp, which is currently	Provide markings to direct all Elmsleigh Road drivers to proceed ahead, with a bifurcation for those wishing to proceed on the up-ramp.	Carriageway markings will be included at detailed design stage to ensure that the arrangement for drivers entering Elmsleigh		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
controlled by traffic signals. No carriageway markings are proposed to clarify the alignment drivers entering Elmsleigh Road from A308 Thames Street are able to proceed. (NB. The traffic signals were observed to be working but did not appear to react to vehicle demand / drivers were observed to ignore a red signal).	Consult SCC Traffic Systems with regards to vehicle detection, operation and maintenance of the existing traffic signal installation at the ramp facility. Provide a blank-faced bollard at the base of the nearside primary signal to separate vehicles flows.	Road from the A308 Thames Street is clear. The operation of the traffic signals and provision of bollards will also be considered at detailed design stage.		
A1.7. Summary: lack of detail for signal junction and pedestrian operation. The Thames Street / Elmsleigh Road existing signal junction allows 'walk with traffic' for pedestrians at the existing staggered controlled crossing facility. The proposals at the junction for a controlled pedestrian crossing as well as signal operation are not clear. This is of concern for any proposed pedestrian crossing facility on the Elmsleigh Road exit for drivers wishing to enter Thames Street. The proposed stop line location adjacent to the central refuge on the exit from Elmsleigh Road does not appear to cater for a controlled pedestrian crossing facility. Pedestrians crossing this arm of the signal junction are at risk of conflict if crossing in an uncontrolled manner or if required to cross in between stationary / slow moving traffic which may be held at a red signal or when traffic receives a green signal.	Confirm proposed signal staging and phasing of the signal junction. Ensure controlled pedestrian crossing facilities are provided (to replace the existing controlled crossing facilities due to the observed pedestrian activity in the vicinity and proximity of the town centre). Consult SCC Traffic Systems Design Team.	The updated highway works plan provided as **Appendix B** shows details of the tactile paving proposed for the new crossing. The Elmsleigh Road / Thames Street junction currently operates with a pedestrian only stage, with the stage sequence used in the LinSig modelling shown below. The existing signal plan is provided as **Appendix C**. This would be retained in the proposed arrangement, with the proposed Elmsleigh Road pedestrian crossing operating as part of the pedestrian stage. The central island has been removed, given that the width pedestrians need to cross has been significantly reduced as part of the proposed scheme. Consultation with SCC Traffic Systems Design Team will be undertaken at detailed design stage.		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
AM Peak Stage Sequence:  PM Peak Stage Sequence: 				
A1.8. Summary: restricted visibility for and of pedestrians. Pedestrians on the southern side of the proposed uncontrolled crossing, wishing to cross to the north side of Elmsleigh Road (to access the adjacent town centre via the direct path opposite) have restricted visibility to the south-west. The existing ramp to the adjacent car park restricts visibility for and of pedestrians due to the horizontal and vertical alignment of the ramp. Pedestrians crossing to the northern footway to access the town centre, are at risk of conflict with north-eastbound vehicles. This is of particular concern for the visually impaired, the mobility impaired and pedestrians with pushchairs.	Provide visibility for and of pedestrians in accordance with current advice at the proposed uncontrolled crossing. Increase the width of the southern footway and reduce the running lane width at the proposed uncontrolled crossing to improve visibility for and of pedestrians.	An updated pedestrian visibilities plan has been prepared, with the visibility measured to 0.5m back from the edge of the kerb, included as **Appendix A**. This shows that the required visibilities can be achieved (details of the rationale behind the required visibilities is provided in the December 2020 Technical Note). Widening of the footway is not appropriate, as this would limit the carriageway width, and thus make it more difficult for HGVs to continue around the bend on Elmsleigh Road.		
A1.9. Summary: risk of conflict with vehicles loading / unloading. Due to the proximity to the town centre, drivers of private vehicles may attempt to park within the proposed loading bay directly to the north of the proposed development vehicular access. On occasions, if parked vehicles prevent loading / unloading to take place within the proposed loading bay, drivers attempting to load / unload may park at inappropriate locations. Such inappropriate parking could affect sightlines and / or forward visibility for drivers within Elmsleigh Road or those wishing to enter Elmsleigh Road	Provide parking / loading restrictions within the proposed loading bay to deter on-street parking.	Restrictions will be provided within both of the loading bays to control parking. These will be confirmed at detailed design stage / as part of the TRO process, and are expected to be in line with restrictions at other similar loading bays in Staines. Restrictions will also be provided in the vicinity of the loading bays on Elmsleigh Road, which will also be confirmed at detailed design stage. Furthermore, bollards will be provided at each		

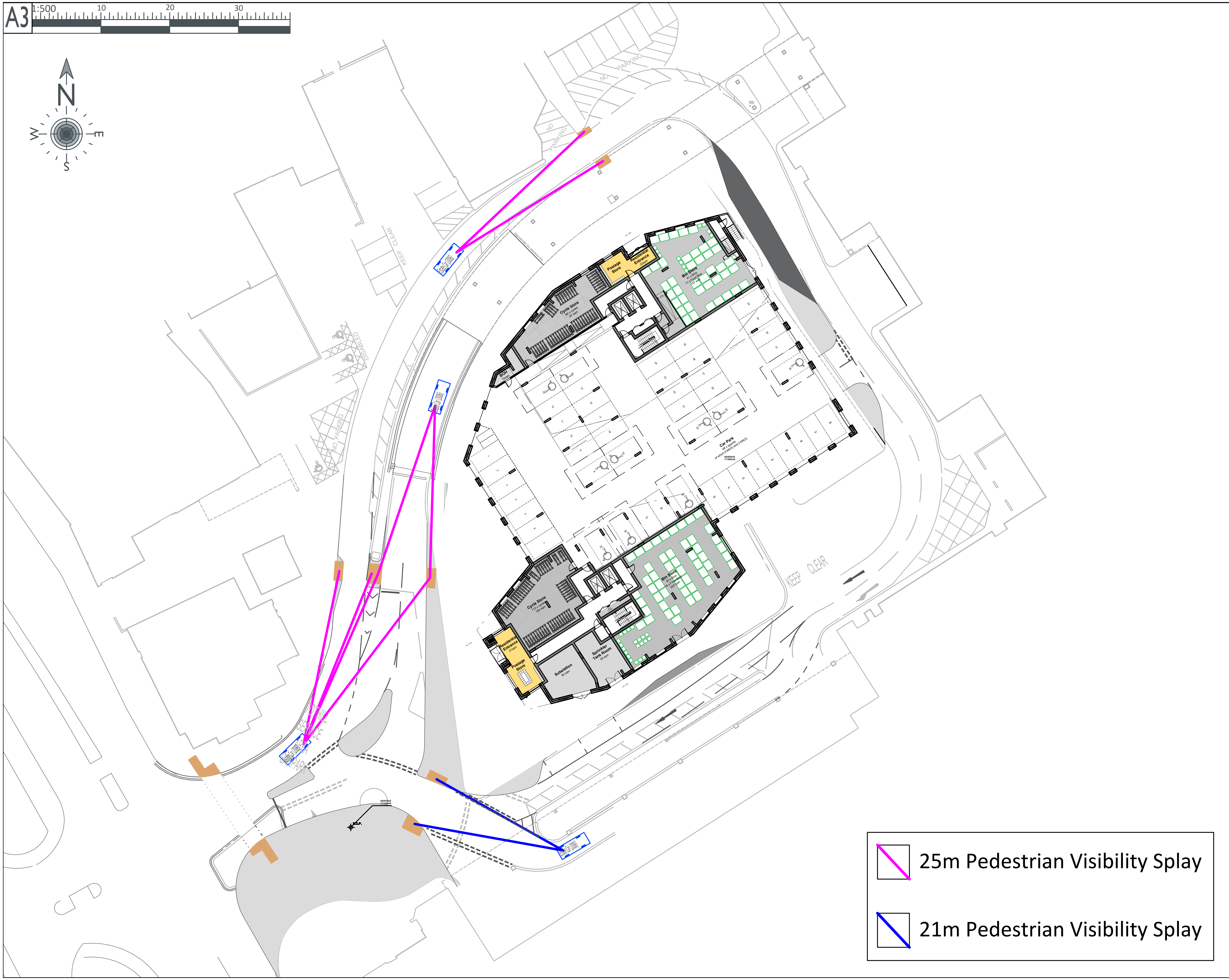
SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
from the proposed development access, which increases the risk of conflict.		end of the loading bay to prevent drivers from overhanging the extent of the bay.		
A1.10. Summary: risk of visibility restrictions due to vehicles within loading bay. On occasions when high-sided vehicles are parked within the proposed loading bay, visibility for and of drivers wishing to exit the proposed development vehicular access may be restricted. This could result in conflict involving drivers from the proposed development access entering Elmsleigh Road and south-eastbound Elmsleigh Road drivers. NB. During the site visit, hoarding at the proposed vehicle access prevented visibility splays to be determined.	Ensure visibility for and of drivers within the development access are in accordance with current advice on occasions when vehicles occupy the proposed loading bay. Increase the separation between south-eastern extent of the loading bay and the vehicular access to the development. Provide measures to prevent parking on the proposed build-out directly between the development vehicular access and the proposed loading bay.	The visibility from the proposed access is shown on the plan in the December 2020 Technical Note. This plan also shows a vehicle in the loading bay. Given the road layout, it is not expected that vehicles will travel more than 20mph around Elmsleigh Road, and therefore a visibility splay of 25 metres has been shown with a 1m offset from the edge of the carriageway. Whilst the visibility splay does cross the corner of the loading bay, delivery and servicing vehicles would only use this space to exit the bay given that it is within the bay's exit taper, and bollards will be provided to prevent vehicles from overhanging the end of the loading pad. Therefore, vehicles stopped in the bay would not impede the visibility for cars exiting the car park, and the required visibility can be achieved. Furthermore, oncoming vehicles will likely be on the opposite side of the road approaching the site access, and therefore will be visible to those exiting the site when in excess of 40m from the access. It should be noted that the loading bay cannot be moved further north as it would then conflict with the bend on Elmsleigh Road, and		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
		swept path analysis shows that it would then not be easily accessible for HGVs. Any additional measures required to prevent parking on the build out between the development vehicle access and the proposed loading bay will be confirmed at detailed design.		
A1.11. Summary: risk of pedestrian conflict at development vehicular access. No uncontrolled crossing facilities have been proposed either side of the proposed development vehicular access. This creates the potential for trips / falls on full height kerbs for pedestrians using this section of proposed footway. This is of particular concern for the visually impaired, the mobility impaired and pedestrians with pushchairs. NB. It is unclear from the proposals if a continuous footway is present to the south-east of the development vehicular access leading westbound towards Thames Street.	Provide uncontrolled crossing facilities across the proposed development vehicular access. Confirm footway proposals surrounding the full length of Elmsleigh Road leading form the exit side of the proposed development vehicular access.	The southeast corner of the site is outside the ownership of the applicant and outside the extent of the highway boundary. Pedestrian demand along this section would be non-existent, with no residents of the proposed development expected to walk along this section. Should further development of this area come forward in the future, there is the potential for a footway extension to be provided on this section as shown in the indicative plan in the December 2020 Technical Note. The proposed development would therefore not prejudice the future delivery of a footway connection in this area. At present, given the lack of footway to the east it is not appropriate to provide an uncontrolled pedestrian crossing on the site access, as this may encourage pedestrian trips to an area with no onward pedestrian infrastructure. However, this could be installed in the future to support further development of the wider area if required.		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
A1.12. Summary: risk of vehicular conflict with parked / loading vehicles. Due to the alignment on the approach and the tapered north-eastern extent of the proposed loading bay, Elmsleigh Road drivers are at risk of conflicting with the rear of vehicles within the proposed loading bay. This is of particular concern if vehicles within the loading bay overhang the rear of the loading bay.	Provide a kerb build-out at the north-eastern extent to create a loading bay which is separated from the main Elmsleigh Road running lane. NB. This will create a protected parking lay-by / loading bay. Adjust proposed carriageway markings to suit.	Based on the swept path analysis, there would not be sufficient space to provide a kerb build-out at the north-eastern extent of the loading bay. Instead, it is proposed that the loading bay and Car Club bays will be provided with a different surfacing material, to differentiate them from the carriageway. Additionally, a small kerb upstand will be provided between the carriageway and loading bay / Car Club bays. Furthermore, the bend on Elmsleigh Road before the loading bay will ensure that the vehicle approach speed is low. Notwithstanding the above, it is also worth noting that it is expected that usage levels for this loading bay would be low, limited to refuse collection vehicles and deliveries to the site, as it is not in the immediate vicinity of other commercial land uses.		
A1.13. Summary: risk of conflict with kerb build-out at south-eastern extent of parking bay. On occasions when no vehicles are present within either the proposed loading bay or proposed parking bays, there is concern that south-westbound Elmsleigh Road drivers may proceed within the extents (either partly or wholly) of the proposed parking bays. Conflict with the proposed kerb build-out at the south-western extent may result. This is of particular concern in dark conditions.	Provide a kerb build-out at the north-eastern extent to create a loading bay which is separated from the main Elmsleigh Road running lane. NB. This will create a protected parking lay-by / loading bay. Adjust proposed carriageway markings to suit.	As set out above, different surfacing will be used for the loading bay and Car Club bays. This will differentiate them from the carriageway and ensure that drivers do not travel within them.		

SCC Comment / RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
A1.14. Summary: risk of failure to give way conflicts. It is unclear why Elmsleigh Road drivers are required to give way to traffic exiting a private car park. Elmsleigh Road is likely to generate more vehicular traffic (especially once the proposed development is operational). Drivers not expecting to give way to traffic exiting a car park are at risk of failure to give way conflicts. This is of concern due to the expected visibility for and of drivers at the proposed Elmsleigh Road give way markings due to the parapet walls of the car park. Also, Elmsleigh Road drivers may not expect to be required to give way to traffic approaching from their left (i.e. exiting the car park). Conflict between drivers entering the same section of carriageway simultaneously may result.	Re-align proposed junction arrangement to give Elmsleigh Road drivers priority over drivers exiting the adjacent car park (adjusting proposed carriageway markings to suit).	Elmsleigh Road currently gives way to traffic exiting the Tothill multi storey car park. If vehicles exiting the car park were required to give way, they would need to stop immediately after the bend in the ramp, which could lead to rear end shunt collisions and a failure to give way. It is worth noting that vehicles travelling down the car park ramp would be visible above the ramp wall, and that these vehicles would be travelling very slowly given the relatively tight bend at the end of the ramp. Notwithstanding that it is an existing arrangement, additional hatching has been proposed on the latest iteration of the plan to increase the separation between drivers exiting Elmsleigh Road and those exiting the car park. This will also reinforce to drivers on Elmsleigh Road that vehicles can only turn right at that point.		
A1.15. Summary: risk of kerb strikes with re-aligned islands. It is not clear if all expected vehicles are able to proceed on the proposed re-aligned section of carriageway on the approach to Thames Street signal junction. There is concern that large vehicles servicing the proposed development, as well as other properties within Elmsleigh Road, may conflict with the kerbs and place pedestrians within the vicinity at risk of conflict.	Confirm turning circles of all expected vehicles can be performed without over-running proposed kerb lines. NB. No turning circles have been submitted for comment in the Road Safety Audit submission.	Swept path analysis has been undertaken, and is included as **Appendix D**. This shows that Elmsleigh Road is suitable for use by large HGVs with no over-running of the proposed kerb lines.		

Appendix A Pedestrian Visibility Plan



NOTES

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9

VISIBILITY SPLAY NOTES

Pedestrian visibility splays will not be obstructed in the future

Visibilities are measured to the position of a driver

REV	DATE	REVISION NOTE	BY
P5	04/02/2021	0.5m offset added	LS
P4	04/01/2021	Updated highway layout	LS
P3	17/12/2020	Updated highway layout	LS
P2	16/12/2020	Updated visibilities	LS

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CLIENT
Inland Ltd

PROJECT
Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE
Pedestrian Visibility Splays

DRAWING ISSUE STATUS
PLANNING

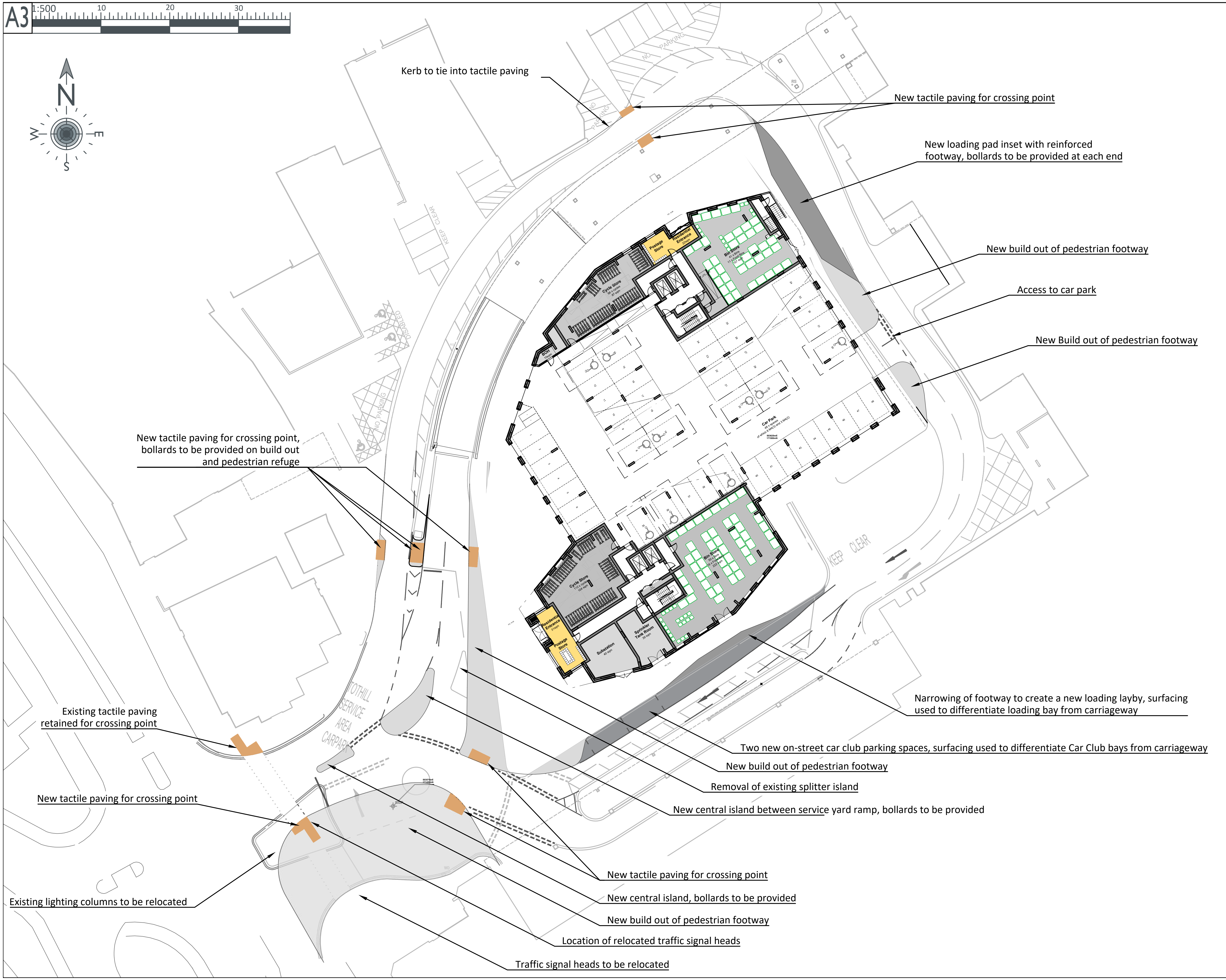
PJA JOB No. SUB-CODE
04550 - TR - 0020 - P5

Revision Letter : P - Prelim / A - Approval / T - Tender / C - Construction

BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @ 1:500	TR	MF	08/12/2020

Appendix B Highway Works and Adoption Plans


A3
1:500
10
20
30
N
W
E
S
Kerb to tie into tactile paving
New tactile paving for crossing point
New loading pad inset with reinforced footway, bollards to be provided at each end
New build out of pedestrian footway
Access to car park
New Build out of pedestrian footway
New tactile paving for crossing point, bollards to be provided on build out and pedestrian refuge
KEEP CLEAR
NO PARKING
Existing tactile paving retained for crossing point
New tactile paving for crossing point
Existing lighting columns to be relocated
Narrowing of footway to create a new loading layby, surfacing used to differentiate loading bay from carriageway
Two new on-street car club parking spaces, surfacing used to differentiate Car Club bays from carriageway
New build out of pedestrian footway
Removal of existing splitter island
New central island between service yard ramp, bollards to be provided
New tactile paving for crossing point
New central island, bollards to be provided
New build out of pedestrian footway
Location of relocated traffic signal heads
Traffic signal heads to be relocated
TOTHILL SERVICE AREA CARPARK
Cycle Store
Bin Store
Car Park
Substation
Sprinkler Tank Room
Postage Store
Residential Entrance

NOTES

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9

REV	DATE	REVISION NOTE	BY
P9	12.02.2021	Updated based on SCC Comments	LS
P8	21.12.2020	Updated based on Road Safety Audit	LS
P7	17.12.2020	Updated based on comments	LS
P6	08.12.2020	Updated based on internal comments	TR
P4	24.09.2020	Updated based on internal comments	LS
P3	22.09.2020	Updated site layout	LS
P1	14.08.2020	Updated based on comments	LS

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PROJECT
Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE
Proposed Highway Works

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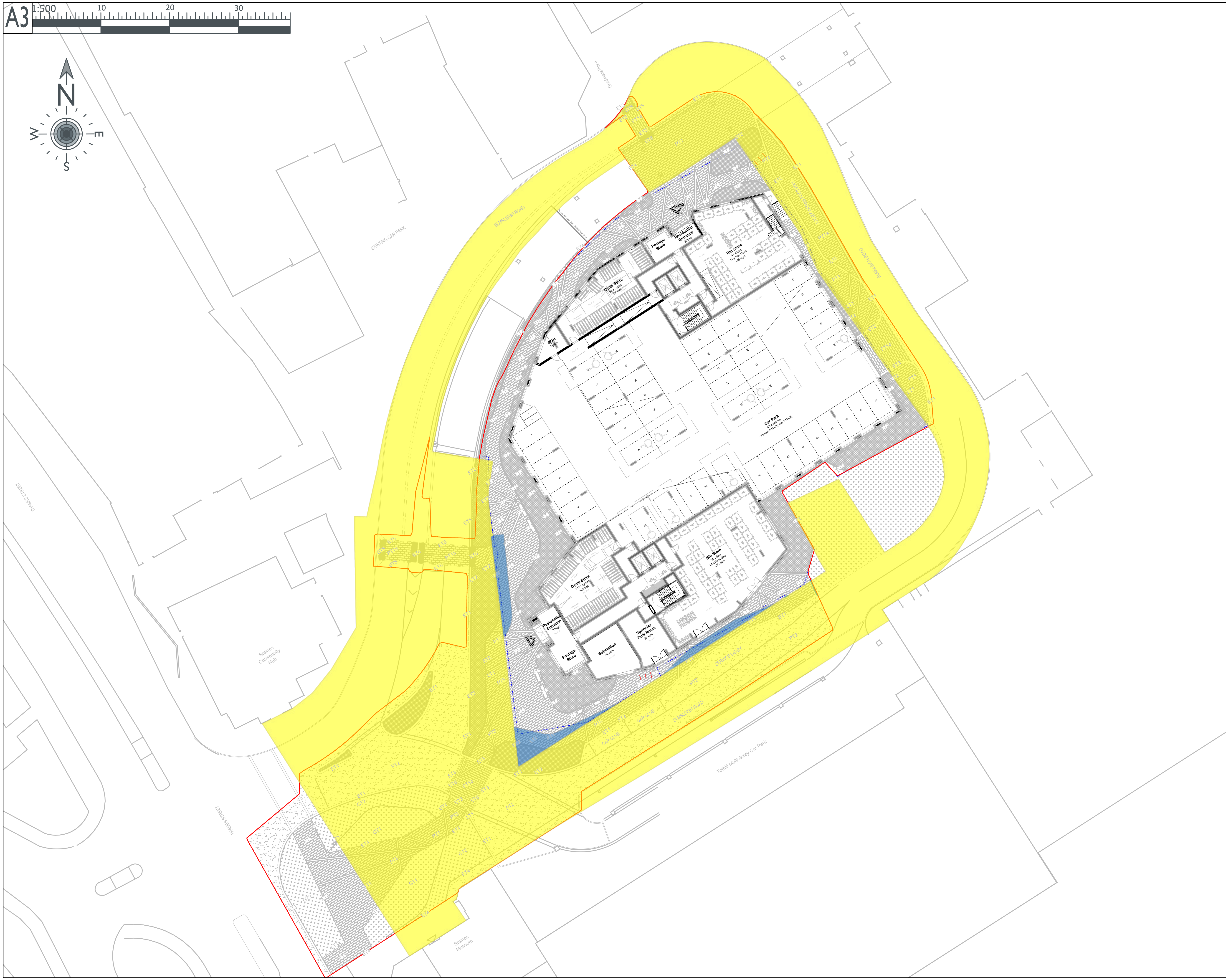
BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @ 1:500	GS	MF	08/12/2020



NOTES

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Existing Highway Boundary (Approx. Location)

Proposed Adoption

REV	DATE	REVISION NOTE	BY
P3	12/02/2021	Updated highway boundary	LS
P2	17/12/2020	Updated landscape plan	LS
P1	16/12/2020	Updated landscape plan	LS

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CLIENT
Inland Ltd

PROJECT
Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE
Proposed Adpotion Plan

DRAWING ISSUE STATUS
PLANNING

PJA JOB No. SUB-CODE
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BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @ 1:500	TR	MF	15/12/2020

Appendix C Elmsleigh Road / Thames Street Junction Signal Plan

Staines Community Centre

Hall

El Sub Sta

Posts

Park

El Sub Sta

PCs

Library

Car Park

TOTHILL SERVICE AREA

ELMSLEIGH SERVICE AREA

J221

N22171G1

N22211Z1

N22211X1

N22161A1

AR1 AR2 AR3 AR4 AR5 AR6

C-SL

D1

ST800 controller enclosure location, electrical service feeder pillar (F-P) and BT comms pillar

CABLE SCHEMATIC

CONTROLLER

1x16core 1 — 1x16core 17
1x16core 2
1x16core 3 — 1x16core 4
1x16core 5 — 1x16core 6 — 16core 7
1x16core 16 — 1x16core 14
1x16core 15 — 1x16core 13
1x16core 12
1x16core 11 — 1x16core 10 — 1x16core 9 — 1x16core 8

LV cabling to signal aspects

CONTROLLER

1x16core 1 — 1x16core 17
1x16core 3 — 1x16core 4
1x16core 5 — 1x16core 6
1x16core 16 — 1x16core 14
1x16core 13
1x16core 12
1x16core 11 — 1x16core 9 — 1x16core 8

ELV cabling to pedestrian WAIT indicators and combined push button (p.b) units

STAGING/PHASING DIAGRAM

0	1	2	3	4
ALL RED (Stream 0) UTC Junction	A B	E	C	D

Drawing: A308 THAMES STREET/D3319 ELMSLEIGH ROAD/RIVERSIDE CAR PARK, STAINES								Controller Manufacturer: SIEMENS	Drawing Number: J221	Rev.: B
North Point	Drawn: G.P.B	Sig.	Date	Rev. Drawn: 22/03/2018	Sig.	Date	Revision Description: Update to OS Mastermap	Controller Type: ST800 LV		
	Checked: T.N	Sig.	Date	Rev. Checked	Sig.	Date		OMU / OTU Type: GEMINI UG405		
	Approved: T.W.B	Sig.	Date	Rev. Approved	Sig.	Date		Scale: 1:500 @ A3		

SURREY COUNTY COUNCIL

File path: G:\SCC NMIC\TRAFFIC MANAGEMENT\STAFF FOLDERS\Gregory Box\Scheme Projects\Staines UTC\Asset-Location-Map.dwg *File saved date:* 10/08/2018

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Administration

General Specifications

Customer Name	Surrey County Council	Customer Order No.	FDO982126
Intersection/ General Description	A308 Thames St / Elmsleigh Rd Staines J221	Controller/ Serial Number	5555024
		S.T.S. /EM Number	62543 Issue 2
Controller	(•) New ( ) Modification	Equipment Installation by	STC
Area Specifications/ Customer Drawings		Slot Cutting by	STC
Specification Section		Civil Works by	
Contract/Tender Ref:		Customer's Engineer	P.Davies
Quotation No.		Telephone Number	020-85417345
Works Order No.	304283e		

Signal Company Use Only

Signal Engineer: Kevin L Roberts/Phill Arnold

(IF PROM Label as >) PROM Number: 16260 PROM Variant: 0

Configuration Check Value: 8C E A8 58

Controller Options

Hardware: T800 Firmware Type and Issue: PB800 ISS 19 Other Options: KTD LO

ST950/ST900/ST750 Series Cabinet Options

Cabinet/Rack Kit Type Options ( ) ( ) ( ) ( )

Cabinet/Rack Variant Cuckoo Options ☐

Mains Supply	240	Volts	50 Hz				
Peak Lamp Current	6	Amps	Dimming Voltage	None	Answer Issue	0	Date Created 21/09/05
Average Lamp Power	800	Watts					
Total Average Power	1000	Watts	Low Inrush Transformer	☐	Edit Issue	4	

Power feed fuse rating: requires 30 Amp minimum for controller, 15 Amp minimum for pelican/lightly loaded controller

Works Order : 304283e
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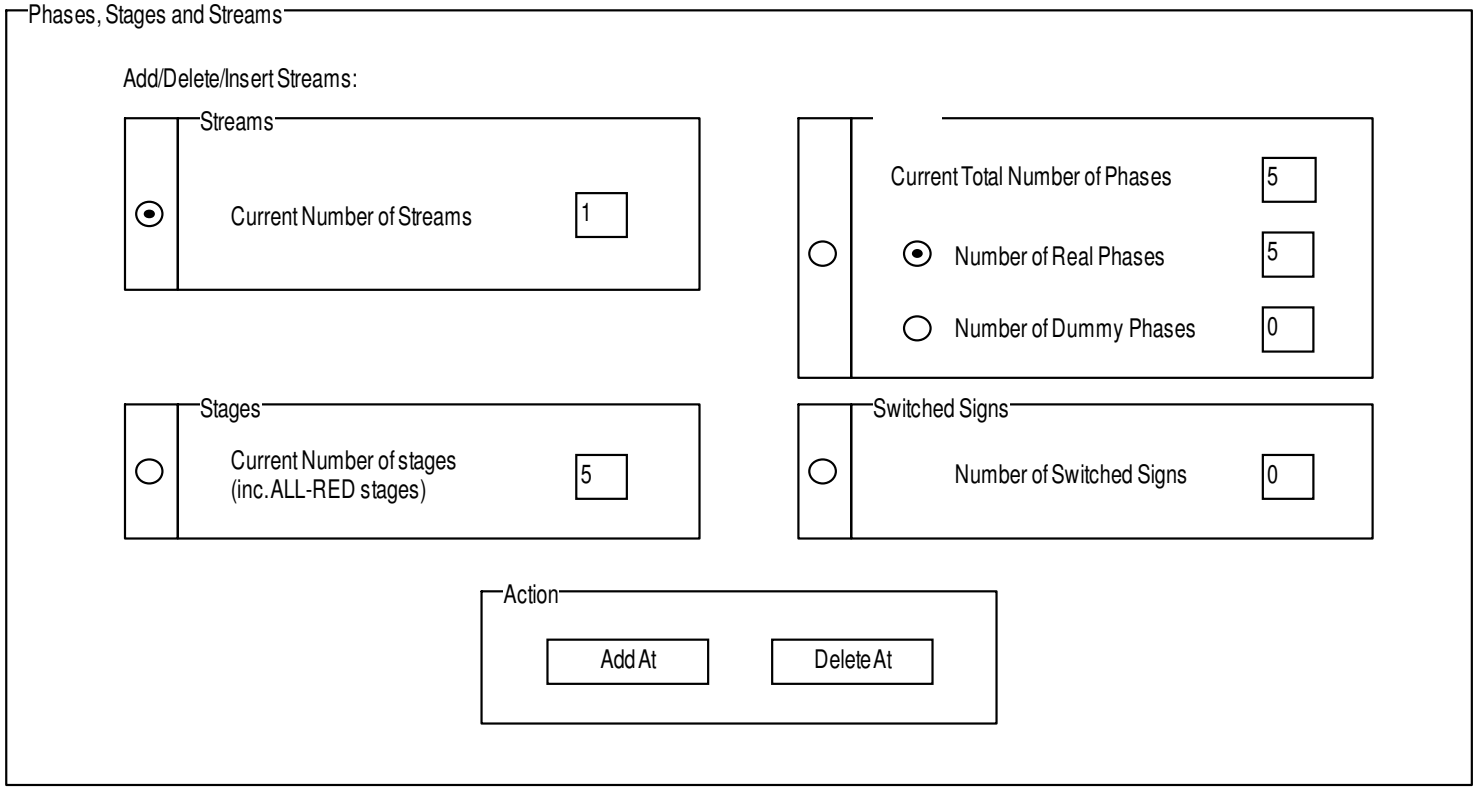
Phases, Stages and Streams



Works Order : 304283e
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Facilities/Modes Enabled and Mode Priority Levels

UTC
- [x] Serial/Internal UTMC OTU
- [ ] Free-standing OTU
- [ ] Integral TC12 OTU
- [x] Serial MOVA

10 Starting Intergreen

- [x] Master Time Clock
- [ ] Holiday Clock
- [x] FT To Current MAX
- [ ] Linked Fixed Time
- [x] Lamp Monitoring
- [x] RED Lamp Monitoring
- [ ] Pelican/Puffin/Toucan
- [ ] Standalone Manual
- [x] Extend All Red
- [ ] Speed Measurement
- [ ] Ripple Change
- [ ] London IMU
- [ ] Non-UK
- [ ] Fail to Part Time
- [ ] Fail To Hardware Flashing
- [ ]
- [ ] Download To Level 3

	1	2	3	4	5	6	7	8	9	10	11	12	13
[ ] Part Time	○	○	○	○	○	○	○	○	○	○	○	○	○
[ ] Emergency Vehicles	○	○	○	○	○	○	○	○	○	○	○	○	○
[ ] Hurry Call	○	○	○	○	○	○	○	○	○	○	○	○	○
[ ]	○	○	○	○	○	○	○	○	○	○	○	○	○
[x] Priority Vehicle	○	○	○	◉	○	○	○	○	○	○	○	○	○
[x] Manual Control	◉	○	○	○	○	○	○	○	○	○	○	○	○
[ ] Manual Step On	○	○	○	○	○	○	○	○	○	○	○	○	○
[x] Selected FT or VA or CLF	○	◉	○	○	○	○	○	○	○	○	○	○	○
[x] UTC	○	○	◉	○	○	○	○	○	○	○	○	○	○
[ ]	○	○	○	○	○	○	○	○	○	○	○	○	○
[x] CLF (Non-Base Time)	○	○	○	○	◉	○	○	○	○	○	○	○	○
[ ] CLF (Base Time)	○	○	○	○	○	○	○	○	○	○	○	○	○
[x] Vehicle Actuated	○	○	○	○	○	◉	○	○	○	○	○	○	○
[x] Fixed Time	○	○	○	○	○	○	○	○	○	○	◉	○	○

Configuration Complexity
- ○ Low
- ○ Medium
- ○ High
- ◉ Maximum

standard.8DF
Default PROM data file

Correspondence Monitoring to inc.
- [x] Reds
- [ ] Switched Signs
- [x] Ambers
- [ ] Ignore Reds and Ambers during

Flash Rate (ms)
400 Off 400 On

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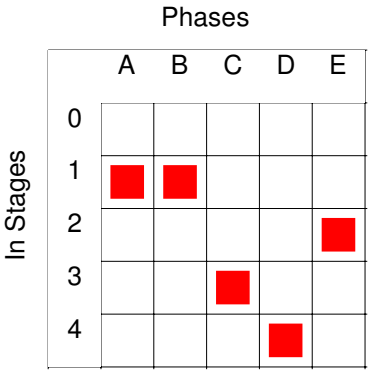
Phases in Stages



Works Order : 304283e
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Stages in Streams

Stages in Streams

	0	1	2	3	4	5	6	7
Phase or Stage to revert to in absence of demands/extensions	1							
Startup Stage	1							
Switch Off Stage								
Standalone Pedestrian	☐	☐	☐	☐	☐	☐	☐	☐

Note: For a Stand-Alone Stream, the reversion must be to All Red stage or Traffic stage/phase to meet the relevant standard or specification.

Stages

In Stream

	0	1	2	3	4
0	■	■	■	■	■

Works Order : 304283e
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Phase Type and Conditions

Phase Type and Conditions

(●) Phases A to P ( )

Phase	Title	Type	App. Type	Term. Type	Assoc. Phase
A	Thames Street North	0 - UK Traffic	0	0 - E	
B	Thames Street South	0 - UK Traffic	0	0 - E	
C	Elmsleigh Road	0 - UK Traffic	0	0 - E	
D	Riverside Car Park	0 - UK Traffic	0	0 - E	
E	Pedestrians across Elmsleigh Road	1 - UK Far Side Pedestrian	0	0 - E	

1) App Types: 0 = Always Appears, 1 = Appears if dem'd prior to interstage, 2 = If dem'd, 3 = If dem'd before end of window time
2) Term Types: 0 = Term's at end of stage, 1 = Term's when Assoc phase gains R.O.W, 2 = Term's when Assoc phase loses R.O.W.
3) The H/W Fail Flash fields are for information only on all but ST900ELV Controllers. For other controllers, physical switches or links (etc.) select which aspects flash and these need to be set up manually.

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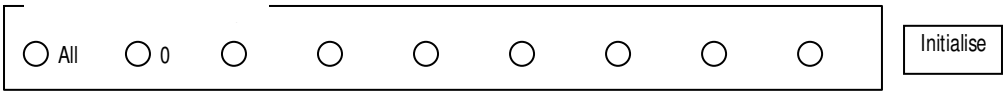
Opposing and Conflicting Phases



To Phase

From Phase

■	o	Co	Co	Co
o	■	Co	Co	Co
Co	Co	■	Co	Co
Co	Co	Co	■	Co
Co	Co	Co	Co	■

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Phase Minimums, Maximums, Extensions, Ped Leaving Periods

Phase Minimums, Maximums, Extensions, Ped Leaving Periods

(•) Phases A to P ( )

Phase	Min Green	Min Ped Clr	Extensions	Maximums A	B	C	D	E	F	G	H	Pre-timed
A	7	0	3.0	40	40	30	40	0	0	0	0	☐
B	7	0	3.0	40	40	30	40	0	0	0	0	☐
C	7	0	3.0	15	10	15	15	0	0	0	0	☐
D	7	0	3.0	15	10	15	15	0	0	0	0	☐
E	7	3	0.0	0	0	0	0	0	0	0	0	☐

Note: For Standalone Streams see Help for use of Max Sets.

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Phase Intergreen Times

Select Stream(s) To Configure

○ All ○ 0 ○ ○ ○ ○ ○ ○ ○ ○

Note: On a Stand Alone Pelican/Toucan/Puffin Stream the Intergreens between Pedestrian and Traffic Phases are controlled by the timings (PBT, PIT, CMX, CDY, CRD and PAR), therefore 0 should be entered for the appropriate intergreen times in grid below.

To Phase

From Phase	A	B	C	D	E
A			7	5	7
B			5	7	7
C	5	5		9	12
D	5	5	9		12
E	12	12	12	12	

Works Order : 304283e
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Intergreen Handset Limits

HIGH 30

Copy Intergreen Values

To Phase

From Phase					
			7	5	7
			5	7	7
5	5		9	12	
5	5	9		12	
12	12	12	12		

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EM Number : 62543
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Phase Timing Handset Ranges

Phase Timing Handset Ranges

Initialise Min Green Limits

Phase	Min. Green Min.	Min. Green Max.	Phase	Min. Green Min.	Min. Green Max.
A	7	30	Q		
B	7	30	R		
C	7	30	S		
D	7	30	T		
E	7	30	U		
F			V		
G			W		
H			X		
I			Y		
J			Z		
K			A2		
L			B2		
M			C2		
N			D2		
O			E2		
P			F2		

Max. Green Min. 0 Max. 255

Vehicle Extension Min. 0.0 Max. 10.0

Phase Delay Min. 0 Max. 10

Starting I/G Min. 4 Max. 12

Min Pedestrian Clearance (PBT) Min. 0 Max. 12

Traffic Phase Leaving Min. 3.0 Max. 3.0

Traffic Phase Red/Amber Min. 2 Max. 2

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

VA Demand and Extend Definitions

◉ Phases A to P ○

For Unlatched demands precede the name with a #.
Conditioning MUST be used to specify unlatched demands.

Phase				
A			MVDA	BPA
B			MVDB	BPB
C		CSL	MVDC	
D		DSL	MVDD	
E	PEDE			

		MVDA	
		MVDB	
	CSL	MVDC	
	DSL	MVDD	

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Phase Internal/Revertive Demands

Phase Internal/Revertive Demands

Start-up Vehicle Responsive Demands

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Demands Inserted When Leaving Manual and Fixed Time Modes

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Unlatched Demands that Start Max Timers

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Revertive Phase Demands

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	B	C	D												

Q	R	S	T	U	V	W	X	Y	Z	A2	B2	C2	D2	E2	F2

Works Order : 304283e
EM Number : 62543
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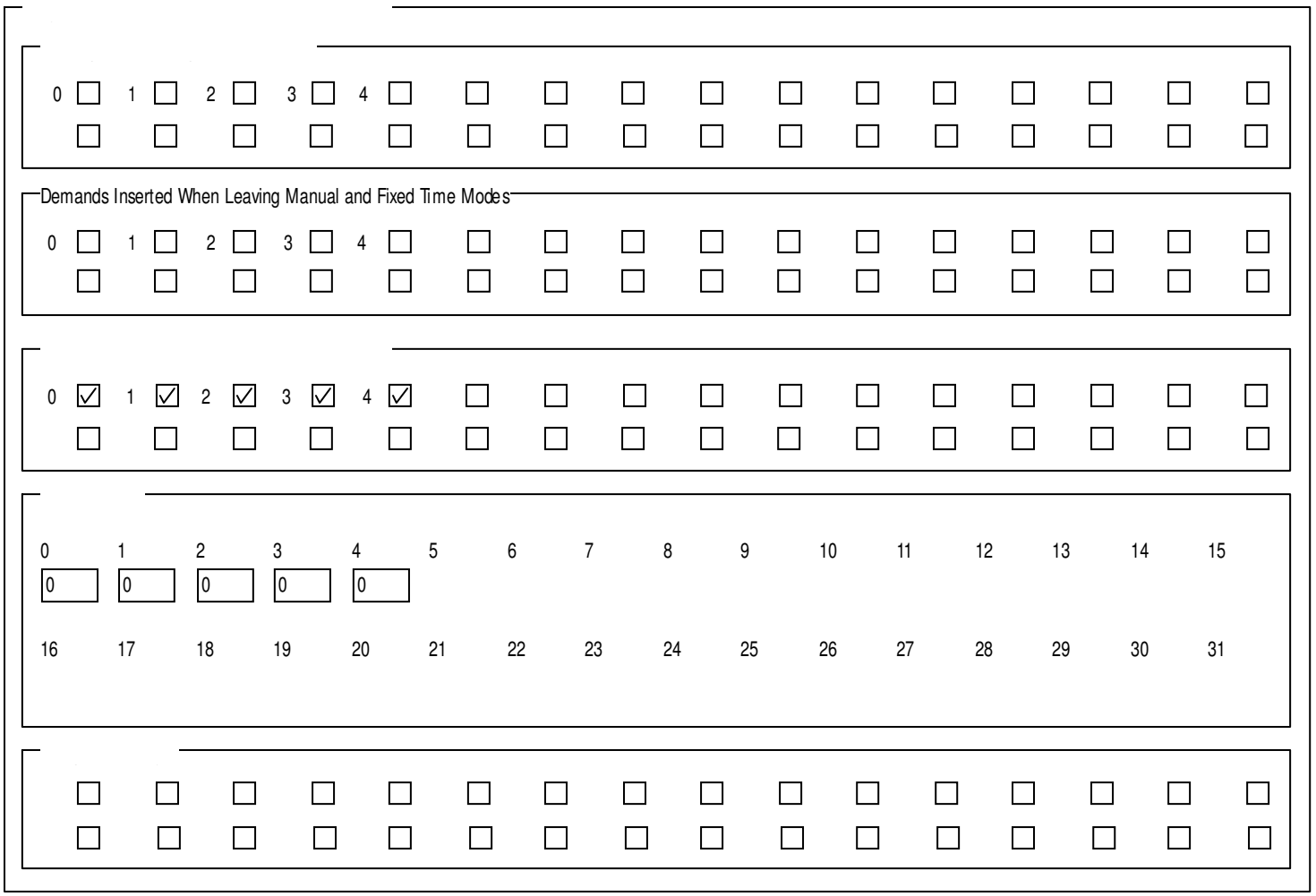
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Stage Internal Demands/Pedestrian Window Times



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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Fixed Time

Current Stage	0	1	2	3	4	5	6	7
Next Stage								
Time								
Current Stage	8	9	10	11	12	13	14	15
Next Stage								
Time								
Current Stage	16	17	18	19	20	21	22	23
Next Stage								
Time								
Current Stage	24	25	26	27	28	29	30	31
Next Stage								
Time								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Demand	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extend	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Q	R	S	T	U	V	W	X	Y	Z	A2	B2	C2	D2	E2	F2
Demand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

CLF - Demand Dependent Moves

Clear Grid Data

Notes:
If no data is entered for a stage then a demand for any phases in that stage will be considered. The data specified on this screen will also change the screen CLF - Demands to Consider with Demand Dependent Stage Moves.

Phases

Stages

	A	B	C	D	E
0					
1					
2					■
3			■		
4				■	

Works Order : 304283e
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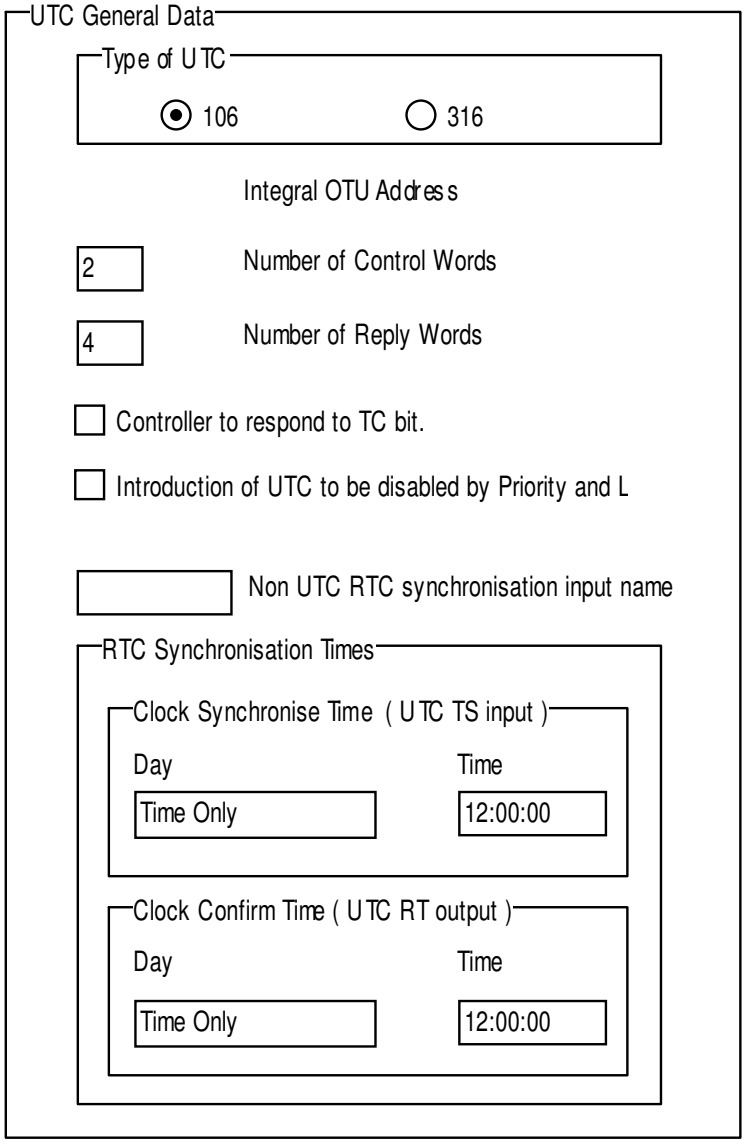
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

UTC General Data



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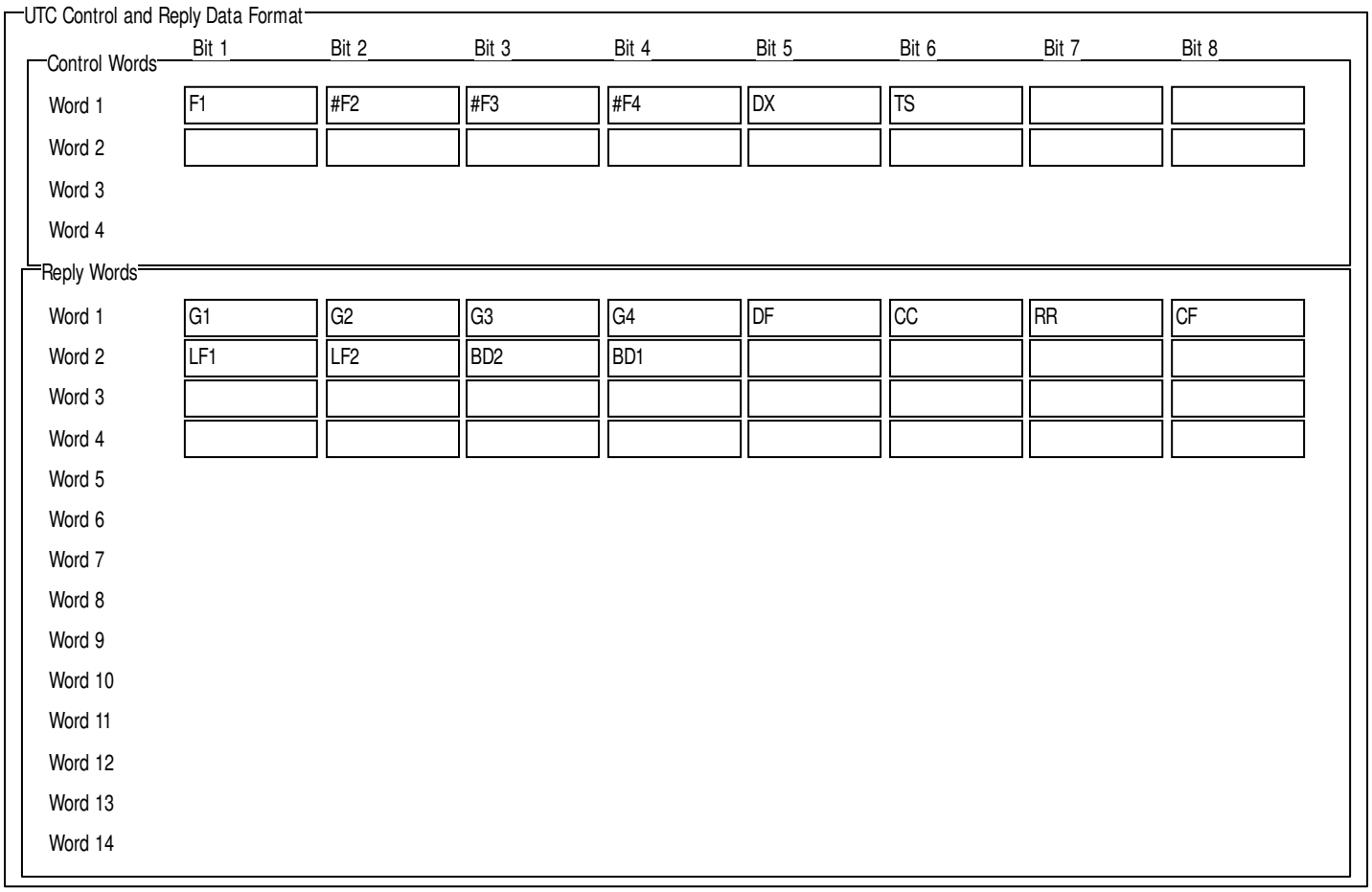
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

UTC Control and Reply Data Format



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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

UTC Phase Demand and Extend Definitions

(◉) Phases A to P ( )

For Unlatched demands, preceed the name with a #.
Conditioning MUST be used to specify unlatched demands.

Phase				
A	DX			
B	DX			
C	DX			
D	DX			
E	DX			

DX			
DX			
DX			
DX			

Works Order : 304283e
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UTC Stage and Mode Data Definitions

Stage	Force Bit	Green Confirm Bit	Demand Confirm Bit	Stage	Force Bit	Green Confirm Bit	Demand Confirm Bit
0				16			
1	F1	G1		17			
2	#F2	G2		18			
3	#F3	G3		19			
4	#F4	G4		20			
5				21			
6				22			
7				23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			

Manual Mode Operative:
☐ G1/G2 ☑ RR ☐

Manual Mode Selected:
☐ G1/G2 ☑ RR ☐

No Lamp Power, or Lamps Off due to RLM or Part Time:
☑ G1/G2 ☐ ☐

Detector Fault:
☐ ☐ ☑ DF

Normal NOT selected on the Manual Panel:
☐ G1/G2 ☑ RR ☐

RR Button Selected:
☐ G1/G2 ☐ RR ☐

If UTC Reply Confirms are required for a Controller Fault (CF) OR for separate MC and RR replies, Conditioning must be used.

Works Order : 304283e
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UTC Demand Dependent Forces

Clear Grid Data

Notes:
If no data is entered for a stage then a demand for any phases in that stage will be considered. The data specified on this screen will also change the screen CLF - Demands to Consider with Demand Dependent Stage Moves.

Phases

Stages

	A	B	C	D	E
0					
1					
2					■
3			■		
4				■	

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

UTC and MOVA Detectors

UTC and MOVA Detectors

Detector Mapping

☑ Combined

Set Selection

○ ○ ○ ○ ○

1		2		3		4		5		6		7		8	
9		10		11		12		13		14		15		16	
17		18		19		20		21		22		23		24	
25		26		27		28		29		30		31		32	
33		34		35		36		37		38		39		40	
41		42		43		44		45		46		47		48	
49		50		51		52		53		54		55		56	
57		58		59		60		61	N22211X1	62	N22211Z1	63	N22161A1	64	N22171G1

Note - only 32 detectors available on MOVA 4.0

Works Order : 304283e
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MTC - Time Switch Parameters

MTC - Time Switch Parameters

	Type	Event
0	Alternate Max	MAXSETB
1	Alternate Max	MAXSETC
2	Alternate Max	MAXSETD
3	No Action	
4	No Action	
5	No Action	
6	No Action	
7	No Action	
8	No Action	
9	No Action	
10	No Action	
11	No Action	
12	No Action	
13	No Action	
14	No Action	
15	No Action	

	Type	Event
16	No Action	
17	No Action	
18	No Action	
19	No Action	
20	No Action	
21	No Action	
22	No Action	
23	No Action	
24	No Action	
25	No Action	
26	No Action	
27	No Action	
28	No Action	
29	No Action	
30	No Action	
31	No Action	

Works Order : 304283e
EM Number : 62543
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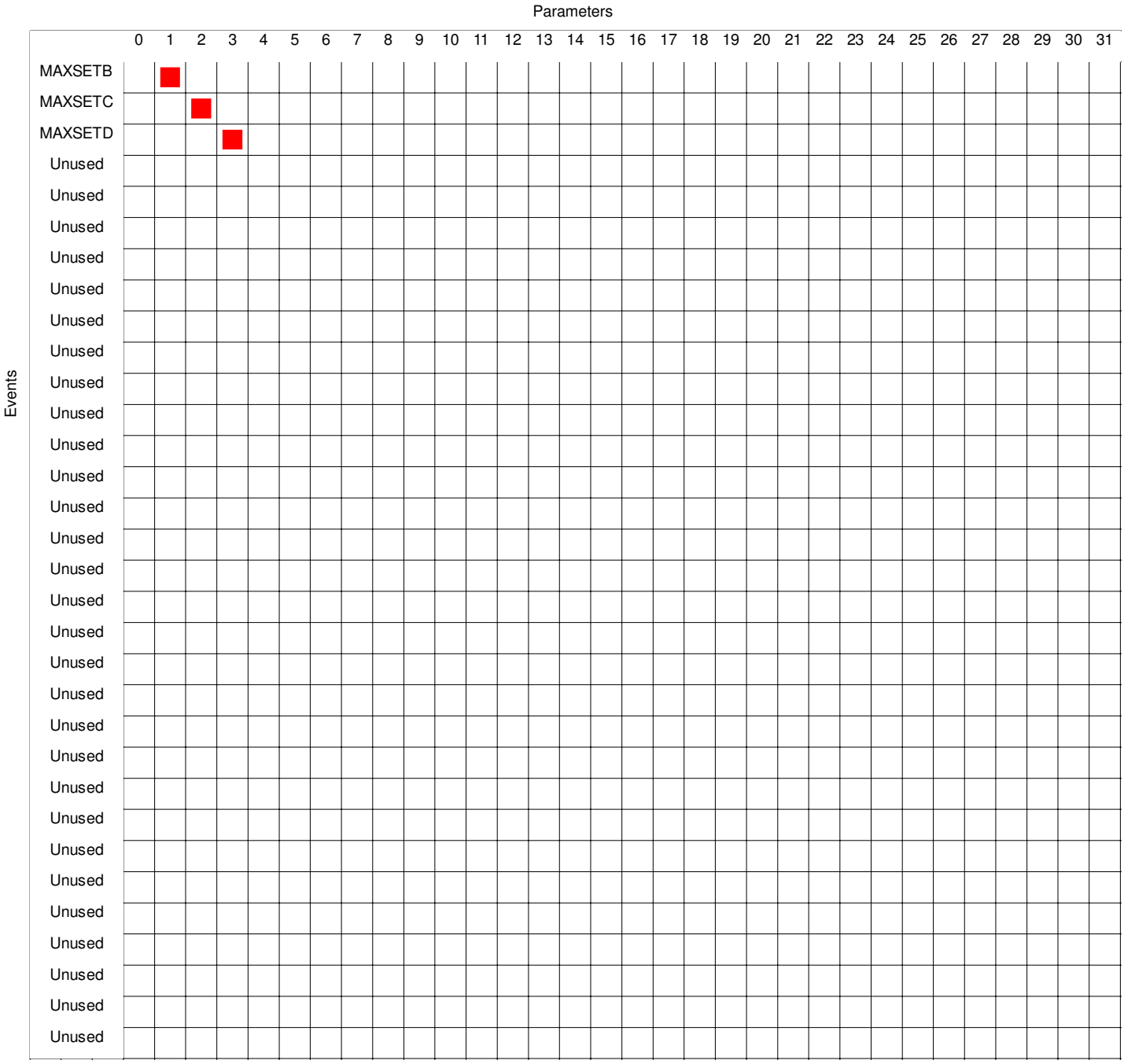
MTC - Time Switch Parameters Array



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MTC - Day Type

MTC - Day Type

No.	Mon	Tue	Wed	Thu	Fri	Sat	Sun
0	☐	☐	☐	☐	☐	☑	☐
1	☐	☐	☐	☐	☐	☐	☑
2	☑	☐	☐	☐	☐	☐	☐
3	☐	☑	☐	☐	☐	☐	☐
4	☐	☐	☑	☐	☐	☐	☐
5	☐	☐	☐	☑	☐	☐	☐
6	☐	☐	☐	☐	☑	☐	☐
7	☑	☑	☑	☑	☑	☑	☑
8	☑	☑	☑	☑	☑	☑	☐
9	☑	☑	☑	☑	☑	☐	☐
10	☐	☐	☐	☐	☐	☐	☐
11	☐	☐	☐	☐	☐	☐	☐
12	☐	☐	☐	☐	☐	☐	☐
13	☐	☐	☐	☐	☐	☐	☐
14	☐	☐	☐	☐	☐	☐	☐
15	☐	☐	☐	☐	☐	☐	☐

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

MTC - Timetable

View Timetable Settings

(●) 0 - 15 ( ) 16 - 31 ( ) 32 - 47 ( ) 48 - 63

No.	Day Type	Time	Description	Function Code	Plan/ Parameter
0	9	07:30:00	MAXSET B	2	1
1	9	09:30:00	MAXSET C	2	2
2	9	15:30:00	MAXSET D	2	3
3	9	18:30:00	MAXSET A	2	0
4	0	09:00:00	MAXSET C	2	2
5	0	18:00:00	MAXSET A	2	0
6	1	09:00:00	MAXSET C	2	2
7	1	18:00:00	MAXSET A	2	0
8	0			0	0
9	0			0	0
10	0			0	0
11	0			0	0
12	0			0	0
13	0			0	0
14	0			0	0
15	0			0	0

Function Codes:

0 = Isolate From CLF

1 = Introduce a CLF Plan

2 = Introduce a Parameter (Combination of event switches)

3 = Selects an Individual event switch to be set

4 = Selects an Individual event switch to be cleared.

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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

LMU - General

LMU - General

Lamp Monitoring - LMU Voltage

- (●) 200-240
- ( )
- ( ) 50-0-50, 100-120
- ( ) 230 CLS

Red Lamp Monitoring

Max Red Bulb Wattage [50]

First Red Lamp Fault Speed

- [ ] RLF2 Cancels RLM additional Intergreens
- [x] RLF2 Only Cleared by RFL = 1
- [ ] RLF1 Only Cleared by RFL = 1

RLM Additional Intergreen Handset Limits

Minimum	Maximum
2	10

Streams with Phase BlackOut on RLF2

[ ] 0 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

LMU - Sensors

LMU - Sensors

Onboard Sensors

Sensor\ Phase	Sensor Type	Bulb Watts	Sensor\ Phase	Sensor Type	Bulb Watts
1 \ A	As Seq.	50	17 \ Q		
2 \ B	As Seq.	50	18 \ R		
3 \ C	As Seq.	50	19 \ S		
4 \ D	As Seq.	50	20 \ T		
5 \ E	As Seq.	40	21 \ U		
6 \ F	As Seq.	40	22 \ V		
7 \ G	As Seq.	40	23 \ W		
8 \ H	As Seq.	40	24 \ X		
9 \ I			25 \ Y		
10 \ J			26 \ Z		
11 \ K			27 \ A2		
12 \ L			28 \ B2		
13 \ M			29 \ C2		
14 \ N			30 \ D2		
15 \ O			31 \ E2		
16 \ P			32 \ F2		

External Sensors

Sensor\ Pin	Drive	Sensor Type	Bulb Watts
33 \ b14		Regulatory Sign	7
34 \ z16		Regulatory Sign	7
35 \ z14		Regulatory Sign	7
36 \ z12		Regulatory Sign	7
37 \ b14			
38 \ z16			
39 \ z14			
40 \ z12			
41 \ b14			
42 \ z16			
43 \ z14			
44 \ z12			
45 \ b14			
46 \ z16			
47 \ z14			
48 \ z12			

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

LMU Sensor Load Types

LMU Sensor Load Types

Screen Select

1 of 1

Sensor	Phase	Sensor Type	LED R+W	Load Type	LLF Profile
1	A	As Seq.			
2	B	As Seq.			
3	C	As Seq.			
4	D	As Seq.			
5	E	As Seq.			
6	F	As Seq.			
7	G	As Seq.			
8	H	As Seq.			
33	N/A	Regulatory Sign			
34	N/A	Regulatory Sign			
35	N/A	Regulatory Sign			
36	N/A	Regulatory Sign			

Works Order : 304283e
EM Number : 62543
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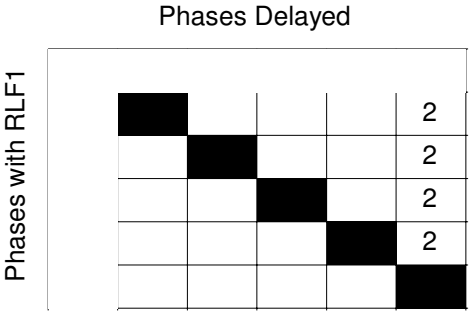
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

RLM Additional Intergreens



Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

RLM Phase Inhibits

Phases Inhibited/Blacked-Out

Phases with RLF2

	A	B	C	D	E
A					■
B					■
C					■
D					■
E					

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Priority and Emergency Vehicle - General

Priority and Emergency Vehicle - General

	Input Name	Type Priority / Emergency P	E	Phase	DFM Time (x10)	Gap Time	DFM Self Reset	Demands Sets 0	1	2	3	Revertive Demands Sets 0	1	2	3	Revertive Demands to Start Inhibit Timer Sets 0	1	2	3
Unit 0	BPA	◉	○	A	30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 1	BPB	◉	○	B	30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 2		◉	○		30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 3		◉	○		30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 4		◉	○		30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 5		◉	○		30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 6		◉	○		30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐
Unit 7		◉	○		30	4	0	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐

☐ Inputs From Conditioning

Note:
Bus Priority Unit values will not be used unless a valid Input Name is specified
If Bus Unit is to generate a VA demand, then input name must also be specified on VA demands screen

Note:
Valid values for DFM Self Reset: 1 or 0 for PB800, 0-255 for PB801 and later

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Priority - Delays, Unit Inhibits and Associations

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Priority Time Sets

Priority Time Sets

Sets: (•) 0 ( ) 2 ( ) 1 ( ) 3

Copy Set

Priority Unit	0	1	2	3	4	5	6	7
Maximum time (secs)	20	20	15	15	15	15	15	15
Extension time (secs)	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Inhibit Time (secs)	180	180	50	50	50	50	50	50

Compensation Times

Priority Units	A	B	C	D	E
0		15			
1	15				
2					
3					
4					
5					
6					
7					

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Priority Time Sets

Priority Time Sets

Sets

- ○ 0
- ○ 2
- ◉ 1
- ○ 3

Copy Set

Priority Unit	0	1	2	3	4	5	6	7
Maximum time (secs)	20	20	15	15	15	15	15	15
Extension time (secs)	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Inhibit Time (secs)	180	180	50	50	50	50	50	50

Compensation Times

Priority Units	A	B	C	D	E
0		15			
1	15				
2					
3					
4					
5					
6					
7					

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Priority Time Sets

Priority Time Sets

Sets

○ 0 ◉ 2
○ 1 ○ 3

Copy Set

Priority Unit	0	1	2	3	4	5	6	7
Maximum time (secs)	20	20	15	15	15	15	15	15
Extension time (secs)	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Inhibit Time (secs)	180	180	50	50	50	50	50	50

Compensation Times

Priority Units	A	B	C	D	E
0		15			
1	15				
2					
3					
4					
5					
6					
7					

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Priority Time Sets

Priority Time Sets

Sets

- ○ 0
- ○ 2
- ○ 1
- ◉ 3

Copy Set

Priority Unit	0	1	2	3	4	5	6	7
Maximum time (secs)	20	20	15	15	15	15	15	15
Extension time (secs)	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Inhibit Time (secs)	180	180	50	50	50	50	50	50

Compensation Times

Priority Units	A	B	C	D	E
0		15			
1	15				
2					
3					
4					
5					
6					
7					

Works Order : 304283e
EM Number : 62543
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Priority - Allowed and Enforced Demands

Phase

Priority Unit	A	B	C	D	E
0	a				
1		a			
2					
3					
4					
5					
6					
7					

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Manual Panel

Manual Panel

Stage Buttons and LEDs

Button No.	Title	Called Stage for Stream 0	1	2	3	4	5	6	7
0	All Red Stage 0	0							
1	Thames Street North and South	1							
2	All Round Pedestrians	2							
3	Elmsleigh Road	3							
4	Riverside Car Park	4							
5									
6									
7									

General LEDs

	AUX 1	AUX 2	AUX 3	AUX 4 (Hurry Call)	AUX 5 (Higher Priority)
Conditioned	☑	☑	☑	☐	☑

Manual Mode Enable

- ◉ Always
- ○ When Handset Plugged in (Note 1)
- ○ When 'MND' Command Entered

NOTE:
For this to operate Special Conditioning is required.

General Buttons

	None	SW1	SW2	SW3
Momentary		☐	☐	☐
Dim Override	◉	○	○	○
RR	◉	○	○	○

Manual Signals On

- ○ Immediate Signals On
- ◉ As Start-Up

Mode Select Switches Disabled

☐ VA ☐ Fixed Time ☐ CLF

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Extend All Red - General

Extend All Red - General

Auto Extend to Max

Part Time	☐
Emergency Vehicle	☐
Hurry Call	☐
LRT	☐
Priority	☐
Manual	☐
Manual Step On	☐
UTC	☐
MOVA	☐
CLF	☐
VA*	☐
Fixed Time	☑

* Selecting Extend to Max on VA mode will also cause Extend to Max on CLF, UTC and Priority modes.

All Red Timings

Stream	0	1	2	3	4	5	6	7
Extension Time	2.0							
Max Time	12							

Detectors Associated with All Red Extension Units

Unit	Associated Detectors							
1	AR1	AR2	AR3	AR4	AR5	AR6		
2								
3								
4								
5								
6								
7								

The association between detectors and extension units must be performed in special conditioning.

Works Order : 304283e
EM Number : 62543
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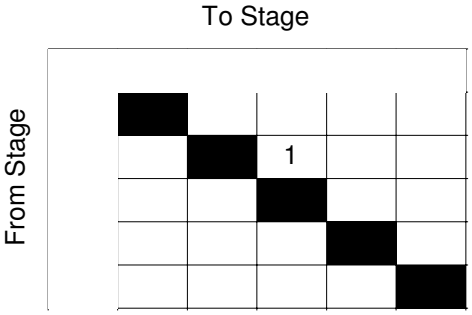
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Extend All Red - Stage To Stage Moves



Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Extend All Red - Independent Intergreens

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Special Conditioning

```
; AUX LED'S
; ~~~~~~~~~
IFT BPA.NOT(SCRT0) THN
TRUE=SCRT0
RUN<0>
END
CNDTMA0=MIL22
IFT CNDTER0 THN
FALSE=SCRT0
END


IFT BPB.NOT(SCRT1) THN
TRUE=SCRT1
RUN<1>
END
CNDTMA1=MIL23
IFT CNDTER1 THN
FALSE=SCRT1
END


(MODE0 EQL<3>)=MIL05                                    ;AUX 3 LED LIT WHEN CLF ACTIVE
(MODE0 EQL <6>)=MIL17                                   ;AUX 5 ( HIGHER PRIORITY ) LED LIT WHEN UTC ACTIVE


; UTC REPLIES
; ~~~~~~~~~~~
LMPON.LPSPRD.SWLMPS.NOT(FLF17).NOT(STAGE1)=G1           ;LAMPS OFF AND STAGE CONFIRMS FOR UTC G1 _G2 BITS
LMPON.LPSPRD.SWLMPS.NOT(FLF17).NOT(STAGE2)=G2
NOT(LMPANY0)=LF1                                        ;ANY LAMP FAIL REPLIES UTC LF1 BIT
NOT(LMP2RED0)=LF2                                       ;SECOND RED LAMP FAIL REPLIES UTC LF2 BIT
NOT(SYSLED)=CF                                          ;CONTROLLER FAULT LOG ENTRY,  REPLIES UTC CF BIT
NOT(BPA)=BD1
NOT(BPB)=BD2


; ALL RED UNITS
; ~~~~~~~~~~~~~
AR1+AR1_EXT+AR2+AR2_EXT+AR3+AR3_EXT+AR4+AR4_EXT+AR5 $
+AR5_EXT+AR6+AR6_EXT+SSFIX=IGEO1                        ;ALL RED UNIT 1 ACTIVE
AR1'+AR2'+AR3'+AR4'+AR5'+AR6'+SSFIX=IGEC1               ;ALL RED UNIT 1 CLEARED
```

Works Order : 304283e
EM Number : 62543
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Special Conditioning Timers

0-31

No	Value	Min	Max	200ms	Description	No	Value	Min	Max	200ms	Description
0	15	0	255	☐	BUS A PRIORITY TIMER	16		0	255	☐	
1	15	0	255	☐	BUS B PRIORITY TIMER	17		0	255	☐	
2		0	255	☐		18		0	255	☐	
3		0	255	☐		19		0	255	☐	
4		0	255	☐		20		0	255	☐	
5		0	255	☐		21		0	255	☐	
6		0	255	☐		22		0	255	☐	
7		0	255	☐		23		0	255	☐	
8		0	255	☐		24		0	255	☐	
9		0	255	☐		25		0	255	☐	
10		0	255	☐		26		0	255	☐	
11		0	255	☐		27		0	255	☐	
12		0	255	☐		28		0	255	☐	
13		0	255	☐		29		0	255	☐	
14		0	255	☐		30		0	255	☐	
15		0	255	☐		31		0	255	☐	

Works Order : 304283e
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Special Instructions

62543

Board	Position	Skt	Port	Type I or O	Line	Cable	Block
CPU	A	X3I	0	I	00 - 07	101	1TBG
CPU	A	X3I	1	I	08 - 15		1TBH
CPU	A	X3O	11	O	88 - 91	105	1TBX
IO1	B	B	2	I	16 - 23	103	1TBJ
IO1	B	E	4	O	32 - 39		1TBK
IO1	B	C	3	I	24 - 31	103	1TBL
IO1	B	D	5	O	40 - 47		1TBM

The socket X3 on the CPU pcb is the double stacked one
X3I = Inner (nearest the board)
X3O = Outer

Works Order : 304283e
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Special Instructions

ST800 CONTROLLER ITEMS LIST SHEET 1 (*I*L*)

ITEM	DRAWING NUMBER	DESCRIPTION	QTY	TOT	REMARKS
1					
2	667/1/27000/003	Cabinet 8 Phase wired 8 Phase	1		
3	667/1/27000/002	Cabinet 24 Phase wired 32 Phase			
4	667/1/27001/001	Rack 8 Phase wired 16 Phase			
5	667/1/27001/002	Rack 24 Phase wired 32 Phase			
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23	667/1/27072/001	Cableform 8 Phase (long)			
24	667/1/27002/000	Lamp Switch Kit 8 Phase			
25	667/1/27003/000	I/O Kit	1		
26	667/1/27005/000	SDE Facility Kit			
27	667/1/27004/000	Integral OTU Kit			
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39	667/1/16260/000	Configuration Eprom (Issue 1. 0)	1		
40					

Note 1:
Please refer to special instruction pages for additional information on items marked with an '*'.

Works Order : 304283e
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Special Instructions

ST800 CONTROLLER ITEMS LIST SHEET 2 (*I*L*)

ITEM	DRAWING NUMBER	DESCRIPTION	QTY	TOT	REMARKS	
41						
42	667/1/27056/001	Manual Panel Assy (Intersection Cont)				
43	667/1/27056/010	Manual Panel Assy (Sigs on/off)				
44	667/1/27056/000	Manual Panel Blanking Kit				
45						
46						Note 2:
47						Ancillary Processor PLD
48						Variants
49						101 OTU & LMU
50						102 OTU Only
51						103 LMU Only
52	667/7/25171/000	Current Transformer				104 OTU & LMU + Up/Download
53						105 OUT Only + Up/DownLoad
54						NB Controller Has built in LMU
55	667/1/27002/002	Lamp Switch Kit 8 Phase CLS				So LMU on Ancillary Processor
56	667/1/27002/102	Lamp Switch Kit 8 Phase Export CLS				Not required included for info
57						only.
58	667/1/27000/800	CLS Mod Kit (firmware only)				
59						
60						Note 3:
61	667/1/27000/101	Cabinet Export 8 Phase wired 16 Phase				Fit Current Transformer
62	667/1/27000/102	Cabinet Export 24 Phase wired 32 Phase				starting from position
63	667/1/27001/101	Rack Export 8 Phase wired 16 Phase				TLB/z/16 on the first phase
64	667/1/27001/102	Rack Export 24 Phase wired 32 Phase				driver PCB. if more than 3
65	667/1/27002/100	Export Lamp Switch Kit				sensors are called up fit the
66	667/1/27084/001	Dimming Assembly (1.5KVA)(Fit Std UK)				4th sensor to the second
67	667/1/27084/002	Dimming Assembly (2.0KVA)				Phases driver PCB, and so on
68	667/1/27084/003	Dimming Assembly (3.0KVA)				until all sensors have been
69	667/1/27130/000	30A Controller Kit				used up.
70						TLB/b/14 - 1st sensor terminal
71	667/1/27001/310	ST800 SE Export Rack up to 8 Phase				TLB/z/16 - 2nd sensor terminal
72	667/1/27223/003	ST800 SE 8 Phase Driver No LMU				TLB/z/14 - 3rd sensor terminal
73	667/1/27223/403	ST800 SE 4 Phase Driver No LMU				TLB/z/12 - 4th sensor terminal
74						2nd Phases driver PCB
75						TLB/b/14 - 5th sensor terminal
76						TLB/z/16 - 6th sensor terminal
77	667/1/27000/301	ST800 P In a Cabinet 4Ph 1 Stream PED				
78	667/1/27012/000	PED 2nd Stream Kit for ST800 P				
79	667/1/27001/300	ST800 P Rack Only 4Ph 1 Stream PED				

Works Order : 304283e
EM Number : 62543
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Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Special Instructions

Works Order : 304283e
EM Number : 62543
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Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 0

○ ○ ◉ Inputs & Outputs

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	0	0	I	CSL	☑	☐	☐	☐	☐	Y	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBG	1
○	1	1	I	DSL	☑	☐	☐	☐	☐	Y	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBG	2
○	2	2	I	MVDA	☑	☐	☐	☐	☐	Y	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBG	3
○	3	3	I	MVDB	☑	☐	☐	☐	☐	Y	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBG	4
○	4	4	I	MVDC	☑	☐	☐	☐	☐	Y	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBG	5
○	5	5	I	MVDD	☑	☐	☐	☐	☐	Y	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBG	6
○	6	6	I	AR1	☑	☐	☐	☐	☐	Y	0	0.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	1TBG	7
○	7	7	I	AR2	☑	☐	☐		☐	Y	0	0.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	1TBG	8

Add | Delete | Move | Clear Used By

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 1

○ ○ ◉ Inputs & Outputs

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	8	0	I	AR3	☑	☐	☐	☐	☐	Y	0	0.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	1TBH	1
○	9	1	I	AR4	☑	☐	☐	☐	☐	Y	0	0.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	1TBH	2
○	10	2	I	AR5	☑	☐	☐	☐	☐	Y	0	0.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	1TBH	3
○	11	3	I	AR6	☑	☐	☐	☐	☐	Y	0	0.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	1TBH	4
○	12	4	I	PEDE	☑	☐	☐	☐	☐	N		0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBH	5
○	13	5	I	BPA	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☑	☐	☐	☐	☐	☐	1TBH	6
○	14	6	I	BPB	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☑	☐	☐	☐	☐	☐	1TBH	7
○	15	7	I		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1TBH	8

Add | Delete | Move | Clear Used By

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 2

○ ○ ◉ Inputs & Outputs

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	16	0	I	N22171G1	☑	☐	☐	☐	☐	N		0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	1
○	17	1	I	N22161A1	☑	☐	☐	☐	☐	N		0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	2
○	18	2	I	N22211Z1	☑	☐	☐	☐	☐	N		0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	3
○	19	3	I	N22211X1	☑	☐	☐	☐	☐	N		0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	4
○	20	4	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	5
○	21	5	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	6
○	22	6	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	7
○	23	7	I		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	8

Add | Delete | Move | Clear Used By

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

Aspect Drives

(●) A-L ( ) M-X ( ) Y-F2

	Used For	Term Block	Term No
A - Red	Phase	1TBA	1
A - Amber	Phase	1TBA	2
A - Green	Phase	1TBA	3
B - Red	Phase	1TBA	4
B - Amber	Phase	1TBA	5
B - Green	Phase	1TBA	6
C - Red	Phase	1TBA	7
C - Amber	Phase	1TBA	8
C - Green	Phase	1TBA	9
D - Red	Phase	1TBA	10
D - Amber	Phase	1TBA	11
D - Green	Phase	1TBA	12

	Used For	Term Block	Term No
E - Red	Phase	1TBB	1
E - Amber	Phase	1TBB	2
E - Green	Phase	1TBB	3
F - Red			
F - Amber			
F - Green			
G - Red			
G - Amber			
G - Green			
H - Red			
H - Amber			
H - Green			

Phase Driver Card 2

	Used For	Term Block	Term No
I - Red			
I - Amber			
I - Green			
J - Red			
J - Amber			
J - Green			
K - Red			
K - Amber			
K - Green			
L - Red			
L - Amber			
L - Green			

Works Order : 304283e
EM Number : 62543
Engineer : Kevin L Roberts/Phill Arnold
Intersection : A308 Thames St / Elmsleigh Rd Staines J221

I/O - DFM Group Timings

I/O - DFM Group Timings

Input Group	State	SET A	SET B	SET C	SET D
Group 0	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 1	Active (Mins)	30	30	30	30
	InActive (Hrs)	96	96	96	96
Group 2	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 3	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 4	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 5	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 6	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 7	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18

Note - 255 or blank disables DFM monitoring of that state (active or inactive) during that timeset (A to D)

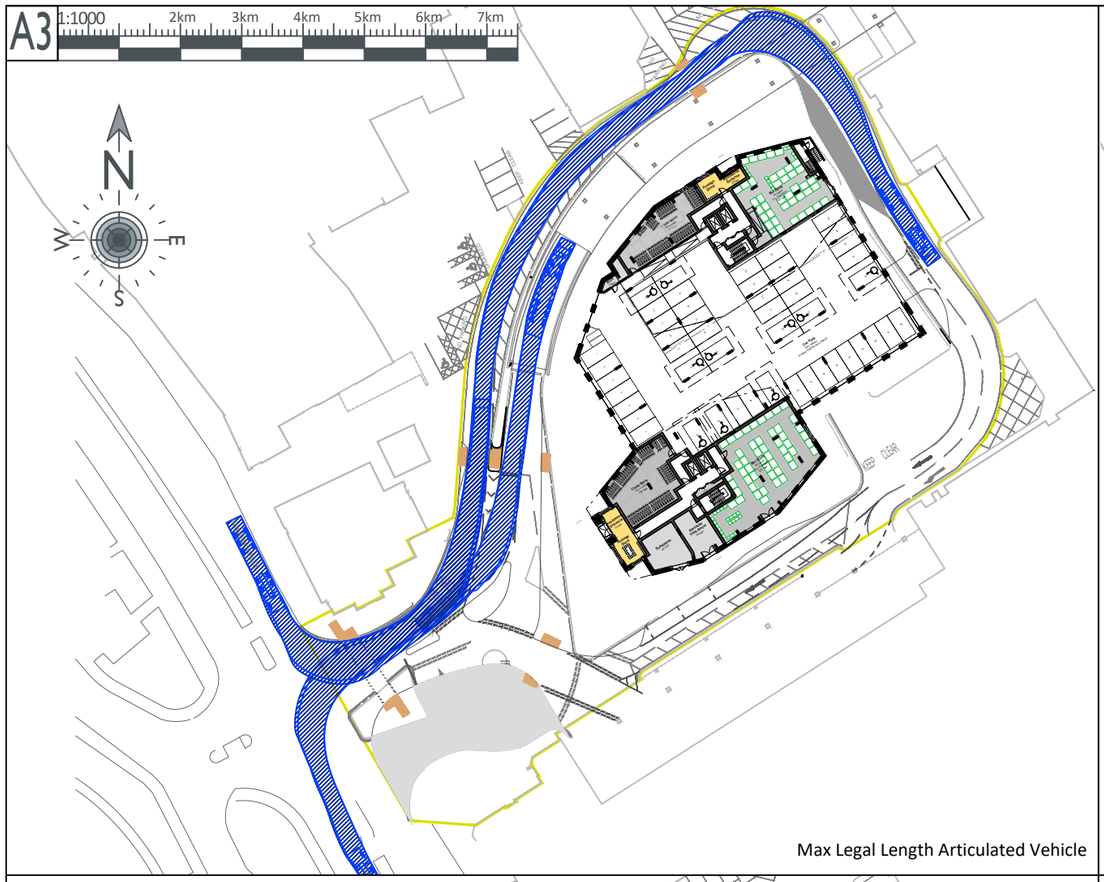
Handset Limiting Values

State	Min	Max
Active (Mins)	0	254
InActive (Hrs)	0	254

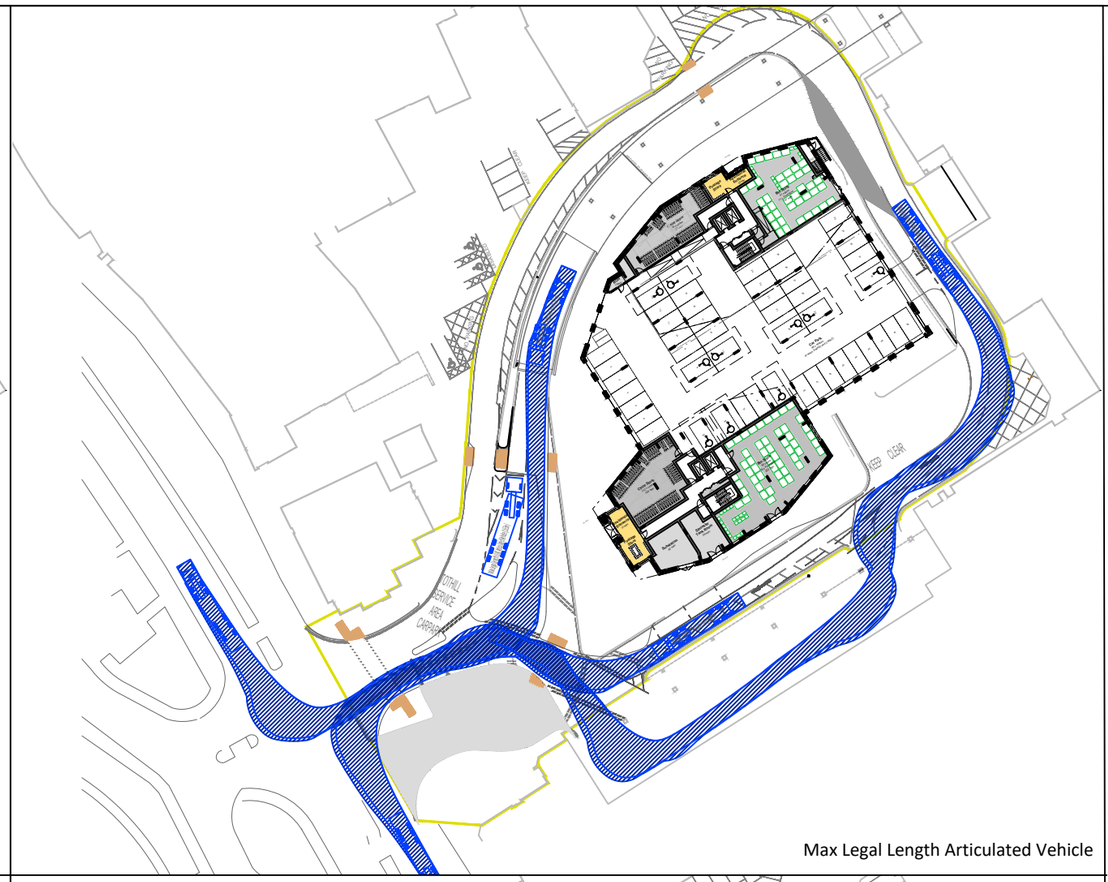
Index

Appendix D Swept Path Analysis

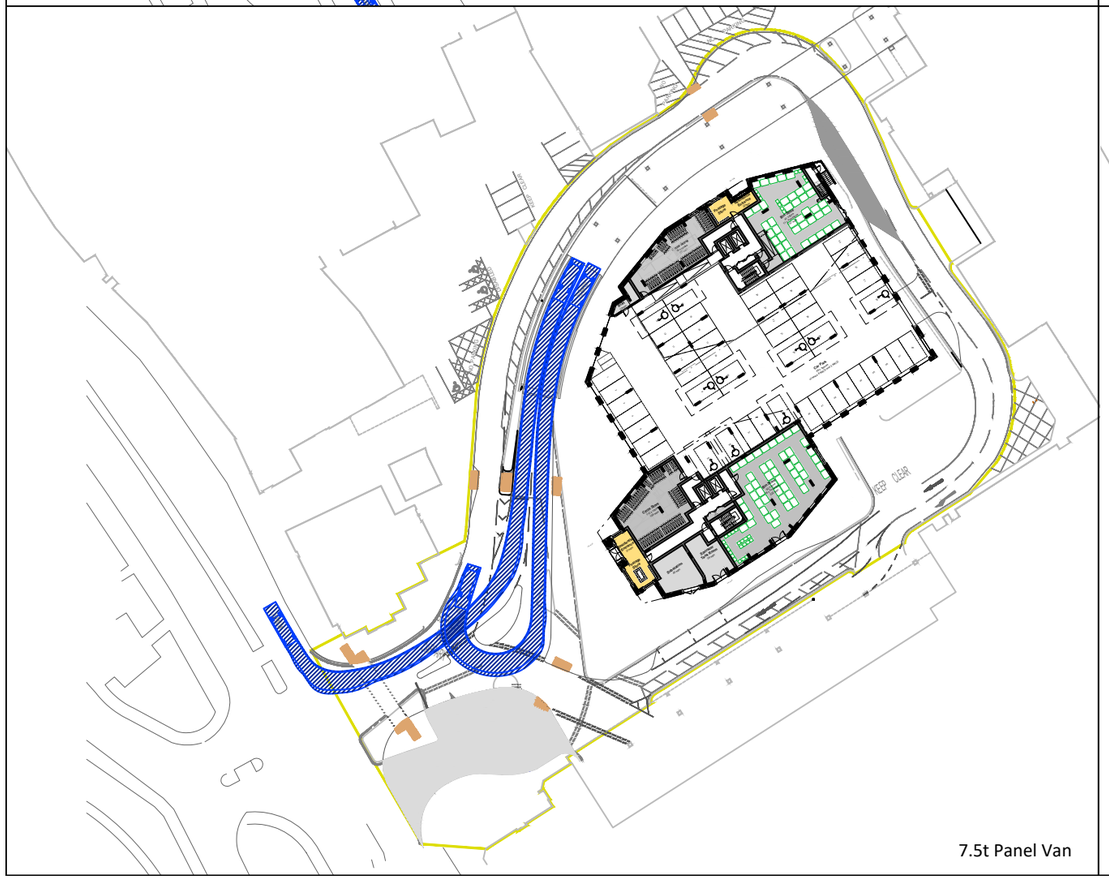
A3 1:1000 2km 3km 4km 5km 6km 7km



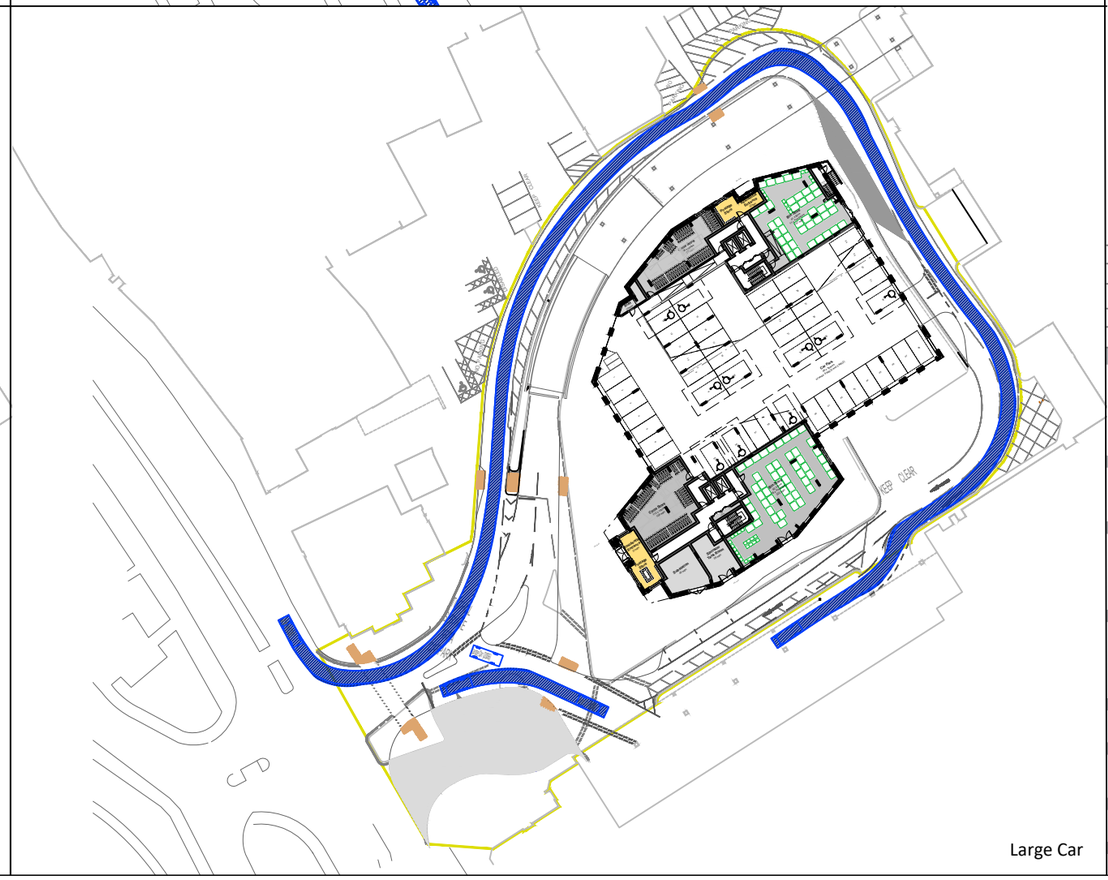
Max Legal Length Articulated Vehicle



Max Legal Length Articulated Vehicle



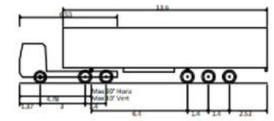
7.5t Panel Van



Large Car

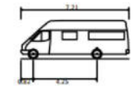
NOTES

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m



7.5t Panel Van

Overall Length	7.210m
Overall Width	2.192m
Overall Body Height	2.544m
Min Body Ground Clearance	0.316m
Track Width	1.865m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.400m

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

REV	DATE	REVISION NOTE	BY
P5	12/02/2021	Updated highway layout	LS
P4	17/12/2020	Updated highway layout	LS
P2	08/12/2020	Updated based on comments	TR
P1	24/09/2020	Updated based on comments	LS

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The Aquarium - King Street
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Exeter - London - Reading
pja.co.uk

CLIENT

Inland Ltd

PROJECT

Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE

Proposed Highway Works
Swept Path Analysis

DRAWING ISSUE STATUS

PLANNING

PJA JOB No. SUB-CODE

04550 - TR - 0017 - P5

Revision Letter : P - Prelim / A - Approval / T - Tender / C - Construction

BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3@1:1000	TR	MF	08/12/2020