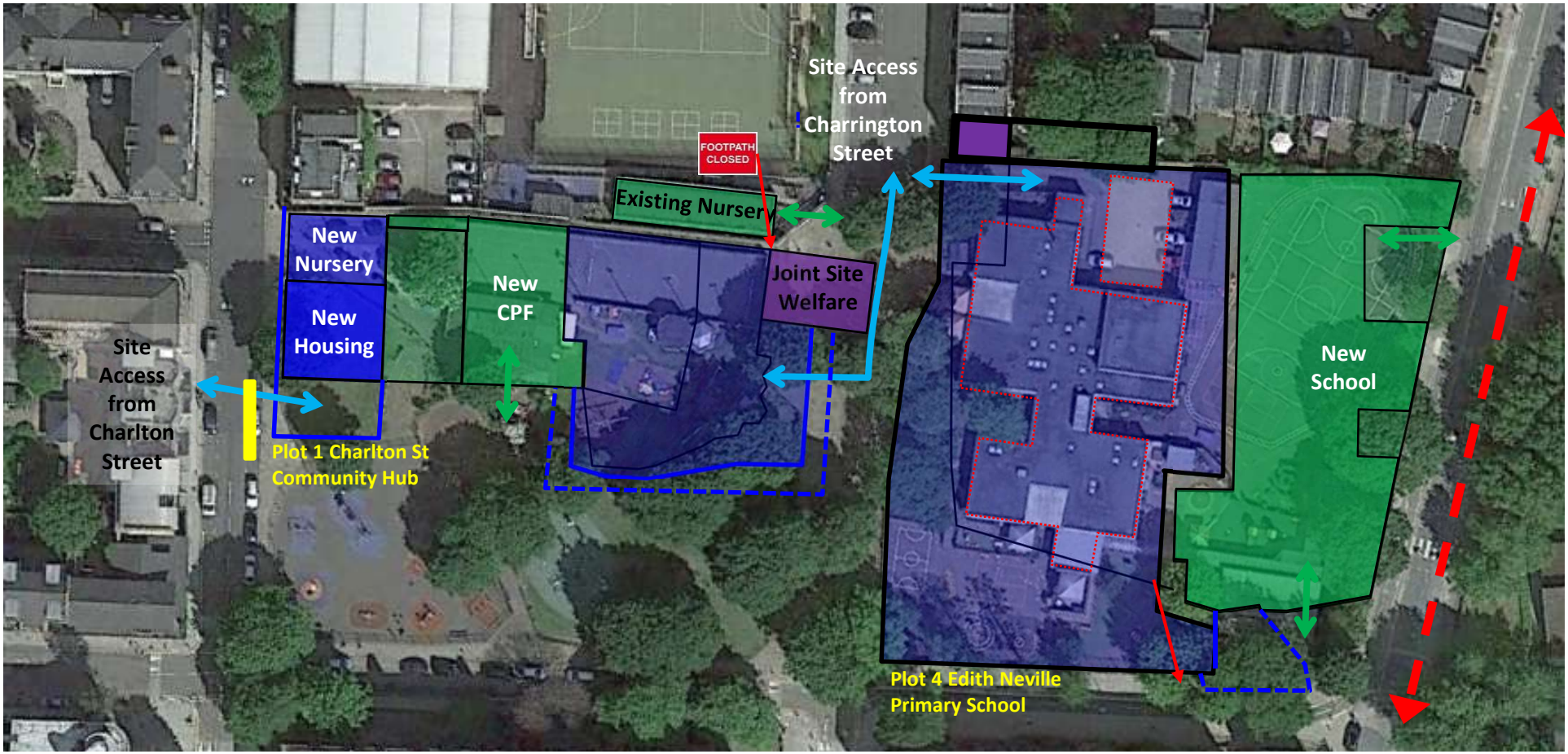
CST Site Plans Rev.4

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Phase 2b – Erect new hoardings to Plots 1 and 4 – Week 71



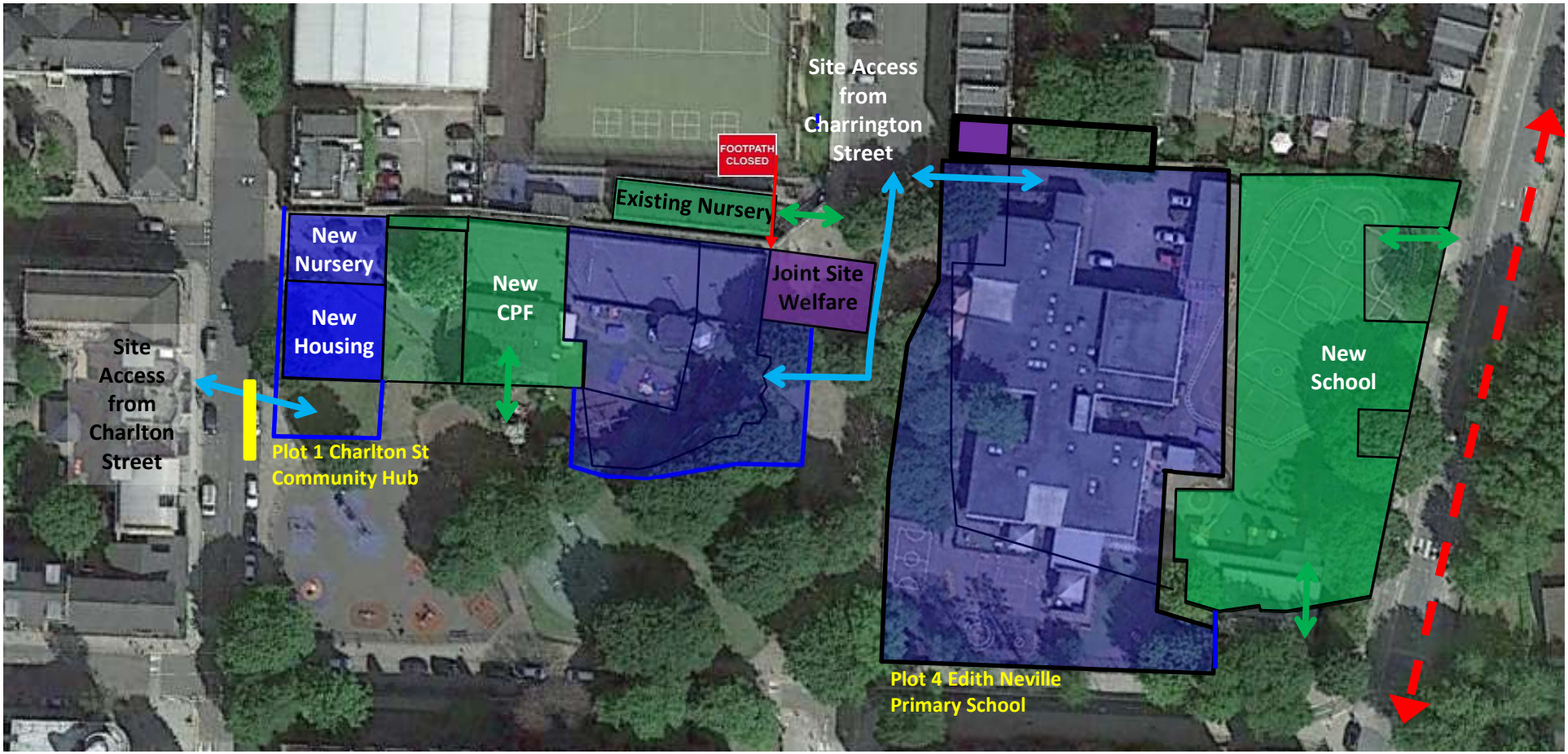
Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabins
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing
- Hoardings subject to party wall agreements
- Diverted Cycle route onto Road
- Building to be demolished
- Lifting Operation Temp Heras Fencing
- Suspended Parking Bays

CST Site Plans Rev.4

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Phase 2c – Hoardings complete – Weeks 72-80



Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabins

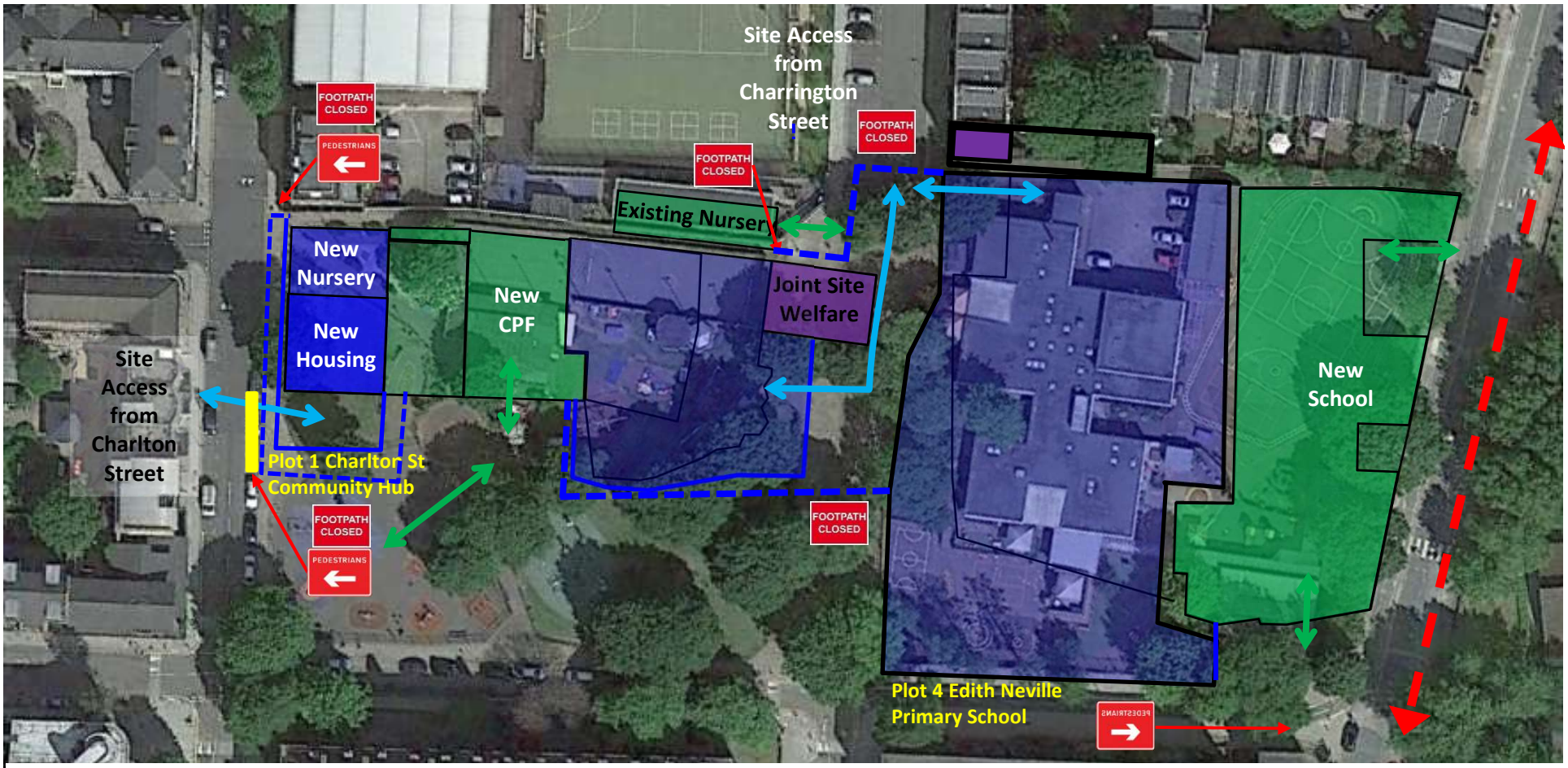
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing

- Hoardings subject to party wall agreements
- Diverted Cycle route onto Road
- Building to be demolished
- Lifting Operation Temp Heras Fencing
- Suspended Parking Bays

CST Site Plans Rev.4

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Phase 2d – Remove hoardings Plot 1 and temporary CPF cabins Week 80-88



Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabin

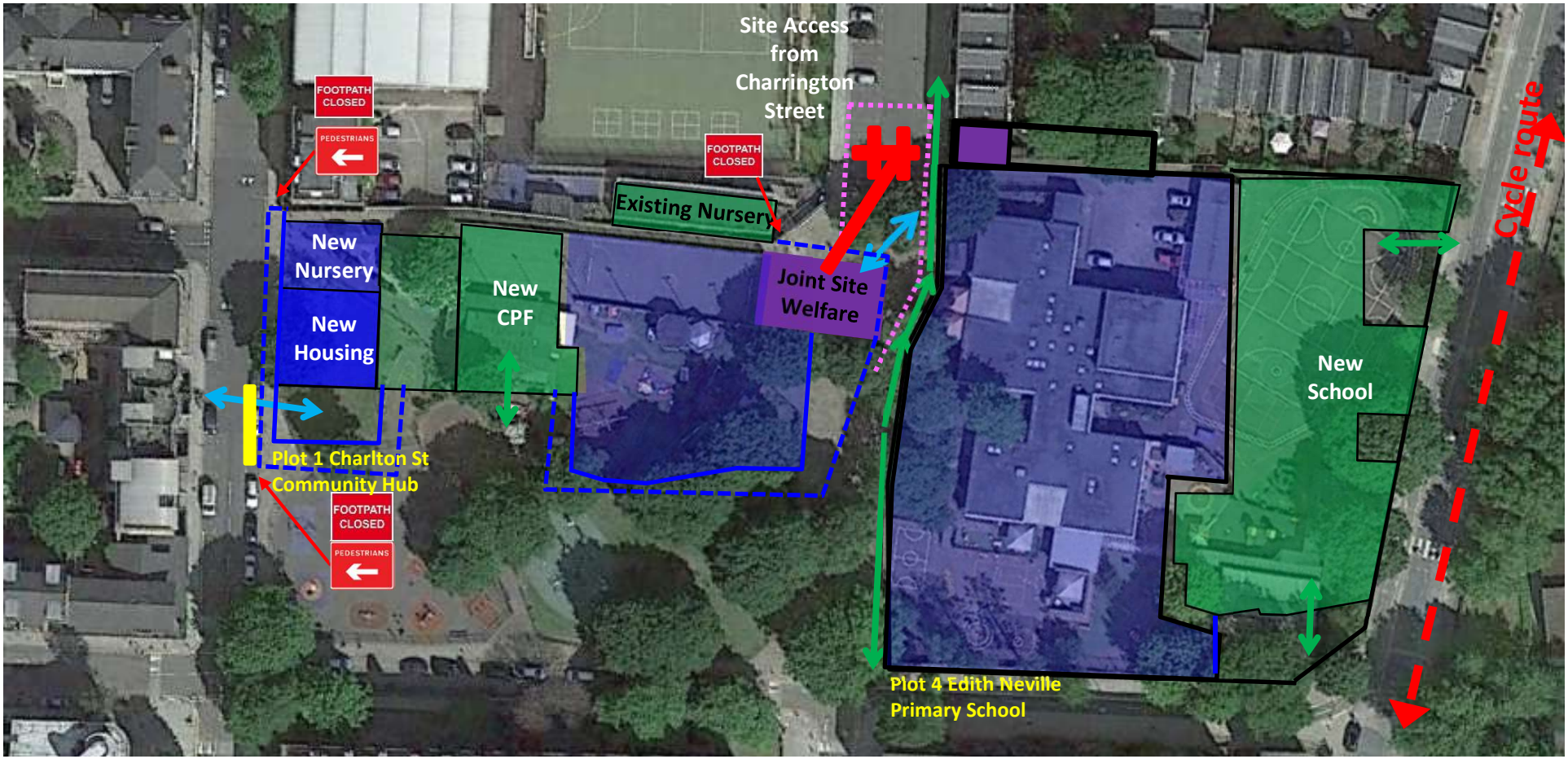
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing

- Hoardings subject to party wall agreements
- Diverted Cycle route onto Road
- Building to be demolished
- Lifting Operation Temp Heras Fencing
- Suspended Parking Bays

CST Site Plans Rev.4

Plot 1 Charlton St Community Hub

Phase 2d1 – Removal of Temporary CPF – 1 day lifting operation to remove Temp CPF units



Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabins

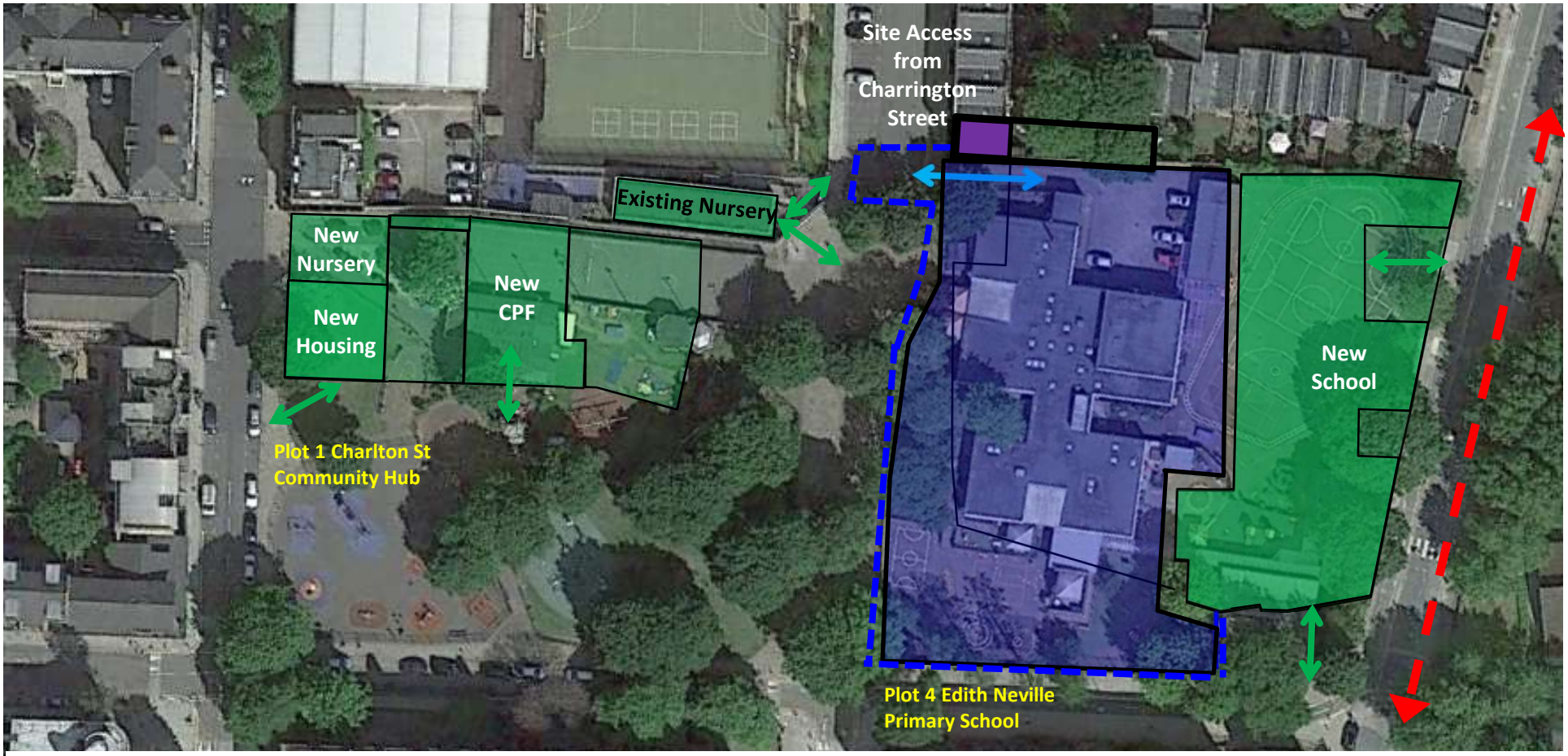
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing

- Cycle route
- Building to be demolished
- Lifting Operation Temp Heras Fencing
- Suspended Parking Bays

CST Site Plans Rev.4

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Phase 2e – Remove hoardings Plot 4 – Weeks 89-90



Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabin
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing
- Hoardings subject to party wall agreements
- Diverted Cycle route onto Road
- Building to be demolished
- Lifting Operation Temp Heras Fencing

CST Site Plans Rev.4

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Phase 2f – Plot 1 and Plot 4 complete – Week 91

Cycle route diverted back from Road to Pavement

Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabin

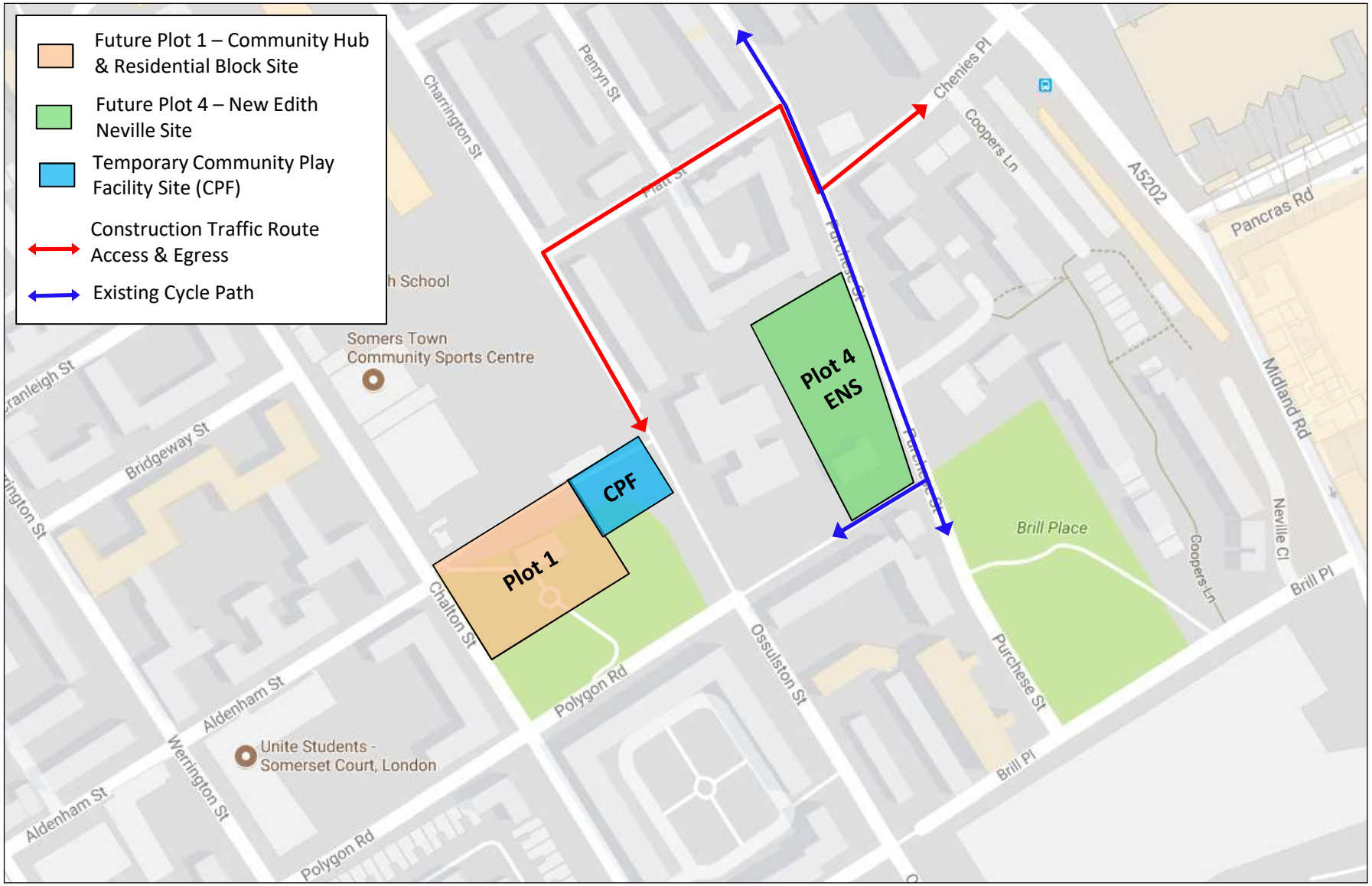
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing

- Hoardings subject to party wall agreements
- Cycle route
- Building to be demolished
- Lifting Operation Temp Heras Fencing

APPENDIX B – CST Site Traffic Route Plans

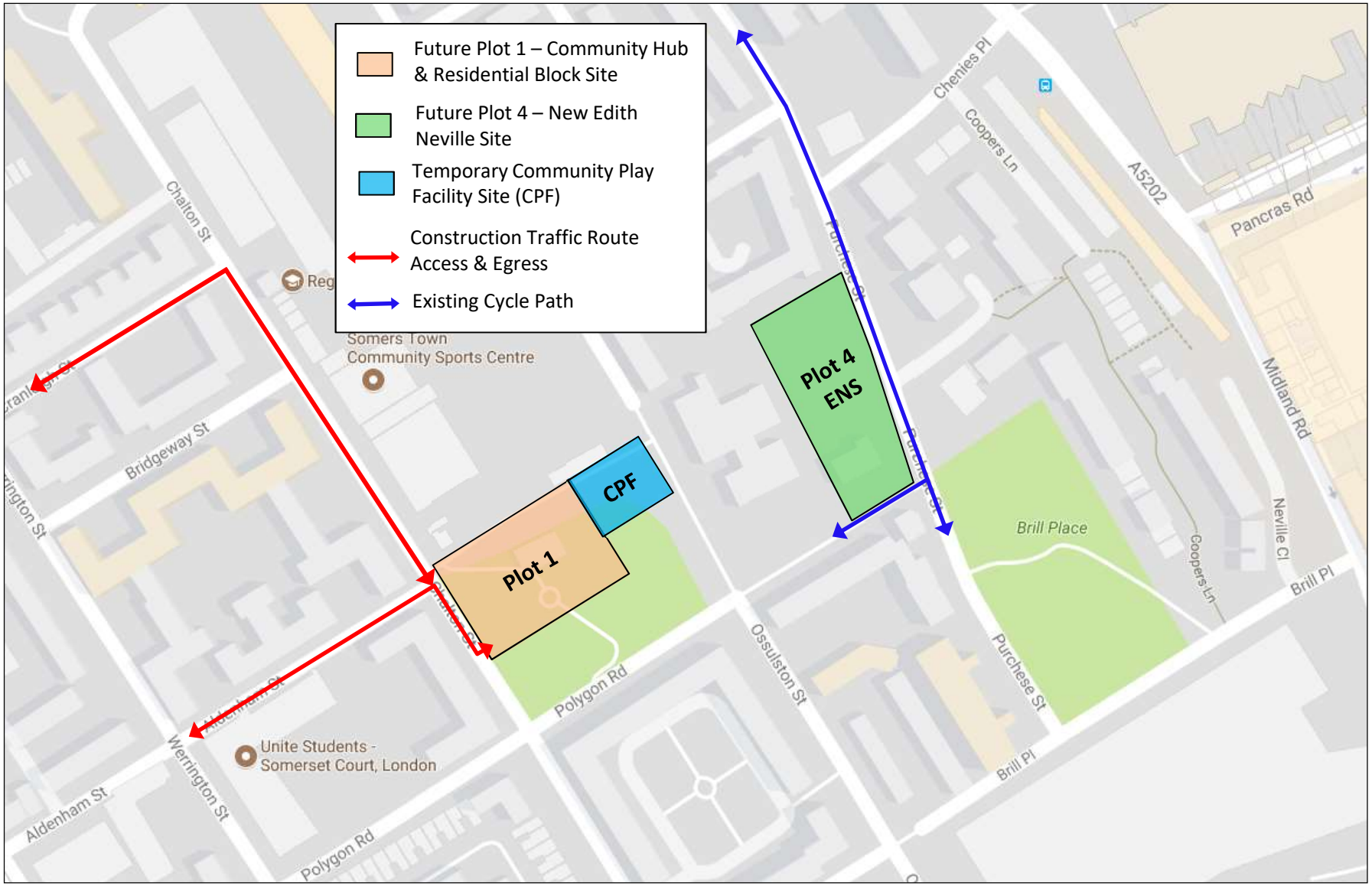
CST Site Traffic Route Plans Rev.0

Phase 1a/b – Weeks 1-3



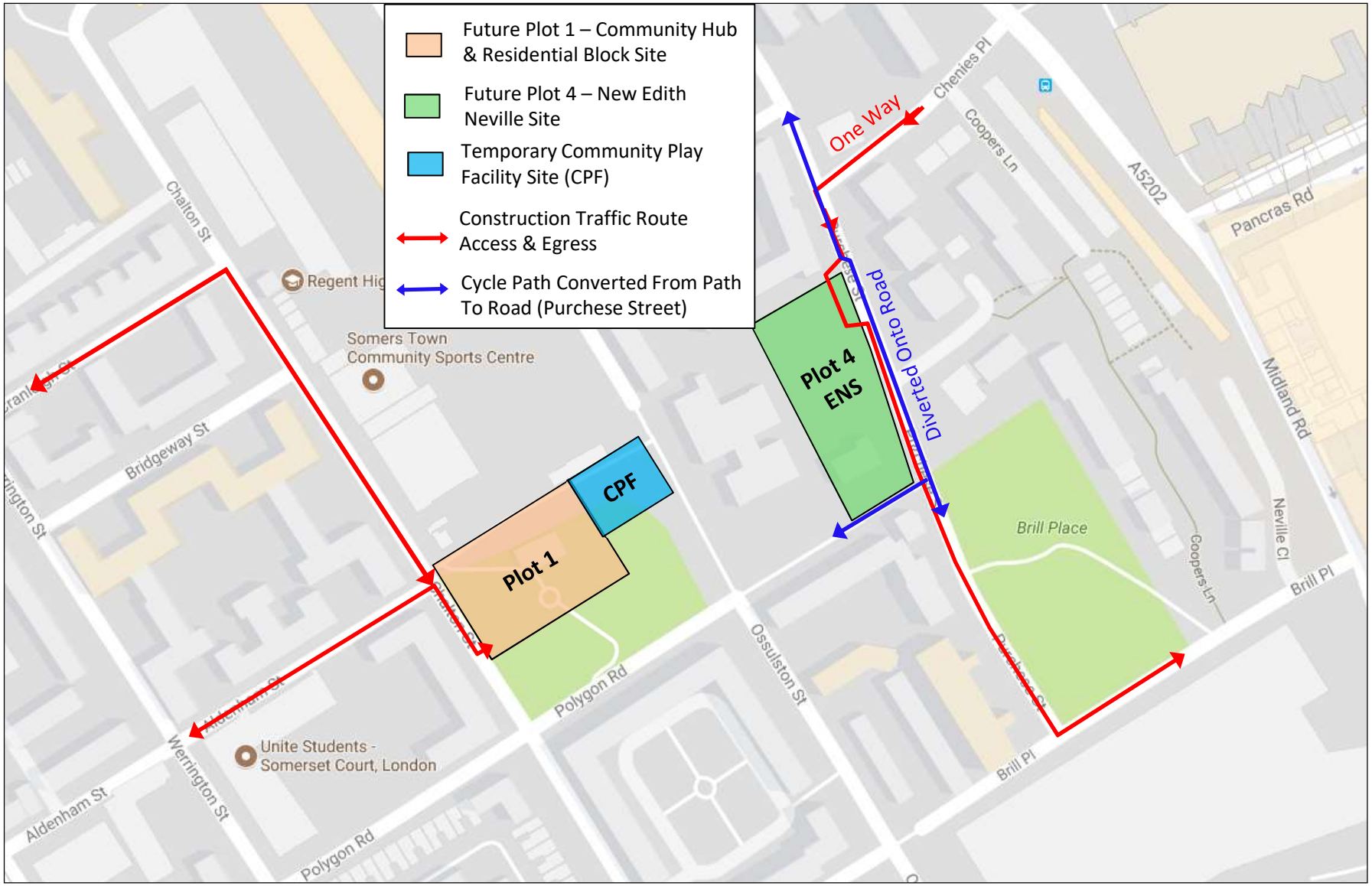
CST Site Traffic Route Plans Rev.0

Phase 1c/d – Weeks 4-7



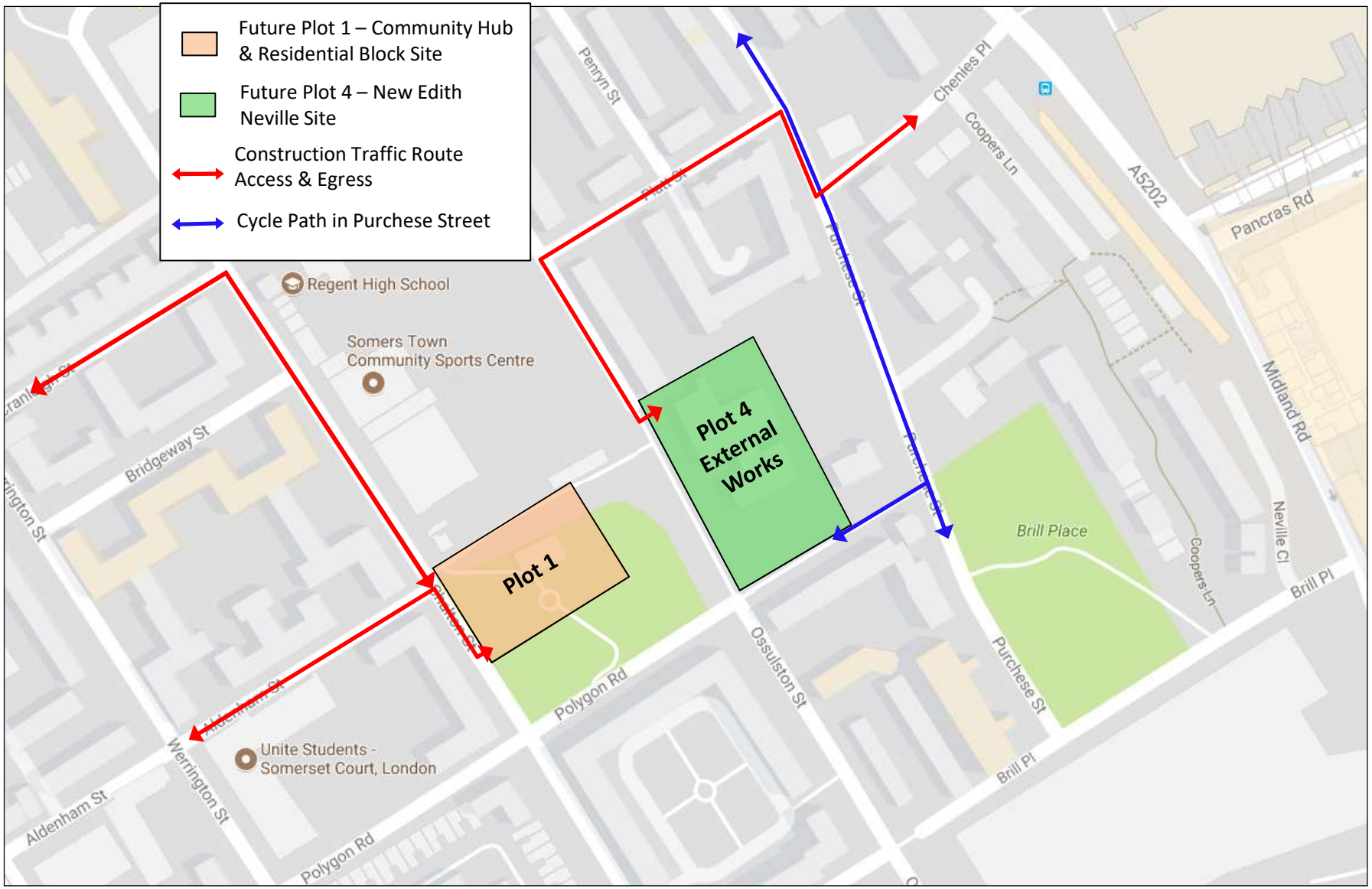
CST Site Traffic Route Plans Rev.0

Phase 1e/g & Phase 2a/b – Weeks 8-71



CST Site Traffic Route Plans Rev.0

Phase 2c/e – Weeks 72-90



APPENDIX C – Central Somers Town Revised Summary Prog 05.09.17

Summary Programme

Programme No.TP03
Date Issued: 05/09/2017
Revision No.: Tender Prog 04 - PW 5.1.17
Revision Date :
Prepared By: Alan Saunders/Paul Wright
Prog. Status: For comment

Central Somers Town

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Camden Council

Neilcott Construction Limited, Excel House, Cray Avenue, Orpington, Kent BR5 3ST Tel: 01689 832199 Fax: 01689 825745

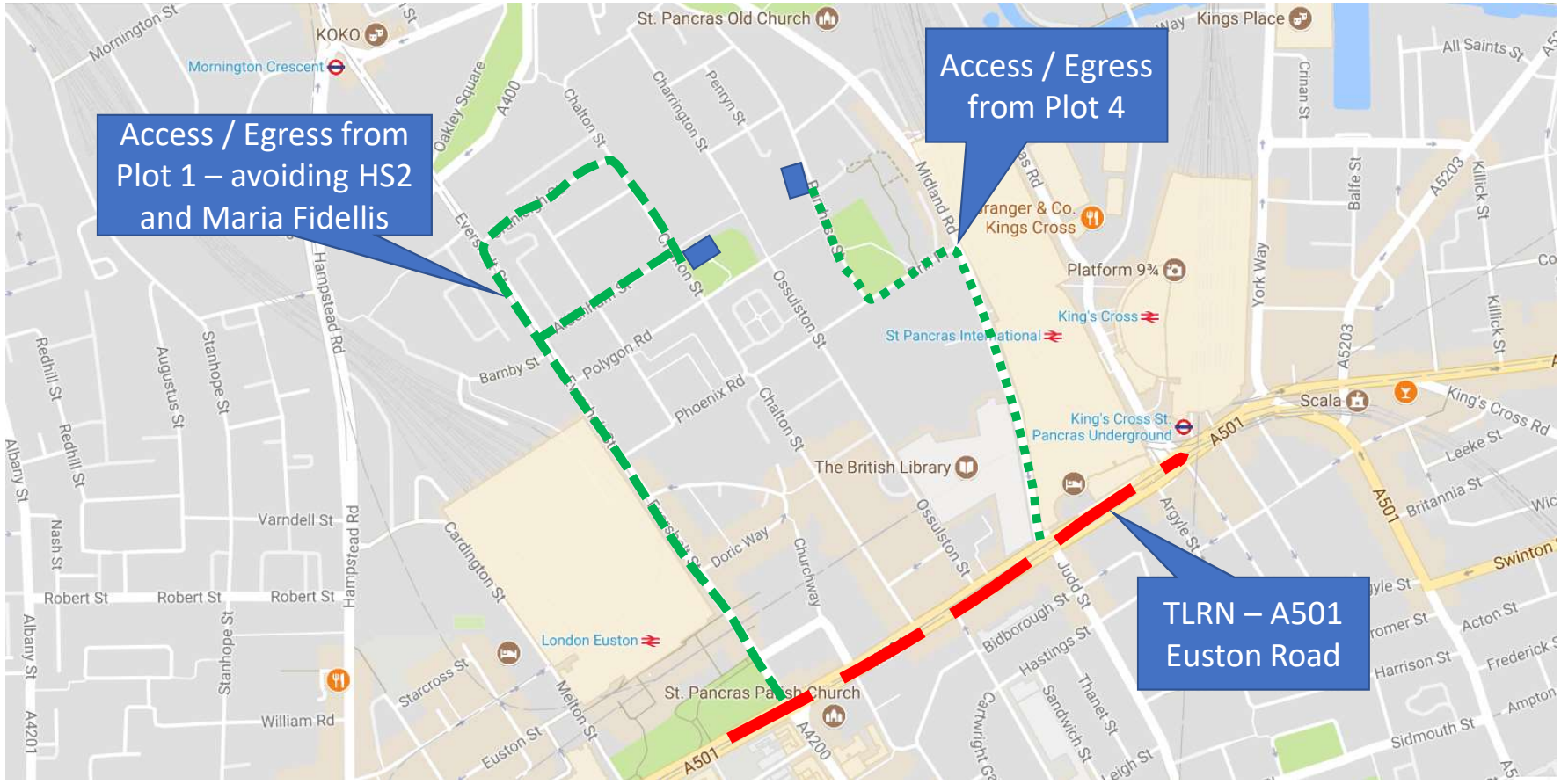
NEILCOTT Construction

Line	Name	Start	Duration	Finish
1	Design	01/09/2017	21w	05/02/2018
2	Extent of VE agreed in principle	01/09/2017		01/09/2017
3	Design Period	04/09/2017	21w	05/02/2018
4	Planning Conditions / Building Control Plot 1	14/08/2017	14w	20/11/2017
5	Mobilise Plot 1	18/09/2017	6w	27/10/2017
6	Section 80 demolition notice to Camden Building Control	18/09/2017	6w	27/10/2017
7	Plot 1	01/09/2017	80w 4d	15/04/2019
8	Section 1: Enabling Works A: Temporary Community Play Facility	01/09/2017	9w 1d	03/11/2017
9	Latest date for EAI for temp CPF and drawing sign off	01/09/2017		01/09/2017
10	Place Order for Temp CPF	04/09/2017		04/09/2017
11	Manufacture temporary CPF building	04/09/2017	5w	06/10/2017
12	Temporary heras fencing	02/10/2017	1w	06/10/2017
13	Prune tree (Plot 2) for temporary cabins (with ecologist check first)	02/10/2017	1w	06/10/2017
14	Install foundations / drainage for temporary building	02/10/2017	1w	06/10/2017
15	Install temporary building	09/10/2017		09/10/2017
16	Services connections to temporary building	09/10/2017	1w	13/10/2017
17	Fit out temporary building	09/10/2017	2w	20/10/2017
18	Relocate cradle swing (if necessary)	30/10/2017	1w	03/11/2017
19	Relocate signage	30/10/2017	1w	03/11/2017
20	New safety surfaces	30/10/2017	1w	03/11/2017
21	Decant Plot 10 Community Play Facility into temporary accommodation	30/10/2017	1w	03/11/2017
22	Section 2: Enabling Works B Demolition	30/10/2017	8w	22/12/2017
23	Stopping up of footpath complete - by LBC	30/10/2017		30/10/2017
24	Demolition survey	30/10/2017	1d	06/11/2017
25	Erect hoardings	30/10/2017	2w	10/11/2017
26	Divert BT-01 / disconnect BT-02	06/11/2017	1w	10/11/2017
27	Divert E-01 and E-02 / disconnect E-03	06/11/2017	1w	10/11/2017
28	Disconnect G-01	06/11/2017	1w	10/11/2017
29	Disconnect W-01	06/11/2017	1w	10/11/2017
30	Site establishment	06/11/2017	2w	17/11/2017
31	Fell five large trees (Not Mar - September)	13/11/2017	1w	17/11/2017
32	Abestos removal	20/11/2017	2d	21/11/2017
33	Relocate canopy in St Aloysius Nursery	18/12/2017	1w	22/12/2017
34	Divert isolate existing services along footpath / remove lamp posts	20/11/2017	1w 4d	30/11/2017
35	Salvage timbers	22/11/2017	2d	23/11/2017
36	Additional site Investigations to ascertain extent of contamination	13/11/2017	1w	17/11/2017
37	Demolition works	24/11/2017	1w 2d	04/12/2017
38	Demolish boundary wall for working space	18/12/2017	1w	22/12/2017
39	Section 3: New Buildings and Externals	21/11/2017	69w 2d	15/04/2019
40	Building A - Nursery and Housing	21/11/2017	69w 2d	15/04/2019
41	Sub Structure	21/11/2017	11w	13/02/2018
42	Superstructure	14/02/2018	40w	27/11/2018
43	Envelope	20/04/2018	34w	18/12/2018
44	Plant rooms	16/07/2018	12w	08/10/2018
45	Fit Out Residential Riser	21/08/2018	15w	04/12/2018
46	Fit Out Two Fifth Floor Flats	03/10/2018	18w	14/02/2019
47	Fit Out Two Fourth Floor Flats	17/10/2018	18w	28/02/2019
48	Fit Out Two Third Floor Flats	30/10/2018	18w	13/03/2019
49	Fit Out Two Second Floor Flats	12/11/2018	18w	26/03/2019
50	Fit Out Two First Floor Flats	23/11/2018	18w	08/04/2019
51	Fit Out Residential Stair Core	07/12/2018	17w	15/04/2019
52	Fit Out Nursery at Ground Floor	17/10/2018	22w	28/03/2019
53	Nursery Playground	09/01/2018	50w 3d	14/01/2019
54	Building B - Community Play Facility and MUGA	02/01/2018	51w	09/01/2019
55	Sub Structure	02/01/2018	11w	19/03/2018
56	Superstructure	20/03/2018	16w	13/07/2018
57	Envelope	18/06/2018	19w	29/10/2018
58	Fit Out CPF	30/07/2018	22w	09/01/2019
59	Decant CPF (assumed Nursery Playground required in addition to MUGA)	15/01/2019	2w 4d	01/02/2019
60	Section 4: Community Play Facility External Works	22/01/2019	12w	15/04/2019
61	Completion of Plot 1 Works	15/04/2019		15/04/2019
62	Extent of VE agreed in principle	01/09/2017		01/09/2017
63	Finalise VE scope	04/09/2017	3w	22/09/2017
64	Design Programme Plot 4	25/09/2017	20w	19/02/2018
65	Planning Conditions / Building Control Plot 4	14/08/2017	16w 4d	08/12/2017
66	Mobilise Plot 4	16/10/2017	6w	24/11/2017
67	Mobilise Plot 4 works - Section 80 notice	16/10/2017	6w	24/11/2017
68	School decant out of Nursery & Early Year Temporary Classroom (requested dates)	04/09/2017	2w	15/09/2017
69	School decant out of Nursery & Early Year Temporary Classroom (latest date)	20/10/2017		20/10/2017
70	Plot 4	23/10/2017	83w 2d	27/06/2019
71	Section 1: Construction Works	23/10/2017	64w 4d	12/02/2019
72	Demolition	23/10/2017	7w	08/12/2017
73	Western hoardings to school	23/10/2017	2w	03/11/2017
74	Eastern hoardings and site welfare establishment	06/11/2017	3w	24/11/2017
75	Southern hoardings (tree protection)	30/10/2017	1w	03/11/2017
76	Remove canopies / play equipment / bike store	06/11/2017	1w	10/11/2017
77	Additional Site Investigations to ascertain extent of contamination	06/11/2017	2w	17/11/2017
78	Divert electrical cable from new footprint	06/11/2017	2w	17/11/2017
79	Divert water pipe from new footprint	13/11/2017	2w	24/11/2017
80	Demolish Breakfast Club / Children's Centre / Nursery	27/11/2017	2w	08/12/2017
81	Substructure	11/12/2017	14w	26/03/2018
82	Superstructure	06/03/2018	14w	15/06/2018
83	Elevations	26/04/2018	21w	24/09/2018
84	Boundary Walls	04/06/2018	14w	10/09/2018
85	Internal Fit Out	06/07/2018	30w	12/02/2019
86	External Works	11/09/2018	16w	09/01/2019
87	School fit out loose furniture / ITC	23/01/2019	4w	19/02/2019
88	School decant	13/02/2019	1w 2d	21/02/2019
89	Section 2: Landscaping works (as A1014)	18/02/2019	18w	27/06/2019
90	Completion of Plot 4 Works	27/06/2019		27/06/2019

Line | Name | Start | Duration | Finish

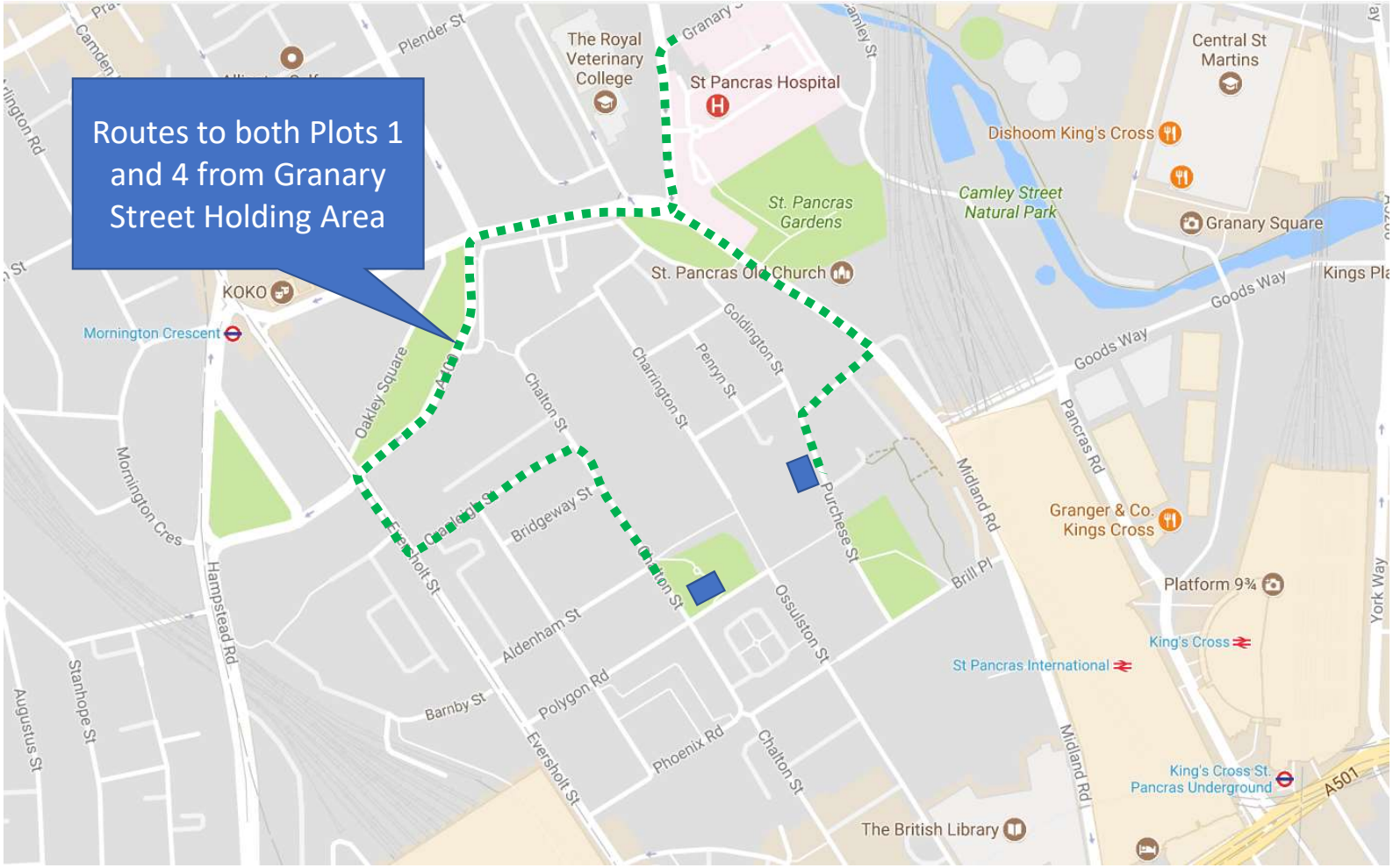
APPENDIX D – Access – Egress to TLRN

CST – Access / Egress from Project to TLRN
(A501 – Euston Road)



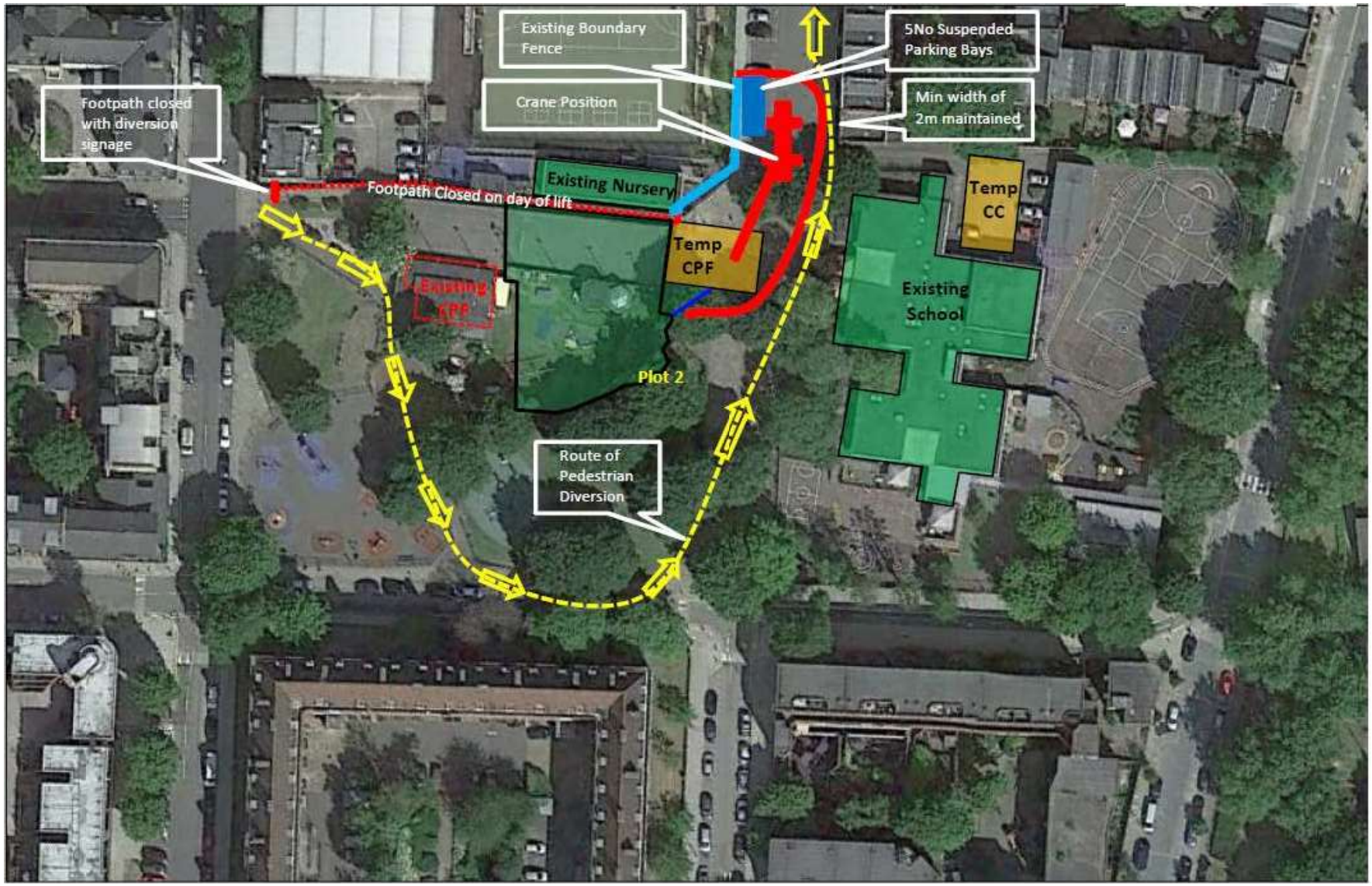
APPENDIX E – Proposed Routes from Granary Street

Proposed Routes from Holding Area (Granary Street) to both Plots, 1 and 4.



APPENDIX F – Crane Lift to Temp Comm Centre

Plot 1 Charlton St Community Hub – Installation of Temp Community Centre
Sunday 22/10 (Provisionally 29/10 if winded off) 0900 – 1630

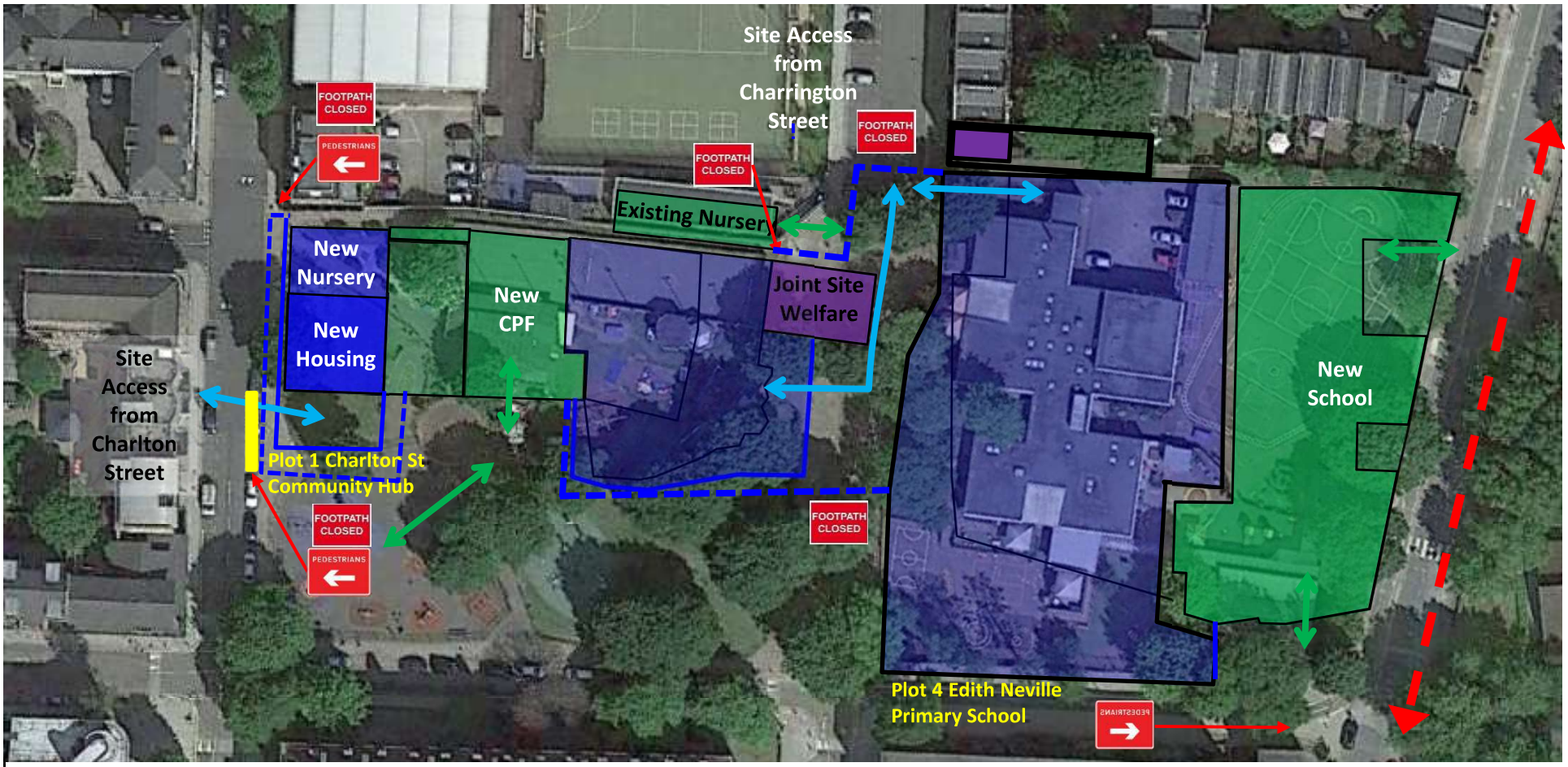


APPENDIX G – Access Weeks 80-88 – P1 and P4

CST Site Plans Rev.4

Plot 1 Charlton St Community Hub + Plot 4 Edith Neville Primary School

Phase 2d – Remove hoardings Plot 1 and temporary CPF cabins Week 80-88



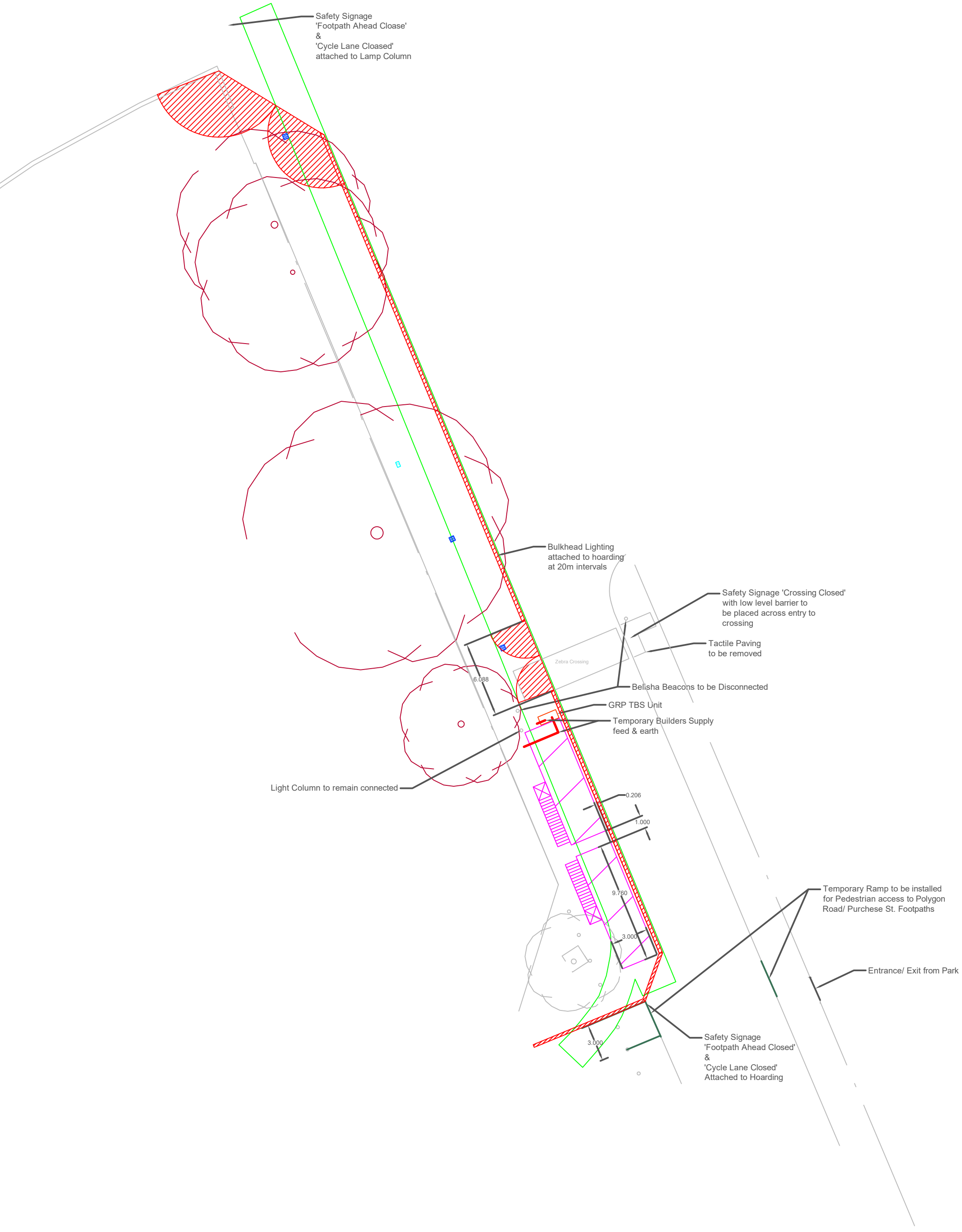
Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabin
- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing
- Hoardings subject to party wall agreements
- Diverted Cycle route onto Road
- Building to be demolished
- Lifting Operation Temp Heras Fencing
- Suspended Parking Bays

APPENDIX H – Suspended Bays for Crane

Proposed Parking Bay (5No) Suspensions – Charrington Street – 08/10 or 15/10.
To allow crane lifting operation.

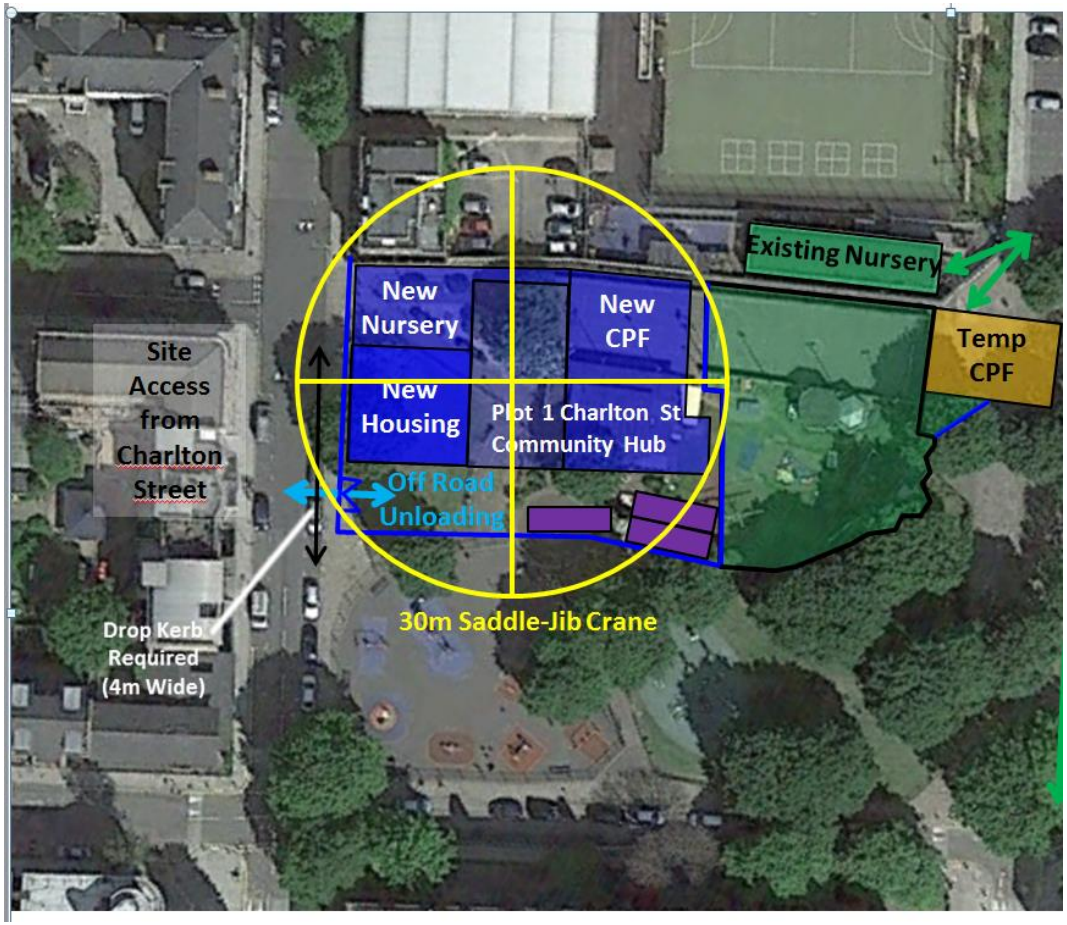
APPENDIX I – Scaled Site Setup


Safety Signage
'Footpath Ahead Cloase'
&
'Cycle Lane Cloased'
attached to Lamp Column
Bulkhead Lighting
attached to hoarding
at 20m intervals
Safety Signage 'Crossing Closed'
with low level barrier to
be placed across entry to
crossing
Tactile Paving
to be removed
Zebra Crossing
6.088
Belisha Beacons to be Disconnected
GRP TBS Unit
Temporary Builders Supply
feed & earth
Light Column to remain connected
0.206
1.000
9.760
3.000
3.000
Temporary Ramp to be installed
for Pedestrian access to Polygon
Road/ Purchese St. Footpaths
Entrance/ Exit from Park
Safety Signage
'Footpath Ahead Closed'
&
'Cycle Lane Closed'
Attached to Hoarding

APPENDIX J – CST TC1 Plan

Plot 1 Charlton St Community Hub – TC1

Tower Crane Location



Legend

- Existing facilities
- Site area
- New building
- Temporary building
- Site cabins

- Existing access points
- Site access points
- Existing fencing
- Solid plywood hoarding
- Solid Heras fencing
- Heras fencing

Tower Crane 30m Jib Radius

APPENDIX K – Camden – Noise – Vibration Assessment

Central Somers Town, London Borough of Camden

Noise assessment

DECEMBER 2015

Todd Longstaffe-Gowan Ltd.
atelier ten
STUDIO Turley
akt II

Somers Town Community Investment Programme

Camden

Intended for
London Borough of Camden

Date
December, 2015

Project Number
UK1122137

CENTRAL SOMERS TOWN, LONDON BOROUGH OF CAMDEN
NOISE ASSESSMENT

RAMBOLL ENVIRON

CENTRAL SOMERS TOWN, LONDON BOROUGH OF CAMDEN
NOISE ASSESSMENT

Project No.	**UK1122137**
Issue No.	**2**
Date	**02/12/2015**
Made by	**Neil Morgan**
Checked by	**Pau Santamaria**
Approved by	**Lesley Vining**

Made by:

Checked/Approved by:

Version Control Log

Revision	Date	Made by	Checked by	Approved by	Description
1	08/12/2015	NM	PS	LV	Final Draft
2	16/12/2015	NM	PS	LV	Final Draft

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Artillery House
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London
SW1P 1RT
United Kingdom
T +44 207 808 1420
www.ramboll-environ.com

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Appendix 2
Noise Assessment Report – Plot 1

Appendix 3
Noise Assessment Report – Plot 3

Appendix 4
Noise Assessment Report – Plot 3

Appendix 5
Noise Assessment Report – Plot 4

Appendix 6
Noise Assessment Report – Plots 5 & 6

Appendix 7
Noise Assessment Report – Plot 7

EXECUTIVE SUMMARY

Ramboll Environ UK Ltd (Ramboll Environ) has been commissioned to undertake an assessment of noise to accompany a planning application for a mixed use development proposed at a site in Central Somers Town, Camden (the Site).

The Site comprises seven proposed development lots, comprising a mix of residential development, plus community, nursery and educational facilities, in addition to public open space (the Proposed Masterplan Development).

This report summarises the key details of the six separate, detailed assessments covering the individual lots of the Somers Town Masterplan. These reports are presented in full in Appendices 2 to 7.

The individual assessments have concluded that the Site is largely unconstrained by noise and that typical acoustic façade insulation values, associated with traditional thermally insulating construction techniques would be adequate to ensure appropriate internal noise levels for the residential and educational developments across the Proposed Masterplan Development.

The assessments also present data which identifies that the public realm external amenity spaces incorporated within the Proposed Masterplan Development would typically provide daytime noise levels in accordance with the recommendations of the WHO and BS 8233: 2014.

Target noise criteria have been set for all static plant within the Proposed Masterplan Development. Providing that the cumulative rating noise level from the plant items does not exceed the stated noise criteria, whether through the application of noise control techniques or otherwise, the impact of noise from such sources is predicted to have no adverse impact on existing sensitive receptors.

An assessment of vibration has also been carried out for the closest parts of the Proposed Masterplan Development to St Pancras Railway Station, which has indicated that appropriate criteria would be achieved without the need for mitigation measures.

Consequently, the Site is considered suitable for the Proposed Masterplan Development in acoustic terms and noise should not present a constraint to the granting of planning permission for the Proposed Masterplan Development in its current form.

1. INTRODUCTION

1.1 Background

Ramboll Environ UK Ltd (Ramboll Environ) has been commissioned to undertake an assessment of noise to accompany a planning application for a mixed use development proposed at a site in Central Somers Town, Camden (the Site).

The Site comprises seven proposed development lots, comprising a mix of residential development, plus community, nursery and educational facilities, in addition to public open space (the Proposed Masterplan Development). This report summarises the key details of the six separate, detailed assessments covering the individual lots to provide an overview in relation to noise for the complete Proposed Masterplan Development. These reports are presented in full in Appendices 2 to 7.

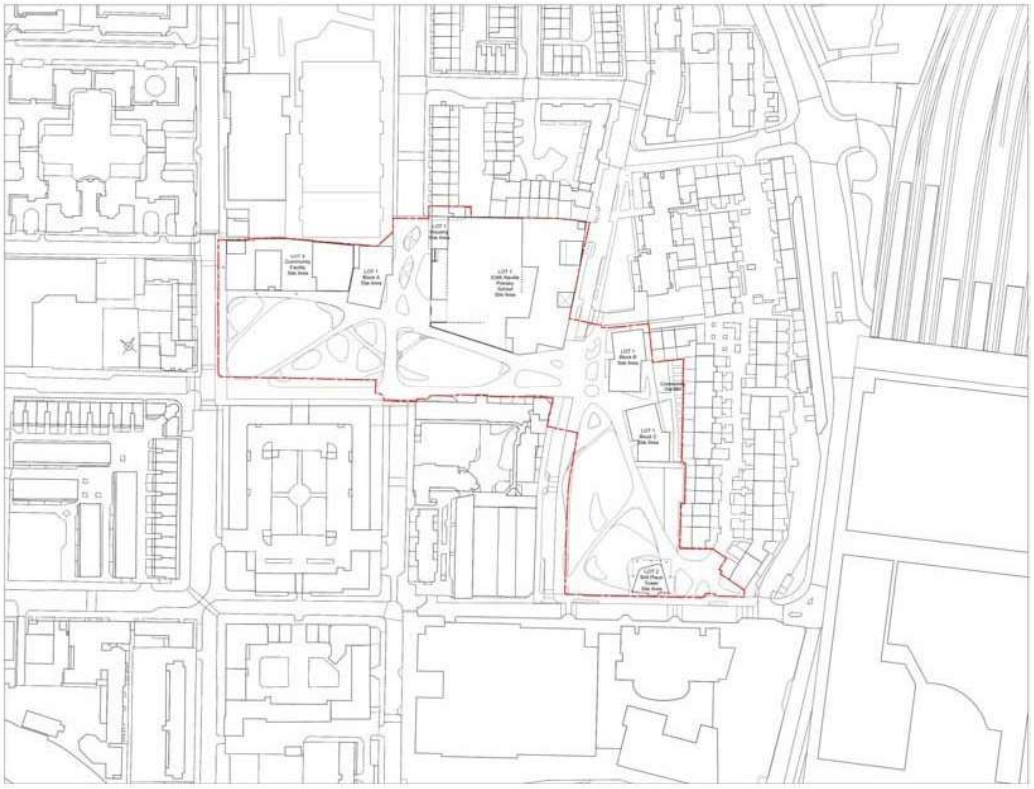
A glossary of technical terms and references is presented in Appendix 1 – Glossary of Terms.

1.2 Site Description

The Site is located to the south-west of St Pancras Railway Station, spanning Purchese Street and extending as far south-west as Chalton Street and south-east to Brill Place, as shown in Figure 1.1. The proposals make use of open land and sites/premises requiring redevelopment within the existing residential area of Somers Town, Camden.

The noise climate in the area is dominated primarily by road traffic noise, with contributions arising from rail traffic, towards the north-east of the Site.

Figure 1.1: Site Location



1.3 Proposed Masterplan Development

The Proposed Masterplan Development comprises the demolition of existing buildings and the provision of approximately 2,180sq.m replacement school (Use Class D1); approximately 1,765sq.m of community facilities (Use Class D1); approximately 207sq.m of flexible Use Class A1/A2/A3/D1 floorspace and 136 residential units (Use Class C3) over 7 buildings ranging from 3 to 25 storeys in height comprising:

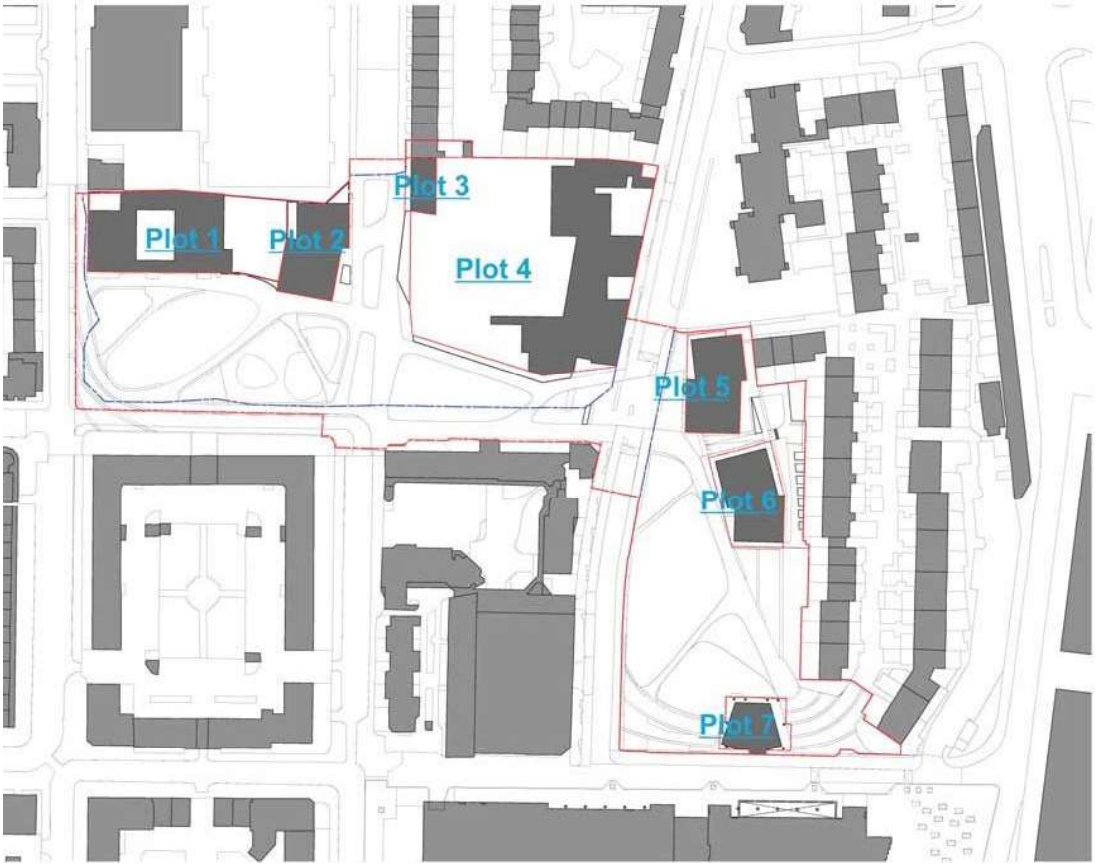
- Plot 1: Community Hub and Housing - Community uses at ground floor (Use Class D1) (approximately 1,554sq.m) to include a children's nursery and community play facility with 10 no. residential units above;
- Plot 2: Charrington Street Apartments - 35 residential units over flexible A1/A2/A3/D1 floorspace at ground level (approximately 137sq.m);
- Plot 3: Charrington Street Terrace Housing - Extension of Grade II listed terrace to provide 3 no. dwellings;
- Plot 4: Edith Neville Primary School and Community Centre - Replacement school (Use Class D1) ;
- Plot 5: Purchese Street Housing North and Community Hall - 20 no. residential units over a replacement community hall (Use Class D1) (approximately 211sq.m);
- Plot 6: Purchese Street Housing South - 14 no. residential units; and
- Plot 7: Brill Place Tower - 54 no. residential units over flexible A1/A2/A3/D1 floorspace at ground level (approximately 70sq.m).

In addition, the Masterplan Development would provide 11,760 sqm of public open space along with associated highways works and landscaping.

The development proposals are shown in **Error! Reference source not found.**, with the plot locations identified on **Error! Reference source not found.**.

Figure 1.2: Development Proposals

Figure 1.3: Plot Locations



2. POLICY CONTEXT

2.1 National Planning Policy Framework

National Planning Policy Framework (NPPF)[1] published on March 27th 2012 sets out the Government's economic, environmental and social planning policies for England. It summarises in a single document all previous national planning policy advice. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

The NPPF sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

Under Section 11; Conserving and enhancing the natural environment, the following is stated:

The planning system should contribute to and enhance the natural and local environment by:

- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.*

The document goes on to state:

Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

As stated above, this document makes reference to avoiding noise generation from new developments that would adversely impact on health and quality of life.

2.2 Planning Practice Guidance – Noise

The National Planning Practice Guidance (NPPG[2]) has been revised and updated to be easily accessible and available online.

The Noise Guidance advises on how planning can manage potential noise impacts in new development. It sets out when noise is relevant to planning and outlines the following Observed Effect Levels to determine the noise impact:

- *Significant observed adverse effect level (SOAEL): This is the level of noise exposure above which significant adverse effects on health and quality of life occur.*
- *Lowest observed adverse effect level (LOAEL): this is the level of noise exposure above which adverse effects on health and quality of life can be detected.*

1 Department for Communities and Local Government, March 2012. National Planning Policy Framework. HMSO.

2 National Planning Practice Guidance, Department for Communities and Local Government (DCLG), March 2014

- *No observed effect level (NOEL): this is the level of noise exposure below which no effect at all on health or quality of life can be detected.*

The document recognises the subjective relationship between noise levels and the impact on those affected, and advises on factors which may influence on whether noise could be a concern.

2.3 National Planning Practice Guidance, England

Further guidance in relation to the National Planning Policy Framework and the Noise Policy Statement for England has been published in the National Planning Practice Guidance in England: Noise (NPPG)[3], which summarises the noise exposure hierarchy, based on the likely average response.

This is reproduced in Table 2.1 below.

Table 2:1: Significance Criteria from NPPG in England: Noise

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awak-	Significant Observed Adverse Effect	Avoid

[3] Department for Communities and Local Government (DCLG), 2014. National Planning Practice Guidance for England: Noise. DCLG.

	ening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.		
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

2.4 Local Authority Requirements

The site is located within the London Borough of Camden. The Camden Council Local Development Framework (LDF) sets out the planning criteria for noise and vibration used to determine applications for planning permission in the borough. An extract of the sections relevant to this development is provided below.

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Table A: Noise levels on residential sites adjoining railways and roads at which planning permission will not be granted

Noise description and location of measurement	Period	Time	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day	0700-1900	74 dB L_{Aeq} 12h	72 dB L_{Aeq} 12h
Noise at 1 metre external to a sensitive façade	Evening	1900-2300	74 dB L_{Aeq} 4h	72 dB L_{Aeq} 4h
Noise at 1 metre external to a sensitive façade	Night	2300-0700	66 dB L_{Aeq} 8h	66 dB L_{Aeq} 8h

Table B: Noise levels on residential streets adjoining railways and roads at and above which attenuation measures will be required

Noise description and location of measurement	Period	Time	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day	0700-1900	65 dB L_{Aeq} 12h	62 dB L_{Aeq} 12h
Noise at 1 metre external to a sensitive façade	Evening	1900-2300	60 dB L_{Aeq} 4h	57 dB L_{Aeq} 4h
Noise at 1 metre external to a sensitive façade	Night	2300-0700	55 dB L_{Aeq} 1h	52 dB L_{Aeq} 1h
Individual noise events several times an hour	Night	2300-0700	>82 dB L_{Amax} (S time weighting)	>82 dB L_{AMAX} (S time weighting)

Table E: Noise levels from plant and machinery at which planning permission will not be granted

Noise description and location of measurement	Period	Time	Noise level
Noise at 1 metre external to a sensitive façade	Day, evening and night	0000-2400	5dB(A) <LA90
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade.	Day, evening and night	0000-2400	10dB(A) <LA90
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade.	Day, evening and night	0000-2400	10dB(A) <LA90
Noise at 1 metre external to sensitive façade where LA90>60dB	Day, evening and night	0000-2400	55dBL_{Aeq}

Note, for the site under consideration, the Table B limits of 62 dB LAeq,12hr (day), 57 dB LAeq,4hr (evening) and 52 dB LAeq,8hr (night), and no more than 82 dB LASmax (night), represent the noise levels below which standard construction techniques and normal natural ventilation strategies would be expected.

3. NOISE ASSESSMENT CRITERIA

3.1 Residential Amenity

BS 8233:2014 *Guidance on sound insulation and noise reduction for buildings*[4] draws on the results of research and experience to provide information on achieving internal acoustic environments appropriate to their functions. The guideline values provided are in terms of an average (L_{Aeq}) level.

The standard advises that, for steady external noise sources, it is desirable for internal ambient noise levels to not exceed the guidance values, as detailed below in **Error! Reference source not found.**.

Table 3:1: BS 8233:2014 Ambient Noise Levels

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room	40 dB $L_{Aeq,16hour}$	-
Sleeping	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

BS 8233:2014 goes on to suggest that where development is considered necessary or desirable, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions will still be achieved.

With regard to maximum noise levels, the standard identifies that regular individual noise events (such as passing trains or scheduled aircraft etc) can cause sleep disturbance. The standard does not provide a guideline design target, but simply goes on to suggest that a guideline value may be set in terms of Sound Exposure Level (SEL) or $L_{Amax,F}$, depending upon the character and number of events per night. It goes on to suggest that more sporadic noise events could require separate values.

In respect of external noise levels, the guidance in BS 8233:2014 suggests that *"it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments"*.

BS 8233:2014 provides a much more detailed narrative on noise levels in external amenity areas and acknowledges that it may not always be necessary or feasible to ensure that noise levels remain within these guideline values.

In respect of gardens and patios, BS 8233:2014 states;

"…it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable."

BS 8233: 2014 goes on to state, for areas adjoining the strategic transport network:

" …a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited".

In respect of balconies, roof gardens and terraces, BS 8233:2014 states, *"Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal*

[4] BS 8233:2014 *Guidance on sound insulation and noise reduction for buildings* - BSI

external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses; however, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space".

It is clear from the narrative of BS 8233:2014, that proposed development within noisy environments should be designed to ensure that the recommended internal design standards are achieved, and that noise levels in external amenity areas are designed to effectively control and reduce noise levels, although it acknowledges that in certain circumstance meeting the external design recommendations may not be feasible, or necessary, especially where the provision of such spaces is desirable for other technical, planning or policy reasons.

3.2 Residential Summary

In accordance with the guidance contained within BS 8233:2014 and, in accordance with LBC policy, the following ambient noise level limits have been adopted:

Table 3:2: Proposed Ambient Noise Level Limits

Location	07:00 to 23:00	23:00 to 07:00
Bedrooms	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ & 45 dB $L_{Amax,F}$
Kitchen/Dining Rooms	40 dB $L_{Aeq,16hour}$	-
External Amenity Areas	50 – 55 dB $L_{Aeq,1hour}$	-

3.3 Building Regulations

The Building Regulations Approved Document E 2003 (incorporating 2004, 2010, 2013 and 2015 amendments)[5] applies to the residential element of the development. Key requirements of Approved Document E detail the minimum acceptable airborne sound insulation and maximum impact noise performance standards.

It is proposed that a performance uplift of 5 dB with respect to the airborne sound insulation and impact noise performance is targeted for the residential flats in the Plot 1 development.

Note, the 5 dB uplift over Approved Document E standards also aligns with the Mayor's preferred standards set out in the Mayor's Sustainable Design and Construction SPG (2006).

3.4 Vibration

The assessment of potential vibration impacts has been carried out in accordance with BS 6472: 2008[6], which provides guidance over the frequency range 0.5 Hz to 80 Hz

BS 6472 describes how to determine the vibration dose value (VDV) from frequency-weighted vibration measurements. The vibration dose value is used to estimate the probability of adverse comment which might be expected from human beings experiencing vibration in buildings. Consideration is given to the time of day and use made of occupied space in buildings, whether residential, office or workshop. BS 6472 states that in homes, adverse comment about building

[5] UK Building Regulations. Approved Document E - Resistance to the passage of sound (2003 Edition incorporating 2004, 2010, 2013 and 2015 amendments)
[6] British Standards Institution, 2008. BS 6472: Guide to evaluation of human exposure to vibration in buildings, Part 1, Vibration sources other than blasting.

vibrations is likely when the vibration levels to which occupants are exposed are only slightly above thresholds of perception.

BS 6472 contains a methodology for assessing the human response to vibration in terms of either the VDV, or in terms of the acceleration or the peak velocity of the vibration, which is also referred to as peak particle velocity (PPV). The advice contained in BS 6472 states that when the vibration is intermittent, as is the case at this Site with the only significant potential source of vibration being the railway to the east of the Site, the VDVs may be used to assess the potential for impacts.

Appropriately-weighted vibration measurements can be aggregated to derive the VDV. The VDV is a single figure descriptor that represents the cumulative dose of transient vibrations, taking into account the frequency spectrum and duration of each event. The VDV is determined over a 16 hour daytime period or 8 hour night-time period, with the guidance in BS 6472 set out in Table 3.3.

Table 3:3: Vibration Dose Values (ms-1.75) Limits of Adverse Comment from Residential Buildings

Period	Low Probability of Adverse Comment	Adverse Comment Possible	Adverse Comment Probable
Residential Buildings 16 hour day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential Buildings 8 hour night	0.13	0.26	0.51

The above guidance relates to vibration measured at the point of entry into the human body, which is usually taken to mean the ground surface or at a point mid-span of an upper storey floor, rather than the point of entry into the building, for example a foundation element. Where the vibration is measured at another location, BS 6472 states that a transfer function should be applied; however BS6472 does not contain any guidance on suitable transfer functions.

There are two key aspects to the effect that the building structure will have on the measured vibration levels: the first is generally a reduction as the vibration passes into the foundations of a building; there is typically then amplification as the vibration propagates up the building to the upper storeys and across potentially suspended floors. Each of these factors is considered below.

To consider the transfer of vibration through the foundations of the proposed residential dwellings, guidance has been sought from the Handbook of Urban Rail Noise and Vibration Control (HURNVC)[7].

The HURNVC sets out attenuation factors that can be applied to calculate the transfer function between vibrations measured on unloaded ground and vibration at a foundation. It is noted that the multiplication factor for strip foundation is approximately 0.5 and for a piled foundation approximately 0.4 (both based on the 31.5 Hz frequency band).

To extrapolate the measured unloaded ground vibration levels up the building to a suspended upper storey, an amplification factor is required. Based on figures presented in Transmission of Ground-borne Vibration in Buildings[8] an amplification factor of 2.8 is considered appropriate in this case.

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[7] Saurenam, Nelson and Wilson. Handbook of Urban Rail Noise and Vibration. USA. Federal Transit Administration.

[8] Jakobsen, W, 1989. Transmission of Ground-borne Vibration in Buildings. Journal of Low Frequency Noise and Vibration, Vol. 8 No. 3.

On the basis of piled foundations, an overall transfer function, or multiplication factor, of 1.12 (i.e. 2.8 x 0.4) has been assumed to consider the likely impact of vibration at worst case upper suspended storeys in the following assessment.

3.5 Educational Facilities

The design of a primary or secondary school falls under requirement E4 of the Building Regulations Approved Document E 2003 (incorporating 2004, 2010, 2013 and 2015 amendments) which states "E4. (1) Each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use." The Secretary of State's recommended way of satisfying this requirement is by designing the school's acoustics to the guidance in Building Bulletin 93 (BB93)9. A revised BB93 document, Acoustic design of schools: performance standards, was published in December 2014 (most recent version of the document available at time of writing, version V17 February 2015).

A nursery facility is exempt from requirement E4 of the Building Regulations Approved Document E, and thus BB93. However, the performance standards outlined in BB93 (which makes reference to 'nursery school rooms') are potentially useful and appropriate for design purposes, and are requirements under the Hea 05 Acoustic Performance credit of BREEAM New Construction Non-Domestic Buildings 2014.

3.6 Commercial Noise

BS 4142[10] sets out a method to assess the likely effect of sound from factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises, on people who might be inside or outside a dwelling or premises used for residential purposes in the vicinity.

The procedure contained in BS 4142 for assessing the effect of sound on residential receptors is to compare the measured or predicted noise level from the source in question, the $L_{Aeq,Tr}$ 'specific noise level', immediately outside the dwelling with the $L_{A90,T}$ background noise level.

Where the noise contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific noise level to obtain the $L_{Ar,Tr}$ 'rating noise level'. A correction to include the consideration of a level of uncertainty in noise measurements, data and calculations can also be applied when necessary.

BS 4142 states: "*The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs*". An estimation of the impact of the specific noise can be obtained by the difference of the rating noise level and the background noise level and considering the following:

- *"Typically, the greater this difference, the greater the magnitude of the impact."*
- *"A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context." This would be considered an SOAEL in the context of National Planning Practice Guidance.*
- *"A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context." At or below this level would be considered an LOAEL in the context of National Planning Practice Guidance.*

[9] Building Bulletin 93. Acoustic design of schools: performance standards. February 2015. Department of Education.
[10] BS 4142:2014 *Methods for rating and assessing industrial and commercial sound* - BSI

- *"The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context." At or below 0dB above the background noise level would be considered an NOEL in the context of National Planning Practice Guidance.*

For the daytime, the assessment is carried out over a reference time period of 1-hour, but at night-time it is carried out over a 15-minute period. The periods associated with day or night, for the purposes of the Standard, are considered to be 07:00 to 23:00 and 23:00 to 07:00, respectively.

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4. HEADLINE FINDINGS

The following section summarises the key findings of the individual noise reports produced by Max Fordham and Ramboll Environ for each of the individual development plots making up the masterplan. These reports are included under Appendices 2 to 7 of this report.

4.1 Plot 1 - Community Facilities and Chalton St Housing

The external noise environment at the proposed Plot 1 Community Facilities and Chalton St Housing site is characterised by the long term noise survey measurements, which determined representative levels, 56 $L_{Aeq,12hr}$ (day), 46 dB $L_{Aeq,4hr}$ (evening), 46 dB $L_{Aeq,8hr}$ (night) and 66 dB L_{AFmax} (night; 90th percentile $L_{AFmax,15mins}$).

With respect to the proposed residential element, the determined noise levels are below the planning thresholds set in the LBC Local Development Framework (LDF), above which attenuation measures would be required.

Internal residential noise levels are expected to comply with BS 8233:2014.

The nursery facility (Nursery Flexible Space) within the Community Facility buildings would be able to deliver internal noise levels compliant with education best practise, represented by BB93 (2014).

External noise levels at the nursery outdoor play areas are expected to be within BS 8233:2014 and WHO recommended guidelines.

Representative background sound levels have been determined by a long term noise survey. Assuming broadband plant noise emissions, this sets a plant noise emission limit of 37 dBA during the day (07:00-19:00), 33 dBA during the evening (19:00-23:00), and 29 dBA during the night (23:00-07:00) at a point 1 m outside any window of any noise sensitive façade.

4.2 Plot 2 - Charrington Street Housing

A noise survey was carried out by Max Fordham LLP between 30 April 2015 and 4 May 2015.

Ambient noise levels measured during the survey suggest that:

- Noise levels at the facades of the proposed development will not be above levels at which attenuation measures would be required by LBC.
- Guideline indoor ambient noise levels set out in BS 8233:2014 can be achieved with standard façade building elements.

Background noise levels measured during the survey suggest that:

- Depending on whether plant noise emissions are broadband or tonal/impulsive, noise emission limits should be set at 32-37 dBA during the day (07:00-19:00), 28-33 dBA during the evening (19:00-23:00), and 24-29 dBA during the night (23:00-07:00)
- Noise emissions for plant equipment associated with the apartments at the nearest noise sensitive receptor are expected to be comfortably within these limits.
- Noise from plant equipment associated with the Commercial Unit will be considered further as the strategy develops and appropriate noise control measures would be included as required.

Activity noise from the Commercial Unit is not expected to pose any noise issues in the area surrounding the Proposed Masterplan Development.

4.3 Plot 3 – Charrington Street Terrace Housing

A noise survey was carried out by Max Fordham LLP between 30 April 2015 and 4 May 2015.

Ambient noise levels measured during the survey suggest that:

- Noise levels at the facades of the proposed development will not be above levels at which attenuation measures would be required by LBC;
- Guideline indoor ambient noise levels set out in BS 8233:2014 can be achieved with standard façade building elements.

Background noise levels measured during the survey suggest that:

- Depending on whether plant noise emissions are broadband or tonal/impulsive, noise emission limits should be set at 32-37 dBA during the day (07:00-19:00), 28-33 dBA during the evening (19:00-23:00), and 24-29 dBA during the night (23:00-07:00)

Noise emissions for plant equipment associated with the apartments at the nearest noise sensitive receptor are expected to be comfortably within these limits.

4.4 Plot 4 - Edith Neville School

A noise survey was carried out by Max Fordham LLP between 30 April 2015 and 4 May 2015. Background noise levels measured during the survey suggest that:

- Depending on whether plant noise emissions are broadband or tonal/impulsive, noise emission limits should be set to 36-41 dBA during the day (07:00-19:00), 36-41 dBA during the evening (19:00-23:00), and 31-36 dBA during the night (23:00-07:00);
- It is expected that acoustic screening will be required around the condenser units on the roof. Elsewhere, duct attenuators will be specified to meet the noise criteria.

Activity noise from the proposed external play area is expected to be similar in overall terms to the current levels, The current levels have not been identified as giving rise to significant noise issues.

4.5 Plots 5 and 6 - Purchese Street Housing

A noise survey was carried out by Max Fordham LLP between 30 April 2015 and 4 May 2015.

Ambient noise levels measured during the survey suggest that:

- Noise levels at the facades of the proposed development will not be above levels at which attenuation measures would be required by LBC;
- Guideline indoor ambient noise levels set out in BS 8233:2014 can be achieved with standard façade building elements.

Background noise levels measured during the survey suggest that:

- Depending on whether plant noise emissions are broadband or tonal/impulsive, noise emission limits should be set at 36-41 dBA during the day (07:00-19:00), 36-41 dBA during the evening (19:00-23:00), and 31-36 dBA during the night (23:00-07:00)
- Noise emissions for plant equipment associated with the apartments at the nearest noise sensitive receptor are expected to be comfortably within these limits.

Activity noise from the Community Hall is not expected to be an issue for most general activities. If the scope of hall use is to include any events that could result in higher noise levels, then noise mitigation measures would be implemented in order to minimise the impact on any nearby noise sensitive receptors.

4.6 Plot 7 – Brill Place Tower

The prevailing noise and vibration conditions at the location of the Brill Place Tower have been determined by detailed environmental noise and vibration surveys, undertaken on behalf of Ramboll Environ between Wednesday 7 and Friday 9 October 2015. An assessment based on the measured and predicted ambient noise levels suggests that:

- Noise levels at the facades of the proposed development will not be above levels at which attenuation measures would be required by LBC;
- Guideline indoor ambient noise levels set out in BS 8233:2014 can be achieved with standard façade building elements.

Background noise levels measured during the survey suggest that:

- Depending on whether plant noise emissions are broadband or tonal/impulsive, noise emission limits should be set at 49-54 dBA during the day (07:00-19:00), 48-53 dBA during the evening (19:00-23:00), and 39-44 dBA during the night (23:00-07:00)
- Noise emissions for plant equipment associated with the apartments at the nearest noise sensitive receiver are expected to be comfortably within these limits.

Railway-borne vibration levels within a room on the first floor of the closest proposed dwellings to the rail line are predicted to be below the value that would result in a 'low probability of adverse comment' in accordance with the guidance presented in BS 6472. Accordingly, no mitigation measures are considered necessary to control the impact of vibration from the nearby railway.

5. PUBLIC REALM / OPEN SPACE

5.1 Noise Data

The noise measurement and assessment results presented in the detailed reports presented in Appendices 2 to 7 identify that noise levels throughout the open spaces of the Proposed Masterplan Development, during the daytime, typically range between 54 dBA towards the west, near Chalton Street; through 46 dBA, centrally and around Purchese Street; to ~50 to 55 dB(A) to the north/north-west of the Brill Place Tower.

There will be pockets of variation within the Site, but the spread of the analysis provides a good indication of the typical range of noise exposure across the open areas of the Site.

5.2 Analysis

The noise survey and analysis data presented in the detailed assessment reports provides a strong indication that noise levels are and will continue to be at or below the external amenity thresholds recommended by the WHO and represented in BS 8233: 2014.

Consequently, residents of the Proposed Masterplan Development would have immediate access to public realm amenity space, providing appropriate levels of acoustic amenity. Such amenity is considered to be of high value in densely populated urban areas and would be particularly valuable for residents of the more noise-exposed parts of the Brill Place Tower, where some balcony spaces are predicted to exceed the <55 dB(A) upper limit for private external amenity spaces.

6. CONCLUSION

The individual assessments have concluded that the Site is largely unconstrained by noise and that typical acoustic façade insulation values, associated with traditional thermally insulating construction techniques would be adequate to ensure appropriate internal noise levels for the residential and educational developments across the Proposed Masterplan Development.

The assessments also present data which identifies that the public realm external amenity spaces incorporated within the Proposed Masterplan Development would typically provide daytime noise levels in accordance with the recommendations of the WHO and BS 8233: 2014.

Target noise criteria have been set for all static plant within the Proposed Masterplan Development. Providing that the cumulative rating noise level from the plant items does not exceed the stated noise criteria, whether through the application of noise control techniques or otherwise, the impact of noise from such sources is predicted to have no adverse impact on existing sensitive receptors.

An assessment of vibration has also been carried out for the closest parts of the Proposed Masterplan Development to St Pancras Railway Station, which has indicated that appropriate criteria would be achieved without the need for mitigation measures.

Consequently, the Site is considered suitable for the Proposed Masterplan Development in acoustic terms and noise should not present a constraint to the granting of planning permission for the Proposed Masterplan Development in its current form.

APPENDIX 1
GLOSSARY OF TERMS

Appendix Table 1: Glossary of Terms 1

Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level (Sound Level)	The sound level is the sound pressure relative to a standard reference pressure of 20μPa (20x10-6 Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 log10 (s1 / s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20μPa.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to the averaging or statistics are carried out.
$L_{eq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level during the period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{90,T}$	A noise level index. The noise level exceeded for 90% of the time over the period T. L_{90} can be considered to be the "average minimum" noise level and is often used to describe the background noise.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m
Facade	At a distance of 1m in front of a large sound reflecting object such as a building façade.
Fast Time Weighting	An averaging time used in sound level meters. Defined in BS 5969.

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0 dB (the threshold of hearing) to over 120 dB. An indication of the range of sound levels commonly found in the environment is given in the following.

Table 2: Typical Sound Levels Found In T 1

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

The ear is less sensitive to some frequencies than to others. The A-weighting scale is used to approximate the frequency response of the ear. Levels weighted using this scale are commonly identified by the notation dB(A).

In accordance with logarithmic addition, combining two sources with equal noise levels would result in an increase of 3 dB(A) in the noise level from a single source.

A change of 3 dB(A) is generally regarded as the smallest change in broadband continuous noise which the human ear can detect (although in certain controlled circumstances a change of 1 dB(A) is just perceptible). Therefore, a 2 dB(A) increase would not be normally be perceptible. A 10 dB(A) increase in noise represents a subjective doubling of loudness.

A noise impact on a community is deemed to occur when a new noise is introduced that is out of character with the area, or when a significant increase above the pre-existing ambient noise level occurs.

For levels of noise that vary with time, it is necessary to employ a statistical index that shows for this variation. These statistical indices are expressed as the sound level that is exceeded for a percentage of the time period of interest. In the UK, traffic noise is measured as the LA10, the noise level exceeded for 10% of the measurement period. The LA90 is the level exceeded for 90% of the time and has been adopted to represent the background noise level in the absence of discrete events. An alternative way of assessing the time varying noise levels is to use the equivalent continuous sound level, LAeq.

This is a notional steady level that would, over a given period of time, deliver the same sound energy as the actual fluctuating sound.

APPENDIX 2
NOISE ASSESSMENT REPORT – PLOT 1

MAX FORDHAM

Plot 1 - Community Facilities and Chalton Street Housing

Central Somers Town

Noise Impact Assessment

Rev D

November 2015

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ISSUE HISTORY

Issue	Date	Description
*	21/09/2015	Draft issue
A	12/10/2015	Draft issue - Revision A
B	2/11/2015	Planning submission
C	3/11/2015	Planning submission – re-issue
D	10/11/2015	Planning submission – re-issue

MAX FORDHAM LLP TEAM CONTRIBUTORS

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CONTENTS

1.1 INTRODUCTION

Max Fordham LLP (MFLLP) has been appointed to provide advice in relation to acoustic matters at a proposed Central Somers Town Lot 3, Community Facilities and Chalton St Housing development, at Chalton Street, London NW1. The proposed development includes a Nursery (on the Chalton Street façade) and Community Facilities at ground floor level, with 5 storeys of residential flats above the Nursery facilities.

The objectives of this report are to assess:

- The likely impact of the proposed development on nearby noise sensitive premises; and
- The likely impact of the existing noise environment on the development.

The following statement has been prepared on behalf of the London Borough of Camden in support of a planning application for the redevelopment of Central Somers Town.

Project Background and Masterplan
The redevelopment of Central Somers Town is led by the Department for Children, Schools and Families and will be delivered as part of an approved regeneration strategy to deliver significant improvements to the public realm, provide a replacement primary school, nursery, play facilities and community hall. The development will also provide 136 housing units as well as maximising the amount of affordable housing which can be delivered by the scheme. Central to the development is the provision of public open space across the site. This space will be greatly improved as a result of the proposals and there will be no net loss of area following completion of the scheme.

The Central Somers Town project is self-funding, with the receipts from the private sale housing used to cross subsidise the delivery of the public realm, Edith Neville Primary School, nursery, community play facilities and community hall, in line with the wider vision for the Central Somers Town area.

This development is coming forward as part of the Community Investment Programme (CIP) which is a strategic programme focussed on ensuring the best use of the Council's assets to improve, shape and transform key places and services within Camden, whilst simultaneously addressing a critical capital funding gap. The programme includes a significant number of regeneration schemes across the Borough and involves the disposal of property assets that are surplus to requirements in order to unlock funding that will be reinvested in schools, the Better Homes programme and other supporting community infrastructure.

The reduction in government funding, including the money no longer available for schools, means that the Council has to be more innovative in how they make the best use of buildings and land to improve facilities. Working across the Council a borough-wide strategy has been initiated called 'The Community Investment Programme' (CIP) with the purpose of addressing this funding shortfall. The programme is making an important contribution to the delivery of objectives within the Camden Plan, particularly through harnessing the benefits of economic growth, tackling inequality, investing in communities to secure sustainable neighbourhoods and delivering value for money.

Under the CIP there are a number of objectives which need to be achieved:

- *High quality schemes achieving high sustainability standards, including minimum BREEAM 'Excellent' ratings;*
- *Deliver 'fit for purpose' community facilities;*
- *Reduce revenue and capital costs through the efficient use of land and buildings;*
- *Increase revenue and capital value;*
- *Deliver affordable and private homes;*
- *Deliver improved public realm*