DARLING ASSOCIATES
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[redacted]

Filter by 'Blanks'

Enter 'x' into box to highlight Issue

Drawing List

Proposed GA's (03)

Project Procedures

Project Title	Name
Project No	Number
Revision	2
Date	21/10/2022

Planning Authority		x	x
Client		x	x
Project Manager		x	x
Services Engineer			
Structural Engineer			
Building Control			
Principal Designer			
Fire Engineer			
Landscape		x	x
Accoustic Consultant		x	x
Transport		x	x
(PL) Planning (P) Preliminary (T) Tender (C) Construction (R) Record Issue -		PL	PL

Drawing No	Current Revision	Contents	Size	Scale	Issu 08/07/22	Issue Date 21/10/22
01-0-00	PL	Existing Site Plan	A0	1:500	PL	
01-0-01	PL	Topographical Survey	A0	1:500	PL	
01-0-02	PL	Demolition Plan	A0	1:500	PL	
03-0-00	PL1	Proposed Site Plan	A0	1:500	PL	PL1
03-0-01	PL1	Proposed Phasing Plan	A0	1:500	PL	PL1
N-03-0-00	PL1	Proposed Site Plan Northern Phase	A0	1:250	PL	PL1
S-03-0-00	PL1	Proposed Site Plan Southern Phase	A0	1:250	PL	PL1
SW-03-1-00	PL1	Proposed Ground Floor Plan	A0	1:500	PL	PL1
SW-03-1-01	PL1	Proposed 1st Floor Plan	A0	1:500	PL	PL1
SW-03-1-02	PL1	Proposed 2nd Floor Plan	A0	1:500	PL	PL1
SW-03-1-03	PL1	Proposed 3rd Floor Plan	A0	1:500	PL	PL1
SW-03-1-04	PL1	Proposed 4th Floor Plan	A0	1:500	PL	PL1
SW-03-1-05	PL1	Proposed Roof Plan	A0	1:500	PL	PL1
03-2-00	PL1	Street Elevations	A0	1:500	PL	PL1
03-2-01	PL	Street Elevations	A0	1:500	PL	

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ARCHITECTS

[redacted]

Drawing List

Proposed GA's (03)

Project Procedures

Project Title	Name
Project No	Number
Revision	2
Date	21/10/2022

A-03-1-00	PL1	Block A Proposed Ground Floor Plan	A1	1:125	PL	PL1
A-03-1-01	PL1	Block A Proposed 1st Floor Plan	A1	1:125	PL	PL1
A-03-1-02	PL1	Block A Proposed 2nd Floor Plan	A1	1:125	PL	PL1
A-03-1-03	PL1	Block A Proposed 3rd Floor Plan	A1	1:125	PL	PL1
A-03-1-04	PL1	Block A Proposed 4th Floor Plan	A1	1:125	PL	PL1
A-03-1-05	PL1	Block A Proposed Roof Plan	A1	1:125	PL	PL1
A-03-2-01	PL	Block A Elevations	A1	1:125	PL	
A-03-2-02	PL	Block A Bay Study	A1	1:50	PL	
A-03-3-01	PL	Block A Sections	A1	1:125	PL	
B-03-1-00	PL1	Block B Proposed Ground Floor Plan	A1	1:125	PL	PL1
B-03-1-01	PL1	Block B Proposed 1st Floor Plan	A1	1:125	PL	PL1
B-03-1-02	PL1	Block B Proposed 2nd Floor Plan	A1	1:125	PL	PL1
B-03-1-03	PL1	Block B Proposed 3rd Floor Plan	A1	1:125	PL	PL1
B-03-1-04	PL1	Block B Proposed 4th Floor Plan	A1	1:125	PL	PL1
B-03-1-05	PL1	Block B Proposed Roof Plan	A1	1:125	PL	PL1
B-03-2-01	PL1	Block B Elevations	A1	1:125	PL	PL1
B-03-2-02	PL1	Block B Elevations	A1	1:125	PL	PL1
B-03-2-03	PL	Block B Elevations	A1	1:125	PL	
B-03-2-04	PL1	Block B Bay Studies	A1	1:50	PL	PL1
B-03-3-01	PL	Block B Sections	A1	1:125	PL	
C-03-1-00	PL1	Block C Proposed Ground Floor Plan	A1	1:125	PL	PL1
C-03-1-01	PL1	Block C Proposed 1st Floor Plan	A1	1:125	PL	PL1
C-03-1-02	PL1	Block C Proposed 2nd Floor Plan	A1	1:125	PL	PL1
C-03-1-03	PL1	Block C Proposed 3rd Floor Plan	A1	1:125	PL	PL1
C-03-1-05	PL1	Block C Proposed Roof Plan	A1	1:125	PL	PL1
C-03-2-01	PL1	Block C Elevations	A1	1:125	PL	PL1
C-03-2-02	PL	Block C Bay Studies	A1	1:50	PL	
C-03-3-01	PL	Block C Sections	A1	1:125	PL	
D-03-1-00	PL1	Block D Proposed Ground Floor Plan	A1	1:125	PL	PL1
D-03-1-01	PL1	Block D Proposed 1st Floor Plan	A1	1:125	PL	PL1
D-03-1-02	PL1	Block D Proposed 2nd Floor Plan	A1	1:125	PL	PL1
D-03-1-03	PL1	Block D Proposed 3rd Floor Plan	A1	1:125	PL	PL1
D-03-1-05	PL1	Block D Proposed Roof Plan	A1	1:125	PL	PL1
D-03-2-01	PL	Block D Elevations	A1	1:125	PL	
D-03-2-02	PL	Block D Bay Studies	A1	1:50	PL	
D-03-3-01	PL	Block D Sections	A1	1:125	PL	

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[redacted]

Drawing List

Proposed GA's (03)

Project Procedures

Project Title	Name					
Project No	Number					
Revision	2					
Date	21/10/2022					

03-2-01-3b5p	PL	Proposed House Elevations 3b5p Type 1	A1	1:50	PL	
03-2-01-3b5p	PL1	Proposed House Elevations 3b5p Type 2	A1	1:50	PL	PL1
03-2-02-3b4p	PL	Proposed House Elevations 3b4p Type 1	A1	1:50	PL	
03-2-03-3b4p	PL	Proposed House Elevations 3b4p Type 2	A1	1:50	PL	
03-2-04-2b3p	PL	Proposed House Elevations 2b3p Type 1	A1	1:50	PL	
03-2-05-2b3p	PL	Proposed House Elevations 2b3p Type 2	A1	1:50	PL	
03-2-05-2b3p	PL1	Proposed House Elevations 2b3p Type 3	A1	1:50	PL	PL1
03-3-01-3b5p	PL	Proposed House Sections 3b5p Type 1	A1	1:50	PL	
03-3-02-3b4p	PL	Proposed House Sections 3b4p Types 1&2	A1	1:50	PL	
03-3-03-2b3p	PL	Proposed House Sections 2b3p Types 1&2	A1	1:50	PL	
05-4-00-2B3P	PL1	Proposed House Plans 2b3p Types 1	A1	1:50	PL	PL1
05-4-01-2B3P	PL1	Proposed House Plans 2b3p Types 2	A1	1:50	PL	PL1
05-4-02-2B3P	PL1	Proposed House Plans 2b3p Types 3	A1	1:50	PL	PL1
05-4-00-3B4P	PL1	Proposed House Plans 3b4p Types 1&2	A1	1:50	PL	PL1
05-4-01-3B4P	PL1	Proposed House Plans 3b4p Types 2	A1	1:50	PL	PL1
05-4-00-3B5P	PL1	Proposed House Plans 3b5p Type 1	A1	1:50	PL	PL1
05-4-01-3B5P	PL1	Proposed House Plans 3b5p Type 2	A1	1:50	PL	PL1
05-4-00-0B1	PL	Proposed Apt Studio Type 1	A1	1:25	PL	
05-4-00-0B2	PL	Proposed Apt Studio Type 2	A1	1:25	PL	
05-4-00-1B1	PL	Proposed Apt 1b Type 1	A1	1:25	PL	
05-4-00-1B2	PL	Proposed Apt 1b Type 2	A1	1:25	PL	
05-4-00-1B3	PL	Proposed Apt 1b Type 3	A1	1:25	PL	
05-4-00-1B4	PL	Proposed Apt 1b Type 4	A1	1:25	PL	
05-4-00-1B5	PL	Proposed Apt 1b Type 5	A1	1:25	PL	
05-4-00-1B6	PL	Proposed Apt 1b Type 6	A1	1:25	PL	
05-4-00-2B1	PL	Proposed Apt 2b Type 1	A1	1:25	PL	
05-4-00-2B2	PL	Proposed Apt 2b Type 2	A1	1:25	PL	
05-4-00-2B3	PL	Proposed Apt 2b Type 3	A1	1:25	PL	
05-4-00-2B4	PL	Proposed Apt 2b Type 4	A1	1:25	PL	
05-4-00-2B5	PL	Proposed Apt 2b Type 5	A1	1:25	PL	
05-4-00-2B8	PL	Proposed Apt 2b Type 8	A1	1:25	PL	
05-4-00-2B9	PL	Proposed Apt 2b Type 9	A1	1:25	PL	
05-4-00-2B10	PL	Proposed Apt 2b Type 10	A1	1:25	PL	
05-4-00-2B11	PL	Proposed Apt 2b Type 11	A1	1:25	PL	
05-4-00-2B12	PL	Proposed Apt 2b Type 12	A1	1:25	PL	
05-4-00-3B01	PL	Proposed Apt 3b Type 1	A1	1:25	PL	
05-4-00-3B02	PL	Proposed Apt 3b Type 2	A1	1:25	PL	
05-4-00-3B03	PL	Proposed Apt 3b Type 3	A1	1:25	PL	
21-5-01-	PL	Typical External Wall Detail	A1	1:25		PL

Great Western Yard,
Gloucester

Response to Planning Officer Feedback

October 2022
Revision A

EUTOPIA
HOMES

DARLING ASSOCIATES
ARCHITECTS

1.1 22/00770/FUL - Great Western Road - Case Officer Feedback and Responses

The following sets out our responses and clarifications to the planning officer feedback recieved on 14th September 2022.

Summary of design comments and responses:

1. Neighbour Impact

Blocks B and C

- At pre-app it was said that Block C would be oriented to the long, SE-facing elevation. As submitted, there are windows on the side elevation which face towards the gardens of 93 and 95/97 Great Western Road. At 2nd and 3rd floors the nearest side window would be to a lounge/kitchen (also has a balcony opening in the SE facing side), and the next window along would be to a bedroom (similar arrangement to the near side/ SE facing elevation of Block B). The relationship to the boundary line is not directly parallel but the window would be around 20m off the boundary in a straight line of view from the near windows of Block C, and 19-25m for Block B. This is such that there would be a harmful overlooking impact to the existing property.

Houses

- Please can I request that you use the hipped roof house type on all the northern ends of the rows of houses nearest the existing GWRd properties as discussed at pre-app stage. Impacts on nos. 67/69 and 55/57 GWRd of particular concern
- Please omit the first-floor side bedroom windows to house types 2b3p and 3b5p where on the end of rows at the northern end adjacent to the existing GWRd properties (and submit a bespoke house type design plan for these plots clearly specifying on these plans where this house type would be used)

Response: Drawings have been amended:

Windows have been made opaque and oriel windows have been introduced to remove any potential impact for overlooking in blocks B+C as requested.

The roofs on the end of terrace houses are now hipped and the windows removed as requested.

See Revised drawings:

Future Occupants

- Can pedestrians look straight down into near side unit from the Horton Road raised access (c. 1m higher)? – please consider addressing this – boundary treatment, planting, etc

Response: There is a fence proposed 1.8m height which will prevent people looking directly into dwelling. See landcape plan: 7594-PHL-SW-XX-DR-L-1000

2. Detailed Design Queries

- What is the appearance of the defendable space outward-facing boundary around the ground floor flats (especially where right onto GWRd in a very prominent position)

Response: There is a private terraces with a planted buffer in front. See landcape plan: 7594-PHL-SW-XX-DR-L-1000

- How secure and attractive to use is the visitor cycle parking right onto GWRd at Block B? – seems highly unlikely to be used given fear of theft. Can this be secured further? Location, access to, perimeter, etc?

Response: Bike now located internally in block B. See revised drawing:

- Block B Bay study – is the grey vertical column recessed? Shadow on elevation suggests so, section doesn't

Response: Yes there is a recess. Drawing updated to clarify. See revised drawing:

- Are the feature brick panels recessed into the bay or all on the same plane?

Response: The bricks are staggered. See document for further details.

- What is planting proposal to the boundary with rear gardens of the existing GWRd houses – can this be increased in volume but maintained as on site provision by man.co. (i.e. not all just included in residential gardens where residents may remove), species to be chosen based on securing boundary without being fast/tall growing re. impact on existing small gardens adjacent.

Response: No planting is proposed. There will be a new 2m height close boarded fence. See landcape plan: 7594-PHL-SW-XX-DR-L-1000

- Clarify what the areas are at the east/west ends of the turning heads in the town house part of the site? Are they parking? Seems likely they would be used as such if left unidentified/unrestricted

Response: Planting Buffer now included. See landcape plan: 7594-PHL-SW-XX-DR-L-1000

- Please comment on need for a DDA slope for the pedestrian link up to Horton Road. Is this catered for?

Response: Yes this is DDA compliant. 1:20

- Is the pedestrian link on west side of the access road to the pocket park wide enough? – only 1m

Response: Path width increased to 2m. See landcape plan: 7594-PHL-SW-XX-DR-L-1000.

- Set back area to immediate west of Block D – is this needed as a dead end? Is it just for access to the cycle shelter and refuse? Also Block D cycle shelter right on the back edge of the road – car damage? Can it be set in to move away from road and occupy the dead end, extend the near flat's garden up and relocate refuse access?

Response: Drawing amended as requested. See revised drawings.

- Façade design - breaking up expanses of brick – it would be helpful to draw up a detail of the feature brick areas and give examples of possible bricks – for my own consideration and presentation at Committee.

Response: Detail provided. See document.

- Treatment of site edge to east of Block D – liveability considerations with Horton Road raised up close by immediately outside. How do you see that external amenity space working in that context – boundary treatment appearance, height, etc?

Response: There will be a hedge planted on the garden side of the wall which will provide enclosure to the space and limit any overlooking.

- Can the PV to the houses be the integrated tile design rather than the bolt-on frame?

Response: Detail provided. See document.

3. Waste

- Where is refuse store for the southern row of houses?

Response: Bin and Bike storage is located to the front of the houses. See document and drawings:

4. Land Registry

- Is there a no-man's land area left between the site and the existing GWRd residential?

Response: There is not a no mans land space. There was a discrepancy between the topographical survey and os map which is now amended in the revised drawings. See revised drawings:

1.0 Design Amendments

1.1 Block B and C Overlooking - Opaque Glazing + Oriel Windows

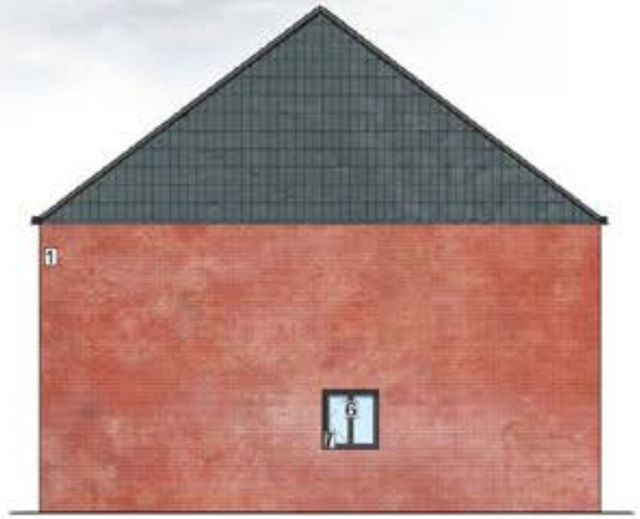
Oriel Window

Material Key:

1: Red Brick
2: Feature Brick
3: Soldier Course Brick Banding
4: Double Glazed Window Unit
5: Double Glazed Window and Door Unit
6: Grey Metal Window Surround
7: Balcony
8: GRP Canopy
9: Opaque Double Doors
10: Louvred Panel
11: Opaque Glazing
12: Opaque Box Glazing

1.2 Townhouse Roof Amendment

1 Townhouse 3B 5P Type 4 - Front Elevation



2 Townhouse 3B 5P Type 4 - Side Elevation

3 Townhouse 3B 5P Type 4 - Rear Elevation

General Notes

Key Plan

Notes

Material Key:

1: Red Brick
2: Dark Red Brick
3: RWP
4: Feature Coloured Brick
5: GRP Canopy
6: Double Glazed Window Unit
7: Grey Metal Window Surround
8: Dark Roof Tile
9: Double Glazed Bi-fold Glass Doors

House Type

3B 5P Type 4 End Of Terrace

Total: 4

SCALE BAR @ A1

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[redacted]

Planning

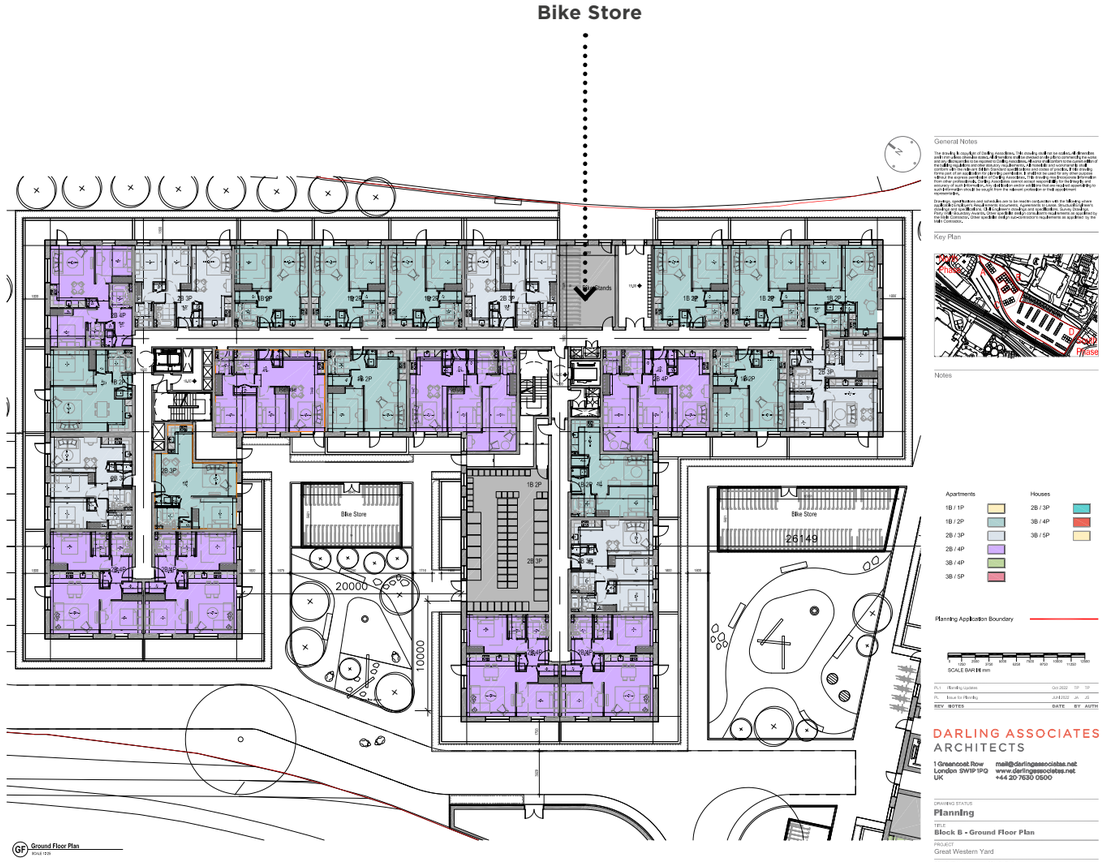
House Elevations - 3B 5P Type 2 End of Terrace

Great Western Yard

1:50 1:100

19059 03-2-01-3bSp PL1

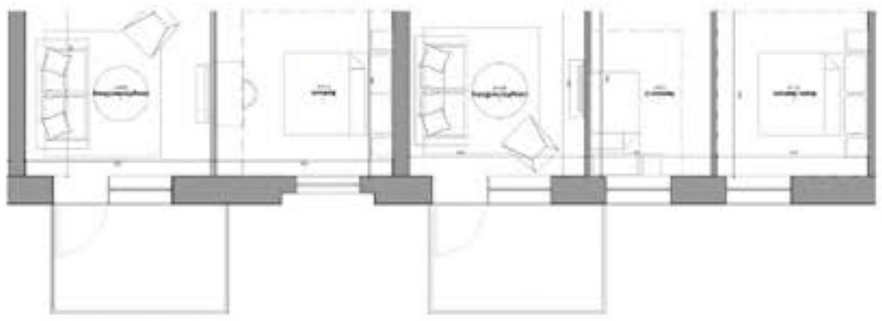
1.3 Townhouse Roof Amendment



1.4 Block B + D Bike Storage

1.5 Block B - Recessed Bay

A Block B - Bay Study



B Block B - Bay Study Plan

General Notes

Key Plan

Notes

Material Key:

1: Red Brick
2: Feature Brick
3: Soldier Course Brick Banding
4: Double Glazed Window Unit
5: Double Glazed Door Unit
6: Grey Metal Window Surround
7: Balcony
8: GRP Canopy
9: Opaque Screen
10: Dark Metal Panelling

Block

B

SCALE BAR IN mm

REV	NOTES	DATE	BY	AUTH

DARLING ASSOCIATES ARCHITECTS

[redacted]

DRAWING STATUS
Planning

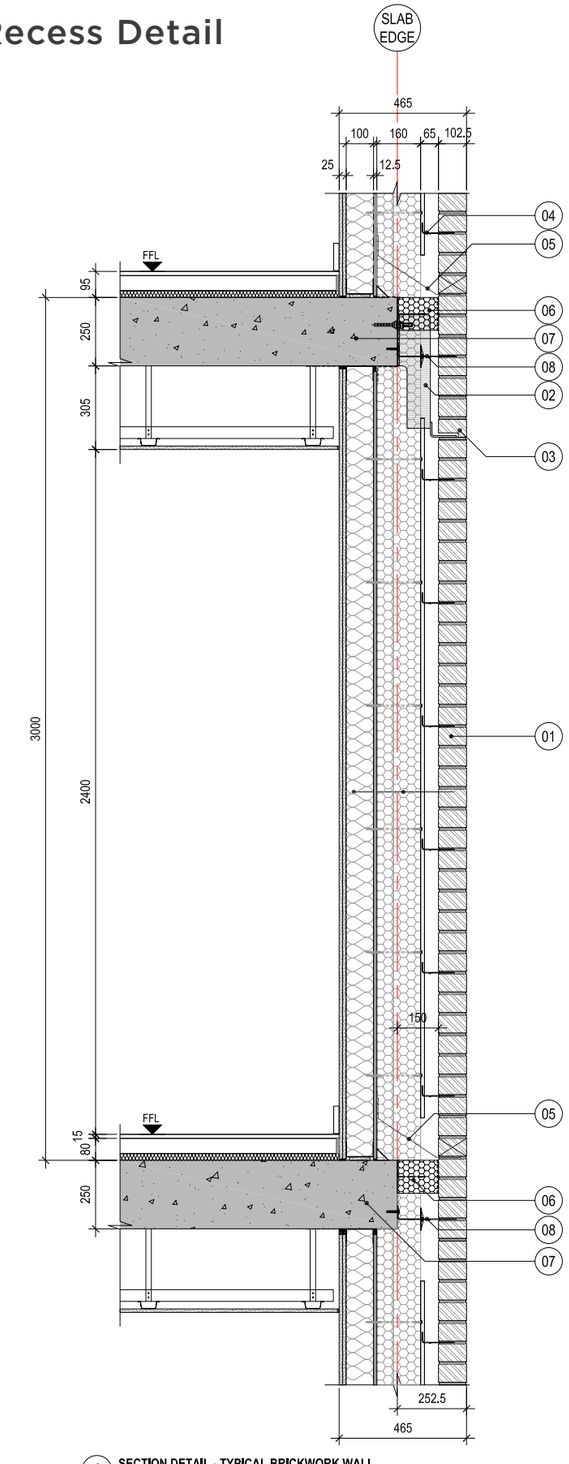
TITLE
Bay Studies - Block B

PROJECT
Great Western Yard

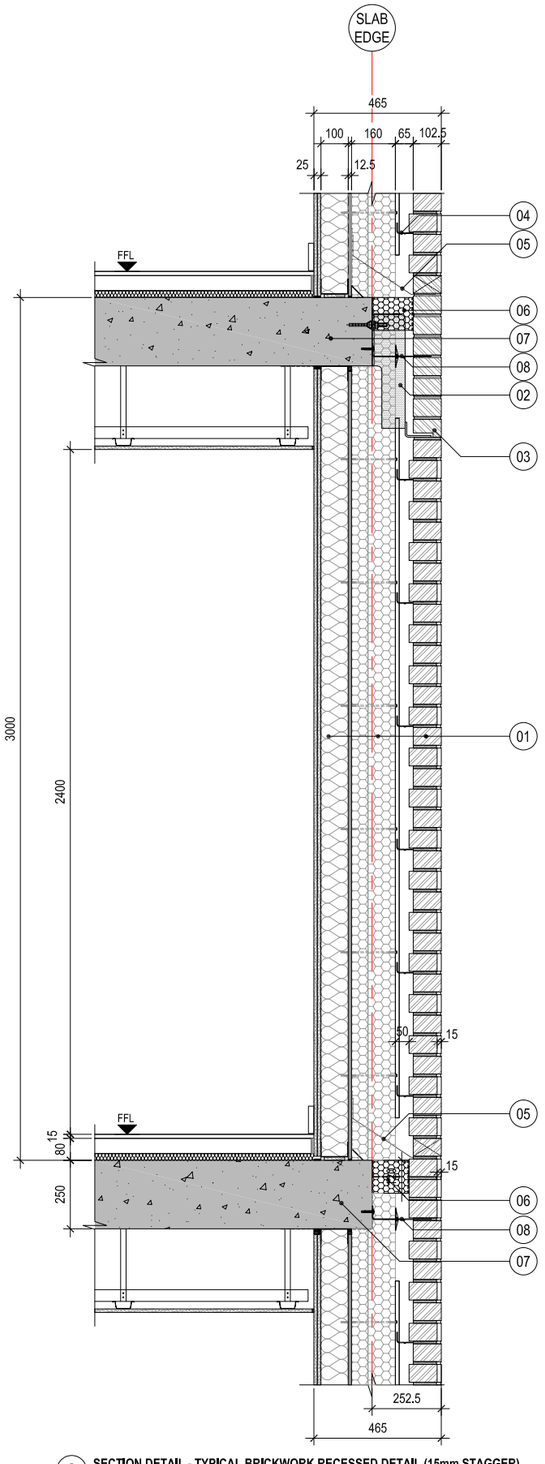
SCALE AT A1	SCALE AT A3
1:50	1:100

JOB NO	DRAWING	REV
19050	B-03-2-04	PL1

1.6 Brick Recess Detail



1 SECTION DETAIL - TYPICAL BRICKWORK WALL
SCALE 1:20@A3

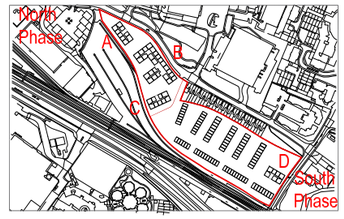


2 SECTION DETAIL - TYPICAL BRICKWORK RECESSED DETAIL (15mm STAGGER)
SCALE 1:20@A3

G:\Project Data\19050 Great Western Yard, Gloucester\DATA\Model Space\21-5-01 Typical Wall Detail.dwg

General Notes

Key Plan



Notes

01. Typical external brick wall build-up:

- 102.5 mm Facing brickwork. (15mm recesses where st
- 65 mm Cavity (min.50mm).
- 160 mm Rockwool insulation installed.
- 12.5mm sheathing board.
- 100mm steel frame system with 100mm mineral wool insulation fully packed between studs.
- 2 layers 12.5mm plaster board lining with taped and staggered joint finish and vapour control layer..

02. Masonry support bracket.

03. Pistol brick on masonry support system

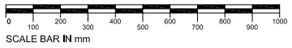
04. Wall ties.

05. Stainless steel cavity tray.

06. Fire barrier.

07. RC slab.

08. Restrain tie.



SCALE BAR IN mm

REV	NOTES	DATE	BY	AUTH
PL	Issue for Planning	JUN 2022	JA	JS

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DRAWING STATUS
Planning

TITLE
Typical Facade Sections

PROJECT
Great Western Yard

SCALE AT A1:	SCALE AT A3:	
1:10	1:20	
JOB NO.	DRAWING	REV
19050	21-5-01	PL

1.7 Houses - Integrated Solar Panel Solution

Overview

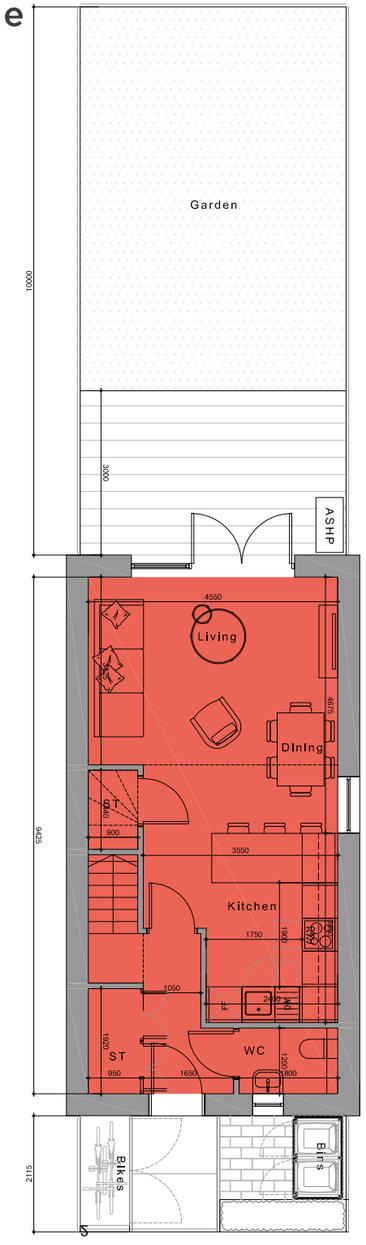
Solar panels on the houses are proposed as Nulok (or similar approved) and are integrated into the tiling system.

"This incredibly robust system uses horizontal Zincalume Battens spaced at 307mm apart, which are then locked in place with Nulok Zincalume Link Channels. each has a single stainless steel clip to secure one end of the leading edge of each slate. This Link Channel eliminates the need for double-lapping the slates and allows water to pass over where it is routed by the Link Channel onto the surface of the slate below. It also means that less slate is used in the roof installation, saving time, cost and overall weight, importantly it allows tradespeople to walk on the roof during installation."

- nulokroofing.com

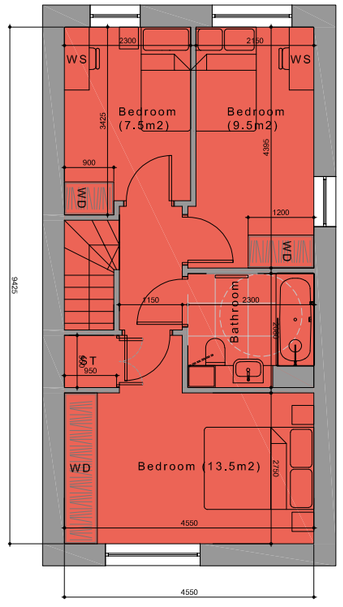
Shown adjacent is an example of the appearance of the integrated solar panels. Underneath is the installation process from the Nulok roofing website.

1.8 Townhouse Bin Storage



Footpath

GF Ground Floor Plan
SCALE 1:50

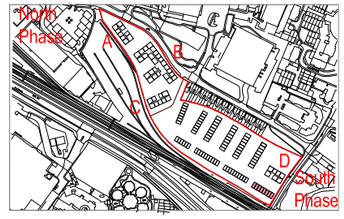


1st First Floor Plan
SCALE 1:50

G:\Project Data\19050 Great Western Yard, Gloucester\DATA\TitleSheets\19050-05-4-01-3B4P Proposed House Plans 3b4p Types 2.dwg

General Notes

Key Plan



Notes

House Type

3B 4P

Total: 8

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000
SCALE BAR IN mm

REV	NOTES	DATE	BY	AUTH
PL1	Design Updates	SEP 2022	GR	JS
PL	Issue for Planning	JUN 2022	JA	JS

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[redacted]

DRAWING STATUS
Planning

TITLE
House Type - 3B 4P Type 2

PROJECT
Great Western Yard

SCALE AT A1: 1:50
SCALE AT A3: 1:100

JOB NO. 19050
DRAWING 05-4-01-3B4P
REV PL1

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AFFORDABLE HOUSING

EDUCATIONAL

HERITAGE + LISTED BUILDINGS

HEADQUARTERS

INTERIOR ARCHITECTURE

LEISURE + HOSPITALITY

LUXURY

MARKETING + SALES SUITES

MASTERPLANNING

PRS/BUILD TO RENT

RESIDENTIAL

RETAIL

TALL BUILDINGS

WORKPLACE

London
1 Greencoat Row
Victoria
London, UK
SW1P 1PQ

www.darlingassociates.net
mail@darlingassociates.net
+44 (0) 20 7630 0500
@DAArchitectsUK
@darlingassociates

MILLER GOODALL
ACOUSTICS AND AIR QUALITY

DUST TECHNICAL NOTE

on behalf of

EUTOPIA HOMES

for

GREAT WESTERN YARD, GLOUCESTER

DATE: 10TH OCTOBER 2022

REPORT NUMBER: 102790-2

[redacted]

Company registration number 5201673

1 Introduction

1.1 Miller Goodall Ltd has been appointed to prepare a technical note to consider the potential effects associated with dust generation from operations at Allstone, a waste transfer station and stockist of sand, gravel and aggregates. Allstone operates an inert crushing and screening operation to produce secondary aggregates. These operations are carried out on the land located approximately 55 m to the east of the proposed development site at Great Western Yard. The land includes several material stockpiles and dust-prone unsealed surfaces.

1.2 An air quality assessment has been prepared by Miller Goodall (reference 102790, dated 11th July 2022). Within the report, a discussion of potential dust effects from Allstone was included. This concluded that there would likely be a negligible risk of dust impacts on the residential development. This conclusion was made as public information indicates the Allstone site has outline planning permission for residential development, and that the temporary planning permission that Allstone operates under would expire. Great Western Yard will also take several years of construction, prolonging the timeframe before a sensitive receptor is present on site.

1.3 The planning application for residential development at Great Western Yard has been submitted (reference 22/00770/FUL) and a further assessment has been requested to assess potential dust generation from Allstone on future sensitive receptors. The Minerals and Waste Authority (of Gloucester City Council) provided the following comments:

"The determining authority will need to be satisfied that sufficient evidence demonstrates the proposed re-development of the 'Great Western Yard' will not risk the ability of the nearby existing waste management complex to operate efficiently and implement the waste hierarchy. Very careful consideration will need to be given to whether it will be possible to uphold satisfactory amenity levels for the future occupants of the 'Great Western Yard' site in the continued presence of the nearby existing waste management complex. As part of the consideration it is wholly reasonable for the ability of the existing waste management complex to experience a degree of growth, be taken into account."

"….it would be prudent for the case officer and relevant technical support to be party to modelled scenario data, which includes the continued temporary permitted activity at the existing waste management complex. It is also not clear whether the other permanent operations of the existing waste management complex have been fully taken into account?"

1.4 This Technical Note provides further assessment of the existing operations of Allstone and assesses the potential impacts on proposed sensitive receptors of Great Western Yard.

2 Potential Dust Emissions Associated with Allstone

2.1 The operations at Allstone can be summarised as:

- Open-to-air stockpiling in the west of the site; and
- Industrial applications in the east of the site (ready-mix concrete and a long-width building).

2.2 The nearest stockpile is located approximately 55 m from the site. The ready mix concrete plant and building are located approximately 400 to 450 m from the site. The operations in the building are unknown but are likely to involve material handling and sorting given the wider operations taking place at the site.

2.3 The height of the stockpiles are below the height of the surrounding vegetation, which includes trees and dense vegetation estimated to be approximately 4 m high (based on estimation of car height and the vegetation from Google Street View). Existing residential dwellings are located to the north and east of the site, and are, therefore, downwind of Allstone. Great Western Yard is upwind of Allstone.

2.4 New structures or changes to material import rates would require planning permission or a permit variation. Consequently, the options for alternative operations in the west of the site is limited and unlikely to significantly alter the existing baseline. The extent of the site also limits any outward expansion. Only the operations may alter, however, further permissions or variation of permit would be required before any of these actions could occur.

2.5 The existing baseline, therefore, represents the worst-case scenario. There are no limits on stockpile height, however, the dust management plan of the environmental permit will control these matters. The proximity of the railway lines will also limit stockpile height at the site.

2.6 Public information indicates Allstone operates under temporary planning permission. The mineral and waste authority consultee commentary discusses growth and expansion; however, the Applicant and Miller Goodall are not aware of any plans for this. Neither has the minerals and waste authority indicated any specific growth plans.

2.7 The Planning Practice Guidance states "*assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality*". Future operational changes which alter from stockpiling in the west of the site would need to be approved. This is further discussed in relation to noise and the agent of change, which is of relevance to impacts on existing business: "*the agent of change [the applicant] will need to take into account not only the current activities that may cause a nuisance, but also those activities that businesses or other facilities are permitted to carry out*". The permitted activities have been assessed in this technical note.

2.8 Dust is a fugitive emission source and is often attributed to a specific operation, source or activity. It is also a pollutant that can be mitigated with dust management, general management and controls. Allstone operates under an environmental permit issued by the Environment Agency (references TP3298CG/V002, AB3709HV/A001, BP3099SL/V004) and is, therefore, obligated to control dust emissions. If the stockpiles altered in height or shape, the amount of dust released would be broadly comparable, as dust is lifted from the surface to be transported by the wind.

2.9 The temporary permission for Allstone has been continued several times over the last decade. The Gas Worker Cottages are adjacent to the northern western boundary of the site, nearest to the stockpiles of interest for this assessment. The cottages are located within 20 m of a dust-generating source and are downwind of the operation, much closer and at greater risk from disamenity dust than the proposed development would be. Presumably, continuation of operations and the temporary permission did not deem there to be a significant risk of pollution to the nearest occupier.

2.10 The potential impacts of the existing baseline are assessed. Stockpiling in the west of the site is expected to be retained and not materially alter from the existing baseline. The dust released from the source would not materially alter if there were minor fluctuations in the stockpile heights.

3 Policy and Legislative Context

3.1 National Planning Policy Framework

3.1.1 There are two important issues which arise out of the NPPF[1] in relation to this site and its adjacency to Allstone; paragraphs 187 and 188.

3.1.2 Paragraph 187 Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

3.1.3 Paragraph 188 states that the focus of planning policies and decisions should be on whether the proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

3.1.4 Activities carried out by Allstone are regulated under the Pollution Prevention and Control Regime under an Environmental Permit. The permits at Allstone are for waste processing. This regime will control the emission of dust from the Allstone site and there is no reason to believe that this regime will not work effectively.

4 Methodology

4.1 The potential air quality impacts of disamenity dust and particulate matter during the working hours at Allstone have been assessed using the source-pathway-receptor methodology of the Institute of Air Quality Management, '*Guidance on the assessment of mineral dust for planning'* 2016 [2]. This guidance document has been adopted throughout the UK air quality sector for operations of this nature (i.e. industrial dust-generating).

4.2 The IAQM Minerals Guidance adopts a 250 m and 400 m screening criteria for soft-rock and hard-rock quarrying and material handling respectively. Outside of these distances, the risk of dust impacts can be concluded as not significant. The operations in the east of Allstone are located more than 400 m from the site. The stockpiles in the west of the site are located within 400 m of the site.

4.3 The source is calculated as either small, medium or large depending on the scale of the activities. The IAQM Minerals Guidance[1] includes various parameters to consider in the selection of the risk. The future residential receptors are classed as highly sensitive.

[1] Ministry of Housing, Communities & Local Government, 2021. National Planning Policy Framework

[2] Institute of Air Quality Management (2016). Guidance on the Assessment of Mineral Dust Impacts for Planning

4.4 The pathway has been assessed by calculating the amount of time sensitive receptors may be downwind of the dust-generating source. A semi-quantitative meteorological assessment has been completed using the 2019 wind rose for Pershore to calculate the pathway effectiveness when receptors would be downwind during working hours. The Pershore wind rose was used in the air quality assessment (ref. 102790).

4.5 This wind rose includes periods of rainfall, and it should be noted that dust will not be generated during damp conditions or rainfall, neither will there be significant dust generation when operations cease. Dust from stockpiles is usually generated during material handling activities which disturb the material (i.e. loading/unloading, movement and disturbance of the material).

4.6 Sensitive receptors will be downwind of a source in a specific orientation and direction of the operation, this can be termed a degree arc, which is the degree angle when the source and sensitive receptor align. Outside of this degree arc, the winds would transport dust away from the sensitive receptor location (taken as 360° with north at 0° reference).

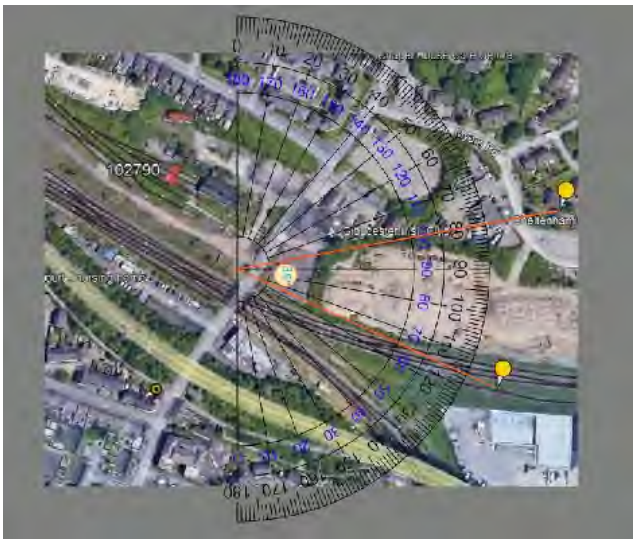
4.7 The source-pathway-receptor are combined to calculate the risk of dust effects. It should be noted that dust will be controlled from Allstone as part of the environmental permit; expected in the form of a dust management plan. The matrixes listed in the guidance are used to classify the risk.

Sensitive Receptors

4.8 Two locations have been assessed for this technical note. One location in the south east of the site and one in the central-north-east. This assesses the potential angles where windblown dust may expose future residential receptors to the dust source.

4.9 The assessment locations are detailed and shown in **Table 1** (over). These assessment locations represent future residential locations at the development site. They have been selected at these locations to represent two distinct degree angles covering potential windblown dust directions from Allstone. The site and reference to potential dust-generating sources is shown in **Appendix B**. It should be noted that only the stockpiling is within 100 m of the development site.

Table 1: Assessment Locations

Receptor	Degree Arc	Grid Ref (x, y)	
Assessment Location 1 (AL1)	 80 – 115°	384253	218250
Assessment Location 2 (AL2)	 105 - 156°	384284	218301

Meteorological Data

4.10 Wind speeds below 0.5 m/s (i.e. calm) are not expected to hold or raise significant levels of dust, therefore, these are excluded from the analysis. The Beaufort Scale specifies intensity value 4 ('moderate breeze') as being able to raise loose dust from an exposed surface[3] which is defined as approximately 5.5 m/s to 8 m/s. Wind speeds above 17 m/s are generally considered to be capable of eroding a surface and may generate significant levels of dust into the airflow.

4.11 Whilst wind speeds above 5.5 m/s are considered capable to raise dust from a surface, wind speeds below 5 m/s are still an important consideration as they may carry dust that is already entrained or lifted into an airflow above the surface; for example, dust generated from unloading activities. The effects of this can often be mitigated by reducing the level of dust raised from the operation and reducing the roll of material down a stockpile to disturb the surface.

4.12 For the purpose of calculating the pathway, the dust analysis includes two wind speed categories and 12 compass directions (wind direction indicates the direction wind has originated from) for completeness:

- < 5 m/s wind speed: movement of dust in an airflow and raised by operations; and
- > 5 m/s wind speed: some and/or potentially significant erosion and lifting of dust from a surface.

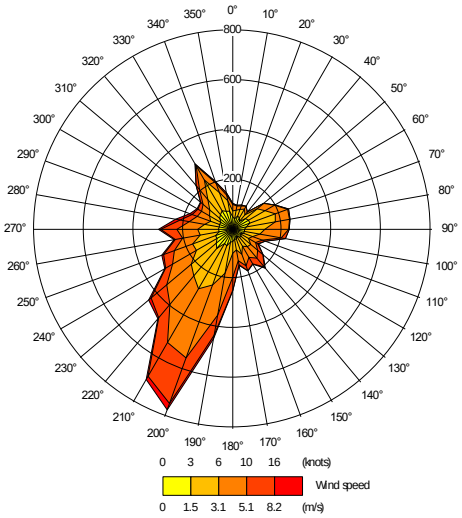
4.13 The percentages of wind from the 2019 Pershore dataset are shown in **Table 2**. **Figure 1** shows the wind rose for Pershore.

Table 2: Wind Frequency Percentage for Pershore

Degree Arc	Compass Direction	<5 m/s	> 5m/s	Total Percentage of Wind
Incomplete/Missing Data/Calm Winds (<0.5 m/s)	-	-	-	11.44%
348.75°- 11.25°	N	2.99%	0.85%	3.84%
11.25°- 33.75°	NNE	2.28%	0.96%	3.24%
33.75°- 56.25°	NE	2.46%	1.24%	3.70%
56.25°- 78.75°	ENE	2.86%	0.70%	3.57%
78.75°- 101.25°	E	4.60%	1.06%	5.66%
101.25°- 123.75°	ESE	1.73%	0.32%	2.05%
123.75°- 146.25°	SE	1.90%	0.43%	2.33%
146.25° - 168.75°	SSE	2.52%	1.02%	3.55%
168.75° - 191.25°	S	4.60%	2.87%	7.47%
191.25° - 213.75°	SSW	5.12%	4.22%	9.34%
213.75° - 236.25°	SW	4.12%	5.14%	9.27%
236.25° - 258.75°	WSW	4.35%	5.16%	9.52%
258.75° - 281.25°	W	5.97%	6.13%	12.10%
281.25° - 303.75°	WNW	2.86%	1.21%	4.07%
303.75° - 326.25°	NW	3.18%	1.33%	4.51%
326.25° - 348.75°	NNW	3.38%	0.99%	4.36%
Totals		54.93%	33.63%	100.00%

[3] Royal Meteorological Society, 2018. https://www.rmets.org/resource/beaufort-scale

Figure 1: 2019 Wind Rose for Pershore



5 Impact Assessment

5.1 The source-pathway-receptor has been assessed using the IAQM Minerals Guidance risk assessment.

Source & Receptor

5.2 The main source of dust from stockpiling is in the initial stage when the material is tipped and formed into the stockpile, and when the surface is unsealed.

5.3 Short term stockpiles may be more prone to dust generation due to material handling, tipping of material, movement of material to create the stockpiles or to 'tidy' them to stop spillage. The exposed surfaces may be prone to wind whipping and subsequently carried in an airflow. Dust generation from stockpiles can be limited by compacting the surface, dampening the surfaces and not storing stockpiles at excessive heights.

5.4 In accordance with the IAQM Minerals Guidance[1] the source activity for stockpiling can be described as small. A small risk has been concluded as the site area is less than 2.5 ha, turnover is likely to be less than one month, and annual tonnage is below 200,000 tonnes. Online information indicates the facility handles 75,000 tonnes per annum[4]. It should be noted that assuming a large source would also produce the same conclusion presented in this section, negligible effects.

5.5 The receptor sensitivity is high, due to the intended residential use.

Pathway

5.6 The pathway effectiveness considers the amount of time sensitive receptors may be exposed to dust emissions from each source and in each phase of the development, by means of a semi-quantitative meteorological assessment. This calculation procedure considers the operational hours, as outside of this period there is unlikely to be significant levels of dust raised.

[4] Gloucestershire County Council, Agenda Item Allstones Sand and Gravel. Available at: https://glostext.gloucestershire.gov.uk/mgAi.aspx?ID=29897

5.7 The working hours at Allstone are[5]:

- Monday to Friday – 07:00 to 17:00
- Saturday – 07:30 to 13:00
- No working on Sundays or bank holidays.

5.8 The site is operational for 3,406 hours per year.

5.9 By the process of a pro-rate calculation, the number of operational hours in each wind category and compass direction (determined from **Table 2**) can be calculated to determine the number of hours when dry-winds may blow from each direction for a typical operational year, shown in **Table 3**.

Table 3: Wind Frequency Analysis - Working Hours per Year

Degree Arc	Compass Direction	Operational Hours 3,406		
		Hours <5 m/s	Hours > 5m/s	Total Hours (per year)
348.75°- 11.25°	N	102	29	131
11.25°- 33.75°	NNE	78	33	110
33.75°- 56.25°	NE	84	42	126
56.25°- 78.75°	ENE	98	24	121
78.75°- 101.25°	E	157	36	193
101.25°- 123.75°	ESE	59	11	70
123.75°- 146.25°	SE	65	15	79
146.25° - 168.75°	SSE	86	35	121
168.75° - 191.25°	S	157	98	254
191.25° - 213.75°	SSW	175	144	318
213.75° - 236.25°	SW	140	175	316
236.25° - 258.75°	WSW	148	176	324
258.75° - 281.25°	W	203	209	412
281.25° - 303.75°	WNW	97	41	139
303.75° - 326.25°	NW	108	45	153
326.25° - 348.75°	NNW	115	34	149
Total Hours		1,871	1,146	3,017*

[5] Google search, company info. Available at: https://www.google.com/search?q=allstone+sand+and+gravel&oq=allstone+sand+&aqs=edge.0.0i512j69i57j0i22i30l2j0i390l4j69i64.3655j1j1&sourceid=chrome&ie=UTF-8

Degree Arc	Compass Direction	Operational Hours 3,406		
		Hours <5 m/s	Hours > 5m/s	Total Hours (per year)

*Total hours do not equal 3,406 due to the exclusion of the calm winds and missing/incomplete data (that account for 11.44% of the dataset, Table 2).

5.10 Using this breakdown, the number of hours and percentages that wind blows in the assessment location degree arc can be calculated. The results of the pathway effectiveness calculation are shown in **Table 4.** The dust effect has been assessed using the IAQM Minerals Guidance matrixes, as outlined in **Appendix A** of this note. The table is shown overleaf.

Table 4: Pathway Effectiveness

Receptor	Degree Arc (°)	Distance to Source (m) and IAQM Category	Percentage (%) of dry-wind <5 m/s	Percentage (%) of dry-wind >5 m/s	Number of Days Per Month When Winds Blow from Source to Receptor (>0.5 m/s)	Frequency	Pathway Effectiveness	Dust Impact Risk*	Magnitude of Dust Effects**
				Stockpiling					
AL1	80 - 115°	55 (Close)	6	1	0.91	Ineffective	Ineffective	Negligible Risk	**Negligible Effect**
AL2	105 - 156°	55 (Close)	6	1	0.94	Ineffective	Ineffective	Negligible Risk	**Negligible Effect**

*Calculated by combining the pathway effectiveness and the source risk (Table A5 of Appendix A)

**Calculated by combining the dust impact risk and receptor sensitivity (Table A6 of Appendix A)

The number of days statistic is the time period when winds may blow in the degree arc for an average operational month for all wind speeds in the degree arc.

5.11 The risk of dust effects has been calculated for two locations where future residential occupation is proposed at Great Western Yard. Only the stockpiling operations are located within 400 m of the site.

5.12 Literature[1] indicates that up to 95% of airborne dust arriving from a dust-generating operation will deposit from the airflow within 100 m of the source.

5.13 It is important to recognise that the pathway calculation is a worst-case exposure calculation. There are several factors that will lessen the impact that are not included in the calculation procedure, including:

- Continuous working in a single location. Per day and hourly, mobile plant will move and activities will alter. For example, the western stockpiles may not be handled for several days at a time.
- Daily wind pattern variations. The assessment assumes one continuous directional movement for a prolonged period. In reality, wind directions will alter over the course of minutes and hours, reducing the overall likelihood of prolonged dust transportation.
- Obstructions such as trees can act as a blockage to wind, causing the wind speed to lower and the obstructions themselves causing the winds to divert into different directions. This may be sufficient to cause some of the airborne dust to deposit out of the airflow and/or limit the dust being raised in the first place. The stockpiles at Allstone are below the heights of the surrounding vegetation.
- The calculation assumes dust may freely travel on the assumption no mitigation is employed. Mitigation, particularly dampening, will significantly reduce the likelihood of dust being available to travel beyond the site boundaries. Allstone operates under an environmental permit. Dust management plans usually include measures to carry out a daily visual dust inspection, which we assume is likely the case for this site also.

5.14 The potential dust effects derived from the calculation indicate that activities at each sensitive receptor will have a **negligible dust effect**. This is due, in particular, to the site's location upwind of Allstone. The proportion of winds arriving from the east and south east is very low (over an annual average).

Particulate Matter Impact

5.15 The IAQM Minerals Guidance[1] provides a methodology for the assessment of PM_{10} from mineral working operations. Planning Practice Guidance requires an assessment up to 1 km from the development.

5.16 PM_{10} background concentrations have been obtained for the sensitive receptors. PM_{10} concentrations are below 17 µg/m^3 (as outlined in the air quality assessment, ref. 102790).

5.17 The IAQM Minerals Guidance provides a 5-step procedure for the assessment of particulate matter and process contribution. The guidance specifies the focus should be on PM_{10} and the annual mean only, due to insufficient research and data to inform the short term objective or $PM_{2.5}$.

5.18 Step 1 of the methodology is a screening assessment. A detailed assessment, and continuation to steps 2 to 5, is only required if the background PM_{10} annual mean is above 17 µg/m^3. Below this value, there is little risk that the development's process contribution will contribute or cause an air quality exceedance.

5.19 PM_{10} background concentrations within 1 km of the site and at Great Western Yard are below 17 µg/m^3. In accordance with the PPG and IAQM Minerals Guidance, the risk of particulate matter impacts from the operations is not significant.

6 Conclusion

6.1 A dust assessment has been completed to consider the potential adverse dust effects associated with the dust-generating operations at Allstone Sand and Gravel. Open-to-air stockpiles of Allstone are located approximately 55 m to the east of Great Western Yard. The stockpiles and wider operations at Allstone are upwind of the development site. Allstone is surrounded by existing residential uses, some in closer positions than the development site, to the north and east of the operation.

6.2 A semi-quantitative meteorological assessment using the source-pathway-receptor methodology from the Institute of Air Quality Management 'Guidance on the Assessment of Mineral Dust for Planning' 2016 has been completed. This considers the amount of time sensitive receptors may be downwind of dust-generating operations and classifies the potential risk of dust in accordance with matrixes from the guidance.

6.3 The existing baseline has been assessed. Future operational changes at Allstone would require planning permission or changes to the environmental permit. The likelihood is that stockpiling in the western part of the site would continue, unless there was a material change in operations, however, that would require further environmental assessment by Allstone as part of the approval process.

6.4 The assessment predicts that the risk of adverse dust impacts to future residential receptors of Great Western Yard will be negligible and not significant. This is based on the existing operations and position of the stockpiles. The level of dust generated from a stockpile will be broadly comparable in the existing baseline and any potential future change in the shape and size.

6.5 This technical note demonstrates that the potential dust impacts from Allstone to Great Western Yard are not significant. The introduction of sensitive receptors at Great Western Yard will not adversely effect or restrict the continued and existing operations at Allstone.

Appendix A: IAQM Dust Risk Assessment Methodology

The following section outlines criteria developed by the IAQM for the assessment of disamenity dust from mineral extraction operations:

Screen the Need for a Detailed Assessment

The distance to a dust-generating source is screened to distances of 250 m for a soft-rock quarry and 400 m for a hard-rock quarry.

Source-pathway-receptor Methodology

If a detailed assessment is met, then an assessment of dust effects is required which utilises the source-pathway-receptor methodology. The example provided in the guidance is illustrative only, and other methods are acceptable so long as they adopt of the core principle of the source-pathway-receptor methodology.

Source

The source is concluded as either small, medium or large and is dependent on the scale of operations occurring for each source. The IAQM Minerals Guidance[3] defines seven activities, which occur on almost all mineral extraction sites:

- site preparation/restoration;
- mineral extraction;
- material handling;
- on-site transportation (haul roads, site access routes);
- off-site transportation (public highway road network);
- mineral processing (e.g. mobile screening plant); and
- stockpiling/exposed surfaces.

Appendix 4 of the guidance outlines a variety of situations to conclude the source risk, which should be selected based on the site parameters, working situations and professional judgement. Reference to the appendix is made in determining the source. The relevant factors that may be used to determine the risks of the seven sources is outlined in **Table A1**. Each source has its own relevant examples and descriptions. For ease of reporting, the list of factors to review is provided, but not the full descriptions, which can instead be found in Appendix 4 of the IAQM Minerals Guidance.

Table A1: Source Risk Examples

Large	Small
Large working area	Small working area
High bunds	Low bunds
High volume of material movement	Low volume of material movement
High no. heavy plant	Low no. heavy plant
Minimal seeding/sealing of bund surface	bunds seeded/sealed immediately
Material of high dust potential	Material of low dust potential
High energy extraction methods	Low energy extraction methods

Large	Small
Potential high extraction rate (example given of >100 ha and 1,00,000 tpa)	Low extraction rate (example given of <20 ha and <200,000 tpa)
Unconsolidated/bare surface	Hard standing surface
Activities close to site boundary	Activities within quarry void
Use of unconsolidated haul roads	Use of conveyors
High no. HDV movements	Low no. HDV movements
High total length of haul roads	Low total length of haul roads
Uncontrolled vehicle speed	Controlled (low) vehicle speed
Raw/end product of high dust potential	Raw/end product of low dust potential
Complex or combination of processes	Single process
High volume material processed	Low volume material processed
Long term stockpile	Short term stockpile
Frequent material transfers	Infrequent material transfers
Stockpiles close to site boundary	Stockpiles well within quarry void
Large areas of exposed surfaces	Small areas of exposed surfaces
High wind speeds/low dust threshold	Low wind speeds/high dust threshold
Limited/no vehicle cleaning facilities	Extensive vehicle cleaning facilities

Pathway Effectiveness

The pathway effectiveness is calculated by calculating the amount of time sensitive receptors would be downwind of wind speeds > 5 m/s.

The first step is to calculate frequency, completed by means of a semi-quantitative meteorological assessment. The second step is to categorise the distance of receptor from source. These are then combined to produce the pathway effectiveness. Tables A2 to A4 outline this procedure.

Table A2: Categorisation of Frequency of Potentially Dusty Winds

Frequency Category	Criteria
Infrequent	Frequency of winds (>5 m/s) from the direction of the dust source on dry days are less than 5%
Moderately frequent	Frequency of winds (>5 m/s) from the direction of the dust source on dry days are between 5% to 12%
Frequent	Frequency of winds (>5 m/s) from the direction of the dust source on dry days are between 12% to 20%
Very frequent	Frequency of winds (>5 m/s) from the direction of the dust source on dry days are greater than 20%

Table A3: Categorisation of Receptor Distance from Source

Category	Criteria
Distance	Receptor is between 200 m to 400 m from the dust source
Intermediate	Receptor is between 100 m to 200 m from the dust source
Close	Receptor is less than 100 m from the dust source

Table A4: Pathway Effectiveness

		Frequency of potentially dusty winds			
		Infrequent	**Moderately Frequent**	**Frequent**	**Very Frequent**
Receptor Distance Category	**Close**	Ineffective	Moderately Effective	Highly Effective	Highly Effective
	Intermediate	Ineffective	Moderately Effective	Moderately Effective	Highly Effective
	Distance	Ineffective	Ineffective	Moderately Effective	Moderately Effective

Dust Impact Risk

The dust impact risk is calculated by combining the pathway effectiveness and source, outlined in Table A5.

Table A5: Estimation of Dust Impact Risk

		Residual Source Emission		
		Small	**Medium**	**Large**
Pathway Effectiveness	**Highly effective pathway**	Low Risk	Medium Risk	High Risk
	Moderately effective pathway	Negligible Risk	Low Risk	Medium Risk
	Ineffective pathway	Negligible Risk	Negligible Risk	Low Risk

Dust Effect

The overall dust effect is then calculated by combining the dust impact risk and receptor sensitivity. Receptor sensitivity is either low, medium or high. High sensitivity is classed as residential use, medium is classed as places of work and low is short term or transient uses such as a footpath. It should be stated that a footpath is not directly impacted by dust deposition, but extensive deposition along the route may deter users using the footpath. The Dust Effect is shown in Table A6.

Table A6: Descriptors for Magnitude of Dust Effects

		Receptor Sensitivity		
		Low	**Medium**	**High**
Dust Impact Risk	**High Risk**	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
	Medium Risk	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
	Low Risk	Negligible Effect	Negligible Effect	Slight Adverse Effect
	Negligible Risk	Negligible Effect	Negligible Effect	Negligible Effect

Appendix B: Proposed Development Site and Potential Dust-Generating Operations at Allstone


MILLER GOODALL
ACOUSTICS AND AIR QUALITY

LF/P20-0832 **BY EMAIL:** [redacted]

25.10.22

Adam Smith
Principal Planning Officer
Place
Gloucester City Council
Eastgate Management Suite
Eastgate Street
Gloucester
GL1 1SS

Dear Adam,

Town and County Planning Act 1990
22/00770/FUL – Residential development of 315 dwellings with associated landscaping, open space and ancillary works including demolition of existing buildings.
Land at Great Western Yard, Great Western Road, Gloucester, GL1 3ND

Pegasus are pleased to submit additional information to support the planning application described above further to the receipt of various email correspondence from yourself, including your comprehensive email of 14th September 2022 (attached at Appendix 1).

Matters on which additional information is provided include

- External design and appearance of the proposed dwellings
- Highways
- Responses to the County Council on Minerals and Waste Planning matters
- Noise
- Contamination
- Drainage
- Archaeology
- Viability

These matters are reconsidered in turn below.

External Appearance and Design of Buildings

Darling Architects have provided a 'Response to Officer Feedback' document (Oct 22 Rev A) which details the clients response and proposed design amendments to matters raised by your email of 14.09.22. and is attached at Appendix 2. This document is accompanied by revised drawings detailed in the Drawing Issue sheet dated 21.10.22 attached at Appendix 3 and detailed in Table 1 below.

Table 1: Revised Darling Architects Drawings Submitted 25.10.22

Plan No.	Revision	Description	Issue Date
03-0-00	PL1	Proposed Site Plan	21.10.22
03-0-01	PL1	Proposed Phasing Plan	21.10.22
N-03-0-00	PL1	Proposed Site Plan Northern Phase	21.10.22
S-03-0-00	PL1	Proposed Site Plan Southern Phase	21.10.22
SW-03-1-00	PL1	Proposed Ground Floor Plan	21.10.22
SW-03-1-01	PL1	Proposed 1st Floor Plan	21.10.22
SW-03-1-02	PL1	Proposed 2nd Floor Plan	21.10.22
SW-03-1-03	PL1	Proposed 3rd Floor Plan	21.10.22
SW-03-1-04	PL1	Proposed 4th Floor Plan	21.10.22
SW-03-1-05	PL1	Proposed Roof Plan	21.10.22
03/02/2000	PL1	Street Elevations	21.10.22
03/02/2001	PL1	Street Elevations	21.10.22
A-03-1-00	PL1	Block A Proposed Ground Floor Plan	21.10.22
A-03-1-01	PL1	Block A Proposed 1st Floor Plan	21.10.22
A-03-1-02	PL1	Block A Proposed 2nd Floor Plan	21.10.22
A-03-1-03	PL1	Block A Proposed 3rd Floor Plan	21.10.22
A-03-1-04	PL1	Block A Proposed 4th Floor Plan	21.10.22
A-03-1-05	PL1	Block A Proposed Roof Plan	21.10.22
B-03-1-00	PL1	Block B Proposed Ground Floor Plan	21.10.22
B-03-1-01	PL1	Block B Proposed 1st Floor Plan	21.10.22
B-03-1-02	PL1	Block B Proposed 2nd Floor Plan	21.10.22
B-03-1-03	PL1	Block B Proposed 3rd Floor Plan	21.10.22
B-03-1-04	PL1	Block B Proposed 4th Floor Plan	21.10.22
B-03-1-05	PL1	Block B Proposed Roof Plan	21.10.22
B-03-2-01	PL1	Block B Elevations	21.10.22
B-03-2-02	PL1	Block B Elevations	21.10.22
B-03-2-03	PL1	Block B Elevations	21.10.22
B-03-2-04	PL1	Block B Bay Studies	21.10.22
C-03-1-00	PL1	Block C Proposed Ground Floor Plan	21.10.22
C-03-1-01	PL1	Block C Proposed 1st Floor Plan	21.10.22

C-03-1-02	PL1	Block C Proposed 2nd Floor Plan	21.10.22
C-03-1-03	PL1	Block C Proposed 3rd Floor Plan	21.10.22
C-03-1-05	PL1	Block C Proposed Roof Plan	21.10.22
C-03-2-01	PL1	Block C Elevations	21.10.22
D-03-1-00	PL1	Block D Proposed Ground Floor Plan	21.10.22
D-03-1-01	PL1	Block D Proposed 1st Floor Plan	21.10.22
D-03-1-02	PL1	Block D Proposed 2nd Floor Plan	21.10.22
D-03-1-03	PL1	Block D Proposed 3rd Floor Plan	21.10.22
D-03-1-05	PL1	Block D Proposed Roof Plan	21.10.22
D-03-2-01	PL1	Block D Elevations	21.10.22
D-03-2-02	PL1	Block D Bay Studies	21.10.22
D-03-3-01	PL1	Block D Sections	21.10.22
03-2-01-3b5p	PL1	Proposed House Elevations 3b5p Type 2	21.10.22
03-2-05-2b3p	PL1	Proposed House Elevations 2b3p Type 3	21.10.22
05-4-00-2B3P	PL1	Proposed House Plans 2b3p Types 1	21.10.22
05-4-01-2B3P	PL1	Proposed House Plans 2b3p Types 2	21.10.22
05-4-02-2B3P	PL1	Proposed House Plans 2b3p Types 3	21.10.22
05-4-00-3B4P	PL1	Proposed House Plans 3b4p Types 1&2	21.10.22
05-4-01-3B4P	PL1	Proposed House Plans 3b4p Types 2	21.10.22
05-4-00-3B5P	PL1	Proposed House Plans 3b5p Type 1	21.10.22
05-4-01-3B5P	PL1	Proposed House Plans 3b5p Type 2	21.10.22
21-5-01-	PL	PL Typical External Wall Detail	21.10.22

Highways

The following responses in bold have been provided by our client's highways consultants Vectos to the highway's points raised in your email of 14.09.22.

- Achieving the visibility splay to the east of the main access where close to the near existing house – please can you plot that. Can it be achieved solely on application site land or highway land?

The visibility splay for the proposed main access junction is plotted on Vectos Drawing VN212156-D103 Rev A which is included within the Drawings section at the end of the Transport Assessment. This shows that the splay can be achieved within highway land.

- Ditto with the visibility splay for the northwestern-most house – can they see oncoming vehicles beyond the garden fence of the existing house no. 93/95/97? Please plot splay.

The wide footway in this area at around 2.7m means that drivers exiting the driveway of the north-western most plot will have appropriate visibility in both directions.

- Can you manoeuvre into and out of the spaces next to Horton Road at the end of the access road? Tracking/layout detail may need clarifying.

The aisle width and the parking bays in this area are of a standard dimension that provide suitable space for manoeuvring.

- The new GWRd accesses would take out designated parking bays – has this been assessed?

The TA at para 4.14 refers to the effect of the proposed main access upon on-street parking bays along Great Western Road noting that there is potential to re-provide the displaced parking bay from the east side of the access to the west side. This may require an amendment to the traffic regulation order in this area. The other proposed access points on Great Western Road do not affect existing on-street parking.

- Car club – how do you propose this operates?

It is proposed to provide six dedicated car club spaces that will be available to all residents.

We do not have a car club operator on board, so we are unable to provide site specific details at this stage. The car club will be offered as part of the coherent package of sustainable transport measures, normally as part of the detailed Travel Plan.

Residents of new dwellings will be provided with a Travel Pack upon first occupation this will include promotion of the car club and details of membership/costs associated with it.

- Where is the cycle store for the southern row of houses?

Cycle storage will be within front gardens for these plots. Architect to provide further detail if required.

- Given part of the development proposal is formation of new accesses to the carriageway I think you should extend your red line to the edge of the carriageway in each instance to encompass the area of those works and serve requisite notice (presume just Highway Authority).

It is not necessary to amend the red line to incorporate areas of public highway as works can be undertaken within the highway in accordance with the Highways Act.

- Adoption of the road behind Block B to Block C.

This is being addressed with the waste team directly.

Please note that Darling Architects have advised that this road is to be adopted. It has been designed to adoptable standards with materials suitable for waste collection vehicles.

- Provision of a bay for the RCV in Gr Western Rd for Block A (further loss of on street parking spaces?).

This is being addressed with the waste team directly.

<u>Response to the County Council on Minerals and Waste Planning Matters</u>

A Minerals Safeguarding Assessment has been prepared by consultants mewp (October 2022) which addresses matters raised by the Minerals and Waste Authority concerning the potential sterilisation of sand and gravel resources at the site. The report is attached at Appendix 4.

The Minerals Safeguarding Assessment identifies that no other sites within the MSA in the vicinity of the site have recently been active sand and gravel extraction sites. It also states that the site is subject to contamination and groundwater levels (as evidenced by other submitted documentation accompanying this application) such that sand and gravel extraction would be an unviable operation at the site. The report also highlights uncertainty over the quality of any in-situ mineral resource and the fact that any material extracted would require backfilling for the purpose of the redevelopment of the site.

It is trusted that this report adequately addresses the outstanding concerns of the Minerals and Waste Authority with regard to the submission of a Minerals Safeguarding Assessment and the potential sterilisation of mineral resources at the site.

A Dust Technical Note has been prepared by Miller Goodall (October 2022) and is attached at Appendix 5. This note has been prepared in response to comments raised by the Minerals and Waste Authority concerning activity at the Allstones Site which is identified in the adopted Minerals Local Plan for Gloucestershire 2018 -2032 as a Safeguarded Mineral Infrastructure Site (see Appendix 2 p.158)[1].

The Dust Technical Note (DTN) concludes that the stockpiles and wider operations at Allstones are upwind of the development site and that Allstones is surrounded by existing residential uses, some of which are in closer positions than the development site, to the north and east of the operation eg; Gas Workers Cottages.

The DTN considers the amount of time sensitive receptors may be downwind of dust-generating operations and classifies the potential risk of dust in accordance with matrixes from guidance, the Institute of Air Quality Management 'Guidance on the Assessment of Mineral Dust for Planning' 2016.

The DTN predicts that the risk of adverse dust impacts to future residential receptors of Great Western Yard will be negligible and not significant. This is based on the existing operations and position of the stockpiles at the Allstones site.

The DTN demonstrates that the potential dust impacts from Allstones to Great Western Yard are not significant and that the introduction of sensitive receptors at Great Western Yard will not adversely affect or restrict the continued and existing operations at Allstones.

The DTN states that any future operational changes at Allstones would require further planning permission from the County Council or changes to the Environmental Permit issued by the Environment Agency.

[1] https://www.gloucestershire.gov.uk/media/2096569/mlp-for-glos-2018-2032-adopted-march-2020.pdf

It is noted that subsequent to submission of our client's planning application at Great Western Road that Allstones have submitted a planning application to the County Council (22/0033/GLMAJW) for the permanent;

"Use of land for the crushing and screening of inert waste materials to produce secondary aggregates including retention of concrete storage, bays and covers and erection of new storage bays."

This application follows 11 years of operating on a cycle of temporary consents at Allstones for the crushing and screening of inert waste.

Evidence submitted with this application includes a Dust Management Plan prepared by consultants Arup (June 2022)[2] who conclude that a permanent permission at Allstones would not have an adverse impact on sensitive receptors in the vicinity including close by existing residential premises. Figure 2 (p.3) of the Arup Dust Management Plan clearly shows the proximity of Gas Worker Cottages and other residential dwellings north of the application site to the proposed crushing and stockpile areas. These dwellings are situated in closer proximity to the site than the proposed dwellings at Great Western Yard.

The Arup report details how dust is to be managed at the Allstones site and concludes that;

"*The impact on human health and dust soiling is predicted to be not significant when the measures outlined in the Dust Management Plan (section 7) are effectively implemented.*"

The DMP is prepared to the nearest risk i.e., the cottages which are closest and downwind and concludes that once the dust management plan is in place, it is deemed there is no significant effect. Therefore, de-facto, with a dust management plan in place there should not be any significant effect on locations beyond the cottages, including our client's site.

The planning application currently remains undetermined.

It is also noted that the permanent planning application area does not extend further that the existing operation at the site and that owing to surrounding land uses it would not be possible for Allstones to move activities or operations closer to our client's site than those activities and operations that already exist under the temporary permission.

Noise

Our clients have contacted Network Rail for clarification on the matters you raised concerning the use of the retained sidings to the immediate southeast of the site. A response from Network Rail is

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2 https://ww3.gloucestershire.gov.uk/PROW/PROWWS.asmx/GetFileGCCContents?Filename=images%2f22_0033_GLMAJW_DUST_MANAGE.PDF

awaited and our clients are actively addressing this as a matter of urgency in order to provide you with a response.

Contamination

Our client's contamination consultants, Hydrock, have prepared a response in the form of a Technical Note, dated 10th October 2022, to the Worcestershire Regulatory Services letter, dated 20th September 2022, sent to the Council. The Hydrock Technical Note can be found at Appendix 6. The Hydrock Technical Note is self-explanatory, and I trust satisfies the requirements of Worcestershire Regulatory Services with regard to matters relating to contamination at the site.

Drainage

Your officer feedback raised concern that *'attenuation seems to almost all be in the NW phase'* and that any '*planning permission would have to condition that this phase is implemented first (or a revised drainage scheme for Phase 2 alongside a new archaeological impact study) – no mitigation of Phase 2 flows otherwise'*.

I can advise that there is no need for the suggested condition relating to phasing as the drainage network shown in the submitted drawings clearly indicates two separate drainage systems. The drainage networks are not connected and there is independent attenuation (mitigation) for each network.

In response to the points raised by the Water Authority:

- The SI report (as referenced in our FRA Section 1.5) states the presence of shallow groundwater which precludes the use of infiltration and so this option is not available.
- Given the high level of groundwater, it is likely that the existing site has surface water drainage connected to the nearest public sewer. In the absence of a drainage survey and to ensure that there is a reduction in the existing runoff-rates the proposed surface water drainage is sized (FRA 6.1) assuming greenfield run-off rates (minimum rates). This approach ensures that sufficient space is available. The result of a drainage survey may increase these rates and reduce the amount of attenuation required.
- In view of the removal of the objection from the LLFA, further investigation should be conditioned as part of the detailed design work. We would advise a pre-commencement condition such that a detailed drainage design will need to be approved by the LLFA once planning permission is granted.

In terms of raising floor levels to 300mm above road levels, this forms part of the recommendation of the FRA (FRA 9.0) as mitigation against minor surface water flooding. This is normally achieved in housing developments by applying the standard 150mm damp proof course (required by building regs) and allowing 150mm fall to the driveways & front gardens. Darling Architects have confirmed to our clients that this is the case for the proposed development at Great Western Yard and is designed into the existing drawings for the site.

Archaeology

I understand that my colleague Gail Stoten is in communication with Andrew Armstrong City Archaeologist concerning this matter owing to the fact that to date no reputed contractors have been willing to tender for the requested trial trenching at the site in response to requests from Pegasus.

It is requested that this matter could most effectively be addressed by condition requiring an archaeological watching brief at the point of site works to facilitate remediation/decontamination.

Viability

Queries raised by the Council's viability consultant with regard to figures used in the submitted Viability Report have been directed to our client's viability consultant Pioneer to enable agreement to be reached between both parties with regard to viability matters.

Once the viability review process is concluded then matters relating to affordable housing and S.106 contributions can be considered further.

Highway Authority Response

We are acutely aware that despite ongoing requests from both our client's consultant, Vectos, and yourself, the Highway Authority are yet to provide any consultation response to the submitted application. Once the Highway Authority comments are received our clients will require time to review and consider any mitigation that may be required.

Please note that matters relating to landscape and sustainability will be addressed separately in due course. I trust this submission addresses the majority of your outstanding concerns, please do not hesitate to contact me if you require any further information,

Yours sincerely

[redacted]

Cc:
Lorna Henderson – Eutopia Homes
Tomas Pierce – Darling Architects
Enc:
Appendix 1 – Adam Smith email 14.09.22
Appendix 2 - Response to Officer Feedback Document (Rev A Oct '22) – Darling Architects
Appendix 3 – Darling Architects Drawing Issue Sheet 21.10.22
Appendix 4 – mewp Minerals Safeguarding Assessment (October 2022)
Appendix 5 – Miller Goodall Dust Technical Note (October 2022)
Appendix 6 – Hydrock Technical Note (October 2022)

TECHNICAL NOTE

Project name	Great Western Road Yard, Gloucester		
Title	Response to regulatory comments on contaminated land		
Client	Eutopia Homes Ltd.		
Document reference	20775-HYD-XX-XX-CO-GE-1002	**Status / Revision**	S2 P01
Author	Matthew Keehn BSc (Hons) CEnv MIEnvSc		
Date	10 October 2022	**Approved**	✓

Introduction and background

Hydrock Consultants Ltd. (Hydrock) has been commissioned by Eutopia Homes Ltd. (the 'Client') to respond to the correspondence received from Worcestershire Regulatory Services (WRS) on behalf of the Local Planning Authority (LPA) Gloucester City Council (GCC) with regard to contaminated land at Great Western Road Yard, Gloucester (the 'site').

The site comprises a former large railway sidings known as the Great Western Road Yard and is situated immediately to the north of the main railway line into Gloucester railway station. The site now comprises a former railway sidings area in the east, four separate tenanted commercial units in the north (formerly part of a road transport depot) (the 'Tenanted Areas'), and a former car parking area in the far northwest. A Site Location Plan (Ref: 20775-HYD-XX-XX-DR-GE-1000, dated 3 March 2022) is enclosed. The site layout is shown on the enclosed Network Rail Sale Plan & Lease Overlays drawing (Ref: 6225807, dated 17 May 2018).

The site is to be redeveloped for residential end use, comprising a mixture of low-rise 'townhouses' (1 to 2 storey) and high-rise apartment blocks (3 to 4 storey), public open space (POS), and associated infrastructure. The proposed development layout is presented on the Proposed Site Plan by Darling Associates Ltd. (Ref: 03-0-00, dated June 2022) is enclosed. It is understood that the development is to be phased as follows:

- North Phase: containing apartment Blocks A, B, and C; and
- South Phase: containing the townhouses and apartment Block D.

The above is phasing of the proposed development is presented on the enclosed Proposed Phasing Plan by Darling Associates Ltd. (Ref: 03-0-01, dated June 2022).

A planning application has been submitted to GCC for the development of the site (GCC Ref: 22/00770/FUL) and the below relevant reports were submitted in support of the planning application.

- Hydrock. Supplementary Phase 2 Ground Investigation Report. Great Western Road Yard. Ref: 20775-HYD-XX-XX-RP-GE-1001 (P02), dated 26 April 2022. Referred to as the 'Hydrock 2022 GIR'.
- Hydrock. Detailed Quantitative Risk Assessment. Great Western Road Yard. Ref: 20775-HYD-XX-XX-RP-GE-1002, dated 30 June 2022. Referred to as the 'Hydrock 2022 DQRA'.

As part of the planning consultation process, WRS reviewed and commented on the above Hydrock reports, and also provided recommended planning condition wording for the application. The WRS correspondence is enclosed (Ref: 22/1023/PLAN, dated 20 September 2022) (referred to as the 'WRS correspondence').

This technical note provides discussion on the WRS comments and recommendations (largely in the order they were written). It is assumed that the reader has knowledge of the ground conditions in the above reports.

Discussion on WRS correspondence

The WRS correspondence starts with high-level summaries of site background, potential sources of contamination and ground conditions, and then moves on to summarising the various generic and detailed risk assessments provided in the two Hydrock reports. The high-level summaries are largely copied from the Hydrock reports for information purposes and to provide support to the comments made by WRS in the subsequent sections.

Hydrock generally agree with the information provided within the initial background summarises, with the following two exceptions:

- The 'Potential sources of contamination' summary infers that the Tenanted Areas of the site were not included within Hydrock's Conceptual Site Model (CSM). However, the historical road transport depot that comprises the Tenanted Areas is listed as a potential source of contamination in Section 3.4.2 of the Hydrock 2022 GIR, and all available information and data from the historical desk study and ground investigations across this area of the site have been used as part of the various risk assessments.
- The 'Ground Investigation Constraints' summary infers that the large areas of dense vegetation and railway lines were a significant access constraint. In addition, this is also inferred in the later 'WRS Comments' section that indicates the existence of significant data gaps in the CSM, including the 'railway sidings in the central area'. However, whilst the presence of the vegetation and railway lines is acknowledged in the Hydrock 2022 GIR, access to the proposed exploratory locations was cleared and Hydrock consider that reasonable coverage was achieved across the central portion of the railway sidings area, notably adjacent and downgradient of the potential sources of petroleum hydrocarbon contamination (i.e., the historical tank farm and refuelling infrastructure).

The summaries of the various generic risk assessments from the Hydrock 2022 GIR (i.e., human health, plant life, Controlled Waters, and ground gases) are in general agreement with the report and demonstrate a good understanding of the pertinent risks that have been identified for the proposed development of the site. In addition, the summary of the Hydrock 2022 DQRA on Controlled Waters and vapours is similarly in agreement with the associated report.

Following the summarises, WRS then provide their own observations and remarks on the works completed to date in the 'WRS Comments' section.

The initial WRS comments focus on the absence of a Phase 1 Desk Study with historical mapping to support the planning application. Hydrock were provided with the below historical reports from the site Vendor's Pack.

- Weeks Technical Services (Weeks). Contaminated Land Site Investigation at Gloucester. Ref: G8013V, dated July 1998. Referred to as the 'Weeks 1998 Report'.
- Arup. Geo-Environmental Desk Study and Preliminary Risk Assessment, Great Western Road Yard, Gloucester. Ref: REP/006/16, dated April 2016. Referred to as the 'Arup 2016 Desk Study'.

In addition, the Client had their own ground investigation commissioned and completed in late-2020 prior to Hydrock's involvement. The results of which are provided in the below report.

- John F Hunt Regeneration (JFHR). Report on Ground Investigation, Gloucester Great Western Road Yard. Ref: 20904, dated January 2021. Referred to as the JFHR 2021 GIR.

The above reports were reviewed in their entirety as part of the Hydrock 2022 GIR, and all available historical information and data (including maps) were used to develop a robust CSM, identify data gaps and design Hydrock's supplementary ground investigation. In addition, as detailed in Sections 2.1 and 2.2 of the Hydrock

2022 GIR, several of the desk-based searches were repeated using up to date freely available information, such as the Environment Agency Catchment Data Explorer, Zetica Online Risk Maps and UK Maps of Radon.

Site reconnaissance surveys were also undertaken by Hydrock to ensure existing site conditions were as historically noted and to identify any additional potential source of contamination. The surveys covered the entire site, including both the railway sidings area and the Tenanted Areas, and the findings were incorporated into the CSM. The identified potential sources of contamination from the CSM are shown on the enclosed drawing (Ref: 20775-HYD-XX-XX-DR-GE-1002, dated 10 March 2022).

Hydrock consider that a Phase 1 preliminary risk assessment has been adequately completed and that a robust CSM has been developed for the site. Hydrock acknowledge that as the historical information listed above was used as part of the assessments, if allowable, the Weeks 1998 Report and Arup 2016 Desk Study should be submitted separately to the LPA for review as part of the planning application.

WRS move on to comment that they generally agree with the (remediation) proposals within the Hydrock 2022 GIR, however, they again consider that significant data gaps remain in the CSM (also alluded to above). Of the listed WRS data gaps, Hydrock consider that the access to the Tenanted Areas, densely vegetated areas, railway sidings in central area, and the former car parking area in the northwest were not significant constraints.

Although not accessible during Hydrock's intrusive ground investigation phase, the Tenanted Areas were still included as part of the preliminary risk assessment and development of the robust CSM. The identified potential sources of contamination across the Tenanted Areas comprise the two above ground storage tanks (AST) and the oil store, which were all targeted during the historical ground investigations. In addition, further ground gas monitoring and groundwater sampling was undertaken by Hydrock. The Hydrock 2022 GIR recommends supplementary (geotechnical) ground investigation across the Tenanted Areas to confirm design parameters for the proposed development. Noting the WRS comment, this can also include some confirmatory contamination investigation to provide further evidence for the presence/absence of significant impacts across the area.

The vegetation across the central portion of the railway sidings area was cleared sufficiently enough to allow access to proposed exploratory locations. Reasonable coverage was achieved across the area and between the rails to investigate the petroleum hydrocarbon impacts emanating from the upgradient historical tank farm and refuelling infrastructure. The coverage is shown on the enclosed Exploratory Hole Location Plan (Ref: 20755-HYD-XX-XX-DR-GE-1004 [P02], dated 26 April 2022).

The former car parking area in the northwest was inaccessible with larger plant during Hydrock's (2022) ground investigation, however, a smaller windowless sampling drilling rig was still able to undertake two further exploratory locations. Along with the historical ground investigations, the potential sources of contamination are considered to have been appropriately targeted, including the general Made Ground across the area, the AST near the north-western boundary, the historically demolished structures, and the nearby oil store. Window samples were undertaken hydraulically upgradient (WS106A) and downgradient (WS107) of the north-western AST, and a trial pit was excavated immediately to the southwest (TP123). Evidence of potential contamination included a 'slight organic odour' (WS107) and 'moderate to strong hydrocarbon odour' and 'heavy staining' (both TP123). Four rounds of groundwater sampling have been undertaken from the downgradient monitoring well (WS107), and the data from Rounds 2-4 are all below laboratory method detection limit for petroleum hydrocarbons. In addition, no measurable thickness of non-aqueous phases liquids (i.e., LNAPL) have been recorded. Based on the evidence, the petroleum hydrocarbon impacts are considered likely to be localised and unlikely to be significantly migrating off site. Hydrock consider that the preparation of a Remedial Options Appraisal and Remediation Strategy and Verification Plan can be undertaken now for review by the LPA. Remediation is considered to include removal of the AST and delineation and verification of any associated

impacts in line with to be established target levels. Any unexpected migration of contamination off site would be appropriately investigated during the remediation in line with an unexpected contamination protocol.

Hydrock acknowledge that the footprints of the existing buildings, concrete slabs, and infilled inspection pits in the railway sidings area in the east are data gaps. The recorded petroleum hydrocarbon contamination likely extends beneath these parts of the of the site, however, Hydrock consider that further investigation and delineation of the impacts can be undertaken during the remediation and verification. Hydrock consider that the preparation of a Remedial Options Appraisal and Remediation Strategy and Verification Plan can be undertaken now for review by the LPA. The coverage of the existing exploratory locations across the site should allow the preparation of these documents and will likely detail targeted ground investigation to support the final design of the remediation once these areas are accessible post-demolition. Remediation is considered to include removal of the LNAPL and subsequent removal and/or treatment of the LNAPL impacted/grossly impacted soils. Verification will be undertaken in line with to be established target levels.

The existing fire damaged building is to the north of the engine shed in the east of the railway sidings area (see Figure 1 and Figure 2). From a review of available Google Earth satellite imagery, the fire is thought to have occurred between July 2013 and May 2017.

Figure 1: Location of fire damaged building in east of site.
Base plan source: Darling Associates. Existing Site Plan. Ref: 01-0-00, dated June 2022.

Figure 2: Photograph of fire damaged building.

Firefighting foams with polyfluoroalkyl substances (PFAS) are typically deployed in specific circumstances, such as when putting out liquid fuels. The liquid fuel storage on site historically used ASTs that were located to the west of the fire damaged building. Again, using available satellite imagery, by 2013 all ASTs in this area of the site had been removed. Gloucestershire Fire and Rescue Service (GFRS) were contacted to obtain any records they may hold on the fire to confirm what firefighting practices were implemented (see enclosed email dated 10 October 2022). Although GFRS do not hold records prior to 2017, they have confirmed that they do not use foam as part of their firefighting practices. Based on the weight of evidence available, it is considered likely that the building fire was put out using water and not foam and the risk of PFAS is considered to be low.

The WRS correspondence details no adverse comments on the Hydrock 2022 DQRA, noting it to be well-reasoned and comprehensive. As the Environment Agency is the appropriate regulatory authority for Controlled Waters, Hydrock agree with WRS that the report should be forwarded by the LPA to the agency for comment as soon as possible. This will ensure that any feedback can be incorporated into the preparation of the Remedial Options Appraisal and Remediation Strategy and Verification Plan.

The Hydrock 2022 DQRA also includes higher tiers of risk assessment of the potential intrusion of vapours from the recorded petroleum hydrocarbon impacts and into structures of the proposed development. The risk assessment concluded that following removal of the LNAPL and subsequent removal and/or treatment of the LNAPL impacted/grossly impacted soils, the risk to future site occupants from petroleum hydrocarbon vapours is considered to be low. WRS comment that verification will be required that sufficient materials have been remediated prior to any work on future building foundations to ensure vapour protections measures are not required. The target levels for remediation will be established as part of the preparation of the Remedial Options Appraisal and Remediation Strategy and Verification Plan, and will need to consider the risk of vapour intrusion of the individual petroleum hydrocarbon fractions, notably aromatic >EC10-EC12 (which should be below the Site-Specific Assessment Criterion of 173 mg/kg as detailed in the Hydrock 2022 DQRA). The methodology for verification should be detailed within the Remediation Strategy and Verification Plan and Hydrock agree that it should be undertaken prior to starting construction works of the proposed development.

Condition wording

WRS have provided recommended condition wording with respect to contamination. Part 1 of the condition details the requirement for a preliminary risk assessment. As detailed above, Hydrock consider that a Phase 1 preliminary risk assessment has been adequately completed and that a robust CSM has been developed for the site. If allowable, the Weeks 1998 Report and Arup 2016 Desk Study should be submitted separately to LPA for review as part of the planning application and to allow this part of the condition to be removed.

Parts 2 and 3 of the recommended condition wording relate to the requirement for detailed site investigation. As detailed above, Hydrock consider that appropriate ground investigation has been undertaken to allow the preparation of a Remedial Options Appraisal and Remediation Strategy and Verification Plan. Hydrock accept that some data gaps exist and the intent is to address these during the remediation and verification phases. Consideration should be given to make the recommended condition wording more site-specific based on the nature of the extensive ground investigation works have already been completed to date and those that may still be required to support remedial design.

Hydrock agree with Parts 4 to 7 of the recommended condition wording, which relate to the preparation of a remediation scheme (Part 4), implementation of the remediation (Part 5), verification of the remediation (Part 6), and investigating unexpected contamination (Part 7).

As referenced above, the development of the site is to be phased between the North Phase and the South Phase. Consideration should be given to wording the recommended condition such that development can be undertaken using a phased approach, if required.

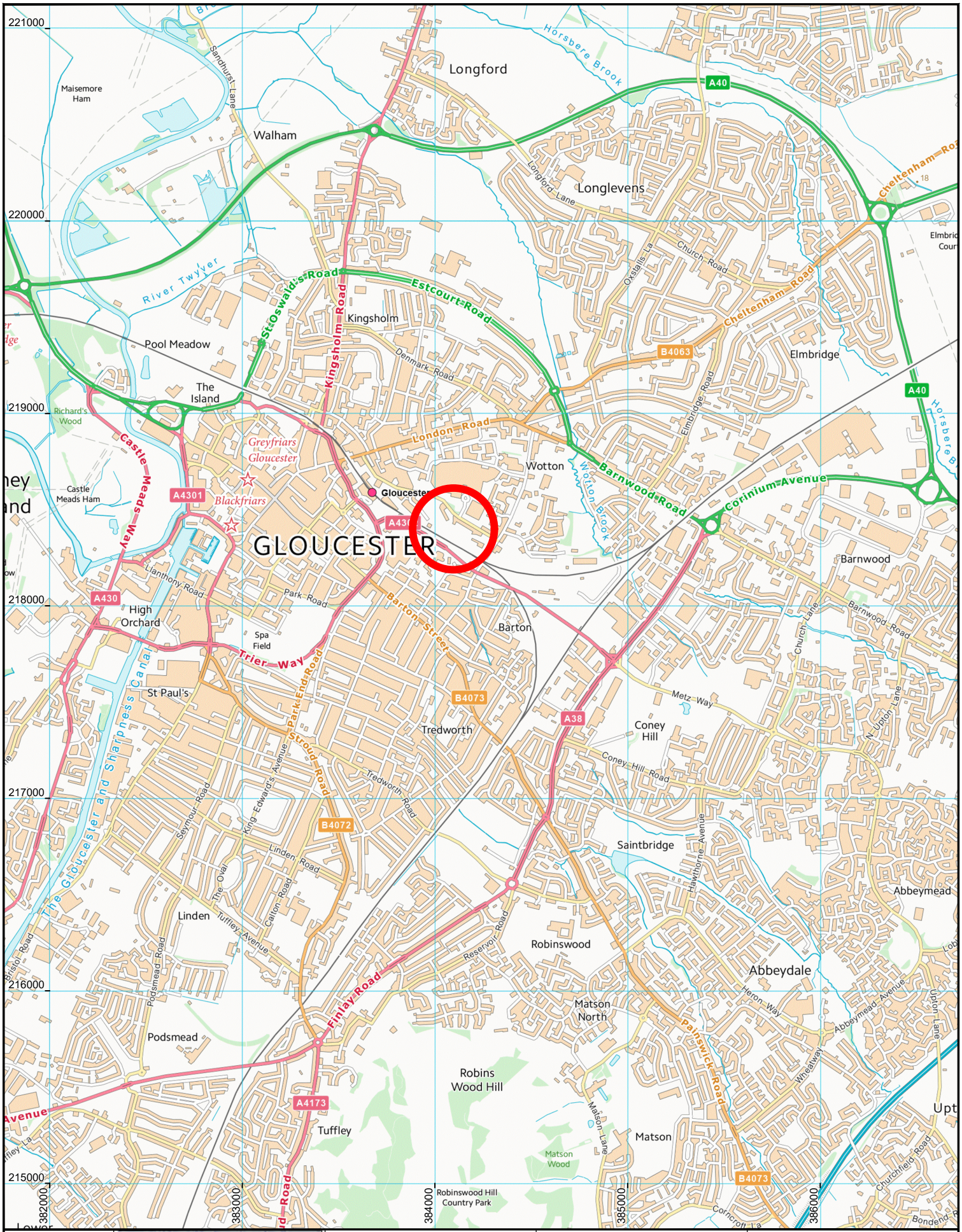
Conclusions and recommendations

- Hydrock consider that a Phase 1 preliminary risk assessment has been adequately completed. If allowable, the Weeks 1998 Report and Arup 2016 Desk Study should be submitted separately to the LPA for review and to allow Part 1 of the recommended condition to be removed.
- Hydrock consider that appropriate ground investigation has been undertaken to allow the preparation of a Remedial Options Appraisal and Remediation Strategy and Verification Plan for review by the LPA.
- Hydrock accept that some data gaps exist and the intent is to address these during the remediation and verification. It is considered feasible that targeted ground investigation to aid the final remedial design can be incorporated into these documents and be undertaken once access is available post-demolition.
- Consideration should be given for Parts 2 and 3 of the recommended condition wording to be more site-specific based on the nature of the extensive ground investigation works that have already been completed to date and those that may still be required to support remedial design.

- Hydrock agree with Parts 4 to 6 of the recommended condition wording, which relate to the preparation, implementation, and verification of a remediation scheme.
- The protocol for investigating unexpected contamination (Part 7 of recommended condition wording) will also be detailed within the Remediation Strategy and Verification Plan.
- Consideration should be given to wording the recommended condition such that development can be undertaken using a phased approach.
- Supplementary (geotechnical) ground investigation is still required across the Tenanted Areas to confirm design parameters for the proposed development. This can include confirmatory contamination investigation to provide further evidence for the presence/absence of significant impacts.
- Based on multiple lines of evidence, Hydrock consider the risk of firefighting foams / PFAS having been deployed on the site to be low.
- The Hydrock 2022 DQRA should be forward by the LPA to the Environment Agency for comment as soon as possible to ensure that any feedback can be incorporated into the preparation of the Remedial Options Appraisal and Remediation Strategy and Verification Plan.

Enclosed:

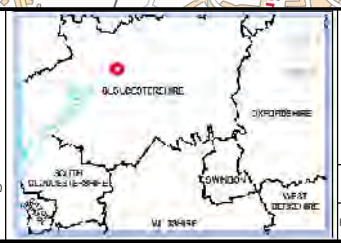
1. Hydrock. Site Location Plan. Ref: 20775-HYD-XX-XX-DR-GE-1000, dated 3 March 2022.
2. Network Rail Sale Plan & Lease Overlays. Ref: 6225807, dated 17 May 2018.
3. Darling Associates. Proposed Site Plan. Ref: 03-0-00, dated June 2022.
4. Darling Associates. Proposed Phasing Plan. Ref: 03-0-01, dated June 2022.
5. WRS (on behalf of GCC). Consultation on Planning Application 22/00770/FUL. Ref: 22/1023/PLAN, dated 20 September 2022.
6. Hydrock. Potential Sources of Contamination. Ref: 20775-HYD-XX-XX-DR-GE-1002, dated 10 March 2022.
7. Hydrock. Exploratory Hole Location Plan. Ref: 20755-HYD-XX-XX-DR-GE-1004 (P02), dated 26 April 2022.
8. Email correspondence with Gloucestershire Fire and Rescue Service. Dated 10 October 2022.



OS NORTH

Site Ref: SO81

0 500 Metres



REV.							
P1	FIRST ISSUE	EP	03/03/22	SW	03/03/22	SW	03/03/22
	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock [redacted]

CLIENT: EUTOPIA HOMES LTD

PROJECT: GREAT WESTERN ROAD YARD

TITLE: SITE LOCATION PLAN

HYDROCK PROJECT NO.	SCALE @ A4
C-20775-C	1:25,000

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
20755-HYD-XX-XX-DR-GE-1000	P1

N

Business Space Leases

- GCR02301
- GCR02302
- GCR02401
- GCR02402
- GCR02403
- Access
- Sale Area

Pullman Court
Headway House
Builders Yard
Widden Early Years Centre
Great Western Court
The Old Chapel (Nursing Home)
Depot
Club
El Sub Sta
Tank
GREAT WESTERN ROAD
HARESCOMBE DRIVE
HORTON ROAD
METZ WAY
A4302
18.1m
19.8m
23.8m
21.5m
20.5m
66 to 100
27 to 59
metres 0 20 40 60 80 100

Landinformation

GLOUCESTER

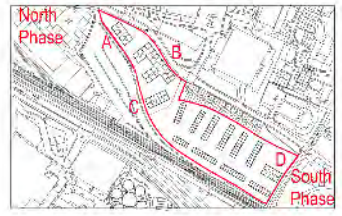
SALE PLAN
& LEASE OVERLAYS

Coordinates 384137E 218410N

Date:	Drawn By:	
17 May 2018	AG	
Drawing No:	Rev:	Scale:
6225807		1:1250 @ A3

General Notes

Key Plan



Notes

Planning Application Boundary

SCALE BAR IN mm

REV	NOTES	DATE	BY	AUTH

DARLING ASSOCIATES ARCHITECTS

1 Greencoat Row
London SW1P 1DH
UK
[redacted]

DRAWING STATUS
Planning

TITLE
Proposed Site Plan

PROJECT
Great Western Yard

SCALE AT A0: 1:500
SCALE AT A3: N.T.S.

JOB NO: 19050
DRAWING: 03-0-00
REV: PL

Block A

Northern Phase:
9546m2 (2.358 Acres /
0.9546ha)

Block B

Block C

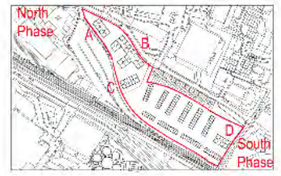
Site Area:
31000m2 (7.660 Acres /
3.1ha)

Block D

Southern Phase:
21454m2 (5.301 Acres /
2.145ha)

General Notes

Key Plan



Notes

N

Northern Phase

Southern Phase

SCALE BAR IN mm

REV	NOTES	DATE	BY	AUTH
P	Issue for Planning	JUN 2020	D	TP

DARLING ASSOCIATES ARCHITECTS

1 Greencoat Row
London SW1P 1PH
UK

[redacted]

DRAWING STATUS
Planning

TITLE
Proposed Phasing Plan

PROJECT
Great Western Yard

SCALE AT A0	SCALE AT A3	
1:500	N.T.S.	
JOB NO.	DRAWING	REV.
19050	03-3-01	P1

ENVIRONMENTAL HEALTH & LICENSING

Worcestershire Regulatory Services
Supporting and protecting you

Adam Smith
Glocs City Council

[redacted]

Our ref: 22/10423/PLAN

20th September 2022

Dear Adam Smith

Application No: 22/00770/FUL at Great Western Yard, Great Western Road, Gloucester

Please find below comments made by Worcestershire Regulatory Services on the above application.

Consultation:

WRS has reviewed the following reports provided in support of the above planning application in respect fo potential contaminated land (PCL) issues on site:

- 'Great Western Yard, Supplementary Phase 2 Ground Investigation Report' prepared by Hydrock and dated 26th April 2022 (20775-HYD-XX-XX-RP-GE-001) which includes in its appendices;
    - Report on Ground Investigation, Gloucester. Great Western Road Yard" John F Hunt Regeneration (JFHR) dated January 2021 (20904), DRAFT only.
- 'Detailed Quantitative Risk Assessment' prepared by Hydrock and dated 30th June 2022 (20775-HYD-XX-XX-RP-GE-1002)

The applicant does not have reliance on the following listed documents that were included as part of the vendor's pack of information. Hydrock has reviewed for information purposes as part of the works, however these have not been included in the information provided:

- 'Contaminated Land Site Investigation at Gloucester' Weeks Technical Services (Weeks), dated July 1998 (G8013V)
- 'Geo-Environmental Desk Study and Preliminary Risk Assessment, Great Western Road Yard, Gloucester' Ove Arup & Partners ltd, April 2016 9REP/006/16)

continued….

Please note WRS are unable to provide comment on the geotechnical aspects of the submitted report, the comments made below relate solely to contaminated land risk assessment.

Summary of Reports:

1. **Hydrock Supplementary Phase 2 Investigation Report**

Site background

- The site has been a railway depot and sidings since at least the earliest mapping in 1883. Various railway sidings, tanks, buildings, and engine sheds have been located across the site over the past 130 years, with the current layout remaining relatively similar to the 1970s.
- A sand pit is marked on the 1886 historical map in the east of the site.
- A road transport depot was marked in the north of the site from the 1954 mapping and is now occupied by four separate tenanted commercial units: FLI Structures (a steel fabricator), Jays Timber Yard, Auto tune and Classic leather (car repair/detailing), and Carlton Motors (a garage). A former car parking area in the far northwest of the site was formerly also a Tenanted Area leased to the NHS, now accessible.
- A gas works was historically present approximately 20 m to the northeast of the site (marked on the historical mapping between 1938 and 2014).
- A petrol filling station has been present approximately 100 m to the northeast since the early-1970s.

Potential sources of contamination

- Infilled inspection pits to the south of the large engine shed in the east of the site.
- Approximately 50 m to the west of the large engine shed were concrete tank holders with low brick enclosures (i.e., fuel storage footings for a historical ‘tank farm’). Fuel pipework was recessed into the cast in channels in the concrete hardstanding and the associated refilling pumps and pipework were located on the hardstanding area immediately to the east of this area (approximately 20 m west of the large engine shed).
- A potential additional recessed interceptor (overgrown) was noted directly to the northwest of the tank farm in the central portion.
- Approximately halfway along the southern site boundary was another former brick walled tank holder. Immediately to the west of this area was a large (approximately 10 m by 3 m) open interceptor surrounded by security rail and fence. No oil was noted on the interceptor. Anecdotal evidence suggested that this was periodically pumped to remove hydrocarbons.
- An open inspection pit in the west of the railway sidings area. A ‘recent’ bunded fuel store was recorded adjacent to inspection pit. Two ASTs were noted adjacent to this inspection pit (one of more modern construction and an older tank with black staining noted on the soils by the outlet).
- The existing buildings within the railway sidings area were derelict and in a poor state of repair. Extensive fire damage was also noted. No assessment of the building internals was made as deemed unsafe

- Tenanted areas – though not included in Conceptual Site Model (CSM)

Ground Conditions

- Made Ground (MG) was encountered at all exploratory locations to depths between 0.1 m and 2.1m bgl, with the typical proven depths ranging between 0.6 m and 1.1m bgl and 0.7m thick. Surfacing comprised concrete (max 0.45m bgl.), asphalt (max. 0.17m bgl NE & NW corners) and hardcore/gravel/ballast covering majority of railway sidings area. This was generally underlain by gravelly sand and sandy gravel, with the sand component predominantly ash and the gravel component of clinker and railway ballast. Anthropogenic materials including brick, concrete, slag, metal and glass were also recorded.
- Cheltenham Sand and Gravel Superficial Deposits (CS&G) (secondary A aquifer) and the base was proven at depths of between 2.1 m and 4.7m bgl, average thickness 1.92m;
- At locations TP107, TP108 and TP114 a typically more cohesive Superficial Deposit was encountered beneath the Made Ground. The base of the cohesive material was encountered at 1.60m bgl within TP108, however, within TP107 and TP114 the material was encountered to the base of the excavations at depths of 2.30 m and 1.70m bgl, respectively (i.e., base unproven). Average thickness 1.51m
- Solid Geology (bedrock) of the Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated). comprised an upper layer of firm becoming stiff with depth closely fissured dark grey slightly silty clay overlying very stiff/hard bluish grey mudstone. Max depth proven 14.7mbgl

Ground Investigation Constraints

Significant access constraints were noted across the site, including: large areas of dense vegetation, railway lines, differing ground levels, structurally unsafe buildings, and infilled inspection pits.

Key findings from Hydrock and previous investigations provided

Shallow groundwater was encountered within the Cheltenham Sand and Gravel at depths ranging between 0.73m and 2.12m bgl. The groundwater flow direction is generally proven to be towards the west/northwest shown on the groundwater contour plots in Appendix A. A deeper groundwater body was encountered within the wells installed in the underlying Charmouth Mudstone Formation at head depths recorded between 1.06m and 2.07m bgl. The groundwater flow direction is also generally proven to be towards the west

Man-made constituents in Made Ground including ash, clinker, plastic, slag. Visual and olfactory evidence of hydrocarbons impacting soils and groundwater (during GI and post monitoring) in multiple locations shown on diagrams in appendix A.

LNAPL (light hydrocarbon liquid) was measured by Hydrock resting on groundwater at WS102 and WS115. WS102 is located hydraulically downgradient of the historical tank farm and refuelling area, which is considered to be the source of the LNAPL. WS115 is adjacent to the interceptor, which is anticipated to be the source of the LNAPL, which itself had a measured thickness of 1550 mm of LNAPL within the middle chamber. The measured thicknesses of

LNAPL at WS115 were consistent throughout Hydrock's monitoring period however, the JFHR 2020 GI measured the thickness at WS115 as 500 mm and 45 mm during their two monitoring visits.

Vapours measured (by PID) readings from wells in MG max 17.8ppm and CS&G max 56.8ppm

Human Health Risk Assessment

- Average areas MG and MG at TP219, CS&G unimpacted and impacted by contamination. Assessment is against three types of end use: residential with gardens, without and Public Open Space (POS).
- Exceedances of assessment criteria for Polyaromatic Hydrocarbons (PAHs) particularly Benzo-a-Pyrene (BaP) in MG in all 3 end use types: considered unacceptable risk requiring mitigation. Lead in CS&G (unimpacted), localised, considered acceptable risk.
- Exceedances of assessment criteria for hydrocarbons in exploratory location MG219 for all 3 types of end use, exceedances in MG and CS&G impacted in residential with gardens and without, but not POS. Considered unacceptable risk requiring mitigation
- LNAPL in central portion of site considered unacceptable risk requiring mitigation
- Asbestos evidence in 3 exploratory BHs and fibres also in a 4th. Considered plausible for asbestos to be present in any of the Made Ground soils, significantly within the footprints of historical and existing buildings (which have not been fully investigated) and asbestos, (even at low concentrations), represents an unacceptable risk and mitigation measures will be required across the site, for both the construction phase and the site end users.
- No issues with PCBs or pesticides.

Plant Life Risk Assessment

Significant exceedances of Copper within MG indicates probability of an unacceptable risk to plant life and mitigation maybe required

Controlled Waters Risk Assessment

- Risk from metals and inorganics and PCBs considered low.
- Risk from hydrocarbons to shallow groundwater. Significant excess of screening value – impacts typically around tanks, refuelling area and interceptor. LNAPL and dissolved phase hydc do not appear to be migrating off site and likely not impacting water body. However still considered an unacceptable risk to CW requiring further assessment (DQRA) and mitigation. Further targeted analysis of Semi Volatile Organic Compounds SVOCs as part of DQRA.

Ground gases. 6 rounds undertaken in all (2 JFHR and 4 Hydrock) – no significant issues following gas risk assessment

Relevant recommendations

- Demolition asbestos survey to be undertaken
- Supplementary ground investigation to confirm design parameters, notably within in the Tenanted Areas.

- Discussion and agreement with utility providers regarding the materials suitable for pipework;
- Discussions with piling Contractors regarding conclusions of this report and design of the piles.
- Preparation of higher tiers of risk assessment (a DQRA) to determine the risk to Controlled Waters, supported by collection of an additional round of groundwater sampling from all accessible wells.
- Considered necessary to install suitable hydrocarbon vapour resistant membranes across all proposed structures to protect future occupants as a precautionary approach
- Production of a Remediation Strategy and Verification Plan, subject to findings of higher tiers of risk assessment (and agreement with the regulatory bodies and the warranty provider).
- Production of a Materials Management Plan relating to reuse of soils at the site and import of soils to the site.
- Remediation and mitigation works.
- Verification of the earthworks, MMP, remediation and mitigation works.

2. Hydrock Detailed Quantatative Risk Assessment

Key conclusions for Controlled Waters

- The findings of the DQRA and the natural attenuation assessment indicate that the risk to Controlled Waters is low and that remediation from a Controlled Waters perspective is not considered to be warranted.
- Given the shallow depths to LNAPL recorded across the source area, it is not considered practical to leave the LNAPL beneath the proposed development.
- The site has a very low risk of flooding from rivers and sea, however, if extreme rainfall events due to climate change were to increase groundwater levels (the site is located in an area with the potential for groundwater flooding), the LNAPL would be pushed closer to the proposed subsurface and surface infrastructure/buildings of the proposed development.
- The LNAPL should be removed as far as reasonably practicable. In addition, LNAPL impacted /grossly impacted residual soils should also be removed to reduce the long-term source strength and enhance the potential for natural attenuation to mitigate the dissolved phase hydrocarbon plume longevity.
- The extent of the remediation required should be determined through the preparation of a 'Remediation Options Appraisal', followed by the preparation of a 'Remediation Strategy and Verification Plan'.

Key findings for Human Health (risk from Vapours)

- ...given the shallow depths to LNAPL that have been recorded across the source area, it is not considered practical to leave the LNAPL beneath the proposed development and the LNAPL should be removed as far as reasonably practicable. In addition, LNAPL

impacted/grossly impacted soils should also be removed (this is also a recommendation of the DQRA for the Controlled Waters receptor).

- Following the removal of LNAPL and LNAPL impacted/grossly impacted soils, the risk to future site occupants from petroleum hydrocarbon vapours is considered to be low. Therefore, vapour protection measures as part of the proposed development are not considered to be warranted.
- The extents of the remediation required should be determined through the preparation of a 'Remediation Options Appraisal', followed by the preparation of a 'Remediation Strategy and Verification Plan'

WRS Comments:

The available reports indicate that the site has been particularly impacted by its long history of rail use. Both made ground, the underlying sands and gravels and to a lesser extent the mudstone show indication of heavy end petroleum hydrocarbon impacts. Odours and visual evidence have been found throughout the site but particularly around the refuelling infrastructure and interceptor in the central area of the site. The conclusions of the report recommend treatment for on-site Non Aqueous (free) Phase Liquids (hydrocarbons) and grossly affected soils together with clean cover and localised delineation and removal.

It is noted no Phase 1 Desk Study including historical maps has previously been provided to the local authority.to support the application or been made available to review to the planning authority.

Hydrock have reviewed Arup 2016 Desk Study, and Weeks 1998 report to inform the Supplementary Investigation undertaken but no copies are provided within the submitted report.

Whilst it is understood these reports have not been commissioned or are reliant upon by the applicant, as they have been utilised to formulate the preliminary ground model and the preliminary CSM informing the latest assessment, they should be provided as an appendix or submitted separately for the planning authority’s information and review. Alternatively, a separate Phase 1 investigation should be commissioned to support the approach undertaken in the Site Investigation and any further Site Investigation and provided to the planning authority.

Generally, WRS concur with proposals provided. However there are data gaps in the Conceptual Site Model (CSM) and therefore risk assessment due to site investigation constraints outlined above and further investigation is required of: tenanted areas, footprints of unsafe buildings (potential for asbestos) and slabs, densely vegetated areas, railway sidings in central area, car parking area in north-west corner of site, infilled inspection pits. The impact on Human Health and risk assessment may require some reconsideration following outcomes of further investigation into these areas.

As there is evidence of fire damage to existing buildings it is recommended consideration is given to the potential for firefighting equipment to have been used on site and presence of PFAS on site in future investigations.

Additionally, it is recommended further consideration is given to migration of contamination off site from the investigated tank in the NW car park.

No adverse comments on DQRA, it is considered well-reasoned and comprehensive, however should be referred to Environment Agency for consultation on controlled waters elements as the appropriate authority.

Verification will be required that sufficient materials have been removed and excavated or treated prior to any work on future building foundations to ensure additional vapour protection measures are not required post early development stages. Consideration should be given to undertaking vapour sampling if any impacted materials are left in situ as part of future remedial strategy.

Recommendations:

WRS recommend the following condition wording is applied to the application, should any permission be granted to the development, to ensure PCL issues on site are appropriately addressed.

Furthermore, WRS recommend the local planning authority consult the Environment Agency for comment on the groundwater aspects of the provided information as the responsible authority for Controlled Waters.

In respect of part 1 of the condition wording below, it is recommended the LPA require copies of all available reports reviewed and utilised to inform the site investigations undertaken to date. Alternatively, a separate Phase 1 investigation should be commissioned to support the approach undertaken in the Site Investigation and any further Site Investigation and provided to the planning authority for approval.

Condition - Tiered Investigation

Unless otherwise agreed by the Local Planning Authority development, other than that required to be carried out as part of an approved scheme of remediation, must not commence until conditions 1 to 6 have been complied with:

1. A preliminary risk assessment must be carried out. This study shall take the form of a Phase I desk study and site walkover and shall include the identification of previous site uses, potential contaminants that might reasonably be expected given those uses and any other relevant information. The preliminary risk assessment report shall contain a diagrammatical representation (conceptual model) based on the information above and shall include all potential contaminants, sources and receptors to determine whether a site investigation is required and this should be detailed in a report supplied to the Local Planning Authority. The risk assessment must be approved in writing before any development takes place.

2. Where an unacceptable risk is identified a scheme for detailed site investigation must be submitted to and approved in writing by the Local Planning Authority prior to being

undertaken. The scheme must be designed to assess the nature and extent of any contamination and must be led by the findings of the preliminary risk assessment. The investigation and risk assessment scheme must be compiled by competent persons and must be designed in accordance with the Environment Agency's "Land Contamination: Risk Management" guidance.

3. Detailed site investigation and risk assessment must be undertaken and a written report of the findings produced. This report must be approved by the Local Planning Authority prior to any development taking place. The investigation and risk assessment must be undertaken by competent persons and must be conducted in accordance with the Environment Agency's "Land Contamination: Risk Management" guidance.

4. Where identified as necessary a detailed remediation scheme to bring the site to a condition suitable for the intended use by removing unacceptable risks to identified receptors must be prepared and is subject to the approval of the Local Planning Authority in advance of undertaking. The remediation scheme must ensure that the site will not qualify as Contaminated Land under Part 2A Environmental Protection Act 1990 in relation to the intended use of the land after remediation.

5. The approved remediation scheme must be carried out in accordance with its terms prior to the commencement of development, other than that required to carry out remediation, unless otherwise agreed in writing by the Local Planning Authority.

6. Following the completion of the measures identified in the approved remediation scheme a validation report that demonstrates the effectiveness of the remediation carried out must be produced, and is subject to the approval of the Local Planning Authority prior to the occupation of any buildings.

7. In the event that contamination is found at any time when carrying out the approved development that was not previously identified it must be reported in writing immediately to the Local Planning Authority. An investigation and risk assessment must be undertaken and where necessary a remediation scheme must be prepared, these will be subject to the approval of the Local Planning Authority. Following the completion of any measures identified in the approved remediation scheme a validation report must be prepared, which is subject to the approval in writing of the Local Planning Authority prior to the occupation of any buildings.

REASON

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors

Pre-commencement conditions for contaminated land risk assessment are considered necessary for the following reasons:

- There is potential for contamination to exist on the site. The degree and extent of contamination is currently unknown. More information relating to ground conditions is required to determine whether or not remediation will be required (prior to any construction work commencing).

- Where remediation is necessary, this remediation may involve work/techniques that need to be completed before any development is commenced, for example the removal from site of contaminated soils/underground structures, the design and incorporation of gas protection measures in any buildings etc. To carry out such work after construction has started/been completed, may require potentially expensive retro-fitting and in some cases the demolition of construction work already completed.

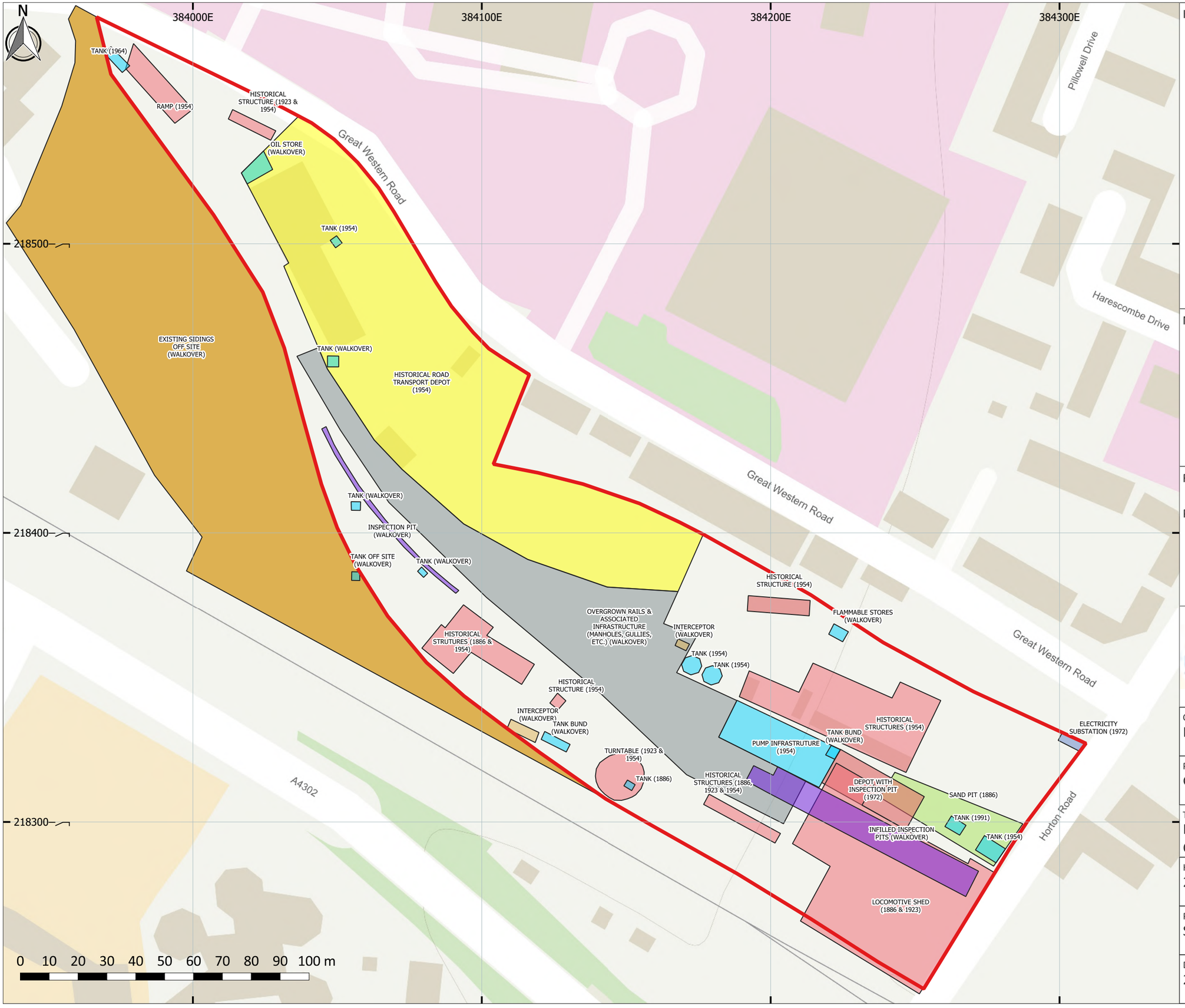
Paragraph 178 of the NPPF requires development to be suitable for its proposed use taking account of ground conditions, any risks arising from contamination, and any proposals for mitigation, including land remediation. Paragraph 178 goes on to state that after remediation, as a minimum, land should not be capable of being determined as Contaminated Land under Part 2A of the Environmental Protection Act 1990.

If you have any queries regarding the above please do not hesitate to contact the Land and Air Quality Team via [redacted] quoting the above case reference.

Yours sincerely

Chris Poole

Senior Technical Officer, Land and Air Quality Team



KEY PLAN

- Site Boundary

POTENTIAL SOURCES OF CONTAMINATION

- FUEL INFRASTRUCTURE
- INSPECTION PIT
- INTERCEPTOR
- ELECTRICITY SUBSTATION
- SAND PIT
- ROAD TRANSPORT DEPOT
- OVERGROWN RAILS & ASSOCIATED INFRASTRUCTURE
- HISTORICAL STRUCTURES
- EXISTING SIDINGS (OFF SITE)

NOTES

1. Contains OS data © Crown copyright and database right (2022). Licence number: 100023353.
2. Potential signficant sources of contamination based on desk-based review of historical reports and site walkover survey.

REVISIONS

P01 | MK | 10 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
POTENTIAL SOURCES OF CONTAMINATION

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1002	P01

OS NORTH

FORMER CAR PARK

CARLTON MOTORS

AUTO TUNE & CLASSIC LEATHER

JAYS TIMBER YARD

FLI STRUCTURES

RAILWAY SIDINGS

GREAT WESTERN ROAD

TERRACED HOUSES

METAL WORKSHOPS

KEY

WSi Window sample hole

BHi Borehole

TPi Trial pit

CPTi CPT Tests

DPi Dynamic Probes

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

3. This drawing has been based on the following drawings and information: TOPOGRAPHICAL SURVEY_53083/TOPO-1, 53083/TOPO-2, 53083/TOPO-3_ JANUARY 2019.

4. Historical exploratory locations from JFHR and Weeks investigations are based on either coordinates, if provided, or georeferencing of their EHLP. TP111 from the JFHR 2020 investigation is not shown on their plan, therefore, the location is unknown.

REV.	FIRST ISSUE					
P1	EP	03/02/22	SW	03/02/22	SW	03/02/22
	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock

CLIENT

EUTOPIA HOMES LTD

PROJECT

GREAT WESTERN ROAD YARD

TITLE

EXPLORATORY HOLE LOCATION PLAN

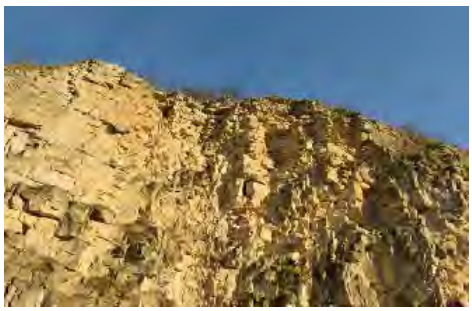
HYDROCK PROJECT NO.	SCALE @ A0
C-20775-C	1:400
PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
20755-HYD-XX-XX-DR-GE-1004	P1


Great Western Rd
Metz Way

me
wp
Planning and Development Consultant

Mineral Safeguarding Assessment

Residential development of up to 315 dwellings Great Western Yard, Great Western Road, Gloucester.



Prepared on behalf of Eutopia Homes (Gloucester) Ltd

mewp

Planning and Development Consultant

Report Title:	Mineral Safeguarding Assessment
Client:	Eutopia Homes (Gloucester) Ltd
Proposal:	Planning Application for Residential development of up to 315 dwellings
Date:	07th October 2022

Job Reference:	2022.72.125

Prepared by:	Chris Jarvis MRTPI
Reviewed by:	
Date of Issue:	07th October 2022
Version:	Draft

TABLE OF CONTENTS

Drawings

1. Introduction

1.1 This report accompanies and supports a planning application for residential development for up to 315 dwellings on land at Great Western Yard, Great Western Road, Gloucester.

1.2 The application site lies within the Gloucestershire Mineral Safeguarding Area (MSA) as defined on the Policies Map accompanying the Minerals Local Plan for Gloucestershire 2018 – 2032 (MLP) adopted in 2020. Policy MS01 of the MLP and Policy SD3 of The Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031, adopted in 2017, set out the relevant development plan policies regarding mineral safeguarding and this report is submitted to address the requirements of those policies.

1.3 The report is based upon the advice set out within the Minerals Safeguarding Practice Guidance published by the Mineral Product Association and the Planning Officers' Society (2019), a review of publicly available information including the records of the British Geological Survey, Gloucestershire Annual Monitoring Reports and Local Aggregate Assessments along with data provided by the client.

1.4 The report only considers the possibility of the sterilisation of a mineral resource and should not be relied upon for any other purpose than consideration of the mineral consultation and safeguarding policies of the adopted development plan. This report should be read in conjunction with the previously submitted ground investigation reports including, specifically, the Supplementary Phase 2 Ground Investigation Report prepared on behalf of the applicant by Hydrock in April 2022.

2. Site Location and Description of Development

Site Location

1.5 The application site is located centrally within Gloucester between Great Western Road and Metz Way, immediately to the east runs Horton Road. The site is located at national grid reference 384154; 218364

1.6 The application site lies wholly within the administrative areas of Gloucestershire County Council and Gloucester City Council.

Site Description

2.1 The application site comprises approximately 3.1 hectares of generally flat, level, previously developed land located centrally within Gloucester. The application site has, historically, been utilised as railway sidings, commercial premises and parking.

2.2 Great Western Road and Horton Road define the northern and eastern boundaries of the site, respectively. Adjoining the site along the northern boundary is a row of Victorian terrace properties, beyond which lies the Royal Gloucester Hospital. Immediately to the south of the application site runs the railway into Gloucester Station, itself located some 260m to the east of the application site. Beyond the railway lies Metz Way and residential areas of Gloucester. To the west lies the Pullman Business Centre and further commercial and industrial operations are located beyond Horton Road to the east.

2.3 The application site itself comprises a generally flat, linear parcel of land. Within the boundary of the site lies a disused rail depot, operational timber yard and vehicle repair garage. Other disused buildings and remnants of the site's previous use as a rail siding can also be found across the site.

2.4 Publicly available historic mapping indicates that the application site has been industrial in use since at least 1886 when mapping identifies the site as being the location of a locomotive shed, railway sidings and a small sand pit.

3. Site Geology

3.1. The superficial and bedrock geology underlying the site are discussed below and shown on the drawings accompanying this report.

Superficial Geology

3.2. British Geological Survey (BGS) 1:625000 mapping indicates that superficial deposits are found across the site consisting of Alluvium.

3.3. 1:50000 mapping, details of which are provided on drawing 2022.72.125/3, indicates superficial deposits of Cheltenham Sand and Gravel are found across the western 60% of the site, around 1.8 hectares. Cheltenham Sand and Gravel is described by the BGS as "*Sand, quartzose, fine- to medium-grained, generally unbedded, with seams of poorly sorted predominantly limestone gravel, especially in the lower part. Sand probably derived by aeolian processes from nearby river terrace deposits. Gravel largely Middle Jurassic ooidal limestone derived probably by solifluction from the nearby Cotswold escarpment, plus ironstone and derived fossils. Rare clay lenticles.*"

3.4. 1:50,000 mapping shows the remaining 1.3 hectares of the site as having no superficial deposits.

Bedrock Geology

3.5. BGS 1:625000 Mapping indicates that bedrock geology comprises mudstone, siltstone, limestone and sandstone of the Lias Group.

3.6. BGS 1:50000 Mapping is provided on drawing 2022.72.125/2 and indicates that the whole of the application site is underlain by mudstone of the Blue Lias and Charmouth formations. The Charmouth Mudstone Formation is described by the BGS as:

"Dark grey laminated shales, and dark, pale and bluish grey mudstones; locally concretionary and tabular limestone beds; abundant argillaceous limestone, phosphatic or ironstone (sideritic mudstone) nodules in some areas; organic-rich paper shales at some levels; finely sandy beds in lower part in some areas."

Other Data Sources

3.7. Alongside the published BGS mapping, other data sources have been consulted including publicly available borehole data and the BGS Mineral Resource Map for Gloucestershire, an extract from which is provided at Figure 1 below.

3.8. There are no publicly available historic borehole records within the application site. Outside the application area, there are extensive records of ground investigation, although to the south a great many of these are not publicly available. To the north, extensive investigation has taken place across the site of the Royal Gloucester Hospital and reveal large areas of clay with thin bands of sand and gravel. To the south west, on the site of the current swimming baths, investigation undertaken in 1960 reveals that a band of sand and gravel approximately 2.9m thick exists from about 1.5m below ground level. However, that same investigation also reveals that groundwater was encountered between 2.1m and 2.4m, within the sand and gravel.

3.9. The BGS Mineral Resource Map for Gloucestershire (2006) is understood to have informed the definition of minerals safeguarding areas. The Mineral Resource Map identifies that, around the application site there are superficial Sub-alluvial and River Terrace deposits. However, the Mineral Resource Maps also demonstrates that these deposits have not been extensively worked historically. Whilst historic mapping indicates the presence of a sand pit at or adjacent to the eastern boundary of the application site, no surface planning permissions for the working of sand and gravel at or near the application site are noted on the Mineral Resource Map.

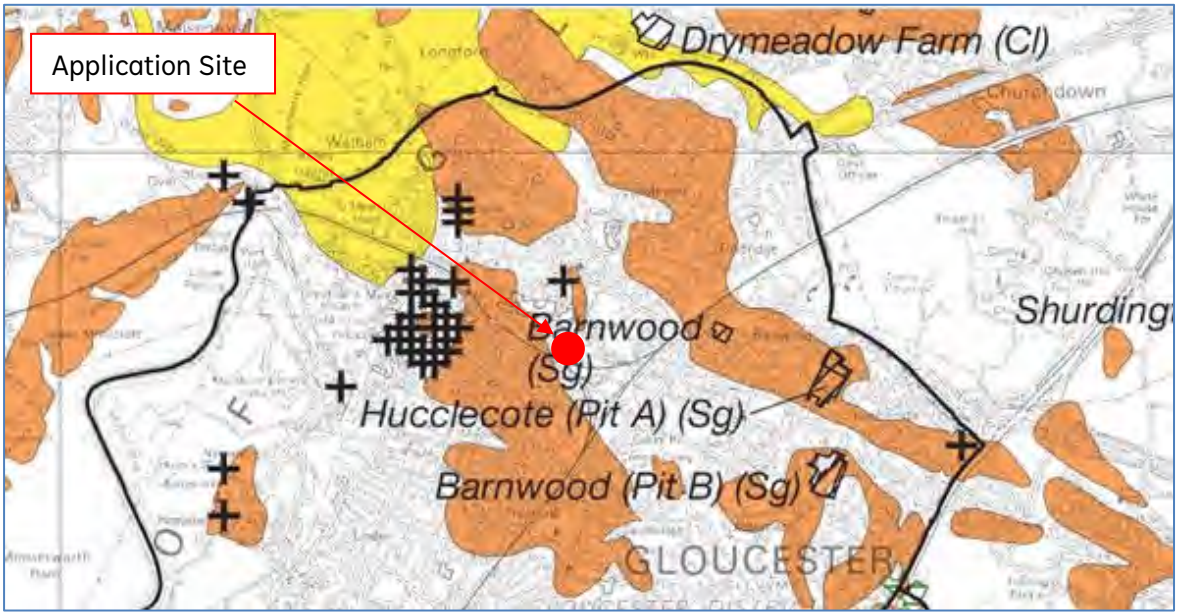


Figure 1 – Extract from Gloucestershire Mineral Resource Map

3.10. The current planning application is accompanied by reports of desk top and intrusive ground investigation of the application site. The most recent of these reports comprises a Supplementary Phase 2 Ground Investigation Report prepared on behalf of the applicant by Hydrock in April 2022 and submitted in support of the residential planning application.

3.11. The Phase 2 ground Investigation confirms that the site surface is predominantly made ground associated with the historic uses of the application site. Underlying the made ground, site investigation confirms the presence of Cheltenham Sand and Gravel across the site, with the base of the material encountered between 1.70 and 4.70 below ground level. The Phase 2 report confirms that the general thickness of the sand and gravel across the site is approximately 2.0m. Exploratory borehole logs, providing details of the site investigation, are provided at Appendix D of the Phase 2 report and are not repeated here for the sake of brevity.

3.12. Analysis of the particle size of the Cheltenham Sand and Gravel samples taken from the boreholes indicates the silt content of the sand and gravel ranges from 0% to 30%.

3.13. Using the site area of 3.1 hectares, an average thickness of deposit of around 2.0m and an assumed density of 1.6 tonnes/m^3, it is possible to estimate the maximum potential yield of sand and gravel from the site. the total maximum amount of sand and gravel at the site is calculated as follows:

31,000 x 2 x 1.6 = 99,200 tonnes.

3.14. The total maximum figure which could be recovered through prior extraction would therefore be 99,200 tonnes. However, this figure does not take into account the amount of fine material contained within the deposit or any constraints to development which would reduce the area within which prior extraction could take place.

3.15. The Phase 2 ground investigation provides details of two significant constraints to development. Firstly, some 29 of the borehole records across the application site are cited as containing evidence of hydrocarbon contamination. The Conceptual Site Model provided at Appendix A of the Phase 2 report demonstrates graphically that large areas of the site are subject to hydrocarbon contamination to the base of the sand and gravel deposit. This is particularly the case through the centre of the site and associated with historic structures. Material from these areas is likely to require remediation or disposal rather than processing as primary construction aggregates. Secondly, and likely to provide an equal constraint to development, the ground investigation encounters groundwater across the site at depths ranging from 0.8m – 2.0m and all within the Cheltenham Sand and Gravel. The Phase 2 report identifies that inundation of trial pits was sufficiently rapid to cause those pits to collapse.

4. Mineral Extraction in Gloucestershire

4.1. As the application site lies within a sand and gravel safeguarding area, only the possible impacts of the proposed development on sand and gravel resources are considered further in this report.

4.2. In 2006 the British Geological survey published Mineral Resource Information in Support of National, Regional and Local Planning (BGS Report) for Gloucestershire (comprising Gloucestershire and South Gloucestershire), providing details of potentially viable mineral resources within the area. The BGS Report identifies that Gloucestershire produces crushed rock aggregates from limestone, sandstone and igneous rock, sand and gravel from River Terrace Deposits and sub alluvial gravel, building sand and building stone from bedrock sand deposits, hydrocarbons, clay and, historically, coal and evaporite minerals. The report also identifies that no surface planning permissions exist or did so at the time the report was published, around or across the application site.

4.3. The current position with regard to aggregate production in Gloucestershire is set out in the 10th Local Aggregates Assessment for Gloucestershire (LAA) which covers the period 01/01/2020 to 31/12/2020, published in July 2022. The LAA confirms that, over the 10 year period between 2011 and 2020, an average of 0.698 million tonnes of sand and gravel have been sold each year in Gloucestershire

4.4. The LAA also confirms that permitted reserves of sand and gravel at the beginning of 2021 amounted to some 5.32 million tonnes or the equivalent of 7.62 years when calculated against the ten year average sales figure. The LAA identifies that, outside the period of the LAA, a further 217,000 tonnes of sand and gravel has been granted planning permission for extraction at Whetstone Bridge Quarry. A further application at the former RAF Down Ampney for the release of around 6.5 million tonnes of sand and gravel awaits determination. Consultation with the County Council's online planning register would indicate that no other consents for the winning and working of sand and gravel have been granted since the February 2021. It is therefore estimated that, based upon the ten year average sales figure, the current sand and gravel landbank is likely to be less than 7 years.

5. Relevant Planning Policy

5.1. Planning policy for minerals and mineral safeguarding is set out in the National Planning Policy Framework and, at the local level, in the adopted Minerals Local Plan for Gloucestershire 2018-

2032 (2020) (MLP) and the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031 (2017) (Core Strategy).

5.2. The application site also lies within the Gloucester Local Development Framework Railway Corridor Planning Brief Interim Planning Guidance.

National Planning Policy Framework

5.3. The National Planning Policy Framework (NPPF) was published in July 2021 and sets out the government's planning policies for England and how these are expected to be applied.

5.4. Chapter 17 of the NPPF sets out those policies that the Government believes will enable the sustainable use of minerals.

5.5. Paragraph 210 (c) identifies that planning policies should *"safeguard mineral resources by defining Mineral Safeguarding Areas and Mineral Consultations Areas; and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked)."*

5.6. Paragraph 212 requires that local planning authorities should not normally permit other development proposals in Mineral Safeguarding Areas if it might constrain future use for mineral working.

5.7. Paragraph 213(f) requires that mineral planning authorities should plan for a steady and adequate supply of aggregates by *"maintaining land banks of at least 7 years for sand and gravel..."*

5.8. Planning Practice Guidance (PPG) in respect of minerals safeguarding defines the purpose of safeguarding as "*the process of ensuring that non-minerals development does not needlessly prevent the future extraction of mineral resources, of local and national importance"*.

5.9. The PPG also provides guidance to district council's on the role that they play in safeguarding minerals including *"having regard to the local minerals plan when identifying suitable areas for non-mineral development in their local plans. District councils should show Mineral Safeguarding Areas on their policy maps".*

Local Planning Policy

5.10. The MLP was adopted in March 2020 and includes policies relating to minerals development, including those which are relevant to non-minerals development for the period 2018-2032.

5.11. The MLP seeks to effectively manage mineral resources and establishes an objective to:

"manage the county's remaining mineral resources in a co-ordinated and efficient manner by ensuring other development does not unnecessarily sterilise mineral resources or adversely affect the operation of mineral infrastructure; and that where minerals are worked, they are put to their optimal use and that any waste generated is kept to a minimum.

5.12. Section 7 of the MLP deals specifically with mineral safeguarding identifying that:

"Primary minerals can only be worked where they occur and with increasing pressure on land from different uses, are potentially at risk of being sterilised."

5.13. Paragraph 104 of the MLP identifies that the BGS Mineral Resource Map for Gloucestershire (inc. South Gloucestershire) has been used as the primary source for defining Mineral Safeguarding Areas. Table 1 of the MLP confirms that MSA extend for a distance of 250m beyond the known boundary of superficial resources shown on the Mineral Resource Map. Paragraph 114 of the MLP confirms that Mineral Consultation Areas (MCA) cover the full extent of MSA (as extended) and that, where non-mineral proposals are located within an MCA, the local planning authority is required to notify the Mineral Planning Authority. Applicants of non- mineral development in the MCA are advised to engage with the issue of mineral safeguarding at an early opportunity.

5.14. Policy MS01 is relevant to non-mineral development within MSA and states:

"Non-mineral development proposals within a Mineral Safeguarded Area (MSA) will be permitted provided: -

I. they are exempt from safeguarding requirements as set out in the list contained in table 2; or
II. needless sterilisation of mineral resources will not occur; or
III. the mineral resources of concern are not economically valuable; or
IV. it is appropriate and practicable to extract minerals prior to development taking place; or
V. the overriding need for development outweighs the desirability to safeguard mineral resources.

5.15. Paragraph 119 of the MLP requires all non-mineral proposals which need to be assessed against clauses II and IV of Policy MS01 to prepare a Mineral Resource Assessment.

5.16. Policy SD3 of the adopted Core Strategy seeks to ensure that all proposals are be designed and constructed in such a way as to maximise the principles of sustainability. Clause 4 of Policy SD3 states that:

"To avoid unnecessary sterilisation of identified mineral resources, prior extraction should be undertaken where it is practical, taking into account environmental acceptability and economic viability relating both to extraction of the mineral(s) and subsequent implementation of the non-minerals development of the site."

5.17. Paragraph 4.3.8 of the explanation to Policy SD3 goes on to state that:

"Applicants for non-minerals development, which may sterilise mineral resources, will be required to carry out a mineral assessment in consultation with the MPA. In the interests of sustainable development, where it is environmentally and economically viable, practical and acceptable to do so, provision will need to be for the prior extraction of minerals, and wherever possible this should be used within the new development."

5.18. The application site also lies within the Gloucester Local Development Framework Railway Corridor Planning Brief Interim Planning Guidance. Importantly in the context of potential prior extraction, paragraph 2.63 of the Planning Brief identifies that there are potential contamination concerns with regard to Great Western Road Sidings owing to historic land use.

6. Assessment

6.1 Taking account of the foregoing, this section sets out an assessment of the likelihood of the proposed development sterilising viable sand and gravel resources.

6.2 The planning application seeks permission for the development of up to 315 dwellings on a site of around 3.1ha in area.

6.3 Drawing Ref 2022.60.109/2, which is based upon publicly available BGS data supported by the BGS Mineral Resource Map, shows that around 58% of the site (1.8ha) is potentially underlain by sand and gravel aggregate mineral resources.

6.4 Furthermore, ground investigation of the application site demonstrates that, under a surface of made ground, the site is underlain by Cheltenham Sand and Gravels with an average depth of around 2.0m. A simple calculation enables a maximum tonnage of sand and gravel present within the application site to be estimated at 99,200, however, this figure takes no account of particle

size or constraints to development which are both likely to reduce that maximum yield considerably.

6.5 The Phase 2 Ground Investigation demonstrates that the Cheltenham Sand and Gravel are subject to both contamination and ground water inundation. The presence of contaminants across the site requires the development of a remediation strategy to manage those contaminated materials. However, it is likely that they would be managed by remediation and retained on site or subject to off-site disposal at a suitably permitted facility. The contaminated materials would not be suitable for processing or sale as primary aggregates.

6.6 Ground investigation also confirms the presence of ground water in the Cheltenham Sand and Gravel and that prior extraction to the base of the deposit could not be undertaken without causing groundwater inundation of the application site. it would therefore be necessary to reinstate ground levels through the importation of clean, inert materials of sufficient specification to allow the proposed development to proceed. These materials are likely to comprise primary aggregates, thus rendering the prior extraction of in-situ sand and gravels pointless.

7. Conclusion

7.1. The application site lies within a sand and gravel mineral safeguarding area. Publicly available evidence would suggest that around 60% of the application site has the potential to be underlain by sand and gravel deposits. Ground Investigation confirms the presence of these deposits across the site. However, ground investigation also demonstrates significant constraints to development through the presence of on-site contamination and the presence of shallow groundwater.

7.2. The presence of contaminants requires the development of an appropriate remediation strategy and would effectively prevent the use of the material found at the site as a primary aggregate. The shallow groundwater also prevents the working of the site to any meaningful depth without requiring the need to import material to reinstate the site. It is therefore considered that the contamination resulting from historic use of the site and the presence of shallow groundwaters has already effectively sterilised any sand and gravel deposits found at the site. In addition, the presence of the shallow groundwaters further prevents the prior extraction of any potential mineral resources.

7.3. This report and the various reports of ground investigation accompanying the planning application all demonstrate that no mineral reserve would be needlessly sterilised as a direct result of the proposed development or by proximity to the application site. They also demonstrate

that the prior extraction of the sand and gravel deposits would not be practical or feasible due to the presence of both contamination and shallow groundwater.

7.4. The proposed development thereby complies with the requirements of Paragraph 212 of the National Planning Policy Framework, Policy MS01 of the Gloucestershire Mineral Local Plan and Core Strategy and Policy SD3 Gloucester, Cheltenham and Tewkesbury Joint Core Strategy and should not be precluded on mineral safeguarding grounds.

References:

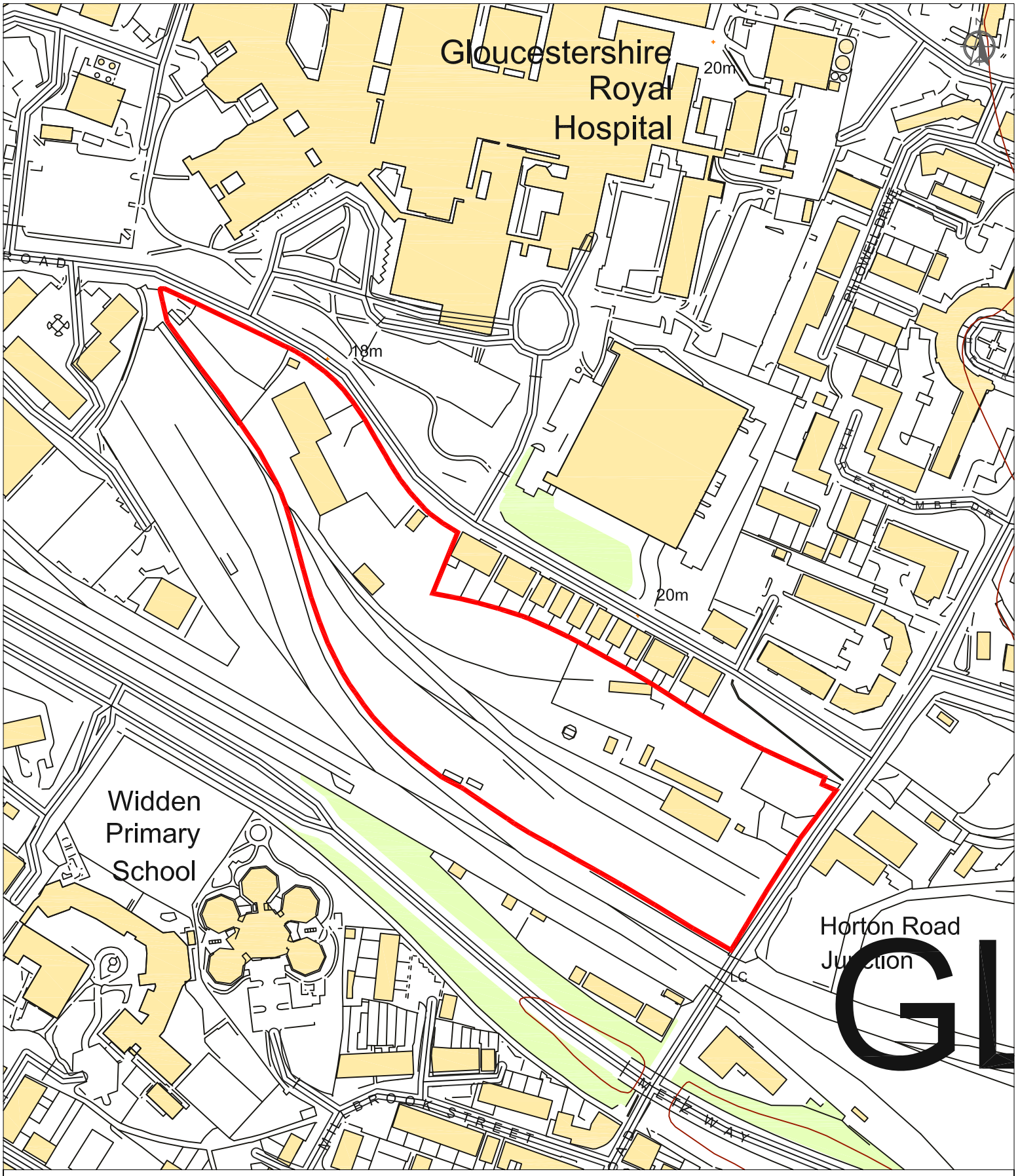
Minerals Safeguarding Practice Guidance; The Mineral Products Association and The Planning Officers' Society; 2019

Minerals Local Plan for Gloucestershire 2018-2032; Gloucestershire County Council; 2020

Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031; Gloucester City Council; 2017

10th Local Aggregate Assessment for Gloucestershire; Gloucestershire County Council; 2022

Mineral Resource Information in Support of National, Regional and Local Planning; Gloucestershire (comprising Gloucestershire and South Gloucestershire). British Geological Survey Commissioned Report CR/05/105N; Benham, A J, Harrison, D J, Bloodworth, A J, Cameron D G, Spencer, N A, Evans D J, Lott, G K and Highley, D E; 2006



Title:
Site Location

Site Boundary

Client:
Eutopia Homes

Project:
Great Western Yard

Drawing Ref:
2022.72.125/1

me wp
Planning and Development Consultant

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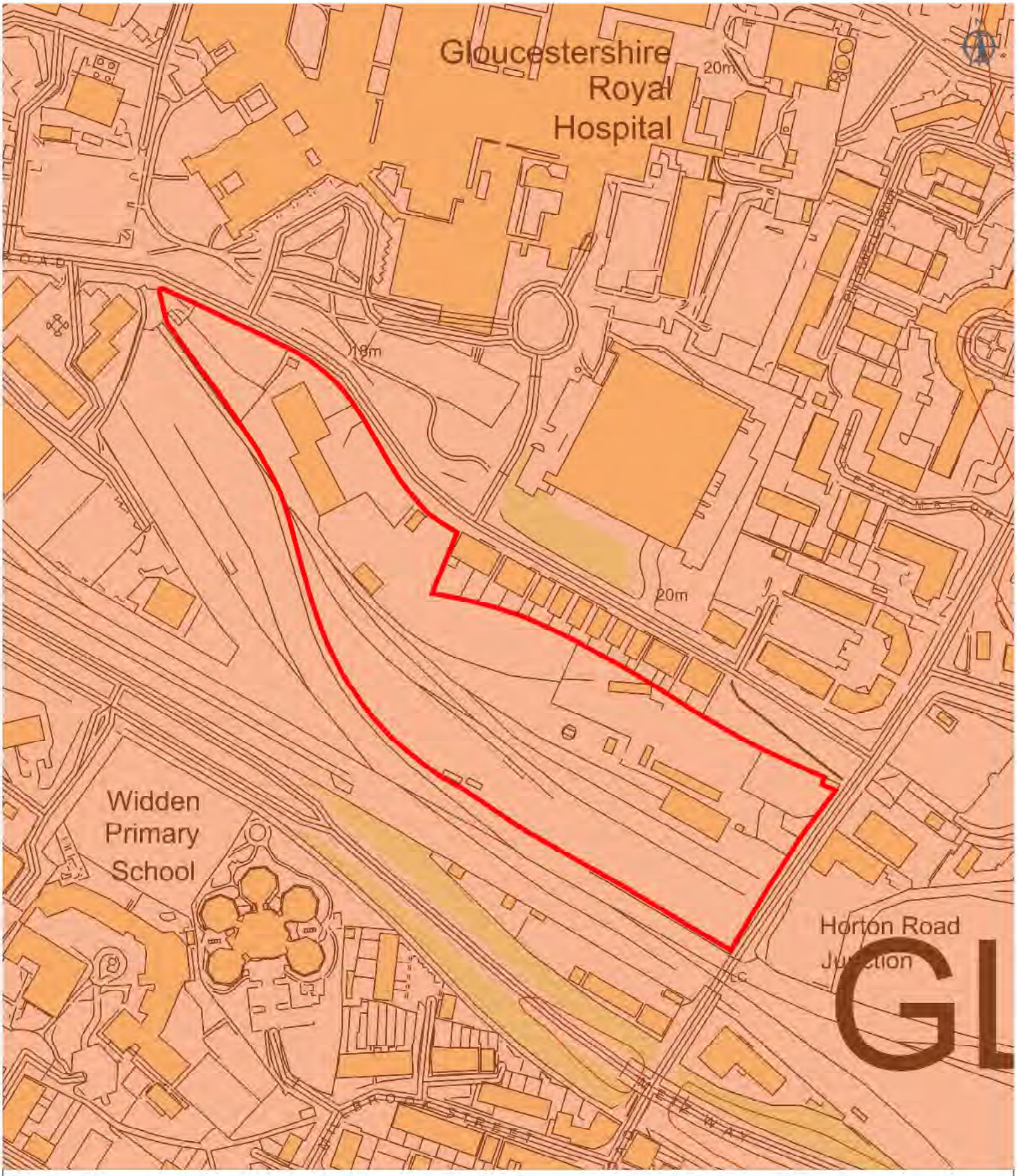
Drawn by:
CJ

Date:
01/10/2022



Title:
Bedrock Geology

- Blue Lias & Charmouth Mudstone Formation
- Site Boundary

Client:
Eutopia Homes

Project:
Great Western Yard

Drawing Ref:
2022.72.125/2

mewp
Planning and Development Consultant

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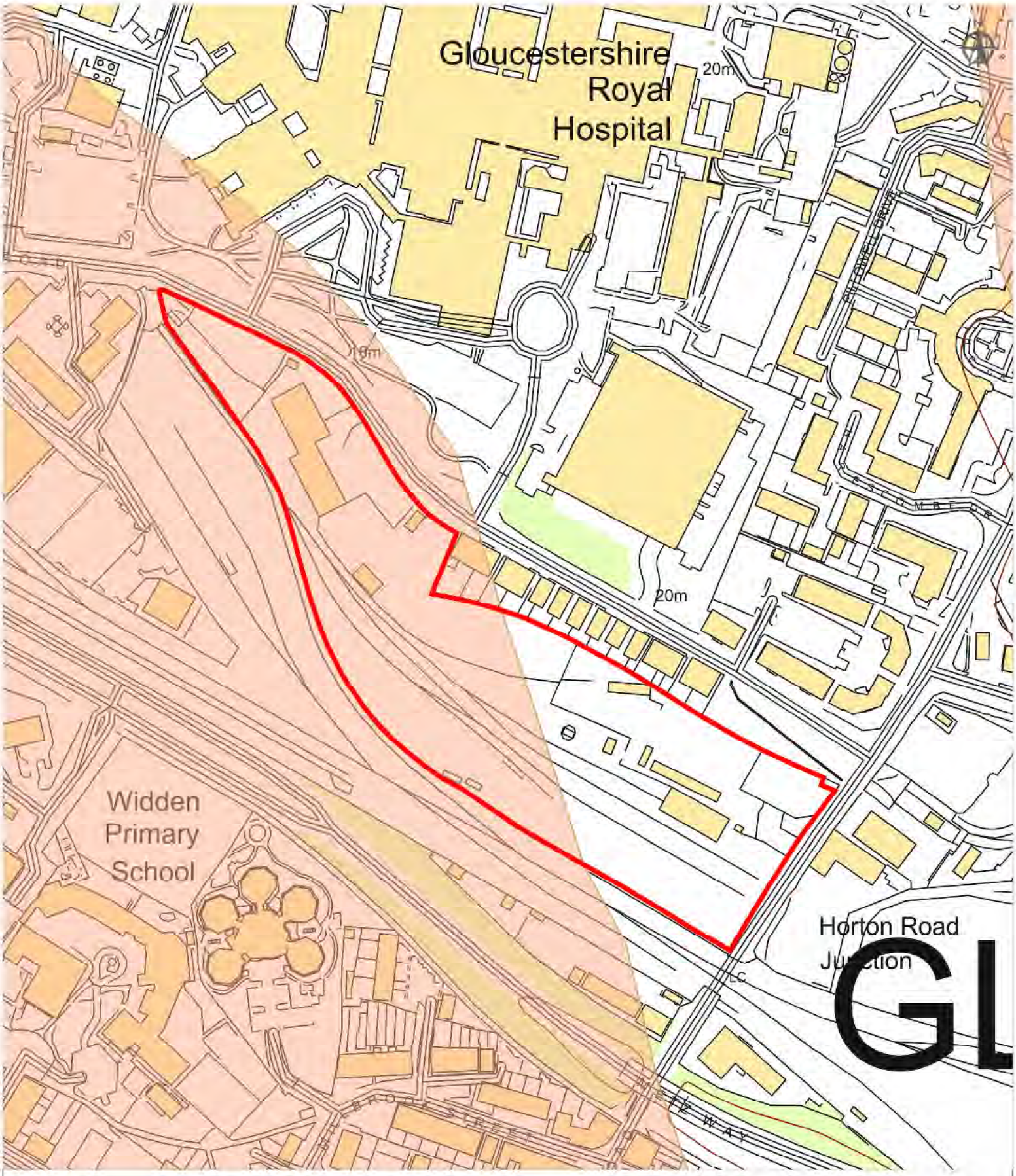
Scale@A4:
1:2500

Drawn by:
CJ

Date:
01/10/2022



Title:
Surface Geology

Cheltenham Sand & Gravel

Site Boundary

Client:
Eutopia Homes

Project:
Great Western Yard

Drawing Ref:
2022.72.125/3

me wp

[redacted]

Planning and Development Consultant

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