

Verification Report

Property: Imagination 2, Acornfield Road, Knowsley
Industrial Estate, Knowsley, Liverpool L33 7UF

Prepared for: Wilten Construction Ltd & Seybourne
Estates Limited

Project Ref: 24-0110_02/ P25-006

Planning Consent Ref: 21/00959/FUL

Date of Decision: 22/09/2022

Description of the Proposal: Erection of a detached industrial building (mixed E(g)(iii), B2 & B8 uses) with ancillary offices, car parking, service area and soft landscaping

Condition number(s) to which this document relates: 4 (C) (D) (F)

Issue No.	Status	Issue Date	Author	QA/QC Review
01	final	08/01/2026		
			Alan Crossfield BSc. (Hons) MEnvSc CEnv Director	Kevan Holbrook BSc. (Hons) Director

Competent Person Statement: *This Report has been written and / or reviewed by a person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution, and membership of a relevant professional organisation.*

Limitations & Confidentiality Statement

This report has been prepared by Epsilon Environmental Limited with the reasonable skill and care to be expected of a professional consultant having the competence, experience, and resources necessary for the purpose of carrying out similar work in scope and character to the services performed under the Contract. Epsilon Environmental Limited does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions. This report does not present a geotechnical assessment of the Site.

Epsilon Environmental Limited obtained, reviewed and evaluated information in preparing this Report from the Client and others. The conclusions, opinions and recommendations have been determined using this information. Epsilon Environmental Limited does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Epsilon Environmental Limited has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

Epsilon Environmental Limited disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the Services.

This report is confidential to the Client, and Epsilon Environmental Limited accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known, unless formally agreed by Epsilon Environmental Limited beforehand. Any such party relies upon the report at their own risk.

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1.0 Introduction

1.1 Preamble

Epsilon Environmental Limited (“Epsilon Environmental”) was instructed by Wilten Construction Ltd & Seybourne Estates Limited (the “Client”) to present a Verification Report pursuant to Condition 4 of Planning Consent Ref: 21/00959/FUL at the site known as Imagination 2, Acornfield Road, Knowsley Industrial Estate, Knowsley, Liverpool L33 7UF (the “Site”). A Site location plan is presented as Figure 1.

1.2 Development Planning Context

The Site was granted full planning consent on 22nd September 2022 under Planning Consent Ref: 21/00959/FUL for the “Erection of a detached industrial building (mixed E(g)(iii), B2 & B8 uses) with ancillary offices, car parking, service area and soft landscaping”.

Attached to the permission was a contaminated land condition, referenced as **Condition 4 A-F**, that set out six parts (phases) which between them are designed to ensure that the development is “*carried out in the interests of safety, to prevent pollution of the water environment and to comply with Policy ENV5 of the Knowsley Replacement Unitary Development Plan, adopted June 2006*”. A full copy of the condition wording is set out in Appendix A.

It is noted that third-party reports have been completed in their own rights and the details previously submitted to the Local Planning Authority (LPA), pursuant to the following phases of **Condition 4**:

- 4 A. Contaminated Land Risk Assessment
- 4 B. Submission of Remediation Scheme
- 4 E. Materials Management Plan

Therefore, the outstanding requirements of **Condition 4** are:

- 4 C. Implementation of Approved Remediation Scheme
- 4 D. Reporting of Unexpected Contamination
- 4 F. Importation of Soil/Material

1.3 Report Purpose & Background

This document presents the Verification Report to demonstrate where the development has complied with the outstanding requirements of Condition 4 (4C, 4D & 4F).

This document is preceded by the following reports that have previously been submitted to the LPA to support the discharge of Condition 4, as follows:

Table 1: Schedule of Environmental Documents submitted to-date

Preliminary Geo-Environmental Risk Assessment: Plots A, B and C, Image Business Park, Acornfield Road, Knowsley Presented to Knowsley (Image Business Park) Limited dated August 2019 (Delta-Simons Project No. 19-0654.01).	Submitted to support the original application 21/00959/FUL
Geo-Environmental Assessment: Plot B, Image Business Park, Acornfield Road, Knowsley Presented to Knowsley (Image Business Park) Limited dated August 2019 (Delta-Simons Project No. 19-0654.02).	Submitted to support the original application 21/00959/FUL and with 25/00053/DISCON
Additional Ground Investigation Report Site 2: Image Business Park, Acornfield Road, Knowsley L33 7UF Presented to Knowsley (Image Business Park) Ltd dated June 2021 (Delta-Simons Project No. 19-0654.07).	Submitted to support the original application 21/00959/FUL
Controlled Water Risk Assessment and Updated Gas Assessment: Imagination 2 and 3, Image Business Park Presented to: Seybourne Estates Ltd dated July 2022: Delta-Simons Project No: 19-0654.10	Submitted with 25/00053/DISCON
Remediation & Verification Strategy Imagination 2, Image Business Park, Knowsley L33 7UF Presented to Knowsley (Image Business Park) Ltd dated : Issued: August 2022 (Delta-Simons Project No: 19-0654.08)	Submitted with 25/00053/DISCON
Asbestos Management Plan by Wilten Construction Ltd dated June 2025.	Submitted with 25/00053/DISCON
Construction Environmental Management Plan (CEMP) by Wilten Construction Ltd dated May 2025	Submitted with 25/00053/DISCON
Materials Management Plan (MMP) by Wilten Construction Ltd dated July 2025	Submitted with 1/00959/COND2

1.4 Verification Report Requirements

The Verification Report requirements have been informed by, and are variously described in, the above listed documents. The primary goal of the Verification Report is to verify that the construction activities have mitigated the risks posed by the identified contaminants of concern and break potential contaminant linkages allowing the redevelopment of the Site for a commercial end use¹.

The key features of the remedial strategy are summarised below:

- i. Any earthworks carried out as part of the proposed redevelopment will need to be undertaken under a Materials Management Plan (MMP) in accordance with the CL:AIRE Code of Practice to facilitate the reuse of these materials.
- ii. Details of [any] remedial measures undertaken, specifically treatment of any hydrocarbon contaminated soils and confirmation of suitability for retention/reuse or off-Site disposal.
- iii. A record of any 'hotspots' found during construction and groundworks, and the associated actions taken to remove them.
- iv. Details of the placement of clean [soil] cover.
- v. Details of any imported topsoil/ subsoil.
- vi. Details of the ground gas protection measures installed.
- vii. Details of the final water pipe material utilised within the development.

¹ Remediation & Verification Strategy, Delta-Simons Project Number 19-0654.08

2.0 Ground Model

The following section is abridged from the Geo-Environmental Assessments carried out by Delta-Simons:

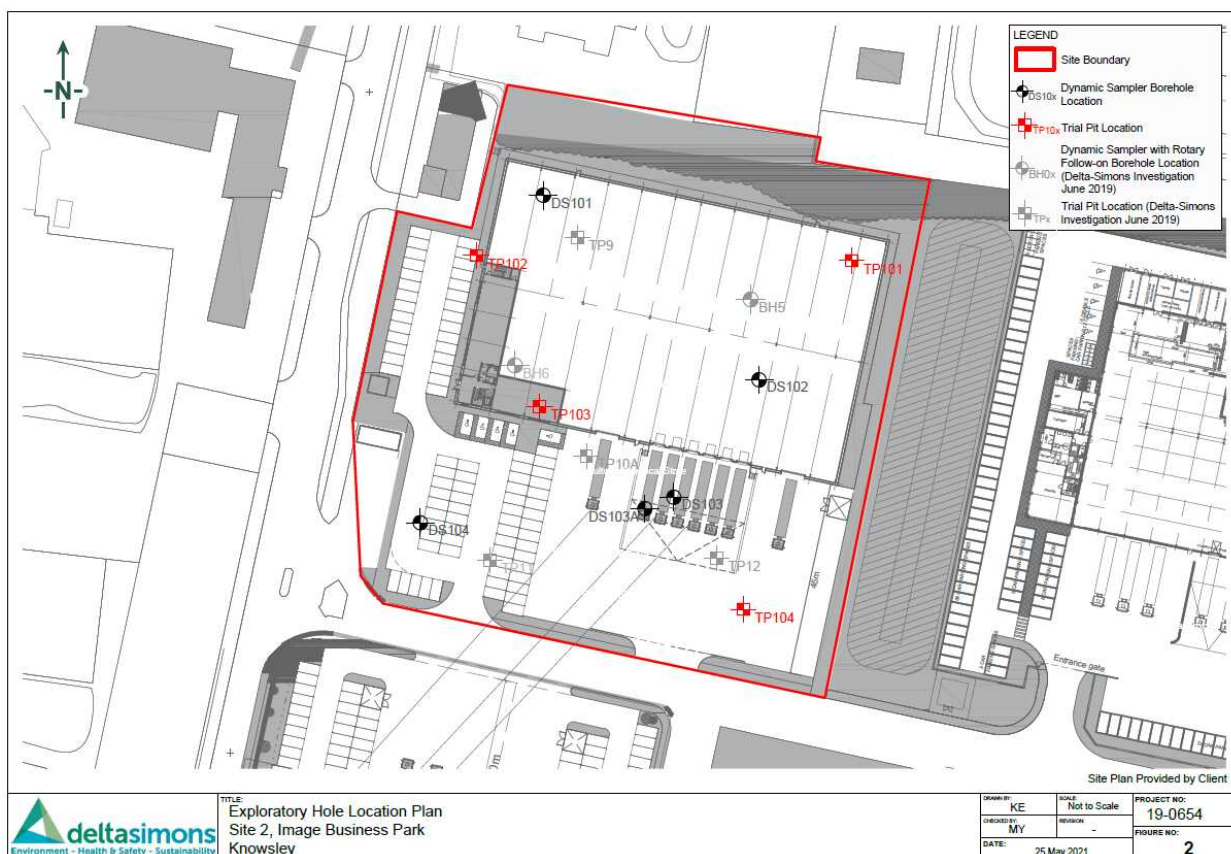
Soil Profile

With reference to British Geological Survey (BGS) geological mapping data (1:50,000 geological map), the underlying geology is recorded to comprise Made Ground over superficial deposits comprising Shirdley Hill Sand Formation over the solid geology of the Chester Formation (Sandstone). The published geology has been further confirmed via publicly available BGS borehole logs relating to a ground investigation carried out close to the Site in 2003 and Site Investigations carried out within the Site boundary by Delta-Simons in 2019 & 2021. Table 2 below presents the Ground Model for the Site:

Table 2: Ground Model (Delta-Simons, June 2021)

Summary of Observed Ground Conditions				
Stratum	Typical Stratum Description	Depth Range of Stratum Base (m)	Maximum Proven Thickness (m)	Comments
Topsoil	Grass overlying dark brown slightly gravelly sand with abundant roots. Gravel is fine to medium angular to rounded brick and quartzite.	0.25 - 0.50	0.5	Recorded in BH5, TP9, TP11, TP12, DS102, DS103 and DS103A.
Made Ground	Dark blackish brown slightly clayey slightly gravelly sand with occasional pockets of orangish brown/black soft clay. Gravel is fine to coarse angular to subrounded brick, concrete, wood, slag, clinker, sandstone, glass and quartzite. Frequent broken bricks.	0.60 - 1.5	1.5	Deepest Made Ground identified within TP10A and DS103A. Concrete slab/hard standing in centre of Site is between 0.15 and 0.4 m thick as identified in BH6 and TP102. Full extent of Made Ground unproven in DS103.
Shirdley Hill Sand Formation	Loose becoming medium dense orangish brown slightly silty fine to coarse (locally gravelly) SAND.	1.4 - 3.1	1.4	-
Glacial Till	Typically firm becoming stiff light grey mottled orangish brown slightly sandy gravelly CLAY. Gravel is fine to coarse rounded quartzite. Thin horizons of soft clay and/or initially soft becoming firm clay.	3.2 - 8.0	5.2	Thin horizons of locally soft clay and/or initially soft becoming firm clay: TP9 at 1.4 - 1.7 m, TP12 at 1.8 - 2.5 m, DS101 at 2.0 - 2.3 m, DS102 at 1.95 - 4.45 m, DS104 at 2.25 - 2.75 m, TP101 at 2.1 - 3.6 m, TP103 at 2.3 - 3.5 m and TP104 at 2.1 - 3.5 m.
Weathered Chester Formation*	Medium dense becoming very dense dark reddish brown slightly gravelly SAND. Gravel is fine to medium angular to subrounded sandstone.	9.1 - 10.5	4.4	-
Chester Formation*	Weak becoming medium strong dark reddish-brown medium to coarse grained thinly laminated SANDSTONE.	>15.0 (unproven)	>8.9 (unproven)	15.0 m maximum depth of investigation.

*Encountered during previous investigation only – maximum depth of recent investigation was 5.45 m bgl.



Hydrogeology

The Environment Agency (EA) designates the Shirdley Hill Sand Formation as *Secondary A Aquifer*, the Glacial Till as *Secondary Undifferentiated Aquifer*, and bedrock of the Chester Formation (Sandstone) as *Principal Aquifer*.

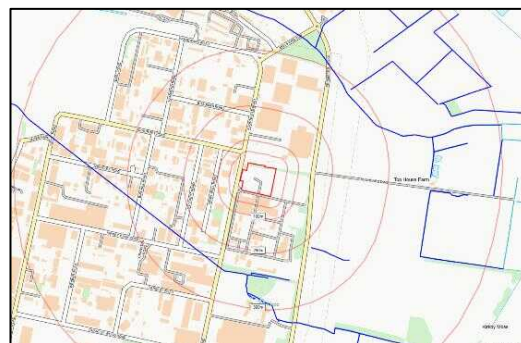
Groundwater within the Sandstone is confined by the overlying Glacial Till.

The Site is located within a designated groundwater Source Protection Zone (Zone III – Total Catchment). This relates to groundwater abstraction by United Utilities Water Ltd for potable water supply, under licence number 2569031016, located 1.7 km to the south of the Site.

Generally, Delta-Simons have reported that shallow standing groundwater levels within Made Ground and superficial deposits were recorded between 0.31 and 6.57 m bgl (34.63 to 42.64 m AOD). Groundwater levels within the bedrock geology of the Chester Formation were recorded between 0.8 and 8.55 m bgl (35.24 to 40.84 m AOD). Representative groundwater flow direction within the superficial deposits appears to flow in a predominately westerly direction.

Hydrology

The nearest surface water features appear to be drainage channels and streams, as shown on the plan (right):



Anthropogenic & Geochemical Soil Conditions

Visual and Olfactory Evidence of Contamination (Soils): No visual or olfactory evidence of potential significant contamination was observed during the investigations. All environmental samples were screened in the field using a photoionization detector. All results were less than 1ppm (indicating an absence of volatile hydrocarbons within the samples).

Soil Sample Analysis Suite:

Analytes	No. of Samples Tested		Rationale
	Soil	Ground-water	
Asbestos	6	-	Common potential contaminant - Analysed in all samples of Made Ground.
pH, As, Cd, Cu, Cr, Hg, Pb, Ni, Zn, speciated Polycyclic Aromatic Hydrocarbons (PAH)	6	3	Potential contaminants of concern, common to many sites.
Leachable metals	3	-	
Total Petroleum Hydrocarbons, Criteria Working Group Method (TPHCWG), Benzene, Toluene, Ethylbenzene and Xylene (BTEX)	6	3	
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)	3	3	
Polychlorinated Biphenyls (PCB)	2	-	To assess the presence of PCB associated with the on-Site electrical equipment.
pH, sulphate	6	3	To assess potential for chemical attack on buried concrete.
Soil Organic Matter (SOM)	3	-	To allow comparison of potentially elevated contaminants against their relevant assessment criteria.
Waste Acceptance Criteria (WAC)	2	-	To inform off-site waste disposal.

Summary of Laboratory Analysis of Soils:

Contaminant	No. Samples	Max Conc. (mg/kg)	GAC (mg/kg)	GAC Source	No. Exceed GAC	Volatile	Location of Exceedances (depth) = Concentration (mg/kg)	Area of Site of Exceedance
Asbestos	14	0.005	Detected	DS	1	N	TP104 at 0.7 m bgl - Chrysotile Loose Fibrous Debris	South-east
Metals and metalloids								
Arsenic	14	96	640	LQM	0	N	-	-
Cadmium	14	0.7	190	LQM	0	N	-	-
Chromium	14	1.5	33	LQM	0	N	-	-
Chromium VI	14	33	8,600	LQM	0	N	-	-
Copper	14	270	68,000	LQM	0	N	-	-
Lead	14	130	2300	C4SL	0	N	-	-
Mercury	14	0.6	1100	LQM	0	N	-	-
Nickel	14	84	980	LQM	0	N	-	-
Zinc	14	130	730,000	LQM	0	N	-	-
Polyaromatic Hydrocarbons								
Phenanthrene	14	0.8	22,000	LQM	0	N	-	-
Anthracene	14	0.13	520,000	LQM	0	N	-	-
Fluoranthene	14	1.8	23,000	LQM	0	N	-	-
Pyrene	14	2.0	54,000	LQM	0	N	-	-
Benzo(a)anthracene	14	1.1	170	LQM	0	N	-	-
Chrysene	14	1.1	350	LQM	0	N	-	-
Benzo(b)fluoranthene	14	1.4	44	LQM	0	N	-	-
Benzo(k)fluoranthene	14	0.49	1,200	LQM	0	N	-	-
Benzo(a)pyrene	14	1.2	35	LQM	0	N	-	-
Indeno(1,2,3-c,d)pyrene	14	0.55	500	LQM	0	N	-	-
Benzo(g,h,i)perylene	14	0.73	3,900	LQM	0	N	-	-
Petroleum Hydrocarbons								
Contaminant	No. Samples	Max Conc. (mg/kg)	GAC (mg/kg)	GAC Source	No. Exceed GAC	Volatile	Location of Exceedances (depth) = Concentration (mg/kg)	Area of Site of Exceedance
Aromatic TPH >C10-C12	14	3.7	16,000	LQM	0	Y	-	-
Aromatic TPH >C12-C16	14	5.7	36,000	LQM	0	Y	-	-
Aromatic TPH >C16-C21	14	12	28,000	LQM	0	N	-	-
Aromatic TPH >C21-C35	14	47	28,000	LQM	0	N	-	-
Aromatic TPH >C35-C44	14	17	N/A	N/A	0	N	-	-
Total Petroleum Hydrocarbons	14	58	5000	DS	0	Y	-	-
Notes: Shaded = Maximum concentration exceeds GAC C4SL = Category 4 Screening Levels (C4SLs) published by DEFRA. DS = In-house GAC derived by Delta-Simons Environmental Consultants Ltd, 2018. EIC = Guidance values produced by the Environmental Industries Commission (EIC), the Associated of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Application in Real Environments (CLAIRE) in December 2009. LQM = Land Quality Management (LQM) S4/Us for Human Health Risk Assessment, 2014. AGAC = Acute Generic Assessment Criteria published by the Society of Brownfield Risk Assessment (SoBRA) 2019 No GAC = No Generic Assessment Criteria value available for compound.								

Generally, contamination of the soils has not been identified at the Site. None of the site-specific contaminants of concern were recorded at concentrations in excess of their respective generic assessment criteria (GAC). One sample of Made Ground (TP104 at 0.70 m) tested positive for the presence of chrysotile type asbestos (loose fibrous debris, quantification analysis indicated 0.005 % by weight).

Ground Gas Monitoring Data: A total of 4nr rounds of gas monitoring was undertaken over a period of four weeks in 2021. Barometric pressures ranged from 999 mb (visit 1) to 1013 mb (visit 3). The gas monitoring data results are summarised in Table 3:

Table 3: Ground Gas Monitoring Results (Delta-Simons, June 2021)

Borehole	Steady Gas Concentration (%v/v)						Steady Flow Rate (l/hr)		Response Zone (m bgl)		Stratum	Flooded ?
	Methane		Carbon Dioxide		Oxygen							
	Min	Max	Min	Max	Min	Max	Min	Max	From	To		
DS101	<0.1	<0.1	0.4	1.1	18.7	20.1	<0.1	<0.1	1.0	5.0	SHSF/GT	N
DS102	<0.1	<0.1	0.6	7.6	7.0	20.2	<0.1	<0.1	0.5	1.0	MG	N
DS103A	<0.1	<0.1	0.5	3.6	16.6	20.7	<0.1	<0.1	1.5	3.0	SHSF/GT	Y
DS104	<0.1	<0.1	3.1	9.1	1.0	14.2	<0.1	<0.1	2.0	5.0	SHSF/GT	N
BH5	<0.1	<0.1	3.4	13.0	5.0	17.1	<0.1	1.6	8.0	15.0	CF	Y
BH6	<0.1	2.1	1.5	6.8	0.1	7.6	<0.1	1.9	1.00	5.0	SHSF	N

MG = Made Ground, SHSF = Shirdley Hill Sand Formation, GT = Glacial Till, CF = Chester Formation

Summary of Laboratory Analysis of Groundwater: Laboratory results above relevant detection limits from both phases of investigation (Delta-Simons 2019, 2021) are summarised in the table below with a comparison to the GAC applied.

[illegible]

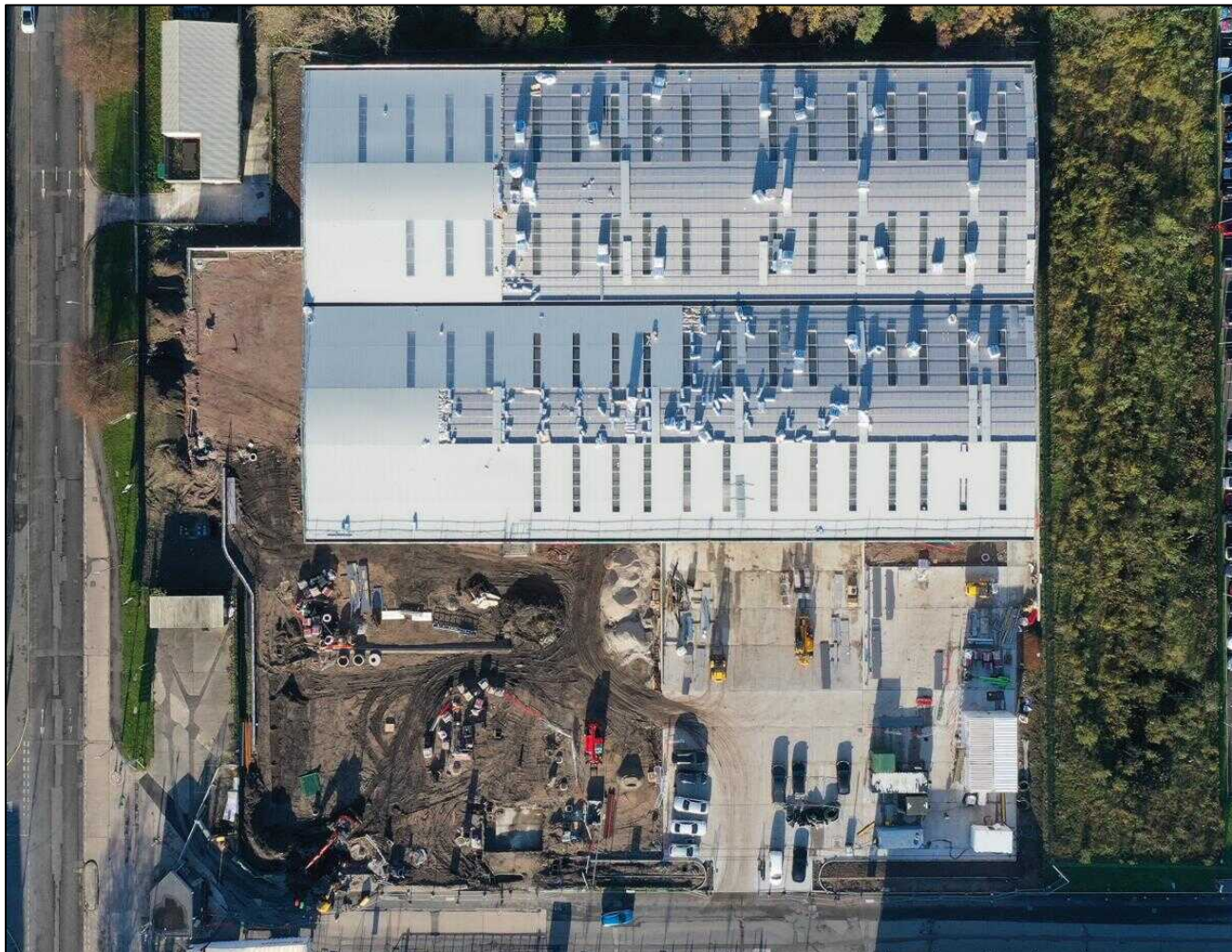
Conceptual Site Model (Delta-Simons)	Revised Conceptual Site Model				
	Source	Pathways	Receptors	Risk Rating	Mitigation
Potential contamination in areas not directly investigated		Ingestion and/or inhalation of soil/dust	Future site workers and patrons. Construction and Maintenance workers. General public during the construction phase.	Low Risk	Low to moderate risk – clean cover capping layer placed in all soft landscaped areas will break pollutant linkage between future end users of the site and the impacted Made Ground. Asbestos has been identified in Made Ground during the additional phase of investigation, therefore it is prudent to assume that more asbestos can be present on-Site. The use of suitable dust prevention measures during the construction phase should mitigate the generation of airborne fibres, furthermore, suitable levels of PPE (as determined by the asbestos risk assessment to be completed by the contractor) would mitigate the risk to construction and maintenance workers in close contact with the impacted Made Ground.
		Direct contact between aggressive ground conditions and new infrastructure.	The Built Environment (new buildings and infrastructure)	Low Risk	The Local Water Authority should be contacted to understand their requirements for upgraded water pipes.
		Leaching of contamination into groundwater followed by migration of groundwater to the wider groundwater environment or surface waters.	The underlying Principal Aquifers / Controlled waters.	Very Low Risk	Significant contamination has not been identified at the Site within shallow soils. Hardstanding within the development will further mitigate the risk by restricting any infiltration and subsequent mobilisation of any soil contaminants, as such the risk is considered low.
Ground Gas (Methane and Carbon Dioxide)		Migration of ground gas into on-site buildings causing asphyxiation or risk of explosion.	The Built Environment (new buildings and infrastructure) Future users.	Low to Moderate	Elevated concentrations of methane and carbon dioxide have been recorded. The Site can provisionally be classified as a CS2 for which low level gas protection measures are required. Further monitoring is likely to be required to confirm this classification. Radon protection measures are not required.
Risk Assessment Conclusions	i. The proposed development will be covered with building footprint and/or hardstanding which will break the pollutant linkage between asbestos contaminated soils and future end users. However, a potential linkage exists between asbestos impacted soils and construction/maintenance workers. ii. Generally, water quality was noted to be good with only one localised slight exceedance of lead observed. This exceedance is not considered to represent unacceptable risks to controlled waters receptors. Therefore, there is no significant source that it is considered that significant migration of any contaminants to the underlying aquifers / off-Site is unlikely. Hardstanding and drainage across the development will further mitigate the risk by restricting any infiltration and subsequent mobilisation of any soil contaminants, as such the risk is considered low. iii. The lines of evidence indicate a low risk ground gas regime on-Site. The primary Source is the topsoil/ nominal thickness of Made Ground; the concentrations of ground gas have a Gas Screening Value of CS1, which Delta-Simons increased to CS2 based on peak carbon dioxide exceeding 5 %v/v; and the proposed use of the Site is Building Type D with ancillary Type C Offices.				

3.0 Verification Documentation

Wiltan Construction Limited are the Main Contractor appointed to deliver the Design and Construction of the Site. Design and implementation of the construction works are under their remit and control, and the supporting verification documentation has been provided by them.

The construction project has a 31 week programme, which commenced on 21.07.2025 and the Practical Completion date is 09.03.2026.

The image below, taken on 19.11.2025 shows the general progress of the development.



3.1 Bulk Earthworks

A Materials Management Plan (MMP) was created by Soiltechnics Limited, and the Definition of Waste Code of Practice Declaration Receipt was submitted to the Environment Agency under the Definition of Waste Code of Practice (DoW CoP) dated 3rd July 2025 (see Appendix B).

Appendix B also sets out a schematic illustrating the sequence of the main earthworks activity completed on the Site. In summary, this comprised the following:

- Topsoil strip & topsoil stockpile.
- Excavate to reduce levels.
- Attenuation tank excavation.
- Re-soiling to landscape areas with site-won topsoil.
- 300mm formation layer to 30% CBR with Type 1.
- Fill and modify to 5% CBR to make up levels.

The bulk earthworks operations were undertaken by Greenfisher Contracting on behalf of Wilten Construction and validated by Powell Tolner Associates (Civil & Structural Engineers).

The breakdown of the material re-use on Site is set out as follows:

- Approximately 1700m³ – site won crushed concrete (to Type 1 grading)
- Approximately 4000m³ – site won crushed concrete
- Approximately 500m³ – site won topsoil

3.2 Details of Waste Disposal

Epsilon Environmental has received a photograph of each of the 180 nr waste certificates for haulage loads of excess soil removed from Site during construction. *A copy of the files can be provided upon request.*

3.3 Verification of Unexpected Contamination

Wilten Construction Limited has confirmed and verified that no hydrocarbon impacted soil or unexpected soil, or groundwater contamination has been encountered on the Site during the development. A copy of the letter received from Wilten Construction Limited is presented in Appendix C.

An Asbestos Management Plan (AMP) is in place that sets out how asbestos-containing materials (ACMs) on site will be managed to minimise the risk of exposure to workers, contractors, and visitors, and to comply with duties under the Control of Asbestos Regulations 2012 and with reference to the Joint Industry Working Group Asbestos in Soil and Construction & Demolition (C&D) Materials guidance (published by CL:AIRE) titled "Control of Asbestos Regulations 2012: Interpretation for Managing and Working with Asbestos in Soil and Construction & Demolition materials: Industry Guidance" (shortened name CAR-SOIL™). The AMP has been developed to discharge pre-commencement planning condition 4B (*therefore has been submitted to the LPA*) and detail mitigation measures relating to asbestos containing soils. The AMP includes appropriate procedures to ensure risks to Site personnel are appropriately addressed, no further contamination will occur, and to ensure no risk to off-site receptors.

3.4 Clean Cover Placement

Wilten Construction Limited and Powell Tolner Associates has confirmed and verified that no topsoil has been imported to Site for the implementation of the soft landscaping scheme (see Appendix D). The topsoil has been taken from the surplus from the plot. This work is being carried out under an MMP (Reuse on the Site of Origin) and is supported by laboratory testing carried out by Chemstest on behalf of Soiltechnics Limited, a copy of which is presented in Appendix D. It is verified that the topsoil meets the re-use criteria for the Site.

3.5 Gas Membrane Details

Wilten Construction Limited and Powell Tolner Associates liaised with Delta-Simons prior to commencement of the construction of the permitted building, in order to agree the design and extent of the gas protection measures. A copy of the agreed design is presented in Appendix E.

ACS Linings were appointed to install the gas protection membrane and MEC Environmental Ltd (MEC) were appointed by ACS Linings to carry out independent validation of the installation of the membrane. A copy of the Validation Report is presented in Appendix E. This confirms that the installer carried out the installation in a workmanlike manner, the materials were adequately prepared and applied, used and fixed so as to perform adequately the functions for which they are intended as per Regulation 7 of the building regulations.

3.6 Potable Water Pipe Supply Details

Wilten Construction Limited has confirmed that United Utilities (UU) approved the use of 63mm barrier pipe to supply potable water into the Site. This material is a multi-layered (polyethylene (PE)/ aluminium barrier (Al)) PE-Al-PE pipe for use in contaminated ground. It features an inner PE core, aluminium barrier, and outer PE layer (often blue with brown stripes), rated for pressures around 12.5-16 bar (SDR11), WRAS approved.

Correspondence verifying that UU have approved the installation is presented in Appendix F.

4.0 Verification Statement

Epsilon Environmental confirms that the information provided in this verification report accurately reflects the documentation and evidence received regarding the works undertaken on-site. The report has been prepared to meet the verification standards required for Conditions 4C, 4D, and 4F of Planning Consent 21/00959/FUL.

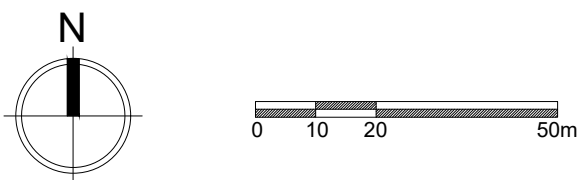
Figure 1 – Site Location Plan



Disclaimer:
Subject to survey.
The topographical information shown is based on the
topographical survey by Survey & Engineering Projects
Ltd. Survey dwg no. S15946_T Rev0, dated April 2018

- Notes:
- KEY**
- Image Business Park
 - Site Boundary Line
(13,885m²/ 3.43acres/ 1.39ha)

A	Road names included	04.01.22	HT	HA
-	First issue	20.05.21	HT	HA
Rev:	Notes:	Date:	Dwn:	Iss:



Client:

SEYBOURNE

hale
ARCHITECTURE | DESIGN MANAGEMENT
22c Leathermarket Street, London, SE1 3HP

Project:
Imagination 02
Image Business Park, Knowsley

Drawing Title:
Site 2
Site Location Plan

Project No: 21065	Scale @ A1/A3: 1:1250 / 1:2500	Revision: A
Drawing No: 21065 - PL1000		

Appendix A – Condition 4 Wording (from 21/00959/FUL)



Knowsley Council

**REGENERATION AND ECONOMIC DEVELOPMENT
DEPARTMENT**

TOWN AND COUNTRY PLANNING ACT 1990

**This application is subject to a Section 106 Agreement and needs to
be read in conjunction with that Agreement.**

PLANNING PERMISSION

Application No: 21/00959/FUL

Name and address of applicant

Knowsley (Image Business Park) Ltd
180 Piccadilly
London
W1J 9HF
UK

Name and address of agent

Hale Architecture Limited
22c Leathermarket Street
London
SE1 3HP

Date of Receipt: 20 December 2021

Date Valid: 5 January 2022

Address/Location Of Development:

Imagination 2
Image Business Park
Acornfield Road
Knowsley Industrial Park
Kirkby
Knowsley

Description of Development:

**ERECTION OF A DETACHED INDUSTRIAL BUILDING (MIXED E(G)(III), B2 & B8
USES) WITH ANCILLARY OFFICES, CAR PARKING, SERVICE AREA AND SOFT
LANDSCAPING**

The Council of the Metropolitan Borough of Knowsley hereby give notice in pursuance of the above Act(s) that Planning Permission has been **granted** for the carrying out of the development referred to above in accordance with the application and plans submitted subject to the following condition(s):

4. A. Contaminated Land Risk Assessment

No development shall take place until an assessment of the risks posed by any contamination has been submitted to and approved in writing by the Local Planning Authority. This assessment must be undertaken by a suitably qualified contaminated land practitioner, in accordance with authoritative guidance (CLR 11), and shall assess any contamination on the site, whether or not it originates on the site.

Moreover, it must include (were relevant):

- i. a survey of the extent, scale and nature of contamination;
- ii. an assessment of the potential risks to:
 - human health,
 - property (existing or proposed) including buildings, crops, livestock, pets, woodland,
 - service lines and pipes,
 - adjoining land,
 - groundwaters and surface waters,
 - ecological systems,
 - archaeological sites and ancient monuments.

B. Submission of Remediation Scheme

Where land affected by contamination is found which poses unacceptable risks, no development shall take place until a detailed remediation scheme has been submitted to and approved in writing by the Local Planning Authority. The scheme must include an appraisal of remediation options, identification of the preferred option(s), the proposed remediation objectives and remediation criteria, and a description and programme of the works to be undertaken including the verification plan. As a minimum, the scheme must ensure that the site will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to its intended use.

C. Implementation of Approved Remediation Scheme

The approved remediation scheme shall be implemented, and a verification report submitted to and approved in writing by the Local Planning Authority, prior to the development (or relevant phase of development) being brought into use.

D. Reporting of Unexpected Contamination

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 immediately to the Local Planning Authority. Development on the part of the site affected must be halted and a risk assessment carried out and submitted to and approved in writing by the Local Planning Authority. Where unacceptable risks are found remediation and verification schemes shall be submitted to and approved in writing by the Local Planning Authority. These shall be implemented prior to the development (or relevant phase of development) being brought into use.

E. Materials Management Plan

Prior to the reuse of site won materials ('waste' and non-waste) a Materials Management Plan, signed off by a Qualified Person, shall be submitted to and agreed in writing with the local planning authority. The MMP shall demonstrate that any reuse of contaminated materials does not result in increased risk to the environment or human health.

F. Importation of Soil/Material

No topsoil is to be imported to the site until it has been tested for contamination and assessed for its suitability for the proposed development; a suitable methodology for testing this material should be submitted to and agreed in writing by the Local Planning Authority prior to the soils being imported onto site. The methodology should include the sampling frequency, testing schedules, criteria against which the analytical results will be assessed (as determined by the risk assessment) and source material information. The analysis shall then be carried out and evidence submitted to and agreed in writing to by the Local Planning Authority.

Reason: In the interests of safety, to prevent pollution of the water environment and to comply with Policy ENV5 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

Appendix B – DoW CoP Receipt & Earthworks Sequence

Definition of Waste Code of Practice Declaration Receipt

This Declaration has been submitted to the Environment Agency under the Definition of Waste Code of Practice (DoW CoP).

You are reminded that if materials are not used in accordance with the Materials Management Plan or risk assessment, or if it is discovered that materials were not suitable for use, were used in excessive quantity or in such a manner as to harm human health or pollute the environment, the Environment Agency may conclude that those materials were discarded and were waste.

You are also reminded that a Verification Report must be prepared on completion of the work as set out in the Remediation Strategy / Design Statement covering the site. This Verification Report must be provided to the Environment Agency upon request.

This receipt relates to the following Declaration -

1. References	
Your Reference for this Declaration	Imagination 2 Knowsley
Related declaration references	STX7107
3. Site of Origin	Checked
4. Direct Transfer	N/A
5. Cluster Project (including use of a fixed Soil Treatment Facility as a Hub site)	N/A
2. Proposed Volumes	
Proposed Volumes in m ³	6200
Additional comments on Proposed Volumes	Approximately 5,335m ³ of cut, and 4,900m ³ of fill in the earthworks Type 1: Site-own ~ 1,700m ³ , fill ~ 1,300m ³ , surplus ~400m ³ Approximately 500m ³ of topsoil will be bought in as product
3. Site of Origin	
3a. Route A: Land affected by contamination or suspected of being affected by contamination	Checked
3b. Route B: Land not suspected of being affected by contamination.	N/A



3c. Site Details	
Site Address	Imagination 2, Image Business Park, Knowsley
Postcode for Site of Origin	L33 7UF
Grid Reference for Site of Origin	343746, 398719
3d. Site Owner(s)	
Site Owner #1	
Name	Seybourne Estates Limited
Address	Seybourne Estates Limited, Hyde House, Edgeware Road, London, NW9 6LA
Email	stephen.corner@seybourne.co.uk
Telephone	07394083933
3e. Developer	
Developer #1	
Company	Seybourne Estates Limited
Address	Seybourne Estates Limited, Hyde House, Edgeware Road, London, NW9 6LA
Contact Name	Stephen Corner
Job Title	CFO
Email	stephen.corner@seybourne.co.uk
Telephone	07394083933

6. Local Authorities / Regulators	
6a. Local Authorities	
Local Authority #1	
Receiver Site Local Authority	Knowsley Borough Council
Local Authority Address	Municipal Buildings, Archway Road, Huyton, L36 9YU
Lead Contact Name	Jo Sheridan
Lead Contact Role	Interim Development Team Leader



Lead Contact Address (if different from above)	Knowsley Council, Huyton Library, Civic Way, Huyton, Knowsley, L36 9GD
Lead Contact Email	planning@knowsley.gov.uk
Lead Contact Telephone	07833481030

6b. Environment Agency / Natural Resources Wales

Receiver Site Agency	Warrington
Agency Address	Richard Fairclough House, Knutsford Road, Warrington, WA4 1HT
Contact Telephone	03708 506 506
Contact Email	enquiries@environment-agency.gov.uk

7. Lines of Evidence

7a. Materials Management Plan (MMP)

Reference for the Materials Management Plan	materials_management_plan Imagination Two Knowsley Rev1 Issued to QP 26-6-25
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7b. Risk Assessment

Reference for the Risk Assessment	Delta-Simons 'Preliminary Geo-Environmental Risk Assessment: Plots A, B and C, Image Business Park, Acornfield Road, Knowsley' for Knowsley (Image Business Park) Limited, reference 19-0654.01, dated August 2019; Delta-Simons 'Geo-Environmental Assessment: Plot A, Image Business Park, Acornfield Road, Knowsley' for Knowsley (Image Business Park) Limited, reference 19-0654.02, dated November 2019; Delta-Simons 'Additional Ground Investigation Report: Site 2, Image Business Park, Acornfield Road, Knowsley' for Knowsley (Image Business Park) Limited, reference 19-0654.07, dated June 2021. Delta-Simons 'Controlled Waters Risk Assessment and Updated Gas Assessment. Imagination 2 and 3, Acornfield Road, Knowsley' for Knowsley (Image Business Park) Limited, reference 19-0654.10, dated
-----------------------------------	---



	July 2022. It The Site was formerly referred to as 'Plot A', 'Site 2' and is now known as 'Imagination 2'
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7c. Remediation Strategy / Design Statement

Reference for either Remediation Strategy or Design Statement	Remediation & Verification Strategy Imagination 2, Image Business Park, Acornfield Road, Knowsley Delta-Simons Project Number 19-0654.08
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7d. Verification Plan

Reference for the Verification Plan	See Question 26 of the MMP, supplemented by the requirements of the Remediation Strategy.
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7e. Verification Report Contact

Company	PTA Consult
Address	29 Red Lion Street Chesham Buckinghamshire HP5 1EJ
Name	Sarah Hunt
Email	sarah.hunt@ptaconsult.co.uk
Telephone	07779 619829

7f. Verification Report

Expected production date for the Verification Report.	2025-08-29 00:00:00
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7g. Additional Documentation

7gi. Location plans	Masterplan, Proposed Site Plan. SK4000, by Hale Site Location Plan, 19-0654, by Delta Simons, April 2021
7gii. Schematics	T8789 Earthworks sequence Rev 002, powerpoint showing 8 slides in sequence for material movements.
7giii. Desk Top Study	Delta-Simons 'Preliminary Geo-Environmental Risk Assessment: Plots A, B and C, Image Business Park, Acornfield



	Road, Knowsley' for Knowsley (Image Business Park) Limited, reference 19-0654.01, dated August 2019;
7giv. Mass balance calculations	Knowsley cut and fill with tank dig - excel file with table of material volumes and cut-fill image.
7gv. Contingency arrangements	Unsuitable material will be removed from site at Wilten cost. Suitable classification/contamination testing will be undertaken before any material is moved
7gvi. Tracking System	A site tracker updated weekly by site teams – Form FO52. Physical records are filed for keeping. All records are kept on their 'Procore' Integrated management system
Digital Tracking	no
Reason	Handling of site-won materials. No electronic tracking between sites required.

7h. Regulator Communications

a) The Local Authority	Checked
b) Environment Agency	Checked
c) Natural Resources Wales	N/A
d) Other relevant environmental regulatory bodies	N/A
Reference the correspondence with the Local Authority	Requirement to undertake the MMP is a planning condition - 21/00959/FUL, Condition 4E. The Remediation Strategy has been approved.
Reference the correspondence with the Environment Agency	No direct EA correspondence Requirement to undertake the MMP is a planning condition - 21/00959/FUL, Condition 4E. The Remediation Strategy has been approved by the LA. The EA have a standard position statement for MMPs.

7i. Planning Consent

I have reviewed the planning consent including planning conditions	Checked
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Planning Reference (State either the reference or Not Applicable.)	21/00959/FUL
a) The Local Authority	Checked
b) Environment Agency	N/A
c) Natural Resources Wales	N/A
d) Other relevant environmental regulatory bodies	N/A
Please list correspondence reviewed above	Requirement to undertake the MMP is a planning condition - 21/00959/FUL, Condition 4E. The Remediation Strategy has been approved.
Planning consent not required	N/A

8. QP Declaration

Qualified Person	
8a. QP Name	Mark Hamill
8b. QP Number	QP432
8c. I satisfy the Qualified Person requirements set out in Appendix 6 of the Definition of Waste: Development Industry Code of Practice to complete this Declaration.	Checked
8d. I have reviewed the Materials Management Plan for the above project.	Checked
8e. I have reviewed the Risk Assessment.	Checked
8f. I have reviewed the Remediation Strategy/Design Statement covering the above site.	Checked
8g. I have requested correspondence / documentation relating to the development and how that relates to the use of materials.	Checked

Materials Management Plan (MMP)

8h. The risk assessment assesses human health and environmental risks in relation to	Checked
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the proposed uses of all the materials in the MMP. The risk assessment concludes that the objectives of preventing harm to human health and pollution of the environment will be met if materials are used in the proposed manner	
8i. The Local Authority, the Environment Agency / Natural Resources Wales and other relevant environmental regulatory bodies have not objected to the proposed development / land remediation on the basis that the use of any material is likely to cause harm to human health or pollution of the environment. [This confirmation should be given regardless of whether planning consent is required for the activity. Also see paragraph 3.37 of the CoP].	Checked
8j. The EA/NRW have not objected to the reuse of materials on the grounds that it a.) constitutes a waste management operation or b.) has had a previous application for an environmental permit for waste recovery refused (on the grounds that the project represents waste disposal).	Checked
8k. The project does not involve land-spreading / agricultural re-profiling.	Checked
Project	
8l. The project has not yet commenced; this is not a retrospective application of the DoW CoP.	Checked

T879 – Knowsley

Earthworks Sequence Revision 002

Key



Access/Egress to site



Material movement



Topsoil strip



Topsoil stockpile



Excavate to reduce levels



Fill and modify to 5% CBR to make up levels



Attenuation tank



Re-soiling to landscape areas with site-won topsoil



Stabilise 300mm formation layer to 30% CBR



Supply and place imported Type 1



Finished areas



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T879 – Knowsley

Earthworks Sequence Revision 002

Key



Access/Egress to site



Material movement



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T879 – Knowsley

Earthworks Sequence Revision 002

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Fill and modify to 5% CBR to make up levels



Attenuation tank



Re-soiling to landscape areas with site-won topsoil



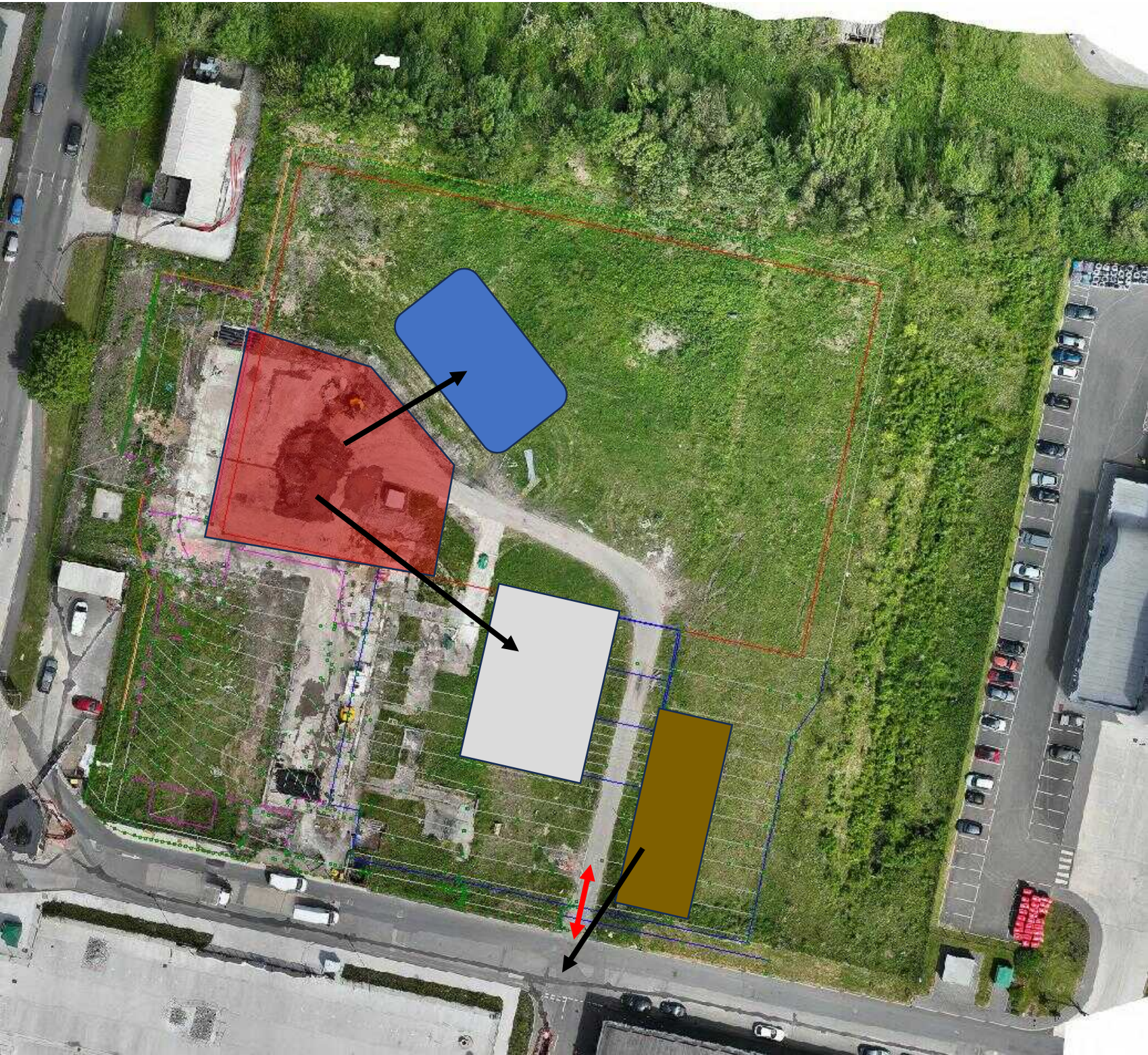
Stabilise 300mm formation layer to 30% CBR



Supply and place imported Type 1



Finished areas



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T879 – Knowsley

Earthworks Sequence Revision 002

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T879 – Knowsley

Earthworks Sequence Revision 002

Key



 Access/Egress to site



 Material movement



 Topsoil strip



 Topsoil stockpile



 Excavate to reduce levels



 Fill and modify to 5% CBR to make up levels



 Attenuation tank



 Re-soiling to landscape areas with site-won topsoil



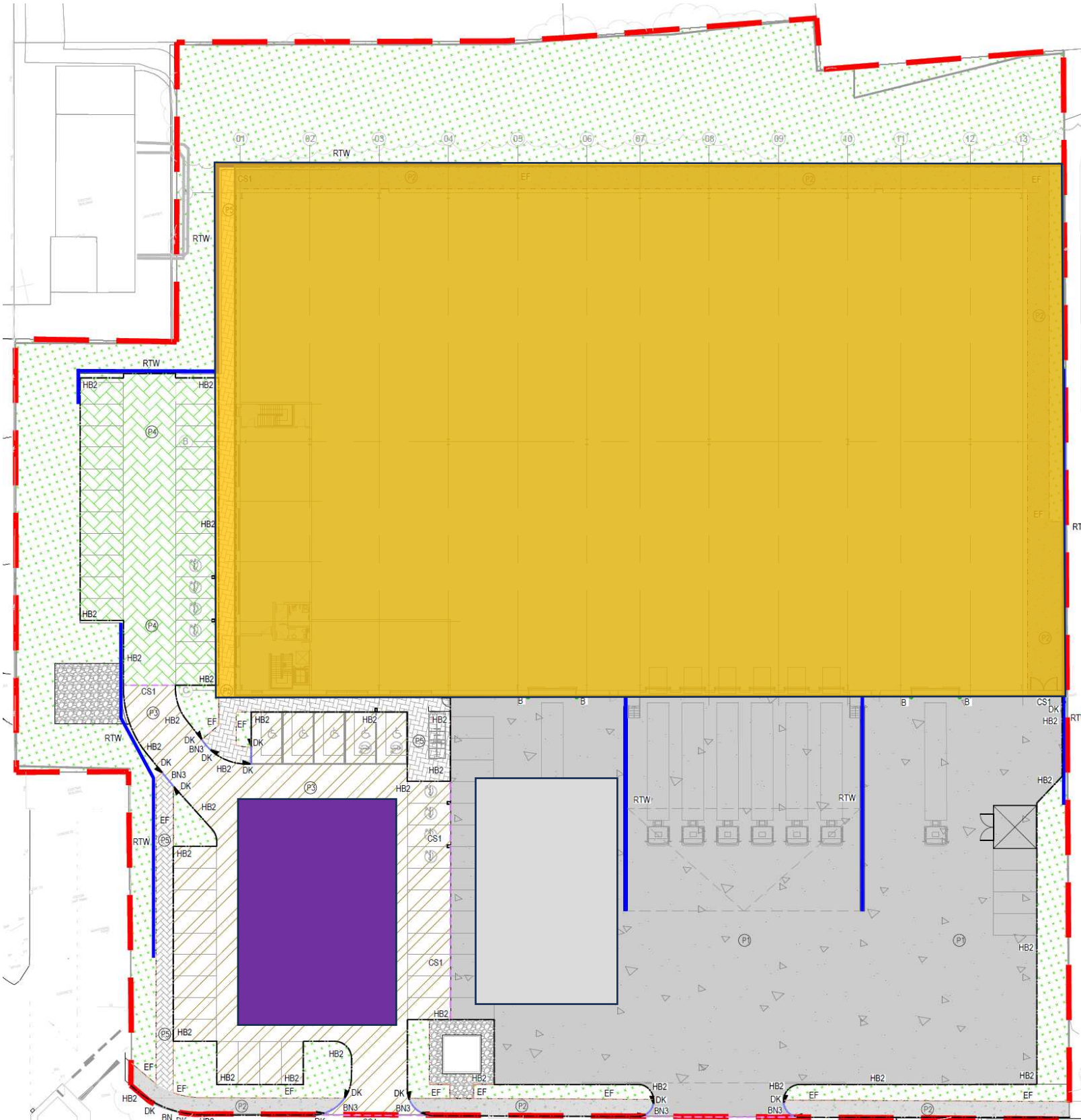
 Stabilise 300mm formation layer to 30% CBR



 Supply and place imported Type 1

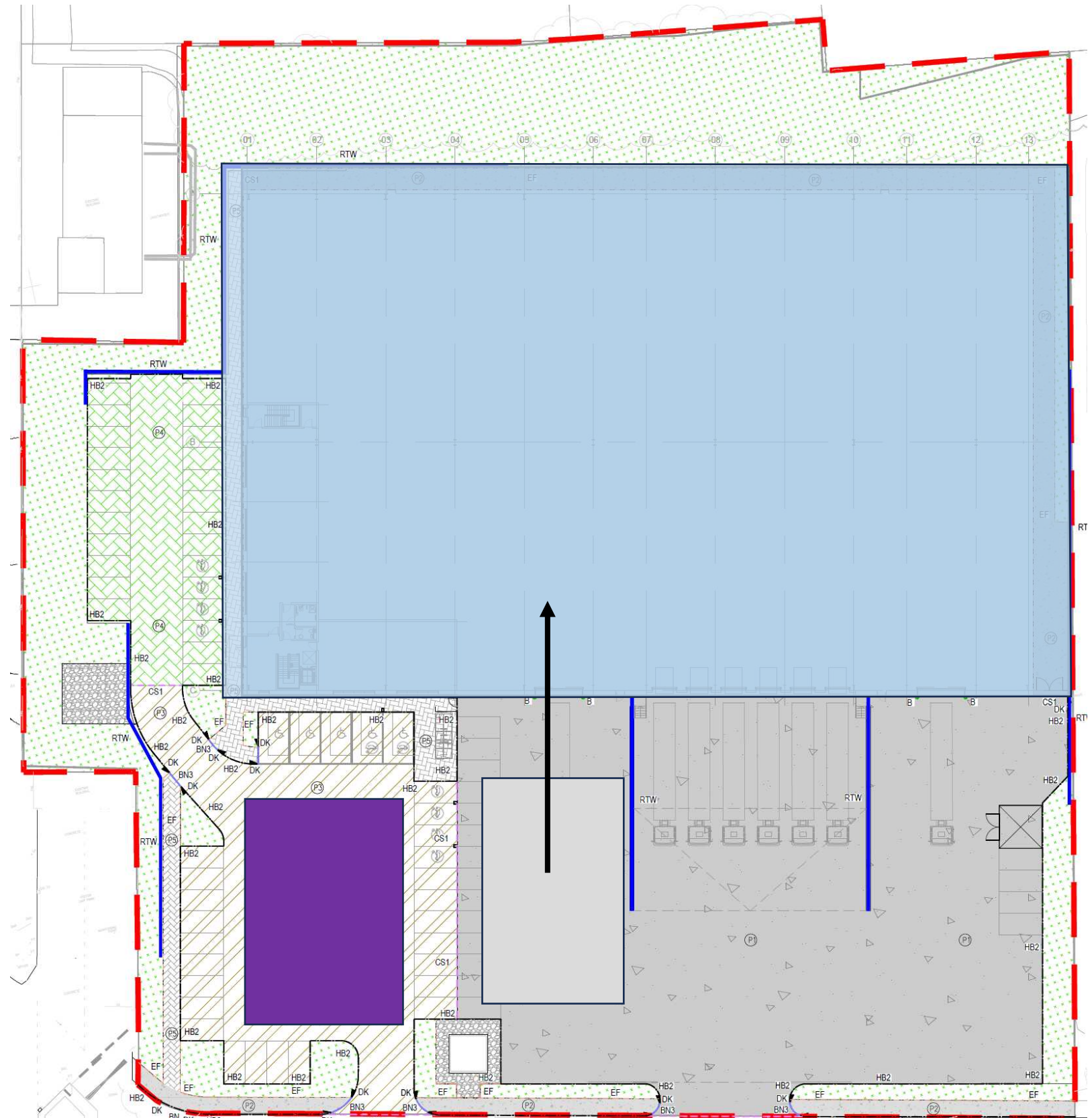


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	Topsoil strip
	Topsoil stockpile
	Excavate to reduce levels
	Fill and modify to 5% CBR to make up levels
	Attenuation tank
	Re-soiling to landscape areas with site-won topsoil
	Stabilise 300mm formation layer to 30% CBR
	Supply and place imported Type 1
	Finished areas



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T879 – Knowsley

Earthworks Sequence Revision 002

Key

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Access/Egress to site

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Material movement

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Topsoil strip

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Topsoil stockpile

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Excavate to reduce levels

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Fill and modify to 5% CBR to make up levels

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Attenuation tank

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Re-soiling to landscape areas with site-won topsoil

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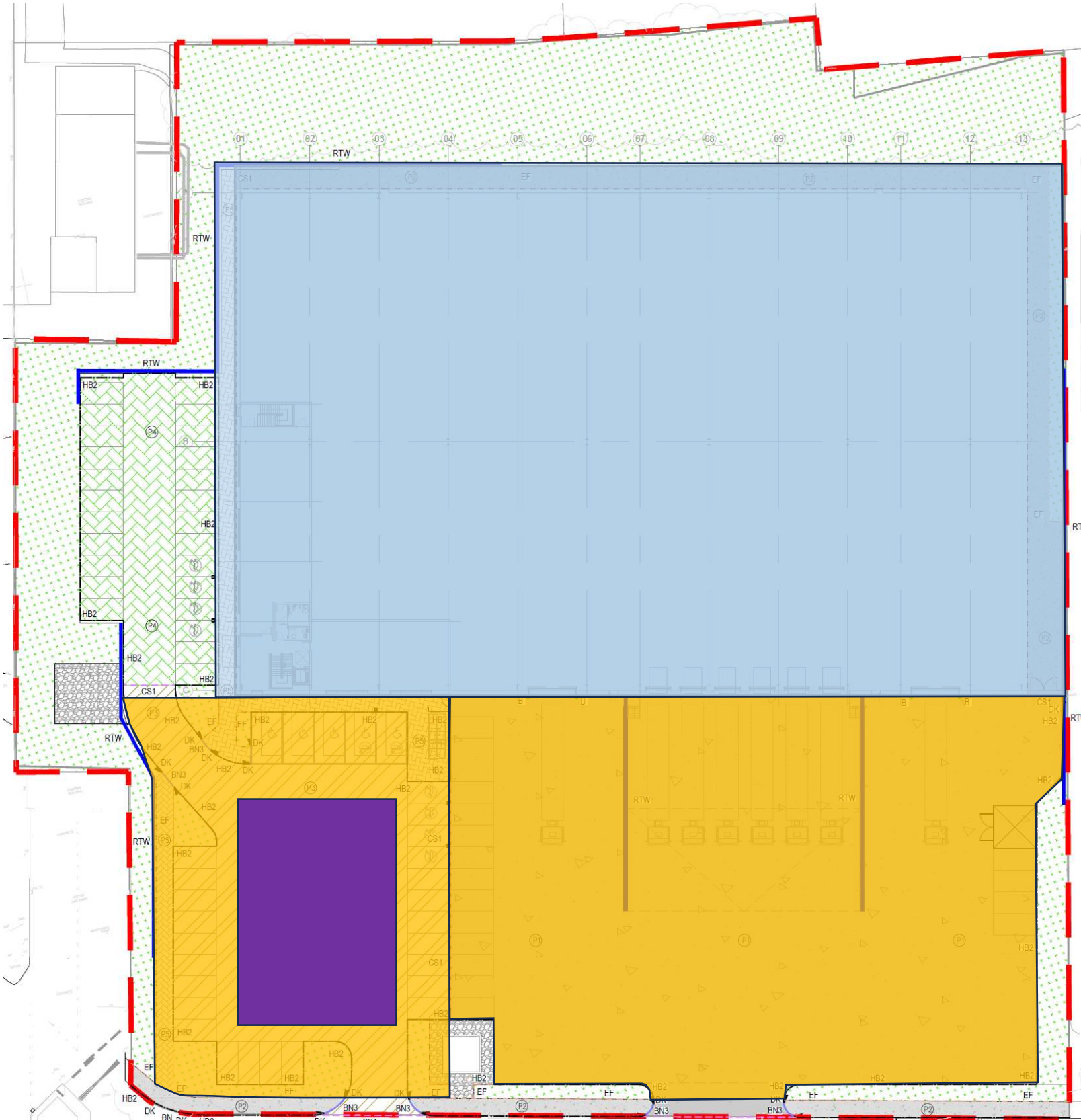
Stabilise 300mm formation layer to 30% CBR

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Supply and place imported Type 1

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Finished areas



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T879 – Knowsley

Earthworks Sequence Revision 002

Key

Access/Egress to site

Material movement

Topsoil strip

Topsoil stockpile

Excavate to reduce levels

Fill and modify to 5% CBR to make up levels

Attenuation tank

Re-soiling to landscape areas with site-won topsoil

Stabilise 300mm formation layer to 30% CBR

Supply and place imported Type 1

Finished areas

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IMS Document Ref 105a

Please note this sequence is indicative of the overall process and is subject to change to meet specific site requirements

Appendix C – Main Contractor Verification Statement (no unexpected contamination)

Epsilon Environmental Ltd
Sparkhouse,
Rope Walk,
Lincoln,
LN6 7DQ

For the Attention of Alan Crossfield

4th December 2025

Dear Alan,

RE: P25-006 Imagination Two, Knowsley – verification

We can confirm the following:

- No hydrocarbon contaminated soil or groundwater was encountered during the construction works.
- No visible potentially asbestos containing material in soil was encountered during the construction works.
- No unexpected, contaminated soil or groundwater was encountered during the construction works.

Yours sincerely,

Tom Corbett
Head of Design & Technical
Wiltan Construction Ltd

Appendix D - Main Contractor Verification Statement (no imported topsoil) & Retained topsoil laboratory test results

Hale Architecture
22c Leathermarket Street,
London,
SE1 3HP

For the Attention of Mahdiah Pourali

13th October 2025

Dear Mahdiah,

RE: P25-006 Imagination Two, Knowsley – Planning Condition 4F

We can confirm that there will be no imported soils for the implementation of the soft landscaping scheme. The top soil will be taken from the surplus from the plot.

Yours sincerely,

Tom Corbett
Head of Design & Technical
Wiltan Construction Ltd



Final Report

Report No.: 25-21560-1

Initial Date of Issue: 04-Jul-2025

Re-Issue Details:

Client *Soiltechnics Limited*

Client Address: *Cedar Barn, White Lodge
Walgrave
Northamptonshire
NN6 9PY*

Contact(s): *Admin*

Project *STX7107 Knowsley Topsoil*

Quotation No.: **Date Received:** 30-Jun-2025

Order No.: POR022743 **Date Instructed:** 30-Jun-2025

No. of Samples: 4

Turnaround (Wkdays): 3 **Results Due:** 02-Jul-2025

Date Approved: 04-Jul-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STX7107 Knowsley Topsoil

Client: Soiltechnics Limited		Chemtest Job No.:		25-21560	25-21560	25-21560	25-21560
Quotation No.:		Chemtest Sample ID.:		1993151	1993152	1993153	1993154
Order No.: POR022743		Client Sample Ref.:		1	1	1	1
		Client Sample ID.:		TS01-0-1	TS02-0-1	TS03-0-1	TS04-0-1
		Client Reference:		TS01	TS02	TS03	TS04
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.00	0.00	0.00	0.00
		Date Sampled:		27-Jun-2025	27-Jun-2025	27-Jun-2025	27-Jun-2025
		Time Sampled:		11:59	11:59	12:00	12:00
		Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	5.3	4.3
Soil Colour		N	2030		N/A	Brown	Brown
Other Material		N	2030		N/A	Stones and Roots	Stones and Roots
Soil Texture		N	2030		N/A	Loam	Loam
pH at 20C		M	2010		4.0	7.6	7.4
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	0.7	1.2
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	1.4	2.5
Copper		M	2455	mg/kg	0.50	2.9	4.7
Mercury		M	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	1.2	2.3
Lead		M	2455	mg/kg	0.50	3.2	5.3
Selenium		M	2455	mg/kg	0.25	< 0.25	< 0.25
Zinc		M	2455	mg/kg	0.50	7.6	8.9
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	< 1.0	< 1.0
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	< 3.0	< 3.0
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	< 5.0	< 5.0
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05

Results - Soil

Project: STX7107 Knowsley Topsoil

Client: Soiltechnics Limited		Chemtest Job No.:	25-21560	25-21560	25-21560	25-21560
Quotation No.:		Chemtest Sample ID.:	1993151	1993152	1993153	1993154
Order No.: POR022743		Client Sample Ref.:	1	1	1	1
		Client Sample ID.:	TS01-0-1	TS02-0-1	TS03-0-1	TS04-0-1
		Client Reference:	TS01	TS02	TS03	TS04
		Sample Type:	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):	0.00	0.00	0.00	0.00
		Date Sampled:	27-Jun-2025	27-Jun-2025	27-Jun-2025	27-Jun-2025
		Time Sampled:	11:59	11:59	12:00	12:00
		Asbestos Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	2.0
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	7.0
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	2.6
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	9.0
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	12
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	13
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	15
Organic Matter		M	2625	%	0.40	3.6
Benzene		M	2760	µg/kg	1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0
Naphthalene		M	2800	mg/kg	0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.71
Anthracene		M	2800	mg/kg	0.10	0.63
Fluoranthene		M	2800	mg/kg	0.10	2.6
Pyrene		M	2800	mg/kg	0.10	2.5
Benzo[a]anthracene		M	2800	mg/kg	0.10	2.7
Chrysene		M	2800	mg/kg	0.10	2.8
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	2.8
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	2.4
Benzo[a]pyrene		M	2800	mg/kg	0.10	2.6
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	2.6
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	2.1
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	2.6
Total Of 16 PAH's		N	2800	mg/kg	2.0	27
Total Phenols		M	2920	mg/kg	0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Chemtest Sample ID	Clients Sample Ref:	Clients Sample ID:	Clients Reference:	Sampled Date:	Deviation Code(s):	Containers Received:
1993151	1	TS01-0-1	TS01	27-Jun-2025	C	Miscellaneous
1993152	1	TS02-0-1	TS02	27-Jun-2025	C	Miscellaneous
1993153	1	TS03-0-1	TS03	27-Jun-2025	C	Miscellaneous
1993154	1	TS04-0-1	TS04	27-Jun-2025	C	Miscellaneous

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory
This report shall not be reproduced except in full, and only with the prior approval of the laboratory.
Any comments or interpretations are outside the scope of UKAS accreditation.
The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.
Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.
For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - The required amount of sample for analysis was not received
- H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.
All water samples will be retained for 14 days from the date of receipt.
Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix E –Gas Membrane Installation Supporting Documents

Alan Crossfield

Subject: FW: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

From: Sarah Hunt <sarah.hunt@ptaconsult.co.uk>

Sent: 25 September 2025 16:43

To: Thomas Corbett <TomCorbett@wilten.co.uk>

Cc: Mark Tugman <mark@absbrymarfloors.co.uk>; James Potts <JamesPotts@wilten.co.uk>; Ben Harrison <BenHarrison@wilten.co.uk>

Subject: RE: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

Hi Tom,

Please find attached sketch indicating the proposed extent of the CS2 Gas/Hydrocarbon membrane.

This all needs to be designed, agreed and installed with your specialist subcontractor.

Kind regards,

Sarah Hunt

Senior Structural Engineer



Powell Tolner & Associates Ltd

T: 01494 772 721 | M: 07779 619829 | W: www.ptaconsult.co.uk

PTA, 29 Red Lion Street, Chesham, Bucks., HP5 1EJ



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From: James Potts <JamesPotts@wilten.co.uk>

Sent: 19 September 2025 15:38

To: Thomas Corbett <TomCorbett@wilten.co.uk>; sarah.hunt@ptaconsult.co.uk; Ben Harrison <BenHarrison@wilten.co.uk>

Cc: Mark Tugman <mark@absbrymarfloors.co.uk>

Subject: FW: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

So after a chat and reading Robins email here is the news

We need a up rated membrane to the office area to cover gas and hydrocarbon that extends into the warehouse by a minimum of 2 m with in the warehouse we do not need a hydrocarbon membrane only a 1200 gauge membrane lapped and tapped, this in combination with the concrete will be enough to cover the report.

Sarah you need to cover this design .and a drawing please showing the zones of Membrane. The office area will have to be validated

James Potts
Operations Manager

Telephone: 01858 457242
Mobile: 07708 390437
Email: JamesPotts@wilten.co.uk

Address: Wilten Construction Ltd, 8 The Point, Rockingham Road,
Market Harborough, Leicestershire, LE16 7QU
Check out our website www.wilten.co.uk



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From: Robin Slade <Robin.slade@luciongroup.com>
Sent: 19 September 2025 13:42
To: James Potts <JamesPotts@wilten.co.uk>
Cc: sarah.hunt@ptaconsult.co.uk
Subject: RE: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

Hi James, Sarah,

I've taken a quick look through our 2022 Controlled Waters Risk Assessment and Updated Gas Assessment report for Imagination 2 and 3. Please note I've not revisited the source data or looked to re-assess anything.

In summary, the report noted the following relating to Imagination 2:

- A CS2 ground risk classification based predominantly on steady state carbon dioxide concentrations and corresponding gas flow rates;
- No significant potential sources of volatile vapours were identified on Imagination 2 though a precautionary recommendation was made to include a hydrocarbon resistant membrane given the present of low levels of hydrocarbons and volatile organic vapours within groundwater on the adjacent Imagination 3 site.

To answer your specific questions please see my responses below in blue:

- 1) What specification do we need to meet the hydrocarbon membrane? Is a gas membrane that meets CS2 sufficient? Is this something the specialist subcontractor should be advising on? – This would need to be specified by the gas/vapour mitigation designer though typically would require a membrane that specifically states it is resistant to or has very low permeability to hydrocarbon and VOC vapours. As this is a precautionary approach and not required to meet a specific hydrocarbon source / contaminant, a membrane that is referred to as hydrocarbon resistant or with low permeability to hydrocarbons would likely be acceptable (i.e. there is no specific hydrocarbon / vapour requirements to be met). Please note, there will be specific requirements to verify installation of the uprated membrane and the designer will be able to advise on these.
- 2) What is the extent of the hydrocarbon resistant membrane? Does it just need to extend beneath the Type C - office area. Or does this need to be extended beneath the entire footprint of the building? – This is not specified within the 2002 Delta-Simons report and I have not viewed the site / building layouts and the requirements should be confirmed by the designer. It is worth noting that at least two elements of protection will be required to address the ground gas / vapour risk (so the cast insitu slab with minimal service penetrations plus a membrane) though the risk of hydrocarbon vapour build up to an unacceptable level in a large open space such as the warehouse area is much lower than in the enclosed office / accommodation spaces. Given the precautionary nature of the recommendation regarding the hydrocarbon

vapours I would consider an approach which includes an uprated hydrocarbon resistant membrane under the office / enclosed spaces area would be sensible though this would be best confirmed by your designer.

Best regards,
Robin

Robin Slade
Unit Director
m: 07790 934 791

From: James Potts <JamesPotts@wilten.co.uk>
Sent: 19 September 2025 11:27
To: Robin Slade <Robin.slade@luciongroup.com>
Cc: sarah.hunt@ptaconsult.co.uk
Subject: RE: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

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Sounds good, thank you.

James Potts
Operations Manager

Telephone: 01858 457242
Mobile: 07708 390437
Email: JamesPotts@wilten.co.uk

Address: Wilten Construction Ltd, 8 The Point, Rockingham Road,
Market Harborough, Leicestershire, LE16 7QU
Check out our website www.wilten.co.uk



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From: Robin Slade <Robin.slade@luciongroup.com>
Sent: 19 September 2025 11:13
To: James Potts <JamesPotts@wilten.co.uk>
Cc: sarah.hunt@ptaconsult.co.uk
Subject: RE: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

Hi James,

Email now received. I'll be able to take a look at the previous report early afternoon and will feedback.

Best regards,
Robin

Robin Slade
Unit Director
Lucion Delta-Simons Ltd

e: Robin.slade@luciongroup.com

m: 07790 934 791

w: www.luciongroup.com



Lucion Delta-Simons Ltd is registered in England and Wales, company registration number: 04786034
Registered office address: 5 Abbots Park Preston Brook Runcorn WA7 3GH

From: James Potts <JamesPotts@wilten.co.uk>
Sent: 19 September 2025 11:09
To: Robin Slade <Robin.slade@luciongroup.com>
Subject: FW: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

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James Potts
Operations Manager

Telephone: 01858 457242
Mobile: 07708 390437
Email: JamesPotts@wilten.co.uk

Address: Wilten Construction Ltd, 8 The Point, Rockingham Road,
Market Harborough, Leicestershire, LE16 7QU
Check out our website www.wilten.co.uk



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From: Sarah Hunt <sarah.hunt@ptaconsult.co.uk>
Sent: 18 September 2025 18:52
To: Robin.slade@luciongroup.co.uk
Cc: James Potts <JamesPotts@wilten.co.uk>
Subject: Knowsley - Imagination 2 - Gas/Hydrocarbon Protective Measures

Hi Robin,

As discussed, we would be grateful if you could advise on the membrane requirements for the above site.

The site has been classified as CS2, but recommends that due to the presence of low levels of Hydrocarbon/VOC contamination identified on Imagination 3, within the ground water, a hydrocarbon resistant membrane is recommended as a precaution.

Using BS 8485-2015+A1-2019 the proposed development is identified as Type C-Offices, and Type D commercial warehouse. This equates to the area under the offices requiring 2.5 points and the warehouse requiring 1.5 points. We can achieve the 1.5 points with the reinforced ground floor slab with minimal penetrations laid on a DPM, however, under the offices we will require a gas membrane to achieve the 2.5 points.

My questions are:

- 1) What specification do we need to meet the hydrocarbon membrane? Is a gas membrane that meets CS2 sufficient? Is this something the specialist subcontractor should be advising on?
- 2) What is the extent of the hydrocarbon resistant membrane? Does it just need to extend beneath the Type C - office area. Or does this need to be extended beneath the entire footprint of the building?

I have attached the Delta Simons Controlled Water Risk Assessment and Updated Gas Assessment FYI. Report No 19-0654.10, issued July 2022.

Your quick response would be much appreciated.

Many thanks,

Kind regards,

Sarah Hunt
Senior Structural Engineer

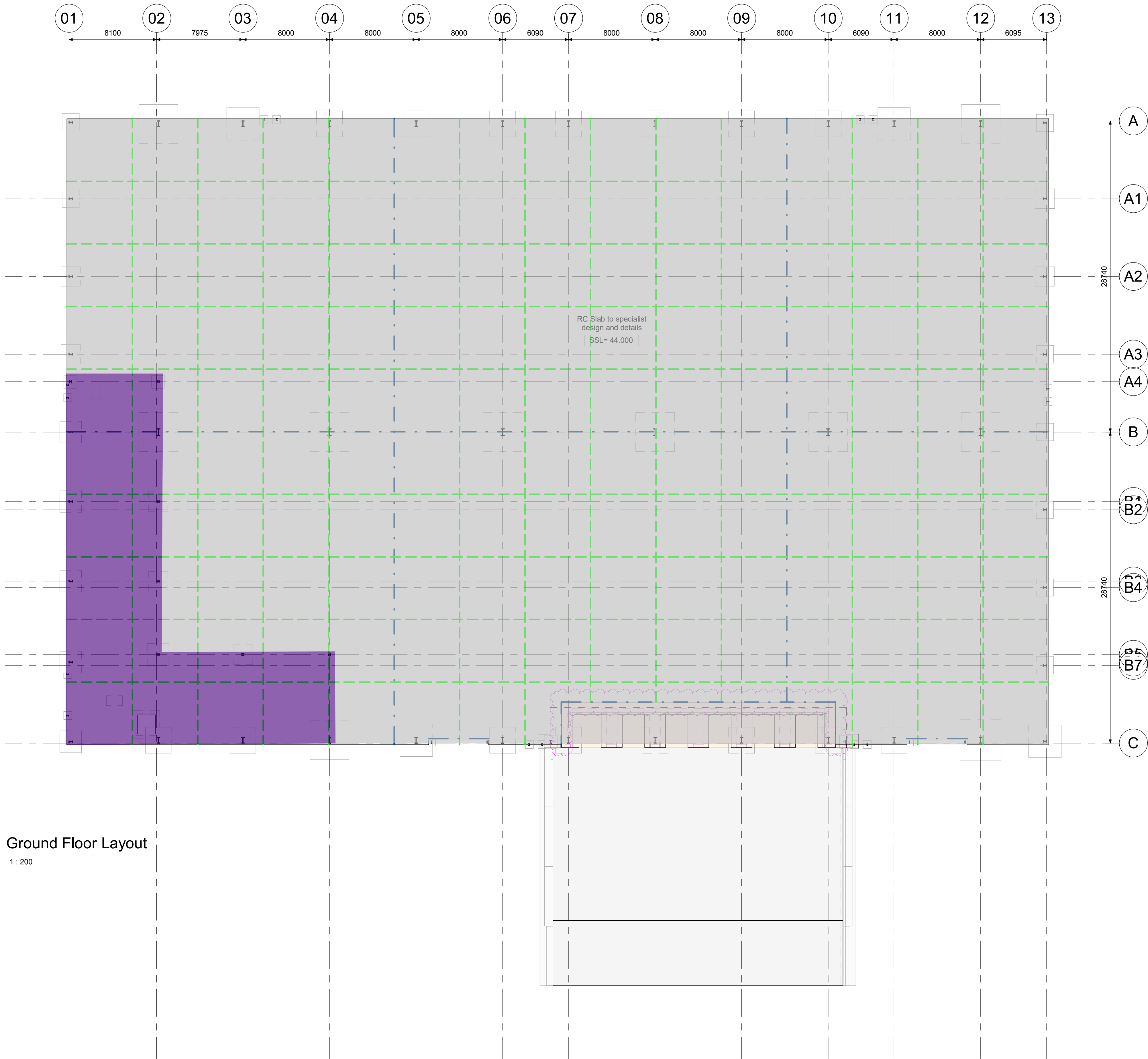


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Warehouse Floor Design	
Design Loads	Maximum UDL load = 50kN/m²
	Maximum rack leg load = 70kN (200mm from joints, 300mm c/c in back to back load case)
Slab Thickness	175mm main slab
Reinforcement	1No. layer A193 mesh 40mm bottom cover
Concrete Strength	C32/40 (cylinder/cube)
'k' Value for Design Purposes	0.055N/mm²/mm
Floor Flatness	FM2 to TR34 4th edition

Slab Joint Key	
	Armoured-Free Movement Joint (AJ)
	Saw Cut Joint (SCJ)

FLOOR JOINTS SHOWN INDICATIVELY. FINAL GROUND SLAB DESIGN AND JOINT LAYOUT TO SPECIALIST SUB-CONTRACTOR DETAILS.

GROUND BENEATH SLAB TO BE VIBRO GROUND IMPROVEMENT TO SUSTAIN A DESIGN LOAD OF 55kN/m².

- Notes:
- Do not scale from this drawing.
 - In case of any discrepancies in drawings, details or bills, refer to engineers for clarification: unilateral decisions by the contractor will not be accepted.
 - This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
 - The contractor is advised that all design drawings and information are to be read concurrently and any discrepancies or omissions reported directly to PTA's Structural Department.

Ground Floor Notes:

- Refer to Steel Fabricator's drawing for cast-in anchors and baseplate details.
- Concrete to be Grade C32/40.
- Refer to PTA Structural Concrete Specification.
- Refer to PTA drg 9865-PTA-XX-XX-DR-S-0081 for typical details.
- The modulus of sub-grade reaction set out in the design table must be achieved and proven prior to the completion of the sub-base and before construction of the concrete slab.
- The sub-base consist of minimum 200mm well graded, well compacted type 1 material, which will be well closed at the surface. Material must be non-degradable and must not contain soft materials such as chalk and sandstone. The sub-base shall be finished to a surface tolerance of +0/-25mm.
- Prior to placing concrete, all roof and wall sheeting shall be completed where practical, to provide protection from sun, wind and rain. Loading doors shall be fixed in place and openings sheeted.
- Walls and existing slabs shall be protected from concrete splashes.
- The slab is to be laid on gas membrane to meet CS2 constitions in accordance with BS8485.
- Cover to all reinforcement to be 40mm, unless stated otherwise.
- Minimum lap to fabric reinforcement to be 300mm or 40 times the bar diameter, whichever is greater. All laps to be tied. Excessive build-up of steel fabric under saw-cuts is not permitted.
- Spacers to be placed at maximum 800mm centres, as per section 6.2.1 of TR34 4th edition 2013.
- Slab penetrations shall be isolated using 20mm 'Miothene' (or similar approved). Special care is to be taken to ensure that the slip membrane is lapped and taped up the side of the 'Miothene' isolation.
- The top 20mm of 'Miothene' is to be removed and sealed with a suitable sealant upon completion of the floor casting. Internal columns shall be isolated from the main floor by means of "leave in place" steel plates and 20mm wide polyethylene foam surround with a 25mm tear off strip at the top. The perimeter and column joints shall be sealed with a polysulphide sealant to match the floor.
- Saw joints are to be cut within 24hours of concrete being placed.
- Following the final power floating operation the floor slab is to be cured and sealed with a proprietary acrylic based hardener Sika ProSeal (or similar approved curing agent). The floor slab shall not be trafficked for a minimum of 4 days following the sealing operation.

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DRAWING STATUS / PURPOSE OF ISSUE	ISO 19650 STATUS CODE
	S4

CD1	Joint positions around dock updated.	DAB	14.08.25	SH
P02	Updated tender issue.	SO	15.11.24	SH
P01	Tender Issue	NL	26.05.22	SH
Rev	Description	By	Date	Chk'd

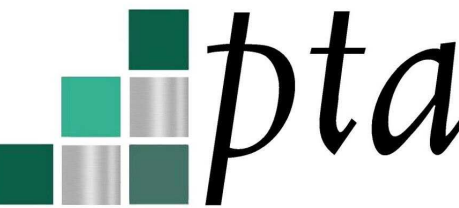
PROJECT TITLE
Image Business Park Knowsley Site 2

DRAWING TITLE
Ground Floor Layout

DATE	Jan'22	This drawing is issued only for the purposes described in the drawing status box.	PTA PROJ No
DRAWN	NL		9865
SCALE	1 : 200		REVISION
DRG SIZE	A1		C01

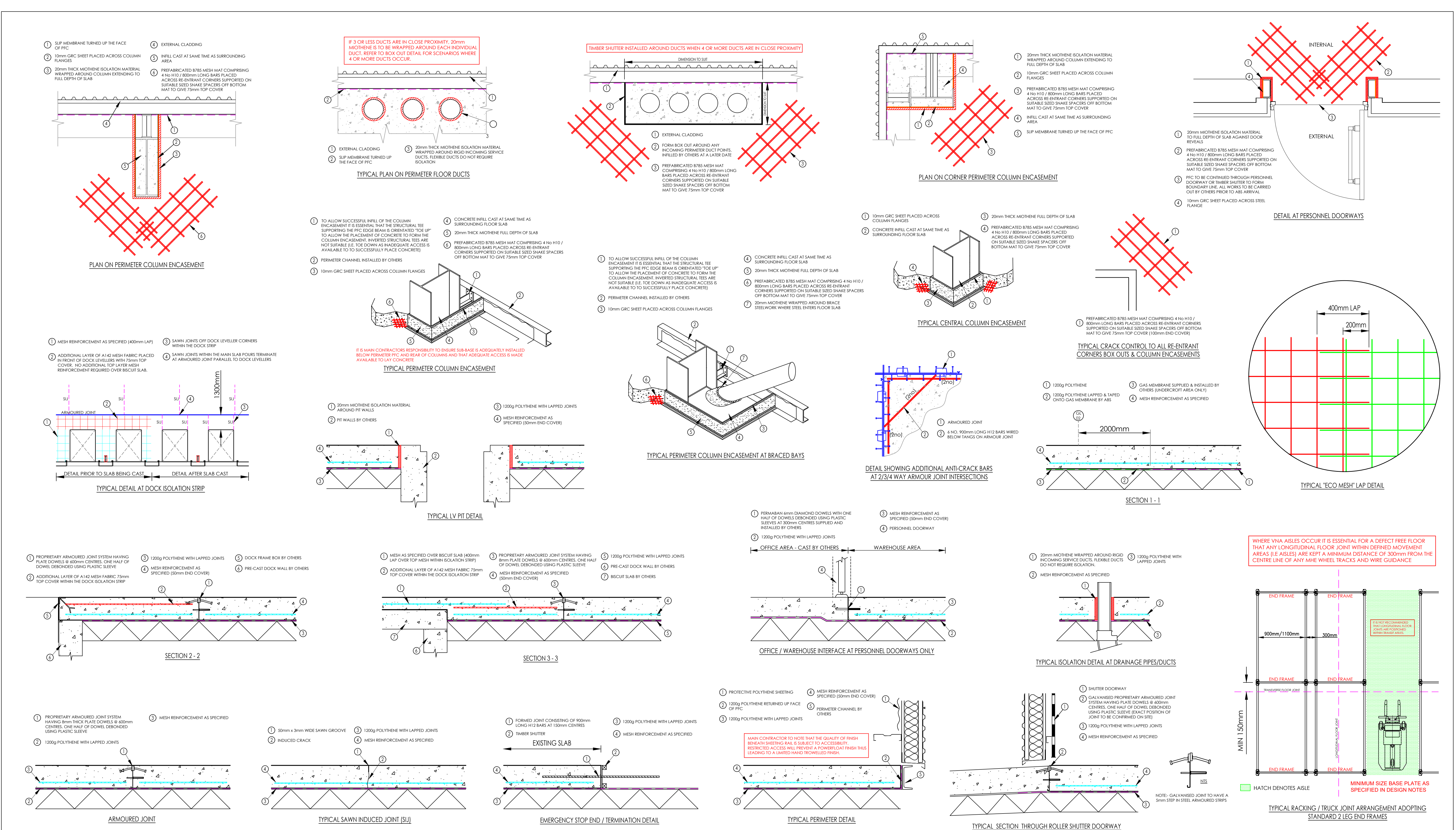
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9865-PTA-XX-XX-DR-S-0041

Consulting Civil & Structural Engineers

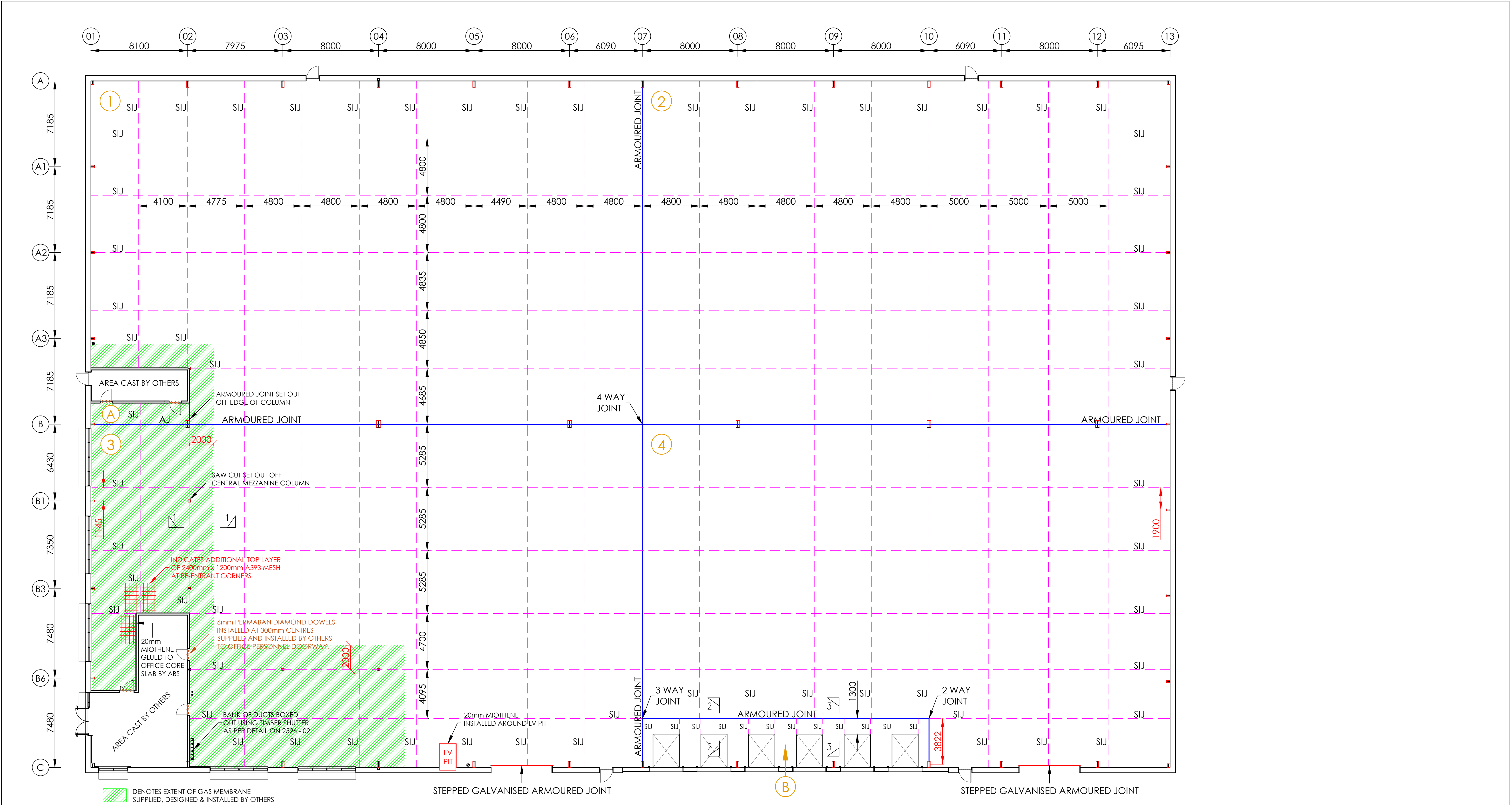
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Bucks
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Sketch Indicating the Extent of Gas/Hydrocarbon/DPM to be Installed Beneath the Ground Floor Slab.



SLAB SPECIFICATION		SLAB DESIGN		GENERAL NOTES		CONSTRUCTION		CLIENT							
175mm THICK INTERNAL CONCRETE SLAB C40 WELL GRADED CONCRETE 1 LAYER OF A142 MESH FABRIC WITH 400mm LAPS (MIN 300mm) PLACED ONTO 40mm SNAKE SPACERS AT 800mm CENTRES AS WORK PROCEEDS LAID ONTO ONE LAYER OF 1200g POLYTHENE WITH 300mm LAPPED JOINTS SURFACE TO RECEIVE A POWER FLOAT FINISH 1 COAT OF SPRAY APPLIED COMBINED CURE AND SURFACE SEALER LAID UTILISING LASER SCREED & MOBILE CONCRETE PUMPING EQUIPMENT TOLERANCE TR34 (2013) FM2 PROPERTIES E & F SUB-BASE TOLERANCE TO ACHIEVE +/-10mm WITH AN AVERAGE OF ZERO		THE SLAB CONSTRUCTION INDICATED ON THIS DRAWING FOR THE WAREHOUSING AREA HAS BEEN BASED UPON THE FOLLOWING DESIGN CRITERIA:- - UNIFORMLY DISTRIBUTED LOAD ~ 50kN/m² OR - INDIVIDUAL RACK LEG LOAD OF 70kN - TAKEN IN A BACK TO BACK CONFIGURATION AT 300mm CENTRES - MINIMUM SIZE BASE PLATES OF 100mm x 100mm - CENTRE LINE OF RACKING BASE PLATES POSITIONED A MINIMUM DISTANCE OF 150mm FROM ANY JOINTS IN THE SLAB - EDGE OF BASE PLATES POSITIONED A MINIMUM DISTANCE OF 250mm FROM THE SLAB EDGE THE MAXIMUM INDIVIDUAL MHE WHEEL LOAD ACTING IN COMBINATION WITH A SINGLE RACK LEG LOAD (AISLE SIDE) MUST NOT EXCEED 40kN THE SLAB AS DESIGNED WILL SUSTAIN A LINE LOAD CAPACITY DIRECTLY ADJACENT A FLOOR JOINT OF 25kN/M, WHERE LINE LOADS EXCEED THIS VALUE UNDERSLAB THICKENINGS MAY BE REQUIRED AND SHALL BE DESIGNED AND INSTALLED BY OTHERS PRIOR TO SLAB WORKS COMMENCING.		THE DESIGN DETAILS INDICATED ON THIS DRAWING FORM THE BASIS OF THE DESIGN PROPOSALS FOR THE SPECIFIED MAGNITUDE OF LOADING WHICH ADOPTS A MINIMUM VALUE FOR THE MODULUS OF SUB GRADE REACTION ("K-VALUE") OF 0.054 N/mm³. THIS VALUE WILL REQUIRE TO BE CONFIRMED IN WRITING BY THE MAIN CONTRACTOR BY PLATE LOADING TESTS MEASURED AT A FIXED SETTLEMENT OF 1.25 MM CARRIED OUT (BY OTHERS) IN ADVANCE OF THE REGULATING LAYER BEING PLACED TO ALLOW CONFIRMATION THAT THE SLAB DESIGN/ THICKNESS IS CORRECT. THE REQUIREMENT FOR ANY UNDERSLAB INSULATION (DESIGNED, SUPPLIED AND INSTALLED BY OTHERS) SHALL BE BASED UPON ACHIEVING AN EQUIVALENT SUB GRADE REACTION AS NOTED ABOVE. ALLOWANCE HAS BEEN TAKEN FOR WHEEL LOADING ASSOCIATED WITH STANDARD UK HEAVY GOODS VEHICLES DRIVING ON THE SLAB. LOADING CONDITIONS WITHIN THE DESIGN ARE NOT CONCURRENT BUT ARE ASSUMED TO ACT SEPARATELY UNLESS NOTED OTHERWISE. REFER TO SEPARATE CALCULATIONS PREPARED BY "KONTRAD LLP - INDUSTRIAL FLOORING CONSULTANTS" FOR FULL DETAILS OF SLAB DESIGN REFERENCE SHALL ALSO BE MADE TO THE "OPERATION AND MAINTENANCE DOCUMENT" WHICH PROVIDES GUIDANCE ON CLEANING AND ROUTINE INSPECTIONS TO BE CARRIED OUT BY THE END USER.		- PRIOR TO PLACING CONCRETE, ALL ROOF AND WALL SHEETING SHALL BE COMPLETED WHERE PRACTICAL TO PROVIDE PROTECTION FROM THE SUN, WIND AND RAIN. LOADING DOORS SHALL BE FIXED IN PLACED AND OPENINGS SHEETED. - THE JOINTS ARE TO BE INITIALLY SEALED USING A SEALANT WITH A SHORE "A" HARDNESS IN THE RANGE OF 30-50 & M.A.F. IN THE RANGE OF 25%-35%, INSTALLED BY OTHERS (UNLESS NOTED OTHERWISE). THE SEALANT IS DESIGNED TO BE A TEMPORARY APPLICATION AND THE INSPECTION AND MAINTENANCE OF SAID SEALANT IS THE RESPONSIBILITY OF THE TENANT / BUILDING USER. ALL INSPECTION, MAINTENANCE AND CLEANING OPERATIONS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS OF CHAPTER 13, TR34 4TH EDITION 2013. SEALING JOINTS SHOULD BE LEFT AS LATE IN THE CONSTRUCTION PROCESS AS POSSIBLE. - SPACING BETWEEN FIXINGS INTO THE SLAB AND ANY SAWN OR FORMED JOINT IS TO BE A MINIMUM 5 X HOLE DIAMETER WITH AN EMBEDMENT THAT DOES NOT EXCEED 2/3 SLAB DEPTH. - THE SLAB CAN BE USED BY LIGHT TRAFFIC 7 DAYS AFTER IT IS POURED. THE LOADS SHALL NOT EXCEED 30% OF THE DESIGN CAPACITY. THE FLOOR SHALL NOT BE LOADED TO ITS FULL DESIGN CAPACITY BEFORE 28 DAYS HAVE PASSED SINCE POURING. - THE SLAB HAS BEEN DESIGNED AS A FULLY SUPPORTED GROUND BEARING SLAB. NO ADDITIONAL MOMENTS, POSITIVE OR NEGATIVE HAVE BEEN CONSIDERED. SHOULD THEIR BE ANY INDUCED MOMENTS IN THE SLAB ABS ARE TO BE NOTIFIED AS FURTHER DESIGN CHANGES/CHECKS MAY BE REQUIRED. - AREA NUMBERS DO NOT REPRESENT POUR SEQUENCE BUT ARE FOR IDENTIFICATION PURPOSES ONLY. - SAWN AND ISOLATION JOINTS TO BE INITIALLY SEALED USING AROMERICE MP20 - IT IS THE MAIN CONTRACTORS RESPONSIBILITY TO ENSURE THAT "DOCK LEVELLERS" ARE FULLY SHUTTERED AND/OR SEALED TO PREVENT CONCRETE INFILL OR GROUT LOSS DROPPING INTO THE PIT BELOW DURING SLAB PLACEMENT. ABS BRYMAR ARE UNABLE TO ACCEPT ANY RESPONSIBILITY FOR LEAKAGES INTO THE PIT. - IN ACCORDANCE WITH CS-TR34 CLAUSE 11.10, ABS BRYMAR FLOORS DO NOT RECOMMEND THE USE OF PORTAL TIE BARS TO RESIST HORIZONTAL FORCES WHICH MAY INDUCE SLAB RESTRAINT AND COULD RESULT IN SIGNIFICANT CRACKING. - THE JOINT LAYOUT SHOWN ON ABS DRAWING HAS NOT BEEN CO-ORDINATED WITH ANY RACKING. SHOULD A RACKING LAYOUT BE MADE AVAILABLE PRIOR TO CASTING THE FLOOR SLAB THE JOINT POSITIONS CAN BE ADJUSTED TO SUIT UPON RECEIPT OF THE FINALISED RACK LAYOUT. - REFER TO ABS DRAWING 2526-01 FOR JOINT LAYOUT.		CO2. 30.10.2025. CO1. 16.10.2025. PO1. 30.09.2025. REV DATE DESCRIPTION		ADDED LV PIT DETAIL. UPDATED DOORWAY JOINT DETAIL TO 5mm STEPPED. ISSUED FOR CONSTRUCTION. FIRST ISSUE.		ABS BRYMAR FLOORS LTD Unit 40 Drumhead Road Chorley North Ind Park Chorley PR6 7BX Tel: 0161 972 5000. E: general@absbrymarfloors.co.uk		CLIENT WILTEN CONSTRUCTION LTD	
PROJECT TITLE		DRAWING TITLE		PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NO		PLEASE NOTE:- THIS DRAWING WILL BE DEEMED ACCEPTABLE FOR CONSTRUCTION BY THE MAIN CONTRACTOR/CLIENT IF NO COMMENTS TO THE CONTRARY ARE RECEIVED PRIOR TO COMMENCEMENT ON SITE.		DRAWN BG DATE 30.10.2025 SCALE DNS ABS DRAWING NO. 2526 - 02 REV C02							
IMAGE BUSINESS PARK, KNOWSLEY		TYPICAL DETAILS		N/A											



SLAB SPECIFICATION 175mm THICK INTERNAL CONCRETE SLAB C40 WELL GRADED CONCRETE 1 LAYER OF A142 MESH FABRIC WITH 400mm LAPS (MIN 300mm) PLACED ONTO 40mm SNAKE SPACERS AT 800mm CENTRES AS WORK PROCEEDS LAD ONTO ONE LAYER OF 1200g POLYETHENE WITH 300mm LAPPED JOINTS SURFACE TO RECEIVE A POWER FLOAT FINISH 1 COAT OF SPRAY APPLIED COMBINED CURE AND SURFACE SEALER LAD UTILISING LASER SCREED & MOBILE CONCRETE PUMPING EQUIPMENT TOLERANCE TR34 (2013) FM2 PROPERTIES E & F SUB-BASE TOLERANCE TO ACHIEVE +/-10mm WITH AN AVERAGE OF ZERO		SLAB DESIGN THE SLAB CONSTRUCTION INDICATED ON THIS DRAWING FOR THE WAREHOUSING AREA HAS BEEN BASED UPON THE FOLLOWING DESIGN CRITERIA:- UNIFORMLY DISTRIBUTED LOAD - 50kN/M² OR INDIVIDUAL RACK LEG LOAD OF 70kN TAKEN IN A BACK TO BACK CONFIGURATION AT 300mm CENTRES MINIMUM SIZE BASE PLATES OF 100mm x 100mm CENTRE LINE OF RACKING BASE PLATES POSITIONED A MINIMUM DISTANCE OF 150mm FROM ANY JOINTS IN THE SLAB EDGE OF BASE PLATES POSITIONED A MINIMUM DISTANCE OF 250mm FROM THE SLAB EDGE THE MAXIMUM INDIVIDUAL WHEE LOAD ACTING IN COMBINATION WITH A SINGLE RACK LEG LOAD (ASLE SIDE) MUST NOT EXCEED 40kN THE SLAB AS DESIGNED WILL SUSTAIN A LINE LOAD CAPACITY DIRECTLY ADJACENT A FLOOR JOINT OF 25kN/M, WHERE LINE LOADS EXCEED THIS VALUE UNDERSLAB THICKENINGS MAY BE REQUIRED AND SHALL BE DESIGNED AND INSTALLED BY OTHERS PRIOR TO SLAB WORKS COMMENCING. THE DESIGN DETAILS INDICATED ON THIS DRAWING FORM THE BASIS OF THE DESIGN PROPOSALS FOR THE SPECIFIED MAGNITUDE OF LOADING WHICH ADOPTS A MINIMUM VALUE FOR THE MODULUS OF SUB GRADE REACTION (K-K-VALUE) OF 0.054 N/mm³. THIS VALUE WILL REQUIRE TO BE CONFIRMED IN WRITING BY THE MAIN CONTRACTOR BY PLATE LOADING TESTS MEASURED AT A FIXED SETTLEMENT OF 1.25 MM CARRIED OUT (BY OTHERS) IN ADVANCE OF THE REGULATING LAYER BEING PLACED TO ALLOW CONFIRMATION THAT THE SLAB DESIGN/ THICKNESS IS CORRECT. THE REQUIREMENT FOR ANY UNDERSLAB INSULATION (DESIGNED, SUPPLIED AND INSTALLED BY OTHERS) SHALL BE BASED UPON ACHIEVING AN EQUIVALENT SUB GRADE REACTION AS NOTED ABOVE. ALLOWANCE HAS BEEN TAKEN FOR WHEEL LOADING ASSOCIATED WITH STANDARD UK HEAVY GOODS VEHICLES DRIVING ON THE SLAB. REFER TO SEPARATE CALCULATIONS PREPARED BY "KONTRAD LLP - INDUSTRIAL FLOORING CONSULTANTS" FOR FULL DETAILS OF SLAB DESIGN REFERENCE SHALL ALSO BE MADE TO THE "OPERATION AND MAINTENANCE DOCUMENT" WHICH PROVIDES GUIDANCE ON CLEANING AND ROUTINE INSPECTIONS TO BE CARRIED OUT BY THE END USER. GENERAL NOTES PRIOR TO PLACING CONCRETE, ALL ROOF AND WALL SHEETING SHALL BE COMPLETED WHERE PRACTICAL TO PROVIDE PROTECTION FROM THE SUN, WIND AND RAIN. LOADING DOORS SHALL BE FIXED IN PLACED AND OPENINGS SHEETED. THE JOINTS ARE TO BE INITIALLY SEALED USING A SEALANT WITH A SHORE "A" HARDNESS IN THE RANGE OF 30-50 & M.A.F. IN THE RANGE OF 25%-35%, INSTALLED BY OTHERS (UNLESS NOTED OTHERWISE). THE SEALANT IS DESIGNED TO BE A TEMPORARY APPLICATION AND THE INSPECTION AND MAINTENANCE OF SAID SEALANT IS THE RESPONSIBILITY OF THE TENANT / BUILDING USER. ALL INSPECTION, MAINTENANCE AND CLEANING OPERATIONS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS OF CHAPTER 13, TR34 4TH EDITION 2013. 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SAWN AND ISOLATION JOINTS TO BE INITIALLY SEALED USING ARBOMERIC MP20 THE EXACT POSITION OF SHUTTERING/JOINTS AT DOORWAYS IS TO BE CONFIRMED ON SITE BY MAIN CONTRACTORS SITE ENGINEER TO SUIT THE VARIOUS DOOR TYPES & FIXING REQUIREMENTS. IT IS THE MAIN CONTRACTORS RESPONSIBILITY TO ENSURE THAT "DOCK LEVELLERS" ARE FULLY SHUTTERED AND/OR SEALED TO PREVENT CONCRETE INFILL OR GROUT LOSS DROPPING INTO THE PIT BELOW DURING SLAB PLACEMENT. ABS BRYMAR ARE UNABLE TO ACCEPT ANY RESPONSIBILITY FOR LEAKAGES INTO THE PIT. IN ACCORDANCE WITH CS-TR34 CLAUSE 11.10, ABS BRYMAR FLOORS DO NOT RECOMMENDED THE USE OF PORTAL TIE BARS TO RESIST HORIZONTAL FORCES WHICH MAY INDUCE SLAB RESTRAINT AND COULD RESULT IN SIGNIFICANT CRACKING. THE JOINT LAYOUT SHOWN ON ABS DRAWING HAS NOT BEEN CO-ORDINATED WITH ANY RACKING. SHOULD A RACKING LAYOUT BE MADE AVAILABLE PRIOR TO CASTING THE FLOOR SLAB THE JOINT POSITIONS CAN BE ADJUSTED TO SUIT UPON RECEIPT OF THE FINALISED RACK LAYOUT. REFER TO ABS DRAWING 2526-02 FOR TYPICAL DETAILS. C02, 30.10.2025. C01, 16.10.2025. P01, 30.09.2025. REV, DATE, DESCRIPTION ABS BRYMAR FLOORS LTD Unit 40 Drumhead Road Chorley North Ind Park Chorley PR6 7BX Tel: 0161 972 5000. E: general@absbrymarfloors.co.uk CLIENT WILTEN CONSTRUCTION LTD PROJECT TITLE IMAGE BUSINESS PARK, KNOWSLEY DRAWING TITLE PROPOSED JOINT LAYOUT PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NO N/A PLEASE NOTE:- THIS DRAWING WILL BE DEEMED ACCEPTABLE FOR CONSTRUCTION BY THE MAIN CONTRACTOR/CLIENT IF NO COMMENTS TO THE CONTRARY ARE RECEIVED PRIOR TO COMMENCEMENT ON SITE. CONSTRUCTION DRAWN, DATE, SCALE, ABS DRAWING NO., REV BG, 30.10.2025, DNS, 2526 - 01, C01 LV PIT ADDED TO PLAN. DOORWAY JOINT NOTE UPDATED ON PLAN. ISSUED FOR CONSTRUCTION. FIRST ISSUE.
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Gas Membrane Installation
Validation Report
Wiltern Contruction
Knowsley Industrial Park
Liverpool
L33 7UF



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1. INTRODUCTION

1.1 Purpose

ACS Linings are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by ACS Linings to carry out independent validation of the installation of the membrane on the site as per our terms of engagement. The frequency of independent inspections has been determined by the client, comprehensive CQA should be forwarded by the installer to cover any data gaps for areas that have not been subjected to independent inspections.

The **SOLE** purpose of the works undertaken by MEC Environmental is to provide independent inspections and a factual report as and when requested to assist the client in gaining regulatory approval with regards to the gas membrane installation. This is as per the scope of work section within our term's engagement.

1.2 Limitations

This report is limited to providing lines of evidence to the regulatory authority for the areas components inspected by MEC only in support of the discharging of the relevant planning conditions only and cannot be used or relied upon for any other purpose. No professional liability shall be extended to any other parties by MEC, the report should explicitly not be relied on by any future vendor or tenant as proof that the gas protection measures are sufficient for the site and functioning at the time of purchase or start of any tenancy. Gas protection systems are not solely reliant on the gas membrane as points are scored under BS8485 for the floor slab, membrane and venting, these components work collaboratively to provide a gas protection system. This is as per the conditions within our term's engagement.

The report has been provided on the assumption that no damage or works that may have compromised the components and integrity of the gas membrane have been made after our inspections, failure to report any such occurrences will invalidate any liability and render the report and contents invalid. This is as per the conditions within our term's engagement.

This report has been prepared in accordance with the best available practice and the relevant guidance documents listed below of which the author of the report was a contributor and member of the steering committees:

Mallett H, Wilson S, Corban M (2014) "Good practice on the testing and verification of protection systems for buildings against hazardous ground gases". CIRIA Report C735

1.3 Compliance with Regulation 7 of Building Regulations

Regulation 7 of the building regulations requires that building work shall be carried out in a workmanlike manner. Approved document 7 suggests installation can comply with the regulation if workmanship is such that, where relevant, materials are adequately mixed or prepared and applied, used or fixed so as to perform adequately the functions for which they are intended.

A reasonable standard may be demonstrated by:

Compliance with a standard and independent certification - The relevant standard for gas protection measures is BS8485:2015 +A1:2019, Table 7 of the standard requires that gas membranes are verified as per CIRIA C735.

Past experience – The installers qualifications are checked by MEC Environmental to ensure that the installation supervisor holds the NVQ Level 2 in gas membrane installations.

Integrity Testing methods. – are carried out as prescribed in CIRIA C735, unless stated elsewhere

Frequency of Visits – MEC have not been employed to prepare a validation plan for this project, the frequency of visits is as per the instructions of the client, in essence MEC inspected the available membrane that could be inspected each time an inspection visit was requested. The area inspected on each visit is noted on the survey sheets in appendix 1. This report should be read in conjunction with the installers CQA report.

1.4 Method of Inspection (Per Visit)

All seams and non-seam areas of the available gas membrane were inspected/tested by the Validation Surveyor for identification of defects, protruding and penetrating objects, lack of subgrade support, overheating, holes, blisters, undispersed raw materials, scratches and gouges, and any sign of contamination by foreign matter.

Any portion of the gas membrane exhibiting a flaw or failing a visual inspection/testing was repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure was agreed upon between the Validation Consultant and the Installer at the time of the repair and is noted in the survey sheets.

Major repairs are visually inspected/tested, repairs passing the inspection/testing were considered acceptable. In some cases minor repairs maybe carried out under contractor CQA and photographic evidence supplied to the verifier for inclusion in the report.

1.5 MEC Staff Competency

All site inspections have been carried out by suitably qualified staff as defined in CIRIA C735, the qualification held by all MEC inspection surveyors is either the NVQ Level 4 in gas protection verification or the NVQ Level 2 in gas membrane installation

The author of this report is also a CL:AIRE accredited Specialist in Gas Protection Verification (SGPV) and holds both the NVQ Level 2 in gas membrane installation and the NVQ Level 4 in gas protection verification.

1.6 Conclusion

During our inspections to the areas denoted in Appendix 1 (Site Surveys Sheets) we witnessed the installer carrying out the installation in a workmanlike manner, the materials were adequately prepared and applied, used and fixed so as to perform adequately the functions for which they are intended as per Regulation 7 of the building regulations. In instances where 100% of the installation has not been independently inspected/tested then this report should be read in conjunction with the gas membrane installers CQA records.

The installers all hold the NVQ Level 2 "Gas membrane Installations" qualification and as such are classed as a qualified and experienced installer. MEC Environmental have checked the CSCS Trade Cards of the installers, which confirms the holder has attained the qualification.

Signed



Date: 12/12/2025

Michael Corban S.G.P.V.

Director

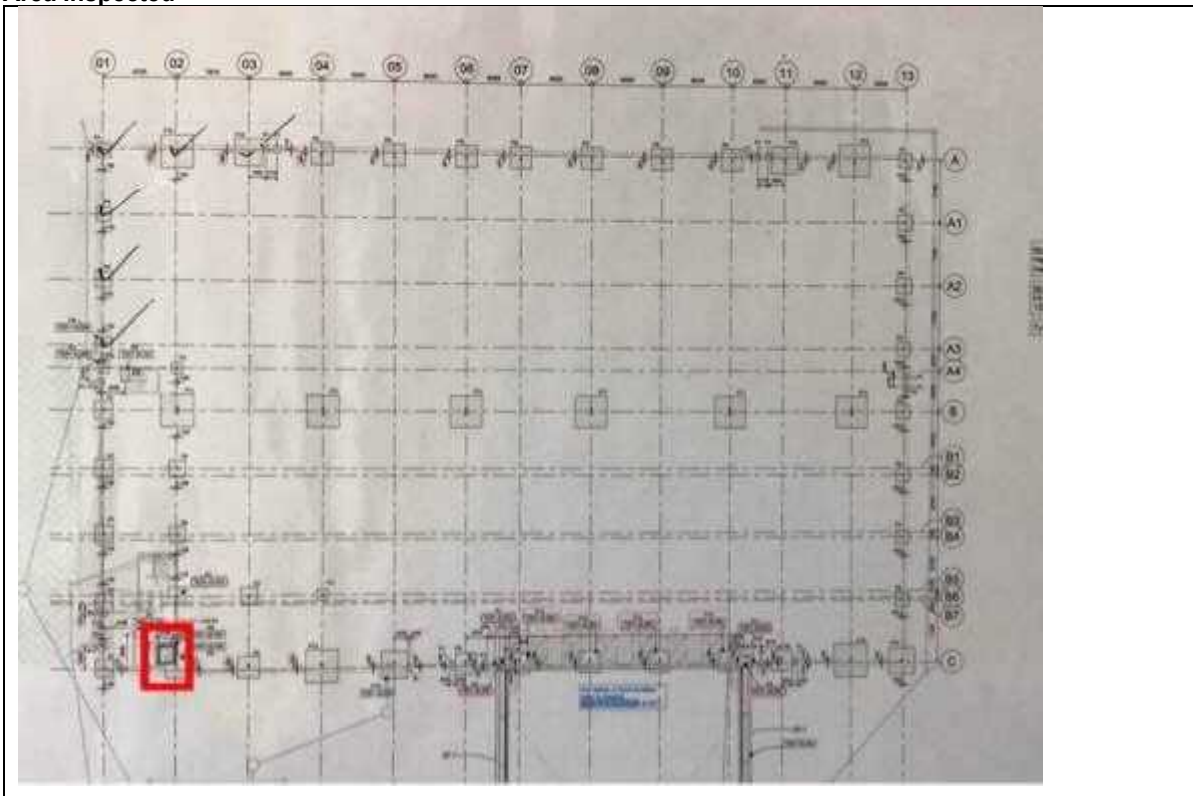
MEC Environmental Ltd

Appendix 1 – Site Survey Sheets

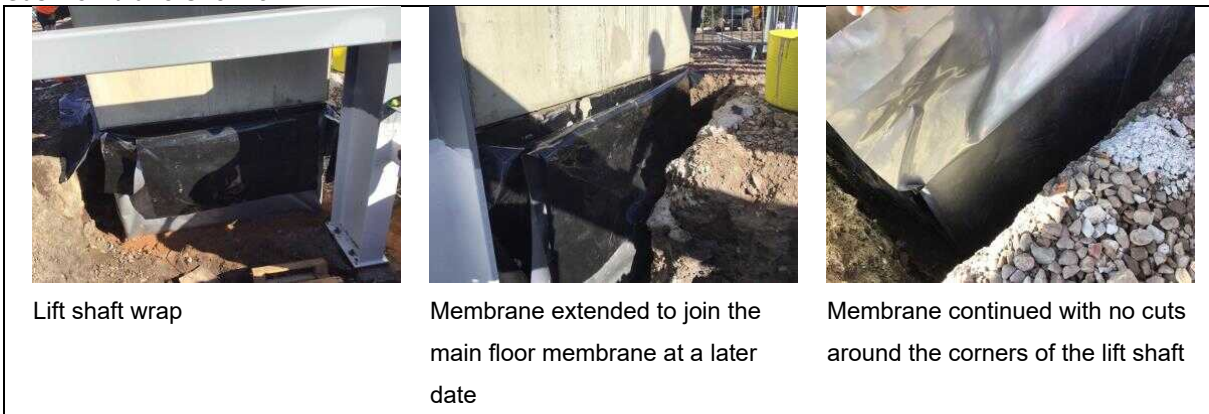
Main Contractor Name: Wiltern Construction		Date: 26/09/2025
Site Name: Knowsley Industrial Park, Liverpool		Temp: 14 °C
		Installer: ACS
Postcode: L33 7UF	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	1no industrial unit	
Area Inspected:	Lift shaft wrap. Gridlines 2 / C See Marked Up Plan	
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. A 6 meter pre made panel was originally placed along the base of the lift pit. MEC did not inspect the base membrane. Now the lift shaft is constructed the installers have lifted the exposed membrane up the lift shaft walls and wrapped around the corners as a continuous sheet. The membrane will now be temporarily taped to walls to allow the lift shaft to be back filled, leaving enough membrane exposed to allow it to be joined to the main floor membrane at a later date. All membrane lap joints were auto welded when the panel was originally made. MEC was unable to obtain photographic evidence of the materials used.	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	No defects recorded and therefore no action required	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta Titanflex gas membrane		
Other Products Used: N/A		
Perimeter Seal Method: Not Applicable		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: Not Applicable		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of welding with a hot air automatic welding machine, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	

(Section 3, Defects List)	Action Required
No recorded defects	No defects recorded and therefore no action required

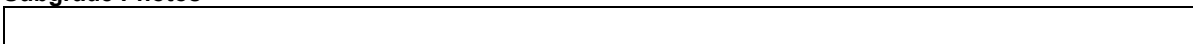
Area Inspected



Gas Membrane Overview



Subgrade Photos



Materials Used

--

Perimeter Detail

--

Pipe and Duct Seals

--

Stanchions and Columns Seals

--

Testing of Joints

	
Auto welded membrane lap joint testing	Auto welded membrane lap joint testing

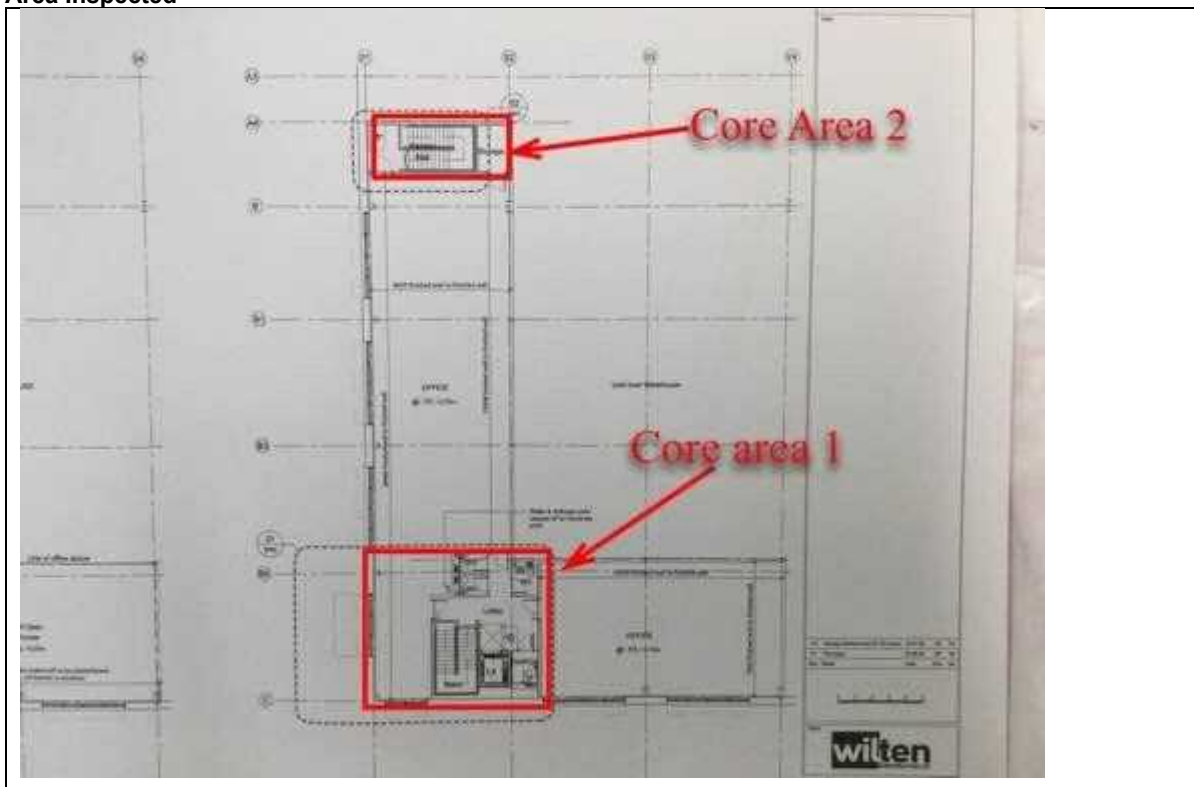
Additional Photos

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Main Contractor Name: Wilten Construction		Date: 05/11/2025
Site Name: Knowsley Industrial Park, Liverpool		Temp: 16 °C
		Installer: ACS Linings
Postcode: L33 7UF	Surveyor: Ross Edwards (NVQ 4)	
Building Reference/Unit No:	Imagination 02	
Area Inspected:	Core area 1 gridlines 1-2 / B6-C & Core area 2 gridlines 1-2 / A4-B - See Marked Up Plan	
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane, the membrane has been installed across the footprint of both core areas upon a sand blinding substrate. The membrane has been installed up the perimeter cladding rail and detailed with a strip of double sided butyl tape. All lap joints have been hand welded. Pipe and stanchion details have been dressed with JUTA GPSAM with sufficient heat applied. Within Core area 1 about the lift shaft the installers have applied strips of JUTA GPSAM as a retro detail. Both stairwell bases have been detailed also with JUTA GPSAM. Evidence for the materials used could not be obtained due to the packaging not available at the time of inspection.	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	N/A	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: JUTA Titan Flex membrane		
Other Products Used: JUTA GPSAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with double sided butly tape		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: See description of works		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	

(Section 3, Defects List)	Action Required
No defects located during visit.	N/A

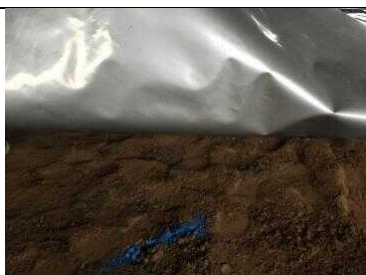
Area Inspected



Gas Membrane Overview



Subgrade Photos



Sand blinding substrate within Core Area 1.



Membrane installed upon a sand blinding substrate within Core Area 2.

Materials Used

--

Perimeter Detail



Perimeter cladding rail detail sealed with double sided butyl tape to Core Area 1.



Testing along there perimeter cladding rail.



Perimeter cladding rail sealed with double sided butyl tape to Core Area 2.



Testing to the perimeter cladding rail detail.

Pipe and Duct Seals



Typical pipe detail to core area 1.



Typical pipe detail to core area 1.



Typical pipe detail to core area 1.



Testing to the pipe detail to core area 1.



Typical pipe detail to core area 1.

Stanchions and Columns Seals



Typical stanchion detail to core area 1



Typical stanchion detail to core area 1



Testing to the stanchion detail within Core Area 1.



Typical stanchion detail to core area 1



Typical stanchion detail to core area 2.



Testing to the stanchion detail within Core Area 2.



Typical stanchion detail to core area 2.

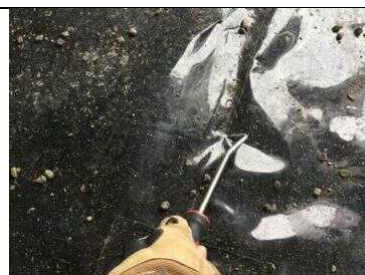
Testing of Joints



Testing to the welded lap joint to core area 1.



Testing to the welded lap joint to core area 1.



Testing to the welded lap joint to core area 2.



Testing to the welded lap joint to core area 2.

Additional Photos



Stairwell base detailing to core area 1.



Testing to the stairwell base detail.



Retro detailing to lift shaft to core area 1.



Testing along the lift shaft detail.



Stairwell base detailing to core area 2.



Testing along the stairwell base detail.

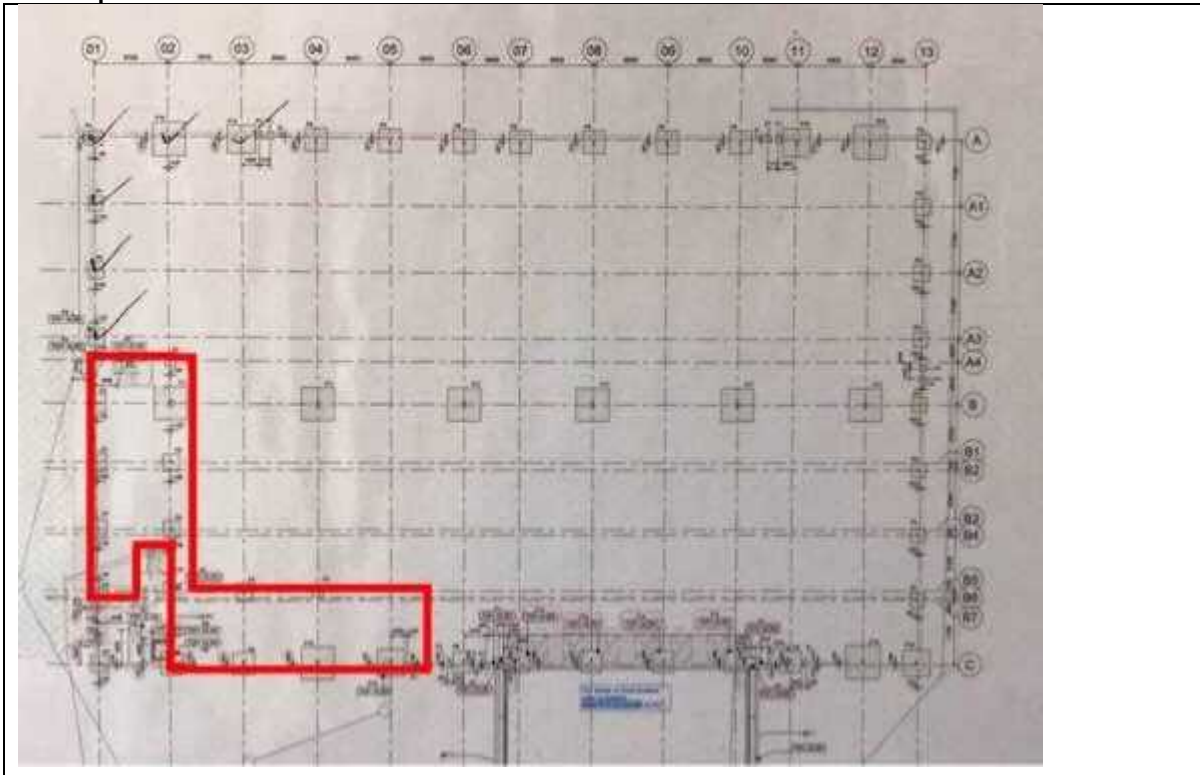
Main Contractor Name: Wilten Construction		Date: 12/12/2025
Site Name: Knowsley Industrial Park, Liverpool		Temp: 8 °C
		Installer: ACS Linings
Postcode: L33 7UF	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Imagination 02	
Area Inspected:	Main floor under mezzanine line out. Gridlines 1-2 / A4-B6 & 2-5 / B6-C. See Marked Up Plan	
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The membrane is lined across the denoted areas upon a rolled aggregate. MEC did not inspect the full substrate due to the works being completed prior to the inspection. The membrane lap joints have been welded using a combination of a uni-plan auto welder and hand held leister welder. The membrane is detailed to the perimeter cladding rail using HS Butyl Tape. MEC were not provided drawings to reference the perimeter detailing method. All pipes and stanchions have been detailed using Juta GP SAM with heat and pressure applied.	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	N/A	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta Titanflex membrane		
Other Products Used: Juta GP SAM & HS Butyl Tape		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with double sided butly tape		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of welding with a hot air automatic welding machine, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	
(Section 3, Defects List)		Action Required

No defects were recorded during the inspection of the completed works. The Installers made their own CQA patch repairs using Juta Titanflex membrane and hand welded it in place.

N/A

Site have made 4no pin holes in the membrane for their shuttering which will require patching once the pins are removed. Site have been informed and will patch repair themselves and take photographic evidence to cover under their own CQA. Alternatively they can contact MEC for a re inspection upon request.

Area Inspected



Gas Membrane Overview



Gridlines 1-2 overview



Gridlines 2-5 overview

Subgrade Photos



Compact substrate visible for inspection

Materials Used



HS butyl tape



Juta GP SAM



Juta Titanflex

Perimeter Detail



Perimeter detailing



Perimeter detailing



Perimeter detailing



Perimeter detailing



Perimeter detail testing

Pipe and Duct Seals



Pipe detailing



Pipe detailing



Pipe detail testing

Stanchions and Columns Seals



Stanchion detailing



Stanchion detailing



Stanchion detailing



Stanchion detailing



Stanchion detailing



Stanchion detailing



Stanchion detail testing

Testing of Joints



Welded lap joint testing

Additional Photos



Membrane welded to the existing
membrane with Titanflex patch
repairs made to damages

Appendix F – Mains Water Pipe (statutory undertaker approval)

Alan Crossfield

From:
Sent:
To:
Cc:
Subject:
Attachments:

Follow Up Flag:
Flag Status: Flagged

Hi Ben,

Following today's inspection, your pipework has passed. This has been passed over to be planned in for connection.

Please see attached details to pass on for the pressure testing and chlorination of your pipework.

Once we have a connection date I will advise the date to carry out these works.

Kind Regards,

Rachel Nead

Senior Project Manager

M

W: www.hvss.uk.com

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**Contact**
01604 781107
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www.hvss.uk.com

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2 Riley Road,
Telford Way Industrial Estate,
Kettering NN16 8NN

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The inspection is booked for tomorrow which I understood to be the date requested on site at the previous inspection.

As discussed I have not been aware of such a lead time for a permit.

Once you have passed the inspection this will then go to the UU planning team.

Thanks
Rachel

Sent from [Outlook for iOS](#)

Hi Rachel,

No one was onsite to inspect today from united utilities, I thought we had an inspection booked today ?

The risk of us not getting water on is a major concern. Especially when UU are advising a 3/4month lead in (which I only found out at the end of November). Could you please confirm the points below:

1. When will UU be onsite to undertake an inspection, we are ready now and have been since Friday 5th December.
2. Once this inspect passes when will UU carry out the connection and give us live water ?

Ben Harrison
Site Manager

Please note, our offices will be closed from close of business on Friday 19th December 2025 for the Christmas period, returning on Monday 5th January 2026.

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