

CCG-C-24-14767

**PHASE III REMEDIATION STRATEGY REPORT
FOR LAND AT SANDBROOK WAY
STONEFIELD
ROCHDALE
OL11 1LQ
JUNE 2024**

Prepared for:

NORTHERN TRUST

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DOCUMENT CONTROL FORM

Client:	Northern Trust
Project Title:	Phase III Remediation Strategy Report for land off Sandbrook Business Park, Rochdale, OL11 1LQ
Reference Number:	CCG-C-24-14767
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Reviewed by:	Chris Bolan CEng MICE CEnv
Signature:	
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For and behalf of CC GEOTECHNICAL LTD	
Date:	June 2024
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Comments:	Report updated May 2025 to show the completion of a gas – groundwater monitoring programme
Status:	Final
Distribution:	Northern Trust

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REMEDIATION STRATEGY DOCUMENT

Document No: CCG-C-24-14767

Site: Land located within the curtilage of Sandbrook Business Park, Rochdale, OL11 1LQ

Nature of Development:

It is understood that the site is to be redeveloped for commercial land use by the construction of 4nr steel framed commercial blocks (A-D) providing a combined total of 9nr self contained units with associated ancillary office space and welfare facilities together with associated external hard paved off road car parking bays and small areas of soft landscaping. It is proposed that each unit will be constructed of low-level dado brick walls with corrugated rain screen cladding above.

It is further understood that to prepare the area to development level, an advance preparatory earthworks contract will be undertaken, in which a 'cut' and 'fill' exercise will be undertaken to reconcile the site levels to accommodate each unit and as such the site will be terraced with access points being at the north and south of the site, leading onto Sandbrook Way.

The existing site layout is as shown on **NORTHERN TRUST** architectural drawings contained herein.

The proposed development falls within the administrative jurisdiction of **ROCHDALE METROPOLITAN BOROUGH COUNCIL**

PREVIOUS REPORT REFERENCE(S):

DATE:

Phase II Geoenvironmental Report prepared by **CCG** under Report Reference No. CCG-C-24-14676

June 2024

Soil Contamination Assessment / Garden Remediation

That above referenced report dated June 2024 confirms the presence of elevated concentrations of:

- Asbestos containing materials (ACM's) in the form of Chrysotile and Amosite (loose fibres and debris) were identified in soils recovered from 4nr sampling positions (WS02 > WS05). Hence a potential risk to human health is indicated.

Quantification tests undertaken on 4nr asbestos detections confirm the presence of <0.001 - 0.001% ACMs'.

Exposure risk associated with the aforementioned contaminants are associated with the oral and ingestion pathways and therefore some remedial works are required to mitigate such risks – see Detailed Remediation Strategy hereunder.

Taking into account the presence of ACMs', it is required that site levels in all new areas of proposed landscaping / cultivation be reduced by a minimum of 600mm below proposed finished site levels, with site levels being reconstructed by the placement of clean imported topsoil, placed on a high visibility woven geotextile fabric such as 'Terram 1000', or similar.

Imported topsoil is to be placed under a strict validation regime comprising 1nr analyses per 50m³, with a minimum of 4nr analyses per source.

Gas Risk Assessment

After 4nr round of monitoring, a Gas Screening Value (GSV) of 0.00004l/hrs is calculated for CO₂, and <0.0001l/hr for CH₄.

Using these GSV values, the risk to the proposed development was assessed in line with Situation A as defined in CIRIA C665, and on this basis the site complies with Characteristic Situation 1 (CS1) and based on this classification gas protection measures are not required.

New Water Mains

The assessment of requirements for new water mains at this site was based on the criteria specified in Paper 10/WM/03/21 'Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites' published by UK Water Industry Research (UKWIR) January 2011.

The preliminary findings indicate that the soil concentrations of pertinent volatile contaminant species are above their permitted threshold concentrations as specified by the UKWIR for the adoption of PE mains. Hence PE-AL-PE mains must be adopted. Good practice requires that mains be laid in a remediated alignment comprising of clean granular fill extending to 600mm + pipe diameter and to 300mm below pipe underside.

Pipes should be laid in accordance with BS EN 12201-2 'Plastic piping systems for water supply, and for drainage and sewerage under pressure as stated in UKWIR guidance.

It should be noted that this recommendation is subject to the opinion of the water supplier (**UNITED UTILITIES**), and in this instance the local water authority must be consulted to confirm that the proposals above accord with their interpretation of current guidance.

Unanticipated Contamination

Notwithstanding the recommendations discussed in the detailed remediation strategy presented hereunder, as with all developments, disturbance of the ground may uncover unanticipated features which may give rise to considerations of contamination insofar as the exposed conditions may have the potential to impact on receptors including *inter alia* humans, animals, controlled waters, or the fabric of buildings. Any such encounters will require the contractor to halt work, isolate the risk area, and summon **CCG** to site to determine the nature of the exposure and to determine an appropriate course of action. Any such incidents will be fully documented in the site Validation Report.

In addition to the above, since the proposed works will involve removal / disturbance of soils in which positive asbestos detections were

recorded, it is incumbent on the developer / contractor to devise a Health and Safety Plan which takes account of the risks of human exposure to airborne fibres during excavation and similar works which may cause disturbance of the ground. Developers / contractors should refer to CIRIA C733: *'Asbestos in Soils and Made Ground: A Guide to Understanding and Managing Risks'*. Further guidance is contained in CL:aire document *'Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials – Industry Guidance'*.

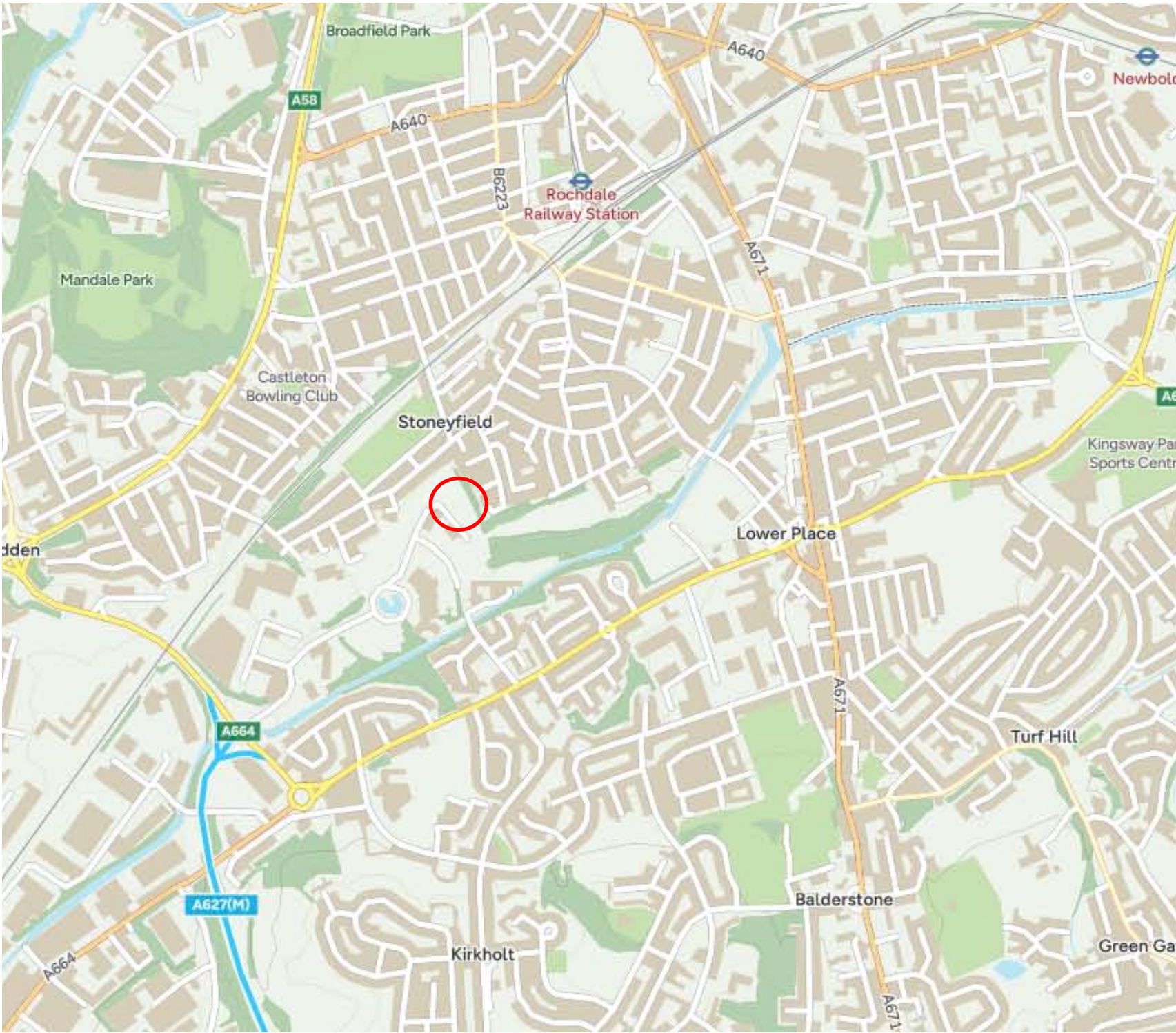
Where fully suspended floors are adopted, the base of the subfloor void must receive a 60mm cover of blinding concrete.

Detailed Remediation Strategy		
Recommendation (see above)	Governing Standard Operating Procedure	Site Specific Additions to Standard Operating Procedure
1 & 4	Standard Operating Procedures 2 & 6	Taking into account the above observations (ACMs'), it is required that site levels in all new areas of proposed landscaping / cultivation be reduced by a minimum of 600mm below proposed finished site level, with site levels being reconstructed by the placement of clean imported topsoil, placed on a high visibility woven geotextile fabric, such as 'Terram 1000', or similar. Imported topsoil is to be placed under a strict validation regime comprising 1nr analyses per 50m³, with a minimum of 4nr analyses per source. All imported soils for cultivated landscaped areas are to be non-recycled of greenfield source. The proposed frequency of sampling / analysis for imported materials is one sample per 50m³ of material, with a minimum of 4nr samples being analysed per source material. Test suite and compliance thresholds for imported clean subsoil / topsoil are presented on the enclosed series of tables 'Cover System – Validation Analysis Test Suite and Threshold Assessment Criteria, Imported materials. Where possible imported soils should be sourced from a single supplier and be visually inspected prior to transportation to site to ensure soil is free from detritus and deleterious materials. It is proposed that all soil sampling for contamination (validation) analyses is to be undertaken at the development site, either from stockpiled soils or following deposition on to designated garden areas. <u>VALIDATION</u> The removal of surplus soils generated in new landscaped / cultivated areas will be documented by Waste Transfer Notes, to be retained by the Contractor and made available to CCG for inclusion in the Validation Report. Site reduction works within newly created landscaped areas are to be independently validated and photographed by CCG. These records will be incorporated in the Validation Report. Test suite and compliance thresholds for imported clean sub-soil and topsoil are presented on the enclosed tabulation Summary of LQM GAC Thresholds and Proposed Acceptance Criteria for Imported Soils' in Appendix C. The suite of testing will comprise metals, non-metals, asbestos, BTEX compounds, speciated PAH's, and hydrocarbons to the TPHCWG methodology. Analysis of soils for demonstration of compliance will be undertaken at a frequency of 1 analysis per 50m³ with a minimum of 4nr analyses per source. Results of analyses will be collated in a Validation Report. Dockets for imported subsoil / topsoil to be retained by the Contractor and provided to CCG for inclusion in the Validation Report. The Contractor will keep photographic records during site preparation works and provide these to CCG for inclusion in the Validation Report CCG will independently validate the specified thickness of topsoil cover by excavation of inspection pits/photography following completion of works. These records will be incorporated in the Validation Report. In addition to the above, since the proposed works will involve removal / disturbance of soils in which positive asbestos detections were recorded, it is incumbent on the developer / contractor to devise a Health and Safety Plan which takes account of the risks of human exposure to airborne fibres during excavation and similar works which may cause disturbance of the ground. Developers / contractors should refer to CIRIA C733: 'Asbestos in Soils and Made Ground: A Guide to Understanding and Managing Risks'. Further guidance is contained in CL:Aire document 'Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials – Industry Guidance'. Where fully suspended block and beam floors are to be adopted, the base of the subfloor void must receive a 60mm cover of blinding concrete.

The Standard Operating Procedures referred to above are attached in Appendix B.

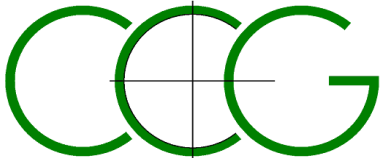
APPENDIX A

DRAWINGS



DO NOT SCALE

Notes: Study Site



CC GEOTECHNICAL LIMITED
UNIT 1 DELTIC WAY
KNOWSLEY INDUSTRIAL ESTATE
LIVERPOOL
L33 7BA
0151 545 2750

Client:
Northern Trust

Project:
Sandbrook Business Park, Rochdale

Title:
Site Location

Scale:
NTS

Issue:
01

Drawn by:
DG

Date:
June 2024

Project No.
CCG-C-24-14767

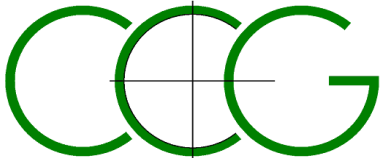
Drawing No.
01

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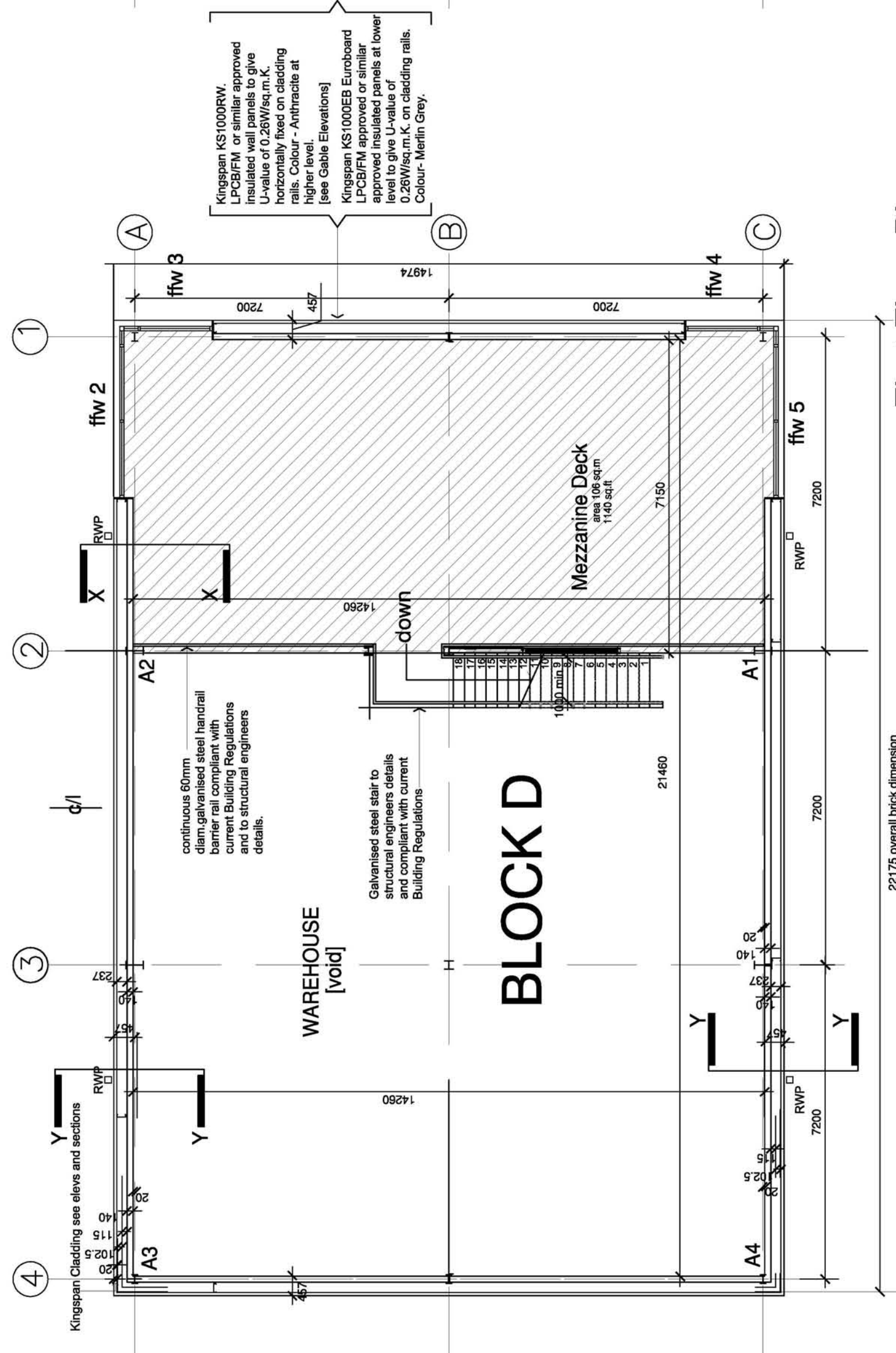
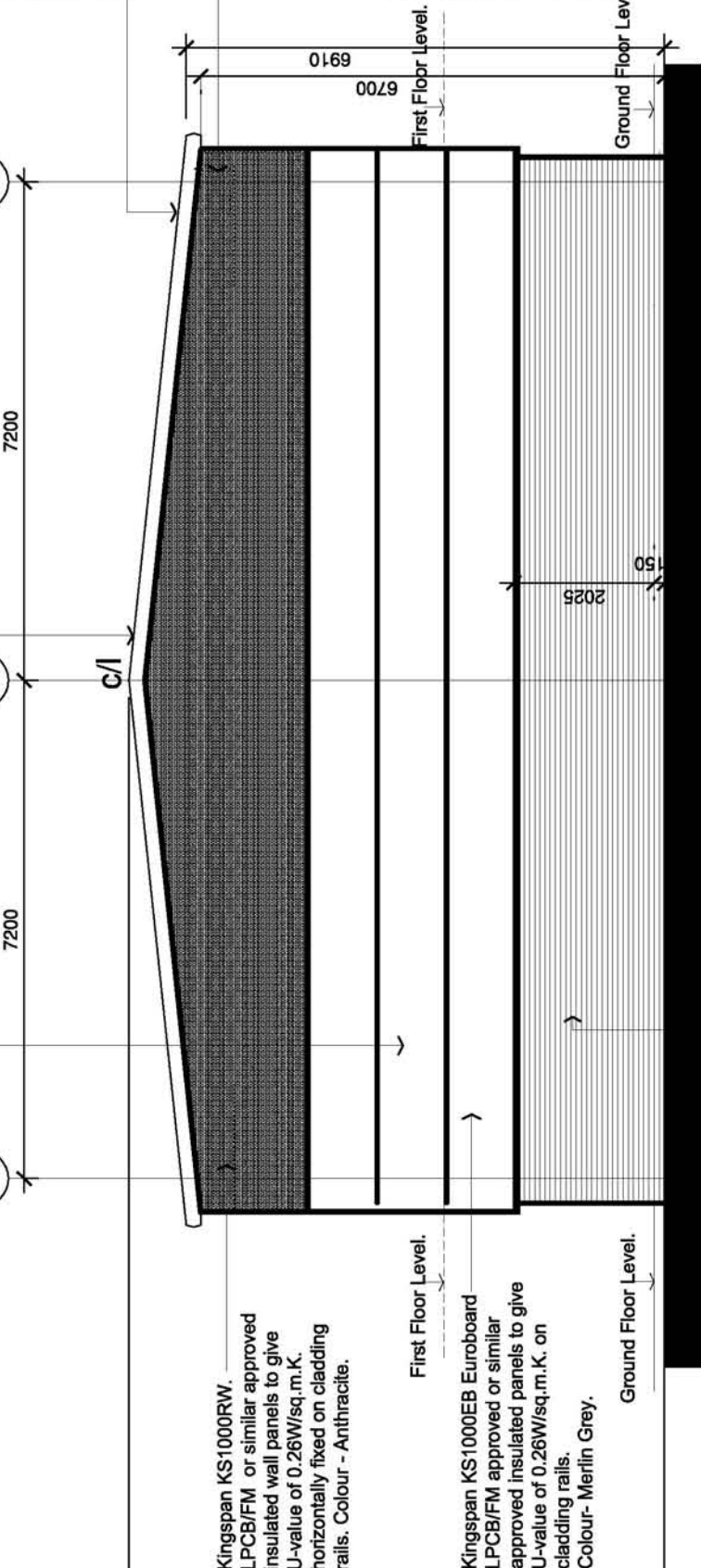
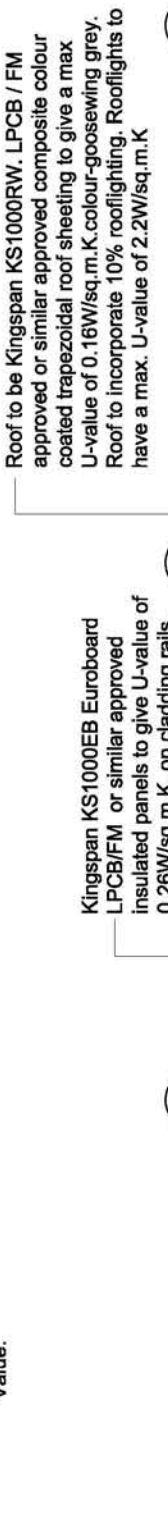
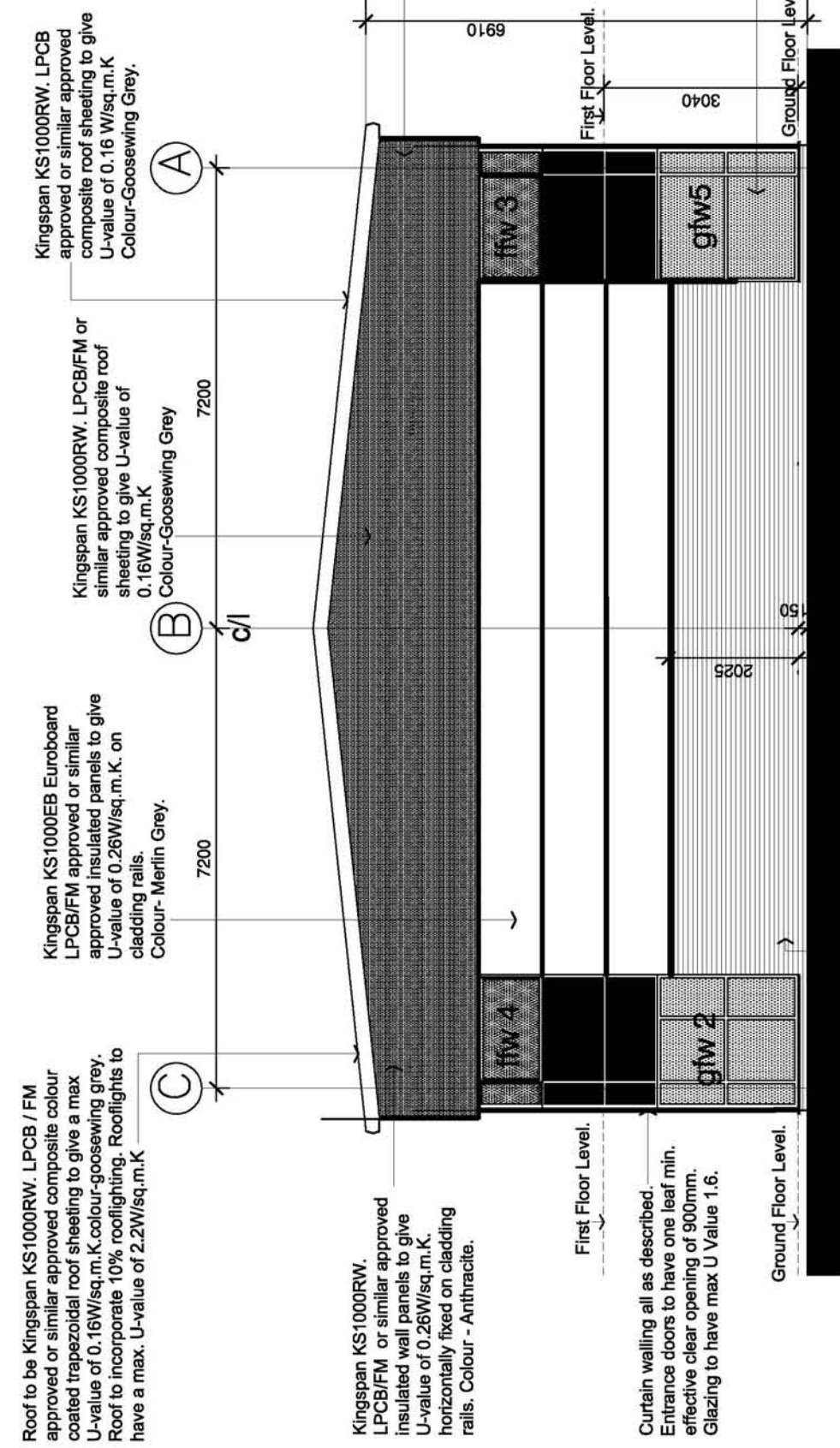
DO NOT SCALE

Notes: Study Site



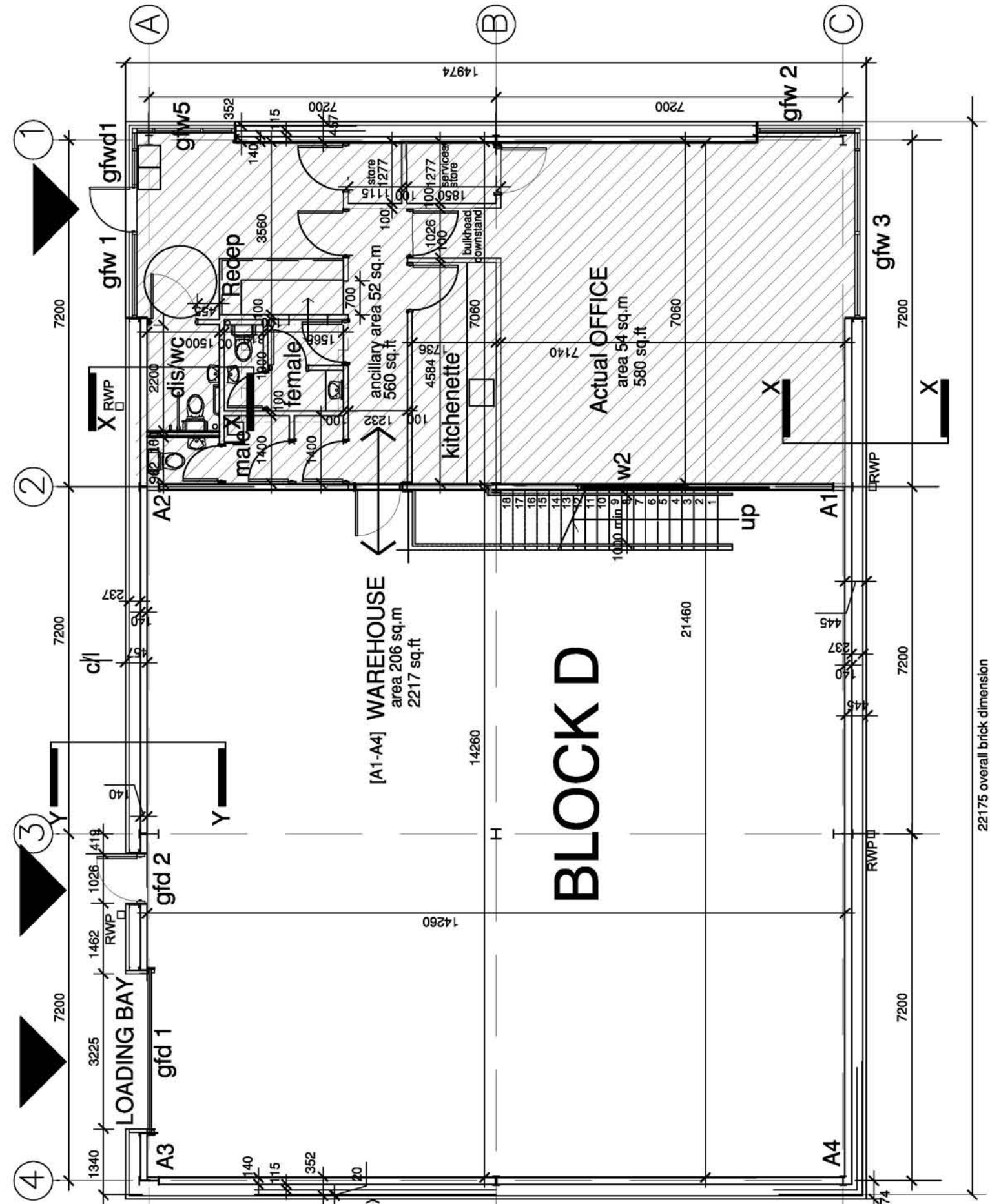
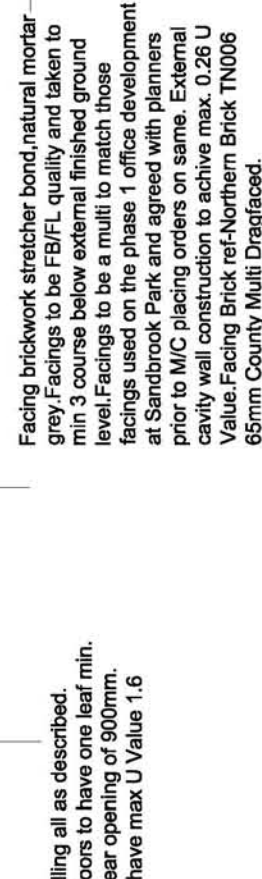
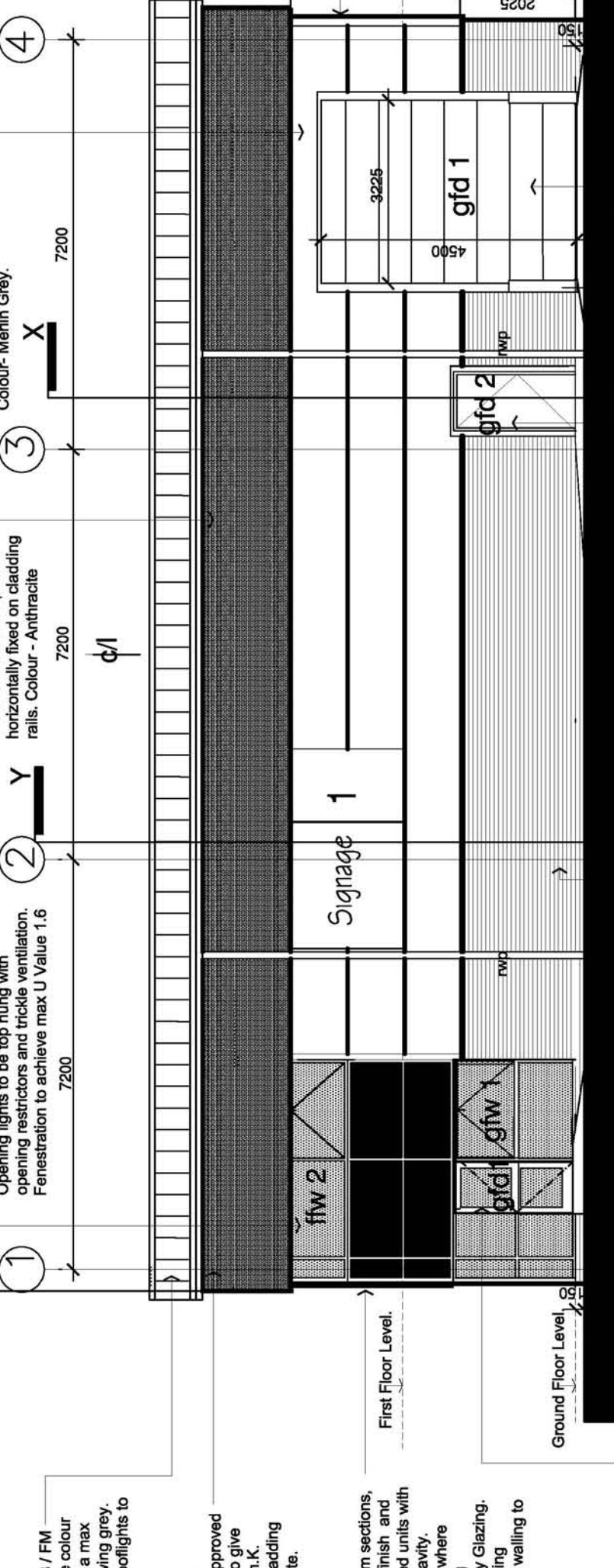
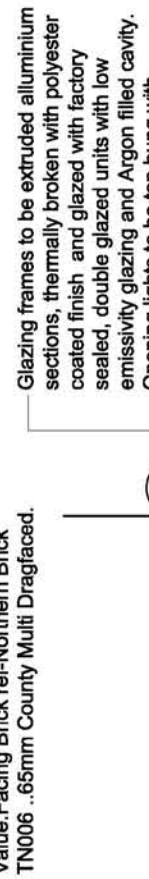
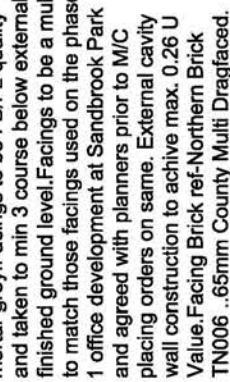
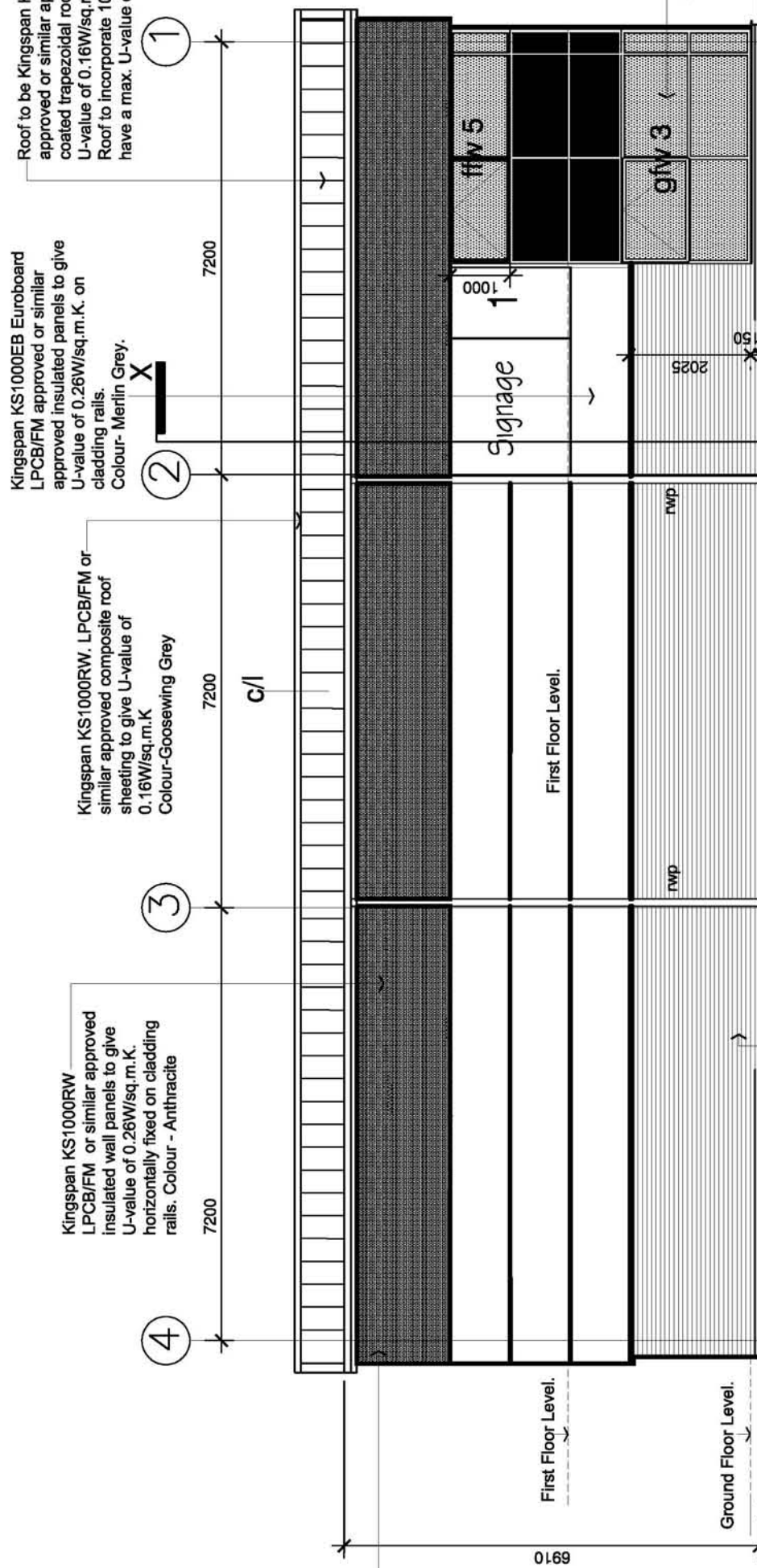
CC GEOTECHNICAL LIMITED
UNIT 1 DELTIC WAY
KNOWSLEY INDUSTRIAL ESTATE
LIVERPOOL
L33 7BA
0151 545 2750

Client: Northern Trust	
Project: Sandbrook Business Park, Rochdale	
Title: Aerial Photograph	
Scale: NTS	Issue: 01
Drawn by: DG	Date: June 2024
Project No. CCG-C-24-14767	Drawing No. 02



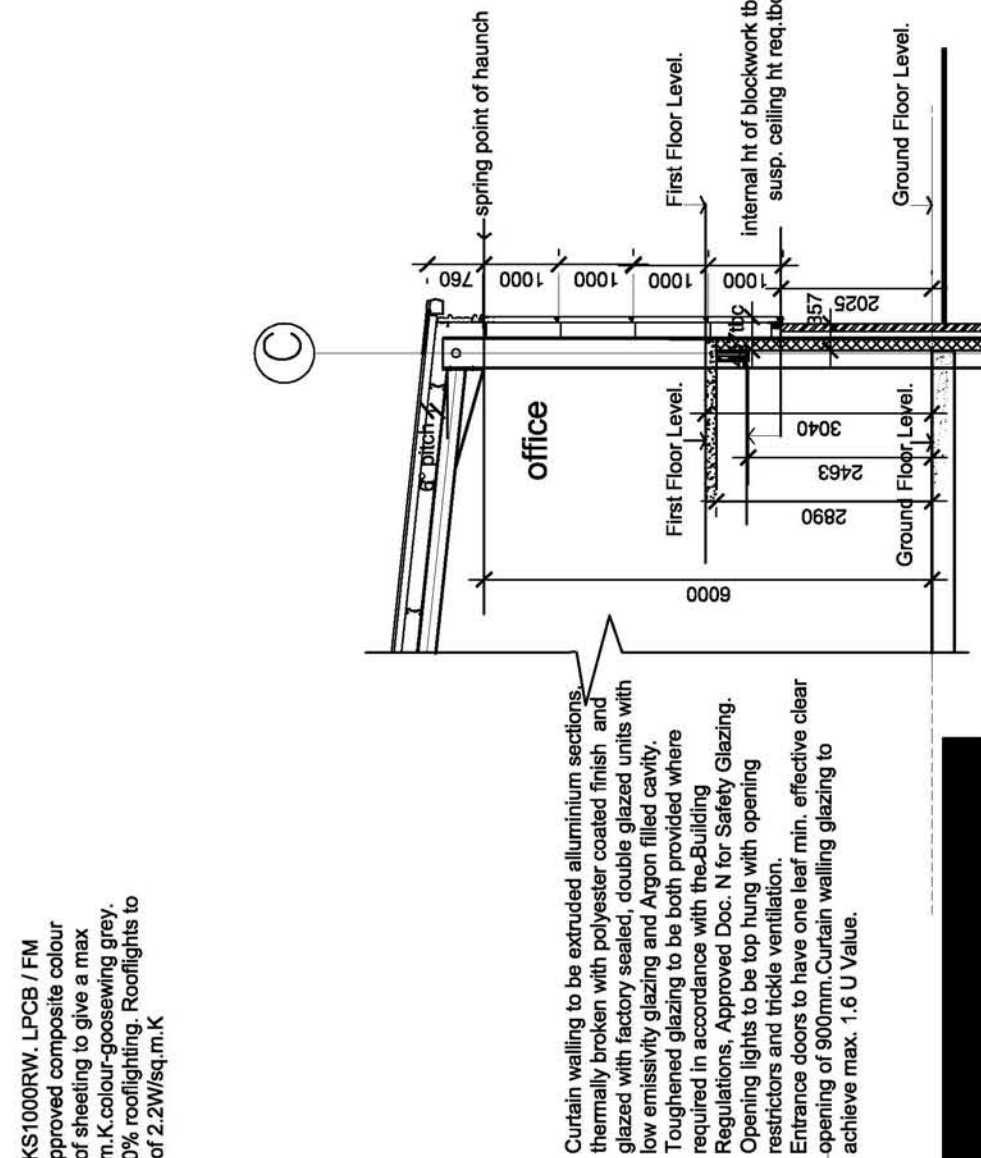
22175 overall brick dimension

First Floor Plan

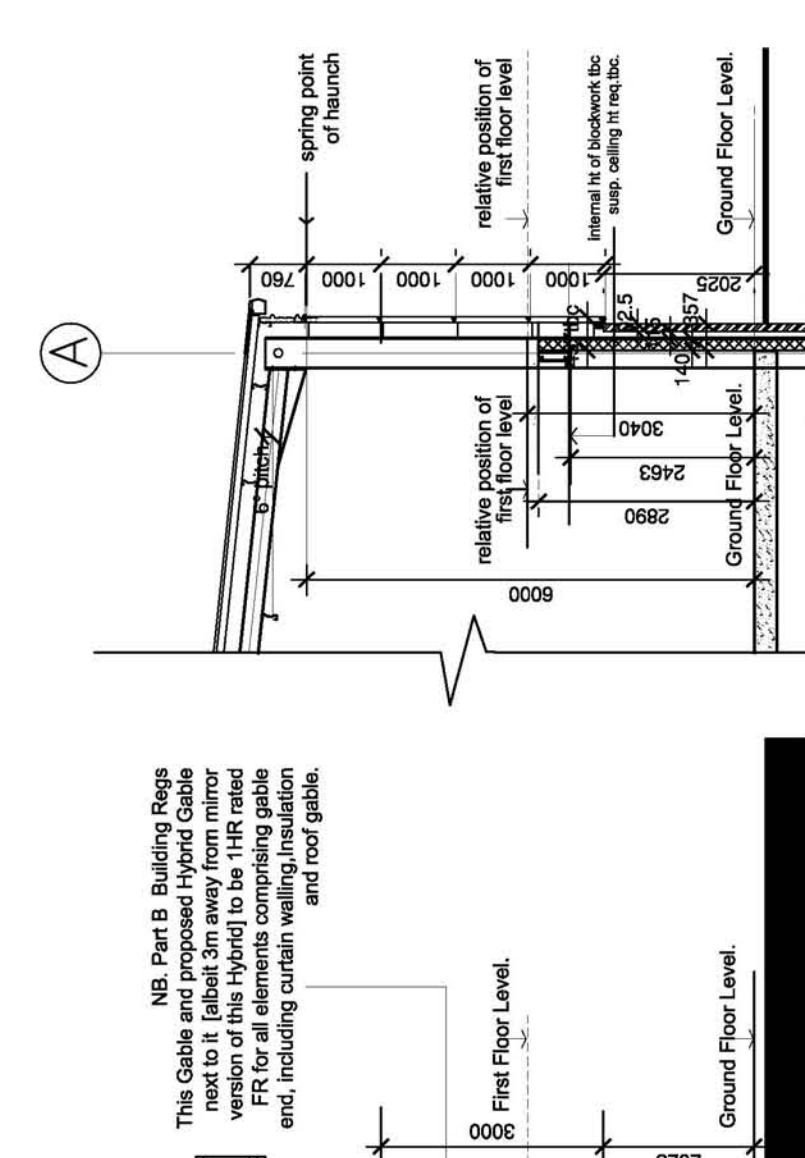


22175 overall brick dimension

Ground Floor Plan



part section on X-X



part section on Y-Y



Rev.	Date	Details	de	de	de
			Drawn	Checked	
C 25.4.24		resolution reduction req. by planners			
B 23.8.23		1 corner curtain walling omitted			
A 16.8.23		Reduced Hybrid for site fit.			

Issued for: _____

PLANNING



Client
Northern Trust

Project: **SANDBROOK PARK**
ROCHDALE [phase 2] **OL11 1RY**
REDUCED HYBRID TYPE A1
Office/Industrial Unit

Drawing

REDUCED HYBRID TYPE A1
Plans,Elevations,Section
higher plynth. BLOCK D

Drawn By	DE	Date	6.7.23	Drawing No. WJ204-025	Rev. C
Checked By	DE	Date	6.7.23		
Scale	1/100	@A1			

[FINAL CHECKED DE 1]
electronic path to this drawing-WJ 204/current dwg

APPENDIX B

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES REMEDATION AND VALIDATION



Subject: REMOVAL OF CONTAMINATED SOILS

Approval:

Doc. No: CCG SOP 1.0

Revision: 1

Effective Date:

10/10/07

Page: 1 of 2

1.0 PURPOSE

The purpose of this procedure is to identify the methodology, sequence of events, responsibilities, and reporting requirements required in connection with site remediation involving excavation of contaminated soils to a level where soils of acceptable contamination status remain in place

2.0 SCOPE

The methods described within this procedure are applicable to the mechanical/hand removal of site soils impacted by contamination.

3.0 RESPONSIBILITIES

CC GEOTECHNICAL (CCG) – Responsible for delineating the lateral extent and notional vertical extent of soil removal, and for on site monitoring of the excavation works. In some cases, the lateral extent will not require delineation by CCG as the whole site will fall under the same remediation regime.

Site Management - The site manager is to ensure that the instructed excavations are undertaken as detailed by CCG. It is the site manager`s responsibility to accurately transfer dimensions of all areas to be remediated from drawings to site markers.

Precautions should be taken to ensure that the foundations of adjacent structures are not undermined by excavation activities. Similarly, care should be taken to prevent the collapse of excavations.

Spoil to be disposed, is to be transported off-site as soon as practicable. Only licensed waste transfer operators are to be employed for spoil removal offsite. Where possible, excavated spoil is to be loaded directly on to a waiting wagon ready for transportation to the accepting landfill. Wagons must be sheeted.

Where stockpiling of waste spoil is to take place, preventative action should be undertaken to ensure mixing of contaminated and clean soils does not occur. Measures are to include placement of stockpile on an impermeable membrane.

The site manager is to ensure that any stockpiles of spoil are homogenous.

4.0 PROCEDURE

Soils identified for removal are to be excavated by mechanical / hand dug methods. Where the depth of contamination and hence depth of required excavation is known, this should be adhered to.

Where a specific impacted stratum is to be removed e.g. where the objective is to remove all made ground, excavations are likely to be undertaken to varying depths – following the profile of the underlying strata.

There may be incidences where general oversight validation testing or localised validation testing is required at the base of remedial excavations. Such circumstances will be proposed in the Remediation Strategy, which will propose a frequency of testing and validation criteria against which the results will be assessed.

Where the results of testing indicate that the soils at the base of excavations fail the criteria, then further excavation and disposal of impacted soils will be undertaken.

Once the desired depth of excavation/site strip has been achieved photographic records of the nature of the reduced subgrade level will be obtained. Where agreed remedial action is that soils are to be removed to a specified depth, photographic records supported by survey levels will be collated.

STANDARD OPERATING PROCEDURES REMEDATION AND VALIDATION



Subject: REMOVAL OF CONTAMINATED SOILS

Approval:

Doc. No: CCG SOP 1.0

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10/10/07

Page: 2 of 2

5.0 REPORTING DELIVERABLES

The following will be reported in the Validation Report:

1. Drawing showing lateral extent of excavation
2. Drawing showing post excavation depths of dig
3. Photographs of reduced dig including levelling staff
4. Analyses for base of remediation excavations at a rate of 1 per 100m²
5. Transfer notes for all loads of spoil carted offsite

6.0 SITE SPECIFIC REQUIREMENTS

Site specific requirements over and above the provision of this SOP must be proposed and agreed in the Remediation Strategy

STANDARD OPERATING PROCEDURES REMEDICATION AND VALIDATION



Subject: INSTALLATION OF CLEAN SOIL COVER SYSTEMS

Approval:

Doc. No: CCG SOP 2.0

Revision: 1

Effective Date:

10/10/07

Page: 1 of 2

1.0 PURPOSE

The purpose of this procedure is to identify the methodology, sequence of events, responsibilities, and reporting requirements required in connection with site remediation involving placement of clean imported soils to specified finished levels and/or thickness

2.0 SCOPE

The methods described within this procedure are applicable to the mechanical/manual placement of clean imported soils.

3.0 RESPONSIBILITIES

CC GEOTECHNICAL – Responsible for delineating the lateral extent and vertical extent of soil placement, the relative thickness of subsoil and topsoil (where appropriate), and for on site monitoring of the placement works. Responsible for sampling the soils at the frequency agreed with the Local Authority, procuring laboratory analyses, and reporting on the conformance of the soils in relation to the agreed criteria.

SITE MANAGEMENT - The site manager is to ensure that the instructed placements are undertaken as delineated by CC GEOTECHNICAL in terms of lateral and vertical dimensional control. It is the site managers responsibility to accurately transfer dimensions of all areas to be remediated from drawings to site markers.

Soil to be imported to site, is to be transported in sheeted wagons.

Where temporary stockpiling of imported soil is to take place, preventative action should be undertaken to ensure mixing of underlying ground and imported soils does not occur. Measures are to include placement of stockpile on an impermeable membrane.

4.0 PROCEDURE

Soils are to be spread in layers by mechanical / manual methods.

Where soils are placed under cultivated areas then they must be of suitable physical properties to promote root establishment and healthy plant growth

The imported soils may be sampled in stockpiles on the development site at a frequency proposed in the Remediation Strategy and approved by the Local Authority.

The imported soils will be sampled insitu at a frequency proposed in the Remediation Strategy and approved by the Local Authority.

Where a geotextile separation layer is to be placed beneath the remediated area, then it shall be to a specification proposed in the Remediation Strategy and approved by the Local Authority

Where a sample fails to meet the threshold criteria, then the specific plot at which the sample was taken will be excavated and the soil replaced. Other individual plots represented by the sample will be sampled and the sample analysed, to conform whether each individual plot fails the criteria, and if so the soil on the affected plots will be replaced.

Once the desired depth of subsoil placement has been achieved, the works will be halted and photographic records made of the remaining depth to finished level.

Once the desired finished placement level of topsoil has been achieved, photographic records will be made of the finished remediation.

STANDARD OPERATING PROCEDURES REMEDATION AND VALIDATION



Subject: INSTALLATION OF CLEAN SOIL COVER SYSTEMS

Approval:

Doc. No: CCG SOP 2.0

Revision: 1

Effective Date:

10/10/07

Page: 2 of 2

Photographs records are to include as a minimum the following:

1. Spatial panoramic and individual stills of both the development and the areas of soft landscaping
2. Photographs taken of and within excavations showing all layering of soils with clearly shown depths of the strata. The excavations will additionally be photographed to show their spatial position within the site.
3. All photographs are to be taken in good light, with all aspects to be shown on the photograph clear and unobscured by shadow.
4. All photographs are to remain untouched as original exposures. No modification using photographic editing software is to be undertaken whatsoever.
5. Photograph locations are to be noted, and a plan demonstrating this constructed.
6. All photographs are to be fully and adequately described.
7. Once completed photographs of the landscaping are to be taken demonstrating extent of bare ground, planting volume and quality of workmanship.

5.0 REPORTING DELIVERABLES

The following will be reported in the Validation Report:

1. Drawing showing lateral extent of placement
2. Drawing showing total thickness of cover and division of subsoil / topsoil thickness
3. Photographs of subsoil completion including location / date / levelling staff
4. Photographs of completed restoration to top of topsoil including location / date / levelling staff
5. Analyses of subsoil and topsoil
6. Details of the source origin of cover materials
7. Delivery dockets for each consignment

6.0 SITE SPECIFIC REQUIREMENTS

Site specific requirements over and above the provision of this SOP must be proposed and agreed in the Remediation Strategy

STANDARD OPERATING PROCEDURES REMEDIATION AND VALIDATION



Subject: SOIL SAMPLING

Approval:

Doc. No: CCG SOP 3.0

Revision: 1

Effective Date: 10/10/07

Page: 1 of 1

1.0 PURPOSE

The purpose of this procedure is to identify the equipment, sequence of events, and appropriate methods necessary to obtain soil samples during validation sampling activities.

2.0 SCOPE

The methods described within this procedure are applicable while collecting soil samples at the base of excavations and from stockpiled materials.

3.0 RESPONSIBILITIES

Site Manager - The site manager is to ensure that site soils are accessible to the environmental project manager for the purpose of extracting samples. Where soils are identified as contaminated, preventative action should be undertaken to ensure mixing of contaminated and clean soils does not occur.

The site manager is to ensure that all stockpiles are homogenous.

CC GEOTECHNICAL appointed Project Manager – The environmental project manager is responsible for the design and implementation of the sampling strategy.

4.0 PROCEDURES

Samples to be taken from the base of excavations are to be taken from within the top 0.1m of exposed ground.

Samples to be taken from stockpiled materials are to be sampled from varying positions throughout the stockpile, penetrating it as far as practical. Sample positions to be identified by photographic means where possible.

Samples may be extracted by hand using a stainless steel trowel or spade. Such tools shall be decontaminated by means of rinsing with clean water prior to obtaining each and every sample.

Samples shall be immediately deposited to suitable tubs/jars, labelled, packaged in cool boxes and accompanied by a chain-of-custody record ready for transportation to the laboratory.

The positions/frequency at which samples are extracted will be as detailed in the remediation statement, any variation from this is to be accurately documented and the relevant local authority is to be notified.

5.0 EQUIPMENT

Disposable gloves, stainless steel spade, stainless steel hand trowel, sample containers, cool boxes, labels, logbook.

APPENDIX C

SOIL CONTAMINANT ACCEPTANCE CRITERIA

Contaminant	Assessment Criteria for Commercial at 1% SOM (mg/kg)	Assessment Criteria for Commercial at 2.5% SOM (mg/kg)	Assessment Criteria for Commercial at 6% SOM (mg/kg)
Metals			
Arsenic	640	640	640
Boron	240000	240000	240000
Cadmium	190	190	190
Chromium III	8600	8600	8600
Chromium VI	33	33	33
Copper	68000	68000	68000
*Lead	2300	2300	2300
Mercury	58	58	58
Nickel	980	980	980
Selenium	12000	12000	12000
Vanadium	9000	9000	9000
Zinc	730000	730000	730000
Non-Metals			
Phenol	440	690	1300
Polyaromatic Hydrocarbons (PAH)			
Acenaphthene	84000	97000	100000
Acenaphthylene	83000	97000	100000
Anthracene	520000	540000	540000
Benz[a]anthracene	170	170	180
Benzo[a]pyrene	35	35	36
Benzo[b]fluoranthene	44	44	45
Benzo[ghi]perylene	3900	4000	4000
Benzo[k]fluoranthene	1200	1200	1200
Chrysene	350	350	350
Dibenz[ah]anthracene	3.5	3.6	3.6
Fluoranthene	23000	23000	23000
Fluorene	63000	68000	71000
Indeno[123-cd]pyrene	500	510	510
Naphthalene	190	460	1100
Phenanthrene	22000	22000	22000
Pyrene	54000	54000	54000
Coal Tar [Bap as surrogate marker]	15	15	15
Petroleum Hydrocarbons			
Aliphatic EC 5-6	3200	5900	12000
Aliphatic EC >6-8	7800	17000	40000
Aliphatic EC >8-10	2000	4800	11000
Aliphatic EC >10-12	9700	23000	47000
Aliphatic EC >12-16	59000	82000	90000
Aliphatic EC >16-35	1600000	1700000	1800000
Aliphatic EC >35-44	1600000	1700000	1800000
Aromatic EC 5-7 (Benzene)	26000	46000	86000
Aromatic EC >7-8 (Toluene)	56000	110000	180000
Aromatic EC >8-10	3500	8100	17000
Aromatic EC >10-12	16000	28000	34000
Aromatic EC >12-16	36000	37000	38000
Aromatic EC >16-21	28000	28000	28000
Aromatic EC >21-35	28000	28000	28000
Aromatic EC >35-44	28000	28000	28000
Aliphatic – Aromatic EC >44-70	28000	28000	28000
Other			
Asbestos Containing Materials (ACM)	No Detection	No Detection	No Detection

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The above is based on criteria contained in publication LQM/CIEH S4UL's for Human Health Risk Assessment (2015) (CCG Licence No. S4UL3233), applicable to the "Commercial" land use scenario for soil organic matter (SOM) content of 1% - 6%.

*This document does not provide criteria for Lead, for which the results were compared to the C4SL published by DEFRA SP1010 Development of Category 4 Screening Levels.