ADANAC BUSINESS PARK
BASE SPECIFICATION

Adanac Drive
Southampton
SO16 0AT

May 2019

CONTENT

1.0 Introduction

1.1 Project Description

The works to be carried out are as indicated on the design drawings, "Phase 1" comprises the construction of 3 steel portal framed industrial buildings (known as Units D, E and F) with ancillary fitted-out offices at mezzanine level complete with associated external parking, roads, service yard areas and landscaping. Some preparations for future phases will also be carried out, and is shown in the design drawings.

The three Phase 1 buildings are to be subdivided to provide 17 self-contained units as shown on the drawings.

These works, for Phase 1, are to be carried out in accordance, and strictly in compliance, with the extant planning permission; 18/01543/OUTS, and the terms of the subsequently discharged conditions. Subsequent Phases will develop Buildings A, B and C, and also the scheme approved in 'outline' under the same permission.

The Reception, office space and toilets and are to be constructed to a 'CAT A', standard (but without tea points). The open warehouse areas of the building are to be constructed to a 'shell standard' with post-contract fitting-out by the incoming occupiers to suit their needs. The mezzanine floors are part CAT A fitted out and part left as shell for storage as identified on the drawings and the schedule of areas (see clause 2 below).

1.2 Base Performance Specification

This performance specification is a description of the scope and quality of the work to be carried out. The quality of the work will be demonstrated by samples where necessary during the construction of the works. Sample panels (4x4 full blocks) will also be provided for internal blockwork walls and external blockwork.

The work will be designed and constructed in accordance with the latest edition of relevant Acts of Parliament, Regulations, and British BS or BS EN Codes of Practice and Standards. This includes regulations and standards of local Service Authorities and other enforceable regulations applicable to the design and construction of the development.

Where any work cannot be benchmarked or assessed against current legislation, statutory provisions, local by-laws, or British Standards, Codes of Practice, or where the interpretation of same leads to ambiguity, then the work will comply with any appropriate manufacturers Trade Association, Federation Guidelines and, or practice notes, applicable to the work in question.

The new services installation will be designed, installed, controlled and commissioned in accordance with the current recommendations of the Chartered Institute of Building Services Engineers and the 17th Edition of the IEE Wiring Regulations.

The design and construction of any temporary works required will comply with BS 5975: 2011, and will be subject to the approval of the Structural Engineer and Building Control Officer / Approved Inspector.

The works will be comply with, more generally, The Town and Country Planning Act 1990 and associated Acts. Some British Standards that have been updated to European Standards, and are still referred to in current legislation and are therefore noted in conjunction with the

updated version. The following, prevailing statutes are to be complied with:

a) The Building Act
b) Town and Country Planning Act and associated Acts
c) Office shops and the Railway Premises Act
d) The Health And Safety Work Act
e) Local Water Authority Requirements and DOE Water Supply (Water Fittings) Regulations
f) The Gas Safety Regulations (where relevant)
g) The Clean Air Act
h) The Specific Requirements of the Utility Suppliers, Local Authorities and Local Planning Authorities
i) The CIBSE Guidelines
j) The Factories Act
k) The Electricity Supply Act
l) The Construction (Design and Management) Regulations (CDM)
m) European Product Directives
n) Equality Act

The occupier will then be responsible for undertaking any further necessary statutory, regulatory or insurance-based adaptations to suit their use and fit-out – particularly in relation to building control, fire safety and energy performance. The units however must be ready for occupation upon practical completion.

Materials will be delivered, stored and fixed in accordance with the manufacturer's recommendations.

The contractor will be responsible for the 'shell' SBEM calculations required by Building Regulations / Approved Inspector.

The buildings will achieve a 'B' Energy Performance Certificate (EPC) minimum for 'Shell and core'.

All timber will be from sustainable sources as specified by the FSC guidelines

Means of escape provision will be based on occupancy of 1 person per 6 m2 net office space and 1 person per 30m2 for storage and warehousing in accordance with Part B of the Building Regulations.

The toilet provision will be based on occupancy of 1 person per 10m² net overall office space in accordance with BS 6465-1 2006.

For the avoidance of any doubt, specifically excluded from this specification are the following:

- Burglar Alarm System, Access Control and CCTV – cable ducts only to be provided for the CCTV with draw strings
- EV Chargers – cable ducts only to be provided for Car chargers with draw strings to position adjacent each unit to serve possible future tenant installation
- PV arrays – allowance included within steelwork design for future installation as noted within section 6.5
- Specific Maintenance (12 months defects liability included as standard) – with the

exception of 12 moths maintenance to landscaping.

- Works outside the site boundary except drainage and utility connections / interfaces
- Fire Fighting Equipment
- Auto Smoke Ventilation
- Sprinkler System
- Telephone and Data System - cable ducts only to be provided with draw strings
- Lockers, Kitchen Catering Equipment and Appliances
- Furniture, Furnishings, Process Machinery, Racking or Skips, or any other item which has not been expressively detailed in this document.
- Canteen / kitchen catering equipment, server and fittings.
- Furniture, furnishings, blinds, shelving, process machinery of any type, racking, skips, vehicle wash equipment, fuel installation or any other item which has not been expressly detailed in this document.

Where reference is made in this specification to specific products or manufacturers, alternatives of similar quality and performance may be substituted subject to prior written approval of the Employers Agent.

1.3 Drawings

The following form of part of, and are to be read in conjunction with, this specification.

Contract Drawings:

Architect's Drawings:

- 2001 CD Proposed Site Plan
- 2501 CD Refuse Stores
- 2502 CD Typical Signage
- 3001 CD Building D Ground Floor Plan
- 3002 CD Building D Mezzanine Plan
- 3003 CD Building E Ground Floor Plan
- 3004 CD Building E Mezzanine Plan
- 3005 CD Building F Floor Plan
- 3501 CD Building D Roof Plan
- 3502 CD Building E Roof Plan
- 3503 CD Building F Roof Plan
- 4001 CD B Building D Elevations
- 4002 CD B Building E Elevations
- 4003 CD B Building TE Elevations
- 4004 CD B Typical Detailed Elevation
- 4005 CD C Part Coloured Elevation
- 4006 CD C Typical Coloured Elevation
- 4501 CD Typical WC Wall Elevations
- 5001 CD Building D Typical Sections
- 5002 CD Building E Typical Sections
- 5003 CD Building F Typical Sections
- 5501 CD Detailed Sections
- 5502 CD Detailed Sections
- 5503 CD Detailed Sections

- 6001 CD Typical Core Plans
- 6002 CD Building D Fire Strategy
- 6003 CD Building E Fire Strategy
- 6004 CD Building F Fire Strategy
- 6005 CD Building D Internal Walls Key Plan
- 6006 CD Building E Internal Walls Key Plan
- 6007 CD Building F Internal Walls Key Plan
- 6008 CD Building D Reflected Ceiling Plans
- 6009 CD Building E Reflected Ceiling Plans
- 6010 CD Building F Reflected Ceiling Plans
- 7001 CD Typical Stair Plan and Section
- 8001 CD Door Schedule
- 8002 CD Finishes Schedule

Landscape Architect's drawings:

- DD272L01 Detailed Planting Plan 1
- DD272L02 Detailed Planting Plan 2
- DD272L03 Detailed Planting Plan 3
- DD272L04 Detailed Planting Plan 4
- DD272L05 Detailed Planting Plan 5
- DD272L06 Detailed Planting Plan 6
- DD272L07 Detailed Planting Plan 7
- DD272L08 Detailed Planting Plan 8
- DD272L09 Detailed Planting Plan 9
- DD272L10 Tree Survey Plan
- DD272L11 Landscape General Arrangement Plan
- DD272L12 Tree Protection Plan
- SK_091-Landscaping Buffer 'Intent' Drawing

1.4 Building Regulations / Approved Inspector

1.4.1 The Main Contractor shall:

- Prepare any necessary supplementary documentation and information to enable an Approved Inspector to review the proposals for the site and procure a 'Plans Check' document.
- Obtain approvals under the Building Regulations for any elements of work within this Building Contract requiring compliance. Submit to the Local Authority/Approved Inspector all relevant information on materials, fixings and the like together with calculations and other information necessary to confirm structural integrity and other compliance with Building Regulations.
- Employ a project Approved Inspector / Building Control Officer.
- Carry out any and all terms required by the Approved Inspector / Building Control Officer.
- Confirm resistance to the spread of flame, integrity of any compartmental walls or floors and protected areas and the fire-stopping of concealed spaces and joints between elements of structure conform to the Building Regulations.
- Carry out tests if required by the Local Authority or Approved Inspector.
- Produce and manage a Building Regulation tracker recording the iterative reviews and

comments raised by the Approved Inspector and present this to the EA at each Project Team Meeting.

- Obtain the Building Regulations completion certificate on completion of the works.

2.0 Summary of Critical Design Data

2.1 Floor Areas – GIA

	Unit	Ground (m2)	Ground (ft2)	Mezz (m2)	Mezz (ft2)	Fitted Out Mezz (m2)	Fitted Out (ft2)	Shell mezz (m2)	Shell (ft2)	Total (m2)	Total (ft2)
D	1	1,078	11,604	267	2,874	157	1,690	110	1,184	1,345	14,478
	2	1,887	20,312	267	2,874	157	1,690	110	1,184	2,154	23,186
	3	1,078	11,604	267	2,874	157	1,690	110	1,184	1,345	14,478
	4	1,073	11,550	160	1,722	160	1,722	-	-	1,233	13,272
	5	808	8,697	267	2,874	104	1,119	163	1,754	1,075	11,571
E	1	518	5,576	-	-	-	-	-	-	518	5,576
	2	1031	11,098	124	1,335	124	1,335	-	-	1,155	12,432
	3	772	8,310	-	-	-	-	-	-	772	8,310
	4	518	5,576	-	-	-	-	-	-	518	5,576
	5	319	3,434	-	-	-	-	-	-	319	3,434
	6	637	6,857	124	1,335	124	1,335	-	-	761	8,191
	7	476	5,124	-	-	-	-	-	-	476	5,124
	8	319	3,434	-	-	-	-	-	-	319	3,434
F	1	466	5,016	-	-	-	-	-	-	466	5,016
	2	461	4,962	-	-	-	-	-	-	461	4,962
	3	461	4,962	-	-	-	-	-	-	461	4,962
	4	466	5,016	-	-	-	-	-	-	466	5,016
		12,368	**133,129**	**1,476**	**15,888**	**983**	**10,581**	**493**	**5,305**	**13,844**	**149,017**

Areas are given in square metres and approximate square feet. 1m² = approximately 10.764 square feet.

These areas have been calculated in accordance with the RICS Code of Measuring Practice, 6th Edition, RICS 2007 using the stated options NIA, GEA, and GIA. In the event of ambiguity – ft² shall be the means by which floor areas are measured.

The stated floor areas are subject to a tolerance of -0% / +3%.

2.2 Structural and Planning Grid

Structural Grid to be designed and detailed to Engineer's design.
Roof Pitch – Min 6°

2.3 Haunch Heights

Clear height to underside of haunch measured from finished slab level:

Buildings D & E – 8 metres minimum
Building F – 7 metres minimum

2.4 Offices and Cores

Ceiling heights (min clear)
Office / Ancillary Areas – minimum 2.7m
Toilets / Shower – 2.4m
Reception – minimum 3.0m

2.5 Floor Loadings

Warehouse / Production – 50kN/m² (Power floated FM2 finish)
First Floor Office – 4kN/m² (Plus 1kN/m²)

2.6 Services

A schedule of Electrical, Gas and Water requirements are included in the Services Requirements Schedule.

3.0 Site works

The site to be covered by the new buildings and hard standings will be cleared of all undergrowth, buildings, hard standings and the like, and the site reduced or increased in level to ground floor formation level. Any works required to conform with the Environment Agency recommendations are to be carried out as part of this development including drainage and agreed slab levels.

Site clearance, where necessary, will be undertaken and disposed of to a regulated disposal site. The formation level will be graded, trimmed and compacted prior to laying the appropriate sub-base.

The contractor will propose levels for the formation layer and will these be extended across the development area of the buildings, as shown on the drawings.

The whole of the substructure work will be carried out to an approved Structural Engineer's design and approved by the Local Authority. Concrete work will comply with BS.8110 'The Structural Use of Concrete'. Concrete will not be poured in temperatures lower than 3'C.

All site works are to be undertaken in compliance with, and to ensure full regard for, the recommendations and requirements contained within the project geo-technical and environmental reports.

The design, construction, maintenance and dismantling of all temporary works will comply with BS 5975: 1996, and will be subject to the approval of the Structural Engineer and Building Control Officer.

4.0 Substructure

4.1 Foundations

4.1.1 The foundations shall be designed having regard to the site ground conditions and in accordance with the recommendations of BS EN 1997 (Eurocode 7):2009. The structural concrete for foundations will be designed in accordance with BS EN 1992 (Eurocode 2):2007 or BS8110:1997.

4.1.2 Wherever possible, recycled materials will be used.

4.2 Ground Beams

4.2.1 Perimeter blockwork built off concrete ground beam to Structural Engineer's details.

4.3 Service Ducts

4.3.1 Ducts for all incoming and outgoing services, are to be properly built into the substructure and oversite slab with correct radius bends and puddle flanges to statutory approval. Entries to be made without adversely affecting the structural and water-resistant qualities of the structure or any gas protection issues.

4.3.2 All ducts to be complete with pull cords for future installation. All ducts to be provided with the appropriate cover in accordance with the relevant British Standards and the Local Authority requirements.

4.3.3 Ducts are to be installed in accordance with details included within the Contractor's Proposals document.

4.3.4 Ducts in respect of BT lines are to be procured free-issue where applicable.

5.0 Superstructure

5.1 Structural Frame

5.1.1 The structural frames to be constructed of steel framing, designed by the contractor. Pitch of roof shall not be less than 6°. The frames shall be constructed in single-span structural bays.

5.1.2 The structural steel frame will be a portal frame with a minimum clear height to underside of haunch as noted in section 2.3 above, designed in accordance with BS 5950:1998 "Structural use of Steelwork in Building". Loading shall be in accordance with BS 6399:1996 "Loading for buildings" Steel sections to BS EN 10025-1:2004, BS EN 10025-2:2004 and BS EN 10210-1:2006. All work will be carried out in compliance with the National Structural Steelwork Specification 5^{th} Edition.

5.1.3 Bracing locations shall be agreed with the Employers Agent and are to be kept free from open areas/internal stanchions, door, window openings and the like.

5.1.4 The frames and purlins will be capable of supporting a service loading arising from mechanical, sprinkler and electrical services/installation plant, equipment and fittings of $0.25kN/m^2$ over the whole area of the roof. The frames must also allow for the loading of a photovoltaic array. The office areas at first floor will be designed for a superimposed loading of $4kN/m^2$ and an additional loading of $1kN/m^2$ for partitions.

5.1.5 Perimeter columns will be designed with pinned bases, except where required for Fire

Collapse by Technical Standards, where the bolts and baseplates will be partially fixed in accordance with the "Steel Construction Institute" guidance SC1-P-087.

5.1.6 The steelwork will be designed and constructed to allow the building envelope to achieve compliance to specification item 6.1. All purlins and rails will be fixed in accordance with manufacturer's recommendations and will have a minimum thickness of 1.45mm to assist a positive cladding fixing. All sheeting rails within 2.25m of FFL to be installed 'toes down' to prevent build-up of debris.

5.1.7 All steelwork will be shot blasted to BS 7079:2009, second quality, before painting with one coat of a single pack high-build zinc phosphate primer to a nominal dry film thickness of 75 microns to give 10 years life to first maintenance, finished colour to be white.

Cold formed sections will be manufactured from hot dipped galvanised coil to BS EN10147: 1992 and BS EN10143: 2006. Where steelwork is to be encased in masonry, it will receive two coats of bituminous paint. Where remedial works are required to webs, flanges, beams, columns or other steelwork that is visible in the completed building the whole area of the affected steelwork will be coated to provide a uniform appearance.

5.1.8 The steel frame shall be designed to meet the following standards: -

- All cold rolled steel work shall have the standard Manufacturers galvanised finish to BS EN 10143:2006 or better;
- All frame bolts are to be zinc plated or galvanised finish;
- The roof and wind loads shall comply with BS 6399 Parts 1-3:2003 including allowance for drifting show.
- All doors shall be fully framed in steelwork, including all frame extensions necessary to support sectional door fittings and canopies;
- Sags rods and tension wires shall be free from distortion, properly adjusted;
- The structure must be capable of carrying signage and door frames in the positions shown on the drawings;

5.1.9 Columns and beams to be protected by intumescent paint or equal where required by the Building Regulations.

5.1.10 Intumescent Paint System to provide fire resistance to the satisfaction of the Building Control Officer / Approved Inspector with acrylic finish top-sealer coats. Top coat finish to be Normal. The definitions contained in BS 2015 and BS EN 971: Part 1 shall be used. Visual requirements shall be based upon samples submitted and agreed. Life expectancy to first maintenance for paint finishes shall be a minimum of 10- 12 years. The paint manufacturer shall provide a written specification at the time of tender for recoating (by others) at the end of the life expectancy period.

5.2 Structural Floors

5.2.1 The construction shall incorporate a structural floor slab that will be inherently watertight.

5.2.2 The structural floors will be designed in accordance with, and to ensure full regard for the recommendations and requirements contained within the structural engineer's drawings, and shall take account of the intended use for the site.

5.2.3 The ground floor slab will be constructed of reinforced concrete C32/40 with a power floated

finish to the warehouse and under-mezzanine areas.

5.2.4 The ground floor slab will be designed in accordance with the recommendations of the Concrete Society Technical report 34 (TR34) 'Concrete Industrial Ground Floors' for two loading conditions namely a maximum loading of 50KN/m2 to all areas unless agreed otherwise and a leg rack loading of 75KN to all units, placed in a back to back situation (with the centre line base plates placed minimum distance of 300mm away from floor joints) anywhere on the floor. Loadings based on a rack height 1.75m level and 1t pallet loads based on 150x150mm base plates set at a minimum back got back distance of 300mm.

5.2.5 Joints will be kept to a minimum, but where necessary, they will be detailed in accordance with TR34 and designed so that no vertical movement occurs across the joint. Day joints should be tied or reinforced with 10mm minimum thickness arris protection

5.2.6 The ground floor slab will be constructed so that the top surface tolerances comply with FM2 as defined in Concrete Society Technical Report 34 Fourth Edition 2013, for free movement areas of the slab. A surface regularity survey is to be undertaken by an approved and agreed survey company to demonstrate compliance with this specification prior to completion; achieving no more than a 5mm deviation measured by a 3m level

5.2.7 The surface of the slab will be power floated, cured and sealed with proprietary acrylic based hardener Sika Proseal or similar approved and will be dust free. The floor shall not be trafficked for a minimum of four days following the sealing operation and in line with the specialist flooring contractor's recommendations. Wearing surface shall have a minimum abrasion resistance of AR2 in accordance with BS 8204-2:2003 + A2:2011 and confirmed by independent testing. If required shrinkage cracking shall be induced joints at no less than 6 meter centres cut to an agreed regular pattern.

5.2.8 All joints are to be sealed prior to practical completion (apart from the day joints that will be sealed during the rectification period) with sealing compounds having a minimum shore hardness of 40. The sealant must be suitable for application at operating temperature of 2 degrees and a temperature of 0 degrees for 2 months of the year. An MS-silyl modified polymer joint sealant must be used and the lower part of all joints must be filled/sealed using a closed cell polyethylene foam backer or siliconised debonding tape. These joints are to be inspected at three monthly intervals during the defects liability period and checked for arris damage. Any significant arris damage must be repaired with an epoxy mortar placed in accordance with the manufacturer's recommendations.

5.2.9 The ground floor slab is to be insulated where required by Part L of the current Building Regulations.

5.2.10 The first floor slabs will be constructed with a top surface/screed finish to achieve a floor loading of 4kN/m2 plus 1kN/m2.

5.2.11 Floor Screeds

Location: staircases and mezzanine toilet cores Floating 85mm Isocrete K-Screed or similar approved, reinforced throughout with steel fabric to BS4483 ref. D49 (or reinforced throughout with Isocrete PP Fibres with a strip of steel fabric to BS4483 ref. D49 across day joints) laid on and including 65mm insulation board. Works to include all required expansion and contraction joints. Accessories: as recommended by Flowcrete including steel angle edges to all unsupported perimeters/ interfaces with raised flooring. Planted stainless steel

flats shall be fixed to screed angles to allow finishing to tiling/carpets above where visible in the finished works.

5.2.12 Concrete floors receiving ceramic or sheeted floor finishes should achieve a surface RH of 75% or less, in accordance with BS 8203, before being handed to any incoming tenant. The Contractor is to deploy all reasonable endeavours to achieve before a tenant takes occupation.

6.0 External Fabric

6.1 Cladding generally

Profiled metal cladding to elevations to be designed, detailed and installed to accord with the requirements of the stated performance specification to meet the requirements of the Building Regulations and to the satisfaction of The Building Control Officer.

Should a factory built composite panel construction be used then a Loss Prevention Council/Loss Prevention Standard (LPC/LPS) approved core material will be used. The Contractor shall observe any requirements

The roof including rooflights are to provide a manufacturer's warranty for the entire installation for a period of 25 years.

The roof system will be covered by a relevant Independent Agrément Certification. Wall cladding (all specifications or equal approved if approved by Employer and Planning Authority)

6.2 Wall Cladding

Kingspan or similar approved

- Product ref: KS1000 MM Mini-micro-rib profile composite panels
- Material: Outer Sheet to thickness to be a minimum of 0.5mm thick lining with inner lining to be minimum of 0.4mm thick steel
- Preformed corners to all external corners
- External Finish: Kingspan Spectrum Metallic 30-year guarantee
- External Colour: Metallic Silver RAL 9006
- Internal Colour: Brilliant White Enamel Finish to comply with BS 6399
- U-value: 0.20 W/m²K

6.3 Roof Cladding

Roof Cladding profiled sheeting (all specifications or equal approved)

Kingspan or similar approved

- Product ref: Kingspan KS1000RW trapezoidal composite panels
- Material: Outer Sheet to thickness to be a minimum of 0.5mm thick lining with inner lining to be minimum of 0.4mm thick steel
- External Finish: Kingspan XL Forte 25-year guarantee
- External Colour: Goosewing Grey
- Internal Colour: Brilliant White Enamel Finish to comply with BS 6399

The whole roof construction is to achieve a `U' value of 0.18W/m^2. And provide an integral, continuous and completely sealed vapour barrier, fixed strictly in accordance with the manufacturer's recommendations.
A white polyester coated liner panel to form the internal surface of the roof construction.

6.4 Rooflights

Part of Roof Cladding shall be factory sealed in plane triple skin translucent roof lights of a pattern to match the cladding profile in line with the contract roof plan drawings.

Rooflight type: Filon triple skin factory sealed unit to achieve a thermal efficiency of 1.3 with a class 2 outer skin and class 1 inner skin with 25 year non-fragility.
Area: To be equal to minimum 10% of production floor area

Rooflights are to be designed, or provided with, protection to prevent collapse under the weight of a person or falling body. All rooflights are to be tested as part of roof assembly and to be a minimum Class B non-fragile ACR[M] 001:2005.

During construction phase Class B fragility is to be achieved at liner level once fixed.

6.5 PV provision on roof

None envisaged, however, the structural frame is to make due allowance for a PV zone on each building as noted within section 5.1 of this specification

6.6 Roof Penetrations

Flexible cold temperature soaker upstand flashings (“Dektites”) are to be incorporated within the roof cladding for boiler flues, extract fans, soil vent pipes and the like, and are to be of a suitable diameter, fully sealed to the roof in accordance with the manufacturers recommendations. Roof penetrations should be avoided whenever possible.

Flat base soakers to be complete with apron flashings to ridge level (as appropriate).

6.7 Gutters

A self-priming syphonic roof drainage system will be provided to the main roof using one of the following – Fullflow, Sapaflow or Geberit. Designs for the system will be to Cat 3 standard for a building life of 25 years to BS EN 12056-3:2000.

All gutters to be insulated, thermally broken and coated (internally and externally). Kingspan fabricated gutters in keeping with the requirements of their 25 years guarantee: IKO membrane lines insulated gutter 1.2mm thick membrane laminated to 0.6mm thick galvanised steel with 50mm PIR insulation and 0.5mm white liner. Gutter size and capacity is to be designed by the cladding sub-contractor. Movement joints between panels to be sufficient to allow for seasonal movement to take place without premature degradation before the end of the unit’s design life.

The gutter system guarantee is to be 25 years.

All internal gutters to be factory insulated using rigid 50mm thick rock fibre insulation which is Euroclass ‘A1’ non-combustible in accordance with BS EN 13501-1.

Fire protection shall be incorporated as necessary in accordance with the requirements of the Building Regulations and the Fire Officer’s recommendations.

Maintenance of the roof and gutters will be undertaken via MEWP access – method statement to be prepared by the Principal Designer.

6.8 Rainwater Goods

The capacity of the rainwater system is to be designed by the contractor, to comply with the latest British Standard and Codes of Practice and the Building Control approval. In accordance with the criteria outline in section 6.9.

6.9 Downpipes

The water will be taken from the gutters by internal PVC rainwater pipes to BS 4576 connected to the storm drainage system and fitted with a rodding eye access plate at the base and discharging via a slow bend in the drain. Gutters and outlets will be designed to BS EN12056 gravity drainage system based geographical location. Weir outlets will be provided positions to be approved. Gutter calculations are to be undertaken.

Alternatively, the water may be taken from the gutters by a primary and secondary syphonic drainage system.

The roof drainage system shall be designed and constructed to comply with BS EN12056-3:2000 and the following criteria:

The geographical location of the building;

- A building design life of 25 years;
- A 'Category 3' risk.
- The system will be designed for a rainfall intensity which is the greater of:
- The amount properly calculated in accordance with the above;
- 0.056 l/s/m2.

All pipework shall be installed above the portal haunch level to maintain minimum clear height as stated in clause 5.07. Pipework will be left uninsulated, subject to building control approval.

All components of the system shall be in accordance with any relevant British or European standards.

Syphonic pipework shall be firmly attached to an engineered continuous railing system, using appropriate pipe clamps at a maximum of 2m centres and at the ends of the pipework sections, to provide adequate and proper restraint against thermal movement of the pipe. Additional bracing will be provided at branch connections and where required. All outlet tail pipes are to be suitably insulated. Pipework to be installed to avoid the offices.

The railing system shall be fixed within 100 mm of the closest edge of the pipework and shall be securely fastened back to the main structure at appropriate intervals.

The primary system will be connected to the storm drainage system. The secondary system will discharge to hard paved areas external to the building. The main contractor shall provide

suitable protection to any parts of the building or landscaping that might be damaged by the flow of water from the secondary system.

The secondary system rainwater outlets will be evenly distributed along the total gutter length and secondary discharge points shall be located at either end of the gutter and will generally be located approximately 300 mm above FFL. Discharge locations to be agreed with the Employer/Architect. Secondary eaves downpipes intermittently spaced along the eaves are not acceptable.

The external drainage will be designed with regard to the peak flows from the primary syphonic system and connection between the syphonic system and the underground pipework will provide a break at atmospheric pressure.

Indicative weir outlets will be provided to the ends of valley gutters and at 50m intervals on perimeter gutters to provide advance warning of blockage of the syphonic system. This requirement applies to both single and dual pipe systems.

Internal rainwater pipes are to be located within the web of the steel and suitably protected against accidental damage.

The galvanised TC/500-25 Weather Shield steel gutters are to be treated off-site, prior to delivery and the stainless steel bolts and gutters are to be touched up after erection with similar materials.

6.10 Cladding Fixings

Fixings / Fasteners
Fasteners: As required to meet guarantee requirements
Fixing to Cold Rolled purlin from 1.5 - 3.5mm thick
Spacer to sheeting rail: Standard method: Stainless steel self-driller Hex head min 5.5mm diameter x min 25mm long and washer 2 x per bracket diagonally opposite (4 x per bracket for bracket heights =/> 260mm).

6.11 Loads

The cladding will be designed to comply with wind loads calculated in accordance BS 6399 Part 2.

6.12 Warranty/Guarantee

The Kingspan Insulated Panels will be provided with Carbon Neutral Metal Building Envelope Certification and a 25 year guarantee.

Kingspan offer a carbon neutral envelope system comprising of insulated roof and wall panel systems and will provide verified carbon offsets to cover the CO2 emissions associated with their systems during manufacture, installation, use and end of life as outlined in their environmental profiling assessments, limited to the product quantity purchased for the relevant project.

All Kingspan Insulated Roof & Wall Panels which are manufactured in the United Kingdom are produced using “100% Renewable Energy” which has been achieved from the Kingspan Groups “Net Zero Energy” for all sites by 2020. Kingspan are the only metal external envelope manufacturer in the United Kingdom which can state this claim.

Inspections at key stages will be carried out by an independent specialist cladding inspector to ensure compliance with manufacturer standards.

6.13 Certificates

Apply at the outset of the project for registration with Tata Steel Confidex 'Sustain' and upon completion provide the Employers Agent with Tata Steel Confidex 'Sustain' certificates detailing how the carbon omissions have been offset.

6.14 Approved Document Part B Boundary Condition

Where required by the Building Regulations to provide fire protection to any external wall, then the construction will be upgraded to a firewall status in accordance with the structural engineers and cladding manufacturer's recommendations.

6.15 Surface Spread of Flame

The internal lining to any cladding is to be Class O rating for surface spread of flame as tested to BS.476:Part 7:1971.

6.16 Blockwork

Concrete blockwork walls to external facades to be constructed of Lignacite Blackstone Planished, minimum mean compressive strength of: 17.5 N/mm2, 440mm x 100mm x 215 mm, coloured mortar to match blocks, half-lap stretcher bond with shallow bucket handle joints.

Internal blockwork walls where required, are to be locally constructed of standard 7N/mm^2 140mm and 100mm paint grade concrete blockwork to BS 6073: Part 1, with adequate head restraint.

Adequate raised blockwork wall shall be locally constructed to provide a suitable substrate to all incoming service panels, distribution boards etc in the area indicated for the switch gear on the design drawings, the raised blockwork shall be a minimum of one structural bay. The Contractor shall provide a fully co- ordinated elevation for agreement with the EA of all service fittings to ensure a neat and serviceable finish is achieved in this location. Mortar to BS 5628 Group 3.

Cavity Barriers are to be provided as required by Building Control.
Blockwork is to be neatly pointed and is to have a uniform appearance in a/w the benchmark sample. Movement joints to be allowed in accordance with manufacturer's recommendations and to be included with a polyethylene strip at the top junction with slabs and beams.
Corofil C144 or similar approved to be used at this joint for fire compartment wall. All movement joints to have sealant finish where exposed.

Top of the blockwork wall is to be restrained where required with steel channels or special fixings/dowel to the contractor's design. All door opening lintels to be precast concrete to the contractor's design.

6.17 Office and Entrance Glazing

6.17.1 Glazing

Glazing systems are to comply with the latest edition of the Centre for Window and Cladding Technology (CWCT) standard for systemised building envelopes. Test Methods for Curtain walling.

6.17.2 Ribbon windows to office areas (all specifications or equal approved)

Ribbon windows

- Product ref: Metal Technology
- Material: System 4/20 casement window system from Metal technology beaded externally
- Finish: Polyester powder coated suitable for a marine environment (minimum 60 microns thickness). Colour/ texture: RAL 7016 (Anthracite Grey)/ matt.
- Glass to ribbon windows to be 4mm low E toughened inner pane, 16mm Argon filled cavity and 4mm clear toughened outer pane (centre pane value = 1.2W/m K).
- Top hung opening vents to be provided as described in section 6.17.30

6.17.3 Glazing to entrance areas and offices above (all specifications or equal approved)

Feature glazing system

- Product ref: Metal Technology System 17 capped curtain wall frame with aluminium pressure plates
- Material: Extruded aluminium mullion and transom profiles; nominally 50mm wide sight line with a depth dimension in accordance with structural calculations
- Frame Finish: Polyester powder coated suitable for a marine environment (minimum 60 microns thickness.). Colour/ texture: RAL 7016 (Anthracite Grey)/ matt.

The above to incorporate a pair of double-glazed manual entrance doors, 2.4m high, as described in section 6.18.1

Satin stainless steel letter plate (450x175mm) within entrance double glazed unit or blockwork, to be agreed with the EA.

Glass to BS 952-1 1995 and the relevant parts of and the relevant parts of BS EN 572-1 2012

All glass to be laminated or heat soaked toughened to suit location, hermetically sealed double glazed and fixed in accordance with BS 6262: 2005. Unit to be 6:12:6 minimum or to suit pane size, with toughened/laminated glass to BS 6206 for situations required for safety and security.

The system is to be designed to a wind pressure of 600pa or greater.

6.17.4 General

Provide test reports from an independent testing Agency verifying the performance criteria of

the various systems used.

6.17.5 Air Permeability Tests

Testing shall be in accordance with CWCT Test Methods for Curtain walling and windows and windows and BS 5368: Part 1 and BS EN 1026 to a test pressure class of 600 Pa as defined in BS 6375.

6.17.6

CWCT 'Standard for Systemised Building Envelopes' General: unless specified or agreed otherwise comply with:

Part 2 Loads, Fixings and Movement Part 3 – Air, Water & Wind Resistance
Part 4 Operable components, additional elements & means of access.
Part 5 Thermal, moisture & acoustic performance
Part 6 Fire performance
Part 7 Robustness, durability, tolerances & workmanship.

Project performance requirements specified in this subsection: Read in conjunction with CWCT performance criteria.

6.17.7 Integrity

Requirement: The curtain walling and windows must resist wind loads, dead loads and design live loads, and accommodate deflections and movements without damage.
Design wind pressure: Calculate in accordance with BS 6399-2, Standard Method: Refer to the project structural engineer'
Basic wind speed (Vb):
Altitude factor (Sa):
Direction factor (Sd):
Seasonal factor (Ss): 1. Probability factor (Sp): 1. Terrain and building factor (Sb):
Size effect factor (Ca): 1.
External pressure coefficients (Cpe):
Internal pressure coefficients (Cpi):
Dominant Opening:
Hard Body Impact Loads
Location & Category – Curtain walling and windows to BS EN 14019 Soft Body Impact Loads – Curtain walling and windows to BS EN 14019 Location & Classification:
Soft Body Impact Loads – Glass to BS EN 12600

6.17.8 Structural Performance Requirements

Comply with BS 8200 and the recommendations of the Centre for Window Cladding (CWCT) Standard for Curtain walling and windows and windows.

6.17.9 Structural Deflection

The allowable deflection of any element, when carrying full design loads, not to exceed 15mm or 1/125 for single glazing and 15mm or 1/175 for double glazing of its clear span in a direction normal to the plane of that element, whichever is the lesser value.

No element to deflect under loading in any way that is detrimental to any other element of the works or adjacent structure.

All components, couplings and fixings to be capable of accommodating all of the above deflection without permanent distortion, deformation or failure.

Accommodate defined differential structural movements arising from any loads imposed by adjacent structures.

Calculations of deflections for structural aluminium to recognise criteria contained in BS 8118: Part 1 limiting deflections.

6.17.10 Design Loads

Withstand loads specified without affecting the system's ability to comply with performance requirements and/or the exceptional loads. Unless otherwise stated, the system to comply with all prevailing relevant British Standards as appropriate, including BS 6180 and BS 6399. Consider the worst combinations when calculating design loads.

Accommodate the self-weight of the system including all of its framing and supporting systems.

6.17.11 Imposed Gravity Loads

Accommodate loads imposed by adjacent and/or attached elements suspended from or fixed to the system.

6.17.12 Live Loads

Accommodate the following live loads without any reduction in performance: Movement of the building structure and cladding support structure.

Horizontally applied loads acting on the surface of framing members and glazing arising from maintenance and cleaning operations.

6.17.13 Wind Loads

Horizontal and vertical loads of similar magnitude to those which are imposed upon adjacent or attached elements

6.17.14 Imposed Movements

Accommodate imposed loads by defined movements of its supporting structure and/or other adjacent elements.

6.17.15 Wind/Air Pressure Loads

Calculate pressure loads to include the effect of internal air pressures within the building, taking into account the presence of significant openings.

6.17.16 Thermal Loads

Accommodate thermal movement resulting from the maximum and minimum surface temperatures defined by clause 2.7.2 of the CWCT system for Curtain walling and windows and windows. Cater for all temporary and permanent conditions.

6.17.17 Inertial Loads

Accommodate inertial loads arising from acceleration/deceleration of moving sections including opening lights, doors and vents of the building or enclosure.

6.17.18 Environmental Performance Requirements

Moisture Movement - resist movement without permanent deformation or any reduction in the specified performance:

Due to changes in the moisture content of works' components, resulting from variations in the moisture content of the air. Refer also to BS 8297, BS 8298 and BS 8110: Part 2.
Due to the expansion of absorbed or retained moisture caused by freezing.
Control the flow of any water within the system and direct such water to the outside.

6.17.19 Thermal Performance

Minimise cold bridging. Maximum thermal permitted transmittance (U-value) are: Double glazed area for external façades 1.7 W/m²K or better.

Frames and extrusions: 1.7 W/m²K or better.

The average U-value through the works to comply with the above requirements and meet all statutory requirements as well as the specified requirements.

Submit thermal calculations for the various components and the average thermal performance of the proposed works to comply with the specified requirements.

6.17.20 Solar Performance Requirements

Submit data sheets in respect of solar and visible light performance for project specific glass build-ups in accordance with BS EN 410 (light transmittance, radiant transmittance of glazing) with tolerances of ±3% for flat glazing. No cracking or distortion of glass is acceptable.
Confirm the total solar transmission (G-value) for each glass type specified for review by the Employer's Agent. Glass manufacturers and types are acceptable only if they meet the performance and visual requirements.

6.17.21 Air Permeability/Infiltration

Minimise airflow from the outside to the inside of the building through joints/junctions to control concentrated airflow.

Maximum air infiltration rates to be achieved are:
1.5 m³/hr/m² for fixed lights.
2.0 m³/hr/per metre length for opening lights/smoke vents. 3.0m³/hr/per metre length of opening for framed and rebated doors.
Any air leakage to be distributed and not concentrated at a single location. Provide actual air

leakage test results.

6.17.22 Façade Floor Air Leakage

Joints between cladding and structural slabs at each floor to be sealed such that air shall leak through the joint at no more than 0.1 litres/sec per linear metre of façade at 50N/m².

Floor joint air leakage test to be carried out on Site by a specialist laboratory such as CERAM, Taywood or BSRIA. Allow for testing at 10 No. locations, each comprising a tenth of 6000mm.

6.17.23 Condensation

Except under extreme conditions where the internal relative humidity is in excess of 70%, condensation is not to form, either on internal or external surfaces of framing members, glazing, solid panels or louvres, or internally within the construction of infill panels forming a part of the works, such that is may lead to damage or staining under the psychrometric conditions.

Condensation will be permitted only in non-visible drained and ventilated rebates subject to it not having a deleterious effect on performance or durability.

Provide a condensation risk assessment, taking into account the specified psychrometric condition. Refer to project outline specification and the Building Services Environmental Model.

6.17.24 Capillarity

Eliminate water migration, due to capillarity, to the inside of the building.

6.17.25 Weather and Water Penetration Resistance

The works to be weatherproof and watertight ensuring the prevention of water leakage onto the internal face of the works.

The works to remain weatherproof and watertight under all conditions with due allowance made for deflections and movements.

Cavities to be drained and ventilated to the exterior. Wet applied seals for the purpose of preventing the ingress of water is not acceptable. All seals and gaskets shall be "dry".

Fixed joints to remain rigid and accommodate all thermal, building structure or other movements and any applicable loads without compromising water-tightness.

6.17.26 Acoustic Requirements

The works shall effectively insulate the internal areas of the building from high levels of noise. The works shall provide internal sound reduction between floors.
The works shall provide internal sound reduction between adjoining areas on the same floor. Partitioning is attenuate up to a noise rating of no more than 50db.

6.17.27 Impact and Abrasion Resistance

Resist abrasion from cleaning methods and maintenance systems without noticeable change in surface appearance. Generally, surfaces to be sufficiently hard (including glass coatings) to resist all reasonable impacts from hand-held objects without any noticeable change to the surface appearance.

Impact tests to be carried out to all assemblies adjacent to pedestrian areas in accordance with the recommendations of BS 8200. Tests shall conform to category B requirements.
The extent of any damage determined through testing to be recorded and, where possible, quantified. Samples shall also be submitted to the Employer's Agent.

6.17.28 Demountability

Elements of the works to be individually and independently removable ensuring access for maintenance and/or replacement of glazed units in the event of breakage.
The removal of glazed units is not to affect the performance or safety of any part of the works and a method statement is to be provided for acceptance.

6.17.29 Fire Performance Requirements

All elements to be non-combustible or not easily ignitable with low flame spread characteristics, and not produce excessive quantities of smoke or toxic gases.
The external wall, where necessary to meet unprotected limitations under requirement B4 "External Fire Spread" of the Building Regulations.
All materials used internally and externally (excluding sealants and gaskets) to have a Class 0 surface spread of flame classification when tested in accordance with BS 476: Parts 6 and 7, unless otherwise specified.

Provide cavity barriers as necessary and comply with Building Regulations Approved Document B. Fire and smoke stops to be positively fixed in position so as not to become dislodged in the event of a fire. The fixing to secure the stop in position for a period at least equal to that required for the compartment wall or floor against which the works abut. If fire resistance is required for space separation purposes, comply with functional requirement B4 of the Building Regulations. The external surfaces of the cladding to comply with functional requirement B4 of the Building Regulations.
Any insulation in the external wall construction that is exposed in a ventilated cavity shall be of limited combustibility, in accordance with the guidance in Section 12 of the Approved Document B.

Provide a floor to floor fire separation as required at the perimeter of each level. Submit details of suitable products, including fire tests information complying with BS 476: Part 20, test method.

6.17.30 Office ribbon glazing system

Aluminium framed system, as described in section 6.17.2, with a glass fibre reinforced, polyamide thermal break, dry-glazed with EPDM gaskets.

In-line top hung opening lights as defined on the design drawings. Approximate size of vent is 1200mm x 1350mm vent fitted with heavy duty friction stays, compression keep, cranked espag locking handle with 1000mm locking face plate and keeper. All handles to be silver finish.

Exposure category to BS 6375-1
Design wind load: Consult Technal
for details Airtightness - 600 Pascals
Watertightness - 600 Pascals
Colour/ Finish - RAL 7016 (Anthracite Grey) / Polyester powder coating

6.17.31 Glass

Light transmittance 69% (min) G-value - 0.41 (min)
Inner pane: As described above Cavity: As described above
Outer pane: As described above
Centre pane 'U' Value 1.2 w/m2K and edge spacer PSI value to be confirmed Durability requirements of class C of European standards EN 1096-1 and -2 Light and solar performance according to EN 410
All glass shall be toughened or heat soaked if required.
Thermally toughened safety glass shall be classified according to EN 12600; for its pendulum impact performance. This product is to be used in critical locations (see BS 6262-4:2005)
Heat soaked thermally toughened products shall comply with EN 14179-1 for soda lime silicate glass and EN 15682-1 for alkaline earth silicate glass

Panel/ facing type: vacuum insulated aluminium glazed into and forming part of the curtain wall assembly.
External material: 3mm (min thickness)
aluminium External finish: anodised
Internal material: 3mm (min thickness) aluminium Internal finish: mill and PPC
Core insulation: Rigid PUR foam
Centre pane 'U' Value as dictated by the performance requirements within the Service engineers design reports.
Glazing system: as Manufacturer's recommendations
All glazing indicated on drawings should be fabricated as a complete glazing system and in strict accordance with the Manufacturer's recommendations.

6.18 Loading Doors, External Doors and Fire Exit Doors

6.18.1 Front Entrance Doors and Fire Exit Doors from Office

Polyester powder coated to BS 6497 aluminium framed front entrance doors with toughened glass vision panels all to be fully designed by specialist subcontractor. If required fitted with `FIRE EXIT' notices and ironmongery to Fire Officer approval with concealed overhead door closer and a stay against the wind.

A letter plate is to be provided in or adjacent to the main entrance doors, powder coat finish to match curtain wall system NB to be sealed until units are occupied.

Brushed Stainless Steel Pull handles are to be provided ASH120 (50mm dia 600mm length). Doors shall comply with all requirements of Part M of The Building Regulations.

Stainless steel bollards 154mm diameter x 750mm high to be provided externally either side of entrance doors.

Entrance doors are to be designed to allow for the future installation of security and access controls by the occupier.

6.18.2 Escape Doors

Fire escape doors shall be polyester powder coated steel sheet in steel frames with Exidor 296 Panic latch (1-point locking), Z105 Friction Stay, Mineral Wool Infill, 15mm aluminium threshold, 4 no. stainless steel dog bolt hinges with weather seal to all sides. Colour Black, RAL 9005.

Signage: “Push Bar to Open” Internal, “Fire Exit Keep Clear” External.
No vision panels required to external Escape Doors. Doors to be installed in external elevations set with minimal reveal depth.
No external access devices included.

6.18.3 Level Loading Doors

Level loading doors are provided as shown on the building elevation drawings, insulated, lockable and electrically operated and with bollards to protect jambs, as described below. Doors are 6.75m high x 4.0m wide for level loading.

Type: Assa Abloy OH1042P 42mm sectional overhead door (or similar approved)
Finish: Polyester finish
External Colour: Black, RAL9005
Internal Colour: White

Loading doors are to be constructed of interlocking insulated sections with a minimum overall ‘U’ value of 1.5 W/m^2. Doors shall have a manual override device installed. NB. No vision panels are to be provided in these doors.

Coated to BS 6497.

The doors are to be lockable and electrically operated with an internal control panel with the appropriate weather tight seal and flashing. Permanent power will be provided to the doors and the doors will be fully commissioned upon completion.

200mm diameter, 2mm gauge, 1000mm high. Bollards are to be matt satin polished stainless steel finish.

6.19 Movements Joints

Movement joints shall be installed in accordance with manufacturer's recommendations, shall be sealed with 2 part polysulphide or low modulus silicone based sealant on an expanded polyethylene backing strip. Sealant colour is to match the surrounding materials to EA approval.

Contraction and expansion joints for the structure and blockwork are to be provided where required and fully co-ordinated. Back to back plaster stop will be provided at contraction and movement joints to avoid plaster cracking, with sealant finish by Tremco `Dymeric’ or equivalent.

6.20 Lintels

Provide suitable precast concrete lintels to BS 5977, to contractor's selection.
Provide suitable pre-stressed concrete lintels to BS 5977.
Manufacturer: Tarmac Top floor or similar.
Product reference: Beam Lintel.
Placement: Bed on mortar used for adjacent work with bearing of not less than 150mm. Prop at not more than 1.2 m centres to prevent displacement during construction. Retain props in position for not less than 14 days or until mortar has matured, whichever is longer.
Lintels to all openings, Lintels to be set at approximately 2100mm above FFL. Exact height to be confirmed due to varying floor finishes.

6.21 DPCS and Cavity Trays

Where applicable DPCs and cavity trays are to be "Permabit" by Ruberoid Ltd (or equal) used at ground level and where the cavity is bridged horizontally and vertically. All DPC's installed in strict accordance with manufacturers requirements. All cloaks, stop ends abutments, corners etc., and accessories to be pre-formed.

Provide suitable damp-proof course in either bitumen to BS 6398, polyethylene to BS 6515 or polymeric material to BS 6398.

Manufacturer: Ruberoid Building Products Ltd, Welwyn Garden City, Herts. AL7 1BP. Product reference: Hyload'2' Polymeric DPC or equal approved.

6.21.1 Cavity Trays

Provide suitable cavity trays, junction cloaks and stop ends. Manufacturer: Ruberoid Building Products or equal approved.

Product references and locations: Special preformed units at internal/external corners and at steps in linear cavity trays.

Placement: To provide a free draining and watertight installation. Seal laps with DPCS and/ or cavity trays.

6.22 Wall ties/ ancillary masonry items (all or equal approved)

Wall Ties: Provide suitable stainless steel wall ties free from sharp, pointed edges, Grade 1.4401 to BS 1243 and Agreement certified. Wall ties shall maintain the stability of the works in accordance with BS 5628.

Fixing Ties in Masonry Cavity Walls with Partial Fill Cavity Insulation Embedment in mortar beds (minimum): 50 mm.
Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.

First Row Spacing: Evenly space first row of ties at 600mm centres to secure bottom edge of insulation board at a minimum of two points.

Spacing: Evenly space in staggered horizontal and vertical rows. Horizontal centres: 900mm.

Vertical centres: 450mm.

Secure each insulation board at a minimum of 3 points.
Spacing centres of top (eaves) row of ties: Not more than 450mm.
Provision of additional ties: Within 225 mm of reveals of unbonded openings. Spacing: at not more than 300mm centres vertically.

Wall Starter/Connector
Provide suitable wall starter/connector. Manufacturer: Ancon.
Product reference: SP21.
Material/ finish: Stainless Steel Grade 304. Sizes: 125mm Long.

Slot Ties for Fixing Blockwork to Concrete and Steel Columns (Shot Fired) Manufacturer: Ancon.

Product reference: SP21.
Material/ finish: Stainless Steel Grade 304 Sizes: 125mm long.

Slot Ties for Fixing Block to Concrete Column (Cast In Channels) Manufacturer: Ancon.
Product reference: PP21.
Material/ finish: Stainless Steel
Grade 304 Sizes: 125mm long

Head Restraint Ties Provide the following:

a) Concealed type:
b) Concealed type lateral head restraint ties with slotted holes and debonding PVC sleeve.
c) Material: Stainless steel grade 1.4301 to BS EN 10088.
d) Exposed type:
e) Exposed type comprising galvanised mild steel angle cleats nominal 100mm x 100mm x 6mm x 150mm long at 450mm centres.
f) To incorporate suitable deflection movement, compressible joint filler and sealant as required.

Concrete Fill to Base of Cavity
Concrete generally: To BS EN 206-1 and BS 8500-2. Designated concrete: Gen 1, Refer to spec E10/130. Workability: High.
Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level DPC.
Placement: Compact to eliminate voids.

Partial Fill Cavity Insulation Expanded Polystyrene (Eps) Insulation: Expanded polystyrene boards to BS EN 13163. Manufacturer: Celotex.
Product reference: CW3000Z.
Face size (length x width): 450x1200mm.
Thickness: 55 mm rigid insulation (reduced to 35mm behind 25mm setbacks).

6.23 Timber

Structural sawn timber to BS 4978, framing and battens to be preserved to British Wood Preserving Association Commodity Specification C8.

6.24 Front Entrance Canopies

PFC Canopies above entrance doors in RAL 7016 (Anthracite Grey) with flat steel plate above – galvanised and painted and CP board soffit painted RAL 7016 (Anthracite Grey). Canopies fixed through thermal breaks in to goalpost frames.

6.25 Air Pressure Test

An air pressurisation test will be carried out to provide an air permeability of a maximum of 5 m3/m2.h in line with the Building Regulations and the project Energy Strategy.

6.26 External Occupier Signage

A zone shall be designated and left ready for the future installation of occupier signage. Illumination (if required), planning approvals and installation are to be undertaken by the Occupier.

High level Unit numbers are to be provided affixed to the Units, as shown on the elevations. Design, materials, fabrication and colour to client approval.

Totem estate signage will be provided to identify individual buildings and building units.

7.0 Internal Construction

7.1 Internal Walls and Partitions

Layout of the cores, offices and associated areas are to be as per the contract drawings.

7.2 Blockwork Walls to Offices / Reception / WCs and Shower Rooms

Save for where specifically specified elsewhere internal walls (including linings to external elevations and column encasements) are to be constructed of minimum 100mm solid blockwork to BS 6073: Part 1 or insulated metal stud to achieve both fire compartment and structural requirements.

Walls forming divisions between office space and warehouse are to be insulated to achieve a minimum of 0.6W/m^2K and achieve a 1 hour fire resistance where required by the Building Regulations.

All partitions, ceilings & doors to plant areas and walls separating the office from the warehouse are to achieve a sound reduction factor of 41 DBA.

Movement joints to be incorporated in the blockwork in accordance with manufacturer's recommendations and to be fitted with polyethylene strip at the top junction with slab and beams. Corofil C14 or equal approved to be used at this joint for fire compartment walls. Top of blockwork wall to be restrained with steel angles/sliding anchors/brackets to structural engineer's design and with sealant to joint where exposed to view.

7.3 Plasterboard Walls to Offices / Reception / WCs and Shower Rooms

Where indicated on the contract drawings all metal stud partitions will be British Gypsum or equal approved and fixed in accordance with manufacturers recommendations. All walls are will be acoustically and isolated designed to Part E of the Building Regulations. Walls to wet

areas will be formed with moisture resistant plasterboard in lieu of standard plasterboard.

Walls requiring 60 minute fire resistance to be nominal thickness 200mm; Gypwall classic system ref A206027 or equal approved; 2nr layers 12.5mm Gyproc wallboard or equal approved each side of 146 S 50 C studs at 600mm centres with all necessary firestopping and deflection head details.

Walls not requiring 60 minute fire resistance to be nominal thickness 120mm; Gypwall classic system ref A206015 or equal approved; 2nr layers 12.5mm Gyproc wallboard or equal approved each side of 70 S 50 C studs at 600mm centres with all necessary firestopping and deflection head details.

Wall lining systems to external walls to be British Gypsum or similar approved; Gypliner IWL; 70/ 90/ 146mm studs (to suit height) with 72/92/146mm U track (base track); 400/ 600mm centres; 10mm cavity between insulation & cladding; deflection allowance of 25mm; 1nr layer 15mm board with T&J finish and all necessary firestopping and deflection head details.

7.4 Insulated White Wall Panels to party walls

Dividing walls between units to be 150mm thick Mineral Fibre panelling / partitioning system with a fire rating of up to 120 minutes as required; LPCB certified / approved; Installed to manufacturer's recommendations including all fixings, flashings, firestopping and deflection head details to complete the installation and meet building control requirements. U-value of 0.27 W/m2K and sound reduction 34dB. Panel faced internally and externally with a white polyester finish, RAL 9010.

7.5 Internal Doors to Offices / Reception / WCs and Shower Rooms

Doors to be solid core with hardwood lippings, painted dark grey with hardwood flush beads and lipping on three edges hung in hardwood dark grey painted frames. Vision panels will be provided as required by Building Control and as detailed within the project door schedule.

All fire doors will comply with FD30S or FD60S and BS EN 476: 2011 and to be self-closing and all necessary fire signs to Fire Officer approval. 2mm intumescent strip is to be concealed within door frame at door stop. Smoke seals to be fixed to frames as required by the Fire Officer.

Rectangular vision panels of 100x1400mm are to be provided to office and reception doors as necessary.

Vision panels to fire escape route doors to be 'Pyran' or similar fire-resistant clear glass to comply with BS 476:2011 parts 20 and 22.

7.6 Architraves and Skirting

Architraves are to be factory primed MDF, site painted dark grey.
Skirting's to receptions and offices are to be 150mm high factory-primed MDF, site painted dark grey.
No skirtings are required to WCs and Shower Rooms.

7.7 Entrance Mat

Entrance matwell and recessed stainless steel frame to full width of entrance door and glazing area, as shown on core layout drawings – Forbo Flooring UK Ltd, Tuftiguard HD Classic, recessed aluminium anodised scraper bars, buffed rubber wiper strips in 'Charcoal' finish.

7.8 Ironmongery

Doors to be complete with concealed polymer bearing hinges, slimline overhead closers, push plates, pull handles, lever handles and latches, protective plates and kick plates, door stops, mortice locks fitted with interchangeable suited key barrels etc. Pictogram stainless steel signage to WCs and Showers plus statutory signage to fire doors to be fitted as necessary.

Locks will be individually keyed under master key.

All Ironmongery to generally be heavy duty Satin S/S finish by G Johns & Sons or equal approved.

Allow for standard doc M gab rails to Disabled showers and WC areas as required for Building Control compliance.

7.9 Staircases

Staircases can be either precast concrete or steel with metal trays and concrete infill treads and designed to meet all the requirements of the Building Regulations including Part M and Part K.

Staircases shown on the contract drawings and described in this specification are to be designed to BS 5395:2010 where applicable.
The supplier / subcontractor must complete the design and detailing to ensure compliance with the structural and safety requirements of BS 5395:2010
Occupancy class for dead and imposed loadings on stairs and landings to BS EN 1991-1-1:2002 and BS EN 1991-1-7:2006+A1:2014

Building use category for balustrades and handrail loadings (as specified in BS 6180:2011): 4
Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication. Designated items: Stair balustrading, handrails, rods and ancillary support sections, roof access ladders and service step overs.

All internal stairs are means of fire escape which will be used as general accommodation stairs for occupants.

The contract drawings illustrate the stair in terms of layout and finishes: the fabricator/subcontractor shall progress the design to completion with the same design concept. For this purpose, the following criteria shall be maintained. Stair supports shall only be as shown on the contract drawings.

Stairs shall have 50x10mm powder coated mild steel flat bar handrails on bent stem brackets.

Balustrades to edge of mezzanine storage area shall be galvanized low carbon steel, Kee Klamp or equal approved, anchor fixed to concrete slab.

Any exposed string is to be finished smoothly and painted.

The staircase is to be finished with Heuga 580 heavy contract grade carpet tiles by Interface Europe Ltd, as office areas, with Gradus Ltd aluminium contrast nosings in non-slip finish.

The skirting to staircases is to be softwood painted dark grey with cut string to match the general skirting.

7.10 Roof Access

Via MWEP which will access building perimeters for gutter maintenance – access strategy required by Client for valley gutter to building D.

8.0 Internal Finishes

8.1 Floors

8.1.1 Floor to Reception, WC and Shower areas:

Anti-slip ceramic tile bedded on power floated slab laid to pattern and pointed up in grouting cement to match tiles to BS 5385 – 1:2009: Part 3.

Domus 600x600mm DADG04 tiles, or equal approved, in natural grip finish suitable for wet areas to be laid with 150mm high MDF painted skirtings. Tiles to be set out centred on floor.

Shower areas to have AKW, or equal approved, Tuff Form wet room former1200×1200mm with 50mm Waste (Waste adaptor and GW50 waste) and stainless steel shower drain cover.

8.1.2 Floor to First Floor Offices:

Heavy contract grade carpet tiles, Heuga 580 by Interface Europe Ltd (colour to be agreed), laid on raised access floor (see below).

Method of laying: Tiles to be bonded with tackifier or in accordance with carpet supplier's recommendations.

Accessories: Brushed stainless steel threshold bars to all doors.

8.1.3 Floor to Mezzanine Storage

Floors to mezzanine storage areas and warehouse areas to be power floated concrete with curing agent and dust inhibitor with no additional finish.

8.2 Raised access floors

150mm encapsulated raised access floor to first floor office areas only to achieve a minimum of 100mm clearance. Type Kingspan or equally approved medium grade 600 x 600mm lay in system, to MOB construction and installation standards. Raised access floor to be earth bonded in accordance with IEE Regulations and the raised floor manufacturer's recommendations.

The raised floor system will allow for full access to services, as detailed in the M&E specification. Superimposed 4.0 KN/m2 Partitions 1.0 KN /m2

Cavity barriers to be installed (by Rockwool or equal and approved alternative) in accordance with manufacturer's recommendations, to a maximum of every 20m. All penetrations to be fire sealed and ducts to have dampers, all to Local Authority approval

8.3 Walls

Walls Generally

Paint grade blockwork to warehouse areas and tape & jointed plasterboard according to location. Walls and columns to be finished with three coat emulsion paint, 1 mist coat and 2 full coats.

All external plaster angles reinforced with angle beads, all changes in direction shall include crack control beads. All external plaster angles reinforced with angle beads including all necessary stop beads and expansion joints at junctions of dissimilar backings and steel columns or expansion joints in blockwork.

8.3.2 Rear Walls to WCs and Showers (behind WCs and Showers)

IPS panels by Amwell Systems Ltd or equal approved.
Substrate: Treated softwood framework, notched, screwed and site assembled.
Board /Panels: Solid grade laminate panels, full height in three panel sets.
Thickness: 12/13mm overall
Colour: AM275 Charcoal (colour to be confirmed)
Moisture content at time of fixing: As recommended by fabricator to suit environmental conditions.
Edge treatment: Exposed edges are machined to a smooth profiled finish.
Method of fixing panels: Concealed 'lift off' brackets with two hinged panels per cubicle and elsewhere as design drawings.
Joint treatment: Close butted horizontally with waterproof SGL flash gaps to match panel colour.
Included features: All duct / panelling cistern duct sets to be made to site dimensions.
Accessories: All fixing components.

8.3.3 Walls generally to WCs and Showers

Refer to contract drawings.

Ceramic tiles bedded on plasterboard to pattern and pointed up in grouting cement to match tiles to BS 5385 – 1:2009: Part 3.

Full height wall tiling, 300 x 75 x 9.5mm Domus wall tiles DVOD 01 in Matt Finish to Disabled WC / shower room walls. Tiled splashbacks to basins generally as the contract drawings.

8.4 Ceilings

Ceilings to Reception and Office areas

Accessible tiled ceilings with lay-in grid

Floor to ceiling height to be a minimum of 3.0m or as noted on the contract drawings.

Light fittings are to be lay in recessed modular fittings and arranged evenly to achieve the required Lux levels.

Manufacturer and reference: 600x600mm Armstrong Prima Microlook Dune plus ref 9113m laid in 15mm

Trulock white suspensions grid or similar approved.
Board materials: Mineral Fibre 400kgm³
Accessories: Perimeter trims finished powder coat white RAL 9010.

8.4.2 Ceilings to WC and Shower Rooms

Floor to ceiling height to be a minimum of 2.4m or as noted on the contract drawings.
Light fittings are to be lay in recessed modular fittings and arranged evenly to achieve the required Lux levels.

Manufacturer and reference: 600x600mm Armstrong Ultima Microlok BE Ref 9843m laid in 15mm Trulock
Accessories: Perimeter trims finished powder coat white RAL 9010.

8.5 Window Boards

Where applicable 38mm section solid painted MDF with square edging, colour to be confirmed.

9.0 Fixtures and Fittings (all or equal approved)

9.1 Sanitary Ware – WCs and Shower Rooms

WC Pan and cistern

Arrangement: Back to wall pan with concealed cistern
Pan: Armitage Shanks Contour 21 wall hung ceramic WC pan 700mm to BS EN 997 and BS EN 33
Seat: White (or grey to disabled WCs), to BS 1254
Cistern: Concealed Cistern to suit above WC
Other accessories: Dual flush
Sealing: White silicon sealant to pan/floor/wall junction

9.1.1 Washbasins

Basin: Contour 21 hand rinse washbasin in vitreous china, 370mm, one centre tap hole, no chain stay hole, bottom outlet.
Waste: Chrome plated restrained.
Trap: Chrome plated bottle trap.
Sealing: White silicone sealant to junctions with wall.

9.1.2 Taps to Toilets

Taps: Contour 21 (TP6) lever action thermostatic sequential basin mixer tap, flexible tails.

9.1.3 Disabled WCs

To comply with BS 5810: 1979 and Approved Document Part M.
Doc M Contour 21 close coupled left-hand corner pack, WC pan, water saving delay fill cistern with spatula lever, basin, grab rails, hinged support rail with toilet roll holder, seat no cover with retaining buffers, copper tails on TMV3 mixer tap.
Wash basin to have:-
Waste: Chrome plated restrained.
Trap: Chrome plated bottle trap.
Sealing: White silicone sealant to junctions with wall.

9.1.4 Showers

Armitage Shanks Contour 21 shower set comprising Lever operated shower diverter with thermostatic concealed shower valve, Armaglide 2 handspray single function with Contour 21 sliding shower handset holder, 135cm hose and shower pump, chrome plated.
To be Installed in accordance with manufactures guidelines, and recommendations.

All supply pipework to concealed or chrome finish where exposed.

9.2 Pipework

To be designed to minimise the number and length of horizontal runs.
Any cisterns / cistermizers (or similar) are to be concealed above the suspended ceiling.

Soil stacks and SVP's, and hot and cold waterfeeds are to be concealed and if they cannot be contained within the structure they are to be carefully positioned in corners and fully boxed in between floor and ceiling. Horizontal runs of 100mm soil wastes and 38mm runs are to be avoided. All exposed pipework to be chrome.

9.3 Toilet roll holders / mirror(s) / coat hooks / door stops

Provide one stainless steel toilet roll holder and coat hook per toilet.
6mm polished mirrors with bevelled edges 600 x 900mm are to be installed above basins in WCs, in disabled WCs and Showers mirrors to be installed are to be 400 x 1200mm.

9.4 Fire Precautions and Statutory Signage

The requirements of the Local Fire Prevention Officer will be incorporated, in respect of means of escape, fire resisting doors and partitions, fire exit doors and fittings and all associated signs and notices.

Signs and notices will comply with Associated Signs and BS 5499-1:2002 ‘Fire Safety Signs, Notices and Graphic Symbols’. All signs to be metal or rigid plastic and screw fixed.

10.0 Services

10.1 Below Ground Services

All below ground services to be installed in accordance with the NJUC (National Joint Utilities Group) recommendations as outlined in the NJUG Publication No.7 dated January 1997.

All mains connections are to be installed in accordance with details included within the Contractor's Proposals document.

10.2 Electrical

10.2.1 3 Phase power

A 3 phase power supply is to be brought into the building to a suitable position to be agreed with the Employer. Required loads are as detailed in Contractor's Proposals document.

A Landlord feeder pillar will be provided. A main switch and distribution board will be located in a position agreed with the Employers Agent adjacent sub – station.

10.2.2 The supply shall include an allowance of:

Office Lighting	12-15w/m^2
Office small power	25 w/m^2
External /Car Park Lighting	5 w/m^2
Spare Capacity	15 w/m^2

10.2.3 Small power is to be delivered by way of floor boxes via a raised floor, 1 floor box per 10m2 of floor area.

10.2.4 Sub station

The contractor is to allow fully for the design, and installation of two substations as located on the site plan. Each substation is to be encased in a coloured GRP enclosure (black), in accordance with the requirements of the Local Authority and the Statutory Provider.

10.2.5 Emergency power, power, data and lighting ducts

To be supplied within ceiling voids & raised floors as appropriate to suit the intended use of the rooms.

One electric spur suitable for hand dryer purposes to be installed in each toilet area

10.2.6 Housekeeping

Adequate wall sockets are to be allowed in WC areas, lobbies, staircases and reception areas for cleaning. Sockets are to be positioned at min 450mm above finished floor level.

Cable Trays

Allow for suspended or fixed cable trays to carry all cables and cables to be clipped as necessary.

10.3 Gas Supply

A suitable gas supply is to be brought into each unit to a suitable position to be agreed with the

Employer. Required loads are as detailed in Contractor's Proposals document.

10.4 Water Supply

A suitable metered water supply shall be provided to serve the new office areas together with 2 number suitable external water points provided for the maintaining of external landscaping. Type and location of water points to be determined.

2 number external bib taps to be provided adjacent to loading doors. Exact position to be agreed with Employers Agent.

Hot and drinking water supply to be provided to all toilets.

10.5 Heating & Cooling

10.5.1 In units without a mezzanine level, heating is to be supplied via gas fired LTHW to both the hot water and heating system. In units with a mezzanine level, hot water is to be supplied via 'point of use' water heaters. In the WC and core areas heating is to be supplied through electric panel heaters. In the mezzanine office areas, heating and cooling will be supplied through a full VRF system.

10.5.2 The heating is to be designed to the following criteria and to take account of roof voids.

- Outside design temperature = -4°C
- Inside design temperature
- Offices = 21°C
- Corridors = 18°C
- Toilets = 18°C
- System flow temperature = 82°C
- System return temperature = 71°C
- Infiltration Rate = 2a/c per hour

The installation to be designed and installed in accordance with the requirements of all relevant Statutory Authorities, the Building Regulations, and shall comply with the standards set down in The latest Chartered Institute of Building Services Engineers (CIBSE) guide.

Warehouse

No heating is to be provided to the warehouse areas.

10.6 Lighting

Internal lighting

Refer to finishes schedule & reflected ceiling plans for detailed information.

Lighting design to be in compliance with UK Building Regulations and CIBSE standards / guidance.

Lighting levels: 450 lux for reception, and offices (including individual offices), 150 lux for

ancillary areas, 200 lux for toilets. (measured at 0.75 m working plane and 0.85 uniformity.)

Switches to be located adjacent to the door only with zoned and adjustable time and movement sensors, to be set at min 30 minutes at commissioning.

No lighting to the warehouse including under croft area, with the exception to 1 flood light to each unit to allow for inspection of the warehouse space.

Emergency lighting will be provided in accordance with BS 5266-1:2011.

10.6.2 External lighting

Refer to contract drawings.

Min average across the site to be 20 Lux, 50 lux to loading bays.

All fittings are to be controllable via photocell and timers with manual overrides.

Where lighting columns are located within or directly adjacent roadways these will be protected by proprietary lamppost protectors as detailed in Contractor's Proposals document, power coated to colour to be confirmed from standard range.

Bollard lighting to be provided along the western footpath as detailed in Contractor's Proposals document, colour black.

10.7 Ventilation

Mechanical Ventilation

Flush ceiling mounted mechanical ventilation to be provided to WCs, Disabled WCs and Showers with timed control facility and in the case of twin fan units an auto changeover control. All external grilles to be colour coated to a RAL colour to match cladding background. No grilles to be located on front elevations. Ventilation is to comply with Building Regulations.

10.7.2 SVP's, flues and ventilation pipework

To be boxed-in comprising 2 layers plasterboard/proprietary fire-resistant board to the required fire rating with staggered joints on softwood framing, with skim and emulsion paint and sound insulation as required. Pipes are to be fire stopped with proprietary sleeve connectors in accordance with Fire Officer's requirements.

10.7.3 Smoke extraction or sprinkler systems

To be installed by incoming occupier if required.

10.7.4 Maintenance

Allow to provide all necessary access panels for maintenance and inspection.

10.7.5 Louvres

All louvres, if required for mechanical ventilation, to be colour coated to match surrounding materials and flashing details, to include integral bird/insect mesh.

10.8 Security

10.8.1 Security Systems

Shall be installed by incoming occupier if required.

10.9 Fire Alarms and Emergency Lighting

10.9.1 Fire Alarm and Detection System

A fire alarm and detection system is to be installed to all areas in accordance with Local Authority requirements and to be installed to BS 5839-1:2013. Fire alarm to warehouse to be manual operation with an L2 fire alarm to other areas.

Manual alarm systems with break glass points, sounders, and sounder circuits wired in firetuf. Recessed fire alarm control panel to allow for the provision of 2 No. additional zones to be linked in at a later date.

Main fire alarm panel to be located in the reception and shall be co-ordinated with other panels / devices to ensure uniform and symmetrical layout.

10.9.2 Emergency Lighting

Emergency lighting, in accordance with BS5266, to be provided throughout the building. In offices, stairs / entrance lobby, lobbies and toilets emergency lighting shall be integral with ceiling light fittings.

10.10 Lightning Protection

A fully certified lightning protection system will be installed in accordance with BS EN 62305: 2006 Parts 1-4. All points of lightning conductor tape are to be concealed and outlets to be positioned away from main entrance and doorways etc.

10.11 Commissioning

All systems shall be commissioned in accordance with the CIBSE Codes. All water services shall be balanced to comply with the requirements of HSG 70, the water Bye Laws and BS 6700.

10.12 BT and Data

Ducts for BT and Data (for future installation by others) are to be installed as per layout included within Contractors Proposals document.

10.13 Lifts

Lifts Shall be installed by incoming occupier, if required.
No allowance has been made for any works in relation to the future lift installation or disabled reuges (including lift pit / recess or lifting beam works), however, as part of the desigh of the works the

potential for future tenant to want to install a platform lift without structural alterations has been considered, assuming a ramped access to the lift car at the ground floor level.

11 External Works

11.1 Drainage

11.1.1 Drainage above and below ground rainwater, surface, soil and foul to be constructed in accordance with the contract drainage drawing and Local Authority, Environment Agency, National Rivers Authority and Building Regulations Approval. Syphonic downpipe locations are as noted on the contract drainage layout included in Contractor's Proposals document. Petrol interceptors are to be provided to external parking and service yard areas. Petrol control/alarm panels are to be located in positions agreed with the Employers Agent.

11.1.2 No inspection chambers are to be positioned in the footpath immediately in front of or adjacent to the main the entrance door.

11.1.3 Pre-cast channel drains with bolt down grates may only be adopted in lorry manoeuvring areas if they are provided within a reinforced concrete surround.

11.1.4 Road gulley and slot drains are acceptable in all other areas.

11.1.5 Surface water drainage is to be designed in accordance with the structural engineer's design and details.

11.2 Roadways and Crossover

11.2.1 Construction of crossovers will be in accordance with Transport Research laboratory Structural Design of Bituminous Roads and BS 594-1:1992. All street paving and road kerbs will be to the approval to Local Authority Highways Department.

11.2.2 Access roads will be designed by the Structural Engineer in accordance with the Highways Agency 'Design manual for Roads and Bridges'. Kerbing will generally be 125x255mm HB2 concrete half battered with 50x150mm flat concrete edgings to perimeter footpaths.

11.2.3 Ducts are to be provided across the access road to serve future units A, B and C as noted on layout included within Contractor's Proposals document.

11.3 Footpaths

Footpaths to be tarmac, 50mm thick AC20 Open Binder 100/150 and 20mm thick AC6 Dense Surface 100/150. Standard pre-cast kerb edging to BS 7263: Part 1.

11.4 Car Parking and car manoeuvring areas

11.4.1 Car Parking and Roadways to be tarmac, 100mm thick AC 32 Dense Base 40/60, 60mm thick AC 20 Dense Bin 40/60 and 40mm thick HRA 55/10 F Surf PSV55 40/60.

11.4.2 Car parking spaces

Will be of a size 2.4m x 4.8m minimum and the road width between bays will be 6.0m minimum. Disabled car parking spaces are to be provided to the approval of the Local Authority. Appropriate thermoplastic disabled space markings shall be provided.
In locations shown on Boyle & Summers drawing 2001 CD Proposed Site Plan.

11.5 Service yards, access roads and adjoining areas to the unit

Insitu concrete with light brush finish and trowelled edge. The concrete bays are to be of a similar size and orientation as far as possible. These areas are to be designed in accordance with the requirements of Design Manual for Roads and Bridges, IAN 73/06 – Foundations and HD 26/06 – Pavement Design published by the Highways Agency. The service yard area and access roads shall provide for commercial vehicles with a gross laden weight of 44 tonnes and maximum vehicle length of 16.50m. Falls within vehicle parking areas shall be a maximum 1:30 and 1:40 in circulation areas. The surface tolerance for the concrete paving should be ± 10mm. Concrete bay sizes shall be kept to the minimum to prevent future cracking. The service yard and associated access and hard standing areas will be excavated to the required formation level, trimmed and a sub base thickness depending on CBR values established at formation level of suitable fill material blinded with fine chippings, sand. The slab will be reinforced concrete to the Structural Engineers details and laid to falls generally not exceeding 1:30 with tamp or brush finish surface and 100mm trowelled margin. Bay sizes and all longitudinal, contraction, expansion and isolation joints will be formed in accordance with the recommendations of the Structural Engineer. All concrete work generally will be in accordance with BS 8110 'The Structural Use of Concrete' using appropriate grade Air Entrained concrete. Precast concrete kerbs shall be provided to the perimeter of the services yard. White thermoplastic linings shall be provided to define lorry parking and safety defined spaces. All works to be completed in accordance with BS EN 13108:2006 Part 1 and part 7.

The service yard and associated access and hard standing areas will be excavated to the required formation level, trimmed and a sub base thickness depending on CBR values established at formation level of suitable fill material.

All concrete work generally will be in accordance with BS 8110 'The Structural Use of Concrete' using appropriate grade Air Entrained concrete.

Precast concrete kerbs shall be provided to the perimeter of the services yard.

White thermoplastic linings shall be provided to concrete and tarmac areas to define parking and safety defined spaces.

All works to be completed in accordance with BS EN 13108:2006 Part 1 and part 7.

11.6 Refuse Area

11.6.1 Bin stores are to be provided constructed from Lignacite blockwork 2.025m high, as section 6.11, measuring 4.04m x 2.915m with a pair of steel bar gates powder coated black, 1.81m wide. The refuse stores should be capable of holding 4 no. 1100 litre bins.

11.6.2 The refuse stores will be positioned as identified on the contract drawings.

11.7 Soft Landscaping

The soft landscaping to be completed in accordance with the landscape scheme issued by Deacon Design as detailed in the Contract Drawings.

Trees, shrubs and other plants as detailed within the landscaping design will be planted, with minimum 50mm bark mulching, watered, staked and supported as necessary.

One year's maintenance of trees, shrubs and landscaping areas shall be provided, including the replacement of plants/trees that die during this period. Grass, shrubs and trees shall be adequately maintained and watered during the maintenance period.

11.8 Fencing

A 2.4 metre high steel paladin fence including a lockable pedestrian gate for maintenance access to the existing ditch shall be provided to the perimeter of the Eastern boundary to the adjoining Home Covert. Fencing to be powder coated green.

11.9 Cycle Shelters

Proprietary cycle shelters to satisfy Planning should be installed. Currently envisaged to be 5 cycle shelters with Sheffield hoops for 50 cycles and a further 25 Sheffield hoops (uncovered) for 50 additional cycles.

11.10 Fire Hydrants

Will be provided in accordance with Local Authority Requirements in accordance with BS 9990:2006 and BS 5306-1:2006.

12 Submittals and Verifications

12.1 Final Design and Coordination

Complete the design and detailing of the Works and provide complete production information (including, as appropriate, co-ordination / fabrication / installation drawings, all design calculations, specifications etc.) based on the drawings, this specification and other information provided, liaising as necessary with the Employers Agent to ensure full co-ordination of the Works with related Works packages and services.

Information: Request additional information as necessary from the Employers Agent and provide information as necessary in time to meet the programme.

Submission: Submit sufficient copies of the design / production information to the Employer's Agent in accordance with the Contract Preliminaries.

The Employers Agent will review the design / production information, record their comments, which will be restricted to general aesthetic and functional matters and not the detail design and performance of the Works (which is the complete and sole responsibility of the Contractor). These will be returned within 5 working days to the Contractor.

Make any necessary amendments in accordance with any comments and without delay. Unless, and until it is confirmed that re-submission is not required, re-submit for further

comment, and incorporate any necessary further amendments.

Co-ordinate all services requirements with other Specialist Contractors, making due allowance for out of sequence work, builders work, making good, protection and cleaning as necessary.

Submit copies of final version of design / production information for distribution as required by the Contract Preliminaries.

If submitted design / production information differs from the requirements of the Contract documents, each such difference must be the subject of a request for substitution or variation, supported by all relevant information. Such substitutions or variations may be considered where a cost saving can be achieved without prejudicing the programme, the overall design, performance and the specified quality of materials or workmanship.

12.2 Quality Standards/Control: Assessment and Verification

12.2.1 General Quality of Products: Materials and Products Tests:

Provide test certificates or certificates of compliance as necessary, or as required by The Employer's Agent for tests specified within listed British Standards, Codes of Practice or other applicable documents, to confirm properties, composition or performance of materials and products proposed. Only certificates provided by independent and authoritative testing bodies will be accepted. Submit details in the form of a schedule, of materials and products for which evidence of tests will be provided for review.

12.2.2 Proprietary Products: Suitability for Use and Design Life

Provide written certification from manufacturers that their products or materials proposed are appropriate for their expected conditions in use together with statements on their respective life expectancies in use.

12.3 Samples/Control Samples/Mock-Ups/ Benchmarking

Sample Requirements:
Sample requirements include, but are not necessarily limited to, the following:
Curtain wall and window sections and fittings
Metal wall and roof cladding
Double Glazing units, gaskets and/or sealants.
Ironmongery (windows, doors, entrance doors)
Internal and external light fittings
Sanitary ware and WC fixtures and fittings

Samples are to be of sufficient size to be fully representative of the specified material or product.

12.4 Supervision

Documentary evidence of personnel experience may be requested and must be available at any time.

12.5 Quality Control Records

Maintain full records to substantiate that the Works comply with the specified requirements. Keep copies on site for inspection by the Architect, and submit copies of particular parts of the records on request. The records must include:

Identification of the element, item, batch or lot including location in the Works.
The nature and dates of reviews by the EA, tests and approvals.
The nature and extent of deficiencies found. Details on any corrective action.

13.0 Fabric Design

13.1 CWCT

Complete the design, manufacture, fabrication and installation of the building cladding, curtain wall and window systems in accordance with the recommendations of the CWCT Standard for Systemised Building Envelopes.

13.2 Lightning Protection

Submit drawings showing proposals for bonding the various elements of the Works for review by the Professional Team.

14.0 Roof Access and Maintenance

The new buildings roof and gutters will be cleaned at roof level via designated access routes and using the MWEP apparatus. Details and a method statement is to be prepared and submitted to the Principal Designer for approval by the Client.

15.0 Prohibited Materials

Generally any items identified within the BCO's 'Good Practice in the selection of construction materials' (or Arup's prior report) are not permitted, notwithstanding, the following items should not be used.

- High alumina cement (or more modern permutations) in structural elements.
- Wood wool members in permanent formwork to concrete or in structural elements. Calcium Chloride admixtures for use in reinforced concrete.
- Asbestos or asbestos products.
- Naturally occurring aggregates for use in reinforced concrete which do not comply with BS 882:1992 and naturally occurring aggregates for use in concrete which do not comply with the provisions of BS 8110: 1985 and 1997.
- Lead or any products containing lead for use in connection with drinking water except where copper alloy fittings containing lead are specifically required for drinking water pipework supplied by any relevant Statutory Provider.
- Urea formaldehyde foam or materials which may release formaldehyde in quantities which may be hazardous with reference to limits set out by The Health and Safety Executive at time of use.
- Materials which are comprised of mineral fibres either man-made or naturally occurring which generally have a diameter of 3 microns or less and generally a length of 200 microns or less which contain any fibres not sealed or otherwise stabilised to ensure that fibre

migration is prevented.

- Concealed galvanised wall ties, fixings, brackets, angles and supports where used in external elements.
- Any electronic or processor controlled equipment and component supplies which are not fully compliant with the change recognition given by the BSI document DISC PD 2000-1 A Definition of Year 2000 Conformity Requirements.
- Poly-isocyanurate except where fire-rated appropriate to its intended location.
- Composite panels with a core of polystyrene or other material not approved by The Loss Prevention Council.
- Other substances generally known at the time of use to be deleterious or to cause risk to health or safety or to affect the durability of the Project in the particular circumstances in which they are used.

ADANAC BUSINESS PARK
BASE SPECIFICATION