

KEY STRUCTURAL PRINCIPALS

11063-(V1.0) – Proposed Care Home, Bartons Road, Havant. PO9 5NA

The 2/3 Storey Structure is a Class 2A Building and comprises a load bearing masonry structure incorporating prestressed concrete floor units to lower ground, ground, and first floors and prefabricated timber roof trusses.

The structure is load-bearing masonry with 150mm deep precast hollow core concrete floors and steel supports as required at upper floor levels. Floors and roof trusses are to be tied at perimeter walls running parallel to spans of planks/trusses

Ground investigations have been undertaken by Omnia Ref: A11840/1.0 dated June 2022.

Extract below relating to Bearing Capacity of the underlying London Clay strata:

Clause 11.4.3.2

London Clay Formation Indicative Bearing Capacity at 2.00m bgl.

At a depth of 2.00 to 2.50m bgl within the fine-grained soils of the London Clay Formation, SPT N values recorded as N=7 to N=25, providing undrained shear strengths of 32kN/m² to 113kN/m², indicating soft to stiff soils. Adopting a conservative approach utilising the lowest value of N=7, it is considered a traditional strip foundation of 1.00m width at a depth 2.00m bgl provides a presumed bearing capacity of approximately 50-100kN/m².

London Clay Formation Indicative Bearing Capacity at 3.00m bgl

At a depth of 3.00m bgl within the fine-grained soils of the London Clay Formation, SPT N values recorded as N=16, providing undrained shear strengths of 72kN/m², indicating firm soils. Utilising the value of N=16, it is considered a traditional strip foundation of 1.00m width at a depth 3.00m bgl provides a presumed bearing capacity of approximately 100-200kN/m².

The proposed foundations are to be a traditional concrete strip/trench fill type, bearing a minimum 150mm into the underlying natural firm to stiff London Clay strata. Due to the stepped nature of the layout, excavation through softer head deposits limit the depth of trench fill to be achievable with suitable excavator machinery. Bearing pressures are to be limited to 75-85kN/m² which caters for the Indicative Bearing Capacity noted in Clause 11.4.3.2

Foundation depths are to be taken down to levels beyond the influence of trees allowing for medium volume change potential.

Retaining walls forming the step between lower ground and upper ground levels are to be reinforced concrete detailed with waterproofing additive plus a suitable external tanking system.

There are no gas precaution measures required in relation to methane or carbon dioxide.

The British Geological Survey for the site notes its location within an area where less than 1% of the properties are above the Action Level. At these levels BRE publication BR211 indicates that no special radon protective measures are required in the construction of new extensions or dwellings.

The roof is timber designed and detailed by others.

Reference to NJP's drawings confirms which of the internal walls are load bearing and load allowances to floors. Lateral and longitudinal resistance is provided by utilising the inherent racking resistance of the masonry construction.

All the design is carried out according to relevant British Standards. The following loadings have been applied in the design.

Roof: 35 Degree Pitch

<u>Dead</u> - Tiles, Battens & Felt		= 0.65
Trussed Rafters and insulation		= 0.20
Ceiling and Services		= 0.25
PV allowance		= 0.30
	Total	= 1.40 kN/m ²
<u>Live</u> - Snow		= 0.60
Attic Storage		= 0.25
	Total	= 0.85 kN/m ²

Roof: Flat Roof

<u>Dead</u> – Sedum Build up allowance		= 0.95
Trussed Rafters and insulation		= 0.20
Ceiling and Services		= 0.25
PV allowance		= 0.30
	Total	= 1.70 kN/m ²
<u>Live</u> - Access		= 1.50
Attic Storage		= 0.25
	Total	= 1.75 kN/m ²

Floors:

Dead -

Precast Plank (150mm)	= 2.70
Screed (75mm)	= 1.80
Ceiling and Services	= 0.25
Total	= 4.75 kN/m2

Live – Bedrooms + Light Weight Part'ns	=2.00kN/m2
Corridor/Stair/Day space/Lounge	=3.00kN/m2
Kitchen/WC/Laundry	=3.00 kN/m2
Laundry	=5.00kN/m2
Plant Room	=7.50kN/m2
Balcony/Terraces	=4.00 kN/m2

Walls:

Cavity wall	= 3.90 kN/m2
Internal loadbearing wall (including plaster)	= 1.94 kN/m2
Timber / Metal stud	=0.50 kN/m2

There is no significant latent energy stored in the structural elements incorporated into the building fabric

Surface Water and Foul Sewers

The surface water run-off generated by the site discharges at a restricted rate of 2.5l/s; which together with a restricted flow of 2.5l/s from the development to the north, (Helmsley land) is combined and routed at a total peak rate of 5l/s to the Southern Water adopted surface water sewer located in Normandy Way.

The design caters for 1 in 100 year return +40% Climate Change.

All in accordance with approved Flood Risk Assessment and Drainage Strategy by Infrastruct CS Ltd Ref: 2709-HELM-ICS-XX-RP-C-07.001

Refer to Maintenance Schedule in Appendix A

Foul drainage is conveyed via an offsite enabling 150mm diameter foul sewer at an average rate of 0.80l/s to the Southern Water adopted foul sewer located in Normandy Way.

In general, sewers, manholes and drainage channels are unlikely to require maintenance other than periodic inspections, unless a blockage occurs. Sewers, manholes, drainage channels and silt pits should be inspected at 6 monthly intervals and cleaned out at 12 monthly intervals. A full CCTV survey should also be carried out at 10 yearly intervals.

Appendix A
Drainage Maintenance Schedule

Care Home Havant
Maintenance Schedule

This maintenance schedule must be included within the as built drawings and operations maintenance manual. Maintenance is solely the responsibility of the care facility provider.

The national SuDS standards state that components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over the design life of the development considering the requirement for reasonable levels of maintenance.

Construction plan guidance

Item	Method and timings within programme
Construction Programme	Contractor to provide a Construction Programme to the client and architect prior to starting the works. Items listed below shall be considered when producing the programme
Surface water chambers and carrier pipes	Can be laid following pouring of foundations. Chambers to be protected during the construction phase and replaced if damaged. Alternatively, can be constructed after buildings are completed as components connect to external rainwater pipes. All pipework to be surveyed with cctv upon completion to ensure all components are free of construction debris
Permeable parking	The aggregate specified is NOT Type 1 sub base. Drainage blanket MUST be laid after completion of dwellings. Drainage blanket must not be compacted other than in accordance with manufacturers guidelines. Drainage blanket MUST NOT be used as a vehicle parking area until final surface has been laid or macadam protection course has been installed and only then for cars and vans

Materials to be used for private SUDS systems: Maintenance is relatively simple and access to all chambers is unhindered. Covers are generally medium duty pedestrian loading and can be lifted by hand by a single person. If in doubt use two persons or bespoke manhole cover lifting gear. Chambers are generally shallow, and detritus can be removed by gloved hand or small hand tools. The landscape architect will provide specifications and drawings for specific landscape maintenance.

PERMEABLE CAR PARK MAINTENANCE

Actions required	Frequency	Estimated Costs to Management company
Litter removal and general debris	Monthly	*Labour cost £250.00 per day
Inspect for evidence of poor operation and/ or weed growth. If required take remedial action.	Three times per year preferably 48 hrs after large storms	*Labour cost £250.00 per day
Stabilise and mow adjacent landscape areas where appropriate	Three times per year	*Labour cost £250.00 per day
Inspect silt accumulation rates and establish appropriate brushing frequencies. Remove weeds	Annually	*Labour cost £250.00 per day
Check silt traps for accumulation of debris and remove	Three times per year	*Labour cost £250.00 per day
Brushing and suction sweeping or alternatively jet washing and suction sweeping to remove silt and debris. This is particularly important during autumn with falling leaves. Replacing of lost grit/material may be required	As required but expected annually	Specialist contractor with suction sweeping machine
Resetting of uneven blocks by lifting block area, removing bedding materials and relaying to match original design.	As required (if infiltration performance is reduced as a result of significant blocking)	*Labour cost £250.00 per day

Vortex Flow Control Units

Element	Actions required	Frequency	Estimated Costs to Management company
Flow Control chambers within attenuation pond outlet. Responsibility lies with Business Park	Check for debris in chamber ensure all openings are clear	Three times per year preferably 48 hrs after significant storms (over 30mm of rainfall in a single event)	*Labour cost £250.00 per day
	Hydrobrake Inspection. There are no power requirements. Hydro International do provide an ongoing maintenance regime which can be signed up to Tel 01275 878371	Three times per year preferably 48 hrs after significant storms (over 30mm of rainfall in a single event)	In the unlikely event of failure Hydro International should be contacted for advice and or replacement
Pipework including oversized pipes	Visual inspection and jetting cleaning	Every 5 years or as required	*Labour cost £250.00 per day
	Visual inspection for physical damage and remediation		*Labour cost £250.00 per day
Catchpits gullies, linear drainage channels	Visual inspection and jetting cleaning	Annually or as required	*Labour cost £250.00 per day

*Labour costs are based on an operative performing various maintenance works in line with care providers ongoing maintenance plan