Chapter 6:
Landscape, Lighting and Ecology

Landscape Design Strategy

Please refer to detailed landscape plans for further details

Initial Concept

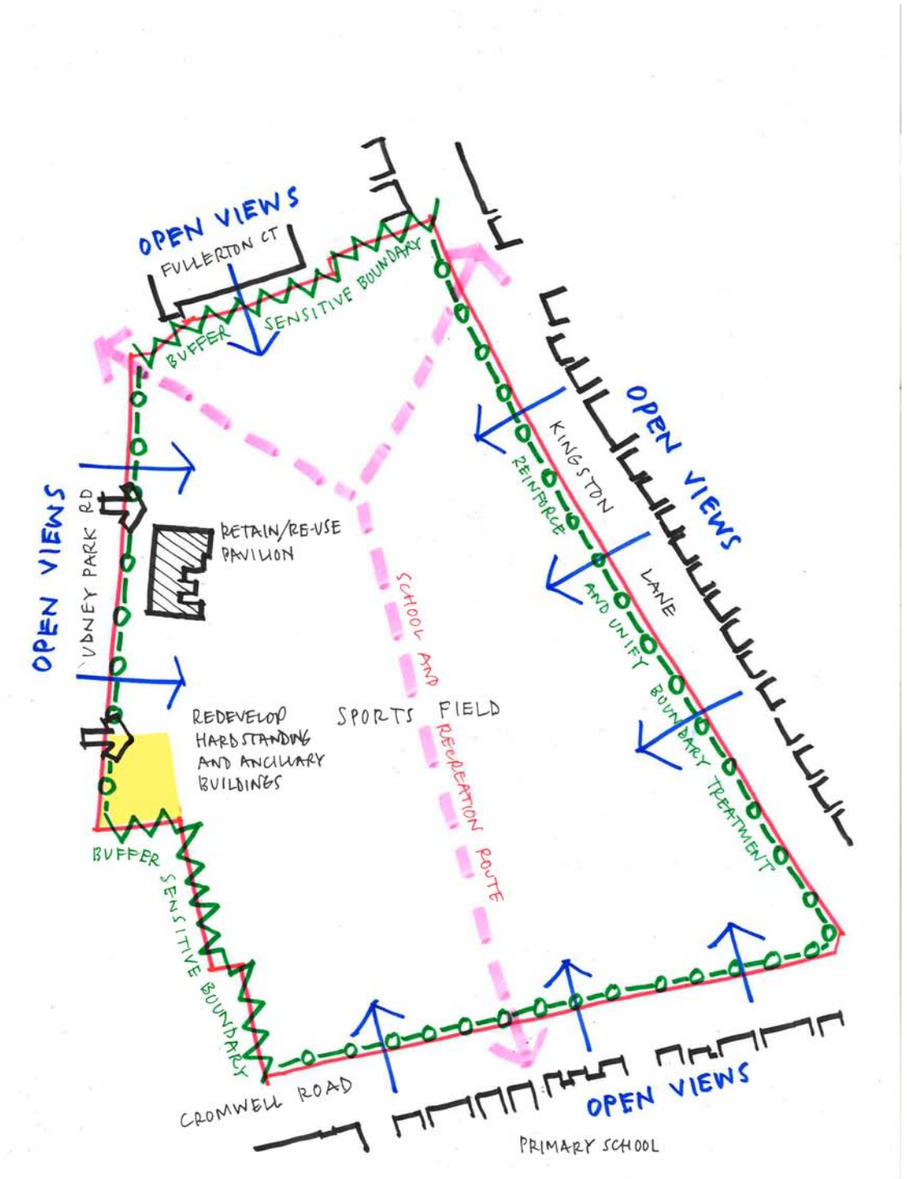
- The design strategy is to enable new public access to the Site via a park with recreational facilities, along with retaining and enhancing the existing landscape structure and biodiversity opportunities.

- The initial design concept identified the need to retain the existing trees bordering the Site wherever possible, for their existing landscape structure, biodiversity, visual screening and townscape value as reflected in their TPO designation. The root protection areas of these trees therefore established an initial offset for any new built form or hard surfacing within the Site.

- The existing array of varying boundary treatments needed to be unified to establish a consistent boundary edge of railings and hedging and trees to provide a higher aesthetic quality and landscape structure, reflecting the character of the adjacent residential gardens. It also provides the opporutnity to improve open views into the Site from the public highway where currently they are, in the majority, blocked by close board fencing.

- It was also considered appropriate to retain open views across the Site where possible from properties bordering the Site, including Fullerton Court, by locating the built form primarily in the north-east edge of the Site. To its advantage, this location is screened by existing vegetation to a greater extent than anywhere else on the Site. In turn, the formal sport provision was naturally located to the south with both elements linked by the new park.

- As pedestrian access between the surrounding road networks is restricted by the existing private access to the Site, the new park provided the further opportunity to create more direct links between the surrounding roads, with a particular focus on the potential connections with Collis School and the highstreet further to the north.



Further Development

- These options defined a linear park in the southern part of the Site with a formal arrangement of trees which transitioned to a looser planting arrangement in the central and northern parts of the Site, as part of the main area of new open space.

- The eastern edge of the Site was considered to provide the opportunity for ecological habitat creation, as an area which would be secondary to the new path networks and formal recreational areas.

Emerging Proposals

- The linear park evolved to align to the western edge of the Site to accomodate the evolving brief for the Sports Facilities. Maintaining the formal tree structure to the south defined a clear delineation between the Park and the Sports facility.

- This tree structure was further reflected in a linear hedgerow extending between the formal sports provision and the new built form in the north-east part of the Site, defining a hierachy of use and creating natural security barriers between the three main uses on the Site.

- The new trees adjacent to this built form are intended to reduce its overall massing, as well as provide an informal transition between the public space within the new park and the more private space within the assisted living and extra care buildings.

- The alignment of the trees is reflected in the linear alignment of the hedgerows which border the MUGA and sports pitch, providing a soft transition between these recreational facilities and the new built form.

- A new pond has been located in the northern part of the Site as a focal feature and to aid in retaining open views across the Site from Fullerton Court.

- Within and around the new built form are a variety of trees and shrubs to provide a high aesthetic interest and all year round colour. These ornamental shrubs and trees would also aid in delineating the different spaces between the park, recreational facilities and living accommodation.

Proposed Planting Palette

Trees

1. The proposed trees within the Site would consists of Hornbeam, Lime, Beech, Oak and Wild Cherry. The hornbeams will establish a bold form throughout the park through their oval canopy.

2. Within the café terrace area and car-parks the trees would be mountain ash, small leaved limes and parperbark cherry. These smaller trees will provide a range of seasonal colour, with shades of orange, reds and yellows.

New Hedges

3. The hedging would consists of a native mix of hawthorn, blackthorn, hazel, elder and dog rose. The hedges would provide early seasonal colour as well as varying shades of foliage in the autumn, in addition to enhancing the biodiversity value and landscape edge structure of the Site.

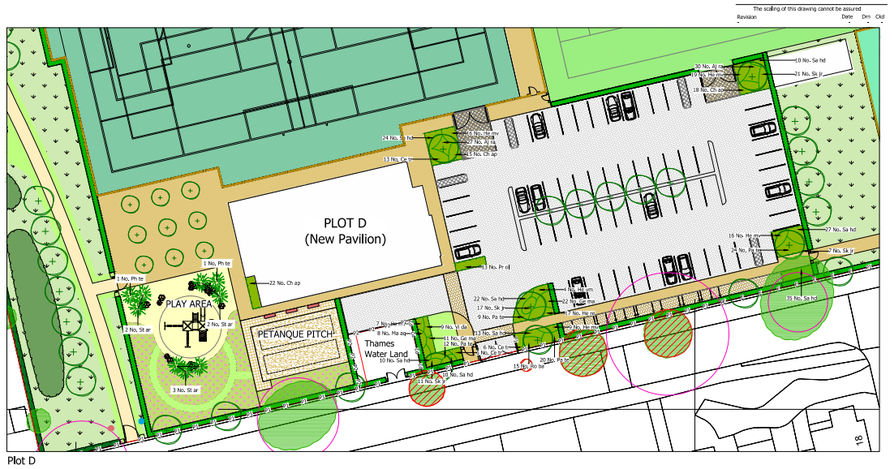
4. Extra Care Garden

There would be a variety of ornamental shrubs of Cranesbill, Dogwood, Ornamental Onion and Pheasant's Tail Grass. The shrubs would provide a high aesthetic value to the courtyard areas, providing sensory and visual interest through the year.

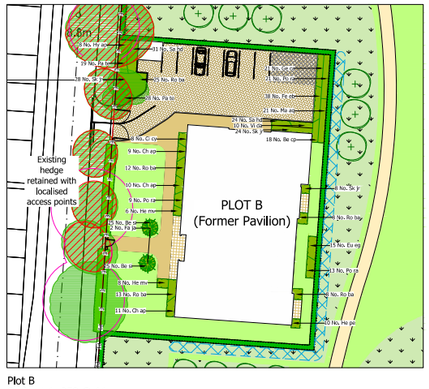
5. Orchard and Herbal Medicine Garden

There would be a variety of herbs in this community garden along with a number of fruit trees. This part of the Site would have a high educational value, in combination with the ponds in the northern and south-east parts of the Site.

Detailed Planting Plans



Plot D
Scale at 1: 250 @ A1



Plot B
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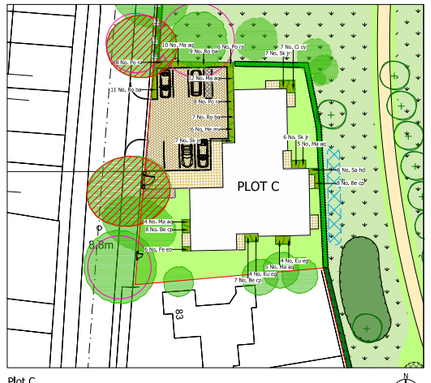

Plot C
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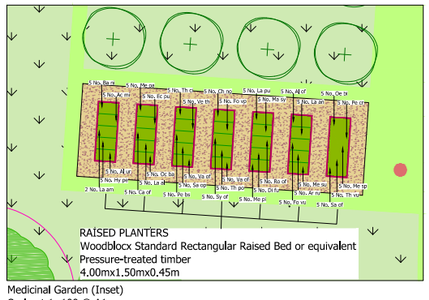

Medicinal Garden (Inset)
Scale at 1: 100 @ A1

LEGEND

- Existing Trees / Hedgerow Vegetation to be Retained
- Proposed Trees
- Tree Root Protection Area
- Tree to be Removed
- Potential Trees to be Removed: Subject to consultation with LPA - refer to Transport Assessment
- Feature Shrubs
- Short Rotation Coppice Mix
- Native Mixed Hedge
- Ornamental Hedge
- Ornamental Shrubs
- Climbers
- Ornamental Bulbs
- Amenity Grassland
- Wildflower Meadow Grassland
- Wetland Meadow Grassland
- SUDs Features
- Self-binding Gravel Buff colour
- Block Paving 1 Permeable; buff colour
- Block Paving 2 Permeable; silver grey colour
- Flag Paving 450mm x 450mm; textured; buff colour
- Resin Bound Gravel 5mm dia. particle size; buff colour
- Bark Chippings 15-40mm dia. particle size; conforming to BS EN 1177
- Wet Pour Safety Surface EPDM rubber granules; green colour; to BS EN 1177
- Play Sand Round granular washed sand; conforming to BS EN 1177
- Petanque Pitch
- Equestrian Rubber Chippings 10-20mm; washed
- Natural Gravel Mulch 20mm dia. (variance 12-30mm); multicoloured
- Benches - Stainless Steel Frames and Armrests with FSC Hardwood Seats and Backrests
- Signage
- Dog Waste and Refuse Bin
- Natural Hay Boulders 700 x 800 x 500mm approx.
- Welded Mesh Fence 2.0m height; powder coated steel; green colour (RAL 6005 or similar)
- 3-Bar Post and Rail Fence Pressure-treated Softwood
- E — Existing Solid Bar Steel Railings Retained and refurbished
- P1 — Proposed Solid Bar Steel Railings (1.0m-2.0m) Square section; powder-coated finish; green colour (to match existing)
- P2 — Proposed Solid Bar Steel Railings (1.2m) Square section; powder-coated finish; green colour (to match existing)
- Twin-leaf Vertical Bar Vehicle Gate 1.8m-2.0m Ht; 5.0m width; powder-coated steel - Style/colour - to match railings
- Single-leaf Vertical Bar Pedestrian Gate 1.8m-2.0m Ht; 1.2m width; powder-coated steel - Style/colour - to match railings

Note:
For plant schedules please see BW drawing L103

Project
Former Imperial College Ground
Teddington

Drawing Title
Landscape Proposals Plan
Insets - Sheet 3

Date	Scale	Drawn by	Check by
20.09.2017	Varies @ A1	MN	GW
Project No	Drawing No		Revision
25615	L102		C

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Hard Landscaping Materials

Benches

Block Paving

Flag Paving

Outdoor Gym Rubber Safety Surfacing

Petanque Pitch

Vertical Bar Railings

Welded mesh fencing

Resin Bound Gravel

Self Binding Gravel Path

Lighting Strategy

Please refer to the Light Pollution Report for further details

- Park Land areas left unlit to provide ‘dark corridor’ for wildlife. (Gates locked at dusk)
- Pedestrian paths and routes and private car parks within the main plots lit with low level lighting
- Public Car parks lit with lighting columns to meet British Standards BS EN 12464 and BS 5489: 2013
- Artificial sports surfaces flood lit

Unlit

Low level bollard lighting

Lighting columns

Flood lighting

Indicative Lighting Specification

Public Car Parks

Thorn CiviTEQ Small. 12 neutral White 4000k LED 500mA. 5 degree tilt.

Unobtrusive, cost effective road lighting solution with 12 precise lighting distributions, fully versatile installation possibilities, low maintenance requirements and no need to replace LED driver. CMS with Radio Frequency and Powerline system, is also compatible with other controls systems. Choice of options and accessories: 10KV, automatic disconnection, BPS, LRT, photocell and external louvres

Pedestrian paths and private car parks

Thorn D-CO LED Bollard

Timeless design 14W LED bollard with semi-opal diffuser and symmetrical light distribution. Flange mounted.

Flood Lighting

Challenger 1 AL6000

Reduced light overspill and glare with excellentthrow of light. Multiple options for effective light distribution as the adjustable lamp holder offers three variations of peak beam elevation. Dark skies friendly fitting ideal for projects nearby residential areas with specific light regulations, with low light pollution ULOR 0%.

Ecology

Please refer to detailed ecological reports for further details

Summary

- The proposal is to construct a new extra care facility at the site, refurbish the existing sports pavilion, create new sports pitches and carry out new landscaping works. Peach Ecology was instructed to undertake a reptile survey of the site, bat survey of the building and bat activity survey of the site.

- No reptiles were recorded during the survey and a single soprano pipistrelle bat was recorded roosting in the Pavilion, it is likely that features in the roof can be maintained for roosting bats with low levels of disturbance and a European Protected Species licence is not deemed necessary to proceed with any refurbishments, as the end proposals are to retain the existing pavilion.

- The bat activity survey recorded at least 7 different species of bats within the site boundaries or high above, the vast majority of these were common and soprano pipistrelle although Noctule, Brown Long-eared, Leislers, Myotis species and Nathusius Pipistrelle were recorded also. The boundary trees were the features on site which had the highest levels of usage by foraging and commuting bats, the central open space consisting of amenity grassland had low levels of usage as shown by the spring – autumn bat activity surveys. The manual activity surveys during the active bat season did not record bats foraging within the open areas of the site, bats were confined to the boundaries and immediate areas around the Pavilion.

- The proposals aim to retain the boundary trees and enhance these with infill planting where appropriate so that the main wildlife corridors and feeding areas are protected and enhanced. The landscaping enhances areas of open space to ensure there is no net loss of biodiversity, as a significant area of habitat, although low in floral quality and diversity, will be lost. The loss of the area of low quality grassland habitat is replaced with areas of more diverse grassland habitat by using a range of different species (trees, hedges, flowers, bulbs and grasses) and then managing these appropriately, a pond, herb garden and orchard are also included on site. Wildlife beneficial landscaping measures will extend into the new developed areas of the site, this will be done with green and brown roofs and by planting new hedges and tree lines to link up habitats for bats and other wildlife. New features for a range of crevice dwelling bats will be installed in different buildings on site to enhance the site for roosting bats. The proposals will result in a net gain for biodiversity in line with the National Planning Policy Framework.

Chapter 7: Sustainabilty

Energy Statement

Please refer to Hodkinson's Energy Statement for detailed information

- The purpose of this Energy Statement is to demonstrate that the proposed development on the Former Imperial Collage London (ICL) Private Ground on Udney Park Road, Teddington in the London Borough of Richmond upon Thames is considered sustainable, as measured against relevant local, regional and national planning policies.

- The proposed development consists of 101 new assisted living and extra care units between Plots A and C with associated residential facilities within Plot A, 7 refurbished assisted living units (Plot B), a new GP surgery, and a new community sports Pavilion.

- The Energy Strategy for the Former ICL Ground development has been formulated following the London Plan Energy Hierarchy: Be Lean, Be Clean and Be Green. The overriding objective in the formulation of the strategy is to maximise the reductions in CO2 emissions through the application of this Hierarchy with a cost effective and technically appropriate approach and to minimise the emission of other pollutants.

- The strategy targets, as a minimum, a 35% reduction in Regulated carbon dioxide above the baseline emissions rate.

- For the purpose of this Energy Statement and calculating CO2 emissions assisted living units have been assessed under Part L (2013) of the Building Regulations. In line with the London Plan, this strategy uses the Part L1A (2013) Target Emission Rate (TER) as the baseline for the new assisted living units and a baseline based on the previous building specification for the refurbished units. Both of these Calculations will use SAP 2012 to calculated CO2 emission reductions. 'Zero Carbon' will apply to these residential units; therefore all remaining Regulated CO2 emission will be offset though a cash-in-lieu Carbon Offsetting Payment.

- Plot A's associated facilities, the GP surgery, and the new sports Pavilion will be assessed under Part L2A

- using SBEM calculations. These non-residential areas are required to meet the London Plans 35% reduction in Regulated CO2 emissions and BREEAM 'Excellent' minimum energy criteria.

Domestic Strategy

- The proposed new build dwellings (plots A and C) to meet the Part L1A 2013 Target Emission Rate (TER) through Be Lean measures alone and ensure the refurbished units (Plot B) meet the requirements of Part L1B. Plot B will promote energy efficiency whilst still preserving the character and appearance of the building. A 41% reduction in Regulated CO2 emissions is predicted over the Part L (2013) baseline for alll domestic units.

- In line with the London Plan, the feasibility of decentralised energy production as a Be Clean measure has been carefully examined. There are no existing or planned heat networks in the vicinity of the proposed development. However a highly efficient on-site communal heating system is the Applicants preferred method for providing heat and hot water to the units in Plots A and C. For other areas individual high efficiency heating systems will be utilised due to the low density or heating demand.

Summary Table (i): Domestic Regulated CO_2 emissions reductions

	Regulated CO_2 Emissions	% Reduction over Baseline
	kg CO_2/year	-
Domestic Building Regulations (Part L) Baseline	251,220	
Domestic After Be Lean Measures	147,317	41.4%
Domestic After Be Clean Measures	147,317	41.4%
Domestic After Be Green Measures	102,717	59.1%
Domestic After Zero Carbon Offset Payment	0	100.0%

- Photovoltaic (PV) panels have been selected as the most appropriate Be Green technology to meet a 35% reduction in Regulated CO2 emissions. It has been estimated that 113kWp (904m2 of panel area) will be required between the roofs of Plot A and C. It is expected that Regulated CO2 emissions will be reduced by 59% over the Part L (2013) baseline; this represents a high level of sustainable design and construction. The residential units will be required to pay into the Councils ring-fenced Carbon Offset fund to comply with the London Plan 'Zero Carbon' Policy. It is estimated that 102.7 tonnes of Regulated CO2 emissions will need to be offset though a cash in lieu payment of £184,860 to be paid to the London Borough of Richmond upon Thames.

Non residential areas

- A range of Be Lean energy efficiency measures are proposed. They enable each of the proposed nonresidential areas to meet the Part L2 (2013) Target Emission Rate (TER) through energy efficiency measures alone. An average 14% reduction in Regulated CO2 emissions is predicted over the Part L (2013) baseline for the new build elements. This represents a high level of sustainable design and construction.

- Air Source Heat Pumps have been utilised as the first Be Green measure to provide heating and cooling efficiently. This improved the non-residential areas Regulated CO2 reductions to 16%. Following the ASHP, PV has been selected as the most appropriate Be Green measure to achieve further CO2 reductions. It is expected that 58kWp (464m2 panel area) of PV panels will be distributed between the Non-residential areas (see Paragraph 6.24 for more information).

- The allocated PV above allows the Non-residential areas to achieve a 30.5% reduction in Regulated CO2 emissions. However this is expected to be the maximum capacity of PV the roof space will allow. Further reductions in CO2 are considered unfeasible. Therefore Carbon Offsetting cash-in-lieu payment of £13,140 is proposed to ensure the Non-Residential areas together achieve a 35% reduction.

Development wide strategy

- The measured detailed above ensure the site-wide energy strategy achieves in excess of the 35% target.

- The Summary Table (iii) below summarises the site-wide reductions in CO2 emissions for each level of the London Plan Energy Hierarchy of the Proposed Development. Be Lean measures are expected to reduce the Site-wide Regulated CO2 emissions by 31%. Maximising Be Green measures will result in a site wide reduction of 49% in Regulated CO2 compared to the Baseline emissions.

- Cash-in-lieu payments into Carbon Offsetting funds will result in the effective Regulated CO2 emissions of the Proposed Development to be reduced by 74% over the Building Regulations Part L (2013) Baseline.

Summary Table (ii):Non-Domestic Regulated CO_2 emissions reductions

	Regulated CO_2 Emissions	% Reduction over Baseline
	kg CO_2/year	-
Non-Domestic Building Regulations (Part L) Baseline	164,134	
Non-Domestic After Be Lean Measures	141,393	13.9%
Non-Domestic After Be Clean Measures	141,393	13.9%
Non-Domestic After Be Green Measures	114,003	30.5%
Non-Domestic after Shortfall Carbon Offset Payment	106,687	35.0%

	Regulated CO_2 Emissions	% Reduction over Baseline
	kg CO_2/year	-
Building Regulations (Part L) Baseline	415,354	
After Be Lean Measures	288,710	30.5%
After Be Clean Measures	288,710	30.5%
After Be Green Measures	216,720	47.8%
After Carbon Offset and Zero Carbon Payments	106,687	74.3%

Sustainability Statement

Please refer to Hodkinson's Sustainability Statement for detailed information

The purpose of this Sustainability Statement is to demonstrate that the proposed development at Former ICL Private Ground in the London Borough of Richmond Upon Thames is considered sustainable, as measured against relevant local, regional and national planning policies.

Through the incorporation of sustainable design and construction methods, energy and water saving measures, waste reduction techniques as well as measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

The key sustainability features outlined in this Sustainability Statement are listed below:

- The development will target a 35% CO2 reduction over the Building Regulations Approved Document L 2013 baseline through the use of energy efficiency measures and photovoltaic panels;
- BREEAM Excellent will be targeted for the various proposed buildings around the site;
- The development scores 86.5 against the Richmond Sustainability Checklist, defined as 'the highest standard in energy efficient sustainable development';
- Water efficiency measures and devices will be installed in the dwellings to achieve an equivalent maximum daily water usage of 105 litres/person/day;
- Where practical, materials will be selected based on their environmental impact, with preference given to 'A+' or 'A' rated materials from the BRE Green Guide to Specification;
- Extensive use of Sustainable Urban Drainage Systems such as living roofs, permeable paving and swales will help to attenuate surface water;
- 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3);
- The use of sustainable transport modes will be encouraged with the provision of cycle storage in accordance with Richmond requirements;
- Social and community recreational facilities will be significantly enhanced with the proposals and the creation of the Community Interest Company;
- Extensive ecological enhancements will be implemented through the provision of areas of green roof, private amenity space, tree planting and surrounding landscaped areas; and
- The site will be registered with the Considerate Constructors

Chapter 08: Key Data

Area schedule

Total site area	*12.72 acres*		
	Plot size	*GIA*	*Units*
Plot A	*2.02 acres*	*12578m2**	*92*
Plot B	*0.42 acres*	*712m2*	*7*
Plot C	*0.24 acres*	*842m2*	*9*
GP Plot	*0.54 acres*	*1237m2*	
CIC ownership	*9.50 acres*		
(Public Park	*2.95 acres*		
Sport Facility	*6.55 acres)*		
New Pavilion		*909m2*	
Total	*12.72*	*16278m2*	*108*

Of which 1 is allocated for vistor suites

** including underground car park - 2089m2*

Of which 693m2 (Plot B) is conversion

Density

Building footprint / Open Space Comparison on 'development zone and amenity space' red line (% = built footprint of plot)

London Plan Density Matrix

Table 3.2 Sustainable residential quality (SRQ) density matrix (habitable rooms and dwellings per hectare)

Setting	Public Transport Accessibility Level (PTAL)		
	0 to 1	2 to 3	4 to 6
Suburban	150-200 hr/ha	150-250 hr/ha	200-350 hr/ha
3.8-4.6 hr/unit	35-55 u/ha	35-65 u/ha	45-90 u/ha
3.1-3.7 hr/unit	40-65 u/ha	40-80 u/ha	55-115 u/ha
2.7-3.0 hr/unit	50-75 u/ha	50-95 u/ha	70-130 u/ha
Urban	150-250 hr/ha	200-450 hr/ha	200-700 hr/ha
3.8-4.6 hr/unit	35-65 u/ha	45-120 u/ha	45-185 u/ha
3.1-3.7 hr/unit	40-80 u/ha	55-145 u/ha	55-225 u/ha
2.7-3.0 hr/unit	50-95 u/ha	70-170 u/ha	70-260 u/ha
Central	150-300 hr/ha	300-650 hr/ha	650-1100 hr/ha
3.8-4.6 hr/unit	35-80 u/ha	65-170 u/ha	140-290 u/ha
3.1-3.7 hr/unit	40-100 u/ha	80-210 u/ha	175-355 u/ha
2.7-3.0 hr/unit	50-110 u/hr	100-240 u/ha	215-405 u/ha

Proposals:

184 **habitable rooms/hectare and** 48 units/hectare **within the 'development zone and amenity space' red line**

London Plan **recommendations:**
150-250 **habitable rooms/hectare**
40-80 units/hectare

Density calculations
Net area of 'development zone': 2.23 ha
Number of dwellings: 108
Dwelling mix: 1-bed - 30
2-bed - 71
3-bed - 7
No. Habitable rooms: 255

Density: 48u/ha (48hr/ha)

Chapter 09: Conclusion

Conclusion

We consider the key issue associated with the planning application is whether the benefits of the proposal can be guaranteed and are considered to outweigh the impacts associated with developing a small part of a site which adopted and emerging policy seeks to keep free from development.

The reports accompanying the application demonstrate how the proposal is technically acceptable and responds to policy in respect of design, layout, sustainability, standards as well as providing the requisite special circumstances.

The applicant's view is that the site represents a rare opportunity to develop a comprehensive scheme that will have substantial benefits in terms of helping the community meet its medical, care, housing, and recreational requirements.

These benefits can be delivered in a way that preserves and improves (rather than detracts from) the essence of the openness and character contribution the site makes to Teddington, Richmond and London as a whole. The legal arrangements that have been put in place with the setting up of the CIC and the development of their comprehensive business plan will ensure that these public benefits will be delivered.

The overall benefits package is considered to represent a special set of circumstances that mean the application should be supported. Whether it is judged that the application is contrary to or in accordance with policy, by virtue of these special circumstances, namely the overall benefit to the local community, the scheme should be supported.

New Public Open Space to enrich the life, health and well-being of residents and visitors

Care-led, affordable housing solutions for an older population

Enhanced play and sporting opportunities for all ages and abilities

Employment Opportunities

Meeting space for local groups and community activities

Enhanced biodiversity and tree stock

Modern, multi- use, facilities to meet the needs of local groups and clubs

A sustainable legacy for future generations

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