HOME FARM

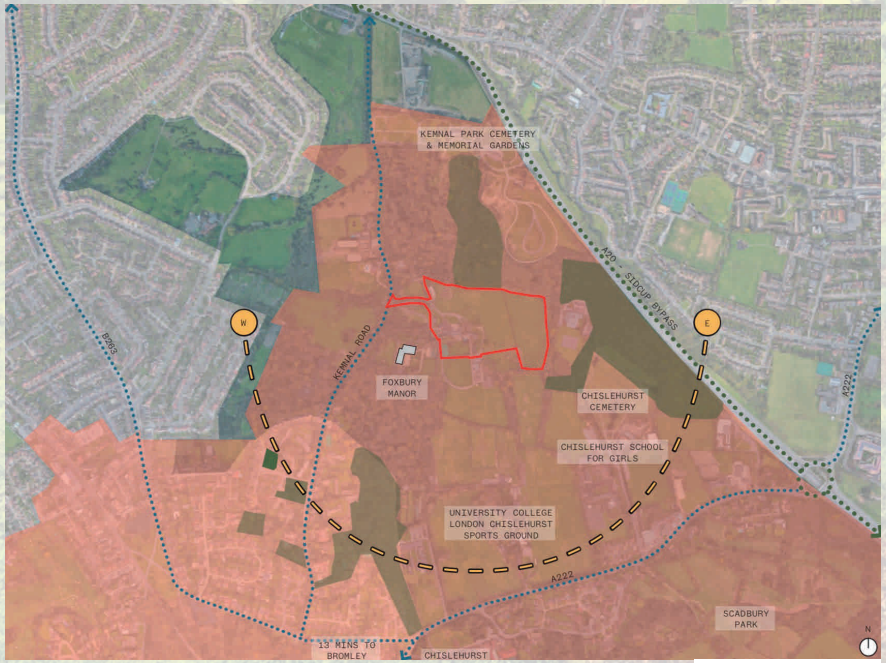
CHISLEHURST

BROMLEY'S FIRST VITICULTURAL ENTERPRISE
& LONDON'S FIRST HYDROGEN POWERED HOUSE

LOCATION

Home Farm is located East of Bromley in Chislehurst; 10 miles from Canary Wharf, 12 miles from London City Airport and 16 miles from Central London.

The Farm is accessed from Kemnal Road, a private road and North East of Foxbury Manor.



Location plan

Existing built form across Home Farm

THE EXISTING FARM

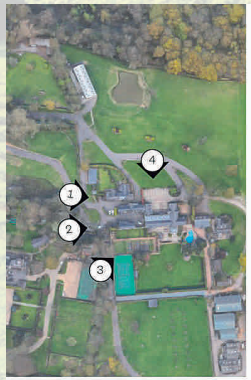
Over time Home Farm has developed in an organic & uncoordinated manner and for the first time in many years, Home Farm is now under single ownership.

Although there are extant permissions for development, there is now an opportunity to create a new masterplan by taking a more holistic approach to the site providing a viable, long-term future for one of the only remaining agricultural holdings in Chislehurst.

CONSERVATION & HERITAGE

Since the Farm became separated from the Foxbury Estate, the walled gardens and courtyards have long since disappeared and the land around the existing buildings has been developed in a piecemeal way.

A key design objective is to open-up views whilst retaining the historical character and elements of the buildings. This is particularly relevant to the original Thwaites clock tower.



Existing viewpoints

Bothy Cottages

Polo Mews

PROPOSED MASTERPLAN

There will be no net increase in built floor area in the Green Belt.

The proposals comprise:

- A new, carbon neutral dwelling of exemplary design
- The first Hydrogen Powered house in London
- A new commercial viticultural enterprise
- Rationalisation of buildings through selective demolition
- Reconfiguration of existing road network to reduce the amount of hardstanding across the site
- Changes to the Farm's landscape & planting to create new woodland corridor, community orchard and SUDS features
- Substantial increase in bio-diversity, achieving a BNG score of 18%
- Provision of public amenity through a new orchard and picnic area


POLO MEWS

BROMLEY'S FIRST VITICULTURAL ENTERPRISE

Various forms of farming have taken place at Home Farm over the past 200 years. The current hay cropping business is proving to be no longer sustainable and the decision has now been made to substantially invest in the Farm and affirm its long-term future.

The ambition is to turn Home Farm into Bromley's first commercially run vineyard and one of only a handful within London.

Stephen Skelton of English Wine, one of the most experienced and highly regarded viticulturists in the UK, has been appointed to establish the vineyard and has already undertaken the necessary due diligence to confirm the location is suitable and the business plan sound. Work to date has included:

- Confirmation that the topography is suitable and identification of the planting areas
- Soil analysis confirming the soil is appropriate
- The area has been limed prior to being subsoiled and planted with a bespoke cover crop to further enhance the soil conditions
- English Wines have calculated the initial requirement of 10,575 vines which will be imported from France & Germany
- The strategy will be to plant five different varieties (see table) in order to create both still & sparkling wines

VARIETY	NO. OF VINES	PERCENTAGE OF VINEYARD
BACCHUS	2,700	25.53%
BLAUER FRUBURGUNDER	2,700	25.53%
CHARDONNAY	1,725	16.31%
PINOT NOIR	1,725	16.31%
MEUNIER	1,725	16.31%
NUMBER OF VINES	**10,575**	**100.00%**

BIODIVERSITY & ECOLOGY

The proposals involve significant landscape enhancements to Home Farm including new meadows, woodland and water and wildlife features. Including an 18.4% increase in biodiversity net gain, significantly in excess of the statutory target.

The proposed and comprehensive new landscape framework will respond positively to the Chislehurst Conservation Appraisal principles of siting, layout and design.

Overall, the proposals will improve the scenic and bio-diversity value of the Green Belt, responding positively to the requirements of the NPPF.


BOTHY COTTAGES

A FOCUS ON SUSTAINABILITY

As a first in the region, Vine house will use electricity generated on site by a hydrogen fuel cell. The hydrogen will be created using electricity generated by photovoltaic panels. The hydrogen store is essentially a far superior and efficient energy store system than using batteries. The electricity generated by the fuel cell will power a ground source heat pump, which will provide all space heating and hot water to the house.

Vine House will be constructed using fabric efficiency standards currently defined as 'best practice' including the installation of triple glazed windows and doors and the installation of the hydrogen system.

A new vineyard will be developed in the eastern part of the Farm providing a long-term sustainable agricultural future.

The rationalisation of the road network within the Farm also provides a reduction in the impermeable area of the site, which in turn reduces surface water runoff.

The works proposed to the existing dwellings (Polo Mews and the Bothy) will include the installation of air source heat pumps to provide space heating and hot water.

In the fullness of time, and depending on the success of the installation to Vine House, it is anticipated that the existing houses can adopt a similar hydrogen system and use electricity generated by the fuel cell.

THERE WILL BE NO ON-SITE CARBON DIOXIDE OR NITROUS OXIDE EMISSIONS ASSOCIATED WITH THE PROPOSAL

The key sustainability findings can be summarised as;

- An exemplary new dwelling using best practice fabric standards and an innovative, potentially ground breaking method of providing power to the property
- 100% reduction in carbon dioxide emissions of the new dwelling (Vine House) compared to the maximum permissible by Building Regulations
- All heating to the dwellings will be provided by renewable technologies (GSHP to Vine House and ASHPs to Polo Mews and the Bothy)
- The water use to each unit will achieve the enhanced standard required by the Building Regulations of 110 litres per person per day
- A new Vineyard will provide for a sustainable future of farming
- The impermeable area of the site will be reduced as a result of the reorganisation of the roadways

PRODUCING GREEN HYDROGEN

The energy system for Vine House is designed to allow the building to be completely independent of grid electricity or natural gas, all year round.

To do this, a solar array is installed with associated invertors, charge controllers and a battery. Alongside the solar, a heat pump will provide electrified heat and hot water for the building and a hydrogen system to act as the major energy store.

The hydrogen system is used to store excess solar production from the spring, summer and autumn months and will allow enough energy to be stored to overcome the dark, cold days over the winter, where solar energy is at a minimum, but typical energy usage peaks.

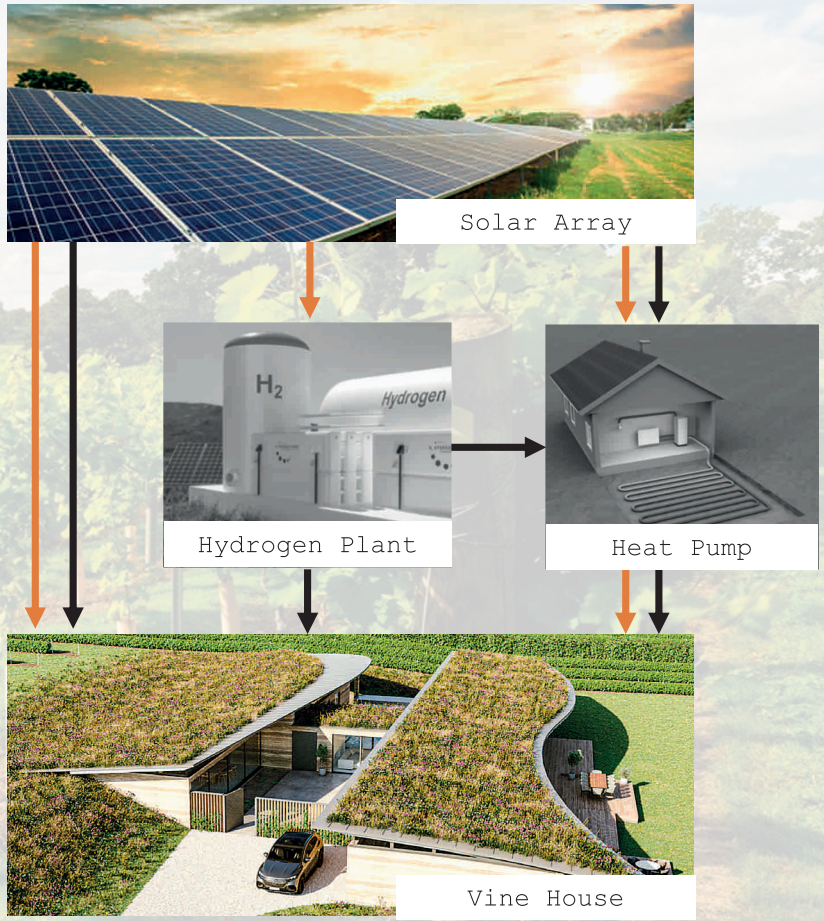
The HydroGenesis system safely combines an electrolyser that uses excess solar power to split water into hydrogen and oxygen, a compressor/booster to fill the specialist hydrogen cylinders and a fuel cell that reuses the hydrogen when solar is not providing the required level of power to the site.

HydroGenesis' system will intelligently direct solar energy where it is best utilised.

When the building is drawing power, direct solar energy is best, same to the heat pump when heating is required. When there is excess solar not being used, hydrogen will be produced and stored.

In the winter or during the night, when solar production is low or zero, the system will use the stored hydrogen to power the house and if required, the heat pump.

All HydroGenesis equipment is specialist hydrogen rated and the system has been engineered to best practises according to UK standards. HAZOP and DSEAR assessments have been carried out to ensure the system is designed and put together to include all required safety valves and monitoring equipment and with appropriate ventilation points.




VINE HOUSE

CONCLUSION

- The proposals for Home Farm will result in an overall net reduction in the amount of built development in the Green Belt
- There would also be an overall net reduction in the amount of hard surfacing and hardstanding
- The proposal includes the first hydrogen powered, zero carbon house in London which will be entirely energy self-sufficient and will not have grid dependence
- The hydrogen solution provides pioneering technology which will demonstrate the ability of such zero carbon systems to become a more widely adopted solution in tackling the climate crisis. The proposal would make a significant contribution towards Bromley's net zero target
- The sustainability measures that are proposed in the scheme also include; all heating to the existing dwellings being provided by renewable technologies, provision of impermeable areas throughout, water efficiency measures and sustainable construction
- Vine House is of exemplary architectural quality displaying the highest standards of design
- The scheme proposals enhance the setting of the Farm and contribute to a better appreciation of existing heritage assets
- The proposals involve significant landscape enhancements to Home Farm including new meadows, woodland and water and wildlife features
- The proposals deliver a substantial increase of 18.4% in biodiversity net gain, significantly in excess of the statutory target
- The establishment of a new vineyard, the first in Bromley, would secure a viable long- term future for the Farm
- The proposals would result in a net enhancement to the character and appearance of the Chislehurst Conservation Area
- The proposals provide public benefits through a new orchard and picnic area

DESIGN TEAM

Hollaway · RE PLANNING · HydroGenesis · the ecology partnership · landscape architects edla · HCUK GROUP · herrington CONSULTING LIMITED