

An architectural rendering of a modern building with a series of gabled roofs, each clad in vertical wooden slats. The building is situated in a landscape with green grass and purple flowers in the foreground, and glass-walled conservatories on either side. The sky is blue with scattered white clouds.

Royal Botanic Gardens Kew Conservation and Research Nursery, Wakehurst

Section 73 Application: Design and Access Statement

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Contents

1.0	Introduction	4
2.0	Summary of design amendments	5
3.0	Design amendments in detail	7
4.0	Comparison of consented and proposed built areas	11
5.0	Sustainability	12
6.0	Access and maintenance	13
7.0	Inclusive design	13

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1.0 Introduction

1.1 Purpose of document

This Design and Access Statement has been prepared by Hugh Broughton Architects on behalf of the Royal Botanic Gardens Kew (RBG Kew) to describe amended proposals for new horticultural science research facilities at Wakehurst. It acts as an addendum to the Design and Access Statement previously submitted as part of the consented application ref. DM/22/1774 and forms part of a Section 73 application describing amended proposals. It sets out the alterations being proposed to the consented scheme both in terms of the need for and design approach taken to these.

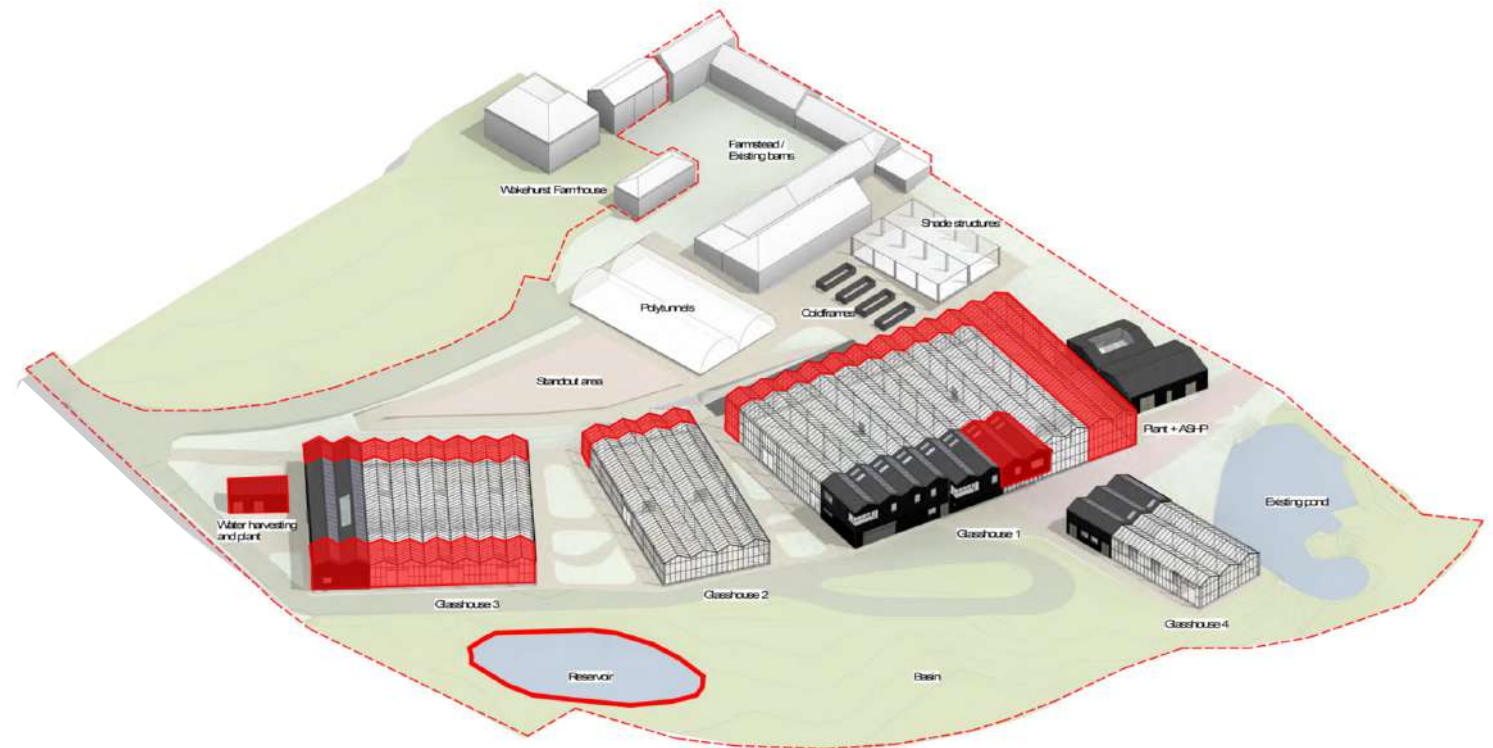
1.2 The consented scheme

The consented scheme is described in the application ref. DM/22/1774 and accompanying documentation. It consists of four proposed glasshouses providing enhanced replacement facilities for horticultural research, three of which have opaque timber-clad ancillary buildings adjoined to them housing supporting functions. Additional ancillary structures house remote building servicing equipment (plant) and other horticultural activities (the polytunnels, shade structure, cold frames and standout area). A reservoir designed to retain surface water runoff for irrigation is shown at the northern edge, plus a detention basin for stormwater attenuation which also features landscape planting designed to screen the proposed structures when viewed from the open meadow beyond (which forms part of the High Weald Area of Outstanding Natural Beauty).

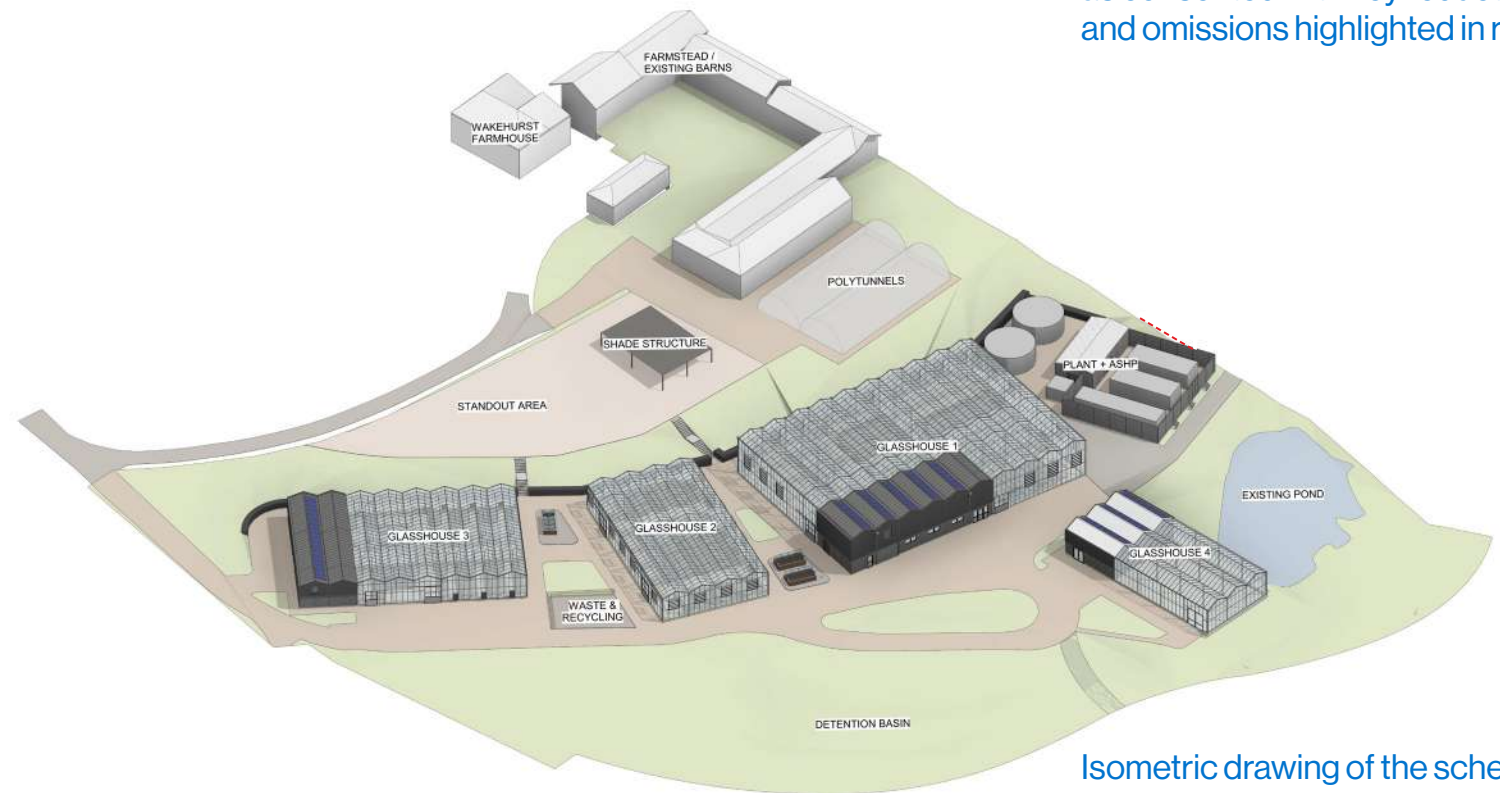
As part of this earlier approvals process, enhanced landscape planting on the western portion of the site was agreed (see document “Proposed revision to planting_11.01.23.pdf”). This and the following further subsequent events inform the starting point for this Section 73 application:

- Conditions 4, 7, 11 and 12 have been discharged with details agreed (application ref. DM/23/2802).
- Demolition of the existing farm buildings has been completed (also effectively discharging condition 1).
- An application for pre-application advice (concerning this application for revised planning consents) was lodged in 2024, with additional materials submitted in October and discussed at an on-site meeting with Mid-Sussex planning officers in December and written feedback subsequently supplied. This feedback, along with other correspondence to clarify certain aspects of the planning approvals process, has informed the content of this application. Notably, options to vary the design of Glasshouse 4 were discussed in this process but have not been carried forward to this application, which retains Glasshouse 4 in its as-consented design.

This application seeks to vary conditions attached to the consented scheme in relation to the design proposals described, and includes amended documents and drawings. The scheme's description remains unchanged.



Isometric drawing of the scheme as consented with key reductions and omissions highlighted in red



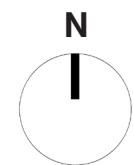
Isometric drawing of the scheme as now proposed

2.0 Summary of design amendments

Ongoing review and development of the proposals by RBG Kew has identified opportunities to improve the efficiency and functionality of the proposed facility whilst maintaining or enhancing the development's design quality and reducing its impact on local heritage and landscape settings.

The general site arrangement now proposed is functionally almost identical to the consented scheme. As such, the proposed changes are relatively limited in scope. They are summarised in the following list, which is cross referenced to the annotated site plans overleaf:

1. Glasshouses 1, 2 and 3 and corresponding adjoining ancillary buildings are reduced in size versus the consented scheme. This allows the project programme to be delivered more efficiently and also makes space for items 2 and 3. The upper storey of Glasshouse 1's ancillary building is omitted.
2. A softer transition is proposed between the upper and lower portions of the site, using more environmentally sustainable and less expensive earth retaining structures: A previously proposed concrete retaining wall and vehicle access ramp is omitted and replaced by planted slopes and low rock-filled gabion walls. This improves the landscape setting of the proposals and also helps to achieve biodiversity net gain requirements. Vehicles needing to transition between the upper and lower sites will use the alternative route already provided for in the consented scheme.
3. The proposed access road now follows a realigned curve at the northern boundary of the site. This is to respect a legal boundary shared with Pondfield Cottages.
4. The surface water storage reservoir from the previous scheme is omitted. This is an inefficient way to store water for irrigation use suffering from evaporation losses and the energy cost of treating the water before it can be used for watering plants. Instead, above ground rainwater storage tanks are proposed in a visually screened location at the south end of the site (see item 9). Unlike the previously proposed reservoir, these store rainwater from the glasshouse roofs which can be used for irrigation (watering plants) with no additional treatment. Note that wet habitat is provided through other proposed landscaping features, and a woodland area is now proposed where the reservoir was previously shown resulting in enhanced biodiversity net gain versus the consented scheme.
5. The proposed locations of the polytunnels and shade structure have been swapped. This follows further consultation with the residents of Wakehurst Farmhouse and is considered beneficiary since it reduces visual impact. The polytunnels are also expected to function better in this new location. The configuration of the driveway giving access into the application site and courtyard beyond has also been better resolved.
6. Minor landscaping / site design amendments around the proposed glasshouses include the repositioning of the cold frames (low brick-walled enclosures for plants) for operational reasons, additional planting for screening and biodiversity and the addition of a designated external storage area for waste and recycling containers (this area having not been properly designated on the consented scheme's site plan). The containers will be trailer-mountable open containers for organic waste of the type already used by RBG Kew staff at Wakehurst to move this material to other locations within the gardens for composting. Native species hedge planting is proposed to visually screen this from either Wakehurst Place in the east or Pondfield Cottages to the north.
7. Fences and gates for proper access control have been added. These are of a similar design to other such boundary treatments around Wakehurst, comprising timber post and rail fences and galvanised metal gates at vehicle / pedestrian access points.
8. Proposed landscaping to the western portion of the application site has been significantly enhanced and now includes woodland planting to the north, meadow planting in the proposed stormwater detention basin and other trees supporting birds and pollinators. Timber post and stock fencing and native species hedgerow form the boundary to the meadow beyond. The existing pond at the southwest corner of the application site is to be retained and enhanced through a long-term management plan. Refer to drawing 6730-LLB-XX-E2-DR-0002 Landscape Masterplan - Western Boundary for further details.
9. The proposed external plant compound comprising air source heat pumps and associated plant room, an electrical substation and emergency backup generator and the rainwater harvesting storage tanks is shown in the same location as per the approved scheme. The configuration has changed as a result of design development, and the area has increased to accommodate the rainwater tanks. The existing wall and trees to the south are to be retained and will block views of the development from the mansion and gardens. Additional screening is provided to the external plant in the form of slatted timber fencing designed to visually match the timber cladding to the solid portions of the proposed glasshouses.



Site plan as proposed

3.0 Design amendments in detail

3.1 Glasshouse 1

The glasshouse and its adjoining ancillary support building have been reduced in size by over 600m² relative to the consented design, or by approximately 33%. The functional programme remains similar to that of the consented scheme except for the “learning lobby” dedicated education spaces which have been omitted. This resulted from operational review concluding that education would be most efficiently and effectively supported from the dedicated facilities already provided elsewhere at Wakehurst. Nevertheless, opportunities will still be provided for school groups and members of the public to view and learn about the activities of the conservation research nursery. Both guided and unguided public access will be possible via the gate from the public gardens to the south, with visitors able to enter a ground floor viewing lobby at the south end of Glasshouse 1 where interpretation will be provided explaining current research and conservation activities and their wider context.

The upper storey of the ancillary building has been omitted with all facilities now provided at ground floor level. This simplifies access and escape arrangements and follows operational review which identified that staff could use existing and future office space elsewhere on the site, greatly reducing the requirement for ancillary staff accommodation here.

Design development has refined the elevational treatment, including changes to the sizes and locations of doors and windows and to the detailed design of the timber cladding. The previous cantilevered

portion of the upper storey has been omitted, as has the balcony and its folding screens. These were predominantly associated with the now-omitted permanent public facilities.

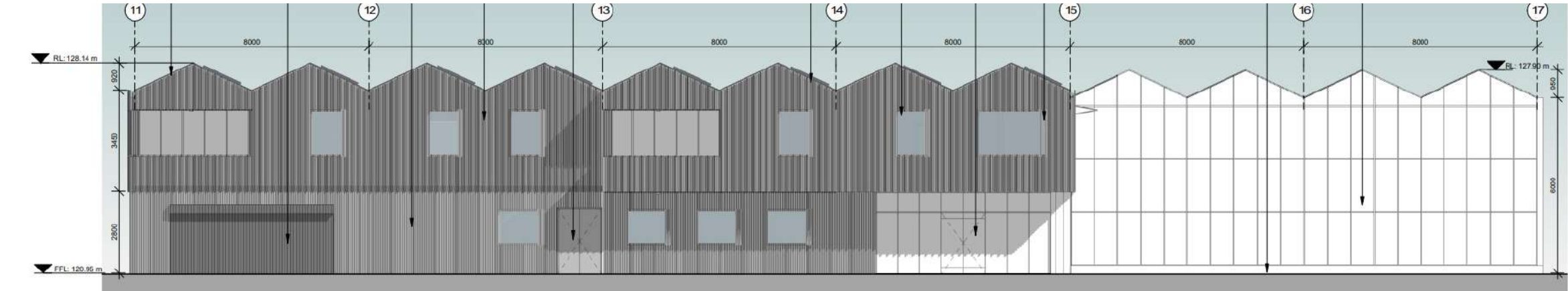
The timber cladding is proposed to be stained to improve its longevity and visual consistency and to colour it according to the High Weald Design Guide and Colour Study. Natural douglas fir will be sourced in the UK and possibly from trees that RBG Kew manage at Wakehurst, minimising associated embodied carbon emissions (subject to assessment of technical suitability). Low level cladding is amended to a horizontal format to provide greater contrast with the vertical cladding above and to accentuate the agricultural presentation and massing of the building. High level cladding is similar to the consented scheme although batten sizes are now consistent rather than varying. Metal profiles form linear edging and break details in the elevations, also concealing fire barriers.

Designs for the glasshouse have been further developed also, with the locations and sizes of external sliding glass doors amended. Clear glazed, mechanically actuated opening ridge ventilators will be fitted on the roofs, and opening glass louvres will provide additional ventilation in the external walls - these were described in previous design submittals but their locations and extents have now been defined and drawn.



CGI view as proposed

The glass specified for the glasshouse exterior will be a high transmission, low reflectivity type as is typical for glasshouse structures. This is to maximise energy transmission to the interior, with the secondary benefit of reduced reflective glare compared with glass that has been treated for reduced solar gain. Full details of glare mitigation measures will be submitted in due course, pursuant to the discharge of Condition 18 (Glare Mitigation Plan).



Glasshouse 1 west elevation as consented



Glasshouse 1 west elevation as proposed

3.2 Glasshouse 2

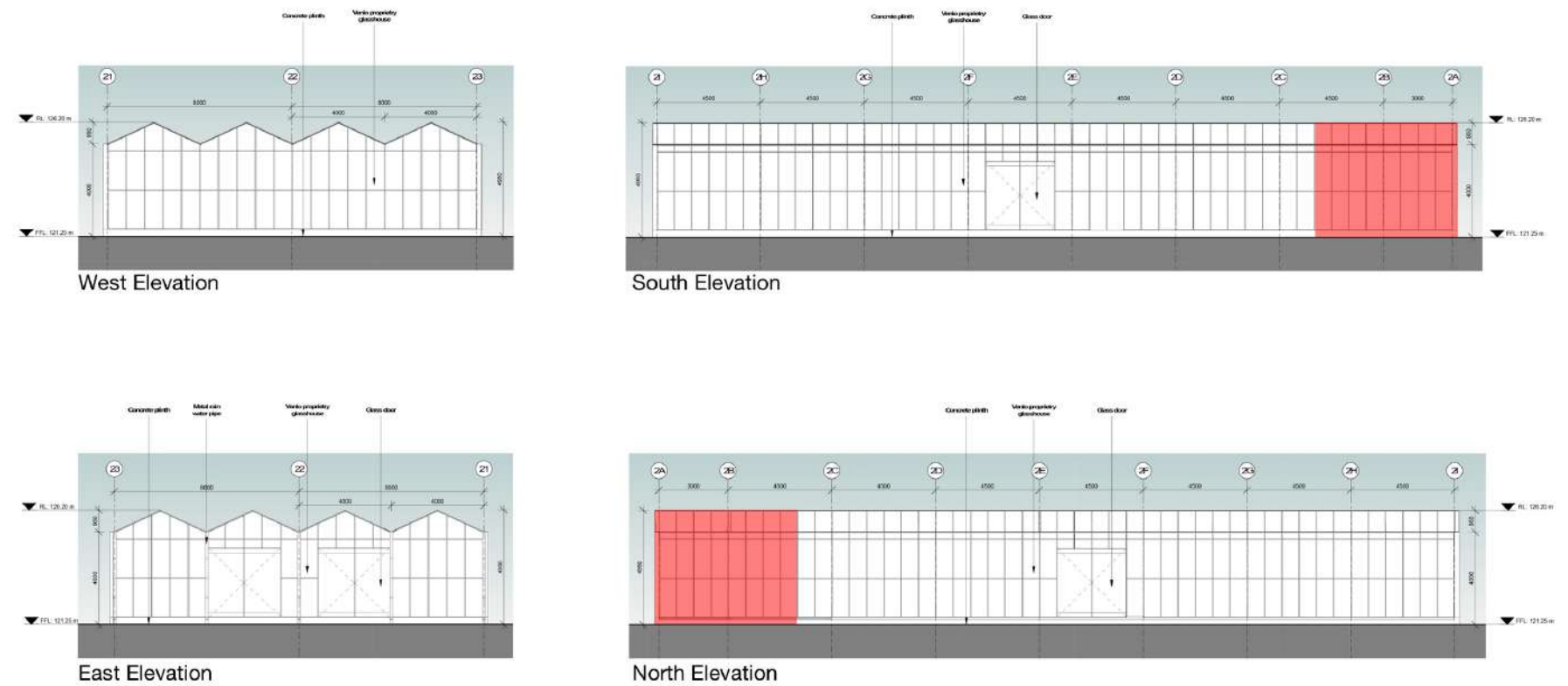
Glasshouse 2 is reduced in length and thus plan area versus its consented form. Its height remains the same. Similar to Glasshouse 1, the developed designs feature opening ridge vents to the roof, glazed louvre vents to the walls and amended metal-framed glass sliding doors.

3.3 Glasshouse 3

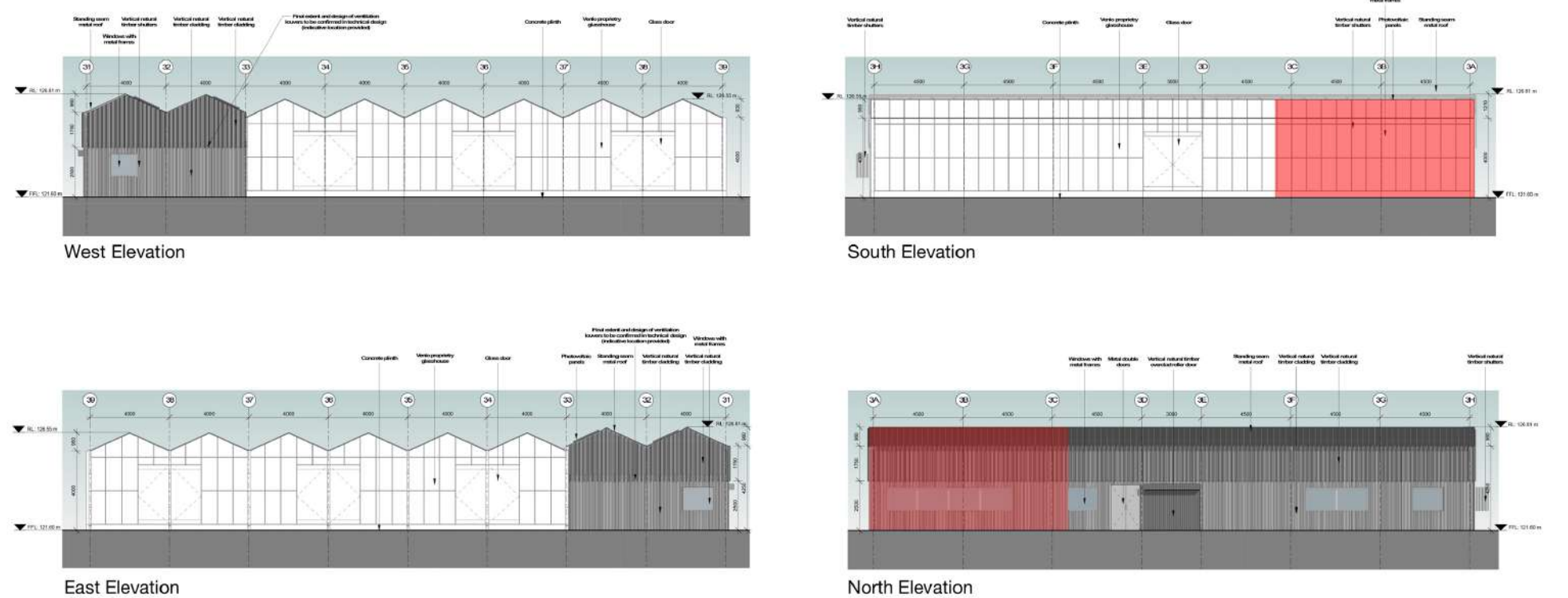
Glasshouse 3 is reduced significantly in plan area versus the consented scheme but remains similar in its general configuration. The timber-clad ancillary building houses similar functions except for the omission of the secondary staff kitchen since staff working in this glasshouse will make use of the facilities provided in Glasshouse 1. Similar design amendments to the building elevations / timber cladding are proposed as those described earlier for Glasshouse 1, including reconfigured glazing and doors. Some of the compartments will provide biological containment facilities. For this purpose, fine mesh netting will be added to some of the roof vents, and units containing mechanical extract fans and filters will be added to external elevations. The fans will meet the noise limitation criteria specified in the original approvals (Conditions 29 and 30).

3.4 Glasshouse 4

Glasshouse 4 remains as per the consented scheme with minor amendments to the proposed external timber cladding in line with those described in relation to other glasshouses.



Glasshouse 2 elevations as consented with proposed reductions in building size highlighted in red



Glasshouse 3 elevations as consented with proposed reductions in building size highlighted in red

3.5 External plant and other ancillary structures

Similarly to the consented scheme, an open-air air source heat pump (ASHP) array is proposed at the south end of the site and is co-located with a simple building housing related equipment requiring weather protection. The arrangement has been developed as designs have refined, with the building reducing in size and swapping positions with the ASHP compound. The compound and building will be screened / clad in timber to match the proposed cladding to the solid elements of the glasshouses. Electrical infrastructure including a substation (transformer) in a proprietary GRP enclosure and emergency backup generator have been added, as have above-ground rainwater storage tanks for irrigation purposes. This location on the site is ideal for these functions since road access is available for servicing, and the surrounding trees, buildings and wall offer very effective visual screening from neighbouring residential properties and from the mansion and its gardens. All plant equipment will be specified and attenuated to meet the acoustic criteria agreed in the prior planning approval.

3.6 Hard and soft landscaping

The planting proposals submitted with this application are a further evolution from the consented scheme, which had already been subject to some agreed enhancements (refer document “Proposed revision to planting_11.01.23”). Recent changes retain these enhancements whilst corresponding to the removal of the water storage reservoir, and will also deliver the biodiversity net gain now required, enhancing on-site habitats. The appended Landscape Design Statement by Lloydbore provides further details.

Hard surfacing proposals have been amended to improve their suitability for the scheme as now proposed: The consented



Proposed site landscaping masterplan

scheme's extensive use of resin-bound gravel surfaces is inappropriate for the agricultural and service vehicle traffic which would damage these surfaces, and is not warranted given that the research nurseries will be predominantly a staff-only working area with limited public access. The standing out area is now specified with a weed membrane finish as this is

preferred by horticultural staff functionality-wise to the free draining gravel previously proposed, which is difficult to keep clear of weeds.

Previously proposed vertical concrete retaining walls have been omitted, with the reduced earth-retaining requirements now being handled by a mix of planted

batter slopes and rock-filled gabion walls (including partial fill of local material salvaged from earlier demolition works). This will enhance the landscape setting of the glasshouses versus the consented scheme, and result in reduced embodied carbon emissions.

4.0

Comparison of consented and proposed built areas

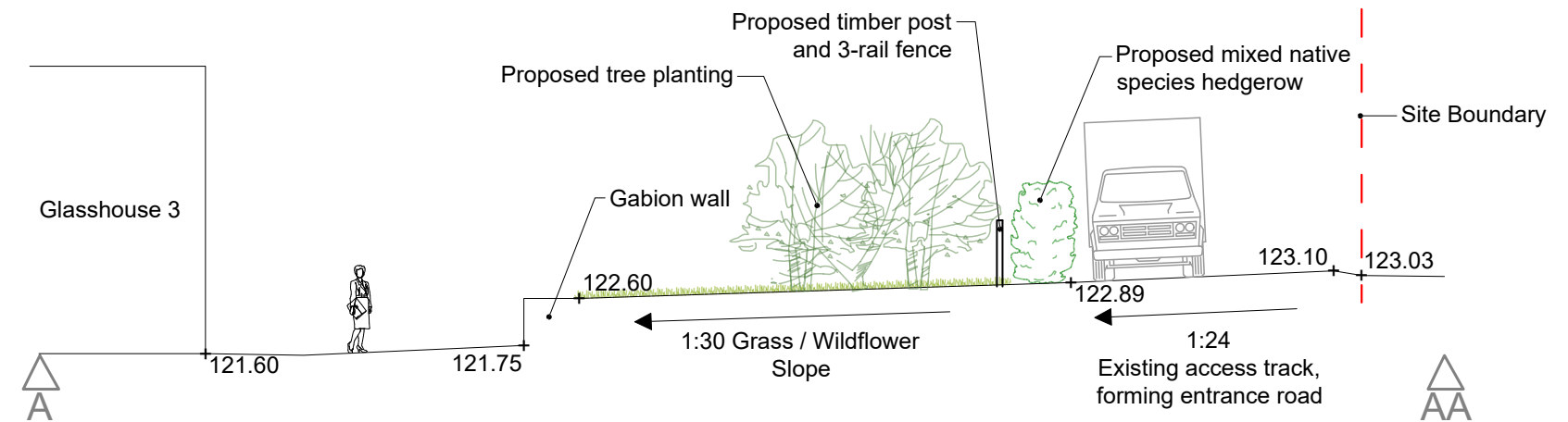
	Consented design	Amended (proposed) design
Glasshouse 1	1979	1112
Glasshouse 2	552	448
Glasshouse 3	960	640
Glasshouse 4	324	324
Total	3815	2524

Total reduction in built area (main buildings only) = 1,291 m² or 34%

5.0 Sustainability

The consented scheme's Sustainability Statement remains relevant and continues to guide the design and delivery of this development. Many of the proposed changes from the consented scheme will achieve reductions in embodied (up-front) and/or in-use (operational) energy and associated carbon emissions. These include:

- Overall reduction in size of facility with needs met through more efficient space planning.
- Reduction in concrete structures associated with civils works (foundations and earth retaining structures).
- Optimisation of glasshouse structural grids for improved structural efficiency and associated reduction in steel framing quantity.
- Change of rainwater harvesting system to simple gravity-fed storage tanks, omitting need for energy-intensive treatment and pumping plant as well as reduction in initial earthworks.



Proposed landscape cross section showing revised management of site levels featuring wildflower planted slopes and gabion walls. This is similar to the strategy employed at the nearby Millenium Seed Bank (photo below).



6.0 Access and Maintenance

The access strategy remains the same as detailed in the consented scheme. The maintenance and servicing strategy also remains unchanged.

7.0 Inclusive Design

The amended designs remain guided by the Building Regulations and relevant legislation. This includes the provision of accessible WCs in glasshouses 1 and 3 (the only buildings where WC facilities will be located) and step-free access throughout. Other inclusively designed facilities include the kitchen which is usable by both standing and seated (including wheelchair) users, and potting benches also suiting seated users or users of shorter stature. Provisions otherwise remain as described in the consented scheme.



CGI view of Glasshouse 1 as proposed