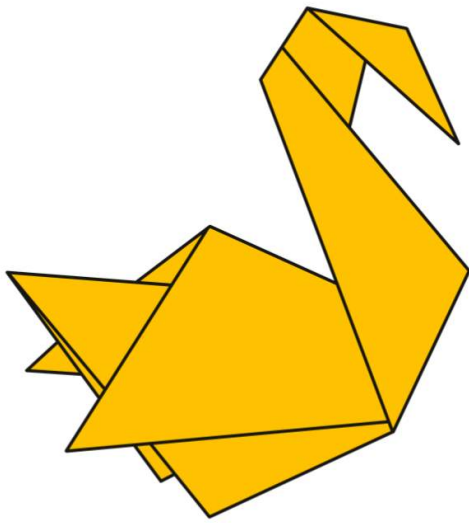




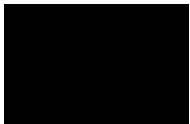
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PROJECT TITLE	
Green Leaf Trees	
DOCUMENT TITLE	
Drainage Strategy Report	
DISCIPLINE	
Civil and Structural Engineering	
PROJECT CODE	
26085	
REF:	26085-SWN-XX-XX-T-C-1000
REVISION:	P01
ISSUE DATE:	23 rd February 2026
CLIENT NAME:	Green Leaf Trees Ltd
CLIENT ADDRESS:	Green Leaf Trees Ltd, Calne, Wiltshire SN11 9TD
SITE ADDRESS:	Green Leaf Trees Ltd, Calne, Wiltshire SN11 9TD

Rev	Description	Issued by	Checked	Date
P01	First Issue	JN	DW	February 2026

This report has been prepared for the sole benefit, use and information for the client. The liability of Swan Structures Ltd with respect to the information contained in the report will not extend to any third party.

Author	Signature	Date
Joe Newton CEng MICE Director		February 2026

Reviewed	Signature	Date
Darren Wong CEng MICE Director		February 2026

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1.0 Introduction

Swan Structures have been appointed by Green Leaf Trees Ltd to produce a surface water drainage strategy for the proposed new development at Green Leaf Trees Ltd, Calne, Wiltshire.

The proposed development involves the construction of new fruit cages, poly tunnels, offices and track on an existing tree nursery site.

This report aims to satisfy the following pre-commencement Planning Condition for the site:

No development shall take place until a surface water drainage strategy, complying with Wiltshire Council requirements, NPPF, PPG and the National Standards for SuDS has been submitted and approved in writing by the Local Planning Authority.

In order to discharge the above drainage condition the following additional information must be provided:

- *A drainage plan showing any existing drainage features on the site and detailing of the proposed drainage strategy, including provisions for any access / parking areas.*
- *Details of the rainwater harvesting tanks, including capacity and overflow arrangements.*
- *Evidence that Soil percolation tests/soakage tests have been undertaken in accordance with Building Regulations / BRE 365, and confirmation of infiltration rates.*
- *Evidence or calculations to demonstrate that the soakaway has been designed for:*
 - *1 in 100yr + cc flows*
 - *Half drain time <24hrs*
 - *Highest groundwater level at least 1m away from the base of the soakaway*
 - *Appropriate factor of safety in line with CIRIA C753 (Table 25.2) guidance has been included*
- *A plan showing overland exceedance routes that minimise the risk of people and property.*
- *The applicant shall provide a drawing showing the cross-sectional details of the proposed soakaways and SuDS features on the site.*
- *The applicant is required to submit calculations which demonstrate that the proposed drainage design provides a sufficient level of water treatment to prevent pollution of the receiving watercourse/groundwater in accordance with Standard 4 of the National Standards for SuDS.*
- *The applicant shall submit clear arrangements for the ownership and ongoing maintenance of the proposed drainage system (including SuDS features) over the lifetime of the development.*
- *No development shall commence on site until a construction management plan, which shall include monitoring of, and measures to retain, the existing vegetation across the site, together with details of drainage arrangements during the construction phase, has been submitted to and approved in writing by the Local Planning Authority in consultation with the Lead Local Flood Authority.*

1.1 General

This report seeks to set out the principles used for the drainage at the proposed development, in line with the best practice guidance as defined by the NPPF and Environment Agency and the SuDS hierarchy. The land where the proposed development is to be currently comprises a mixture of field, gravel tracks and existing fruit cages / poly tunnels.

2.0 The Site

2.1 Existing Site

The site is located on the A3102 and currently comprises a field with small gravel tracks, and fruit cages and poly tunnels used for growing infant trees. It is understood that the sloping bank in the centre of the site comprises landfill placed in the ground during the construction of the housing development to the East of the site.

The site is bound to the East by the A3102, and to the North, South and West by fields and farmland. The recently constructed housing development is positioned the other side of the A3102.

The total area of the site is approximately 54000m².

The site is situated within flood zone 1, an area of low probability of flooding (see Appendix A for Flood map for Planning).



Figure 1 - Site location

2.2 Existing Drainage

It is understood that existing stormwater and foul water sewers run across the site from East to West, serving the housing development across the road. See Appendix C for Wessex Water sewer maps. The stormwater sewer is understood to discharge into Fisher's Brook to the West.

2.3 Proposed Development

The proposed development involves the construction of new fruit cages, poly tunnels, offices and gravel track.

The poly tunnels are to be formed from plastic sheeting walls and roof supported on a lightweight steel sub-frame, similar to the existing poly tunnel on the site. The fruit cages are to comprise open netting on lightweight steel sub-frames, with semi-permeable base sheets laid on to the ground. Ground is to be levelled with compacted hardcore below both the poly tunnel and fruit cages.

Offices are assumed to comprise site cabins placed on concrete bases on compacted fill.

Gravel tracks are to be formed using permeable finishes.

2No. new 8m diameter x 3.5m high rainwater harvesting tanks are to be installed.

3.0 Proposed Surface Water Drainage

3.1 SuDS Requirements

In accordance with Environment Agency (EA) guidelines, Building Regulations and Water Authority advice, the hierarchy of Sustainable Drainage Systems (SuDS) has been adhered to in order to reduce the impact of urbanisation on watercourse flows, ensure the protection and enhancement of water quality and encourage recharge of groundwater in a manner that mimics natural conditions.

Traditional piped surface water systems work by removing surface water from our developments as quickly as possible, however this can cause various adverse impacts:

- Increased downstream flooding, and sudden rises in flow rates and water levels in local water courses.
- Reduction in groundwater levels and dry weather flows in watercourses.
- Reduce amenity and adversely affect biodiversity due to the surface water run-off containing contaminants such as oil, organic matter and toxic materials.

Planning Practice Guidance states that:

“Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

1. *Into the ground (infiltration);*
2. *To a surface water body;*
3. *To a surface water sewer, highway drain, or another drainage system;*
4. *To a combined sewer.*

3.2 Proposed Drainage System

With reference to the hierarchy set out in Section 3.1, and based on the available existing site and ground conditions data available, the approach to manage surface water runoff from the site was determined by the following:

1. *Into the ground (infiltration);* - Infiltration tests were carried out in two locations on the site (see Appendix D for test photos). Soakage into the ground was proven to be negligible in both pits, therefore soakaways are deemed to be unviable on the site.
2. *To a surface water body:* – It is proposed to collect stormwater from the impermeable areas within new drainage / gravel trenches with perforated pipes. Pipes are to be laid to fall via gravity to new attenuation tanks via silt trap manholes. Stormwater is proposed to be ultimately discharged from attenuation tanks to the existing ditch to the West of the site at a restricted discharge rate. It is understood that the ditch then runs North-West and outfalls into Fisher's Brook.
3. *To a surface water sewer, highway drain, or another drainage system;* – Not applicable.
4. *To a combined sewer;"* – Not applicable.

3.3 Responses to Planning Condition Statements

- *A drainage plan showing any existing drainage features on the site and detailing of the proposed drainage strategy, including provisions for any access / parking areas.*

See drainage drawings 26085-SWN-XX-XX-D-C-1000, 1001, 1002, 1003, 1004, 1005, and 1006.

- *Details of the rainwater harvesting tanks, including capacity and overflow arrangements.*

Rainwater harvesting tanks are assumed to be 2No. 8m diameter x 3.5m high tanks, approximate capacity 175m³ (TBC by client). Tank overflows are to discharge to the existing ditch to the West via flow control manholes. It is understood that the tanks will discharge rainwater to sprinkler systems within poly tunnels at a rate of 0.5l/s. therefore storage capacity in gravel trenches has been calculated based on a total discharge rate of 2.5l/s. Note, however, that attenuation tanks have been designed for a discharge rate of 2l/s, thereby not taking into account the rainwater harvesting tanks.

- *Evidence that Soil percolation tests/soakage tests have been undertaken in accordance with Building Regulations / BRE 365, and confirmation of infiltration rates.*

Infiltration tests were carried out in two locations on the site (see Appendix D for test photos). Soakage into the ground was proven to be negligible in both pits, therefore soakaways are deemed to be unviable on the site.

- *Evidence or calculations to demonstrate that the soakaway has been designed for:*
 - *1 in 100yr + cc flows*
 - *Half drain time <24hrs*
 - *Highest groundwater level at least 1m away from the base of the soakaway*
 - *Appropriate factor of safety in line with CIRIA C753 (Table 25.2) guidance has been included*

Attenuation tanks have been designed for 1 in 100yr + 40% climate change. Gravel trenches have been used as stormwater storage with 30% void ratio, with the attenuation tanks then designed accordingly for the remaining storage required for each impermeable area (see Appendix E for calculations). Attenuation tanks have been designed for a controlled discharge rate of 2/s which is significantly lower than the existing greenfield runoff rate (see Appendix E).

- *A plan showing overland exceedance routes that minimise the risk of people and property.*

See drainage drawings 26085-SWN-XX-XX-D-C-1000, 1001, 1002, 1003, 1004, 1005, and 1006.

- *The applicant shall provide a drawing showing the cross-sectional details of the proposed soakaways and SuDS features on the site.*

See drainage drawings 26085-SWN-XX-XX-D-C-1020 and 1050.

- *The applicant is required to submit calculations which demonstrate that the proposed drainage design provides a sufficient level of water treatment to prevent pollution of the receiving watercourse/groundwater in accordance with Standard 4 of the National Standards for SuDS.*

Silt trap manholes to be installed before discharge to attenuation tanks – see drainage drawings.

- *The applicant shall submit clear arrangements for the ownership and ongoing maintenance of the proposed drainage system (including SuDS features) over the lifetime of the development.*

The maintenance of the SuDS features and below ground drainage system will be the responsibility of the site owner/end user for the below ground drainage. Below is a brief summary of required maintenance and the regularity in which this should be carried out.

Feature	Maintenance Required	Regularity
Permeable Gravel Tracks	Observe any collection areas of debris, dirt, topsoil, mulch, etc., after seasonal events such as snowfall, rain storms, leaf litter, etc., and investigate if clogging is occurring. Immediately restore infiltration using the following cleaning options: • Break up any crust covering the surface with hand broom for smaller areas, or mechanically with a rotary sweeper for larger areas. Remove debris material. • Sweep entire permeable surface with appropriate preventative sweeping devices.	Yearly and after storm events
Underground Drainage System	• Periodic desilting of catchpits, gully sumps and channel drains. These should be emptied at least as follows (but with an annual inspection and additional cleansing if required): On completion of drainage works, Year 1, Year 3, then every 5 years. The desilting of these items are required to ensure cellular storage tank and flow control device operate as per the design, and do not become blocked. • Periodic jetting or rodding of pipework as required to clear blockages. • Gratings on any gullies and channel drains to be kept clear of debris.	Yearly (or as stated)

4.0 Conclusion

- Surface water from new impermeable areas to be collected via guttering systems / gravel trenches and discharged using gravity systems to new attenuation tanks via silt trap manholes.
- Attenuation tanks are to ultimately discharge to the existing ditch to the West of the site via flow control at a restricted rate of 2l/s.
- Rainwater harvesting tanks discharge stored water through sprinkler systems at a rate of 0.5l/s, therefore storage capacity in gravel trenches has been calculated based on a total discharge rate of 2.5l/s.
- Rainwater harvesting tanks have not been accounted for within the design of the new attenuation tanks on the site.

5.0 Appendices

Appendix A - Flood Map for Planning

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	398703/171814	23 February 2026 16:41

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

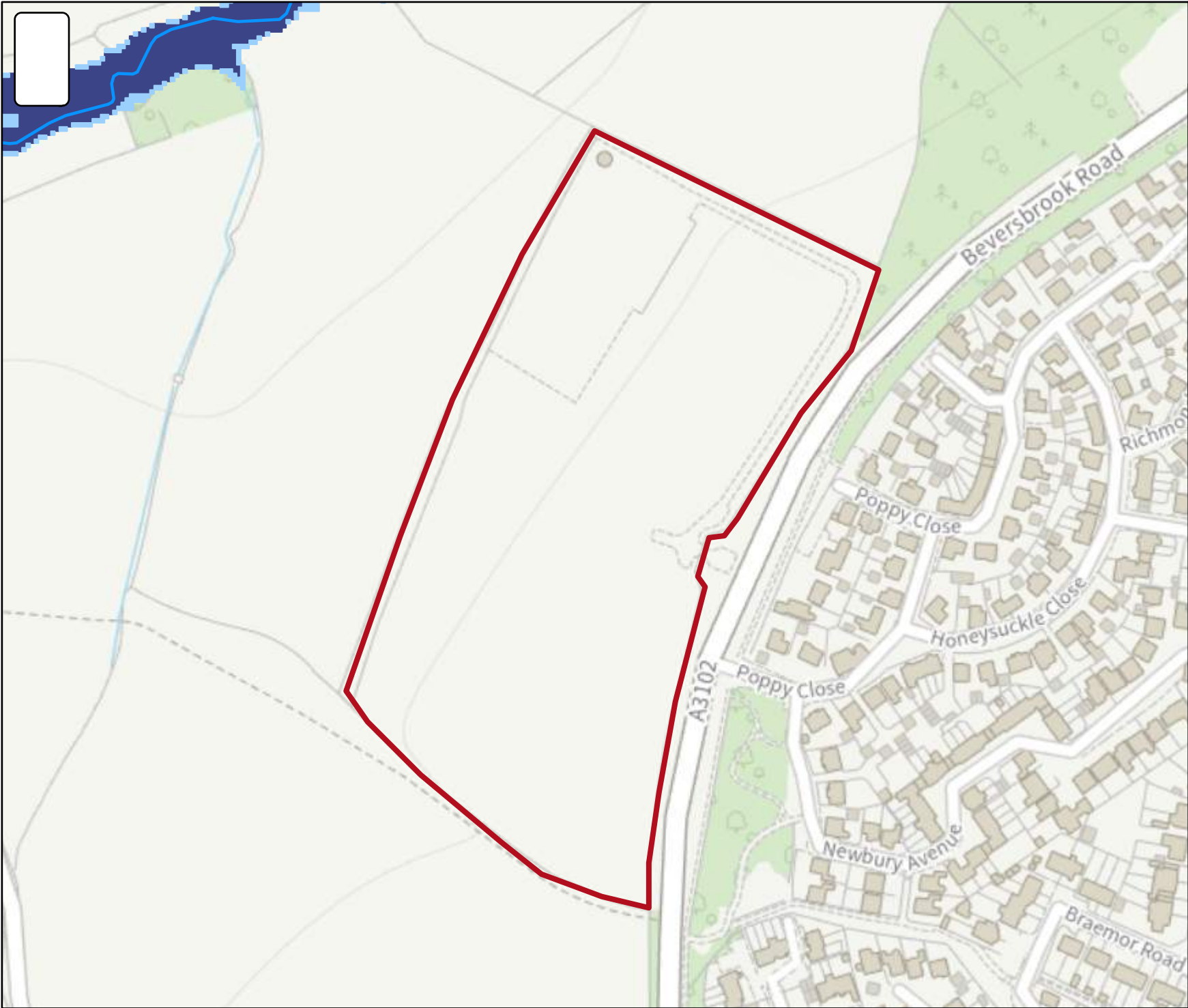
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



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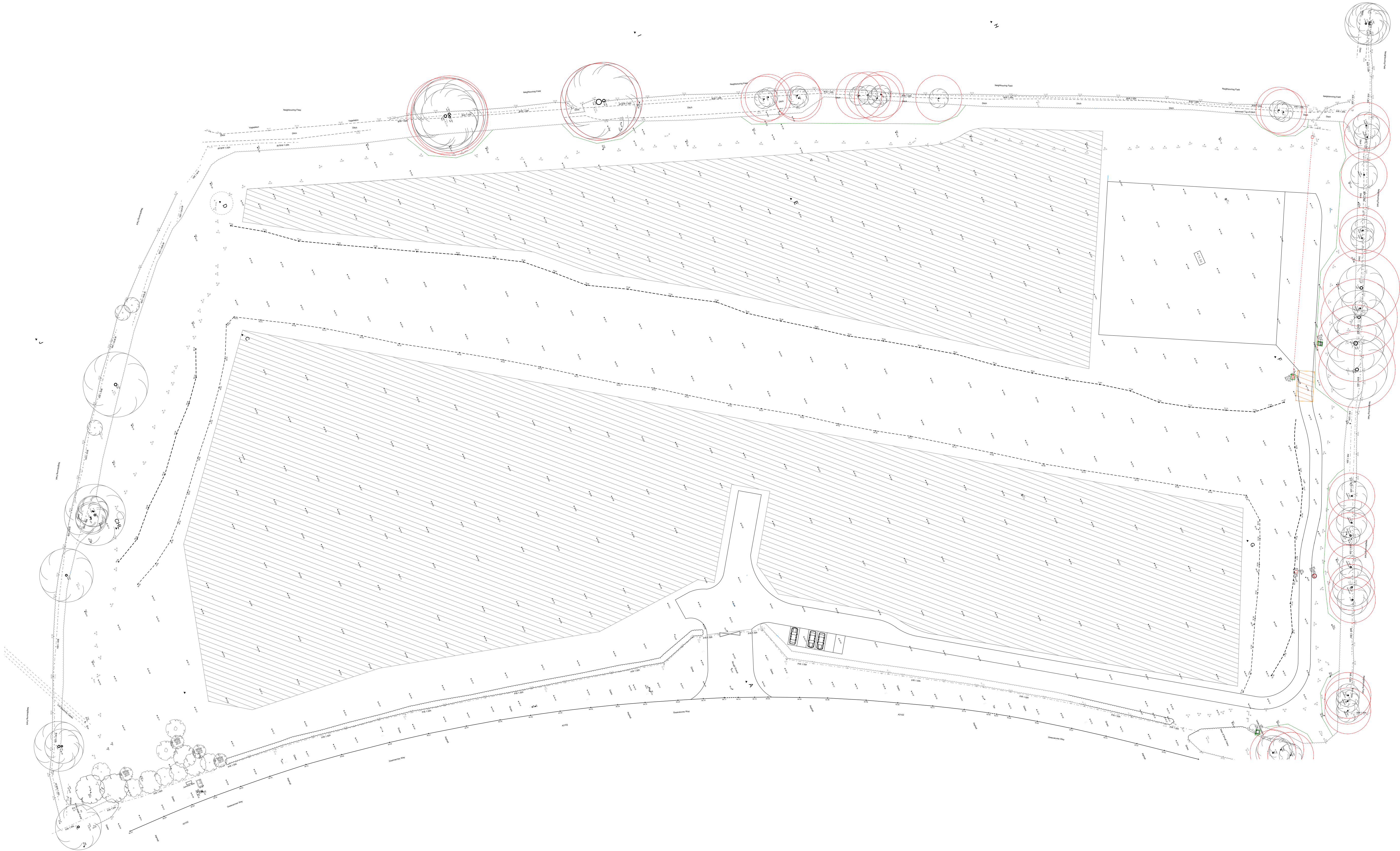
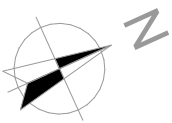
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Appendix B – Existing and Proposed Architectural Drawings



Note:
All information shown on this drawing is to be used for planning or building regulation purposes only and not to be used in conjunction with any other information or workstage including contract, working drawings, construction and as built papers.

No responsibility is taken by Concept Drawing & Design Architects for any measurements taken of this drawing. All dimensions shown on this drawing must be checked on site by the project manager and/or contractor to ensure that they are accurate. Any dimensions that can not be achieved, the client, project manager and architect must be made aware immediately.

Concept Drawing and Design Architects have not surveyed the external landscape or the boundary line, external ground levels, and performance of adjoining buildings. This information, if shown on the drawings, are just a representation of what might be there. Concept Drawing and Design Architects take no responsibility for the accuracy of the information relating to these topics.

The Party Wall Act may apply if any of the following categories of building work apply:

1. Work on an existing wall or structure shared with another property.
2. Building a new retaining wall or a wall of a building up to, near or outside the boundary with a neighbouring property.
3. Excavating near a neighbouring building.

It is the responsibility of the client/owner to determine whether the act applies and if so notify all adjoining owners in accordance with the act. Further information can be found on the government and local government websites.

A - 16.12.2022
Alteration to title box scale

PROJECT
2433 - Agricultural Field
Green Leaf Trees Ltd

Calne
Wiltshire, SN11 9TD

Proposed Agricultural Buildings and Track

DRAWING

Existing Site Plan
1:500@A1

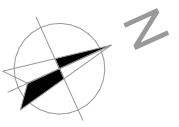
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All greyed out works approved under planning approved application 19/08558/FUL and associated discharge of conditions approved applications

Existing hedging cut back in accordance with approved application 19/08558/FUL and with watching brief by The Landmark Practice and in accordance with their approved reports

2no buildings with a floor area of 150m² each. One used for storage of seeds, etc and the other for storage of tools and vehicles. Both buildings to be constructed of extruded structural aluminium with thermo inflatable PVC coated polyester fabric roof with roller shutter door. Apex to eave part of gable elevation with thermo inflatable PVC
Location of buildings as originally approved under application 19/08558/FUL

72m² office cabin with toilets and kitchen welfare facilities. Materials of cabin to be steel framed units with pu composite steel interchangeable panels with uPVC windows with roller shutters. Septic tank for waste
Location of office as originally approved under application 19/08558/FUL

Red dashed circles represents 6m boundary to smaller existing trees and 10m boundary around larger existing trees that are not affected by construction work

Green dotted line represents fencing around 6m and 10m exclusion zone to protect existing trees from construction work

Red dashed circles represents 6m boundary to smaller existing trees and 10m boundary around larger existing trees that are not affected by construction work

Green dotted line represents fencing around 6m and 10m exclusion zone to protect existing trees from construction work

Location of 250m² polytunnel with metal support tubes and hoops. Timber framed base and end frames with an Visqueen anti-drip polythene with either a clear and/or diffused finish. Ventilation side netting, louvres and roof vents to be included. Metal sliding door to be single or double.
Polytunnel as originally approved under application 19/08558/FUL

Location of 2000m² polytunnel with metal support tubes and hoops with an Visqueen anti-drip polythene with either a clear and/or diffused finish. Ventilation side netting, louvres and roof vents to be included. Metal sliding door to be single or double.

Location of 1500m² fruit cage with metal support tubes and hoops with an Visqueen anti-drip polythene with netting to ceiling and walls.

Location of 1800m² fruit cage with metal support tubes and hoops with an Visqueen anti-drip polythene with netting to ceiling and walls.

Green dotted line represents fencing around 6m and 10m exclusion zone to protect existing trees from construction work

Red dashed circles represents 6m boundary to smaller existing trees and 10m boundary around larger existing trees that are not affected by construction work

Location of three new water tanks (diameter 8m), for rainwater harvesting

New internal floor level of building

All green areas as approved under planning approved application PL/2021/04422 and associated discharge of conditions approved applications

Existing hedging cut back in accordance with approved application 19/08558/FUL and with watching brief by The Landmark Practice and in accordance with their approved reports

Proposed new track to be upgraded to compacted gravel as per the approved condition 4 of planning approval 19/08558/FUL or road scalplings for the track shown in grey that is suitable for vehicle access to site buildings

All greyed out works approved under planning approved application 19/08558/FUL and associated discharge of conditions approved applications

Location of two new site signs at entrance to site

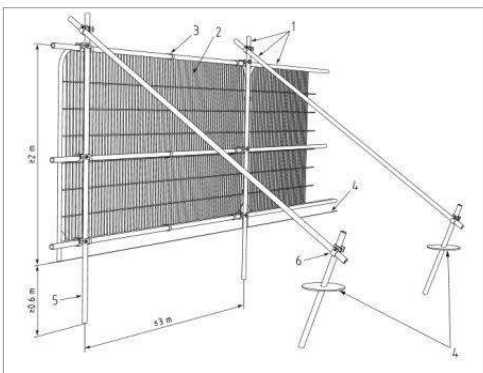
New vehicle parking for six cars

All green areas as approved under planning approved application PL/2021/04422 and associated discharge of conditions approved applications

Allowance for lorry turning area so that if lorries turn onto site that they can turn around and leave site in forward gear

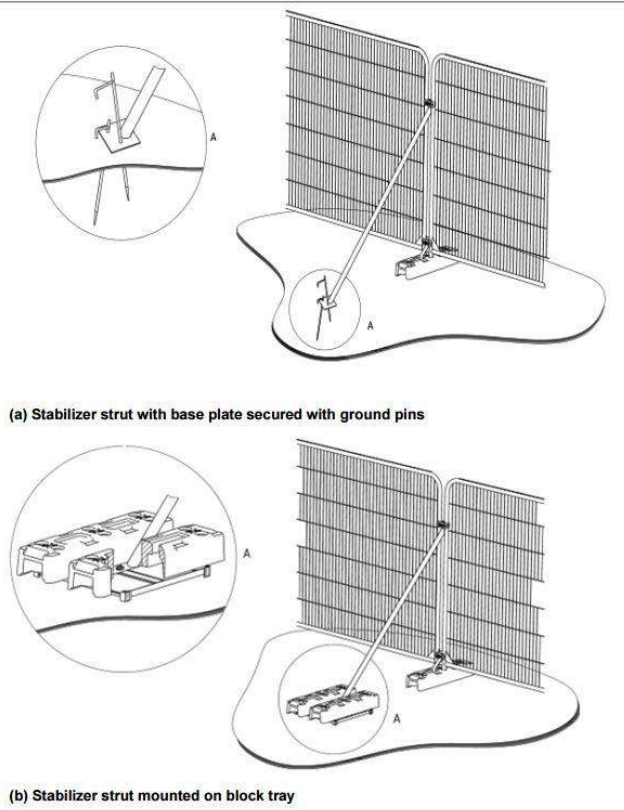
Access area made wider and more dropped kerbs to extend highway entrance to allow better access for lorries.

Default specification for protective barrier



- Key
- Standard scaffold poles
 - Heavy gauge 2m tall galvanized tube and welded mesh infill panels
 - Panels secured to uprights and cross-members with wire ties
 - Uprights driven into the ground until secure (minimum depth 0.8m)
 - Standard scaffold clamps

Examples of above-ground stabilizing systems



Barrier designs to protect trees from construction work as per BS 5837:2012 Trees in Relation to Design, Demolition and Construction.

For this project above ground stabilizers with heras fencing will be used rather than scaffold poles being sent into the ground.

Below signage that will be fixed to the heras fencing as recommended in BS 5837:2012 Trees in Relation to Design, Demolition and Construction.

- Key
- 10m diameter root protection area set around certain trees along the boundary
 - Above ground fencing to protect trees from construction work



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- Work on an existing wall or structure shared with another property
- Building a new retaining wall or a wall of a building up to, near or outside the boundary with a neighbouring property
- Excavating near a neighbouring building

It is the responsibility of the client/owner to determine whether the act applies and if so notify all adjoining owners in accordance with the act. Further information can be found on the construction and local government website.

Proposed drainage to have a minimum of 1 in 80 fall and to be laid in accordance with the building regulations documents and all statutory requirements

Note:
All proposed foul drainage to connect into existing systems. Existing foul drainage system is estimated and to be surveyed by contractor prior to starting work to confirm locations of pipes. All new pipework and connections into existing drainage to be in accordance with local statutory guidelines and regulations. All proposed surface water to connect into proposed soakaway

Existing hedging cut back in accordance with approved application 19/08558/FUL and with watching brief by The Landmark Practice and in accordance with their approved reports

Area in the orange hatched area to receive special temporary ground protection as designed by specialist to prevent damage to existing pipeline while new track is being installed.

Proposed new track to be upgraded to compacted gravel as per the approved condition 4 of planning approval 19/08558/FUL or road scalplings for the track shown in grey that is suitable for vehicle access to site buildings

Land graded back

A - 22.12.2024
Alteration to layout as per client meeting 21.12.2024
B - 04.09.2025
Additional polytunnel and fruit cage added
C - 13.09.2025
Offices and store relocated to original approved location
D - 17.09.2025
Alteration to position of proposed buildings
E - 14.01.2025
Additional tree protection added to the southwest corner of the site

PROJECT
**2433 - Agricultural Field
Green Leaf Trees Ltd**

Calne
Wiltshire, SN11 9TD

Proposed Agricultural Buildings and Track

(DRAWING)

**Proposed Site Plan
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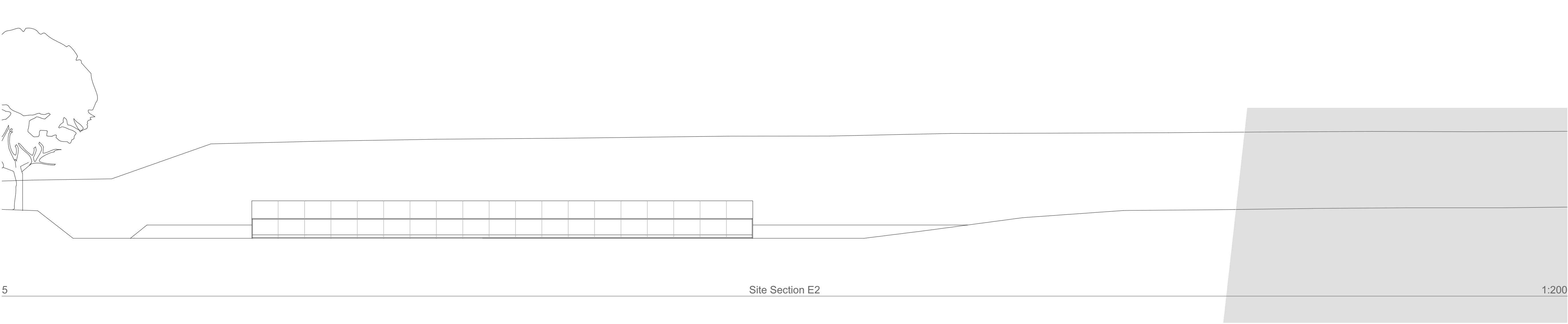
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PROJECT

2433 - Agricultural Field
Green Leaf Trees Ltd

Calne
Wiltshire, SN11 9TD

Proposed Agricultural Buildings and Track

DRAWING:

Existing Site Sections
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Drg No:2433.03.03
24/09/2025



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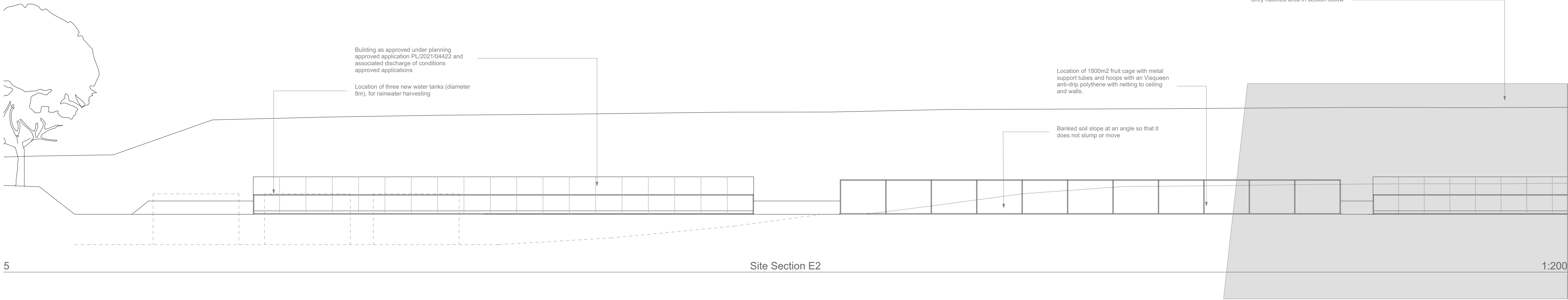


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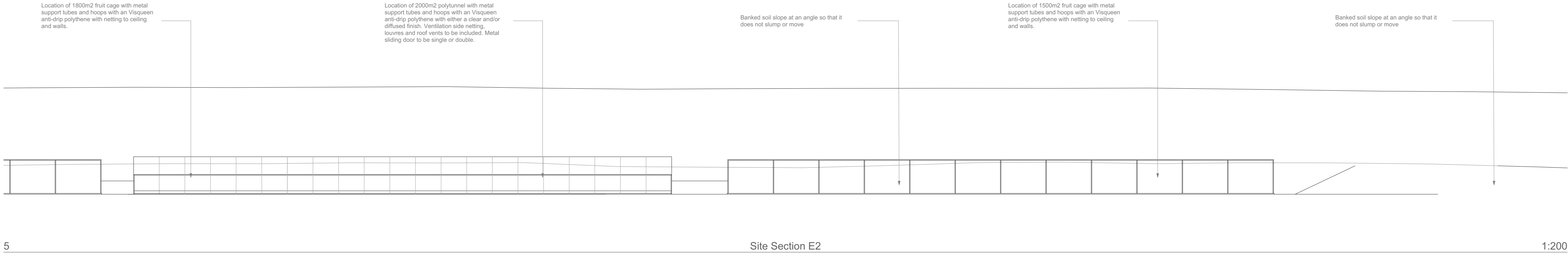
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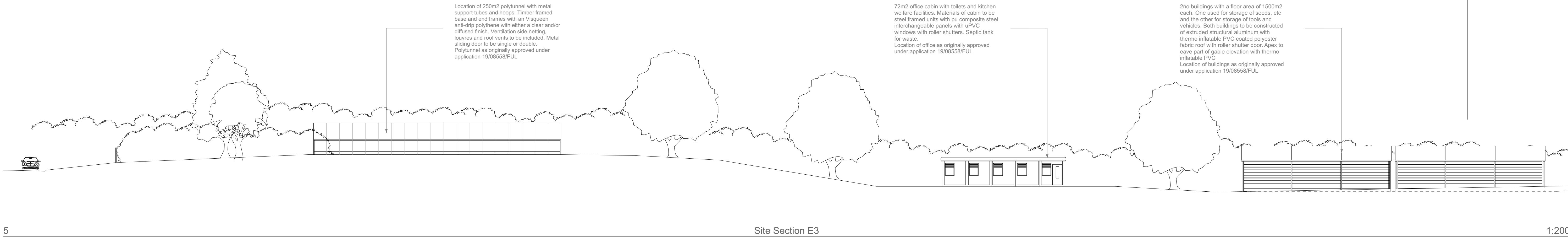
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Site Section E2

1:200



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Site Section E3

1:200



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Site Section E1

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3. Excavating near a neighbouring building.

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A - 04.09.2025
Additional polytunnel and fruit cage added
B - 13.09.2025
Offices and store relocated to original approved location
C - 17.09.2025
Alteration to position of proposed buildings

PROJECT
2433 - Agricultural Field
Green Leaf Trees Ltd

Calne
Wiltshire, SN11 9TD

Proposed Agricultural Buildings and Track

DRAWING:
Proposed Site Sections
1:200@A1

Drg No:2433.03.09 Rev C
24/09/2025

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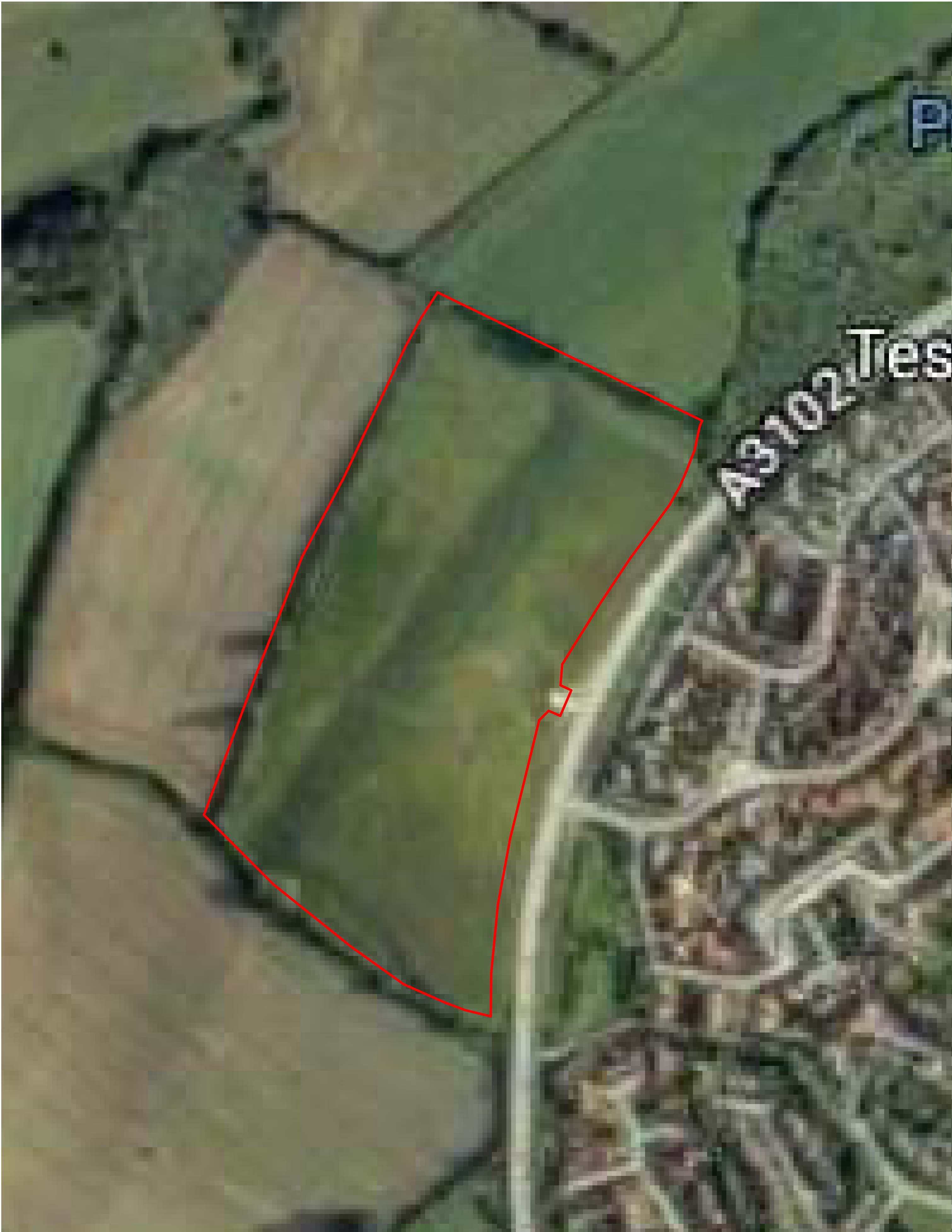
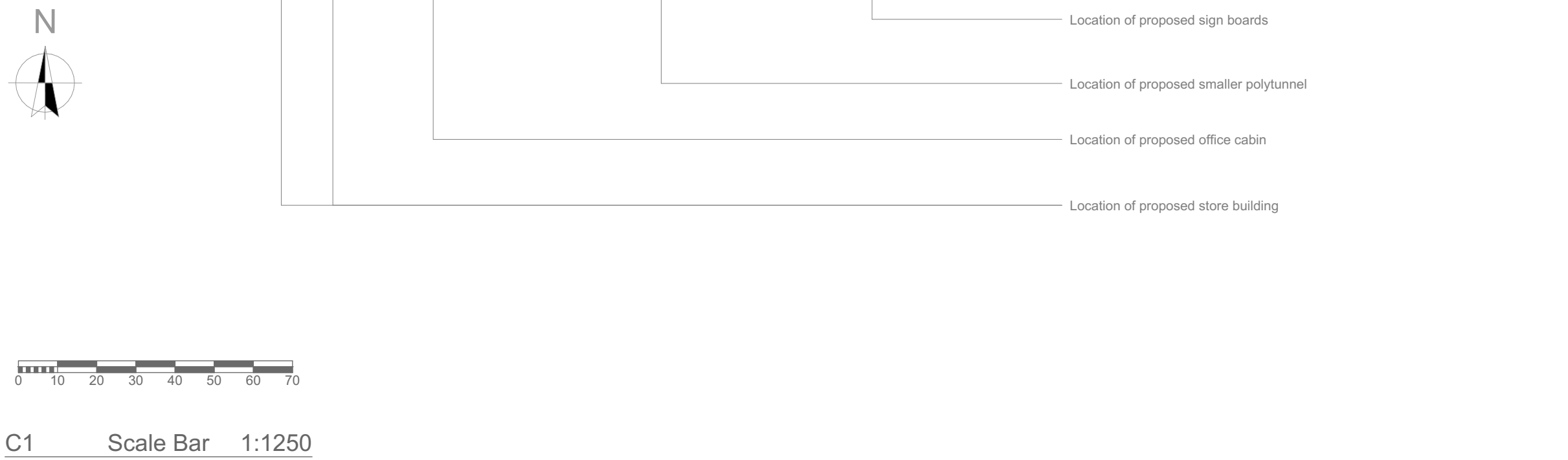
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Registration
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RIBA
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2 Location Plan 1:1250



2 Location Plan 1:1250

Note:
All information shown on this drawing is to be used for planning or building regulation purposes only and not to be used in conjunction with any other information or workstage including contract, working drawings, construction and as built papers.

No responsibility is taken by Concept Drawing & Design Architects for any measurements taken on this drawing. All dimensions shown on this drawing must be checked on site by the project manager and/or contractor to ensure that they are accurate. Any dimensions that can not be achieved, the client, project manager and architect must be made aware immediately.

Concept Drawing and Design Architects have not surveyed the external landscape, or the boundary line, external ground levels, and profile/slope of adjoining buildings. This information, if shown on the drawings, are just a representation of what might be there. Concept Drawing and Design Architects take no responsibility for the accuracy of the information relating to these topics.

The Party Wall Act may apply if any of the following categories of building work apply:

1. Work on an existing wall or structure shared with another property.
2. Building a new retaining wall or a wall of a building up to, near or outside the boundary with a neighbouring property.
3. Excavating near a neighbouring building.

It is the responsibility of the client/owner to determine whether the act applies and if so notify all adjoining owners in accordance with the act. Further information can be found on the government and local government websites.

A - 13.09.2025
Offices and store relocated to original approved location
B - 17.09.2025
Alteration to proposed building locations

PROJECT
2433 - Agricultural Field
Green Leaf Trees Ltd

Calne
Wiltshire, SN11 9TD

Proposed Agricultural Buildings and Track

DRAWING:
Location and Site Plan
1:1250 @A1

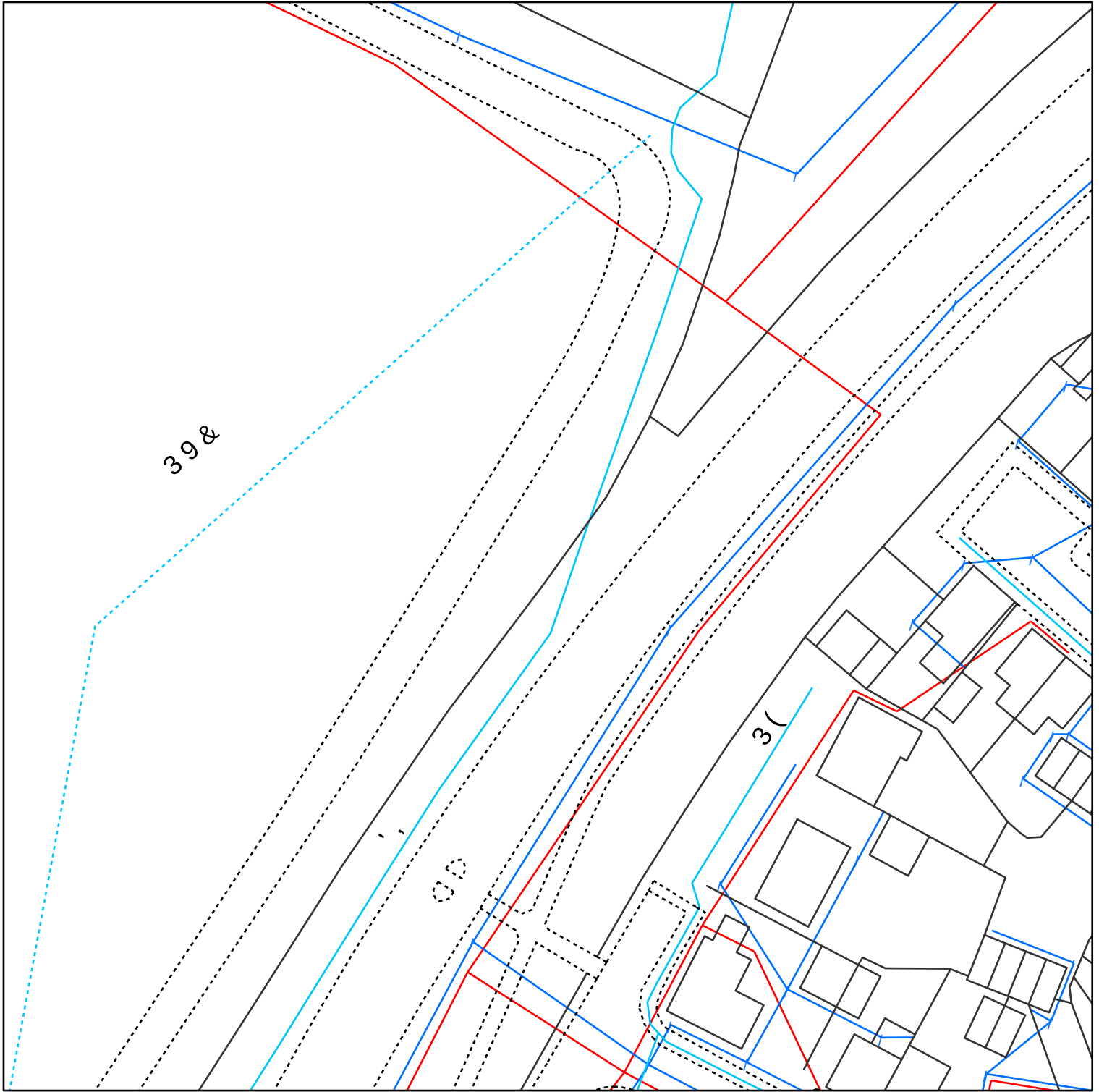
Drp No:2433.03.01 Rev B
24/09/2025



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Appendix C – Wessex Water Sewer Maps

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Wessex Water

YTL GROUP

YTL

[illegible][illegible]

The diagram shows a blue line segment and a red line segment intersecting at a right angle. The red line segment is perpendicular to the blue line segment. A black line segment is also shown, and a dashed black line segment is drawn perpendicular to it. The diagram illustrates the relationship between a line and its perpendicular bisector.

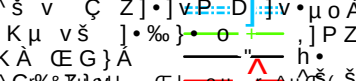
[illegible][illegible]

The diagram illustrates a geometric construction. A blue line segment is shown with a small blue tick mark. A black line segment is drawn perpendicular to the blue line segment, with a right-angle symbol indicating the intersection. A red line segment is also shown, intersecting the blue line segment. A dashed black line segment is drawn parallel to the blue line segment. A small square indicates a right angle at the intersection of the black line segment and the red line segment.

[illegible]

The diagram illustrates a geometric configuration on a coordinate plane. A black line segment, representing a boundary, slopes downwards from left to right. A blue line segment and a red line segment intersect this black line segment. The blue line segment is positioned above the red line segment. A dashed line segment is also shown, intersecting the black line segment. The diagram is bounded by a coordinate system with x and y axes.

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Wessex Water

YTL GROUP

YTL

Appendix D – Infiltration Tests



Figure 2 - Test Pit 1 located close to new poly tunnel



Figure 3 - Minimal drop in water level over 24 hours



Figure 4 - Test Pit 2 located close to new offices



Figure 5 - Minimal drop in water level over 24 hours

Appendix E – Attenuation Tank Calculations

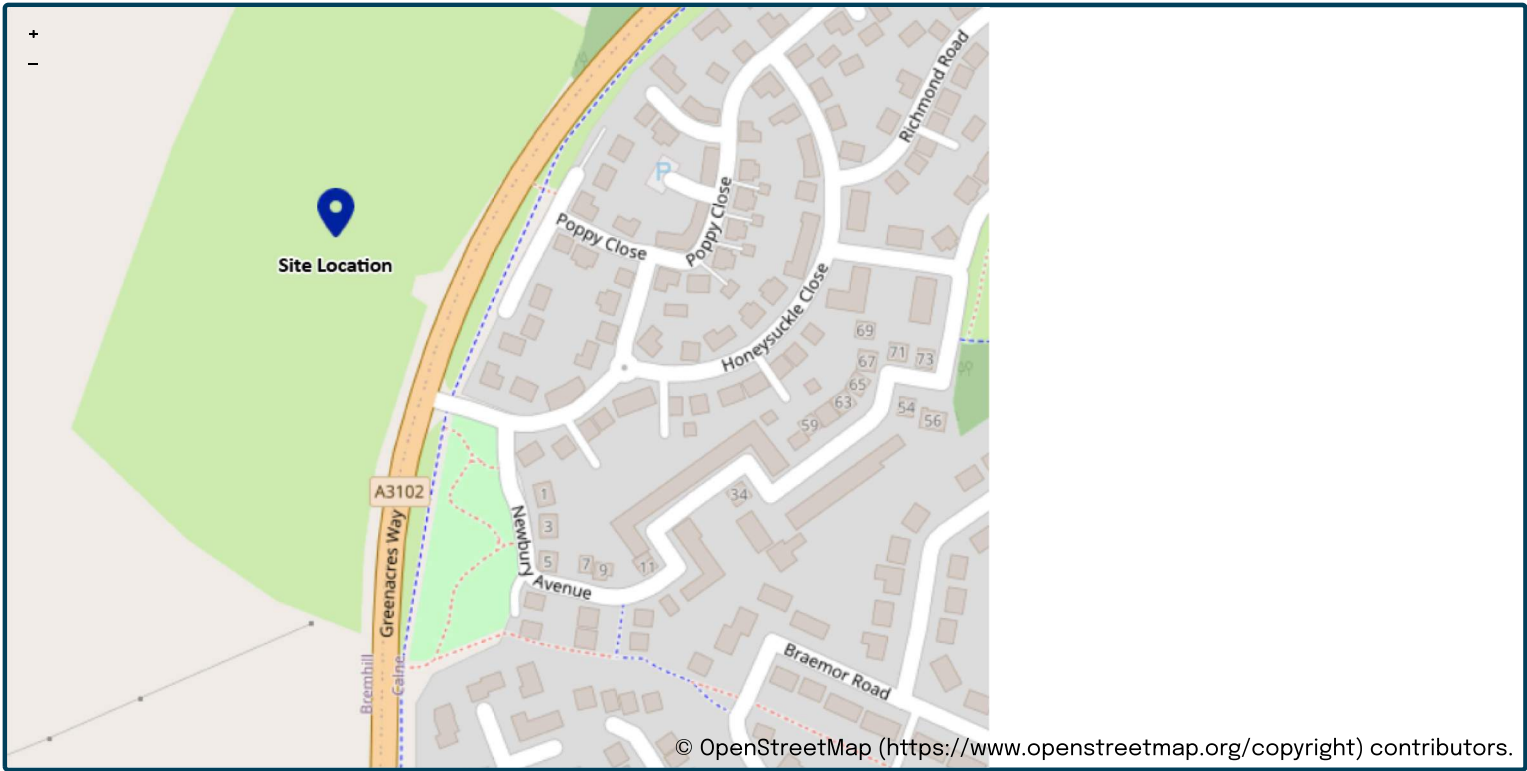
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	16/02/2026
Calculated by	Joe
Reference	Green Leaf Trees
Model version	2.2.2

Location

Site name	Green Leaf Trees
Site location	Calne



Site easting (British National Grid)	398717
Site northing (British National Grid)	171802

Site details

Total site area (ha)	5	ha
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Greenfield runoff

Method

Method	IH124	
IH124		
	<u>My value</u>	<u>Map value</u>
SAAR (mm)	724 mm	724
How should SPR be derived?	WRAP soil type	
WRAP soil type	4	4
SPR	0.47	
QBar (IH124) (l/s)	25.1 l/s	

Growth curve factors

	<u>My value</u>	<u>Map value</u>
Hydrological region	8	8
1 year growth factor	0.78	
2 year growth factor	0.93	
10 year growth factor	1.49	
30 year growth factor	1.95	
100 year growth factor	2.43	
200 year growth factor	2.78	

Results

Method	IH124	
Flow rate 1 year (l/s)	19.6 l/s	
Flow rate 2 year (l/s)	23.4 l/s	
Flow rate 10 years (l/s)	37.4 l/s	
Flow rate 30 years (l/s)	49.0 l/s	
Flow rate 100 years (l/s)	61.0 l/s	
Flow rate 200 years (l/s)	69.8 l/s	

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.



Project	Green Leaf Trees	Ref	26085
Description	Area 1 Trench Storage	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	1000 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	170 m
Depth	1 m
Width	1 m
Void	30 %

Results

Discharge Limit	2.5 l/s
Storage Volume	50.78 m ³
Minimum Units (0.19m3 per Unit)	268 Units
Critical storm duration	2 hrs

AquaCell Modular Units

	Number	Dimensions
Length	170	170 m
Width	2	1 m
Height	2.5	1 m
Total	850	51 m ³



Project	Green Leaf Trees	Ref	26085
Description	Area 1 Attenuation Tank	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	500 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	8 m
Depth	1 m
Width	3 m
Void	95 %

Results

Discharge Limit	2 l/s
Storage Volume	21.22 m ³
Minimum Units (0.19m3 per Unit)	112 Units
Critical storm duration	1 hrs

AquaCell Modular Units

	Number	Dimensions
Length	8	8 m
Width	2	1 m
Height	7.5	3 m
Total	120	22.8 m ³



Project	Green Leaf Trees	Ref	26085
Description	Area 2 Trench Storage	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	1050 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	185 m
Depth	1 m
Width	1 m
Void	30 %

Results

Discharge Limit	2.5 l/s
Storage Volume	54.22 m ³
Minimum Units (0.19m3 per Unit)	286 Units
Critical storm duration	2 hrs

AquaCell Modular Units

	Number	Dimensions
Length	185	185 m
Width	2	1 m
Height	2.5	1 m
Total	925	55.5 m ³



Project	Green Leaf Trees	Ref	26085
Description	Area 2 Attenuation Tank	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	950 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	14 m
Depth	1 m
Width	4 m
Void	95 %

Results

Discharge Limit	2 l/s
Storage Volume	51.38 m ³
Minimum Units (0.19m3 per Unit)	271 Units
Critical storm duration	4 hrs

AquaCell Modular Units

	Number	Dimensions
Length	14	14 m
Width	2	1 m
Height	10	4 m
Total	280	53.2 m ³



Project	Green Leaf Trees	Ref	26085
Description	Area 3 Trench Storage	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	1000 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	180 m
Depth	1 m
Width	1 m
Void	30 %

Results

Discharge Limit	2.5 l/s
Storage Volume	50.78 m ³
Minimum Units (0.19m3 per Unit)	268 Units
Critical storm duration	2 hrs

AquaCell Modular Units

	Number	Dimensions
Length	180	180 m
Width	2	1 m
Height	2.5	1 m
Total	900	54 m ³



Project	Green Leaf Trees	Ref	26085
Description	Area 3 Attenuation Tank	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	800 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	11 m
Depth	1 m
Width	4 m
Void	95 %

Results

Discharge Limit	2 l/s
Storage Volume	40.62 m ³
Minimum Units (0.19m3 per Unit)	214 Units
Critical storm duration	2 hrs

AquaCell Modular Units

	Number	Dimensions
Length	11	11 m
Width	2	1 m
Height	10	4 m
Total	220	41.8 m ³



Project	Green Leaf Trees	Ref	26085
Description	Area 4 Trench Storage	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	250 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	78 m
Depth	1 m
Width	1 m
Void	30 %

Results

Discharge Limit	2 l/s
Storage Volume	7.27 m ³
Minimum Units (0.19m3 per Unit)	39 Units
Critical storm duration	0.5 hrs

AquaCell Modular Units

	Number	Dimensions
Length	78	78 m
Width	2	1 m
Height	2.5	1 m
Total	390	23.4 m ³



Project	Green Leaf Trees	Ref	26085
Description	Offices Attenuation Tank	Sheet	1
Made	JN	Date	23/02/2026
Checked	DW	Date	23/02/2026

Drainage Details

Area to be drained	375 m ²
Catchment	Combined
Rainfall for 60 minute storm, 5 yr frequency (M5 - 60)	20 mm
Percentage run-off	100 %
Return Period	100 Years
Rainfall ratio, r value (M5 - 60 ÷ M5 - 2 day)	0.35
Country	England and Wales
Climate Change	40 %

Attenuation Tank Parameters

Length	6 m
Depth	1 m
Width	3 m
Void	95 %

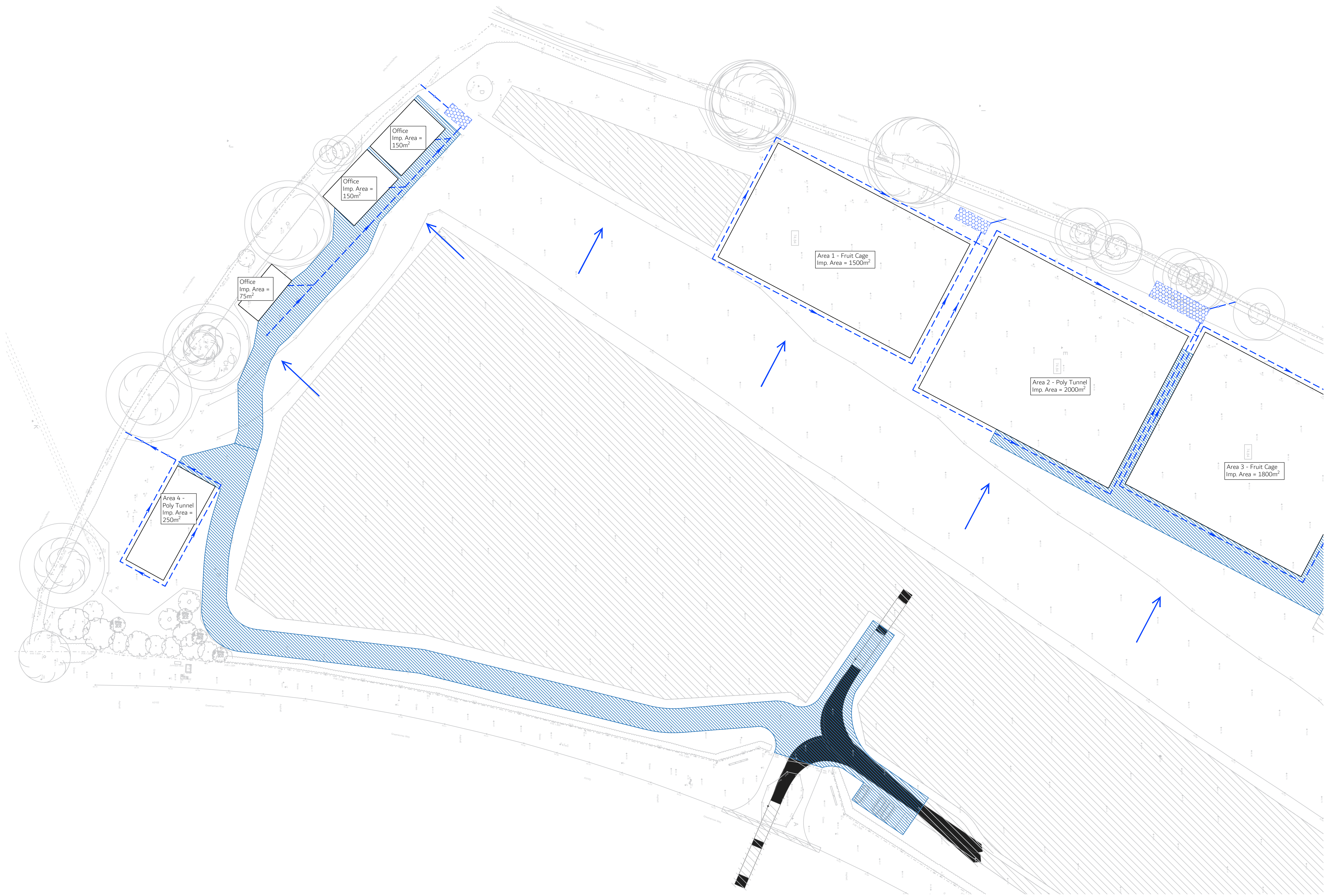
Results

Discharge Limit	2 l/s
Storage Volume	14.12 m ³
Minimum Units (0.19m3 per Unit)	75 Units
Critical storm duration	1 hrs

AquaCell Modular Units

	Number	Dimensions
Length	6	6 m
Width	2	1 m
Height	7.5	3 m
Total	90	17.1 m ³

Appendix F – Site Wide Drainage Layout Drawings



1000.01 - Site Wide Drainage (Part 1 of 2)
(Scale 1:500)

KEYPLAN

NOTES

1. This drawing is to be read in conjunction with all relevant associated documents.

2. All dimensions are to be checked prior to the commencement of works on site. Any discrepancies are to be reported to the Engineer immediately.

3. Do not scale this drawing.

4. All dimensions are in millimetres unless noted otherwise.

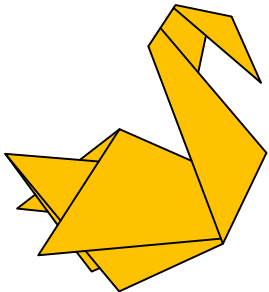
5. This drawing is to be printed in colour.

6. This drawing is copyright.

7. This drawing is to be printed on A1 paper.

P01	Issued for Information	JN	JN	DW
Rev	Description	Drawn by	Designed	Reviewed
		Date	Date	Date

REV.	STATUS
P01	For Information



SWAN
structures
CIVIL & STRUCTURAL ENGINEERING CONSULTANTS
info@swanstructures.co.uk

PROJECT CODE

26085

CLIENT

Green Leaf Trees Ltd

PROJECT NAME

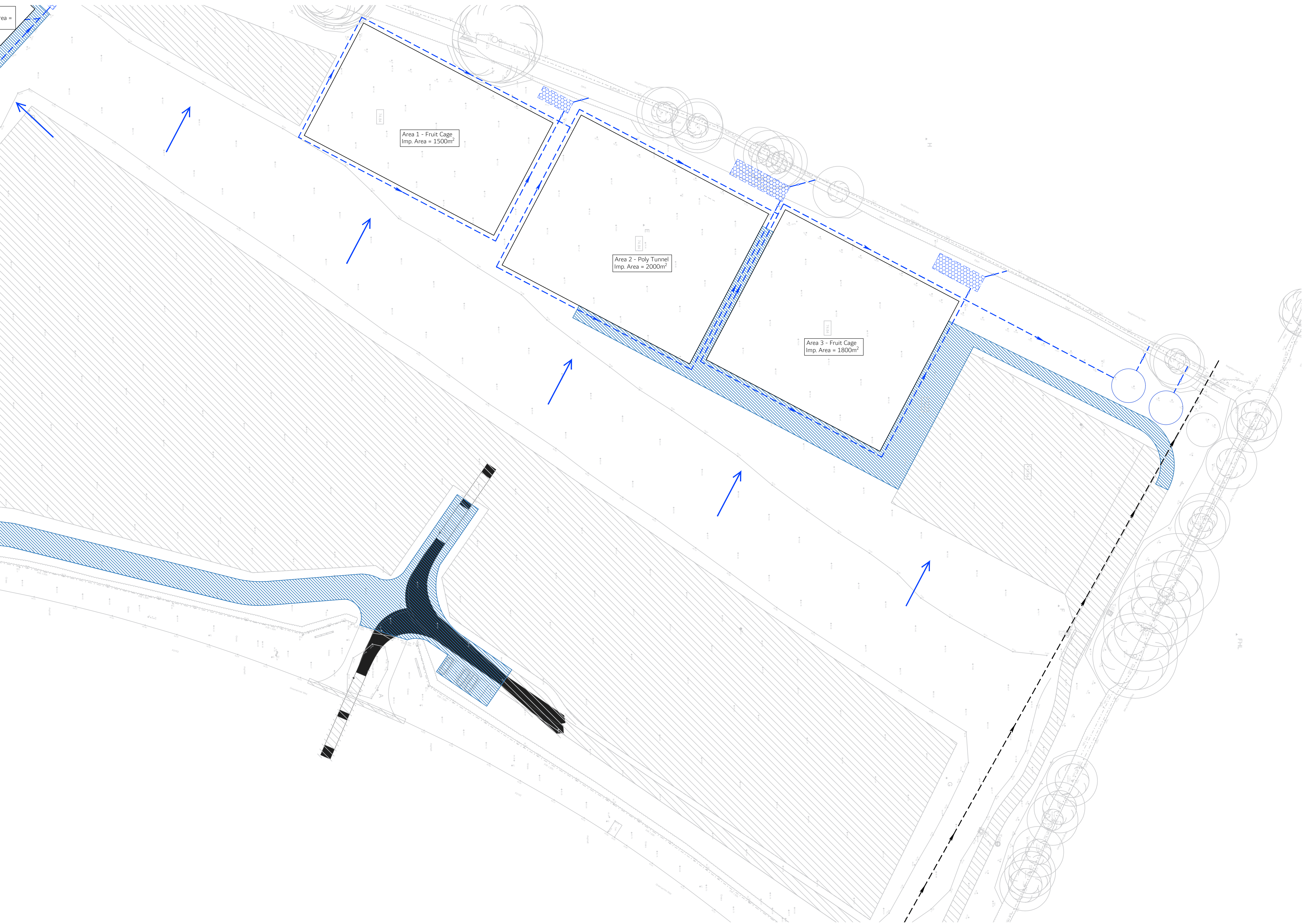
Green Leaf Trees

DRAWING NAME

Site Wide Drainage Part 1 of 2

CODE-ORIGIN-ZONE-LEVEL-TYPE-DISCIPLINE-NUMBER

26085-SWN-XX-XX-D-C-1000



1001.01 - Site Wide Drainage (Part 2 of 2)
(Scale 1:500)

KEYPLAN

NOTES

1. This drawing is to be read in conjunction with all relevant associated documents.

2. All dimensions are to be checked prior to the commencement of works on site. Any discrepancies are to be reported to the Engineer immediately.

3. Do not scale this drawing.

4. All dimensions are in millimetres unless noted otherwise.

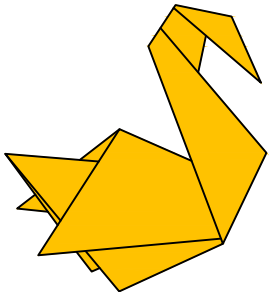
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6. This drawing is copyright.

7. This drawing is to be printed on A1 paper.

P01	Issued for Information	JN	JN	DW
Rev	Description	Drawn by	Designed	Reviewed
		Date	Date	Date

REV.	STATUS
P01	For Information



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CIVIL & STRUCTURAL ENGINEERING CONSULTANTS
info@swanstructures.co.uk

PROJECT CODE

26085

CLIENT

Green Leaf Trees Ltd

PROJECT NAME

Green Leaf Trees

DRAWING NAME

Site Wide Drainage Part 2 of 2

CODE-ORIGIN-ZONE-LEVEL-TYPE-DISCIPLINE-NUMBER

26085-SWN-XX-XX-D-C-1001