Oberlanders Architects

Finderne Community Housing

RIBA Stage 2 Report

Brockloch Site, Rafford

November 2023 **RevV1**





Revision	Date	Issue
A	09/11/2023	Stage 2 issue to client

Executive Summary

This report presents RIBA Stage 2 of Phase 1 of the Brockloch site in Rafford - a development of 12 affordable homes for the Finderne Development Trust.

The report consolidates RIBA 2 “Concept Design”

- Consolidation of the brief and proposals developed during Stag 1.
- Design development of the site organisation
- Development of materials palette
- Development of housing type massing and organisation
- Drainage and vehicle civils proposals
- Next steps and summary

Project Team

Client - Finderne Development Trust

Brian Higgs	Trustee
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1.0 | INTRODUCTION

1.1 - INTRODUCTION - PROJECT SCOPE

Project Scope

The overall project scope is to design and obtain Statutory consents for new affordable homes on the Brockloch site in Rafford, comprising 12No. new build homes. The housing mix is discussed later in the report. The client for the project is the Finderne Development Trust, described below.
This project is considered to be Phase 1 of two phases, the second phase being a community development within the site, which is as yet undefined.
This report covers RIBA Stage 2- *Concept Design*.

Project Partners

Finderne Development Trust (FDT) - is a company with community interests which aspires to be a driving force in the economic rural development of the Finderne area. Finderne is an area of stunning natural beauty to the south of Forres with a population of just over a thousand people. Finderne Development Trust (FDT) is a charity registered in Scotland, SC049191, regulated by the Scottish Charity Regulator (OSCR).

Communities Housing Trust – is a registered charity set up in 1998 to help rural communities secure long-term solutions to their local housing needs. It works with communities across Scotland, to help them understand their housing requirements and assist in the development of projects to deliver affordable rural homes to meet their needs, playing a crucial role in supporting the long-term viability of communities. CHT is acting as Development Agent for FDT.



Aerial view of the Brockloch site

Project Brief

The project brief is comprises two Phases, of which this report considers Phase 1.

Phase 1 is to develop 12 new-build affordable homes. Of the 12 new-builds, 8 will be developed as rental properties and 4 will be developed for discounted sale.

Phase 2 is to develop community facilities, including electric vehicle charging points, polytunnel, allotments, orchard, small rentable shared working space, all with associated servicing and drainage.

Phase 1

The housing development is to be of a robust construction, with space provision to meet *Firm Foundations* guidance. In addition, the new affordable homes will be required to meet Housing For Varying Needs Part 1 and, of course, current Building Regulations including fire suppression.

Finderne Development Trust has identified the following objectives for the development as a whole:

- Robust, low maintenance and future-proofed homes.
- Low running costs for occupants to heat and maintain their home at adequate temperatures year-round.
- Well-ventilated homes which are not susceptible to problems linked to moisture and high occupancy rates.
- Sufficient space to dry clothing externally or internally in an area appropriately designed.
- Garden areas that are appropriate in size and well drained, the divisions of which do not detract from the community feel (i.e. high opaque fencing etc)
- Shared areas requiring maintenance by occupants or contractors will not be discouraged. This scope has not been defined yet but may include allotments, polytunnel and orchard.
- On the overall outline masterplan submission for planning



include all possible non-housing elements which may include: Polytunnel, allotments, orchard, small rentable shared working space.
- Target EPC to be minimum ‘B’ to enable additional funding to be sourced as this is a minimum requirement for some funders.
- Once appointed, discuss level of Building Standard sustainability award which will likely be a minimum of ‘Silver’. Note - since the update to the Scottish Building Regulations in February 2023, it is possible that ‘Gold’ standard may be required in order to meet the requirement for EPC B.

Housing Mix

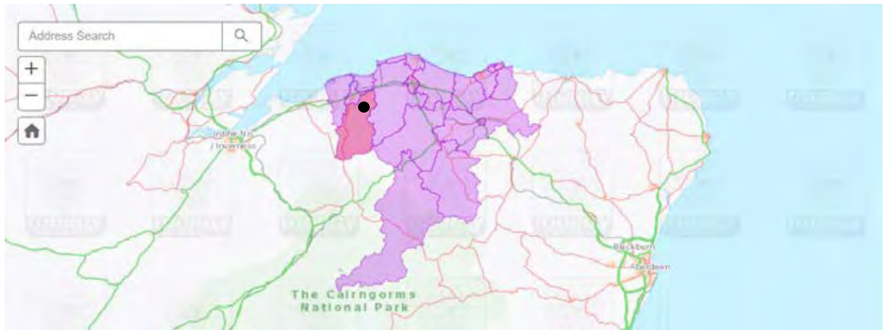
The housing mix has been defined by Finderne Development Trust in conjunction with the Communities Housing Trust as follows:

Rental:
4 x 2 bedroom 4-person semi-detached houses
2 x 3 bedroom 5-person semi-detached houses
2 x 2 bedroom 4-person detached accessible houses.

Discounted sale:
2 x 2 bedroom 4-person semi-detached houses
2 x 3 bedroom 5-person semi-detached houses.

1.3 - INTRODUCTION - LOCATION

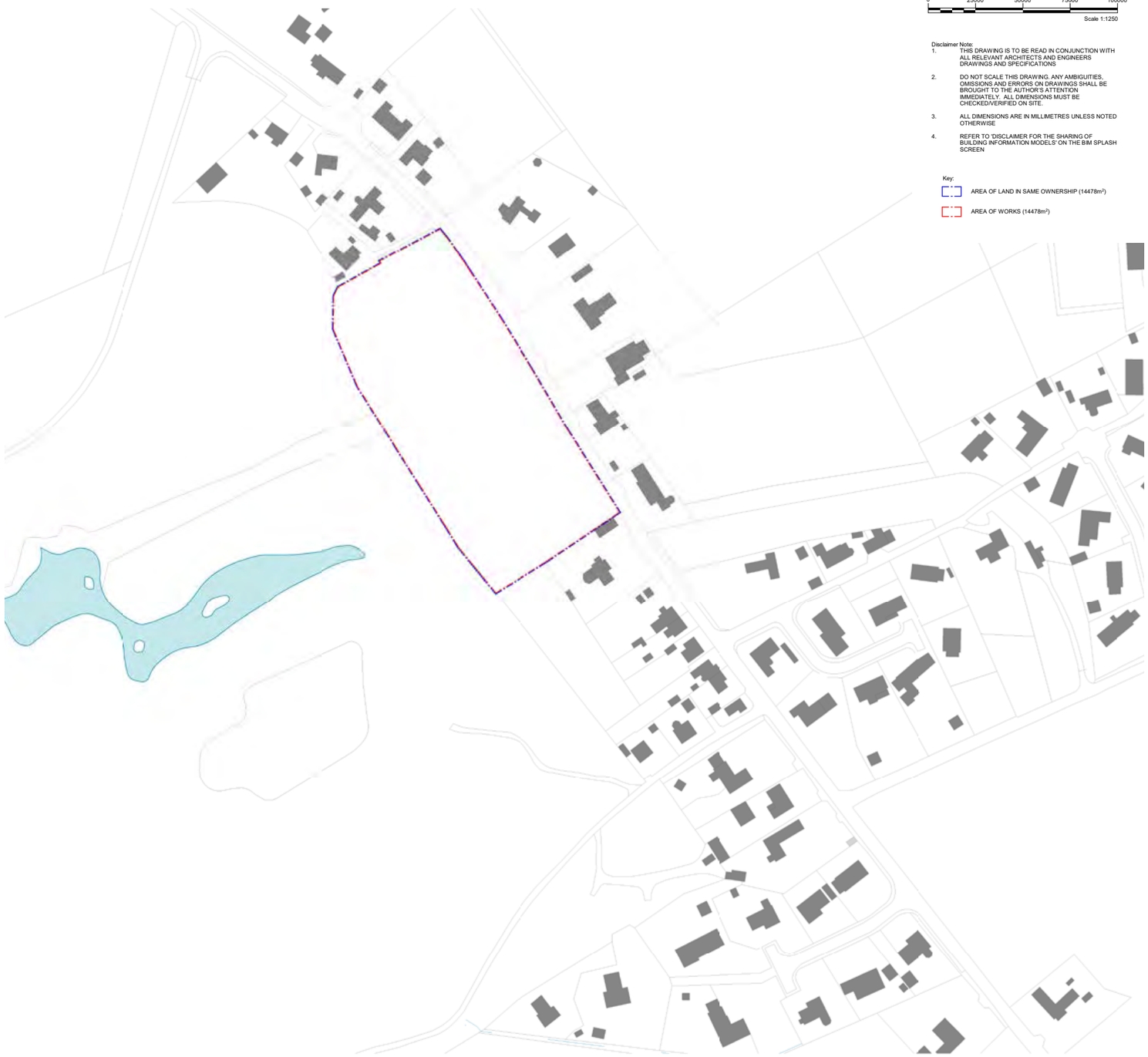
The Brockloch site is located within the village of Rafford, on the B9010, ten minutes drive south from the town of Forres. Rafford sits within the community council area of Finderne, which stretches across an area to the west of the Moray Council boundary. The Finderne Community Council meet in two locations - Rafford in the north and Edinkillie in the south. Logie is also a significant settlement within Finderne.



Moray Council area with Finderne CC in pink



Aerial of the locality with the site in red



Existing Location Plan

1.4 - INTRODUCTION - LOCALITY AND PLACEMAKING

Locality

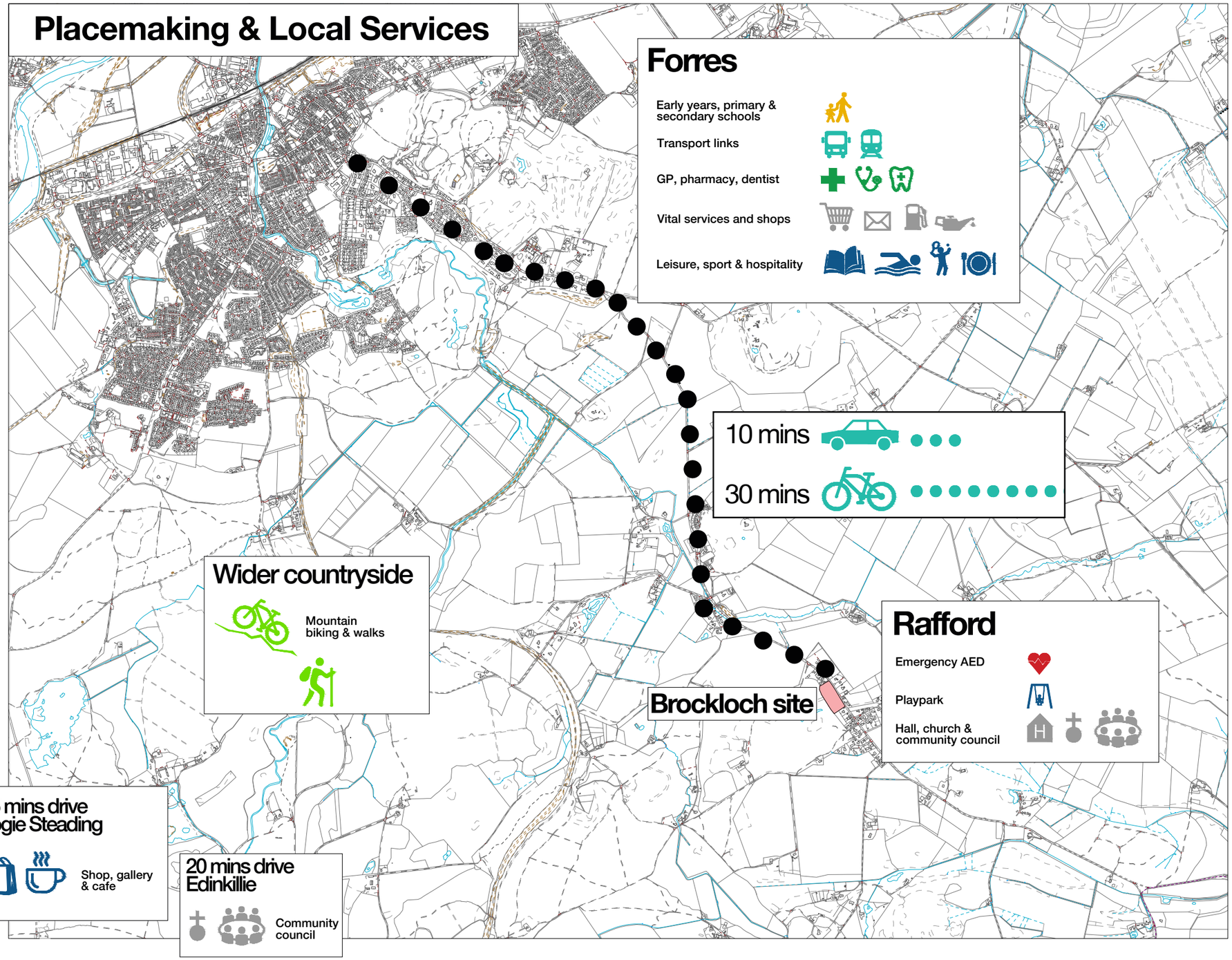
Rafford sits to the south of Forres, and is closely connected to all major services and transport links from there. At present, private transport appears to be the primary means to accessing Forres as the public road is considered unsafe by some for cycling or walking.

It has been identified that bus transport, especially for school age and the elderly needs to be a priority for the wider community outwith this project, The Brockloch development can contribute by providing a pedestrian route alongside the site and a pull-in bus bay, as well as the potential increase in families living in the area.

Placemaking

The graphics opposite and below demonstrate the key community aspects of placemaking that influence housing provision.

It is recognised that the Brockloch site sits within the existing community of Rafford, secondary to Forres where many public services are located. Wider into Finderne and the surrounding countryside, there are rural jobs as well as leisure activities.



1.5 - INTRODUCTION - SITE ANALYSIS

Key Features

The site is a green field site within the village of Rafford, located to the west of the public road the B9010. To the south west the site is bounded by mature private woodland. To the north and south boundaries can be found existing residential properties.



Existing Site Plan

1.5 - INTRODUCTION - SITE ANALYSIS

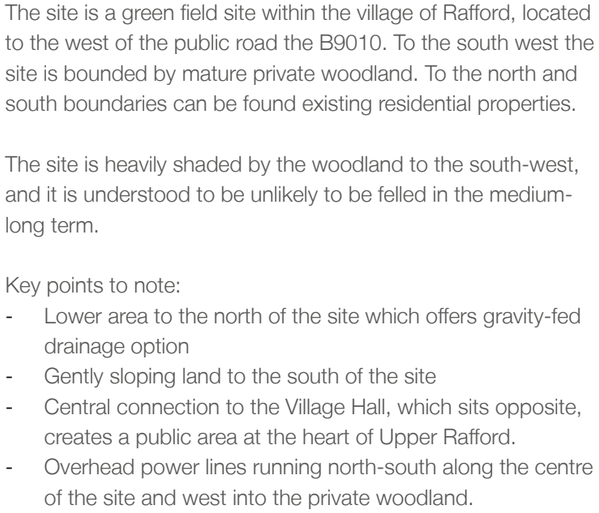
Site Environment

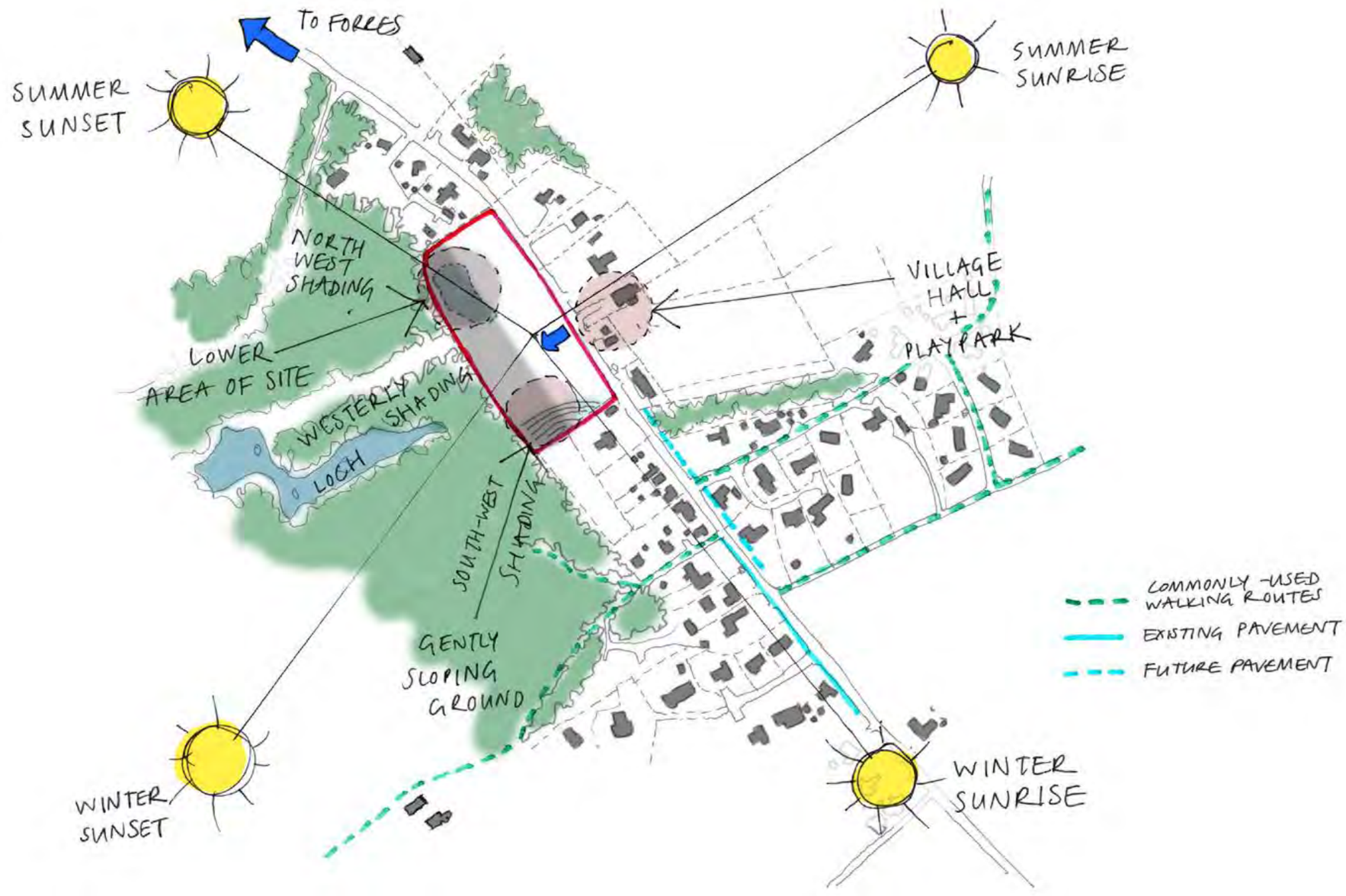
The site is a green field site within the village of Rafford, located to the west of the public road the B9010. To the south west the site is bounded by mature private woodland. To the north and south boundaries can be found existing residential properties.

The site is heavily shaded by the woodland to the south-west, and it is understood to be unlikely to be felled in the medium-long term.

Key points to note:

- Lower area to the north of the site which offers gravity-fed drainage option
- Gently sloping land to the south of the site
- Central connection to the Village Hall, which sits opposite, creates a public area at the heart of Upper Rafford.
- Overhead power lines running north-south along the centre of the site and west into the private woodland.
- BT comms cable at the public road side feeding residential buildings adjacent to the Village Hall.
- Detached pattern of development across Rafford with medium-large plot sizes (500-1500m2) for single homes.
- Village playing field and play park to the rear of the Village Hall.
- Existing surface water drainage culverts the public road from the Village Hall side and is dispersed within the Brockloch site. Possible neighbour's soakaway and local authority tank within south end of site.





1.6 - INTRODUCTION - SITE PHOTOS













Local Development Plan

The Brockloch site is identified in the Moray Council Local Plan. Named 'R-1', it is described as follows:

This site extends to 1.7 hectares and has a ***capacity for 12 houses****. Access into the site should be by a* ***single access****.*

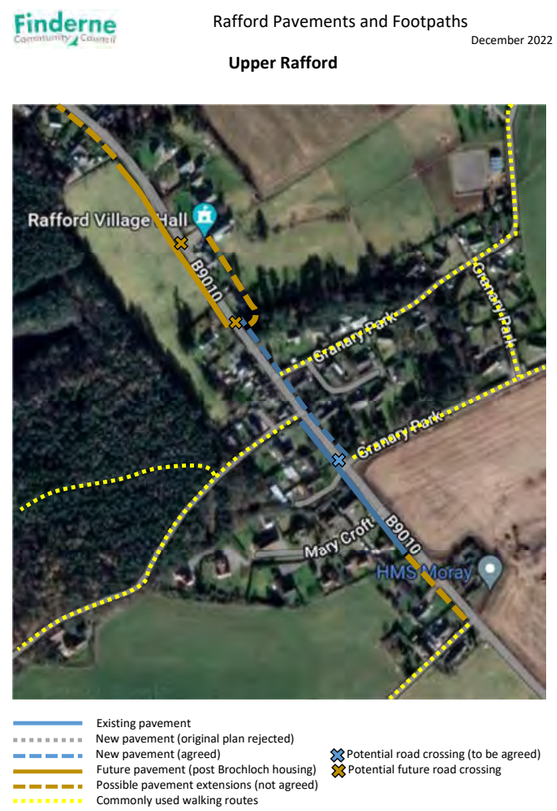
A ***visibility splay of 4.5mx95m*** *must be provided at the junction onto the B9010. Consideration to be given to safe routes to school, which may take the form of a* ***bus bay*** *for school buses. A* ***2.0m wide footway*** *must be provided along the frontage of the site, complete with surface water drainage.*

Drainage arrangements (including the satisfactory disposal of surface water to avoid flooding) must be acceptable to SEPA and Scottish Water. This will not necessarily be by "mains" drainage. Connection to the existing septic tanks would require Scottish Water to upgrade the facilities and this would be investigated with the developer. Alternatively the developer could investigate the provision of a private septic tank.

Development proposals should incorporate traditional features in the house designs. The area to the rear of the existing houses must be retained as opens space/ landscaping.

Houses should ***respect the scale and character of the traditional houses in the village. Overhead cables will require to be relocated.*** *A natural stone wall must be provided along the road frontage reflecting a common feature in the village.*





Pedestrian Improvements

It is widely recognised within Rafford that improved pedestrian routes are required, the upgrade of which is ongoing as shown in the graphic above.

It has been confirmed in the Local Plan and during the Pre-App process that a 2m wide footway will be a planning requirement along the east boundary of the Brockloch site.

The introduction of the National Planning Framework 4 will be a key component of a future Planning Application, with its key policies summarised below:

Exerpt from Nature Scot

"The Fourth National Planning Framework (NPF4) places climate and nature at the centre of the planning system and includes a cross-cutting outcome to improve biodiversity. Policy 1 gives significant weight to the global climate and nature crises to ensure that they are recognised as a priority in all plans and decisions. Policy 3 plays a critical role in ensuring that development will secure positive effects for biodiversity. It rebalances the planning system in favour of conserving, restoring and enhancing biodiversity and promotes nature-based solutions, benefiting people and nature. This policy intends to protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks."

Excerpt from NPF4

- Policy 1 gives significant weight to the global climate emergency and nature crisis in order to ensure that it is recognised as a priority in all plans and decisions.
- Policy 2 will ensure that emissions from new development are minimised as far as possible. A healthy natural environment is key to reducing emissions.
- Policies 3 and 4 protect biodiversity and natural assets, which in turn play a crucial role in carbon reduction
- Policy 3 plays a critical role in ensuring that development will secure positive effects for biodiversity. It rebalances the planning system in favour of conserving, restoring and enhancing biodiversity and promotes investment in nature-based solutions, benefiting people and nature. Proposals will be required to contribute to the enhancement of biodiversity, including by restoring degraded habitats and building and strengthening nature networks. Adverse impacts, including cumulative impacts, of development proposals on the natural environment will be minimised through careful planning and design, taking into account the need to reverse biodiversity loss. Proposals for local development will include appropriate measures to conserve, restore and enhance biodiversity
- Blue and green infrastructure is supported by Policy 20

NPF4 - Policy 1
Tackling the climate & nature crisis

Tacking the climate and nature crises sets out to encourage, promote and facilitate development that addresses the global climate emergency and nature crisis.

The proposed strategy to be developed:

- Target EPC B
- Space heating and DHW stratgey
- Fossil fuel free
- Compliance with HfVN
- Adaptability of housing
- Sustainable drainage strategy
- Timber frame housing

NPF4 - Policy 2
Climate mitigation & adaptation

Climate mitigation and adaption sets out to encourage, promote and facilitate development that minimises emissions and adapts to the current future impacts of climate change.

The proposed strategy to be developed:

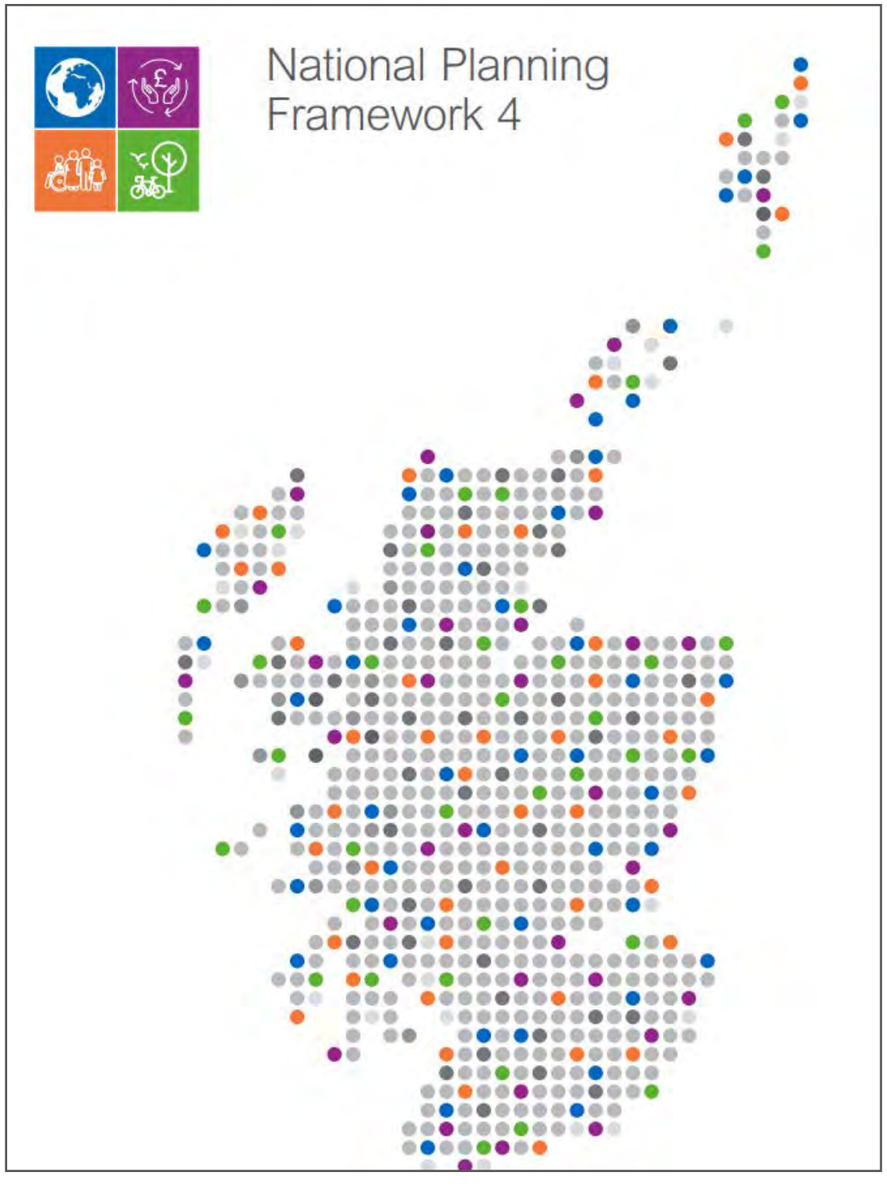
- Consideration of renewables and low carbon technologies
- Reduced energy use and consumption
- Target EPC B

NPF4 - Policy 3
Biodiversity

Biodiversity sets out to protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks.

The proposed strategy to be developed:

- SUDs pond
- Communal green areas
- Pollinator friendly, native planting solutions
- Tree planting to boundary
- Productive trees planting within the site
- Native species hedges for boundary delineation
- Permeable surfacing to parking bays



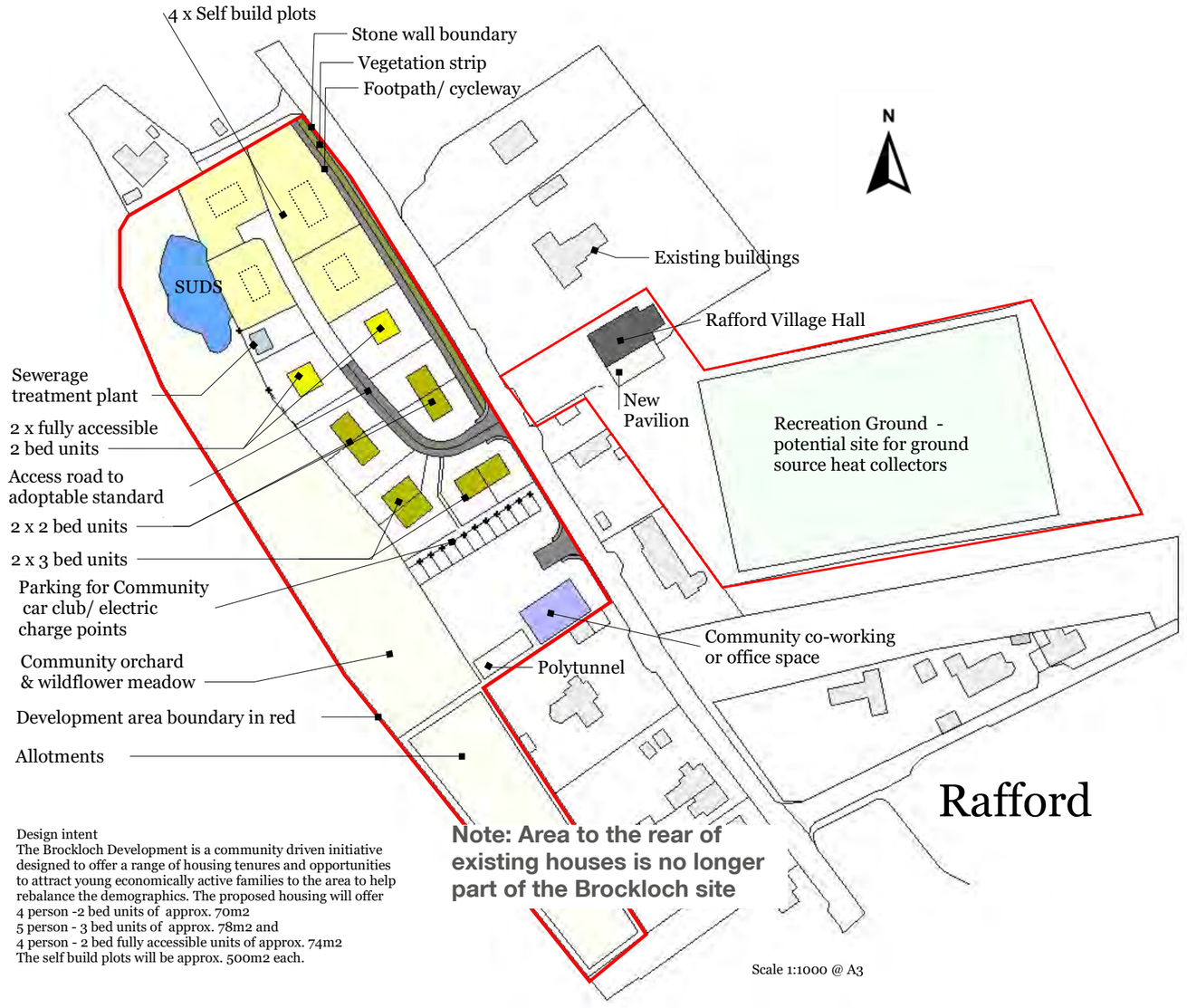
1.9 - INTRODUCTION - PLANNING CONTEXT

Pre-Application Advice

Pre-Application Advice was sought with Moray Council Planning by FDT in 2021, which was assessed against the site plan shown opposite for 14 homes/plots. The comments by Moray Council have been incorporated in the design development of Stage 1.

Key findings in relation to the housing element are summarised below:

- Tree protection plan and mitigation plan may have to be provided if the trees or trees bordering the site are affected by proposals - it was agreed that a buffer zone would be formed along the tree boundary to mitigate this.
- Bus bay, safe routes to school and a single point of access required.
- Visibility splay 2.4m by 70m in both directions required.
- Site capacity for 12 units (to be considered through Quality Auditing).
- Self build plots to be >500m2
- Developments >10 houses are subject to a Quality Audit with Placemaking Statement, Biodiversity Plan and Open Space assessment to be included in a future planning application. Detailed landscaping proposals required including opportunities to integrate blue and green networks.
- Semi-mature tree planting and shrubs to the roadside.
- Requirement for high quality house type designs in a traditional or contemporary interpretation of the rural vernacular.
- Strong frontage to the road with adequate space for parking to the sides, behind the building line, with a minimum of 50% of the car parking to the side or rear.
- Consideration of a design code to set out design intentions for the self-build plots.
- Deliver good levels of natural surveillance with low boundary walls, dual frontages and well lit routes.
- Fibre optic broadband to be provided for all properties (unless technically unfeasible) and access to charging points to be provided (individual or communal)
- Include assessments to determine the impacts upon environment, transport network, trees, flood risk and drainage.
- Three road gullies on the opposite side of the road, outside Hillview/Trochail drain into a pipe which takes surface water under the road to discharge in the existing field. This drainage infrastructure must be retained.
- Drainage Impact Assessment required for developments of 10 properties or more, with drainage designed to 1:30 year return period including climate change.
- Applicant to assess whether there is a fluvial flood risk from the online SEPA maps - if so a Flood Risk Assessment will be required.
- This road would need to be to adoption standards and have a turning area which can accommodate a Moray Council refuse collection vehicle.
- Developer obligations - A section 75 could be entered into to secure DO rather than being paid up-front. Any affordable housing and accessible housing will be secured by condition.



- **Likely consultees for future application:**

Strategic Planning and Development	Contaminated Land
Environmental Health	Transportation
Moray Flood Risk Management	Developer Obligations
Scottish Environment Protection Agency	NatureScot
Scottish Water	

- **Additional Information Required for future applications**

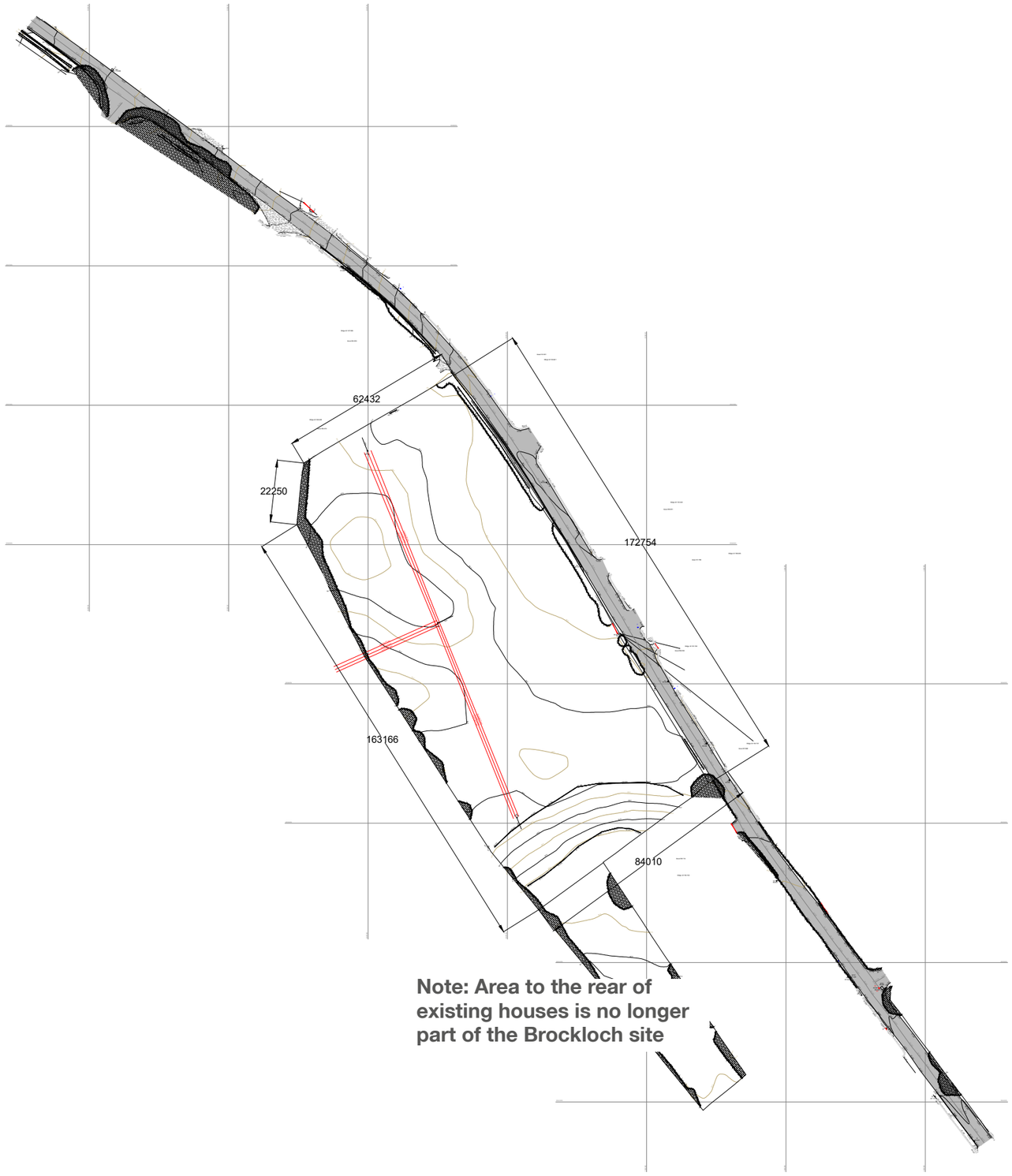
Environmental Impact Assessment - submit a screening opinion request to ascertain necessity	Flood Risk Assessment (if required)
Design and Access Statement / Development Framework	Landscape / Planting Plan
Drainage Impact Assessment	Landscape Maintenance / Management Plan
Ecological Survey (if required)	Tree / Woodland survey
	Noise Impact Assessment

1.10 - INTRODUCTION - TOPOGRAPHICAL SITE SURVEY

Topographical

Surveyer Caintech have previously undertaken a digital topographical survey of the Brockloch site, made available in 2D DWG and pdf format.

The survey picks up key physical features including:
- Canopy edge
- Overhead lines and poles
- Road edge
- Fencing
- Fire hydrant (tbc)
- Gates
- Levels against the OS datum
- Ridge and eaves height of nearby houses



Note: Area to the rear of existing houses is no longer part of the Brockloch site

2.0 | STAGE 1 SUMMARY

DESIGN & PUBLIC CONSULTATION

2.1 - STAGE 1 DEVELOPMENT - DESIGN SUMMARY

Design Development

During RIBA Stage 1, the sketch proposal for the Brockloch site was developed in line with the guidance from the Moray Council Pre-App process and feedback from the public consultation in November 2022.

The design team took into account the requirement for a single access point to the site from the public road, and it is suggested that it sits opposite the Village Hall to create a central 'hub' to Upper Rafford.

The previous drainage proposal was deemed sensible in regards location and size, and is shown in the shadier north-west side of the site.
Plot and road layout were updated, including the Moray Council suggestion for the acceptable minimum size of self-build plot.

Key

Phase 1

1. New access to public road - opposite village hall
2. Community orchard
3. 10x new houses, semi-detached 2 and 3-bed homes
4. 2x house plots for sale to self builders - provision to be appraised by FDT prior to the next design stage.
5. Sustainable drainage systems (SUDs) to serve new development
6. Bus bay and new pedestrian footpath
7. Existing village hall

Phase 2

Scope to be defined - New community building, polytunnels, allotments, EV charging.



2.2 - STAGE 1 DEVELOPMENT - RURAL AFFORDABLE HOUSING CASE STUDIES

Ardgeal, Kincraig

- 10x sustainable homes for low-cost home ownership that protects the ongoing affordability if they are sold in the future
- Local timber and materials used.
- Local trainees were involved in the construction of six homes.



Staffin, Isle of Skye

- 6x affordable 3-bed homes, providing accommodation for 12 adults and 8 children.
- Tackling a lack of available accommodation locally and a falling pupil roll at the local school.
- Mix of traditional and modern materials.



Old Sawmill, Rothiemurchus

- 6x self-build homes on Rothiemurchus land including four affordable plots.
- Rural Housing Burden attached; a legal title condition that protects the property affordability in perpetuity and prioritises the local community.



Inverdruie, by Aviemore

- 6x affordable homes for Albyn Housing provider.
- Single point of vehicle access to existing road plus pedestrian routes.
- A mix of colours and materials to provide variety across the development.



2.3 - STAGE 1 DEVELOPMENT - SITE PLAN LAYOUT



KEY

1. Undergrounding of telecom cables
2. Telecom pole relocated
3. School bus bay
4. 2m wide footpath alongside road
5. Treatment plant & soakaway to serve houses
6. SUDS infiltration pond
7. Phase 2 - community development
8. Zone for future drainage for community development

2b. Semi-detached 2-bed
3b. Semi-detached 3-bed
2ba Semi-detached accessible 2 bed
SB Self build plot

New native planting

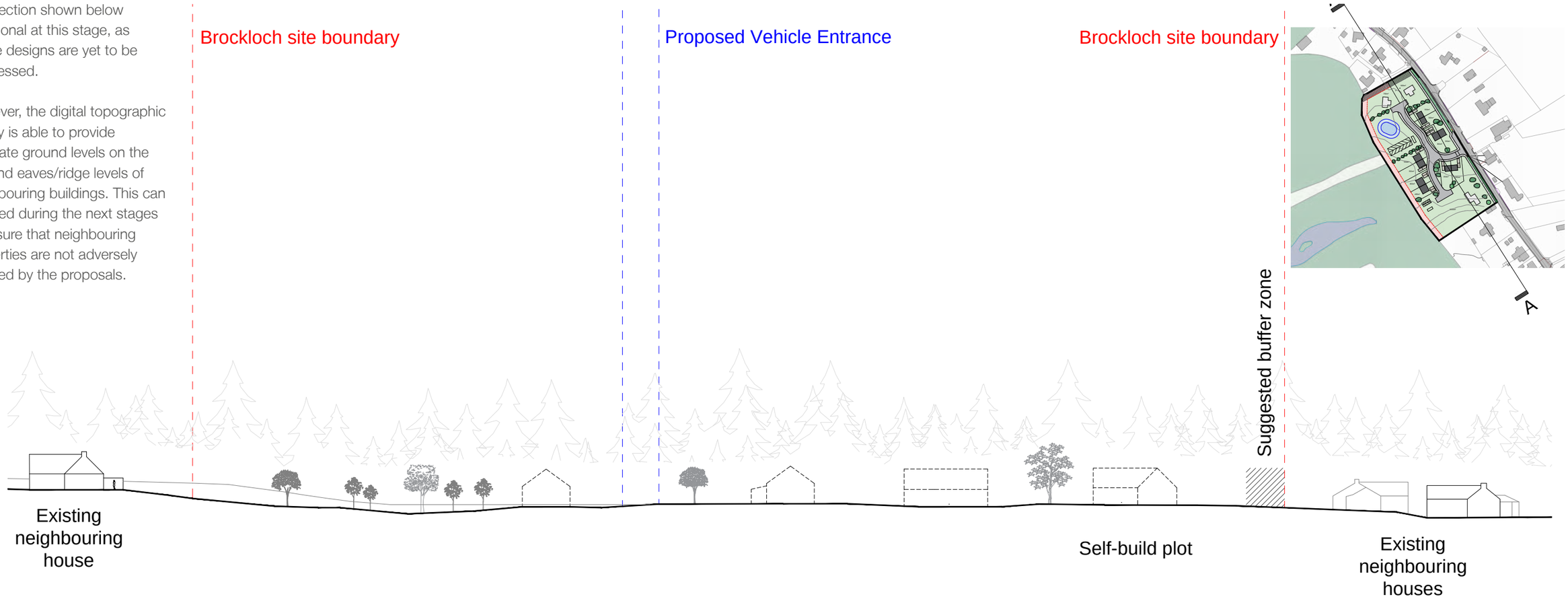
Zone for SSE underground cables

6m suggested development buffer zone

2.4 - STAGE 1 DEVELOPMENT - SITE SECTION

The section shown below is notional at this stage, as house designs are yet to be progressed.

However, the digital topographic survey is able to provide accurate ground levels on the site and eaves/ridge levels of neighbouring buildings. This can be used during the next stages to ensure that neighbouring properties are not adversely affected by the proposals.



2.5 - STAGE 1 DEVELOPMENT - PUBLIC CONSULTATION

Comments, Questions + Response

A public consultation was held in Rafford Village Hall on Thursday 16th February 2023 to resent Stage 1 proposals. The afternoon and evening event was well attended, with a wide range of views expressed regarding the proposals. Some of the key comments have been presented here, with a summary of the answers provided on the day. It should be noted that several frequently occurring themes, particularly around road safety, are not necessarily within the power of the Brockloch project.

Concerns around neighbour overshadowing, proximity of new houses and levels on the site

The number of houses on the site is restricted to 12 by the Local Plan designation, and Moray Council have indicated that a 'design code' would be necessary for the self build plot, which can restrict the height of new builds. In addition it is proposed to create a 'no build' buffer zone to the north boundary, meaning that new buildings would be in excess of 30m from neighbouring properties mitigating overshadowing despite level differences

What are the timescales for the project?

The design proposals need to be developed and taken through Statutory consents - Planning and Building Warrant prior to work beginning on site. This process could take a further 6 months, but is largely dependent on funding routes being secured.

Who really benefits from it?

The site is very shaded, especially in winter

Similar to the neighbouring properties, the Brockloch site will experience afternoon shade, particularly during winter. This can be partially mitigated through placement of new houses on the east side of the site, by careful orientation of openings and if possible making use of top/sky light

Would the new houses include sheds or garages?

The plots will be sized sufficiently to allow future outbuildings, however funding for affordable housing would not typically support the cost uplift for garages or sheds

Interested in a co-op model of housing and participatory approach to design

Additional traffic is a concern, as are existing traffic speeds in the village

The increased traffic will have been taken into account during the Local Plan process, and any new development must be approved by the Moray Council Transportation Team. It is hoped that an increase in the number of families, a new community facility and the access point being opposite the Village Hall will create a public 'hub' for the village which could stimulate wider action around traffic calming and road safety.

Rafford does not need affordable housing, there are no shops and no public transport

Since 2015 the Moray Local Plan has identified the Brockloch site for 12 new housing units. Key to sustainable new housing will be a Moray-wide transport strategy to strengthen links to Forres where many public services are located.

What is the landscape strategy?

Biodiversity and landscape strategy will be developed during the Planning design phase.

Excited to see well considered proposals







Rafford does not need affordable housing. It does not make sense in this location

Worried about drainage and water run off

The engineer's ground investigation report and trial pits show that this particular site has good drainage options. Drainage design includes for existing surface water collections, and should therefore improve the drainage on site.

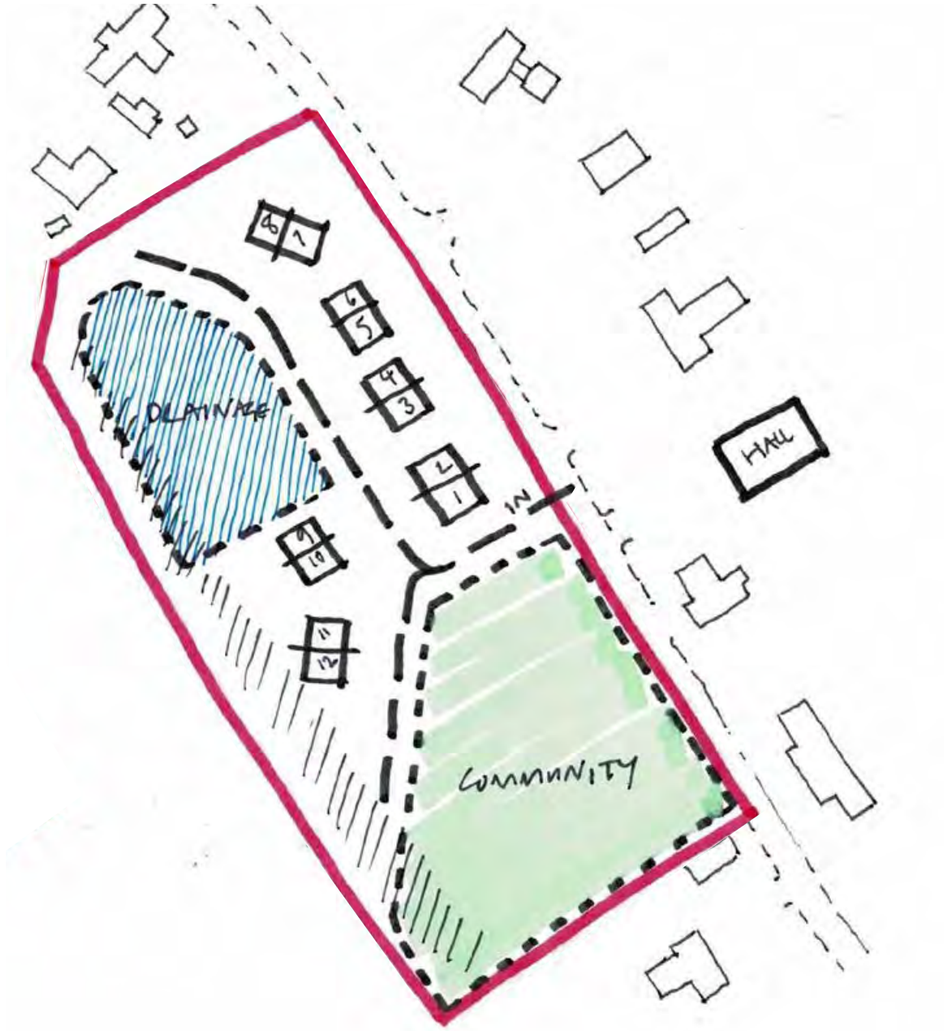
Can drainage and ground investigation reports be shared with self builders?

3.0 | STAGE 2 CONCEPT
DESIGN DEVELOPMENT

3.1 - CONCEPT DESIGN - SITE LAYOUT DEVELOPMENT

During Stage 2, as an outcome of the removal of the self-build plots, the sketch plans shown below were developed and appraised. Although subtly different, the key aim was to respond to the local building layout typology and to create a varied volumetric proposal across the sit, avoiding uniformity whilst assuming a limited number of house types.

Option 2 clearly responded more appropriately to the local pattern and was further developed.



Layout Option 1

Tighter spacing, with a more dense layout.

- Single site access from public road
- Large community space allocated to South of site
- Drainage and SUDs to the north west of the site
- Houses more compactly arranged around central road
- Alll houses in semi-detached arrangement



Layout Option 2

Slightly larger plots, with the layout aligned to Rafford typology

- Single site access from public road
- Smaller community space allocated to South East of site
- Drainage and SuDs to the North West of the site, avoiding dense contours
- Houses more compactly arranged around central road, with 4 of the units accessed from split road.
- Majority semi-detatched and limited number of detached - variety of volumes aligning with rural typology

3.2 - CONCEPT DESIGN - LAYOUT PROPOSAL - PLAN

Site Plan Layout

Housing Provision

- The following housing mix has been shown on the site layout:
  - 4no. 3-bed semi-detached
  - 6no. 2 bed semi-detached
  - 2no. 2-bed accessible detached
- The housing layout follows the proposed access road, and housing types are spread across the site to allow for variation.
- Each house is located within a generous plot varying in size.

Parking

- 2no. parking bays are provided per dwelling
- 4no. visitor parking bays are provided through the site
- Of these visitor parking bays at least 1 will be an accessible bay.
- EV charging points - 1 private supply per house, a visitor supply at an accessible visitor parking bay and infrastructure for future connections ducted back to a landlord supply. (M&E engineer to confirm number and exact requirements)
- All non accessible bays are 5x2.5m or 6m in length if parallel parking.

Vehicle Access Road

- A 5.5m road through the site is provided to access dwellings - this is a single road, which then splits to two residential accesses.
- The access road incorporates turning bays at either end of the site for the turning of emergency, refuse and large vehicles.

Pedestrian Access

A 2m wide footway has been provided throughout the site, and along the main road, parallel to the edge of the site. At next stage the option of shared surface will beinvestigated by Civils.

Community Provision

- The community provision is not part of the scope of the project, and space has been allocated to the south-east of the site for community resources.
- Placeholders for the community orchard and community hub are located to the south east of the site, parallel with the existing road and school bus bay.
- Future parking provision is also shown for a community hub, requirement tbc.
- An area for a cycle hub is shown.

Drainage

- The SUDs strategy is located to the north-west corner of the site.
- Foul treatment and soakaway are located to the south of the SUDs pond.

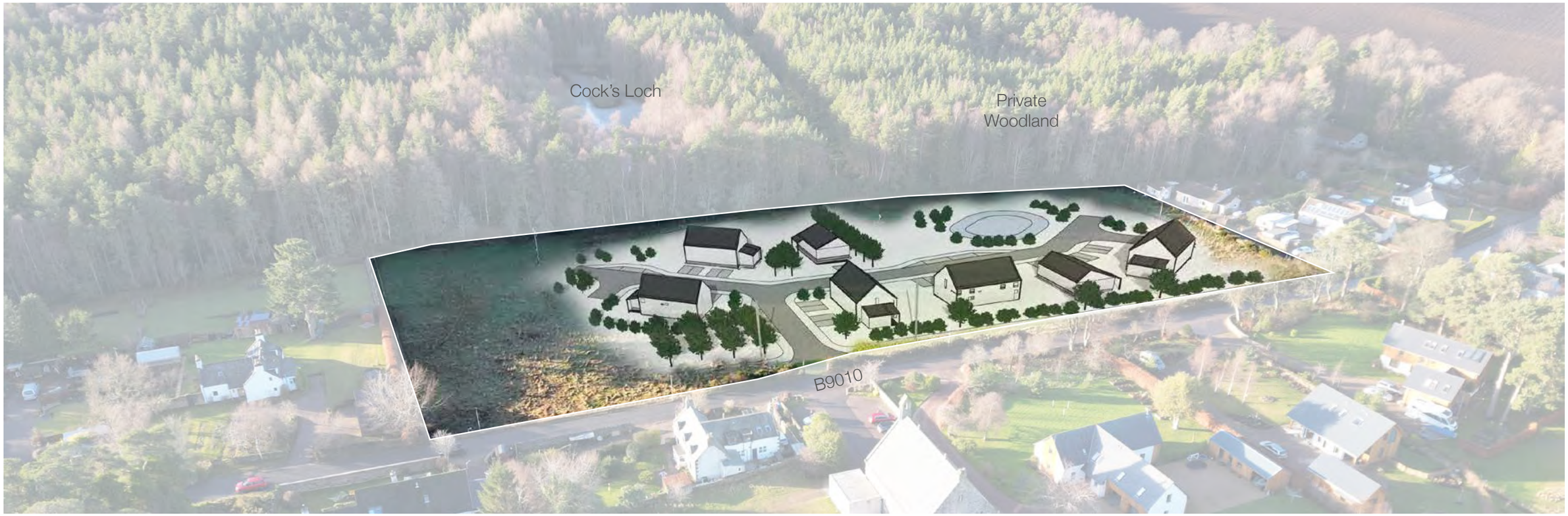
Services

SSE infrastructure is proposed to be undergrounded, and run parallel with the western site boundary, pending a detailed quote from SSE.



Proposed Site Plan

3.3 - CONCEPT DESIGN - LAYOUT PROPOSAL - AXONOMETRIC





- Shared green space
- Future community use
- Residents & visitor parking
- Buffer zone to existing woodland
- SUDS Pond

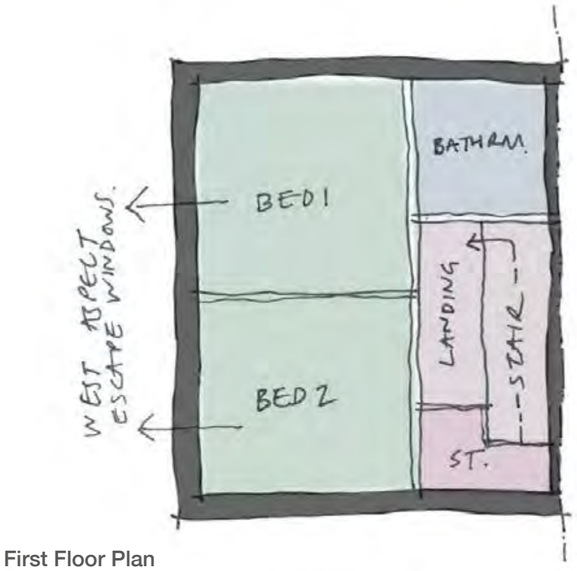




Housing Types

The following housing types are shown on the plan above:

- 3-bed semi-detached
- 2 bed semi-detached
- 2-bed accessible detached



First Floor Plan



Ground Floor Plan

Upper Floor

- Front and rear bedrooms (double or twin) with built-in wardrobes.
- Family bathroom (with bath and shower over per HfVN)
- Storage space / additional plant space

Ground Floor

- Front living room
- Rear kitchen / diner
- WC with space for a future shower (can be used as valuable storage space meantime)
- Utility / plant space - plant requirements to be confirmed following M&E appointment
- Storage understairs
- Option of third bedroom on ground floor - located to be useful as a potential study / home-working space.

2/3 Bed House Type - Sketch Plan

Construction Materials



Slate roof and rendered walls are a typical combination of materials within Morayshire. The ambition to include dry stone walling is also in keeping with the area,and will be balanced against cost.



Profile metal roofing and timber cladding is another common combination, often seen on outbuildings and netting sheds. The profile metal can be supplied in a variety of colours from grey through to red.





Timber cladding can be modified in a variety of ways, from paint through to heat and steam treatment to prolong the life of the product.



If left to weather, larch cladding, which is durable, will naturally grey over time. Careful detailing around windows and eaves prevents drips and staining.

Landscape and biodiversity



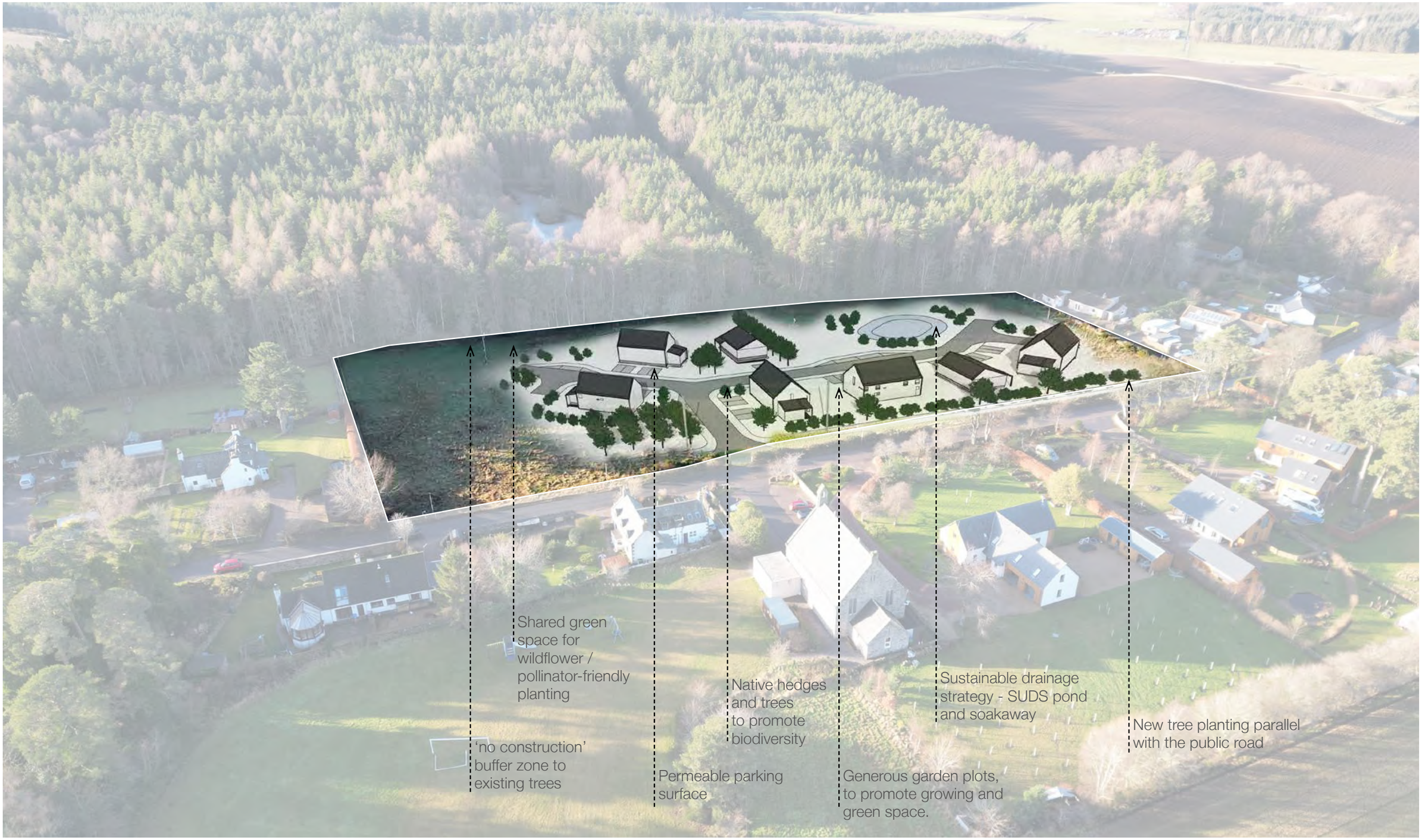
Proposals can include planting of small and medium native trees and bushes including rowan, wild and/or bird cherry, wych elm, hazel, holly, common alder, willow, hawthorn and blackthorn - creating softer boundaries and improving habitat for wildlife.



Tree planting softens development in the landscape



Permeable hard surfaces - helps to control water run off


Shared green space for wildflower / pollinator-friendly planting
'no construction' buffer zone to existing trees
Permeable parking surface
Native hedges and trees to promote biodiversity
Generous garden plots, to promote growing and green space.
Sustainable drainage strategy - SUDS pond and soakaway
New tree planting parallel with the public road

4.0 | CIVILS STRATEGY

4.1 - CIVILS - SWEPT PATH ANALYSIS

Narros have undertaken a Swept Path Analysis of the proposed site plan, based on a refuse vehicle entering the site and turning at the required points. This is required as the road is proposed to be adopted by Moray Council.

It has been noted that sharing this drawing with the Moray Council Transport Planning and the refuse collection team at the next Stage, would be beneficial to ensure the vehicle used in the analysis is appropriately sized.

Additionally - client comments during this stage reflected the need for suitable bin storage per house to take account of the current bin provision by Moray Council



Drainage Proposal Plan

The drainage strategy is designed to meet the requirements of 12 new residential buildings with associated road access. The plan opposite makes use of the lowest area of the site for drainage:

- Surface water SUDs infiltration basin
- Foul water Klargester Biodisc treatment plant - located within 25m of the road for maintenance access (manufacturer to be confirmed pending feedback from CHT).
- Stone-filled soakaway.

Historically, drainage from buildings has been combined, i.e., foul sewage (e.g., from toilets, sinks etc.) is mixed with surface water (rainwater that runs off roofs and paved areas). However, due to environmental and flood risk management considerations, it is now recognized best practice to separate foul sewage from surface water.

The future community build will require separate drainage arrangements, therefore a zone has been reserved at the south end of the site to ensure sufficient area and level is retained.

Note: Local knowledge indicates that there is a neighbour's septic tank and/or soakaway and also another local authority surface water tank located in the south end of the Brockloch site. Further information p33.

Surface Water Drainage

It is proposed that surface water is transferred through the development site via a network of pipes, gullies, then infiltrated into groundwater through the use of a swale and the infiltration pond.

Foul Water Treatment & Disposal

The foul sewerage will be connected to a treatment plant and then infiltrated into groundwater and will be designed in accordance with SEPA Regulatory Method (WAT-RM-04) Indirect Sewage Discharges into Groundwater. Technical proposals for the sewer connection will be produced by NAR and will be submitted to Scottish Water for approval.

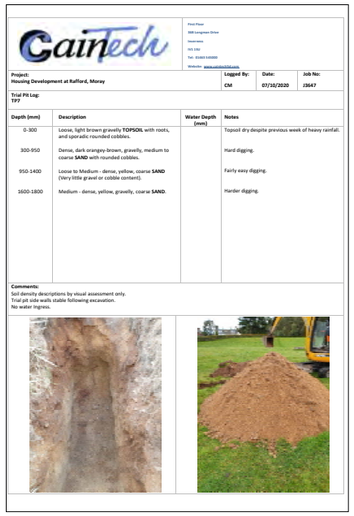


Previous Drainage Impact Assessment

Prior to Stage 1 the client appointed Caintech to undertake a Drainage Impact Assessment of the site, and to design suitable foul and surface water private treatment within the site.

Ground Investigation

A ground investigation for SUDS purposes has been carried out for the site. The results of the SI are contained within Caintech Drainage Impact Assessment and SUDS strategy document J3647 attached. Trial pits were excavated up to a depth of 2.0m. Ground conditions comprise topsoil overlying medium-dense gravelly sand. No ground water was encountered. Percolation test results proved that the subsoils within the development site are suitable for the disposal of foul and surface water by infiltration and traditional sub soil soakaways.



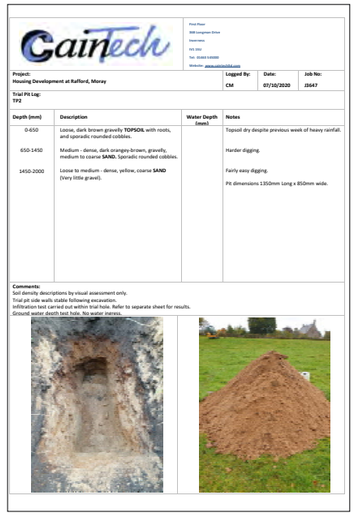
Project: Housing Development at Rafford, Moray

Logged By: CM | Date: 07/10/2020 | Job No: J3647

Trial Pit Log: TP7

Depth (mm)	Description	Water Depth (mm)	Notes
0-300	Loose, light brown gravelly **TOPSOIL** with roots, and sporadic rounded cobbles.		Topsoil dry despite previous week of heavy rainfall.
300-950	Dense, dark orangey-brown, gravelly, medium to coarse **SAND** with rounded cobbles.		Hard digging.
950-1400	Loose to Medium - dense, yellow, coarse **SAND** (Very little gravel or cobble content).		Fairly easy digging.
1600-1800	Medium - dense, yellow, gravelly, coarse **SAND.**		Harder digging.

Comments:
Soil density descriptions by visual assessment only.
Trial pit side walls stable following excavation.
No water ingress.



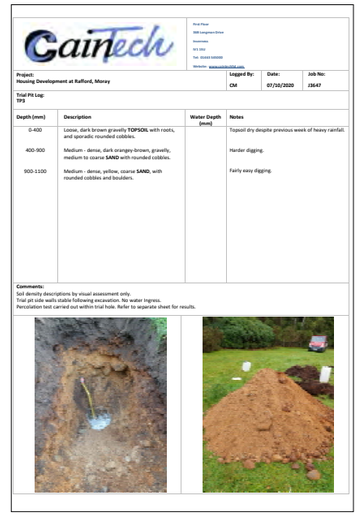
Project: Housing Development at Rafford, Moray

Logged By: CM | Date: 07/10/2020 | Job No: J3647

Trial Pit Log: TP2

Depth (mm)	Description	Water Depth (mm)	Notes
0-650	Loose, dark brown gravelly **TOPSOIL** with roots, and sporadic rounded cobbles.		Topsoil dry despite previous week of heavy rainfall.
650-1450	Medium - dense, dark orangey-brown, gravelly, medium to coarse **SAND.** Sporadic rounded cobbles.		Harder digging.
1450-2000	Loose to medium - dense, yellow, coarse **SAND** (Very little gravel).		Fairly easy digging. Pit dimensions 1350mm Long x 850mm wide.

Comments:
Soil density descriptions by visual assessment only.
Trial pit side walls stable following excavation.
Infiltration test carried out within trial hole. Refer to separate sheet for results.
Ground water depth test hole. No water ingress.



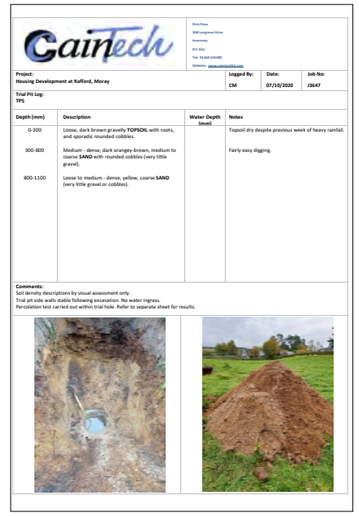
Project: Housing Development at Rafford, Moray

Logged By: CM | Date: 07/10/2020 | Job No: J3647

Trial Pit Log: TP3

Depth (mm)	Description	Water Depth (mm)	Notes
0-400	Loose, dark brown gravelly **TOPSOIL** with roots, and sporadic rounded cobbles.		Topsoil dry despite previous week of heavy rainfall.
400-900	Medium - dense, dark orangey-brown, gravelly, medium to coarse **SAND** with rounded cobbles.		Harder digging.
900-1100	Medium - dense, yellow, coarse **SAND**, with rounded cobbles and boulders.		Fairly easy digging.

Comments:
Soil density descriptions by visual assessment only.
Trial pit side walls stable following excavation. No water ingress.
Percolation test carried out within trial hole. Refer to separate sheet for results.



Project: Housing Development at Rafford, Moray

Logged By: CM | Date: 07/10/2020 | Job No: J3647

Trial Pit Log: TP5

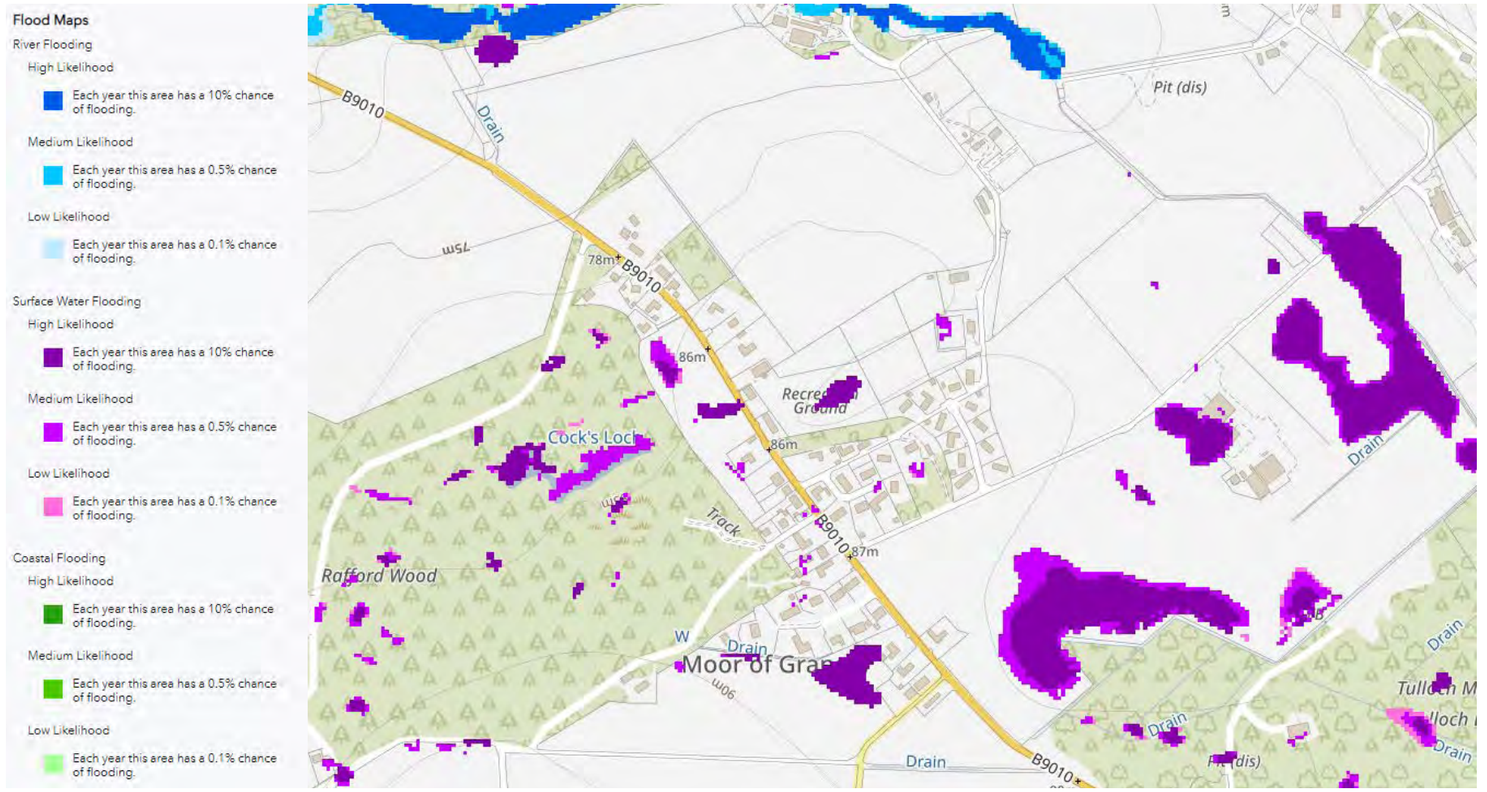
Depth (mm)	Description	Water Depth (mm)	Notes
0-300	Loose, dark brown gravelly **TOPSOIL** with roots, and sporadic rounded cobbles.		Topsoil dry despite previous week of heavy rainfall.
300-800	Medium - dense, dark orangey-brown, medium to coarse **SAND** with rounded cobbles (very little gravel).		Fairly easy digging.
800-1100	Loose to medium - dense, yellow, coarse **SAND** (very little gravel or cobbles).		

Comments:
Soil density descriptions by visual assessment only.
Trial pit side walls stable following excavation. No water ingress.
Percolation test carried out within trial hole. Refer to separate sheet for results.

SEPA Flood Risk

The SEPA Flood Risk map is shown opposite and the following was noted by Caintech:

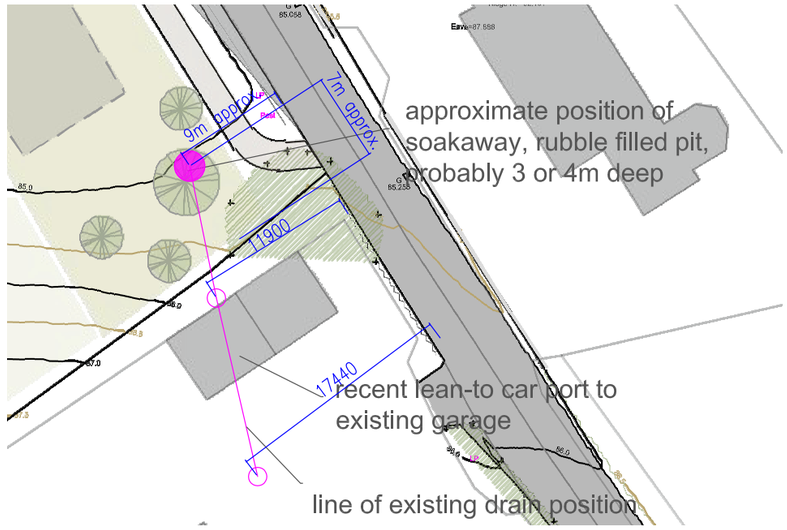
- Pluvial flooding: The SEPA Indicative Flood Map shows that areas to the North, and centre of the site are predicted to be at medium to high risk of Pluvial flooding at present. It is not clear what the extent of this flooding equates to as a flood risk assessment has not been carried out. On the day of the site investigation there were no visible signs of surface water flooding.
- Fluvial flooding: The SEPA Indicative Flood Map shows the location of the site is out with any area that is at risk from fluvial flooding.
- Coastal flooding: The SEPA Indicative Flood Map shows the location of the site is out with any area that is at risk from coastal flooding.
- 1 in 200-year overland flow: Road levels will be formed to ensure that surface water runoff from excess storm events will be conveyed away from the B9010, new & existing buildings. Surface water run-off from excess storm events will be conveyed into the new infiltration basin.
- Having consulted the SEPA Flood Maps, the scale at which the maps can be viewed means that it cannot be categorically confirmed that the site is at risk of flooding in this case.



It has been noted during Stage 2 that there are a number of existing infrastructure points to note within the site, as described below. The Civils engineer has recommended that ground surveys are undertaken at the appropriate stage to determine exact location, and that existing roads drainage will be incorporated in the site SUDs propoals.

Neighbours Septic Tank and Soakaway

Client site observations:
The drawing opposite indicates the approximate position of the neighbouring properties soakaway. It is a pit of rubble. There looks to be a collecting tank for the road gulleys on the opposite side of the road and fairly close to the soakaway.



Client site observations

Existing Scottish Water Infrastructure - Road Drainage

Notes provided by client:
Installed over 40 years ago, with permission from landowner. Below is the existing information gathered from Moray Council:

- *17m from Foresters f/line. 12m from B9010*
- *4.2mx1.2m buried S/way chamber. 1.5m wide rock surround.*
- *The soakaway tank chamber is in blockwork with concrete cover slabs and possibly some internal baffle walls.*
- *The external walls might include voids in the blockwork, so that the water stored in the tank can also percolate into the surrounding ground.*
- *The depth of the chamber is likely a couple of feet below ground level with an invert possibly 5 or 6 feet lower.*
- *From the soakaway chamber there is an outlet pipe leading to a deeper soakaway pit of unknown size further into the field.*
- *The area surrounding the soakaway tank chamber was at last exposure refreshed with rock fill material to improve percolation and is in all likelihood now much larger than the 1.5m suggested in the text.*
- *It will likely be getting close to requiring a further silt removal and percolation material refresh.*

Moray Council Overview / Commentary on existing infrastructure:
This installation is critical to prevent flooding to properties opposite which are lower than the road. Roads Maintenance require reasonable maintenance access to these assets, which have proved to be a successful defence against flooding of the low lying properties.
Although given this facility was to prevent known flooding to properties and would have included a factor of safety, the addition of a footway area, could just tip the design over the edge.
The footway design should include supplementary roads drainage provision. If of the soakaway style, percolation tests would be recommended as this area around Moor of Granary/Upper Rafford is known for high water table/low percolation issues, with I believe a SEPA edict against further domestic property septic tanks/soakaways.



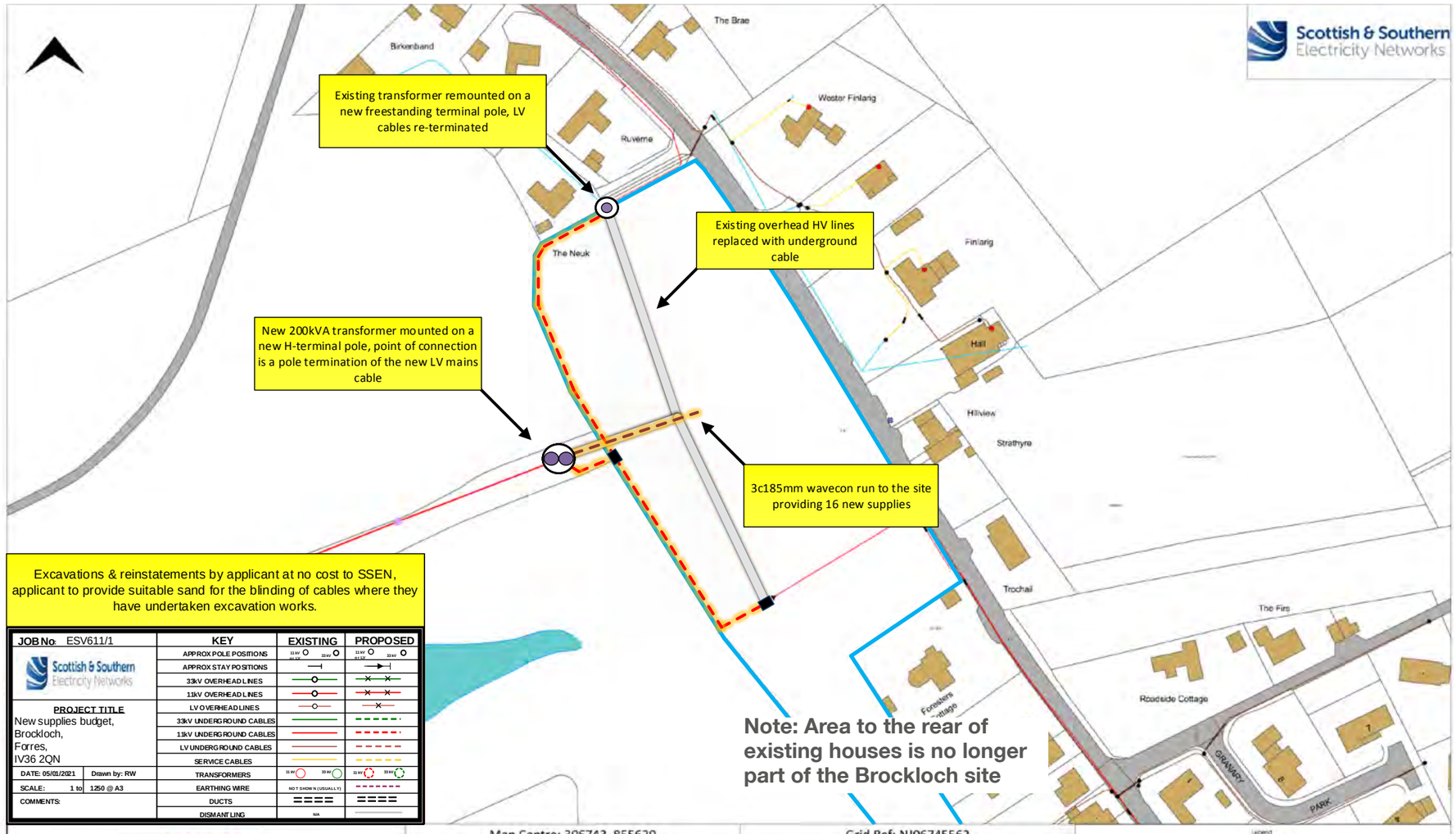
Moray Council Roads Records - SW install

Pre Development Enquiry - Jan 2021

The existing overhead power lines running north-south preclude development across much of the site. It has therefore been assumed that underground the supply will be necessary. Opposite is the provisional design supplied by SSE in January 2021. The quote will require updating in order for the client to remain aware of the likely cost.

It should be noted that works are also proposed to the west, on land out with the FDT ownership, therefore permission and wayleaves will be required.

It has been noted that an updated PDE will be required at next Stage.



Pre Development Enquiry - Jan 2021

Scottish Water has responded to an enquiry by the client to confirm that there is sufficient capacity in the Glenlatterach Water Treatment Works to service the development of the Brockloch site (dated January 2021).

The plan opposite shows the water main running along the public road on the far side from the Brockloch site. To make a connection, a road crossing is likely to be required.

The digital topographical survey noted a Fire Hydrant in a location likely to be adjacent to the water main. Discussion with the local fire department will be required to assess the requirement for fire fighting for the new development.

It has been note that the PDE should be updated at the next Stage.



ning! Damaging a large diameter trunk main (12"/300mm and above) can result in loss of life and major water supply and water quality problems. If you're planning any extension work in the vicinity of any large diameter mains shown on our maps, you must contact Scottish Water to arrange a site visit 08000 778 778 WELL IN ADVANCE OF THE WORKS

By: calum.maclennan@caintechltd.com

N

The representation of physical assets and the boundaries of areas in which Scottish Water and others have an interest does not necessarily imply their true positions. For further details contact the appropriate District office.

Date: 05/05/2022

J3647

0 5 10 20 Meters

SCALE: 1:1,323

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Scottish Water
Trusted to serve Scotland

Castle House,
6 Castle Drive,
Dunfermline,
KY118GG

Tel No: 08000 778 778

Fibre

It is likely that the development will be required to plan for and provide fibre connections to all new homes in line with Moray Council guidance. This will require technical design to understand feasibility.

Existing Infrastructure

Currently a telecoms pole sits opposite the Village Hall on the Brockloch side of the road. The new access point to the site may require this ole to be relocated.

It has been noted that enquries regarding fibre should be progressed by the Services engineer at the next Stage.



5.0 | SERVICES STRATEGY

Mechanical & Electrical Services

The appointment of a services engineer is currently underway with Finderne Development Trust.

The following areas will be developed by the services engineer at the next Stage.

- Above-ground drainage
- Domestic hot and cold water
- Space heating strategy – possible CDP of community owned ground-source
- Ventilation strategy
- Small power, fire detection and alarms
- Lighting – including site lighting to adoptable standards
- EV charge points (electrical engineering – quantity, location and size by others) – likely to be one per house and one landlord charger at a visitor bay. IC keen to progress car share and keen to have a bike shed on site with opportunity to charge electric bikes. Noted landlord / management requirement for any servicing not related to a private dwelling.
- Performance specification of low-pressure sprinkler (CDP)
- SAP calculations (for Building Warrant) to ensure EPC B is achievable.
- EPCs produced upon completion
- Feasibility for district heating – scope to be discussed FDT/Rybka



Finderne Development Trust have previously investigated community district heating through an options appraisal considering:

- vertical/borehole community heat network
- horizontal/slinky ground source community heat network
- individual air source heat pumps (ASHPs)

A number of key factors are shown in the table opposite.

It has been agreed during this stage that a services engineer is consulted to appraise the best option going forward, taking into account lowest carbon option, relationship to the energy performance of the new houes and the local heating requirement.

During Stage 2 Communities Housing Trust provided the following overview of district heating systems from previous projects -

- A heat pump with 'Air to Water', (either through radiators or UFH) has had the best feedback compared to other methods. There has been a lot of snagging and troubleshooting of combined systems (diverters/heat batteries/PV etc) and their complexity in terms of installation and user friendliness has led to more work from a management point of view.

- Previous projects had considered installation of a solar car port and rapid charging station to provide an income stream but this was not possible due to local electrical network constraints.

- From a housing management point of view - there are risks associated with a district heating system, that in addition to becoming a Registered Private Landlord, FDT would be obligated to become a registered energy company and apply for a heat networks license. It is believed that tighter regulation has been introduced in the last 18 months to ensure than households connected to communal heat networks can receive discounts on their heating bills. Previously these discounts were only available to customers of larger energy companies covered by the Energy Company Obligation (ECO) regulations.

Consideration	GSHP heat networks	Individual ASHPs
Capital costs	High, particularly for borehole systems, although grant funding easier to secure vs ASHPs	Significantly cheaper than GSHP heat networks
Impacts of construction	Disruptive – specialist contractors and digging/drilling equipment required	Negligible
Development risk	Significant for boreholes, minor for slinkies	Negligible
Expected lifetime	Ground loop will last 50+ years; GSHPs will last c. 20 years	c. 20 years (fans may need replaced in this timeframe)
Maintenance	Bi-annual servicing required	Annual servicing required
Running costs	Competitive with gas, lower than domestic A2W systems	Competitive with gas, non-domestic A2A systems cheaper than GSHPs
Emissions	Low carbon; lower than domestic A2W systems	Low carbon; A2A lower than GSHPs
Other user impacts	Minimal (if any) noise impacts	Potential noise and visual impacts (from external unit)
Wider village heat network	Possible, although more research required	Not possible

Table 14: GSHP vs ASHP comparison

6.0 | SUMMARY



Summary - RIBA Stage 2

Below, the actions and outcomes for Stage 2 are summarised:

- Client reviewed and signed-off the brief for Phase 1 including the number of houses, housing mix, and performance requirements.
- Reviewed the programme and updated.
- Reviewed the requirement for M&E input including utilities connections, fire fighting, services design, vehicle charging and heating/hot water strategies (refer to meeting minutes for details).
- Progressed outline proposals - site layout and organisation aligned with Local Authority requirements for plot size, vehicles and parking. House types were developed at high level to align with the local typology and Housing for Varying Needs requirements.
- Foul and surface water drainage proposals progressed to align with the proposed site layout and to take into account existing site infrastructure.
- The Principal Designer (CDM Health and Safety) commenced working with the Design Team during Stage 2 in order to plan, manage, monitor and coordinate health and safety in the pre-construction phase.

RIBA Stage 3 - Spatial Coordination

Key outcomes of the next stage, per the programme and including key actions from the RIBA checklist set out below:

- Client to confirm acceptance of the brief and Architectural Concept set out in Stage 2. Design team and client to work through any further requirements required, that are not already captured in the brief.
- Agree appointment and programme for any additional consultants and surveys required.
- Develop proposals in line with any pertinent new information received from statutory bodies or others.
- Consider the phasing plan in line with the advised Planning application route.
- Appraise preferred method(s) of procurement.
- Design team to agree BIM and data sharing protocols.
- Progress detailed plans for Phase 1 including architectural, structural, civils and services designs for house types and site organisation.
- Prepare Outline specifications and materiality.
- Agree any further public consultation and timescale.
- Prepare and submit the Planning application for Phase 1 to Moray Council.
- Commission Outline Cost Plan



oberlanders

NARRO

unlocking the future
Finderne
Development Trust

mcleod and aitken
chartered quantity surveyors

Communities
Housing Trust