



Business Plan for the Community Purchase of Gamescleuch Forest and the Ettrick Marshes



Prepared for Ettrick & Yarrow Community Development Company

By Willie McGhee, Guy Watt and Rebecca Stedham. April 2017

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ABBREVIATIONS

BFT	Borders Forest Trust
EYCDC	Ettrick & Yarrow Community Development Company
FC	Forestry Commission
FES	Forest Enterprise Scotland
SLF	Scottish Land Fund
Ha	Hectares (equivalent to 2.4 acres)
HL	Hybrid larch
SP	Scots pine
NS	Norway spruce
SS	Sitka spruce

CONVERSION FACTORS

Coniferous Roundwood: 1 cu metre over bark standing = 0.82 'green' tonne

1. Introduction

Background

Over a number of years residents of the Ettrick and Yarrow valleys in the Scottish Borders had increasing concerns about changing land use and demographics, particularly at the upper end of both valleys, and this was leading to questions over whether people would continue to live and work in these areas. The causes of their concerns centred on the loss of hill sheep farms to commercial forestry, high house prices, coupled with the loss of cottages to rent and falling rolls at local schools. In addition, some long-standing services had been lost, including the village post office and shop, and reliable mobile phone coverage and broadband, were still not available. Residents felt that without new families and people of working age staying in the valleys, life for everyone would be less secure in the short-term and possibly unsustainable in future.

In 2010 after discussions involving the Ettrick and Yarrow Community Council, the local councillor, the Rural Development Officer at Scottish Borders Council and the Southern Uplands Partnership, and with matched funding support provided by Buccleuch Estates, an application for LEADER funding was prepared to develop a Local Development Strategy for the area which has a population estimated at about 850 people. This was called the 'Revitalising the Ettrick and Yarrow Valleys' project.

The LEADER funding application was successful and a development worker was appointed. After extensive local consultation and research, a Community Development Plan was prepared in 2012 which identified a number of ways in which the community and the local economy could be strengthened. To help in taking forward many of the initiatives identified in the Plan, the community set up the Ettrick & Yarrow Community Development Company in 2013.

EYCDC is a company limited by guarantee with a membership which has grown now to over 130 residents living within the valleys. It is managed by a board of community-based directors under the chairmanship of Sir Michael Strang Steel. The names of the directors are given in Annex 1. Membership of the company is by subscription with liability limited to £1. It does not currently have, and has not applied for, charitable status.

The company's over-arching aim is to create opportunities for people of all ages living and working in the Ettrick and Yarrow valleys.

The community development plan contains suggestions for strengthening both the community and existing local businesses as well as attracting new sources of employment. Project themes include:

- pursuing opportunities for affordable housing and creating much needed small-scale business premises (including developing redundant and under-used buildings),
- increasing visitor numbers (creating and promoting walking and cycling routes, improving signage and visitor information),
- improving communications within the valleys (especially mobile phone and broadband coverage),
- exploring opportunities for community owned renewable energy schemes, and assisting local businesses with energy needs,
- promotion of the Valleys as a “creative place” (funding artists residencies, assisting and encouraging crafts and exploiting historical and literary connections particularly James Hogg, the Ettrick Shepherd, Walter Scott, and the heritage of Border ballads.)

EYCDC liaises with the local tourism business group which was set up by the earlier project as well as the Ettrick and Yarrow Community Council to maximize the effectiveness of all three bodies.

Development opportunity identified by the community

The community of upper Ettrick includes a village hall, church, a primary school that is currently moth-balled and the Tushielaw Inn which re-opened after a long closure in 2016. Based on the former Ettrick School catchment this upper end of the valley has 140 residents registered on the electoral roll.

The initial driver for community purchase was the potential of the restored flood plain known as the Ettrick Marshes and the surrounding forest and the opportunities it could provide. This was seen in contrast to the current reduced access to the forest paths and disrepair of the Marshes boardwalk. The original management organisation and lease holder of this area, Borders Forest Trust, has now withdrawn from its agreement with Forest Enterprise Scotland due to a change of focus and lack of ongoing funding for maintenance. Forest Enterprise Scotland in turn has expressed concerns about liability and imposed a deadline for the boardwalk to be either brought up to standard or removed.

(See Section below on Ettrick Marshes Proposed Removal of Boardwalk p14).

This withdrawal from Upper Ettrick by Borders Forest Trust, and the threat of infrastructure removal by FES, puts at risk public access into the Marshes, and consequently the loss of a valuable ecotourism and environmental education resource to the local community and the western Borders. The potential of community ownership of the forest coupled with the threat to the boardwalk has led to this proposed purchase.

Community purchase of the lower part of Gamescleuch Forest would safeguard and open up additional recreational, training and employment creating opportunities within the forest.

It would provide forestry management options which have less environmental impact and are smaller scale, and would provide an on-going source of funds.

This income would be used to manage increased public access, promotion and use of the forest, as well as the broader community aspirations of providing opportunities for people living and working within the wider valleys area.

It would enable EYCDC to progress more of the projects and aspirations identified in the Community Development Plan and maximise the socio-economic value of Gamescleuch Forest.

Population Change and the effects of afforestation

There are 802 people on the electoral roll within the areas normally considered to be within the Ettrick and Yarrow valleys. The actual number within the postcode areas designated in the EYCDC Articles of Association is higher as these postcode areas also cover the western fringe of Selkirk. There are 5 village halls within the valleys and, with the closure of Ettrick Primary, two remaining primary schools one in each valley. Based loosely on the catchments of the village halls the population is distributed as follows:

Upper Ettrick (Boston Hall)	140
Ettrickbridge (Kirkhope Hall)	197
Upper Yarrow (Cappercleuch Hall)	51
Yarrowfeus and Yarrowford village halls	183
Households at the lower ends of both valleys nearer Selkirk	231

Rural house prices and the changing land use from hill sheep farming to forestry has led to a change in the demographics of the area. The number of people living and working within the valleys is declining and the population is ageing. The remaining farming families work hard to provide support for the practical problems that regularly occur in a remote rural community. The primary school in Ettrickbridge has now dropped to a single teacher for the first time in living memory and more farms are destined for commercial planting as the afforestation moves down the valley.

Community ownership of the forest will give the community some control over their environment and counter the prevailing feeling that commercial forestry brings only negative impacts for the residents. The community has suffered the effects of this afforestation without enjoying benefits in terms of jobs or income recycled within the community.

Ownership will make the forest work for the community with income recycled into the local economy through jobs, services and increased revenue from visitors. This will help to support the small shop at Honey Cottage, the pub and local tourism businesses in both valleys.

Location of Ettrick Marshes & Gamescleuch Forest



Gamescleuch Forest including the Ettrick Marshes lies in the upper Ettrick Valley about 17.5 miles from both Selkirk and Hawick as is shown by Map 1.

The nearest train stations are Tweedbank which serves the Border Railway to Edinburgh and Lockerbie station (28.5 miles) which is on the main line between London and Glasgow.

The Honey Cottage Caravan Park and the Angecroft Caravan Park are two privately run caravan parks located at either end of the forest and 2.8 miles apart. There are also two main settlement clusters, one around Hope House and the other at Ettrick Village, both of which look onto Gamescleuch Hill.

Community Asset Transfer Scheme

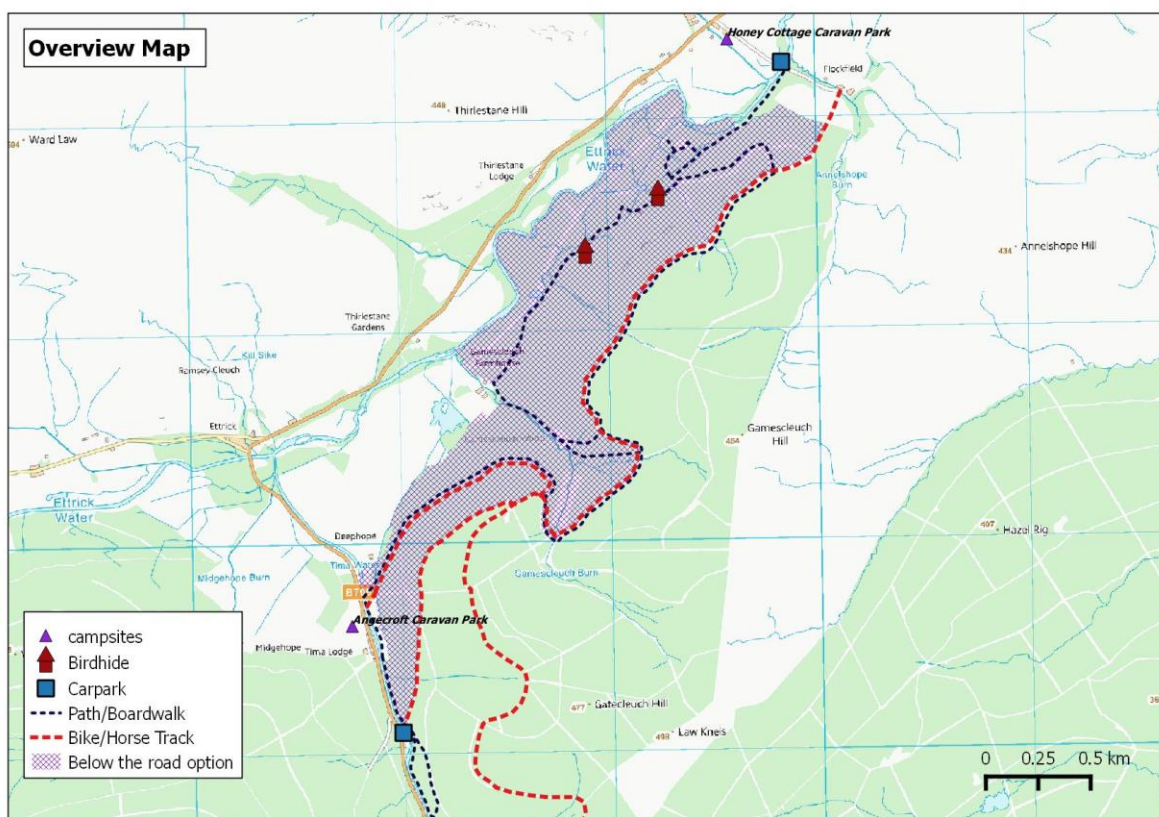
The Directors of the EYCDC were aware of the National Forest Land Scheme but the valuation of the whole forest proved too high for them to progress a community purchase before the scheme closed. The Community Empowerment Act provides the framework for the successor scheme. Under Part 5 of the Community Empowerment Act is a right for community bodies to make requests to all local authorities, Scottish Ministers and a wide-ranging list of public bodies, for any land or buildings they feel could provide more community benefit if in community ownership. They can request ownership, lease or other rights. The new mechanism for land acquisition is called the Community Asset Transfer Scheme (CATS).

The initial feasibility work led EYCDC to focus on purchasing only part of the Gamescleuch Forest, totalling 173ha, identified now by EYCDC as the 'Below the Road' option. This division of the forest was suggested by FES as the forest road makes a very clear boundary. This area comprises 98.8ha of productive conifers planted in 1974 and 13.2 ha which has already been felled and was restocked with broadleaves in 2013 and conifers in 2015.

The focus of this Business Plan is to show that community ownership of part of the forest as well as the Marshes is financially sustainable and that it will allow more economic, social and environmental benefits to flow through the local community than would be the case if the asset transfer did not take place.

Map 2 below shows the area of forest below the main forest road including the Marshes which is the subject of a request to purchase from FES.

Map 2. Area of proposed purchase from FES



NB. The boundary at both ends was slightly altered from what is shown here to include the board walk loop at Angecroft and to meet the top of the hill field at Annelshope. This was agreed with FES and included in the valuation.

The car park at the bottom of the map is included in the area to be purchased and is next to the purpose-built bridge for timber extraction. This road is currently the only usable vehicle access to the forest.

The car park shown at the top is on private land and has space for only 2-3 cars. This is not included in the purchase but the agreement to use it will continue. It is hoped to create a better space for cars within the proposed purchase site as outlined on page 23.

Preparing the Business Plan

The Business Plan has been prepared on behalf of the Ettrick and Yarrow Community Development Company by a small team of consultants comprising Willie McGhee, Guy Watt and Rebecca Stedham. Between them the team have a mix of community forest, commercial and forest mapping experience with specific expertise in community consultation and financial and economic projection.

In preparing this Business Plan the team have carried out :

- Several visits to the site.
- Regular Dialogue with the Consulting Team. This has comprised face to face meetings, phone calls and exchanges of emails.
- Consultations with the Local Community. This is summarised below and described in more detail in Annex 2, along with the feedback provided by the community. Members of the Consulting team attended 3 public meetings to discuss the proposals.
- Meetings & Communications with Forest Enterprise Scotland Staff. They have been extremely helpful in providing information and help where it has been requested.

In addition to the above activities, and to ensure that the Business Plan is soundly based, the consulting team have also:

- Carried out a detailed assessment of the whole property to assess the potential based on the ideas of the local community.
- Undertaken a detailed mensurational survey to assess the standing volume of timber in the part of the forest that the community is interested in buying
- Mapped the property to enable them to develop a practical business plan designed to match the income generated with the funding required for the community benefits expected.
- Met and exchanged information with FES staff
- Undertaken desk-based research

The potential income from timber sales is based on the above detail and is therefore considered robust.

Description of the Property

Gamescleuch Forest

Gamescleuch Forest covers an area of 477 ha in total and has been established on the hillside of what were two adjoining hill sheep farms, Gamescleuch and Deephope. The forest is owned by the Scottish Government and is managed by Forest Enterprise Scotland, part of Forestry Commission Scotland.

It has a single point of access via a weight carrying bridge and a locked barrier. It is well designed for timber extraction. However, there is no easy access to the forest from the middle of the valley and the centre of population at Honey Cottage. In order to develop additional activities in the forest it will be advantageous to create an additional access track from Honey Cottage.

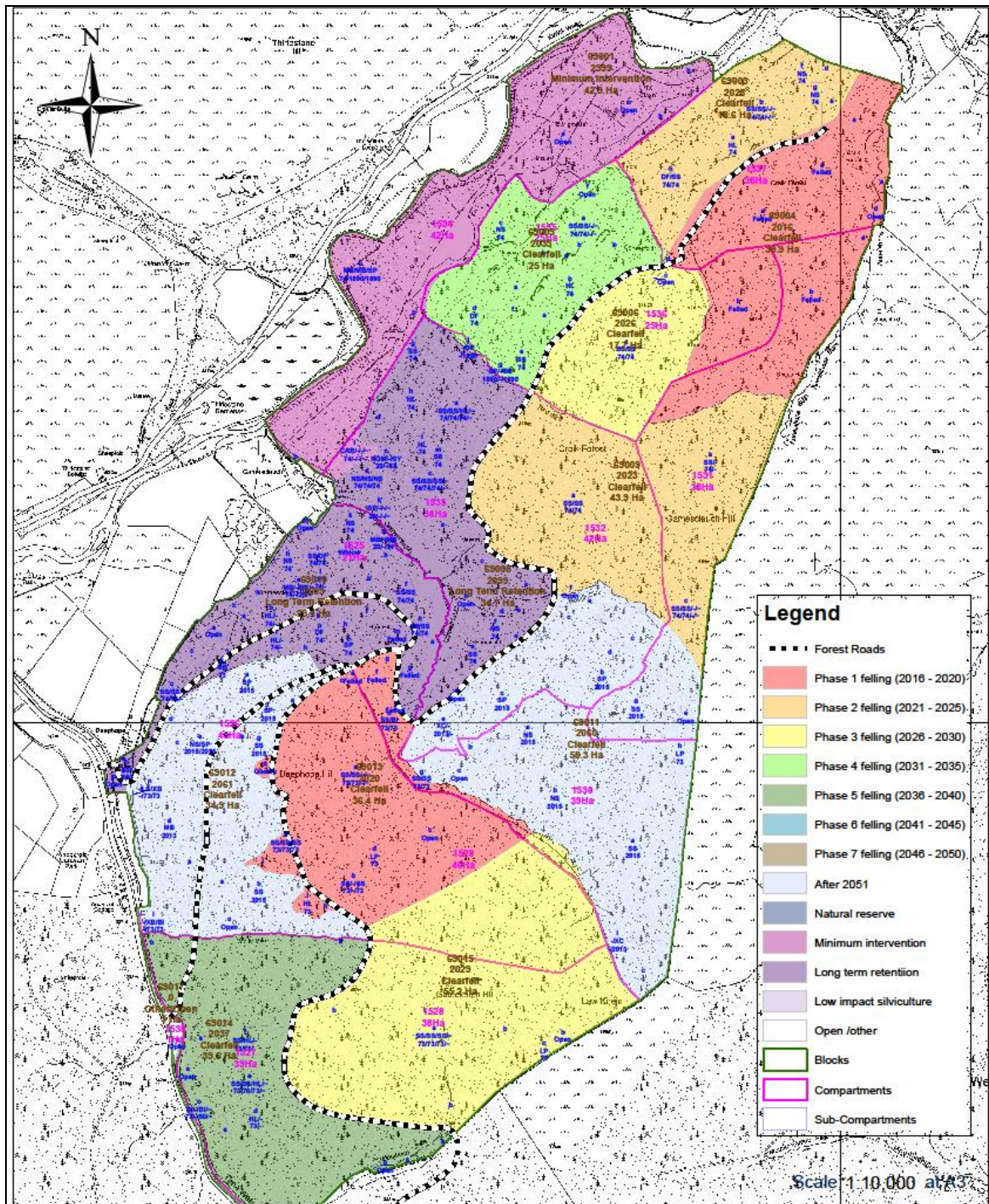
Current Management Plan

The approved Forest Plan indicates that FCS intend to clear-fell most of the existing conifer crops over a period of time but have identified an area adjacent to the Marshes for longer term retention. This is shown in Map 3 provided by FCS. Some areas have already been felled and replanted.

It is not known at this stage how FCS will market the standing trees, but it is most likely to be by tender or auction or as part of a long-term timber contract. These methods of sale involving larger volumes mean that it is likely that the trees will be bought by a major sawmill or wood processing plant who will bring in harvesting and transport contractors from outwith the local area.

The consequence of this is that the harvesting and processing of the trees is likely to bring very little economic benefit to the community in the Ettrick and Yarrow Valleys. Outside contractors are also likely to be brought in to re-stock areas that have been clear-felled.

Map 3. Existing Management Plan by FES if Community Transfer does not take place:



 Forestry Commission Scotland
Colmisteach na Colltearachd Alba

Dumfries and Borders F D
Gamescleuch Management Map

20 July 2016

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Ettrick Marshes

The part of the property now known as Ettrick Marshes comprises floodplain marshes (41.5ha), mapped open ground (25.9ha) and broadleaves (11.9ha). The Forestry Commission originally purchased the hill ground and marshland area in the early 1970s and planted almost all of it with conifer trees.

In the late 1990s Borders Forest Trust identified the potential ecological importance of the marshland area and approached the Forestry Commission about removing the conifer trees. The Forestry Commission agreed that this could be done, if BFT could arrange and fund the operation. BFT were able to do this in 2000 using an estimated £400,000 of funds from the Millennium Forest for Scotland, EU Objective 5b funding, World Wide Fund for Nature Scotland, Scottish Natural Heritage and various other organisations. In restoring the area, BFT built over 3km of boardwalks and woodland paths.

Proposed Removal of Boardwalk by FES

Borders Forest Trust entered a 25-year financial agreement to manage the marshland area and to make the area accessible to the public. However, the Trust has subsequently found that it does not have the financial resources to continue the agreement and to upgrade the boardwalk to the standard now requested by FES as owners. Discussions over repairs and liability have led to BFT withdrawing over a period of years and finally handing back the lease in 2016.

Forest Enterprise has been clear that it does not want to assume the public liability for the board walk and associated paths and has therefore removed access notices and effectively closed some sections.

Further, FES has advised the community that if the purchase does not go ahead and there is no change in ownership by July 2017 then FES will remove the boardwalk. EYCDC hope to be in a position by this summer to make this action by FES unnecessary.

Support and opportunities suggested by the community

Over the period of consultation which commenced at the end of summer 2016 the EYCDC has gained 61 new members with the current membership standing at 132. The majority of these have come from the upper Ettrick area and joined in support after having the forest purchase explained personally to them.

There has been overwhelming support for maintaining and fixing the board walk and opening up access to the forest. Support for buying the wider forest area starts from the recognition that the Marshes is a special place and a desire to protect the boardwalk as a community resource. Only one exception was by letter and suggested saving future expense by taking out the boardwalk altogether and not encouraging casual or recreational walkers into what is an important conservation area.

Opportunities suggested:

- Improve access to the forest by opening up new and some old blocked routes, both for walking and horse riding. There is currently no horse riding access to the forest roads from the Honey Cottage end of the forest.
- The forest roads could be promoted on a wider basis for recreational off-road cycling. The hillsides opposite Gamescleuch have also been planted and discussions are underway about linking up their forest roads to give access over the hill to St Mary's Loch in Yarrow. This combined with the roads in Gamescleuch could open up a great network of off-road cycling routes on well-made forest roads which would be attractive to residents and visitors alike, as well as walking groups.
- Create a dark sky viewing site on the hillside above the marshes. This would be facilitated by creating an access route to the forest from the Honey Cottage end, close enough to the main valley road but high enough to give a wider view.
- Develop a wood fuel business which would create some employment and be a service to local residents.

- Develop outward bound courses using the forest and board walks but also the mothballed school as a base. The school could also be used as the main base for any ranger activity or courses in forest skills. The council has already indicated that it will commence formal consultation on the long-term closure of the school and a community group already uses one classroom for a seasonal exhibition about the Ettrick-born writer, James Hogg. The school is about 2 miles from the Honey Cottage entrance but only half a mile or less from the Marshes at the other end.
- Retain and fix the board walk. There is recognition that some parts of this should be replaced, re-routed or extended in future but immediate concern is to keep it open by gaining ownership and preventing any more parts of it from being removed. Concern has been expressed for several summers at minor repairs to surfacing not being carried out timeously and community ownership plus the employment of a ranger will address this. The boardwalk is a fantastic resource but the lack of any ranger activity means it is not well known or promoted.
- Manage the forest locally and fell smaller sections than those proposed in the current forest design plan. Also replant in a more considered way that suits local aspirations more closely.
- Create local employment with the timber income. There are some people resident in the valleys who have forestry experience and skills who might appreciate being able to work closer to home and could also potentially run training courses for local youngsters.
- Link with Borders College and Barony College which both provide rural skills courses and LANTRA qualifications. Offer young people training places and work placements. Be a place where the college brings groups on study trips.
- Protect the red squirrels. This was raised as being of particular importance. Residents stress the conservation value of the area and wish to see it protected and enhanced.

- Do more to educate visitors and local residents about the habitat and wildlife. Employ a ranger to lead walks, provide information, carry out ecological surveys and generally look after the environment.
- Create a fairy walk that links to the local pottery next to the Marshes and provide a bit of magic in the forest.
- Provide forest huts. These are usually very low impact, off grid huts for hardier adventurers and could be managed on a time-share basis. Research demand to make sure they would not take business from local accommodation providers.
- Examples were suggested from other parts of the country where young people have benefitted from 'activity agreements' where hard to engage youngsters can sometimes flourish in a different setting. A combination of activities with the wild, outdoor experiences available in Gamescleuch could be an additional choice for South of Scotland agencies to offer the young people on their books.
- Use income from the forest as match-funding to kick-start other projects as well as to continue existing services such as the weekly lunch club in Tushielaw Inn which is run by the EYCDC and only has seed funding until July.

Concerns Raised: One resident expressed concern about potential impact of more visitors near their property which can be addressed by good signposting, one about the detail of the maps and whether we were intending to fell an area previously indicated as being for long term retention (this was resolved at the public meeting where the proposed felling plan was presented and discussed), and one resident was concerned in case we intend to build affordable homes between the Marshes and the main road at some future point.

Letters of Support:

These are included as Annex 5.

Assessment of Potential of Ettrick Marshes

The Ettrick Water runs through the area now known as Ettrick Marshes. The conifers planted across this flood plain by the Forestry Commission in 1974 have been removed and some drains stopped up to restore the marshland habitat. Native species including alder, birch, oak, aspen, rowan and several types of willow have been planted. Ettrick Water and its tributaries are designated SSSIs and the Marshes is also designated as a Special Area of Conservation (SAC).

As the marshes have returned to a 'natural' state, and increased in their ecological importance, they are of greater interest to the public, and a place where schools and university students can study the biodiversity of this nationally scarce habitat. The marshes contain high biodiversity habitat including willow and alder carr, nutrient poor fen and swamp. On the drier sites, ash, elm, birch, rowan and scots pine are found.

No detailed ecological assessment of the area has been carried out recently, but the marshes and adjoining forest are rich in biodiversity. The wetland area and meadow is rich in wildlife, ideal habitat for otter, water voles, dippers, wagtails, goosander, reed bunting, grasshopper warblers, water-rail and osprey. Other notable species include: lampreys, tree creepers, sedge warblers, stoat, reed canary grass, marsh valerian, marsh cinquefoil, frogs and newts. Red squirrels are much in evidence on the fringe of the marshes and there is high community interest in protecting and expanding their habitat.

Potential for Nature Based Tourism:

The path along the eastern side of the Marshes can provide an attractive walk for members of the public who enjoy the experience of wild land, for bird watchers and for those seeking exercise in a novel landscape. The extensive board walk includes several accessible shorter loops through lovely wild habitat as well as the more exciting raised walkway above the water of the marshes in the area of the ancient hut circles.

The forest paths should be re-opened and will provide more extensive walks with stunning views over the valley from higher ground as well as the peaceful meandering walks following the Gamescleuch burn. There is the potential on

every walk to see red squirrels, otters, over 78 species of birds, possibly an osprey fishing, a huge variety of insects and invertebrates such as the rare scotch argus butterfly and a wide variety of plant life.

Employing an experienced ranger to identify and interpret the flora and fauna would not only ensure that essential habitat was protected and improved but would also provide an opportunity for ranger-led walks and activities to educate both local residents and visitors alike.

There is an obvious opportunity to do more with the site in ways that will bring increased local benefits, not only for the community to enjoy, but also to encourage visitors to spend more time in the valleys. Opening up the paths, providing signage, and supplying maps with suggested routes should be an early priority. Ranger led walks and forest based activities will be an attractive option for families visiting the local caravan parks or holiday cottages. Providing hides and footage from wildlife cameras will increase the educational benefit without being unduly intrusive.

Increasing visitor attractions and providing better interpretation and access to what is naturally there will have a positive economic benefit for surrounding accommodation providers and local businesses. The corresponding educational, social and recreational benefits will be enjoyed by local residents and visitors in equal measure.

Upkeep of the Board Walk

An assessment of the board walk and path network was carried out on behalf of the EYCDC in December 2016 by the Access Officer at Scottish Borders Council. His report is available on request and was used to inform a funding application to the Langhope Rig windfarm. It suggested various repairs, upgrades and improvements which could be made as well as estimated costs. These were split into immediate repairs required and longer term improvements. It also recommended new signage. The immediate repairs are estimated at £10,000 with an additional £2,500 budgeted for renewing signage and providing information boards.

There is the potential to form a Friends of Ettrick Marshes group of volunteers who can carry out improvements and fix paths once the initial upgrade has

been carried out. Safety training should be provided as well as a small annual budget to purchase materials and cover expenses.

Forest Roads

The upper or eastern boundary of the purchase area is a Cat 1a forest road that was constructed by Forest Enterprise Scotland and is presently maintained by them (see map 2). This forest road has recently been used for timber extraction and haulage and it leads out over a purpose-built bridge onto the B709 public road next to the Angecroft caravan park on the road leading to Eskdalemuir. The road will remain in the ownership of FES and discussions with FES regarding future maintenance of the road have assumed a contribution based on proportionate usage. FES have requested that they retain rights to stack timber on either side of the road if required and EYCDC do not foresee any difficulty with this.

There is one internal forest track in the area 'Below the Road' which was the original access into the forest. This unmade forest road fords the Tima Water from the B709 and leads both to the old Deephope farmhouse and also uphill to a point where it joins the new forest road. When the river is in spate the ford is impassable and the private owners of Deephope farmhouse use the new bridge and this old forest road to access their property. After the community purchase the ownership of the road will have changed but the access arrangement will remain the same.

Commercial Timber Potential

Gamescleuch forest is on sloping ground which is reasonably steep in parts, but the soils are all freely draining apart from very small areas near the Marshes.

The forest comprises mature standing conifer trees with an admixture of broadleaves in the more westerly sections. There is an area at the western end of the forest that FES has felled, harvested and replanted (estimated 15 hectares). Table 1 below gives more details of what the forest 'below the road' comprises.

Table 1. Summary Details of Gamescleuch Forest 'Below the Road'

Species	Area (ha)	Planting Year	Growth Rate
Sitka spruce	58.13	1974	YC 16
Norway spruce	14.32	1974 & 2015	YC 16
Douglas fir	3.33	1974	YC 16
Scots pine	8.26	1974 & 2015	YC 8
Hybrid larch	12.35	1974	YC 8
Common alder	1.11	1974	n/a
Mixed broadleaves	25.38	1974 & 2013	YC 2
Norway maple	0.35	1974	YC 2
Other land (including Ettrick marshes)	48.05		n/a
TOTAL	171.28		

Past Management: Prior to planting the area, it was single furrowed ploughed and the trees were then planted at a spacing of 2.0 metres approximately. Survival has been very good overall so the Forest can be regarded as well stocked. Most compartments containing Sitka spruce and Norway spruce have been line thinned, with trees selectively thinned in adjacent lines where the topography allowed. Where the topography was regarded as too steep for machine harvesting, the spruce trees have been left un-thinned. The areas of Larch trees have not been thinned.

Estimated Volume of Standing Timber: An estimate of the volume of timber in the standing trees in Gamescleuch Forest has been made by putting in sample plots at random in different places throughout the Forest 'Below the Road'. Using the measurements that have been taken in each plot, the average volume of timber per hectare has been calculated using FC Mensuration Tables. From these estimates of standing timber per hectare, an estimate of the total standing timber for the commercial conifer component of the forest has been calculated and this is estimated to be 43,655 cubic metres (35,797.21

tonnes). The details of the methodology and the calculations are given in Annex 2.

Quality of Standing Timber: The quality of the Sitka spruce and Norway spruce trees is generally very good. Most of the trees appear to be straight and have small branches and are therefore well suited to produce sawn timber. The quality of the Larch trees is generally very poor with most trees tall and rather poorly shaped, but they might make suitable fencing or board walk material because of the better durability of the timber compared with spruce.

Estimated Value of Standing Timber: using an estimated 35,797.21 tonnes of standing conifer we calculate that the potential timber value could equate to some one million and seventy three thousand, nine hundred and sixteen pounds. However, this figure assumes a value of thirty pounds per tonne, that all the timber is extracted, and further that it is clear-felled in areas that allow for conventional forestry extraction.

The most recent forest design plan for Gamescleuch as supplied by FES shows a large area of forest in the middle of the purchase area as being designated for longer-term retention. This retention is supported by local residents who live near the forest. This area is therefore not included in our proposed felling plan which reduces the volume of timber available for sale. The community have also requested that large-scale clear felling (coupes of 10 hectares and over) is not carried out in sensitive landscape areas once the forest is in community ownership. The proposed felling plan is therefore based on smaller compartments carefully worked out to reduce the potential for wind-blow and environmental impact while still generating enough income to provide the additional desired community benefits.

There will be a financial penalty in both the price offered for standing timber on steep difficult to access slopes not being clear-felled in large coupes, and in the cost of sensitive harvesting required for smaller scale working – including preventative and remedial action on unstable and wet slopes. The financial plan and 25 year cash-flow is therefore based on what is considered to be a more realistic financial scenario given both the community aspirations and the restrictions on the site.

Wildlife Considerations: Red squirrel, Roe deer, Crossbill and Siskin inhabit the conifer woodland. Given the pressure that Red squirrels are under from Grey Squirrels, this makes the forest of particular importance. The Red Squirrels are

attracted by small seeded conifers, such as Norway spruce and their presence will require careful planning when it comes to felling Norway spruce, and choosing the same species to replant in areas after felling.

Potential for Added Value from Wood Fuel:

The community has the opportunity to develop a number of activities using small diameter material timber for firewood or the biomass chip market. Conversion of some of the larger logs into boards would allow the material to be used elsewhere on the property such as repairing the hides. Doing this within the community would create new local jobs for local people.

The majority of households in both valleys have an open fireplace, wood-burning stove or some kind of biomass boiler. Kindling is available in bags at garages in Selkirk and Hawick but a very local outlet would benefit particularly the more elderly residents. There is currently one business supplying kindling to the garages and farm shops from a base in Yarrow. The owner may retire within the next few years by which point the community development company may be in a position to scale-up production to a modest amount. This supply of kindling will bring in some income and delivered to elderly local residents in hard-to-heat homes will provide a real benefit.

There is also a market for hardwood logs and after the second year EYCDC should be able to supply local valley households with tote bags of logs at a realistic price. By the end of Year 2 it should be possible to sell 50 bags of kindling at £5 per bag and 20 tote bags of logs at £60 each.

From Year 3 there is the potential to sell air dried larch cladding. This should sell at £20 per m². An initial sale of 10m² in Year 3 should be achievable and this could be increased by 10m² per year.

New Access Road into the Forest

There is an adjacent hill field and area of woodland in private ownership which remains from when the neighbouring farm was sold to forestry several years ago. (19.35ha) This small area of ancient woodland gives the only pedestrian access to the Marshes from the Honey Cottage end.

The hill field would give space to create a small parking area and install a new track uphill, creating vehicle access into the forest from the centre of the valley. This track would join up with the internal forest road which currently can only be accessed from the other end of the forest 2.8 miles away. This

new access would be for horses, bikes and light vehicles only and there could be no intention to extract timber via this route.

The private owner has indicated that he is willing to sell and purchase of the woodland and field would secure community access to both the Marshes and the forest. It has been independently valued and this is included in the request for funding from the Scottish Land Fund.

Assessment of the Visitor Market

The Scotland Visitor Survey 2011, Regional Results: Scottish Borders, estimates that some 42% of visitors to the Scottish Borders spend one or more nights in the area. Of these the average length of stay is 3.4 nights. 31% of visitors went for short walks, some 29% for long walks and 35% came to the Borders because of scenery/landscape. The Scottish Borders Tourism Strategy, 2013-2020, details the importance of developing wildlife watching opportunities and making improvements to walking routes and countryside access.

Within the valleys, the most recent count identified 668 bed spaces available to tourists through a range of camping, chalet, caravan, self-catering cottage, B&B, yurts and hotel accommodation. The percentage occupancy is not known.

In the upper Ettrick area there is one small hotel recently re-opened, a number of self-catering cottages and yurts, and two caravan parks where many of the statics are owned privately and used throughout the year. Within a ten mile radius of the Marshes are the Cross Keys Hotel in Ettrickbridge and the Gordon Arms Hotel in Yarrow. Tibbie Shiels Inn at St Mary's Loch is currently closed. Less than 15 miles away is the increasingly popular Samye Ling Buddhist centre in Eskdalemuir which has recently expanded its visitor accommodation. There is a range of holiday accommodation available but few organised or promoted activities for visitors.

Providing a programme of ranger led activities, improving visitor facilities and signage, and marketing the uniqueness of the Marshes will lead to an increased number of visitor days, and critically, visitor nights, thus attracting and retaining visitor spend. The Grey Mare's Tail waterfall and nature reserve managed by the National Trust attracts 50,000 visitors per year and is only a few miles from St Mary's Loch. It should be possible to attract some of these visitors into the Ettrick valley.

Ettrick School

Scottish Borders Council is currently consulting on the formal closure of Ettrick Primary after a mothballing period of 4 years. They have indicated that they would be willing to transfer ownership to a community group for no charge and do not anticipate being able to sell the building. This is primarily because it sits on the flood plain and would not gain planning consent for conversion to a residential dwelling. It sits within a large car park and grassed garden area and the grounds offer potential for a range of activities. The community purchase of the forest will require EYCDC to have a base within easy distance of the Marshes.

Ettrick School would provide office space as well as a larger classroom space for training and development. The second classroom has been fitted out to host the James Hogg exhibition which is run by volunteers from June to September. Sharing the building with the Hogg exhibition will be beneficial for both parties and gives an opportunity to further enhance the visitor experience. Using the former school building as a base for the forest management will also provide a focal point within Ettrick village and a community resource open 5 days a week.

Bike Hires

Electric bikes have been trialled by the EYCDC and for holiday makers not used to cycling they offer a fantastic chance to get up into the hills via forest roads without being completely exhausted. There is potential to develop off-road route maps using the surrounding forest roads particularly linking the Gamescleuch/ Honey Cottage area to St Mary's Loch in Yarrow via the historic Captain's Road. No one is offering this service at present within the valleys and there is ample outdoor space at the school to develop a bike hire business.

The purchase of the bikes and development of this business could be progressed as part of a wider LEADER funding application based on maximising the business opportunities from the forest purchase. The set-up costs are not included in the 25 year cash flow as it is assumed they will be covered by a separate funding application. Income from the bike hires and from providing guided rides is included in the cash-flow, estimated at £1000 in Year 2.

Local Employment Opportunities in Forest Management and Maintenance (including deer stalking).

Currently there is no local involvement in the management or maintenance of Gamescleuch Forest. The dominant model of plantation forest management in Forest Enterprise, and amongst private forest management companies, is to bring in external squads for specific operations over the life of the forest.

Community ownership gives the potential to contract local people in some of the forest operations. From skilled jobs, such as deer stalking, and chainsaw operations, to semi-skilled work, such as tree planting and path building/maintenance, local people can become involved and benefit economically from management operations. Deer stalking alone is estimated to cost £1,200 per annum based on paying a contractor £120 for 10 days. (There is the potential to defray deer stalking costs by offering sport shooting within the forest, and to sell the venison through a game dealer.)

Restocking (planting of recently felled sites) is estimated to cost some £66,000 over the ten years from Year 2 to Year 11. This could provide valuable seasonal work – during autumn and winter months - for land based workers, or for those working in the hospitality sector and again could be carried out by local contractors.

Youth Training and Volunteer Programme

Community ownership will provide local young people with opportunities to gain rural skills, specifically those relevant to forest management, without needing to attend college or to sign up for full time courses. Young people would be recruited from those about to leave or having just left school (in the first instance), however there would not be a barrier to older people, such as part time workers or retirees, participating in the volunteering activities or electing to undertake the training courses.

The objective is to provide Lantra certified training in skills such as chainsaw operations, tree planting, path construction, dry stone diking, fencing, pesticide spraying, brush cutting and quad biking. The courses would be administered by the Coordinator and delivered where possible by the Forest Manager. It is estimated that over a three-year period a training programme would benefit 12 young people. There is currently no such training available to young people in the area.

New Positions for a Coordinator, Forest Manager and Seasonal Ranger.

EYCDC will require a Coordinator to provide oversight, financial management, administration, project development and promotion of forest related activities. It will also require a Forest Manager to oversee forest operations and carry out practical work. There will also be a requirement for a seasonal ranger post to lead on conservation projects and to plan and deliver a range of forest based visitor activities. These three new positions are a tangible economic benefit to the local community and could be extended in future if funds allow.

Governance and Management

EYCDC is a company limited by guarantee (Company No. 452785) and it can therefore hold property, enter into leases and employ people in its own right. If the EYCDC is successful with its application to the Scottish Land Fund for funding to purchase the Ettrick Marshes and Forest, it is proposed that title to land and other buildings will be held in the name of the Company. EYCDC is a not-for-profit community company and no directors can take financial remuneration from the company. Two signatories are required for cheques with a parallel process of monitoring for online banking.

Overall responsibility for the successful management of the forest and the forest related activities will lie with the Directors of the Company.

The Coordinator will provide reports to the board, making sure they are fully aware of any issues in a timely manner and take such actions to carry out decisions of the board. This post will cover financial management, administration, project development and fund-raising, marketing and sales. It is anticipated that this post will be on a fee basis, part-time but no less than 20 hours per week on matters relating to the forest.

The Forest Manager will be responsible for maintaining the forest in good order, any building, ditching, felling, path making required, supervision and training of the volunteers and trainees, and liaising with forest contractors. This will be a part-time post on a fee basis no less than 20 hours per week.

The seasonal Ranger will work on conservation projects, develop forest based activities for visitors and local groups and lead these activities. It is anticipated that this will be a 16 week seasonal post on a fee basis.

Specialist forestry advice will be bought in on a consultancy basis based on 6 days at £250 per day for the first year, covering the UKWAS application and certification and 4 days per year thereafter.

Deer management will be contracted out to a qualified local stalker based on 10 days per year at £120 per day.

Assessment of Ettrick and Yarrow Community Development Company

Since May 2014 the EYCDC has benefitted from Scottish Government Strengthening Communities funding which has allowed it to employ a development worker and establish itself within the community. This funding has been extended again and is now due to run at a reduced rate (20 hours per week) until March 2018. One of the aims of this funding is to help community development companies move to a point where they are financially sustainable and the extension to March 2018 is based on the potential forest purchase being completed by then.

The company has been successful in accessing funding for a variety of projects and has facilitated a number of new initiatives. The company has a strong board with a range of relevant skills as well as an experienced treasurer. It has proved itself well capable of managing both capital and revenue grants and of completing successful projects.

EYCDC created a 7 mile off-road circular path around St Mary's Loch in Yarrow which has proved extremely popular and is now listed as a 5 star walking route. They partnered with the Southern Upland Partnership to commission a mapping project of renewable energy opportunities within the valleys. They have been founding partners in a Community Broadband Scotland project to widen broadband access in the valleys and beyond.

They run a weekly lunch club for older residents, organise pop up shops for local arts and crafts, run training courses to help local businesses and Information Days with invited speakers to explore new business ideas. They have created tear-off maps and information boards to help visitors. They continue to explore ways to deliver business space and homes to rent within the valleys as well as cycle routes and increased capacity of the local grid.

The directors are all drawn from within the valleys and the company currently has 10 directors on the board. Membership amongst local residents has doubled within the last six months and is now over 130.

Forest Management & Timber Harvesting

The owner, or owners of woods and forests in the UK are largely required to abide by a series of Guidelines produced by the Forestry Commission when making decisions about managing their woods and forests.

Timber Harvesting

Before felling any trees the Forest must either have in place a 10-year Forest Plan approved by Forestry Commission Scotland, or have a Felling Licence issued by them. EYCDC will require a new approved forest plan and this should be completed within the first year before any timber harvesting can take place. FCS grants based on the size of the forest are available to assist with producing the plan.

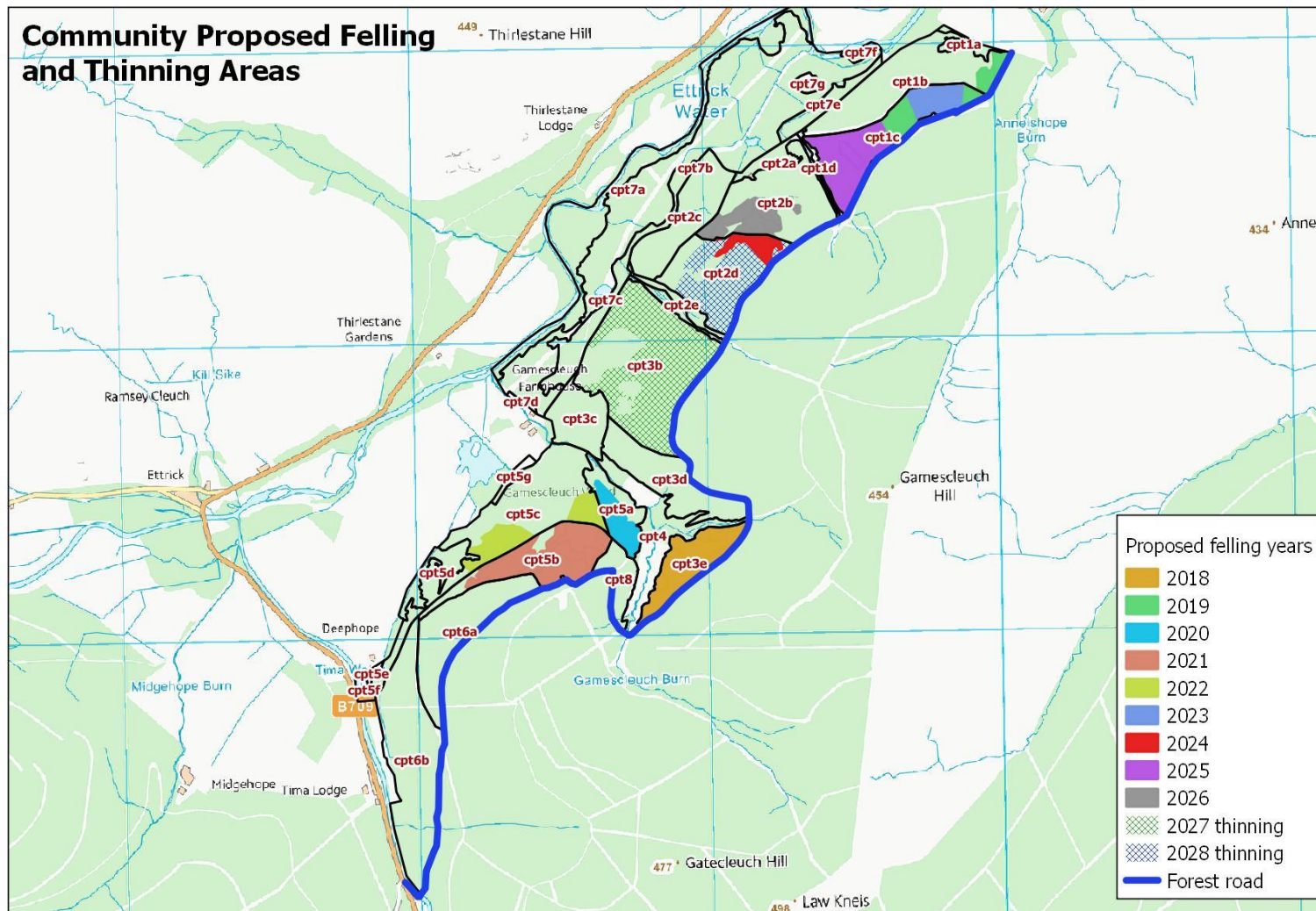
To some extent the nature, scale and phasing of the activities that the community wish to undertake on the property would usually influence the programme of timber sales as the timber income is required to match the anticipated outgoings. However, other factors relating to timber sales from Gamescleuch have been identified and taken into account in the financial plan as follows:

- **Length of Time Trees in Gamescleuch Forest ‘Below the Road’ will remain Standing:** It is hard to predict precisely how long the trees will remain standing. While there are probably some who would wish that the trees remain as they are without being felled, strong or storm force winds are a feature of the British climate, and these will cause the trees to start blowing over. Once started the wind damage can spread. By owning the property the community will be able to decide for itself exactly what species to use when the area is replanted.
- **Community Scale Harvesting Operations:** There will be opportunities potentially for local people to be employed by the EYCDC to undertake harvesting and value added operations. These will take time to arrange as the work requires planning, the purchase of equipment, and the people involved may need to go on training courses.

- **Landscape:** A phased tree felling programme will create less of an impact visually on the landscape. If the property is purchased with financial support from the SLF, the community can decide for itself how extensive the felling programme can be. In order to improve the visual appearance under current FC landscape guidelines any stands adjoining felled areas have to be left until the restocking of the first coupe has reached a minimum height of 2 m; for planning purposes. This is likely to be between 5 and 15 years depending on establishment success and growth rates.
- **Sizes of Felling Areas:** The trees along the edges of the compartments tend to have developed root systems that are able to withstand strong winds better and therefore this can often be the best way to delineate the boundaries of areas to fell. The 'green' more wind firm edges in Gamescleuch Forest 'Below the Road' have been used to determine 'new' Compartment boundaries.
- **Selective Felling and Thinning:** There can be opportunities to take out some of the existing trees in a compartment while leaving the majority standing. If too many are taken it creates 'roughness in the wind flow at canopy level and this can create conditions that start windblow. A delicate balance has to be struck.
- **Topography:** There are parts of Gamescleuch Forest 'Below the Road' where the ground is very steep and harvesting operations are likely to be difficult and costly. The steepness is likely to mean that outside contractors with the appropriate expertise for harvesting timber of these sites will need to be used.

The above considerations, and the presently available information, have been used in developing a 10-year harvesting plan should the purchase go ahead. More detailed information about this initial plan is given in Annex 3 Table 1. Map 4 shows the plan visually.

Map 4 Indicative 10-Year Community Felling & Thinning Programme



Timber Harvesting Plan Cont'd

The Financial Plan set out in the next section has taken the factors listed above into account and balances these as far as possible with the activities that the community would like to develop in and around the Marshes and the Forest. There remains a degree of flexibility which will allow the EYCDC to modify the Plan if external circumstances change, or the community would like to take on or change the activities presently planned.

Certification: If timber is sold that comes from a wood or forest that is independently certified as being managed in accordance with the UK Woodland Assurance Standard (UKWAS), the coniferous timber fetches a price premium of £1 to £2 / tonne compared with timber from a wood or forest that is not. Timber buyers also prefer to buy timber sold from a wood or forest that has been managed in accordance with UKWAS so there tends to be more interest in it. Entering a wood into UKWAS takes some time and there are costs involved because of the need to set up the necessary administrative systems.

Market Valuation & Funding the Purchase

Valuation

The District Valuer was asked to undertake another valuation in February 2017 which this time only included part of the commercial forest which lay below the main forest road. The valuation of this 'Below the Road' option including the Ettrick Marshes was deemed to be £975,000.

Valuation is normally done on the basis of 'like for like' sales, by comparing a number of forest valuations of properties with similar forest types, scale, species and age.

Of the total forest area of 171.28ha, some 48.05ha is marshes or other land, and 26.84ha is mixed broadleaves, alder and maple. Giving a total productive conifer area of 96.39ha. Of this 96.39ha of productive conifer some 43.6ha is earmarked by FES for clearfelling in 2023 and 2033. The balance of approximately 53ha of productive conifer is designated as Long Term Retention, meaning that it will not be harvested.

Purchase Funding

EYCDC has already been awarded Stage One funding from the Scottish Land Fund to develop the proposal and prepare a Stage 2 application. The valuation at £975,000 is fair given comparative land values but considered high if viewed solely in relation to the use value of the commercial forest area, particularly given that 53ha out of the 96.39 ha of productive conifer is not to be harvested.

Community purchase of the forest will make the forest work for the community with most of the income being recycled in the local economy through jobs, services and increased revenue from visitors helping to support local businesses. There will be significant community benefit from the purchase as illustrated throughout this business plan. The CATS guidelines allow for a discount to be given on the valuation by public bodies if there will be clear community benefit as a result. EYCDC will therefore be applying for a discount on the valuation of £100,000 from Forest Enterprise.

The 25 year cashflow demonstrates that the forest purchase is sustainable long-term while delivering maximum community benefit in a wider sense. The capital outlays in the first few years are necessary if the community aspirations and additional benefits are to be realised.

Triodas Bank was approached to assess the impact of a £200,000 loan if repayment was secured against the land and set at a 20 year term. The suggested rate was 3% over base rate which resulted in a monthly payment of £1135 or £13,620 annually. The cashflow shows that this would only be possible by dropping one of the employment positions. The knock on effect of this would be to make delivery of the plan practically impossible with much reduced community benefit as a result.

The forward sale of timber to the value of £100,000 would mean there was no timber income until Year 5, with no possibility of developing additional income streams and no funds for infrastructure. The absence of timber income would also jeopardise the LEADER funding as it requires match funding of 40%.

Financial Plan

A detailed 25 year cash flow is attached as Annex 4.

Risk Register:

Risks	Measures to Reduce Risks
The price paid for the property is too high	A report was commissioned from the District Valuer with the purchase price met by grant funding and discount.
Timber volumes are over estimated	A stratified set of randomised plots was used to estimate the volumes of standing timber. The estimated volumes per hectare were checked with FCS information obtained from areas of recently felled trees adjoining the property (Annex 2 Table 1)
Timber prices are over estimated	Timber prices do go up and down, but a recent study by John Clegg Consulting Ltd has found that the potential availability & demand for coniferous roundwood in South Scotland is extremely tight. The main determinant of prices is likely to be the exchange rate.
Catastrophic storm damage to Forest	If this occurred the EYCDC will obtain all the money from the sale of fallen timber. It would then be a matter of investing that money so that at least some of it would be available to re-establish the Forest and to develop the activities relating to the Marshes. There could be some reduction in timber prices if the damage was widespread throughout South Scotland, for example
Small scale storm damage to trees	This will always be a risk, but the part of Gamescleuch Forest below the road is less exposed than other parts of the Forest and the soils are well drained. A phased harvesting of the timber may result in windblow if there are exceptional winds. Windblown timber can be harvested and the reduced price for clearing windblown timber by machines is usually between £1 - £3 / tonne. First Loss excess for storm damage can be obtained, but it can be expensive.
Damage to trees from fire or deer	Timber growing insurance will be obtained and the deer management will be robust.
Timber sales do not match expenditure requirements	This will need to be carefully monitored by the Co-ordinator and the Directors

<p>The posts cannot be filled with suitably qualified local people or the appointed person is not up to the job</p>	<p>The Directors will need to give recruitment close attention as it will influence the phasing of the work programme & development activities</p>
<p>Increased public access means increased liability</p>	<p>EYCDC carries public liability and will extend this if deemed necessary. All recommended repairs to the board walk and paths will be carried out in accordance with good practise as advised.</p>
<p>Health & Safety</p>	<p>This will be a key issue for anyone working on the property. It will be essential to make sure everyone has had relevant training, is aware of risks and is adequately supervised. The training budget for volunteers and young trainees is high enough to cover these needs.</p>

Long Term Outcomes of the Purchase

Without this community purchase FES will follow through on the removal of the board walks in July 2017 and the forest walks will remain closed. This will make it more difficult for the public to visit and appreciate the Marshes. This will then remove another potential opportunity for the development of tourism, which is one of the key employers in the Ettrick and Yarrow valleys.

The long-term retention of Gamescleuch Forest by the State, and intermittent large scale harvesting and restocking throughout Gamescleuch Forest, will bring little benefit to the community in the Ettrick and Yarrow Valleys as this work is unlikely to create any lasting longer-term employment for people living locally.

The Directors feel the purchase of the area of Gamescleuch Forest 'Below the Road' and the Ettrick Marshes would complement their other activities for regenerating the area and strengthening the community in the Ettrick and Yarrow valleys.

They feel that in the longer term it will result in the Ettrick and Yarrow Valleys:

- Offering more and better local employment opportunities
- Attracting more tourists to the area with the aim of providing a wide range of potential activities so that people decide to eat and stay in the area overnight
- Becoming a more attractive place for businesses to set up, particularly tourism related ones
- Being more attractive places for young people to grow up and stay on to work
- Having more affordable housing available
- Residents becoming healthier and happier
- Being a more resilient community both economically and socially
- Having a nationally recognised ecological area that people in Scotland and elsewhere will want to come and visit

Under community ownership, EYCDC predicts that almost all the income generated by the forest will be recycled within the local economy. Some of this will be through creating local jobs, some will be through increased visitor spend in the local pub, campsite shop or local accommodation and some will

be in providing better life chances for our young people through training and work placements.

The publicity and ongoing marketing of the community forest will have spin off benefits for the whole area attracting more people to live or visit and create a more positive outlook about the future of life in the valleys.

The increased access to the forest with guided walks will provide more recreational activity and thereby improved wellbeing.

The social aspect of volunteering in the forest or in the base at the school will bring people together more often. There will be a new focal point for the community and a community resource which has been lacking when we establish a management base in the former school.

Ownership of the forest will make possible a wide range of ideas suggested by the community and this energy and enthusiasm will continue to develop in unpredictable ways. New businesses may be developed, new people may be attracted to live in the valleys and new opportunities will arise.

ANNEX 1**Directors of the Ettrick & Yarrow Community Development Company as currently registered with Company House.**

Sir Michael Strang Steel (Chair) Landowner, ex FCS commissioner and local resident at Philiphaugh near Selkirk.

Mr Jeremy Snodgrass (Treasurer) ex Scottish Borders Council architect with extensive project management experience. Resident in Yarrow Valley.

Mr George Jack: Ex Selkirk High School headteacher, chair of Ettrickbridge village hall, former president of the Scottish Rugby Union and resident of Ettrickbridge.

Ms Lynne Hume: Owner of very successful catering business based at Philiphaugh, two sons both farming and resident in Yarrow.

Mrs Daphne Jackson: Award-winning accommodation provider and farmer's wife in upper Ettrick.

Mr Gordon Harrison: Chair of Ettrick and Yarrow Community Council, former owner of Tushielaw Inn near Gamescleuch and resident in upper Ettrick.

Mr Sandy Cumming: Former engineer for Buccleuch Estates, many years of practical project management and resident in Ettrickbridge.

Ms Marjorie Hutton: Many years of community education experience with Scottish Borders Council and resident in Ettrickbridge.

Mr Andy Wright: Many years of financial experience with various blue chip companies and currently Royal Bank of Scotland. Resident in Yarrow.

Ms Caitlin Hume: Chair of Ettrick and Yarrow playgroup and resident in Yarrow.

ANNEX 2:**Consultation Events and Community Engagement**

Personal contact by EYCDC board members with all residents who live adjacent to the forest. April/May 2016

Front page article in the EYCDC Newsletter which was distributed very widely throughout both valleys and either posted or hand-delivered to most houses. September 2016.

Information display and stall at the annual Ettrick and Yarrow agricultural show. September 2016.

2 articles in the KeyNotes newsletter which is delivered by church members to every household. Summer 2016 and Spring 2017

Articles in the local Selkirkshire newspapers outlining the proposal.

Drive-through and information afternoon in the forest for EYCDC members with 4x4s to take residents up the existing forest road to see the commercial forest from within.

Drop-in information session during the afternoon followed by a public meeting at night in the Boston Hall, Ettrick on 15th November 2016. Attended by 29 people across the two sessions.

Presentation on the proposal by a member of the consulting team at the EYCDC's AGM in Yarrow on 22nd November 2016, attended by 24 people followed by an opportunity for members of the community to ask any questions.

Visits by EYCDC members to explain and develop the proposal to non-members living in the upper Ettrick area. Increased membership results. Sept-Nov 2016

Second public meeting (Feb 2017) in the Boston Hall with the consulting team to show the proposed forest management plan if the community purchase goes ahead. This included a very detailed discussion of the revised felling plan on which the timber income shown in the cash flow is based.

This forest plan was supported by everyone present and welcomed as an improvement and benefit to the local area.

ANNEX 3

Methodology Used to Estimate the Standing Volume of Timber

Gamescleuch forest 'Below the Road' comprises mainly Sitka spruce, Hybrid larch and Norway spruce trees.

Estimates of the volume of standing harvestable coniferous crop were made by stratifying the forest into species and into areas of trees that exhibited a degree of uniformity with the aim of placing a number of samples in each of the strata identified.

The team then located fifty one 0.01 hectare plots across the forest, such that the distance along the transect, the direction away from the transect and distance off the transect were randomly generated. These plots have been located and marked using GPS. This mapping can be supplied on request.

The team measured diameter at breast height (DBH, taken using a diameter tape at 1.3m height above ground) for all trees above 7cm diameter in the plot and also measured the top height of the largest DBH tree (using a Hypsometer).

Timber volumes were determined using standard forest sampling and yield forecasting techniques. The top height of a stand was used to estimate Yield Class, which in turn was used to determine stand volumes. In areas over 10ha, in a variable crop, it is recommended that 16+ sample plots are measured to establish the top height of a stand. The mixed nature of Gamescleuch Forest, both in species composition and gradient, necessitated a relatively high number of sample plots.

The average top height and DBH for each tree species was applied to the Forest Yield (A PC based Forest Yield Model) to determine the Yield Class (e.g. 16) for the tree species. And volumes of timber were derived by matching the estimated Yield Class with other model variables, including the initial tree spacing (e.g. 2 meters) and assumed thinning regime (e.g. Solitary line thin aged 25 years).

For the estimation of standing volumes for species other than Norway and Sitka spruce and Hybrid larch, such as Scots pine and Douglas fir, we used Larch and Norway spruce volume values as proxies.

Estimated Volumes

Initial volume per species per hectare estimations are:

Sitka spruce: 556 cubic metres per ha (equates to 455.92 tonnes per ha)

Norway spruce: 552 cubic metres per ha (equates to 452.64 tonnes per ha)

Hybrid larch: 322 cubic metres per ha (equates to 264.04 tonnes per ha)

The volume estimates for Sitka and Norway spruce are slightly lower than the estimated 513.58 tonnes per hectare obtained by FCS when they harvested the 39.9 ha Annelshope Burn coupe as is shown below.

Table 1. Forest Enterprise harvesting data from Gamescleuch Forest

COUPE_ID	COUPE_NAME	LOCATION	PRODUCT_ID	UOS	COUNT(*)	QTY_DESP
69004	ANNELSHOPE BURN	714	Chip	Tonnes	305	7,719.88
69004	ANNELSHOPE BURN	714	Logs	Tonnes	334	8,596.14
69004	ANNELSHOPE BURN	714	Pallet	Tonnes	85	2,161.44
69004	ANNELSHOPE BURN	714	Pulp	Tonnes	12	297.38
69004	ANNELSHOPE BURN	714	Woodfuel	Tonnes	68	1,717.00
					Total	20,491.84

COUPE_ID	COUPE_NAME	LOCATION	PRODUCT_ID	UOS	COUNT(*)	QTY_DESP
69010	GAMESCLEUCH WINDBLOW	714	Chip	Tonnes	42	1,072.72
69010	GAMESCLEUCH WINDBLOW	714	Logs	Tonnes	21	534.74
					Total	1,607.46

Source: FCS, 2016

Table 2. Projected felling regime and income Years 1 to 10

Tentative felling coupes and thinning									
Felling/thinning year	Sub Cpt. number	Total Compartment area (ha)	Sitka spruce area (ha)	Norway spruce area (ha)	Hybrid larch area (ha)	Scots pine area (ha)	Douglas fir area (ha)	Estimated volume (m3)	Income
1	3e	4.5638	2.5391	2.0247				2529	£62,222.6
2	1c	8.0422		0.2816	1.1821			471	£11,594.3
2	1b	9.3178			0.8231			265	£6,519.9
3	5a	3.1814	1.7117		0.078			977	£24,029.8
4	5b	6.5416	0.8401		2.9765	1.1629	0.5164	2085	£51,291.9
5	5c	13.4777			2.2897			737	£18,137.2
6	1c	8.0422	2.5					1390	£34,194.0
7	2d	8.4584			1.0217			329	£8,093.1
8	1c	8.0422	3.7167				0.3618	2266	£55,748.5
9	2b	8.8307			1.497		0.8038	926	£22,773.0
10	3b	16.1532	13.1171					984	£24,201.0
Totals (excludes thinning area)			11.3076	2.3063	9.8681	1.1629	1.682	12959	£318,805.3

Note. In Year 2, two fellings are scheduled and in the Cashflow these have been totalled, equating to £18,114 of revenue.