



shared surfaces, offset roadlines



shared surface node points



tree guard



play area/shared surface in refurbishment scheme



shared surfaces, one level

Street arrangements to be designed to ensure pedestrian priority over vehicle movement by using methods such as shared surfaces, offset road lines and narrowings, varied parking arrangements and positioning of street furniture and street trees.

All houses and ground floor flats would be provided with defensible space in the form of private fenced front gardens. Houses would also have secure private back gardens.

To the rear of ground floor flats there would be small private gardens with quality communal garden space beyond.



Quality, secure, communal rear garden areas



The buildings with the most prominent and direct views out of the site would generally be the flatted units.

The two storey housing would potentially have oblique views over to the housing at Baberton and open land to the south west of the bypass.

The upper levels in the flats would have excellent views to the west and north looking over to Corstorphine Hill and the City Centre.



Impact of Development on Adjacent Road Network:

1. Gillespie Crossroads:

This is a light controlled junction which generally is dominated by east-west flows. North-south flows through Wester Hailes Road are well within the current road capacity simply because of the controlled nature of the lights. The only impact likely as a result of the development might be slightly longer queuing at the lights – this is unlikely to be significant.

2. Viewfield Road:

The road is one way from Wester Hailes Road onto Lanark Road. Traffic from the site is unlikely to make use of this road as most journeys from the site would be expected to travel either into town or onto the bypass/Wester Hailes Shopping Centre.

3. Clovenstone Roundabout:

The capacity of this roundabout at present is significantly under capacity hence the proposed development should have no significant effect on its functionality.

4. Westburn Avenue / Murrayburn Road:

This double junction is light controlled and the roadway reduces to single lane in both directions. The lights do cause some queuing and assessment of the sensitivity of this junction will require to be assessed as part of the full traffic impact assessment. It is unlikely that there will be a significant impact, however, this should be tested.

Detailed assessment of the transportation issues will be required as part of any future planning process. This transportation assessment should assess the impact on junctions from Gillespie Crossroads to the Bankhead Roundabout (Number 5 on the map) at the A71 Calder Road.



Option 1

The only road from which access can reasonably be achieved for the site is from Wester Hailes Road. Positioning of the access was considered near Viewfield Road, midway along the dual carriageway and also at Clovenstone Roundabout.

Access at Clovenstone Roundabout was considered impractical because of ground levels and also the SUDS treatment needs to be at the lowest point of the site and there is insufficient space for both, access close to Viewfield Road was eliminated because of poor sight lines and proximity of gas plant. Therefore access midway along the dual carriageway was considered to offer the best solution in terms of safety and levels.

Junction Considerations:

Options for the junction were (i) to maintain the existing dual carriageway and (ii) reduce the dual carriageway to single lanes in each direction.

Currently the dual carriageway has a 40mph speed restriction and is classified as a main distributor road.

Access from Wester Hailes Road to and from the City Bypass is made via Clovenstone Roundabout at the north end of the dual carriage.

At the south east end of Wester Hailes Road the road becomes single carriageway with a residential access road (Viewfield Road) approximately 100m from the finish of the dual carriageway. Then approximately 50m south east there is a signalled junction (Gillespie Crossroads).

A preference has been made to infill the pedestrian underpass and replace it with at grade crossings near the current underpass and close to Viewfield Road to allow access to Clovenstone Park.

Option 1 – Keeping the Dual Carriageway

The advantages of keeping the dual carriageway are as follows:

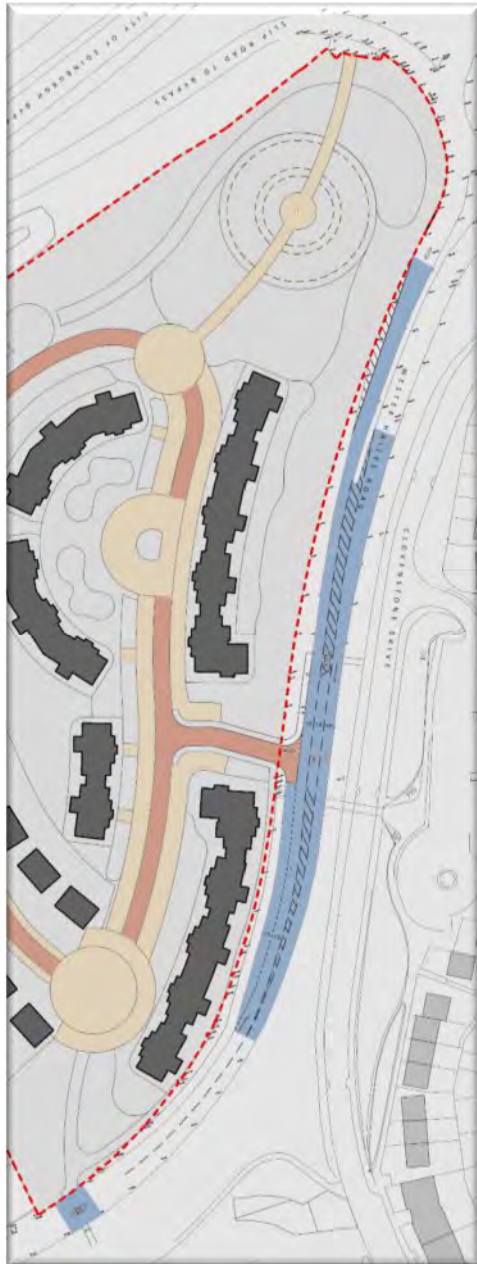
Advantages

- Minimise disruption to the existing road;
- Maintains existing road capacity;

Disadvantages

- A pedestrian crossing on the dual carriageway is not ideal and will probably require to be signalled;
- Vehicular crossing of the dual carriageway presents greater risk for accidents due to dual lanes and speed;
- More road space is required for right turning and slip road to new development junction i.e. + 7.3m.

Option 2/



Option 2

Option 2 – Reducing Carriageway to Single Separated Carriageways

Advantages

- Opportunity to reduce road speed to 30mph and improve safety;
- Allows use of existing roadway to form right turning and slip roads;
- Crossing points can be uncontrolled with central reservation;
- Increased development area;

Disadvantages

- Reduced road capacity.

Recommendation:

The capacity of the road is normally based on the width, number of carriageways and restrictions (accesses/parking etc.).

For this short section of Wester Hailes Road, the capacity will be limited by the flow rate at the Gillespie Crossroad which is fed by single carriageways.

It could therefore be argued that reducing the dual lanes to one each way would have no impact on road capacity. The only advantage might be as storage relief capacity for the bypass in the extent of a blockage on the bypass. However, the existing roads both north and south of Clovenstone Roundabout are light controlled and capacity would be limited to the capacity of the control junctions.

Weekday observation of the road confirm a distinct peak at 7-9 am and 4-6 pm with backlogs at Gillespie Crossroads the norm where waiting was observed at up to 2 light changes at peak times.

Both solutions could be made to work for the residential development. However, the benefits of reduced speed, improved pedestrian crossing and the possibility of not introducing additional light controls, points toward a single lane in either direction with slip roads into the site and a central right turn lane as per Option 2.

Sight lines are achievable for both options however, Option 2 provides better sight lines, as the junction is pushed further into the main carriageway.

It should be noted that the junctions and visibility splays have been designed based on a reduced speed limit of 30mph. If a safety audit indicates the traffic, after road narrowing works, still has a running speed of 40 mph rather than the designed and assumed legal speed of 30mph, then the location of the block of flats adjacent to Wester Hailes Road, junction position and visibility splays would require revision due to increased sightline requirements and could reduce development potential.



Current parking standards stipulate that for 180 units of the various house types and sizes indicated, including visitor parking, a total of 194 car parking spaces would be required.

The site layout has been tested to show that at least 198 spaces can be accommodated.

Space is available to enable end on parking bays, layby parking and in-curtilage driveway parking on the site.

It should be noted that parking standards are currently being reviewed and the parking allocation for affordable housing may increase significantly.



Due to the varying nature of ground conditions, and likelihood of fill areas, foundations would be a mixture of:

- Piled foundations;
- Traditional narrow and wide strip foundations;
- Vibro compacted ground improvement with trench fill foundations;

An extensive site investigation report would be required before foundation types and locations could be identified.



The Brief called for the study to provide clarity in the quantity and quality of open space and allotment provision required in Curriemuirend Park. It also required for recommendations to be made on how to improve the quality of the existing open space at Clovenstone Drive to the north east of the site and to be accessed via a new Pelican crossing on Wester Hailes Road. The minimum area of allotment provision for the Curriemuirend Park site was stated as 1,500m².

Proposed allotment provision at Curriemuirend Park is 1,770m². While individual allotment sizes can vary greatly, the traditional allotment size was 10 poles, which dates back to Anglo-Saxon times. This is equivalent to a tennis court, which may be appropriate if the allotment is to serve as your main source of food, but is considered generally too large for today's recreational users. With paths, it is considered the overall level of provision could provide approximately 26 allotments.

This is supplemented by 1,535m² of community garden ground which would enable groups of people or organisations to take an active role in cultivation.

Onsite play provision is provided within the Curriemuirend site, which will meet the needs of the new residents, within an attractively landscaped area.

In addition, an area of formal open space around the proposed crescent has been created to provide a setting for the new flatted development. And an avenue treatment has been incorporated to east west route.

Communal garden space is provided to the rear of the flats with private gardens front and rear for ground floor flats and houses.

Considering the number of units being proposed the diagram shows that a housing development with integrated allotment / community garden space park can be created on the site.

The playing fields at Clovenstone are of good quality (as reflected in the Open Space Audit published by the Council in December 2009). However, general environmental enhancement measures, new planting and improvements to woodland management, could be considered to upgrade the area in line with Greenspace Standards. Potential improvements which have been considered are shown on the following page:



In terms of improvements to the adjacent open space at Clovenstone Drive and it's upgrading in line with the local Greenspace standard, the following works have been considered:

- Removal of old picnic seats and reprovision of new seats and picnic tables;
- New signage, noticeboards and bins;
- Repairs to existing tarmac footpaths;
- New tree & woodland planting to compensate loss at Curriemuirend Park (see following page);
- Bulb planting;
- Woodland management;
- Improvements to site entrances;
- Outdoor Gym/fitness equipment.





The brief called for the study to assess the impact of development on the millennium planting and provide options for compensatory planting if required eg on Clovenstone Drive.

The development of the Curriemuirend site for housing, while retaining some of the woodland on site, will result in the removal of some areas of millennium planting to create a safe and attractive residential environment.

While there will be some replacement planting on site, in the form of new woodland blocks (where levels have to be amended) and new street trees, there will nevertheless be a reduction in the number of trees on site.

Section 148 (Trees and Woodland) of Scottish Planning Policy (February 2010), states that 'The Scottish Government's Control of Woodland Removal Policy includes a presumption in favour of protecting woodland resources. Woodland removal should only be allowed where it would achieve significant and clearly defined additional public benefits.'

The appraisal of Clovenstone Drive has established that the existing level of tree cover on this site is generally appropriate for the function of this greenspace, but specific areas have been identified with the potential for some further planting.

This will not fully compensate for the reduction in tree cover on the Curriemuirend site, but the mitigation of the loss of planting is provided through the significant and clearly defined public benefits in the form of:

- New housing to meet housing needs;
- New play provision on site to serve the existing and adjacent communities;
- Community garden and growing space to serve the existing and adjacent communities;
- New allotments to serve the existing and adjacent communities;
- Improvements to community safety, especially for Viewfield residents whose homes back onto the site;
- Improvements to the quality of the linked open space at Clovenstone Drive.



possible playpark style

“a central formal landscaped area, with play spaces, in front of the crescent shaped flats.”



playpark, varying age groups





community garden space



individual allotment spaces



encouraging social interaction



introducing young people to cultivation

The site diagram incorporates a Community Garden space to the western corner with a route leading through to more formal individual allotment spaces, providing differing use options for growing spaces, either as group run gardens or single allotments for individuals. These gardens create connections between people and places through the sharing of gardens to grow food, to reduce isolation, to strengthen communities and to inspire people to live healthier lives and enjoy an improved quality of life. Garden partnerships increase accessibility to gardening, growing and the environment.

UK residents have relied on community gardens as an important source of food for centuries. During the Second World War, community allotments were set up on inner-city sites to provide affordable fresh fruit and vegetables to the local area. The contemporary community gardening movement began in the late 1960s with a renewed interest in green spaces in cities. Many community gardens were created when local residents transformed vacant sites into green spaces for vegetable plots and flower gardens. As these spaces evolved, they were used to address social and health problems.

The scope of what community gardens can achieve also varies widely. They can provide fresh fruit and vegetables, a place for wildlife, improved play areas, an outdoor classroom and safe public spaces that are well-maintained. According to RHS Britain. "The environmental benefits of community gardening are self-evident, but it's the benefits to the community as a whole that really makes it worthwhile."

Community gardens and allotments can:

- increase a sense of community ownership and stewardship and create community cohesion;
- provide opportunities for friendship and learning;
- offer a focal point for communities, and can lead to community-based efforts to deal with other social concerns;
- bring people together from a wide variety of backgrounds (age, race, culture, social class);
- reconnect people with natural cycles with positive effects for mental and physical health;
- allow families and individuals without land of their own the opportunity to produce food;
- filter rainwater, helping to keep rivers/groundwater clean and restore oxygen to the air helping to reduce air pollution;
- recycle large volumes of tree trimmings, leaves, grass clippings, and other organic wastes back into the soil.

Community gardens can also offer unique opportunities to teach young people about a variety of skills from environmental sustainability to job and life skills. Community gardening is a healthy, inexpensive activity for young people that can bring them closer to nature, and allow them to interact with each other in a socially meaningful and physically productive way.

Development and maintenance of garden space is less expensive than that of parkland.



subterranean storage.



integrated above ground storage areas

Refuse and recycling is a major issue for our towns and cities. Local and Central Government regularly change their targets for collection and storage of waste, from increased use of recycling to larger refuse vehicles spending more time on the road collecting waste with reduced number of trips to landfill sites.

The actual adopted solution will be decided between a developer and CEC but the site can accommodate options such as subterranean containers and internal / external communal storage areas.

The main advantage of subterranean container systems is that the visual impact is substantially reduced. The main disadvantage with this approach is the high capital cost of installations.

Above ground storage areas have relatively low capital costs but are more obtrusive, unless carefully designed, and the storage requirements can often increase before the completion of a large scale development resulting in storage areas becoming inadequate and subsequently, containers end up outside the storage spaces.

As there are many existing houses in the immediate surroundings with traditionally garden located individual refuse / recycling containers it would seem reasonable that the new housing units could continue with this approach as opposed to fewer, but more communal, waste storage areas. These tend to work better in flatted developments but tend to be unpopular with people living in houses with gardens where there is space to store waste / recycling containers.

The site is served by a public drainage system, comprising a combined sewer which passes under the North West corner of the site. A surface water sewer is also located in the South West corner of the site and passes below Wester Hailes Road in a North Easterly direction.

It is proposed to discharge the foul flows from the proposed development to the existing foul sewers which leaves the North West corner of the site and crosses Wester Hailes Road in a North Easterly direction. The existing combined sewer being a 675dia will in all likelihood be able to take foul discharge from the site.

There is an existing 150dia surface water pipe discharging from the site in the North West corner of the site discharging in a North Easterly direction below Wester Hailes Road. Discussions with Scottish Water suggest this is a suitable discharge point. The existing pipe size is not sufficient and consideration will be required to upgrade the existing system.

The majority of the proposed site is greenfield and as the surface water flow from the new development is discharging to a water course the run off must be restricted to a greenfield run off rate. It is proposed to restrict the surface water flows by means of a hydrobrake or similar attenuation device.

CEC Flooding Division requires attenuation to be provided for the 1 in 30 year storm event. Attenuation will be provided by storage located in the wetland detention area at the North West corner of the site. The attenuation volume provided includes a 20% allowance for climatic change.

The SEPA Map of Indicative Flooding does not identify any historical coastal or fluvial flooding. There are no watercourses on or adjacent to the site and we found no anecdotal reference to flooding on the site therefore it is reasonable to assume the flood risk of flooding to be low. The site will require to be designed to minimise or eliminate the risk of pluvial flows by provision of storage on site equivalent to a 1 in 200 year storm event.

As the surface water flows are discharging to surface water drains two stage treatment of the surface water run-off is required for this size of development and this is being provided as follows:-

- Roads- Swale and or filter trenches and wetland detention
- Car Parking- Constructed in porous paving and wetland detention
- Roofs- Filter trenches or porous paving and wetland detention
- Footpaths - Will drain directly to soft landscape areas

In curtilage SUDs aspects such as infiltration/filter trenches and private parks will be the responsibility of all owners who are served by these features. SUDs features serving public adopted roads, car parking etc. would be maintained by CEC Highways including filters and swales. Pipes in roads from SUDs features would be adopted by Scottish Water as would all foul drainage from disconnecting manholes.

Land drains associated with earthworks etc. would require to be discharged to the surface water system via silt traps to prevent drains becoming silted, although this would need to be agreed with Scottish Water.

Fully detailed drainage impact assessments would be required for any potential implementation works.





possible low bridge over planted SUDS area to west



possible planted swale to southern boundary



possible formal swale within central area

Swales are a sustainable drainage feature, in the form of broad, shallow, vegetated open channels. They have many purposes, but primarily are intended to slow the rate and reduce the amount of storm water runoff.

By incorporating vegetation in the swales the rate of flow of drainage water is reduced, with some water being prevented from entering municipal drainage systems altogether. Excess water is either held by berms and check dams, or infiltrates into the ground.

The vegetation also helps to filter out urban pollutants from the runoff, reducing the amount of treatment needed in the overall SUDS strategy. The combination of wetter areas and wetland plants provides a variety of habitat for urban wildlife.

Swales can provide a high amenity value by incorporating biodiversity and variety in landscaping proposals, and because no areas of deep water are involved they are safe enough not to require fencing off.

Swales are an economical drainage solution and have a low capital cost, do not require specialist maintenance and are simple to diagnose and remedy blockages.



Executive Summary

The stated Aims & Objectives of the feasibility study were to “enable the Council to establish if there is a robust business case to deliver housing with quality open space and allotments on the site. The findings will also help inform the next stage of the Local Development Plan.”

The study analysis, evaluation and outputs were to satisfy the following objectives:

- *Establish if it is technically feasible to develop the site;*
 - *Establish the optimum economically viable housing capacity for the site;*
 - *Identify and evaluate the constraints and opportunities the site affords and the risks associated with developing the site;*
 - *Provide a concept development layout plan for the site;*
 - *Provide realistic costs and timelines to develop and deliver the concept plan;*
 - *Ensure compliance with PLDP (Proposed Edinburgh Local Development Plan, March 2013) development proposals and principles.*
- The study has concluded that it is technically feasible to develop the site, and shows that the site can accommodate substantially more units than the 100 units stated in the PLDP, with a total of 180 units comprising flatted units in a variety of configurations and two storey family housing, all in a mix ratio of 75% private: 25% affordable housing as required by the brief.
- Economic viability is stated at the end of these Executive Summary pages.
 - Constraints, Risks and Opportunities have been identified, evaluated and responded to throughout the report. These have also been summarised on the following page.
 - A concept development layout plan has been produced.
 - Realistic cost reports have been prepared and a timescale statement is included in these Executive Summary pages.

In terms of PLDP compliance the PLDP development proposals are restated below, the PLDP principles opposite, in italics. Brief summary responses, informed by the study report, or extracts from the report pages, are added below each statement:

“To provide housing and allotments on land at Curriemuirend Park and to improve the quality of the existing green space at Clovenstone Drive”

The site diagram shows that a high quality housing development with integrated similar high quality allotment / community garden space park can be created on what has been considered as being potentially a difficult site to develop. The site has pedestrian links to the existing green space across Wester Hailes Road at Clovenstone Drive and improvements to the quality of that space have been allowed for.

PLDP Development Principles:

“A comprehensive approach to both sites is required, to ensure the allotments and greenspace improvements are delivered”

Substantially more allotment / growing space has been indicated with 1770m² of allotments and 1535m² of community garden ground compared to the 1500m² allotment ground requested in the brief. Additional compensatory planting and environmental improvements to the park at Clovenstone Drive have been identified and included.

“Development should create an active street frontage along Wester Hailes Road”

The new flats indicated to the east of the site could potentially have an element of dual frontage with possible accesses from the newly formed footways on Wester Hailes Road. However active frontage usually refers to streets and streetscape, and indeed the PLDP proposals above refer to an active “street” frontage. Wester Hailes Road, either in narrowed or un-narrowed form, is a road and vehicle route, and could not be deemed a street in traditional terms. The new buildings would present frontage onto newly created roads, streets and amenity spaces within the site itself.

“Opportunity to create links to the wider green network”

The link to the open space at Clovenstone Drive has been created via one of the new pelican crossings and the existing, albeit not particularly safe, link to the green landscaped cycle / footpath running alongside Wester Hailes Road has been maintained. The option to create an access path from the southern corner of the site to the Lanark Road at the top of the embankment was also explored and deemed unfeasible due to width and land ownership restrictions.

“Proposals should provide better pedestrian and cycle access to both the allotments and Clovenstone Drive park”

The study diagram for the site blocked up the unpopular and underused underpass and replaced with two new at grade crossings to serve both the access to the park and access to the allotments

“Opportunity to reduce the width of Wester Hailes Road to create a more attractive, safe environment for pedestrians”

Two options have been considered for the treatment of Wester Hailes Road, with the road narrowing option being recommended based on pedestrian safety and reduction of traffic speed in the vicinity of the site.

In terms of site Constraints, Risks and Opportunities, these are restated below with brief summary responses, informed by the study report, or extracts from the report pages, added below each statement where appropriate:

Constraints:

- *Noise from adjacent roads requires careful building location and detailing*

Building arrangements have been designed to reduce the extent of close proximity exposure to the Bypass boundary, with the closest buildings presenting gables to that boundary. Constructional and passive acoustic mitigating techniques suggested and costed;

- *Existing roads and sightlines determine the extent of possible development;*
- *Site access points for vehicles are limited*

After analysis a new junction approximately midway down Wester Hailes Road was adopted as the safest, and optimum solution;

- *Sloping topography of sites constrains developable areas*

Reference should be made to the opportunity suggested and exploited relating to site levels;

- *Tapered site shape limits developable areas*

The tapering of site helped shape the layout diagram in terms of built development. It also allowed the full site to be exploited for allotment and community garden ground as well as integrated and attractive SUDS features.

Risks:

- *Potential for site contamination;*
- *Potential for unrecorded utility services;*
- *Potential for Archeological works (although considered minimal);*
- *Potential for protection of wildlife species either limiting construction timescales or areas for development after investigations have been carried out;*
- *All of these risks could result in increased costs and delays to any potential future development.*

Risks can only be accepted, or deemed to not be a risk, once further detailed investigations have been carried out.

Opportunities:

- *Potential to create substantial amounts of quality new housing in a green landscaped setting*

This has clearly been demonstrated as being achievable with 180 housing units indicated and large amounts of tree planting retained;

- *Potential to take advantage of established site and boundary planting*

This is shown on the diagram as being retained where possible to assist with visual screening of the existing roadways and enhance the setting for the housing and growing spaces;

- *Potential to use site levels to advantage to create interesting and attractive housing arrangement*

The site arrangement uses the levels of the site to locate blocks of housing to create “places” and allows differing storey heights as the buildings cross the site to maximise site density in a landscaped environment. The sloping topography of the site can also be used to full advantage in creating innovative and integrated designs for SUDS features;

- *Potential to integrate allotment and growing spaces in an established green landscaped setting*

The full extent of the site was used to integrate allotments and a community garden at the narrower western end of the site, where it would be impractical, or undesirable to locate buildings. A SUDS wetland feature was located beyond the growing spaces. These spaces would be surrounded by existing mature planting. An element of tree retention could also be achieved within the growing spaces.

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This document is part of a feasibility exercise only, and does not constitute any form of design framework or masterplan proposal. The diagrams are based on current design guidance and any future development will have to be designed in accordance with the street design and placemaking principles contained in Edinburgh Standards for Streets, Designing Streets (Scottish Government) and Designing Places (Scottish Government), or equivalent policies in place at the time.

Future developments would be subject to full Planning, Building Warrant and Road Construction Consent processes, including future sustainability and renewable energy requirements and would also require the following, detailed, work to be carried out prior to development as part of the design process:

- Site investigation reporting;
- Further acoustic assessment;
- A drainage impact analysis;
- A Water network analysis;
- A traffic impact analysis;
- Archaeological investigations and reporting;
- A wildlife / habitat survey.

Basic elements of these assessments were carried out under the remit of this study, however detailed assessments are outwith the scope of this current commission.

The timescale to develop and deliver the concept plan depends on a number of factors:

- Developer interest;
- Legal agreements;
- Procurement routes;
- Funding arrangements for affordable housing;
- Consent timescales;
- Additional works from issues arising from detailed site investigations;
- Market forces / rate of sales.

Bearing in mind these factors, the overall timescale from project inception to delivery could range from 4 to 6 years.

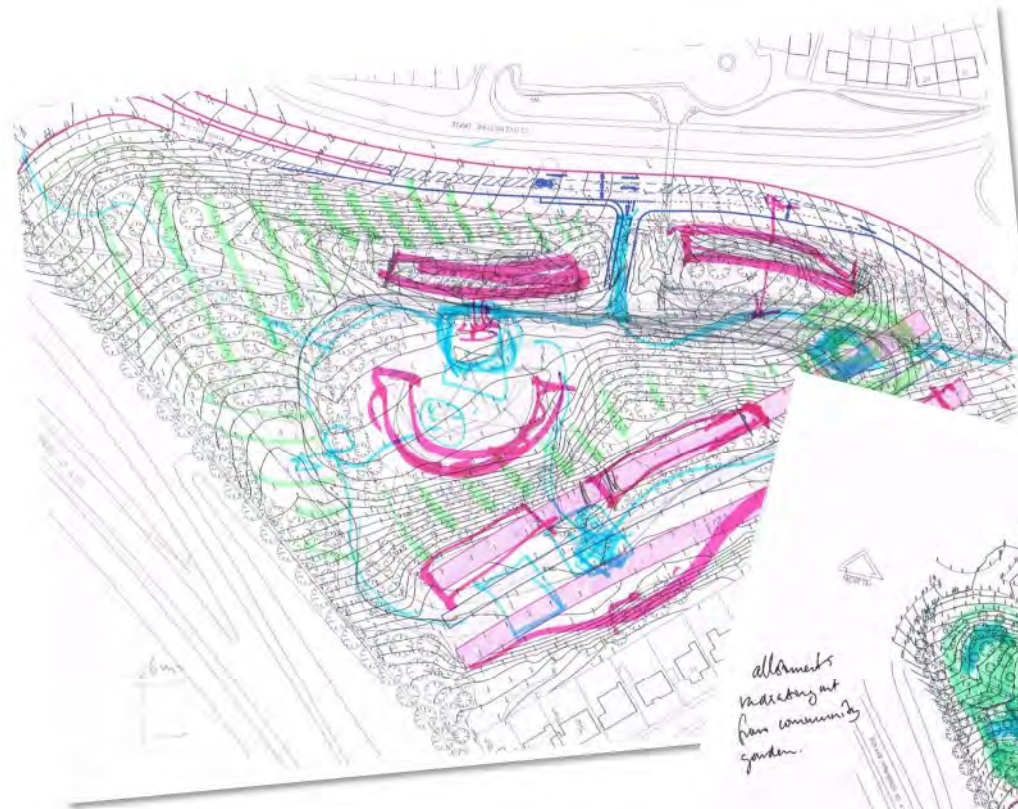
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Economic viability:

A financial appraisal has compared the gross development value with the gross development costs of the proposals, as set out in the concept plan. The appraisal indicates that the proposals are not economically viable at this time.

...





allotments
 radiating out
 from community
 garden.

