5.0 The site
5.0 The site

5.1 Introduction

This final section focuses on the analysis of the Northern Quarter.

The site level analysis is based on detailed information, which has been supplied by consultants outside the current commission. As stated in the Executive Summary, four key technical sections of this information have been supplied by consultants, and are not fully complete to be relied upon for analysis and for future masterplanning work. These technical studies are:

1. Detailed topographical information across the whole of the site;

2. Mining legacy. More specifically: mine shaft locations, the location of the open-cast highwall, the level of remediation of the mineshafts, the extent of underground workings, and the level of risk associated with each mineshaft are all unknown;

3. Flooding; and


The Consultant Team have done their best to use the information supplied by the Client Team, and where this information is considered insufficient, this has been highlighted in the text.

The topography of the site is raised ground to the north-west, rising to approximately 180m above Ordnance datum (AOD), with land sloping down to approximately 150m AOD to the south-east of the site and around the pond in the centre of the site. There are two spoil heaps in the centre of the site that rise from approximately 150m to 170m.

The mining legacy on the site relates to three key elements: contamination, mine shafts and open-cast mining. These elements will have a significant impact on the masterplanning of any development, especially in terms of land stability.
5.2 Cinderford Business Plan - Northern Quarter

Northern Quarter

The overall spatial approach in the Business Plan indicates that the Northern Quarter and town centre are the major opportunities for new development with a view to facilitating the regeneration of Cinderford.

The re-allocation of a series of sites currently allocated within the existing Local Plan would play a key role in facilitating the regeneration of the Northern Quarter.

In addition to the Steam Mills Lake area which is allocated under Policy Cinderford 15, adjacent sites Cinderford 3, Cinderford 5 and Cinderford 2, as well as with the existing industrial estate, represent a significant swathe of land that could be redeveloped in a comprehensive manner.

The site boundary

The Northern Quarter boundary identified in the AAP brief is tighter than the version drawn in the Business Plan. It includes the following allocated sites Cinderford 2, 3, 5, 12, 13, 14 and 15. These allocations are detailed in Section 3 above and are reviewed in relation to the emerging Business Plan proposals in Section 4.6.

Potential land uses

Based on consultation and the evidence base, the following uses were identified as being potentially appropriate for the Northern Quarter site:

- Higher quality employment uses/business park;
- A new education hub (subject to the findings of a separate, ongoing, study);
- New residential development, especially affordable and/or low impact, environmentally sustainable housing;
- A leisure/activity centre;
- Potential relocation of the Football Club;
- A biomass facility;
- A hotel/gateway centre; and/or
- An environment centre.

Some organisations also suggested that very limited development should be pursued in this area, allowing the retention of natural environments and habitats.

The Business Plan identifies a series of constraints which were reviewed and tested through the process of options development.

The main constraints are outlined below.

Planning policy constraints

The Business Plan identified a “do minimum” scenario to test whether the implementation of proposals in the adopted policy framework would be capable of adequately fulfilling the objectives of the Business Plan. Issues associated with ecology and flood risk indicate that some of the planning allocations would be subject to significant constraint. The sites in the core study area would be affected as follows:

- SITE 2 – PPS25 guidance relating to restricting development within the functional floodplain would mean that much of the allocated employment site would need to be left free of development.
- SITE 3 (Northern United, adjacent to A4136) – allocated employment site but potentially constrained by need to retain green areas.
- SITE 3 (Northern United, adjacent to brickworks) – existing employment, business and residential uses act as a constraint. This is compounded by provisions under the Forestry Act which mean that the southern part of the area cannot be developed.
- SITE 5 – only part of the site could be developed for housing as part of the site falls within the 1:100 year floodplain as set out in guidance in PPS25. Part of the site also covers the Natural England Grassland Site which pending the outcome of ecological survey could render this area unsuitable for development.
- SITE 5 – the potential requirement to leave a development free buffer zone around the location of the former mining ‘highwall’ reduces the amount of developable area associated with the employment allocation.

An assessment of these restrictions in Fig. 5.2.6 illustrates that development constraints could reduce the total allocated employment area from 16 hectares to 9.1 hectares. Similarly the housing allocation could fall from 6 hectares to 3.2 hectares. However, the significant constrain by the floodplain will need to be reviewed after the more detail flood risk assessment has been undertaken.

In addition to the reduction in developable areas, there are a number of mismatches between the ambitions of the Business Plan and the proposals in the adopted Local Plan:

- The Local Plan proposals do not provide a sufficient context for a step change in the nature of the environment or accessibility. This could limit the scale of inward investment and will deliver a limited number and range of jobs.
- The allocations adopt a traditional approach to land use zoning which does not provide sufficient flexibility in relation to the current national policy agenda of encouraging mixed use development.

The Local Plan has limited scope to deliver community facilities in relation to the college and activity centre without compromising employment designations.
5.2 Cinderford Business Plan - Northern Quarter

The existing Local Plan allocations are constrained to a degree which will limit the level and type of development required to achieve the desired economic, social and physical revival of Cinderford. In this context, the Business Plan assesses the case for additional land in the Northern Quarter and draws the following conclusions:

- Use of the Statutory Forest for new development – during the Local Plan inquiry, the Inspector confirmed that “there are no planning grounds to exclude all proposals for development... such development could have important planning benefits...” Subsequent discussions with Forest Enterprise has indicated that they would be comfortable with certain, well defined areas of non-wooded areas of the Forest to be used for development, provided that Forest Enterprise agrees and replacement land can be found elsewhere within the statutory bounds of the Forest.

- Economic regeneration and need for employment land – the Inspector recognised the importance of economic regeneration in Cinderford and agreed that scarcity of land, development constraints, increasing population size and travel-to-work trends justify the case for identifying additional land for employment-led development in the Northern Quarter. The Inspector’s remarks about the need for greater diversity in economic activity with an improved quality of employment echo the findings of the Business Plan baseline study (see section 4.4).

Specific constraints
As identified above, a series of technical and environmental constraints require detailed review and consideration. A broad overview of constraints are listed below:

- Flood risk – PPS25 promotes a sequential approach to flood risk vulnerability with detailed consideration of location according to the degree of likely flood risk and the vulnerability of the proposed land use. This is examined in more detail elsewhere in the baseline report in section 5.8, Water Resources and Flood Risk.

- Ecology – based on initial research undertaken in the Business Plan, there is a need to understand the ecological constraints and opportunities in more detail. It is possible that a number of species are present on the site including bats, badgers and breeding birds. There is a need to ensure that development is fully integrated with the natural landscape and that key elements are retained and enhanced.

- Landowner aspirations and statutory responsibilities – as outlined above, the provisions of the statutory Forest designation have played a key role in defining acceptable areas for development. In addition to the wooded area south of the A4136 and the wooded area north of Steam Mills Lake, the site of Coleford Brick and Tile Works is also likely to continue in its current use. The Northern United site is owned by SWRDA and has potential for a range of uses. The Business Plan identifies the need for potential land swap agreements to ensure that replacement land can be provided in relation to development of Forest waste sites.

- Land stability and contamination – detailed consideration is required in relation to the legacy of historic uses on the site. In particular, it is likely that significant costs related to land remediation will be associated with open cast mining, historic shafts and contaminated land. In terms of viability, there might be a need to seek gap funding to ensure that abnormal costs are covered and that land can be brought forward for development.

- Transport – the Business Plan identified a series of benefits and disadvantages of the allocated route in the Local Plan and the alternative alignment which emerged through the study.

- Market appraisal – viability work demonstrated that the Northern Quarter could be attractive for private sector developers through a coordinated and comprehensive programme of planning and marketing. A mix of uses including residential, office uses (up to 20,000 sq ft), trade units and a hotel or associated bar/restaurant were identified as viable and appropriate uses in commercial and planning terms.
Summary of options

The purpose of the Business Plan Issues and Options report was to explore the potential role that the Northern Quarter could play in contributing to Cinderford’s regeneration. The options were structured as four thematic scenarios which are summarised below:

**Option 1 – A leisure and recreation led-development**

Elements taken forward

a) The possibility of delivering a biomass facility as an integral part of the Northern Quarter proposals is taken forward as a key aspect of the preferred strategy. The Northern United location indicated on the Option 1 plan is likely to be a good site for this land use and there has been interest in this parcel of land from a private sector biomass operator. An alternative site on the adjacent land to the east could also be considered.

b) The principle of delivering an activity centre was well supported during consultation and is carried forward to the preferred option.

c) The employment and community focus of this option was supported during consultation and is considered more appropriate for the overall regeneration of Cinderford than a housing-led approach.

Elements not taken forward

1. Further discussions with the Forestry Commission established that the area of land south west of Winner’s Garage, shown as a potential facility for the football club cannot be developed for reasons related to the Forestry Act.

2. Discussions with property agents Alder King have suggested that although Northern United could be a potential location for a hotel, a site within the main part of the redevelopment area, adjacent to the Lake and a new access road, enjoying views across the Forest, would be more marketable, and hence more likely to be viable.

3. This option did not include a new education hub – consultations and discussions with key stakeholders have demonstrated that there is strong support for a new educational establishment in Cinderford.

4. Further discussions with the Environment Agency and consideration of floodplain mapping have shown that the residential area shown in Option 1 (Local Plan site 5) is within the floodplain – residential development in this location is therefore likely to be problematic.

5. Part of the area shown as employment in this option (also designated in the Local Plan as part of Site 5), is classified as a grassland site – the consultation revealed strong support for not promoting development in this area.

6. The road alignment shown in this option is the spine road extension shown in the Local Plan. Whilst this route would provide improved access to new development parcels, it would not relieve existing problems on the A4151 through Steam Mills village.
5.2 Cinderford Business Plan - Northern Quarter

**Option 2 - A housing led-development**

Elements taken forward

d) The road alignment shown in this option has a number of benefits - it bypasses Steam Mills village and offers the potential to create an attractive new route into the town. Although members of the public expressed some concerns about this alignment there has been much support from stakeholders and the Forestry Commission, as land owner.

e) Small business units are likely to be a favoured option for Northern United. However, as landowners, EP/SWRDA have expressed a preference for any employment uses on Northern United to be part of a mixed use scheme which incorporates an element of housing.

f) Biomass - as in point a for Option 1 above.

g) Employment and community-led approach – as in point 3 for option 1 above.

Elements not taken forward

7. As in 1 above, the southernmost area shown as an area for employment cannot be developed.

8. Residential area and relationship to the floodplain - as in 4. for Option 1 above.

9. Grassland area - as in 5. for Option 1 above.
5.2 Cinderford Business Plan - Northern Quarter

Option 3 - An employment and education-led development

Elements taken forward

h) Road alignment - as in 1 for Option 2 above.

i) Biomass - as in point 1 for Option 1 above.

j) Employment and community-led approach - as in point c. for Option 1 above.

Elements not taken forward

10. Due to issues with the Forestry Act referred to in point 1. under Option 1 above it would not be possible to locate the new education hub in the area to the west of Winner’s Garage.
5.2 Cinderford Business Plan - Northern Quarter

**Option 4 - A mixed use scheme**

Elements taken forward

k) The new education hub location shown in this option, adjacent to the Lake, is favoured by the college and offers an opportunity to deliver a quality lake side environment.

l) Road alignment - as in d. for Option 2 above.

m) Biomass - as in point a. for Option 1 above.

Elements not taken forward

11. Hotel - see point 2. for Option 1 above.

12. Further work has revealed that much of the area immediately north of Winner’s Garage (Local Plan site 2) is within the floodplain therefore would not be suitable for residential development. As in point 4. for Option 1 above, much of Site 5 would also not be appropriate for residential.

13. Grassland area - as in point 5. for Option 1 above, part of the employment site is designated as a grassland area.

14. The consultation responses showed general support for the creation of new high quality employment space but revealed concern for too much additional housing. The quantity of housing shown in this option would also be likely to be in excess of what could reasonably be delivered within the constraints of the Core Strategy, Local Plan and draft Regional Spatial Strategy.

(Options assessment reproduced from Business Plan, Figure C1, pg 181-182)
5.2 Cinderford Business Plan - Northern Quarter

Preferred option overview

Chapter 7 of the Business Plan identifies the preferred option for the Northern Quarter. The preferred option outlines a broad aim and a series of key regeneration principles as follows:

**Aim**

To create a mixed use, sensitively designed, exemplar eco-friendly development, well integrated with the natural and built landscape and providing a catalyst for the wider regeneration of Cinderford through the provision of higher skill, higher wage jobs; new opportunities for education; high quality and affordable housing; and state-of-the-art new community facilities.

**Key regeneration principles**

The key regeneration principles echo many of the strategic objectives set out in section 4.2 above and are listed as follows:

- Commitment to highest standards of sustainability and quality of development;
- Creation of a strong planning policy context and effective use of development control functions;
- Situation of community uses at the heart of development including provision for education;
- Promotion of mixed use development;
- Delivery of a new tree lined avenue as part of the access solution;
- Expectation that occupiers within the development site will be proactive in delivering Cinderford’s regeneration;
- Commitment to continued community engagement;
- Support for community involvement in regeneration through utilisation of local labour clauses and skills;
- Sensitive and integrated response to landscape and habitats;
- Retention of key areas of woodland, provision of usable open space and high quality public access;
- Retention and enhancement of Natural England Unimproved Grassland site as an area of ecological interest and attractive open space, subject to the results of a detailed ecological survey;
- Extension and improvement of the Linear Park;
- Proactive response and mitigation to affected species;
- Integrated and holistic response to floodplain constraints to ensure that development is acceptable according to PPS25; and
- Promotion of the Northern United site as a flagship regeneration project for the Northern Quarter.

**Key elements**

The preferred options plan opposite illustrates the identifies the following key elements:

- A new tree-lined avenue linking the A4136 to Valley Road;
- A new new education hub adjacent to Steam Mills Lake;
- A new hotel in a visible location adjacent to the new road and enjoying views across the Forest. This would be located next to the college and have links to hospitality, catering and training facilities;
- A mixed use development on Northern United, potentially incorporating a biomass plant (within the site or on adjacent land) to provide a sustainable source of power for the regeneration area;
- A site for high quality employment, preferably including offices, adjacent to the new road;
- An area of residential-led mixed use development which is well integrated to the natural landscape;
- A new flagship multi-use activity centre, located close to the new education hub and adjacent to new housing areas;
- Areas of retained and improved woodland and grassland;
- New footway and cycle links integrated to cross county routes such as the Gloucestershire Way and linked to the town centre;
- Improvements to the industrial estate, with priority given to the intensification of uses in the area around the brickworks;
- Potential redevelopment of the cricket ground, either for the relocation of the football club or for employment uses;
- The retention of Local Plan allocations for housing at Cinderford 5 and 9 (albeit reduced to take account of likely flood risk issues);
- Retention and enlargement of Local Plan site Cinderford 2, to incorporate land to the east; and
- Improvements to Steam Mills Lake, with access retained for anglers, walkers and cyclists.

**Responding to constraints**

This approach assumes the provision of approximately 7.5 hectares of employment land and 3.2 hectares of housing. The Business Plan states that “the preferred option masterplan has significant advantages over a continuation of the Local Plan, allowing the delivery of much needed community facilities, alongside broadly comparable amounts of employment and housing.” The Business Plan also identifies how the key constraints (summarised in 4.4 above) have been responded to. The preferred option takes into account the following:

- No residential development is proposed in the 100 year flood plain;
- The area immediately adjacent to the watercourses has been assumed as an indication of the extent of the functional floodplain and remains free of development;
- The Natural England Grassland site is retained and enhanced as an attractive open space with a view to providing natural and recreational amenity for adjacent residential development;
- The belt of trees that cuts across the site is utilised as a green link/wildlife corridor between the Grassland site and the central part of the development area;
- Planting is intensified along the northern woodland edge to ensure an appropriate buffer between the built development and the statutory Forest;
- An open space is provided to the west and north of the Lake, to provide a connection between the Linear Park to the south and the statutory Forest to the north;
- Higher value uses (residential and hotel) are situated on the land that forms part of the former open cast area, where site preparation costs are likely to be highest; and
- Integrated approach to landscape and high quality design through the situation of a college and hotel to achieve an open ‘campus’ feel.
5.2 Cinderford Business Plan - Northern Quarter

Alternative scenarios
The Business Plan identifies two alternative preferred option scenarios. These relate to uncertainty around the likely constraints posed by flood risk issues and uncertainty around the likely relocation of the college to Cinderford. The first alternative presents a worst case scenario in which no residential development is allowed within the 1:100 to 1:1000 year flood plain. In the event that the college does not relocate to the Northern Quarter site, the preferred option would require a re-organised layout. Options for the site to the east of Steam Mills might include additional employment provision or an alternative education use. Without the college, the rationale for providing a hotel next to Steam Mills Lake is less convincing which might make an alternative site such as Northern United more appealing.

Compliance with planning policy
The Business Plan provides a detailed review of whether the preferred option is compliant with the preferred option with reference to the Inspector’s report on the Local Plan. Overall the Inspector concluded that “Development in the Cinderford Northern Arc would have important economic regeneration benefits but these need to be weighed against identifiable harm to the landscape, the natural environment and the recreational value of the area.”

• Landscape – the Inspector confirmed that areas previously worked and restored should be defined as ‘greenfield’ and those with buildings remaining as ‘brownfield’.
• Conservation issues – notwithstanding the absence of formal Listings, the Inspector acknowledged that the design and appearance of the Northern United buildings does provide “an interesting contrast to the natural beauty of their surroundings… However, I do not consider that this consideration outweighs the potential economic benefits of developing the site.”
• Loss of commercial woodland – the Inspector outlined misgivings about development in the Steam Mills area in the context of a loss of commercial woodland, the loss of openness, a change in landscape character, loss of tranquility, interruption of views into Forest from the town and reduced public accessibility. The Business Plan acknowledges that the preferred option cannot completely overcome the Inspector’s comments. However, the location of larger buildings on lower ground, landscape / biodiversity retention and enhancement could be argued to minimise negative impacts on the site and that other alternative sites are more sensitive in terms of landscape character.
5.2 Cinderford Business Plan - Northern Quarter

- Natural environment – the Linear Park is identified as a Site of Local Nature Conservation Interest in which development is permitted if it has overriding social, economic or environmental benefits. The Inspector noted the importance of the site as grassland and subject to surveys would expect any development to ensure that habitat is of equal or greater biodiversity value.

- Recreation and access – the preferred option supports the enhancement of recreation and tourism in the Linear Park as identified in the Local Plan. The proposed hotel accords with Local Plan policies which support the development of tourism facilities and the overall approach at Steam Mills reconciles with the prioritisation of enhanced accessibility in the Local Plan.

- Allocations – figure 7.7 of the Business Plan compares the Local Plan proposals to those in the Business Plan preferred option. This is summarised in Fig. 5.2.6. Critically, although there are some departures from the Local Plan, the overall ambition of proposals is in conformity with Local Plan strategy.

Energy and climate change

The Cinderford Business Plan (Halcrow, December 2007) has identified a number of key initiatives in relation to energy and climate change. There is a clear focus achieving high levels of energy reduction within the new building stock (utilising Code for Sustainable Homes (CSH) and BREEAM assessment methodologies). In addition, there is a proposal for a biomass fuelled Combined Heat and Power (CHP) facility to be implemented on the Northern United site.

The masterplan team support these initiatives. However, as part of the masterplan site appraisal, the targets in relation to BREEAM and CSH will be reviewed to ensure they reflect current best practise and Government policy. There will also be a strategic review of the approach to renewable energy on the site and carbon emissions incorporating the potential for CHP.

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**Fig. 5.2.6 Preferred options summary**

<table>
<thead>
<tr>
<th>Site number</th>
<th>Site use and description</th>
<th>Comments - existing Local Plan designations</th>
<th>Compatibility with Local Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Northern United</td>
<td>Within LP allocation FC 3- B1, 2 &amp; 8. Mixed employment uses acceptable, biomass also likely to be acceptable. Limited live/work possible. Housing not acceptable.</td>
<td>Yes for employment uses No for residential</td>
</tr>
<tr>
<td>2</td>
<td>East of former NU including brickworks</td>
<td>Land is all within B1, 2, 8 allocation FC3 though LP also allocates land to southwest of former railway and this is unlikely to be suitable/available for development. Suitability of remainder as 1 above.</td>
<td>Yes for employment and biomass</td>
</tr>
<tr>
<td>3</td>
<td>Steam Mills Lake, clay extraction and amenity area</td>
<td>Includes proposed college, hotel and gateway visitor centre sites. Entire area within LP allocation for recreation (FC15). Visitor “centre” i.e. tourism use is compatible with LP allocation. Hotel is a possible departure from allocation but could be considered on its merits. College (education use) is a departure but such uses are usually taken on their merits and schools are typically expected to be built outside settlement boundaries. The college proposals are very different from the type of recreation and tourism uses envisaged in the LP. These and the road are the main issues where there is a difference between the LP allocation and the BP proposal. NB there is a conflict with Minerals Plan and the permission for clay extraction, but this could be overcome through judicious phasing of extraction and development.</td>
<td>Part (visitor centre and hotel) only</td>
</tr>
<tr>
<td>4</td>
<td>Forest Vale Industrial Estate</td>
<td>All allocated for intensification of employment (B1, B2 and B8) uses, with the exception of the cricket ground which in the LP is protected as an important open area and as a recreational facility. Proposals for retention of the bulk of this for recreation are likely to be compatible with the Plan (e.g. another recreation use and some buildings could be accommodated without conflict).</td>
<td>Yes, except if includes loss of cricket ground for recreation.</td>
</tr>
<tr>
<td>5</td>
<td>New tree-lined avenue</td>
<td>Strategically this does the same as the LP safeguarded routes, but on an alternative alignment. An application would not conflict with the LP principle of providing a new link. Alternative routes would need to be evaluated and justified under highway proposals. Road would need EA as part of the whole proposed development. (Route needs to be justified as key element of regeneration as well as safer alternative to existing). NB part of the route, sufficient to serve “college site” from south is identical to LP safeguarding. The proposed road through the woods is shorter than the western spine safeguarded in the LP.</td>
<td>No, but principal established in LP.</td>
</tr>
<tr>
<td>6</td>
<td>Mixed allocation sites north of Newtown</td>
<td>This is a mixed use allocation portrayed in the LP with housing to the west of the spine road and employment to the east. FCS. Business Plan proposes less intensive development (site contains certain constraints not mapped when the LP was written) but similar uses. Preferred option departs from LP map and from intended location of housing and employment elements within the site but end result (mixed employment and housing site) is similar.</td>
<td>Yes but distribution of uses more mixed. Technically departure from LP but compatible</td>
</tr>
<tr>
<td>7</td>
<td>Newtown and land to south</td>
<td>Majority allocated in LP for employment (FC2), with some land affected by highway safeguarding (FC12 and 13). Halcrow proposal includes part of housing and “activity centre”. This area to be located in areas substantially within LP allocations that are expected to be built up, so the only departure is with the uses. The activity centre impinges on the allocation for recreation etc. (FC15) but the use proposed in the BP is broadly compatible with that allocation.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Planning process

Government Office Liaison and AAP / Core Strategy timing
As noted in section 4.2, the Core Strategy is due to be submitted in October 2009 with a view to adoption in May 2010. The programme indicates that the submission draft of the AAP is likely to come forward in February / March 2009 which does imply a degree of overlap in terms of the Examination process. As noted in section 4.2, government guidance states that in general no Development Plan Documents (e.g. the AAP) should come forward in advance of the Core Strategy (the District wide strategy which outlines the overarching spatial strategy and framework for, amongst other things, land use change).

From FoDDC’s perspective, it is important to ensure that Core Strategy is fully resolved in terms of the broad spatial strategy for Cinderford and any contentious issues relating to the Northern Quarter are incorporated within the AAP rather than the Core Strategy. Potential issues should be consulted upon and tested as part of the preferred options process for the AAP and resolved in broad terms by the environmental / sustainability and masterplanning workstream.

GOSW has confirmed that they are comfortable in principle with a February 2010 AAP submission as this will enable any amendments to be made to the AAP following initial informal feedback from the Inspector in relation to the Core Strategy. It is important that GOSW is kept informed of any changes to the anticipated programme to ensure that there are no issues from their perspective.

GOSW feedback on issues and options document
GOSW provided feedback to FoDDC in March 2007 following consultation on the business plan issues and options content. GOSW praised the accessible nature of the document including plans. There are a series of key points that the AAP needs to be mindful of:

- “The document discusses a relatively large number of possible projects and as the project goes forward these need to be prioritised”
- The process should be guided by a clear strategic direction for the town as a whole with judgements based on robust evidence
- “At present, I am not convinced that the plan has a set of sufficiently specific overall objectives upon which to guide decisions and these need to be developed consistent with the district’s Core Strategy”
- GOSW remark on the need for sound economic evidence and requirements
- There is a reference to engaging the PCT in the preferred option stage – this should be built into our consultation / stakeholder engagement

A detailed review of the final Business Plan report indicates that many of these points were subsequently addressed but the themes are still relevant for the AAP.

Scope of the AAP
The project is structured as four interlocking workstreams, each of which having their own distinct output. The ultimate objective is for FoDDC to submit a sound AAP which is endorsed for adoption following Examination in Public. In this context, the relationship between the AAP and the masterplanning and environmental workstreams are particularly critical in terms of (i) scope of work and (ii) timing.

The table opposite clarifies the differing scope between the two documents and attempts to identify the direction of travel between the masterplanning and planning processes.
### 5.2 Cinderford Business Plan - Northern Quarter

**Fig. 5.2.7 Differing scope of AAP/Masterplan and broad direction of travel between documents**

<table>
<thead>
<tr>
<th>Masterplan</th>
<th>Strategic context</th>
<th>Growth / capacity</th>
<th>Land use</th>
<th>Sustainability / Environmental inputs</th>
<th>Transport</th>
<th>Urban design guidance</th>
<th>Delivery and implementation</th>
<th>Planning status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad consideration of strategic role of Northern Quarter within region/sub-region</td>
<td>Identify indicative development quantum</td>
<td>Consideration of key uses in design terms. Testing to ensure that relationship between form and function is appropriate in three dimensions</td>
<td>To be informed by ERM technical workstreams</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Masterplan will be part of the evidence base for the AAP</td>
</tr>
</tbody>
</table>

**Direction of travel**

1. **Area Action Plan**
   - Clear identification of strategic function of Northern Quarter drawing on regional, sub-regional and local policy guidance, regeneration strategies and LSP plans
   - Establish the broad growth targets
   - Testing of existing Local Plan designations to establish whether they provide sufficient flexibility to enable the delivery of the Masterplan proposals
   - Identification of appropriate designations
   - Principles for energy conservation
   - Improvements to transport infrastructure and services and any impacts on the wider area
   - Identification of a clear spatial plan
   - Identification of clear design guidance / principles (area-wide and key sites)
   - Community infrastructure guidance
   - Proposals for the implementation and monitoring of the proposals
   - S106 / planning gain
   - Formal planning status – AAP to be adopted as a DPD

**Source:** Cinderford Business Plan
5.2 Cinderford Business Plan - Northern Quarter

Technical studies
As identified earlier in this section, there are a series of specific site constraints that need to be understood in order to advance the Masterplan and AAP.

These include the following topics which are reviewed in greater detail:
• Flood risk and extent of development (5.6 Water resources and flood risk);
• Ecology and habitat (5.7 Ecology);
• Land stability and contamination (5.5 Mining legacy); and
• Transport and accessibility.

Refining the preferred option
The key next step is to interrogate the preferred option as defined in the Business Plan. The content of the preferred option is well articulated and is supported by a clear rationale and evidence base. The preferred option is appropriate in broad planning terms and could be translated in broad terms into an AAP for the Northern Quarter.

However, on closer inspection there are a few areas which do require more detailed consideration and review which are listed below:
• Technical clarity - Detailed understanding of the spatial ramifications of technical issues such as flood risk and ecology need to be resolved at an early stage to define clear parameters in which to develop the Masterplan and AAP.
• Spine road location – The new spine road running through the site reads as a fix in the Business Plan. Initial site inspection and review indicate that the exact location of road and rationale require more detailed consideration to ensure that the location is appropriate in relation to site topography and wider urban design considerations.
• Masterplan-led approach – The preferred option needs to be re-assessed through a Masterplan-led process. The approach in the Business Plan is more representative of a traditional zonal land use approach. In line with national planning guidance, there needs to be far greater emphasis on embedding the principles of good urban design and sustainability at the heart of proposals.
• Stakeholder briefs – The early consultation strategy will include a review of key stakeholder requirements. The most critical brief is the college which is currently undertaking an exercise in relation to the preferred location for their facility.

Scope of AAP proposals
The AAP will draw on the Masterplan preferred option and supporting technical and environmental inputs (including the parallel process of Sustainability Appraisal) to develop the AAP preferred option. The AAP preferred option will be in conformity with the Masterplan but will have a different scope and emphasis reflecting its purpose as a statutory planning document.

The AAP will include the following elements:
• Area Development Framework - the key strategic spatial proposals for the site;
• Development principles and policies - concise statements setting out policy guidance / allocations for the site and justification; and
• Implementation Plan - details for monitoring the AAP and a table identifying key projects, interventions and initiatives with timescales and key partners.
5.3 Movement

Roads
To the east of the site the A4151 passes through Steam Mills where adjacent properties are set back and the gradient is relatively flat. Traffic speeds through this section were generally observed to be higher than the average, where the speed limit varies between 30mph and the national speed limit. At Steam Mills the route passes the primary school where vehicles exiting the parental parking area in front of the school and the access road to Nailbridge can create hazards for passing traffic.

North of Steam Mills the A4151 meets the A4136 and Morse Road, which leads to Drybrook. The junction comprises two sets of linked traffic signals on the A4136 which have a short queuing length between. Steam Mills Road forms a “T” junction with separate entry and exit arms, the exit arm being on a significant gradient at the stop line. Traffic from the A4136 west is required to turn right into the eastern arm of Steam Mills Road, whilst exiting traffic does so from the western arm of Steam Mills Road, turning left under give way operation, or turning right through the signal set. Traffic from Drybrook enters the junction at the eastern signals on the A4136 with those turning right towards Monmouth having to pass through the second signal set (Steam Mills Road). Traffic passing through the signals were observed at certain times, to be delayed by the volume of traffic, particularly heavy goods vehicles that are associated with businesses along the B4227 Valley Road.

The B4227 route runs as Forest Vale Road to the west of the town, providing access to industrial and retail units in the Forest Vale and Whimsey Industrial areas. It also acts as a local distributor road for the residential development in the western part of Cinderford. It becomes Broadmoor Road on its approach to its junction with the A4151, Steam Mills Road, which is approximately 800m south of the A4151/A4136 junction. Observations on site indicate that provision has been made to extend this route in future, to bypass the section of the A4151 through Steam Mills. This is proposed to be achieved by extension of Forest Vale Road close to the line of Old Engine Brook to a new junction near to Steam Mills Primary School. However, given the current proposed alignment is to the south of the school, it is unlikely to alleviate the traffic conflicts in that location.
5.3 Movement

Review of access options from previous studies

The Cinderford Transport Study (Halcrow Fox: 2001) highlighted two potential routes for a western access road into Cinderford. These were identified and land safeguarded by The Forest of Dean District Local Plan Review (1st Depository Draft, July 2000). The Transport Study indicated that these options were a result of the poor alignment and the conflicting uses along the A4151, the proximity to Steam Mills Primary School and the conflicting arrangement of the junction of the A4136 with the A4151. Both options would provide a direct link between the A4136 and the spine road, providing an opportunity to access the Forest Vale employment area from the north without using the A4151 south of Steam Mills, or requiring the introduction of traffic management measures in Steam Mills. The Transport Study did not indicate a preferred option. The two potential routes are shown in Fig. 5.3.2 as option A and option B.

The Cinderford Regeneration Arc Stage 1 Desk Study and Stage 3 Report (RPS: 2002) reiterated the problems with the A4151 that were identified in the Cinderford Transport Study. One aim of these reports was to provide advice on the routing of the two proposed links, designated as western access road (option A, Fig. 5.3.2) and spine road extension (option B, Fig. 5.3.2). However, the reports suggested that it was too early for providing details either for a preferred alignment or a preferred option, as it would depend on the land available for development, the type of development put forward, best land value and the site constraints.

The Cinderford Business Plan Issues and Option Report (2007) revisited the route options put forward by the Local Plan, and introduced two additional options. These were an extension to the spine road extension (option C, Fig. 5.3.2) and an alternative alignment along an existing forest track (Fig. 5.3.3). The report highlighted the following issues and benefits with each of the options:

- Western access route (option A, Fig. 5.3.2): high construction costs due to the length of highway and the lack of support from Statutory Authorities;
- Spine road extension (option B, Fig. 5.3.2): could deal with addition traffic from new development but would not solve problems on the A4151 and would also require the upgrading of the junction of the A4136 with the A4151;
- Extension to the spine road extension (option C, Fig. 5.3.2): limited benefits and high construction costs due to the differences in levels; and
- Alternative alignment along forest track (Fig. 5.3.3): potential for the creation of an attractive entrance to Cinderford, possible downgrading of the A4151 but uncertain acceptance by the Forestry Commission.

The Cinderford Business Plan Final Report (2007) reinforced the problems identified by the Issues and Option Report in relation to the Local Plan options. This report added that the western access road (option A, Fig. 5.3.2) would not be very attractive for traffic approaching from the east whereas the spine road extension (option B, Fig. 5.3.2) would not create a strong first impression entering Cinderford even if the stretch of the A4151 between the A4136 and the junction with the spine road were improved. The report also acknowledged that the need to avoid wooded area reduces the number of possible alternatives and that most people voted for the spine road extension at a public consultation.

The Cinderford Business Plan Final Report (2007) further identified the alternative alignment along forest track (Fig. 5.3.3) as the preferred option. The report identified that among the objectives for this option were the creation of a strong visual impression, provision of traffic relief on the A4151 along Steam Mills Primary School, open access to new development land, and provision of a direct route to the industrial estate. The vision was for a 30mph design speed, tree-lined avenue across the forest with a 7.3m wide carriageway bordered by a 2m wide strip for pedestrians and cyclists and a 1m wide verge on either side. Additional major works required in connection with the preferred option include a signalised junction of the proposed link with the A4136, rationalising the existing junction of the A4136 with the A4151, and changing priority arrangements so that the B4227 becomes the main route for through traffic, thus avoiding the town centre.
5.3 Movement

Fig. 5.3.2 Local Plan safeguarded road alignment proposals

Fig. 5.3.3 Business Plan preferred road alignment
5.3 Movement

Cycle routes and pedestrian rights of way

The National Cycle Route 42 is located to the east of Cinderford as is Coleford Valley Trail. The proposed extension of the National Cycle Route 42 and National Cycle Route 44 will improve cycle links significantly, it is currently unclear how this proposed extension will be funded. Wyxis way is a regional walking trail running across the woodland of the site. Some informal pedestrian walking trails are present within the site. (See Fig. 5.3.1)

Traffic counts

- These turning movements are based on traffic survey data obtained from Gloucestershire County Council.
- The AM peak hour flows for the junction of the A4136 with the A4151 are from 0800h–0900h. The PM peak hour flows are from 1700h–1800h.
- The AM peak hour flows for the junction of the A4151 with the B4227 are from 0800h–0900h. The PM peak hour flows are from 1600h–1700h.
- The percentage of traffic consisting of HGV traffic is derived from Department for Transport statistical data.
- Counts were carried out at the Nailbridge junction (A4136-A1451) on 5 July 2006, and at the Broadmoor Road/High Street junction (A1451-B4227) on 2 November 1994.

![Traffic count locations, directions and results](Fig. 5.3.4)
5.4 Topography and Landscape

Geology

This section reviews the information relating to geology made available by the Cinderford Regeneration client team and publicly available sources.

Drift geology

There are three types of drift geology underlying the site. Alluvium deposits comprised of silts, clays, sands and gravels are found in the eastern part of the site, alluvial fan sediments composed of gravelly clay in the central and south western part of the site and Head deposits (gravel, sand, silt and clay) in the western and northern regions. However, due to extensive excavations in the region, associated with clay and mineral extraction, the drift geology may have been removed in certain areas. Made Ground would have been used for restoration of land and general infill, which is composed of silty clays with fragments of coal, shale and sandstone. Previous trail pits and boreholes east of the Old Engine Brook indicated Made Ground overlying Alluvium deposits.

Solid geology

The solid geology, like the drift deposits, has been modified by extensive mining activities. The site is positioned on the northern edge of the Forest of Dean synclinal Coalfield Basin. The sub-crop seams beneath the site include the Supra-Pennant Group of the Carboniferous Upper Coal Measures, comprised of bedded mudstones and siltstones, sandstones and coal seams. There are no major fault lines identified in the area, though it is possible that minor faults and fractures, associated with the syncline or mining activity, may be present.

Fig. 5.4.1 Geology underlying the site

Key
- Alluvial cone drift deposit
- Pennant Group sandstone
- Alluvium drift deposit
- Supra-Pennant Group sandstone
- Drybrook limestone
- Trenchard Group sandstone
- Head drift deposit
- Site boundary
5.4 Topography and landscape

Topography

The topography of the site has been modified significantly over the last 100 years through mining and clay extraction activities, some of which are still ongoing. The current topography is as follows:

- The site lies in the northern end of the larger bowl of the Cinderford valley.
- The total level changes are 75 metres within the site boundary and 40 metres within the developable area.
- There are two distinct spoil mounds and several smaller mounds under five metre level differences (not shown in the map).
- The site slopes in several directions between these mounds and there are no truly flat areas.

Landscape

Fig. 5.4.2 Topographical plan (5m contours)
5.4 Topography and landscape

Site sections

Fig. 5.4.3 Section A-A

Fig. 5.4.4 Section B-B

Fig. 5.4.5 Section C-C

Key
- Contours *1
- Contours *2
- Forest
- Water
- Development
- Northern United site
5.4 Topography and landscape

The landscape is characterised by the undulating nature of the site and the mix of wooded areas, semi-natural grassland, lakes and watercourses. The woods are a mix of coniferous and deciduous plantations and smaller clusters of shrubs and trees. There is a clear distinction between the more urbanised areas of Steam Mills and New Town and the semi-natural landscape west of the Engine Brook.

The Northern United site is visually enclosed and feels more remote to Cinderford compared to the other areas. The central area is more open in nature with the forest framing it to three sides. The vegetation and topography form a 'layer' view of the site (see fig. 5.4.10)

The Linear Park is part of the site to the south.

Views into the site:
- The site is screened from the A4136 by the forest.
- Filtered views from the forest footpaths.
- Site is well visible from places in Steam Mills, New Town and Forest Vale Road

Views from the site:
- Good view from the ponds to the north-west.
- Good views from the mounds to Steam Mills and New Town.
- Clear views from north-west to south-east across the site.
- The industrial estate is clearly visible from several locations on site.

Fig. 5.4.6 Landscape
5.4 Topography and landscape

Fig. 5.4.7 Mounds north of smaller lake (Photo 1)
Fig. 5.4.8 Steam Mills Lake (view west) (Photo 2)
Fig. 5.4.9 Forest edge (Photo 3)

Fig. 5.4.10 View over stream valley on site (layer view) (Photo 4)
Fig. 5.4.11 View over industrial park from site (Photo 5)
Fig. 5.4.12 View towards brick works from west (f)
5.5 Mining legacy

Contamination and mine workings

There are a number of potential key constraints regarding contaminated land and sub-surface stability. More specifically, these key constraints have resulted from historic and current land use of the site, including numerous coal mining activities in the area.
5.5 Mining legacy

Contaminated land

There are number of potential contaminated land constraints based on a desk review of historic land uses.

Coal mining activities during the late 19th century to mid 20th century are known within the Northern Quarter masterplan area. The main mining activities are located to the south of Dam Green, in the central region near the current brick works, and in the western region of what used to be the Northern United Colliery. There is potential for heavy metals, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs) and petroleum hydrocarbons to exist in the vicinity of the former collieries. A number of old mine shafts located in the central and southern parts of the masterplan area are also considered potential contaminative sources. The historic coal mining activities on the site, and in wider area, have the potential to result in contamination that could influence the future development land uses possible within these areas subject to the actual level of contamination identified and subsequent remediation undertaken.

Transport infrastructure during this period is also considered a potential source of contamination. A railway line, now dismantled, ran through the western central region of the site and along the south western boundary (see Figure 5.5.1). The railway line forked to the north, running through the western extremity of the site before and during the active Northern United Colliery. Moreover, a tramway line ran north to south cutting through the central region of the site. Land associated with these historic lines may contain potential contaminants such as petroleum hydrocarbons and herbicides.

Other potential contaminative sources within the masterplan area are historic landfill sites, possibly related to mining in the area. Three historic landfill sites have been identified on the site (see figure 5.5.1), based on a review of historic maps. They were in operation from the early 1900s to the late 1970s. The contents of the landfills are unknown, though potential contaminants may consist of metals and other inorganics as well as gases, including carbon dioxide and methane.

Historical land uses during the late 19th to early 20th century were not limited to coal mining activities. A chemical works and engine works were located in the eastern region of the site (see figure 5.5.1). Remnants of a number of potential contaminants, associated with these industries, may be present in the ground. These include heavy metals, VOCs, SVOCs and petroleum hydrocarbons. Other potential sources on site and close to the borders include a historic Corn Mill, Flour Mill, Brick Works and Tin Plate Works. In addition, asbestos from historic buildings and in Made Ground should be considered.

There a number of current land uses occupying the site and adjacent areas (to the east) that are considered potential sources of contamination. These light industrial land uses include garages, a timber yard, a brick works and a scrap yard. Potential contaminants include metals, VOCs, solvents, petroleum hydrocarbons and asbestos. Moreover, the brick works, Coleford Brick & Tile Co, currently has a Part B airborne emission source monitored by the Forest of Dean District Council. The emission source may restrict residential development anywhere within 250 metres.

A general key source of contamination is the presence of Made Ground on the surface or sub-surface. The composition of Made Ground is likely to be variable and unknown. The contents of the recorded open cast mine backfill on the site is unknown, and this could be a source of contamination.

Another potential source of contamination identified is the historic disposal of waste by Severn Trent into the deep mine shafts of Hawkwell Colliery, approximately 150 metres north of the site. According to the RPS report, up to 14 million litres of liquid aluminium sulphate was disposed of per day. Groundwater beneath the site is believed to flow in a southerly direction, therefore, making it possible that any contaminated groundwater from Hawkwell Colliery may impact the site.

Sub-surface stability

A number of former mine entries have been identified by RPS and the Coal Authority. The method of infilling is generally unknown, therefore, voids below the surface may exist, and there is a risk of collapse. Mine entry locations will need to be investigated and appropriate treatment measures undertaken. Such measures usually include capping and/or grouting, depending on the sensitivity of adjacent land uses.

Shallow mineworkings have been recorded across the site. Further investigation will be required, and treatment measures undertaken. Such measures usually involve grouting beneath the footprints of buildings and sensitive structures.

An open cast mining area occupied the north central area of the site between the late 1960s and early 1970s. The area was restored by infill and landscaping in the mid 1970s. The extent of the former open cast mining area has not been definitively identified to date, although the RPS Stage 1 report provides approximate dimensions based on communication with the Deputy Gaveller. Within the open cast area, several former mine shafts have been covered by infill material. Unless the methods of restoration for this area are known, there is the potential for voids to exist below the surface.

Next steps

There are a number of potential factors in relation to contaminated land and sub-surface stability that could influence the land use options and development proposals with the Northern Quarter masterplan area.

• It is recommended that a targeted first phase site investigation be performed, which could inform the masterplan and an appropriate reclamation strategy.
• Regarding the former open cast mining area, it is recommended a series of borehole transects are undertaken to establish the ‘highwall’, or opencast boundary.
• A more comprehensive set of investigations to accurately characterise the sub-surface condition as at the site, and the risk from shallow mine workings and mine entries will be required in due course, when the development proposals are more clearly defined.
5.5 Mining legacy

Archaeology

Archaeological sites have been identified within the proposed development and in the wider area, associated with the rich iron and coal mining activities of the 18th and 19th century. Initial assessment by RPS conclude that these sites have no major archaeological importance and the potential for other archaeological and cultural heritage sites, not identified here, within the proposed development area is likely to be low.

An initial review of archaeological and cultural heritage sites in the area indicates that key constraints are minimal and potential for the discovery of significant sites to be low. However, it is suggested that a revised desk study and site walkover addressing potential archaeological and cultural heritage issues be performed. In addition, there could be value in undertaking a watching brief during the recommended site investigation.

Location  Detail
1  Modern North United Colliery
2  C19 Never Fear Colliery & lime kiln
3  C19 Churchway Colliery
4  C19 Hawkwell Tinplate Works
5  Post-mediaeval shaft of Mountpleasant Colliery
6  C19/C20 clay pit
7  Bronze Age axe head
8  C19 brick kiln
9  C19 Winning Colliery
10 Modern Hawkwell brickworks
11 Site of C19 coal shaft
12 C19 New Bowson Colliery (C16-18 material excavated)
13 C19 coal shaft
14 Post-mediaeval coal shaft
15 C19 coal shaft
16 C19 chemical works
17 C19 coal shaft
18 Post-mediaeval coal shaft
19 Post-mediaeval disused flour/steam mill
20 Post-mediaeval Haywood Engine Works and Cinderford Steam Mills

Linear feature  Detail
A  Post-mediaeval Hawkwell Colliery and associated tramway
B  Post-mediaeval Forest of Dean tramroad, inc. branch to Nofold Colliery
C  C19 Brain’s Tramway
D  C19 tramway at Winning and Duck Collieries

Key
1  SMR (Sites & Monuments Record) location

Fig. 5.5.2 Archaeological sites
5.6 Land use

Land uses on the site include:

- The Northern United mine buildings from the 1930s, currently in partial use as a waste transfer station;
- A home next to the garage workshop;
- A functioning brickworks; and
- A functioning garage workshop.

To the north of the site is a terrace of housing along the A4136. To the east is Steam Mills, which is generally ribbon development along Steam Mills Road with a primary school. To the south of Steam Mills, directly adjacent to the east of the site, is the small settlement of New Town. To the south of the site is the Forest Vale Industrial Park, with a small slither of the Linear Park running alongside.

The clay extraction area has now been exploited and will be re-landscaped.
5.7 Built Environment

Steam Mills

Steam Mills lies to the east of the Northern Quarter and overlaps with the masterplan area. As the only built environment in the immediate neighbourhood to the site, it will have significant influence on the spatial layout, movement network and amenities of the new development. At the same time, the masterplan will also impact on Steam Mills on its setting, transport and services.

Steam Mills is a place north of Cinderford, along Steam Mills Road and forms a gateway into Cinderford.

Evidence of early development in the Steam Mills area is shown in a map dating from 1856. Steam Mills Road, Nailbridge junction and a tram line are already in place together with a few scattered dwellings and mines. The origins of Steam Mills appear to be associated with the industrial development of the area. The area developed rapidly in the late 19th century. Two brickworks, a flour mill, mines and another rail line supported the growth of the area, similar to other parts of Cinderford. Most of the terraces of Steam Mills set out in this time, including New Town and are shown on the OS map from 1878. In the following years the area had only limited construction activity, with infill development and the primary school, as shown on the OS map from 1903.

Today the rail and a number of industrial units are gone, but they are still legible in the layout of the streets. The morphology of the village has elements of both high-density terraces and loosely set detached buildings or cluster of buildings, interspersed with employment uses and plenty of semi-natural green space. Other open areas are the bowling green and playing fields.

Steam Mills sits predominantly loosely along Steam Mills road, the main artery to Cinderford. However, at the junction with Newtown Road, the buildings of Steam Mills sit close to the road with narrow footways, conflicting with the busy traffic. In addition, plots are very narrow and building stock appears to be poorly maintained. Even though the built fabric is sometimes neglected and of low morphological consistency, nevertheless it is rich of architectural detail, of intimate scale and visual diversity. Steam Mills has a very unique character as a village, combining early attempts of urbanism and industrialisation with rural typologies.

Landuse, landscape, movement and heritage for Steam Mills is covered under the Cinderford section.
5.7 Built Environment

Fig. 5.7.5 Map from 1903

Fig. 5.7.6 Map from today

Fig. 5.7.7 New Town

Fig. 5.7.8 Building in Steam Mills

Fig. 5.7.9 Terraces on Steam Mills Road

Fig. 5.7.10 Steam Mills Primary School
5.7 Built Environment

Northern United

The following text has been written using a Fielden Clegg Bradley Report, which reviewed the historic and architectural significance of six collieries in the Forest area, including the Northern United. Secondly, historic information has been taken from a leaflet produced by the Forest of Dean Local History Society entitled the “The Mines Trails”. Finally, the Northern United Group has also supplied historical information and images, including a site plan of the buildings in the 1950s from Last Deep Mine in Dean by Maurice V. Bent. The buildings at Northern United have not been inspected as part of this baseline report.

The Northern United Colliery was opened in 1933 by Henry Crawshaw & Co. As discussed in earlier chapters, the Forest area has its history in freemining. However, in 1904 an Act of Parliament resulted in 44 freemining gales in the Forest being amalgamated into seven large collieries, one of them being Northern United, albeit that the mine did not start production until 1933. Each colliery was run by a private company, Henry Crawshaw & Co in the case of Northern United, who in effect leased the rights of the freeminers to work the mines. Freeminers generally worked in the seven large collieries and also received a small royalty for the leasing of their rights to a private company.

The mine shaft at Northern United was sunk in 1933 to reach the Coleford High Delf Seam at a depth of 212m. In 1935 the colliery was connected to the Churchway Branch of the Great Western Railway’s Forest of Dean Branch. Over the next twenty years the colliery developed an assemblage of buildings, the canteen was built in 1943 and the pithead baths in 1952. Other buildings included a canteen, offices, a chain store, an iron store, a carpenters’ shop, a blacksmiths’ shop, electricians shop, stables and an explosive store, amongst others. The Northern United Colliery closed in 1965, it was the last colliery to close in the Forest. The plan opposite (Fig 5.7.11) illustrates the Northern United Colliery as it was in the 1950s.
5.7 Built Environment

The second plan opposite (Fig 5.7.12) illustrates the buildings as they are today. Many of the key colliery buildings survive today, such as the pithead baths, canteen, offices, chain store, iron store, carpenters’ shop, blacksmiths’ shop, electricians shop, stables and the explosive store. The Northern United Group have informed us that the large shed in the centre of the buildings is non-historic fabric and could be demolished. Both the Fielden Clegg Bradley Report and the Northern United Group maintain that the existing Northern United buildings represent most complete assemblage of colliery buildings in the Forest.

The South West Regional Development Agency (SWRDA) now owns the Northern United Buildings. Some of the buildings are leased to Bell Waste, who use the site for a waste transfer operation. The Fielden Clegg Bradley report states that the baths and other colliery buildings remain relatively unchanged. However, they also state that the baths building is in a poor state of repair as it has been vandalised. Furthermore, they also state most of the other buildings do not read as mining buildings. The tip is now largely landscaped and planted with conifers. There is a monument by Philip Bews on the site of the shaft.

The Northern United Group invited English Heritage to inspect the buildings in 2004 for potential listing. It is understood that the buildings were not considered to be worthy of listing. Furthermore, as the buildings are not in a conservation area, they are not protected from demolition. However, the social and cultural history value of the buildings should not be underestimated. From the sources reviewed it is clear that mining in the Forest as a whole is still the source of local pride in the area.

It is recommended that further work is required in ascertaining the heritage and social value of the buildings, along with the structural stability of the buildings and their suitability for potential re-use. The Northern United Group also has various plans for the buildings – such as Mining History Centre, Forest Visitors Centre, Science and Technology Centre and tourist attraction with horse-drawn trams – which could also be reviewed. The outcomes of any future research work on the buildings would require review with English Heritage and the District Council’s Conservation Team.

While it is aspirational to retain some or all of the existing Northern United buildings, this has to be balanced against the financial viability of redevelopment at Northern United and the Northern Quarter site.
5.8 Ecology

Introduction

This section of the report summarises available information on the ecology of the Masterplan area and the surrounds. It identifies the ecological features that will need to be considered throughout the development of the Masterplan and future planning applications. In addition recommendations are given for the incorporation of biodiversity objectives into the Masterplan.

Sites Designated for Nature Conservation Interest

Statutory Designated Sites

Four sites designated of European importance for nature conservation are present within 10 km of the site (see Fig. 5.8.3). These include three Special Areas of Conservation (SAC) (1) and one Special Protection Area (SPA)(2), as described in Fig. 5.8.1.

Sites Designated for Nature Conservation Interest within 15km of the Cinderford Masterplan Area

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Size (ha)</th>
<th>Approximate Distance and Directions from the Site</th>
<th>Reason for Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wye Valley and Forest of Dean Bat Sites SAC</td>
<td>142.7</td>
<td>1.5 km to the northeast and further parcels within 4 km</td>
<td>Supports the greatest concentration of lesser horseshoe bat (Rhinolophus hipposideros) in the UK. Also supports greater horseshoe bat (Rhinolophus ferrumequinum). Both species are believed to hibernate in the many disused mines in the Forest.</td>
</tr>
<tr>
<td>River Wye SAC</td>
<td>2234.89</td>
<td>3.9 km to the northwest</td>
<td>Riparian vegetation and the following species; white-clawed crayfish, sea lamprey, brook lamprey, river lamprey, twaite shad, Atlantic salmon, bullhead and otter.</td>
</tr>
<tr>
<td>Wye Valley Woodlands SAC</td>
<td>916.24</td>
<td>6.5 km to the northwest</td>
<td>Asperulo-Fagetum beech forests, Tilio-Acerion forest and Taxus baccata woods.</td>
</tr>
<tr>
<td>Walmore Common SPA</td>
<td>52.85</td>
<td>9 km to the east</td>
<td>Supports populations of European importance of Bewick’s Swan Cygnus columbianus bewicki.</td>
</tr>
<tr>
<td>Walmore Common Ramsar</td>
<td>52.85</td>
<td>9 km to the east</td>
<td>Seasonally flooded wetland of international importance. Wintering and migratory wildfowl.</td>
</tr>
<tr>
<td>Severn Estuary SAC</td>
<td>73715.4</td>
<td>10 km to the southeast</td>
<td>Qualifying habitats include estuaries, mudflats and sandflats and Atlantic salt meadows. Qualifying species include Sea Lamprey, Twait Shad and River Lamprey.</td>
</tr>
<tr>
<td>Severn Estuary SPA</td>
<td>73715.4</td>
<td>10 km to the southeast</td>
<td>Populations of European importance of ringed plover, curlew, dunlin, pintail, redshank and shelduck.</td>
</tr>
<tr>
<td>Severn Estuary Ramsar</td>
<td>73715.4</td>
<td>10 km to the southeast</td>
<td>A wetland of international importance regularly supporting more than 20,000 waterfowl and for fish populations and Annex 1 features.</td>
</tr>
</tbody>
</table>

Two national statutory site designations, Sites of Special Scientific Interest (SSSI) (3) for nature conservation occur within 2 km of the site (Fig. 5.8.2).

A further ten SSSIs occur within 5 km of the site. Fig. 5.8.2 Statutory site designations within 5 km of the Cinderford Masterplan Area

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Size (ha)</th>
<th>Approximate Distance and Direction from the Site</th>
<th>Reason for Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westbury Brook Ironstone Mine SSSI</td>
<td>15.69</td>
<td>1.5 km to the northeast</td>
<td>Noted for greater and lesser horseshoe bat populations. Site includes both breeding and hibernation roosts.</td>
</tr>
<tr>
<td>Edgehill Quarry SSSI (geological interest)</td>
<td>Not</td>
<td>1.7 km to the east</td>
<td>Geological interest.</td>
</tr>
</tbody>
</table>

Fig. 5.8.1 European site designations within 15km of the Cinderford Masterplan Area

Fig. 5.8.3 Location of Statutory Designated Sites

Key

1. 2, 10 and 15km buffer
2. Special Area of Conservation
3. Site of Special Scientific Interest
4. Site boundary
5.8 Ecology

Fourteen sites with non-statutory designations for nature conservation (referred to locally as Key Wildlife Sites (KWS)) are present within 2 km of the site (see Fig. 5.8.4). The locations of these on a map are not currently available for this report (4).

Fig. 5.8.4 Non-statutory site designations within 2 km of the Cinderford Masterplan Area

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Approximate Distance and Direction from the Site</th>
<th>Reason for Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinderford Linear Park</td>
<td>Includes approximately 70% of site</td>
<td>Ponds, watercourse, semi-natural grassland, marsh, bog, swamp, mire tall herb fen with plant, invertebrate and vertebrate species interest.</td>
</tr>
<tr>
<td>Laymoor Quag GWT Nature Reserve</td>
<td>Adjacent to the southern tip of the site</td>
<td>Marsh, bog, swamp, mire and tall herb fen and lowland heath with plant interest.</td>
</tr>
<tr>
<td>Hawkwell Inclosure (compartment 219a)</td>
<td>Partly within northern part of site</td>
<td>Ancient semi-natural broad-leaved woodland site.</td>
</tr>
<tr>
<td>Serridge Green</td>
<td>0.6 km west</td>
<td>Marsh, bog, swamp, mire and tall herb fen.</td>
</tr>
<tr>
<td>Heywood Inclosure (compartment 318a)</td>
<td>1 km southeast</td>
<td>Ancient semi-natural broad-leaved woodland site.</td>
</tr>
<tr>
<td>Ruardean Hill</td>
<td>1.2 km north</td>
<td>Semi-natural grassland.</td>
</tr>
<tr>
<td>Edgehills Bog Gloucesthire Wildlife Trust (GWT) Nature Reserve</td>
<td>1.6 km east</td>
<td>Marsh, bog, swamp, mire and tall herb fen and lowland heath.</td>
</tr>
<tr>
<td>Merring Meend GWT Nature Reserve</td>
<td>1.6 km northeast</td>
<td>Pond, marsh, bog, swamp, mire and tall herb fen and lowland heath with plant, invertebrate and bird interest.</td>
</tr>
<tr>
<td>Fairplay Iron Mine Reservoir GWT Nature Reserve</td>
<td>1.6 km northeast</td>
<td>Ponds, marsh, bog, swamp, mire and tall herb fen and lowland heath with plant and invertebrate interest.</td>
</tr>
<tr>
<td>Westbury Brook Mine Reservoir GWT Nature Reserve</td>
<td>1.7 km northeast</td>
<td>Ponds with plant and invertebrate interest.</td>
</tr>
<tr>
<td>Woorgreens Lake &amp; Marsh GWT Nature Reserve &amp; Crabtree Hill</td>
<td>1.8 km southwest</td>
<td>Lakes and reservoirs, marsh, bog, swamp, mire and tall herb fen and lowland heathland with plant, invertebrate and vertebrate species interest.</td>
</tr>
<tr>
<td>Plump Hill Picnic Site</td>
<td>1.8 km northeast</td>
<td>Semi-natural grassland</td>
</tr>
</tbody>
</table>

Three non-statutory sites overlap with the Masterplan area. A large part of Cinderford Linear Park extends into the southern part of the Masterplan area. Laymoor Quag GWT Nature Reserve is located adjacent to the southern part of the Masterplan area and the Hawkwell Inclosure occurs partly within the northern part of the area. The non-statutory sites are considered to be of County importance for nature conservation.

Fig. 5.8.5 Non-statutory site designations overlapping the Cinderford Masterplan Area

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Approximate Distance and Direction from the Site</th>
<th>Reason for Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinderford Roughs</td>
<td>1.8 km south</td>
<td>Semi-natural grassland</td>
</tr>
<tr>
<td>Plump Hill Dolomite Quarry GWT Nature Reserve</td>
<td>1.9 km northeast</td>
<td>Semi-natural grassland and plant interest.</td>
</tr>
</tbody>
</table>

Local Policy FNE9 sets out required tests for developments affecting local sites:

RFNE.9 - Sites of Local Nature Conservation Interest

Proposals for development affecting sites of local nature conservation interest will not be permitted unless:

1. The key features of that interest would not be damaged; or

2. The use proposed can be limited to times of the year which are not sensitive to the continued existence of the main habitats or species for which the site was designated; or

3. The social, economic or environmental benefits of the proposed development clearly outweigh the potential harm likely to be caused to sites or features of substantive nature conservation value. Where development is allowed in such cases, proposals will be required to provide compensation for those nature conservation features that would be harmed or lost as a result.

In all these cases the unavoidable harm to nature conservation interests must be minimised.

(1) Special Area of Conservation (SAC) is designated under the European Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (92/43/EEC) (known as the Habitats Directive) to protect sites that are considered rare because of their habitats or the species contained within them. Enacted in the UK through the Conservation (Natural Habitats &c) Regulations, 1994, as amended.

(2) Special Protection Area (SPA) is designated under the European Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (92/43/EEC) (known as the Habitats Directive) to protect sites that are considered rare because of their internationally important populations of bird species. Enacted in the UK through the Conservation (Natural Habitats &c) Regulations, 1994, as amended.

(3) Site of Special Scientific Interest (SSSI) is a site notified by Natural England, under the provisions of the Wildlife & Countryside Act 1981, as amended (WCA), as of national nature conservation or geological importance.

(4) Locations are not yet known for badger setts, great crested newt breeding ponds, Natural England Grassland Inventory sites or non-statutory nature conservation designations.
5.8 Ecology

Habitats of Note within the Masterplan Area

The site is located adjacent to the Forest of Dean and comprises compartments of coniferous woodland with some areas of predominantly broad-leaved species. Wetland habitats occur throughout the Masterplan area. Steam Mills Lake is located approximately in the centre with an inlet and outlet stream flowing to the north east and south east. Marginal and bankside vegetation is well-established around the Lake which is used for recreational purposes and fishing. Old Engine Brook is located on the eastern boundary. Several ponds occur within the southern part of the site associated with the Cinderford Linear Park and within the woodland compartments. Neutral and marsh grassland comprise the majority of further habitat to the east and east of the Lake. Grassland and scattered trees associated with former landscape planting occur on a large mound located to the east of Steam Mills Lake which comprises an old stock pile, previously excavated to form the Lake. Buildings associated with brickworks and the Northern United site occurs in the northwestern part of the Masterplan area.

Grassland

Areas of species rich neutral and marsh grassland occur across the site with occasional indicators of acidic and calcareous conditions owing to the former land use. No notable or rare species have been recorded during the Entec surveys. The majority of the grassland within the site is also part of the non-statutory designation for Cinderford Linear Park KWS. These areas are considered to be of local importance for nature conservation.

Two Areas of UK Biodiversity Action Plan (BAP) priority habitats including Lowland Dry Acid Grassland and Calcareous Grassland occur within the north western part of the site and within 500 m of the site. These are also listed on the Natural England Grassland Inventory. These are considered to be of National importance for nature conservation.

Woodland

An area of priority UK BAP habitat, Upland Oakwood is present on the site. A further area of priority UKBAP habitat, Wet Woodland occurs which are included on the Ancient Woodland Inventory (AWI). These areas are considered to be of national importance for nature conservation.

Species poor coniferous plantation woodland and scattered broadleaved trees also occur throughout the site. This habitat has the potential to support a range of fauna including bats, birds and invertebrates and is considered to be of local importance for nature conservation.

Wetland

The wetland habitats within the site including a lake, ponds and streams support a variety of riparian vegetation and provide habitat suitable for protected species including birds, invertebrates, bats and otter. The habitat also supports breeding populations of great crested newt which are a European Protected Species.

The wetland habitats in the central and southern parts of the site form part of the Cinderford Linear Park KWS. These habitats are considered to be of County importance for Nature Conservation.

Species of Note within the Masterplan Area

Great Crested Newt (European Protected Species) (5)

A medium to large (as defined by Natural England guidance) population of great crested newts is present within the site and are known to use a minimum of six ponds. The ponds comprise part of the Cinderford Linear Park KWS, though they are not part of the reasons for the designation.

The site is considered to be of County importance for great crested newts.

Bats (European Protected Species) (6)

Seven bat species have been recorded from the site which includes the following:

- Lesser horseshoe;
- Greater horseshoe;
- Brown long-eared;
- Common pipistrelle;
- Soprano pipistrelle;
- Noctule; and
- Serotine.

Activity surveys indicate pipistrelle bats are most actively foraging across the site. Habitats are considered to be sub-optimal in terms of foraging for brown long-eared and greater horseshoe bats but they have been recorded infrequently likely given the close proximity of nearby roosts.

Large Lesser Horseshoe maternity roosts were recorded in the Northern United site buildings to the northwest of the site in 2003 and subsequent monitoring surveys have been carried out on an annual basis to 2007, though this report has not yet been released. Greater horseshoe and brown long-eared bats have also been recorded within the buildings. It is likely common pipistrelle also make use of these buildings for roosting.

The site was acquired by the SWRDRA for regeneration and therefore a pre-emptive mitigation strategy was put in place through consultation with Natural England and a representative from the Forest of Dean Bat Group. The strategy involved the creation of a stand-alone replacement maternity roost structure within the woodland to the northeast of the buildings. The replacement barn was completed in May 2004 but has not been fully utilised by the bats to date.

The lesser horseshoe roost is considered to be of national importance given the number of bats recorded using it. The remainder of the site is considered to be of district importance, based on the range of species recorded.

The site is therefore considered to be of District to National importance for bats. The Masterplan will therefore have to demonstrate that there will be no adverse impacts to the population present which will have to be achieved through appropriate mitigation, monitoring and enhancement measures. It is likely that further licences will be needed from Natural England to achieve this.

Reptiles (Nationally Protected Species) (7)

All four common reptile species have been recorded from the site which includes a range of habitat types of value for basking, foraging and hibernating. Species include the following:

- Common lizard;
- Slow worm;
- Grass snake; and
- Adder.

The site is considered to be of County importance for reptiles.

(5) Great crested newts are protected under the Conservation (Natural Habitats, & c.) Regulations 1994, as amended.
(6) All British bat species are protected under the Conservation (Natural Habitats, & c.) Regulations 1994, as amended. Three bat species, including pipistrelle, Barbastelle and Lesser Horseshoe, are also LBAP priority species.
5.8 Ecology

Birds (European to National Protection)
A single Schedule 1 species (crossbill) and Annex 1 species (8) (nightjar) were recorded during surveys within habitat adjacent to the northern part of the site but neither were recorded using the site. Further notable species including six Red Listed (9) species, all of which are UK BAP priority and Section 41 species and 12 Amber listed (10) species have been recorded on site, two of which are UK BAP and Section 41 species (11).

Five breeding species considered uncommon at county level were recorded on site: tree pipit, woodcock, cuckoo, grey wagtail and redstart, of which three were considered to have definitely bred within the site boundary (the site is considered to form part of a cuckoo and woodcock territory). Further common woodland species were recorded across the site.

It is considered that the site is of District to County importance for a number of nationally common (but locally uncommon) breeding passerines, and possibly also for woodcock.

Otter (European Protected Species) (12)
A single otter spraint was recorded on a rock adjacent to the Steam Mills Lake. The site is considered likely to form only a very small proportion of the total territory size of any otter using the site, despite the relatively good habitat and foraging resource present. The site also experiences high levels of disturbance activities in these areas from dog walkers and fishing.

The site is considered to be of local value for otter however as a European Protected Species and given the suitability of the wetland habitats present within the site, Natural England will need to be consulted on the impacts of the Masterplan and appropriate mitigation and enhancement measures will need to be developed to benefit otter in this area.

Water Vole (Nationally Protected Species) (13)
Historical records of water vole within the Forest of Dean indicate their presence near to the Masterplan area. Survey findings by Entec indicate water voles are not currently present however.

The site is considered to be of local value for water vole and their potential to colonise the site via the wetland habitats will need to be considered throughout the development of the Masterplan.

Badger (Nationally Protected Species) (14)
A badger sett comprising two active entrances was recorded at the location of the former Bowson Colliery during the Entec survey. No further evidence of badger activity was recorded within the rest of the Masterplan area. The habitats across the site were considered to be sub-optimal for foraging badger.

The site is considered to be of low value for this species and the presence of the active sett within the southern part of the Masterplan area will require monitoring and mitigation proposals will need to ensure the Masterplan does not disturb this species.

Dormouse (European Protected Species) (15)
Despite suitable habitat occurring at the site, it has been concluded that dormice are not currently present. However, the site is well connected to other areas of the Forest of Dean (which is known to support dormice populations) and there is therefore potential for colonisation at a later date.

The site is considered to be of local importance to dormouse and the presence of dormouse will need to be monitored given their occurrence within the Forest of Dean.

Invertebrates (European to Nationally Protected)
All the waterbodies are considered to be relatively species-rich in terms of invertebrates and reasonably good for groups such as Odonata and water beetles. Of the Red Data Book and Notable species recorded, none are dependant on habitats specific to the Cinderford site, although one species has only been recorded in three British localities previously (Hampshire, Surrey and Berkshire). There is also potential for white-clawed crayfish.

It is considered that collectively the site comprises a relatively important resource for invertebrates at the District level. The habitat requirements of invertebrate groups will need to be considered through the development of the Masterplan to ensure suitable mitigation is provided for any disturbance or loss to their habitat.

See Fig. 5.8.6 for locations relating to constraints (16). Key constraints to the development arise largely from presence of various protected species within the Masterplan area and the occurrence of non-statutory wildlife sites. Further more the need for a Habitats Regulations Assessment screening exercise is highlighted.

European Designated Sites
The Masterplan area is located approximately 1.5 km from the Wye Valley and Forest of Dean Bat Sites SAC. Recent changes in the Habitats Regulations (17) require a screening assessment to determine whether there are likely significant effects on the SAC, particularly given that lesser horseshoe bat are known to roost on the site which is one of the qualifying interests of the SAC.

National Designated Sites
The Masterplan area is located approximately 1.5 km from the closest SSSI, Westbury Brook Ironstone Mine SSSI which is designated for the breeding and hibernating populations of greater and lesser horseshoe bat. There are not expected to be any direct impacts to the site given the physical separation between them, however it is not currently known whether the bats recorded within the site are using roost sites associated with the SSSI and this may require further investigation which would take place through consultation with Natural England on the Habitats Regulations screening assessment.

Locally Designated Sites
The Masterplan area includes part of the Cinderford Liner Park, the Hawkwell Enclosure and abuts the Laymoor Quag GWT Nature Reserve. It is advised that where possible these designated sites be fully retained within the development and that they are managed to maintain and where appropriate enhance their ecological interests.

It is noted that a population of great crested newtsw exists within the Cinderford Linear Park and this species will require consideration at an early stage to ensure they are fully retained and habitats enhanced (also see section below).

(7) All reptiles in the UK are protected under the WCA as amended by the CRoW Act 2000.
(8) European protection applies to birds species listed in Annex I of the European Birds Directive (Council Directive 79/409/EEC). Birds which are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.
(9) Species of high conservation concern in the UK.
(10) Species are under decline in the UK.
(11) Listed under Section 41 of the Natural Environment and Rural Communities Act (NERC) as species of principal importance in England.
(12) Included under the Conservation (Natural Habitats, &c.) Regulations 1994, as amended and protected under the WCA as amended by the CRoW Act 2000.
(15) Included under the Conservation (Natural Habitats, &c.) Regulations 1994, as amended and protected under the WCA as amended by the CRoW Act 2000.
(16) Locations are not yet known for badger setts, great crested newt breeding ponds, Natural England Grassland Inventory sites or non-statutory nature conservation designations.
(17) The 2007 amendments to the Habitats Regulations formally bring land use planning under the 1994 Regulations (Regulation 85A-E) and require a similar consideration of plans.
5.8 Ecology

Key ecological constraints

Fig. 5.8.6 Designated UK BAP habitats in site locality

Fig. 5.8.7 Ecological habitat constraints

Key
- Upland oakwood
- Wet woodland
- Lowland mixed deciduous woodland
- Lowland calcareous grassland
- Lowland dry acid grassland
- Site boundary

Key
- Large Lesser Horseshoe bat roost
- Large common reptile populations
- Proposed otter and water vole survey area
- Proposed bat survey area
- 500m site buffer zone
- Site boundary
Habitats of Note within the Masterplan Area

Several areas of UK BAP priority habitats and also listed on the Ancient Woodland Inventory or Grassland Inventory occur within the Masterplan area. An up-to-date botanical survey of these areas would be required in order to advise mitigation and enhancement measures to be developed within the Masterplan to address direct loss or disturbance of these habitats. Early communication with Natural England would be advised to gauge their current understanding of the value and interest of the habitats listed on the Grassland or Ancient Woodland Inventories and to form appropriate mitigation measures. Measures are likely to involve provision of adequate replacement habitat and the maintenance of the current level of connectivity through green corridors. It is noted that these habitats support protected species, some at a European level, and therefore constraints relating to each of these will need consideration (see following sections).

Any proposals involving the disturbance of watercourses including crossing-points, culverting, re-aligning and general disturbance within close proximity to bankside habitat would need to be discussed with the Environment Agency. Appropriate mitigation measures would need to be developed to address any loss of habitat or alteration to the current status; this could include replacement watercourses or waterbodies and general enhancement of retained wetland.

Great Crested Newt
A medium to large population of European protected great crested newts occur within the Masterplan area. The Masterplan should seek to minimise disturbance to the six ponds which surveys have shown support the breeding population. These occur within the Cinderford Liner Park and therefore it is advised that this designated site be retained free from built development and direct disturbance.

It should be noted that due to the potential for this species to disperse long distances it will be necessary to obtain a licence from Natural England to exclude individuals from development areas to avoid contravention of the legislation. In accordance with Natural England guidance, this can involve exclusion of areas up to 500 m from breeding ponds. This would in theory cover the whole of the Masterplan area.

In order to obtain a Natural England licence, up to date survey results and a detailed history of their population status will be required for the application. Furthermore, it will be necessary to provide mitigation in the form of replacement foraging habitat or enhancement to existing habitat. Natural England would need to be consulted to advise on an appropriate proposal.

Bats
The lesser horseshoe roosts within the Northern United Buildings have the potential to constrain the development of the Bath House and Office Buildings. The replacement barn structure has so far not proved very successful. It is advised that monitoring will need to continue in consultation with Natural England to ensure the understanding of the population status is kept up to date which would be a requirement for a subsequent licence application to disturb the buildings. Appropriate mitigation and compensation measures would also need to be provided which should be developed with input from Natural England.

Reptiles
The large population of reptiles will need to be translocated to avoid harming this species and a contravention of the legislation. Suitable alternative habitat would need to be found to serve as a receptor site. The receptor site would need to be surveyed to ensure that any present reptile population can support the additional population. Natural England would need to be consulted to advise on an appropriate scheme and comment on suitability of a receptor site.

Birds
Two Annex 1 species have been recorded nearby the Masterplan area and a number of Red Listed species occur within the woodland blocks to the north of the site. In order to avoid disturbance to breeding birds, works potentially disturbing active nests will need to be undertaken outside the bird-breeding season from March to August inclusive. Where suitable nesting and foraging habitat is to be lost, mitigation measures would need to be developed to provide replacement habitat or enhance retained habitat.

Otter and Water vole
Otter is a European Protected Species and it will be important to monitor the use of the wetland habitats within the site by this species. Similarly whilst water voles are not currently present on site, surveys will be required to monitor this, particularly along the Old Engine Brook. The habitat requirements of these species will need to be considered through the development of the Masterplan and where possible it is advised that wetland habitats are retained.

Badgers
The active badger sett within the southern part of the site will need to be retained if possible within the Masterplan. Furthermore, as the sett is located within the Cinderford Linear Park it is advised that this area is retained within the Masterplan. Monitoring surveys will need to be carried out to check badgers are not colonising other parts of the site.

Dormouse
Dormice are not currently present within the Masterplan area though populations have been recorded within the Forest of Dean. Monitoring surveys will need to be carried out through discussion with Natural England.

Invertebrates
Invertebrate populations are prevalent within the marginal habitat of the wetland areas. It is advised that these habitats are retained and enhanced through development of the Masterplan. Should loss of these habitat or part of these habitats be necessary, mitigation through enhancement of marginal habitats elsewhere should be provided.
5.8 Ecology

Recommendations

European and Nationally Designated Sites

It is strongly advised that Natural England are contacted as soon as possible to convey the current understanding of the use of the site by Lesser Horseshoe bats and seek their advice regarding the potential for likely significant effects of the Masterplan to the River Wye and Forest of Dean Bat Sites SAC. Natural England will be able to advise on the scope of the Habitats Regulations screening assessment.

Where the identified impacts indicate likely significant effects will occur on the SAC, or where it cannot be concluded that likely significant effects will not occur, then more detailed assessment known as Appropriate Assessment would need to be undertaken. The assessments identify effects alone and in combination with other plans and projects in the local area.

Biodiversity Plan

It is recommended that a Biodiversity Plan is drawn up for the site. This would provide an ongoing record of the ecological setting to be updated by annual surveys. The plan would indicate the constraints and recommendations to integrate biodiversity interests within the Masterplan.

Mitigation through habitat regeneration, enhancement and creation to address disturbance to existing habitats and species will be detailed within the Biodiversity Plan. This would allow a flexible approach to the development of site-wide biodiversity enhancement opportunities and ensure the habitat requirements of protected species are continually monitored and addressed throughout development of the masterplan.

The plan should include reference to landscape proposals and ensure new planting schemes fully reflect the semi natural habitats of the area and provide suitable habitat for the protected species present. The plan would also comment on green building features.

Environmental Stakeholder Meetings

It is recommended that regular meetings are held involving the project team and local representatives from key stakeholder groups. This will ensure all interest parties are feeding into the Masterplan design and constraints are fully considered from an early stage.

Locally Designated Sites

It is recommended that the two non-statutory designated sites occurring within part of the Masterplan area Cinderford Linear Park and the Hawkwell Enclosure are retained within the Masterplan. Any proposals for landscaping would need to be developed alongside plans for promoting the biodiversity value of the sites.

Habitats of Note

Where possible these habitats should be retained within the Masterplan. Where loss is unavoidable, appropriate compensation through mitigation and enhancement will need to be provided elsewhere in the Masterplan area. It is recommended that a botanical Phase 2 survey of the UK BAP priority areas is carried out to feed into mitigation and management proposals. Considerations for protected species will need to be made as below.

Great crested newt

Natural England should be contacted at an early stage to discuss the likely impacts to this species and ensure the Masterplan fully considers the constraints and requirements for this species.

Annual monitoring surveys should be carried out from mid-March to mid-June inclusive.

Bats

Natural England should be contacted at an early stage to discuss the Northern United Site and to develop an appropriate mitigation scheme.

Annual monitoring surveys should continue following a prior discussion of scope with Natural England.

Reptiles

Natural England should be contacted at an early stage to discuss the likely impacts to this species and ensure the Masterplan fully considers the constraints and requirements for this species. Monitoring survey requirements should be decided through consultation with Natural England.

Birds

Annual monitoring surveys should be undertaken to record the presence of Annex 1 species within the Masterplan area. Appropriate mitigation will need to be developed to address the loss of any breeding or foraging habitat.

Any vegetation clearance should be restricted to outside the recognised bird breeding season (March to August inclusive) to avoid any disturbance to breeding birds.

Otter and Water vole

Wetland habitats should be monitored annually to note the use of the site by otter and to record any colonisation by water vole. Natural England will need to be contacted to discuss the occasional use of the site by otter and to develop mitigation proposals for any loss or disturbance to the wetland habitats.

Badgers

The active sett within the southern part of the site should be monitored for status and any new signs of activity within other parts of the site.

A licence to disturb the sett would be necessary if development came within 30 m of the sett. It is recommended that this area is retained within the Masterplan as it forms part of the Cinderford Linear Park.

Dormouse

Dormouse are not currently present within the Masterplan area. Natural England will need to be contacted to advise on appropriate monitoring surveys to check for signs of future colonisation.

Invertebrates

It is advised that wetland habitats are retained as far as possible within the Masterplan. Mitigation and habitat enhancement measures should include features of benefit for invertebrate groups present, particularly where these habitats are to be lost.
5.9 Water resources and flood risk

Introduction

This section presents a review of the water environment and flooding baseline for the Cinderford regeneration project. Information has been sourced through the Cinderford Regeneration Client Team and through available hydrological policies, plans and data. The information has been reviewed and interpreted in the context of the project’s location, aims and objectives to provide an initial view of likely flood risk and hydrological issues, together with the potential constraints and opportunities presented by them.

The purpose of the report is to rationalise the information available, so as to inform the progression of the Masterplan with regards to the hydrological characteristics of the site, its surrounds and the wider catchment. In addition, this section identifies the further steps required to progress the current information to a suitable level to support the Masterplan as the designs progress.

Throughout this section, flood probabilities are referred to with reference to Environment Agency Flood Map (1) and Flood Zones as defined under Planning Policy Statement 25: Development and Flood Risk (2006, referred to as PPS25). For ease of reference, definition of these zones and an explanation of the probability event levels that have been used to define them have been included within Figure 5.9.1:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Probability Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Low: Comprises land assessed as having &lt; 1 in 1000 (0.1%) annual probability of fluvial or tidal flooding in any given year</td>
</tr>
<tr>
<td>Zone 2</td>
<td>Medium: Comprises land assessed as having between a 1 in 100 (1%) and a 1 in 1000 (0.1%) annual probability of fluvial flooding or between a 1 in 200 (0.5%) and 1 in 1000 (0.1%) probability of tidal flooding in any given year</td>
</tr>
<tr>
<td>Zone 3a</td>
<td>High: Comprises land assessed as having a 1 in 100 (1%) or greater annual probability of fluvial flooding or a 1 in 200 or greater (0.5%) probability of flooding from tidal sources in any given year</td>
</tr>
<tr>
<td>Zone 3b</td>
<td>The Functional Floodplain: This zone comprises land where water flows or is stored in times of flood. As a general guide it is land which would flood with an annual probability of 1 in 20 (5%) or greater in any given year, or is designed to flood in an extreme (0.1%) flood or other probability event as agreed by the Local Planning Authority (LPA) and the Environment Agency</td>
</tr>
</tbody>
</table>

It should be noted that the Flood Map does not take account of flooding from other sources and associated pathways, such as groundwater and drainage system related events. The risks associated with other flooding sources, together with a more detailed identification of fluvial sources is required within the scope of site specific Flood Risk Assessments (FRAs), sub-regional Strategic Flood Risk Assessments (SFRAs) and at a high level, by Regional Flood Risk Appraisals (RFRA). These appraisals and assessments are requirements under PPS25, and further information regarding their development and release for the Cinderford area has been provided within the sub-section below.

Bibliography and data reviewed

Introduction

This section introduces the key documents reviewed for this baseline report in the context of the Cinderford Project Area, and surrounding catchment areas with the potential to affect flooding through the interaction of sources and pathways.

South West Regional Flood Risk Appraisal

As previously introduced, under PPS25, regions in England are required to produce Regional Flood Risk Appraisals (RFRA) and District and Borough Councils are required to produce Strategic Flood Risk Assessments (SFRAs). The purpose of these requirements is to advance the level, coverage and breadth of flood risk data in the UK, allowing the accuracy of the EA’s Flood Map to be progressed and to provide a greater level of information to inform and support emergency, strategic and development planning on a local, county, regional and countrywide scale.

The RFRA for the region, the South West Regional Flood Risk Appraisal, was released in 2007, and has been reviewed during the progression of this report.

Strategic Flood Risk Assessment for Local Development Framework: Level 1

Where possible, PPS25 encourages District and Borough Councils to combine efforts to produce SFRAs covering wider areas. This often has the benefit of allowing flood risk knowledge to be progressed on a catchment rather than an administrative boundary basis. Forest of Dean District Council has chosen to proceed on this basis, and with the constructive guidance and leadership of Gloucestershire County Council, an SFRAs has been produced that covers the County: Strategic Flood Risk Assessment for Local Development Framework: Level 1 (Halcrow, 2008). The Level 2 report is currently underway, and the Cinderford Regeneration Team and Halcrow’s SFRA team are maintaining close links with one another in order to ensure that all relevant emerging information is used to inform the Project.
5.9 Water resources and flood risk

Severn Tidal Tributaries Catchment Flood Management Plan
The Environment Agency is currently undertaking a programme to produce Catchment Flood Management Plans (CFMPs). Catchment flood management planning has the main goal of identifying long term (50 to 100 years) sustainable policies to manage flood risk within a catchment or series of catchments and influencing UDPs (Unitary Development Plans), LBAPs (Local Biodiversity Action Plans) and other associated plans. The aim is for these policies to then form the basis of strategic plans, which will detail area and site specific flood defence measures and influence changes to land use and land management.

The Severn Tidal Tributaries CFMP describes the results of an investigation of each sub-catchment in order to ascertain methods for environmental and sustainable long term flood risk management. The Severn Tidal CFMP is currently available in draft (January 2007) awaiting final release. The sub-catchment of relevance to the Cinderford Regeneration is the Forest of Dean (River Lyd and Cinderford Streams). The area is also defined as Policy Unit 1: Forest of Dean / Cinderford / Coleford under the plan.

Flood risk from the River Severn itself is handled through the Severn Estuary Shoreline Management Plan (SMP 2, final expected 2010). As the River Severn floodplain does not influence the site or its immediate surrounds directly, it has not been considered further at this initial baseline report stage. Tidal-tributary interactions are a potential issue here, and any potential risks in this regard will be investigated, if necessary, as the Project progresses.

Other Sources of Information
In addition to the documents introduced above, the Stage 1 Report Cinderford Arc, (RPS, 2002) and Envirocheck Report (Landmark, 2008) have also been reviewed. Wider Environment Agency water quality information has been included within this report due to its direct influence on drainage design. River Basin Management and WFD constraints have been subject to a high level review. Abstractions and discharge data has been included where available, and will be further investigated, together with utilities, historical and flood source data (such as groundwater and critical drainage area data) during the next stage of the Project.

Severn Vale Catchment Abstraction Management Strategy
Under the Environment Agency’s water resources management role, a series of Catchment Abstraction Management Strategies (CAMS) have been produced covering catchment areas in England and Wales. The purpose of the CAMS is to provide water resources information with the goal of balancing the needs of water users and the environment. The CAMS for the Cinderford area is the Severn Vale Catchment Abstraction Management Strategy (CAMS, 2008).

Regional and County Context
The South West is the largest region in England, surrounded by 1130 km of coastline and containing major UK estuaries and fluvial river systems. Approximately 100,000 properties are noted to be at a high risk of flooding (ie under a 1 in 100 fluvial or 1 in 200 tidal event).

Typically, in an average year, 200 to 400 properties in the region are flooded (2). However, extreme events have affected the South West more significantly in recent years, including 2000/2001, the Boscastle event in 2004, and of course, the major floods of 2007. Flooding was also experienced most recently in December of last year (2008).

The region encompasses three River Basin Districts (RBDs), within which Gloucestershire and, more specifically, Cinderford, falls within the Severn (cross Border) RBD. The principle watercourses within the RBD discharge to the Severn Estuary, which comprises the outer reaches of the longest watercourse in Great Britain, the River Severn itself. The estuary has one of the highest tidal ranges in the world, at 15 m.

The six hydrological sub-catchments that are the focus of the Severn Tidal Tributaries CFMP drain into the River Severn downstream of Gloucester and within the Severn’s tidal extent. Tidal influence therefore extends up the rivers in the catchment, however upstream extents are limited by a combination of rising topography and tidal control structures.

As the watercourses progress from their origins in the Forest of Dean plateau in the east, and Cotswolds to the west, they pass onto the flatter coastal plains, where networks of channels and drainage ditches are evident. Springs contribute significantly to the flows in some areas, including the Cinderford Streams Sub-Catchment, which is described in additional detail below.

Catchment, Sub-Catchment and Site Level Context: General
The Cinderford Streams sub-catchment falls within the Severn Vale catchment area. This area spans a large part of Gloucestershire, with the main centres of population being focused around Cheltenham, Ledbury, Lydney, Stroud and Cinderford.

(2) South West Regional Flood Risk Appraisal. (2007).
5.9 Water resources and flood risk

Cinderford Brook is the primary watercourse in the vicinity of the Cinderford Regeneration site, being classed as a Main River (3) south of Cinderford, where it flows 12 km south east to its confluence with the River Severn. Old Engine Brook, which crosses the site, joins Cinderford Brook approximately 800 to 1000 m south of the southern site boundary (see Fig. 5.9.2 Water Resources and Flood Risk).

The project area is crossed by numerous streams and drains. Many of these streams originate from springs, characteristic of the Cinderford Streams sub-catchment. Within the site itself, Steam Mills Lake is located in a central position. It is supplied via springs and diverted Old Engine Brook waters. Discharge runs via a sluice control gate back into the brook.

Catchment, Sub-Catchment and Site Level Context: Water Resource Availability

Within the CAMS the Cinderford Brook catchment has been assigned Water Resource Management Unit (WRMU) 4. The WRMU has been classified currently as being ‘Over Abstracted’, indicating that existing abstraction is causing unacceptable damage to the environment at low flows. Water may still be available at high flows, with appropriate restrictions (such as Hands Off Flow, or HOF conditions).

No groundwater abstractions are noted within 1000 m of the site.

Catchment, Sub-Catchment and Site Level Context: Water Quality

River Quality data is available for Cinderford Brook at a sampling point located at Bilson Green to the south of the site. The most recent data is available for 2007 where a ‘B’ chemical classification was awarded (good). High levels of phosphates and nitrates were also noted. The watercourse is classified as being at risk of not meeting WFD targets pertaining to biological quality. Whilst chemical quality remains high, ecological quality is currently noted as poor (4).

Groundwater quality is considered to represent a potential risk in the area, due to the influence of industrial land uses to the east and past mining activities and discharges. In particular, it is believed that the historic disposal of liquid aluminium sulphate down the Hawkwell Shaft to the north of the Masterplan area may have had a significant influence upon quality.

There is one entry on the Pollution Hazard Inventory, at Forest Vale Industrial Estate to the south of the site. Emissions are noted to be to air (associated with waste incineration). Operator performance is reported to have been good for all records available in recent years (5).
5.9 Water resources and flood risk

Catchment, Sub-Catchment and Site Level Context: Flood Risk and Flood Risk Management

Within the Cinderford Streams Sub-Catchment, 40 commercial and 130 residential properties are noted to fall within Flood Zone (FZ) 3, over an area of 138ha (6). Fig. 5.9.3 notes the main characteristics of Policy Unit 1: Forest of Dean / Cinderford / Coleford, as defined by the CFMP.

In support of the main future risks identified within the CFMP, the Level 1 SFRA (7) reports the Cinderford Streams to be an area potentially greater affected in the future by increased storm surge and precipitation.

Cinderford Brook and its tributaries upstream of Cinderford and Blakeney are noted by the SFRA to have narrow Flood Zones, with the brook flowing relatively freely into the lowland Forest of Dean Valleys. This is evident in the case of Old Engine Brook, where Figure 5.9.2 shows the Flood Zone largely following the course of the stream. It should be acknowledged here that the FZ 2 and 3 boundaries are considered to be subject to error at the site’s location as they do not encompass Old Engine Brook itself. The boundaries are currently being investigated within further SFRA work commissioned as part of the Level 2 SFRA.

The greatest risk of flooding locally is considered to result from blockage or from high intensity rainfall flowing from the steep sided valleys upstream of the site.

### Policy Unit Summary

#### Policy Unit 1: Forest of Dean and Cinderford

- **Flooding mechanisms**
  - Natural surface water runoff / fluvial.
  - The narrow floodplains that respond rapidly to intense storms and high surface water run-off.
- **Potential pathways and receptors**
  - Urban areas of Cinderford, Soudley, Whitecroft and Parkend.
  - No significant flood impact identified in terms of people/property/environment outside main urban centres.
- **Current responses to flood risk within the Policy Unit**
  - The tidal limit of the Cinderford Brook is informally denoted by the railway embankment and is marked by tidal outfall flaps.
  - Flood management in the Forest of Dean is complicated by the network of subterranean river channels and lakes, deep within the limestone rocks, and by tunnels where coal seams have been excavated at some point during the forest 700 year mining history. Many of these subterranean features are at tidal flood risk and may act as conduits to fluvial flows.
  - A Flood Warning service is provided for tidal flooding from the River Severn. Flooding from the tributaries is covered by a General Flood Watch service. The flood warning system is currently being upgraded.
- **Standards of service that apply to flood defences within the Policy Unit**
  - Cinderford Brook - Hayward to Hagloe. Earth embankment and high ground. Standard of protection: 10% (1 in 10) estimate.
- **Who and what are currently most vulnerable to flood damage and losses?**
  - Flood risk is centred on principal urban areas, however there is significant flood risk to isolated properties and communities throughout the catchment that may be more vulnerable under future conditions.
  - Protected and designated sites may be susceptible to changes in water levels.
  - The principle urban areas and isolated properties are most vulnerable.
- **Key future factors**
  - Climate change – increase in flow/sea level rise.
  - Land-use change – increase and rapid run-off.
- **What potential responses (or groups of responses) are being considered to manage flood risk?**
  - Local scheme within Cinderford to keep flows in-bank.
  - Utilising natural processes to reduce surface run-off, increase flow attenuation within channels, and provide opportunities for flood storage. This could include upstream storage areas on the Cinderford Stream.
  - Improvements in river management: including the restoration of river channels such as the disused feeder channel on the River Lyd upstream of Parkend. Restoration of functioning floodplains, sympathetic maintenance regimes, and the creation of buffer zones adjacent to rivers that may also offer environmental benefits and help to achieve biodiversity targets as well as manage flooding are also an option.
- **Gaps and uncertainties**
  - Scale of land-use change and development.
  - There is a risk that flood risk to existing urban areas, isolated properties and agricultural land will increase. More detailed economic analyses will be required to determine the appropriate action for these receptors.

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(7) Strategic Flood Risk Assessment for Local Development Framework: Level 1
5.9 Water resources and flood risk

It is noted that Cinderford does have a history of flooding from fluvial sources, and local drainage capacity issues together with the presence of emergent springs in the vicinity of the site could also lead to flooding relating to periods of high precipitation or high intensity events.

Key Constraints and Opportunities

Introduction

A number of potential constraints and opportunities have been identified for the site as a result of this baseline review. In many cases constraints and issues are considered to also present opportunities from which benefits can be realised through careful sustainable Project design progression. The sub-sections below summarise these potential issues, and where possible, the opportunities that can be maximised.

Drainage Design

We consider there to be opportunities with respect to drainage design and the development of Sustainable Drainage Systems (SUDS) for the Project. Through the appropriate design and sizing of site drainage, current and potential risks can be minimised. It is envisaged that drainage design will consider:

- sizing systems to take account of climate change in addition to appropriate return period events and the maintenance of greenfield runoff rates;
- integrating factors such as landscaping, ecological and community enhancement potential, and potential land-raising (if required) into the design’s progression;
- reviewing how the proposed systems will interact and interface with existing surrounding systems;
- consideration of the capacity and condition of existing drainage networks, including any current issues or plans for upgrades; and
- addressing ground quality risks and the potential need to isolate SUDS from underlying sediments, particularly concerning the potential groundwater contamination issues in the area.

Flood Risk

PPS25’s vulnerability classification promotes the matching of flood risk to appropriate land use. The Level 1 SFRA also recommends that particularly in light of the catchment’s susceptibility to climate change, that all development within FZ 2 and 3 should be discouraged. This has potential impacts with regards to the Masterplan and the location of aspects of the development particularly in light of the need to establish the actual location of the Flood Zones (through SFRA Level 2 progression). However, the Cinderford Regeneration Team also considers the situation to offer considerable opportunities, allowing a riparian zone to be incorporated which can encourage community recreation and involvement with the brook. This will concur with flood risk policy and management aspirations, whilst meeting social sustainability objectives and ecological enhancement.

Potential access and egress issues through FZs 2 and 3 will be considered as the project progresses. This is not considered to represent a substantive issue, however, alternative access and egress routes in the event of an emergency may need to be progressed within the designs for the Scheme.

Land-raising and drainage design have the potential to influence flood risk on the site and elsewhere. It will therefore be important to integrate the progression of flood risk aspects, site design and drainage design.

Water Resource Availability

Water requirements during construction and operation will need to progress being mindful of the current ‘Over Abstracted’ status of the WRMU within which the site falls. This does not mean that no abstraction would be consented, but that the ability to abstract would most likely be interrupted under low flow conditions.

Next Steps

• Identification of Project water resources and flood risk contacts within the Environment Agency, the Government Office for the South West (GOSW) Regional Resilience Team and the Local Resilience Forum Gloucestershire is considered to be of key importance. Identifying key stakeholders such as the Lower Severn Internal Drainage Board (IDB) will also be of high value during the forthcoming stages of the Project.

• Plans will be progressed integrating flood risk aspects fully into the development.

• It will be ensured that Water and Flood Risk Management Sustainability Appraisal Objectives (WFRM) are met throughout the Project’s phases and that flood risk management and water environment enhancement in the context of sustainable development, the Floods Directive (2007/60/EC) and Water Framework Directive (2000/60/EC) remain core aims of the Cinderford Regeneration.

• Through adherence to the WFRM Sustainability Appraisal Objectives, it is envisaged that the designs will progress in line with the aims of PPS25 and broader sustainable flood management objectives. As such:
  - flood risk and development aspect vulnerability as defined under PPS25’s Vulnerability Classification will be taken into consideration and areas of risk will be matched with appropriate land use;
  - existing and potential flood sources and pathways will be considered in conjunction with masterplan designs;
  - Sustainable Drainage Systems (SUDS) and the provision of a suitably designed and sized drainage systems will be progressed, taking account of anticipated greenfield runoff commitments, climate change and ground quality;
  - all interfaces of the project’s drainage with existing drainage systems will be considered; and
  - the management mechanisms of sluices and other watercourse and waterbody controls will be examined and options discussed with the IDB where appropriate.

• Additional SFRA Level 2 information currently being progressed by Halcrow (anticipated April 2009) will be integrated within the assessment.

• Wider water environment baseline characteristics and objectives will be reviewed and incorporated to ensure that integrated water and flood risk management is achieved.
5.10 Waste management

Introduction
This section has reviewed the information relating to Waste Management made available by the Cinderford Regeneration client team and publicly available sources. The purpose of the report is to rationalise the information available so as to inform the progression of the Northern Quarter Masterplan Area with knowledge of the constraints and opportunities present on and around the site. In addition this section will identify the further steps required to progress the current information to a suitable state to support the Northern Quarter Masterplan Area.

Background
Cinderford is located within a two tier authority area. The Forest of Dean District Council (FDDC) acts as the waste collection authority while Gloucestershire County Council (GCC) acts as the waste disposal authority. As such, FDDC will be responsible for the municipal waste collection arrangements for the Northern Quarter Masterplan Area while GCC will be responsible for treating and disposing of the waste.

In the year 2004/05 Gloucestershire’s households produced a total of 309 thousand tonnes (kt) of municipal waste (MSW). The total rose in 2005/06 to around 312kt and to 324kt in 2006/07. This is approximately 1,220kg of household waste generated per household each year (1).

Under the current arrangements, all municipal waste is transported via the road network in FDDC and GCC. There are no facilities in FDDC or in GCC for the ‘treatment’ of MSW other than landfill.

In 2004/05 the County had a household recycling and composting rate of 26%. This rose to around 30% in 2005/06 and 32% in 2006/07 while the FDDC had a household recycling and composting rate of 36% in 2006/07 (3).

The following sections will review the existing and planned municipal waste management infrastructure for Gloucestershire and where possible FDDC. An indicative picture will also be presented of the current movement of municipal waste in Gloucestershire and how the Northern Quarter Masterplan Area may fit into this.


Existing municipal waste management infrastructure and indicative waste movements
The location of the Household Recycling Centres (HRCs) in GCC are presented in Fig. 5.10.1. Fig.5.10.1 also presents the origin of the public for the use of the HRCs. The nearest HRC to the Northern Quarter Masterplan Area is located near Coleford, as shown, it is anticipated that the residents of Northern Quarter Masterplan Area will use this HRC.

The location of the composting and transfer facilities in GCC are presented in Fig.5.10.2.

The nearest waste transfer station is located north east of Lydney and with composting facilities located north of Newent and at Gloucester. It is anticipated that the green waste generated in the Northern Quarter Masterplan Area will be distributed between the two composting facilities. The bulking up of recyclables and residue waste and green waste (if required) could take place at Lydney.

It is anticipated that any waste for landfill from the Northern Quarter Masterplan Area will be transported to Gloucester (see Fig. 5.10.3).
5.10 Waste management

Future waste capacity
The adopted local plan for FDDC is the Forest of Dean District Local Plan Review Adopted November 2005 while the emerging policies are presented in the Forest of Dean District Council, Core Strategy Second Preferred Options March 2008. Neither of the documents contain waste policies or safeguard sites for waste management use.

The Gloucestershire Waste Local Plan 2002-2012 (GLP) was adopted in 2004 and is the prevailing waste plan for the Northern Quarter Masterplan Area. The GLP presents seven locations that are suitable for housing waste development in close proximity to the Northern Quarter Masterplan Area. These are listed in Fig. 5.10.4. Further work will be necessary to identify the current status of each site, ie which sites have been developed since the publication of the GLP in 2004.

Future progress on the Gloucestershire Waste Core Strategy (WCS) is currently under review. The WCS has been prepared up to the ‘preferred options’ stage and was publically consulted on in early 2008, however, due to the prematurity of the policies in the WCS they are not considered further for this baseline.

Waste Allocations
Two sites (13A and 13B Forest Vale Industrial Estate) have been identified in the Gloucestershire Waste Local Plan 2002-2012 (Policy 5) as sites appropriate for housing local waste facilities (<50,000 tpa) that are in or in close proximity to the Northern Quarter Masterplan Area.

Site 13A is located within the Northern Quarter Masterplan Area while site 13B is located to the south west of the location. Both sites have been deemed suitable in principle for local waste management facilities, these include a:

- Waste Transfer Station;
- Household Waste Recycling Facility;
- Material Recovery Facility; and
- Waste to Energy Plant (not including incineration).

Although Policy 5 has not been ‘saved’ by the Secretary of State(4), Gloucestershire County Council have advised that they are still using the policy as a strong material consideration.

Minerals Extraction
A brief review of the Gloucestershire Minerals Local Plan (1997-2006) has been undertaken including consideration of those policies taken forward under the Planning and Compulsory Purchase Act (2004) (5). This has identified the site to be within the Forest of Dean Coalfield (a coal and carboniferous sandstone resource area). The Royal Forest of Dean Brickworks is identified as having an active clay works on the site. However, it is understood from the client team that the last extraction from this resource has now been undertaken.

As the masterplan develops detailed reviews will be needed to ensure economically workable mineral resources are not sterilised and are safeguarded for future use in the Northern Quarter Masterplan Area. The GLP presents seven locations that are suitable for housing waste development in close proximity to the Northern Quarter Masterplan Area. These are listed in Fig. 5.10.4. Further work will be necessary to identify the current status of each site, ie which sites have been developed since the publication of the GLP in 2004.

Future progress on the Gloucestershire Waste Core Strategy (WCS) is currently under review. The WCS has been prepared up to the ‘preferred options’ stage and was publically consulted on in early 2008, however, due to the prematurity of the policies in the WCS they are not considered further for this baseline.

The following steps are suggested to help create a robust evidence base for the waste management options of the Northern Quarter Masterplan Area:

- A review of the current waste management sites identified in the GLP;
- A review of the spare capacity at all existing waste facilities;
- Review the Gloucestershire Waste Partnership Joint Municipal Waste Management Strategy 2007 – 2020 and ensure it’s aims and objectives are considered when developing the Northern Quarter Masterplan;
- A more in-depth review of the waste arisings and capacity in the Forest of Dean District Council and Gloucestershire County Council;
- Review of the options for incorporating an onsite waste facility in the Northern Quarter Masterplan Area. Assess the opportunities and constraints of this on construction process and on any future development.

- Consideration of the Waste Minimisation in Development Projects (incorporating reduction, re-use and recycling requirements) (September 2006) Supplementary Planning Document is required and the principles of waste minimisation are adhered to in any future development.

Fig 5.10.4 Allocated Waste Sites in the GLP

<table>
<thead>
<tr>
<th>Site</th>
<th>Status presented in the GLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudmeadow, Hempted</td>
<td>Currently in waste management use.</td>
</tr>
<tr>
<td>Industrial Estate, Former Moreton Valence Airfield</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Reclaimed canal land, Netheridge</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Sharpness Docks, Sharpness</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Old Airfield, Moreton Valence</td>
<td>Currently in inert waste management use.</td>
</tr>
<tr>
<td>Land adjacent to Gasworks, Bristol Road, Gloucester</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Netherhills Pit, Frampton-on-Severn</td>
<td>Identified for housing an inert waste management facility.</td>
</tr>
<tr>
<td>Wilderness Quarry, Mitcheldean</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Forest Vale Industrial Estate, Cinderford</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Canal Works, Lydney</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
<tr>
<td>Lydney Industrial Estate, Lydney</td>
<td>Identified for housing a waste management facility(s).</td>
</tr>
</tbody>
</table>
