

EAST DEVON NEW COMMUNITY - Cranbrook
ENVIRONMENTAL STATEMENT

**ASSESSMENT OF FURTHER AMENDMENTS TO
THE SCHEME
NOVEMBER 2006**

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TO BE READ IN CONJUNCTION WITH THE:

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1.0 INTRODUCTION

- 1.1 In July 2003 the “East Devon New Community Partners” (EDNCP) submitted an outline planning application to East Devon District Council (EDDC) for a new community to the East of Exeter, to be known as Cranbrook. The application, reference (03/P1900) was accompanied by an Environmental Statement (ES) reporting on an Environmental Impact Assessment (EIA) undertaken on the proposed development, as identified on the Development Framework Plan (DFP) and in the description of development.
- 1.2 After a thorough consultation process undertaken by EDDC and the EDNCP amendments to the planning application and further information on the ES (as requested by EDDC) were submitted by the EDNCP in March 2005. This process endeavoured to establish and resolve any outstanding issues before the Council determined the application.
- 1.3 The Council then took the outline planning application to committee in May 2005 and resolved to grant outline planning permission for the new community, subject to the preparation of a number of technical strategies and the resolution of the section 106 legal agreement.
- 1.4 As a result of the completion of the technical work to inform the strategies a few minor amendments are proposed to the Development Framework Plan and in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations (SI 1999 No. 293) (The EIA Regulations), further environmental impact assessment work has been undertaken to consider where there is the potential for any change in the significant effects of the development arising from the minor amendments. This assessment work is set out in this document and will be consulted upon in accordance with Regulation 14 of the EIA Regulations.
- 1.5 This document sets out the revised assessment undertaken on the amendments to the scheme and as set out in an amended planning application including an amended Development Framework Plan (DFP).
- 1.6 For ease of reference, the following chapter sets out the amendments to the application. These changes have been assessed by the assessment team and where a revised assessment is provided for any of the chapters as a result of any changes to the scheme, a similar format as the original ES and the Further Information has been adopted. The same methodology and assessment criteria as identified by each particular chapter in the original ES are also adopted.
- 1.7 To ensure a thorough consideration of any potential environmental impacts the changes to the DFP have been assessed by the consultant team. Any new impacts arising from the new plan are reported and appropriate mitigation for any negative impacts proposed.
- 1.8 For the avoidance of doubt, it should be pointed out that the full Environmental Statement comprises this document along with **the July 2003 Environmental Statement and the March 2005 Further Information.**
- 1.9 A duplicate application (05/2388/MOUT) was lodged in 2005. That application was also accompanied by an Environmental Statement comprising the same environmental information.

2.0 THE AMENDMENTS TO THE PLANNING APPLICATION

- 2.1 The amendments to the planning application have arisen primarily as a result of the completion of the technical work undertaken to inform the strategies requested by EDDC. The changes to the Development Framework Plan are relatively minor in nature but in accordance with the EIA regulations, the assessment team has considered any changes to the environmental effects arising from the changes to the Development Framework Plan and description of development.
- 2.2 The changes assessed are shown on the amended plans which are included in this document.

WCN028/AA/005	Planning Application Boundary
WCN028/AA/006	Development Framework Plan
WCN028/AA/007	Density and Building Heights Plan

Changes to the Planning Application Boundary – Drawing WCN028/AA/005

- 2.3 The first amendment to the application is the removal of two small parcels of land from the outline planning application boundary that are subject to restrictive covenants limiting the land to agricultural use only; the red line is therefore to be amended to exclude this land. The covenants apply to two areas of land, c. 3.5 ha at the western end and c.1.7ha at the eastern end. This land formally comprised residential and outdoor sports (playing pitches, tennis and one LEAP).
- 2.4 Due to the removal of this land various minor changes to the DFP have arisen which will be set out below, and also a small additional area of land comprising 2.5hectares of land is proposed to be included within the outline application boundary. This land adjoins the existing application boundary at the eastern end, just to the north of the former A30 and will form part of the new location for the playing fields.
- 2.5 The changes in the boundary and other changes to the Development Framework Plan are illustrated in the attached plan.

Changes to the Development Framework Plan – Drawing WCN028/AA/006 (November 2006)

- 2.6 The key changes to the Development Framework Plan are largely as a result of the evolution of the drainage strategy and detailed site survey work undertaken for the other strategies including a topographical survey and tree survey.
- 2.7 The minor changes are described under the following headings for ease of reference: Drainage; Veteran Trees; Sport & Recreation Provision; the Main Local Route alignment; the Secondary School campus; and Other Minor Changes.

1) Drainage

- 2.8 The changes to the Development Framework Plan relating to the drainage strategy have arisen following the completion of a full topographical survey of the site; this has allowed more detailed modelling of the drainage of the proposals. Following a series of meetings with the Environment Agency the strategy has been revised. A sustainable urban drainage system is proposed. Where practical water is detained at source or infiltrated to ground. Further attenuation is provided in ponds and basins to ensure that flows do not exceed pre development conditions. A series of drainage basins to deal with local surface water attenuation and the areas in which the basins are to be located are now identified on the Development Framework Plan.

- 2.9 In light of the detailed development of the drainage strategy, for ease of reference and clarity, the ES chapter on 'Water Resources' that addresses this issue has been rewritten.
- 2) Veteran Trees
- 2.10 A full tree survey of the site has also now been undertaken which has identified a number of veteran trees on the site. Following meetings with the appropriate statutory consultees to agree the findings of the tree survey the veteran trees have been identified on the Development Framework Plan. Most are located within the Country Park but one cluster of trees is located to the east of the proposed cricket pitch and has led to a slight realignment of the main road to ensure the trees can be protected with an appropriate buffer surrounding them.
- 3) Sport & Recreation Provision
- 2.11 As a result of the removal of one of the areas covered by the Restrictive Covenant at the western end of the new community from the planning application, a new, more central location for the open space facility to the west of the country park is now proposed, to the south of the primary school. The new location will facilitate access to the facility by being more central and also reduce the need to break the green lane hedgerow for vehicular and pedestrian crossings.
- 2.12 Following the identification of the veteran trees mentioned above, the need for local drainage attenuation and the removal of the Restrictive Covenant land at the eastern end of the New Community, a new location for the playing fields is proposed at the eastern end of the new community. This provides for a more efficient use of land and will also allow for easy future expansion should the new community grow in this direction and more playing fields be required.
- 2.13 Finally, a location is proposed for the skatepark, a use that has arisen in the section 106 legal agreement negotiations. This is to be provided alongside a Neighbourhood Equipped Area of Plan and a Local Area of Play, adjacent to the secondary school.
- 4) Main Local Route Alignment
- 2.14 As mentioned above, one minor alteration to the main local route is proposed at the eastern end, to ensure the protection of a cluster of veteran trees. A second change is proposed at the western end with a direct route to the station, reducing the length of essential infrastructure in the flood plain and in the best location following the findings of the tree survey. As a result the route has been amended in front of the local centre and primary school. Finally, the location of the crossing of the main local route through the country park has been amended slightly on the advice of the consultant team in accordance with the findings of the tree survey.
- 5) Secondary School
- 2.15 Following the findings of the tree survey and topographical study the Education Campus boundary parcel has been amended slightly to allow for the retention of a hedgerow and brook and provide a direct green corridor from the country park to the network of linear ponds, referred to as the 'ecology park'. The property has also been extended to incorporate the land up to the railway. The site is also now proposed to include a special school in addition to the Secondary and Primary schools.
- 6) Further Minor Changes
- 2.16 The two other minor changes are a very minor change to the location of the open space and LEAP to the north east of the western primary school. This is to allow for the protection of an important tree within the open space. Finally, a parcel of town centre and residential land uses have been swapped, to the west of the town square in front of the secondary school, following the consideration of community uses set out in the section 106 agreement that might be best located here.

Changes to the Density & Building Heights Plan – Drawing WCN028/AA/007
(November 2006)

- 2.17 As a result of the minor amendments to the layout of some residential and mixed use parcels in the Development Framework Plan, the density and building heights plan has been amended accordingly. There are no changes in the format of the plan and the main change to note is the introduction of residential development where playing fields were to be located at the eastern end of the new community and the new location of the playing fields where residential was formerly proposed.

The Amended Description of Development –Amendments November 2006

- 2.18 As a result of the above minor changes and the outcome of the negotiations on the section 106 legal agreement there are a few minor amendments proposed to the formal description of development and land use budget. The changes to the outline planning application for the development of the East Devon New Community, as per the minor amendments, are shown below in strikethrough text where deleted or bold where new. The application is now seeking permission for:

a new community comprising up to 2900 residential dwellings, a town centre and a local centre comprising retail, employment, community and leisure uses, 2 primary schools and one secondary school, sports and recreation facilities, a country park, a railway station, a cemetery/burial ground, allotments, landscaping, engineering works, and associated infrastructure, public transport infrastructure and car parking for all uses.

Development to include the following uses in the locations shown on the Development Framework Plan:

Up to 2,900 dwellings of a mix of dwelling type and size, including a proportion of affordable dwellings, in locations shown on the Development Framework Plan including the town centre and local centre, with associated car parking.

A town and local centre comprising the following uses with associated car parking in accordance with PPG13 and PPG3 standards:

- up to 17,500 sq. metres (gross) of employment;
- up to 6,700 square metres (gross) retail floorspace (to include A1, A2 & A5);
- A3 (takeaways) and A4 (public houses and bars) uses;
- hotel(s); and
- community facilities including assembly, leisure and health.

Two primary schools, one special needs school and one secondary school and associated playing fields including all weather pitch(es) with floodlighting and associated car parking.

Construction of a new railway station with associated parking of up to 70 spaces plus cycle storage facilities and associated facilities and A1 retail outlet (not to exceed 200 sq.m.).

Sport facilities and pitches with associated car parking and children's play facilities comprising neighbourhood and local equipped areas of play/multiuse games areas, a skateboard park and civic space.

Strategic open space and landscaping provision including the retention within the public realm of those hedgerows identified on the Development Framework Plan (either in part or full), the provision of a country park and informal open spaces, the

planting of copses. The country park to include compensatory flood storage works, trim trail, shared surface walking and cycling route, interpretation features, and creation of new areas of habitat of wildlife value.

Primary road / public transport corridor and associated access roads onto the old A30 as identified on the Development Framework Plan, footpaths and cycleways.

Associated infrastructure, roads, lighting, drainage systems for foul and surface water and floodplain compensation.

2.19 The land use budget for the revised DFP is set out below:

DESCRIPTION OF DEVELOPMENT	HA	
	Mar 05	Sep 06
Residential (Total net area)	78.2	75.0
Existing Residential	0.4	0.4
Town Centre (mixed use on the Development Framework Plan)	11.8	12.1
Local Centre (mixed use on the Development Framework Plan)	0.6	0.6
Secondary and Primary School Campus (to include one shared MUGA and shared playing fields)	11.6	12
Primary School (no 2)	2.5	2
Country Park [and detention and drainage basins] (to include trim trail and childrens play equipment)	32.0	35.3
Formal Sport and Open Space Provision (to include facilities for Cricket, Tennis, Bowls, Football & Rugby, 2xNEAPs, 6xLEAPs and 1 Skateboard Park)	12.9	11.8
Strategic Existing Landscape (existing hedgerows and tree groups to be retained either in full or part)	10.6	9.9
Station (to include car park)	0.8	0.8
Strategic Infrastructure	14.8	13.5
TOTAL	176.2	173.5

2.20 The net reduction in overall land area of the planning application is a result of the removal of the land covered by restricted covenants (5.2 hectares) and the addition of some land at the eastern end (2.5 ha).

3.0 POLICY FRAMEWORK AND DEVELOPMENT OF PROPOSALS AND TOPIC AREAS WITH NO SIGNIFICANT CHANGE

Policy Framework

- 3.1 There are no planning policy changes that need to be considered as part of the EIA arising from the amendments to the planning application for the East Devon New Community (EDNC).

Topic Areas with No Significant Changes to Previous Assessment

- 3.2 The environmental assessment team has considered the impact of the minor alterations to the application proposals and consider that there are no significant changes to the environmental impacts assessed in the environmental statement to date in respect of the following topic areas:
- Chapter 4: Geology and Contamination
 - Chapter 5: Soils and Agriculture
 - Chapter 10: Air Quality
 - Chapter 11: Noise and Vibration
 - Chapter 13: Society and Economy
 - Chapter 15: Waste Management

Geology and Contamination

- 3.3 The survey area for the existing environmental statement, including borehole records included the additional 2.5 hectares of land now included within the application boundary. The land is alluvium and is to be used for open space.

Soils and Agriculture

- 3.4 The revised application site overall is approximately 2.7 hectares smaller than previously.
- 3.5 The land excluded from the site comprises 3.5 hectares of Grade 2 agricultural land and 1.7 hectares of Grade 3a land. The additional land now included in the application comprises 2.5 hectares of Grade 3a land.
- 3.6 The revised proposals result in a small reduction in the overall amount of land lost to development (and to hard development because of the introduction of more open uses). The proportion of the site that is Grade 2 agricultural land has also reduced slightly.

Air Quality

- 3.7 The existing environmental statement assesses the impact of the Main Local Route in terms of the concentrations of pollutants at distances of 10, 20 and 30 metres from the route's alignment. Predicted pollutant levels are substantially below target objectives. The minor alterations to the application do not have a bearing on traffic levels as a whole through the new community and so this will not impact on the earlier assessment.

Noise and Vibration

- 3.8 The existing environmental statement assesses the impact of the Main Local Route in terms of the likely noise exposure levels alongside the Route irrespective of the route taken. Exposure levels are assessed as falling within Category A or B. The limited revisions to the route do not affect the assessment made of the impacts in terms of noise. The alterations to the application do not have a bearing on traffic

levels as a whole through the new community. Therefore nor will this affect the earlier assessment of potential impact.

- 3.9 The access points into the development are unchanged although it is assumed that eastern most access will provide the principal gateway into this part of the development. This is likely to offer a small benefit in terms of the impact of noise on existing properties.
- 3.10 The small alteration in the location of the secondary school brings the location of the school slightly closer to the railway. The existing environmental assessment demonstrates that the revised location remains substantially beyond the relevant noise exposure category.

Society and Economy

- 3.11 None of the changes set out in the application have a significant effect on the earlier assessment of the application proposals in relation to society and economy. In terms of the space available for open space, there is a small benefit in the revised proposals in that the areas of open space within the development have increased from 55.5 hectares in total to 57 hectares. This does not affect the overall assessment of the impacts made.

Waste Management

- 3.12 None of the changes set out in the application have a significant effect on the earlier assessment of the application proposals in relation to waste management.

6.0 WATER RESOURCES

Introduction

- 6.1 This chapter deals with the assessment of the potential impacts of the NC on water quality, hydrology and drainage infrastructure, including flooding. The assessment of drainage infrastructure encompasses the sewerage system between the site and the existing sewage treatment works at Countess Weir.
- 6.2 The methodology, legislative framework, and baseline conditions remain principally unchanged from the March 2005 chapter. The development of the flooding and drainage strategy, has resulted in more detailed proposals being developed that can now form the basis of assessing the most likely impacts of development in the following text. A landscape biodiversity and drainage strategy is required by the Local Planning Authority and the principles and proposals described in this chapter and in the relevant appendices are to be included in that strategy.
- 6.3 For ease of reference and completeness the original chapter has been amended. This chapter therefore SUPERSEDES chapter 6 of the March 2005 ES Chapter 6. The resulting mitigation measures and residual effects have been updated, where relevant, together with the summary impacts matrix.
- 6.4 The Chapter 6 supporting appendices (March 2005), remain relevant except as have been updated by way of a summary addendum report that outlines the further assessments and development of proposals that have taken place subsequent to the March 2005 document. The Addendum and Corrigenda indicate where the original appendices are updated.

Methodology

- 6.5 This assessment continues to be undertaken with due regard to guidance provided by the ODPM and includes a review of the following sources of baseline data:
- Local Environment Agency Plan, Exe Action Plan from July 2000 to July 2005;
 - Local Environment Agency Plan, Exe First Annual Review, August 2001;
 - Environment Agency Flood Plain Mapping;
 - Exe Catchment Abstraction Management Strategy (CAMS): February 2004
 - River Exe Catchment Management Plan, Consultation Report, NRA, 1995;
 - Envirocheck Report of the study area (Appendix 4/1); and
 - Public Sewer Records (South West Water).
- 6.6 The key principles underlying the development strategy adopted in respect of water resources are as follows:
- a. retention of existing water features such as streams ponds and ditches where possible;
 - b. no development to take place within flood plains, except for essential infrastructure in accordance with PPG25;
 - c. creation of new flood plain areas to replace 120% of that required for essential infrastructure;
 - d. disposal of surface water to be by the use of sustainable urban drainage systems (SUDS); and
 - e. water conservation measures to be promoted, to reduce both potable water usage and surface water discharges from the development.

- 6.7 The water quality in the existing watercourses on the site has also been investigated to enable the impact of proposed discharges to be assessed.
- 6.8 The responses to various consultations undertaken since submission in July 2003 of the original application, including those of the EA, have been taken into account in the preparation of this chapter. The proposals set out in this chapter are a system of sustainable drainage, which as previously seeks to recharge ground water just the same as the earlier version. The system proposed which makes more use of drainage basins is more readily maintainable, a benefit identified in consultations.

Baseline Conditions

Geology and Groundwater Conditions

- 6.9 The geology and groundwater conditions remain unchanged since the original submission. The NC site is situated to the east of the River Exe Catchment and lies on a mixture of Aylesbeare Mudstone (Lower Marl) and Dawlish Sandstone (BGS Sheet No. 325, Exeter). Alluvial drift deposits and river terrace gravels overlie the solid formations to the north and east of the site.
- 6.10 The geology immediately to the west and downstream of the site is underlain by a highly permeable major aquifer (Dawlish Sandstone) of high to intermediate leaching potential with the loosely or uncemented sandstone having high permeability and potential for significant water storage.

Table 6.1: Location and Use of Water Abstractions within and near the NC Site

Abstraction Point Name	Distance from Site Boundary	Direction	Surface Water / Groundwater	Daily Rate (m³)
South Whimple Farm	On-site	-	Groundwater	18
Young Hayes Farm	On-site	-	Groundwater	14
Tillhouse Farm	On-site	-	Groundwater	27
Tillhouse Farm – well 2	On-site	-	Groundwater	Unknown
Unknown (adjacent to Tillcrest)	On-site	-	Groundwater	14
Ingrams Nurserys	On-site	-	Groundwater	Unknown
Stillwoods Farm	On-site	-	Groundwater	Unknown
Elbury Farm	On-site	North	Groundwater	156
Rockbeare Court	30m	East	Groundwater	227
Stillwoods Farm	50m	East	Groundwater	Unknown
Nursery, Rockbeare	50m	East	Groundwater	109
Crannafor Farm	80m	North	Groundwater	9
Ilford, Broadclyst	140m	North east	Groundwater	0.2
Rockbeare Court Farm	180m	East	Groundwater	Unknown
Lower Cobden Farm – groundwater fed reservoir	240m	North east	Groundwater	364
Elbury Farm borehole	250m	North west	Groundwater	Unknown
Middle Cobden Well	310m	East	Groundwater	Unknown
Little Slades, Rockbeare	455m	South east	Groundwater	3.2
Rockbeare Court – groundwater fed reservoir	460m	South	Groundwater	227
Oaklee Well	555m	South west	Groundwater	Unknown
Little Cobden - well A (domestic)	590m	East	Groundwater	Unknown
Little Cobden - (agricultural)	590m	East	Groundwater	9.10
Higher Cobden Farm borehole	630m	North east	Groundwater	Unknown
Mr L Courtney	640m	South	Groundwater	5.5

		west		
Rewe Farm, Rockbeare	720m	East	Groundwater	Unknown
Treasbeare Farm	745m	South	Groundwater	Unknown
Wishford Farm (National Trust) (spring 2)	780m	West	Groundwater	9
Lomyns Coppice Farm	830m	South east	Groundwater	unknown
Wishford Farm (National Trust) (spring 1)	840m	West	Groundwater	unknown
Brookhill, Broadclyst	885m	West	Groundwater	Unknown
Ford Farm	910m	South east	Groundwater	Unknown
Churchill Farm	980m	North east	Groundwater	Unknown

- 6.11 Within the River Clyst sub-catchment there is one surface water abstraction and several groundwater abstractions from the underlying sandstone, most of which are minor and unlicensed, with water being used for agricultural purposes. The approximate location (but not necessarily the licence holder) and most recent volumes licensed for abstraction from those in the immediate vicinity of the site are detailed in Table 6.1.
- 6.12 There are no Groundwater Protection Zones (GPZs) within the Clyst catchment although the site area to the west of Rockbeare Stream is designated a NVZ. The development of this area will have a beneficial effect on the potential for contamination of the NVZ. Further details on historical uses of the site and an evaluation of the potential risk of ground and groundwater contamination are presented in March 2005 ES Chapter 4.0 (Geology and Contamination).

Surface Water Features and Quality

- 6.13 The application site lies within the catchment of the River Clyst and sub-catchment of the Rockbeare Stream and Cranny Brook. There is a further minor tributary of the Cranny Brook that runs eastwards to the hamlet of Southbrook and a number of minor ponds and ditches on site. The extent of the catchments and route and location of watercourse features including the Rockbeare Stream and Cranny Brook are indicted on 1264/FC/01.
- 6.14 The Cranny Brook flows along the northern boundary of the site. It is classed as a Main River and is a tributary of the River Clyst, which lies approximately 2km to the west 1264/FC/01. River Quality Objectives (RQOs) are used by the EA for the management of water quality and these are derived using the River Ecosystem Classification Scheme. Water bodies are assigned classes which reflect the chemical quality required by different types of ecosystem. The Cranny Brook has been assigned a class of RE2 (good quality suitable for all fish species) this is compliant with the River Quality Objective target set by the EA to achieve at least RE3 (fair quality suitable for coarse fish population).
- 6.15 As well as the setting of River Quality Objectives for water quality, the EA carries out additional monitoring to establish the ecological quality of rivers. The Cranny Brook in the vicinity of the site is classified under the General Quality Assessment Scheme as Class B (Fairly Good). Further upstream at Whimple, the Cranny Brook is Class B (Fairly Good).
- 6.16 Land use in the Clyst catchment is chiefly dairy farming, which continues to be a source of pollution with water quality suffering from organic enrichment. However, the introduction of Farm Waste Management Plans in this area by the DEFRA has improved water quality. Other pollution incidents in the area are described as minor, with fifteen incidents reported since 1993, all of which have been recorded as category 3, minor, with the exception of two incidents involving the release of crude

sewage from Water Company controlled operations attributed to poor/inadequate maintenance.

- 6.17 There are several other watercourses on and near the site. Rockbeare Stream flows through part of the site. Passing to the east of Young Hayes Farm, it has its confluence with Cranny Brook at the northern edge of the site and is classified as Non-Main River. A further un-named watercourse flows west across the site from Higher Southbrook to its confluence with Cranny Brook at Crannafor Bridge. Road and field drainage is channelled into this watercourse which normally carries a small, but noticeable flow. However, bank erosion and flattened vegetation on either side of the stream course indicated much greater flow within the channel in the recent past.
- 6.18 Three land drains have been identified within the site, situated along existing field boundaries. One lies immediately north of Blue Hayes Farm in the north east of the site, a second has been identified draining land at Tillhouse Farm to Cranny Brook. The third drains fields to the north of Jack-in-the-Green before following the loop of the road to Crannafor Crossing to discharge to Cranny Brook to the west of the bridge. Within the site boundary there are several small ponds.
- 6.19 Discharges to watercourses in the vicinity of the site are mainly associated with local septic tank overflows and surrounding farm properties. These are detailed in table 6.2.

Table 6.2: Locations and Nature of Current Licensed Discharges Within and Near the NC Site

Source	Distance From Site Boundary	Direction	Discharge Type	Receiving Water
Tillhouse Farm	On site	-	Trade discharges – process effluent	Cranny Brook
Higher Southbrook – domestic property	On-site	-	Final treated effluent	Tributary of Cranny Brook
Domestic property, Higher Southbrook	On-site	-	Final treated effluent	Tributary of Cranny Brook
Southbrook Farm	On-site	-	Unknown	Unknown
South Whimple Farm	30m	South west	Unknown	River Clyst
Lower Cobden Farm	75m	North	Final treated effluent	Tributary of Cranny Brook
Elbury Farm, Rockbeare	280m	North west	Trade discharges – process effluent	Cranny Brook
Little Slades, Rockbeare	360m	South east	Treated sewage effluent	River Gannel
Domestic Property Rockbeare	360m	South east	Final treated effluent	Soakaway
Domestic Property Rockbeare	450m	South east	Miscellaneous	Tributary of Cranny Brook
Retail Distribution	460m	West	Trade discharges – site drainage	Tributary of River Clyst
Rockbeare Quarry	480m	South east	Trade discharges – site drainage	Tributary of Allercombe Brook
Retail Distribution	520m	West	Trade discharges –site drainage	Tributary of River Clyst
Shermoor Farm	560m	West	Unknown	River Clyst
Airport	580m	South west	Treated sewage effluent	Blue Stream
Hayes Quarry	610m	South west	Trade discharge – mineral workings	Tributary of River Clyst
Domestic Property	640m	East	Treated sewage effluent	Unnamed watercourse

Domestic Property	840m	East	Treated sewage effluent	Soakaway
Saundercroft (Livestock production)	860m	North	Trade effluent – site drainage	unknown
Domestic Property (Brockhill Hall)	890m	West	Treated sewage effluent	River Clyst
Domestic Property (Brockhill House)	890m	West	Treated sewage effluent	River Clyst
Ford Farm, Rockbeare	900m	South east	Trade discharges – process effluent	Marsh Green Brook

- 6.20 The underlying geology is classified as a major aquifer of variable vulnerability. This provides baseflow to the Cranny Brook and other watercourses. An investigation into the extent and nature of low flows due to abstraction, including a review of Licenses of Entitlement, has been completed by the EA as part of the R Exe CAMS published, since the original submission, in February 2004. Within the River Exe catchment the River Clyst is not one of the major concerns with regard to low flows.
- 6.21 The site area is identified in the CAMS as being within Water Resource Management Unit 5 (surface water) incorporating a key assessment point at Clyst St Mary. Analysis of the current abstraction and discharge regime has led to the EA classification of this Unit as having “*Water likely to be available. Restrictions may apply*”.
- 6.22 While the report acknowledges some naturally occurring low flow issues in the upper part of the Clyst catchment, the proposed EA management strategy for the Unit is to allow further abstraction but without compromising the river flow requirement, particularly in the upper catchment.

Surface Water Hydrology and Flooding

- 6.23 The soils within the study area vary, but are predominantly slowly permeable reddish fine silty and fine loamy soils, susceptible to water logging, which generally give rise to rapid response to storm events. Land drainage within the Clyst catchment is generally a natural system, with extensive field drainage entering the river system.
- 6.24 The River Clyst has been subject to routine flood maintenance work involving minor channel clearance schemes. A flood defence scheme for Clyst Honiton, to the east of the site, has also been constructed. This comprised the construction of new flood defence walls to prevent overtopping of the River Clyst and new culverts beneath the former A30 to improve catchment flow and prevent excessive backwater effects.
- 6.25 Other flood alleviation schemes in the area have included general clearance and desilting of flap valves at Clyst Banks and Clyst St Mary. General flood warnings are given for the Clyst catchment and tributaries. Properties on the Clyst at Sowton Village, approximately 4 km downstream from the site, are identified by the EA as being at “flood risk”. Properties on Station Road to the west of the site are also currently at flood risk and the northern part of the site includes the Cranny Brook and Rockbeare Stream flood plain. Properties upstream of the site at Whimble and Rockbeare have also experienced flooding.
- 6.26 The River Clyst catchment downstream of the site is relatively important in terms of fisheries supported. Part of the River Clyst is a Designated Cyprinid Fishery under the European Commission (EC) Directive (*EC Quality of Freshwaters Needing Protecting or Improvement in Order to Support Fish Life (78/659/EEC)*). This designation stretches from the confluence with Aylesbeare Stream, approximately 3km south of the site, to the point where it discharges to the Exe Estuary.

- 6.27 The Clyst is not an important salmon or sea trout fishery although a salmon parr has been recorded in the Cranny Brook at Crannaford in surveys undertaken in the year 2000. The Cranny Brook supports brown trout and a coarse fishery - the long term River Quality Objective for Cranny Brook is to encourage brown trout spawning in the stretch of brook past the site.
- 6.28 The River Clyst to the west of the site is characterised by a normal river channel which meanders down an extensive flood plain. Flooding occurs routinely in relatively low return period events. Some developed areas in the lower reaches of the catchment, such as Clyst St Mary, have been protected against flooding.
- 6.29 The Cranny Brook leaves the River Clyst at Mosshayne and then follows a line generally eastwards passing under Station Road, Broadclyst in a culvert. This culvert routinely floods in relatively low return period events and the structure permits flood flow to occur across the road in a number of locations forming a Dutch ford. The footpath is carried on a causeway above the flood plain.
- 6.30 The River Cranny then crosses underneath the Exeter/Waterloo Railway line at Black Bridge before splitting into the Cranny Brook heading north east to Whimble and the Rockbeare Stream south east to Rockbeare.
- 6.31 The Rockbeare Stream and Cranny Brook, as they pass through the NC site, are characterised by well-defined watercourses with steep sides and typical channel sections of around 2m wide by 1m deep. The landform generally rises gently away from the watercourses providing a well defined flood plain.
- 6.32 The EA flood plain maps have been updated since submission of the original Application. This update does not take into account the detailed surveys and analysis undertaken in support of this Planning Application and so the analysis set out below further updates the Agency's own records.
- 6.33 A detailed analysis of catchment flows and extent of flood plain for the Cranny Brook and Rockbeare Stream as they pass through the site was carried out for the July 2003 / March 2005 applications and has been updated and approved since further refining the information available.. The further studies have been based upon detailed topographical survey and calculated catchment flows in accordance with methodologies outlined in the Flood Estimation Handbook. The details of the March 2005 analysis are contained within Appendix 6/2 of the March 2005 ES document. Details of the further analysis are contained in Appendix 6 of this document.
- 6.34 The extent of the baseline flood plain for the 1, 100 and 1000 year return period events has been agreed with the EA and are shown on drawing 1264/FL/01. These flood limits effectively update the flood plain maps held by the EA and the impact of the development has been assessed against these agreed flood extents. Proposed landscape and ecological enhancements within the Rockbeare and Cranny Brook floodplains, have also been modelled and agreed with the EA to predict the extent of the 1 in 100 and 1,000 year flood event envelopes as a result of the proposals. The detailed background to these proposals and the assessments is contained in the addendum report contained within Appendix 6 of this document.
- 6.35 Further tributaries of the Cranny Brook rise in or near to the eastern part of the site and join the Cranny Brook at Crannaford Bridge and Lower Southbrook. One of these drains from Higher Southbrook across agricultural fields, following the line of a hedgerow field boundary to join Cranny Brook to the east of Crannaford Crossing. A further tributary of Cranny Brook flows from Lower Cobden across agricultural fields outside the site boundary to the east to its confluence with Cranny Brook at Lower Southbrook.

- 6.36 The extent of flood plain associated with these watercourses is also identified in the flood plain mapping contained in drawing 1264/FC/02. These sub-catchments will be significantly urbanised by the development and so the flow of water into these watercourses will be regulated. The design of the surface water drainage system for the development will re-use these watercourses to convey flows to the main rivers in a managed way and so the extent of flood plain will be defined by the development proposals and the surface water drainage strategy.

Surface Water Runoff

- 6.37 There are no adopted public surface water sewers in the site area at present and so all existing surface water runoff historically runs to local soakaways or into the local land drainage system via field ditches.

Foul Drainage

- 6.38 Records of the existing sewerage network in the immediate vicinity of the development site, and for the wider network, have been obtained from South West Water and are indicated on drawing 1264/DR/04.

- 6.39 The area of the site drains at present to the Countess Weir treatment works at Exeter. The sewerage network from the site to the treatment works comprises sections of gravity sewer and a pumping main with principal pumping stations at Clyst Honiton and Blue Ball as indicated on drawing 1264/DR/04.. Once pumped into the Exeter catchment via the Blue Ball pumping station the network utilises gravity sewers before passing beneath the River Exe by means of a siphon to arrive at the works.

- 6.40 South West Water has advised that there is limited capacity in the existing sewerage system to cater for additional development, although the existing treatment works does have adequate capacity.

Predicted Effects

Construction Phase

- 6.41 The construction of the NC will be carried out using best practice techniques. Where best practice techniques provide essential mitigation, the significance of the impact of the developments proposal has been assessed both before and after mitigation.

Flood Plain and Hydrology

- 6.42 Disturbance to the existing natural drainage regime across the site, coupled with the generation of dust and loose surface materials caused by construction activities could be expected to result in temporary alterations to the flow regime and sediment load of run off to local watercourses. This in turn could be expected to affect flow patterns within both Cranny Brook and Rockbeare Stream. This would be more likely to be evident in the winter months, during periods of heavy or prolonged rain.

- 6.43 Unmitigated this could be expected to result in an adverse impact on the localised flood plain and watercourses.

Surface Water Quality

- 6.44 The key sensitive surface water receptors likely to be impacted upon by the NC comprise:

- a. Cranny Brook.

- b. Rockbeare Stream.
- c. Unnamed brook from Lower Southbrook to Crannafor Lane
- d. A number of field drains will be directly disturbed or lost.

Removal of Vegetation Resulting in Increased Sedimentation in Surface Water Features

- 6.45 The removal of surface vegetation as a precursor to development will result in temporarily reduced stability in the top soil layers and a subsequent increase in wind blown sediment reaching surface water features, specifically Cranny Brook and Rockbeare Stream. Sediment can also originate from stockpile, plant and wheel washing and from site roads. Unmitigated, the magnitude of this impact is largely weather dependent, however it could be expected to result in a temporary adverse impact on both the chemical and biological quality of Cranny Brook and Rockbeare Stream.

Potential Contamination of Surface Water Runoff and Groundwater from Construction Activities

- 6.46 The operation of construction vehicles, general construction activities and development of site construction compounds gives rise to the potential for run-off to be contaminated with hydrocarbons, suspended solids and construction materials. This could result in a temporary impact on the chemical and biological quality of surrounding surface water features, particularly Cranny Brook and Rockbeare Stream.
- 6.47 Cranny Brook is currently classified as Grade B (Good) to the south of the site and Grade B (Good) upstream to the east. A construction development of this size and nature in proximity to these features increases the likelihood of temporary release of pollutants to surface water. The magnitude of this potential impact will be substantially reduced as a result of the mitigation afforded by the open space allocation within the Framework Plan to the areas immediately adjacent to both Cranny Brook and Rockbeare Stream and through the Construction Environment Management Plan which forms part of the mitigation strategy.

Operational Phases

Flood Plain and Hydrology

- 6.48 The Framework Plan reflects the extent of the existing and future flood plains as identified within the baseline section of this report, and shows that development is completely outside of the flood plain. Whilst the requirement of PPG25 (*Planning Policy Guidance note 25: Development and Flood Risk*, 2001) are that development should not encroach upon the 1 in 100 year return period flood plain, the Framework Plan has been designed to minimise the risk to the development by not encroaching on the 1 in 1000 year flood plain.
- 6.49 PPG25 permits the provision of essential infrastructure in the flood plain if suitable local replacement flood plain is provided. Essential infrastructure is only proposed within the flood plain in the form of the railway station and part of the main street through the NC which provides access to the station and crosses the valley of the Rockbeare Stream.
- 6.50 The proposals for access to the station, critically by public transport, are essential to ensure the effectiveness of the multi-modal transport strategy for the NC. The

proposed highway link to the station therefore addresses the needs of the transport strategy and minimises the scale of essential infrastructure in the flood plain. The net effect is a significant reduction of land take for essential infrastructure in the flood plain which is mitigated in any event by the provision of additional flood plain storage.

- 6.51 It is therefore anticipated that the impact of NC on the local flood plain would be “minor” unmitigated, but will be insignificant following the implementation of the design mitigation set out later in this chapter. Indeed the mitigation has been designed to produce a net benefit in terms of flood storage.

Other Flood Plain Effects

- 6.52 The existing flood plain of the minor tributary of the Cranny Brook running through the site to Higher Southbrook is affected by development. This catchment will be brought within the development and the flows into the watercourse managed to ensure that future flows equate to those experienced in the past. The means of achieving this are set out within the mitigation section of this chapter. The current Development Framework Plan provides for the exclusion of the flood plain of the tributary from the areas of development within the new community. Earlier submissions were not explicit in this regard.
- 6.53 Urbanisation of a rural catchment through development inevitably brings the potential for flood risk in extreme events. However the use of SUDS within development, in accordance with PPG25, significantly mitigates the effect. In addition, the effect of the urbanisation of the catchment in high return period events is reduced as the runoff from the development is relatively small when compared to the overall catchment runoff. The effects of development on the overall catchment in extreme events are therefore minor.
- 6.54 There are no other effects related to flooding associated with the new community. A number of off site schemes are proposed to reduce the impact of existing flooding and these are also set out in more detail in the mitigation section of this chapter.
- 6.55 The nearest existing settlement to the application site at Rockbeare is around 1.2km upstream. The landform also rises by around 5 metres upstream along the valley. There will therefore be no effect from the NC on the flow conditions in Rockbeare.
- 6.56 As a result of the flow management measures proposed as part of the NC, a moderate beneficial impact on the local flood plain is expected.

Loss of/Disruption to Surface Water Features

- 6.57 A number of surface water features are likely to be subject to minor alteration or disturbance as a result of construction.
- 6.58 Watercourses will in general be retained as part of the development proposals, although a number of culverts will be necessary where such features are to be crossed by essential highway infrastructure. These crossing will be localised to the essential infrastructure and as such limited in extent. Accordingly, the works to be carried out on the watercourses are likely to have only a minor (adverse) impact on the existing drainage regime.

Surface Water Quality: Contaminated Surface Runoff Reaching Natural Water System.

- 6.59 Surface water runoff from the road surfaces may be contaminated with hydrocarbons, silt and other substances (trace metals), although the use of trapped gullies will mitigate this impact. The development of a drainage strategy

incorporating a Sustainable Urban Drainage System (SUDS) utilising some natural attenuation measures such as attenuation ditches will aid the treatment of contaminated surface water run-off, particularly with regard to settlement of silt and adsorbed trace metals and hydrocarbons.

- 6.60 With the implementation of water quality management measures with a Sustainable Urban Drainage System for the NC, the impact of possible contamination reaching the natural watercourses is considered to be insignificant.

Accidental Leaks and Spills

- 6.61 Accidental leaks and spills, predominantly from hydrocarbons from vehicles utilising streets within the NC, or from specific uses associated with employment land uses, present the potential to pollute local receiving waters. With the implementation of appropriate mitigation measures, this impact is expected to be insignificant.

Mitigation Measures

Construction Phases

- 6.62 Management of construction activities will be required to mitigate the impacts on watercourses. It is anticipated that this will be regulated through a CEMP which will identify appropriate measures to be taken.
- 6.63 Typical measures to mitigate the construction effects on various elements of the water environment are set out below.

Flood Plain Effects

- 6.64 Site runoff will be actively managed during construction through the utilisation of the drainage system being constructed, and through the use of small temporary attenuation areas local to the part of the site under construction. The attenuation areas will provide a flow balancing measure to control flow to natural surface watercourses, in addition to which the attenuation areas will provide a settlement function for sediment to reduce discharge of sediment-laden runoff to the watercourses.

Surface Water Quality: Loss of/disruption to Surface Water Features

- 6.65 The implementation of a suitably designed Sustainable Urban Drainage System is expected to provide adequate mitigation for the anticipated construction impacts and result in no significant residual effect. The opportunities for surface water drainage management and SUDS on this site are further discussed in the Surface Water Runoff section.
- 6.66 The creation of new culverts on an ordinary (non-main river) watercourse requires Land Drainage Consent under Section 23 of the Land Drainage Act 1991, in the event that:

"the culvert would be likely to affect the flow of any watercourse or alter any culvert in such a manner that would be likely to affect any such flow"

- 6.67 Suitable design and construction of the required culverting will be agreed with the EA prior to construction commencing.

Surface Water Quality: Removal of Vegetation Resulting In Increase Sedimentation in Surface Water Features

- 6.68 *Environment Agency Pollution Prevention Guideline 5: Works In, Near or Liable to Affect Watercourses* recommends a range of mitigation measures to reduce the opportunity for silt/sediment to reach surface watercourses. Those of particular relevance to these proposals will be adopted and are described below.
- 6.69 The amount of exposed ground and stockpiled topsoil should be kept to a minimum. This can be achieved by seeding or covering stockpiles and/or by the use of siltation fencing. Any temporary discharge to the Cranny Brook during construction will pass through small attenuation ditches of suitable size prior to discharge to allow solid particles to settle out.
- 6.70 Site roads should be regularly brushed or scraped and kept free from dust and mud deposits. The inclusion of small dams in roadside ditches may assist silt retention and reduce sediment release to surface water.
- 6.71 Silt management measures could be expected to reduce significantly the identified impacts, although they are dependent on weather conditions and may not eradicate them completely. A minor (negative) but temporary residual impact can be expected.

Potential Contamination of Surface Water Runoff and Groundwater from Construction Activities

- 6.72 In order to mitigate the impact of potential contamination of surface water runoff and groundwater from construction activities, all construction site works will be undertaken with suitable temporary drainage measures installed in accordance with the EA's Pollution Prevention Guidelines, in particular:
- *Pollution Prevention Guideline 1: General Guide to the Prevention of Water Pollution;*
 - *Pollution Prevention Guideline 5: Works In, Near or Liable to Affect Watercourses;*
 - *Pollution Prevention Guideline 6: Working at Construction and Demolition Sites;* and
 - *Pollution Prevention Guideline 8: Safe Storage and Disposal of Used Oils.*
- 6.73 Site runoff will be managed by the appropriate use of temporary bunding and settlement ponds to ensure the protection of water quality in Cranny Brook and Rockbeare Stream from sediment load and contaminants. Temporary run-off settlement ponds are beneficial in that they allow for isolation and on-site treatment of sediment laden or chemically contaminated surface runoff before they pose a risk to the aquatic environment.
- 6.74 The measures adopted will address the management of vehicles plant and materials in such a way as to minimise effectively the risk posed to the aquatic environment, eg. Chemicals will be properly stored.
- 6.75 Provided the mitigation measures are implemented, the potential residual effect is considered to be of minor (adverse) significance.

Operational Phases

Flood Plain and Hydrology

- 6.76 The extent of the existing flood plain has been identified and agreed with the EA. No development other than essential infrastructure is proposed to be built in the flood plain. The development is therefore classified as being in PPG25 Flood Zone 1 with an annual probability of flooding of less than 0.1%.

- 6.77 Essential infrastructure proposed within the flood plain consists of the railway station and the main street through the NC which provides access to the station and crosses the valley of the Rockbeare Stream. The expected resulting impacts on the flood plain will be mitigated with replacement flood plain storage as set out below.
- 6.78 The revised Development Framework Plan reduces the impact on the flood plain from essential infrastructure as set out below.

Railway Station

- 6.79 The extent of the railway station and associated access roads within the flood plain has been considered. The layout and the level requirements of the associated access roads to ensure that the station is accessible in times of flood have been identified through the flood modelling exercise.
- 6.80 Station access is proposed to be kept above the level of the 1 in 1,000 year flood event to ensure no disruption to travellers and ensure that access can be maintained to the station during this severe event. Car parking is also proposed to be at this level providing full protection for parked cars at the 1 in 1,000 year event.
- 6.81 The flood storage volume of the 1 in 1000 year event occupied by the station and access roads will be replaced by the creation of new flood storage areas at a point as close as reasonably possible to the area of loss. This will provide a 20% increase in flood storage volume compared to that lost to the infrastructure.
- 6.82 In addition the station access road will have a number of flood culverts, to permit flood water to pass through without adversely affecting the integrity of the road construction.
- 6.83 The provision of the additional flood plain storage will mitigate entirely the impact of the station construction on the flood plain and so the impact will be beneficial.

Rockbeare Stream Crossing

- 6.84 The design level of this road across the valley is proposed to be above the 1 in 1,000 year flood level thereby ensuring that access can be maintained through the development during this severe event. The design fundamentals have not changed in the revised proposals.
- 6.85 The road will cross the Rockbeare Stream by means of a culvert with suitably faced wing walls to match the adjacent bridge on the former A30. Additional flood culverts will be provided to pass flood flows through the required embankment. At its highest point this embankment will be around 1.7m above existing ground levels. The highway embankment will be perforated with a number of flood culverts to permit flood flows to pass through without adversely affecting the integrity of the embankment. The proposed arrangements for this culvert crossing are outlined in Appendix 6/2 of the March 2005 ES document.
- 6.86 The volume of the flood plain at the 1 in 1000 year level lost through the provision of the highway embankment has been replaced up stream of the embankment on both sides of the flood plain. A net increase in flood storage of 20% is provided. The calculations and sections indicating the existing and proposed ground levels in this location are contained in Appendix 6/2 and are unchanged in the revised proposals.
- 6.87 The provision of additional flood plain storage to replace that occupied by the road crossing will entirely mitigate the impact on the flood plain. Following these mitigation measures the effect on the flood plain will therefore be beneficial.

Off Site Flood Management Measures

- 6.88 In addition, proposals for off site flood benefit are made to mitigate further the effects on the flood plain. The anticipated works are described below, none of which would cause any adverse impact to other locations up or downstream.
- 6.89 The existing highway culvert beneath Crannaford Lane has become partially blocked through years of inadequate maintenance. This has the effect of causing flow across the road in times of flood which occur on around an annual basis. It is therefore proposed to clean the existing culvert to improve the hydraulic efficiency of the existing culvert.
- 6.90 These works will provide a minor benefit to the accessibility of the area by providing adequate culvert capacity and so reducing the frequency of flooding of the road to less than an annual frequency.

Surface Water Runoff and Sustainable Urban Drainage

- 6.91 The principal measure to mitigate the additional surface water runoff caused by development is the adoption of SUDS in accordance with current government and EA policy to restrict site runoff to that of existing green field runoff rates.
- 6.92 An underlying principle for SUDS is to dispose of as much surface water runoff into the ground as possible local to the source of runoff. In this way, ground water levels can be easily and constantly recharged. Where direct discharge to ground at source cannot be achieved the runoff should be attenuated on site as close to the source as possible, with re-use of stored rainwater if possible. The attenuation system should limit discharge into the catchment watercourses to that of the existing green field prior to development.
- 6.93 To underpin the assessment of a surface water drainage strategy, an assessment of the percolation capacity of the soils and subsoils on the site has been undertaken. The percolation results from the study are contained within chapter 4 (Geology and Contamination) of the March 2005 Environmental Statement.
- 6.94 The development site is underlain by a number of different strata with varying degrees of percolation. The extent of each stratum underlying the site is indicated on figure 4.2 of the March 2005 ES. Site percolation tests have been carried out generally in accordance with CIRIA Note 156 to identify suitable parameters to assess the extent of infiltration drainage which may be possible.
- 6.95 These investigations indicate that to the west of the site, where soils are relatively permeable there is scope for the use of infiltration and the disposal of surface water runoff directly into the ground. Infiltration drainage is unlikely to be possible at large scale in the mudstones and silts that predominate the underlying soil conditions in the east of the site. In these areas alternative means of controlling runoff will be necessary.
- 6.96 There are a number of means of controlling disposal of surface water runoff, known generically as SUDS. In addition to infiltration measures these include the following:
- attenuation ditches;
 - small scale attenuation ponds;
 - swales;
 - attenuation storage tanks; and
 - tank sewers.

- 6.97 The principle of all of these systems is to limit the runoff from the development to that of the existing green field. Typical values for green field runoff rates across the site have therefore been assessed in accordance with guidance from DEFRA. This is dependant upon a number of parameters such as catchment area, catchment length, gradient, prevalent crop type, annual rainfall and underlying soil type. The calculations for green field runoff rate are contained within Appendix 6/3 of the March 2005 ES. A design rate of existing green field runoff of 7 l/s/ha has been adopted for the 1 in 1 year design event and this is taken as the discharge from attenuation devices.
- 6.98 The final sizing of the SUDS measures is dependant upon the detailed arrangement of the development blocks on the site, however the initial assessment made for the March 2005 ES has been further developed. The proposed drainage strategy is outlined in Appendix 6 of this document. Attenuation ditches and small ponds will typically be around 1-1.5m deep with sloping sides and shelves to allow suitable landscape planting. In improving the ecological benefits of the scheme, below ground storage tanks, are no longer proposed, with the exception of on-plot infiltration devices.
- 6.99 The landform naturally divides the site into a number of distinct drainage catchments. In the west of the site, use is made of the more permeable ground and a surface water sewerage system linking to a soakaway system is proposed. Soakaways and infiltration devices will be designed in accordance with best practice standards to empty in a period of 24 hours. Infiltration systems will generally be employed to the west of the site, where the prevailing ground conditions are appropriate.
- 6.100 In the centre and north of the site the land naturally falls towards Cranny Brook and Rockbeare Stream and therefore in this area attenuation systems are proposed which generally utilise a ditch and linear detention system, with limited discharge back into the watercourse along the development edge.
- 6.101 Conventional private and adopted pipe networks will collect surface water runoff from roads, paved areas and development plots. These will then discharge locally to an attenuation ditch. A number of control structures throughout the features will limit the discharge into the adjacent watercourse to the existing green field rate of 7l/s/ha.
- 6.102 All above ground attenuation systems are designed to accommodate the 1 in 100 (plus 20% for climate change) year storm, which is in excess of that usually required, and to empty within 24 hours. The pipe network serving the attenuation system will provide additional storage in storm events. The attenuation ditches will be predominantly dry, with wet low flow channels, when not in flood and will through design preclude use by flocks of birds and enhance local habitat.
- 6.103 The surface water drainage strategy is illustrated in Appendix 6 of this document on drawings 1264/DR/01 and 1264/DR/02.
- 6.104 Runoff will also be reduced by the provision of rainwater harvesting in water butts for the purposes of garden irrigation, however adopting a precautionary approach, the beneficial effect of the same has not been included within the assessment.
- 6.105 The various attenuation and infiltration measures proposed will control surface water runoff from the site to that of the existing green field runoff. The impact of potential additional runoff on watercourses and flood plains is therefore mitigated resulting in a neutral impact from surface water runoff. The implications of the drainage strategy in relation to birds and the proximity of Exeter Airport is addressed in section 8 of this report.

- 6.106 In the rare event that rainfall occurs which overwhelms the capacity of the sewer system, it is a requirement of the EA, and guidance in PPG25, that a route should be identified through the development whereby overland flows would be guided back to the watercourses without causing significant property damage. Such a route has been identified and the details are contained in Appendix 6/2 of the March 2005 ES.
- 6.107 It is a further requirement of PPG 25 (Appendix F) that Flood Risk Assessment should be carried out for significant developments. Such an assessment has been undertaken for the NC and the details are contained in Appendix 6/4 of the March 2005 ES and developed in the document in Appendix 6 of this document.

Surface Water Quality and Sustainable Urban Drainage

- 6.108 A further key function of SUDS is to provide the opportunity for pollutant management and cleansing of surface water prior to discharge to the surrounding natural water regime.
- 6.109 The principal source of contaminants in surface water runoff is from highway drainage. All highway drainage systems will be provided with trapped gullies and suitable interception facilities will be provided where necessary to mitigate this impact.
- 6.110 Where runoff is routed through an attenuation ditch prior to discharge to watercourse additional benefits are gained from the opportunity for sediments to settle out of surface water and for a degree of removal of nutrients, trace metals, coliforms and organic matter. The retention of surface water will also permit the biological degradation of pollutants.
- 6.111 The EA Pollution Prevention Guidance 3 provides guidance on the use and design of oil separators in surface water drainage systems. This guidance will be taken into consideration during detailed drainage design.
- 6.112 The current drainage proposals make provision for various surface water attenuation features on the site. These features will provide an opportunity for some flow attenuation at the same time as providing a possible landscape feature adjacent to the proposed country path. This would also provide limited opportunity for the sediment load of surface water runoff to settle out, prior to discharge to Cranny Brook.
- 6.113 The mitigation benefits of attenuation ditches, suitably planted and managed, are numerous. The size of each facility and the planting measures employed, would not attract significant flocking bird life.
- 6.114 The impact of the development upon water quality is therefore mitigated and is assessed as a neutral impact.

Foul Drainage

- 6.115 The effects of foul discharges from the site will be mitigated by the proposed foul sewerage network on-site and the off-site capacity enhancements to be undertaken by South West Water (SWW).
- 6.116 Foul discharges from the site will be collected by means of an on-site foul sewer system. An assessment of the likely requirements for this network has been carried out and a foul drainage strategy prepared. The details and calculations for this are contained in Appendix 6/5 and the indicative foul sewer network is indicated on drawing 1264/DR/03.

- 6.117 The construction of a new foul sewer system may also present the opportunity to provide mains drainage to existing properties in the new community thus reducing the potential risks of pollution incidents from septic tanks with a resultant benefit.
- 6.118 Consultations have been undertaken with SWW to determine the likely requirements for upgrading of their system away from the immediate site environs. As set out above there is limited capacity in the existing sewer network to accept additional discharges and so some upgrading of the existing downstream network will be required.
- 6.119 The works downstream of the site will be undertaken by South West Water. South West Water currently propose a new sewage treatment works in the Upper Clyst catchment to specifically provide capacity for the NC and other development within the geographical area of the site. The current proposals are being developed in consultation with the EA. It is not possible to assess the environmental impact of those proposals within this document at the present time because of the lack of detailed knowledge regarding those proposals. A new works will be subject to an environmental assessment at the appropriate time.
- 6.120 By way of assessing alternatives, should the current strategy to develop a new foul water sewage treatment works near the site not be implemented, the site will revert the proposals outlined in the March 2005 ES, being to convey waters to the Countess Weir Sewage Treatment Works. The detail and calculations for this are set out in Appendix A6/5 of the ES and may require capacity enhancements.
- 6.121 Current EU Directives require an acceptable standard of discharge from waste water treatment plants and other sewerage infrastructure. It is the responsibility of the sewage undertaker, in this case South West Water, to comply with these directives. SWW therefore has a responsibility to ensure that the measures required to achieve a satisfactory means of disposal of wastewater from the development site will not adversely affect any current discharges from the sewerage network.
- 6.122 The works to be undertaken by SWW will also enhance the available network storage capacity and so reduce the likelihood of operation of foul sewage overflows within the SWW network.
- 6.123 The effects of additional foul discharges due to development, in each alternative mitigation scenario, will be mitigated by the provision of suitable on and off site infrastructure and so there will be a neutral impact associated with foul drainage.

Residual Impacts

Flood Plain and Hydrology

- 6.124 The mitigation measures proposed for the EDNC will limit surface water runoff from the site to that of the existing green field rate.
- 6.125 Only essential infrastructure is proposed in areas of existing flood plain. Replacement flood plain is provided local to those areas lost with a net increase of flood plain volume in these areas.
- 6.126 The only residual impacts associated with flood plains are therefore the change in landform associated with the provision of flood plain replacement and the culverting of the existing watercourses where crossed by highways.

Surface Water Runoff

- 6.127 The effects of the surface water runoff generated by the development will be entirely mitigated on-site. In this extreme event rainfall would flow along roadways to the nearest watercourse.

Foul Drainage

- 6.128 Suitable measures are proposed to cater for the foul discharges from the site and there are therefore no residual impacts.

Surface Water Quality

- 6.129 It is anticipated that suitable and sufficient pollutant management measures can be built into the CEMP and the site drainage design to ensure that, under normal operating circumstances, there will be no residual effect on water quality.

Table 6.3 Summary Matrix of Water Resources Impacts, Following Mitigation

Issue	Description of impact	Geographical significance					Mitigation measures	Impact, significance and duration
		I	N	R	D	L		
Water resources	Construction effects							
	Disturbance to flow regime of local watercourses during construction						* Temporary attenuation measures	Adverse Insignificant Short term
	Removal of vegetation during construction resulting in increased sedimentation in local watercourses						* Settlement of sediment within temporary attenuation measures	Adverse Insignificant Short term
	Potential contamination of local watercourses from construction activities						* Appropriate storage of fuels, oils and chemicals. Management of construction traffic and plant	Adverse Insignificant Short term
	Impact on flood plain							
	Risk of on site flooding due to development in or adjacent to flood plain						* No development within 1000 year flood plain, except essential infrastructure (see below)	Neutral Long term
	Loss or disruption of existing surface water features						* Comprehensive Surface Water Drainage System	Adverse Minor Long term
	Loss of flood plain for infrastructure provision compensated by net increase in flood storage volume						* Beneficial	Beneficial Minor Long term
	Culverted road crossings of existing watercourses						* Sustainable Urban Drainage System will regulate flow. Replacement flood storage provision	Adverse Minor Long term
	Provision of local flood defences at Sunny Hayes						* Beneficial	Beneficial Moderate Long term
	Provision of culvert improvements at Crannaford Lane						* Beneficial	Beneficial Minor Long term
	Impact on volume of surface water runoff due to development						* Sustainable Urban Drainage System will ensure that runoff volume reduced to pre-development level	Neutral Long term
	Impact on speed of Surface water runoff due to development						* Sustainable Urban Drainage System will ensure that runoff speed reduced to pre-development level	Neutral Long term
	Impact on surface water quality							
	Contaminated surface water runoff reaching local watercourses						* Sustainable Urban Drainage System will filter water	Adverse Minor Long term
	Accidental leaks and spills						* Sustainable Urban Drainage System will filter water	Adverse Insignificant Short term
	Contamination of local water features with pollutants resultant from development						* Sustainable Urban Drainage System will filter water	Adverse Insignificant Long term
	Increase in foul discharges in catchment						* Capacity enhancements to ensure no impact	Neutral Long term

Key
I = International N = National R = Regional D = District L = Local

7.0 LANDSCAPE AND VISUAL

Introduction

- 7.1 This chapter provides “further information”, in accordance with EIA Regulations, to the Environmental Statement (ES) July 2003 and the Further Information on the ES March 2005 which has previously been submitted with the planning application for the East Devon New Community.
- 7.2 This chapter evaluates the minor amendments to the planning application: the Development Framework Plan (DFP) October 2006, the associated Density and Building Heights Plan and Application Site Boundary.
- 7.3 In this evaluation, due consideration is also given to the development of the drainage strategy and the further detailed site survey work (topography and veteran trees) where appropriate.
- 7.4 For ease of reference, this chapter cross-references to the plans and appendices contained within the Landscape and Visual ES chapter (Chapter 7) submitted as Further Information on the ES March 2005.
- 7.5 A Resolution to Grant consent has been issued, subject to section 106 agreement and submission of a number of strategies, including a Landscape, Biodiversity and Drainage Strategy (LBDS).

Methodology

- 7.6 The Tree Survey for Cranbrook was updated in 2005 to identify and classify trees in accordance with BS5937:2005 Trees in Relation to Construction - Recommendations, by Forbes Laird Arboricultural Consultancy (FLAC). This update included the assessment of locations, quality and value of trees, as well as an arboricultural assessment of veteran and potential veteran trees. In addition, the Tree Survey has been further refined in 2006 to provide further detail for the design process, including Root Protection Areas (RPAs), and accordingly has informed the revised DFP (October 2006) referred to in this assessment.
- 7.7 The Tree Survey data has already been submitted to East Devon District Council and will be included within the Final Issue of the Landscape, Biodiversity and Drainage Strategy. Therefore it is not necessary for the Tree Survey is not replicated in this Assessment document.
- 7.8 No other changes or updates have occurred to the methodology utilized for the Landscape and Visual Chapter of the Further Information on the ES March 2005.

Assessment of Minor Amendments to Planning Application

Changes to the Application Boundary

- 7.9 The amendment of the Application Boundary at the western end of the site, which formerly incorporated residential development and outdoor sports, results in the revised Application Boundary being set further away from Blue Hayes and its associated parkland. This reduces the effects upon Blue Hayes and its setting, however in the overall context of the site proposals and planning application, this is not deemed to result in a substantial change to those landscape and visual impacts identified in the Further Information on the ES March 2005.
- 7.10 The amendment of the Application Boundary at the eastern end of the site results in the boundary being extended to include a small additional area of land (see Section 2

of this assessment), for the purposes of outdoor sport. This change is incorporated within the revised DFP, which is assessed in the following paragraphs.

Changes to the DFP (drawing WCN028/AA/006) August 2006

1) Drainage

7.11 It is considered that the drainage strategy does not change those landscape and visual impacts previously identified in the Further Information on the ES March 2005.

2) Veteran Trees

7.12 Veteran trees, and borderline veteran trees, are now identified on the Development Framework Plan October 2006, and the development proposals have been revised to identify on the DFP a protection buffer around those veteran trees located within development areas.

7.13 The amendments to the Development Framework Plan avoid adverse impacts upon veteran trees. The retention of mature trees assists with the integration of new development in the countryside and provides a setting, and sense of place, to new development.

7.14 In terms of detailed assessment, this minor amendment is of benefit to the scheme. However, in the overall context of the site proposals and planning application, the landscape and visual impacts previously identified in the Further Information on the ES March 2005 are not substantially changed. This is in part due to the relatively small number of veteran trees present, and also because the strategy originally set out to retain the majority of trees and hedgerows within the strategic landscape framework and was assessed as such in the Further Information on the ES March 2005.

3) Sport and Recreation Provision

7.15 The details of these minor amendments are set out in Chapter 2 of this assessment.

7.16 3i) *exclusion of land at western end of the new community* – proposals for this area previously included tennis courts and associated roads and lighting. The relocation of this sports provision provides a benefit to the scheme in that the visual effects upon Blue Hayes are reduced.

7.17 3ii) *relocation of sports provision to the area behind proposed Primary School* – proposals for this area previously were for residential development. It is assumed that the outdoor sports and recreation land in this area will require floodlighting for all-weather pitches and / or tennis courts. This area benefits from hedgerow / hedgebank boundaries which will be managed appropriately and incorporate new tree planting, in order to provide screening to reduce the floodlighting effects from neighbouring new development and in mid to long distance views. The previous assessment gave due consideration to potential floodlighting of pitches proposed adjacent to the Primary School. It is considered that the landscape and visual impacts previously identified in the Further Information on the ES March 2005 are not substantially changed due to this minor amendment.

7.18 3iii) *relocation of playing fields at eastern end of new community* – part of this area was previously included within the application as proposed residential development, whilst the remainder was not and therefore had not been assessed previously. Although this minor amendment extends the application boundary across two small fields, this change provides some benefit to the scheme due to the proposed residential development now being set slightly further to the west.

7.19 Viewpoint 10 in the Visual Impact Assessment (Further Information on the ES March 2005) considers this location. The minor amendments proposed will result in

recreational land at the eastern edge of the new community. Lighting and activity will occur here although built development will be placed further west. As previously proposed, existing hedgerows at the boundary of the site will be retained and enhanced, and a new copse will be planted to the south-eastern corner of the playing fields. This new planting softens the interface between the new community and agricultural land and assists with its integration within the landscape.

- 7.20 The effect of this minor amendment is, in terms of the overall context of the new community proposals, not considered to create a substantial change to those landscape and visual impacts identified in the Further Information on the ES March 2005.

4) Main Local Route (MLR) Alignment

- 7.21 The line of the proposed MLR has been modified to take into account the results of the updated Tree Survey; this enables the retention of a group of good quality mature trees and directs the MLR crossing over the proposed Country Park and the stream at a location which has few tree constraints due to a gap in the vegetation.

- 7.22 In addition, the MLR leading to the proposed Station has been modified to take into account floodplain issues as well as enabling the retention of a hedgebank and mature trees.

- 7.23 Whilst these minor amendments in the MLR alignment are of benefit to the overall scheme, in the context of the full site proposals the landscape and visual impacts previously identified in the Further Information on the ES March 2005 are not substantially changed.

5) Secondary School

- 7.24 The minor amendments at the secondary school enable the retention of a hedgerow and stream. These amendments are of benefit to the scheme, however within the context of the overall site proposals, the landscape and visual impacts remain as previously identified in the Further Information on the ES March 2005.

5) Other Minor Changes

- 7.25 *5i) Minor change to location of the open space and LEAP to the north east of the western primary school* – This enables the retention of a good quality mature tree as identified by the updated Tree Survey. Although of benefit to the scheme, this does not change those landscape and visual impacts identified previously in the Further Information on the ES March 2005.

- 7.26 *5ii) Town centre and residential land uses swapped* – this amendment results in no change to the landscape and visual impacts previously identified in the Further Information on the ES March 2005.

Changes to the Density and Building Heights Plan (DBHP) – Drawing WCN028/AA/007

- 7.27 The changes are described in Chapter 2 of this assessment.

- 7.28 In considering the visual impact assessment of the new community proposals for the ES and the Further Information on the ES March 2005, a theoretical Zone of Visual Influence (ZVI) was produced, based on the DBHP at that time, which utilised target points placed to represent the development proposals.

- 7.29 The minor amendments to the DFP and DBHP have minor effects upon the target point heights utilised for the ZVI. These are set out below.

- 7.30 *Residential development where playing fields were proposed previously at the eastern end of the site, together with the new location of playing fields at the eastern edge of the site* – target point 7 on plans 7.10, 7.11 and 7.12 (see bullet vi in para 1.27, Appendix 7/1 Methodology, Chapter 7), was set at a height of 9.5m in the south-eastern side of the proposals close to the former nursery, upon the previously proposed residential area. The residential area is now located to the north and west of this target point, and at a height of up to 12.5m; additionally, the new location of residential development north of the target point is upon land which is approximately 5m lower. It is therefore considered that this minor amendment will not cause the theoretical ZVI to be any greater than that currently shown on the Visual Assessment Plans.
- 7.31 The ZVI is used to assist in the Visual Impact Assessment. This minor amendment affecting target point 7 is considered to not result in any change to the Visual Impact Assessment contained within the Further Information on the ES March 2005.
- 7.32 *Omission of land at the western end of the site, adjacent to Blue Hayes, from the application* – target point 2 on plans 7.10, 7.11 and 7.12 (see bullet i in para 1.27, Appendix 7/1 Methodology, Chapter 7) was set at a height of 9.5m height on relatively low-lying land on the north-western corner of the site, close to the proposed station. This area is now omitted from the site application boundary and therefore no longer contains proposed residential development.
- 7.33 Therefore this target point becomes redundant. Adjacent target points remain the same. The minor amendment affecting target point 2 will not cause the theoretical ZVI to be greater than that currently shown on the Visual Assessment Plans, and would instead result in a very minor decrease of the ZVI extent in the vicinity of that area.
- 7.34 Nevertheless, this minor change is considered to not result in any substantial change to the Visual Impact Assessment contained within the Further Information in the ES March 2005.

Conclusions

- 7.35 Overall, the amendments proposed in this document provide minor advantageous changes to the proposed scheme for the new community; however in terms of assessing landscape and visual impacts arising from the proposed new community, the minor amendments do not result in significant changes to those impacts previously identified in the Further Information for the ES March 2005.

8.0 ECOLOGY

Introduction

Background

- 8.1 Ecology Solutions has previously undertaken extensive surveys of the application site of the East Devon New Community and completed a full Ecological Impact Assessment, reporting the results within the Environmental Statement (ES) submitted with the planning application in July 2003.
- 8.2 Following submission of the 2003 ES, substantial additional consultation took place with the relevant conservation bodies, namely English Nature, the Environment Agency, the Devon Wildlife Trust and the East Devon Council's County Ecologist in order to address any outstanding ecological issues. This resulted in the production of a complete new ecology ES chapter that was submitted as further information in March 2005, superseding the original ES chapter from July 2003.
- 8.3 A Resolution to Grant has been issued subject to a section 106 agreement and a number of detailed strategies. Further technical work has been undertaken to inform these strategies and further consultation with the relevant conservation bodies has taken place. With specific regard to ecology the technical work has involved a survey for veteran trees. As a result of the technical work undertaken some minor amendments have been proposed to the Development Framework Plan. These six minor amendments are described at section 2 of this assessment.
- 8.4 Therefore, this chapter provides "further information", in accordance with Regulation 19 of the Town and Country Planning (Environmental Impact Assessment Regulations) (England & Wales) 1999, and an evaluation of the minor amendments to the Development Framework Plan.
- 8.5 For ease of reference this chapter cross-references all of the relevant information from the ecology ES chapter submitted as further information in March 2005.

Methodology

Veteran Trees

- 8.6 An initial arboricultural survey conducted by Forbes-Laird Arboricultural Consultancy in October 2005 highlighted the presence of a number of mature trees appearing of either veteran status or showing signs of potential succession into veteran trees. As a result, Ecology Solutions was commissioned to undertake a detailed ecological survey of these nineteen trees in order to determine whether any qualify as veteran trees on the basis of ecological criteria, and to undertake an assessment of the overall veteran tree interest at the site.
- 8.7 The full survey methodology is included at section 2 of the 'Veteran Tree Survey' report at Appendix ADD8/1.

Baseline Conditions

Veteran Trees

- 8.8 Eight trees within the site were confirmed as having veteran status and four trees were classified as borderline trees. In addition, features associated with veteran trees were recorded on all of the other trees surveyed, indicating their future potential to achieve veteran tree status.

- 8.9 The density of veteran trees recorded at the site was below English Nature's criteria for designating areas for their veteran tree interest.
- 8.10 Further details are included within the report at Appendix ADD8/1.

Assessment of Amendments to Planning Application

1) Drainage

- 8.11 It is not considered that the proposal for a series of drainage basins to deal with local surface water attenuation would not result in any changes to the ecological impacts identified in the 2005 ES chapter. Some of the basins are located on areas previously identified as being set aside for the Country Park and although some basins replace areas previously proposed for 'built form', the gains in open space are only small in the context of the overall development and the potential ecological value of the basins is restricted by the requirement for the basins to function as drainage features.
- 8.12 Nonetheless, the basins contribute towards the new wetland features identified in the 'mitigation' section of paragraph 8.67 of the 2005 ES chapter (see also drainage strategy at chapter 6) and present an ecological resource.
- 8.13 The approach to drainage has had due regard to the potential issue of bird strike on account of the proximity of Exeter airport. The drainage basins have been designed to ensure that the proposals would not create any large expanses of permanent open water to avoid the congregation of large flocking birds deemed as serious bird strike hazards, e.g. geese. The basin shapes illustrated on the Framework Plan represent the maximum flooded area of these features (i.e. only at times of flood) but the drainage basins consist of only a narrow channel of permanent water. In addition, the basins would drain within approximately 24 hours after a 1 in 100 year storm. As a mitigation measure a specific bird strike risk assessment is to be produced to illustrate how the provisions of CAP680 (Aerodrome Bird Control) have been incorporated into the design of the drainage proposals and the wider landscape. The impacts are assessed as neutral and long term.

2) Veteran Trees

- 8.14 The Veteran Tree Survey identifies eight veteran trees and four borderline veteran trees across the site. It is intended that all of these trees be retained as part of the proposals. The majority are located in the Country Park but the presence of a cluster of trees around a pond in the east of the site (east of the proposed cricket pitch) has required a minor realignment of the main spine road to ensure they are protected with an appropriate buffer. These changes to the framework plan have avoided any adverse impacts of the proposals on veteran trees.
- 8.15 Management of existing trees and woodlands will be specifically tailored to maintain and maximise the number of trees attaining veteran status across the site. Thus, the proposals may result in a minor beneficial impact with regard to veteran trees in the long-term.

3) Sport & Recreation Provision

- 8.16 The new location of the open space facility to the west of the country park reduces the need to break the green lane hedgerow, although in the overall context of the application site this is not deemed to be a significant change in relation to the impacts on hedgerows as identified in the 2005 ecology chapter (see paragraph 8.68).
- 8.17 In ecological terms, the relocation of playing fields at the eastern end of the new

community will serve to avoid adverse impacts on veteran trees (see 2 above).

- 8.18 The provision of a skatepark is of no ecological consequence due to its proposed location alongside a Neighbourhood Equipped Area of Plan and a Local Area of Play, adjacent to the secondary school.

4) Main Local Route Alignment

- 8.19 The re-alignment of the road will serve to avoid any impacts on mature/veteran trees and reduce the length of essential infrastructure through the Country Park. The issue of veteran trees has been discussed in section 2 above, but within the overall context of the site the reduction in length of the road is considered to be an insignificant change in ecological terms.

5) Secondary School

- 8.20 The amendment to the location of the school has allowed a continuous 'green corridor' connecting the 'Country Park' with the 'Ecology Park' relocated from that previously running along the railway. . This has allowed retention of a hedgerow (which is classed as important under the ecological criteria of the Hedgerow Regulations 1997) previously identified for removal. However, in the overall context of the application site this is not deemed to be a significant change in relation to the impacts on hedgerows as identified in the 2005 ecology chapter (see paragraph 8.68).

6) Further Minor Changes

- 8.21 The minor change in location of the open space and LEAP to the north-east of the western primary school would allow for the protection of an important tree (in arboricultural terms) within the open space. In the overall context of the site this change would be of negligible ecological significance.
- 8.22 The switch of the town centre and residential land uses is of no ecological consequence.

Conclusions

- 8.23 Overall, the changes to the Development Framework Plan would avoid any adverse impacts on veteran trees, allow for the retention of an important hedgerow previously identified for removal; avoid fragmentation/removal of other trees and hedgerow sections, reduce the length of infrastructure within the country park, and reduce the overall area of residential development. Although these are beneficial changes from an ecological perspective, these changes are only considered to be of negligible ecological significance within the overall context of the site.

9.0 TRANSPORT

Introduction

- 9.1 This chapter provides “further information” in accordance with the EIA regulations, to the Environmental Statement July 2003 and the Further Information on the ES March 2005, which has previously been submitted.
- 9.2 The Chapter evaluates the minor amendments to the planning application and considers the further information that is available to update the environmental information submitted to date.

Methodology

- 9.3 There have been no changes to the methodology applied in the assessment supporting the Environmental Statement.

Baseline conditions

- 9.4 There have been no changes to the baseline conditions identified in the assessment supporting the Environmental Statement.

Predicted Effects

Assessment of Minor Amendments to Planning Application

- 9.5 The minor amendments to the scheme do not change the overarching traffic impact of the proposed development on either the strategic or local road network. The transport impacts previously identified in the Further Information of March 2005 remain as previously identified.

Changes to the Application Boundary .

- 9.6 The changes to the application boundary have no bearing on the conclusions of the assessment in the Further Information March 2005.

Change in Main Local Route Alignment

- 9.7 There is a minor change to the internal traffic flow patterns as a result of the amendment to the Main Local Route Alignment, although this is a very localised impact and does not affect any of the traffic analysis undertaken for the 2005 Environmental Statement.
- 9.8 In terms of accessibility and sustainability the illustrative plan (WCN028/0906/103) indicates the ease with which it will be possible to provide access to public transport. This updates and replaces Plan 9/2/3 in Appendix 9/2 of the Further Information March 2005. The revised alignment will facilitate slightly faster and more direct public transport services through the development and will therefore result in some benefit to the overall scheme, although the overall assessment of impacts is not substantively changed.
- 9.9 The access points into the development are unchanged although it is assumed that eastern most access will provide the principal gateway into this part of the development. This has no bearing in transport terms. Figure 9/4/2 of the Further Information is however superceded and should be deleted.

Impact of Change in Description

- 9.10 The minor change in the description of the development and to limit the retail floorspace to Use Classes A1, A2 and A5 has no impact on the assessment of transport and traffic previously made although there may be some minor benefit in encouraging more trips to remain local.

Update in Information

- 9.11 In transport terms then the additional areas to address in this assessment is the additional information now available in relation to the proposals included within the mitigation measures. This is limited to the Clyst Honiton By-Pass and the Phase 2 Access Strategy proposals.
- 9.12 There have been no changes to the predicted effects identified in the assessment supporting the Environmental Statement.

Mitigation measures

Strategic Schemes

- 9.13 The mitigation strategy set out in the existing environmental statement notes the requirement for the Clyst Honiton Bypass. Planning permission now exists for the construction of the By-Pass, commencing with, or before, the commencement of construction on site and completing prior to the occupation of the 500th dwelling. This is in line with the Phase 1 Access Strategy preferred scheme as contained in Appendix 9/6 of the 2005 Environmental Statement and is proposed to accommodate development to a level of at least 2200 dwellings.
- 9.14 The scheme is shown in Figure 9.1 and consists of a 2 lane carriageway running between the A30 Airport junction northern roundabout and the former A30, along the western boundary of the Airport and through the western area of the land identified for Skypark. The application proposals included a comprehensive environmental statement. The application recognises that the need for the Clyst Honiton bypass arises from the new community and other developments to the east of Exeter. The environmental statement indicates that it has considered “the cumulative effects of traffic induced impacts” (of the developments east of Exeter including the new community). Other impacts arising from the various developments are considered in the applications for each individual scheme.
- 9.15 The junction with the former A30 will be traffic signal controlled with pedestrian and cycle facilities. The signals will also be used to control traffic flows accessing the former A30 west of the by-pass and queuing of traffic in the vicinity of the Airport runway. A bridge structure will be constructed within the Runway End Safety Area (RESA) to protect the road from overrunning aircraft.
- 9.16 The mitigation strategy includes contributions towards a wider package of measures to relieve potential congestion. The Trunk Road impacts of this are addressed in the Phase 2 Access Strategy highlighted in the existing ES. Draft schemes have been identified in the strategy for improvements to the M5 Junction 29. The scheme, which would provide significant additional capacity for future growth is not fixed and an alternative solution has also been set out making use of the existing Blackhorse junction.
- 9.17 Negotiations are continuing on the Phase 2 Access Strategy with the Highways Agency, Devon County Council and East Devon District Council.
- 9.18 Detailed consideration of the impacts of such wider measures is not possible at this stage because of the lack of knowledge encountered in relation to the final scheme.

Proposals for the implementation of measures through the Phase 2 Access Strategy will be assessed as the detail of the proposals is finalised.

Residual impacts

- 9.19 The full residual impact due to travel to and from the New Community, as it relates to the key travel indicators, is shown in Table 9.11 below. This table has been expanded to include the additional information now available in respect of the off site mitigation measures identified above and reported below.
- 9.20 The provision of the Clyst Honiton By-Pass will maintain the traffic flows at a level not exceeding the existing flow on the former A30 at Clyst Honiton, and in the short term reduce flows compared to the existing. Once the Phase 2 infrastructure is implemented there will be an increase in traffic on the former A30 past Clyst Honiton, but this will still be significantly lower than the levels of traffic previously carried by the road. Overall there will be a minor adverse impact upon the former A30 at Clyst Honiton.
- 9.21 The traffic from the proposed development using the Clyst Honiton By-Pass will also have an adverse impact upon the capacity of the A30 Airport junction, and the A30 Trunk Road. The level of development permitted to use this route before the Phase 2 Access Strategy works are required will ensure that although there will be an adverse impact it will be only minor in significance.
- 9.22 The works to be undertaken as part of the Phase 2 Access Strategy aim to ensure that levels of congestion at the M5 Junction 29 do not exceed those that would be experienced without the proposed development. Therefore the impact is considered to be neutral.

Table 9.11

Summary matrix of transport impacts, following mitigation

Issue	Description of Impact	Geographical Significance					Mitigation	Impact Significance Duration
		I	N	R	D	L		
Transport	Impact on in former A30 Corridor							
	Impact on Walking				*	*	Design guidance to include guidance to encourage walking	Beneficial Minor Long term
	Impact on cycling				*	*	Design guidance to include guidance to encourage cycling	Beneficial Moderate Long term
	Bus Patronage, Services and facilities				*	*	Bus priority measures including an access to former A30 Integration with other modes	Beneficial Major Long term
	Rail Patronage, Services and facilities			*	*	*	High quality linkages with public transport and journeys on foot.	Beneficial Major Long term
	Former A30 east of New Community				*	*	None required	Adverse, Minor Long term
	Former A30 at Clyst Honiton, with Clyst Honiton By-Pass				*	*	Clyst Honiton By-Pass	Beneficial Minor Short term
	Former A30 at Clyst Honiton, with Phase 2 Access Strategy				*	*	None Required	Adverse Minor Long term
	Impact on Trunk Road Network							
	A30 Airport Junction				*	*	None Required	Adverse, Minor Long term
	A30 Trunk Road				*	*	None Required	Adverse, Minor Long term
	M5 Junction 29				*	*	Phase 2 works as described	Neutral N.A. Long term
	Impact on Local Network							
	Station Road, Broadclyst local traffic					*	Improvement to rail bridge	Adverse Minor Long term
	Station Road, Broadclyst pedestrian/cycling facilities					*	New footway connecting across the bridge	Beneficial moderate Long term
	Rockbeare					*	Design measures to embrace junction	Adverse Minor Long term
	Church Road, Whimple					*	None required	Neutral N.A. Long term
	Crannaford Lane					*	Traffic management scheme	Beneficial Minor Long term
	Elbury Lane					*	None required	Beneficial Moderate Long term
	Southbrook Lane					*	Monitoring and management if required	Neutral NA Long term

	B3184 Clyst Honiton					*	None Required	Beneficial Major Long term
	Impact on road safety					*	*	Neutral N.A. Long term
	Construction activities					*	*	CEMP Adverse Minor Short term

Key

I = International; N = National; R = Regional; D = District; L = Local

12.0 CULTURAL HERITAGE

12.1 This chapter supplements the assessment made in Chapter 12 of the Environmental Statement submitted in July 2003 and the Environmental Statement: Further Information document submitted in March 2005.

12.2 In light of the minor changes to the application proposals, this chapter outlines the likely impacts upon cultural heritage resources arising from the proposed development, where these are at variance with those assessed in the Environmental Statement: Further Information document. Where additional impacts have been identified, or where previously identified impacts are likely to be of a greater magnitude, appropriate mitigation measures are described. Given the application of appropriate mitigation measures, this chapter also sets out the likely residual impacts arising from the proposed scheme.

Additional Information

12.3 The change to the boundary of the application has resulted in the removal of one large field at the western end of the site, for which no archaeological mitigation was proposed in the Environmental Statement: Further Information document, nor in the approved Archaeological Mitigation Strategy (H1173_08b). This field formed part of an area of former parkland around Blue Hayes Farm (see Figure 12.1).

12.4 The boundary change has also led to the removal of one small field in the north east corner of the site, for which mitigation was to comprise archaeological evaluation as a first stage.

12.5 On the other hand, the change to the boundary of the application has led to the inclusion of two north-south aligned, sinuous strip fields, which were previously located adjacent to the eastern limit of the site. These fields, which are defined by hedgerows, except for the boundary between them which is defined by a stream, are likely to have medieval origins and, as such, are included within the area defined as medieval field system by the Devon Historic Landscape Study (see Figure 12.1).

12.6 The two fields will not be developed, but will remain as open space for the provision of sports pitches. The hedgerows defining the outer boundary of these two fields (but not the one between them, would be considered 'important' under the revised archaeological and historic criteria of The Hedgerows Regulations 1997. However, the significant parts of the hedgerows are likely to be retained. Indeed, only the southern half of the defining hedgerow of these two fields (on the western side) need be removed as a result of the proposed development.

Predicted Effects

12.7 There is a potential for the proposed development to impact upon archaeological remains through the inclusion of the two strip fields at the eastern end of the site and their use as sports pitches. The use of these fields as sports pitches is likely to have a direct, permanent impact upon hitherto unknown archaeological resources, which are, nevertheless, unlikely to be of greater than local importance. It is therefore unlikely that this would have an impact of greater than minor adverse significance.

12.8 The two fields at the eastern end of the site are likely to be remnants of a former medieval landscape, as defined by the Devon Historic Landscape Study. However, they will not be developed for either residential or commercial purposes. As such, they will remain open space and, therefore, there will not be a significant impact upon the character of this element of the historic environment.

- 12.9 The revised proposals for development of the site envisage the loss of only the southern half of the hedgerow defining the western edge of the two fields that are now being included. This hedgerow would be considered important under the revised archaeological and historic criteria of The Hedgerows Regulations 1997. The loss of this small section of hedgerow would be not be considered a significant impact, especially given that the historic character of the hedgerow would be maintained through the retained section.
- 12.10 None of the remaining alterations to the application proposals raise any additional issues in relation to archaeology or cultural heritage necessary to revise the earlier assessment of effects.

Mitigation Measures

- 12.11 In accordance with the Environmental Assessment submitted in July 2003 and the Environmental Statement: Supplementary Information document submitted in February 2005, appropriate mitigation for the minor adverse impact predicted for archaeological resources within the two fields to be added would consist of further phased archaeological investigation and recording, completed prior to and, where necessary, during development. The appropriateness of this approach has previously been agreed with the Council's archaeological advisor (H1173_08b).

Residual Impacts

- 12.12 As concluded previously, given the completion of mitigation as outlined above, the proposed development would have no significant long term adverse impact on the archaeology and cultural heritage of the site or its vicinity.

Table 12.1: Summary Matrix of Cultural Heritage Impacts, Following Mitigation.

Issue	Description of impact	Geographical significance					Mitigation Measures	Impact Significance Duration
		I	N	R	D	L		
	Impact on unknown archaeology					*	The little potential that exists for significant unknown finds has been addressed by a mitigation strategy agreed with the County Archaeologist	Adverse Minor Long term
	Impact on historic landscape					*	Revision of Development Framework has further mitigated already insignificant impact.	Adverse Minor / Insignificant Long term

14.0 ENERGY AND RESOURCE USE

Introduction

14.1 This chapter addresses the ability of existing utilities infrastructure to cope with the additional demands the New Community will place upon it, to ensure that such supplies can be either met from existing sources or through upgrading of off-site infrastructure.

14.2 Since the preparation of the Environmental Statement in June 2003 further work has been undertaken in addressing the sustainability aspects of the application proposals and further consultations undertaken with suppliers of energy.

14.3 This chapter therefore replaces that undertaken in June 2003.

Methodology

14.4 The potential impacts of the New Community on energy usage have been assessed in relation to the following objectives:

- to define the existing conditions, quality and availability of the necessary energy and utility resources within the New Community and the wider catchment area;
- to consider and evaluate the potential impact on the existing utility network as a result of the construction and operations associated with the New Community;
- to consider appropriate mitigation measures to protect utility networks from any identified impacts.

14.5 Consultation has been carried out with the following utility providers:

- Western Power Distribution (electricity);
- Transco (gas);
- South West Water (mains water);
- BT (telecommunications);
- Telewest (telecommunications); and
- Cable and Wireless (telecommunications).

14.6 There are no other utility providers whose apparatus will be affected by the New Community.

Baseline conditions

14.7 Baseline conditions have been established through consultation with the local utility companies. The location of the existing apparatus for each utility company in and around the New Community site is indicated on Figure 14.1.

Electricity

14.8 The key elements of the existing Western Power Distribution network are set out below and indicated on Figure 14.1:

- 11KV overhead lines are present from Parsons Lane to Young Hayes Farm; at Tillhouse Farm; at the junction of Tillhouse lane and the former A30; and from the former A30 at Rockbeare nurseries northwards across the site to Lower Southbrook.
- The 11KV network then goes underground along the line of the former A30 before coming above ground at Crannaford Lane where it continues overhead along the former A30.
- A 132KV overhead line passes to the north-east of but outside the site.

- 14.9 Discussions with Western Power Distribution have indicated that there is adequate capacity available within the existing 11KV network to supply at least 1000 new dwellings. Development over and above is likely to require the provision of a substation.

Gas

- 14.10 The key elements of the existing British Gas Transco network are set out below and indicated on figure 14.1:

- 250mm high pressure gas main across the site from Crannaforde Crossing to the former A30.
- There is also a 150mm diameter, medium pressure main at the western end of the site and there is sufficient capacity in this main to serve the early stages of the development.

- 14.11 Transco have indicated that the existing gas network in this area has adequate capacity within it to cater for the development proposals without requiring major off-site infrastructure works.

Water

- 14.12 The key elements of the existing South West Water mains water network are set out below and indicated on Figure 14.1:

- 225mm diameter water main along Station Road to the west of the site running along the former A30 through the site to Crannaforde Lane.
- SWW have indicated that there is an existing 300mm diameter main at the western end of the site and have estimated that at least 700 dwellings could be supplied from this. Water supply is also possible from the source reservoirs, but off site infrastructure upgrading may be required to support this.

Telecommunications

- 14.13 Both BT and Cable & Wireless have existing plant in the area of the site. The locations and details of this plant are indicated on figure 14.1 and the key elements of the network in the locality are:

- BT underground and overhead cables along the former A30 through the site;
- BT and Cable & Wireless high grade fibre optic cabling underground along the former A30; and
- BT overhead connections to existing properties in the New Community area.

- 14.14 A number of suppliers, including BT, Cable & Wireless, and Eurobell have expressed an interest in providing new supply to the New Community.

Predicted effects

Construction phase

- 14.15 Temporary supply of utilities will be required on site during construction. The likely requirements for utility supplies on site are currently available locally and short term local reinforcement can be provided where necessary. There is therefore a short term neutral effect on utility supplies in the locality during construction.

Operational phases

- 14.16 The potential infrastructure requirements of the New Community are assessed below.

Electricity

- 14.17 To provide supply to the entire New Community will require, the construction of a new electrical substation to bring strategic supplies into the site to meet the increased demand. There is adequate capacity within the existing 11KV network to supply up to 275 dwellings before the substation is required.
- 14.18 The substation itself will not be within the application site and hence will have no impact on the development of the new community. Its location will take account of environmental impacts and any proposed location will be subject to environmental assessment before approval and construction. Mitigation measures are available if required when more information is available, including noise mitigation measures. The impact of the substation is likely to be neutral with any mitigation measures that may be appropriate.

Gas

- 14.19 A 150mm diameter medium pressure main is situated at the western end of the site and there is sufficient capacity within it to cater for the New Community. A new main will be brought along the former A30 highway to supply the development from the western boundary.
- 14.20 A high pressure gas main crosses the eastern side of the New Community site (from Aylesbeare to High Bickington), which is protected by an easement of significant width and cannot be built over or near without considerable disruption, although roads are acceptable within the gas main easement. A corridor has been defined in the Framework Plan to take account of this with a separate easement zone of 6m width and building proximity distance of 17m from the pipeline.

Water

- 14.21 South West Water has existing 300mm diameter mains supplying the site from the west. Additional capacity for the New Community will be required and reinforcements to the network are proposed. South West Water has developed a strategy to reinforce their existing network by way of upgraded mains from their Beacon Hill Reservoir, using their powers of entry, where necessary, to enable access to third party land to ensure that they can be constructed. The impact of any such upgrading is assessed to be moderate but short term and local.

Telecommunications

- 14.22 A number of suppliers, have expressed an interest in supplying the New Community.
- 14.23 The capacity of existing telecommunications networks are not a constraint on development with many new services, such as broadband, likely to be enthusiastically provided by the relevant telecoms company. It is therefore likely that the new community will benefit from high quality information technology links with latest best practice and emerging technologies being incorporated wherever practicable.

Energy consumption

- 14.24 It is inevitable that the New Community will result in additional consumption of energy resources. The impact will however be minor in nature.
- 14.25 One of the primary objectives for the New Community is to be sustainable in the use of energy and resources. Various strategies will therefore be put in place to assist in reducing the energy demands of the New Community and so mitigate the impacts at source. These are set out under the heading of Mitigation below.

14.26 Potential impacts in respect of energy consumption as a result of particular development forms and layouts within the New Community include:

- heat loss and lack of energy efficient development;
- wind and overshadowing; and
- use of known atmospheric and environmentally damaging materials.

Mitigation measures

14.27 A range of mitigation measures will be brought forward as part of the new community development and delivery process.

Construction phases

14.28 Energy efficiency practices will be delivered on site through a *Construction Environmental Management Plan* (CEMP). The strategy will encourage the use of materials recycled from the site and/or materials from renewable resources where practical. This includes the use of recycled aggregates, where appropriate, for foundations, sub-bases, hard-standing.

14.29 Locally sourced and/or produced materials used throughout the construction process reduce transportation costs and will be encouraged where practical.

14.30 The use of ozone depleting and environmentally damaging materials and chemicals will be avoided where possible, during both the construction phases of the development.

14.31 There is therefore considered to be a minor adverse impact due to the use of construction materials following the mitigation outlined above.

Operational phases

14.32 Mitigation can be considered in two parts namely:

- provision of utility services required to serve the development - upgrading existing plant where necessary to provide for the new development; and
- reduction of demand within a deliverable energy strategy.

Services

14.33 Upgraded infrastructure anticipated to be required to support the capacity requirements of the New Community, over and above that which the existing network can support, include the:

- the provision of an electricity substation near to the site; and
- upgrading of existing water supply infrastructure.

14.34 The impacts after mitigation will be insignificant whilst the impact of the mitigation measures (with the exception of the electricity substation, the impact of which will be insignificant) could be moderate but short term and local.

14.35 In order to protect the high pressure gas main that crosses the eastern side of the New Community (from Aylesbeare to High Bickington), an appropriate easement has been accommodated within the Framework Plan. Development of the new Community will therefore result in a neutral effect on the gas pressure main.

Minimisation of demand - energy strategy

14.36 Consumption of energy and its subsequent production of green house gases, such as CO₂, is a major issue facing all new development.

Microclimate design

- 14.37 Energy demands can be reduced through careful consideration of the orientation and design density of the development and should be optimised to achieve good microclimatic properties to reduce the basic need for energy.
- 14.38 Useful solar gains can lead to reductions on the demand for space heating in winter and the inter-season, but unwanted direct gains in summer should be avoided.
- 14.39 These are incorporated into the Framework Plan where possible and within more detailed design guidance, accepting that competing factors will not enable the majority of dwellings to meet requirements in relation to southern orientation.

Energy efficiency

- 14.40 Designs for dwellings in the New Community will demonstrate compliance with an appropriate standard of construction and energy efficiency.
- 14.41 Dwellings within the new community will achieve an Ecohomes standard of Very Good as set out in the 2006 Ecohomes Standard. This may be achieved in various ways but will result in savings in terms of energy efficiency.
- 14.42 Similar arrangements will be introduced in relation to new commercial developments within the New Community. A Very Good rating should be achieved for most commercial non-residential and educational buildings in the new community (according to the 2006 version of the BREEAM standard).
- 14.43 Specific examples of matters to be considered to achieve the relevant standard include:
- Improving the insulation standards set out in Part L of the existing Building Regulations;
 - enhanced thermal performance of windows;
 - use of A rated electrical appliances.
- 14.44 The establishment of appropriate standards and the incorporation of a range of the mitigation measures anticipated within those standards will mitigate the effects of additional green house gas emissions and so the impact is assessed as being minor.

Minimise demand for water

- 14.45 In order to minimise the demand for water supply in the New Community, measures for reducing water usage will be incorporated.
- 14.46 Measures to be considered would include those include water efficient taps and appliances within homes, the collection and re-use of rain water in landscaped areas and normally through the provision of water butts.

Renewable energy

- 14.47 Provision will be made for occupiers to access supplies of green energy from national suppliers.
- 14.48 In addition, up to 1,000 dwellings will be provided with solar water heating technologies. The predicted effect of this mitigation measure will be the generation of approximately 10% of the energy requirements of those dwellings being generated from onsite renewable sources.

Residual impacts

- 14.49 It is inevitable that the New Community will result in the consumption of additional energy resources. However following mitigation it is anticipated that the impact on energy supplies will be minor.
- 14.50 The possible upgrading of existing supplies to the site will have no long term effects but will result in short term adverse impacts assessed as moderate but local.
- 14.51 Design measures to promote efficiency in the use of resources and to provide for renewable energy generation will have the primary role of mitigating the demand for energy.
- 14.52 There will be no residual effects of the New Community on existing service infrastructure within the site.

Table 14.1

Summary matrix of energy and resource use impacts, following mitigation

Issue	Description of impact	Geographical significance					Mitigation measures	Impact, significance and duration
		I	N	R	D	L		
Energy and resource use	Supply of energy during construction phases				*	*	Minor	Neutral Short term
	Use of gas, water and electricity				*	*	Adoption of Ecohomes and Breeam Very Good Standards. Provision of technology for solar water heating for up to 1,000 dwellings.	Adverse Minor Long term
	Upgrading of service infrastructure					*	Disruption of services to be kept to a minimum.	Adverse Moderate Short term
	Impacts on existing service infrastructure within the site					*	Neutral	Neutral Short term

Key

- I = International
N = National
R = Regional
D = District
L = Local

PLANS

APPENDIX TO CHAPTER 6

ADD 6/6 Appendices 6/2- 6/5: Addenda and Corrigenda

APPENDIX TO CHAPTER 8
ADD 8/1 Veteran Tree Survey