

Nottinghamshire Minerals Local Plan

A methodology to identify Areas of Multiple Environmental Sensitivity (Landscape/Ecological/Historic) in the Trent Valley.

1.0 Background

The project was commissioned by Lisa Bell, Team Manager, of the Planning Policy Team of Nottinghamshire County Council in May 2013. The methodology used by the NCC Landscape and Reclamation Team has built on that developed and used previously by Derbyshire County Council to identify Areas of Multiple Environmental Sensitivity within the Derbyshire section of the Trent Valley. Officers from Nottinghamshire County Council and Derbyshire County Council met initially in November 2012 and again in March 2013 to share information. DCC and NCC officers have continued to liaise at each stage of the project particularly to discuss any modifications to the methodology [and in order for DCC to review and comment on the final maps produced by NCC.](#)

A Biodiversity Opportunities Mapping (BOM) exercise has been carried out by the NCC Conservation (Heritage) Team in parallel to this project and the relationship between the two projects has been discussed in section 8.0 of this report.

2.0 Introduction

The Trent Valley was, and in part still is, a distinctive landscape focused on the river; rich in historical features and wildlife. Permanent grasslands for seasonal grazing would traditionally define the floodplain with people inhabiting villages located on the elevated gravel river terraces along the valley surrounded by traditional mixed farming. In the past 50 years these essential qualities have been eroded as a result of new development, mineral working and changing agricultural practices.

Recent work undertaken by Nottinghamshire County Council as part of its emerging Minerals Local Plan has highlighted the need for a more co-ordinated approach to planning for landscape change in the Trent Valley to arrest further erosion of its essential qualities. The need to identify further minerals sites in the next plan period and beyond will place further demands on the landscape, and on the historic and natural environment of the Trent Valley in the short and long-term.

In this context an important initial step is to identify those areas of the landscape that continue to be of existing value for a range of environmental factors. It is essential that those areas of landscape with significant intrinsic value are identified and retained as part of the developing landscape vision and strategy. This will help to

identify potential areas within which to focus the search for development sites. Similarly it can aid the focussing of resources to enhance landscape through management and other initiatives.

It should be noted that the findings of this study are not site specific but are meant to illustrate a landscape scale spatial pattern.

3.0 Project Aims

The overall aims of the project are:-

- To identify those areas of landscape considered to be of multiple environmental sensitivity relating to ecology, the historic environment and landscape attributes
- To identify those areas which might thus be considered most vulnerable or sensitive to development related impacts, and those areas which might be considered comparatively less sensitive.
- To develop a methodology that uses landscape characterisation as a spatial framework for the analysis of other environmental data allowing outputs to nest within National, Regional and Countywide Landscape character Initiatives¹.
- To establish a framework that allows for the assessment of the whole of the Trent Valley landscape in accordance with the principles of the European Landscape Convention
- To utilise a Geographic information System (GIS) as a tool for analysing and collating known environmental datasets and spatially presenting the outputs.

The assessment undertaken by the Landscape and Reclamation Team in response to the project aims has included:-

- Utilising data already collected as part of the Nottinghamshire Landscape Character Assessment. The base unit for the study is derived from the LCA work.
- The analysis of data already produced as part of the Nottinghamshire Historic Landscape Characterisation 2000, and held in the Historic Environment Record (HER)
- The analysis and collation of various datasets relating to known habitat information. A desk based analysis of 2009 aerial photographs and historic maps to identify areas of landscape that remain intact, including the ground-truthing of identified areas.

¹ National Character Areas (NCA) as defined by Natural England (formerly Countryside Commission/Countryside Agency), the East Midlands Landscape Regional Landscape Character Assessment (2010) Natural England, and the Nottinghamshire Landscape Character Assessment (2009), Nottinghamshire County Council

Note: The assessment relates to all known relevant data held by Nottinghamshire County Council in July 2013.

4.0 Methodology

In order to define the areas of land that would form the basis for the assessment it was necessary to identify a spatial framework within which to assess, analyse and collate the environmental data held and managed by Nottinghamshire County Council. It was also important that the spatial unit was robust, meaningful and operated at an appropriate scale to deliver a strategic assessment and yet respond to the underlying character of each Landscape Character Type and National Character Area (NCA)

It was agreed that the most appropriate spatial unit for undertaking this exercise was the Landscape Character Parcel (LCP). This is a sub division of the Landscape Description Unit (LDU) and was defined by NCC as a manageable survey unit within the larger LDU area. It is a smaller unit than that used previously for the county wide assessment of Areas of Multiple Environmental Sensitivity (AMES), the reason for choosing this unit was that it would allow analysis of the Trent Valley area at a much finer grain than the previous AMES study.

The Land Description Unit (LDU) is the fundamental building block of the Nottinghamshire Landscape Character Assessment. A detailed methodology for the definition of a LDU can be obtained from “*The Living Landscapes Project Landscape Characterisation Handbook: Level 2 (Version 4.1)*”, Warnock S, 2002.

However in general terms LDUs are distinct and relatively homogenous units of land defined by a number of attributes relating to:-

- Physiography – the relationship between geology and landform
- Ground Type – the relationship between geology and soils
- Landcover – a reflection of surface vegetation; both land use and tree cover
- Cultural pattern – an assessment of settlement pattern and farm type

All LCPs and LDUs are already digitally mapped and form part of the Geographic Information System (GIS) allowing for various datasets to be compared through a process of overlay and query mapping.

It should be noted that the LCPs and LDUs form the base unit for all landscape character assessment work already completed in Nottinghamshire and were also used to define the broad county landscape character areas such as the Trent Valley LCA, therefore this work will dovetail with other work carried out within the county as well as work at a regional level as part of the EMRLCA.

In general terms those landscapes of highest environmental value will be areas where the landscape remains intact visually and structurally, have strong historic cultural identity, contain expanses or multiple areas of semi-natural habitats, with associated linkages appropriate to the character of the area, and have evidence of appropriate land management practices.

Sections 4.1, 4.2 4.3 and 4.4 that follow, describe how each of these indicators was assessed, Sections 4.5 and 4.6 conclude the methodology, describing how the historic, ecological and landscape indicators have been brought together to map environmental constraint areas.

The findings are described in section 5.0 and then the relationship of this work with the existing minerals allocations sites is discussed together with the project to Map areas of Biodiversity Opportunity (BOM) in sections 6.0 – 8.0. In section 7.0 a further refinement of the project, to identify 'hot spots 'of multiple environmental sensitivity is discussed .

The Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas have been used as a boundary for this assessment as these areas capture all of the mineral allocation sites proposed in the Trent Valley. There are other allocation sites proposed outside this boundary, in the Idle Valley in the north of the County for example.

4.1 Ecological data

The Nottinghamshire Biological and Geological Records Centre (NBGRC) holds various datasets relating to the biodiversity of the County many of which are held electronically in a GIS database. The main objective of this exercise is to identify those areas of significant ecological value by identifying and taking into account of a range of habitat types that contribute to biodiversity and the landscape character of the Trent Valley. Unlike the Derbyshire County Council methodology, data relating to Higher Level Environmental Stewardship (HLS) agreements has not been included as a measure of management of valued habitat features in the study area. Following discussions with the NCC Senior Practitioner - Nature Conservation and the Biodiversity Officer, it was agreed not to include this data because this designation, unlike other ecological designations, is temporary and these areas may lose their ecological value if this funding is withdrawn. Additional data was included, relating to the Biodiversity Action Plan, that had not been incorporated by the inclusion of the Local Wildlife sites information.

As a result the following spatial datasets were amalgamated into a single overlay of ecological data:-

- Ancient woodland in the Trent Valley Landscape Character Area and the East Nottinghamshire Sandlands Landscape Character Area (including woods under 2ha)
- Local Wildlife Sites – Sites of Interest for Nature Conservation (SINCs) within the Trent Valley Landscape Character Area and the East Nottinghamshire Sandlands Landscape Character Area
- Regionally Important Geological Sites (RIGS) – nb: this is point rather than polygon data only so it has no bearing on the total percentage cover calculated.
- Biodiversity action plan (BAP) data where this had not already been included as part of SINC or SSSI sites

These datasets were specifically chosen as a means of identifying those areas of landscape where there are numerous intact and connected semi-natural habitats across the Trent Valley. Unlike the DCC methodology Local Wildlife Sites designated following the restoration of former gravel workings have been included in the assessment. These were excluded from the DCC study because it was felt that these habitats did not reflect areas of intact landscape or remnant habitat. Again following discussions with the NCC Senior Practitioner - Nature Conservation and the Biodiversity Officer, it was agreed to include these sites as much of the ecological value of the Trent Valley is contained within them and the combined ecological dataset would be incomplete without them. National designations have also been excluded from the assessment, the majority of Sites of Special Scientific Interest (SSSI) in the Trent Valley are former gravel workings and the fact that they are designated conveys a significant degree of statutory protection with respect to future mineral extraction and site allocation.

The amalgamation of the above datasets creates a single 'ecological resource' layer, identifying all areas which have been identified as supporting habitats of notable ecological value. Nb: Where datasets overlap with each other, then the combined data set is amalgamated so that the same area is only counted once. Please refer to Drawing LR/4026622/01 – Ecology source data

The combined dataset was then analysed within the spatial framework of the LCP to calculate the total area coverage of ecological interest within each LCP expressed as percentage.

Note: the mean average for the ecological dataset is 6.43%

4.2 Historic Environment data

Assessment of the historic environment draws its data from two sources; the Historic Landscape Character Assessment (HLCA) and the Historic Environment Record (HER) both managed by the county archaeologist. The HLCA essentially divides the

landscape into a series of pre-defined land-use and field morphology categories based on historic map evidence. For the purpose of this exercise it was decided areas of intact irregular fields and fossilised strip fields were the most important with respect to the historic landscape and the most sensitive to change. These areas of landscape have longer time depth, are impossible to replicate and are often associated with other historic features such as ancient hedgerows that are worthy of retention.

In addition to these areas of earliest enclosure, it was also decided to include specific heritage asset data taken from the HER, which again was considered to be a measure of intact landscape and to contribute to the overall historic value of a LCP. The specific features chosen tend to be above ground earth works such as ridge and furrow, which contribute to the overall character and visual distinctiveness of the landscape and are a further measure of the longevity of the landscape in these areas. Selected records included:-

- Paleo-channels
- Above ground earthworks as identified in the SHINE (Selected Heritage Inventory for Natural England) project.

Again data relating to designations such as Conservation Areas, Scheduled Monuments and Registered Historic Parks and Gardens were excluded from the assessment because, the designation (and its setting) conveys a significant degree of protection with respect to future mineral extraction and site allocation. Please refer to Drawing LR/4026622/02 – Historic Environment – source data

As with the ecological data this information was combined into a single overlay of historic environment data, ensuring that duplicate areas were only counted once. This information was analysed within the spatial framework of the LCPs with total coverage expressed as a percentage

Note: the mean average for the historic environment dataset is 7.13 %

4.3 Landscape data

Landscape data informing this project has been developed from an independent desk top assessment and visual appraisal of aerial photographs and maps using GIS. The assessment involved identifying 'Areas of Landscape Interest' by defining areas of landscape that appear to be visually intact and representative of the wider landscape character description when comparing recent aerial photographs with historic maps, in particular the Sanderson Map of 1835. Areas were selected from the 2009 series of aerial photographs where they showed permanent pasture, with surrounding mature trees and hedgerows, and woodlands greater than 0.5 hectares in size. Areas which were identified from aerial photographs as being restored

mineral sites with associated woodlands were not included as 'Areas of landscape interest' as these do not reflect intact landscapes

Once this exercise was completed the areas were compared with a previous Local Landscape Designation developed by NCC known as Mature Landscape Areas. Although the survey work for this designation had been carried out in the mid 1990's, using a similar process of mapping from aerial photographs, there was still correlation between the areas previously designated although it was evident that in the last 15 years many of the former MLAs had been ploughed up and/or hedgelines have been removed..

To ensure the overall validity of this data the 'Areas of Landscape Interest' have been ground-truthed by further field work. This had 2 purposes, firstly to check the boundaries of the newly identified 'Areas of Landscape Interest' were correct on the ground, and secondly to check whether a field formerly included in an MLA but not picked up in the new analysis should be added in to the dataset, where a decision could not be made from the aerial photograph. These areas were included provisionally and then checked on the ground before adding into the data set if necessary. Please refer to Drawing LR/4026622/03 - Areas of Landscape Interest – Source data

As with the other datasets this information was then analysed within the spatial framework of the LCP with total coverage expressed as a percentage.

Note: the mean average for the landscape dataset is 18.37%

4.4 All Designations dataset

The all designations layer contained the following datasets:-

- Conservation Areas
- Registered Parks and Gardens
- Scheduled Ancient Monuments
- Sites of Special Scientific Interest
- Historic Battlefields

These designations are shown on the final drawings (LR/4026622/07- 012) as a yellow hatched area

4.5 Identifying the Multiple Environmental Value of each LCP

It was decided that for each dataset, significant percentage cover of an LCP is defined as that which is above the 'average' % coverage i.e. LCPs which are above

average for each of the datasets are considered to hold significant interest. The average was calculated as the mean value.

The thresholds for each dataset were as follows:-

Ecology - $\geq 6.43\%$

Historic Environment - $\geq 7.13\%$

Landscape -- $\geq 18.37\%$

Please refer to Drawings LR/4026622/04 - Sensitivity - Ecology, LR/4026622/05 – Sensitivity - Historic environment, and LR/4026622/06 – Sensitivity - Landscape which show areas above and below the mean value.

4.6 Defining Environmental Constraint Areas

Having selected the individual significance thresholds, as outlined above, the overall values of each LCP was defined through the correlation of the individual datasets and colour coded on the supporting map. Please refer to Drawing LR/4026622/07 – Multiple Environmental Sensitivity.

Dark Red Zone – this was where an LCP was recorded as significant for all three datasets

Red Zone – this was where an LCP was recorded as significant for at least two of the individual datasets.

Pink Zone – this was where an LCP was recorded as significant for one of the individual datasets

Pale pink Zone – This was where an LCP was recorded as having no significance with respect to any of the individual datasets.

All four of these scenarios are considered important for the strategic planning of the Trent Valley and informing the emerging Minerals Local Plan and upholding the principles of the European Landscape Convention.

The 'dark red zones' are clearly the areas of highest environmental value and would be the most vulnerable or sensitive to mineral extraction pressures. These areas will attract a strong focus on **Protection** (Conservation) of their intrinsic environmental value.

The 'red zones' have environmental value with respect to two of the datasets used but are weaker in one area, but are also of high environmental value and would also be vulnerable or sensitive to mineral extraction pressures. These areas will also attract a strong focus on **Protection** (Conservation) of their intrinsic environmental value.

The 'pink zones' retain some environmental value with respect to one of the datasets used, but are weaker in other areas. These areas will attract a strong focus on the **Management** (Conservation and Enhancement) of these areas: that is maintaining those features of existing value but also addressing those in decline e.g. landscape restoration, habitat creation, etc.

The 'pale pink zones' are not identified as being of strategic landscape value although that is not to say that there are not pockets of land of some environmental value. These would benefit from a strong forward looking **Planning** (Restoration/Creation) strategy.

Overlaying each of the defined zones are the National Designations (as set out above – section 4.4) that impose their own specific constraints with respect to future mineral working. These designations operate in addition to each of the strategies outlined above.

It is important to acknowledge the relevance of this work to the strategic planning of mineral working in the Trent Valley and in developing a landscape vision and strategy for the future. The pink and pale pink areas shouldn't be interpreted simply as a 'yes' for mineral planning purposes as there are clearly environmental issues associated with these areas such as national designations, local interests, and constraints identified in this assessment . Equally the dark red and red areas should not be interpreted as 'no' although it is clear that these areas are environmentally valuable across multiple disciplines, are most likely to be environmentally constrained , and development in this area is most likely to result in multiple environmental impacts, even if the designated sites and features are avoided.

5.0 Findings

The resultant areas identified by the methodology concur with the professional opinion of the Landscape and Reclamation Team and have been verified by field survey works. Within the study area the overall breakdown of the identified zones is:

Dark Red Zone – 24 % - greater than the mean score for all 3 datasets, these are described as areas of **very high multiple environmental sensitivity**

Red Zone – 18% - greater than the mean score for 2 of the 3 datasets, these are described as areas of **high multiple environmental sensitivity**

Pink Zone – 33 % - greater than the mean score for 1 of the three datasets, these are described as areas of **medium multiple environmental sensitivity**

Pale pink Zone – 25 % - all 3 datasets are below the mean threshold, these are described as areas of **low multiple environmental sensitivity**

Of the total land area of the Trent Valley and the East Nottinghamshire Sandlands, the areas with the greatest environmental constraint (dark red zones – areas of very high multiple environmental sensitivity) tend to be concentrated close to the River Trent itself. There are 4 distinct areas:-

- In the north of the county, to the north and south of Cottam power station extending north as far as the village of Littleborough and south as far as the village of Church Laneham. This is a narrow band along the west bank of the river between the Lincolnshire Jurassic limestone escarpment to the east, and intensively farmed agricultural areas to the west.
- A central area extending from the village of Girton to the north of Newark, and to the south of Newark as far as the village of Fiskerton. This is a wider corridor but is still closely associated with the river
- To the northeast of the City of Nottingham, extending from West Bridgford to the village of Gunthorpe, this is a corridor which extends across the whole valley but again this area is still associated with the river
- To the east of Newark is an area which is not associated with the river, which extends from the eastern perimeter of Newark almost as far as the County boundary with Lincolnshire, and surrounds the village of Coddington

The red zone - area of high environmental sensitivity, is also strongly associated with the river corridor:-

- A northern area extends from the County Boundary as far south as the village of Littleborough. To the north of West Burton Power station this zone extends across the whole of the valley, to the south of West Burton it lies to the east of the valley
- An area to the north of Newark connects the dark red zone around Cottam power station with the dark red zone extending north and southeast of Newark, this is associated with the river corridor but at its southern end expands eastwards.
- A central area connects Newark with the southernmost dark red zone, this zone is associated with the river corridor
- To the east of Newark is an area which forms a fringe to the larger dark red zone extending as far as the Lincolnshire border around the village of Barnby in the Willows.

The pink zone - area of medium environmental sensitivity, is the most extensive zone and generally surrounds the other areas described, it forms eastward extensions from the Trent Valley into the East Nottinghamshire Sandlands area.

There are 6 distinct pale pink zones - areas of low environmental sensitivity

- An area of intensive arable farming to the west of the village of Sturton Le Steeple
- An area on the eastern fringe of the County around Harby
- An area on the eastern side of the Trent Valley containing the A1 corridor and extending from Low Marnham to Rolleston
- An area to the east of the Trent Valley to the north and south of the village of Collingham
- An area to the south west of Newark and to the south east of the village of Farndon
- An area to the north west of the City of Nottingham containing the A612 road corridor and sewage treatment infrastructure in the area of Stoke Bardolph

Grey toned areas on the Drawings LR/4026622/07- 12 are urban areas, industrial areas such as power stations, or recreational areas such as Colwick Country Park

6.0 Comparison with identified mineral allocation areas

The final sensitivity map (Drawing LR/4026622/07) was then overlaid with the sand and gravel allocation sites. 8 sites are located in the Trent Valley LCA and 2 in the adjacent East Nottinghamshire Sandlands LCA. Please refer to Drawings LR/4026622/08 – 12, the mineral allocation sites are shown as a dark blue hatched area.

Reference	Name	Classification of area of multiple environmental sensitivity/ Colour code	dataset	dataset	dataset
PA35	Sturton Le Steeple	Part low AMES – pale pink			
		Part very high AMES – Dark red	ecology	historic	landscape
PA19	Girton west	High AMES - Red	ecology		landscape
PA03	Besthorpe east	Very high AMES - Dark red	ecology	historic	landscape
PA04	Besthorpe south	Very high AMES - Dark	ecology	historic	landscape

		red			
PA10	Coddington	Medium AMES - Pink			landscape
PA11	Cromwell south	Very high AMES - Dark red	ecology	historic	landscape
PA22	Langford East	Low AMES - Pale pink			
PA23	Langford Quarry north	Very high AMES - Dark red	ecology	historic	landscape
PA24	Langford south	Very high AMES - Dark red	ecology	historic	landscape
PA41	Shelford western	Very High AMES - Dark red	ecology	historic	landscape

6 sites and part of 1 site (PA35 Sturton le Steeple) are therefore located in areas of significance for all 3 datasets (dark red – very high areas of multiple environmental sensitivity).

Where allocated sites are located in the areas of multiple environmental sensitivity this may mean that the allocated sites are potentially damaging to ecological, heritage and intact landscape features. This gives an early indication that these aspects need to be fully considered in the Environmental Assessment presented with the planning application.

7.0 The map of most environmentally sensitive areas

The areas of multiple environmental sensitivity (AMES) map has been further refined by creating a 'hot spot map' which shows the actual location and extent of areas of multiple environmental sensitivity as defined in sections 4.1 – 4.3. These 'hot spots' show a finer grain of spatial extent than the averaged 'scores' of the LCP units. This map has been produced by overlaying the data in drawings LR/402662/01 – 03. Please refer to Drawing LR/402662/13.

To be added - cross reference to an appendix document which explains the methodology for creating the 'hot spot' map

7.1 Findings

Hot spot areas are distributed throughout the study area but are most closely associated with the River Trent itself, and as would be expected the hot spots are concentrated in the highest sensitivity dark red and red zones. Some hot spots are however located in the lower sensitivity areas, where they are associated with historic village cores such as that of Gunthorpe for example, or areas of intact rural landscapes such as the area around Thorney in the east of the County.

The map of Areas of Multiple Environmental Sensitivity (AMES) - Drawing LR/402662/07 shows an average score across a wide area. The 'Hot spot' map - Drawing LR/402662/13 identifies site specific designations allowing the pattern within individual LCP's to become more apparent. This map also shows that beneath the areas of multiple environmental sensitivity there is an additional layer of detail to be considered when thinking about site scale issues.

7.2 Inter-relationship with mineral allocation sites

Reference	Name	Classification of area of multiple environmental sensitivity/ Colour code	Hot spot within allocation area
PA35	Sturton Le Steeple	Part very high AMES – Dark red	Yes - Dark green (all 3 datasets)
PA19	Girton west	High AMES - Red	Yes - Dark green (all 3 datasets)
PA03	Besthorpe east	Very high AMES - Dark red	No
PA04	Besthorpe south	Very high AMES - Dark red	Yes - Dark green (all 3 datasets)
PA10	Coddington	Medium AMES - Pink	No

PA11	Cromwell south	Very high AMES - Dark red	Yes – Dark green (all 3 datasets) Note: Small area
PA22	Langford east	Low AMES – Pale pink	No
PA23	Langford Quarry north	Very high AMES - Dark red	No
PA24	Langford south	Very high AMES - Dark red	Yes - light green (1 data set - heritage)
PA41	Shelford western	Very high AMES - Dark red	Yes – Dark green (all 3 datasets)

6 of the allocated mineral sites contain hotspot areas within their boundaries. 3 of these sites are also areas of very high multiple environmental sensitivity (PA04, PA11, PA41). Part of 1 of the sites, which contains hot spots, is an area of very high multiple environmental sensitivity (PA 35). 1 of the sites has a hot spot within a high area of multiple environmental sensitivity site (PA 19), 1 site has a heritage only hotspot in a very high multiple environmental sensitivity area (PA24). Please refer to Drawings LR/4026622/013 – 017.

The 2 assessments can be used as follows: ‘Areas of search’ could be identified from the broader scale AMES map, the ‘hot spot’ and Biodiversity Opportunities Map (See section 8 below) could then be used to look at the relative merits of a specific site, within an LCP unit.

8.0 Comparison with the Biodiversity Opportunities Mapping (BOM) exercise

The Biodiversity Opportunities Mapping (BOM) exercise sets out to map those areas of the Trent Valley that could achieve the highest biodiversity benefit rather than their current condition for example by establishing linkages between existing sites of high biodiversity value. In contrast the map of areas of multiple environmental sensitivity (AMES) looks at existing conditions averaged over a wider area and therefore shows less detail.

There appears to be little obvious correlation between the pattern revealed in the completed map of areas of multiple environmental sensitivity (AMES - Drawing LR/4026622/07) and the Biodiversity Opportunities Map (BOM). However this should not necessarily be expected as:-

- (i) The BOM is not considering current biodiversity value but is instead considering the potential for greater biodiversity value at a site specific scale.
- (ii) The AMES assessment considers existing biodiversity quality over the larger land unit of the LCP.

The landscape scale multiple environmental sensitivity map can be considered initially, with secondly the finer 'field by field' scale of the BOM considered in parallel with the hot spot data from this study, i.e. using the 2 studies in a sequential way.

To be added - cross reference to an appendix document which explains how the map of area of multiple environmental sensitivity and the Biodiversity Opportunities Map can be used

9.0 Summary and Conclusions

Overall, the methodology outlined above has allowed for different environmental data to be analysed at a landscape scale to identify those areas of landscape that may be considered to be of highest value with respect to landscape character, biodiversity and the historic environment, in summary it provides:-

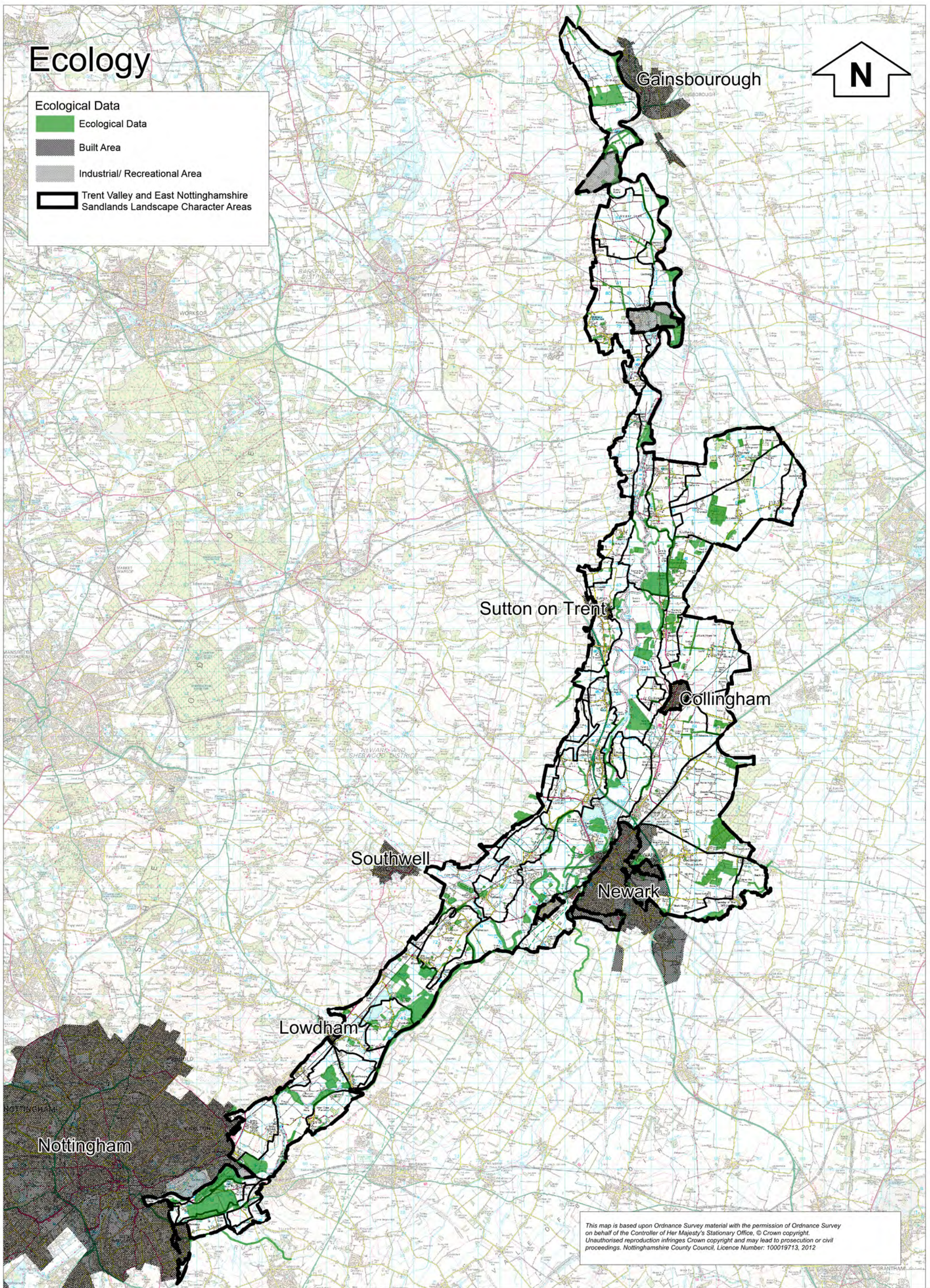
- a landscape scale spatial assessment of areas of multiple environmental sensitivity.
- a finer grain, site scale assessment of areas of multiple environmental sensitivity.
- a planning tool to help inform the prioritisation of development proposals and landscape management priorities.
- a planning tool to allow the minerals industry to bring forward sites in the least environmentally sensitive areas where the mineral resource is available.

A further development of this assessment would be to create a landscape vision for the Trent Valley to look beyond its current condition in order to fulfil opportunities

Ecology

Ecological Data

- Ecological Data
- Built Area
- Industrial/ Recreational Area
- Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date	Auth	Ch'kd	Drawn	Description	Rev	Status
Drawn	SP					
Ch'kd	CG					
Traced						
		Auth	CG			

Project No.	4026622
Drawing No.	LR/4026622/01

Project	Trent Valley Environmental Sensitivity Assessment
Title	Ecology - Source Data

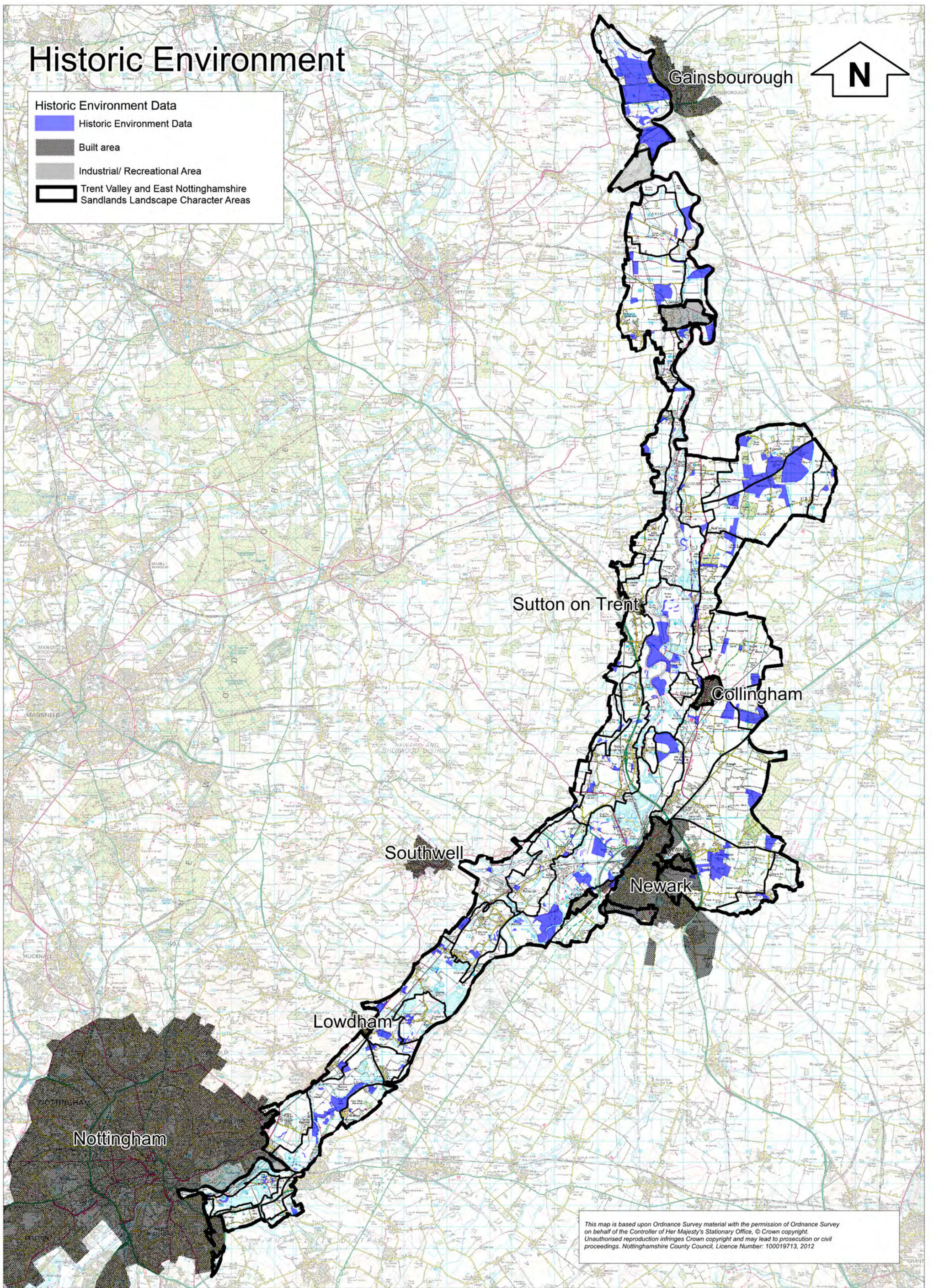
Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080

Historic Environment



Historic Environment Data

- Historic Environment Data
- Built area
- Industrial/ Recreational Area
- Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date	Auth	Ch'kd	Drawn	Description	Rev	Status
Drawn	SP					
Ch'kd	CG					
Traced						
Date	Jul13					
Date	Jul13					
Auth	CG					

Project No.	4026622
Drawing No.	LR/4026622/02

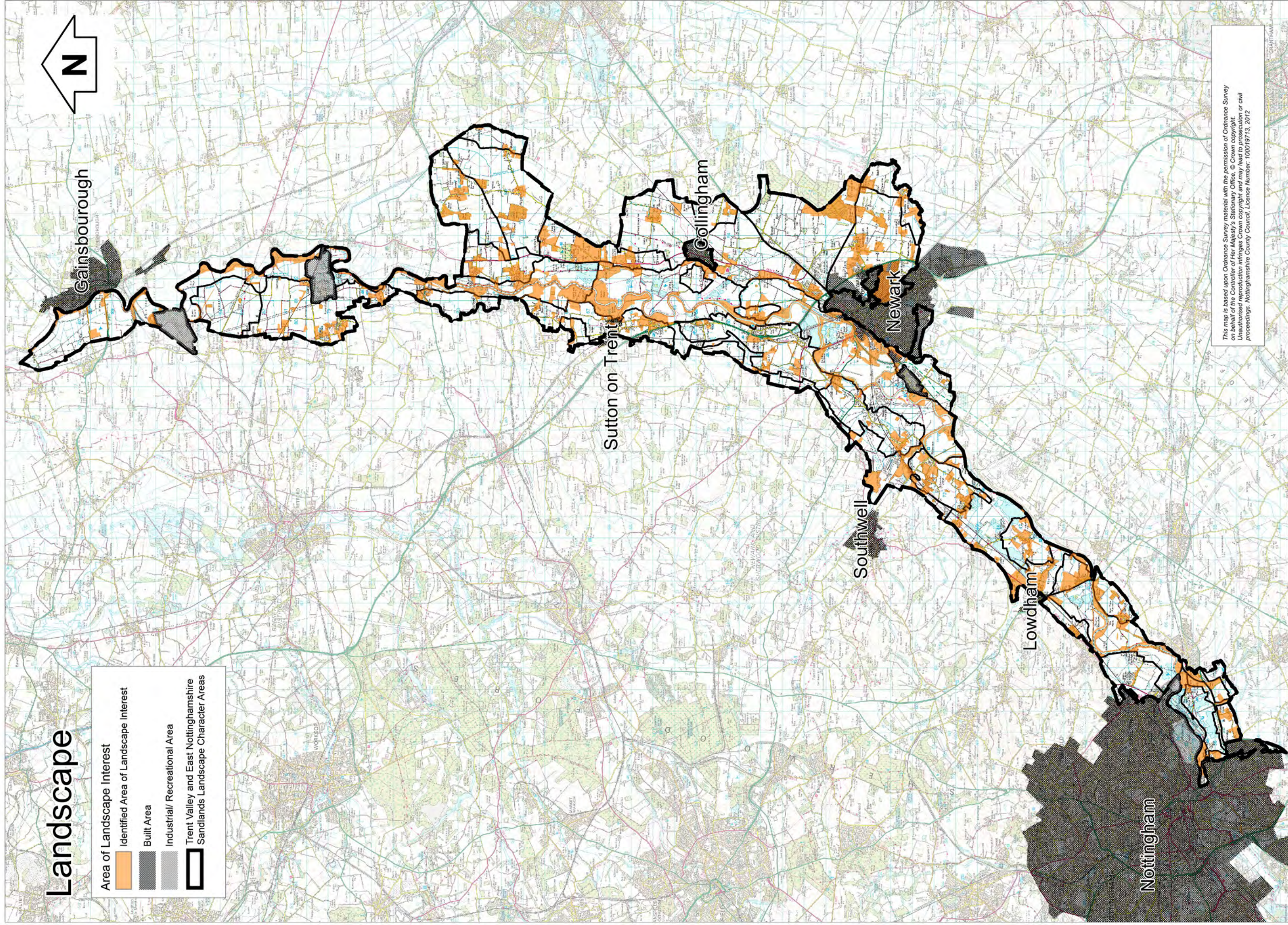
Project	Trent Valley Environmental Sensitivity Assessment
Title	Historic Environment - Source Data

Nottinghamshire County Council

Trent Bridge House, Fox Road,
West Bridgford Nottingham NG2 6BJ
Tel: 08449 808080

Landscape

- Area of Landscape Interest
- Identified Area of Landscape Interest
- Built Area
- Industrial/ Recreational Area
- Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown copyright and/or other rights may apply. All rights reserved. Unauthorised reproduction infringes Crown copyright and may lead to proceedings being taken against the offender. Ordnance Survey Licence Number: 100019713, 2012

Date	Auth	Chkd	Drawn	Description	Rev	Stat
Drawn	SP					
Chkd	CG					
Traced						

Date	Date	Scale
Date	Jul13	1:160 000
Date	Jul13	
Auth	CG	

Project No.	Rev	Rev
4026622		
Drawing No.		
LR/4026622/03		

Project	Title
Trent Valley Environmental Sensitivity Assessment	Area of Landscape Interest - Source Data



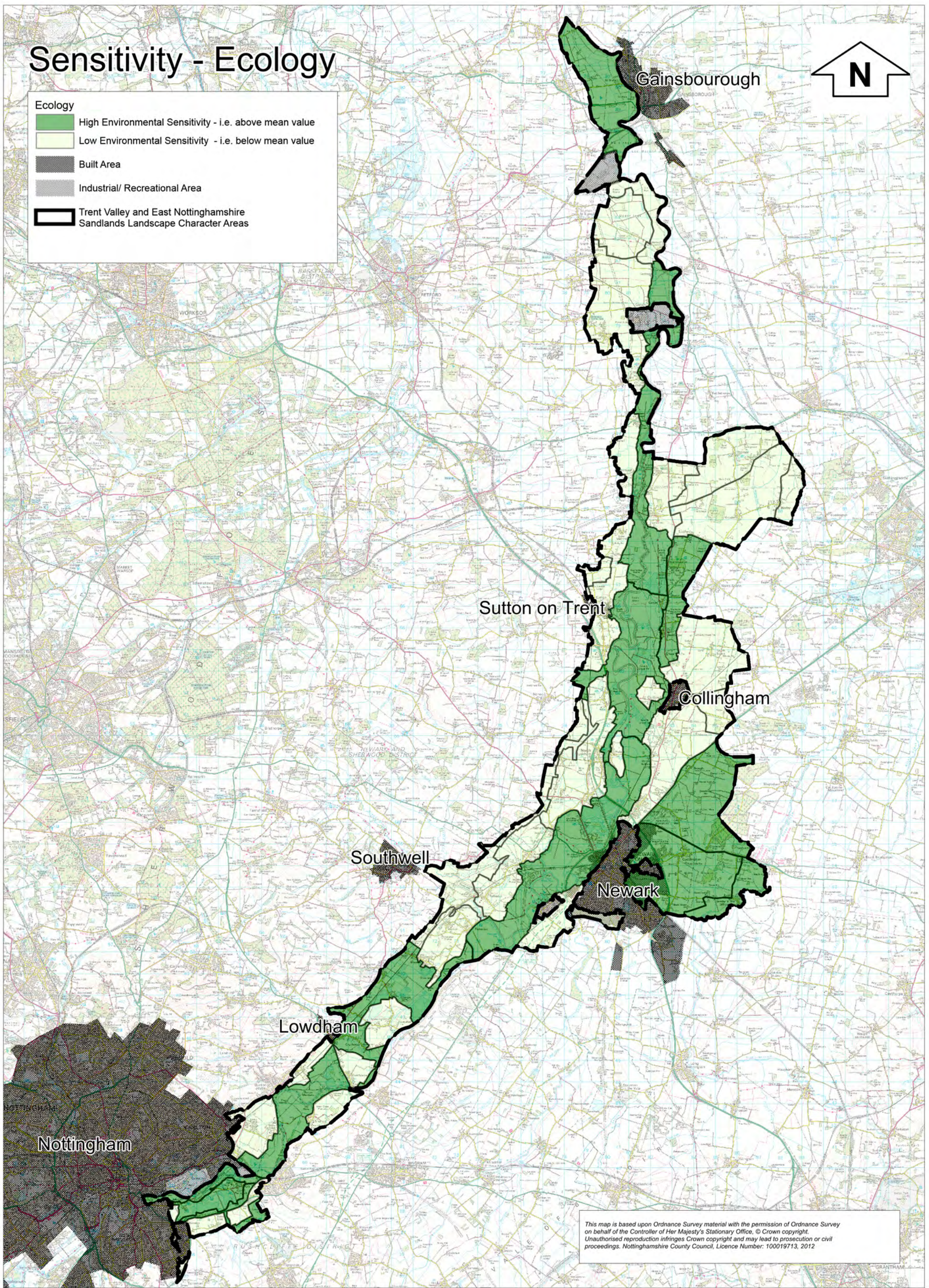
Nottinghamshire County Council
Trent Bridge House, Fox Road,
West Bridgford Nottingham NG2 6BJ
Tel: 08449 808080

Sensitivity - Ecology



Ecology

- High Environmental Sensitivity - i.e. above mean value
- Low Environmental Sensitivity - i.e. below mean value
- Built Area
- Industrial/ Recreational Area
- Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date	Auth	Ch'kd	Drawn	Description	Rev	Status
Drawn	SP					
Ch'kd	CG					
Traced						
Date	Jul13					
Date	Jul13					
Auth	CG					

Project No.	4026622
Drawing No.	LR/4026622/04

Project	Trent Valley Environmental Sensitivity Assessment
Title	Sensitivity - Ecology

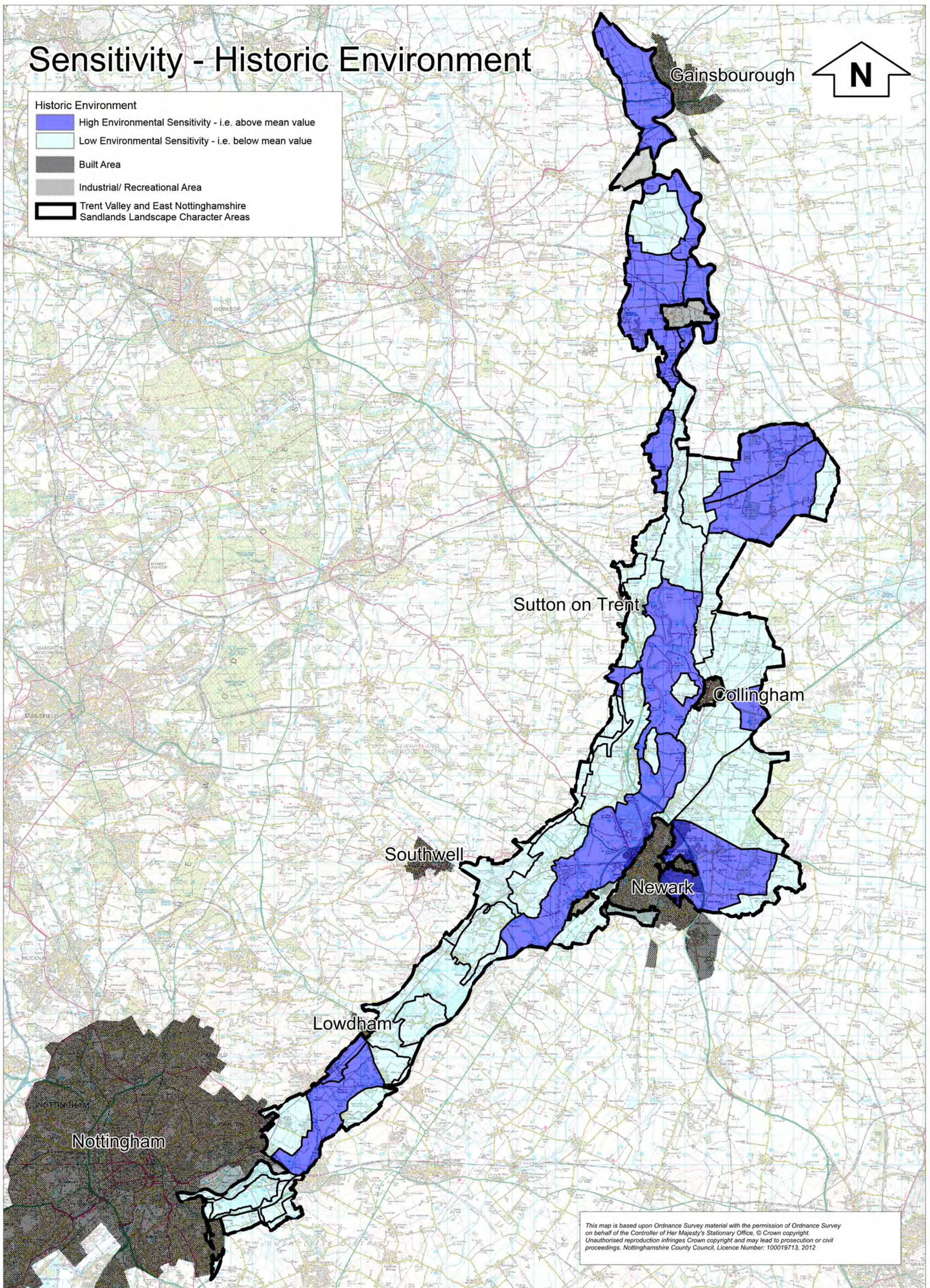
Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080

Sensitivity - Historic Environment



Historic Environment

- High Environmental Sensitivity - i.e. above mean value
- Low Environmental Sensitivity - i.e. below mean value
- Built Area
- Industrial/ Recreational Area
- Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date	Auth	Ch'kd	Drawn	Description	Rev	Status
Drawn	SP					
Ch'kd	CG					
Traced						
			Auth	CG		

Project No.	4026622
Drawing No.	LR/4026622/05

Project	Trent Valley Environmental Sensitivity Assessment
Title	Sensitivity - Historic Environment

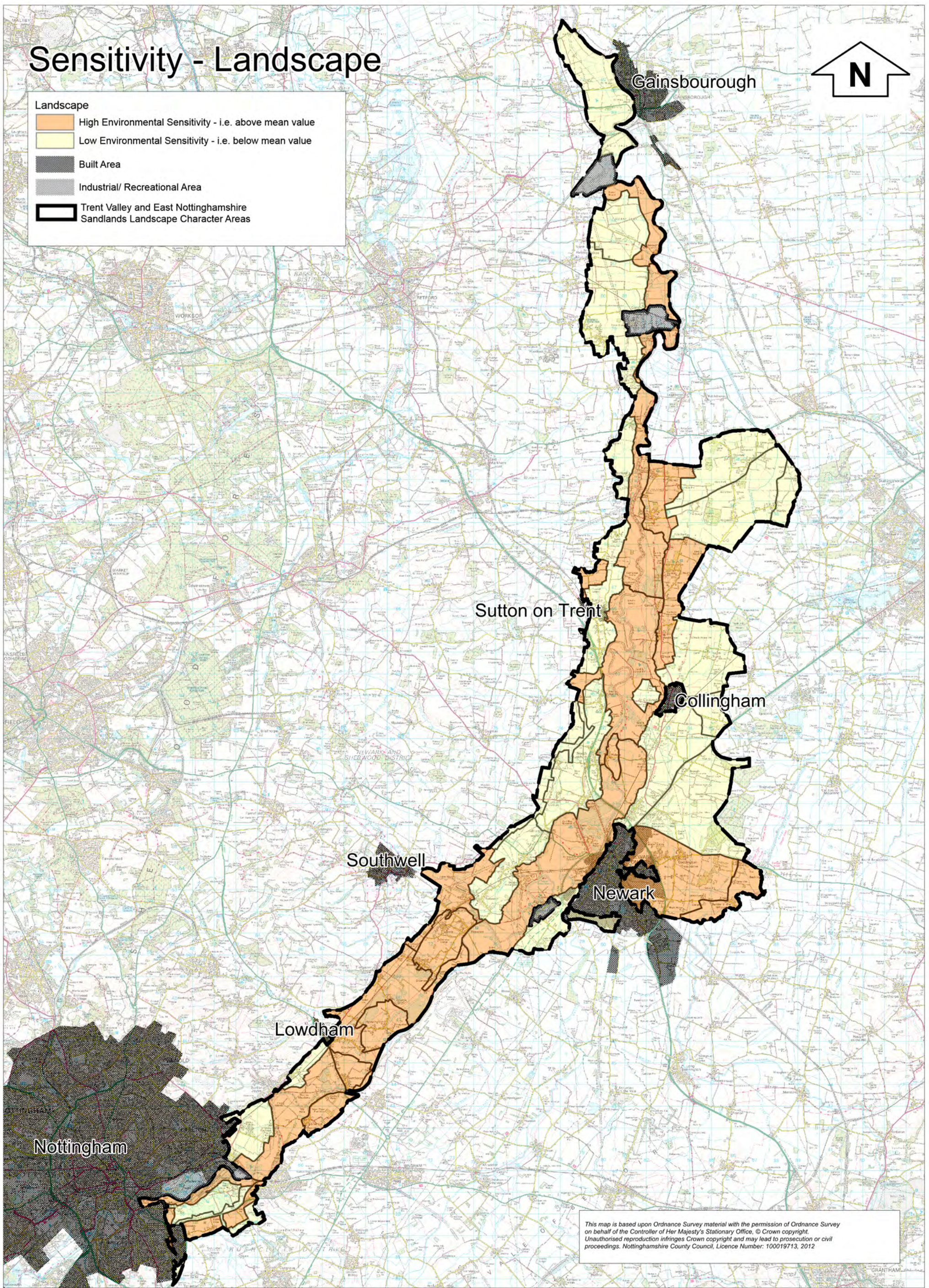
Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080

Sensitivity - Landscape



Landscape

- High Environmental Sensitivity - i.e. above mean value
- Low Environmental Sensitivity - i.e. below mean value
- Built Area
- Industrial/ Recreational Area
- Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



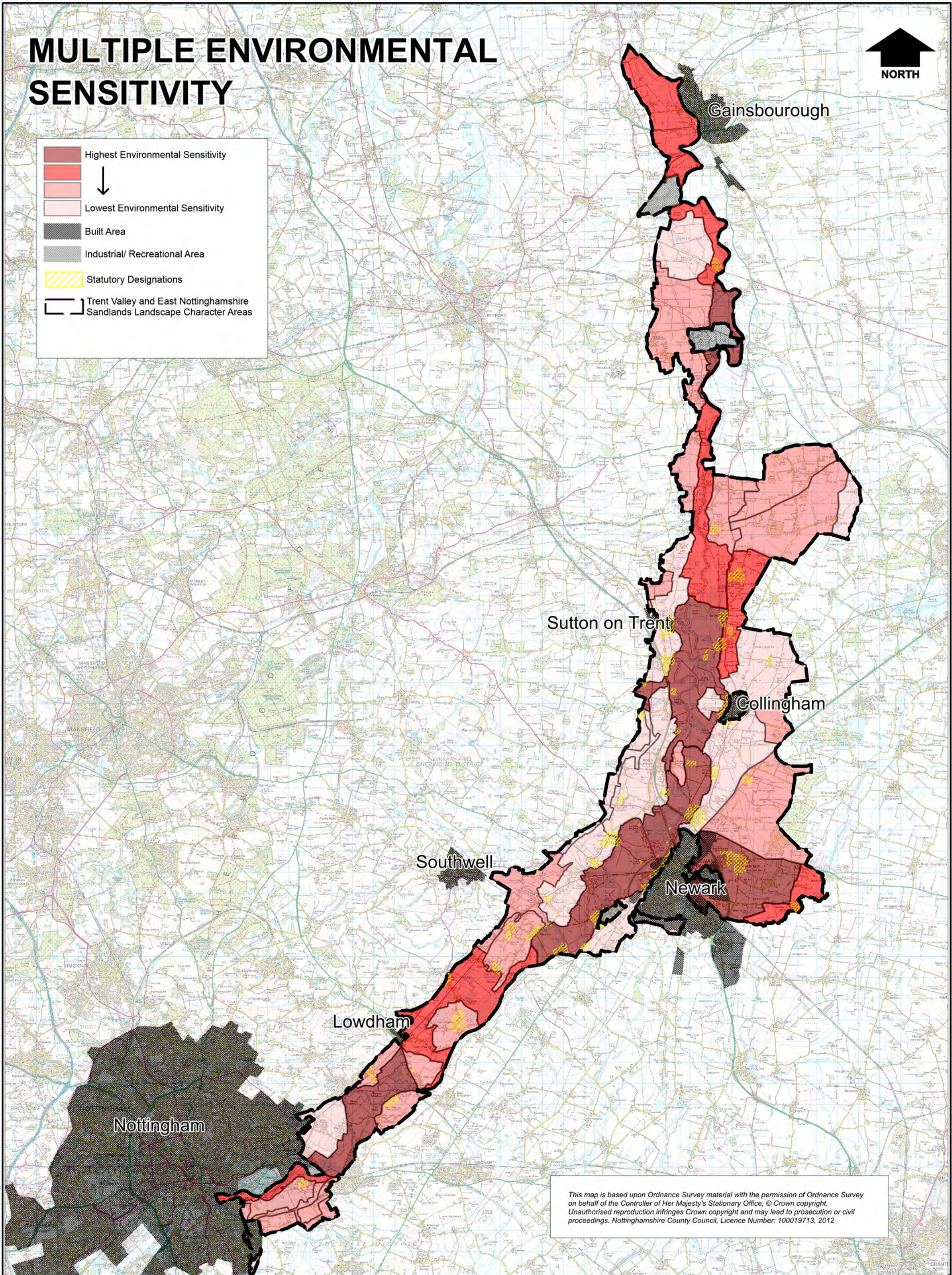
This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date		Auth	Ch'kd	Drawn	Description	Rev	Status	Project No.	4026622	Project	Trent Valley Environmental Sensitivity Assessment
Drawn		SP		Date	Jul13	Scale		Drawing No.	LR/4026622/06	Title	Sensitivity - Landscape
Ch'kd		CG		Date	Jul13	1:160 000				Nottinghamshire County Council Trent Bridge House, Fox Road, West Bridgford Nottingham NG2 6BJ Tel: 08449 808080	
Traced				Auth	CG					© Nottinghamshire County Council	

MULTIPLE ENVIRONMENTAL SENSITIVITY



	Highest Environmental Sensitivity
	↓
	Lowest Environmental Sensitivity
	Built Area
	Industrial/ Recreational Area
	Statutory Designations
	Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas



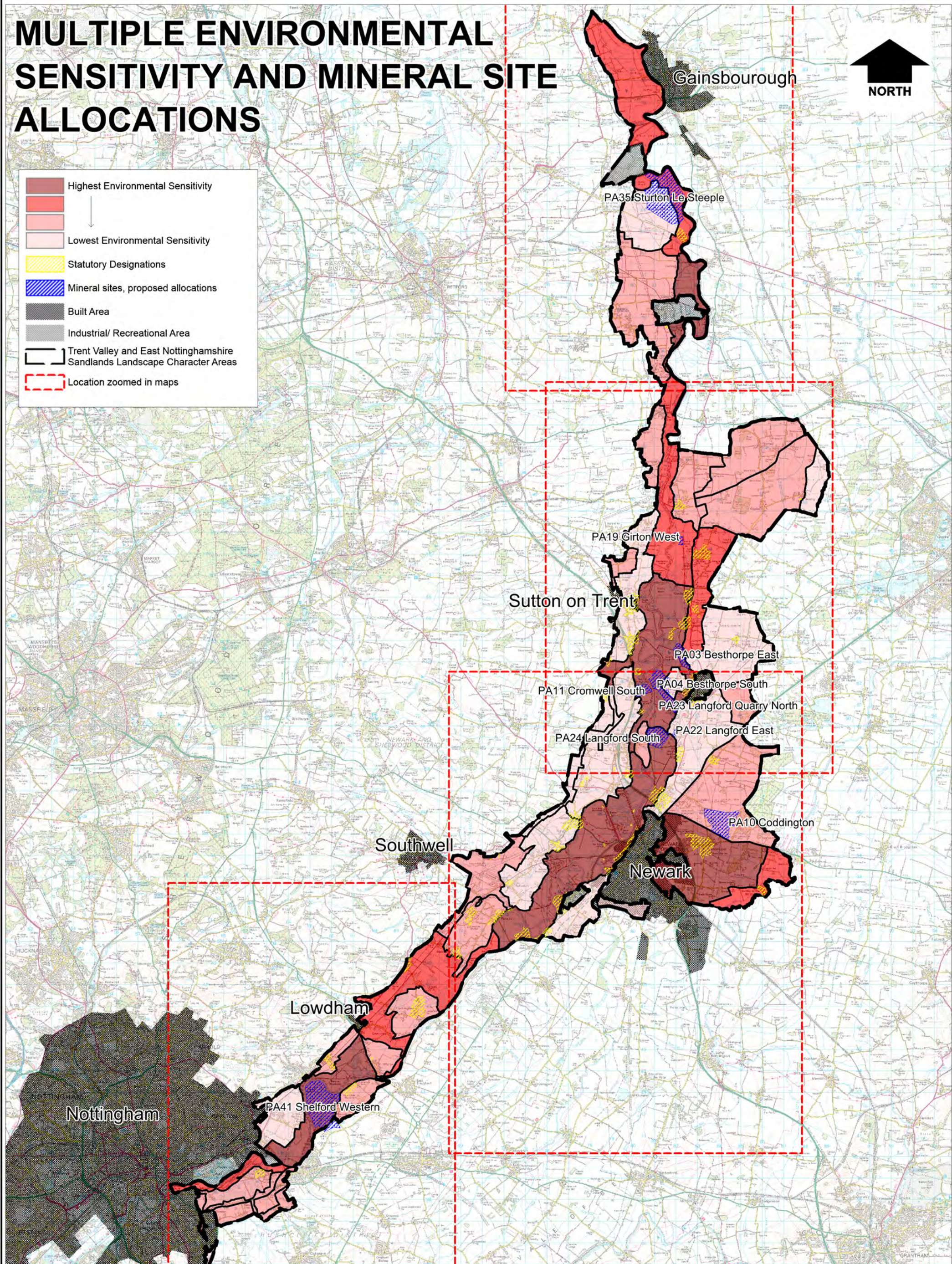
This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office, © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date		Auth		Ch'kd		Drawn		Description		Rev Status		Drawing No.		Rev	
Drawn		SP		Date		Jul13		Scale		1:160 000@A3		Project No.		4026622	
Ch'kd		CG		Date		Jul13		Project		Trent Valley Environmental Sensitivity Assessment		Title		Multiple Environmental Sensitivity Trent Valley	
Traced		Auth		CG		Project		Nottinghamshire County Council		Nottinghamshire County Council		Trent Bridge House, Fox Road, West Bridgford Nottingham NG2 6BJ		Tel: 08449 808080	

MULTIPLE ENVIRONMENTAL SENSITIVITY AND MINERAL SITE ALLOCATIONS



	Highest Environmental Sensitivity
	↓
	Lowest Environmental Sensitivity
	Statutory Designations
	Mineral sites, proposed allocations
	Built Area
	Industrial/ Recreational Area
	Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas
	Location zoomed in maps



Date	Auth	Ch'kd	Drawn	Description	Rev	Status
	SP					
	CG					
	CG					

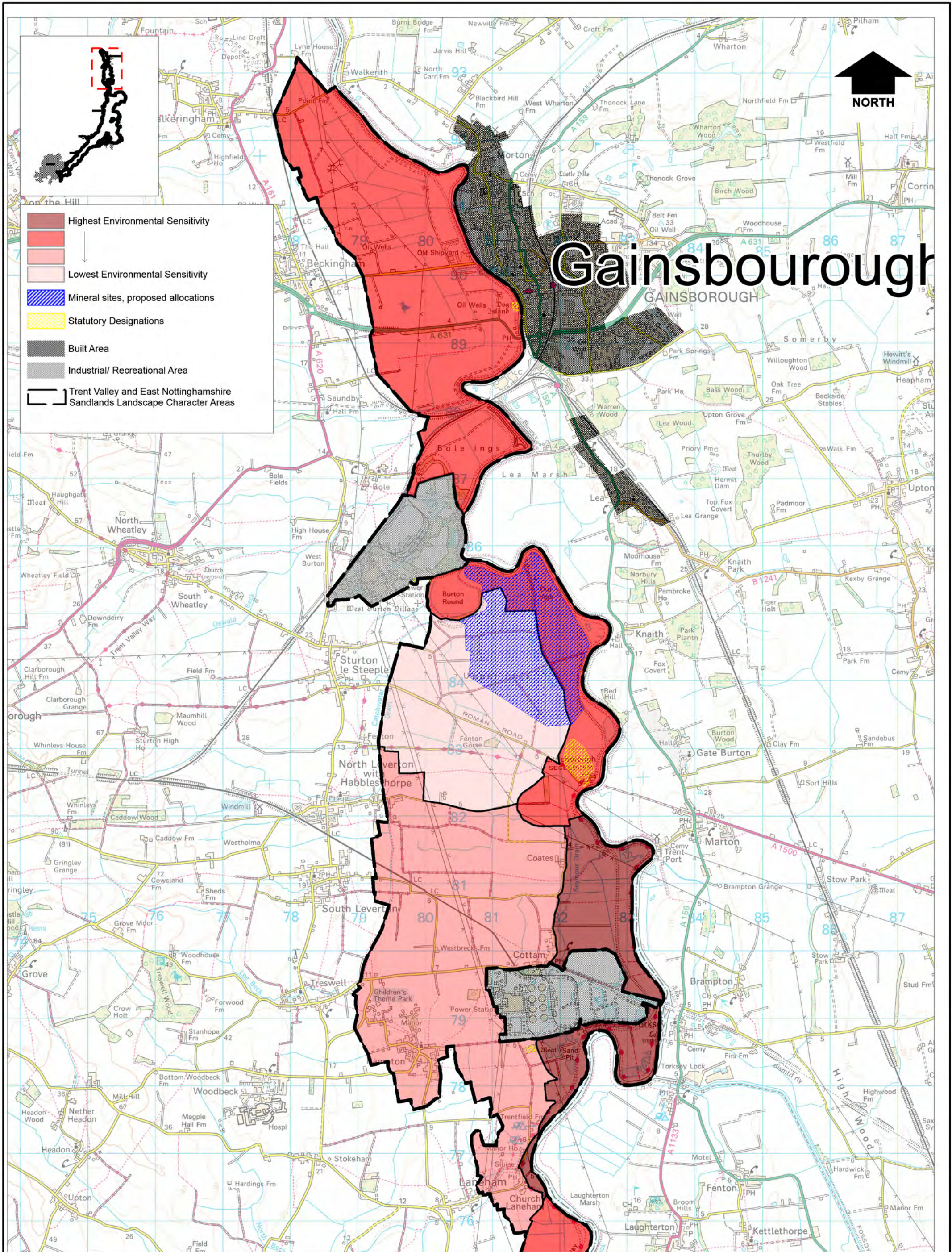
Project No.	4026622
Drawing No.	LR/4026622/08

Project	Trent Valley Environmental Sensitivity Assessment
Title	Mineral site allocations

CONFIDENTIAL DRAFT



Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080



Gainsborough

Highest Environmental Sensitivity

Lowest Environmental Sensitivity

Mineral sites, proposed allocations

Statutory Designations

Built Area

Industrial/ Recreational Area

Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas

Date	Auth	Ch'kd	Drawn	Description	Rev	Status
	SP					
	CG					
			CG			

Project No: 4026622

Project: Trent Valley Environmental Sensitivity Assessment

Drawing No: LR/4026622/09

Scale: 1:50 000@A3

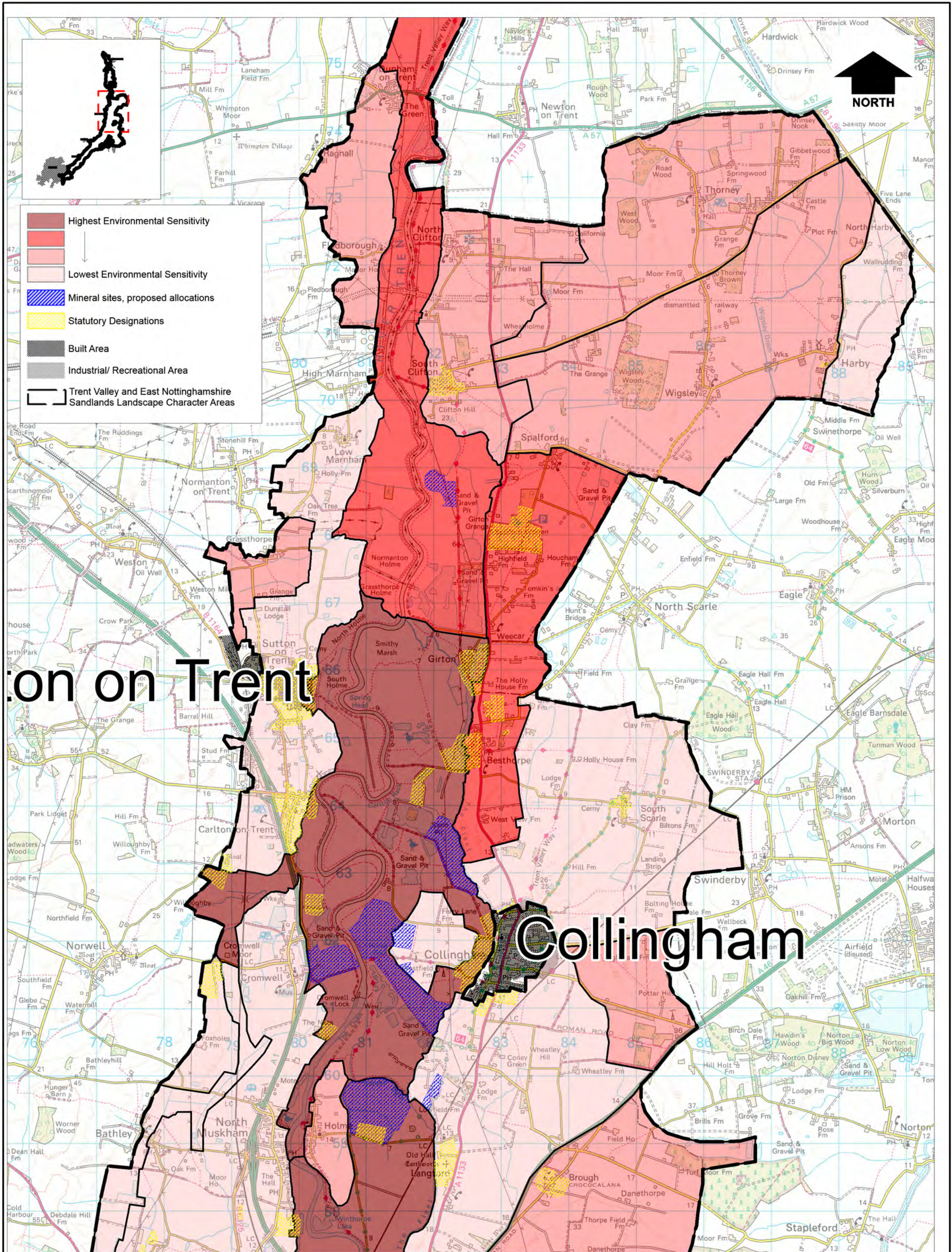
Time: Zoomed in area 1

CONFIDENTIAL DRAFT

Nottinghamshire County Council

Trent Bridge House, Fox Road, West Bridgford Nottingham NG2 6BJ

Tel: 08449 808080

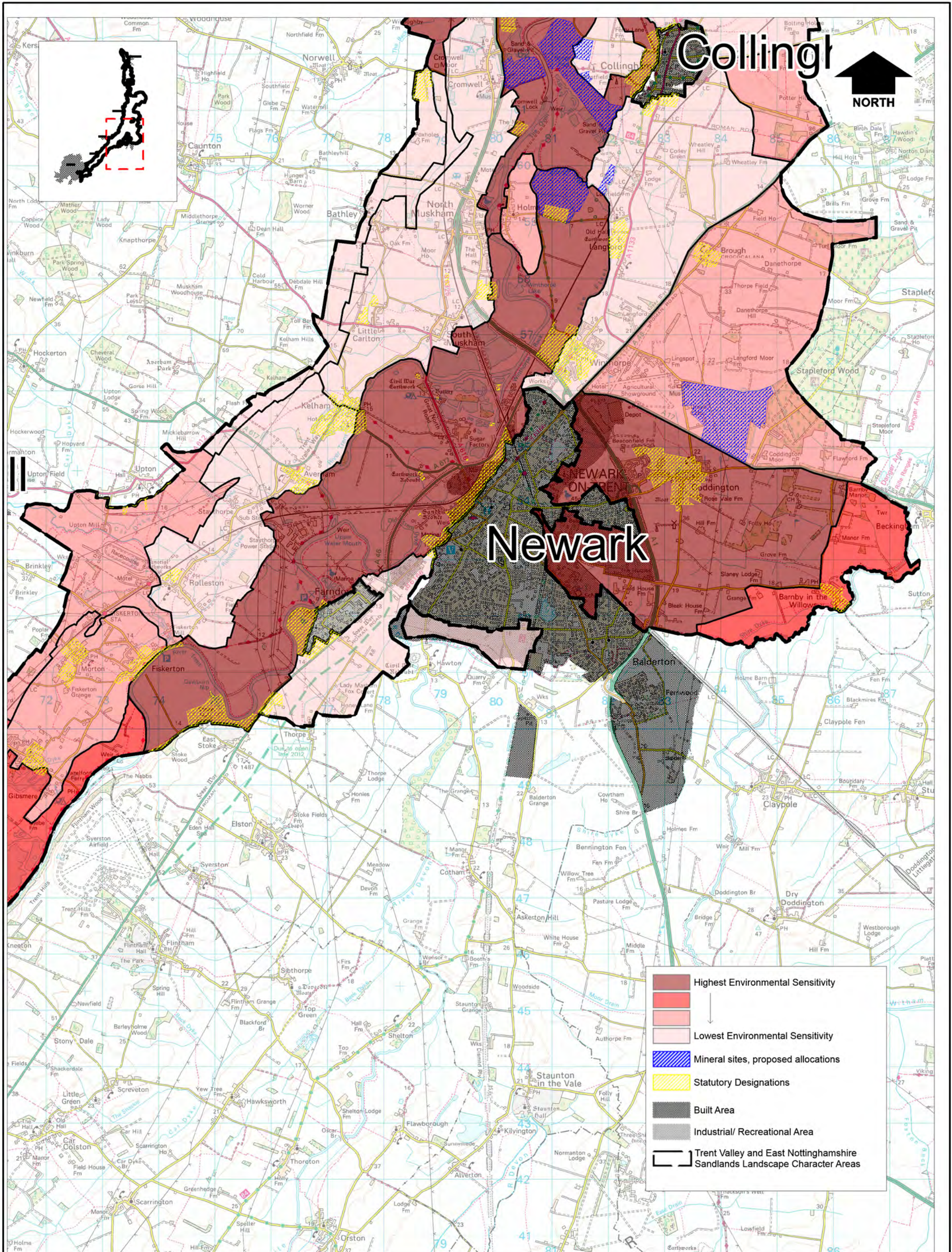


on on Trent

Collingham

Project No. 4026622		Project: Trent Valley Environmental Sensitivity Assessment	
Drawing No. LR/4026622/10		Title: Zoomed in area 2	
Date: Jul13	Scale: 1:50 000@A3	CONFIDENTIAL DRAFT	
Drawn: SP	Date: Jul13		
Chkd: CG	Date: Jul13		
Traced:	Auth: CG		

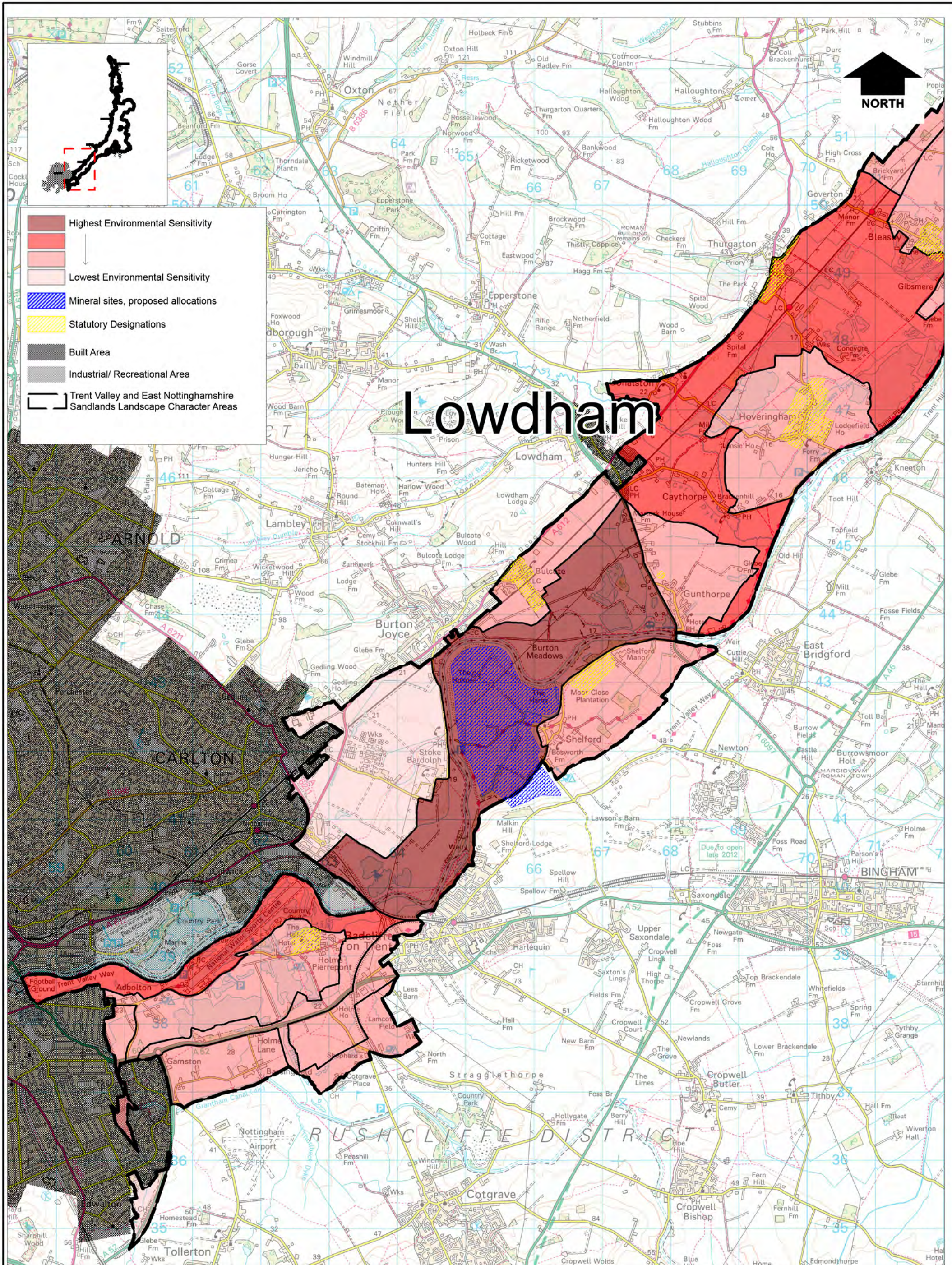
Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080



Project No. 4026622		Project: Trent Valley Environmental Sensitivity Assessment	
Date	Auth	Ch'kd	Drawn
Drawn: SP	Date: Jul13	Scale: 1:60 000@A3	Rev Status
Ch'kd: CG	Date: Jul13	LR/4026622/11	Rev
Traced	Auth: CG	Zoomed in area 3	

CONFIDENTIAL DRAFT

Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BU
 Tel: 08449 808080



Date	Auth	Ch'kd	Drawn	Description	Rev	Status	Drawing No.	Rev	Project
	SP	CG	CG				LR/4026622/12		Trent Valley Environmental Sensitivity Assessment
									Zoomed in area 4

Project No. 4026622

Project: Trent Valley Environmental Sensitivity Assessment

Time: Zoomed in area 4

CONFIDENTIAL DRAFT

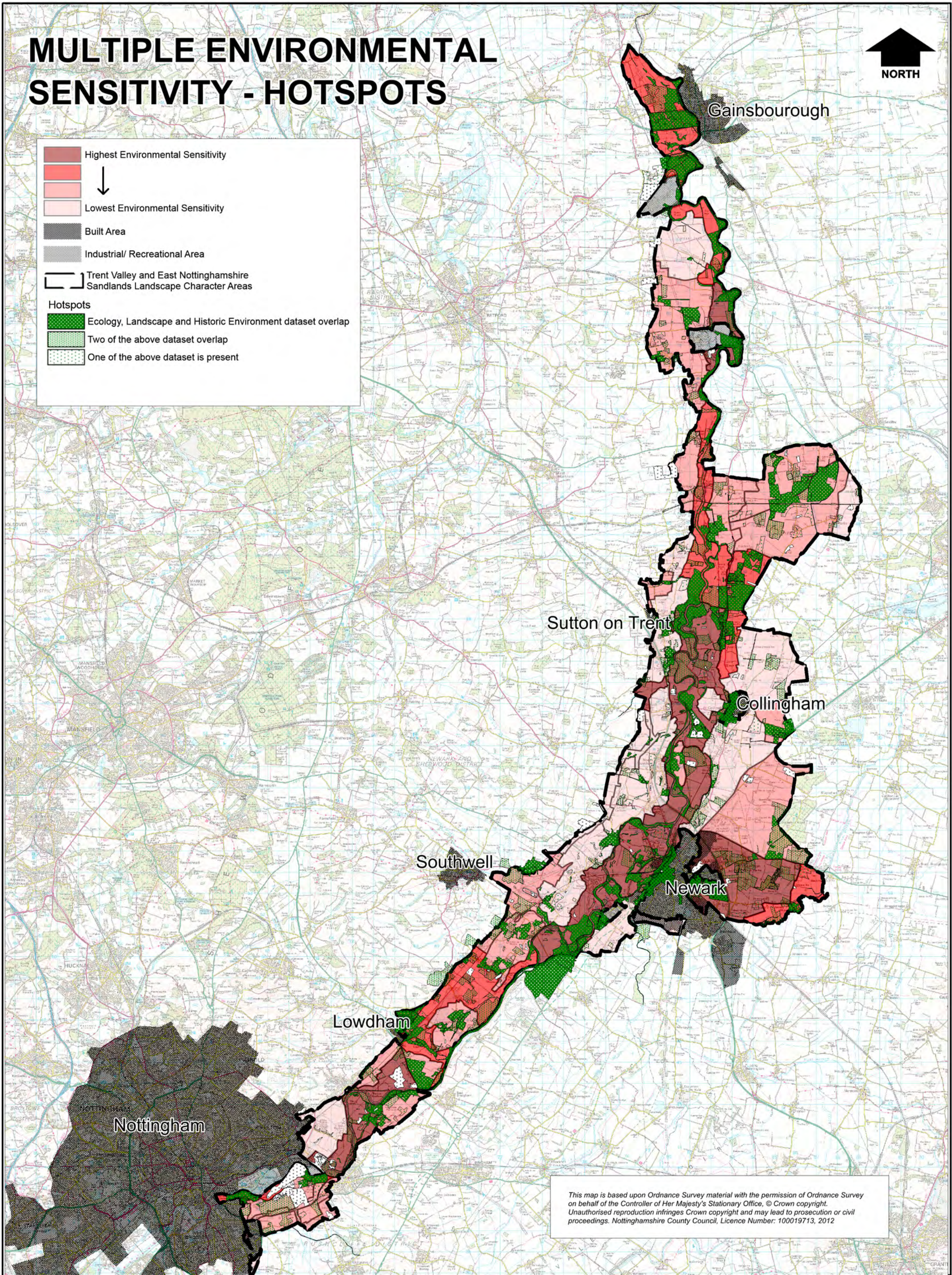


Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080

MULTIPLE ENVIRONMENTAL SENSITIVITY - HOTSPOTS



	Highest Environmental Sensitivity
	↓
	Lowest Environmental Sensitivity
	Built Area
	Industrial/ Recreational Area
	Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas
Hotspots	
	Ecology, Landscape and Historic Environment dataset overlap
	Two of the above dataset overlap
	One of the above dataset is present



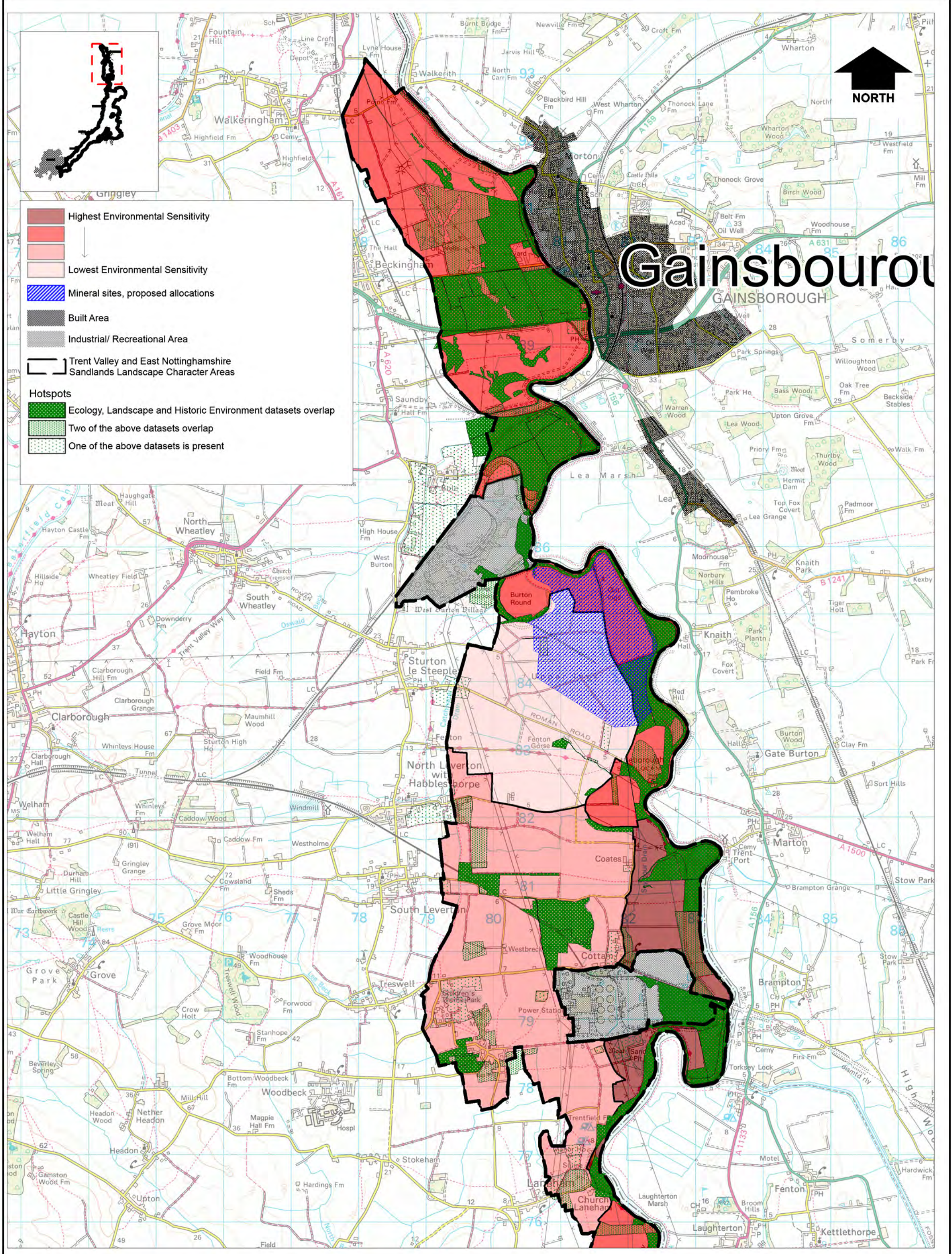
This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office, © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Nottinghamshire County Council, Licence Number: 100019713, 2012

Date	Auth	Ch'kd	Drawn	Description	Rev Status
Drawn	SP				
Ch'kd	CG				
Traced					

Project No.	4026622
Drawing No.	LR/4026622/13

Project	Trent Valley Environmental Sensitivity Assessment
Title	Multiple Environmental Sensitivity, Hotspots, Trent Valley

Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080



Highest Environmental Sensitivity

Lowest Environmental Sensitivity

Mineral sites, proposed allocations

Built Area

Industrial/ Recreational Area

Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas

Hotspots

- Ecology, Landscape and Historic Environment datasets overlap
- Two of the above datasets overlap
- One of the above datasets is present

Gainsborough

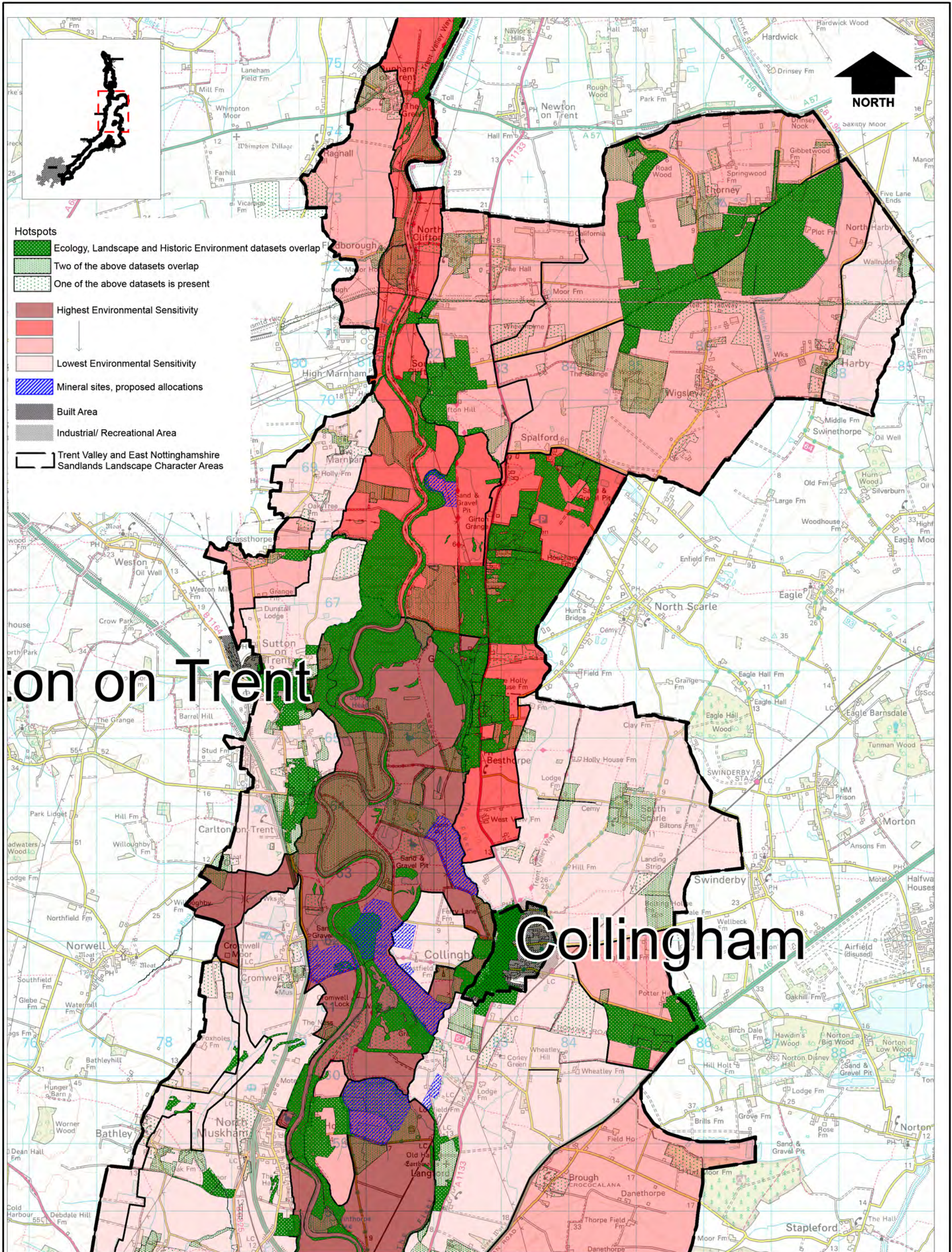
Project No. 4026622
 Project: Trent Valley Environmental Sensitivity Assessment
 Drawing No. LR/4026622/14
 Title: Zoomed in area, Hotspots 1

CONFIDENTIAL DRAFT

Date	Auth	Ch'kd	Drawn	Description	Rev	Status
Jul13	SP					
Jul13	CG					

Scale: 1:50 000@A3

Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080

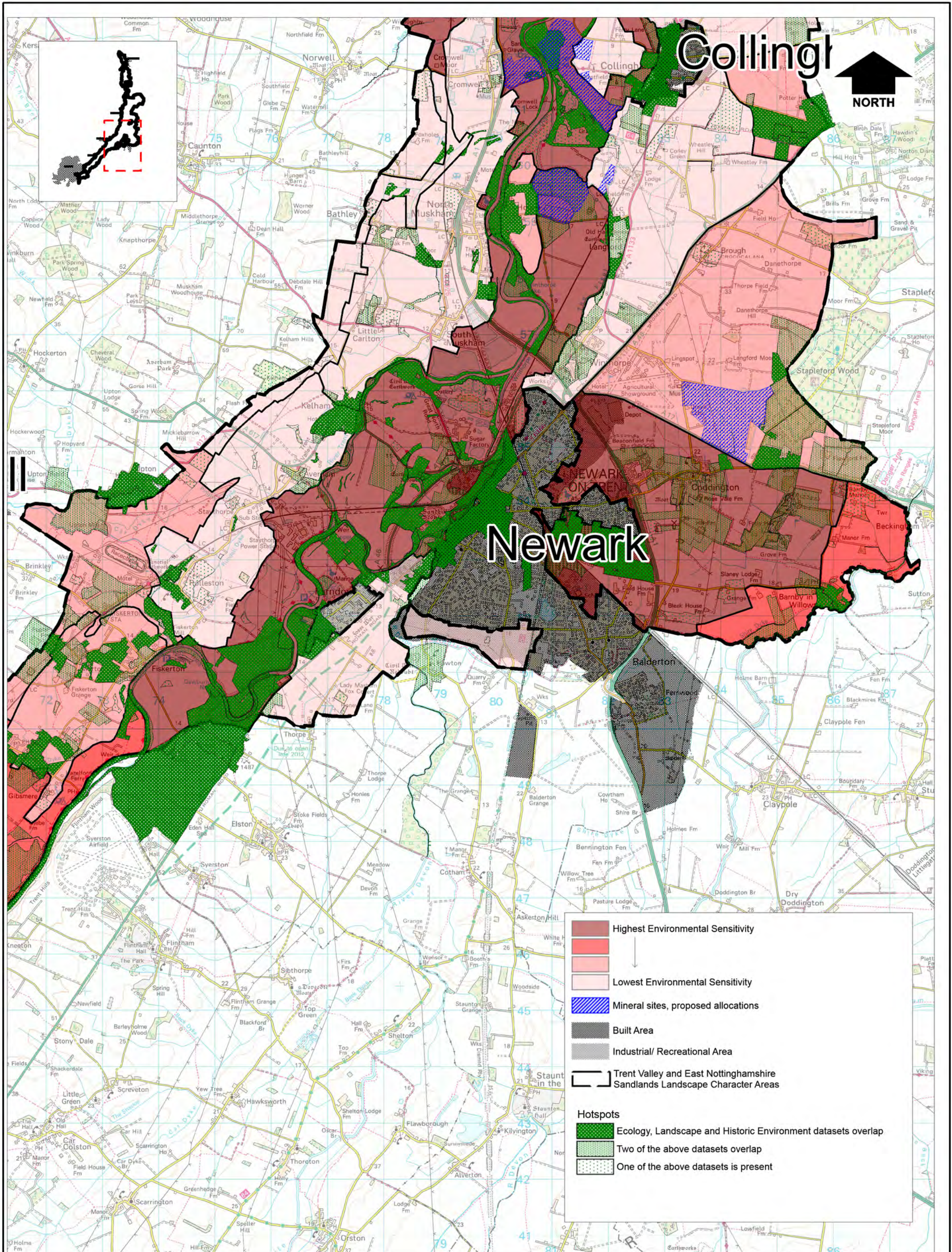


Date	Auth	Ch'kd	Drawn	Description	Rev	Status
	SP					
	CG					
	CG					

Project No. 4026622	Project Trent Valley Environmental Sensitivity Assessment
Drawing No. LR/4026622/15	Rev Title Zoomed in area, Hotspots 2

CONFIDENTIAL DRAFT

Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080



Collingwood



Newark

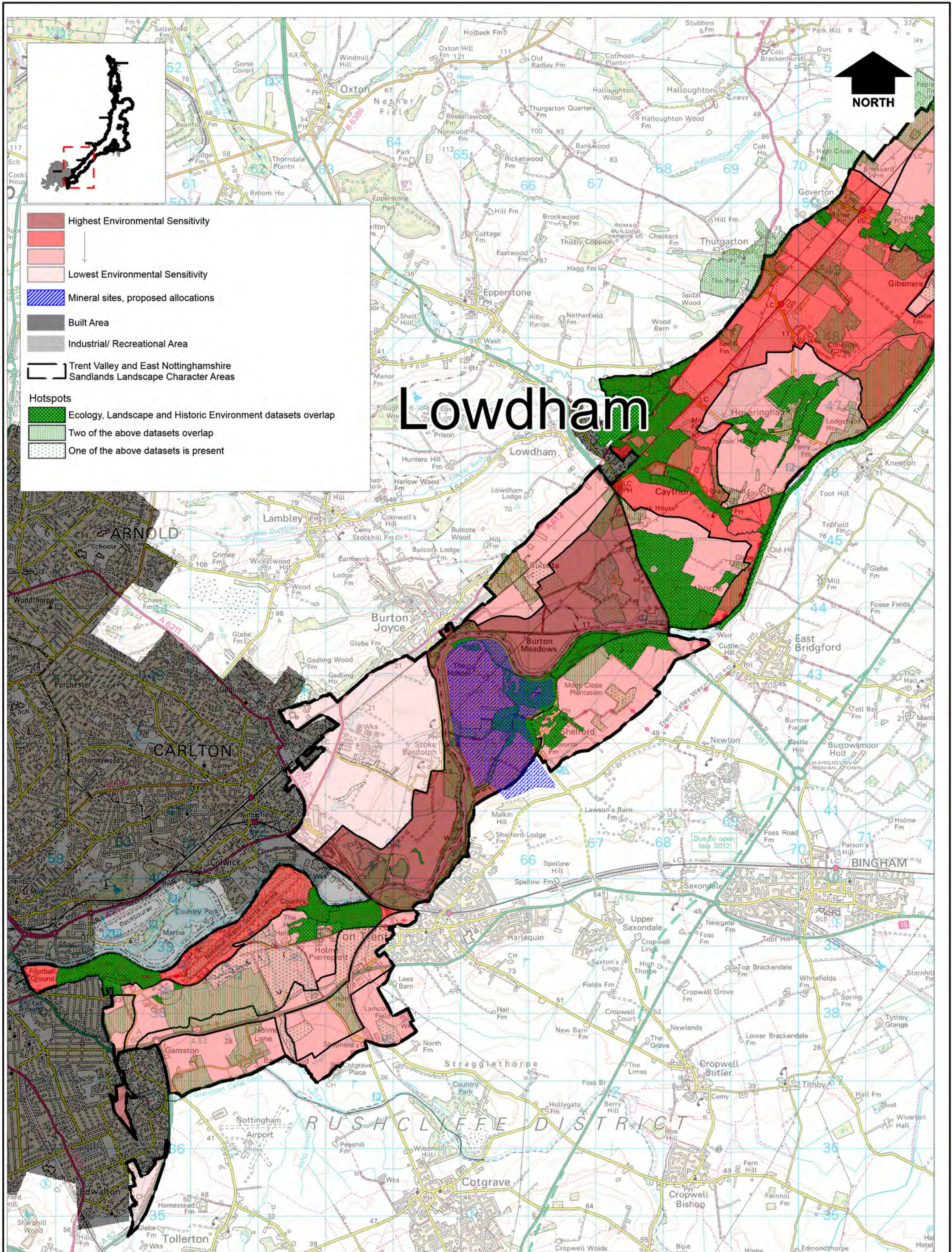
	Highest Environmental Sensitivity
	Lowest Environmental Sensitivity
	Mineral sites, proposed allocations
	Built Area
	Industrial/ Recreational Area
	Trent Valley and East Nottinghamshire Sandlands Landscape Character Areas
Hotspots	
	Ecology, Landscape and Historic Environment datasets overlap
	Two of the above datasets overlap
	One of the above datasets is present

Project No. 4026622		Project: Trent Valley Environmental Sensitivity Assessment	
Date	Auth	Chkd	Drawn
Drawn: SP	Date: Jul13	Scale: 1:60 000@A3	Rev Status
Chkd: CG	Date: Jul13	LR/4026622/16	Rev
Traced	Auth: CG	Zoomed in area, Hotspots 3	

CONFIDENTIAL DRAFT



Nottinghamshire County Council
 Trent Bridge House, Fox Road,
 West Bridgford Nottingham NG2 6BJ
 Tel: 08449 808080



Date	Auth	Cl'kd	Drawn	Description	Rev	Status	Drawing No.	Rev	Time
	SP						LR/4026622/17		
	CG								
	CG								

Project No: 4026622

Project: Trent Valley Environmental Sensitivity Assessment

Rev: 4

Time: Zoomed in area, Hotspots 4

CONFIDENTIAL DRAFT

Nottinghamshire County Council

Trent Bridge House, Fox Road,
West Bridgford Nottingham NG2 6BJ
Tel: 08449 808080

Nottinghamshire County Council