



Minerals and Waste Joint Plan

Minerals and waste spatial maps

August 2015

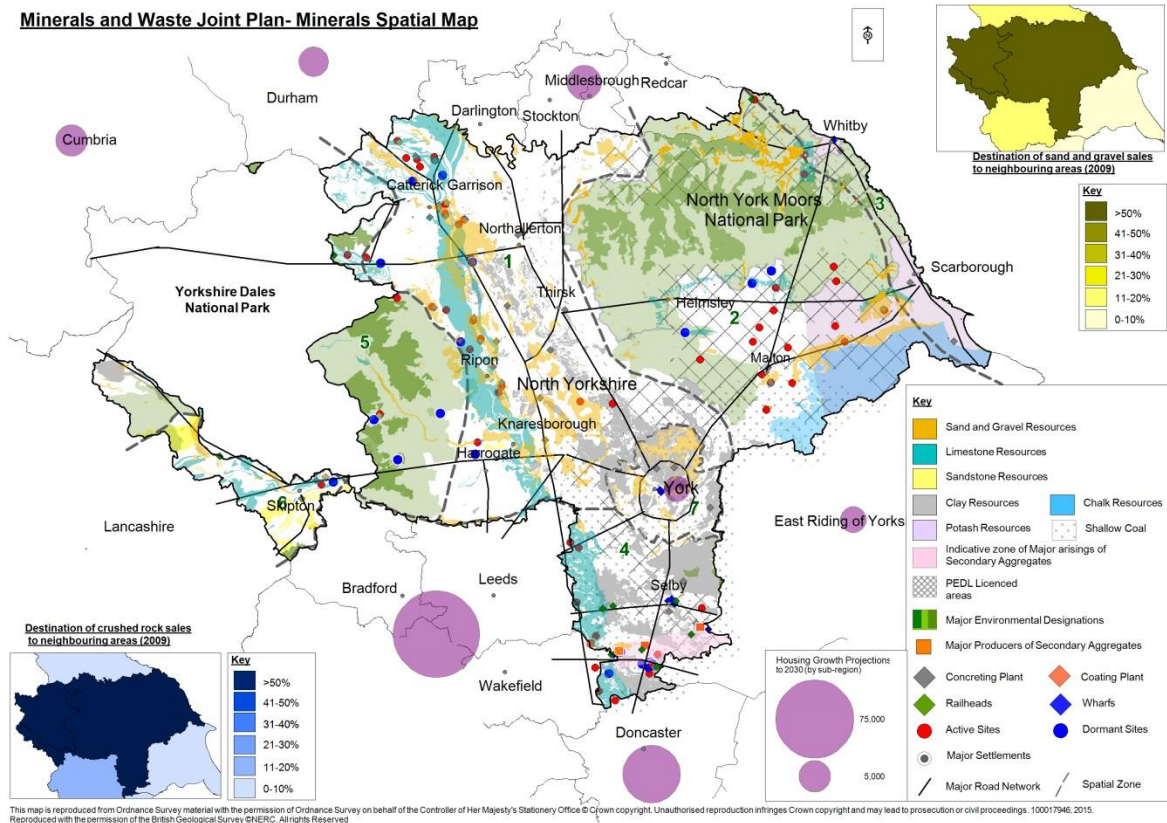
Minerals and waste 'spatial maps' have been prepared to help gain an understanding of the key minerals and waste characteristics of the area and inform the preparation of the Joint Plan. The 'spatial maps' provide a summary of some of the key characteristics, influences and inter-relationships relevant to the Plan area from a minerals and waste perspective.

Minerals

The 'spatial map' below summarises some key factors relevant to planning for minerals in the Joint Plan area. The map identifies the overall distribution of minerals resources in the area, as well as other relevant aspects such as main road transport routes, large scale nationally important landscape designations which are likely to pose a significant constraint on minerals development and key market areas and known cross-boundary movements for aggregates.

The map has been divided into a number of sub-areas which are considered to reflect a number of common characteristics generally relevant to minerals planning. This is intended to help increase our understanding of the overall area and the context of the plan. The sub-divisions are indicative only and should not be taken to indicate that each sub-area is consistent in all respects. For example, the North York Moors National Park area has not been differentiated on the map from the adjacent Howardian Hills AONB. This is because both these areas represent significant national policy constraints to minerals development. However, at a detailed level there are also significant differences between the two designations in terms of the local policies and constraints that may apply. For this reason it is not intended that any of the sub-areas themselves be subject to specific policies in the Joint Plan. A more detailed description of the characteristics of each sub-area is available below.

Minerals and Waste Joint Plan- Minerals Spatial Map



| Spatial Zone | Key Spatial Characteristics/issues | |
|---------------------------------------|---|---|
| 1) Central Corridor | <ul style="list-style-type: none"> Range of mineral types Pressure for further extraction Cumulative impact and opportunities in Swale and Ure valleys City region influences to the north and south Airfield safeguarding constrains quarry reclamation opportunities | <ul style="list-style-type: none"> Important role in supplying aggregate to North East Region and West and South Yorkshire Relatively good accessibility Relatively free from large scale designations but with important localised constraints e.g. Thornborough Henges and associated historic landscape and Fountains Abbey/Studley Royal World Heritage Site Extensive areas of Best and Most Versatile agricultural land |
| 2) Moors and Vale of Pickering | <ul style="list-style-type: none"> Low population density Protected landscape in north and east Relatively small scale minerals working with local impact issues Large areas of National Park and AONB Linked to the above – importance of area for tourism Large areas of European protected sites | <ul style="list-style-type: none"> Minerals sites generally serve relatively local markets Important for supply of energy minerals - gas with expected pressure for further development Important local constraints - e.g. Star Carr |
| 3) Coastal Fringe | <ul style="list-style-type: none"> Scarborough - Key sub-regional town Tourism and Leisure focus National Park covers the northern part | <ul style="list-style-type: none"> Relatively remote from Leeds City Region Influence and the remainder of the plan area. |

| | | |
|-------------------------------------|--|--|
| | <p>of the sub-area</p> <ul style="list-style-type: none"> Majority of coastline is Heritage coast Boulby potash mine the only minerals working Dependant on existing aggregates sites in Ryedale and Scarborough if long distance imports are to be avoided | <ul style="list-style-type: none"> Proposals for major new potash mine Need for Jobs- Scarborough Borough has highest rates of unemployment in Plan area |
| 4) Selby Area | <ul style="list-style-type: none"> Leeds City Region Influence Cumulative impact issues in the west and south from former and current minerals sites Kellingley colliery - major employer but due to close by 2016 Secondary aggregate potential through coal and power industries | <ul style="list-style-type: none"> Landscape under competing pressures- minerals, industry, renewable energy Relatively good accessibility including rail/ water transport potential Proximity to minerals markets in West/South Yorkshire Reclamation issues in absence of future landfill (crushed rock sites) |
| 5) Dales and Nidderdale AONB | <ul style="list-style-type: none"> Highly constrained Small number of important minerals sites- Pateley Bridge and Blubberhouses Competing national interests – silica sand and landscape/nature conservation constraints | <ul style="list-style-type: none"> Proximity to West Yorkshire Markets Long term role of Yorkshire Dales National Park in future supply of minerals (likely impact beyond plan period?) |
| 6) Craven Area | <ul style="list-style-type: none"> Relatively limited resources and existing workings Protected landscape in the north Good Accessibility to West Yorkshire but remote from other parts of the plan area | <ul style="list-style-type: none"> Longer term potential to reduce pressure on aggregates supply from Yorkshire Dales National Park - Crushed Rock? |
| 7) City Of York | <ul style="list-style-type: none"> Major population centre in the Sub-region, with further growth and development expected and within the influence of the Leeds City Region Relatively limited availability of land outside the urban area and Green Belt constraints Substantial heritage and tourism assets of significance to the local and wider economy No existing mineral workings and very limited known present or recent commercial interest (limited to exploration for coal bed methane and possible extraction of clay) | <ul style="list-style-type: none"> Dependent on imports of minerals to meet demand but is in relatively close proximity to active aggregates extraction sites elsewhere in the Sub-region in Selby District, central North Yorkshire and Ryedale, to which areas it is well connected by the road network Opportunity for design of mineral extraction sites elsewhere in the sub-region to contribute to flood alleviation in York? |

1) Central corridor sub-area

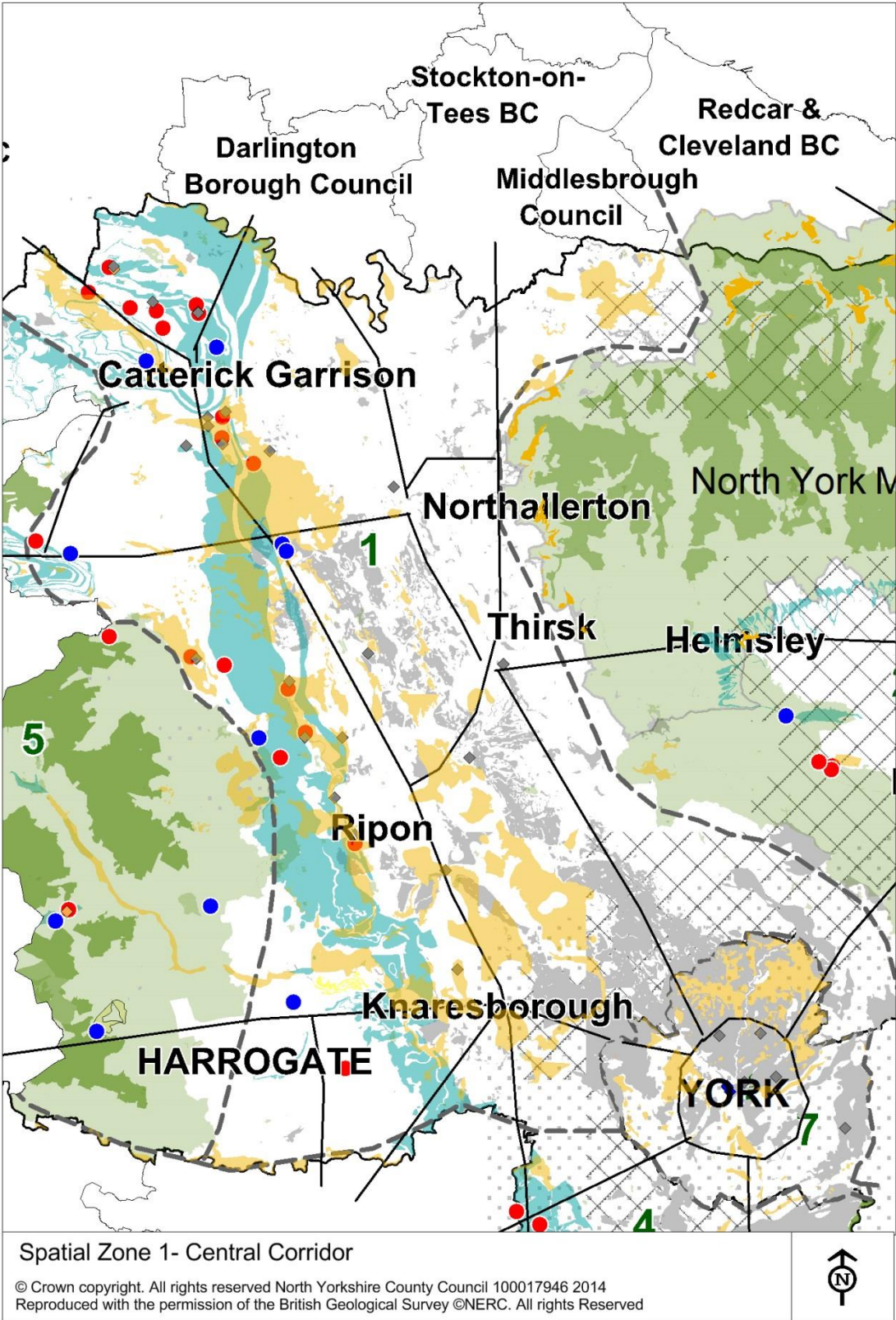
This sub-area contains a wide range of minerals resources and has a substantial number of active mineral workings, particularly along its' western fringe. The sub-area is particularly important for aggregate minerals and a large majority of the Plan area's main production units for both concreting sand and gravel and also crushed rock are located in this sub-area. Most of the remaining potential for good quality sand and gravel resources in the Plan area (and indeed the Yorkshire and Humber Region) is likely to occur in this sub-area. The sub-area also plays an important role as a source of supply of minerals, particularly sand and gravel and crushed rock, for export out of the Plan area into markets in the North East Region and West Yorkshire.

The sub-area is under pressure for continuing development of minerals resources, particularly sand and gravel resources in the Swale and Ure valleys. Some parts of the sub-area, for example the Ripon-West Tanfield area and the area around Catterick contain concentrations of former and current workings as well as interest in future development and these provide both challenges and opportunities for future planning.

The sub-area is characterised by a relative absence of major, large scale environmental constraints such as Areas of Outstanding Natural Beauty or large scale internationally important nature conservation sites. It is however bordered to the west by the Yorkshire Dales National Park and the Nidderdale AONB and to the east by the North York Moors National Park and the Howardian Hills AONB. However, it does include a wide range of other important constraints including those associated with the historic environment and cultural heritage, such as the internationally important historic landscape associated with Thornbrough Henges, as well as the only World Heritage Site in the Plan area (Fountains Abbey/Studley Royal). The relatively low lying nature of the area, between major upland areas to both east and west and the presence of a number of major rivers, means that potential for flooding is an important issue. The sub-area is also important for its agricultural land, and contains extensive amounts of land of best and most versatile quality.

The area has a relatively variable density of population and includes 6 of the Plan area's 11 main settlements, including Harrogate, the second largest population centre in the Plan area, as well as a relatively dense network of small settlements. Other parts of the sub-area are quite sparsely populated. Growth is expected to be concentrated in existing settlements, particularly Harrogate, with the majority of other new growth expected to be concentrated in the towns of Richmond/Catterick Garrison, Northallerton, Thirsk, Ripon and Knaresborough.

The sub-area is also characterised by its relatively well developed transport infrastructure, particularly the road network, including the A1(M) and A19, as well as the east coast main rail line. These provide good north-south access through the area and facilitate links with the Tees Valley Region and County Durham to the north and to York and West Yorkshire areas to the south and south west. A further important characteristic is the presence of a large number of active aerodromes, mainly for military purposes. Safeguarding constraints relating to these cover a large part of the sub-area and can impact on proposals for quarry reclamation, particularly for sand and gravel workings.



2) Moors and Vale of Pickering sub-area

A substantial part of this sub-area lies within the North York Moors National Park. The southern part of the sub-area includes the Howardian Hills AoNB and Areas of Great Landscape value in the Yorkshire Wolds. The remaining part of the sub-area comprises the Vale of Pickering and its' fringes. The National Park is designated not only for its natural beauty, wildlife and cultural heritage but also for the opportunities it provides for understanding and enjoyment of these. The population density of the sub-area is low, with Malton being the main town. The area contains a significant number of smaller settlements, particularly in and around the fringes of the Vale of Pickering. Future growth in this sub-area is expected to be concentrated in Malton, with a smaller amount in Pickering.

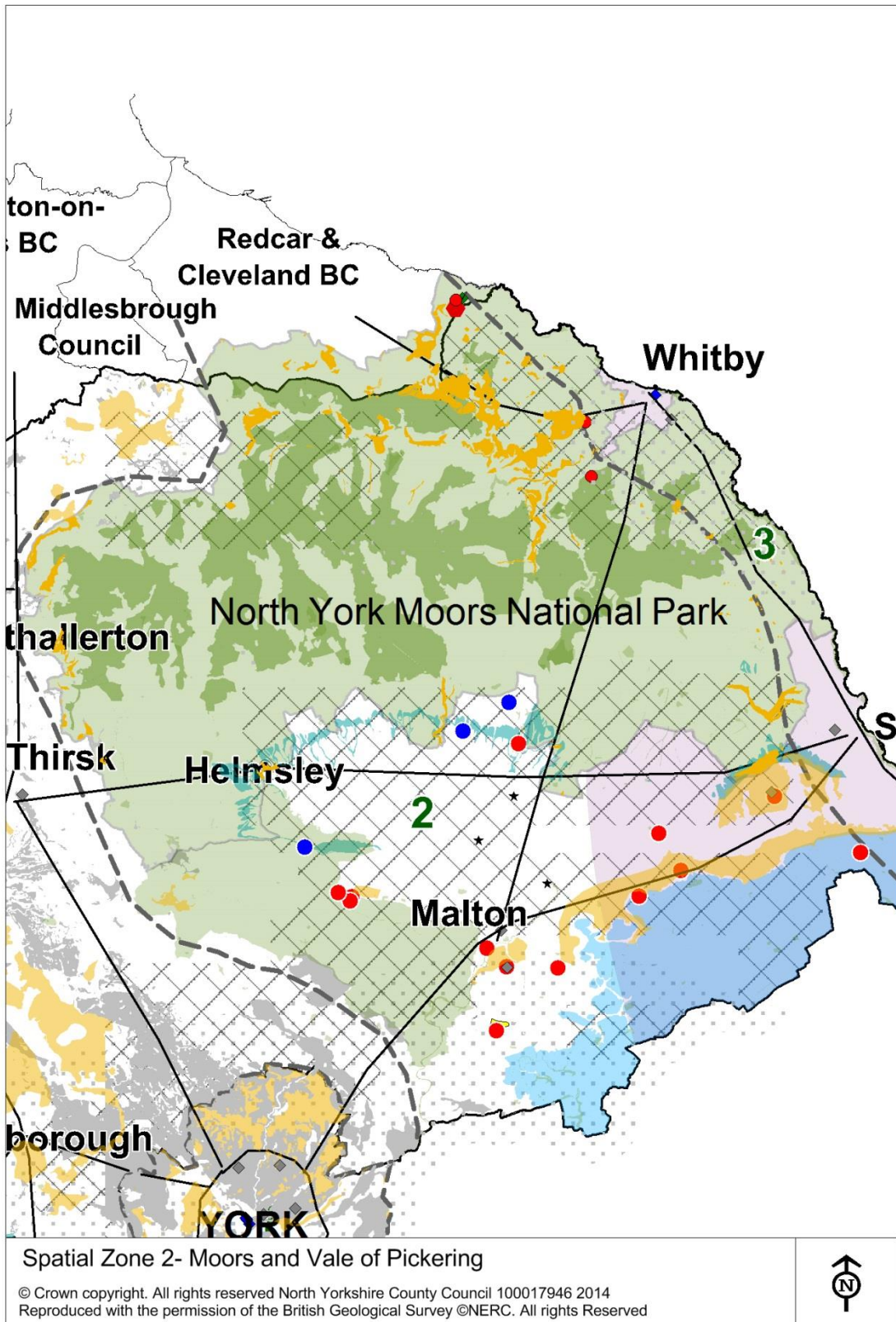
The area contains important resources of sand and gravel, particularly towards the eastern and southern margins of the Vale of Pickering and there is a history of sand and gravel working at Wykeham, near the eastern end of the Vale. Jurassic Limestone is worked as a source of crushed rock, particularly in the Malton area, where there is small concentration of workings, although it generally serves lower quality end uses than other forms of crushed rock worked in the Plan area. Chalk also exists in the south of the sub-area, where it has been worked on a very small scale. A small but important resource of silica sand (a nationally important mineral) is worked at Burythorpe Quarry, near Malton.

The sub-area is also important for onshore gas development. Commercial gas exploration and development has been taking place for several decades and interest continues, including for the development of shale gas. The eastern part of the area is underlain by potash and salt resources at substantial depth and permission has been granted for a major new polyhalite mine in the NYMNP area.

Surface minerals in the sub-area tend to serve relatively local markets, reflecting the relatively small scale of production and the relative remoteness of the area from large conurbations. Aggregates worked in the sub-area are, however, likely to play an important role in supply into the nearby sub-regional town of Scarborough and also to York, a short distance to the south west. The sub-area does not play a major role as a source of mineral for export out of the Plan area.

In addition to major landscape constraints the sub-area, particularly within and around the Vale of Pickering, has important historic environment constraints, including internationally important archaeology at Starr Carr. Much of the upland parts of the area are also designated at the European level due to the importance of the habitats and wildlife. High quality agricultural land is an important resource within the lower lying parts of the area and the river Derwent downstream from Malton is an internationally important nature conservation site.

The main road network within the sub-area is relatively sparse, limiting accessibility within and to/from the sub-area, although the A64T provides good links between Scarborough and York through the southern part of the sub-area.

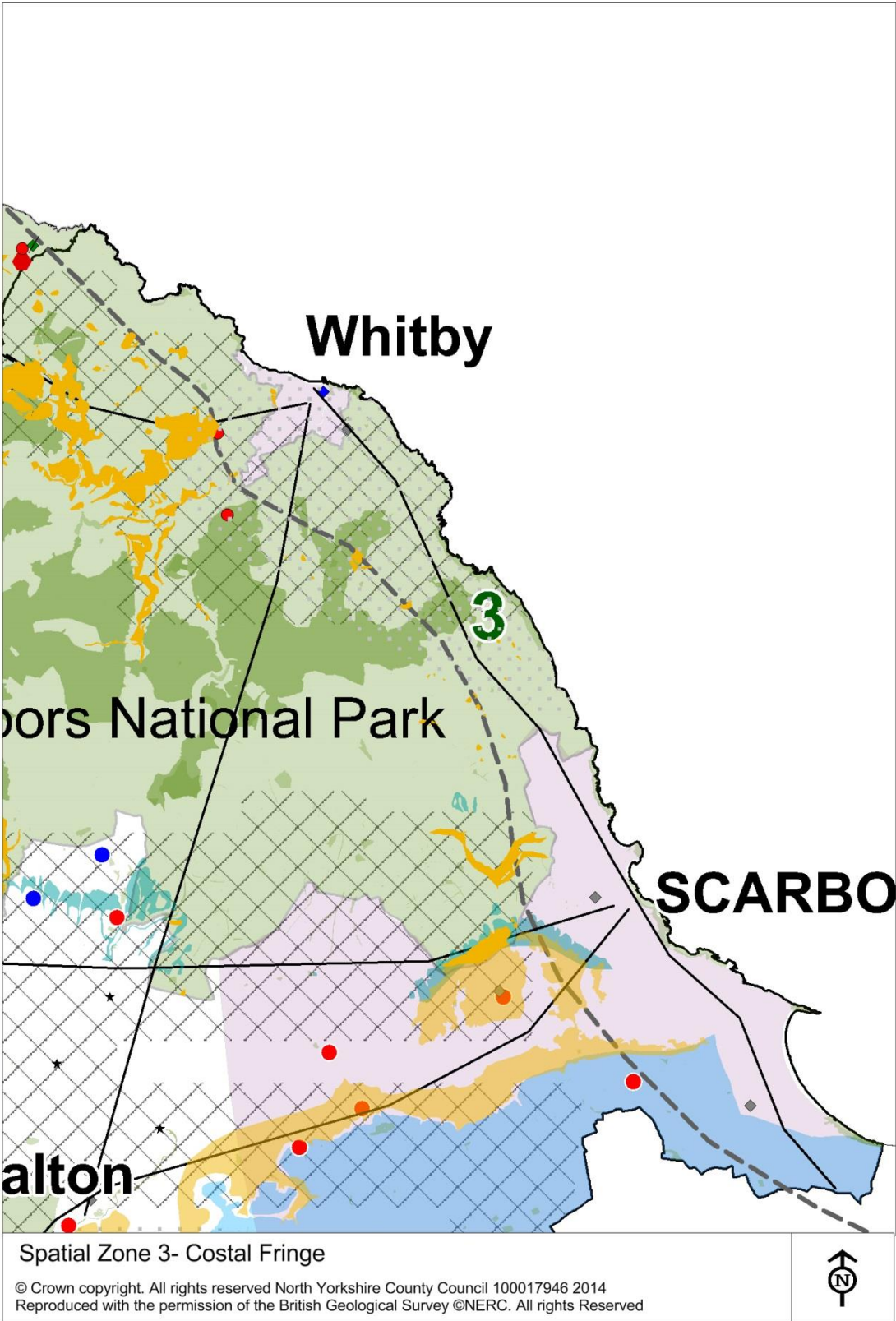


3) Coastal fringe sub-area

The northern part of the coastal fringe sub-area is characterised by major environmental constraints (National Park and Heritage coast)) and relatively low population density with no commercially significant surface minerals resources. This part is also relatively sparsely populated (with the exception of the principal town of Whitby), although seasonal visitors are an important element of the tourism economy. The southern part of the coastal fringe sub-area contains the sub-regional town of Scarborough (the second largest population centre in the Plan area) and is less constrained in terms of environmental designations (although there are still significant stretches of heritage coast). It is more densely populated, with generally better accessibility, although the sub-areas' relative remoteness from the remainder of the Plan area, including growth influences from the Leeds and Tees City Regions, is an important characteristic. Future growth in this sub-area is expected to be concentrated in Scarborough, with lesser amounts in Whitby, Filey and Hunmanby.

Minerals resources in the sub-area are generally very limited although the area is underlain by potash and salt resources at substantial depth and there is current commercial interest in developing these. There are no active mineral workings in the sub-area, which is therefore essentially dependant on imports from elsewhere. Sources of supply of aggregate minerals in the Moors and Vale of Pickering sub-area are likely to be particularly important to support future growth in this sub-area.

The economy of the Scarborough area is relatively weak and unemployment correspondingly high, although the tourist economy remains very important to the area's economic well being.



4) Selby sub-area

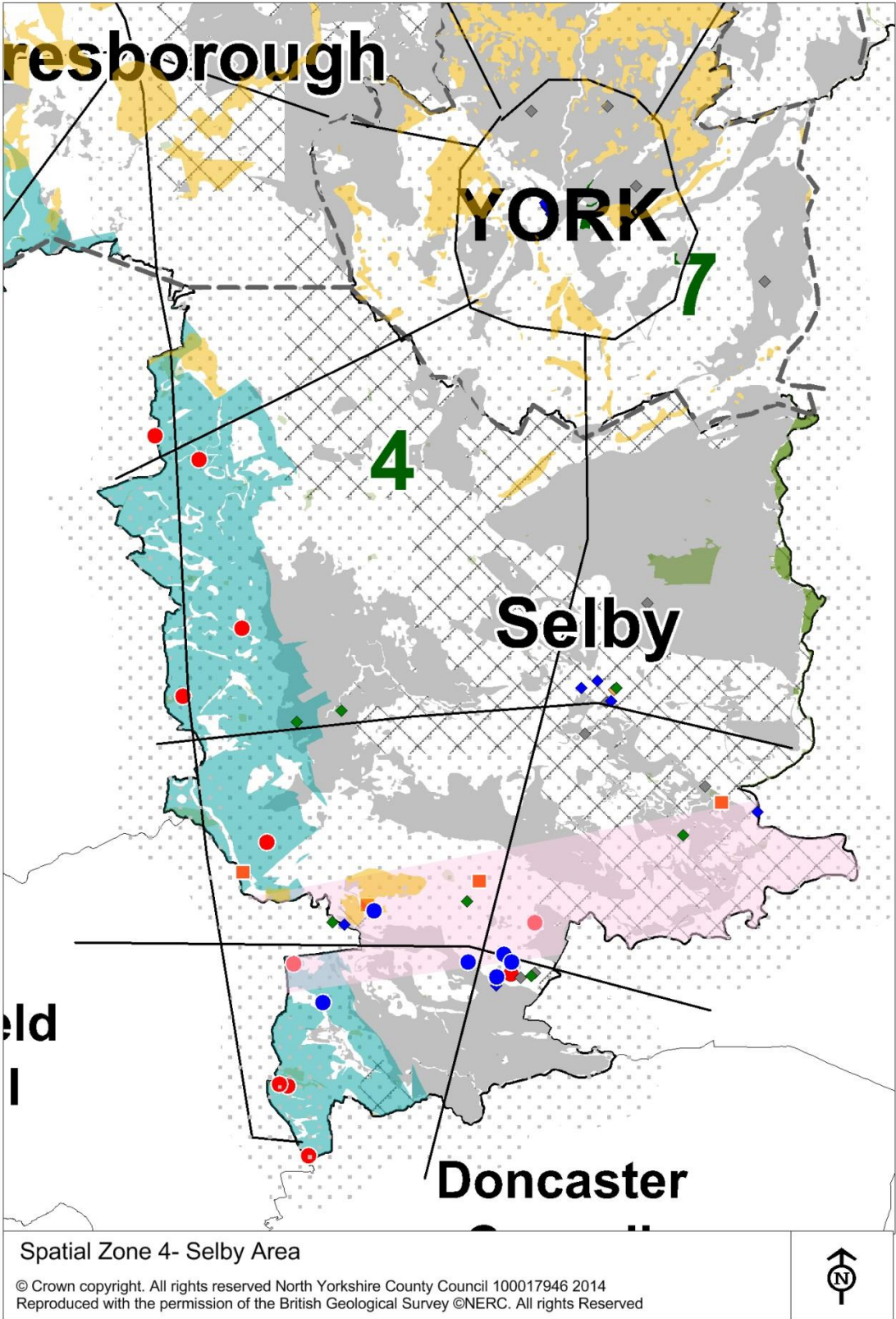
This sub-area essentially comprises the administrative district of Selby. It contains extensive and important resources of minerals, including crushed rock, sand, coal and clay. Coal mine methane is also exploited. In some respects the area could be viewed as a southern continuation of the Central corridor sub-area, with relatively prolific resources, relatively good access both internally and to the adjacent areas of West and South Yorkshire and relative freedom from large scale environmental constraints.

Particular distinctive characteristics of this sub-area include relatively high population density, although Selby is the only main town, as well as a relatively high concentration of major industry compared with the rest of North Yorkshire, including power generation activity and deep mining of coal (although this activity is expected to cease by 2016). These latter two activities produce large volumes of material with the potential to substitute for primary aggregate, making this sub-area important in the Plan area in terms of its' ability to help minimise the need for primary minerals extraction.

Other significant characteristics of this sub-area include the close proximity of its' minerals resources to key markets in West and South Yorkshire, the concentration of minerals working within designated Green Belt along the western and southern fringes of the area, the presence of groundwater constraints associated with working in the Magnesian Limestone and issues relating to quarry reclamation (many sites in this sub-area have historically, or are currently, being restored via landfill although there is uncertainty over the long term potential for this to continue). The low lying nature of much of the sub-area, combined with a substantial river network, means that large parts of the sub-area are at risk of flooding.

The sub-area is under pressure from competing development demands, including renewable energy, minerals and other industrial development, as well as growth pressures arising from proximity to the Leeds City Region. Future growth in the sub-area is expected to be concentrated in Selby, and the smaller towns of Sherburn-in-Elmet and Tadcaster. Mineral working is a major employer in the Selby area, with Kellingley Colliery providing about 700 Jobs, although a substantial number of mining jobs in Selby District were lost in the early 2000's following closure of the Selby Coalfield and the expected closure of Kellingley Colliery will substantially reduce mineral related employment in the area.

A further distinct characteristic of this sub-area is the existence of greater potential for use of alternative modes to road transport, as a result of the relatively greater density of rail networks and commercially navigable waterways compared with other parts of the Plan area.



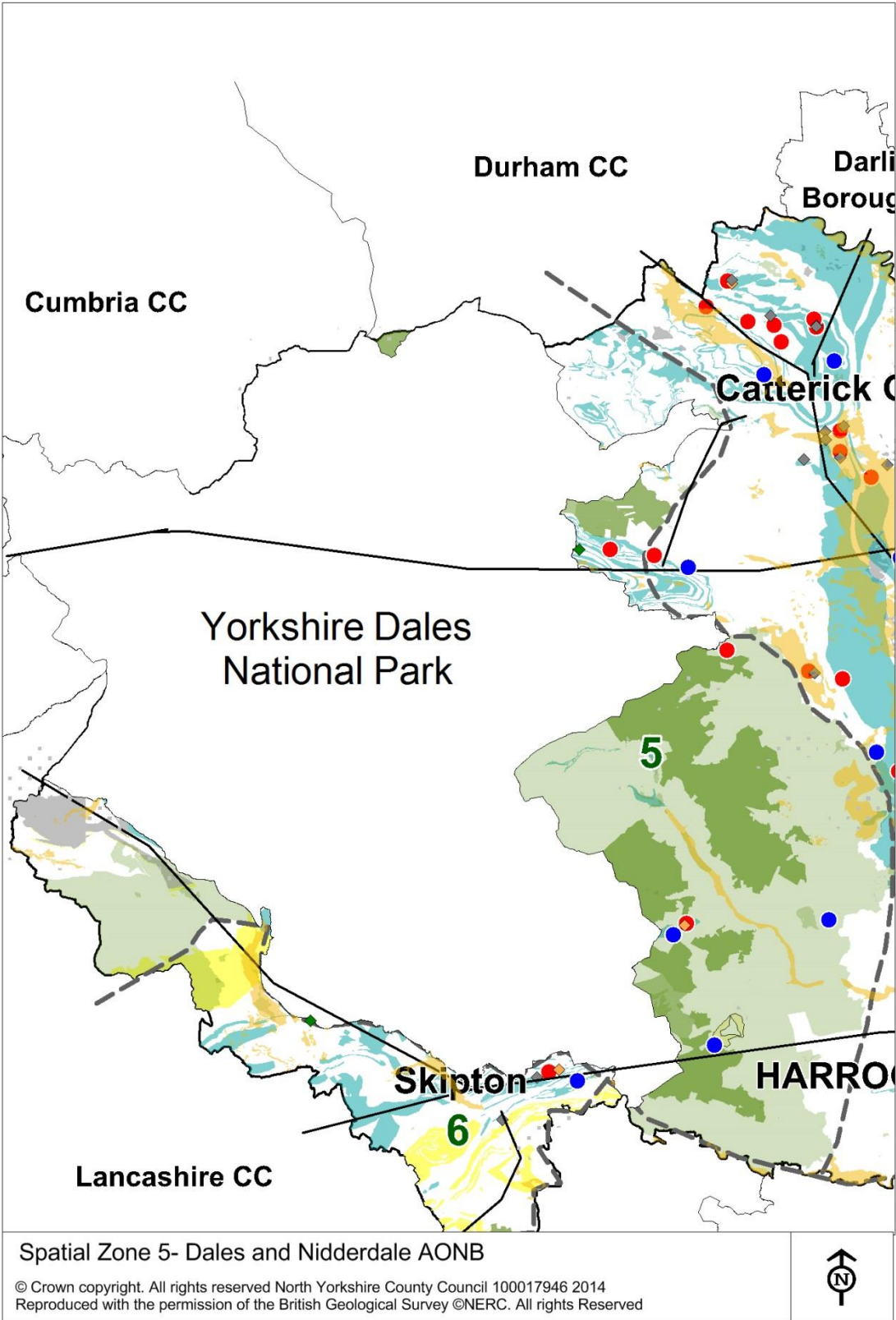
5) Dales and Nidderdale AONB sub-area

A substantial part of this sub-area lies outside the Plan area but within the adjacent Yorkshire Dales National Park. This sub-area is strongly characterised by major and large scale environmental constraints including the Nidderdale and Forest of Bowland AONBs and extensive areas of internationally important nature conservation designations. The Yorkshire Dales National Park borders the sub-area to the west. The area is highly rural with no principal towns and any future growth is expected to be very small scale. Tourism and recreation is an important part of the economy within this sub-area.

Minerals resources within those parts of the sub-area that fall within the Plan area are limited but include an important source of crushed rock (Carboniferous limestone) currently worked at Pateley Bridge Quarry (the largest active quarry in the Plan area) within the Nidderdale AONB and resources of building stone, currently worked on a very small scale. Resources of carboniferous limestone in the Leyburn area are on the fringe of this sub-area. A nationally important resource of silica sand (one of only two in the Plan area) is located off the A59 between Harrogate and Skipton, within the Nidderdale AONB.

Although falling outside the Plan area, those parts of this sub-area lying within the Yorkshire Dales National Park contain a number of major mineral workings, including Carboniferous limestone and gritstone. These resources tend to be of relatively high quality and, due to their geographical location tend to serve markets either in West Yorkshire or Lancashire/Cumbria to the west. Reserves in the Yorkshire Dales remain relatively high and although, in common with the majority of this sub-area, the National Park is subject of national policies of development restraint, it is expected that they will continue to play an important role in minerals supply in the foreseeable future.

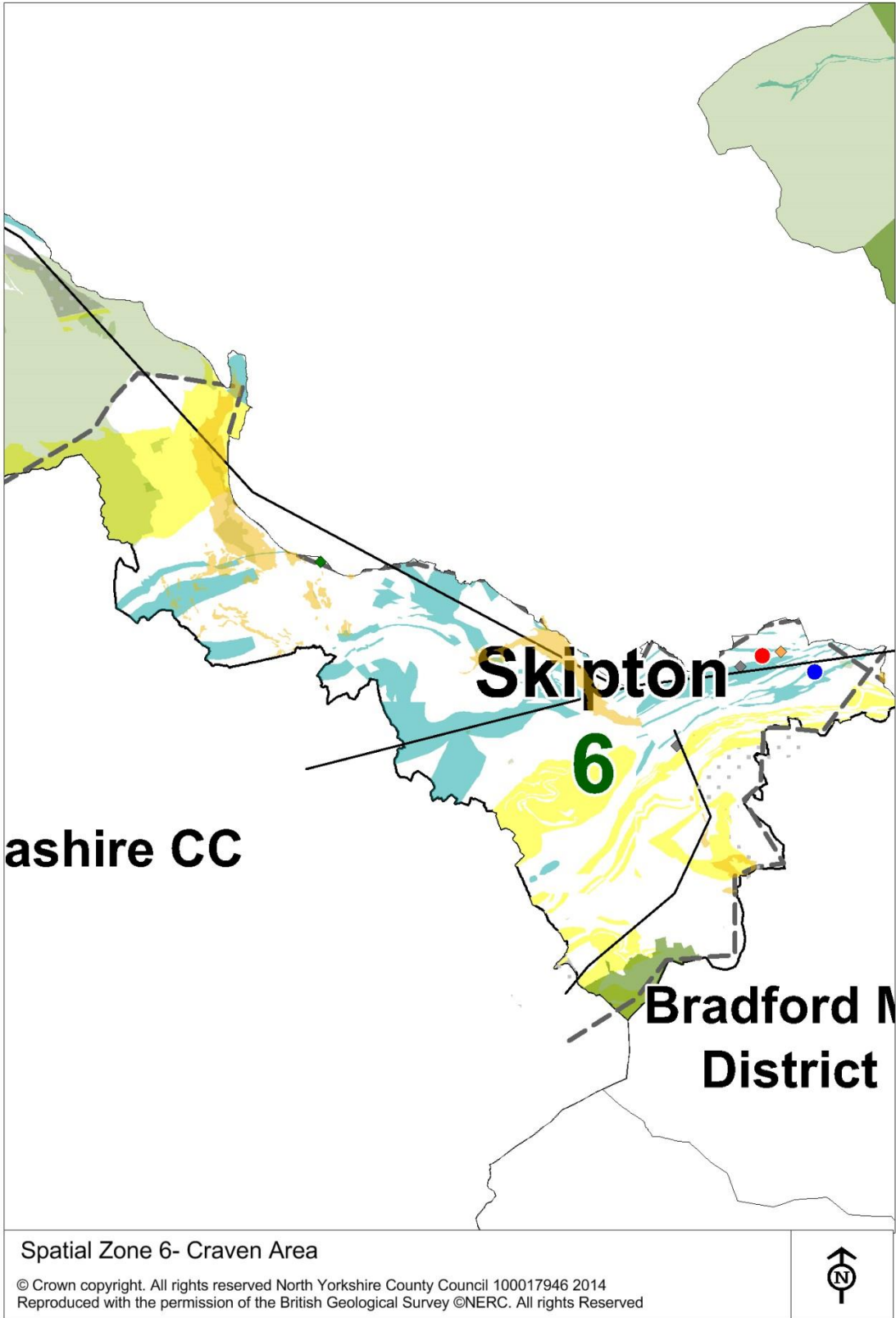
Accessibility within the sub-area is generally poor, with a sparse road network, although the southern part of the sub-area lies in relatively close proximity to West Yorkshire. Some existing quarries in the Yorkshire Dales National Park have rail links, not all of which are operational. Minerals development in this very sparsely populated rural area is a significant source of local employment.



6) Craven sub-area

This sub-area is relatively remote from the remainder of the Plan area, from which it is separated by upland within the Yorkshire Dales National Park and the Nidderdale AoNB. In geographical terms it is more closely related to parts of West Yorkshire and Lancashire. The southern part of the sub-area is relatively densely populated and includes Skipton, the only principle town, where most future growth in this sub-area is expected to be concentrated. The sub-area is relatively unconstrained by major environmental designations.

Although the sub-area contains resources of Carboniferous limestone and sandstone, as well as potential deposits of sand and gravel, there are no active minerals workings. There is one currently inactive Carboniferous limestone quarry at Skipton Rock. The lack of current minerals development activity is likely to reflect the availability of large scale reserves in the adjacent Yorkshire Dales National Park, as well as possible issues about the relatively inferior quality of resources lying outside the National Park. Despite the identification of an Area of Search for Carboniferous limestone in the North Yorkshire Minerals Local Plan 1997, no proposals have come forward since then. In the longer term (beyond the current plan period) the sub-area may be able to play some role in helping to offset reduced output from the National Park.



7) City of York sub-area

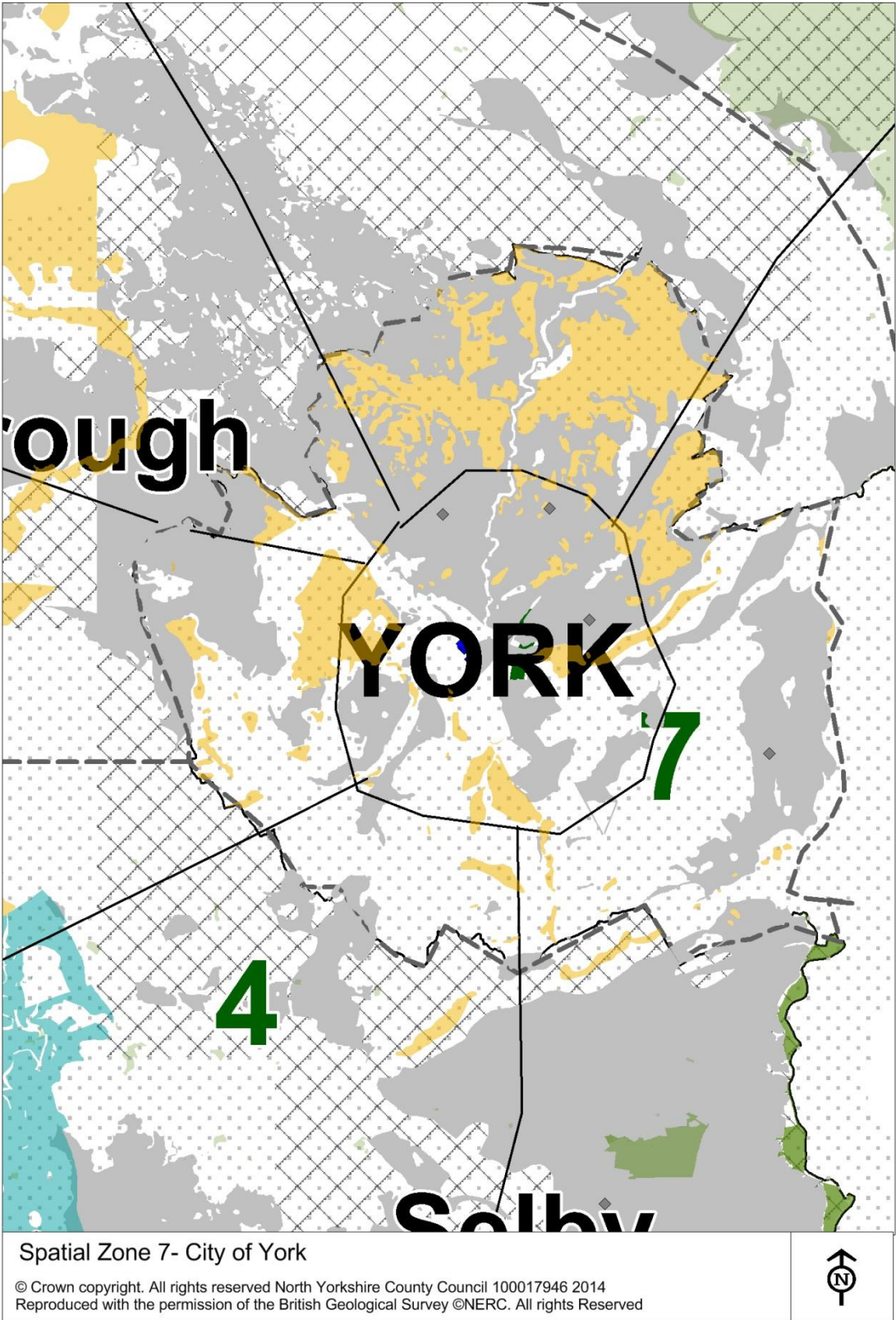
The City of York represents substantially the largest single population centre in the Joint Plan area. The boundary of the City of York area, although relatively tightly drawn around the City, extends beyond the immediate confines of the urban area and includes a range of outlying settlements and rural land uses of varying scales and includes areas of land constrained by Green Belt designation. The City is characterised by its significant heritage and tourism assets.

The area is well connected to road networks via the A64(T) and A19(T) and a number of other principle roads, which link it with other parts of the North Yorkshire sub-region and West and South Yorkshire and the East Riding. The City is also well connected to the rail and river network, although these are not currently used on any significant scale for freight transport into or out of the City.

There is a very limited known history of mineral working in the Sub-area, including small scale extraction of clay and superficial sand and gravel deposits. One of the former surface sites (North Selby Mine) associated with the Selby Coalfield (now closed) lies predominantly within the City of York boundary, and exploration for coal bed methane has taken place more recently. The City of York area is underlain by coal deposits at very substantial depths and minerals resource information suggests that sand and gravel and clay deposits also occur within the area. There has been no apparent commercial interest in exploitation of minerals resources (other than coal bed methane and clay) in the City of York area in recent years.

As a significant centre of population and commerce, within the Leeds City Region and with an expectation of further growth, the City is likely to constitute a significant focus of demand, in a sub-regional context, for aggregate minerals for construction and repair work. The absence of current workings in the City area means that consideration will need to be given to how supplies of aggregate to the City of York area can be provided and maintained. The relative absence of industry in the sub-area is likely to result in only very limited direct demand for other types of minerals.

The potential for flooding within the City is a prominent issue. There may be opportunities to influence the design of any new minerals sites in upstream catchments, such as the Rivers Swale and Ure, where significant sand and gravel resources occur, in order to help contribute to flood alleviation in York.



Waste

Although many of the spatial and environmental constraints identified in the context of minerals are of relevance to planning for waste, the different nature of waste development and markets has meant that it has not been practicable to identify a number of 'sub-areas' in the same way as for minerals, above. The following map and analysis relates to the whole of the Plan area.

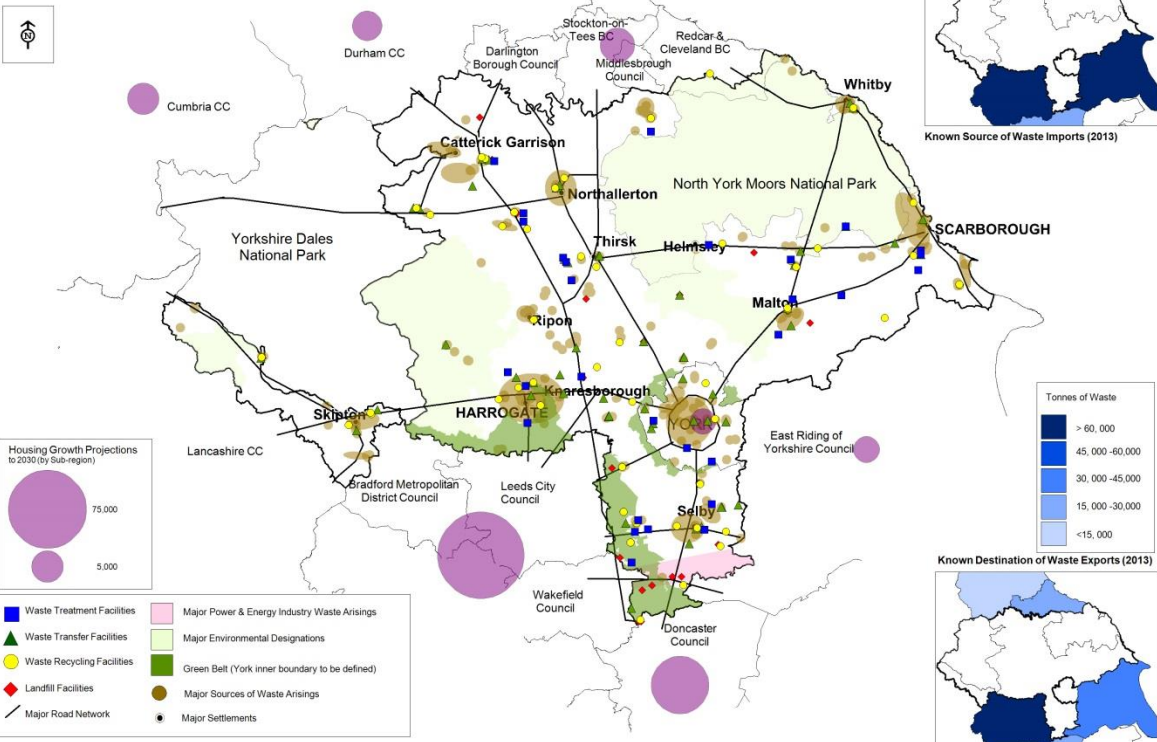
The map shows that the overall distribution of important waste management facilities (and hence capacity) within the Joint Plan area is relatively broad. However, as may be expected, a substantial proportion of current facilities are located in relatively close proximity to existing main settlements in the area, as well as main road corridors. In order to help show the indicative distribution of waste arisings, the map uses areas of greatest population density in the Joint Plan area, represented by areas where the density exceeds 4 persons per hectare, as well as the locations of business parks with at least 5 businesses present, as a proxy. These criteria are considered to give some indication of the likely overall distribution of main arisings of LACW, C&I and C&D waste in the area. The relatively close relationship between potential sources of arisings, main transport networks and the existing facility network suggests that the existing network is already relatively well suited to meeting an objective of managing waste in proximity to where it arises.

However, this is a considerable simplification of the actual position and there are a number of significant limitations to the map. These include the fact that the facility locations shown on the map are only those which hold permits issued by the Environment Agency. There are known to be a substantial number of other, unlicensed, facilities which contribute to the overall network although, as these are generally of relatively small scale, their strategic significance is correspondingly lower. Also, other than the household element of LACW, which by definition arises only in direct association with the distribution of population, it is not practicable to map the overall distribution of arisings of waste in any detail.

Large scale environmental designations which may be a significant constraint on development of new waste facilities are also shown on the map. For waste this includes land in the Green Belt, as new Government policy for waste, published in October 2014, indicates that proposals for waste developments in the Green Belt should not be afforded more flexibility than other similar forms of development.

The map also seeks to show key known cross-boundary movements of waste. As noted earlier, information on movement of waste, with the exception of hazardous waste, is generally limited and also subject to change over time, depending on markets and other circumstances and the map should be viewed in this context. Information on known movements suggests that the most important inter-relationships are with the West Yorkshire and Tees Valley areas (for both imports and exports), with the East Riding also being a relatively important export destination. However in general terms known volumes of import from, or export to, the Joint Plan area are relatively small when compared with known arisings. This suggests that the area is likely to be largely self-sufficient in managing the waste that arises within it. As a consequence of its limitations, the map is intended to help inform the context for waste planning in the area and should be viewed as part of the overall package of evidence for the waste elements of the Joint Plan.

Minerals and Waste Joint Plan- Waste Spatial Map



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