

Limestone Landscapes Character Framework

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Background

Scope and purpose of the study

The Limestone Landscapes Partnership area is covered by a number of landscape character assessments (LCA) produced at different scales, at different times, by different agencies and using different methodologies. The purpose of this Landscape Framework is to provide a unified approach to describing, classifying and analysing landscape character that can be used with consistency across the project area in the work of the Partnership.

The framework has been developed by reviewing existing landscape character assessments covering the Magnesian Limestone Plateau National Character Area. It is not in itself a landscape character assessment, involving detailed field work and stakeholder consultation, but rather a desk-top review of existing LCA drawing on the material they contain.

The most detailed LCAs covering the area are those produced by local authorities. These are the product of more detailed assessment than has been carried out for this study, incorporate more local knowledge, and have been, or are, the subject of stakeholder consultations. Both the boundaries of landscape units and the descriptive and analytical material in the framework have been drawn from local LCAs where possible.

Landscape Character Assessment involves mapping, classifying and describing variations in landscape character. It also involves making judgements about the character and quality of the landscape, and analysing forces for change, to help us make informed decisions about how we should manage change in the future. In classifying the landscape two types of units can be identified:

Landscape Character Types are landscapes with broadly similar patterns of geology, soils, vegetation, land use, settlement and field patterns. Landscapes belonging to a particular type may be found in many different places.

Landscape Character Areas are unique areas - geographically discrete examples of a particular landscape type. They may share common characteristics with other landscapes belonging to the same type, but each has its own unique individual identity and sense of place.

This Landscape Framework proposes a set of landscape character types into which the types and character areas of existing local authority landscape fit with as little conflict as possible. There are some minor conflicts between the boundaries proposed in this framework and those identified in local LCAs because of the need to develop a consistent approach to classification across the study area. These are discussed in detail below.

As it is the purpose of this framework only to provide the Partnership with a unified typology for its own work, it is not anticipated that any significant issues will arise from these minor incompatibilities. It is expected that local authority LCAs will take precedence in all other applications.

Existing Landscape Character Assessments

National studies

National Character Areas.

The limestone landscapes project area corresponds to National Character Area (NCA) 15, the Durham Magnesian Limestone Plateau. National Character Areas

were identified as part of the *Character of England* project initiated by the Countryside Agency in 1994 which aimed to provide a comprehensive understanding of the character of the English Countryside. This was undertaken as a joint exercise with English Nature who identified Natural Areas – broad bio-geographic zones - that were compatible with NCAs. In some cases a Natural Area might include several NCAs. In other cases, as with NCA15, the Natural Area and NCA are identical. NCA15 is defined and described in Countryside Character Volume 1: North East.

The boundaries of NCAs were very broad brush, and were arrived at through a combination of mapping national datasets of factors like topography and land-use and consultation with a range of stakeholders. Descriptions were developed for each NCA, identifying key characteristics of the landscape, and describing its character, physical influences, historical and cultural influences, buildings and settlement, and land cover. Forces for change were identified, and broad strategic guidelines were set out. This process was based on a combination of fieldwork and consultation with stakeholders.

Boundaries and typology

The boundaries of NCA are approximations based on broad-scale (1:250,000) national data. A revised version of the boundary of NCA 15 was produced in drawing up the Limestone Landscapes Partnership project area based on more detailed mapping. The main areas of change proposed were as follows.

- The western boundary with NCA 14 and 16 is drawn to reflect more closely the outcrop of the limestone, or the base of the scarp or hill landforms in which the limestone outcrops. Where there is ambiguity – for example where the limestone outcrops on the upper flanks of a valley which forms part of an adjacent NCA – the limestone is generally taken as the ‘definitive’ attribute as this often has important consequences for biodiversity.
- The southern boundary with NCA 23 is drawn to reflect more closely the natural outcropping of limestone. NCA 15 merges seamlessly with NCA 23 (the Tees Lowlands). Both are underlain by limestone. The main difference between the two is that in NCA 23 the limestone is covered by thick layers of glacial drift and rarely outcrops naturally. An exception to this is in the south-west around Walworth where the limestone outcrops in an area which is otherwise unambiguously part of a different topographical unit – the Tees Vale. In the south the boundary of NCA15 was originally drawn to capture limestone quarries at Aycliffe which are located in an area which is topographically part of the Tees Plain. The other main difference in character between the two NCAs is the presence of collieries and pit-villages which don’t occur south of the Butterknowle Fault. The presence of coal workings is taken as a ‘definitive attribute’ of the plateau.

The original and revised boundaries of NCA15 are shown in Figure 1.

Descriptive and analytical material

The descriptive and analytical material contained in Countryside Character Volume 1: North East is of good quality if a little dated in places. Natural England are currently updating this material.

The National Typology

The National Typology was undertaken after the completion of the Character of England in an attempt to classify England’s landscapes in more detail at a national scale. The study identified generic ‘landscape types’ rather than the more place-specific ‘character areas’ already identified. The study was undertaken as a GIS-based study using national data and mapped at a scale of 1:250,000. The typology

identifies a range of landscape character types which are each given a three letter code. The first letter refers to physiography, the second to land cover, and the third to cultural pattern.

The National Typology was published as a draft and has not been subsequently revised. It has not been field tested. Although it works reasonably well in some places it is not well resolved for parts of the north-east where both the boundaries of landscape units and the coded descriptions are not well resolved.

Boundaries and typology.

The National typology identifies a landscape description unit broadly representing NCA15. It is more accurate than the NCA15 boundary along its western edge but poorly resolved along its southern edge. The relationship between this unit and the revised NCA15 boundary are shown in Figure 2.

Descriptive and analytical material

The National typology does not include any descriptive or analytical material other than its three digit code which for this landscape unit is RLE.

Physiography: R – intermediate landform (low hills-plateau)

Landcover: L – shallow soils over limestone

Cultural pattern: E – wooded-estateland.

The entry under cultural pattern (E -wooded estateland) can be assumed to be an error as the landscape is sparsely wooded and not characterised by planned estates. The available alternative C – coalfields would be more accurate.

Countryside Quality Counts

The Countryside Quality Counts project (CQC), sponsored by Natural England in partnership with Defra and English heritage, provides a systematic assessment of changes in the landscape of NCAs based primarily on national datasets. In its early stages the project identified sub-zones within NCAs (then known as Joint Character Areas or JCAs) based partly on a review of existing LCAs. In NCA 15 the project identified three broad sub-zones:

- Coast and coastal limestone plateau
- Clay plateau
- Limestone Escarpment

These are shown in Figure 3.

Boundaries and typology.

CQC uses NCA boundaries. The boundaries of sub-units are broadly indicative and were not field tested.

Descriptive and analytical material

Descriptive material contained in CQC relies largely on Countryside Character descriptions but contains additional draft Historic Profiles produced by English Heritage. Analysis is based largely on national datasets but at a level of detail that captures local information.

Regional studies

Landscape Appraisal for Onshore Wind Development

This study was carried out for Government Office North East by the Landscape Research Group at Newcastle University to assess the sensitivity of the landscape to onshore wind development. The typology adopted was based on the National Landscape Typology amended in places by information from the Character of England and Local Authority Landscape assessments where they existed and was not field tested.

Boundaries and typology.

The study closely follows the national typology in terms of the outer boundary of NCA15 and shares its limitations. It identifies three landscape types within NCA15 which are shown on Figure 4.

- Limestone Escarpment
- Coastal Plateau
- Hard Coastline

The limestone escarpment is only identified where information was available from the County Durham LCA (below) and is therefore inaccurate in that respect in other areas.

Descriptive and analytical material

Descriptive material was derived from existing desk-top sources (existing LCA). Analytical material is focussed on the single purpose of the assessment and has limited use for other applications.

Great North Forest Management Plan

The GNF Management Plan was written in 1994. It identified three broad landscape zones, the Western Hills, Central Lowlands, and Magnesian Limestone Plateau, the latter of which corresponds broadly with NCA15 within the Forest area. These areas were subdivided into Local Management Zones (LMZ). These are shown on Figure 5. A number of these zones were the subject of more detailed assessment and the production of LMZ Strategies in 2003. These include:

- ML12 Cleadon Hills
- ML5 Burdon Farmland
- ML6 Houghton Downs
- CL6 Wear Valley

Boundaries and typology.

The boundary of the Magnesian Limestone Plateau is reasonably consistent with the proposed NCA15 boundary except in two areas. The limestone spur at Penshaw is identified as being part of the 'Central Lowlands'. This issue is discussed below in respect of the Sunderland LCA. The boundary between the Central or Tyne and Wear Lowlands and the plateau in the north is drawn east of Cleadon rather than west as it is in the revised NCA15 boundary. This has merit and could be accommodated by a further revision to the boundary of NCA15 as shown in Figure 6.

The Local Management Zones identified in the Plan are not landscape types, being closer in function to character areas. There isn't a strong degree of correspondence between LMZs and the proposed Limestone Landscapes landscape types other than in South Tyneside where ML1, ML2 and ML3 correspond broadly with the Coastal Limestone Plateau, Clay Plateau and Limestone Escarpment landscape types. The relationship between LMZs and the proposed typology is shown on Figure 6.

Descriptive and analytical material

Descriptive material in the Forest Management Plan remains relevant although it is dated in some respects. Analytical and strategic material in the 2003 LMZ strategies is more current and has been the subject of stakeholder consultation.

Local authority studies

The study area is covered by three landscape character assessments produced by local authorities: the Hartlepool Landscape Assessment 2000, the County Durham Landscape Character Assessment 2008, and the City of Sunderland Landscape Character Assessment 2009. Two administrative areas are not covered by LCA: Darlington and South Tyneside. These are shown on Figure 7.

Hartlepool Landscape Assessment

The Hartlepool Landscape Character Assessment (HLCA) was published in 2000 and predates the publication of the current LCA guidance. It identifies a single tier of landscape types.

Boundaries and typology.

The HLCA does not specifically identify NCA15 and its boundary is not reflected in those of the landscape types it identifies. The boundary between NCA15 and NCA23 which crosses this area is both gradual and subtle as noted above. HLCA landscape types identified in that transitional zone include:

- Undulating Farmland
- Coastal
- Woodland
- Rural Fringe
- Urban Greenspace
- Transport Corridor

These are shown on Figure 8.

These are effectively 'local' types which occur at the level below the proposed Limestone Landscapes typology and do not pick up the boundaries of regional and sub-regional landscape types. The introduction of a new typology wouldn't therefore contradict or conflict with the existing HLCA. It is proposed to identify two broad types within this area: Limestone Coast, which corresponds with the northern part of the HLCA Coastal type, and Limestone Coastal Plain. These are shown on Figure 9.

The Limestone Coastal Plain type is distinguished from the Coastal Limestone Plateau by virtue of its topography, which is that of an undulating plain rather than a plateau, its association with a soft coast of dunes and rocky headlands rather than cliffs, and the absence of colliery workings and pit villages. It is distinguished from the very similar adjacent Lowland Plain landscapes by its subtle limestone and maritime influences.

County Durham Landscape Character Assessment

The County Durham Landscape Character Assessment (CDLCA) was adopted in 2008 and was based on the 2002 LCA Guidelines. It classifies the landscape at a range of scales.

- County Character Areas (similar in scale to NCAs)

- Broad Landscape Types
- Broad Character Areas
- Local Landscape Types
- Local Landscape subtypes

Boundaries and typology.

The CDLCA identifies the East Durham Limestone Plateau as a County Character Area. Its boundaries are based on more detailed analysis than those of NCA 15, and it is proposed to use those boundaries in this framework for land within County Durham.

The CDLCA identifies both broad landscape types and character areas. Broad Landscape Types include:

- Limestone Escarpment
- Clay Plateau
- Coastal Limestone Plateau
- Limestone Coast

These are shown on Figure 10. The boundaries of these units are based on detailed analysis and it is proposed generally to use those boundaries in this framework. An exception to that is land in the south-east of the county which forms part of the Limestone Coastal Plain type described above which crosses the Durham / Hartlepool boundary. For the purposes of the CDLCA this was identified as a character area belonging to the Coastal Limestone Plateau type rather than a separate landscape type. The typology proposed for land in County Durham is shown in Figure 11.

Descriptive and analytical material

Descriptive material in the CDLCA is detailed and up-to-date. It is accompanied by the County Durham Landscape Strategy (CDLS) which identifies the assets and attributes of County Character Areas and the trends and pressures affecting them, and sets out key issues and objectives for their conservation and enhancement. This analysis is not carried out at the level of Broad Landscape Types. Both the CDLCA and CDLS have been the subject of stakeholder consultation. The suite of documents also includes Landscape Guidelines which include development and land management guidelines for Broad Landscape Types.

Sunderland City Council Draft Landscape Character Assessment

The Sunderland City Council Landscape Character Assessment (SLCA) was published in draft form in September 2009 and was based on the 2002 LCA Guidelines. It identifies Landscape Character Areas rather than Landscape Character Types. This approach is well suited to urban fringe or semi-rural landscapes where a type-based approach can lead to over-complicated subdivisions of otherwise relatively homogenous tracts of land.

Boundaries and typology.

The SLCA does not specifically identify NCA15 but its boundary can be inferred from those of landscape character areas. As the SLCA uses a character area rather than character type approach, there are circumstances in which a character area might extend across a notional 'type' boundary in order to define a meaningful tract of landscape. This occurs in places along the western edge of the Escarpment character area which is defined by a ribbon of development along, or close to, the

foot of the scarp. For consistency it is proposed to limit the extent of the typology shown in this framework to the revised boundary of NCA15 which effectively involves clipping some SLCA character areas to that footprint.

The SLCA identifies 11 character areas within NCA15. These are shown in Figure 12. These character areas can be readily grouped into landscape types comparable to those used in CQC and the CDLCA.

Character Area	Character Type
Coastal Farmland	Coastal Limestone Plateau
Central Plateau	Clay Plateau
Escarpment	Limestone Escarpment
South Sunderland Coast	Limestone Coast
River Wear East	Limestone River Gorge
Silksworth to Tunstall Corridor	Coastal Limestone Plateau
Downhill to Seaburn Dene	Limestone Escarpment Coastal Limestone Plateau
Barnes Burn	Clay Plateau
Hylton Dene	Limestone Escarpment
Seaburn/Roker Seafront	Limestone Coast
Railway Sidings	Limestone Coast

Of these Character Areas only Downhill to Seaburn Dene – a narrow corridor running along the edge of the LCA area - would need to be split to develop a reasonably consistent typology. These are shown in Figure 13.

There are some small areas of ambiguity where a typology driven LCA would place boundaries in different places.

- a. In the proposed typology the area around Offerton and Hastings Hill would be classed as 'Escarpment' rather than 'Plateau' due to the character of the topography and the scale and frequency of limestone outcrops (see figures 14 and 15).
- b. In the proposed typology the steep slopes north of Penshaw Monument and Offerton village would be classed as 'Escarpment' rather than 'river valley' as they are in the SLCA (Figure 14) in order to capture both the escarpment landform and the full extent of the limestone outcrop. It is possible to view the landform here as either being the steep southern slope of an asymmetrical valley, or a shallow river valley running along the edge of a steeper scarp slope before entering a gorge. As this framework is focussed on NCA15 and is therefore rather 'limestone-centric' the default has been to take the presence of limestone as definitive and pursue the landform it forms part of to a defined break in slope where possible. Figures 15 and 16 show two options for the boundary in this area.
- c. In the absence of administrative boundaries the line between the Coastal Limestone Plateau and Clay plateau in the Carley Hill area could be drawn to reflect the topography more closely. It is proposed to use the administrative boundary here for consistency with the SLCA as the difference is only a matter of 150m -200m.

Areas not covered by existing LCA.

South Tyneside.

In South Tyneside it is possible to identify 4 broad landscape types. These are shown on Figure 17.

Limestone Coast. This is defined on its inland edge by the coast road (A183) as it is in the SLCA.

Coastal Limestone Plateau. The Cleadon Hills fall naturally into this category due to the scale and frequency of the limestone outcrop and maritime influences. The boundary between this type and the adjacent clay plateau gradual but is taken as corresponding roughly to the break in slope that occurs around the 35m contour.

Clay Plateau. The flat clay lands of Whitburn and Cleadon Moors fall naturally into this category. The boundaries between this type and adjacent types are gradual and progressive: the ones selected are based on modest breaks on slope but taken where possible to the nearest field boundary. In the south they are taken to be the administrative boundary with Sunderland for consistency with the SLCA although arguably they might extend some 150-200m south of that line in places. Unlike in areas to the south, the Clay Plateau extends to the coast between Whitburn and Seaburn.

Limestone Escarpment. The escarpment is not strongly defined as a linear feature north of the River Wear. Boldon Hill with its steep western slope, limestone outcrops and abandoned quarries is its northern-most point. The gentler eastern slopes merge gradually with the flatter land of the Clay Plateau. The boundary selected is relatively arbitrary but is designed to capture the main outcrops of limestone.

Note: it is proposed to alter the revised NCA15 boundary in this area to exclude the Boldon Flats area as noted above when considering the GNF LMZ boundaries. The transition between the flat clay lands of Boldon Flats which overlie coal measures strata and the equally flat clay lands of Whitburn Moor which overlie magnesian limestone is gradual and impossible to define with any precision.

Darlington

In Darlington it is possible to identify a single landscape type although this isn't a particularly meaningful area when viewed in isolation. This is shown on Figure 18.

Limestone Escarpment. The escarpment is not strongly defined as a linear feature south of Westerton. Limestone outcrops in pockets along the plateau edge which is formed by the valley of the River Wear to the west. Although it continues to read as a spur at Coundon, and a more muted plateau edge at Eldon, south of that point through Shildon in Durham, and Redworth in Darlington, the limestone outcrops on the sides of shallow tributary valleys working back into the main Tees / Wear watershed where there is no defined scarp. The boundary between NCA15 and its neighbours is very blurred in this area.

Given the similarity of the landscape here to other dip-slope valleys it is proposed to treat it here as part of the Limestone Escarpment type rather than identify a separate type such as 'Limestone Valley'.

Proposed Limestone Landscapes Typology

Overview

It is proposed to identify 6 broad landscape types within NCA 15 as representing the best fit with existing national, regional and local LCA. These are shown on Figure 19

- Limestone Escarpment
- Clay Plateau
- Coastal Limestone Plateau
- Limestone Coastal Plain
- Limestone Coast
- Limestone Gorge

Figure 20 shows the relationship of these landscape types with the limestone outcrop. While the LCA deals primarily with rural landscapes, Figure 21 shows how it is assumed these broad landscape types underlie urban landscapes as a way of explaining how undeveloped areas within the urban fabric fit within the broad typology.

Boundaries between landscape types are rarely precise and those shown in Figures 14-16 must be treated as broadly indicative only. The rationale behind the boundaries selected is given below.

Limestone Escarpment / Wear Lowlands & West Durham Coalfield

The boundary is taken to be either the limestone outcrop or a break in slope towards the base of a scarp or hill landform formed in part by limestone. The floor of vales enclosed in some degree by limestone spurs is treated as belonging to the landscape of the adjacent coal measures other than in the case of small narrow vales.

Limestone Escarpment / Clay Plateau

The boundary is taken to be the point at which the escarpment landform (made up of scarp and dip-slopes, low hills, spurs, vales and valleys) gives way to an undulating plateau, and where frequent outcrops of limestone give way to a more generalised covering of drift. This is an ambiguous boundary as there is a zone of transition between the two types which is broad in places.

Clay Plateau / Coastal limestone Plateau

The boundary is taken to be the point at which limestone begins to outcrop with greater frequency towards the coast, where the plateau begins to fall towards the coast incised by coastal denes, and where sea views become part of the visual environment. This is an ambiguous boundary as there is a zone of transition between the two types which is broad in places, and which may be marked by only one of these factors.

Coastal Limestone Plateau / Limestone Coast

The Limestone Coast is tightly defined. The landward boundary is generally taken to be a coastal road, railway line or settlement edge.

Coastal Limestone Plateau / Limestone Coastal Plain

The boundary is taken to be the point at which the plateau topography (associated with a 'hard' coast of cliffs and incised coastal denes) gives way to that of an undulating plain (associated with a 'soft' coast of dunes and rocky headlands). This is an ambiguous boundary as there is a broad zone of transition between the two types.

Limestone River Gorge / other broad types.

The boundary is taken in principle to be the point at which the adjacent landforms are incised by the river valley / gorge. In practice as the typology excludes urban areas, the boundaries are all settlement edges rather than topographic features.

Boundaries with the Tees Lowlands

The boundary is taken to be the point at which frequent outcrops of limestone give way to a more generalised covering of drift, where escarpment landforms give way to the flat or undulating topography of the plain, or where colliery workings and pit villages become characteristic features of the landscape. This is an ambiguous boundary as there is a broad zone of transition between the plateau and the plain.

Broad Landscape Types

Limestone Escarpment

Key characteristics

- A low escarpment, deeply dissected in places to form short valleys between well-defined spurs or low rounded hills.
- Gently rounded topography of soft magnesian limestones covered in places by glacial drift.
- Occasional steep-sided incised valleys and glacial melt-water channels.
- Thin calcareous soils over limestones with heavier clays on boulder clay and brown earths on glacial sands and gravels.
- Open, predominantly arable farmland, with pasture on steeper slopes and pony paddocks close to settlement edges
- Remnants of limestone grassland on the thin soils of scarp slopes, spurs, ridge tops and incised valleys.
- Varied limestone plant communities in abandoned limestone quarries and road cuttings
- Semi-regular patterns of medium and large-scale fields bounded by low, clipped hawthorn hedges which are often neglected or gappy.
- Few trees – thinly scattered hedgerow ash and sycamore
- Sparsely wooded – ancient ash woodlands and areas of hawthorn scrub on steep spurs, vale-sides and denes.
- Occasional small 'green' villages on ridge tops and valley floors. Scattered mining towns and villages and larger urban areas in the north
- Large limestone quarries, some in use as landfill sites, in prominent locations on ridges and spurs.
- Tracts of reclaimed land restored to agriculture, forestry or recreational uses.
- A visually open landscape with panoramic views across the surrounding lowlands and urban areas.
- Crossed by major roads, often in prominent cuttings with exposed limestone faces, and by a network of quiet country lanes.
- Rural in character with scattered isolated farms in places but with a semi-rural or urban fringe quality in settled areas.
- Wind turbines and overhead services are prominent on the skyline in places.

Description

A low escarpment, deeply dissected in places to form a series of short valleys between well defined spurs, but forming a simpler low ridge or low hills elsewhere. Soft and easily weathered creamy yellow magnesian limestones (dolomites) and sands form gently rounded, convex slopes. They are overlain in places by boulder clays, or locally by glacial sands and gravels that give rise to a more undulating terrain. There are occasional steep-sided glacial melt water channels that cut down into valley floors or breach the escarpment. Valleys are often dry in their upper reaches and there are occasional springs at the base of the scarp. Watercourses are small and inconspicuous. Soils are diverse, with thin calcareous soils over limestone outcrops, heavier neutral clays on glacial boulder clay and free draining brown earths on sands and gravels.

Agricultural land-use is mixed but predominantly arable, with pasture generally restricted to the steeper slopes or urban fringe pony paddocks. Field boundaries are hedgerows, or, very occasionally, low limestone walls. Hedges are usually clipped low and dominated by hawthorn and are frequently neglected and gappy. Field patterns are semi-regular in pattern and most date from the enclosure of the common town fields of the older escarpment villages in the 1600s. There are remnants of old, flower rich limestone grasslands – with Blue Moor-grass, Sheep's Fescue and herbs such as Wild Thyme and Common rockrose - on the thin soils of scarp slopes, spurs, incised valleys and ridge tops.

Tree and woodland cover is low. The landscape is generally very open with thinly scattered hedgerow ash and sycamore. Ancient ash woods and areas of hawthorn or gorse scrub are found on steeper spurs, valley sides and incised denes. There are patches of scrub in and around abandoned limestone quarries and colliery land, and a few areas of mature plantations associated with former parklands.

Old agricultural villages are found on ridge tops and valley floors. Buildings are of local limestone or sandstone from the nearby coal measures with roofs of clay pan tile or Welsh slate and are typically set around a central village green. Mining villages and small towns are scattered irregularly across the escarpment, some having absorbed older villages. They are made up of buildings from a number of periods including Victorian terraced housing of red brick and slate, estates of the inter-war and post-war public housing and more recent private development. Settlement edges are abrupt or fringed by leisure facilities, industrial estates, allotment gardens and pony paddocks or derelict land.

The limestone of the escarpment has been worked for building and agricultural lime since the Middle Ages, and more recently for construction aggregates and refractory products. Large active and abandoned quarries are prominent features in the landscape. Many older quarries have naturally re-vegetated and contain very diverse limestone plant communities. Some quarries are in use as landfill sites with visible tipping areas and litter-trap fencing. Coal mining has also had a substantial influence on the landscape, although much of its legacy has been removed by land reclamation in recent years. Areas of land restored to open agricultural land or coniferous forestry are found around the colliery villages, together with areas restored to recreational uses such as country parks. The escarpment is crossed by a number of major roads including the A1(M) and several A and trunk roads. In places these cross the scarp in prominent cuttings with exposed rock faces. Elsewhere the escarpment settlements are connected by a network of relatively quiet country lanes. There is a relatively dense network of footpaths augmented by a number of multi-user routes on old railway lines and wagon-ways. Wind turbines are locally prominent features as are major and minor overhead transmission lines.

The landscape is visually open and broad in scale with panoramic views out across the Wear Lowlands to the east and the Tees Lowlands to the South. Within the escarpment vales and valleys it is often more enclosed and intimate in scale. The escarpment forms an important skyline in views from the Wear Lowlands and contains some notable landmarks including Penshaw Monument and Copt Hill burial mound. The escarpment forms the backdrop in many views of Durham Cathedral and Castle World Heritage Site and other important buildings, and can also be an important vantage point from which to view them. In places the landscape has a very rural character, but generally its frequent mining villages, quarries and waste disposal sites, busy roads and overhead services, pony paddocks and derelict land give it a semi-rural or urban fringe quality.

Trends, pressures and issues

- The dense settlement pattern left by coal and associated industries together with the presence of busy roads, railways, waste disposal sites and industrial estates, power lines and communications masts, gives a semi-rural or urban fringe quality to parts of the landscape.
- The built environment of some former mining settlements is of a poor quality. Centres are often run down. Settlement edges are abrupt or poorly defined and fringed with allotments, pony paddocks and industrial land.
- The presence of large urban populations brings a pressure for recreational development like golf courses, equestrian centres and pony paddocks in the countryside near towns and villages, which weaken its rural character. The conversion of many farms and farm buildings to residential use adds to this 'suburbanising' process.
- There is continued pressure for urban and industrial development and particularly on existing settlement edges.
- Farmland close to urban areas suffers from problems like trespass, vandalism, fly tipping and wind-born litter. This tends to discourage investment and positive management, bringing an air of neglect to the urban fringe.
- The tranquillity and rural character of the countryside between towns and villages is eroded in places by the presence of major highways and other busy roads.
- The dereliction left by the coal industry has been largely reclaimed although some remains. While some land has been restored to positive after-uses, other sites have been restored to relatively poor quality agricultural land which is lacking in mature landscape features. Some reclaimed sites are planted with softwoods which can look incongruous in this landscape.
- The natural topography of the escarpment has been heavily affected in places by quarrying. Active quarries and waste disposal sites are often visually intrusive. Some working quarries are likely to extend significantly in the future. Restoration with landfill is unlikely to be an option for many quarries which will therefore be restored as open voids which brings opportunities for biodiversity.
- Ancient semi-natural woodlands vary in condition. Dutch Elm disease has altered the structure of many woods, with sycamore often replacing the native wych elm in the canopy. Some have been modified by the planting of exotics and a number were felled and replanted with conifers in the C20th.
- An increase in the extent and intensity of arable cropping has led to a loss of old pastures and meadows, along with hedgerows, hedgerow trees, field ponds, rigg

and furrow and other archaeological features. Parts of the landscape have become very open with large fields and few mature features.

- Flower-rich limestone or neutral pastures and meadows have declined with agricultural improvement, or the encroachment of scrub. Old grasslands are now rare and survive only as isolated fragments. Some of the species found there are now genetically isolated.
- The hedgerow network is heavily fragmented in places and continues to decline through removal or neglect. In arable areas hedges tend to be cut frequently and low, reducing their landscape and wildlife value and making them more vulnerable to weed encroachment and spray drift.
- The escarpment has a relatively good wind resource although its exploitation will be constrained by the relatively dense settlement pattern. There are several existing or permitted wind farms on the escarpment or adjacent parts of the plateau, and ongoing pressure for new development.
- There are a small number of relic ornamental parklands on the escarpment. Surviving features like parkland trees are in progressive decline and are likely to disappear without positive management and some degree of restoration.
- Although generally well-served by footpaths, and locally by cycle-ways on former railway lines and wagon-ways, existing routes tend to have an east-west grain. There is little opportunity for north-south access along the escarpment.

Objectives

- To improve the quality of the urban and urban fringe environment generally.
- To maintain and strengthen the rural character of the landscape between towns and villages.
- To conserve the character of historic villages, older village cores and town centres.
- To conserve, enhance and restore characteristic features of the landscape - species rich limestone grasslands, field and vale-floor ponds, dene and valley-side ash woods, old hedgerows, limestone walls and abandoned limestone quarries.
- To conserve relic landscapes and landscape features – particularly those of the coal, and railway industries, historic parklands, and relics of the medieval landscape such as rig and furrow and deserted villages.
- To enhance the management of arable land by creating buffers to hedgerows, trees, wetlands and watercourses.
- To improve the management of hedgerows by reducing the frequency of trimming.
- To encourage enhanced management of land used for equestrian activities.
- To create new native ash and oak woodlands and particularly in the form of dene and valley-side ash woods and community woodlands close to settlements
- To improve the management of existing woods to maximise landscape, wildlife and amenity benefits.
- To maintain the stock of hedgerow and parkland trees by conserving veteran trees and planting or tagging new hedgerow trees.
- To restore derelict land and improve the landscape of reclaimed land by planting native woodlands and hedgerows, restructuring plantations, and creating species rich grasslands.

- To restore mineral workings in a way that reduces their impact on the landscape and enhances biodiversity - for example by creating new ash woods, limestone grasslands and wetlands on low fertility substrates.
- To maintain and increase access to the countryside around towns and villages, and particularly circular neighbourhood walks and long distance paths, including development of a north-south 'limestone way' along the escarpment.
- To create accessible natural green space close to towns and villages.
- To reduce traffic on country lanes and create new safe routes or 'greenways' for pedestrians, cyclists and horse riders between towns and villages.
- To encourage the conservation and appropriate management of roadside verges
- To protect the topography of the escarpment from the impacts of quarrying and reduce the visual impacts of working quarries – for example through off-site planting.
- To secure the management of abandoned mineral workings and other sites of nature conservation importance.
- To encourage improvements to the environment of industrial sites and positive management of vacant industrial land.

Clay Plateau

Key characteristics

- Low plateau of flat, gently rolling or undulating terrain.
- Soft magnesian limestones are covered by a thick mantle of boulder clay.
- Heavy, seasonally waterlogged clay soils.
- Predominantly arable farmland - mostly cereals and oilseed rape –mixed in places with improved pasture and pony paddocks
- Regular or semi-regular patterns of medium and large-scale fields bounded by low hawthorn hedges.
- Few trees – thinly scattered hedgerow ash, oak and sycamore.
- Sparsely wooded – occasional small broadleaved woods and larger conifer plantations.
- Scattered mining villages and larger urban areas connected by a well developed network of busy roads.
- Wind turbines, telecommunications masts and pylons frequently feature on the skyline.
- Areas of derelict colliery land, reclaimed land and old clay pits.
- Abandoned railway lines, many in use as cycleways.
- A visually open landscape, broad in scale, with a semi-rural or urban fringe quality in places.

Description

A low plateau of flat, gently undulating or gently rolling terrain. Soft magnesian limestones (dolomites) are overlain by glacial drift - mostly boulder clays with isolated pockets of sands and gravels – often to a substantial depth. Soils are heavy,

seasonally waterlogged brown stony clay soils with pockets of lighter calcareous soils where there is no drift. Pockets of peaty clay soils occur in poorly drained areas.

Agricultural land use is mixed with a mosaic of arable cropping, largely cereals and oilseed rape, and improved pasture. Field boundaries are hawthorn-dominated hedgerows, usually low and trimmed in arable areas but occasionally tall and overgrown around pastures. Field patterns are variable but are generally regular or semi-regular. Some date from the enclosure of town fields from the mid 1500s to late 1600s, or earlier enclosures from the manorial wastes associated with individual farms or monastic granges. Many date from the enclosure of open wastes from the mid 1700s – usually indicated by the place name 'moor' - and have the characteristic regular grid patterns of land enclosed by surveyors. Field patterns have been heavily disrupted in places by the amalgamation of smaller units into large arable fields.

Tree and woodland cover is low. The landscape is very open with thinly scattered hedgerow oak, ash and sycamore. There are few woodlands other than occasional small broadleaved woods and a number of larger conifer plantations. Areas of scrub and young woodland are found on pockets of derelict colliery land, old railway lines and abandoned grassland.

Historically a sparsely settled landscape of scattered farms and extensive wastes on the heavy and poorly drained soils of the central plateau. Old villages are generally absent. Older farm buildings are of local limestone, or more durable Carboniferous sandstones imported from the west, with roofs of red clay pan tile. Mining villages and larger towns are scattered across the plateau, some having absorbed older villages. The western parts of the City of Sunderland spread across the plateau south of the River Wear. Settlements are made up of buildings from a number of periods including Victorian terraced housing of red or grey brick and slate, estates of the inter-war and post-war public housing and more recent private development. Settlement edges are abrupt or fringed by allotment gardens and pony paddocks.

Coal mining has had a substantial influence on the landscape. Much of its legacy has been removed by land reclamation in recent years, but some areas of dereliction remain. Areas of land restored to agriculture or forestry are found around the colliery villages. Many settlements had small brickworks associated with them and old flooded clay pits are common. The plateau is crossed by a number of major roads including the A19. Elsewhere settlements are connected by a network of relatively busy minor roads. The footpath network is variable in character being relatively sparse in places but is augmented by a number of multi-user paths on old railway lines and wagon-ways which include long-distance routes.

The landscape is visually very open and broad in scale, and has a semi-rural or urban fringe quality in most places coming from its dense settlement pattern, busy roads, overhead services and areas of derelict land.

Trends, pressures and issues

- The dense settlement pattern left by coal and associated industries together with the presence of busy roads, industrial estates, power lines and communications masts, gives a semi-rural or urban fringe quality to much of the landscape.
- The built environment of some former mining settlements is of a poor quality. Centres are often run down. Settlement edges are abrupt or poorly defined and fringed with allotments, pony paddocks and industrial land.
- The presence of large urban populations brings a pressure for recreational development like golf courses, equestrian centres and pony paddocks in the countryside near towns and villages, which weaken its rural character. The

conversion of many farms and farm buildings to residential use adds to this 'suburbanising' process.

- There is continued pressure for urban and industrial development and particularly close to existing settlement edges.
- Farmland close to urban areas suffers from problems like trespass, vandalism, fly tipping and wind-born litter. This tends to discourage investment and positive management, bringing an air of neglect to the urban fringe.
- The tranquillity and rural character of the countryside between towns and villages is eroded in many places by the presence of major highways and other busy roads.
- The dereliction left by the coal industry has been largely reclaimed although some remains. While some land has been restored to positive after-uses, other sites have been restored to relatively poor quality agricultural land which is lacking in mature landscape features. Some reclaimed sites are planted with softwoods which can look incongruous in this landscape.
- An increase in the extent and intensity of arable cropping has led to a loss of old pastures and meadows, along with hedgerows, hedgerow trees, field ponds, rigg and furrow and other archaeological features. Parts of the landscape have become very open with large fields and few mature features. Surviving features are vulnerable to further intensification.
- Flower-rich neutral and acidic pastures and meadows and wet grasslands have declined with agricultural improvement or drainage. Old grasslands are now rare and survive only as isolated fragments. Some of the species found there are now genetically isolated.
- Tree cover is very low and ancient native woodland entirely absent.
- The hedgerow network is heavily fragmented in places and continues to decline through removal or neglect. In arable areas hedges tend to be cut frequently and low, reducing their landscape and wildlife value and making them more vulnerable to weed encroachment and spray drift.
- The footpath network tends to follow historical routes which offer limited opportunities for attractive circular walks from settlements. Traffic levels on minor roads discourages other road users and particularly pedestrians.
- The plateau has a relatively good wind resource although its exploitation will be constrained by the relatively dense settlement pattern. There are several existing or permitted wind farms on the plateau or adjacent areas, and there is ongoing pressure for new development.

Objectives

- To improve the quality of the urban and urban fringe environment generally.
- To maintain and strengthen the rural character of the landscape between towns and villages.
- To conserve, enhance and restore characteristic features of the landscape - species rich neutral and wet grasslands, field ponds, old hedgerows.
- To conserve relic landscapes and landscape features – particularly those of the coal and railway industries and relics of the medieval landscape such as rig and furrow and deserted villages.

- To enhance the management of arable land by creating buffers to hedgerows, trees, wetlands and watercourses.
- To improve the management of hedgerows by reducing the frequency of trimming.
- To encourage enhanced management of land used for equestrian activities.
- To create new native oak woodlands, and alder woodlands in areas of poor drainage, and new community woodlands close to settlements
- To improve the management of existing plantations to maximise landscape, wildlife and amenity benefits.
- To maintain the limited stock of hedgerow trees by conserving veteran trees and planting or tagging new hedgerow trees.
- To restore derelict land in ways which conserves its biodiversity and improve the landscape of reclaimed land by planting native woodlands and hedgerows, restructuring plantations, and creating species rich grasslands.
- To maintain and increase access to the countryside around towns and villages, and particularly circular neighbourhood walks and links to long-distance paths.
- To create accessible natural green space close to towns and villages.
- To reduce traffic on country lanes and create new safe routes or 'greenways' for pedestrians, cyclists and horse riders between towns and villages.
- To secure the management of abandoned mineral workings and other sites of nature conservation importance.
- To encourage improvements to the environment of industrial sites and positive management of vacant industrial land.

Coastal Limestone Plateau

Key characteristics

- Low coastal plateau of rolling or undulating terrain, incised by narrow steep-sided denes, falling gradually to the coast
- Gently rounded topography of soft magnesian and shell limestones covered in places by glacial drift of boulder clay, sands and gravels.
- Occasional low landmark hills.
- Heavy, seasonally waterlogged clay soils and lighter brown earths.
- Predominantly arable farmland of cereals and oilseed rape.
- Semi-regular patterns of medium and large-scale fields bounded by low hawthorn hedges.
- An open landscape exposed to the sea with few trees or woodlands.
- Ancient ash woods in sheltered denes.
- Large mining settlements connected by a well-developed network of busy roads.
- Large active, abandoned or dormant limestone quarries are notable features locally.
- Scattered older agricultural 'green' villages connected by narrow winding lanes.
- Occasional areas of parkland and estate farmland rich in hedgerow trees.

- A visually open landscape, broad in scale but with spaces defined by the rolling terrain.
- The sea is often visible forming the eastern horizon.
- A semi-rural or urban fringe quality in places.

Description

A low coastal plateau of gently rolling or undulating terrain, incised by narrow steep sided denes. Soft magnesian limestones (dolomites) and shell or reef limestones are overlain generally by glacial drift of boulder clays and sands and gravels. Soils are heavy, seasonally waterlogged brown stony clay soils with pockets of lighter calcareous soils where there is no drift, and fertile brown earths over deposits of sands and gravels.

Agricultural land use is largely arable and dominated by cereals and oilseed rape. Field boundaries are low, clipped, hawthorn hedges. Field patterns are semi-regular, and most date from the enclosure of the town fields of older villages in the 1600s. Field patterns have been heavily disrupted in places by the amalgamation of smaller units into very large arable fields.

Tree cover is generally very low with only isolated hedgerow ash or sycamore. There are very localised areas of parkland and estate farmland that is rich in hedgerow and field trees. The landscape is generally very open and exposed to the strong, salt laden winds and sea frets of the North Sea. Woodlands are almost entirely restricted to the sheltered denes that contain ancient woodlands of ash, oak, wych elm and yew.

Historically a settled landscape with a nucleated pattern of small agricultural villages of early medieval origins. A number of these survive and most have buildings of local limestone, or more durable carboniferous sandstone imported from the west, and roofs of red clay pan tile or Welsh slate. Buildings are typically set around a central green. Old villages and scattered farms are connected by narrow winding roads and lanes.

Larger settlements including the eastern parts of the City of Sunderland and the mining settlements of Ryhope, Seaham and Peterlee new town occupy substantial tracts of the coastal plateau. They are made up of buildings from a number of periods including Victorian terraced housing of red or grey brick and slate, estates of inter-war and post-war public housing and more recent private estate development. Settlement edges are often abrupt or fringed by allotment gardens and pony paddocks or industrial estates.

The reef limestones of the coastal plateau have been worked for building and agricultural lime since the Middle Ages, and more recently for construction aggregates. Large quarries, abandoned, dormant or active, are notable features in the landscape and contain diverse limestone flora. Coal mining has had a substantial influence on the landscape, its main legacy being in the settlement pattern. Extensive areas of colliery land have been reclaimed in recent years to housing and industry. The coastal plateau is an important communications corridor and is crossed by the busy A19 trunk road and the coastal railway line. Local roads between settlements are often heavily trafficked. The footpath network is generally well developed and is augmented in the south by a multi-user route following a former railway line with longer-distance links across the Clay Plateau. The network is generally well-linked in the east to the long-distance coastal path.

The landscape is visually open and broad in scale, with spaces defined by the rolling topography. The sea is often visible, forming a strong distant horizon to the east. A

densely settled landscape with a semi-rural or urban fringe quality in many places, but with a strongly rural character in some areas.

Trends, pressures and issues

- The dense settlement pattern left by coal and associated industries together with the presence of busy roads, railways, industrial estates, power lines and communications masts, gives a semi-rural or urban fringe quality to much of the landscape.
- The built environment of some former mining settlements is of a poor quality. Centres are often run down. Settlement edges are abrupt or poorly defined and fringed with allotments, pony paddocks and industrial land.
- The presence of large urban populations brings a pressure for recreational development like golf courses, equestrian centres and pony paddocks in the countryside near towns and villages, which weaken its rural character. The conversion of many farms and farm buildings to residential use adds to this 'suburbanising' process.
- There is continued pressure for urban and industrial development and particularly on existing settlement edges.
- Farmland close to urban areas suffers from problems like trespass, vandalism, fly tipping and wind-born litter. This tends to discourage investment and positive management, bringing an air of neglect to the urban fringe.
- The tranquillity and rural character of the countryside between towns and villages is eroded in places by the presence of major highways and other busy roads.
- Active limestone quarries can be visually intrusive. Site management and restoration offers opportunities for improving biodiversity.
- Ancient semi-natural woodlands vary in condition. Dutch Elm disease has altered the structure of many woods, with sycamore often replacing the native wych elm in the canopy. Some have been modified by the planting of exotics and a number were felled and replanted with conifers in the C20th.
- An increase in the extent and intensity of arable cropping has led to a loss of old pastures and meadows, along with hedgerows, hedgerow trees, field ponds, rigg and furrow and other archaeological features. Much of the landscape has become very open with large fields and few mature features.
- Flower-rich limestone or neutral pastures and meadows have declined with agricultural improvement, or the encroachment of scrub. Old grasslands are now rare and survive only as isolated fragments. Some of the species found there are now genetically isolated.
- The hedgerow network is heavily fragmented in places and continues to decline through removal or neglect. In arable areas hedges tend to be cut frequently and low, reducing their landscape and wildlife value and making them more vulnerable to weed encroachment and spray drift.
- The coastal plateau has a relatively good wind resource although its exploitation is constrained by the relatively dense settlement pattern. There are currently no existing or permitted wind farms although there is some development pressure.
- There are a small number of relic ornamental parklands on the coastal plateau. Surviving features like parkland trees are in progressive decline and are likely to disappear without positive management and some degree of restoration.

Objectives

- To improve the quality of the urban and urban fringe environment generally.
- To maintain and strengthen the rural character of the landscape between towns and villages.
- To conserve the character of historic villages, older village cores and town centres.
- To conserve, enhance and restore characteristic features of the landscape - species rich limestone grasslands, dene woodlands, old hedgerows, field ponds and abandoned limestone quarries.
- To conserve relic landscapes and landscape features – particularly those of the coal and railway industries, historic parklands, and relics of the medieval landscape such as rig and furrow and deserted villages.
- To enhance the management of arable land by creating buffers to hedgerows, hedgerow trees, wetlands and watercourses.
- To improve the management of hedgerows by reducing the frequency of trimming.
- To encourage enhanced management of land used for equestrian activities.
- To create new native ash and oak woodlands and particularly where they would restore or consolidate existing dene woodlands, and to create new community woodlands close to settlements
- To improve the management of existing woods to maximise landscape, wildlife and amenity benefits.
- To maintain the stock of hedgerow and parkland trees by conserving veteran trees and planting or tagging new hedgerow trees.
- To restore active or dormant limestone quarries in a way that reduces their impact on the landscape and enhances biodiversity - for example by creating new ash woods, limestone grasslands and wetlands on low fertility substrates.
- To maintain and increase access to the countryside around towns and villages, and particularly circular neighbourhood walks.
- To create accessible natural green space close to towns and villages.
- To reduce traffic on country lanes and create new safe routes or 'greenways' for pedestrians, cyclists and horse riders between towns and villages.
- To encourage the conservation and appropriate management of roadside verges
- To secure the management of abandoned mineral workings and other sites of nature conservation importance.
- To encourage improvements to the environment of industrial sites and positive management of vacant industrial land.

Limestone Coast

Key characteristics

- Varied coast of shallow bays and headlands.
- Cliffs of pale magnesian limestone with crests of boulder clay, occasional caves and stacks.

- Shallow gills cut down into the cliff-top boulder clay. Larger denes breach the limestone cliffs.
- Sand or shingle beaches and limestone rock platforms.
- Localised raised beaches of colliery wastes.
- Developed in places with sea-front promenades and recreational development, working ports and harbours.
- Gently rolling cliff-top farmland of open arable fields or rough coastal grassland.
- Varied grassland flora – red fescue, sea plantain, and bloody cranesbill.
- Patches of wind-shaped blackthorn scrub with occasional hazel and juniper on clay slopes and cliff top denes.
- Ancient woodlands of ash, oak, wych elm and yew in deeper sheltered dene-mouths.
- Localised sand dunes with marram grass, sea couch and red fescue.
- A narrow coastal strip often defined inland by settlement edges, coastal roads or railway lines.
- Localised areas of recently reclaimed colliery land.
- A visually open landscape with extensive views out across the North Sea.
- A natural coastline heavily influenced by urban development and damaged in places by colliery workings.

Description

A varied coastline of shallow bays and headlands. Much of the coastline is made up of cliffs, 20 to 30 metres in height, of pale, creamy yellow Permian limestones crested by steep slopes of boulder clay, with occasional caves and stacks. The limestones exposed in the cliffs vary in character and include soft dolomites, thinly bedded or "brecciated" by the collapse of underlying strata, oolitic and concretionary limestones, and fossil-rich reef limestones.

The foreshore is made up of beaches of sand and shingle or cobbles with occasional wave-cut rock platforms. Beaches are despoiled in places by the past tipping of colliery wastes, now being gradually eroded by the sea. Shallow denes cut down into the cliff-top boulder clay and the mouths of larger inland denes breach the limestone cliffs. In the south, low sand dunes bound by marram grass and sea couch mark the transition with the lower lying coastal plain.

The coast is developed in places with extensive sea-front promenades and recreational facilities, amenity grasslands and caravan sites. There are working ports and harbours at Sunderland, Seaham and Hartlepool with associated areas of industrial land and infrastructure such as railway sidings.

Above the cliffs lie relatively flat or gently rolling open arable fields and rough coastal grasslands. These grasslands, and those on the clay slopes, have a varied flora of red fescue, sea plantain and bloody cranesbill. Patches of wind-shaped blackthorn scrub with occasional stunted hazel and juniper are found on clay slopes and cliff top denes. Ancient woodlands of ash, oak, wych elm and yew lie in the deeper and more sheltered dene-mouths.

The coastal strip is narrow and often defined inland by settlement edges, coastal roads or railway lines. There are areas of restored colliery land within the coastal strip south of Seaham and military facilities at Whitburn.

The landscape is exposed and visually open with extensive panoramic views out across the North Sea, and dramatic scenic views along the coastline. In places it has natural and elemental qualities, coming from its geology, its semi-natural vegetation and the influences of the sea. In other places it has a strongly urban character, or an industrialised urban fringe character close to working ports or in areas of past mining activity.

Trends, pressures and issues

- The dereliction left by the mining industry has been largely reclaimed although some beaches remain in poor condition. Parts of the coast have an industrialised or urban fringe quality.
- Coastal erosion is proceeding rapidly in places. Some fragile cliff-top habitats are being 'squeezed- out' as cliff slopes erode back into improved farmland or amenity grassland.
- Erosion presents an imminent threat to areas of former landfill or colliery wastes.
- Rising sea levels are anticipated in the coming decades which will increase the threats posed by erosion.
- Coastal landscapes have conflicting management requirements. Public access and recreational use can conflict with the need to protect fragile habits or to manage coastal grasslands.
- Many coastal grasslands are in poor condition and their biodiversity is low or declining as they are difficult to manage either as pasture or meadow due to pressures of access.
- There is continued pressure for urban and industrial development and particularly on existing settlement edges.
- Public access to the foreshore is poor in places, particularly in stretches alongside the coastal railway line.
- Parts of the coastal strip are in intensive agricultural use reducing coastal habitats and the land available for footpaths to narrow corridors.
- The coastal strip is very narrow and the appreciation of its natural qualities is often impaired by nearby development and busy roads.

Objectives

- To improve the quality of the coastal environment generally.
- To restore natural conditions to cliffs and foreshores, and particularly where they have been despoiled by industrial development or the tipping of colliery wastes.
- To conserve, enhance and restore features and habitats characteristic of the I landscape, and particularly species rich limestone and maritime grasslands, dene woodlands and scrub.
- To convert arable land to maritime grassland or create substantial buffers to cliff-top grasslands
- To create new native ash woodlands and scrub and particularly where they would restore or consolidate existing dene and gill habitats or screen intrusive development or busy roads.
- To improve the management of existing dene and gill woods to maximise landscape, wildlife and amenity benefits.

- To improve the management of coastal grasslands and particularly by introducing grazing where this is practical.
- To improve and manage access to the coastal strip and foreshore.

Limestone Coastal Plain

Key characteristics

- Low coastal plain of undulating or rolling terrain incised locally by narrow denes
- Magnesian limestones are largely overlain by glacial drift of boulder clay, sands and gravels.
- Heavy, seasonally waterlogged clay soils and lighter brown earths.
- Predominantly arable farmland of cereals and oilseed rape.
- Semi-regular patterns of medium and large-scale fields bounded by low hawthorn hedges.
- An open landscape exposed to the sea with few trees.
- Ancient oak and ash dene woodlands and scattered plantations.
- Large coastal settlements connected by a well-developed network of busy roads.
- Scattered older agricultural 'green' villages connected by narrow winding lanes.
- A visually open landscape, broad in scale but with spaces defined by the rolling terrain.
- Occasional active or abandoned limestone quarries.
- Crossed by major roads and by a network of quiet country lanes.
- Wind turbines and overhead services are prominent on the skyline in places.
- The sea is often visible forming the eastern horizon.
- A predominantly rural landscape with a semi-rural or urban fringe quality in places.

Description

A low coastal plain of undulating or rolling terrain incised locally by narrow denes. Soft magnesian limestones are overlain generally by glacial drift made up of boulder clays and sands and gravels. Soils are heavy, seasonally waterlogged brown stony clay soils with pockets of lighter calcareous soils where there is no drift, and more fertile brown earths over deposits of sands and gravels.

Agricultural land use is largely arable and dominated by cereals and oilseed rape. Field boundaries are low, clipped, hawthorn hedges. Field patterns are semi-regular, and most date from the enclosure of the town fields of older villages in the 1600s. Field patterns have been heavily disrupted in places by the amalgamation of smaller units into very large arable fields.

Tree cover is generally very low with only isolated hedgerow ash or sycamore. The landscape is generally very open and exposed to the strong, salt laden winds and sea fets of the North Sea. Woodlands are limited to scattered plantations and ancient ash and oak woods in narrow denes.

Historically a settled landscape with a nucleated pattern of small agricultural villages of early medieval origins. A number of these survive and have buildings of local limestone, or more commonly durable sandstone imported from the west, and roofs

of red clay pan tile or Welsh slate. Buildings are typically set around a central green. Old villages and scattered farms are connected by narrow winding roads and lanes.

The coastal town of Hartlepool occupies much of the Coastal Plain in the east. It is made up of buildings from a number of periods including Victorian terraced housing of red brick and slate, estates of the inter-war and post-war public housing and more recent private development. Settlement edges are open and abrupt in places, screened by perimeter tree belts in others.

There is a single active limestone quarry south of Hart and a number of much smaller old quarries that have naturally re-vegetated. The coastal plain is part of a wider communications corridor and is crossed by the busy A19 trunk road, the A179 and the A1086. Villages and farms are connected by a network of quieter country lanes.

Turbines of the High Volts windfarm are prominent features in the area, which is also crossed by a number of major overhead transmission lines.

The landscape is visually open and broad in scale, with spaces defined by the rolling or undulating topography. The sea is often visible, forming a strong distant horizon to the east. A predominantly rural landscape, although settled in the east, and with a semi-rural or urban fringe quality in places.

Trends, pressures and issues

- Parts of the landscape in the east have an urban fringe quality. Elsewhere the presence of busy roads and power lines gives a semi-rural quality to some areas.
- The presence of large urban populations brings a pressure for recreational development like golf courses, equestrian centres and pony paddocks in the countryside near towns and villages, which weaken its rural character. The conversion of many farms and farm buildings to residential use adds to this 'suburbanising' process.
- There is continued pressure for urban and industrial development and particularly on existing settlement edges.
- Farmland close to urban areas suffers from problems like trespass, vandalism, fly tipping and wind-born litter. This tends to discourage investment and positive management, bringing an air of neglect to the urban fringe.
- The tranquillity and rural character of the countryside between towns and villages is eroded in places by the presence of major highways and other busy roads.
- Ancient semi-natural woodlands vary in condition. Dutch Elm disease has altered the structure of some remaining areas, with sycamore replacing the native wych elm in the canopy. Other areas have been modified by the planting of exotics and or felled and replanted with conifers.
- An increase in the extent and intensity of arable cropping has led to a loss of old pastures and meadows, along with hedgerows, hedgerow trees, field ponds, rigg and furrow and other archaeological features. Much of the landscape has become very open with large fields and few mature features.
- Flower-rich limestone or neutral pastures and meadows have declined with agricultural improvement. Old grasslands are now rare and survive only as isolated fragments. Some of the species found there are now genetically isolated.
- The hedgerow network is heavily fragmented in places and continues to decline through removal or neglect. In arable areas hedges tend to be cut frequently and low, reducing their landscape and wildlife value and making them more vulnerable to weed encroachment and spray drift.

- The coastal plain has a relatively good wind resource and there is likely to be ongoing pressure for further development.

Objectives

- To improve the quality of the urban and urban fringe environment generally.
- To maintain and strengthen the rural character of the landscape between towns and villages.
- To conserve the character of historic villages and town centres.
- To conserve, enhance and restore characteristic features of the landscape - species rich limestone and neutral grasslands, dene woodlands, old hedgerows, field ponds and abandoned limestone quarries.
- To enhance the management of arable land by creating buffers to hedgerows, hedgerow trees, wetlands and watercourses.
- To improve the management of hedgerows by reducing the frequency of trimming.
- To encourage enhanced management of land used for equestrian activities.
- To create new native ash and oak woodlands and particularly where they would restore or consolidate existing dene woodlands, and to create new community woodlands close to settlements
- To improve the management of existing woods to maximise landscape, wildlife and amenity benefits.
- To maintain the stock of hedgerow trees by conserving veteran trees and planting or tagging new hedgerow trees.
- To restore active limestone quarries in a way that reduces their impact on the landscape and enhances biodiversity - for example by creating new ash woods, limestone grasslands and wetlands on low fertility substrates.
- To maintain and increase access to the countryside around towns and villages, and particularly circular neighbourhood walks.
- To create accessible natural green space close to towns and villages.
- To reduce traffic on country lanes and create new safe routes or 'greenways' for pedestrians, cyclists and horse riders between towns and villages.
- To encourage the conservation and appropriate management of roadside verges
- To secure the management of abandoned mineral workings and other sites of nature conservation importance.
- To encourage improvements to the environment of industrial sites and positive management of vacant industrial land.

Limestone River Gorge

Key characteristics

- A shallow gorge crossing the limestone plateau.
- Moderate slopes made up of glacial drift with occasional outcrops of limestone in cliffs, quarries and cuttings.
- The natural topography is modified in places by urban and industrial development, roads, railways and riverside engineering.

- A heavily urbanised river corridor: a mixture of residential, industrial and commercial development with areas of parkland, woodland and disused land.
- Well wooded in the west becoming progressively less wooded towards the city centre.
- Woodlands are a mixture of secondary semi-natural woodlands and scrub on neglected or inaccessible land, and structure planting associated with business parks, land reclamation and amenity planting schemes.
- Disused or neglected land and semi-natural riverside woods contain a varied and dynamic mosaic of brown-field habitats.
- An important transport corridor bounded by major roads and railway lines with landmark bridges.
- An open landscape with long views up and down the river but locally more enclosed and sheltered on the river bank.
- A landscape of rapid ongoing change.
- A strong industrial heritage of heavy industry and ship building still evident in places.
- A visually complex, often confused and incoherent landscape with an urban fringe character and neglected appearance in places, but also exciting and dramatic.
- The river bank has limited vehicular access and good pedestrian and cycling access and can be tranquil in contrast to the nearby City centre.

Description

A shallow gorge crossing the limestone plateau, formed by glacial melt water. The valley side are moderately sloping and formed largely of glacial drift although there are occasional outcrops of magnesian limestone in cliffs, quarries and cuttings. The natural topography is modified in places by urban and industrial development, roads, railways and riverside engineering.

The river corridor is heavily urbanised with areas of residential, industrial and commercial development. Much of the latter is recent development on site formerly occupied by shipyards and heavy industry. There are areas of undeveloped land in the form of narrow corridors of woodland, areas of parkland and amenity open space, and pockets of disused or derelict land.

The valley is well wooded in the west, with dense woodlands on both banks, becoming progressively less wooded towards the city centre and the sea. Woodlands are a mixture of secondary semi-natural woodlands and scrub that have regenerated on neglected or inaccessible land, and structure planting associated with business parks, land reclamation and amenity planting schemes.

There are substantial areas of disused or neglected land which, together with tracts of secondary woodlands and scrub, contain a varied and dynamic mosaic of early successional brown-field habitats.

The valley is an important transport corridor, bounded by a major road to the north and a railway line to the south and crossed by landmark bridges. Vehicular access to the river itself is limited although there are good pedestrian and cycling routes along the river bank.

The landscape is visually open, and particularly from higher ground, with long views up and down the river. Locally it is more enclosed and sheltered on the river bank. It

is a landscape of rapid change with new development frequently taking place, and particularly in the City centre. Despite this the industrial heritage of ship building and heavy industry remains strong in places and particularly in features like Wearmouth Bridge.

The landscape is visually complex, often confused and incoherent, with an urban fringe character and neglected appearance in places, but at the same time can be exciting and dramatic. The river bank itself can be tranquil in contrast to the nearby City centre.

Trends, pressures and issues

- There is ongoing pressure in many places for new development. This can threaten wildlife habitats but could also bring opportunities for landscape, access and biodiversity improvements.
- The industrial and urban fringe character of much of the landscape and the presence of disused land gives it a run-down and neglected appearance. This encourages fly-tipping and anti-social behaviour.
- Features of historical and cultural heritage importance are often under-valued and poorly understood and lack signage and interpretation.
- The landscape as a whole has potential as a major recreational resource for the city.

Objectives

- To improve the quality of the river corridor environment generally.
- To conserve, enhance and restore valued features of the landscape – limestone outcrops, riparian woodlands and brown-field biodiversity.
- To conserve and interpret features of historical and cultural heritage importance.
- To exploit the potential of new development to deliver environmental objectives such as improving access, increasing biodiversity and providing high quality urban green-space.
- To encourage improvements to the environment of industrial sites and positive management for biodiversity of vacant or disused industrial land.
- To maximise the potential of the river corridor as a strategic recreational resource for the city.

Figures

Figure 1: Existing and revised boundary of NCA15

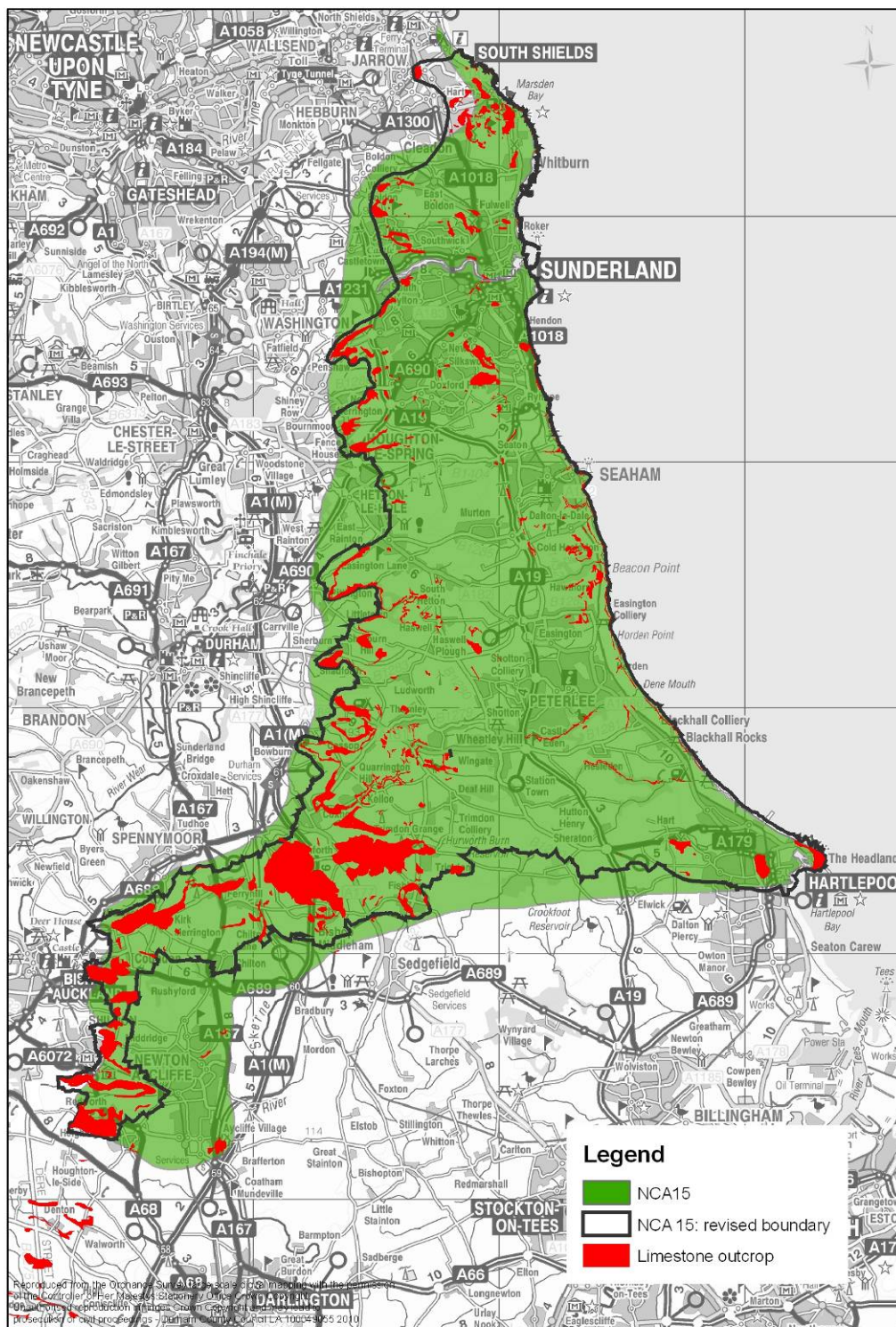


Figure 2: National Typology Unit equivalent to NCA15

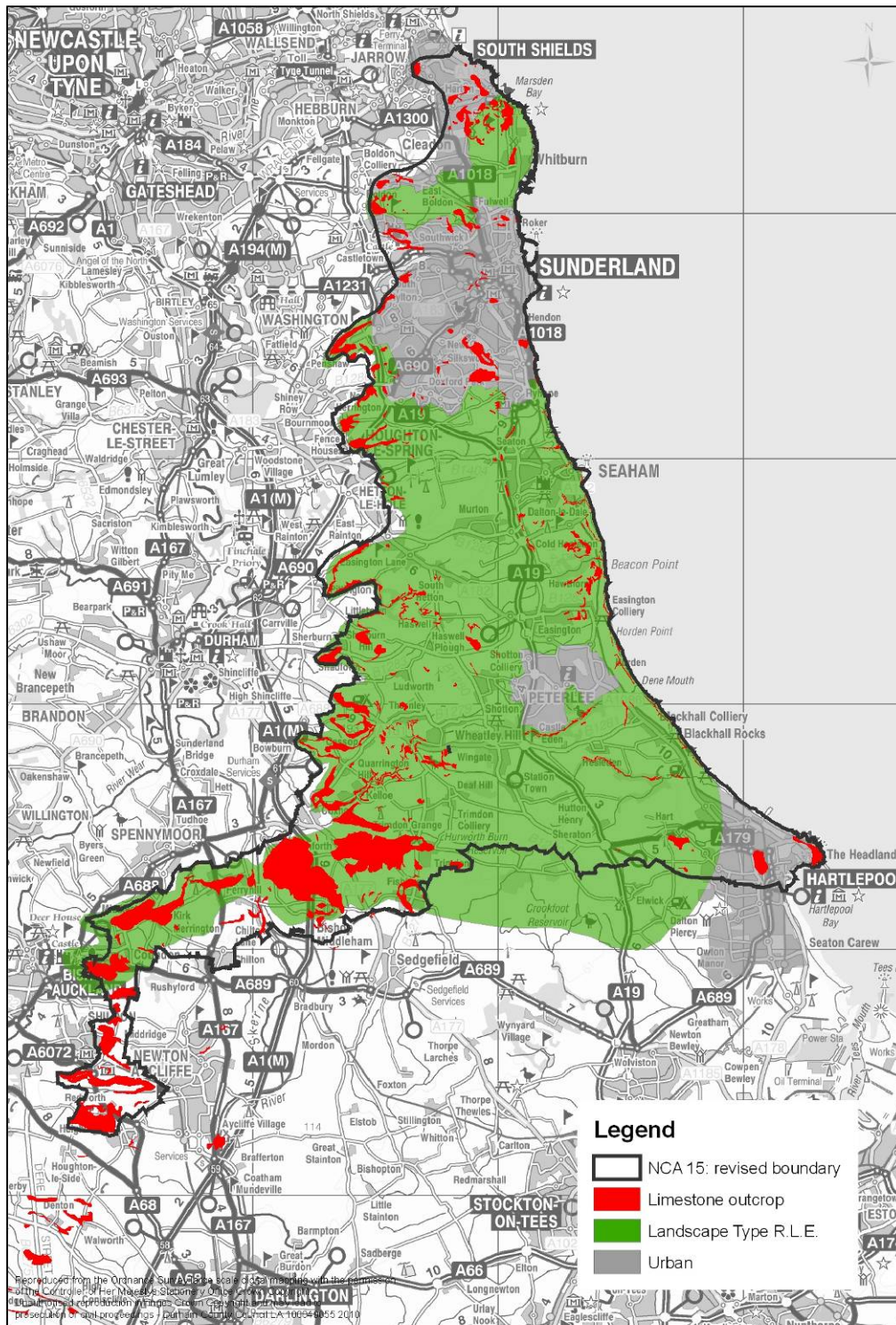


Figure 3: CQC sub-zones

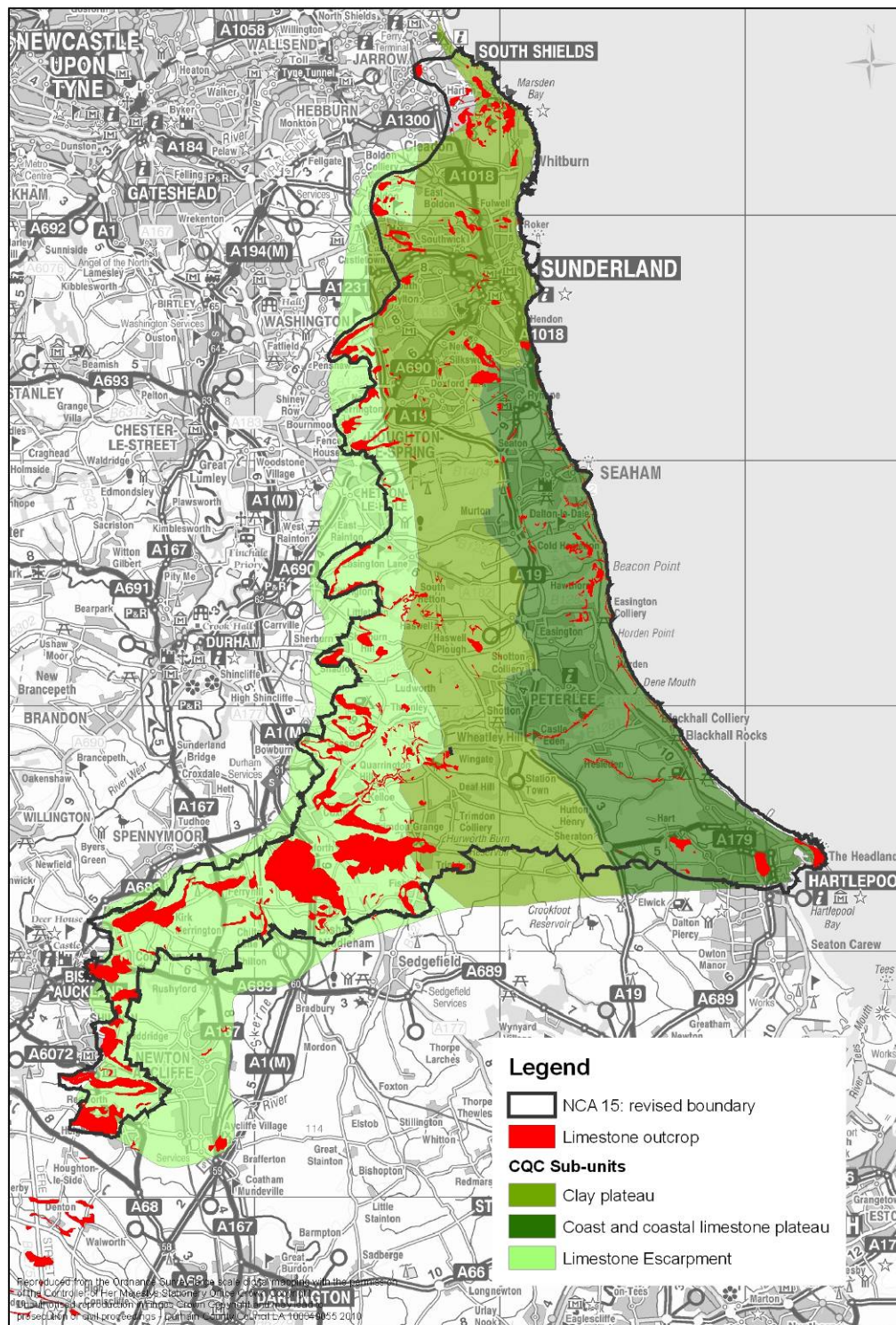


Figure 4: Landscape appraisal for onshore wind typology

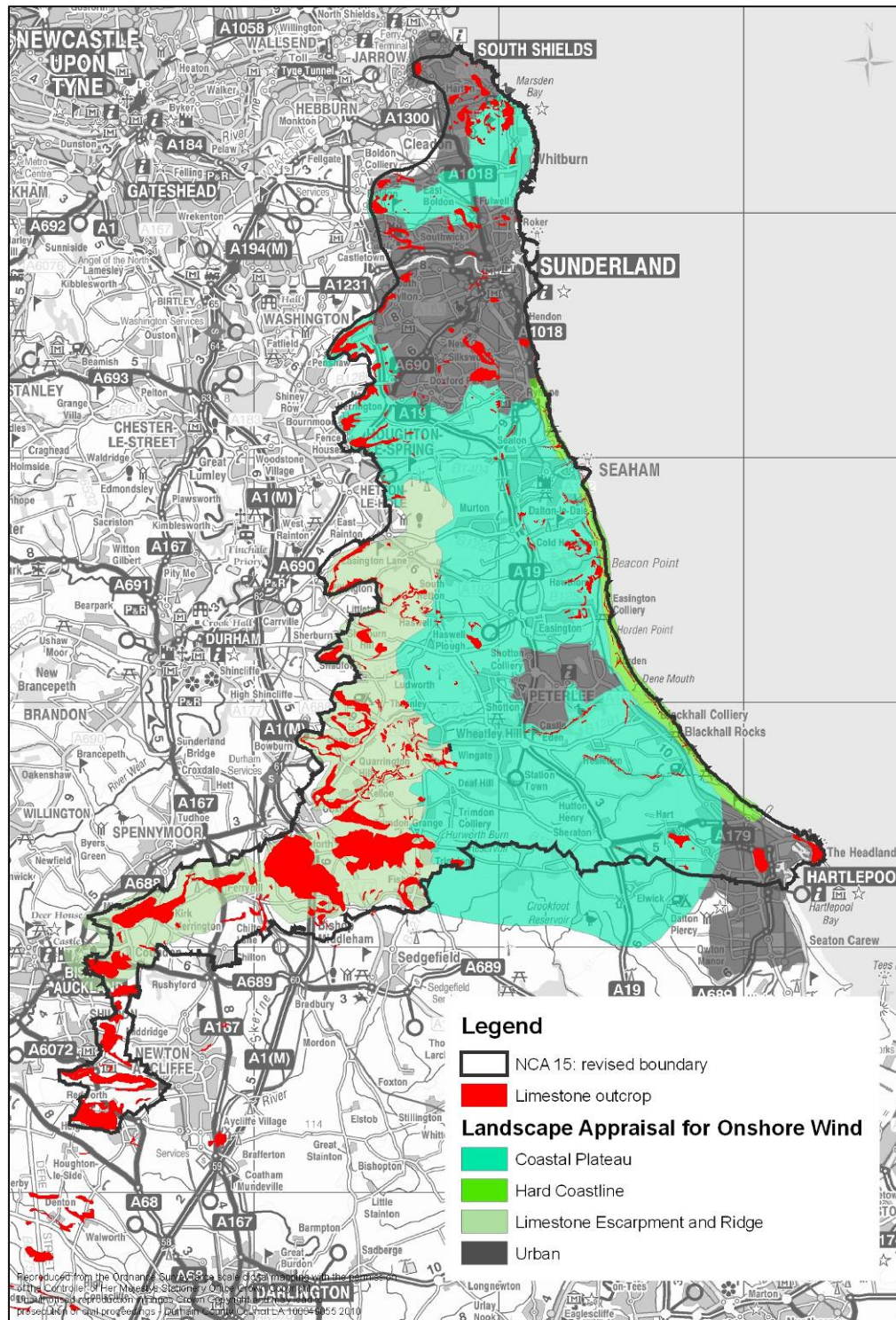


Figure 5: Great North Forest Local Management Zones and revised NCA15 boundary

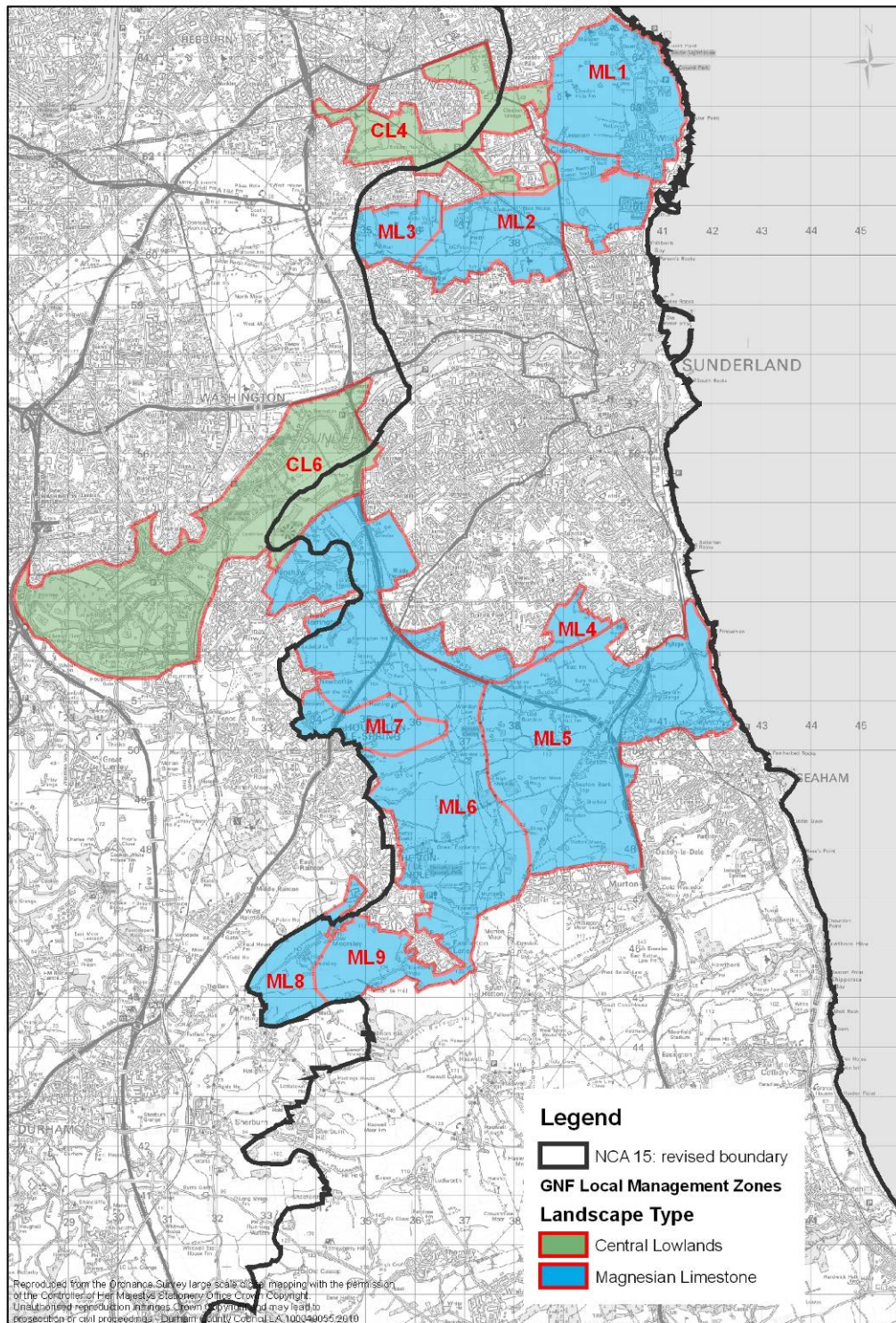


Figure 6: Great North Forest Local Management Zones and proposed Limestone Landscapes typology

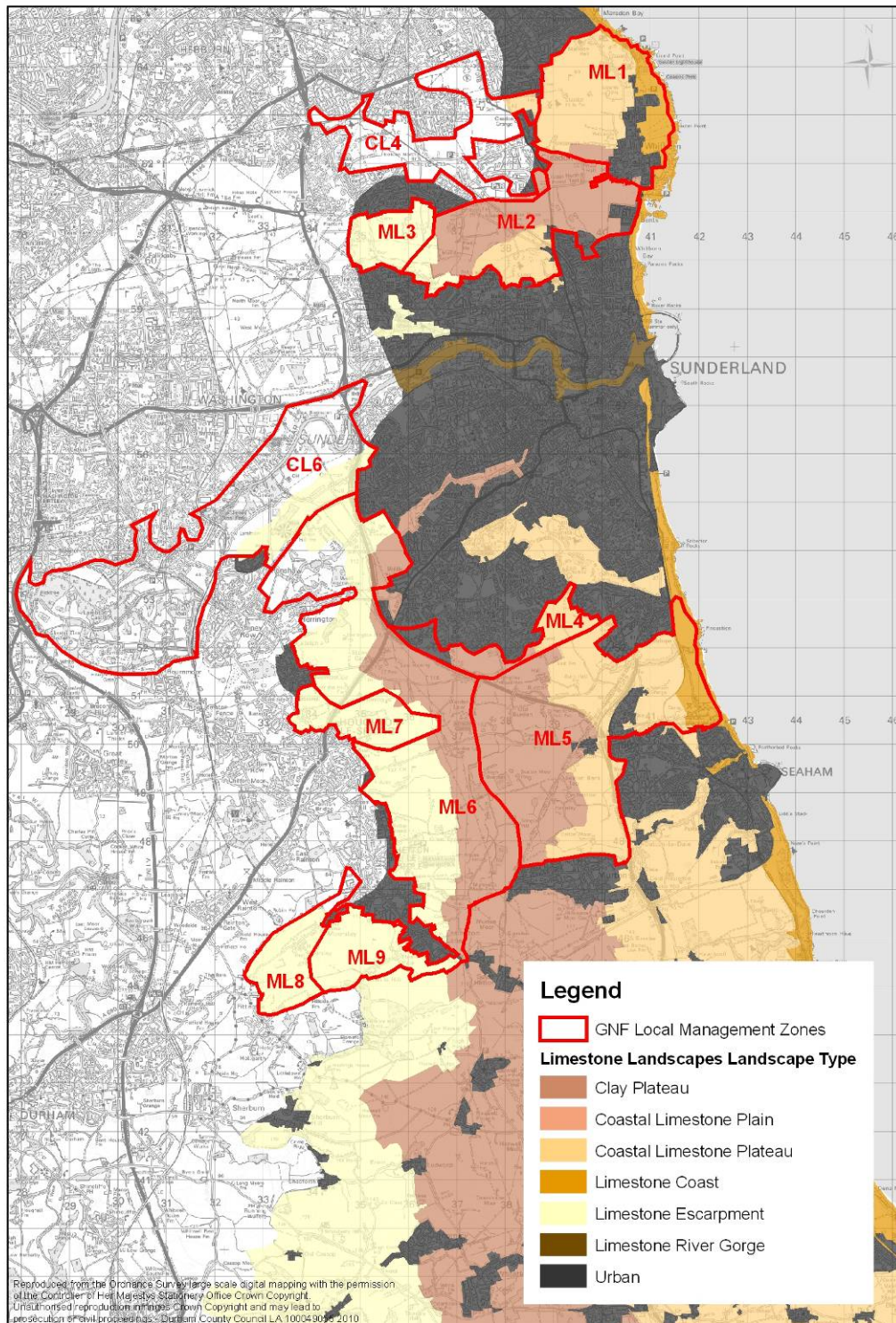


Figure 7: Coverage of Local Authority LCA.

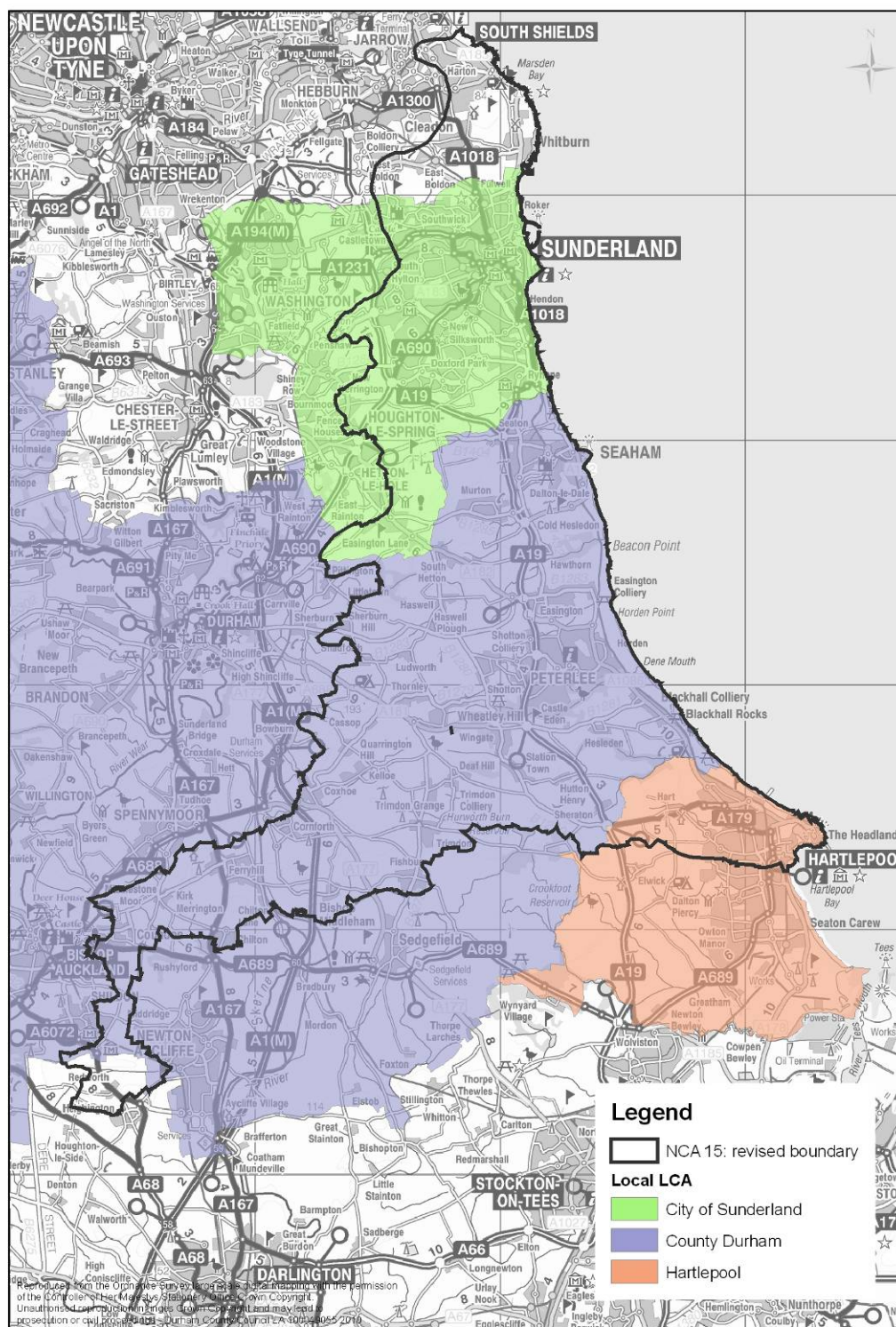


Figure 8: Hartlepool Landscape Assessment typology

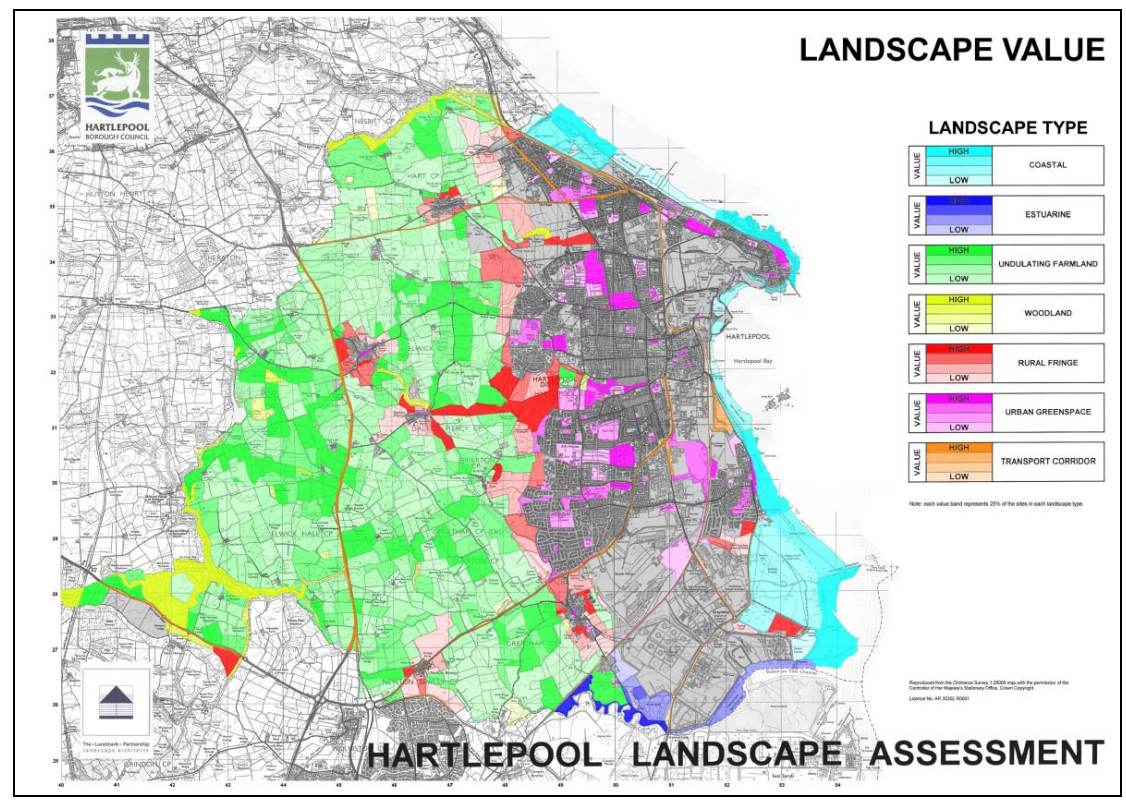


Figure 9: Proposed Limestone Landscapes typology in Hartlepool

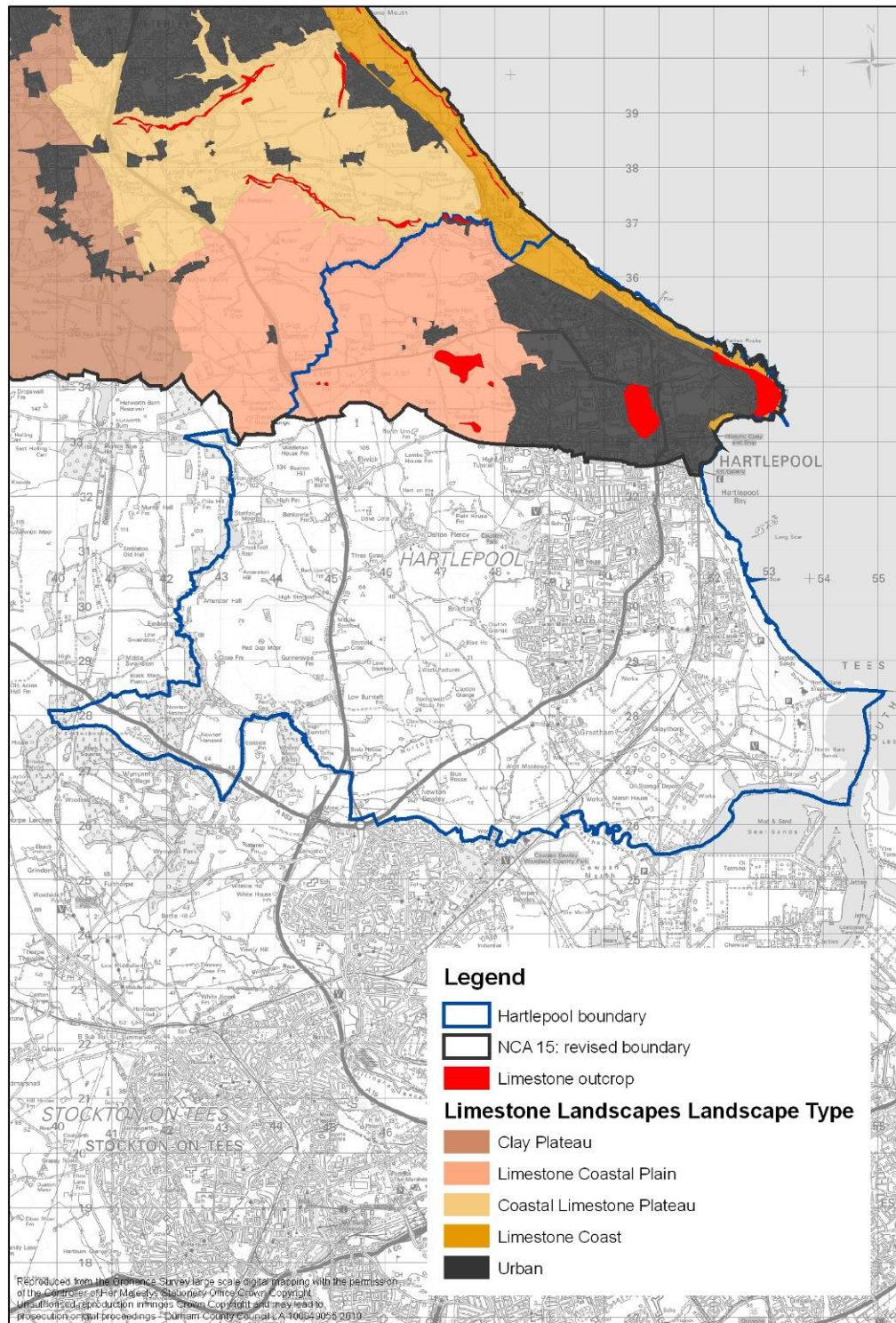


Figure 10: County Durham Landscape Character Assessment typology

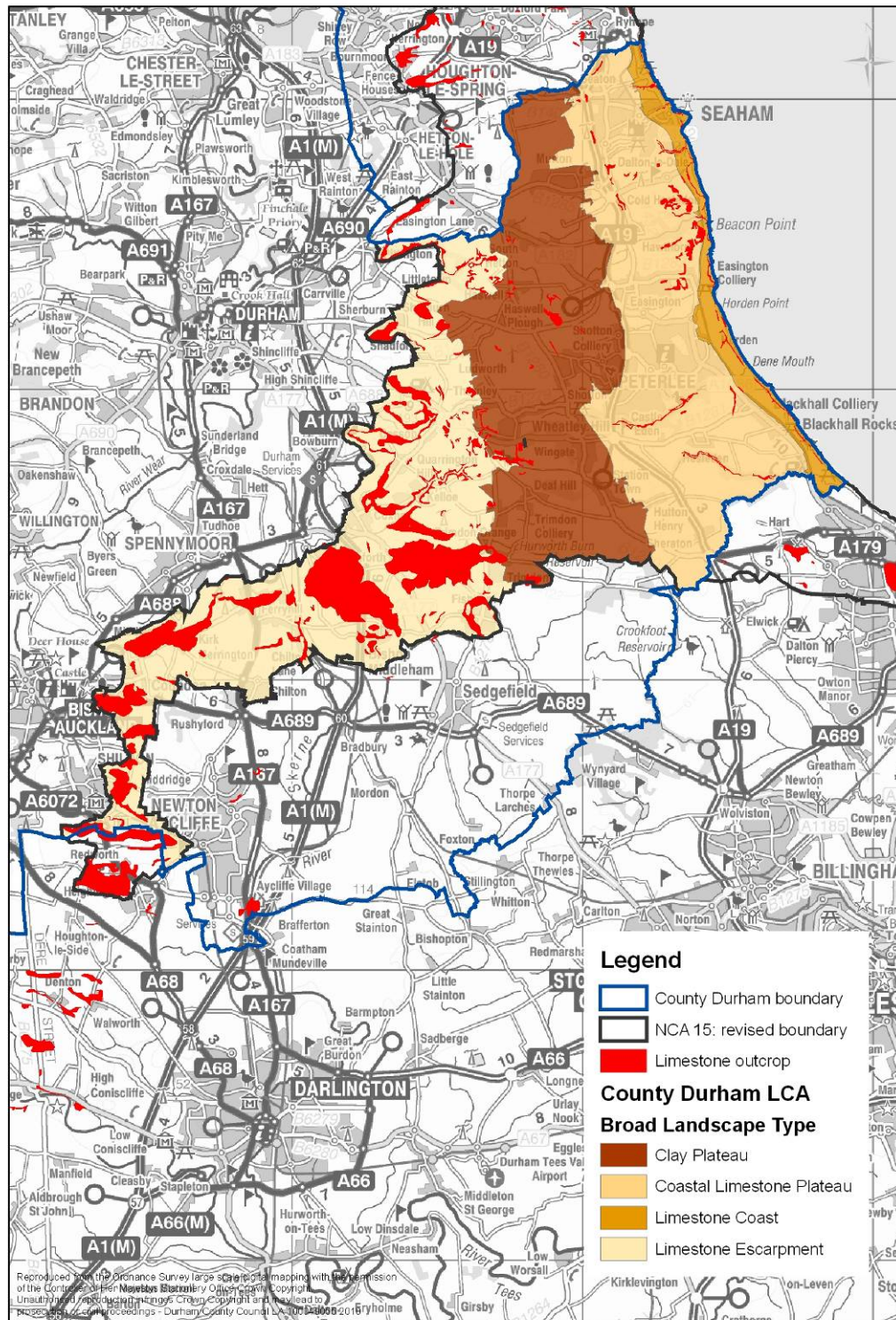


Figure 11: Proposed Limestone Landscapes typology in Durham (detail).

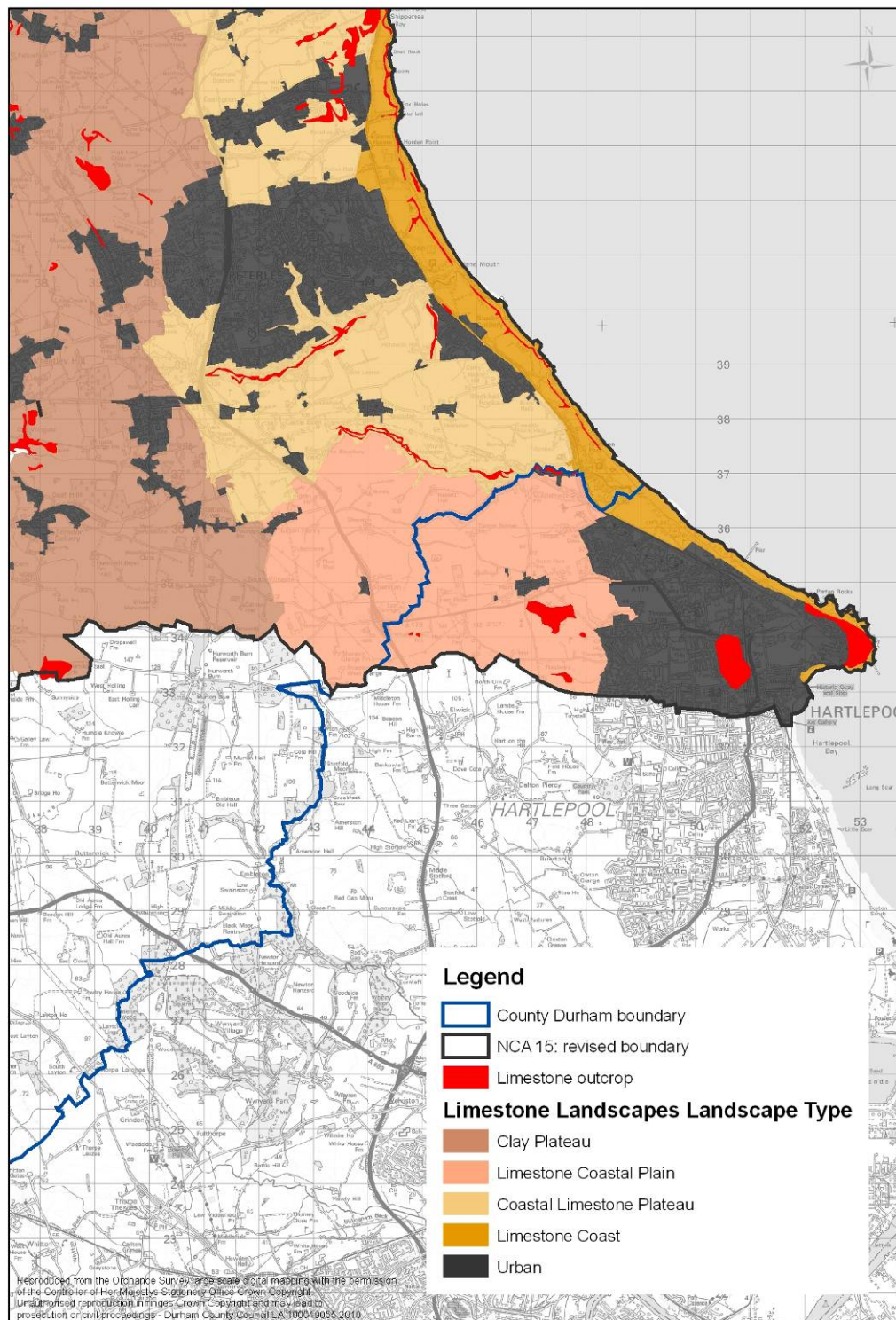


Figure 12: Sunderland City Council LCA Character Areas

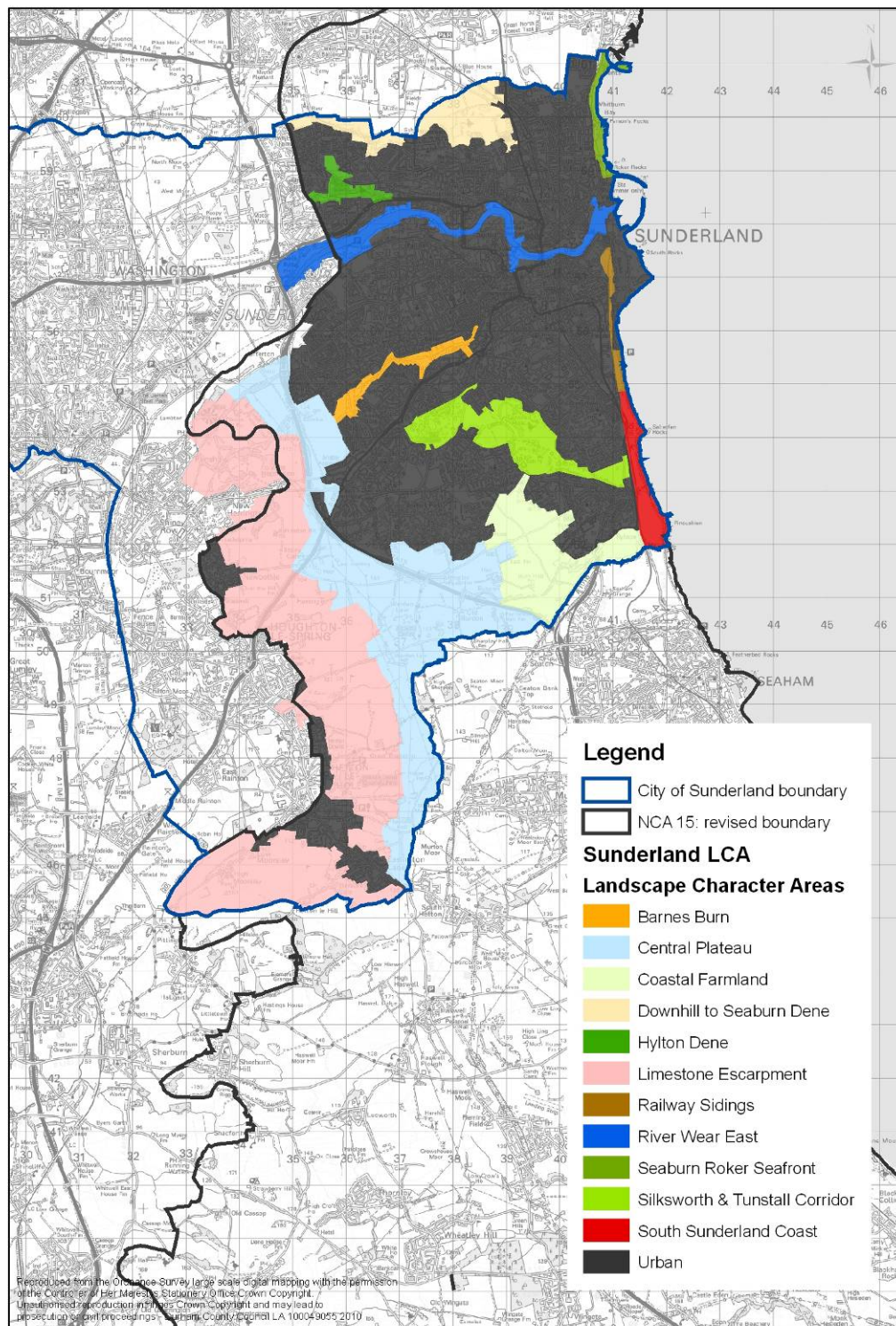


Figure 13: Proposed Limestone Landscapes typology in Sunderland

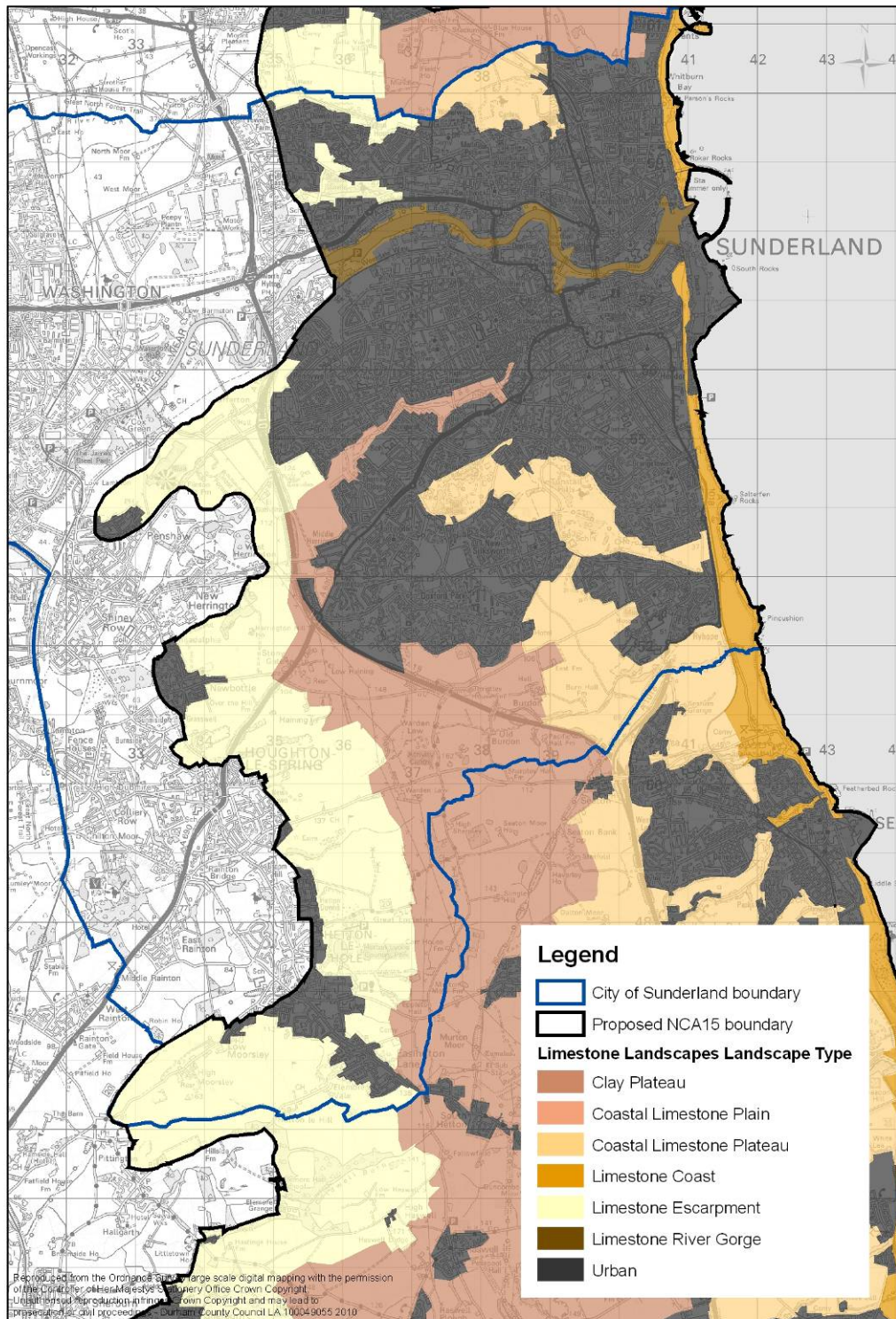


Figure 14: Area detail: Penshaw

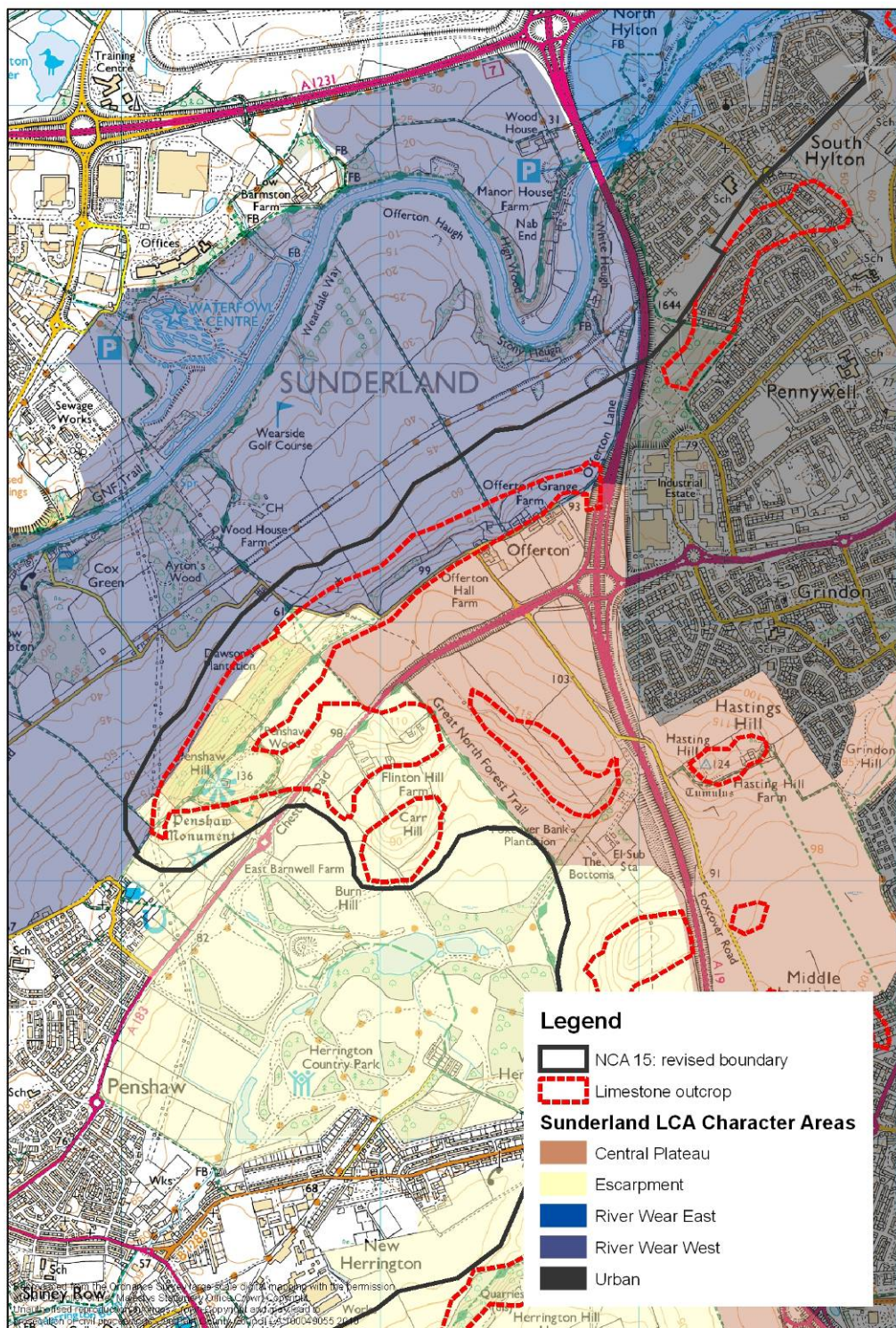


Figure 15: Area detail: Penshaw option 1

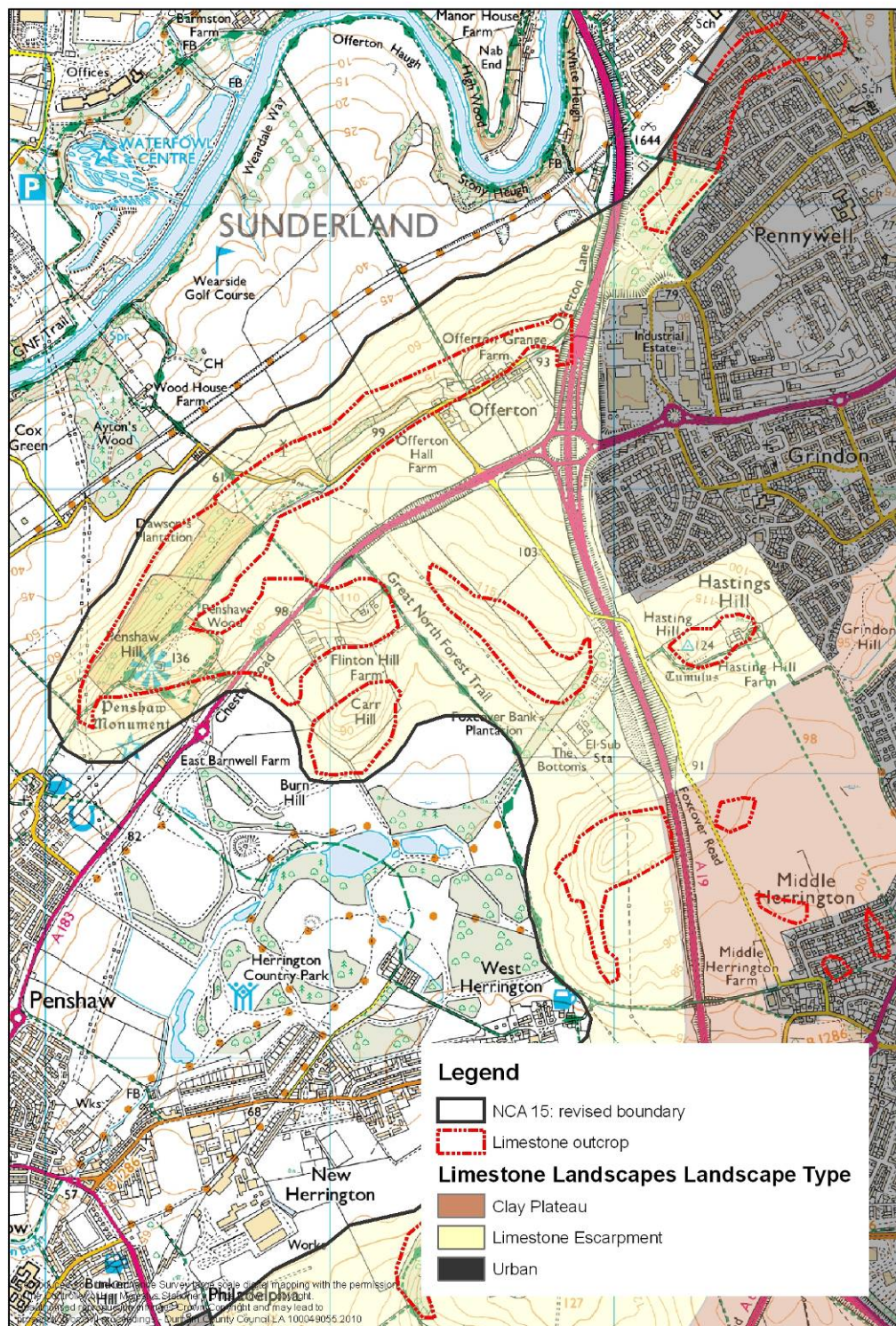


Figure 16: Area detail: Penshaw option 2

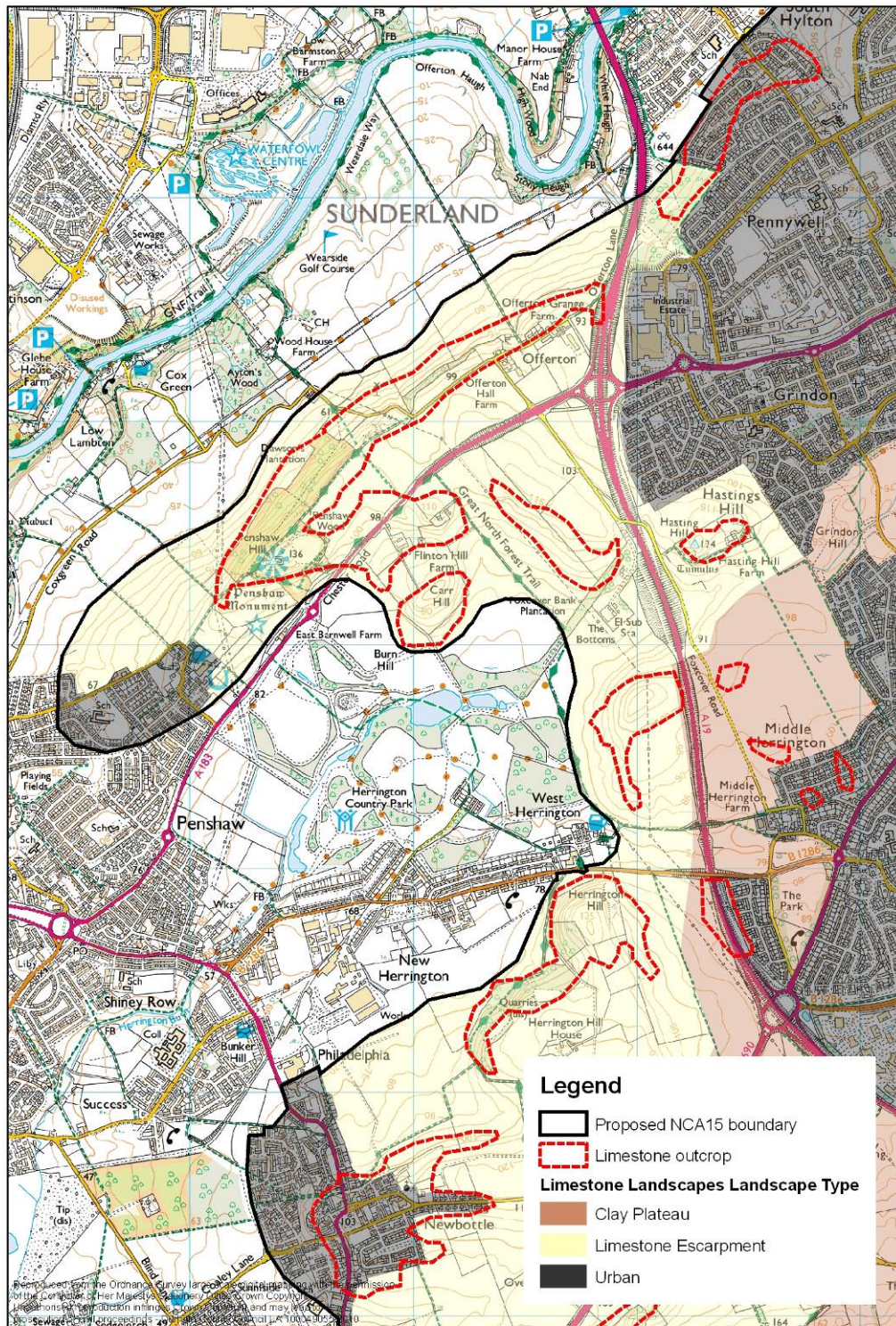


Figure 17: Proposed Limestone Landscapes typology in South Tyneside

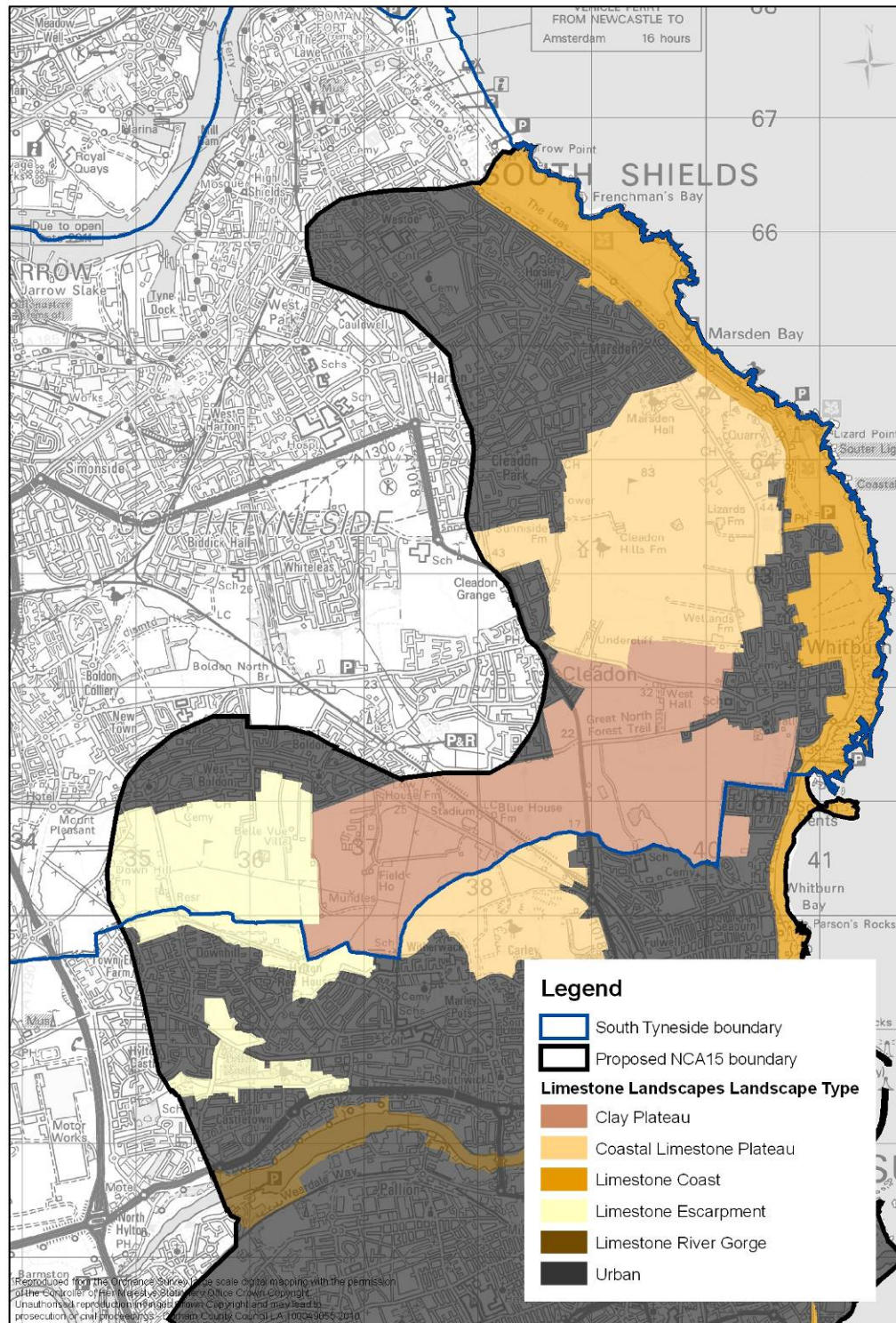


Figure 18: Proposed Limestone Landscapes typology in Darlington

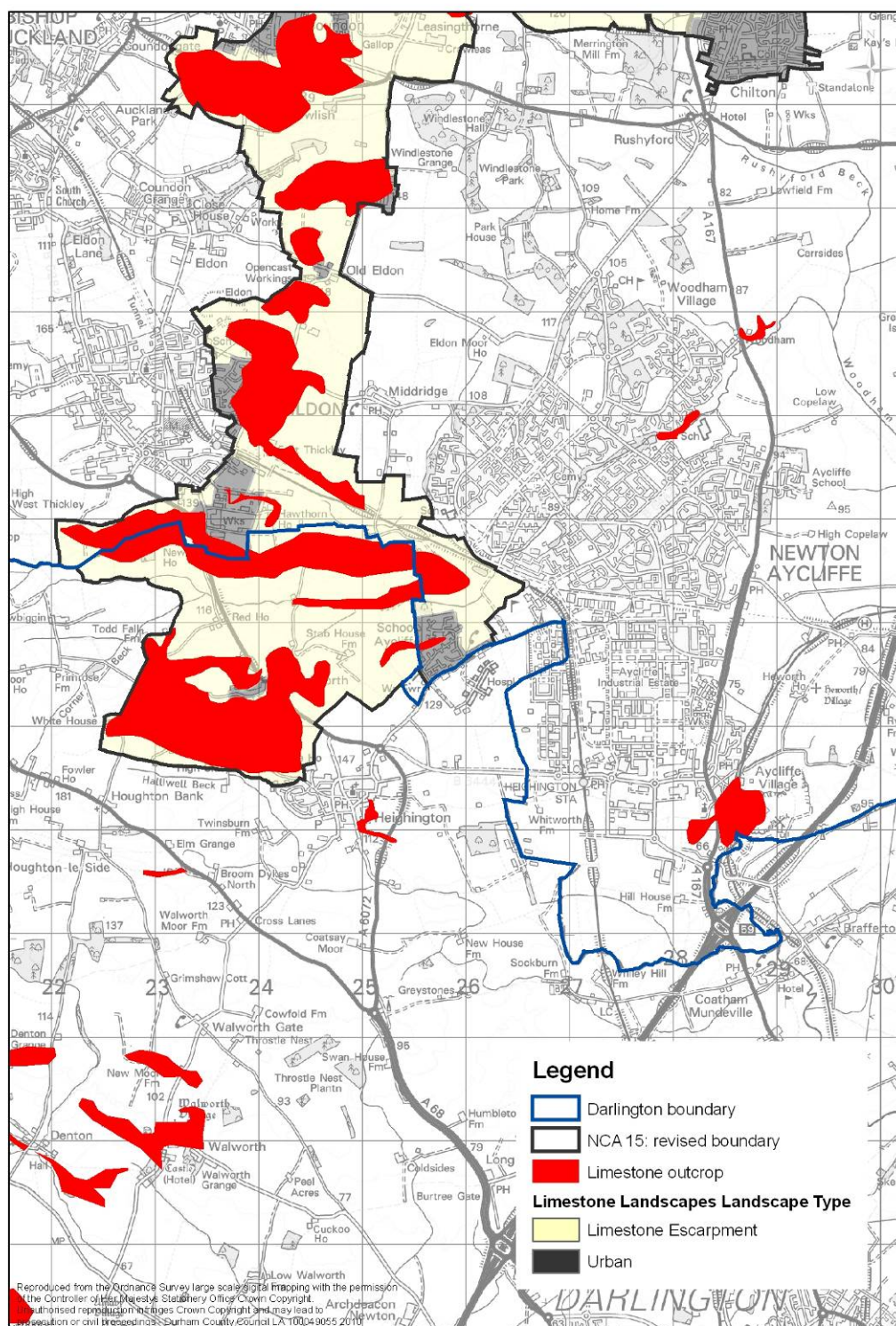


Figure 18: Proposed Limestone Landscapes typology

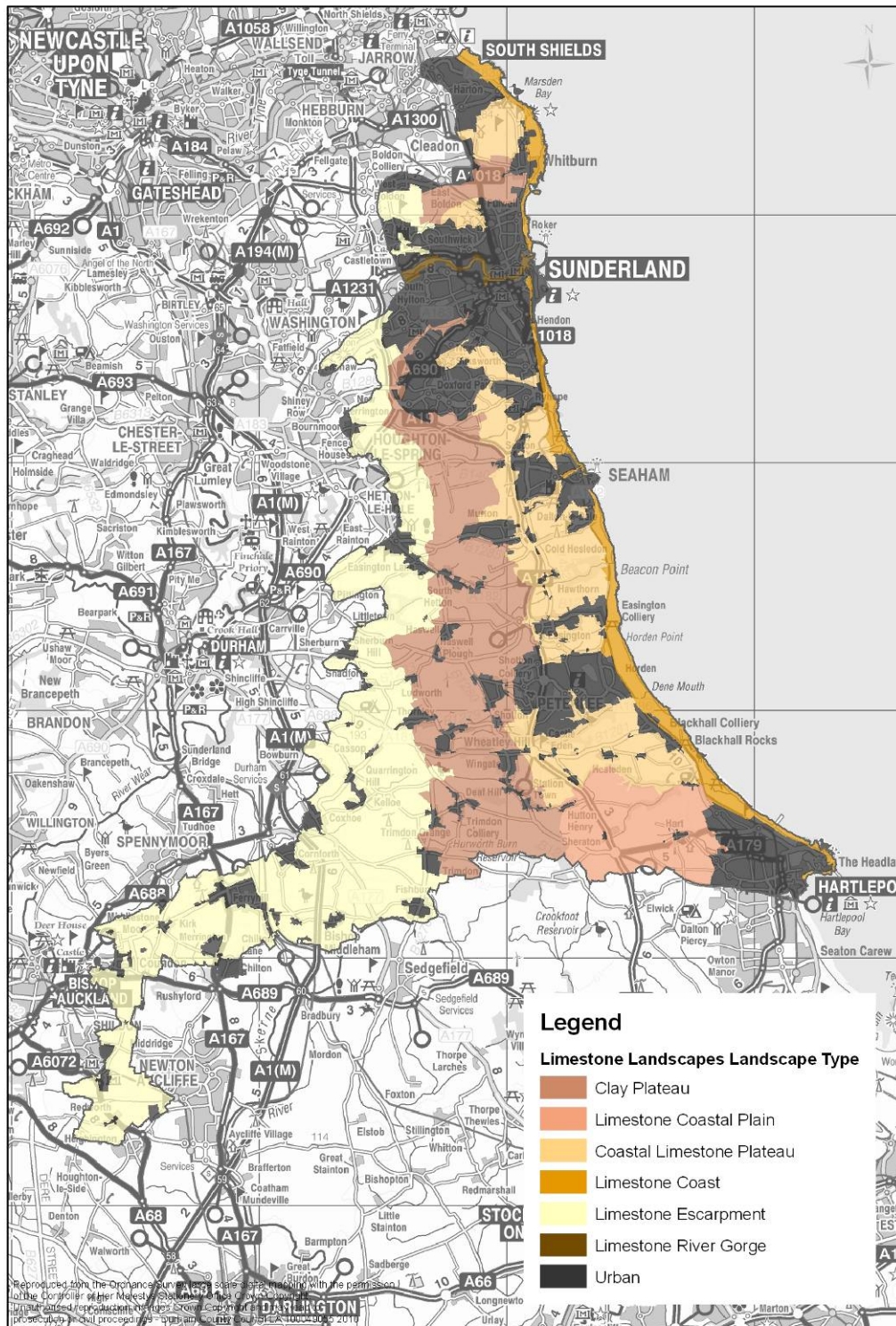


Figure 19: Proposed Limestone Landscapes typology showing relationship with limestone outcrop

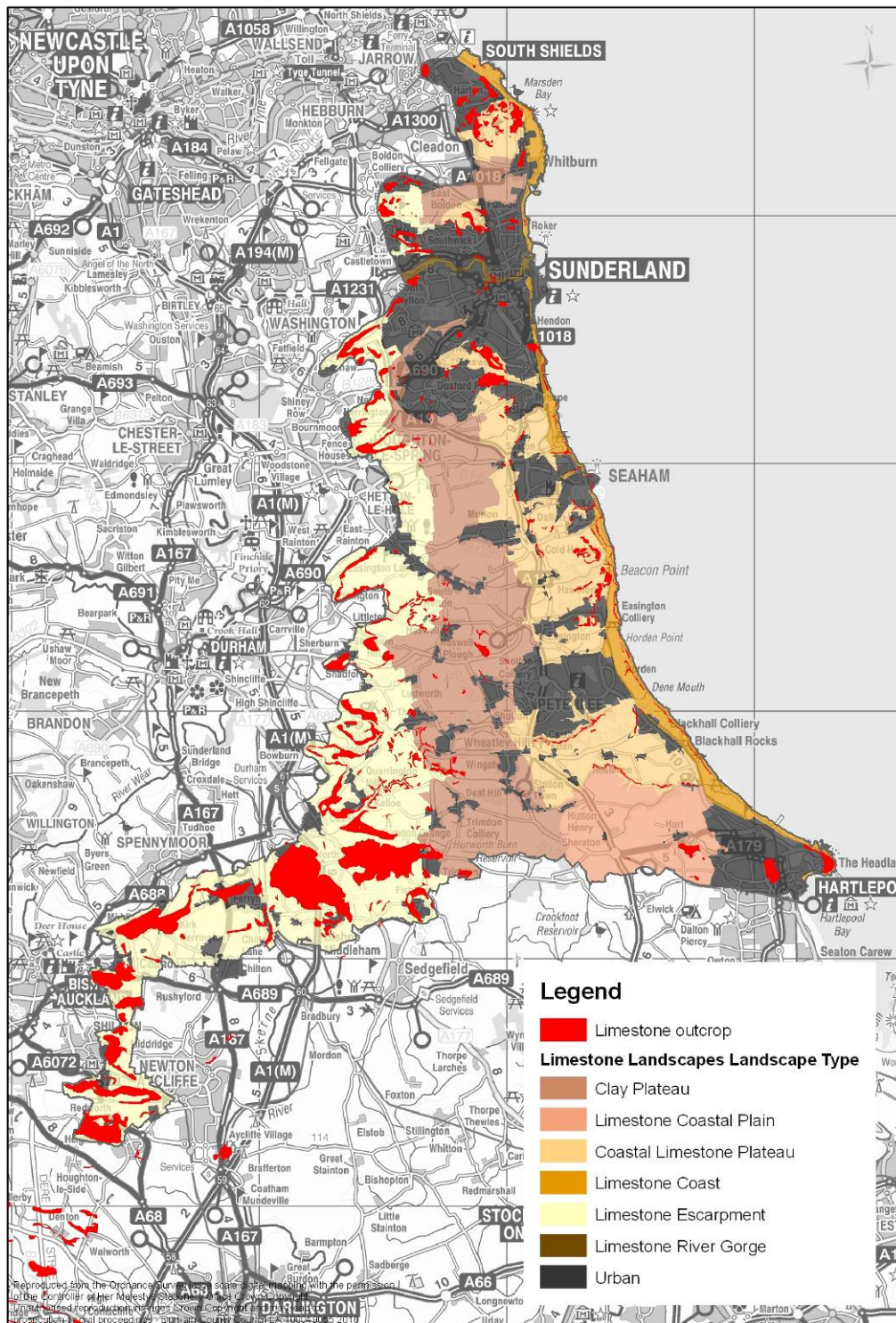


Figure 20: Proposed Limestone Landscapes typology showing typology underlying urban areas

