



Our mining culture
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The Cornwall and West Devon Mining Landscape World Heritage Site Management Plan 2020-2025



Appendix 1: World Heritage Site Area Statements A1-A10



United Nations
Educational, Scientific and
Cultural Organization



**Cornwall and West Devon
Mining Landscape**

inscribed on the World Heritage List in 2006

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**The Cornwall and West Devon Mining Landscape World Heritage Site
Management Plan 2020-2025**

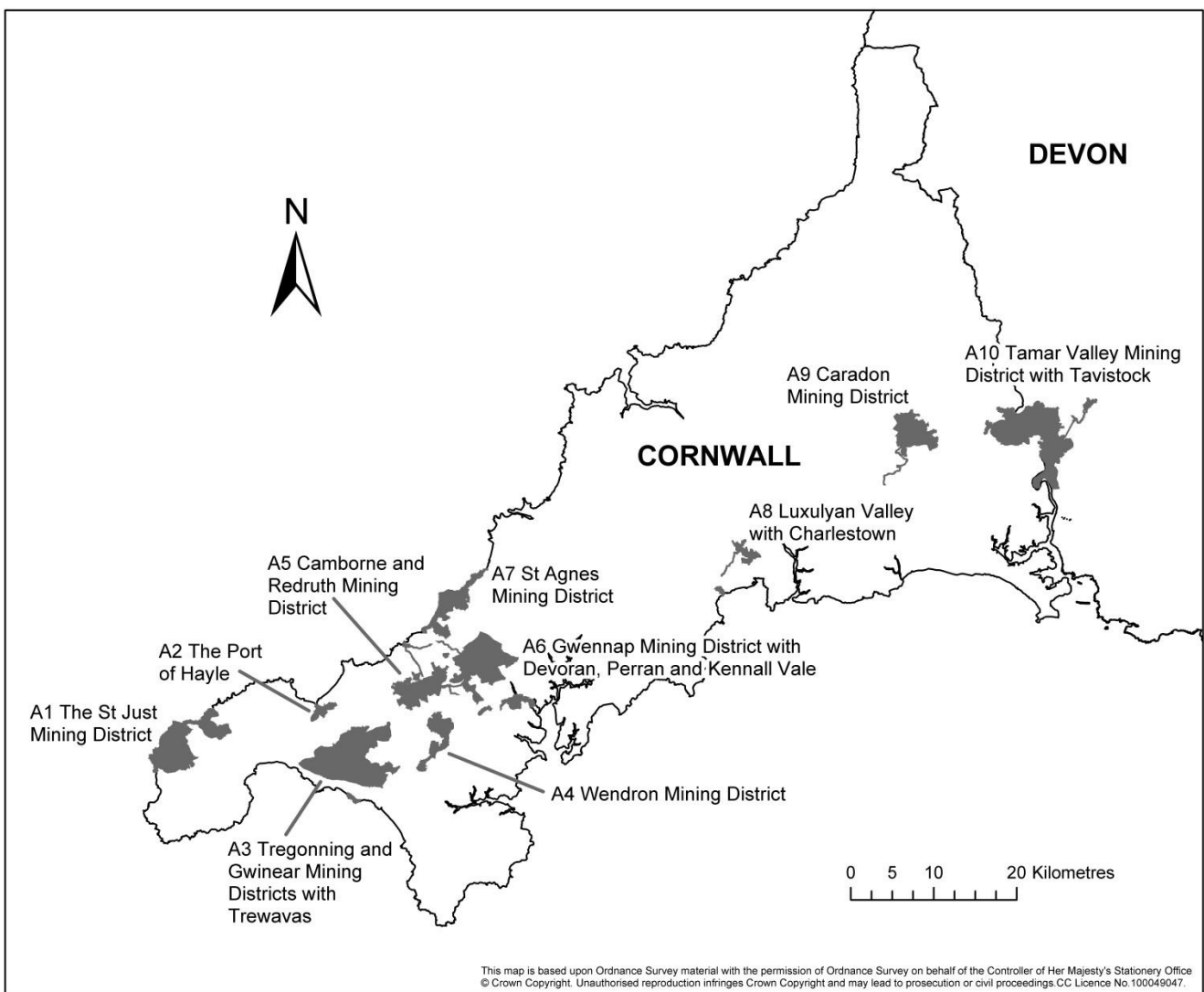
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Introduction

'The Cornwall and West Devon Mining Landscape was transformed during the period 1700-1914 by early industrial development that made a key contribution to the evolution of an industrialised economy and society in the United Kingdom, and throughout the world. Its outstanding survival, in a coherent series of distinctive cultural landscapes, is testimony to this achievement.'

The Cornwall and West Devon Mining Landscape World Heritage Site Nomination Document (2005), page 21



The ten Areas of the 'serial' World Heritage Site across Cornwall and west Devon

The '*coherent series of distinctive cultural landscapes*' comprises ten separate Areas and is defined through seven landscape 'attribute' types. These attributes both individually and collectively express the Site's 'Outstanding Universal Value', or international significance.

The seven landscape attribute types are;

- **Mine sites, including ore dressing sites**

Includes Cornish type engine houses and other mine buildings, chimneys, dressing floors, mine waste dumps and infrastructure, as well as tin salvage/recovery works (sometimes alternately described as 'stream works')

- **Mine transport**

Includes ports, harbours, wharfs and quays, mine tramways and industrial railways, mine roadways, tracks and paths, mining-related canals

- **Ancillary industries**

Includes foundries and engineering works, smelting works, fuse and explosive works, crucible manufactories, arsenic and related chemical works

- **Mining settlements and social infrastructure**

Includes mining towns, villages and hamlets, public buildings, Methodist chapels, preaching pits and new Church of England churches which were established to host burgeoning mining communities

- **Mineworkers' smallholdings**

Mineworkers' subsistence farms - comprising their fields, boundaries, cottages and related out buildings

- **Great houses, estates and gardens**

Comprises great houses and other substantial residences, lodge houses and other related buildings, estates, parkland and gardens, villas and embellished town houses

- **Mineralogical and other related sites of particular scientific importance**

Comprises internationally and nationally important type-sites for minerals, and important mining-related ecological sites

Each Area of the World Heritage Site is unique, the differences between these being a reflection of factors distinctive to their location and context; they are products of their geology, geography and locality. In addition to the above factors, each combination of attributes is further modified by their historic context, by events during and subsequent to the industrial period and by cultural factors. They continue to be affected in this way and the principles and policies of the Management Plan are devised to bring about the positive conservation outcomes that are fundamental to the protection of Outstanding Universal Value (OUV).

The UNESCO World Heritage Convention (1972) mandates the protection of World Heritage Sites which have been designated as of the highest cultural importance to humanity. Harm to the authenticity and integrity of features that express OUV must be avoided.

The descriptors used in this document to define each of the ten Areas of the World Heritage Site (WHS) are as follows.

Geography & Landscape - considers not only the underlying geology and topography, but the influence these physical factors have had upon the development of elements of the mining landscape, and their resultant present-day character and land use. Notable sites within each landscape, especially their landmarks, are identified.

Views - may or may not comprise part of the OUV of this industrial World Heritage Site, but this is dependent on the precise location and context of the attributes concerned. Views are discussed here principally in the context of the historic inter-visibility that exists, or that once existed, between specific OUV attributes within an Area and, in some instances, the inter-visibility between Areas and the broad boundaries of these, where adjacent.

History & Character - sets out a brief history of each Area as a series of short statements considering some of the more readily apparent attributes present. The survival of attributes is very much linked to the period during which they were constructed and the post-industrial history of each Area; in most cases rates of survival can be seen to be related to the varied natures of their post-industrial economies.

Communications - considers how easy it is to get to, through and between sites within each Area and the effects these factors have on their characters – how accessible or how closed parts of it are, how public, how private and whether there may be potential for greater public access to sites. In some instances, considerable additional public access to sites might materially impinge on the character and value of the landscape and its attributes, or on other aspects of the Areas, such as the quality of life of its inhabitants, or sites of ecological importance.

Notable Sites - those attributes of OUV which are more readily apparent within an Area and which, therefore, contribute significantly to its landscape character.

Interpretation Sites - lists the locations at which an Area is currently interpreted, or which have the potential to serve this function.

Area Character Statement - this pulls together elements from the above discussions into a single statement, setting out the geographical and historical context for each Area, identifying its notable sites and considering its present condition.

NB. the capitalised term 'Area' is used throughout to denote a specific sub-section of the World Heritage Site (i.e. relating to the inscribed Areas A1 to A10) as opposed to a general locality.

The term 'Site' is used as shorthand for 'World Heritage Site' and as an alternative to 'WHS' (World Heritage Site).

1. Area A1. The St Just Mining District

Statement of Outstanding Universal Value

Area A1 (50008'53"N, 05039'21"W) - a remote and rugged coastal mining district which represents the most westerly Area of the WHS

- A predominantly west-facing coastline which, combined with unique structural geology and mineralisation, prompted the earliest, and greatest, concentration of 18th and 19th century submarine tin and copper mines in the world.
- Cornwall's oldest (1840) surviving in situ, working, beam engine at Levant is also one of the world's first monuments to industrial preservation (1935).
- The presence of integrated tin-dressing and arsenic calcining and refining, over several technological development phases, combined with St Just's post-industrial economic history, has ensured the preservation of the best concentration of combined tin and arsenic processing sites in the world.
- Its engine houses are some of the most iconic Cornish mining sites in the world.
- Geevor, one of the last mines to close in Cornwall, was saved from demolition and represents one of only two essentially complete mine sites in Cornwall.
- The only significant settlement in the Area, St Just, gave the District its name and is a prime example of an industrial mining town possessing the distinctive ensemble of planned cottage rows, Methodist chapels, hotels, pubs, shops and civic buildings.
- Its three stream valleys site some of the best-preserved water-powered stamping mills anywhere in the Site.
- The Area possesses internationally significant mineralogy.
- Captain Francis Oats' imposing new house and estate at Porthledden, Cape Cornwall, is an exemplar of overseas income enriching the migrants' homeland.
- Dispersed small settlements developed, again with planned rows rich in industrial character, along the principal N-S road. The late (1840s) development of a new Anglican Church and school at Pendeen are rare but distinctive manifestations of the industrial period.
- Its narrow, steep, vein structures necessitated a general trend of single-handed underground working and this, combined with remote geography, and distance from other mining districts, defined a well-recorded distinctive 'Western' culture amongst mineworkers.
- The comparatively late decline of the District during the 1870s coincided with the opening up of South African diamond fields (and later goldfields) and led to distinctive and cohesive local migration patterns.
- The density of readily visible exposures and outcrops on its relatively high yet accessible cliffs suggests that some of the earliest hard-rock tin mines in the WHS developed here.
- The number and range of surviving unaltered Count Houses in the Area is notable.
- Almost all of its principal industrial structures have been conserved.
- Tin open-works, such as at the Bunny and Ballowall, are some of the earliest in the Site.

- The relative remoteness of the Area and the continued importance of mining within the economy and society of the Area until 1987 ensured the persistence of a strong local identity linked to Cornish mining culture.

Supporting discussion and character statements

Geography and landscape

The rugged West Penwith coast fringes a fertile but treeless long-farmed plateau, which is itself backed by open bare upland moors; a spectacular and rugged, open landscape. A very rural area, and the Atlantic is always nearby. Granite and modified killas geology have moulded the topography of the Area and their interface defines both the location of the mineralised zone - including the broad division between the tin and copper zones - and gives distinctive character to its moors and cliffs. There is always granite not far beneath your feet - its influence is strong. The Cot, Kenidjack and Rose Valleys are rare dissections of the plateau - each producing hidden and enclosed spaces and places, together with rare glimpses of fast-flowing streams. There are always big skies and an awareness of the weather and the sea nearby. Trees are rare, except within valleys. The exposure and maritime climate can make arable farming difficult, and the resulting concentration on stock farming means that most of the agricultural landscape is down to grassland.

Views

St Just is very much part of West Penwith, distinguished from it more by its mineworkers' settlements and industrial remains than by any difference in its geography or topography.

A sense of the western part of the Area, from Pendeen down to the Cape, can be got from high ground between Pendeen Carn and Carn Bean. Watch Croft gives views over much of the coastal part of its eastern end. Ding Dong, is visible from many locations given its prominently sited engine house at Greenburrow Shaft.

Except within St Just itself, most of the views from within the Area are out across the landscape towards the coast or the ever-present moors. There are spectacular panoramas when approaching the coast along North Road and on the road into St Just on Lafrowda Common or at Carn Bosavern. From Kenidjack Head, the view takes in the landscape from Cape Cornwall to Botallack Head, whilst there are a number of places from which St Just's hilltop site can be appreciated. To the east, the landscape rises steeply from the narrow coastal plain towards the moors to the south. Here, the focus is hemmed in by the Penwith moors, the focus is the sea to the north, but the views are also eastwards and westwards except at Ding Dong, where the extensive vistas southwards and down to Mounts Bay dominate. St Just looks seaward and the other Areas are hidden, but from Ding Dong, Tregonning (A3) and Carn Brea (A5) can be seen in the distance.

The headframe at Geevor is an orientating locus within the landscape which can be seen from many places along the nearby coast.

- **History and character**

Mining features

The survival of the mining landscape is particularly good within this Area. Mines stand cheek by jowl along the coastal fringe; many working under the sea (a distinctive element of OUV within this Area), their engine houses are often perched on the cliffs or set only a little way back from it. Within the cliffs are ancient workings and adits, whilst on the cliff slopes are often leats leading to valleys crammed with water powered stamping sites. The mining landscape is particularly well-represented between Geevor and the Cot Valley, this taking in the western half of the coastal part of the Area. The majority of these structures have been conserved over the past decade, whilst Geevor is a very rare example

of a conserved and almost wholly intact 20th century mine. The working beam engine at Levant is also a rare survivor, whilst tin dressing sites and arsenic works at Botallack, Levant and Kenidjack greatly increase the Area's OUV. There are also engine houses and other buildings at Watch Croft and Ding Dong, set high up on the moors amongst ancient outcrop workings and streamworks, whilst more fragmentary sites exist throughout the remainder of the coastal section of the Area. The major valleys of the Area have good surviving evidence for water powered tin stamps and associated dressing floors, many of these having been conserved by the National Trust. Count houses are particularly well-represented within this Area.

Transport

No railways were constructed within this Area, though there is evidence that the road network was systematically overhauled and upgraded to meet the demands of the rapidly-expanding mining industry and there are several dated early milestones from the 1830s. Mine tracks, such as the mule track leading to the Crowns at Botallack or the miners' access over the cliff at the Wheal Cock Adit, are also distinctive. Some fragments of mine tramway systems also survive, particularly at Wheal Owles.

Ancillary industry

The only major ancillary industry which formerly existed within the Area – the Holman Foundry at Tregeseal – has been substantially demolished and only parts of its boundary walls are now thought to survive.

Settlement

Most settlements within the Area are small miners' hamlets, almost all with their own chapel and pub, but the final closure of Geevor brought the loss of many of their small local shops and businesses. St Just responded to industrialisation on a much larger scale, its present appearance reflecting its planned growth but also its relative remoteness from the rest of Cornwall; its core has changed little during the last century. Like the other settlements, St Just is small-scale, vernacular, unornamented, robust in its granite construction, self-sufficient. Most chapels within the Area have been converted to dwellings, but retain their original external appearances. Anglican Churches which date to the industrial period are also important across the Site and Pendeen Church, together with its vicarage and school, constructed in 1852, serve as an exemplar in this respect. Cottage extensions are commonplace, many being over a century old, whilst modern replacement fenestration is the norm. Most of the settlements are now Conservation Areas.

Smallholdings

Mineworkers' smallholdings on the cliff and moorland were inserted into a pre-existing patchwork of prehistoric and medieval fields, and as a result the majority are on the moorland fringes or at the northern edges of the coastal plain; most 19th century developments in this Area overlie an already ancient and crowded landscape.

Great houses

There are no great houses and estates, but Botallack and Pendeen Manors, like Porthledden have important historical connections – the former with wealthy local landowners with considerable involvement in local mines, the latter with Captain Francis Oates and with diamond mining in South Africa.

Mineralogical and ecological

St Just's specimen mineralogy has been well-known for centuries and there are a number of important mineralogical sites within the Area, the most significant of these being designated as SSSIs (Sites of Special Scientific Interest) or County Geology Sites (formerly RIGS – Regionally Important Geological

and Geomorphological Sites). The Aire Point to Carrick Du coastal SSSI was designated for a combination of geological/mineralogical and biological importance, Wheal Cock, Botallack, Wheal Owles and Gryll's Bunny being specifically mentioned in the citation. The predominant strike of the local lodes - at right angles to the coast prompting the largest concentration of submarine mining of its time - makes for an outstanding series of exposures. An abundance of highly mobile copper and uranium salts combined with a coastal saline influence contribute towards the Area's leading share of 1st Recorded British mineral Occurrences, compared to any other Area within the Site. Significant dumps of coarse-grained spoil and good underground access further enhance continuing scientific study and new finds. Two areas near Cape Cornwall evidence exposures of the contact between granite and killas which helps to illustrate the overall story of mineralisation within the Cornubian Orefield.

Historical development and character

Historically the economy moved from being based on subsistence agriculture to a combination of the tin industry and agriculture, then a mixture of tin and copper mining, then finally the tin industry again, perpetuated in Geevor until 1987. The economic stagnation characterising the post-industrial period saw the abandonment of industrial sites but very rarely their replacement; the Holman Foundry at Tregeseal being the most notable and relatively recent exception to this. As a result, the Area retains considerable evidence for its industrial past. Tourism has become an important component of the economy of the Area, though many local residents work in Penzance and beyond. The Area is deeply rural and still retains a strong sense of its own identity – the Far West, popularised most recently by successful artists and sculptors such as Kurt Jackson and David Kemp who each take substantial inspiration from the cultural mining landscape. The management of considerable areas of the industrial coast by the National Trust has helped to limit unsuitable development, whilst the purchase of Geevor Mine in 1992 by Cornwall County Council has secured the integrity and future of this large and important site, one of only two remaining relatively complete 20th century mine sites in Cornwall.

Communications

These are dominated by a triangle of main roads around the southern part of the Area and the coast road extending to the east. These together frame vehicle movements to and around the Area; all other public roads are narrow, these twisting lanes serving local needs alone. The coast path is an important line of communication, linking the majority of the mine sites, whilst inland there is a complex network of historically-derived footpaths. Land's End airport offers scenic flights which give a dramatic overview of this Area and the remainder of the Site.

Notable Sites

In the west and south: Wheal Hearle, Geevor, Levant, Botallack, the Wheal Owles mines, Wheal Call, Cape Cornwall, the Kenidjack and Cot Valleys, St Just; to the east: Ding Dong and Carn Galva Mine, Porthmeor Stamps.

Interpretation Sites

Geevor Tin Mine (World Heritage Site Key and Area Centre), Levant, Botallack Count House.

The St Just Mining District - Area Character Statement

Remote, rugged, maritime, an ancient landscape; part of West Penwith yet distinguished from it by its later history, the St Just Mining District is the most westerly Area of the Cornish Mining World Heritage Site, one whose post-industrial economic history ensured the preservation of a wide range of evidence for its important mining past. Engine houses, chimneys, dressing floors and arsenic works are scattered along its mineralised Atlantic coast, whilst its three stream valleys site some of the best-preserved water-powered stamping mills anywhere in the Site. Geevor, one of the last mines to close in Cornwall, was saved from demolition and is now a key site for the interpretation of the Cornish mining story, the 1840 beam winding engine at Levant has been restored to working order under

steam, and the Count House at Botallack is an area base for the National Trust, and also sites interpretation facilities. The Area is unusual in the amount of conservation work which has been undertaken in recent decades, almost all of its principal industrial structures having now been conserved.

Despite the importance of its tin and copper mines, there was little in the way of ancillary industry here, the Area lacking a nearby harbour or a mineral railway and being distant from sources of coal and other raw materials. Nevertheless, an iron foundry (Holman's) was built in the Tregeseal Valley to produce the boilers and other mining equipment required by the local mines, as well as Cornish ranges, drain covers, railings and cast ironwork. By the 1960s the market for these products had virtually dried up and following its closure the works were demolished and new housing built on its site.

Very much in evidence across the landscape of this Area are the many cottages built during the early decades of the 19th century for the rapidly growing mining population. Unornamented, two storey and always built of local granite under slate roofs with elongated garden plots, these modest and distinctive houses were built in planned rows, with little variation in design or ornamentation. Near most of the larger mines and close to the Holman Foundry at Tregeseal, these aggregations grew into hamlets with their accompanying non-conformist chapels, Sunday schools and pubs, but in St Just a substantial planned extension to the churchtown was laid out to its west, and new streets of cottage rows were accompanied by shops, a bank, and two public squares. Expanding families, growing prosperity and new ways of living soon forced the construction of lean-to rear extensions to many cottages; almost all have now been enlarged in this way, most recent extensions being flat-roofed and two storey and, almost ubiquitously, having non-original fenestration.

The Area shares with the remainder of West Penwith a history of occupation and farming stretching back to the Bronze Age, and consequently much of its landscape has been farmed for two millennia. During the early expansion of mining across this landscape, the developing population laid out new smallholdings in the small areas of cultivable land remaining – mostly the moorland fringes and that along the cliffs. Whilst the majority of the original cottages have long since been demolished, those that remain are rare and important survivors, whilst the groups of small rectangular fields carved out of marginal land by these early miner/farmers add their own historical dimension to the character of the landscape.

From Pendeen eastwards, industry has been less of an influence on the Area. Here, the mines stand within landscapes of ancient fields, or are high up on the moors, whilst mineworkers' cottages and fields are found mostly around Ding Dong. Here, the engine houses stand in an elevated treeless landscape of post-medieval outcrop workings and long-abandoned prehistoric sites. Both the structures and the surrounding landscape are little threatened by development, though abandonment and reversion of farmed areas to moorland would have a significant impact on their character.

Remote from polite society and exposed to an Atlantic climate, the Area sited no new great houses or gardens, those who derived their wealth from the local mines generally investing the results of their investments in and around Penzance. However, Botallack and Pendeen Manors prospered from their landholdings, and at Cape Cornwall, successful local migrant to South Africa Captain Francis Oats constructed an imposing new house and estate at Porthledden on his return to St Just.

The acquisition of significant stretches of the coastline of the Area by the National Trust since 1995 has not only prevented inappropriate development and ensured the sensitive and sustainable management of this distinctive landscape but has also facilitated access to grants which have enabled the majority of the notable industrial sites to be conserved. In like manner, the purchase of Geevor by Cornwall County Council in 1992 and its current management by Pendeen Community Heritage not only ensured the survival of this almost unique site and allowed the development of an important interpretation site but has also significantly enhanced the tourism economy of the Area.

2. Area A2. The Port of Hayle

Statement of Outstanding Universal Value

Area A2 (50008'53"N, 05039'21"W) - the most westerly mining port in the Site and the most important 19th century mining port and steam engine manufacturing centre in the world.

- Cornwall's principal mining port which exported copper ore to the South Wales smelters, importing much of the Welsh coal which fuelled the Cornish steam revolution and was the means by which many of its beam engines and mining machinery were shipped to the far corners of the world.
- Location of two (of three) of Cornwall's principal iron foundries creating the greatest steam engine manufacturing centre in the 19th century world.
- The location of Cornwall's only major copper smelter.
- Unique example of twin 'company' industrial 'new towns' of Foundry and Copperhouse, these being wholly the product of their industrial past and maritime location, fringing the southern edge of the Hayle estuary in a distinctly linear character.
- Massive, landform-scale, maritime infrastructure of extensive quays, wharves and massive sluicing ponds.
- The terminus of one of the most important of Cornwall's early railways (the Hayle Railway, 1834) serving a hinterland stretching eastwards as far as Redruth and Camborne, with their huge market for coal, timber and other materials.
- Within Copperhouse, the use of copper slag blocks (scoria) for construction adds a distinctive 'vernacular' character to houses, boundary walls, bridges and other structures.

Supporting discussion and character statements

Geography and landscape

Hayle's location on the north Cornish coast is strategic in terms of sea-links with South Wales (for coal and smelting copper) and the world (for exporting steam engines and mining machinery), and in its proximity to mines in Areas A3 and A5 particularly. The landscape is dominated by extensive sluice ponds, quays, wharfs and mudflats, fringed to the north by stable sand dunes. The settlement is ribbon-like, clustered into the twin settlements of Foundry and Copperhouse, fringing the estuary, mostly only a little above the water level. Hayle's economic hinterland stretched far to the east and south.

The demarcation between the 'natural' landscape of the estuary and the urban landscape of the settlements is sharply defined along the high tide line.

Views

Within the Area, views tend to be urban and quite closed in. Within the twin settlements the views tend to exclude the nearby landscape. To the west of Hayle, travelling along the Causeway road reveals the rising West Penwith moors of Area A1 to the west, and the expanses of Carnsew Pool, developed to sluice the harbour.

- **History and character**

Mines

There are no major mineworkings within this Area, though some minor ones fringe it. Its proximity to major mines, particularly in Areas A3 and A5, is essential in understanding Hayle's development

Transport

The Area contained the most important import/export port in Cornwall during the industrial period and its harbour features are particularly well-preserved, with long finger-like stone-faced quays and the banks which divide the channels stretching northwards towards the sea. The Area was also served by the Hayle Railway and its successors, and features relating to these also survive. Contact with the wider world underpinned almost the whole of the development of the settlements. Its hinterland was the whole world.

Ancillary industry

The Area contained two of the most important iron foundries within the WHS, the largest and longest lasting of its very small number of copper smelters, as well as rope walks, a shipyard, two tin smelters, flour and grist mills, a gasworks, a brewery and a glassworks. Whilst there have been many significant losses, important elements of Harvey's Foundry and its associated buildings survive and have been incorporated into the fabric of the modern settlement.

Settlement

The urban area shows evidence for planning, for ordered worker housing and for considerable wealth in places. The settlements hug the water's edge on which they depended and are distinctly ribbon-like in character. An economy which has been depressed for many decades has had its effects on their urban landscape, and whilst recent work within Foundry has seen the rehabilitation of an increasing number of its buildings, parts of Copperhouse are still run down and dilapidated. In places modern development undermines the inherent quality of the built environment. Both settlements are an intricate mix of the industrial, commercial and the domestic. Copperhouse buildings and bridges are, often, distinguished by their use of cast blocks of copper smelter slag.

Smallholdings

There are no known mineworkers' smallholdings within the Area.

Great Houses

There are no great houses within the Area, with the exception perhaps of Riviera House (associated with the copper smelter) on the north side of Copperhouse Pool, though there are a number of embellished town houses and villas, particularly in the southern part of Foundry.

Mineralogical and ecological importance

There are no sites of mineralogical importance, but the mineral-rich silts which have built up in the two pools have influenced their present character. Both are designated as SSSIs for their nature conservation importance, mostly for birds.

Historical development and character

The history and urban geography of the Area were dominated by water, copper and iron; the twin settlements were both ports and centres of industry, serving both to the rest of Cornwall and the outside world. Dominated by iron foundries and harbours, and by copper smelting, imports and exports of ore, machinery, coal, timber, but also very much by rivalry between two entrepreneurial companies. Hayle and Copperhouse were always two distinct and separate entities. The collapse of

Cornwall's mining industry brought economic disaster for this Area in particular. With its *raison d'être* lost, Hayle slipped inexorably into long-term stagnation and decline. During the post-industrial period, evidence for the foundries and ports has gradually been lost, though important elements of their core components survive.

Communications

There are very good communication links to the Area by sea, roads and railway. The by-pass now relieves the settlements of the heavy A30 traffic which used to blight them, but also leaves them rather more isolated.

Notable Sites

Harvey's and Foundry Square, the quays, the railway viaduct, the sluicing ponds and the Black Bridge, the King George V Memorial Walk.

Interpretation Sites

The Harvey's Foundry Trust provides an interpretation facility within the former foundry complex.

The Port of Hayle - Area Character Statement

The character of the twin settlements of Foundry and Copperhouse derives entirely from their industrial past and maritime location. Initially small-scale industrial enterprises established here by Harvey and the Cornish Copper Company/Sandys, Carne & Vivian grew at a prodigious rate: a copper smelter, a shipyard, coal and timber-importing businesses and, most particularly, two of Cornwall's principal iron foundries soon followed, whilst the formerly quiet estuary soon became the principal route for the export of hundreds of thousands of tonnes of Cornish copper ore to the South Wales smelters, a principal route for the import of the Welsh coal which fuelled the Cornish steam revolution, and the means by which its beam engines were shipped to the far corners of the world. Imports of timber and coal were also extremely important and were transported overland to the mining districts of west Cornwall.

Extensive quays were constructed to handle this trade, whilst massive sluicing ponds were required to keep the harbour mouth from silting up. Following the construction of the Hayle Railway in 1834, Hayle could serve a hinterland stretching eastwards as far as Redruth and Camborne, with their huge market for coal, timber and other materials. Throughout the 19th century, however, the twin settlements were very much company towns and the rivalry between Harveys and the Copperhouse Foundry was fierce and prolonged, moulding the urban development of the associated settlements.

The importance of maritime trade to the development of Foundry and Copperhouse dictated their layout fringing the southern edge of the Hayle Estuary, with the result that these settlements have a distinctly linear character. Industrial and commercial buildings near the water's edge were backed by dense blocks of terraced worker housing, the villas and embellished town houses of the managers being set a little apart from all of the hustle and bustle, particularly in Foundry. Within Copperhouse, the use of copper slag blocks for construction adds distinctive character to some houses and boundary walls and to the Scheduled 'Black Bridge' on Sea Lane. To the north of both settlements, quays front muddy estuary shores and stretch out towards the harbour entrance and St Ives Bay. Over 4km of wharfage were eventually constructed.

However, an economy based almost entirely on engine founding and mining proved vulnerable to the eventual catastrophic collapse of the Cornish mining industry, and though Hayle remained a major coal importing port through the middle decades of the 20th century, the fortunes of the harbour and the towns inevitably went into terminal decline. Over time, the quays were cleared of their structures and the foundry buildings became increasingly dilapidated. The Harvey's Foundry complex has experienced much renovation in recent years, however, and the dedicated dock facility at South Quay has been extensively conserved as part of a combined commercial/residential development project.

3. Area A3. The Tregonning and Gwinear Mining Districts with Trewavas

Statement of Outstanding Universal Value

Area A3 (50008'53"N, 05039'21"W) - the largest Area in the Site, this rural landscape is the most southerly of the 'western' Areas.

- A landscape and culture of technological 'firsts', which is understood to have seen the first metal mine in the world to site a steam pumping engine (Wheal Vor), the first to use gunpowder for blasting in Cornish mines (Godolphin Ball, c.1689), the site of pioneering adit drainage (Great Work) and that of the first commercial extraction of china-clay and china-stone (Wheal Grey/Tregonning Hill).
- The Area was the location for some of the earliest, largest, and deepest copper and tin mines in the Site, including one of the most important tin mines to operate prior to and during the early part of the industrial period, and those demanding the greatest concentration of Newcomen and Watt engines outside the Camborne-Redruth- Gwennap Area.
- A landscape of great houses and estates: Godolphin House being the seat of the earliest most successful mine owners, operators and entrepreneurs in Cornwall; Clowance being the home of the St Aubyn's at the heart of the development and exploitation of the mining industry within west Cornwall (some members also being important mineralogists and horticulturalists). The Trevarno Estate - acquired by the Wallis family (later Wallis-Pophams), significant mining entrepreneurs, later passed to William Bickford-Smith, grandson of the inventor of the safety fuse, in the early 1870s.
- The satellite Area of Trewavas and Wheal Prosper to the south (Area A3ii) is the site of submarine copper mines and possesses some of the most strikingly-sited engine houses to be found anywhere within the Site.
- Great Estates reflected in the 'estate' settlements of Leedstown and Praze-an-Beeble.
- One of the largest and most important tin openworks (Great Wheal Fortune) within the Site.

Supporting discussion and character statements

Geography and landscape

A very extensive Area within which the three most identifiable topographical features are Godolphin and Tregonning Hills and the valley of the Hayle River to the north-west, the Area's only significant watercourse, and the cliffscape of Rinsey-Trewavas in the south. All of the rest is undulating plateau. This is essentially a rural Area, incorporating long-established farmland, though with significant areas of downland, mine dumps and scattered smallholders' cottages and fields. Large swathes of parkland, representing the great houses and estates of Godolphin, Clowance and Trevarno, further distinguish this Area, the effects of these great landowners also extending to estate-influenced settlements such as Praze-an-Beeble and Leedstown. Granite underlies its southern third. The stretch of cliff at Trewavas is spectacular, high, its granite bright with light reflected off the sea. Much of the area is agricultural, the lower fertile land being generally down to early crops, often under plastic in the spring. The higher ground is used for rough grazing being too exposed for crops.

Views

Tregonning and Godolphin hills are the only distinctive elements of this large Area, and there is no single point from which its extent and boundaries can be appreciated. From within the Area, the twin hills form key features in almost all views of the landscape, but they are often seen in the distance. From the hilltops, particularly from Godolphin Hill, there are views to Areas A2, A4, A5 and A7 and

huge panoramas across the Area and towards West Penwith, as well as north-west towards the adjoining Areas.

- **History and character**

Mining

This was a historically important early tin mining district, very much centred on Godolphin, which is understood to have figured in the early history of steam (Savery, Newcomen and Watt) and was associated with a number of innovations and improvements in mining technology. Later development saw both tin and copper mines scattered throughout the Area, with important concentrations of sites around Great Work, Godolphin, Wheal Fortune, Great Wheal Vor, and in Gwinear, although smaller scale sites are found elsewhere. The surviving mine buildings are rare, and the Great Wheal Fortune open-work is an exceptional example of what was once a more common feature of early tin mining.

Transport

No mineral railways were constructed within the Area and the network of small roads was used to link up industrial sites, the gentle topography of the Hayle river valley being an important mule train route connecting the mines of the Area with the port of Hayle.

Ancillary industry

No significant ancillary industries were established within the Area though Wheal Vor was notable for being so rich that it possessed its own tin smelter.

Settlement

Most of the Area is rural, generally quite elevated without being particularly hilly and the former downs are interspersed with long-farmed landscapes. The Penzance – Helston road is flanked by originally mining-related ribbon development with a scatter of chapels, whilst smallholders' cottages dot much of the landscape. There are no real industrial settlements except for Goldsithney or Leedstown to the west and Praze-an-Beeble to the north-east. Breage is a much earlier churchtown, though expanded to accommodate the rising mining population. Within the Area, many cottages have been altered and extended, whilst bungalow developments have increased the sizes of settlements like Goldsithney, Leedstown or Godolphin Cross. Much of the alteration of old properties and the new buildings constructed along the Marazion to Helston road is somewhat out of keeping with the historic origins of these settlements.

Great houses

Two families, two large country houses, two estates framed this landscape and controlled its wealth over centuries – Clowance and Godolphin. Godolphin House has been carefully conserved, and is a particularly important element of this Area, as is Trevarno and its magnificent gardens on the eastern edge of the Area.

Mineralogical and ecological importance

The many surviving spoil dumps within the Area provide important habitats and a number are significant for their mineralogy, mineral specimens from mines such as Crenver and Abraham, and Wheal Vor, being known throughout the world for nearly 200 years. Type mineral localities and 1st British mineral Occurrences are well-represented in the Area. Penberthy Crofts has been designated an SSSI for its mineralogy, containing both important dumps and in situ underground exposures.

Historical development and character

It is clear that there has been very little landscape development here since mining ended, and the economy of the Area is once again based on agriculture. Post-industrial activities, primarily agricultural improvement, have resulted in the loss of much of the built evidence for mining.

The Area remains a patchwork of fields, scrubby downland (often former mine sites), islanded mine shafts, the occasional small settlement and in three places, areas of woodland, often walled, which denote the perimeters of its great estates. The cliffscapes in the south, particularly at Wheal Trewavas, represent mining archaeology with high integrity.

Communications

There is one main road through the Area (Goldsithney – Leedstown – Praze-an-Beeble), and one along the southern edge (Marazion to Helston), the remainder of the roads being little more than small lanes. There is a particularly good network of footpaths, making much of the interior of this Area very accessible on foot. By car, however, going through or past the Area is much easier than exploring its interior, and the points from which it might be accessed are mostly unclear to visitors, as most signposts indicate only the nearest hamlet.

Notable Sites

Trewavas, Wheal Prosper, Great Work, West Godolphin, Great Wheal Fortune, Tindene, Tregurtha Downs, Tregonning and Godolphin Hills; Godolphin, Trevarno, Clowance.

Interpretation Sites

Godolphin House has a modest WHS interpretation facility appropriate to its character and in respect of its location and historical connections with pioneering mining technology.

The Tregonning and Gwinear Mining Districts with Trewavas - Area Character Statement

Godolphin and Tregonning Hills are the granite hubs of this extensive, rural area where industrialisation was driven by the search for both tin and copper over many centuries, much of this under the direction of the two great estates of Godolphin and Clowance. The landscape is generally level, dominated by the two granite hills of Tregonning and Godolphin in the south, and by the valley of the River Hayle to the north.

Although mining played a very significant role in the development of this Area, this being the first location in Britain where gunpowder was used for blasting rock (c.1689), the first to site a beam pumping engine on a metal mine, where the first commercial extraction of china-clay took place, and which includes one of the most important tin mines to operate prior to and during the early part of the industrial period, many of its industrial buildings have been demolished, and those that remain are now widely-dispersed. Mine sites are common, however and some provide important ecological habitats.

The character of this essentially rural landscape is the result of an intimate mixture of long-established farmland, more recent mineworkers' smallholdings, the enclosed estates, woodland and gardens of the great houses, areas of uncultivated hilly downland, dotted with mine shafts, the occasional engine house, and scrubbed-over mine sites, some of the last being very extensive. There are only three settlements of any size – Goldsithney to the west, Leedstown and Praze-an-Beeble to the north-east. The central part of the Area, a landscape of narrow, twisting lanes, is dotted with smallholders' cottages, long-established farmsteads and the occasional short row of mineworkers' cottages, the road from Praze-an-Beeble to Marazion being its only major highway.

Three great houses and their estates lie within the eastern part of the Area. Godolphin, formerly the seat of Sir Francis Godolphin, one of the predominant figures in the development of tin mining in

Cornwall in the late 16th and early 17th century, passed to the Dukes of Leeds during the later 17th century, these successors proving equally important within the development of the industry. The conserved house is Grade I Listed and set within woodland and the extensive farmland of its former estate. To the north-east, Clowance was the home of the St Aubyn's from the 14th century (later the Molesworth-St Aubyn's), another important family at the heart of the development and exploitation of the mining industry within west Cornwall, some members also being important mineralogists and horticulturalists. The wealth and success of the family was expressed not only within the substantial embellished country house at the heart of the estate, but also by the gardens and wooded parkland which surround it, much of this laid out with a collection of exotic trees. Clowance suffered a significant decline during the 20th century, though the house survives with the surrounding estate now siting timeshare cottages, a golf course and other leisure facilities. Trevarno, the third great house lies at the east of the Area. Since its establishment following the Conquest, the estate was occupied by many of the great families of Cornwall, including the Killigrews, Carminows, Courtenays and Arundells. During the earlier part of the 19th century, the estate was acquired by the Wallis family (later Wallis-Pophams), significant mining entrepreneurs, but passed to William Bickford-Smith, grandson of the inventor of the safety fuse, in the early 1870s. Having been the seat of some of Cornwall's most significant entrepreneurs it is unsurprising that the estate possessed some of the foremost gardens and parkland to be found anywhere in the Site. Although deterioration forced the remodelling of the house during the 1980s the gardens have now been extensively restored.

Within this Area the OUV of the Site is generally expressed in a low-key fashion, its settlements being small-scale and locally-focused, though there are unexpected discoveries to be made, and a number of viewpoints which give extensive views over the surrounding landscape, in particular from Godolphin and Tregonning Hills. The satellite Area of Trewavas and Wheal Prosper to the south (Area A3ii) possesses some of the most strikingly-sited engine houses to be found anywhere within the Site. Few of the surviving industrial structures have been conserved, the notable exceptions being the Leeds Shaft engine house at Great Work, the nearby Godolphin count house, and the three engine houses at Wheal Prosper and Wheal Trewavas respectively, the work on all four sites having been undertaken by the National Trust.

4. Area A4. The Wendron Mining District

Statement of Outstanding Universal Value

Area A4 (50008'53"N, 05039'21"W) - high, bare and windswept rural mining district occupying a remote upland area distant from large population centres.

- An extensive landscape of upland mineworkers' smallholdings created at and around Carnmenellis by hundreds of farmer-smallholders during the late 18th and early 19th century for men working the Camborne-Redruth mines to the north. Although very large areas of downland in west Cornwall were laid out to smallholdings during the early part of the industrial period, they were later absorbed into the farming landscape, but the particular topography, location and post-industrial history of this area around Carnmenellis ensured that these fields and settlements retain their original form and character.
- The significance of Wendron's near-surface alluvial tin production from the marshy area on Porkellis Moor at the confluence of the Cober River and the stream flowing south from Stithians, and its continuance and persistence using primitive technology and family-group operatives (through to the mid-19th century), and organised displacement, during the industrial period.
- Contains classic examples of tin-streamworks which led to the discovery of lodes and the development of comparatively shallow shaft mining; a marshland landscape owing its character to alluvial tin working.
- Sections of the underground 18th/early 19th century tin workings of Wheal Roots (Poldark Mine).

Supporting discussion and character statements

Geography and landscape

This is an Area of three parts: to the south the narrow valley of the Cober River, to its north the open bowl of Porkellis Moor and to the north again the exposed granite uplands of Carnmenellis. The mining geology of the Wendron Mining District corresponds to the lower part of the tin zone, resulting in a high density of alluvial tin, with relatively shallow shaft mines, often discovered as a result of outcrop working. Some copper was also mined. Only the land flanking Porkellis Moors is of reasonable agricultural quality; the high land of Carnmenellis is exposed, poor grazing. This is outwardly an almost entirely rural landscape although the impacts of tin streaming particularly are apparent upon closer inspection.

Views

The landscape leads upwards towards the summit of Carnmenellis, though so gradually that it is only until in the northern part of the Area that this becomes apparent. There are views of the wider landscape from this point, but it has restricted access. The Cober Valley is closed in, linear. In contrast, Porkellis Moor is a huge, flat enclosed bowl in the landscape, though all views out of it are constrained by the surrounding hillslopes.

- **History and character**

Mining

Industry in the Area was historically based more on tin streaming than mining, though Porkellis was the centre of a small group of mines working the lodes which run beneath this Area. Whilst the evidence for tin streaming is still very much evident, many mine buildings have been demolished, making those that remain rare survivals.

Transport

No mine railways or tramways were constructed within the Area. The alluvial tin ore was smelted locally and carted to Helston for coinage before being shipped from small harbours like Gweek.

Ancillary industry

No ancillary industries were established within this Area.

Settlement

Only Porkellis is of a size which could be described as a village and most other houses are either isolated or in very small clusters.

Smallholdings

The very extensive smallholdings which developed around Carnmenellis relate as much, if not more, to industrial sites near Camborne-Redruth as to the few local mines. They underpin the character of this Area and are by far the best-preserved anywhere in the World Heritage Site.

Great houses

There are no great houses within the Area.

Mineralogical and ecological importance

The heritage of tin streaming at Porkellis Moor has led to this area being designated as a SSSI for its bryophytes.

Historical development and character

A long history of importance for tin streaming and small-scale mining was followed by a relatively brief period of deep mining, but neither spurred the development of substantial settlements or a developed infrastructure. Particularly distinctive of the Area are the huge areas of smallholders' fields (part of a wider landscape surrounding the Area) which developed to meet the housing needs of a rapidly growing population in the mining landscape to the north and the land pressure which resulted. Over time, towns and villages began to develop, lifestyles changed, and eventually the mining economy collapsed, Carnmenellis becoming almost completely abandoned. This now approaches being a fossilised landscape - very rural and quite remote with a tiny population, a few still farming at the upland limits of agriculture; a landscape that most people left when it could no longer sustain them. Within the southern part of the Area most mine buildings have been demolished though important engine houses remain at Basset & Grylls, Wheal Enys and Trumpet Consols.

Communications

The whole of the Area is very much off the beaten track. There are few roads, lanes or footpaths, which makes most of the Area, particularly Carnmenellis itself, almost inaccessible to visitors.

Notable Sites

Porkellis Moor, Trumpet Consols, Wheal Ann, Basset and Grylls, Wheal Enys, Medlyn Moor, Poldark (Wheal Roots underground); Carnmenellis smallholdings.

Interpretation Sites

Poldark Mine

The Wendron Mining District - Area Character Statement

Occupying a remote upland area distant from large population centres, the central part of this Area had long been important for the mining of alluvial tin from the marshy area at the confluence of the Cober River and the stream flowing south from Stithians. A small group of mines were established around Porkellis during the 19th century, but it was the settlement of the uplands of Carnmenellis by hundreds of farmer-smallholders during the late 18th and early 19th century that established the unique landscape character of this Area.

High, bare and windswept, it now seems extraordinary that the farming of this former moorland should even have been attempted, let alone been a necessity for men working the Camborne- Redruth mines to the north. Although very large areas of downland in west Cornwall were laid out to smallholdings during the early part of the industrial period, they were later absorbed into the farming landscape, but the particular topography, location and post-industrial history of this area around Carnmenellis ensured that these fields and settlements retain their original form and character. The small number of surviving engine houses are important landmarks, particularly those at Wheal Ann and Trumpet Consols in the south and Wheal Enys just to the north of Porkellis, but in terms of industrial sites, the huge area of former streamworks which resulted in the formation of Porkellis and Medlyn Moors makes the most significant contribution to this landscape.

Settlements are rare in this Area, only Porkellis being of any size and most of the Area's small population live in scattered farms, the majority of these being the successors to the original smallholders' cottages. Porkellis retains much of its original character, the only significant new development being confined to its eastern side. Given the small population, the road system is small scale, local and twisting, the Area little visited by non-residents.

Interpretation of the industrial history of the Wendron area is provided at Poldark Mine (Wheal Roots) and the publicly accessible underground sections represent a rare opportunity to experience an 18th century mine underground.

5. Area A5. The Camborne and Redruth Mining District with Wheal Peevor and Portreath Harbour

Statement of Outstanding Universal Value

Area A5 (50008'53"N, 05039'21"W) - the mid-west Central Mining District, the richest non-ferrous metal mining district of the late 18th and first half of the 19th century, the most populated, most urbanised, the most innovative in the Site, an internationally significant centre for safety- fuse and rock-drill manufacture and an epicentre of migration.

- Three in situ mine beam engines out of the five preserved in Cornwall: two at Michell's and Taylor's Shafts, part of the former East Pool and Agar, and one at the nearby Robinson's Shaft site.
- The most heavily industrialised tin and copper mining district in the Site containing many of Cornwall's richest, deepest and most famous copper and tin mines.
- Home to the invention of the miners' safety-fuse and the centre of its global manufacture, the important Bickford-Smith complex and other smaller nearby works surviving as testimony to this.
- King Edward Mine, the former practical training base for students at the world-famous Camborne School of Mines, is one of Cornwall's two essentially complete mine sites and contains a unique collection of restored historical machinery.
- New discoveries to the south of Carn Brea saw the development of important mining ventures along the outcrop of the Great Flat Lode. Jointly, these allowed the economy of this Area to continue to thrive into the early decades of the 20th century and the resultant engine house landscape, combined with tin-dressing archaeology, is the most extensive within the Site.
- The home of many of its pioneering engineers and inventors.
- The hub of the most important industrial transport infrastructure in the Site with links to Portreath, Hayle and Devoran.
- The centre of rock-drill manufacture for home use and, more important commercially, for export to foreign mining fields such as the Rand in South Africa.
- The only Area within the Site where industrial (mining and ancillary) activity resulted in sustained extensive urbanisation from the beginning of the 19th century.
- A landscape whose development was framed by some of the greatest landed families and entrepreneurs of Cornwall – the Bassets, Fortescues, Robartes, Vyvians, Thomas', Bickford and Bickford-Smiths, Murdoch, Vivian and Trevithick.
- An Area whose economy was sustained by engineering exports and by remittances sent back from migrant mineworkers into the early part of the 20th century.
- Includes the two most historically important mining settlements in the Site: Redruth, the 'capital' of Cornish mining and the mining engineering 'new town' of Camborne.
- The coastal mining port of Portreath, the hub of Cornwall's earliest industrial mineral transport infrastructures.
- A satellite site comprises the important group trio of pumping, winding and stamping engine houses at Wheal Peevor, and its arsenic calcining complex.

Supporting discussion and character statements

Geography and landscape

Topographically, the chain of granite hills made up of Carn Brea, Carn Arthen, Carn Entral and Beacon dominate, dividing this Area into two – the plateau to their north, its mining landscape now covered in settlements and modern industrial buildings, and the predominantly rural landscape of the rising ground to the south. The principal copper-tin lode strikes paralleled the granite ridges as did settlements, often ribbon-like in form, together with the main roads and the railway. A series of deeply-incised north-flowing valleys dissect the northern plateau, whose altered killas cloaks the underlying granite. Tin occurred near-surface, copper at moderate depth and tin deeper still; in fact, to around 1,000m depth, the deepest exploitation achieved throughout the Site.

The northern part of the Area is intensively urban the remaining scraps of once open land now being rapidly built upon. The southern section, in contrast, is very rural in character, farming being a mixture of stock and horse grazing and arable.

Views

Given the bi-polar nature of this landscape, there is no single spot from which it can be seen as a single entity, though the summit of Carn Brea provides a spectacularly panoramic view of most of it and can be seen from far away when approaching the Area on its northern side. Carn Brea and the other hills in the chain always dominate and divide the two landscapes; they are often visible within the Area, even from within settlements. The views from Carn Brea reach out to Carnmenellis (A4), Carn Marth (A6), Hensbarrow, West Penwith (A1) and St Agnes (A7), though the cluttered industrial estate below is distracting. Within the settlements to the north, views are often linear, generally east-west, usually closed in, though there are rare breaks in the streetscape through which the hills to the south become visible. Between the settlements and the hills sightlines are almost always east-west and open. The linear mining landscape of the Great Flat Lode has exceptional integrity and authenticity, and contains several high-quality views, again almost all aligned east-west, accentuating the numerous engine houses along the strike (line) of the lode.

- **History and character**

Mining

This was the centre of the Cornish mining industry and the site of many of its most important and long-lived mines and other undertakings; a landscape whose development was framed by great families: Basset, Fortescue, Robartes, Vyvyan, by engineers and entrepreneurs, by long-lived mining dynasties. To the north of the hills, the extraordinary mining landscape photographed and illustrated during its heyday has been almost entirely completely eradicated by modern development, and where there were once almost a hundred engine houses, industrial estates now predominate. The few remaining structures are important landmarks, stretching from Pednandrea chimney in the east to Stray Park engine house in the west, and there are some notable sites such as Dolcoath and the Red River Valley. South Crofty's headframe together with the engine house (and headframe) at Robinson's Shaft, and the engine houses (containing in situ beam engines) of East Pool & Agar mine are particularly prominent landscape features.

To the south of Carn Brea, the chain of engine houses, dressing floors and other mine buildings along the Flat Lode from Wheal Uny and Wheal Buller in the east to Marshall's Shaft at South Condurrow is unparalleled anywhere else in Cornwall. Here, too, are extensive stretches of mining landscape, particularly around Carnkie. The mining landscape here and a number of conserved mine sites on the Mineral Tramways Trails have interpretation panels. King Edward Mine is a unique site, given its outstanding collection of ore processing machinery, and has recently been subject to much conservation which has also seen the creation of a new museum facility.

Permission to resume mining at South Crofty was granted in November 2011. Development of the Robinson's Shaft site as the WHS interpretive Key Centre and community cultural facility, 'Heartlands', has greatly improved the presentation of OUV for this Area and those around it.

Transport

The area was served by the Redruth & Chasewater Railway, the Hayle Railway and its spurs to Portreath and Tresavean, and by many mine railway and tramway systems. The trackbeds of most of these railway and tramway systems survive, and are increasingly being adopted as trails, paths and bridleways linking important mine sites and making them accessible, whilst the main line from Redruth to Hayle still follows the line of the original Hayle Railway for much of its length. Portreath was a significant minerals, coal and timber port and its impressive granite harbour still survives, though somewhat cramped in by new housing.

Ancillary industry

The Area includes many former sites of heavy industry, the centre of Cornish fuse making, tin smelters at Seleggan and Redruth, rock drill works, the workplaces of Murdoch, Watt, Bickford, Trevithick and Holman. Over time, many of these factories and works have been re-used for other purposes, and the conversion of the Holman's No 3 works in Camborne is one of the most recent of these. The Bickford Smith pioneering fuseworks in Tuckingmill awaits a new future, like the Bennett's fuseworks nearby. As only some elements of the Bickford's complex are protected by national designation, the outcome for this historically important and architecturally imposing complex remains uncertain. Elsewhere within the Area small workshops and other industrial buildings contribute significantly to the urban landscape.

Settlement

The locations of the northern settlements relate directly to the nearby mines and Camborne, in particular, shows many signs of deliberate organisation on a large scale at times during its development. Here, too, as in Redruth, there are impressive public and commercial buildings, as well as some of the town houses of the very wealthy, though the dominant impression is of terrace after terrace of worker housing and linear main streets lined with shops, pubs and public buildings, many showing signs of embellishment. Redruth has undergone something of a renaissance during the past decade, the contribution of its historic buildings evidently being well recognised. Camborne, too, should start to see the benefits of regeneration. In between these two major settlements, development was linear, related to the locations of mines and factories, often originally little more than one structure deep from the road. Here, new building and redevelopment has been patchy and often at the expense of the original historic character of the settlements – the demolition of some significant buildings having taken place alongside the erection of new large commercial structures in roadside locations.

To the south of the hills, the few settlements - Brea, Carnkie, Carn Brea - are small-scale and rural in character, based on rows of mineworkers' cottages, with pubs and chapels, sometimes a village shop. Troon is a planned new town which failed to grow beyond the original rows laid out along its spine main road and the two side roads leading off it. It is clearly an industrial settlement - grey, terraced, two storey, planned and still retaining its original character.

Smallholdings

Mineworkers' smallholdings are most visible in the area around Newton Moor, along the Great Flat Lode, where isolated cottages dot a landscape of small fields.

Great houses

There are no great houses within the Area, but there are a large number of embellished town houses and villas flanking the principal settlements, particularly in the western parts of Camborne and Redruth.

Mineralogical/ecological importance

Specimen mineralogy from the district is world-famous and the Area has a significant share within the WHS of both type localities and 1st British mineral Occurrences. Mineral rich substrates at West Basset and Dolcoath provide ideal conditions for rare bryophytes and have been designated as SSSIs. A number of spoil dumps within the Area are recognised as being mineralogically important.

Historical development and character

This is a landscape which had a long and important place to play within the history of Cornish mining and which, during the early to mid-19th century was the centre of the hard rock mining world. Important industries sprang up to service these mines, and a large-scale industrial workforce was housed in the new, sprawling settlements which quickly grew up near the mines.

At that time there were more mines per square mile here than anywhere else in Cornwall, probably anywhere else in the world, as well as many of the richest and deepest. Inevitably, with an economy based on mining, on heavy industry, the decline of mining had a very significant impact, yet whilst the landscape to the south became fossilised, the northern part of this Area had acquired sufficient momentum to continue to evolve and change.

Unsurprisingly, much has been swept away, lost beneath sprawling modern industrial estates or commercial buildings, many whose layout, massing and detailing have nothing to do with the historic landscapes within which they stand, and the contrast between the existing and the new has not always been well managed. Current regeneration proposals will ensure the continuing evolution of the character of this Area, though it is now more likely to take the historic character of the built landscape into account.

Communications

The Mineral Tramways trails provide long-distance routes on foot and by cycle or horse between many of the best surviving mine sites, whilst the Camborne-Pool-Redruth area is served by a busy network of railways, roads, streets and by-passes. Public transport links all of the settlements here.

To the south of the hills, most roads are small-scale, linking local settlements rather than being parts of long-distance routes. Some were clearly deliberate creations to serve the new planned settlements, but have no other function today, and the Camborne-Beacon-Troon road effectively peters out on Nine Maiden's Down. Only the road from Lanner to Four Lanes, mostly lying to the south of the Area, is a major route, and eventually makes its way over the moors to Helston. Portreath harbour has a particularly difficult and dangerous entrance and is now little used.

Notable Sites

East Pool and Agar Mine (EPAL), Cook's Kitchen, Dolcoath, the Flat Lode Mines (Wheal Uny, West Basset and Basset Stamps, North Basset, Marriott's Shaft and South Wheal Frances, the Grenville Mines, King Edward Mine, South Condurrow and Great Condurrow, Marshall's Shaft, Wheal Peevor, Portreath Harbour and Tramroad, Redruth, Kresen Kernow (Cornwall archive centre opening in 2019), Robinson's Shaft (Heartlands), the Tuckingmill fuseworks, Carn Brea; Camborne and Redruth towns with their chapels, workers' housing and public buildings.

Interpretation Sites

Heartlands (Key Centre, with East Pool Mine) East Pool Mine, Kresen Kernow (Cornwall archive centre opening in 2019), King Edward Mine, Murdoch House, various Great Flat Lode sites (with interpretation panels).

The Camborne and Redruth Mining District with Wheal Peevor and Portreath Harbour - Area Character Statement

Long-recognised as the centre of the Cornish mining industry, the landscape around Camborne and Redruth sited many of its richest, deepest and most famous mines, the homes of many of its pioneering engineers and inventors, and the only Area within the Site where industrial activity resulted in sustained extensive urbanisation from the beginning of the 19th century. It is a landscape whose development was framed by some of the greatest entrepreneurs and landed families of Cornwall – the Bassets, Fortescues, Robartes, Vyvians, by the Thomas' of Dolcoath, by William Bickford, Murdoch, Vivian and Trevithick.

Development here continued more or less uninterrupted from the early industrial period throughout its developed phase and, sustained by engineering exports and by remittances sent back from migrant mineworkers, into the early part of the 20th century. By the mid-19th century, chimneys and engine houses dominated the view from Camborne eastwards towards Carn Brea, amongst them being world-famous mines such as Dolcoath, Tincroft, Wheal Agar, Carn Brea, South Wheal Crofty, Cook's Kitchen and East Pool, as can be seen from the photographs and maps of the period. The scale of mining which developed here quickly required a massive workforce and supporting infrastructure, including not only very extensive terraced housing, public buildings, chapels and shops, but new roads, tramways and railways to link the mines and towns to the new industrial ports of Hayle, Portreath and Devoran, factories to produce explosives, fuses, miners' boots, candles and clothing, Schools of Mines, libraries and police stations. Both Camborne and Redruth became mature, developed towns, the road linking them flanked by the cottages of mineworkers, fuse-makers and foundrymen.

The Area was unusual in that its geological riches, together with its engineering exports, enabled it to weather the catastrophic fall in international copper prices through the mid-19th century. Dolcoath, East Pool and Agar and South Crofty became important tin producers, whilst new discoveries to the south of Carn Brea saw the development of important mining ventures along the outcrop of the Great Flat Lode. Jointly, these allowed the economy of this Area to continue to thrive into the early decades of the 20th century.

If the development of industry within this Area had been prolonged and spectacular, its decline and abandonment were rapid and absolute, only a handful of its deepest, richest mines surviving beyond the 1920s. Sites which had once been amongst the most productive anywhere in the developed world lay derelict and abandoned, eventually to be cleared away, and by the 1980s, the mining landscape to the north of Carn Brea had been almost entirely lost to new development, South Crofty its only working mine. The collapse of mining had seen Portreath to the north lose its tramway and railway links as well as almost all of its commercial traffic. Housing development, particularly along the western edge of its harbour, has had considerable effects on the character of the settlement.

To the south of Carn Brea the pattern of post-industrial land use followed that of other rural areas of Cornwall following the cessation of mining. Whilst some peripheral areas of mine sites were reclaimed to agriculture, most became fossilised, and as a result, the survival of the evidence for industrial activity here is exceptional.

These two landscapes have continued to develop in very differing fashions. After decades of depressed economies, the urban landscape to the north of Carn Brea is undergoing a renaissance, driven to a substantial degree by recent regeneration projects and guided by historic environment studies undertaken by Cornwall's Historic Environment Service (i.e. the Cornwall and Scilly Urban Survey and Cornwall Industrial Settlements Initiative projects). Some historic buildings within Camborne and Redruth are already being restored and given new uses, areas of earlier industrial estates and commercial developments are being cleared for extensive development projects, new distributor roads created. The mining history of the Area has not been forgotten, however. This Area contains three of the handful of preserved beam engines in Cornwall. Two of these, at Michell's and Taylor's Shafts part of the former East Pool and Agar Mine, were developed by the National Trust as an interpretation site for this Area (East Pool Mine), whilst conservation of the nearby Robinson's

Shaft site (Heartlands), secured as part of its development as a Key Centre for the interpretation of the World Heritage Site, also includes a longer term aspiration to restore the in situ beam pumping engine.

To the south of Carn Brea, the Mineral Tramways Project has seen the conservation of almost all of the engine houses, the creation of extensive multi-use trails and the provision of new interpretation. King Edward Mine - the former practical training base for students at Camborne School of Mines - has now been conserved to create a high-quality interpretation centre (based around its unique collection of restored machinery) and a hub for small businesses. In satellite Area A5ii to the north, the Wheal Peevor engine houses and site have undergone major conservation which has also interpreted the site and made it accessible to the public.

The central parts of the urban areas of Camborne and Redruth retain much of their essential historic character, as well as key public buildings and embellished commercial properties. It is vital that these are conserved, and new uses found, and that new development within core areas respects and reflects the history of these settlements.

6. Area A6. The Gwennap Mining District with Devoran and Perran and Kennall Vale

Statement of Outstanding Universal Value

Area A6 (50008'53"N, 05039'21"W) - this western rural landscape, the Copper Kingdom of the Old World (mineralogically the most significant in the Site), the home of the Lemons and Williams mining dynasties, one of the most important proving grounds for Boulton & Watt engines, one of the most extensive mineral transport infrastructures, home to Cornwall's 'third' iron and engine foundry (Perran), premier gunpowder works and, at Gwennap Pit, its Methodist icon.

- Produced a major proportion of the world's supply of copper during the 18th and first half of the 19th century.
- Sited some of its earliest beam engines such as those produced by Newcomen, Smeaton and Watt.
- Includes the Methodist icon of Gwennap Pit, one of Britain's three most important Methodist sites.
- Includes the Perran Foundry complex, one of the 19th century world's most important engine foundries.
- The Kennall Vale Gunpowder Works is one of the largest and most complete gunpowder works to be found anywhere in Britain.
- The Williams' family great houses, estates and gardens is the most important grouping of associated attributes of their type within the Site. Such a concentration of great estates within a mining district is unique. Carclew, the ruins of the great house and estate established by one of the greatest of all Cornwall's mining magnates, Sir Charles Lemon, a key figure in the development of the Gwennap mines. The magnificent house, set above the Carnon Creek to the south of Devoran, was sadly reduced to a ruin by fire in 1934, but its park and gardens, historically so important to British horticulture, remain open to the public.
- Is the source of some of the most historically, scientifically and culturally important copper mineralogy in the world.
- At Restrouquet Creek, sub-estuarine mining in tin gravels was carried out.
- Includes some of the oldest engine houses to survive anywhere in Cornwall with direct connections to the able and successful mining entrepreneur John Taylor.
- Includes the mining port of Devoran.
- Large areas of mineworkers' smallholdings occupy its north and east, once the site of a huge expanse of downland but subsequently laid out to smallholdings, the boundaries of many of its tiny fields planted with oaks and hawthorns.
- Sites some of the starkest industrial landscapes to be found anywhere in the Site – hectares of shaft-littered heathland, the sprawling un-revegetated mine dumps of Poldice and the poisoned, ochre-stained valley of Wheal Maid, each giving a small indication of the sheer scale of industrial activity which took place here during the 18th century and the early 19th century.
- The Area includes the Mining villages of Chacewater, St Day and Carharrack. Each is distinct and different in character, the histories of Chacewater and St Day being linked to the early period of Cornwall's industrialisation, that of Carharrack to its mature period.

Supporting discussion and character statements

Geography and landscape

This is a large and essentially rural Area. Most of the Area is a moderately dissected plateau, though rising to the granite boss of Carnmenellis to the west and very significantly cut into by the Carnon Valley to the east. The outlier Areas (Devoran and Kennall Vale) are given much of their character by their estuary and wooded valley locations, respectively. In the northern part of the Area, the landscape is former downland, much of it fairly homogeneous in character – the highpoints at Creegbrowse and Kerley Downs being almost imperceptible. Some very rich tin occurred, both in alluvials (e.g. Carnon Stream) and in hard rock (e.g. Poldice), but the area was dubbed ‘Copper Kingdom’ due to the density and richness of copper lodes in the area. In the near-surface bonanzas in the oxidised zone, some of the finest known (including type locality specimens) secondary copper minerals were recovered.

Views

This is another huge Area, whose boundaries are always too far distant for one to be able to get a feeling of the whole from within, and whose identity and boundaries are not readily distinguishable from outside it. There are many small valleys, narrow lanes bounded by high hedges and here and there the occasional patch of woodland, so views are often constrained and local, often along valleys. Occasionally the landscape opens out, as at Poldice, Wheal Maid or in the lower Carnon Valley, and something of the scope and scale of former industrial activity becomes evident. Settlements like St Day, Chacewater, Devoran or Carharrack often look inward, rather than out to their neighbours, or to the landscape they inhabit. From Carn Marth, there are panoramic views to the west and south.

Kennall Vale is thickly wooded, closed in, and views within this part of the Area are measured in a few tens of metres at best. Devoran looks south to Carclew, as well as south-eastwards down its wide broad open creek towards the Fal estuary. The view from the north of Carclew House across the creek to Devoran and the Carnon must be spectacular but is not presently readily accessible.

- **History and character**

Mining

A large, now predominantly rural Area, formerly siting some of the richest copper mines anywhere in the world and one within which some of the earliest beam engines were installed. The heyday of this Area was principally during the 18th century and the early 19th century; none of the notoriously rich copper mines saw rock drills, for example. It is an area within which enormous fortunes were made by a small number of individuals, and which was once thick with engine houses and other mine buildings. Much of the evidence for this is now lost but where it survives it is spectacular and sometimes uncomfortably stark. There are a number of historically-significant surviving mine sites, as well as the important sprawling, devastated landscapes within which they stand.

Transport

Tramways – including two of Cornwall’s earliest and most important - thread through this Area, linking its mines to the ports of Devoran and Portreath. The influence of John Taylor and the Williams family is never far away. The railway trackbeds are particularly well-preserved and accessible. Despite modern development, many elements of the port of Devoran are well preserved.

Ancillary industries

As well as mines, this Area includes one of Britain’s foremost gunpowder works and a major iron foundry, as well as the fragmentary remains of an important arsenic works. Perran Foundry and Kennall Vale are not only important within the Area, but within the wider WHS, nationally and internationally.

Settlement

Most settlement consists of scattered smallholdings with roadside chapels scattered though the landscape, though there are also several small but important villages. These larger settlements: St Day, Chacewater, Devoran and Carharrack have their own identities, often looking inward, rather than out to their neighbours, or to the landscape they inhabit. They show signs of a wealthier past, though most also show signs of the harder times which followed. Whilst Chacewater and Devoran suffered long term economic downturn to a lesser degree, St Day feels run down, though has considerable potential and its building stock still retains much character. Gwennap Pit, one of Britain's top three icons of Methodism, and the ruined Gothic-style church at St Day (built 1828), are important religious sites that served the mining industry.

Smallholdings

Much of the northern part of the Area is covered with former smallholders' fields and is dotted with isolated cottages and small farms, characterising this landscape.

Great houses

There is an exceptional concentration of large houses and estates in Gwennap, more so than any other Area within the WHS. A number of these were built by mine owners and managers near to the mines themselves: Scorrier, Tregullow, Burncoose and Carclew, and others of landed mineral lords pre-date them: Trevince and Pengreep, though none of these are publicly accessible.

Mineralogical/ecological importance

Gwennap mines represent by far the greatest number of Type Localities of any WHS Area and 1st British mineral Occurrences are behind only St Just. The rich and widespread distribution of copper, particularly in the oxidised zone, together with the heyday of mines such as Wheal Muttrell, Wheal Gorland and Carharrack Mine coinciding with early mineralogical research, is responsible for much of the Type Locality significance. There are a number of other mineralogically-important sites within the Area, whilst the mineral-rich spoil dumps of the Poldice Valley have led to it being designated a SSSI.

Historical development and character

Many of the mines here operated during the earlier part of the industrial period, their phenomenal success and richness bringing about the colonisation of huge areas of former downland by mineworkers through smallholding. However, most mines were abandoned by the mid-19th century, as the focus of mining in Cornwall swung from copper to tin and whilst there are extensive and impressive mining landscapes here, surviving mine buildings are now relatively few and far between. One of the largest mines within this Area was used as Cornwall's main landfill site with its fringes occupied by car breakers. On the whole the landscape is rural, relatively unpopulated, Devoran being a particular exception.

Communications

There are no major highways apart from the Truro-Falmouth A39 which skirts the south-eastern edge of the Area, and most of the Area is criss-crossed by a network of small roads, lanes and footpaths, though in its south-eastern outlier there is almost no way to get around except by car, and footpaths are rare. Many of the more notable mine sites are linked by trails and footpaths, but only the Coast to Coast Trail links the eastern and western parts of this Area.

Notable Sites

Gwennap Pit, Perran Foundry, Carnon Mine, Wheal Busy, Killifreth, Unity Wood, Devoran, Kennall Vale, Poldice, Wheal Maid and the Consolidated Mines, Cusvey, St Day and its church, Portreath Tramway, Redruth & Chacewater Railway, Scorrier, Tregullow and Burncoose estates.

Interpretation Sites

Gwennap Pit (World Heritage Site Area Centre) and St Day Church.

The Gwennap Mining District with Devoran and Perran and Kennall Vale - Area Character Statement

An Area of contrasts, this, once the richest of Cornwall's mining districts and the site of some of its earliest beam engines, appears at first sight to have returned to post-industrial rural sleepiness. Its northern half, once the site of a huge expanse of downland but subsequently laid out as smallholdings, now feels mature, the boundaries of many of its tiny fields planted with oaks and hawthorns. To the south, the farmland gives way unexpectedly to some of the starkest industrial landscapes to be found anywhere in the Site – hectares of shaft-littered heathland, the sprawling un-vegetated mine dumps of Poldice and the poisoned, ochre-stained valley of Wheal Maid, each giving a small indication of the sheer scale of industrial activity which took place here during the 18th century and the early 19th century, when the richest copper mines to be found anywhere in the world were sited here. These components of the industrial landscape were formerly far more common, but Ting Tang is now scrub woodland whilst United Mines and Wheal Squire until recently sited Cornwall's principal landfill site; several car breakers and a recycling depot remain alongside other small industrial businesses and the United Downs Deep Geothermal Project test facility. Nevertheless, some of the engine houses within this Area are amongst the oldest to survive anywhere in Cornwall and have direct connections with the able and successful mining entrepreneur John Taylor. This was also the home territory of the Williams mining dynasty whose influence was pervasive in this area; and widespread throughout the early 19th century mining world.

There are only three substantial settlements in the main part of the Area – Chacewater, St Day and Carharrack. Each is distinct and different in character, the histories of Chacewater and St Day being linked to the early period of Cornwall's industrialisation, that of Carharrack to its mature period. Within their core areas, each retains much of its historic character, despite considerable new development around their peripheries.

The two outlying Areas (A6ii and A6iii) to the south east encapsulate particularly important sites at which important aspects of the OUV of the Site are expressed. Kennall Vale sites one of the largest and most complete gunpowder works to be found anywhere in Britain. Its secluded valley site, dominated by the woodland originally established to absorb blast damage from accidental explosions, is now a managed nature conservation site. Perran Wharf and Devoran nearby include the well-preserved remains of one of Cornwall's pre-eminent iron foundries, one of its two most important industrial ports, and, at Carclew, the ruins of the great house and estate established by one of the greatest of all Cornwall's mining magnates, Sir Charles Lemon, a key figure in the south of Devoran, was sadly reduced to a ruin by fire in 1934, but its park and gardens, historically so important to British horticulture, remain open to the public.

Following a lengthy period of abandonment and deterioration Perran Foundry has experienced significant conservation in recent years, as part of major redevelopment for housing, with much of the site now having been addressed.

Much of this Area is rural, unthreatened and equally unlikely to change in radically different ways in the foreseeable future, although the ongoing development of the Mineral Tramways trails through and around the Area offers some opportunities for new sources of income for settlements like St Day, for new businesses offering cycle hire, short break accommodation or places to eat. The historic St Day Church has benefitted from some useful conservation and its recent acquisition by a group of dedicated local supporters will no doubt ensure that further conservation is pursued in future.

7. Area A7. The St Agnes Mining District

Statement of Outstanding Universal Value

Area A7 (50008'53"N, 05039'21"W) - an ancient tin and copper mining district fringing Cornwall's north coast.

- The site of rich bonanzas of copper and tin throughout the 18th and 19th centuries.
- Sites iconic coastal engine houses.
- Activity within the narrow, mineralised zone to the east and south of the granite boss of St Agnes Beacon and to the south and north of Cligga Head has left a legacy of spectacular cliff workings. The scale and complexity of the early cliff workings at Cligga Head is unparalleled anywhere else in the Site.
- The fine mining settlement of St Agnes, its mining fortunes reflected in its shops, pubs, hotels, chapels and public buildings such as the Miners and Mechanics Institute. The engine house at Thomas' Shaft, West Wheal Kitty, is a surviving reminder of the labyrinth of workings beneath the heart of the settlement.
- Noted for its internationally significant mineralogy.
- The site of tin-dressing floors on cliff-tops and in narrow stream valleys.
- The remnants of Trevaunance Harbour highlight the extreme exposure of Trevaunance Cove which made this difficult to construct and work, having to be rebuilt on four occasions after being destroyed by storms. The harbour was a necessity, however, the nearest alternative being Portreath some six miles to the west.
- The south and east of the Area contains a well-preserved and high density of smallholdings.
- Wheal Luna is a very good example of a tin open-work.
- Blue Hills Tin Stream Works has been restored to operation in Trevellas Coombe.
- The remains of the British & Colonial Explosives Works at St George Common and a rare example of this site type within the Site.

Supporting discussion and character statements

Geography and landscape

This is very much a coastal Area and the sea is never far away. The granite knoll of St Agnes Beacon forms its hub, from which the coast radiates away from to the east and south-west. To the south-east is relatively featureless level farmland, formerly downland, though here and there it is cut through by deep, narrow valleys - Chapel Coombe, Trevaunance Coombe; Trevellas Coombe and Porthtowan Coombe. To the north east is the granite of Cligga Head, with its spectacular, anciently mined, steeply dipping near-parallel greisen veins.

The boundaries of the Area in general demarcate the coastal strip and the historic urban area of St Agnes, and as a result it encloses little agricultural land, though pasture fields are the surrounding context for the Area.

Views

St Agnes Beacon can be seen from many miles away and from most of the neighbouring Areas, yet the Beacon blocks out views of half of the Area from the west or the east. From within the Area, the views are mostly towards the coast, down valleys or across the plateau and take in notable attributes of OUV such as the prominent mine sites. The views from St Agnes Beacon are spectacular and on a good day reach down to West Penwith and across to Carn Brea. There are some stunning views down Trevaunance Coombe and in the valley near Tywarnhayle, whilst the cliffscape at Cligga Head to Droskyn Point provides exceptional views along the coast, particularly to the west.

- **History and character**

Mining

Like the St Just Mining District, this is a mining landscape at the edge of the land, with spectacularly-sited engine houses and dramatic coastal mining evidence. It is a landscape of both copper and tin mining; whose valleys were once thick with stamps and dressing floors. In the centre of the Area around St Agnes and the Beacon, the surviving engine houses materially add to the landscape character; to the south, the copper mining landscape is open, extensive, mine buildings are rare but important, often hidden in valleys; to the east, the coast from Trevellas through Cligga Head to Droskyn Point is stark, ravaged, extraordinary, with cliff-top mine dumps at Penhalls and Perran St George adding distinctive character.

Transport

There were no industrial railways or tramways within the Area, but St Agnes had a precariously-sited harbour which had to be rebuilt several times. The line of the former breakwater here is now just discernible as partial footings and a scatter of granite blocks.

Ancillary industries

The sites of ancillary industries, such as the iron foundry sited adjacent to the harbour at Trevaunance, have now been redeveloped, but a little more may be seen of Cornwall's second largest explosives works on the cliffs near Cligga. Less conspicuous in terms of industrial scale but important none-the-less, are the candle clay pits – used by miners to fix candles to their hats – around the lower slopes of St Agnes Beacon.

Settlement

There is only one true settlement, and St Agnes is less rugged and plain than St Just; most of its houses have a certain elegance and sense of proportion and indicate the influence of a certain degree of wealth. The town contains a number of public buildings, notably the Miners and Mechanics Institute. Porthtowan has lost most of its original identity to holiday let and tourism development, although the beach level engine house at Wheal Towan is a reminder of the mineral exploitation which took place within the cliffs beyond. In 1878 there was almost no other development here and today the countryside beyond is characterised mainly through the presence of isolated cottages.

Smallholdings

To the south of St Agnes for miles across former downland and spreading up onto the Beacon, extensive smallholders' fields and new farms underpin the character of the rural landscape away from the coast.

Great houses

There are no great houses in this Area, but some of the town houses within St Agnes show signs of appreciable wealth.

Mineralogical/ecological importance

St Agnes is world-famous for its specimen mineralogy, including several type localities, and a number of spoil dumps within the Area are mineralogically important. Three coastal areas within which mining activity took place have been designated as SSSI: Godrevy Head to St Agnes, Trevaunance Cove and Cligga Head (this last designation extending to Droskyn Point).

Historical development and character

From being the hub of an important and long-standing mining district, St Agnes has evolved into a small and prosperous settlement, its economy now based on beach-based tourism and as a dormitory settlement for Truro. Within the Area as a whole, the survival of built evidence for mining has been patchy and is mostly confined to the more remote areas of the coast. Wheal Coates is well known to many visitors, but many other sites are little visited, except by walkers on the Cornwall Coast Path.

Communications

The Truro-St Agnes road is the only one of any size and there are few lanes. The other principal route is the coast path, though this passes through rather than leading to anywhere within the Area. The history of mining and smallholding in this Area has resulted in a complex network of footpaths around the Beacon. Much of the coastal heathland is open access land under the CROW Act 2000.

Notable Sites

Wheal Coates, Wheal Kitty, Wheal Friendly/West Wheal Kitty, Cligga Head, Wheal Tye/West Wheal Towan, Chapel Porth, Tywarnhayle, Great Wheal Charlotte, St Agnes Beacon, Trevellas Coombe, Wheal Ellen, Blue Hills Tin Streams, Gooninnis, St Agnes Churchtown and its Miners and Mechanics Institute.

Interpretation Sites

St Agnes Museum (World Heritage Site Area Centre), Blue Hills Tin Streams.

The St Agnes Mining District - Area Character Statement

Fringing Cornwall's coast to the north of Truro, the St Agnes Mining District was important for both copper and tin throughout the 18th and 19th centuries. Activity within the narrow, mineralised zone to the east and south of the granite boss of St Agnes Beacon has left a legacy of spectacular cliff workings and coastal engine houses, its narrow stream valleys the former sites of dressing floors and water-powered stamps. Several of these survive, and as well as the iconic engine houses at Wheal Coates – more important for their spectacular location than the outputs of the mine – there are a number of important vistas, including that down Trevaunance Coombe, which is embellished by a number of prominent mine buildings. Mining activity once reached right up to the western part of the settlement, the engine on Thomas' Shaft, West Wheal Kitty, being a surviving reminder of the labyrinth of workings beneath the settlement which stretch northwards and westwards under the huge expanse of disturbed ground which was the site of Polberro Mine. The spectacularly scarred coast between St Agnes and Perranporth was also the location of a number of historically and mineralogically important mines, including those at Cligga Head, Perran St George and Droskyn. The impact of industrialisation on this coast can be readily appreciated from the coast path, the scale and complexity of the early cliff workings at Cligga Head being unparalleled anywhere else in the Site.

St Agnes also possessed a small harbour, though the extreme exposure of Trevaunance Cove made this difficult to construct and work, and it had to be rebuilt on four occasions after being destroyed by storms. The harbour was a necessity, however, the nearest alternative being Portreath some six miles to the west. Near the harbour, Trevaunance Cove and the nearby Coombe became a centre for a range of industrial activities, including several tin dressing works, a foundry, shipyard, lime kilns and a fish cellar.

The town itself grew up to service the local mines and initially had three distinct centres: St Agnes Churchtown, Rosemundy and Peterville, with short rows of industrial workers' cottages later developing near the harbour. Although based on two storey cottages set out in rows, as was the Cornish custom, many of these industrial cottages and houses show the influence of greater wealth and taste than was common in local mining districts – in part a reflection of the earlier history of the Area, when mineworkers' smallholdings were developed over square kilometres of downlands between St Agnes, Truro and Redruth. By the time that St Agnes itself developed, mining fortunes were running high, and this is reflected in its built environment with its shops, pubs, hotels, chapels and public buildings like the Miners and Mechanics Institute, in the cut ashlar work of many house frontages along the road running northwards to Churchtown and British Road, in its town gardens and in the leafy tranquillity of the graveyard adjoining the Methodist Church.

St Agnes is a confident and well-appointed attractive village with an established tourist industry based on its many nearby beaches and reliable surf. Trevaunance Cove is now a popular destination for tourists. The surrounding area is traversed by the South West Coast Path, and both St Agnes Beacon, with its panoramic views and nearby Wheal Coates are popular destinations.

With the exception of the sites owned by the National Trust in the western part of the Area - Wheal Coates, Great Wheal Charlotte and West Wheal Charlotte, there has been limited conservation of the industrial heritage in this Area. Sara's Shaft engine house at Wheal Kitty has been conserved and adapted for reuse as office space - prior to the inscription of the World Heritage Site - with its surrounding surviving mine buildings providing additional workshop and office space. The unique Miners and Mechanics Institute in St Agnes has also been the subject of a comprehensive restoration into a high-quality community facility. A number of the iconic mining structures of the Area remain in need of conservation, however, such as the Blue Hills pumping engine house at Trevellas Coombe.

Interpretation of the OUV of the Area is in place at St Agnes Museum, whilst the Blue Hills Tin Stream works in the Trevellas Valley enables the visitor to explore the fascinating local history of tin mining and smelting.

8. Area A8. The Luxulyan Valley and Charlestown

Statement of Outstanding Universal Value

Area A8 (50008'53"N, 05039'21"W) - the only Area in mid-Cornwall, and one which exemplifies late 18th and early 19th century industrial entrepreneurship reflected in an important concentration of industrial transport infrastructure and industrial water supply network.

- The exceptionally complete industrial port of Charlestown that became an important centre for copper ore export.
- An extensive water management system of sluice ponds and leats, constructed to store and deliver water essential to fill the dock and flush out accumulated silt.
- The magnificent Treffry viaduct/aqueduct, spanning the Luxulyan Valley at its mid-point and representing the earliest granite construction of its kind in the south west.
- The principal surviving remains of Fowey Consols: Austen's engine house which, as a technological monument, is testament to Cornish steam engine efficiency. Fowey Consols was the principal motivator for the establishment of significant elements of the infrastructure within the Luxulyan Valley and also provided capital for its construction.
- The site of one of Cornwall's few canals, together with an industrial railway and extensive leat system.
- Charlestown Foundry (established 1827) which originally produced beam engines (including the last pumping engine ever made in Cornwall) as well as other mining equipment.

Supporting discussion and character statements

Geography and landscape

An Area of two contrasting halves; the Luxulyan Valley is closed in, secluded, linear, dominated by woodland, deeply incised into the landscape, cut into the south-eastern edge of the Hensbarrow granite. Charlestown lies in a short, shallow valley cut through Mylor slates leading down to the coast; it is open, bright, urban, tidy, yet also linear. Agricultural land surrounds both parts of this Area.

Views

Within the Luxulyan Valley, views are very constrained by the steep valley slopes and the trees which cloak them. Historic industrial features are not always obvious, and most views are of the path a few metres ahead or glimpses of things between trees. The Viaduct is almost invisible until it is upon you. The exception is Fowey Consols engine house, near the summit of Penpillick Hill, which can be seen from some distance when travelling from the west, and from which it is possible to look northward towards the wooded Luxulyan Valley and southward to St Austell Bay. Views in Charlestown are more open, almost all southwards towards its harbour and the bright water of St Austell Bay, beyond. Charlestown is best seen from within itself, looking either north or south from its two ends, or from its main street. From both, the other Areas are hidden, distant.

- **History and character**

Mining

Fowey Consols was the most notable mine site within the Area, though Prideaux Wood Mine was also historically important, though this is rarely recognised. The small number of engine houses within and immediately surrounding the northern part of this area are important elements within the story of its development, whilst Austen's engine house is a prominent landmark, though is currently not accessible by the public. The engine house at New Fowey Consols, Pons Mill (known locally as Broadmoor Mine) is, conversely, entirely hidden from view within woodland but is similarly inaccessible to the public.

Transport

Transport was crucial to the importance of this Area, the development of both of its parts reflecting the importance of commerce and communications to two specific individuals. At Luxulyan Treffry created his viaduct, railway, incline, leats and canal to service his interests in mining and quarrying. Charlestown is entirely Rashleigh's creation: an early industrial harbour with a very extensive and still-functioning leat and sluice pond system, linking it to the remote Luxulyan Valley.

Ancillary industry

Charlestown had a number of industrial undertakings such as a tin smelter and ropewalks, and its largest, the foundry, has recently been redeveloped, retaining historic features and incorporating some interpretation.

Settlement

There is no settlement within the Luxulyan Valley although the hamlet of Pons Mill forms the gateway to the Valley from the south. The exceptional integrity and authenticity of Charlestown is due principally to the village being in a single sympathetic ownership, the Crowder family, for 161 years from 1825 to 1986, and its status as a Conservation Area (since 1985).

Smallholdings

There are no known mineworkers' smallholdings within either part of this Area.

Great houses

There are no great houses within the Area, though there are some embellished town houses within Charlestown.

Mineralogical/ecological importance

Fowey Consols was known for its diverse and significant specimen mineralogy whilst Prideaux Wood Mine is also known for rare lode 'wood tin'. A County Geology Site (RIGS Site) near the Treffry Viaduct, at NGR: SX 05653 57121 (nominal centre), designates the distinctive geology of the outcropping granite core-stones formed by deep Tertiary Period weathering.

Historical development and character

Both halves of the Area are unusual in that their development was primarily driven by individual entrepreneurs. Additionally, limited estate ownership or management of both Luxulyan and Charlestown restricted diversification and development; the stories in both cases are simple and straightforward and the survival of the built evidence for the industrial period is exceptionally well-preserved.

Communications

In the Valley, this is always on foot, via the former tramway, the leat paths and the Velvet Path – the only significant road heads into the valley midway, crosses it near the Viaduct and exits quickly to the north. Parking is very limited. In Charlestown, the main road leads arrow-straight down through the settlement towards the harbour, from which shipping fanned out across the channel and around the coast.

Notable Sites

Carmears Incline and wheel pit, Carmears Woods paths and leats, Luxulyan Viaduct, Ponto Mill, Carbeans Quarry, Fowey Consols; Charlestown with its ore floors and harbour.

Interpretation Sites

Wheal Martyn (providing the Area Centre function although outside the Area boundary)

The Luxulyan Valley and Charlestown - Area Character Statement

Unusually within the Site, these two linked Areas represent the ambitions and achievements of specific individuals – in the case of the Luxulyan Valley and its surroundings that of Joseph Thomas Treffry (formerly Austen), the entrepreneur who single-handedly created a highly successful copper mine, one of Cornwall's few canals, an industrial railway system, two harbours and several significant granite quarries; Charlestown is the creation of Charles Rashleigh, who redeveloped the tiny fishing village of West Polmear into an industrial harbour and settlement. Its foundry was established in 1827 originally producing beam engines (including the last pumping engine ever made in Cornwall) as well as other mining equipment. It survived as a working entity until 1990 after which the site was redeveloped whilst retaining the features of the historic foundry. The exceptional integrity and authenticity of Charlestown is due principally to the village being in a single sympathetic ownership, the Crowder family, for 161 years from 1825 to 1986, and its status as a Conservation Area (since 1985).

The two parts of this Area are in stark contrast to one another. The Luxulyan Valley is lush, narrow, wooded, and crammed with leats, mining remains, a tramway and a railway. Views are constrained by the trees, the light dappled, and the magnificent viaduct/aqueduct which spans the Valley at its mid-point only comes into view as it looms high above the path, concealed by the trees until then. Charlestown, in contrast, is open, bright with the light of the nearby sea, neat, tidy and often busy with visitors. Yet this was, until recently, an industrial settlement, complete with its own busy foundry.

Much of the Luxulyan Valley is now managed by Cornwall Council (as landowner) and stewarded by the Friends of Luxulyan Valley (FoLV), a group of dedicated local volunteers. Maintenance of the Treffry Viaduct (in the ownership of Cornwall Heritage Trust) and leat system is required although conservation of the Carmears wheel pit and incline was undertaken in the 1990s. The conservation of Austen's engine house at Fowey Consols will be required to ensure the long-term survival of this historically distinctive landmark feature (Listed Grade II).

9. Area A9. The Caradon Hill Mining District

Statement of Outstanding Universal Value

Area A9 (50008'53"N, 05039'21"W) - a treeless, 'eastern', rural upland mining district occupying the south-eastern corner of Bodmin Moor, remote from the coast.

- During the mid-1830s-60s this was a booming copper mining landscape, the whole process from discovery to final closure lasting barely half a century.
- The Area possesses internationally significant mineralogy and an unusual example of a copper deposit hosted in the granite of Caradon Hill.
- The newly discovered copper field continued to produce into the late (1880s) mining period, closing in the face of exhaustion and depressed copper prices. The remote location and lack of development pressure ensured exceptional survival, including rare cobbled ore floors.
- One of the most important 'eastern' tin mines which includes an early 20th century complex of exceptional integrity including the engine house of the last large pumping engine to be erected in Cornwall.
- The survival of the remains of the Liskeard & Caradon Mineral Railway constructed primarily to transport copper-ore southwards to the port of Looe.
- A landscape of dispersed mining settlements with well-preserved mineworkers' smallholdings around Pensilva.
- The site of anciently important tin streamworks.
- The survival of historically important, well-preserved tin openworks at Stowe's Hill.
- A distinctive migration pattern of men from the declining mines around St Austell, Gwennap and Breage flocking to the district, the absence of local housing for them leading initially to the setting up of huge temporary camps.
- The rare copper dump-scapes encircling Caradon Hill.
- The existence of notable copper-rich substrates supporting rare lower plants (bryophytes).

Supporting discussion and character statements

Geography and landscape

This is a fully moorland landscape, except around its fringes, dominated by the shallow soils and near-surface granite which outcrops on Caradon Hill, Rillaton Moor and Stowe's Pound. The Area is high and remote, exposed and windswept, with big skies; deeply-incised valleys lead away from it to the east (Marke Valley and the Darley Valley). The Withybrook: boggy, broad, wide and anciently streamed for tin stretches away to the north; smaller valleys run through Tremar Coombe and Craddock Moor to the south and south-west, but most of the Area is high, flat and windswept in character, very much part of Bodmin Moor. Though anciently mined for tin, the district is best known for its boom copper period; unusually, in the mines which surround Caradon Hill, the copper is almost entirely hosted within the granite of Caradon Hill.

Farming within the Area is extensive, rather than intensive, based on roughland stock grazing.

Views

The Caradon Area can be readily identified from the east, from the south and the south-west, rising as it does from the surrounding plain, but from the surrounding moors, it is less distinct. Two hills – Caradon and Stowes - frame the Area to its north and south. From Caradon Hill there are spectacular views of the lower ground to the south, with many of the mine sites visible from some distance, and of the sweep of Rillaton Moor and Stowe's Hill to the north; from Stowe's Pound there are views of the moors to the north and west, as well as the huge sweep of landscape to the east across the valley of the River Lynher towards Kit Hill (within Area A10).

- **History and character**

Mining

In Cornish mining terms, this Area was a late starter despite its long earlier history of tin streaming and mining. Mining in the 19th century was relatively short-lived here (mid 1830s to late 1880s) and based very much on copper, though its last gasp was once again tin. Despite the anciently-settled landscape which underlies that created by mining, everything man-made to be seen here was created during those five decades – a new railway, new tramways, new mines, new settlements, new roads, and new quarries. The closure of the mines brought the closure of the railway and all the other industries which depended on it and the remoteness of the Area ensured that many of its mining structures have survived, giving it a distinct identity, one which is very different from the remainder of Bodmin Moor.

Transport

The Liskeard and Caradon Railway and its branches were crucial to the development of the Area, and the evidence for this network is well-preserved, underpinning trail routes through the Area. There are also several surviving mine tramways and roadways.

Settlement

The settlements in and surrounding the Area are generally small, two storey, undeveloped. Minions (formerly Cheesewring Railway) is rugged, has the feeling of a frontier settlement, but those on the fringes of the Area have a more comfortable, mature feel.

Smallholdings

Smallholdings are understood to be limited within this Area to the land to the south-east of Pensilva, though further research may reveal additional historic smallholding activity elsewhere.

Great houses

There are no great houses or embellished town houses within this Area though there are good examples of large mine captains' houses.

Mineralogical/ecological importance

Caradon mines, in particular Phoenix, South Caradon and Marke Valley, are notable for their specimen mineralogy and important dumps and underground exposures remain. Extensive mining activity has left mineral rich substrates throughout the Area, and two sites – Phoenix United and Crow's Nest (South Caradon and West Caradon) have been designated SSSIs.

Historical development and character

The Caradon Area experienced a classic boom to bust history, its industry and settlements developing very rapidly in what remained essentially open, unpopulated moorland or moorland fringe. This new workforce was large but temporary, and when mining ceased depopulation occurred on a huge scale, leaving the Area now almost empty of people. Rapid abandonment of mining activity, the return to extensive pastoral agriculture and the remoteness of the area has resulted in the survival of a high proportion of its mine buildings.

Communications

There were good rail links to this Area in the past and so the roads were never upgraded; the modern roads to and around the fringes of the Area are small-scale and enhance its sense of isolation. Whilst there are few footpaths, the moors are open access land and can be walked for miles in most directions. The main communication routes on foot are via the former railway lines which thread through the Area, connecting its north and south parts.

Notable Sites

South Caradon, Gonamena, the Liskeard and Caradon Railway, Marke Valley, Wheal Jenkin, South Phoenix, Prince of Wales, Phoenix United, Stowe's Hill, the Hurlers, the Witheybrook streamworks, Goldiggings Quarry, New Phoenix

Interpretation Sites

Houseman's engine house (Area Centre) South Phoenix Mine; Liskeard Museum (outside the Area boundary).

The Caradon Hill Mining District - Area Character Statement

Occupying the south-eastern corner of Bodmin Moor, the Caradon Hill Area is treeless, elevated, and prominent in the surrounding landscape, its boundaries readily apparent. The site of anciently important tin streamworks, the economy of this Area had long been based on sheep farming when, in the mid-1830s, rich deposits of copper were found under the eastern slopes of the upper Seton Valley. The mining development which followed was explosive, making fortunes for local landowners, whilst shares in South Caradon Mine rose from less than £5 to over £2000 each in less than 12 months. Men from the declining mines around St Austell, Gwennap and Breage flocked to the district in droves, the absence of local housing for them leading initially to the setting up of huge temporary camps. Soon, however, a building boom was in full swing, and new mining hamlets were becoming established around the fringes of Caradon Hill.

Remote from the coast, the success of this mining district was dependant on the rapid establishment of transport links to the coast at Looe, and within a decade the mule trains which had hauled timber and coal up from the canal wharves at Moorswater and copper ore back for shipping to South Wales had been replaced by a gravity and horse-drawn railway (locomotives were introduced in 1860), initially terminating in the Seton Valley. This, in turn, allowed the development of important granite quarries around the railhead known as Cheesewring Railway (now Minions), Cheesewring Quarry's annual output rising to 12,000 tons by the late 1850s. Once the locomotive-hauled section of the railway had been extended around Caradon Hill to replace the Gonamena Incline, further branches were constructed to allow quarries to be worked at Kilmar and Bearah Tors and to connect Phoenix United, one of Cornwall's great mines, to the network.

In the years between 1836 and 1890, the mines of the district produced nearly 65,000 tons of copper ore and 16,000 tons of black tin, but copper prices had been dropping throughout this period, the value of the copper ore in 1885 being less than 30 per cent of that in the mid-1850s. The smaller mines were the first to close, but when South Caradon folded in the late 1880s the other mines swiftly

followed. An attempt to restart mining at Phoenix United in 1907 was a brave and very expensive, but ill-advised and short-lived, failure.

Once the mines had closed, the viability of the railway and the quarries which depended on them was gone for ever. Closure followed closure, and the industrial workforce abandoned the area almost as quickly as they had arrived, leaving the uplands once again to sheep and skylarks. The whole process from boom to bust had lasted barely half a century.

Because of the remoteness of the area, the preservation of the evidence for this mid-19th century moorland bonanza is exceptional. Ruined engine houses and chimneys punctuate the skyline around Caradon Hill, extensive cobbled floors in the Seton Valley set at the foot of towering bleached white waste dumps mark the workplace of the hundreds of women and children who dressed the copper ore, whilst the trackbed of the Liskeard and Caradon Railway winds its way northwards from Liskeard around Caradon Hill, past Stowes Hill and far up into the moors beyond Kilmar Tor, where its abandoned extension to Launceston ends abruptly in a marsh. In the southern and eastern part of the Area, hamlets of mineworkers' cottages with their distinctive non-conformist chapels have become desirable places to live; Pensilva, site of one of the original mining camps, is now a thriving village.

Houseman's engine house at South Phoenix is now a small interpretation centre, whilst the drinking shops established for miners, quarrymen and railwaymen have been transformed into comfortable pubs and cafes at Minions. The landscape nearby is open, easily walkable, its sites readily accessible via the track of the old railway which once took the ore and granite down to the sea for shipment.

10. Area A10. The Tamar Valley Mining District with Tavistock

Statement of Outstanding Universal Value

Area A10 (50008'53"N, 05039'21"W) - the most easterly and the second largest of the WHS Areas, this mining district A10 (i) and outstanding mining town A10 (ii) lie in the Tamar Valley Area of Outstanding Natural Beauty and comprises both valley and upland settings for tin, copper, silver-lead and arsenic mining, ore-processing and smelting.

- The mineral transport network that links with, and includes, the highway formed by the River Tamar is exceptional. It includes the unparalleled group of Tamar industrial mineral river quays (e.g. Morwellham), a mine railway (Devon Great Consols), a mineral railway (East Cornwall Mineral Railway), a mineral canal (The Tavistock Canal, including a section through the Morwelldown Tunnel) and an ancillary industries canal (Tamar Manure Navigation), the first three possessing innovative and characteristic nationally rare inclined planes (a feature of the Valley), as well as numerous mine quays, mule tracks and mine roads.
- Tavistock Town is the most extensively re-modelled metal mining town in Britain. Devon Great Consols and its neighbour's spectacular development brought enormous profits to the Dukes of Bedford who owned the land on which they were sited. In turn, generations of the Dukes of Bedford invested in the growth and remodelling of Tavistock.
- The most important and extensive survivals of arsenic refineries and calciners in the WHS (examples at Devon Great Consols [DGC], Gawton Mine, Okel Tor, Greenhill Works, Wheal Benny and at Coombe). By the last decades of the 19th century DGC and Gawton were supplying 50 per cent of the world's arsenic and their dump-scapes, leaning Gawton stack and refinery remains are exceptional.
- The presence of industrial housing, notably the 'Bedford Cottages': terraces and blocks of embellished tied housing provided by the Bedford Estate for its workforce, there being no industrial settlements within the surrounding, long-farmed landscape, and no land on which to lay out smallholdings or new small farms. Devon Great Consols possesses a remarkable assemblage of mine housing at the greatest copper mine in the Site.
- The scale, size, number and industrial significance of water-powered sites, and their extensive survival, is greater here than anywhere in the Site.
- Tavistock's iron foundries.
- The Area includes some of the best and most diverse smelting remains in the Site, including silver-lead refining (at West Harrowbarrow and Weir Quay) and tin smelting (at Weir Quay, one of the best three surviving reverberatory furnaces in Britain).
- The Bere silver mines (including South Tamar Consols which mined under the river and was eventually flooded) on the Bere Alston peninsula are amongst the earliest to have been worked as true mines anywhere in Britain. Tin is essentially the story of Cornish Mining until 1700 whilst in Devon this is punctuated by medieval Silver mining by the Crown, the rich silver-lead deposits of the Bere Peninsula being exploited from the early 13th century. These mines are also understood to have originated the 'tribute and tutwork' system used throughout Cornwall and west Devon in later centuries.
- Market gardening is a unique and distinctive element of the cultural history of the landscape. The group of Tamar lime kilns, ubiquitous to the Tamar quays, are exceptional; three having inclined planes.
- The riverside and steep valley sides sited mines where the lodes outcropped on its banks and where adit drainage de-watered great elevations of ground (e.g. at Gunnislake Clitters).

- Miners' settlements, such as Gunnislake and Luccombe grew haphazardly in amongst the mines themselves.
- The Area includes some of the only true silver mines in Britain such as Wheal Brothers, Wheal Langford and East Wheal Vincent and Wheal Newton.
- The Area is noted for its internationally significant mineralogy.

Supporting discussion and character statements

Geography and landscape

An Area of three distinct parts; to the west is the high granite ridge of Hingston Down and Kit Hill; at its centre, the deep, steep-sided valley of the Tamar cutting across the grain of the landscape and dividing the downs and moors to the west from the Devon plateau to the east. The Bere Peninsula adds further landscape character in the south of this Area. The valley is lush, green and deep, ever-present in the landscape. The river divides two landscapes linked only by their underlying geology; whilst the valley landscape is green and hidden, a transport and communications artery, the land to the west is elevated, exposed, Cornish; that to the east productive Devon farmland. The farms and field sizes are noticeably larger in west Devon than across the Tamar and in Devon there are no unplanned scatters of miners' dwellings; where there are cottages they are usually planned Bedford cottages. In a few places here and there are other valleys, tucked away like Danescombe. Tavistock lies on the Tavy but also looks west to the Tamar and east to Dartmoor. The diversity of mineralogy is notable and, commercially, silver-lead, arsenic, tungsten and zinc were extensively mined in addition to copper and tin.

The agricultural landscape at the edges of and surrounding this Area is marked by large pasture fields, the lower land being a patchwork of large pasture and arable enclosures.

Views

The western part of the Area is easy to recognise in the landscape – the high ground of Hingston Down and Kit Hill being readily distinguishable from the north, west and east, but the valley itself is often hidden, glimpsed only in fragments. Tavistock opens up as it is approached from most sides, but cannot be seen as a whole from any single viewpoint. In the west, the views from Kit Hill and Hingston Down are extensive, taking in many of the mine sites and from which the line of lodes can be defined. To the west Caradon Hill (Area A9) and Bodmin Moor crown the horizon. Once in the Valley, all views are constrained by the twists and turns of the river and the woods which cloak its banks. Settlements and sites appear only as a turn in the river is negotiated, and the relationship between places is sometimes difficult to grasp. Within the wooded parts of the Area, views are constricted or blocked. The views west from high on the eastern bank at Gawton are of fragments of the river and of its settlements and quays, of Hingston Down and Kit Hill beyond. Within Blanchdown Plantation, the dense conifers block most views and only where these have been clear-felled do the spectacular views out over the river become apparent. Tavistock is set very much within the Tavy Valley – the town is aligned east-west with rising ground to the north and south and looks in on itself and down the vistas deliberately established during its expansion and remodelling in the 19th century.

- **History and character**

Mining

A mining district with a long pedigree and which shared to a degree in the upsurge in mining which took place through the mid-19th century, but whose high point was around the second and third quarter of the century when undertakings like Devon Great Consols were amongst the largest and most important workings for copper and arsenic in the Cornubian Orefield. There were small and medium-sized mines scattered throughout the landscape on the Cornish side of the river, though on the Devon bank they are more or less confined to the river bank. Though tin and wolfram were mined, arsenic and copper dominated. John Taylor and the Dukes of Bedford were the key players in the development of the Devon mines, ports and communications systems, whilst the Duchy of Cornwall and the Williams family played significant roles to the west of the river.

Survival of the evidence for mining is patchy. In places engine houses and associated buildings are well preserved; elsewhere an occasional chimney, a fragment of walling has survived, and many of the survivors are hidden in wooded valleys, tucked away. Blanchdown Plantation is a huge carpet of dark green which hides many secrets, though the requirement that most mine buildings had to be cleared away on abandonment resulted in the near-eradication of an extraordinary complex of structures. An extensive arsenic complex, built subsequently during the 1920s, remains as testimony to the importance of that semi-metal to the Tamar Valley.

Transport

Quays and wharfs were everywhere and the river was the principal transport artery of the Area, though supplemented by the Tavistock Canal and the East Cornwall Minerals Railway. Much of the evidence for these sites survives in good condition, and many of the principal quays are still in use, as is the southern part of the ECOMR.

Ancillary industry

Brickworks exploited the altered granitic clays of Hingston Downs and studded its spine, whilst an important arsenic works was sited at Greenhill, whose chimney is still a landmark, despite being reduced in height by a lightning strike. The three iron foundries in Tavistock are important both historically and in terms of their high degree of survival in their principal buildings.

Settlement

The farmed landscapes could not be more different – smallholdings on the Cornish side, large estate farms on the Devon side, and likewise the rows, isolated cottages and absence of developed settlements (with the exceptions of specialised settlements like Gunnislake – a bridging point, and Calstock – a port which characterises the Cornish landscape, are entirely absent to the east of the river, where almost identical Bedford workers' cottages stand in neat groomed rows, but there are no hamlets and no smallholders' cottages. Tavistock is an attractive, busy, fully- developed prosperous small town with elegant houses and many public buildings which seems to have forgotten its industrial past, despite the surviving foundry buildings at its eastern end.

Smallholdings

There are significant areas of mineworkers' smallholdings on both the northern and southern slopes of Hingston Down, and these and their associated cottages give this part of the Area much of its character.

Great houses

The only great house within the Area is Cotehele, the historic seat of the absent Edgcumbes, though Tavistock has many fine embellished town houses and villas.

Mineralogical and ecological importance

The Tamar Valley is noted for its specimen mineralogy, mostly copper secondaries from mines such as Bedford United and Old Gunnislake (where world class specimens of the copper uraninite torbernite also occurred), and fluorite from the Bere Peninsula mines. There are significant mine dumps within the Area with important mineralogy, though none have been designated as SSSIs. Underground exposures are important too.

Historical development and character

An Area of many contrasts, of three different characters, and linked by the presence of the Tamar. The history and character of the landscape to the west of the Tamar is shared with much of the rest of Cornwall, and it has shared its post-industrial history and landscape development. The Tamar has changed little, though has become much quieter, its industrial past softened. Tavistock has thrived as a prosperous small market town.

The evidence for industry can still be seen in much of the land to the west of the Tamar and along the banks of the river, though there are now few large, well-preserved sites, Gunnislake Clitters being a notable exception. Nevertheless, the industrial history of this Area is still very much a presence in the landscape, one which was (but is now less so) immediately apparent on cresting the hill at Drakewalls going west on the Callington road.

Communications

There is an important west-east spine route across Hingston Down and Gunnislake New Bridge to Tavistock, but most other road communication is via a tangle of small lanes. The river was always the main communications route. The East Cornwall Mineral Railway, from Kelly Bray to Calstock (finally linking with Bere Alston following the construction of the Calstock Viaduct) was significant for many mines and ancillary industries. There are almost no footpaths, even in the Cornish part of the Area. At present, many of the mine sites are relatively inaccessible.

Notable Sites

Holmbush, Kit Hill, New Consols and Lockett, Wheal Benny, East Kit Hill, Wheal Langford, Wheal Brothers, East Cornwall silver smelter, Wheal Edward, Gunnislake Clitters, Gunnislake, Prince of Wales Harrowbarrow, Calstock, Cotehele and its Quays, Devon Great Consols, Morwellham and the George and Charlotte Mine, New Quay, Okel Tor, Weir Quay with its lead and tin smelters, Gawton, the Tavistock Canal, Tavistock Bedford Square, Tavistock Canal basin and the Tavistock foundries.

Interpretation Sites

Morwellham Quay, Cotehele Quay and Tavistock Museum (with proposed Key Centre).

The Tamar Valley Mining District with Tavistock - Area Character Statement

This large Area links together typical sections of Cornish mining and smallholding landscapes to the west, the moorland-edge town of Tavistock to the east and the industrial communications highway formed by the River Tamar which runs between them. As a result, this is an Area of many contrasts, yet one whose elements are linked together by the rich mineral lodes which outcrop on both sides of the Valley and whose exploitation shaped the development of the whole of the area during the industrial period.

Topographically, the western half of the Area is dominated by the granite ridge running eastwards from Kit Hill along Hingston Down towards the river, the higher ground along its southern flanks laid out with miners' cottages and the patchwork fields of their smallholdings, together with the occasional mining hamlet; its northern flanks slope down through larger recently-enclosed fields towards the medieval hamlet of Latchley and the miners' settlement of Lockett, both sited next to wide meanders in

the river. The high ridge sited many mines, including Holmbush, Kit Hill and South Kit Hill, East Kit Hill, Princess of Wales, Wheal Sisters, Wheal Brothers, Wheal Langford and East Wheal Vincent, Prince of Wales, Harrowbarrow, Hingston Down and Drakewalls, evidence for many of which still survives.

The Tamar, dividing Devon from Cornwall, is wide, deeply-incised, and dominates the landscape. The three industrial settlements along its banks, Gunnislake, Calstock and Morwellham, are the largest in the western part of the Area. The first was historically the lowest crossing point on the river and near the limits of navigation, the others were important industrial ports, their development being crucial to the import of the materials needed by the nearby mines and for the export of the Area's considerable output of copper tin and arsenic ore. Each is distinctive and retains considerable historic character. The more sheltered land nestled in the meanders of the river has long supported agriculture, and the lower slopes are scattered with small farms whose soft fruit industry became an important part of the local economy.

Many of the most important mines in the Area were sited near to the river, where the lodes outcropped on its banks, and adit drainage was readily available. On the Cornish bank of the river these include New Consols, Wheal Benny, Gunnislake Clitters, Old Gunnislake, Okel Tor, Danescombe and Cotehele Consols, whilst a little away from the river were Calstock Consols, Wheal Zion, Wheal Edward, and Wheal Arthur. On the Devon bank, Devon Great Consols and the Bedford United Mines were the largest and richest copper mines anywhere within the Site, the extraordinary amounts of ore they produced outstripping all other ventures; by the last decades of the 19th century they were supplying 25 per cent of the world's arsenic. To the south are Russell United, George and Charlotte, Gawton, Tuckermarsh, South Ward, North and South Hooe, Furzehill and South Tamar Consols, the last of this group on the Bere Alston peninsula having been amongst the earliest to have been worked as true mines anywhere in Britain, their rich silver-lead deposits being exploited by the Crown from the 13th century.

As elsewhere within the Site, affordable and effective bulk transport was to prove critical to the exploitation of the mineral resources of this Area. The proximity of the readily navigable River Tamar proved an enormously important resource, and spurred the development (or in some cases the remodelling) of many small quays along its banks, two of these (Calstock and Morwellham) developing into substantial minerals ports, the former being the terminus of the East Cornwall Minerals Railway (and later being served by the Callington branch of the London and South Western Railway), whilst Morwellham was linked to Devon Great Consols and the Russell and Bedford United Mines by an extensive mine railway and to Tavistock by John Taylor's pioneering canal. A further short canal (the Tamar Manure Navigation) was cut at Hatches Green to allow river access as far upstream as Gunnislake.

Despite the scale of mining activity within the Area, though Tavistock expanded, no large centres of population developed, whilst associated industries on the Cornish side of the river being limited to specialised undertakings like quarries, silver-lead refining (at West Harrowbarrow), arsenic refining (at the Greenhill works and at Coombe) and the clayworks and brick and tile works which stud the spine of Hingston Down, or the later industries associated with the growing and export of soft fruit. On the Bere Alston peninsula, Weir Quay sited an important silver-lead smelting house and a tin smelter. The majority of the materials needed by the mines and their workforce were always brought via the Tamar from Plymouth, however.

Most of the landowners who benefited from the considerable mineral wealth generated within this Area did not live here, the exception being the Edgcumbe's of Cotehele, whose medieval manor, estate and nearby quay lie next to the river at the south-western end of the Area. As with many of the other great houses of Cornwall, Cotehele's gardens were extensively remodelled and replanted using income from mining carried out on its estates. Both the house and spectacularly sited gardens are now managed by the National Trust.

Tavistock lies 5.5km to the north-east of Morwellham, to which it is connected by the youthful John Taylor's 1817 canal, built to service his mines to the north of, and surrounding Tavistock, but rapidly becoming a vital communications artery linking Tavistock to the River Tamar. Tavistock was originally

the site of an abbey established in 961, but a town developed here at the western end of the highway which crossed Dartmoor from Exeter. Given a market charter in 1116, Tavistock has served the surrounding moorland and agricultural hinterland ever since, its status being confirmed when it became a stannary town in 1281.

As mining developed around Mary Tavy and to its immediate south, Tavistock began to evolve rapidly, a process which was accelerated as the mines which became Devon Great Consols and its neighbours began their spectacular development, bringing enormous profits to the Dukes of Bedford (the Russells having their family seat at Woburn Abbey) who owned the land on which they were sited. In turn, generations of the Dukes of Bedford invested in the growth and remodelling of Tavistock creating substantial public buildings, planning new villa developments, parks and a new Corn Market. Banks, substantial shops and other commercial premises, foundries and ironworks quickly appeared, and there was a rapid expansion of the residential areas of the town from a period when it was particularly noted for its overcrowding. From 1859, Tavistock was linked to the main line railway network, eventually being served by both the Great Western Railway and the London and South Western Railway.

The closure of the local mines soon brought the closure of Tavistock's three iron foundries, and these are now converted to other uses. Tavistock today is a busy and attractive small town, still very much the commercial and market hub of the region within which it stands, a gateway to Dartmoor National Park and a dormitory for Plymouth, 11 miles to the south. Its close involvement with the mining activity which took place only a few miles to the north and west are barely apparent within the town today.

A distinctive feature of both Tavistock and of some of the industrial settlements on the Devon bank of the river and at Mill Hill are the 'Bedford Cottages' – short terraces of embellished tied housing provided by the Bedford Estate for its workforce, there being no industrial settlements within the surrounding, long-farmed landscape, and no land on which to lay out smallholdings or new small farms. These distinctive structures are all Listed buildings.

Although there is a National Trust presence at Cotehele and whilst Kit Hill is a Cornwall Council managed Country Park, the Tamar Valley Area of Outstanding Natural Beauty (AONB) designation has made it possible to plan the strategic management of the Valley as a whole and has helped to give the area a coherent identity, something which is particularly important given that this Area falls within the jurisdiction of one unitary, one county and one borough council. The existence of a branch line railway and the presence of the navigable river allow access into key parts of the Area by means other than private cars.

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