

LEE MOOR

INSET PLAN 37

LOCATION

(NGR SX 566612)

This extensive Consultation Area contains a complex of China Clay workings centred around the village of Lee Moor, stretching north-westwards to Cadover Bridge and south-eastwards to Quick Bridge on the Cornwood Road. Parts of the planning permission area straddle the Dartmoor National Park Boundary, and a small permission area and the southernmost extension of the Mineral Consultation Area lies within Plymouth Unitary Authority Boundary.

GEOLOGY

The northern and central parts of the Consultation Area are composed of granite emplaced into the surrounding Carboniferous rocks during the Variscan Orogeny. The southern, south-western and south-eastern edges of the Consultation Area are composed of Upper Carboniferous slates and gritstones. These have been heavily altered by the heating effects of the nearby granite intrusion (forming a metamorphic aureole) where the country rocks show a succession of mineral assemblages reflecting the degree of heat and pressure that they were subjected to. Within these rocks are veins of mineralisation originating from the effects of the intrusion containing such minerals as Cassiterite and Wolframite (ores of tin and tungsten).

Large parts of the granite body within the Consultation Area contain kaolinite derived from the alteration of the rock's feldspar component. It is now understood that this is a result of a multi-stage process involving the alteration effects of both migrating superheated fluids and gasses which occurred soon after the granite was intruded, and later deep weathering caused by migrating lower temperature surface waters.

PLANNING HISTORY

China clay working has been carried out in south Dartmoor for over a century and the scale of working has gradually increased with the development of better mining equipment. A number of planning applications have been granted for the working of china clay and disposal of waste. The most important of these were granted in the 1950s. Subsequent permissions have allowed extensions to the quarrying and tipping areas - one following a major public inquiry in the early 1970s. Other permissions have allowed the erection of processing works and new buildings, and the carrying out of ancillary operations.

ROMP STATUS

The three china clay sites, Lee Moor, Headon and Shaugh are all classified as Active Phase I sites. All three ROMP submissions were received on 23 October 1998 and the MPAs have required additional information, which included a request for Environmental Statements, before determination can proceed. In June 2001 the operators announced that they would forego their right to win and work and/or tip mineral waste in areas X, Y and Z within the Dartmoor National Park boundary. Imerys also announced an intention to submit an application to extend the Lee Moor Pit a short distance north-eastwards towards the boundary of the National Park. Both the planning application and Environmental Impact Statements have not yet been submitted.



Lee Moor Pit with sand conveyor.

DESCRIPTION OF OPERATIONS

There are five quarries in production within the complex. In some of the pits, china clay is washed out of the quarry face using high pressure water jets, sprayed from remotely controlled monitors. The resultant slurry is drained by gravity to the lowest part of the quarry before being pumped out of the pit and transported along pipelines to the various processing installations at Portworthy and Headon. Some clay is piped to Marsh Mills on the edge of Plymouth for drying. In addition to china clay, the slurry also contains quartz sands and white mica as well as broken granite fragments and other minerals. This waste material is separated from the lighter kaolin by various settling processes, before being disposed of in tips.

The hydraulic mining operations at Lee Moor were changed to dry mining techniques in 2001. Articulated trucks, working 12 hour shifts seven days a week, are used to haul the dry matrix (kaolin-bearing rock and associated waste rock) from the quarry face to the processing plant, where it undergoes similar processing as the wet workings. Much of the dry waste is utilised as secondary

Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004

aggregate, with the remainder transported by trucks to surface tips.

The kaolin slurry is dewatered by deflocculation, settling and filter pressing and then dried to a fine powder before being bagged or loaded into bulk containers for sale.



Herreschoff Kiln Buildings at Portworthy.

COMMENT

- Mineral Working Area (excluding those areas covered by legal agreements prohibiting future mineral development).
- The south-east and south-west parts of the Mineral Consultation Area are designated as Areas of Great Landscape Value.
- The Mineral Consultation Area lies within an area classified by the Environment Agency as a minor aquifer.
- There are a number of listed buildings within the Consultation Area. In addition, the Consultation Area lies adjacent to Newnham Park which is an area of parkland with an historic deer park.
- The China Clay workings lie within the boundaries of three Mineral Planning Authorities. Areas with planning permission to win and work minerals and tip mineral waste remain within Dartmoor National Park, and the Marsh Mills processing plant, which lies at the south-western end of the clay pipeline, now lies within the Unitary Authority boundary of Plymouth City Council.
- Need to assess the occurrence of the relative grades of china clay throughout the permission areas
- Need to assess the archaeological interest in any future proposals and as part of the ROMP process. Shaugh Moor and Crownhill Down are of particular importance.
- Need to assess the potential for backfilling.
- The Consultation Area contains very large and intrusive tipping areas that markedly affect the surrounding landscape.

- Need to address the problem of dealing with huge amounts of china clay waste in the context of the environmental problems associated with bulk transport.
- Restoration of the final tip and pit areas, and after-uses for the land, will require consideration having regard to the publication 'Revegetation and Landscaping of China Clay Waste' (DoE Publications).
- The Mineral Consultation Area abuts the South Dartmoor SSSI and Dartmoor cSAC. Blanket bogs and wet heathland are internationally important features of the cSAC. In addition, dry heath and acid grassland and valley mires are nationally important features of the SSSI. The effect of current and future mineral development on these features will need to be assessed under Regulation 50 of the Habitats Regulations 1994.
- The majority of the upland areas of the Inset Plan contain complete relic historic landscapes and any proposals to work minerals or tip mineral waste would require the most serious archaeological consideration.
- There is substantial and sensitive archaeological and industrial archaeological interest throughout the Mineral Site. Shaugh Moor and Crownhill Down have exceptionally well preserved archaeological landscapes.

LOCAL LIAISON GROUPS

A Local Liaison Group was established for the Cornwood/Shaugh china clay operations in Summer 2003. It is anticipated that another group will be established for the Lee Moor site during 2004.



China Clay waste tips, Lee Moor.

Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004

PROPOSALS

PROPOSAL: INSET 37.1

The MPA will pay particular attention to the need for high quality restoration and landscaping of the workings due to the scale of the operations and their proximity to the National Park.

PROPOSAL: INSET 37.2

The MPA will ensure that a comprehensive scheme of archaeological survey evaluation will be required in advance of the consideration of any future proposals.

PROPOSAL: INSET 37.3

The MPA will ensure that a full survey of nature conservation interests and the potential for wildlife habitat creation will be included within any proposed restoration/aftercare measures.

PROPOSAL: INSET 37.4

The MPA will consider the provision for the conservation of appropriate geological exposures as part of any future restoration proposals for the Lee Moor site.

PROPOSAL: INSET 37.5

The MPA will encourage the increased use of china clay sand as a source of secondary aggregate.

PROPOSAL INSET 37.6

In considering any new proposals for the disposal of china clay waste, the MPA will encourage the backfilling of disused pits in order to reduce the impact of tipping above ground, and to secure the reclamation of disused pits or parts of pits, and where such backfilling does not sterilise minerals or otherwise prejudice their working.

PROPOSAL: INSET 37.7

The MPA will encourage the development of best practice for the design, construction, landscaping, restoration and aftercare of all china clay working and tipping sites, including the re-profiling of existing tips.



Aerial view of clay thickening plant, near Cholwichtown Pit.

PROPOSAL: INSET 37.8

The MPA will establish and implement a comprehensive extraction and restoration programme to reduce conflicts with significant environmental, archaeological and historic landscape interests.



Tipping at Lee Moor.

PROPOSAL: INSET 37.9

The MPA will seek to ensure the area used for china clay processing plant is not increased, and that any redundant areas are restored at the earliest possible opportunity.

Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004



Terraced tipping, Lee Moor.



Inflow pipe of the Portworthy Mica Dam.



Portworthy processing plant and mica dam.

Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004



Portworthy Mica Dam with clay thickening plant beyond and tip T2 on the skyline.



Tipping of waste.






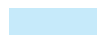





CONSTRAINTS PLAN 37

LEE MOOR

Environmental Constraints

(for information only)

Note: To ensure accuracy of information it is advised to refer to the original data source for each constraint (see Appendix B.1)

-  Planning Permission Area
-  Archaeological Site (See note on map)
-  Area of Great Landscape Value (AGLV)
-  County Geological Site (RIGS)
-  County Wildlife Site
-  Floodplain
-  Scheduled Ancient Monument
-  Listed Building
-  Public Right of Way
-  Candidate Special Area of Conservation (cSAC) (See note on map)
-  Site of Special Scientific Interest (SSSI) (See note on map)

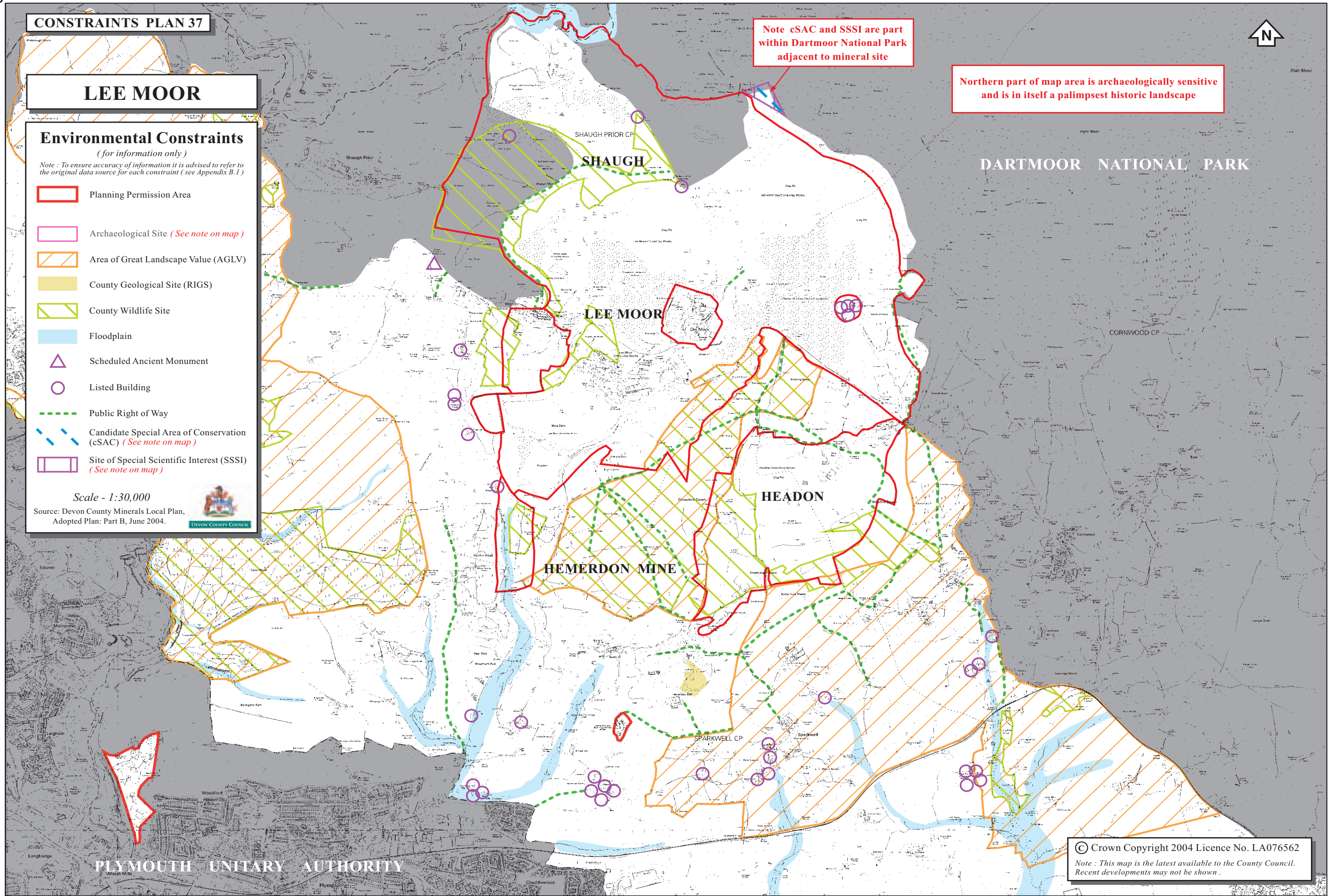
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Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004.



Note cSAC and SSSI are part within Dartmoor National Park adjacent to mineral site

Northern part of map area is archaeologically sensitive and is in itself a palimpsest historic landscape



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Note: This map is the latest available to the County Council. Recent developments may not be shown.

PLYMOUTH UNITARY AUTHORITY

INSET PLAN 37


Areas with planning permission for mineral development within Dartmoor National Park (not part of the Plan area)

Planning permission for pipeline

DARTMOOR NATIONAL PARK

HEMERDON MINE

LEE MOOR



KEY

- Planning Permission Area (Illustrative only)
- Adjacent Planning Permissions of Inset Plan 38
- Planning Permission Area with legal obligation / agreement prohibiting mineral development
- Mineral Working Area
- Mineral Consultation Area
- Buffer Zone
- Area of Mineral Resource

Scale - 1:30,000

Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004.

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PLYMOUTH UNITARY AUTHORITY

Part Area of Inset Plan 38

Source: Devon County Minerals Local Plan, Adopted Plan: Part B, June 2004