P. Overden DSB.

FERNHURST / NORTH PARK

WEALD IRON RESEARCH GROUP

Winter 1973/4 scheme for revising information on water-powered sites included by E. Straker in Wealden Iron (1931).

The following points are designed to produce a rapid survey of these sites, many of which have not been visited in recent years. You will be aware that Straker's site-comments were unsystematic, and, beyond this, modern developments such as tree clearance or planting, bulldozing, or building, have made major changes.

Please ensure an adequate National Grid Reference.

---

1. Name of site. State if that used by Straker is in any way misleading.

FERNHURST or NORTHPARK S 426

2. National Grid Reference (2 letters, 6 figures).

SU 878283

3. Access. State problems of terrain or land—use. (If the name of owner and tenant is easily available, this could be useful.)

~~Mrs Hollist. Vanlands~~
~~Vann Common, Haste Fernhurst~~ ~~Haslemere 53323~~ 0428
Now Mr & Mrs Barnes
1, Vanlands
Vann Common
Fernhurst
0428 54058

Approach via Bridleway through Lower Lodge Farm

4. Features on the ground.

Main Dam Length

90 m.

Height (estimate from both upstream and downstream sides if possible.)

4 m.

Condition (i.e. gaps, erosion etc; are there any good cross-sections in bulldozed gaps? If so, do these show the construction materials used at different stages?)

Complete but flood damage has broken late spillway to reveal earlier construction.

Pen-ponds - is there any evidence for dams upstream from the main supply pond?

No.

Mine pits - are there any close by?

Mine pit Copse

The area below the dam
Clear indications of buildings, wheel-pits, sluices, etc.

No much altered in the appropriate location.

Surface irregularities

Several but nature not evident.

5. Slags and cinders. (Keep samples.)
- Blast furnace slags (glassy). How much?
What is the general colour range? (In particular are there significant quantities light in colour?)

Large quantity of greenish opaque slag spread about (see notes) some carted for road metal.

- Forge cinders (generally rusty, bubbly, but varying widely in form.)
How much?

Are there many large cakes ("furnace bottoms") over, say, 18"x 18"?

~~

- Ore - any scatter?

~~

- Purple shelly limestone - any?

~~

Other surface finds (pottery, clay pipes, timbers, etc.) Note these

~~

6. Are there any buildings, industrial, domestic or agricultural, apparently dating from the likely period of the site? Note briefly.

None but see notes

7. Has the site been re-used (e.g. corn or fulling mill)?

Private Water supply filter beds.

8. Do you know of any published or unpublished excavation which may have taken place? Note details, in particular of the excavator and location of finds in the case of unpublished work.

None

9. Is the site apparently threatened in any way?

No.

10. Do you know of any documentation missed by Straker? State details and whereabouts, if known.

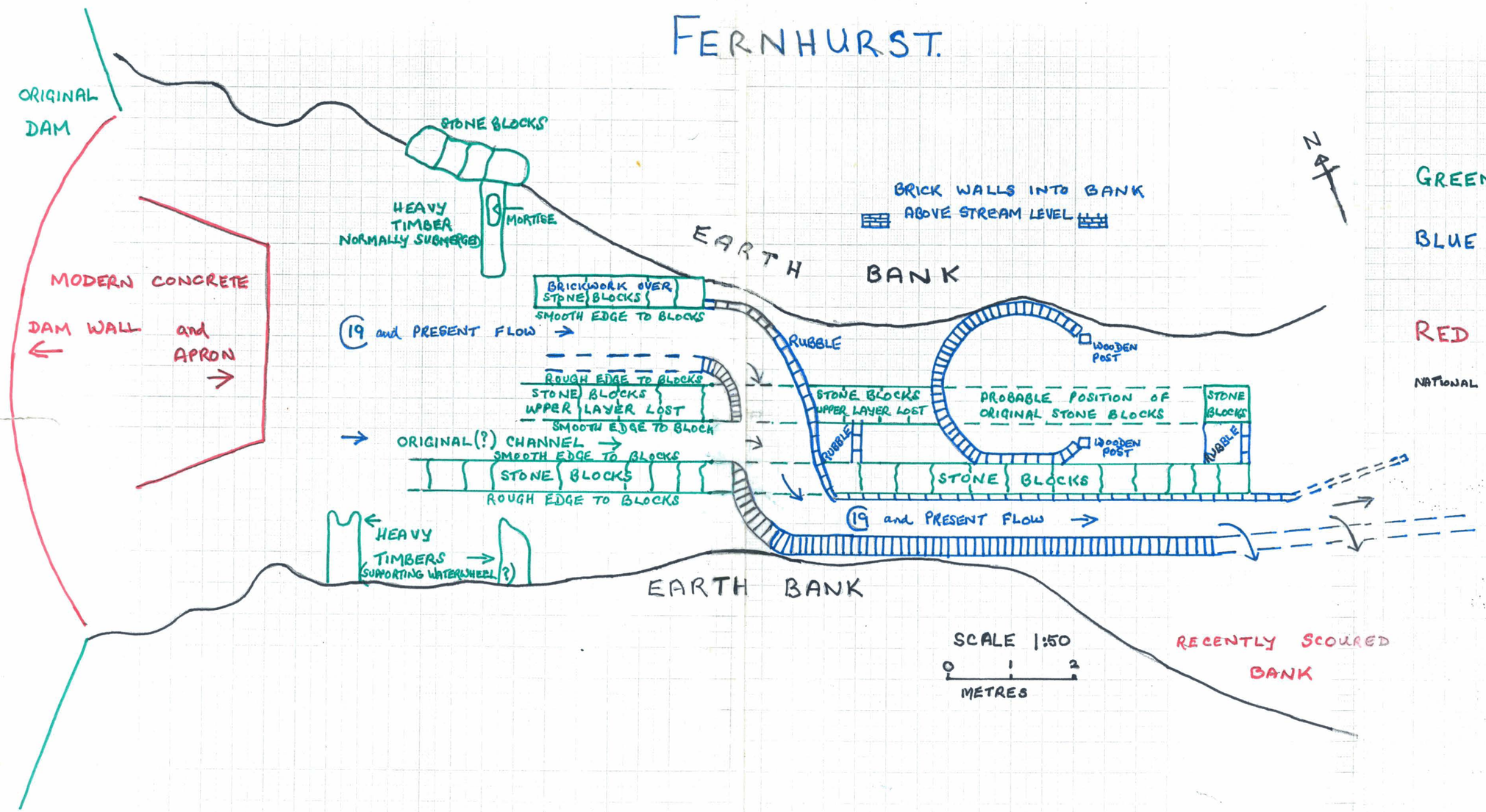
None

11. Other comments.

—

NORTH PARK BLAST FURNACE

FERNHURST.



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KEY

GREEN - ORIGINAL CONSTRUCTION

BLUE - (19th) WATER SUPPLY WORKS MAINLY BRICK

RED - RECENT

NATIONAL GRID REFERENCE: SU 8794 2819

HASLEMERE ARCHAEOLOGICAL GROUP 1976 (L.D.)

Fernhurst or Northpark Furnace.

Straker gives, virtually, the correct longitude and lattitude for this site, but it is more like 1¼m than 1½m from Fernhurst Church. The furnace is located at the N end of the bay (GR. SU870283).

The pond is still in water but at a very much lower level than originally. The disused spillway at the S end has been rebuilt; probably more than once. There are grooves in the lower courses on the pond side but not in the cement-pointed upper courses.(Cp. Straker's photo). The spillway itself is broken through at the lower end. Most of the stone surface has been lost, exposing the cement base and where this also is broken, the undisturbed clay contains sawn-off timber piles. Slag has been used as an infill above this clay. The bay is here faced with sandstone ashlar work. The ditch leading downstream from this plunge-pool cannot be positively traced after the first 50yds.

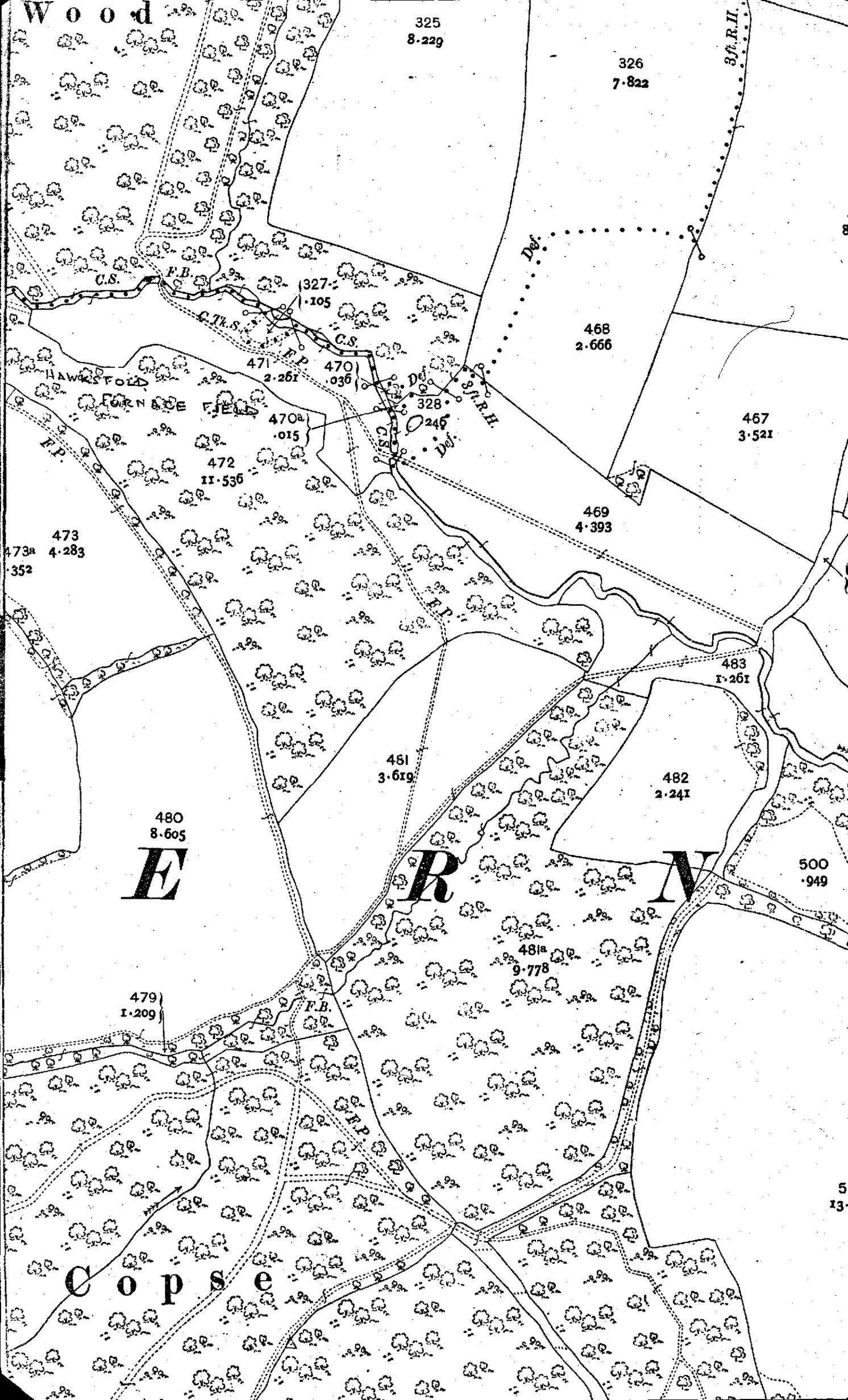
Between the two plunge-pools a very large slag heap rises to the level of the bay and has been dug away, in part, for road metal (Mrs. Hollist).

At the N end of the bay a modern sluice cuts through and recent floods have caused a large section of the bank to be washed away. Below the plunge-pool a complex of brickwork, partially submerged, is to be seen at low water. Only the downstream extremity of this complex appears to be of any age. Some courses of brick buried in the overhanging S bank are of 17thCent. type. Large sandstone blocks are to be seen at the N edge of the plunge-pool and isolated blocks are scattered high on the N bank there, further downstream, is a hollow flanked by a steep hillock over which fragments of mortar are scattered.

Unconsolidated slag lies thickly along the S bank as far as the footbridge and is approx.10ft thick in the cliff at the downstream extremity of the brickwork. Here it overlays 2ft or more, of disturbed clay.

Traddition has it that the miner's cottages were situated along Furnace Lane, below West Furnace Field; that there was a house (public?) further down this lane, above the pond and that another house was sited close to the furnace in North Furnace. Evidence of cultivation in this last area exists in the gooseberry and currant bushes found there but the locality is too overgrown to detect any foundations.

Mrs. Hollist posses a piece of cast iron from the site, an original fire-place and back and a pair of cast fire-dogs which may have come from Surrey Hatch.


Wood
325
8·229
326
7·822
3ft.R.H.
Def.
C.S.
F.B.
327
1·105
C.Tk.S.
C.S.
468
2·666
471
2·261
F.P.
470
·036
Def.
328
246
3ft.R.H.
HAWKSTOLD
FURNACE FIELD
470a
·015
C.S.
Def.
467
3·521
F.P.
472
11·536
469
4·393
473
473a 4·283
·352
F.P.
483
1·261
481
3·619
482
2·241
480
8·605
E
R
N
500
·949
481a
9·778
479
1·209
F.B.
F.P.
Copse

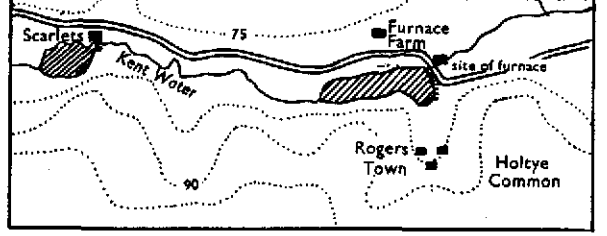
metre upstream where there was a forge as well as a furnace (Fig. 5*d*). The site of the lower furnace remains in the converted mill house below the embankment crossing the valley bottom. The sandstone cliffs around must have been extensively quarried for lining the furnace. The furnace pond forms a fine open stretch of water although at its upper end it has begun to silt up. At Scarlets farther upstream the pond and containing embankment also exists as well as the cottages of the site of the original forge and furnace. Both the upper and lower furnaces were in existence in the sixteenth century, producing iron for making cannons and cannon balls. Many of the latter have been dug up in the area where the works formerly stood. Both the furnaces and forge had ceased to work by the middle of the eighteenth century and although at one time there were considerable slag heaps at Scarlets, these have mainly gone to provide material for road making.

Fernhurst never had a large ironworks but there are substantial remains, for after a long uneventful history the whole site was redeveloped in the eighteenth century and did not finally close down until 1776 when it lost the naval contracts for cannon to the Carron Ironworks in Scotland. The earliest record of production on this site is as early as 1574 when a local ironmaster was given permission by the Earl of Northumberland at near-by Petworth House to erect a furnace in North Park, the name often used for the present site. By the middle of the next century the furnace was in ruins and the whole area abandoned. In 1762, however, a local farmer, John Butler, rebuilt the whole works and after some initial difficulties succeeded in obtaining government contracts for guns for the American War. He rebuilt the embankment for the pond and added a new furnace and cannon foundry below it. Both the furnace and foundry have disappeared but the pond, embankment and stone sluice controlling the outflow of water remain. The ore came from local iron-bearing beds within the Weald Clay which outcrops in this part of the Western Weald. The iron beds were exposed on either side of the valley in Minepit Copse and Furnace Wood and both these areas show evidence today of bell pits (Fig. 5*e*). These were small and never more than six metres deep and today form only shallow dimples in Furnace Wood. When the works closed shortly after 1776, it brought to an end a long chapter of iron-working in West Sussex. As elsewhere there is now little to indicate what was once an important, though local, rural industry.

Further Reading

Cleere, H. 'The Romano-British Industrial Site at Bardown, Wadhurst' *Sussex Archaeological Society, Occasional Paper*, I (1970)

Straker, D. *Wealden Iron* (1931)



Fi
va

Sweeting, G. S. 'Wealden Iron Ore and the History
gists' Association, 55 (1944) pp. 1–14

Wooldridge, S. W. and Goldring, F. *The Weald* (1953

Maps

O.S. 1 : 25,000 sheets TQ 63 (Lamberhurst), TQ 43 (Ashburnham), SU 82 (Fernhurst).

Suggested Itinerary

Any of the four sites covered in detail in the above stud
there are significant variations from one site to anoth
peated at most of the Wealden sites. To approach *A*
main road (A2027) should be taken, turning off for Pen
road. This road leads to Ashburnham Forge, crossing
bankment of the Forge Pond. From the forge a bridl
about one kilometre to reach Ashburnham Furnace.

The site at *Lamberhurst* can be reached by taking t
from the village towards Tunbridge Wells (B2169). A
track by the side of Mill Place leads to Furnace Mill,

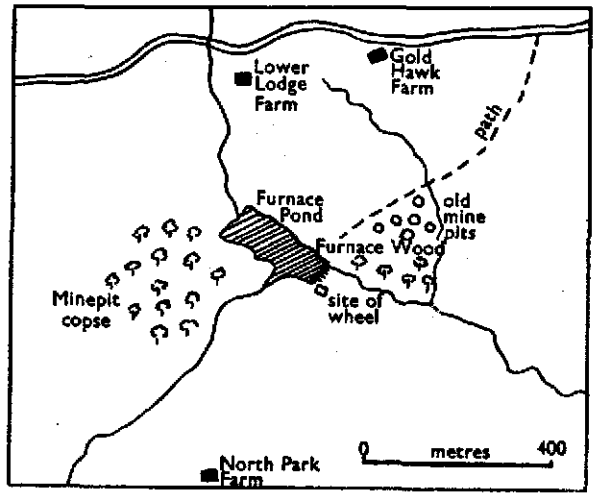


Fig.
at F

1 Vanlands
Van Common
Fernhurst, Haslemere
Surrey, GU27 3NW
0428 - 54088

7th March, 1989

Dear Jeremy,

Northpark

They have started emptying the pond which "will take a week" and it will be empty for a month which doesn't give anyone much time unless there is a drought when refilling commences!

We have a civil engineer visiting the site tomorrow with reference to steel tie rods for the bay and their suitability. Also, on the 16th the assistant planning officer of Sussex C.C. is coming to make a preliminary inspection pending the arrival of Fred Hodsworth's replacement, with a view to grant aid.

I've sent off for the available bulletins of WIRG and am continuing with research. Can you tell me where I can find further information on the Ironmasters Thomas Gray, Thomas Bettesworth and John Butler when I discover are all related and associated with Northpark. Also John Butlers partner Eade plus Prickett & Wright and Goodyer apart from references in Straker or Cleere & Crossley?

Yours sincerely,

Peter Warner

Mrs C.Barnes,
1, Vanlands,
Van Common,
Fernhurst,
HASLEMERE,
Surrey,
GU27 3NW.

March 19th 1989

Many thanks for you letter of the 7th. I will contact you about the state of the emptied pond when I get an opportunity to come over; probably in a fortnight's time, if that is not too late.

As far as the repairs to the old spillway are concerned, WIRG are happy to write in support of any grant aid, or to the Cowdray Estate, for example, to get something out of them. Let me know of any bodies you think we can help with.

As far as your researches are concerned, Thomas Bettesworth was of Trotton and, I am told, held the two Rogate manors in 1584. There are several references to the Bettesworth family in the Sussex Archaeological Collections. I enclose a copy of a note about Thomas which is in the WIRG file on Bramshott Hammer (formerly Standford Furnace). More than this I do not know. As to Thomas Gray, I am unable to help as I have not come across him before.

I have been interested in John Butler and I visited the Hampshire Record Office at Winchester in the hope of finding something but encountered nothing which was relevant to the iron industry and little else. I am intrigued that you mention Eade as being associated with Butler. Is this Jonathan Eade? and is there a mention of William Wilton as well? Eade and Wilton were suppliers of ordnance to the government but I have yet to establish that they did any casting themselves. They seem to have purchased guns from other founders, including the Fullers (Heathfield Fu.) and William Clutton (Gravetye Fu.). A link between Butler and Eade & Wilton would explain Butler's gunfounding business and the absence of his name from the transactions of the Board of Ordnance (in the Public Record Office at Kew).

Joseph Wright and Thomas Prickett were gunfounders and were based at Southwark. They appear to have cast in bronze and iron and they are mentioned in the Ordnance Board papers. I found references to James Goodyer in the Muniments Room at Guildford (ref.1503/4/..) He went bankrupt in 1777 and he had a lease of Abinger Hammer from 1766-80. One of the assignees of his bankruptcy is interesting; Richard Crawshay was a London ironmonger and had a connection with a large gunfounding business in South Wales. I have yet to discover whether this connection was important to Fernhurst.

I hope all this has been of some help. I should very much like to hear more of Butler, Eade, Wright & Prickett and Goodyer if you have anything.

Yours sincerely

Jeremy Hodgkinson

This Indenture

made the first day of November in the fourth year of the reign of our Sovereign Lord George the Third by the Grace of God of Great Britain ffrance and Ireland King Defender of the faith &c and in the year of our Lord one thousand seven hundred and sixty nine **Between** the Right Honourable Anthony Lord Viscount Montague of the one part and Joseph Wright and Thomas Prikett of the parish of Saint Saviours Southwark in the County of Surry Brewers of the other part **Witnesseth** that the said Viscount for and in consideration of the yearly Rent hereby reserved and of the Covenants Conditions and agreements in these presents contained on the part and behalf of the said Joseph Wright and Thomas Prikett their Exors Admors and Assigns to be paid observed done and performed **Hath** demised set and to farm letten and by these presents **Doth** demise set and to farm let unto the said Joseph Wright and Thomas Prikett **All** that Hammer called Popple Hammer with the pond called the Hammer Pond and all those three Cottages near adjoining to the said Hammer situate lying and being in the several parishes of Shiremore and ffrensham in the County of Sussex or one of them as the same are now in the tenure or occupation of the said Joseph Wright and Thomas Prikett or one of them their or one of their undertenants or Assigns Also all that pond commonly called or known by the name of the ffurnace Pond with all the waterworks Dams Bayes Sluices ffloodgates Gates and water Currents feeding the said Pond situate lying and being in the Great Park in the parish of Shiremore and Hamhurst in the County of Sussex with the ffurnace as the same is now standing and being at the head of the said Pond near the Copyhold Lands of John Slatter called Slatts Mill together also with the water Wheels Water Troughs Bellows and Works belonging to the said ffurnace Also all that Cottage standing and being near the said Pond Head and the liberty of the Close of Land adjoining thereto for the laying of Coals Ore and Mine thereon in such manner as the same were formerly in the tenure or occupation of John Butler together with all yards Gardens Banksides Edifices and Buildings Wheels Works Ways Waters Easements & Appurts to the said Hammer ffurnace and Premisses thereby demised or any or either of them belonging or appertaining or therewith at any time used occupied or enjoyed Except and always reserved out of this present Demise unto the said Viscount his Heirs and Assigns all Timber Trees and all other Trees whatsoever of Oak Ash Elm Beech and Chesnut and all Quarries of Stone now standing growing lying or being or which shall or may stand grow lie or be in or upon the said demised Premisses or in or upon any part or parcel thereof with free liberty of ingress egress and regress to and for the said Viscount his Heirs and Assigns and to and for his and their Servants Labourers and Workmen into and upon out of and from the said demised Premisses or any part thereof and there to cut down Saw Shape Hew dig take and carry away the same at his and their free Wills and pleasures And also Except and always reserved unto the said Viscount his Heirs and Assigns and to and for his and their Tenants Servants and Workmen a free way and passage over the pond Head of the said ffurnace in like manner as the same now is or at any time heretofore hath been used and enjoyed **To have and to hold** the

all the said Premisses with the Appurts unto the said Joseph Wright and Thomas Prikett their Exors Admors and Assigns from the Feast day of Saint Michael

Jeremy for information

SUSSEX DOWNS CONSERVATION BOARD Agenda Item No. 12

EXECUTIVE COMMITTEE

4TH OCTOBER 1996

NORTH PARK FURNACE

REPORT BY THE SUSSEX DOWNS OFFICER

1. Purpose of report

1.1 To advise the Committee on the feasibility of implementing a conservation and restoration scheme at North Park Furnace, Linchmere.

2. Introduction

2.1 North Park Furnace, which was built in 1614 and which remained in sporadic use until 1777, is the best preserved of the wealden furnace sites and is widely regarded as of national importance.

2.2 The archaeology of the site was part investigated in 1989 and 1992 and a detailed record was made then of the exposed features. The significance of the site has been known for some time and the opportunity to carry out a programme of restoration whilst making the site more accessible to the public and to local schools as part of their local studies have become more focused over the past 18 months as Board officers have discussed the scheme with the landowners and local people.

2.3 Some details of the site have, however, been lost over the years due to neglect and, latterly, to erosion caused by an excess volume of water passing through the sluices. The dam wall to the furnace pond, which carries a public bridleway, is also unstable in areas and needs consolidation. Repairs to the dam are necessary not only because of its historic interest but also because it carries a public right of way.

2.4 To assess the scope of the project including the conservation and restoration programme linked to improved public access, a feasibility study has been undertaken with the assistance of Chichester District Council's Technical Services Department and an extract from the report is attached.

2.5 The proposals, which have been worked out and agreed in principle with the owners and tenants, is a major programme of work which would cost around £209,000. The work would need to be completed in a series of phases and with support and sponsorship from a number of sources. Some remedial work has been undertaken to secure the southern spill way and costs have been identified for the construction of a new outfall. Further work is however needed to secure agreement amongst the key parties and to identify key partners and sponsorship to implement such a scheme. Members are asked to consider the scheme and to support the principle of implementing a conservation, restoration, access and educational package at North Park Furnace

2.6 Planning permission will be needed for parts of the proposals such as the suggested small visitors car park. Detailed plans will need to be prepared and approved by the Board's Planning Committee prior to the submission of a formal application. It is considered that such matters should be progressed in parallel with the overall development of the project so that the scheme is ready to implement as and when funding is secured.

3. RECOMMENDED

(1) That the Executive Committee support the principle of undertaking a conservation, restoration, access and educational package at North Park Furnace.

(2) Officers be requested to develop a funding package for the scheme with appropriate partners and report to a future meeting for approval.

PAUL TIPLADY
Sussex Downs Officer

Background Papers

North Park Furnace, Linchmere Feasibility Study, June 1996

Contact: Martin Beaton, tel. 01903 - 741234

CHICHESTER DISTRICT COUNCIL

T.S.D. Building & Engineering Consultants

Feasibility Study

North Park Furnace, Linchmere

Introduction

The Weald of Kent, Surrey and Sussex was the leading iron making centre of Great Britain from the introduction of the first charcoal-fired blast furnace - 1496 until coke-fired furnaces, with their cost advantages, were perfected. North Park Furnace, built in 1614 and in sporadic use until 1777, is amongst the best - preserved of the Wealden Sites and the last to operate in the western Weald. However, its pond bay (furnace pond dam), which carries a bridle path, is now unstable and needs consolidation. The archaeology of the site was part investigated in 1989 and 1992 and a detailed record made of exposed features. Some details have since been lost due to erosion caused by an excess volume of water passing through the northern sluice.

A clear brief of the requirements of the feasibility study was provided by South Downs Conservation Board. Its aim is to assess the environmental, archaeological, educational and recreational potential of the site at North Park and examine how best to produce a sympathetic conservation and restoration programme of works and repairs that would be funded over a sensible and realistic period, given the limited resources available at present and the need to prevent further damage to the exposed archaeology.

General Requirements

Further to the survey, meetings and discussions with various bodies on site, it has been possible to prioritise the works that will be required to be undertaken, and these are listed below.

Requirements

1. *To control the existing flow of water currently passing through the 1939 (Northern) Sluice*. Mr. J. Wildman at one site meeting explained that the concrete pipe had insufficient capacity to accommodate the flow of water during prolonged periods of heavy rainfall. The pond water level increases and is forced over the bridleway, which floods the archaeological site and also passes over the sill and through the unstable stone ashlar spillway at the southern end of the site. Even in periods of moderate rain in winter, the flow of water through

Continued .....

the northern sluice is sufficient to erode the remains of wheel-pits and other features of the ironworks' water management system.

2. *To raise the level of the Furnace Pond*. The effects of raising the level of the pond will be to increase loading on the head walls of both sluices, which could be extremely dangerous, given the lack of information concerning the numerous rebuilds carried out on the southern spillway and little information on the northern sluice rebuild in 1939. Also, as explained in (1) above, there is no spare capacity to accommodate pond water in extreme weather conditions.

3. *Repair and Recommission - Southern Spillway*: With a view to making it operational, the southern spillway was examined carefully. The general condition is very poor, with extensive vertical and diagonal cracking evident in both head walls, differential movement of the foundations, which themselves must be suspect due to the number of rebuilds that have taken place, and inward rotation has fragmented the structural arch with loss of springing. Tree root damage is a continuing problem. The east head wall is continuously supported by a shoring arrangement of steel channel tension wires and raking shores, with the arch and stone ashlar voussoirs held in place by a falsework arrangement of laggings, supported by timber ribs and posts wedged in position.

4. *Conservation of "The Works"*: The remains of the twin wheel pit, the course of the tail race and the circular brick coping of the gun casting pit are all clearly visible. The furnace and bellows site on the north side of the stream, backfilled after excavation, are overgrown; however photographs taken in 1989 as part of the archaeological excavations show that there is much more to see once the scrub and vegetation is removed.

5. *Educational Trail*: A levelled survey of the site was necessary to explore the possibility of creating an educational trail with level viewing and rest areas. The trail would need to be compact to prevent wandering by school parties and suitable for wheelchair accessibility. In accordance with good practice the suggested path width would be 1.5 m with gradients of between 1:20 level approach and 1:15. The careful removal of overburden has been agreed with archaeologists on site and no obvious problems are foreseen.

6. *Access to the Site*: The site of the works and Furnace Pond is well served by public footpath and bridleway, but there is no provision for vehicle parking and the existing bridleway and shortcut route to the site passes through Lower Lodge Farm. To facilitate the creation of an educational trail, the study considers the provision of better vehicle parking arrangements and the construction of a new bridleway that would replace the existing bridleway which is dangerous and unsuitable. The study examines the creation of a new car park north of the guide post adjacent to Oakreed Wood. The site has adequate screening and

Continued .....

the existing ditch would form the eastern boundary of the car park. The site and crossing point has good vehicle visibility and would be ideally located to link to a new bridleway constructed along the westward boundary.

Programme of Works

The proposals to satisfy the requirements of the brief are set out below. The details from manufacturers and suppliers will be incorporated into a final specification. However, at this stage, only the sequence of operations and budget figures are included:

1. *Water Control:* The first consideration must be the control of water from Furnace Pond. There are two preferred options to achieving this: the first is to restore the southern spillway to full working operation, the second is to provide an additional sluice, preferably sited between the two existing outflows. A critical examination of the southern spillway would suggest that a fully operational southern spillway would not be desirable, as much of what remains would be totally rebuilt, possibly on new foundations, and the volume of water passing over the spillway would cause massive erosion of the remaining bank and channel. It could also prove dangerous, particularly in extreme weather conditions, when the spillway would take the majority of the flood water.

   The second option, the formation of a new head wall, tumbling bay and culvert, linking the pond with the existing northern channel, away from the new footpaths and archaeology and therefore not detracting from the purpose of the site, would be the less costly and least disruptive option.

   The provision of an extra sluice would allow the pond level to be raised sufficiently to allow a continual flow of water over the existing spillway and sluice and the diameter of the new culvert would be calculated to cope with the most extreme flood conditions safely.

2. *Raising the level of Furnace Pond:* The extent of the existing pond is some three to four acres. The control of the water flow from the pond by the introduction of a new outfall will relieve the two remaining structures of the pressures that would have created a constant threat of overtopping at the north sluice and overturning and complete failure at the southern end. The actual level to which the water level is to be increased was not specified, however archaeological evidence suggests that when the furnace was operational the pond level could well have been a metre higher, increasing the size of the pond by a further two to three acres.

   The budget figure for schemes to satisfy (1) and (2) above would be £20,000.

Continued .....

3. *Repair and Recommissioning - Southern Spillway*: Before any works take place it is essential that heavy plant has access to the southern overflow channel. The track will follow the route proposed for the educational trail (see later) which would be formed later by smaller plant. The cost of forming a track would be accommodated in the budget for (1) and (2) above.

The repairs to the southern spillway would be included in a completed specification. Discussions with contractors and staging/shoring specialists have taken place on site. The sequence of operations has also been agreed with archaeologists. Works would include a limited amount of tree surgery, which would hopefully be at no cost. The ashlar facing to head wall buttresses, east elevation, and the head wall itself, would be carefully taken down in sequence and rebuilt using an approved cement free mortar. The full phased rebuilding programme would be included in the specification. A note of warning is that the spillway would be unstable during the reconstruction period and therefore once operations start, the work must be completed within a two year maximum period.

The budget figure for the conservation of the spillway would be £75,000.

Conservation of the Works

1. *Conservation*: The essential requirements are (a) the continuing flow of a sufficient volume of water through the (modern) northern sluice to ensure that the timber baulks on the eastern side are kept moist and therefore preserved, and also the planking forming the base of the spillway and the wooden components of the gun-pit and (b) the repair and consolidation of the stone and brickwork of the furnace base, spillways and other features found during excavation to date and subsequently backfilled. The bricks lining the interior of the furnace base, having been repeatedly exposed to high temperatures during the working life of the furnace, are particularly prone to damage from frosts and general weathering, and may need to be replaced in whole or in part with hand-made replica bricks. A third, less vulnerable, area of the ironworks is the building complex north-east of the furnace, investigated in 1992. All these areas were backfilled after excavation and will need to be re-excavated in advance of consolidation.

2. *Display*: The presentation of the monument envisages a viewing point roughly due south of the furnace base and gun-pit. This area is currently sealed by a layer of slag etc. but is known to contain structures with brick floors which are visible in section where erosion of the south bank of the spillway has taken place. It would be desirable to expose and consolidate the latest of these structures, or part of them, but the cost of the operation is difficult to assess, given that their extent is uncertain. As an absolute minimum, some excavation along the south side of the spillway will have to take place so that the present cliff-face is battered back to an angle of repose.

Continued .....

3. *Reconstruction*: As a very long-term ambition a case can be made out for reconstructing the ironworks as a working site. There is no similar site in Britain or, it is believed, western Europe where a charcoal-fired blast furnace may be seen in operation, although the U.S.A. has at lease one such site. Given the importance of the Wealden iron industry for the industrial history of Britain, it is surprising and regrettable that not one of its numerous sites has been excavated, consolidated and displayed. A "living museum" with a replica working blast furnace, perhaps sited on the south side of the southern sluice in what appears to be an archaeologically sterile area, could become a major educational and tourist asset, especially if linked via woodland trails to examples of mine - pits, coppice and charcoal - burning areas to give a complete picture of the industrial process. Whilst none of this forms any part of the present scheme, as a distant future prospect it should perhaps be borne in mind.

The budget figure for the conservation works would be between £40,000/50,000.

Educational Trail

The proposed route for the trail is set out on the attached site plan and is initially concentrated between the northern sluice and spillway. If the funding allows for archaeological excavations to re-expose the bellows and furnace areas a bridge, footpath and steps would extend the trail to cover the northern bank of the workings. All viewing platforms, handrails, bridge etc. would be supplied in kit form for site assembly.

The budget figure for the educational trail, Phase 1, would be £14,000 including viewing areas, steps and handrails. Phase 2 for the north bank including hardwood bridge or causeway, would be between £3,000 for the bridge, with a further £5,000 for steps and handrails.

A total budget figure for the educational trail would be £22,000.

Access to the Site

The scheme includes for the provision of a tree screened car park covering an area of approximately 550 m². The construction will consist of stripping to existing topsoil to provide a protective bank to the north and east. The site will be covered with geotextile membrane with a formation layer of D.O.E. Type 1 stone. The car park will be surfaced with a minimum covering of 75 mm Romsey stone. Visibility splays, fences, culverts, signage etc. is all included.

The formation of a new footpath/bridleway of approximately 550 linear metres to the west of the ward boundary will be unfenced. The bridleway will be a minimum of 3

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metres in width and will extend to the tubular m.s. field gate to the north-west of the site. Only a 1.5 metre strip will be constructed as a footpath, which will be formed to a similar specification as the car park above.

The total budget figure for the car park and bridleway would be:-

a. **Car Park:** **£21,000**

b. **Bridleway/footpath:** **£12,000**

Water Control (Provision of Relief Culvert)

The existing pond flow and level is controlled by a sluice at the north end of the dam, which allows water to discharge through the archeological remains of the iron works. This arrangement is unsatisfactory for a number of reasons, the first being that in times of flood the volume and velocity of water passing through the works is likely to cause irretrievable loss of the remains we seek to preserve. Secondly, should the northern culvert be overwhelmed by the volume of water the southern sluice would have to cope with the overflow. Because the structure is in such a parlous state this would be quite risky and could result in its collapse if the conditions persisted.

In order to avoid this occurring it is proposed that a relief culvert is constructed. The culvert would need to be of a size capable of dealing with expected flows and only in the most extreme circumstances would the two retained outlets have additional flow imposed upon them above their revised design limits. On available data a diameter of one metre would suffice for the new culvert. In order to minimise the need for heavy plant and because of the restricted access, the most suitable material for the culvert is steel. The intake works would be of concrete construction and need to provide the ability to control the flow and prevent unauthorised access to the culvert by means of a grill. The discharge end would comprise a "stilling" bay and bank protection constructed from stone filled gabions, which in time blend into their surroundings by allowing natural growth to take place.

It is intended to raise the level of the lake by approximately 350 mm (see "Raising the Level of Furnace Pond", item 2, page 3) which is understood to be sufficient for improving its appearance without putting undue load on the dam structure or bringing the lake within the scope of the 1975 Reservoirs Act.

The proposal would enable greater control over the flow through the works channel (north) which, it is understood, has to be sustained to preserve both the archeology and the feeling of how the works operated in the past. For this reason it is also felt desirable to create a "cosmetic" flow of water through the southern channel, which may be achieved by introducing a 225 mm diameter pipe below the existing sluice level. This would give a water depth of approximately 25 mm running through the sluice and the old by-pass channel when running at full bore. The raising of the lake level is

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readily achieved by the addition of some 115 mm to the height of the northern sluice wall to maintain a margin of freeboard and the placing of additional scupper boards.

Total budget figure for provision of relief culvert would be £20,000 plus fees. (See Budget Summary).

Summary

A summary of the budget costs for the above scheme are as follows:-

		£
1.	Provision of a new outfall from Furnace Pond:	20,000
2.	Conservation of the stone spillway:	75,000
3.	Archaeological and conservation works:	40,000 (50,000)
4.	Educational trail:	22,000
5.	New car park: (550 m²) New track/bridleway: (550 Lm)	21,000 12,000
		190,000
	Professional fees - 10%	19,000
	TOTAL COST:	**209,000**

J. Bacon
Principal Surveyor

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