New Forest District Council Contaminated Land Strategy November 2001

The New Forest district is relatively large in both area and population compared to others with similar rural character. It covers 75,100 hectares and the population is around 170,000. The district has a high quality, diverse environment, including the New Forest (which covers some three quarters of the district) and 64 kms of coastline.

The effective management of issues associated with the contamination of land is an important responsibility now shared between the Environment Agency and Local Authorities. In this context The New Forest District Council (NFDC) has a duty to cause its area to be examined for the purpose of identifying contaminated land. Whilst undertaking its first such review the NFDC will take a strategic approach as required by the Environmental Protection Act 1990 Part IIA. The strategy is here detailed.

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1.INTRODUCTION

Numerous contaminating activities have resulted in the deposition of material with high concentrations of contaminants onto land. Some activities date back to the Roman presence in the British Isles but most are associated with the rapid industrial growth associated with the so called 'industrial revolution' that centered on Britain in the nineteenth and twentieth centuries.

In a historic context contaminated materials have been disposed of by tipping, resulting in the filling of clay, chalk and gravel pits. Raw materials such as fuel oils have often been spilt on manufacturing sites, which have resulted in the presence of contaminants within soil and groundwater. The development of agriculture in an industrial context has also led to concentrated wastes and chemicals being deposited on the land. The disposal of an increasing amount of household rubbish has meant that larger areas have been designated for landfill, resulting in the depletion of wetland and perhaps a more beneficial utilisation of abandoned quarries and open cut mines. There is of course a limit to the availability of landfill sites and the sustainability of such activities.

The pressure on land for housing and general development is severe. The need to reserve quality farmland, together with the protection of conservation areas, means that many 'brownfield' sites are now being examined for 'productive' use. Landfill sites, old gasworks, abandoned chemical plants and foundries, are prime examples but the problems of remediation to make the land fit for use are complex, requiring satisfactory assessment and administration by the appropriate authorities. Sustaining a healthy population and environment is a challenging task. The contamination of land can have wide ranging impacts and depending on the nature and quantity of the substances present, harm may be caused to human health, plants, wildlife, ecological systems, ancient monuments and other property.

A new regime.

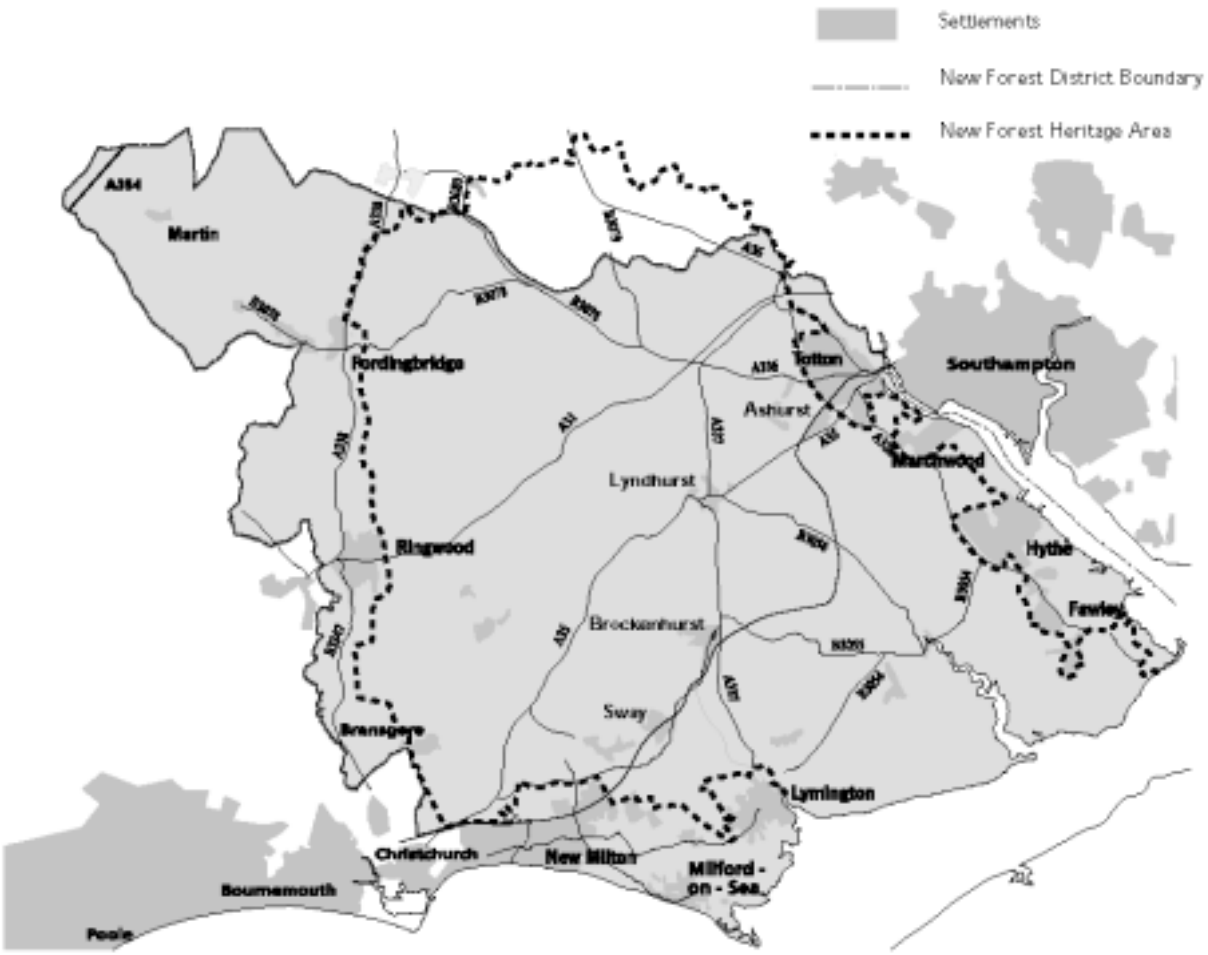
Part IIA of the Environmental Protection Act 1990 (EPA) has been implemented as a means of dealing with the legacies of contaminated land. It is intended to be complimentary to the Planning regime, in that contaminated land can still be dealt with by use of planning conditions as part of the redevelopment process.

Part IIA came into force in April 1st 2000. It provides for a system to identify and remediate contaminated land where the contamination is causing unacceptable risk to human health or the wider environment. It requires an overall risk-based approach.

The new legislation places specific duties on local authorities to inspect their areas and identify land falling within the definitions of being contaminated under the Act. Where remediation is required, it is to be planned in a manner which ensures the land concerned is 'suitable for use'. The regime also provides detailed rules for assigning liabilities for contaminated land based on the 'polluter pays' approach. The new legislation seeks to place the burden of dealing with contamination on the polluter where they can be found, or the owner/occupier where the polluter cannot be pursued.

The New Forest District Council's Strategy for implementing these new responsibilities is an important document. It identifies the tools that are needed, the timeframe required and the integration of the associated activities within the departments that deal with 'statutory nuisances' and planning.

Map 1, The District



2. GENERAL POLICY OF THE LOCAL AUTHORITY

The determination of a strategy for contaminated land for the NFDC has encompassed the need for an integrated approach with consideration of the aims and objectives of 'Best Value - Best Practice' and the specific underlying principals and objectives of the Local Plan. The promotion of economic, social and environmental well being under the community planning process is also reflected in the authority's policy for this strategy. The key relevant aims from the authority's corporate plan (Heart of the Forest) are:

- Achieving an Organization of Excellence
- Working with the Public and Partners
- Promoting Economic Well Being
- Promoting Social Well Being
- Promoting Environmental Well Being

The significance for the development of a strategy is to address the complex considerations involved in contaminated land issues. There are needs for optimising land use, protecting the environment and human health, conserving heritage, and taking regard of historical contaminating occurrences. The components of the strategy include access to important historical information, a comprehensive knowledge of current land use practices, and proper regard of the potential receptors. The NFDC's policy on Best Value has recognizable importance in this strategy (the 4C's). The main **challenge** is to deliver an effective quality

service that meets with statutory requirements. **Consultation** and review are inherent parts of the strategy as will be illustrated to the reader. Performance targets will be developed and the undertaking **compared** with that of other authorities through the Environment Agency. Methods of service delivery and the provision of technical support will be obtained through established procurement protocol which will encourage **competitiveness**.

In developing a plan of action to deal with the new contaminated land responsibilities under the Environmental Protection Act 1990, PartIIA, the Authority will promote sustainable development and approach the remediation of contaminated land according to the statements and objectives in this strategy. The strategy embodies the concepts of; risk assessment, determination of pollutant linkages (source – pathway – receptor) and the delivery of a structured approach to the identification, monitoring and remediation of land contamination, for the benefit of the community and our environment. The sustainability of land use practices and the promotion of 'brown land development' are key underlying principles.

As stated above following acceptance of this strategy, the authority will address the need for specific performance indicators within the context of attending to contaminated land statutory duties.

Once the instruments of the strategy are in place there will be a policy of consultation and review together with the relevant government agencies and those who are served by the strategy. It is intended that the associated services provided to the community will be delivered efficiently, effectively and economically. Land will be assessed, for example, on a 'fit for use' basis with containment and innovative treatment forming important components of action within integrated remediation schemes to protect receptors. The strategy identifies the resources required to deliver these services and subsequent review will determine how these will be best procured and integrated within the responsibilities of the Environmental Health and Planning departments.

Environmental Issues:

Save for the waterside industries which include a major oil refining operation the district does not have a major industrial base but the environmental issues with regard to general development in the twentieth century and on the other hand the conservation of heritage and the protection of natural resources, represent very important concerns held within the community. The priorities with respect to 'Environmental Issues' is reflected in the implementation of the authority's contaminated land strategy and its association with 'best value – best practice' and Local Agenda 21.

Enforcement:

In carrying out its duties the NFDC will undertake action with the aim of the agreement of the parties involved, but it will issue notices, declarations and statements without prejudice where necessary and appropriate. The enforcement protocol will comply with the principles of the 'Enforcement Concordat'. This is a code of practice drawn up by central and local government in consultation with consumer and business groups. It sets out a blue print for fair, practical and consistent enforcement.

Land contamination issues are regarded by the NFDC to be matters of public interest. A 'suitable for use' approach to remediation, focusing on 'risks' and the appropriateness of 'remediation schemes', will be fostered in dealing with contaminated land.

Public access to information:

The strategy and the register of contaminated land for the district are available for public inspection. To facilitate this process the strategy will be accessible on the NFDC website and an electronic version of the register may be prepared for future access on the Internet. At all times during and after the strategy development there will be a policy of transparency. Interested persons in business, land owners, interested collective groups and associations, will be identified, contacted and invited to comment. Advice concerning the Authority's new responsibilities will be available to those in the community who are affected by the legislation, and their assistance will be sought in the exercise of the Authority's duties.

3. REGULATORY CONTEXT

Regulatory role of the New Forest District Council under Part IIA, Environmental Protection Act 1990

The primary regulatory role for contaminated land [under PartIIA of the Environmental Protection Act 1990] rests with local authorities, extending their functions under the statutory nuisance regime. This new duty compliments the role of local authorities as planning authorities. As a local authority the NFDC has five main tasks under the act. These are:

1. To cause the district to be inspected for contaminated land from time to time
2. To record prescribed information about contaminated land in a public register
3. To establish who should bear responsibility for the remediation of land associated with contamination
4. To decide, following consultation, what remediation is required and ensure it takes place through agreement or, where necessary, enforcement
5. To determine who should bear what proportion of the liability for meeting remediation costs

Regulatory role of Environment Agency under Part IIA, Environmental Protection Act 1990

A core element of the NFDC strategy for contaminated land will be to work closely with the Environment Agency. The Environment Agency has four principle roles with respect to contaminated land under the act. These are:

- To assist local authorities in identifying contaminated land, particularly in cases where water pollution is involved
- To provide site specific guidance to local authorities on contaminated land
- To act as the enforcing authority for any land designated as a special site
- To publish periodic reports on contaminated land

Principles of pollutant linkages and risk assessment

Assessment of harm is based on a 'risk assessment' approach to human health and the environment. To correctly assess land as being contaminated and in need of remediation (protective action), a pollutant linkage has to be determined. A pollutant linkage is a link determined between a pollutant source and a receptor through a pathway.

SOURCE	PATHWAY	RECEPTOR
The Contaminants (Substances)	Vapour (or gas) to air, leachate (to water), direct uptake, direct ingestion, etc.	Humans, Animals, Plants, Ecosystems, Agrisystems, Monuments and other property.

Risk assessment is undertaken by initially establishing the type, form and concentration of a pollutant, assessing this data against published nationally accepted guidelines and standards, and finally determining if harm to a receptor is likely, or has occurred, through the establishment of a pathway. The relationship between risk assessment, site characterisation and sampling procedure is summarised in **Figure 1**. [The methodology is discussed in: *'methods of inspection'*, in the strategy].

Requirements for strategic approach

A strategic approach to the issues of land contamination is not only essential at a local level but is equally important to facilitate the coordination of management practices nationally, with the aid of the Environment Agency. In taking on contaminated land responsibilities local authorities have to examine the resources required, what resources are available and how to undertake the duties in the context of 'bestvalue – best practice'. A strategic approach is also essential to ensure that the NFDC meets its obligations for contaminated land in a proper and efficient manner.

FIG.1 Relationship between Risk Assessment, Site Characterisation and Sampling

Further explanation and context for this diagram can be found in the section *'methods of inspection'* on page 43.

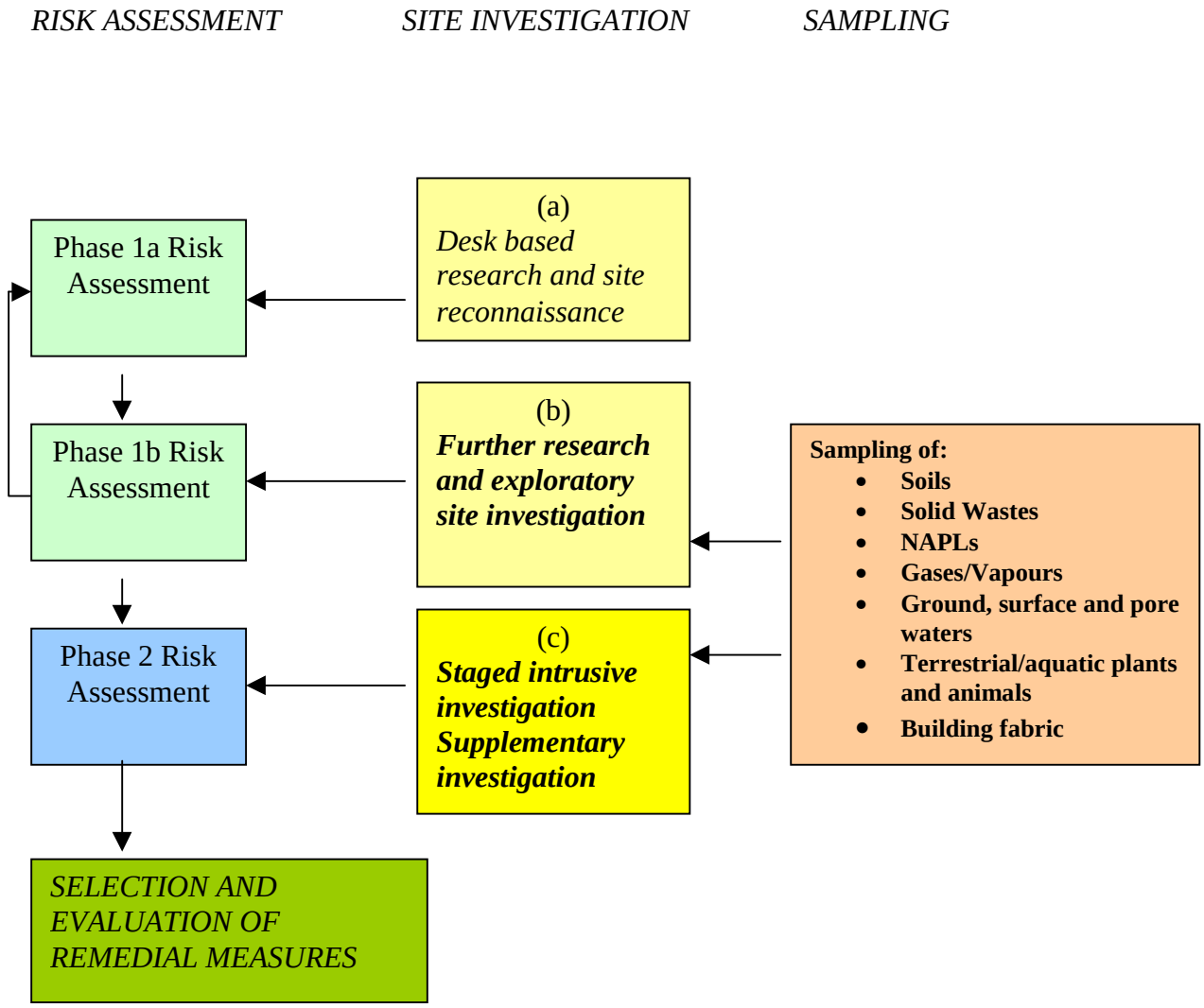


TABLE A. CATEGORIES OF SIGNIFICANT HARM reproduced from DETR circular 2/2000

	Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
1	Human beings	Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned. In this Chapter, this description of significant harm is referred to as a "human health effect".
	Any ecological system, or living organism forming part of such a system, within a location which is: • an area notified as an area of special scientific interest under section 28 of the Wildlife and Countryside Act 1981; • any land declared a national nature reserve under section 35 of that Act; • any area designated as a marine nature reserve under section 36 of that Act; • an area of special protection for birds, established under section 3 of that Act; • any European Site within the meaning of regulation 10 of the Conservation (Natural Habitats etc) Regulations 1994 (ie Special Areas of Conservation and Special Protection Areas); • any candidate Special Areas of Conservation or potential Special Protection Areas given equivalent protection; • any habitat or site afforded policy protection under paragraph 13 of Planning Policy Guidance Note 9 (PPG9) on nature conservation (ie candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or • any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949.	For any protected location: • harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or • harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. In addition, in the case of a protected location which is a European Site (or a candidate Special Area of Conservation or a potential Special Protection Area), harm which is incompatible with the favourable conservation status of natural habitats at that location or species typically found there. In determining what constitutes such harm, the local authority should have regard to the advice of English Nature and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994. In this Chapter, this description of significant harm is referred to as an "ecological system effect".
3	Property in the form of: • crops, including timber; • produce grown domestically, or on allotments, for consumption; • livestock; • other owned or domesticated animals; • wild animals which are the subject of shooting or fishing rights.	For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage. The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss. In this Chapter, this description of significant harm is referred to as an "animal or crop effect".

4	Property in the form of buildings. For this purpose, "building" means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building.	Structural failure, substantial damage or substantial interference with any right of occupation. For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended. Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled. In this chapter this description of significant harm is referred to as a "building effect"

HAZARDS RESULTING FROM CONTAMINATED LAND

Land contamination can create hazards where pollutants in, on or under land reach a target or receptor, through any one or more of the pathways listed in Table B. Table C illustrates the 'harms' to receptors that can be associated with contaminated land. These tables together with the list of contaminants in Table A illustrate the materials and factors that have to be examined for connectivity, i.e. the establishment and consideration of 'pollutant linkages'.

TABLE B – POLLUTANT PATHWAYS

- (Vapour or gas) air path to the receptor;
- by leachate or erosion (e.g. to surface waters, to drainage, or to deeper aquifers);
- by direct uptake (eg to the food chain, or other parts of the ecosystem);
- by direct ingestion, contact or inhalation (e.g. by humans, animals or other organisms);
- by other contact (e.g. contact with building materials).

Further notes on 'harm'

English Heritage have advised that in addition to the note on Ancient Monuments given in the above Table A (i.e. harm being regarded as any damage that significantly impairs the historic, architectural, traditional, artistic, or archaeological interest by reason of which the monument was scheduled) the NFDC is to consider that some sites of former industrial activities are scheduled Ancient Monuments, and that at these locations any contaminants present may constitute a significant element of the archaeological interest whereby the monument was scheduled. Further, it will be the policy of the Authority to consult fully with the County Archaeologist and English Heritage when contamination issues relate to any known archaeological site or Ancient Monument. The Authority will refer to the Sites and Monuments Records covering the New Forest in the undertaking of its duties under PartIIA of the Environmental Protection Act (1990).

Similarly the local offices of English Nature will be consulted on issues with regard to sites where that body has an interest and 'harm' or the potential for 'harm' has been recognised.

Table C **List of Contaminant types and examples**

(Other) – those not classified below **Acids** sulphuric, hydrochloric, nitric, hydrofluoric, ***Alcohols*** toluol, xylol, Alkalis caustic soda, Amines analine, Aromatic Hydrocarbons benzene, ethylbenzene, phenol, toluene, xylene, cresol, catechin, resorein, hydroquinone, Asbestos actinolite, amosite (brown), anthophyllite, chrysolite (white), crocidolite (blue), tremolite, *(Biological Agents) - not designated as substances* Chlorinated Hydrocarbons 1,2 dichloroethane, dichloromethane, tetrachloromethane, tetrachloroethane, thrichloromethane, thrichloroethane, vinyl chloride, monochlorobenzene, dichlorobenzol, trichlorobenzol, tetrachlorobenzol, pentachlorobenzene, Coal Tar coal tar (creosote), Coking Works Residues coal tar (creosote), phenols, cyanide (free/complex), sulphur (sulphide/sulphate), Combustible Materials timber, ash, coal residues, **Contaminants to be determined** Corrosive Substances Acids (see specific list), alkalis (see specific list), Cyanide free, complex, thiocyanate, Degreasers trichloroethylene, Dyestuff Residues cadmium, benzidine, **Farm Waste and Spillage** Slurry,fertilizers, pesticides, herbicides, petrochemical products Fillers and Extenders silica, titanium dioxide, talc,	Gas Works Residues coal tar (creosote), phenols, cyanide (free/complex), sulphur (sulphide/sulphate), Hydrocarbons various fractions (oil refining), ***Impurity Metals*** e.g. antimony and arsenic in metal processing, Metals barium, cadmium, chromium, cobalt, copper, trivalent chromium, lead, mercury, molybdenum, nickel, zinc, ***Metalloids (wood processing)*** arsenic, antimony, zinc, Mineral Oil, petrochemical Miscellaneous tetrahydrofuran, pyridine, tetrahydrothiophene, cyclohexanone, styrene, phthalates, ***Octane Boosters, petrochemical*** Lead, MTBE, Paints **– (specialist area, see notes)** Pesticides cyclodienes (organochlorines), carbamates, organophosphates, pyrethroids, herbicides, fumigants, inorganics, others, Plastics Plastic Residues barium, cadmium, lead Polycyclic Aromatic Hydrocarbons anthracene, benzopyrene, fluoroanthrene, naphtalene, phenanthrene, benzoanthracene, chrysene, benzofluoranthrene, benzoperylene, indenolpyrene, Reactive Monomers isoprene, isobutylene, Salts chlorides, sulphides, Toxic, Flammable and Explosive gases acetylene, hydrogen cyanide, hydrogen sulphide, methane, butane, propane, LPG, Toxic Substances to be determined ***Flammable Liquids and Solids*** fuel oils, solvents, **Unlicenced or Old and Abandoned Landfill** Various waste products and contaminants, products from decomposition

4. STRATEGY DEVELOPMENT

Overall approach

The project stages and dates for completion of this strategy exercise are as follows:

STAGE	ITEM	To be completed
Stage 1	Define roles, responsibilities and programme for development of the strategy	July 2001
Stage 2	Review of local authority current position	January 2002
Stage 3	Define strategy structure and objectives	September2001
Stage 4	Collect, collate and evaluate information required for the strategy	September 2001
Stage 5	Draft the strategy	October 2001
Stage 6	Consult on and revise the strategy	November 2001
Stage 7	Adopt and publish the strategy	December 2001
Stage 8	Commence identified action	February 2002 onwards

Internal team responsible for strategy

The authority has created a contaminated land strategy team from personnel within Environmental Protection (Community Services Directorate), Planning (Environmetal Services Directorate), IT and Legal Services (Chief Executives Dept.). The project and associated initial review has been coordinated, and the document prepared by Michael Way with the assistance of John Patrick (both qualified and experienced Contaminated Land Officers in the context of CLR6).

Consultation with Environment Agency, English Nature etc

In accordance with the requirements to source knowledge of local issues concerning contaminated land, the following parties have provided information and assistance in the preparation of the strategy:

- The Environment Agency
- English Nature
- English Heritage
- The Forestry Commission
- The British Geological Survey
- The National Trust and other local land owners
- Neighbouring authorities
- The County Records Office
- The County Reference Library
- The British Library
- Hampshire County Council
- Various suppliers of datasets for the authority's GIS system

The information collated relating to contaminated land in the district will be passed to the Environment Agency to assist them in their task to collate national data. Consultation with officers from English Nature and English Heritage will help in achieving a coordinated approach to conservation and environmental protection.

Consultation with other organisations, the local community etc

Following completion of the strategy in draft a consultation exercise will be carried out with local interest groups and the above contributors.

5. OBJECTIVES OF THE STRATEGY DOCUMENT

The fundamental objectives of the strategy are:

- To meet the statutory requirements
- To demonstrate this with reference to the published guidelines
- To provide a reference document for the stakeholders detailing the authority's position
- To define a structure to aid in the exercise of the authority's statutory duties
- To incorporate the delivery of services within the established framework that attends to 'statutory nuisances'
- To ensure that the responsibility is met efficiently and effectively within the councils commitments to 'best value – best practice'
- To ensure that Environmental Protection, in the context of land contamination, is conducted so as to recognise the priorities of local heritage and natural resource protection issues

  and
- To provide required information to the Environment Agency

It is a function of this strategy to prepare an initial framework and definition for the Council's undertaking of statutory contaminated land responsibilities. It is necessary to appreciate that this is an ongoing task and that the strategy itself will be the subject of review and development. Changes may also come about through the influence of future legislation and government guidance.

6. CHARACTERISTICS OF THE LOCAL AUTHORITY'S AREA

Geographical location

New Forest District lies in the south western corner of Hampshire, between the large urban areas of Southampton and the conurbations of Christchurch, Bournemouth, and Poole. Picturesque estuaries and the Southampton Water lay along the more physical boundary of the coast. The terrain is generally flat or gently undulating. In contrast there is downland to the north west which is part of the Dorset and Wiltshire downland (Cranborne Chase - Area of Outstanding Natural Beauty).

The District has a high quality, diverse environment, including the New Forest (which covers some three-quarters of the District) and its 64 kilometres of coastline. Despite the District's largely rural character, it contains a substantial number of towns and villages. Background information, characteristics and features of the District are outlined as follows.

Brief description/history

The New Forest

The New Forest was established as the King's hunting forest shortly after the Norman Conquest in 1066. Being an unusually extensive, open, semi-wild area in an agricultural and developed part of the country it is now of very great value for recreation, conservation, wildlife, grazing of livestock and forestry. The Forest has been shaped over the centuries by a unique blend of natural forces and human activity. The New Forest is a very diverse and complex landscape comprising unenclosed ancient woodland, enclosures, open heaths and lawns, mires and ponds, back-up grazing land, and scattered dwellings and villages. The character of the landscape ranges from intimate woodland and pastoral scenes to exposed heathlands.

The coast

The District's coastline is one of contrasts. Along Southampton Water much of the shoreline is influenced by urban and industrial development, although there are valuable remnants of a wooded farmland (Forest fringe) landscape. The petro-chemical complex at Fawley is visible in the landscape for miles around.

Some of the most untouched coastal landscape in southern England is to be found where the New Forest meets the sea along the north west Solent shores between Calshot and Lymington. The Beaulieu and Lymington Rivers are particularly attractive and popular sailing areas.

Most of the coastline between Lymington and Barton-on-Sea is accessible to the public. None of the District's coastal settlements are seaside resorts, although Lymington has strong connections with the sea as a yachting and boat-building centre.

The Avon Valley

In the west of the District the New Forest escarpment drops into the Avon Valley which separates the New Forest from the Dorset heathlands. Much of the valley floor is high grade agricultural land, whilst to the north of Ringwood is a significant area of sand and gravel workings, most of which is gradually being transformed into lakes

The Western Downlands

The rolling open chalk downlands in the north west corner of the District are part of the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty. This area offers a marked contrast to the landscapes of the New Forest.

Agricultural land

The District contains substantial areas of agricultural land classified as the best and most versatile in the river valleys (in particular that of the Avon), the coastal area between Lymington and New Milton, the coastal estates fringing the open Forest, and in the western Downlands.

Towns and Villages

Many of these towns and villages are of historic interest - for example, Ringwood and Lymington have 13th century charters.

All of the District's main towns and villages are close to, or in, the New Forest. Their affinity and historic links with the Forest are reflected in the fact that historic Forest grazing rights extend well beyond the Forest itself to encompass most of the towns and villages in the District.

Nearly all of these settlements have grown substantially in recent decades. The very large population growth since the Second World War has been concentrated in the eastern parishes of the District (Totton and the Waterside) and to the south of the Forest in the coastal towns.

Size of the district

The New Forest District covers some 75,100 hectares of predominantly rural character, some conurbation close to Southampton, and an are subject to industrial activity (oil refining) and a potential container port (development at Dibden) along the River Test and Southampton Water.

Population distribution

The overall resident population of the district is around 170,000 (having grown by 29% since the creation of the district in 1974. This rises dramatically in summer months with tourism. Approximately 30,000 people live within the New Forest concentrated in the larger villages of Ashurst, Bransgore, Brockenhurst, Lyndhurst and Sway. Significant population growth since the Second World War has been concentrated in the eastern parishes (Totton and Waterside) and the coastal towns to the south (Lymington, New Milton, Barton on Sea. There is also an important market town close to the border of East Dorset (Ringwood).

Town/Village Population
Totton 27,400
New Milton and Barton-on-Sea 23,900
Hythe and Dibden 20,400
Lymington 14,400
Fawley, incl. Blackfield and Holbury 14,200
Ringwood 13,600
Fordingbridge 6,100
Marchwood 5,400
Milford on Sea 4,600
Bransgore 4,300
Brockenhurst 3,400
Sway 3,400
Lyndhurst 3,000
Ashurst 2,200

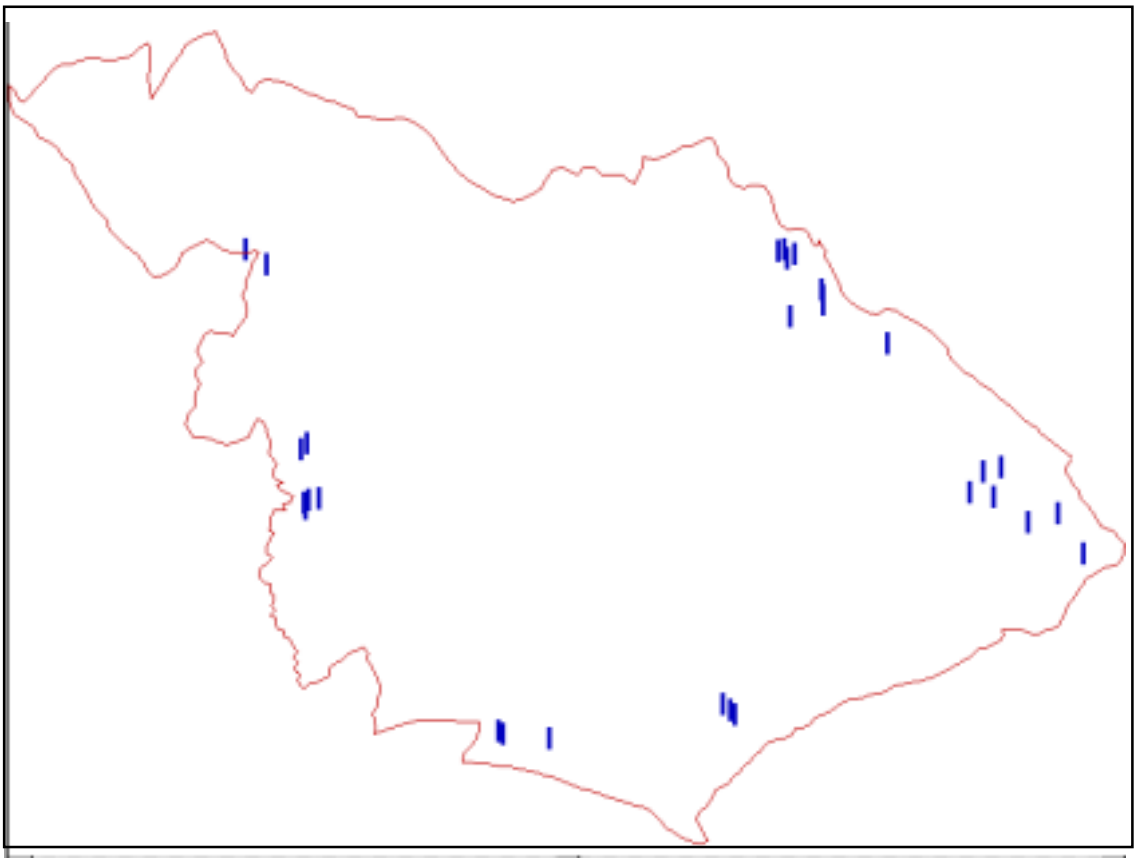
Details of authority ownership of land

Current and previous land holdings will be reviewed in the context of contaminated land responsibilities and in particular the position of the council as a stakeholder. This exercise will be undertaken as part of the overall review of potentially contaminated sites in the district.

Current land use characteristics

As mentioned above the land developed for settlement is concentrated to the east and along the south coastal area with a market town close to the East Dorset border. The district is dominated, however, by the more sparsely populated forest area which is subject to proposals for National Park status. The Forest and the Coast have many significant attributes of historic and conservation importance. An area to the north west also encompasses chalk downland which is part of the the Area of Natural Beauty known as Cranborne Chase. These include historic charters (13th Century) associated with towns such as Lymington and Ringwood reflected in an abundance of listed buildings. There are also many ‘ beauty spots’ enjoyed by residents and summer visitors alike. Landuse is predominantly forestry, grazing, and recreational in character. The close association with the Southampton Water has also led to some industrial development to the east and future considerations of port development. The population has a higher than average percentage of persons of pensionable age. The popularity of the district for retirement and tourism affects land use through associated infrastructure development (for camping, recreation and leisure activities).

Map 2 Industrial locations



Protected locations (natural habitats etc) and key property types, e.g. ancient monuments

The New Forest District contains many areas of exceptional environmental sensitivity, including the New Forest, Sites of Special Scientific Interest, Special Protection Areas and Ramsar sites, candidate Special Areas of Conservation, and Areas of Outstanding Natural Beauty.

Nature conservation

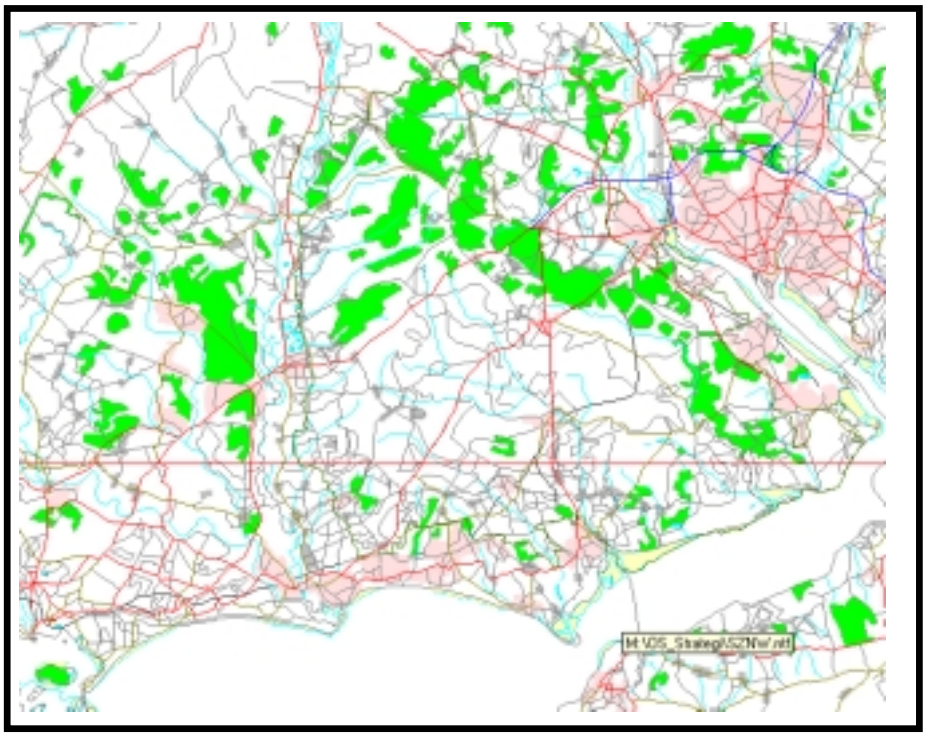
This District contains an exceptional concentration of sites of nature conservation value. In terms of areas forming part of the national network of areas of importance for nature conservation, there are 25 designated Sites of Special Scientific Interest (SSSIs) covering some 44% of the District. Of these the largest is the New Forest SSSI (28,947 hectares) – see Appendix 1. Some 85% of the coast lies within designated SSSIs. There are NNRs at the Beaulieu Estuary (the North Solent NNR), Martin Down and Kingston Great Common.

A number of these SSSIs are of international as well as national importance. The New Forest SSSI is classified as a Special Protection Area (SPA) and listed as a Ramsar site, and is a candidate Special Area of Conservation (SAC). Much of the Avon Valley SSSI is within a classified SPA and listed Ramsar site, and the River Avon SSSI is a candidate SAC. The SSSIs bordering the Solent and Southampton Water are also within a classified SPA and listed Ramsar site; candidate maritime and lagoons SACs also include many of these and areas off-shore in the Solent.

There are also substantial locally designated areas of nature conservation importance in the District. LNRs have been designated at Calshot, Boldre Foreshore and the Lymington-Keyhaven marshes. In addition, there are numerous SINCs (listed in Appendix 1). There can be some overlap between LNRs and SSSIs, in which case national guidance on the protection of SSSIs prevails.

Within this District, the Downlands lie in the Cranborne Chase and West Wiltshire Downs AONB, which also extends into Dorset, Wiltshire and Somerset. The South Hampshire Coast AONB extends the full length of the north-west Solent shore with the bulk of the South Hampshire Coast AONB lying within the New Forest.

Map 3 Nature Conservation



The SSSI's, Ramsars, SCAS, SINCS etc are fully listed in the appendices

Conservation Areas

There are 37 Conservation Areas in New Forest District covering historic town centres, New Forest villages, small hamlets and farmsteads, and groups of buildings within their settings. High priority is given to preserving and enhancing the character and appearance of Conservation Areas in this District. Four of the six main town centres are within Conservation Areas.

Historic landscapes

This District contains a number of examples of historic landscapes. These include parks and gardens associated with some of the larger estates and older country houses, eg. Breamore, Brockenhurst Park, Cadland House, Exbury House, Hale Park, Pylewell, Rhinefield, Somerley Park and Testwood House. An area with ancient field patterns at Fritham is included in a Conservation Area.

History and archaeology

The District Council places a high priority on the protection of coastal areas of nature conservation value.

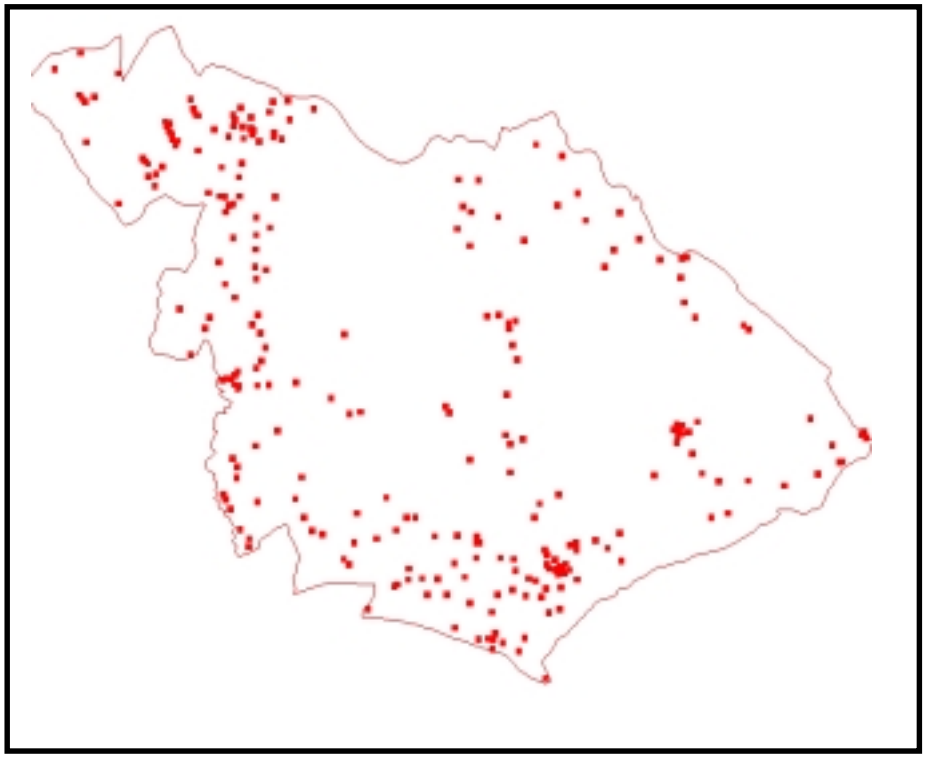
The coast contains a number of sites and buildings of historic and/or archaeological interest which have become an integral part of the coastal landscape. These are identified in Hampshire County Council's Sites and Monuments Record, and include two Tudor castles at Hurst and Calshot Spits, two nationally rare examples of early working tide mills at Eling and Beaulieu, one of the most important sites in the Solent for the construction of early wooden warships at Buckler's Hard, and important relics of the world wars, for example the hangars at Calshot. There are also archaeological remains off-shore, which are identified in the County Council's Maritime Sites and Monuments Record.

Built heritage and design

The New Forest has a rich built heritage. It contains the majority of Scheduled Ancient Monuments in the District, together with 15 Conservation Areas and numerous listed buildings. The Conservation Areas vary in their character and purpose. Some display the typical dispersed character of Forest settlements and ancient field patterns, such as those at Fritham and Minstead. Settlements such as these also contain the greatest numbers of typical Forest cottages, which, together with their small scale outbuildings, have a landscape significance as well as an historic value. Other Conservation Areas reflect the special history of the area, and its links with the coast, for instance those at Beaulieu, Buckler's Hard, Eling and Ashlett.

Refer to Maps 1,3 & 4, Appendices 1,2, & 3 illustrating potential conservation and heritage receptors.

Map 4 Listed Building Groupings



A table listing these groupings is provided in appendix 3

Key Water Resources

The District contains two major river valleys, those of the Rivers Avon and Test. These display special landscape and other characteristics. The valleys are subject to normal countryside and other special designations but are subject to proposals associated with the creation of the National Park area (see Map 6).

This District contains substantial areas of exceptional environmental sensitivity. The New Forest, and many areas of nature conservation value, including those on the coast, are extremely vulnerable to the effects of atmospheric and waterborne pollutants, to noise nuisance and to light intrusion. In addition, the district contains groundwater protection zones at Ampress, Lymington, and north-west of Breamore (serving boreholes at Hale and Woodgreen) and water catchment areas defined by the Environment Agency around the rivers Avon and Test which are subject to Local Environment Agency Plans, which include requirements for the protection of groundwater sources and aquifers.

The coast of this District is some 64 km (40 miles) long, and includes built-up areas, countryside and parts of the New Forest. The District's coast falls into three broad sections.

i) Christchurch Bay (Barton-on-Sea to Hurst Spit).

This coast is characterised by narrow shingle beaches and slumping or eroding cliffs of much geological interest, mostly included in Sites of Special Scientific Interest (SSSIs).

ii) North-west Solent Shore (Hurst Spit to Calshot).

This contains extensive coastal marshes of considerable wildlife value, all within SSSIs; the Beaulieu River estuary is included in a National Nature Reserve, and there are local nature reserves in the Lymington- Keyhaven marshes and at Boldre foreshore. These areas are in a Special Protection Area (SPA) and Ramsar site, and parts of them, together with areas off-shore, are within candidate Special Areas of Conservation (SACs). The hinterland is low lying, with an attractive landscape, part open, part wooded, all included within the South Hampshire Coast Area of Outstanding Natural Beauty. The New Forest extends to the coast between Walhampton and Calshot.

iii) Southampton Water (Calshot to Redbridge).

This is a river estuary, with much of the coast now developed for major industry and other uses, including the Esso oil refinery and petrochemicals complex, the Fawley Power Station, the site of the former Marchwood Power Station, Husbands Shipyard and the Marchwood Military Port. Other developed areas are at Eling, Marchwood and Hythe. The remaining coastal marshes and intertidal areas are of great nature conservation value, and largely included within SSSIs. These areas are in a SPA and Ramsar site; part of the Hythe-Calshot Marshes SSSI, Eling & Bury Marshes SSSI and part of the Lower Test Valley SSSI are in a candidate SAC. There is also a local nature reserve at Calshot.

Refer to Maps 1,3 & 4, Appendices 1,2, & 3 illustrating potential conservation and heritage receptors.

Known information on contamination / current and past industrial history

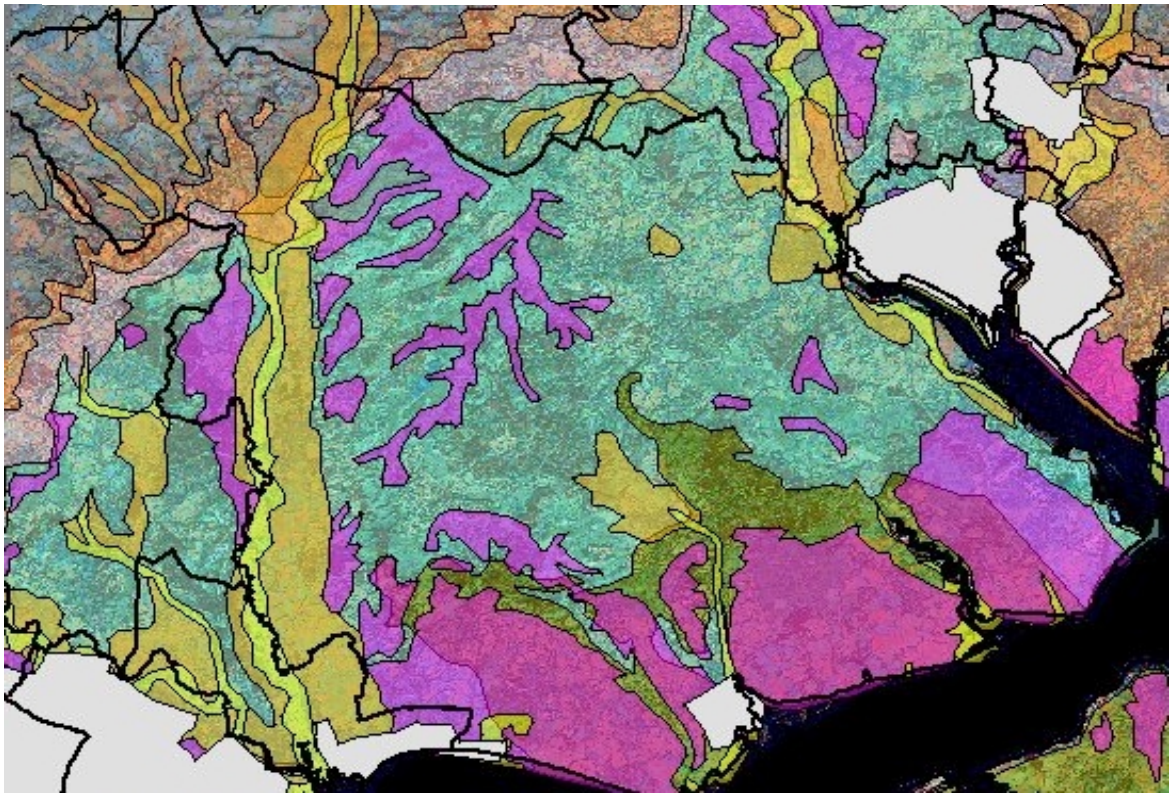
An overview is provided from available data at the time of writing this document. It is included under the heading *'information on the possible presence of contaminants'* below. Further searches and risk assessment will be undertaken during and after the preparation of this document. The authority's priorities in this regard are detailed in this strategy.

Broad geological/hydrological characteristics

The illustrative Map 6 shows the actual locations of the rivers. Solid and drift geological information is illustrated in Map 5. This information is critically important to risk assessment since it provides an insight into potential pathways between contaminated sites and potential receptors.

Map 5, Geology

This map illustrates the solid and drift geological features of the district in broad outline. The NFDC boundary and the Solent is shown in black, whilst major settlements are shown in white.



KEY: Purples = Sand and Gravel
Yellows / Greens = Alluvial deps / Clays
Brown = River Terrace deps
Blue = Barton & Bracklesham deps

Geologically. the New Forest District lies within the Hamphire Basin which is a broad shallow basin filled with gravels, sands and clays contained within low chalk downlands.

The New Forest area is underlain by sedimentary rocks laid down in the Tertiary period, subsequent earth movements tilted the layers of rocks to expose older deposits to the north and younger layers to the south. During the Ice Age the land was again re-shaped to form a series of huge terraces, stepping downwards from the north-west to the shore of the Solent. At the end of the Ice Age a capping of gravel or brickearth was deposited over parts of the area.

The geology and landform have influenced the soils that are found today. Soils to the north sit on the oldest rocks and are very poor and acidic. The central area is covered by more recent

deposits which give rise to deeper soils, well suited to growing trees. To the south are found the youngest rocks on flatter land supporting a wide variety of deeper soils. Throughout the Forest, peat has accumulated in hollows and wide flat valleys, providing ideal conditions for bog vegetation.

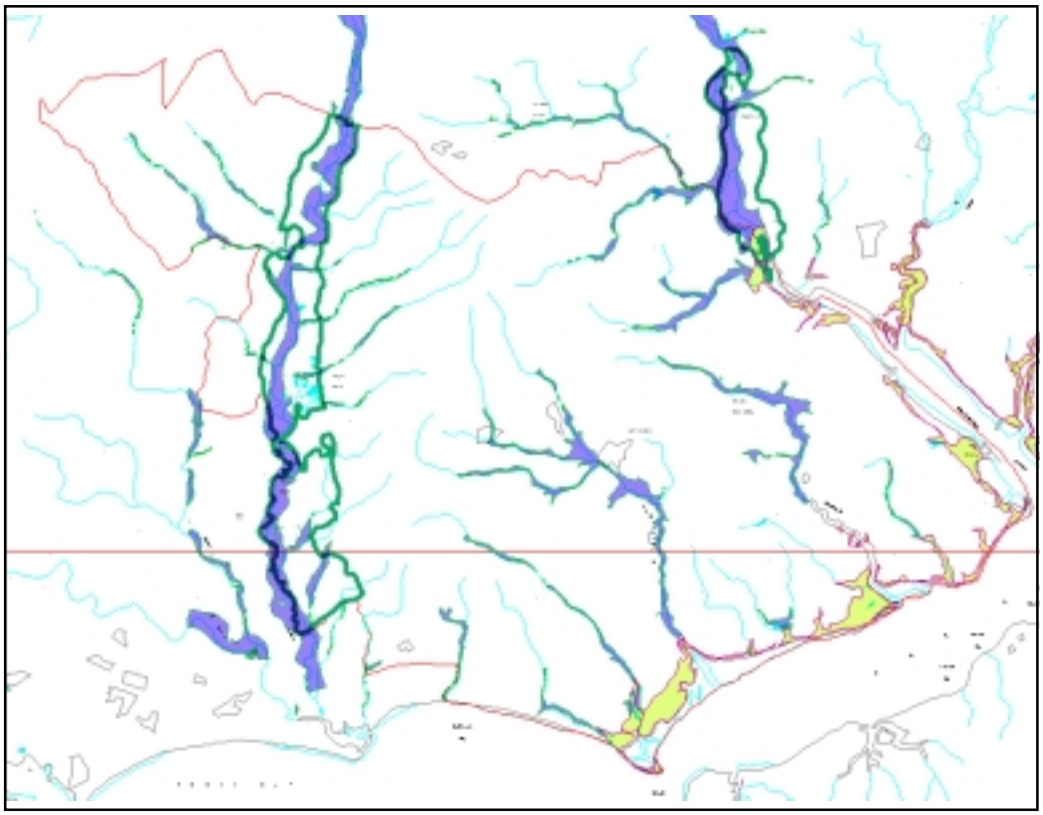
Surface water percolates through the gravels and sands but is then held up by the less permeable clay beds which re-directs the flow of the groundwater. In areas of poor drainage the surface soil becomes impoverished and waterlogged due to soluble minerals being washed down to the clay layer and forming a hard impermeable layer or 'pan' a few feet below the surface.

The Forest is drained by a fine network of small streams. Generally flows are at a minimum in August and reach their maximum in January. The drainage regime responds quickly to rainfall.

Development (or redevelopment) which would have an unacceptable risk upon water quality or the quality or natural flow patterns of a groundwater resource are not permitted.

Map 6, Hydrology

District outline shown in red. The major Rivers, Flood plains and Coastline.



Action already taken to deal with land contamination

Prior to the introduction of Part IIA of the Environmental Protection Act in April 2000, the NFDC had no specific 'responsibility' for contaminated land issues. The NFDC's Environmental Health Department has, however, consulted with the Planning Department on issues associated with contaminated land over the last twenty-five years. Consultants with specific expertise have been employed as needed and liaison with the Environment agency and their predecessors has been undertaken where necessary.

7. THE LOCAL AUTHORITY STRATEGY: OVERALL AIMS

The overall aim of NFDC in respect to contaminated land is to efficiently collate and act upon all available information relating to possible land contamination in the district. Information has been sought from the sources available to the authority, externally and internally. These various sources are outlined below. This data will be used to determine the authority's priorities for land remediation and associated actions on contaminated land.

The collation of the obtained data will allow the summarising of:

- Established pollution linkages, evidence of harm and action taken
- Potential sites of contamination to be further investigated
- Known sites of contamination that need monitoring
- The major important potential receptors of significance ecologically and to heritage
- The locations of potential human receptors – settlements, dwellings, institutions
- The significance of topography, hydrology and geology in the district

The commitment to delivering services efficiently and effectively will be met by making the contaminated land undertaking an electronic mapping project (Geographical Information System (GIS)). The information obtained from maps will be transferred into GIS dataset layers to enhance this tool for establishing and documenting contaminated land issues. This is an important component of the Authority's strategy.

The Authority has a secondary aim of creating an electronic database integrated with its GIS. This will enhance the ability to report accurately to, and in a compatible format with, the Environment Agency. This second aim will also help to create the most appropriate platform for public access to required information in the long term.

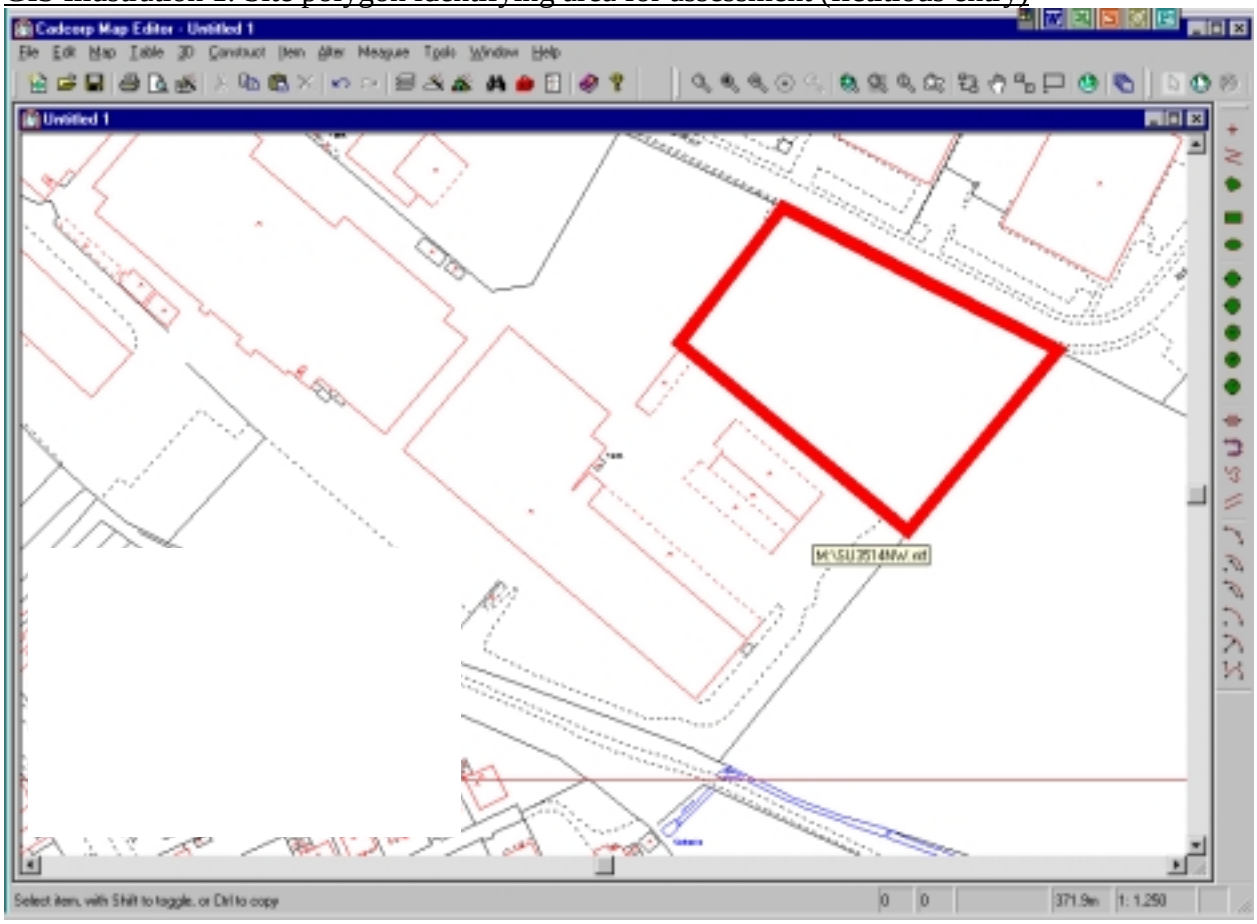
The objectives will be achieved in steps (reflecting stages 1-8 above). Three aspects of GIS will be developed.

Firstly a GIS tool for relating historic maps, aerial photographs and current Ordnance Survey land lines. This tool will allow a desktop survey of the district providing indications of land use changes and potential trouble spots. Discussions with local landowners and bodies such as The Forestry Commission, English Nature, English Heritage, and Environment Agency will be held to further detail information relating to the desktop survey. Simultaneously a review of local knowledge within the council, using the Rating Value dataset as a reference point, will be undertaken. Incorporated in this latter task will be the collation of information on property formerly owned or currently owned by the NFDC.

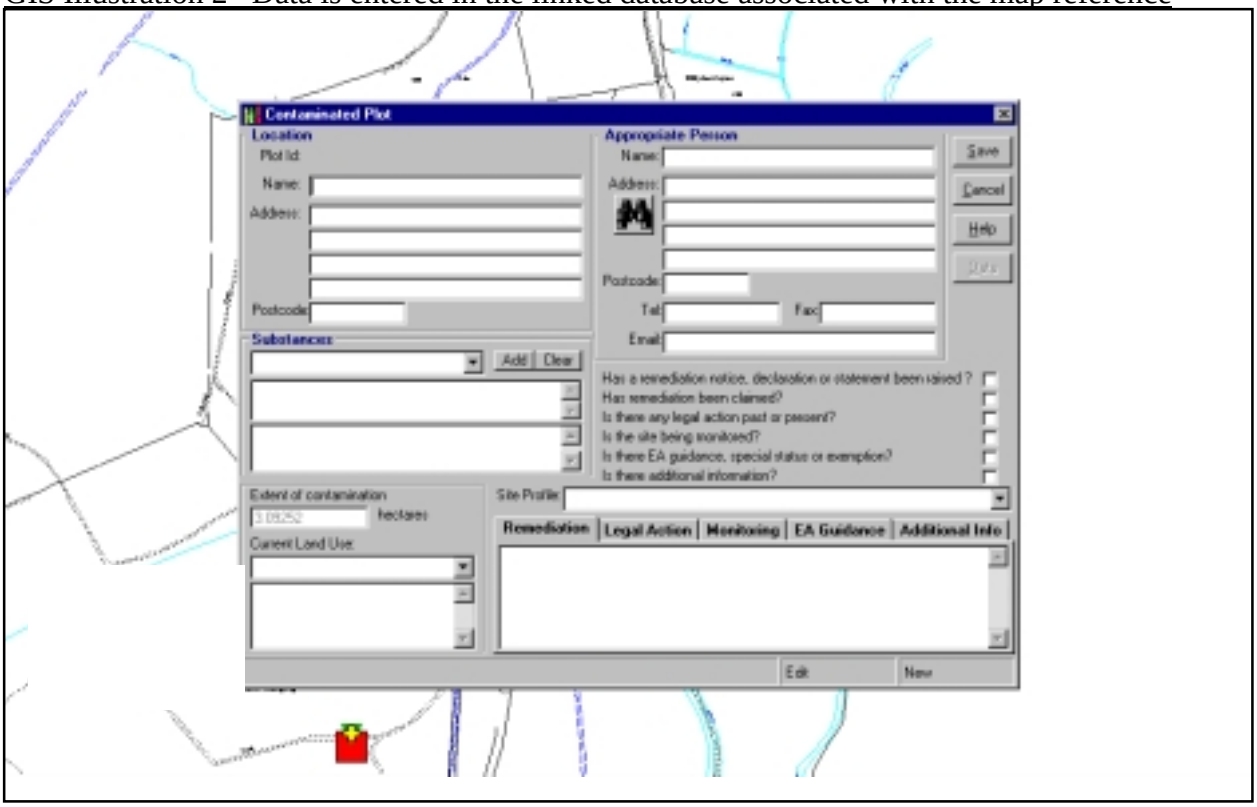
Secondly, the GIS tool will be enhanced to examine the district from the perspective of potential 'receptors' and 'pathways'. Datasets to create GIS overlays from English Nature, English Heritage, The British Geological Survey and the Environment Agency will be sought and a further desktop survey undertaken when the system is operational.

Thirdly, a database will be created relating to the GIS tools mentioned above but principally incorporating GIS mapping of contaminated land. It is the aim of the authority to use the database and GIS facility as the major component of the 'register of contaminated land'. This facility will be available as a working tool for staff involved in meeting the authority's responsibilities for contaminated land. In the future the possibility will be investigated for access to the register to be made possible over the Internet.

GIS Illustration 1. Site polygon identifying area for assessment (fictitious entry)



GIS Illustration 2 Data is entered in the linked database associated with the map reference



A plan with priorities for inspections and action following a desktop survey will be drafted concurrently. It is envisaged that there will be a need for the authority to review its resources and departmental budgets before a time scale for action can be formalised. Delays in obtaining certain datasets for GIS may impact on the timescale for completing the desktop survey. As stated above, however, the strategy will be published in January 2002.

8. THE LOCAL AUTHORITY PRIORITIES, OBJECTIVES AND MILESTONES

There is an ongoing priority for action to improve water quality in the controlled waters of the district. This is being achieved through joint working with the Environment Agency, on known sources of contamination. The identification of suspect sites through the desktop studies and consultation procedures will assist in this goal. Attending to land searches, planning applications, and incidents of contamination reported to the authority (or found during the course of general inspections), have an existing priority in respect to contaminated land. This will continue during the period of strategy publication and up to the formalising of priorities within the application of the strategy. How the further prioritising exercise is to be undertaken is detailed below (Programme for Inspection).

Generally speaking the strategic approach to inspection will be:

- Rational, ordered and efficient
- Proportionate to the seriousness of any actual or potential risk
- A prioritised plan to locate and attend to pressing and serious problems first
- A prioritised plan to ensure that resources are applied rationally and effectively
- A prioritised plan to enable future planning and action to attend to the complexities of specific sites, following initial determination of contaminated land under PartIIA

NFDC's priorities relating to work the authority has already carried out (e.g. completing inspection, checking previous work) and
NFDC targets (timeframe, types of risk assessed, areas covered)

These topics form part of the planning and implementation process running in tandem with the writing of the strategy document. The targets will be determined and future plans finalised subsequent to the completion of the initial survey of the district and review of this document.

Completion of assessment of land for which the authority may be the "appropriate person"

As previously stated the procedure of formalising these priorities and considerations will be undertaken concurrently . The resulting plan for action on contaminated land inspections will be implemented after January 2002. Should pollutant linkages of a serious nature (CLR6 Category 1) become apparent at any time appropriate action and assessment will be taken.

Evidence of actual harm or water pollution collated and reviewed

This is being reviewed and will be collated subsequent to the publishing of this document.

Possible receptors identified

The possible receptors categorised in 'table A' (which has been extracted from the DETR circular 02/2000 and is on page 12) relating to the district are clearly illustrated in the authority's GIS application for contaminated land and are summarised in the earlier descriptions of the district. Appendices 1 and 2 summarise the principle areas of special interest in the district. The names of the major settlements can be found on Map 1 (page 7) and the majority are described in 'Section 6'.

Possible risk to those receptors assessed

An overview is provided from available data at the time of writing this document. It is included under the headings *'information on receptors'* and *'information on the possible presence of contaminants'* given below. Further risk assessment will be undertaken during and after the preparation of this document. The prioritizing methodology that the Authority will employ is detailed in this strategy.

Information on possible presence of contamination evaluated

An overview is provided from available data at the time of writing this document. It is included under the heading *'information on the possible presence of contaminants'* (page 34) but further risk assessment will be undertaken during and after the preparation of this document. The Authority's priorities in this regard are also detailed in this strategy.

Efficient liaison and information exchange established:

Internal liaison and liaison with neighbouring authorities has been established and the completion of the data collation exercise is achievable within the timescale shown on page 15. The support of and liaison with the Environment Agency is in a developmental stage at the time of writing. Other stakeholders and consultees are listed in Appendix 4.

Justification for inspection of particular areas established

Inspections will occur when there is sufficient evidence to warrant such action
(e.g. a detailed report, complaint, desktop assessment, sighting suggesting contamination etc.). The protocol of investigation is covered elsewhere in this document. The prioritising of action is also detailed further in the strategy under 'Programme for Inspection' and 'Local Authority Priority Actions'.

Assumptions and inspection priorities checked at appropriate intervals

The authority will implement checking procedures in line with 'best value – best practice'. The specifics of such action to check assumptions and inspection priorities will be determined following the publication of this strategy when the authority is able to fully determine the resources needed to implement the strategy.

Effective output of information

The register format has been agreed. Information on the contamination of land will be made available through the NFDC's GIS and contaminated land database (figures 1, 2, and 3).

The requirements for the contents of the register are that it should contain details of:

- Appropriate persons
- Location and specific detail of the contamination
- Remediation notices, statements and claims
- Site reports and risk assessment details
- Designations of special status and exemptions
- Legal matters such as appeals against the authority's decisions and convictions of associated persons relating to the contamination of land

The public register will not contain details of contaminated land issues or historical records that are not directly pertinent to land determined as contaminated under the terms of the Environmental Protection Act 1990 (PartIIA), i.e. where a pollutant linkage has been established.

Report generation from the database and full single point access to data will require a second stage software development.

9. LOCAL AUTHORITY PRIORITY ACTIONS AND PROCEDURES

The further priorities for inspections and investigation are to be formalised on the following basis:

1. Determine and plan for action in respect to council owned, or previously owned land
2. Determine and plan for action on existing cases known to the Environmental Protection team
3. Determine and plan for action to meet the requirement to determine special status of known sites
4. Determine and plan for action for the further investigations required following the desk top surveys and various consultations
5. Determine the working resources and time scale required for items 1-4 and prepare a plan to start the commitment by February 2002 (see also section 12.).

The further considerations for attending to the general duties and responsibilities the authority will undertake are:

The need to

i. Monitor the resources applied to contaminated land issues with respect to action taken outside of the remit for a strategy and thus determine resources needed in the future for such work. Such general work would include: assessing development applications involving contaminated land, attending to public and business enquiries, attending to legal and planning action, attending government training seminars etc.
ii. Examine the time scale and resource requirements determined in '5' above and further determine how the planned work exceeds what can be construed as general work (see iii)
iii. Determine the interpretation of periodic inspection/survey of the district and examine how this impacts on available resources
iv. Determine the work involved in maintaining the register of contaminated land and how this impacts on available resources

v. Examine the need for expertise in contaminated land to be found from within the authority's staff, and/or purchased on an as needs basis from consultants/contractors
vi. Examine the need for urgent response to contaminated land issues and determine how this is delivered and impacts on available resources
vii. Examine the need for attending to site monitoring and the growth of this duty in the future, and thus the impact on available resources
viii. Examine the need for publicity of the authority's responsibilities regarding contaminated land, e.g. literature for information, mail outs, public relations through the media, and determine how this impacts on available resources
ix. Examine how the responsibilities are to be managed between the relevant sections within the authority and how this impacts on available resources
x. Examine the need for review of procedures and upgrading of resources such as the GIS initial model, staffing levels and equipment, and the method of co-ordination to deliver 'best value'

Timescales

The priorities for action and the timescales are, therefore, clear up to the point of strategy publication and the delivery of collated data. These are detailed above. The procedures for implementing the strategy are also clear but the determination of the resources required, whilst identified, cannot be quantified until the data needed has been reviewed to formally establish the priorities. It is likely that a program to attend to the priorities may extend over five years with a growing need to attend to site monitoring and the administration of remediation schemes.

Internal management arrangements for inspection and identification

As outlined above, the project of developing the strategy has been undertaken by a contaminated land strategy development officer from a neighbouring authority. The work has largely been undertaken within the Environmental Protection section, with appropriate liaison with Planning, Legal, and IT Departments. The initial survey for the purpose of establishing current/potential contaminated land issues is being undertaken concurrently but an overview is included in the strategy. The data collected will allow for the further consideration of how resources will be applied following the project. The tools for investigation of, and searching for, pollutant linkages are being created as part of the project. The register format and its incorporation with the authority's GIS applications have also been developed within the project.

Considering NFDC interests in land

NFDC land has been considered to form part of the requirements of the survey running concurrently within the project. TheNFDC's records will be referenced with the findings of the survey and other relevent archives investigated. The data obtained that relates to such land will be used to establish the authority's own contaminated land responsibilities and priorities at the same time as its responsibilities generally to act as a controlling authority concerning contaminated land.

10. INFORMATION COLLECTION AND EVALUATION

Information on harm

The information on actual harm, or pollution of controlled waters, will be sourced from files within the Environmental Pollution, Legal and Planning sections of the authority, historical land use data, and data provided by the Environment Agency together with water service providers. The categories of 'harm' to receptors include:

- Harm to human health (users and occupiers of land, people living near the land through exposure to substances such as asbestos, toxic chemicals, carcinogenic material
- Harm to the environment which may have implications for ecosystems
- Harm to water quality (surface and ground water), particularly when considering controlled water
- Direct physical harm to animals and humans through hazards such as explosive or asphyxiating gases from landfill and/or hidden toxic waste
- Harm to structures, for example the chemical decomposition of building materials (water born or air born contaminants), fires and explosions from waste material in landfill

Information on receptors

Receptors and potential receptors are acknowledged to be largely those indicated by the data from English Nature, English Heritage, the Environment Agency, and the population/settlement data collated within the authority's GIS applications.

Information on the possible presence of contaminants – AN OVERVIEW

The possible presence of contaminants is being determined from datasets obtained from historic mapping (sourced from Landmark), land use data from rating value information, and information from Environmental Health Services and the Environment Agency. Information specific to petrochemical refining and authorised processes generally will be examined for indications of potential land contamination. A survey of petrol stations and the sourcing of information concerning the decommissioning of petrol tanks will be undertaken in conjunction with Hampshire County Council. Previous planning applications involving the presence of contaminated land will be examined and site inspections conducted to determine the effectiveness of receptor protection at the respective locations.

- There are some 1224 sites potentially contaminated in the district and identified by a survey conducted by Landmark Ltd in their national review of historic Ordinance Survey maps.
- At the time of writing there are twenty four Part A and thirty two Part B authorised processes.
- There are over one hundred sites where petroleum activities are known to exist, or have previously existed.
- There are three significant areas of landfill activity where the Council has been a stakeholder'. (Further investigation of previously remediated and monitored sites will be required to determine the effectiveness of receptor protection).
- There are around fourteen sites with specific potential contaminant profiles (and a variety of stakeholders) including a major oil refinery, former scrapyards, foundries,

engineering works, saw mills, armaments and military installations (airfields, ports etc), and a power station. Some of these sites are subject to Environment Agency scrutiny.
- There may be a few water quality problems associated with septic tank installations and sewage treatment works that may fall outside of the direction of the Environment Agency or other current legislation.
- There are a few intense agricultural activities which will need to be assessed for potential risks.
- There is a possibility of a number of poorly maintained heating oil tanks that require locating and assessing.

All of the data associated with such sites is under review and collation in conjunction with the strategy. It seems that contaminated land pollutants in the district can be broadly classified as those that follow pathways in soil, water, geological strata and air with implications for human health and ecosystems. Despite the districts image of picturesque landscape and rural setting there is, collectively, a potential threat to sustainability without the strategic management of contaminated land.

Other information

The validity of inferences from the above will be checked by a program of walk over site inspections with non-intrusive sampling and testing where appropriate. This will be formalised in the action plan. Further requirements made apparent, such as a need for intrusive investigation, will be formulated on an ongoing basis with appropriate sourcing of expertise.

Information and complaints

A complaint regarding contaminated land will be dealt with in the same manner as those received by the authority's Environmental Protection Section for other matters considered as a 'statutory nuisance'.

Complainants can expect:
- their complaint to be logged and recorded,
- to be contacted by an officer regarding their complaint within seven working days of receipt, and
- to be kept informed of progress towards resolution of the problem.

In the context of contaminated land a complainant, who may be the 'appropriate person', has the right to appeal to a magistrate court against a remediation notice issued by a local authority within twenty-one days.

Every effort will be made to resolve complaints quickly and efficiently. The legislative framework does, however, present a number of obstacles to the speedy resolution of problems:
- the need for proof of a pollutant linkage
- the need to consult with stakeholders
- the designated process of issuing remediation notices
- the requirement to make every effort to locate the original polluter (or 'ClassA' person)

Determining the appropriate level/type of further information gathering by the authority

The authority will investigate contaminated land issues utilising appropriate examination by inspection and testing within practices accepted in the United Kingdom. The risk assessment

package termed ‘CLEA’ (Contaminated Land Exposure Assessment) from the DEFRA would seem to be the standard for examining contaminant trigger levels that will be accepted by most authorities. This has not been finalised, at the time of writing, there are computer-modeling programs, such as ‘Consim’ (from Golder and Associates), for looking at the potential for controlled water contamination, which will be examined and considered for use, amongst others, by the NFDC. In the interim the SNIFFER (Scotland and Northern Ireland Forum for Environmental Research) modelling procedure and the standards of ICRCL (Interdepartmental Committee on the Redevelopment of Contaminated Land) will form the basis of investigative comparisons, and the triggering of further attention. The authority’s approach to the management of contaminated land will broadly follow the procedures outlined in CLR11 (DETR Contaminated Land Report N0.11) illustrated in the publication ‘Communicating Understanding of Contaminated Land Risks’, Environment Agency Proj No. P5-17. The Authority will consider the available action and threshold level guidelines (e.g.those mentioned above) in the context of B45 to B49 of the statutory guidance.

The Ministry of Agriculture Fisheries and Food have advised that they do not believe it will be possible to establish a pollutant linkage for agricultural land by prediction of plant or animal uptake from soil data.

Once initial risk assessment has been undertaken, the authority will assess the need for obtaining more information by intrusive means if necessary. In the context of determining who may be the ‘appropriate person’, the Authority may need to undertake legal searches. Specific expertise not available within the authority’s staff may be sought from time to time to obtain information required to correctly assess contaminated land issues. Information may also be sourced from the Environment Agency in their advisory capacity on a site by site basis. Their assistance in evaluation of information may also be sought, but more particularly where there is consideration of controlled waters and the possibility of ‘special site status’. The Authority will have regard of the information from the Environment Agency except where it is in conflict with guidance issued by the Secretary of State or defined in PartIIA of the Act.

Maintaining any appropriate confidentiality

The Authority will strive to undertake its duties in a manner that encourages cooperation, and will in the context of the Environmental Protection Act, maintain confidentiality where appropriate to its contaminated land responsibilities. The authority will also undertake its duties with a regard for the rights of individuals determined in the Human Rights Act and the need to provide information including that prescribed under the Environmental Information Regulations. From time to time issues of confidentiality involving ‘commercial interest’ and ‘national security’ may occur. Legal advice will be sought where there appears to be conflicting legal requirements and the stakeholders will be informed of the authority’s position within a reasonable time of the issue arising.

Dealing with anonymously-provided information and anecdotal evidence

The Council does not normally undertake investigation based on anonymously supplied information. In exceptional circumstances, an investigation following receipt of such information may be undertaken. All information received will be dealt with in a manner that allows for determining credence without jeopardizing a person’s rights, or the spirit of a legitimate request for confidentiality. There may be some instances where confidentiality cannot be guaranteed due to security issues, the requirements of regulations under the Environmental Protection Act or rights of access to information by other parties. The Authority will use its best endeavours to respond to reported contamination incidents in a manner that

ensures protection of the environment and human health following an appropriate seeking and assessment of facts in a robust scientific manner.

Evaluating information on actual harm or pollution

Evaluation of pollutant linkages and risk assessment procedure will, as indicated above, be conducted using the appropriate available standards for considering trigger levels of contaminants. Incidents of harm to receptors will also be clearly documented and appropriate assistance sought when the need is identified. Action under Part IIA may also occur during implementation of 'Integrated Pollution Prevention and Control (IPPC)' in the future as existing industrial processes are reviewed. This topic is further detailed in section 13 below.

Contaminant sources vs. Receptors

The GIS contaminated land application will assist in the examination of linkages from either a potential source or receptor standpoint through the mapping of known information. Environmental impact will be assessed using current knowledge of examples of similar specific linkages where applicable.

Effectiveness of previous actions dealing with contamination

Without the significant new responsibility to consider the full impact of past contamination, the Council's records only indicate recent contaminated land issues (i.e. those pertaining to the period since the districts creation during the change of boundaries). Outstanding action will be upgraded to the requirements of the act during the implementation of the strategy outcome. The Authority will use its best endeavours to determine the legacies from previous authorities responsible for the administration of the district. Information and datasets relating to historical land uses will be sourced from environmental data suppliers such as Landmark and Sitescope to aid in the assessment of past contamination. The Authority is required to cause its area to be inspected so that all impacts from past contamination are considered.

Key geographical areas

The key geographical areas within the district are those containing Special Sites of Scientific Interest (SSSI's), Areas of Natural Beauty, Ancient Monuments, Listed Buildings and residential settlement. Water catchment zones are present together with underlaying minor aquifers in a hydrological context. Generally, this encompasses almost the entire district. Examination of contamination, however, is more difficult in built areas to the east of the district.

Specific potential pollutant linkages

The obvious pollutant linkages are to be found in the context of the river valleys. There is a need to monitor water quality in the the rivers due to some intense rural activities and the presence of some older septic tank waste water systems. There is also a likelihood of contamination from heating oil and other fuel tanks (residential and commercial), that may on occasion present a contaminated land issue under the definitions relating to the Environmental protection Act. Uncontrolled disposal of pollutants in and around industrial estates will also potentially create pollutant linkages in the district (see Map 2 page 28). The presence of a major oil refinery and past potentially polluting land uses are also specific to the district and mentioned in the overview given above.

Particular individual sites

Particular reference to sites cannot be made at the time of writing. The available information is being assessed in liaison with the Environment Agency. The inspection of a particular site will require a desk study, collating available information on past contaminative uses, investigations, pollution incidents, geology and hydrology. The determination of a sites status will depend on risk assessment procedures. Computer modeling and spreadsheet analysis will be used to aid this process and to ensure consistency in the approach. See illustration below.

Identify gaps in information and how these are to be remedied

The preliminary stages of the strategy development identified the gaps in information found within the council that are addressed as part of this strategy. These included comprehensive historical data, a sufficiently coordinated approach to the sharing of information and IT technology, and a facility to attend to contaminated land desktop assessment and documentation. The authority has sourced and procured datasets for the GIS project that includes: historic maps, aerial photographs, geological data, hydrological data, and potential receptor data. A team of personnel from Environmental Protection, Planning and IT has worked closely to develop the tools and internal protocol to establish coordination and implementation of the strategy. The various agencies and organisations identified above have been helpful in the provision of data and advice during the development of the strategy.

11. GENERAL LIAISON AND COMMUNICATION STRATEGIES

Other statutory bodies

It is proposed that the Authority formalises its relationship with the Environment Agency (EA). Consultation with the EA Contaminated Land Officer and GIS project manager for the region commenced during the preparation of this strategy. A program of meetings throughout the year will be determined in line with statutory deadlines for the transfer of information. The Environmental Protection Section will also establish routine contacts with the EA for site assessment and advisory procedure. Liaison with neighbouring district authorities has also been recognized as important for the purpose of examining issues on shared boundaries and expanding on the general cooperation that has existed in the past.

It is also acknowledged that the Authority may have overlapping internal responsibilities in some instances. This is one of the important factors that reinforce the requirement for the various departments that have contributed to this document to continue to work together and liaise on the subject. For example, having determined remediation protocols for a contaminated land site, there may be a question as to whether the remediation actions specified by the Environmental Protection Section are subject to planning consent. Equally, there could be the health and safety issue of planning officers inspecting contaminated land sites without checking with Environmental Health Services as to whether self-protection measures need to be taken.

Some other government departments may be involved in consultation and action regarding to contaminated land. These may include the Ministry of Defense and entities such as British Gas or Railtrack where land previously occupied and utilized by these organisations has passed to new ownership and use.

Owners, occupiers and other interested parties

All stakeholders will be able to access information relating to the council's activities through the Planning and Environmental Protection Sections. It is envisaged that advisory documents (leaflets) will be produced and distributed to potential stakeholders regarding the authority's policies and responsibilities relatng to the Environmental Protection Act 1990, Part IIA. The District Council's approach to its regulatory duties is to seek voluntary action before enforcement action and communicate with the stakeholders in an effective manner.

Where a formal determination of contaminated land is required, the authority will:

- write to the owner and/or occupier and/or appropriate person(s) associated with the land at least five working days prior to designation, explaining in summary the reason for designation
- write to the owner and/or occupier and/or appropriate person(s) associated with the land to seek remediation without serving a notice
- provide a copy of the associated risk assessment detail to write to the owner and/or occupier and/or appropriate person(s) associated with the land within five working days of receipt of a request
- write to the owner and / or occupier of neighbouring properties and/or the complainant within five working days of designating the land as being contaminated where it becomes necessary through non-cooperation:
- issue a written remediation notice to the owner/occupier/other appropriate person(s) specifying the action required
- write to the owner and/or occupier of neighbouring properties and/or the complainant within five working days of notice being served

Under Section 108(6) of the Environment Act, the Council has been granted powers of entry to carry out investigations. At least seven days notice will be given of proposed entry onto any premises, unless there is perceived to be an immediate risk to human health or the environment.

The wider community

From time to time, the authority may undertake initiatives to promote environmental protection. This might focus, for example, on users of oil for central heating purposes and those premises where there is the likelihood of sub standard waste and sewage disposal. It is also important to appreciate that the expectations of some members of the public will not be met by the powers local authorities may exercise under contaminated land legislation and it will be essential to provide clear and concise information on the authority's activities in respect to contaminated land.

In order to formalise the parallel responsibilities in a planning context it is proposed that a planning advice note be created and published. This would be aimed at those developers and community members who might wish to register planning applications for land that is designated as contaminated.

12. PROGRAMME FOR INSPECTION

The authority will determine an organized approach to the identification of contaminated land as outlined in figure 1 and prioritised as indicated in this document.

Criteria for selecting areas and individual sites

Sites that are contaminated will be classified in one of four categories:

Category 1
Site probably or certainly not suitable for current use and environmental setting. Contaminants probably, or certainly, present and likely to have an unacceptable impact on key targets (receptors). Urgent remediation action needed as land has been determined as contaminated in the context of PartIIA of the Environmental Protection Act (1990).

Category 2
Site may not be suitable for current use and environmental setting. Contaminants probably, or certainly, present and likely to have an unacceptable impact on key targets. Urgent investigative action needed in the short term to determine whether land is contaminated in the context of PartIIA of the Environmental Protection Act (1990).

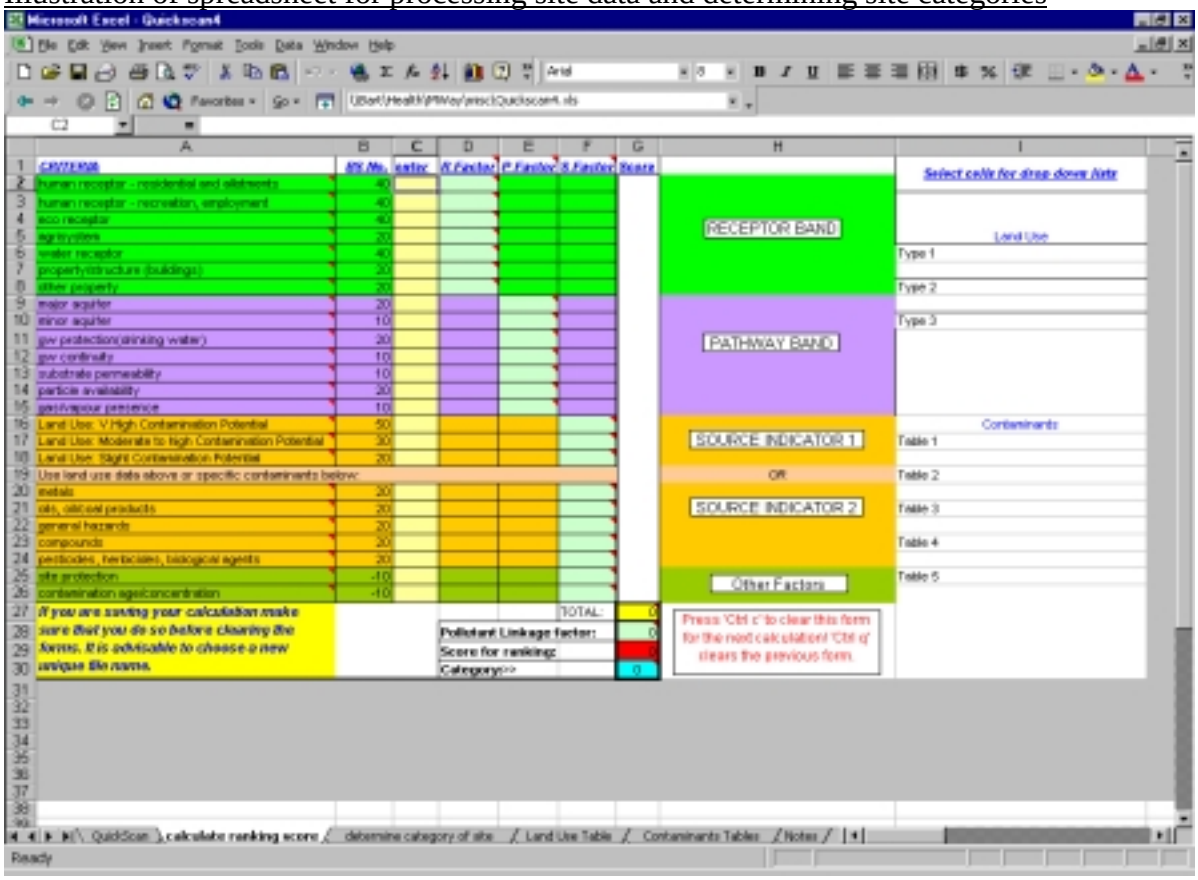
Category 3
Site considered as suitable for current use and environmental setting. Contaminants may be present but unlikely to have an unacceptable impact on key targets. Action not required whilst the site remains in present use and/or otherwise undisturbed. Monitoring activities may be put in place.

Category 4
Site considered as suitable for current use and environmental setting. Contaminants may be present but they are very unlikely to have an unacceptable impact on key targets. Action not required whilst the site remains in present use and/or otherwise undisturbed. .

These categories and the methodology behind the prioritising of sites are based on: The Department of the Environment Contaminated Land Research Report CLR6 (1995) 'Prioritisation and Categorisation Procedure for Sites which may be Contaminated'.

Any situation where there is doubt concerning classifying the site in accordance with these categories will be treated on the basis of assumed 'worse case scenario'. If there is evidence brought to the attention of the authority that there exists an immediate and unacceptable risk on or near a site then action will be a top priority irrespective of any existing or prior classification.

Illustration of spreadsheet for processing site data and determining site categories



Activities and Timetable

A program of desktop survey and some initial site inspection, as previously mentioned, will be determined and implemented by the authority for the exercising of its further duties under the Environmental Protection Act 1990, Part IIA, concurrently with the publication of this document. The prioritising of further action will occur and a further program will be implemented which is likely to detail the requirements for the next five years.

Once sites have been investigated they will be determined as contaminated land if they meet the definition given in the Environmental Protection Act (1990), PartIIA, and will then be remediated by or on behalf of the appropriate persons.

13. ARRANGEMENTS FOR CARRYING OUT DETAILED INSPECTION

Ensuring compliance

Following the data collection and assessment procedures running concurrently with the strategy development, a programme to attend to prioritised investigations will be implemented in the context of the guidelines and regulations (e.g. paragraphs B18 to B25 of the DETR circular 02/2000). These paragraphs outline the requirements for documentation, collation of information, investigation, categorising and making assessments about pollutant linkages, in addition to stating when and when not to use the statutory powers of entry). Monitoring procedures and remediation schemes determined between the authority and appropriate persons will require administration and appropriate checking measures to be undertaken by the Environmental Health Services department.

Site specific liaison

The inspection priorities will be examined as indicated above, and communication with stakeholders undertaken as necessary and detailed above.

Methods of inspection

Understanding and tackling contaminated land is essentially a risk management activity. This involves the evaluation of the options taking into account the available resources in order to select the most appropriate means of dealing with, or reducing, risk.

In the context of contaminated land risk management involves:

- Hazard identification
- Hazard assessment
- Risk estimation
- Risk evaluation
- Risk control.

The process will be achieved by the following phased activities, which are outlined above in figure 1.

- A site investigation activity aiming to identify hazard sources, pathways and receptors
- A risk assessment procedure that aims to qualify/quantify the risk of any particular receptor impacted by any particular hazard
- A risk reduction exercise that aims to reduce any risk to an acceptable level.

The principal advantages of risk management are that it is:

structured
objective
comprehensive

and it:

explicitly considers uncertainties
provides a rational basis for consulting on proposals with the stakeholders.

Site investigations will need to address the following:

1. The identification of the sources of contamination
    - location of contaminant
    - nature of contaminant
    - concentration of contaminant
2. The identification of the pathways
    - site topography
    - soil/rock permeability
    - joint/bedding systems
    - man-made pathways (shafts, culverts, pipes, backfill etc.)
    - surface drainage channels

3. The location of sensitive receptors
    - depth to groundwater
    - proximity of surface water and continuity with waterways
    - location of any extraction points
    - location of any SSSI's
    - other receptors.

The authority's phasing of site investigation will consists of the following steps:

(a) A desk top study for the collation and assessment of available information,

(b) A site visit to the particular area for the purposes of visual inspection and, in some cases, limited sampling (for example of surface deposits),

(c) A main intrusive investigation of the land (for example by exploratory excavations (trial pits or the sinking of boreholes)).

(a) Desk Top Study

The purpose of the desk top study is to pull together all available historical, geological, hydrological and other relevant information relating to the site and the surrounding area. The main purpose of the desk top study is to determine:

- The use for which the site may have been subjected in the past which in turn provides and indication of the types of contaminants which may be present,
- The hazards associated with the contaminants and the precautions that should be taken during any site visit or investigation to minimise health and safety risks for the investigators,
- The potential locations of any contaminant hot spots (high concentrations) such as storage, transfer or disposal sites.
- The location of any known spillages or leakages
- Factors affecting the possible movement of contaminants such as soil type, structure, hydraulic conductivity, depth to groundwater, site gradients and paths of least resistance (pipelines, sewers, cables etc.)
- Factors that might influence or limit the position of sampling points for obtaining soil, water or gas samples; e.g. the location of obstructions such as hard surfaces, buildings, services or underground structures

- Environmentally sensitive receptors in the vicinity such as residential homes, buildings with basements, surface water courses, extraction points, SSSI's etc.
- The sensitivity of groundwater resources beneath the site. This will include a consideration of the type of aquifer, the nature of the overlying soil, the depth of the unsaturated zone and positions of source protection zones
- Any information available on previous demolition and site clearance procedures.

It is not unusual for sites to go through a series of different developments, each of which may have left imprints of contamination on the site. Consequently any examination of historical information will need to be comprehensive. The surface topography of a site may also change over time. Many sites have pits, lagoons, underground structures and railway cuttings that have been in-filled over the years. It is important to identify the location of these structures as the nature of the fill material may need to be determined.

Sources of Information for Desk Top Study:

- Trade information from trade directories,
- Site plans to provide information on site layout and changes, location of pipelines, services, storage tangs etc.,
- Material Safety Data Sheets to provide information on the physical and chemical nature of products stored on-site and the health and safety and environmental hazards associated with them,
- Ordnance Survey maps of various scales (old 6" and 25")*)* to provide information on historical land uses, possible surface changes, and information on surface water distribution,
- British Geological Survey geological and hydrogeological maps,
- Utility companies and site owners/operators to provide information on the layout of drains, sewers, water, gas and electricity mains,
- Photographs, ground and aerial, old and new,
- Results from any previous site investigations, structural or contamination surveys,
- Long serving employees who may know of past spills, leakages or waste disposal practices, or any past complaints,
- Environment Agency for information on abstraction licences, advice on risks to groundwater
- Local Authorities for information on; past/current waste disposal operations (Environmental Protection), statutory nuisances on the site (Environmental Protection), past remediation (Planning and Environmental Protection)
- Industry profiles produced by the Department of the Environment which provide information on the processes and associated contaminants specific to particular industry types.

Following the initial collection of information, where potential contamination is suspected the desk top assessment of the information will take place to determine the priority of action for the site (see comments on CLR6 page 41). In the event of a requirement for more substantive information this may lead to the next stage, phase (b) Site Visit, see pahge 46. Otherwise it may be clear that the site cannot be classed as contaminated land in the context of the Environmental Protection Act (1990), Part IIA.

(b) Site Visit

A site visit to the area/site for a site walkover to obtain visual and other sensory indicators of the possible contamination on site, may confirm the initial expectations, determined from the desk study. In addition, where appropriate, there will be on-site discussions with landowners, appropriate person and any statutory consultees.

Contamination may be present because of:

- Waste materials brought to the site and deposited
- Waste materials generated by activities on or near the site and deposited
- Deposition/accumulation/spillage of materials used or produced by previous or current activities on or near the site. This may result from emissions to air, runoff from stockpiles, or general spillage or leakage.

A wide range of indicators around or on the site may suggest the presence of past contaminative land uses or the presence of actual contamination. These may be as shown in Table G:

Table G. Contamination indicators from site visit.

Key Indicator
1. Past industrial use indicated by street names, building names etc.
2. Past industrial use indicated by site debris
3. Existing infrastructure or building design (indicated historical use of site)
4. Odours and gases
5. Evidence of spilllages
6. Evidence of fire
7. Evidence of fly tipping, litter build-up and made ground
8. Coloured or oily deposits on the soil surface, precipitated salts or crusts
9. Condition of water bodies or water courses; discolouration, deposits, sheen
10. Condition of any accessible drains or culverts; discolouration, deposits, tide marks, sheen
11. Marked differences in vegetation, soil type, topography etc. within the site or between the site and surrounding environs
12. Presence of bare or poorly vegetated patches of ground
13. Uncharacteristic plant assemblages for location, climate, soil type and ecological phase
14. Lack of species diversity
15. Visible signs of plant stress or discolouration
16. Poor root and nodule development
17. Presence of indicator species, particularly plants and aquatic macroinvertibrates
18. Absence of wormcasts (unless soil is naturally acidic)
19. Poor soil structure
20. Dead animals

Output from Desk Top Study and Site Walk-over:

The principal output from a desk study and site walk-over is a report generated from all the collated data, kept on a central database, that includes the following:

- Assessment: - all available information would be assessed to identify possible potential environmental issues and concerns (if any exist). The impact on the site and any subsequent liabilities (hazards and risks) of future owners or developers would be indicted. Likely contamination sources and possible contamination types would be detailed and the site given a definitive category (such as under the recommended protocol of CLR6) for further action.
- Proposed future work; information gaps would be identified and further stages of investigation proposed. If it is considered that intrusive site investigation is required then a sampling regime and analytical suite would be discussed. An estimate of possible costs and time requirements for these investigations may also be provided.

The CLR6 categorising may lead to a further investigation stage such as **(c) Intrusive sampling**, to aid in the determination of remediation activities. The preparation of a site diagram showing the salient points and illustrating the pollutant linkages (known as a 'conceptual model'), might be appropriate and be drawn up at this time.

The statutory guidance (section B.23) does indicate, however, that when sufficient information to determine the pollutant linkages is apparent from the initial investigations, proceeding with action toward remediation may not require intrusive investigative work. A final risk assessment utilizing all of the available data occurs prior to determining the appropriate remediation. See figure 1.

(c) Intrusive sampling

Planning a sampling regime:

Any ground investigations must take into account the possible variations that might exist in the composition of any materials underlying a site, any infilled material and the presence of any buried foundations or other obstructions. A sampling regime might consider the possible sampling of:

- Soil
- Groundwater
- Soil atmosphere
- Surface water
- Atmosphere above the ground surface
- Any fluids in culverts or drains
- Any contaminated structures.

The sampling will aim to

- Confirm suspected sources of contamination
- Identify' unknown sources of contamination
- Determine types and concentrations of contaminants
- Determines the lateral and vertical spread of contaminants
- Provide sufficient data to determine suitable remedial measures if necessary.

The major items to consider when determining the sampling regime will be:

- Analytical requirements – e.g. criteria for representativeness and Quality Assurance
- Location of sampling points on the site, e.g. the depth and frequency of sampling location
- Sample collection mechanism, materials and methodology
- Sample handling preservation, filtration, field control samples, labeling
- Field determinations, - unstable species, additional sampling variable, pH, temperature, electrical conductivity, dissolved oxygen, hydrocarbons, soil gas surveys
- Sample storage - preservation of sample integrity, sample custody
- Sample transportation - transportation method, frequency
- Monitoring locations - design, construction and performance evaluation
- Investigations records - log books, bore hole and trial pit logs, photographs, video recordings
- Potential for geophysical surveys
- COSHH and Health and Safety considerations
- Environmental protection requirements.
- Employment of an appropriate analytical laboratory with NAMAS and ISO9002 accreditations

Sampling will be carried out by either a suitably qualified and experienced council officer or a suitably qualified and experienced environmental consultant (refer CLR6 guidance on competency of persons).

A properly formulated spatial sampling plan will be a key component in any site investigation. A poorly designed sampling plan may fail to provide adequate assurance that all contamination has been identified.

Extreme care will be taken to ensure that any sampling does not penetrate any low permeability horizons on the site that might be 'containing' any contamination. Penetration of these layers can create additional pathways through which contaminants can travel. These considerations might result in a depth constraint for any sampling regime (unless appropriate measure are employed to appropriately seal the low permeability layer after the investigation).

The location of sample points should also take into account those factors likely to influence the distribution (or migration) of contamination across the site. These include any history of spills, site gradients, geology and hydrogeology (soil structure, permeability and direction of groundwater movement) and the location of any foundations, subsurface pipelines, cables, conduits or voids.

The location of sampling points can be determined by a variety of methods although two major approaches will be used:

1. Sampling locations based on information derived from the desk study and walk over - this approach is normally used when good site plans and operational information is available. Sampling will be located where particular operations that might have given rise to contamination have been conducted. For example around fuel stores, raw material transfer points, waste handling and disposal operation areas.

2. Predetermined sample pattern - this approach can be used where there is little information known abut the site and where there is a more or less equal probability of all parts of the site containing a contamination hot spot.

The approach used will often be site specific, and a mixture of approaches might be appropriate in some instances.

The number of sampling locations on a site will be largely dependent upon the size of the site. This will be influenced by knowledge of, and variations in, the materials underlying the site. Influencing factors are:

- Current guidelines on the recommended number of samples to be taken
- Area of site and extent of suspected contamination
- Number of sampling phases
- Anticipated nature and distribution of contamination
- Degree of confidence required
- Cost
- Future landuse
- Availability of suitable sampling equipment and ease of access to site
- Time scale and windows of opportunity.

A final risk assessment utilizing all of the available data occurs prior to determining the appropriate remediation. Figure 1 shown earlier in this document shows a diagramatic representation of the overall process of inspection and assessment. The principal reference document relating to site investigation recognised by the authority will be BS 10175:2001, Investigation of Potentially Contaminated Sites. Code of practice.

In summary inspections will encompass desk top surveys using the GIS tools developed during the strategy, prioritised site inspections, non intrusive and intrusive sampling of potentially contaminated material as necessary. Analytical services will be outsourced as required in accordance with the policies of 'best value – best practice'. Action will be determined and tracked on the Contaminated Land database and Register.

Health and safety procedures

The varied health and safety procedures regarding contaminants will be reviewed and implemented for each site as and when human contact with a contaminant is anticipated such as during intrusive investigation. Protection from hazardous substances will be based on:

- hazard avoidance,
- hazard control and
- personal protection from the hazard.

Prior to any site visit it will be necessary to review information derived from the desktop study in order to assess any health and safety issues that may affect any council officer and others attending.

This assessment will be based on known information at the time of any on-site contaminants or land/water hazards resulting from past land use and associated potential contaminants.

Special consideration will be given where gas might be present and with other hazards such as mine shafts, wells, underground constructions and unsafe buildings. Relevant guidance on health and safety is provided within the HSE HS(G)66 Protection of Workers and the General Public during the Development of Contaminated Land. HSE SIR 51, Remediation of contaminated land, occupational

hygiene aspects on the safe selection and use of new soil clean up techniques, will be a relevant reference during remediation and monitoring visits.

Any intrusive sampling by either council officers or environmental consultants will be subject to current industry guidelines as to the collection of those samples and any occupational risk assessed in relation to the potential hazard from the expected contaminants.

Potential special sites

During the process of inspection and determination of a pollutant linkage the authority will be seeking guidance from the Environment Agency, particularly where there is a threat of harm, or actual harm to controlled waters. It will be a policy of the authority to refer all serious and extensive pollutant linkages to the Environment Agency for consultation and possible action by that agency. The Authority may request the Environment Agency to undertake the inspection of potential special sites on its behalf (Paras B.26-B30 DETR Circular 02/2000). **Special site** status is determined by whether the potentially contaminated site is described in the legislation (specifically with reference to Section 78C(8) (EPA 1990), Schedule 1 of the regulations and regulations 2 and 3). The regulations specify geological, hydrological, substance and receptor factors that change a site's status to a 'special site'. The authority responsible for administering actions under PartIIA of the Act for a 'special site' changes from the Local Authority to the Environment Agency.

The Environment Agency rather than the Local Authority becomes the enforcing authority for land designated as having 'special site' status. Where there is evidence to suggest that controlled waters are being polluted by contaminated land the Environment Agency will work alongside and in consultation with the Local Authority. Certain groups of contaminants and the presence of aquifers and ground water source protection zones, are highlighted in the regulations for the consideration of special site status.

Making arrangements for external appointments of consultants etc

From time to time it may be necessary to appoint external consultants where expertise is not available within the staff of the council. As a further development of the strategy the authority may be determining a list of preferred consultants and determining operating briefs and reporting formats, seeking conformity with established UK standards.

"Risk communication" strategy, especially with local communities

In the event of a serious risk to a large number of human receptors or a district natural resource it will be necessary to implement a 'risk communication strategy'. The Authority will seek advice to determine the likelihood of such occurrences and develop a series of strategies to meet potential problems together with the Environment Agency subsequently and concurrently with the implementation of this strategy. In respect to the general principles of contaminated land (management of issues and responsibilities) the Authority will consider the preparation of information bulletins for public distribution.

Frequency of inspection

The frequency of inspections of contaminated land sites will be determined by the need for monitoring procedures within remediation regimes, the extent of high priority sites determined in the first collation of data, and the resources available to the authority. The Authority will seek guidance on this issue as the need arises. It is anticipated that a full programme of inspections on sites that

would be considered worthy of scrutiny could occupy an officer for five years. At the end of this period it might be considered prudent to commence a second audit of the district. But this activity would be separate to general consultations on contaminated land issues and determining/pursuing ‘appropriate persons’. These are also part of the Authority’s responsibilities.

Format of information resulting from inspection

The database/GIS contaminated land interface will allow for the logging of all necessary data required under the Act. Additional or referred information will be held in the Environmental Protection Section filing system and database. Under the legislation regarding environmental information relevant items will be made accessible on application to the Environmental Protection Section. The provision of reports, printed or in electronic format, will be subject to a fee for service to cover administration costs. Such fees will be determined by Environmental Health Services and will follow council policy in such matters. Local residents will be able to call in, view information or phone to discuss matters with a council officer without being charged. The subject of the public register has been detailed above.

14. INFORMATION MANAGEMENT

General principles

In line with the NFDC policies on information management, data will be held securely and electronically on the NFDC computer networks with automatic backup. Correspondence will also be held in scanned electronic format and hardcopy. Initially hard copy will also be made accessible on application.

Information content

The NFDC Contaminated Land database and register will contain information and summaries regarding the authority's responsibilities under the Act. This has been detailed on page 32 (Effective Output of Information).

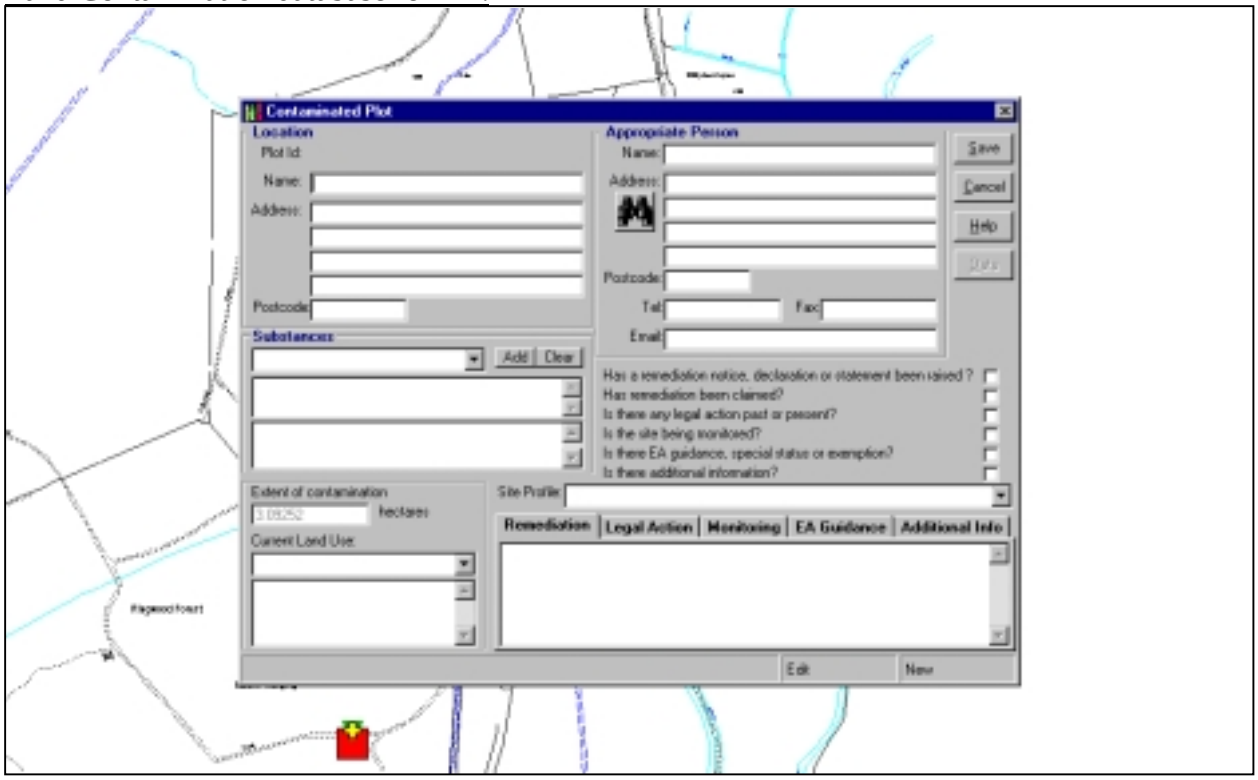
Storage systems

The information will be held on a database with file storage of some information in both hard copy and electronic format.

Administration

The NFDC Environmental Protection Section (with the assistance of the Planning Section) will undertake the administration procedures.

Land Contamination database form 1.



Use by other LA departments

The GIS contaminated land system will be accessible to the various employees required to work in the area of contaminated land within; Environmental Health, Planning and Land Charges and the associated administrative services. The database and GIS facility will be further enhanced to facilitate working procedures and arranging access to information.

Confidentiality of information

Where there is a statutory requirement for information to be available in the 'register of contaminated land' such information will be available to the public. Proper consideration will, however, be given to the holding of commercially confidential information and information associated with national security.

Arrangements for giving access to information

Information and access to a public interface with the GIS application is anticipated to be through the planning department with associated files for notices, declarations and statements being available through Environmental Health. Whilst this is in development direct application to the Planning Department and Environmental Health services Department can be made through the council's public reception area, in writing or by phone/fax etc.

Dealing with requests for information

Information relating to contaminated land will be available during property searches undertaken by the authority as a service/duty when answering conveyancing questions. Members of the public will be able to access the contaminated land register. Forms to complete for obtaining copies of statutory documents will also be available for subsequent processing by Environmental Protection.

Provision of information to the Environment Agency

Information held and strategies prepared by the authority on contaminated land issues, that are clearly relevant to the requirement to share information and coordinate responsibilities, will be available to the Environment Agency through regular contact, briefings, debriefings, and will be supplied on request through the appropriate channels.

15. REVIEW MECHANISMS

Review of assumptions and information (triggers for inspection)

The triggers for inspection will be grounds for establishing a pollutant linkage leading to sampling and comparison of pollutant concentrations with recognised standard trigger lists such as: the ICRCL 59/83 Trigger Concentrations and the New Dutch List. The use of a risk assessment modelling tool such as envisaged with CLEA would be sought when proven and available. In the interim the SNIFFER modelling procedure will be used. The authority's approach to the management of contaminated land will broadly follow the procedures outlined in CLR11 illustrated in the publication 'Communicating Understanding of Contaminated Land Risks', Environment Agency Project No. P5-17.

Review of Strategy Document (timetable and triggers for early review)

This document will be reviewed in draft in November 2001 prior to its publication and the implementation of prioritised action between December 2001 and February 2002. Should the data collation exercise, running concurrently reveal a need for urgent action on a major issue the review may be brought forward to allow earlier consideration of the application of resources. The strategy will be subject to annual review thereafter.

Audit of inspection procedures

The validity of purchased data and recorded local knowledge used in the initial survey and data collation processing will be validated by site inspections undertaken by an appropriately qualified and experienced officer of the council. The development of an audit procedure to establish the accuracy of data and reports held by the authority will be undertaken once the programme of further work, resource application and general strategy implementation has occurred.

Triggers for Inspection

Triggers for undertaking non-routine inspection will include:

- **unplanned events** (e.g. following a spill)
- **the introduction of new receptors** (designation or a new protected ecosystem, etc)
- **voluntary remediation** (remediation prior to the authorities formal request for action)
- **the identification of localised health effects** (perhaps relating to a parcel of land)
- **responding to information** (from other statutory bodies, owners , occupiers, or other interested parties)

In addition there may be occasions where the findings of previous inspection decisions need to be reviewed.

Reviewing the strategy

The strategy will be finalised following consultation during November 2001 and the work on the inspection process will begin in earnest from February 2002. Annual reviews of progress with inspecting and prioritising will be required to determine the effectiveness of implementation and appropriateness of resource allocation. It is envisaged that a complete review of the authority's district will not be completed before the fifth year.

16. OTHER SUPPORTING INFORMATION

Contact points in the authority

The main points of contact for requests pertaining to contaminated land information are:

Type of Query	**Service**	**Contact details**
General queries relating to Contaminated Land and information requests	Environmental Protection Section	
For property and land transaction queries	Land Charges	
Planning development or change of land use	Planning Section	

Information sources

1. Landmark Information Group. 7 Abbey Court, Eagle Way, Exeter EX2 7HY
2. Sitescope Ltd. PO Box 606, Bromley, BR1 2ZR
3. British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham NG12 5GG
4. English Nature. Northminster House, Peterborough PE1 1UA
5. Department of the Environment, Transport and the Regions (now DEFRA). Eland House, Bressenden Place, LONDON SW1E 5DU
6. English Heritage. Customer Services Department, PO Box 569, Swindon SN2 2YP
7. The National Trust. Wessex (Bath & Bristol areas, Dorset, Somerset & Wilts): Eastleigh Court, Bishopstrow, Warminster, Wilts BA12 9HW
8. The Environment Agency. Rivers House, Sunrise Business Park, Higher Shaftesbury Road, Blandford, Dorset DT11 8ST
9. MAFF. Nobel House, 17 Smith Square, London SW1P 3JR

References

1. Department of the Environment, Transport and the Regions (DETR) Circular 02/2000
   Statement of government policy, a description of the new laws, and statutory guidance.
   ISBN 0-11-753544-3

2. The Contaminated Land (England) Regulations 2000 (SI 2000/227)
   Dealing with various procedural details such as registers, remediation notices and appeals.
   ISBN 0-11-085901-4

3. The Environmental Protection Act 1990
   An Act to make provision for the improved control of pollution arising from certain industrial and other processes; to re-enact the provisions of the Control of Pollution Act 1974 relating to waste on land with modifications as respects the functions of the regulatory and other authorities concerned in the collection and disposal of waste and to make further provision in relation to such waste; to restate the law defining statutory nuisances and improve the summary procedures for dealing with them.
   ISBN 0-10-544390-5

4. The Environment Act 1995
   Section 57 contains the main legislation referred to in Circular 02/2000. This legislation is called PartIIA of the Environmental Protection Act 1990.
   ISBN 0-10-542595-8

5. Department of the Environment: Contaminated Land Research: CLR (Report No 6).
   Prioritisation and Categorisation Procedure for Sites which may be Contaminated.

   Department of the Environment: Contaminated Land Research: CLR (Report No.11).
   Handbook of Model Procedures for the Management of Contaminated Land.

6. Health and Safety Executive, Directorate of Science and Technology, SIR No 51.
   Remediation of contaminated land, occupational hygiene aspects on the safe selection and use of new soil clean up techniques. JJ McAlinden.

7. Health and Safety Executive, Directorate of Science and Technology, HS(G)66
   Protection of workers and the general public during the development of contaminated land.

8. Published notes from: Joint Environment Agency & Local Authority Training Seminar. 5077 15/02/2000. Development of site characterisation strategies.

9. British Standards Institute. BS 10175:2001 Investigation of potentially contaminated sites. Code of practice.

10. Environment Agency project No P5-17, SNIFFER Project No SR97(11)F
    Communicating Understanding of Contaminated Land Risks.

11. The New Forest District Council's Corporate Plan 'The Heart of the Forest', June 2001

12. The New Forest District Local Plan, and proposed amendments September 2001

13. Environmental Information Regulations (1992)

14. Enforcement Concordat - code of practice (Central and Local Government)(2000)

15. Human Rights Act (2000)

16. Guidance on the Assessment and Redevelopment of Contaminated Land, ICRCL Guidance Note 59/83

APPENDIX 1, Conservation Areas.
From the NFDC Local Plan

G3 CONSERVATION AREAS AND HISTORIC LANDSCAPES

Note: Boundaries may have been revised since original date of designation

Conservation Areas in New Forest District and dates of designation

Ashlett Creek, Fawley 2000 *(original designation 1993)*
Beaulieu 1999 *(original designation 1971)*
Bickton 1999 *(original designation 1981)*
Breamore 2000 *(original designation 1981)*
Brockenhurst (Waters Green) 1999 *(original designation 1983)*
Buckland, Lymington 1992 *(original designation 1988)*
Buckler's Hard 1999 *(original designation 1971)*
Burley 1999 *(original designation 1981)*
Damerham 1993 *(original designation 1976)*
Eling, Totton 2000 *(original designation 1979)*
Exbury 1998
Fordingbridge 1999 *(original designation 1975)*
Fritham 1999 *(original designation 1981)*
Hanger Farm, Totton 1986
Harbridge 1999 *(original designation 1993)*
Hatchet Green 1998
Hazel Farm, Totton 1999 *(original designation 1996)*
Hythe 1993 *(original designation 1978)*
Ibsley 1999 *(original designation 1981)*
Lymington 1999 *(original designation 1969)*
Lyndhurst No. 1 1999 *(original designation 1975)*
Lyndhurst No. 2 (Swan Green) 1999 *(original designation 1975)*
Lyndhurst No. 3 (Emery Down) 1999 *(original designation 1981)*
Lyndhurst No. 4 (Bank) 1999 *(original designation 1981)*
Martin 2000 *(original designation 1974)*
Milford-on-Sea No. 1 1999 *(original designation 1975)*
Milford-on-Sea No. 2 1999 *(original designation 1975)*
Milford-on-Sea No. 3 (Keyhaven) 1999 *(original designation 1975)*
Minstead 1999 *(original designation 1981)*
Old Milton Green, New Milton 1999 *(original designation 1993)*
Ringwood 1999 *(original designation 1970)*
Rockbourne 2000 *(original designation 1976)*
Royal Naval Armaments Depot, Marchwood 1999 *(original designation 1997)*
Sopley 1999 *(original designation 1976)*
Sway Tower 1999 *(original designation 1981)*
Whitsbury 2000 *(original designation 1976)*
Woodgreen 1998

Historic Landscapes
Sites on English Heritage Register of Parks and Gardens of Special Historic Interest, Part 19, Hampshire

Site Grid Reference

Breamore Park SU 155192
Brockenhurst Park SU 312018
Cadland House SZ 468997
Exbury House SZ 423003
Hale Park SU 183187
Pylewell Park SZ 350962
Rhinefield SU 266038
Sites of historic interest but not on Register
Beaulieu:
Palace House SU 387025
Bramshaw:
Fountain Court SU 266146
Burley:
Durmast House
(Gertrude Jekyll garden) SU 226025
Castle Top SU 201038
Calshot:
Eaglehurst nr. Calshot
(Victorian gardens and wells) SZ 475010
Copythorne:
Bartley Lodge SU 297131
Everton:
Efford House SZ 299943
Fordingbridge:
Burgate Manor (Game Conservancy),
Fordingbridge SU 153146
Fryern Court SU 143161
Hinton (nr Bransgore):
Hinton Park
(also known as Hinton Admiral) SU 206962
Lymington:
Walhampton School,
Lymington SU 334966
Pennington House,
Lower Pennington SU 318934
Lyndhurst:
Foxlease SU 298069
Queens House SU 298082
Wilverley Park SU 295068
Marchwood:
Marchwood Park SU 391092
Milford-on-Sea:
Newlands Manor, Milford-on-Sea SZ 286933
Minstead:
Minstead Lodge SU 288114
Ringwood:

Bisterne Manor SU 153008
Somerley Park, Ringwood Forest SU 132082
Sandleheath:
Sandle Manor SU 136148
Sopley:
Avon Tyrell SU 186003
Totton:
Testwood House, Testwood Lane,
Totton SU 360144

G4 DESIGNATED SITES OF NATURE CONSERVATION VALUE

Sites of Special Scientific Interest (SSSIs)

SSSIs in England are designated by the Nature Conservancy Council for England (English Nature) under Section 28 of the Wildlife and Countryside Act 1981 (previously, some areas were given limited protection under Section 23 of the National Parks and Access to the Countryside Act 1949; in this District most of these have now been re-notified and given additional protection under the 1981 Act). They cover areas which are of particular value because of their flora, fauna, geological or physiographical features. Local planning authorities are required to have regard to nature conservation interests in local plans, and in determining planning applications; Planning Policy Guidance Note 9 (PPG 9), Nature Conservation refers.

Large parts of this District are included within designated SSSIs, as follows:

Site name Area (ha) Date of notification
New Forest 28,947 1959, re-notified 1987 and 1996
North Solent 1,260 1951, extended 1978
Avon Valley (Bickton-Christchurch) 1,384 1974, 1977, 1984 & 1989 (parts), 1993
Hurst Castle-Lymington Estuary 1109 1961, re-notified 1986 extended 1995
Hythe-Calshot Marshes 683 1979, re-notified 1984 extended 1994
Martin & Tidpit Down 379 1971, extended 1987
Roydon Woods 269 1979, re-notified 1985
Lower Test Valley 39 1971, re-notified 1986
Knighton Downs & Wood 204 1971, re-notified 1988
Eling & Bury Marshes 132 1978, re-notified 1986
Boulsbury Wood (part) 120 1983
Highcliffe-Milford Cliffs 81 1953, re-notified 1991
Sowley Pond 48 1971, re-notified 1984
Poors Common 46 1992
Burton Common 42 1978, re-notified 1984
Lymington River Reedbeds 41 1978, re-notified 1984
Fletchwood Meadows 8 1986
Norley Copse & Meadows 7 1971, re-notified 1984
Breamore Marsh 19 1978, re-notified 1984
Ebblake Bog (part) 3 1985
Toyd Down & Quarry 8 1987
River Avon System 507 1996
(not all in NF District)
Lymington River 32 km 1997

River Test 443 (50 km) 1997 (not all in NF District)

Ramsar sites and Special Protection Areas (SPAs)

The UK is a signatory to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, held at Ramsar in Iran in 1971. The objectives of the Convention are to stem the loss of wetlands, which are defined as being areas of marsh, fen, peatland or water, natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt. They include areas of marine water which are not more than 6.0 metres deep at low tide. All the signatories to the Convention are required to designate wetlands meeting the agreed criteria (Ramsar sites).

The UK is also bound by the European Communities Directive of April 1979 on the Conservation of Wild Birds (Directive 79/409/EEC on the Conservation of Wild Birds). Member states are required to take special measures to conserve the habitats of two categories of bird:
i certain listed rare or vulnerable species; and
ii regularly occurring migratory species.

Particular attention must be paid to wetlands, especially those of international importance.

Member states are required to classify these areas as Special Protection Areas (SPAs).

Ramsar sites and SPAs are identified by the Joint Nature Conservation Committee in collaboration with the appropriate Country Conservation agency, which in England is English Nature. The Secretary of State for the Environment is responsible for the designation of sites in England. These designations are quite separate from the notification of SSSIs, but in many cases, as in this District, they overlap.

The following sites within this District are Ramsar sites and SPAs:
Area Date
New Forest (SSSI) 1993
Avon Valley (SSSI) 1998
Solent and Southampton Water 1998
includes:
Hurst Castle and Lymington River Estuary
SSSI (part)
Lymington River Reedbeds SSSI
Sowley Pond SSSI
North Solent SSSI (part)
Hythe to Calshot Marshes SSSI
Eling and Bury Marshes SSSI
Lower Test Valley SSSI

Special Areas of Conservation (SACs)

The European Union (EU) adopted the Habitats Directive in May 1992 (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora). Sites identified under this directive are known as Special Areas of Conservation (SACs). It complements the earlier Birds Directive which has resulted in the designation of SPAs (see paragraph G4.4 above). The Habitats Directive isEuropean law which provides for the creation of a network of protected areas across the EU to be

known as Natura 2000. It is intended to protect the most endangered habitat types and species in the EU. The main aim is to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements.

The areas selected as SACs are those that make a significant contribution to the conservation of habitats and species identified in the Directive. They include marine habitats; the Directive requires the designation of SACs at sea as well as on land. Some of those proposed for this District are marine SACs.

In the UK, the Habitats Directive is given effect by the Conservation (Natural Habitats &c.) Regulations 1994. The UK already has a substantial array of nature conservation policies, consolidated in the Wildlife and Countryside Act 1981, which provides the basis for the designation of Sites of Special Scientific Interest (SSSIs). Like SPAs, SACs are usually based on SSSIs.

English Nature, Scottish Natural Heritage and the Countryside Council for Wales, in collaboration with the Joint Nature Conservation Committee, advises the Government on areas which they consider could qualify as SACs. On land, their selection is based on the best SSSIs; at sea, where there are no
SSSIs, areas are chosen from those widely recognised as important for marine nature conservation.

The following areas within this District have been submitted to the European Commission as candidate SACs: • Solent Maritime candidate SAC (includes parts of the Hurst Castle & Lymington River Estuary SSSI, the North Solent SSSI, the Hythe-Calshot Marshes SSSI, the Eling & Bury Marshes SSSI and the Lower Test Valley SSSI; also areas off-shore in the Solent) • Solent Lagoons candidate SAC (includes part of the Hurst Castle & Lymington River Estuary SSSI) • New Forest candidate SAC (includes most of the New Forest SSSI) • Ebblake Bog (includes Ebblake Bog SSSI as part of a wider Dorset Heaths candidate SAC) • River Avon System candidate SAC

National Nature Reserves (NNRs)

NNRs are designated by English Nature under Section 35 of the Wildlife and Countryside Act 1981. Formerly they were designated under the National Parks and Access to the Countryside Act 1949, as amended by the Nature Conservancy Council Act 1973. They are areas of national and sometimes international value for nature conservation which are owned or leased by English Nature or a body approved by them, or are managed in accordance with Nature Reserve Agreements with landowners or occupiers. Many such reserves are also SSSIs, as in this District, where there are three NNRs: • North Solent; 767ha (1980, extended 1983) • Martin Down (part); 249ha (1983, extended 1986) • Kingston Great Common; 54ha (1994)

Local Nature Reserves (LNRs)

LNRs are established by local authorities, in consultation with English Nature, under Section 21 of the National Parks and Access to the Countryside Act 1949, as amended by the Local Government Act 1972. They are intended to protect habitats of local significance. The local authority can protect these areas by means of byelaws which are confirmed by the Secretary of State for the Environment.

The following LNRs have been designated in New Forest District:
• Lymington & Keyhaven Marshes
• Calshot Marshes
• Boldre Foreshore (proposed).

Sites of Importance for Nature Conservation (SINCs)

SINCs are areas which are of critical importance for nature conservation within the District, (i.e. they are effectively irreplaceable and deserve the strongest nature conservation measures), but which are not included in other nature conservation designations. They have been identified in accordance with criteria which have been adopted by Hampshire County Council, English Nature and the Hampshire Wildlife Trust, as follows:

Criteria for selecting SINCs

1. Woodland

A Ancient(1) semi-natural(2) woodlands.
B Other ancient woodlands where there is a significant element of the original semi-natural woodland surviving.

C Other semi-natural woodlands if;
i they support an assemblage of species of restricted distribution in the county;
ii they comprise important community types of restricted distribution in the county such as yew woods on the chalk and alder/ willow woods in the river valleys;
iii they support one or more notable species(3).

D Pasture woodland and wooded commons, not included in any of the above, which are of considerable biological and historical interest.

2. Neutral/ acid/ calcareous grassland

A Agriculturally unimproved grasslands(4) which support a characteristic flora and fauna.
B Semi-improved grasslands which retain a significant element of unimproved grassland.
C Grasslands which support a significant population or populations of one or more notable species.
D Grasslands which have become impoverished through lack of management but which retain sufficient elements of relic unimproved grassland to enable recovery.

3. Heathland

A Areas of heathland vegetation; including matrices of dwarf shrub, grassland, valley mires and scrub.
B Areas of heathland which are heavily afforested or have succeeded to mature woodland if;
i they retain significant remnants of heathland vegetation which would enable their recovery.
ii they are contiguous with, or form an integral part of an open area of heathland.
iii they support one or more notable species.

4. Coastal habitats

A Semi-natural coastal and esturine habitats, including saltmarsh, intertidal mudflats, brackish ponds, grazing marshes and coastal grasslands.

5. Wetland habitats

A Areas of open freshwater (eg. lakes, ponds, canals, rivers, streams and ditches) which support an exceptionally rich assemblage of floating/ submerged/emergent plant species, invertebrates, birds or amphibians, or one or more notable species (3).
B Fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged (seasonal or permanent) conditions.

6. Species

A Sites which support one or more notable species (3).
B Sites which regularly support a significant population of a species of restricted distribution in the county. This includes sites that may only be used seasonally or for one part of a species' life-cycle.
C Sites which support a particularly rich assemblage of species (not necessarily notable).

7. Social value

A Sites of nature conservation interest which;
i occur in areas otherwise deficient in such interest, and/ or ii are known to be of particularly high value to local communities eg.community wildlife sites. (Note: sites selected under this criterion will be rigorously confined to those which, if lost, would result in a considerable and demonstrable loss to the local community which would be very difficult/ impossible to replace. Because of the widespread distribution of sites of nature conservation interest in Hampshire, and the high threshold used to define critical importance, only a limited number of sites are likely to meet this criterion).

8. Geology and geomorphology

Sites which have been designated as Regionally Important Geological/Geomorphological Sites (RIGS). (Note: Regionally Important Geological/ Geomorphological sites are sites of regional importance excluding SSSIs. RIGs are analagous to biological non-statutory sites. English Nature is promoting the identification of these sites through the establishment of local groups comprising representatives from geographical societies, local authority planning
departments, museums services etc.. A RIGs group has been established in Hampshire).
Notes to Criteria 1 to 8 above
(1) Ancient - refers to woodlands which have developed particular ecological characteristics as a result of their long continuity. Those identified to date are included on the Hampshire Inventory of Ancient Woodlands (Provisional).

(2) Semi-natural - modified types of vegetation in which the dominant and constant species are accepted natives to Britain, and that locality, and the structure of the community conforms to the range of natural vegetation types. (3) Notable species (higher/lower plants, reptiles, birds, invertebrates etc.) - includes Red Data Book species, Nationally Scarce species (species present in a hundred or fewer 10km squares in the UK), those species covered under Schedules 1, 5, and 8 of the Wildlife & Countryside Act, Annex 1 of the EC Bird Directive 79/409 and Annex IV of the EC Directive 92/43/EEC 'The Habitats Directive', and those covered by the Bern, Bonn and Ramsar Conventions. Notable species will also include species which are considered rare in Hampshire, where they occur in significant numbers. (4) Agriculturally unimproved grassland –grassland that is composed of a mixed assemblage of indigenous species in essentially semi-natural communities which has been allowed to develop without the major use of herbicides or inorganic fertilisers.

Adopted New Forest District Local Plan November 1999 New Forest District Council
Appendices: Designated sites of nature conservation value G4

Grid ref Site name Area (Ha) SINC Criteria
SU 070159 Boulsbury Wood 76.00 1B
SU 072171 Boulsbury Down 3.00 2A
SU 079180 Folliots Lynch 2.00 2A
SU 090142 Croft Copse 3.00 1A
SU 090198 Long Barrow Knap Barrow 3.00 2A

SU 092139 Lopshill Common CHS 5.00 2A/5B
SU 093174 Knoll Farm Meadows CHS 7.00 2A/5B
SU 095172 “
SU 097135 Lower Daggons CHS 5.00 2A/5B
SU 097141 Hill Copse 4.00 1A
SU 097159 Whites Copse 10.00 1A
SU 099156 “
SU 101157 “
SU 098138 Cutts Copse 2.00 1A
SU 100147 Ashridge Copse 19.00 1A
SU 106157 Damerham Water Meadows 5.00 2A/5B
SU 107153 Meadow south of Hill Farm 3.00 2A/5B
SU 111167 Lady’s Wood 4.00 1A
SU 114156 Higher Court Wood 1.00 1A
SU 115163 West Park Woods 4.00 1A
SU 117150 Lower Court Wood 9.00 1A
SU 120080 Ringwood Forest 850.00 3Bi/ii
inc. Home Wood

The current list of proposed SINCs in New Forest District is as follows:

[Note: to find a site on the proposals maps, use the first two figures of the reference to find the east-west grid line (along the top and bottom of the map) and the fourth and fifth figures to find the north-south grid line (up the sides of the map). The third and sixth figures locate the centre of the SINC in the grid square. SU references lie north of the grid line 100 north; SZ references lie south of the grid line 100 north].

APPENDIX 2, Ancient Monuments.

Ancient Monuments

* Documentation on file

\# County List of Ancient Monuments March 1992

BEAULIEU

Number	HCC No.	OS Ref	Description/Location
#	8	SU388 025	Beaulieu Abbey
#	341	SZ405 982	St Leonards Chapel
#	342	SZ406 981	Barn St Leonards Grange
#	344	SU397 030	Well House

BOLDRE

Number	HCC No	OS Ref	Description/Location
#	285		Seven round barrows Setley Plain
#12132		SZ278 998	Bowl Barrow Marlpit Oak
#12133		SZ341 993	Bowl Barrow Two Bridges Bottom
#*20323	294	SZ347 989	Two round barrows Norley Inclosure
#*20324	294	SZ343 985	.. ..
*20325		SZ346 989	Two Bowl Barrows Norley Inclosure
20326		SZ296 999	
#*20331	285	SZ302 992	Fancy Barrow on Race Plain
20332		SZ298 998	

BRAMSHAW

Number	HCC No	OS Ref	Description/Location
#*12127	438	SU244 137	2 Bowl Barrows Janesmoor Pond The Butt
*20301		SU224 137	Bowl Barrow Hiscock Hill
*20302		SU248 157	Bowl Barrow Longcross Pond
*20303		SU248 158	.. ..
*20304		SU248 157	5 Bowl Barrows Longcross Pond
*20305		SU248 156	Bowl Barrow Longcross Pond
*20306		SU249 157	.. ..
*20307		SU248 157	.. ..
*20308		SU247 158	.. ..
*20309		SU249 161	2 Bowl Barrows Longcross Pond
*20310		SU247 159	Bowl Barrow Longcross Pond
*20311		SU247 160	.. ..
#*31171	425	SU286 160	4 Bowl Barrows Stagbury Hill
*31172		SU284 159	Bell Barrow/2 Bowl Barrows Stagbury Hill *31173
		SU284 152	Twin Bowl Barrow Furzley Common
#*32542	287	SU222 160	Studley Castle

BRANSGORE

Number	HCC No	OS Ref	Description/Location
#12123		SU199 000	Bowl Barrow Cross Ways (Sopley & Burley)

BREAMORE

Number	HCC No	OS Ref	Description/Location
#	24a	SU141 202	Mizmaze
#	537	SU162 178	St Michaels Priory
#*12085	24b	SU138 200	Giants Grave

BROCKENHURST

Number	HCC No	OS Ref	Description/Location
#	285		Seven Round Barrows Setley Plain
#*12122		SU281 038	Bowl Barrow Ober Corner
*20233	472	SU337 015	Bowl Barrow Dilton Farm
*20284		SU255 032	2 Round Barrows Ferny Knap Inc
20285		SU258 020	
*20286		SU257 013	Bowl Barrow Wilverley Plain
*20287		SU281 025	Bowl Barrow Ober House
#*20326	285	SU296 000	Two Fancy Barrows Setley Plain
#*20332	285	SZ298 998	Fancy Barrow Setley Plain
*30265		SU279 017	Bowl Barrow East of the Lodge
#*30267	477	SU287 043	Queen Bower Hunting Lodge

BURLEY

Number	HCC No	OS Ref	Description/Location
#12123		SU199 000	Bowl Barrow Cross Ways (Bransgore & Sopley)
#12125		SU206 019	Bell Barrow Slap Bottom
#12134		SU197 028	Bowl Barrow Church Moor
*20273		SU208 044	Bowl Barrow Black Hill
*20274		SU213 046	Collins Grave Burley Moor
*20275		SU211 051	Two Barrows Berry Wood
*20276		SU210067	Bowl Barrow Backley Plain
#*20279	292	SU234 026	Bowl Barrow Wilverley Post
#*20280	..	SU235 026	Bell Barrow .. ..
#*20281	..	SU239 020	Bowl Barrow .. ..
#*20282	..	SU239 020	.. ..
#*20283	..	SU239 022	.. ..
*20285		SU258 020	Bowl Barrow west of Holmhill Bog
*20293		SU189 037	Bowl Barrow Vales Moor
#*31153	41	SU198 039	Castle Hill

COPYTHORNE

Number	HCC No	OS Ref	Description/Location
#	426	SU3115-3114	Three Round Barrows Money Hills

DAMERHAM

Number	HCC No	OS Ref	Description/Location
#*25609/1	115	SU095 185	Knoll Camp
#*25609/2	115	SU097 185	Knoll Camp
#*31160	117	SU0817	Soldiers Ring
*31161		SU079 177	Ring Ditch Blackheath Down

DENNY LODGE

Number	HCC No	OS Ref	Description/Location
#12128		SU386 073	Bowl Barrow Ipley Crossroads
#12129		SU344 088	Bowl Barrow Williford Cottages
#*12130	296	SU336 018	Pudding Barrow/Bowl Barrow
#*12131	332	SU409 053	Two Round Barrows Flash Pond
#*20201	252	SU335 069	Four Round Barrows Beaulieu Road
#*20202	252	SU336 066	.. ..
#*20203	257	SU345 057	Six Round Barrows Bishop of Winches. Pur.
#*20204	257	SU343 058	.. ..
*20205		SU347 051	Bowl Barrow Wood Fidley Passage
#*20206	257	SU358 057	Bowl Barrow Stephill Bottom
#*20207	252	SU335 065	Four Round Barrows Beaulieu Road
#*20211	254	SU358 065	Three Round Barrows Yew Tree Heath
#*20212	254	SU360 064	.. ..
*20213		SU358 059	Bowl Barrow Stephill Bottom
*20214		SU368 061	Bowl Barrow Ferny Crofts
#*20215	264	SU385 061	Six Barrows Kings Hat Inclosure
#*20216	293	SU366 080	Nine Round Barrows Foxhill Farm
#*20217	293	SU366 079	.. ..
#*20218	293	SU363 082	.. ..
#*20219	293	SU362 083	.. ..
#*20220	293	SU366 079	Bowl Barrow Foxhill Farm
*20221		SU363 082	.. ..
*20222		SU363 082	.. ..
*20223		SU364 081	.. ..
#*20224	249	SU341 082	Four Round Barrows Matley Heath
#*20225	249	SU323 082	.. ..
#*20226	249	SU336 082	.. ..
*20227		SU345 075	Bowl Barrow Fulliford Passage
*20228		SU325 090	Bowl Barrow Mallard Wood
*20229		SU325 089	.. ..
*20230		SU340 079	Bowl Barrow Matley Holms

*20231		SU340 069	Bowl Barrow Church Place
*20232		SU350 020	Two Bowl Barrows Hawkhill Inclosure
#*20236	267	SU420 038	14 Round Barrows Stoneyford Pond
*20249		SU352 046	Two Bowl Barrows Bishop of Winc. Purl.
#*20250	267	SU409 035	14 Round Barrows Stoneyford Pond
#*20251	256	SU352 047	Round Barrow Bishop Winchester Purlieu
*20252		SU359 044	Bowl Barrow Rowbarrow Pond
*20253		SU375 046	Two Bowl Barrows Gurnetfields
*20255		SU395 046	Bowl Barrow Haford House
*20256		SU398 047	.. ..
#*20257	267	SU407 034	14 Round Barrows Stoneyford Pond

DENNY LODGE (cont)

Number	HCC No	OS Ref	Description/Location
*20258		SU407 037	Bowl Barrow Stoneyford Pond
*20259		SU409 026	
#*20260	267	SU411 036	14 Round Barrows Stoneyford Pond
#*20261	267	SU413 031	.. ..
#*20262	267	SU417 039	.. ..
*20263	267	SU418 034	Bowl Barrow Glydia Farm
*20264	267	SU419 039	Bowl Barrow Stoneyford Pond
*20265		SU420 028	Bell Barrow Ipers Bridge
#*20266	268	SU403 051	2 Bell/ 2 Bowl Barrows The Noads
#20267	272	SU419 054	Three Round Barrows
#*20268	272	SU420 051	.. ..
#*20269	272	SU421 049	Three Round Barrows
*20270		SU400 045	Bowl Barrow Harford House
*20271		SU414 041	Bowl Barrow Stoneyford Pond
*20272		SU413 042	Bowl Barrow Stoneyford Pond
*20312		SU430021	Row Down Round Barrow
*20313		SU341 081	Bowl Barrow Fulliford Bog
20326		?	?
#*20327	332	SU409 053	Two Round Barrows Flash Pond
*20334		SU410 025	Bowl Barrow Otterwood Farm
20336		SU420 034	
#*22032	255	SU3505/04 SU3405	Bishops Dyke
*30266		SU370 075	Pottern Ford Ipley Inclosure
#*30269	251	SU333 068	Church Place Medieval Lodge
#*30270	258	SU341 096	Churchplace Enclosure Medieval Lodge
#*30272	250	SU336 085	Hillfort Home Farm
#*32544	418	SU4204	Roman Road

EAST BOLDRE

Number	HCC No	OS Ref	Description/Location
*20232		SU350 020	Two Bowl Barrows Hawkhill Inc
#*20233	472	SU337 014	Bowl Barrow Dilton Farm
#*20234	472	SU338 005	Bowl Barrow Little Dilton Farm
#*20235	472	SU337 009	3 Bowl Barrows Dilton Farm
#*20237	472	SU340 007	Bowl Barrow Dilton Farm
*20238		SU340 008	Bowl Barrow Dilton Farm
*20239		SU345 012	2 Bowl Barrows Stockley Cottage
#*20240	295f	SU350 016	Cold Pixie's Cave Bowl Barrow
#*20241	295d	SU357016	Bowl Barrow Hatchet Pond
*20242		SU338 006	2 Bowl Barrows Little Dilton farm
*20243		SU337 006	Bowl Barrow Little Dilton Farm
#*20244	295c	SU361 021	Bowl Barrow Hatchet Gate
#*20245	295b	SU364 019	.. ..
#*20246	295a	SU365 020	.. ..
*20247		SU367 018	.. ..
*20248		SU339 007	Bowl Barrow Dilton Farm
*20292		SU337 009	.. ..
#*20320	470	SZ360 996	Bowl Barrow Peaked Hill
#*20321	470	SZ361 994	.. ..
#*20322	470	SZ362 993	.. ..
#*20337	472	SU337 005	Fancy Barrow Dilton Farm

ELLINGHAM HARBRIDGE & IBSLEY

Number	HCC No	OS Ref	Description/Location
*20277		SU218 085	Bowl Barrow Bratley Plain
*20278		SU218 086	.. ..
*20288		SU111 067	Two Bowl Barrows Ringwood Wood
#20289	Dorset 856	SU112 064	Ashley Heath
#*20290	441	SU112 065	Bowl Barrow Ringwood Forest
*20291		SU163 088	Bowl Barrow Moyles Court
*20293		SU189 037	Bowl Barrow Vale Moor
*20296		SU202 141	Bowl Barrow Ashleycross Hill
20297		SU214 156	
20298		SU215 158	
*20299		SU222 111	Bowl Barrow Broomy Lodge
*20300		SU221 112	.. ..
*20315		SU218 087	Seven Bowl Barrows Bratley Plain
*20316		SU218 089	Two Bowl Barrows Bratley Plain
*20317		SU217 089	.. ..
*20318		SU217 089	Bowl Barrow Bratley Plain
*20319		SU217 090	Three Bowl Barrows Bratley Plain
*20338		SU202 072	Bowl Barrow Handy Cross Plain
#*29598/1	448	SU167 099	Three Bowl Barrows Ibsley Common
#*29598/2	448	SU166 099	.. ..

#30268	286	SU214 125	Earthwork Sloden Enclosure
#*30271	288	SU198 089	Hillfort at Castle Piece
#*31175	439	SU181 112	Three Round Barrows Ibsley Common
#*31176	439	SU181 109	Bowl Barrow Ibsley Common
#*31178	439	SU1710	Round Barrow Ibsley Common
*31179		SU174 102	Bowl Barrow Ibsley Common
*31906		SU112 085	Bowl Barrow Reservoir Cottage
*31907		SU109 079	Bowl Barrow Ebblake Bridge
*31909/1		SU109 100	Two Bowl Barrows Plumley Wood
*31909/2		SU110 100	
*31910		SU111 099	.. ..
*31913		SU112 106	Bowl Barrow Plumley Wood
*32550		SU164 095	Bowl Barrow Ibsley Common
#HA324a/b/c/d/e/f/g/h/i		SU2012-2112	Sloden Inclosure -Roman Pottery Kilns
#HA326		SU2013	Roman Pottery Kilns Amberwood Enclosure

FAWLEY

Number	HCC No	OS RefDescription/Location	
#12053		SU427 036	Moated site & fishponds
#*20314		SU421 039	Bowl Barrow Beaulieu Heath
*20336		SU420 034	Bowl Barrow Pitts Copse Farm
#*26717	464	SU488 024	Calshot Castle

FORDINGBRIDGE

Number	HCC No	OS RefDescription/Location	
#	80	SU149 142	Fordingbridge Bridge
*30268		SU210 125	Medieval Hunting Lodge
#*90611	549	SU144 146	Moat at Parsonage Farm

GODSHILL

Number	HCC No	OS RefDescription /Location	
#	325	SU2115	Roman Pottery Kilns Island Thorns
#	327	SU2114	Roman Pottery Kilns Crock Hill
#*12126	444	SU206 143	Bowl Barrow Ashley Cross
*20297		SU214 156	The Butts Round Barrow Cemetry
*20298		SU215 158	4 Bowl Barrows Breamore Hat
#*34133	121	SU167 152	Frankenbury Camp

HYDE

Number	HCC No	OS Ref	Description/Location
#12124		SU188 135	Bowl Barrow Hampton Ridge
*20296		SU202141	Bowl Barrow Ashleycross Hill
*31174		SU178 116	Bowl Barrow Ibsley Common

HYTHE

Number	HCC No	OS Ref	Description/Location
#*20267	272	SU419 054	Bowl Barrow Hardley Bridge

LYMINGTON

Number	HCC No	OS Ref	Description/Location
#*24327	34	SZ314 965	Buckland Rings

MARTIN

Number	HCC No	OS Ref	Description/Location
#*12083	479	SU035 204	Long Barrow
#12097		SU063 206	Long Barrow Brides Farm
#12103		SU079 218	Long Barrow NW Paradise
#*12807	62	SU088 198	Knap Barrow Down Farm
#*24328	17 & 246	SU043 211	Roman Road
#*24329	246	SU051220	Roman Road
*24339		SU037 198	Bowl Barrow Bokerley Dyke
*24340		SU039 201	.. ..
#*24341	119	SU043 200	Martin Down Camp
#*24342	181	SU064 184	Bowl Barrow Tidpit Common
#*24343	181	SU063 183	Two Bowl Barrows Tidpit Common
#*25601	181	SU060 184	Bowl Barrow Tidpit Common
#*25602	181	SU057 181	Bowl Barrow Blagdon Hill
#*25603	181	SU057 181	Bowl Barrow Bokerley
#*25604	181	SU050 190	.. ..
#*25605/1	181	SU0419	3 Linear earthworks/3 Bowl Barrows
#*25605/2	181	SU0420	.. ..
#*25606	181	SU056 181	Martin Down Round Barrows
#*25607	236	SU0618-1718	Grim’s Ditch on Tidpit Common
*25608	WCC503	SU036 210	Grim’s Ditch in Vernditch Chase
#*25610	Dorset 72	SU0517	Bockerley Ditch
*25619		SU059 184	Three linear earthworks Martin Down

MILFORD ON SEA

Number	HCC No	OS Ref	Description/Location
#*26716	137	SZ316 897	Hurst Castle & Lighthouse

MINSTEAD

Number	HCC No	OS Ref	Description/Location
#12159		SU256 116	Bowl Barrow Robin Hood Farm
#*32541	37	SU277 120	Malwood Castle

NETLEY MARSH

Number	HCC No	OS Ref	Description/Location
*30298		SU3214-3314	Tatchbury Mount Hill Fort

ROCKBOURNE

Number	HCC No	OS Ref	Description/Location
#*12088	63	SU104 203	Ducks Nest Long Barrow
#*12089	62	SU090 197	Grans Barrow
#12096		SU101 221	Long Barrow
#25609/1	115	SU095 188	Knoll Camp
#25609/3	115	SU099 185	.. .. ..
#	146	SU120 170	Roman Villa
#	206	SU115 183	Manor House
#	114	SU109 210	Spring Pond Enclosure
?		SU107 214	Roman Settlement

SOPLEY

Number	HCC No	OS Ref	Description/Location
#*12161	447	SU181 007	Bowl Barrow Avon Tyrell
#*12146	275	SZ196 997	Bowl Barrow Thorney Hill
#12123		SU199 000	Bowl Barrow Crossways (Burley & Bransgore)

SWAY

Number	HCC No	OS Ref	Description/Location
#*20328	285	SZ294 985	Bowl Barrow Shirley Holms
#*20329	285	SZ295 985	Bell Barrow Shirley Holms
*20330		SZ294 986	Bowl Barrow Shirley Holms

#*20333	285	SZ294 986	Bowl Barrow Shirley Holms

TOTTON

Number	HCC No	OS Ref	Description/Location
#	180	SU369 137	Redbridge old bridges

WHITSBURY

Number	HCC No	OS Ref	Description/Location
#	61	SU137 197	Whitsbury Castle
#12113		SU113 227	Round Clump Whitsbury Down

BWB 20/8/01

APPENDIX 3, Table of listed building groupings.

Ashurst and Colbury	5
Beaulieu	101
Boldre	49
Bramshaw	26
Bransgore	22
Breamore	82
Brockenhurst	50
Burley	16
Copythorne	27
Damerham	24
Denny Lodge	5
East Boldre	9
Ellingham, Harbridge and Ibsley	66
Exbury and Lepe	9
Fawley	31
Fordingbridge	93
Godshill	1
Hale	30
Hordle	34
Hyde	25
Hythe and Dibden	31
Lymington and Pennington	499
Lyndhurst	39
Marchwood	19
Martin	51
Milford-on-Sea	58
Minstead	25
Netley Marsh	14
New Milton	36
Ringwood	146
Rockbourne	56
Sandleheath	2
Sopley	34
Sway	18
Totton and Eling	39
Whitsbury	14
Woodgreen	10

APPENDIX 4, List of Consultees.

Statutory Consultees:

Secretary of State, Department of Environment Transport & The Regions (now DEFRA)

The Environment Agency

English Heritage South West Region

The Ministry of Agriculture Fisheries and Food

Food Standards Agency

English Nature

South West of England Regional Development Agency

Neighbouring Councils:

Christchurch Borough Council

Bournemouth Borough Council

East Dorset District Council

Salisbury District Council

Southampton City Council

Other Stakeholders:

The Forestry Commission

Landowners