The need for inert wastes to restore aggregate mineral workings

Position Statement from the Quarry Products Association

June 2006

QUARRY PRODUCTS ASSOCIATION

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Executive Summary

QPA considers that the use of inert waste for the restoration of mineral workings should be classed as a recovery of that waste, as provided for in the Waste Framework Directive under R10 - Land treatment resulting in benefit to agriculture or ecological improvement.

A level playing field must be created by bringing all inert waste recovery and disposal activities under one proportionate and risk-based regulatory regime.

A steady and adequate supply of aggregate minerals is a prerequisite for the delivery of society's current and future needs for the built environment. It is Quarry Products Association policy that secondary and recycled aggregates should form the first element of supply. However, even though the UK produces 17 million tonnes per annum more recycled and secondary aggregates than any other European country, these materials cannot meet the entire demand for aggregates, either in terms of quality, but more significantly, in terms of quantity. Consequently, the continuing extraction of primary aggregates is essential. However, the ability to secure permission to extract minerals comes with the requirement to be able to restore the site back to a beneficial after-use. If a minerals site cannot be restored, permission to extract that mineral will not be granted. **The supply of up to approximately 30 million tonnes of aggregates per annum is at risk if extraction sites are unable to be restored using inert waste.**

The restoration of many sand and gravel sites, as well as some hard rock sites, is reliant on the use of inert waste, such as soils and excavation waste. The occurrence of groundwater in many sand and gravel sites means that waste disposal activities such as non-hazardous waste disposal, are not an option. The Civil Aviation Authority CAP 680 policy on bird strike also restricts potential minerals restoration schemes. Over 50% of all current sand and gravel workings are intersected or occur within aerodrome safeguarding zones, which are established to prevent bird strike.

Restoration using inert waste makes a significant contribution to the aims of sustainable development by returning land to agricultural, recreational and conservation uses, and enabling beneficial use of inert wastes. Restored agricultural land is often of a higher grade than that which was present before mineral extraction, and restoration can also contribute to achieving biodiversity and geodiversity benefits; some 700 SSSIs were originally quarries or part of land owned by mineral operators. Mineral workings that are appropriately restored are rightly regarded as a temporary "borrowing" of the land, ensuring that the land is available for the use of generations to come.

However, **the use of inert waste for quarry restoration, particularly in sand and gravel workings, is increasingly threatened by the cumulative effects of unnecessary restrictive regulation** and inappropriate guidance as to the applicability of regulations, including the implementation of the Landfill Directive. This is impacting on the ability to restore minerals sites. **Approximately up to 30 million tonnes of inert waste per annum are required for use in quarry restoration, and there is currently estimated to be in the order of 16 million tonnes per annum deficit between the need for inert waste and the current availability of such waste.**

There has been a failure by Government to recognise that the use of inert waste for restoration is a recovery operation, as opposed to disposal. The already existent provisions in the Waste Framework Directive relating to the beneficial use of inert waste, specifically Annex II B, R10 - Land treatment resulting in benefit to agriculture or ecological improvement, and in the Landfill Directive, Article 3 (2) and supportive recitals 3 and 15, have not been applied to the use of inert waste for quarry restoration in the UK. The QPA believe that this activity should be classed as recovery rather than disposal. While this activity remains classified as disposal, changes in the regulatory regime mean that the industry is faced with a growing burden of disproportionate and excessive regulation when compared to the risk that the use of inert waste presents to the environment.

The current regulatory burden must be seen in contrast to the minimal controls in place for the use of Waste Management Licensing Regulation exemptions under Schedule 3, Paragraphs 9A and 19A. All these activities are handling the same wastes and putting them to very similar uses. The level of controls deemed necessary varies significantly, along with the cost of complying with those controls. Inert landfills must now operate under a Pollution Prevention Control Permit (PPC) which requires that waste is only accepted if it is on the approved inert list, or is proved to be inert through Waste Acceptance Criteria (WAC) testing. Waste producers are reluctant to pay for the cost of WAC testing (approximately £350 a sample) and testing turnaround times hinder the process, particularly for inert waste arisings that are produced in a short space of time or are unplanned. Waste producers will dispose of their waste at a site which does not require testing, such as an exempt site or a recovery or treatment site operating under a Waste Management Licence. QPA members estimate that they have experienced a 30% decrease in the amount of inert material accepted at PPC sites, thought to be due to the effects of WAC testing. The implications of WAC testing also present significant concerns for the Construction and Demolition (C&D) waste recycling sector. C&D waste recycling residues must undergo WAC testing prior to disposal; a significant cost burden for a lower value production process. Additional burdens come from the overly restrictive interpretation of the Groundwater Directive and the need to always line inert landfills with clay due to the supposed risk of contaminated rogue loads. Government must recognise that a greater emphasis is required in educating and enforcing against waste producers who wrongfully dispose of non-inert materials at inert sites.

The cumulative effects of restrictive regulations have resulted in the use of inert waste for quarry restoration being over-regulated. Industry is facing a lack of inert material for use in quarry restoration, placing a significant risk on aggregate mineral operators who may not be able to fulfil their obligations to restore.

The QPA commissioned a study of the Trent Valley area to evaluate what had previously been anecdotal evidence that insufficient inert material was available across the study area to ensure the progressive restoration of sand and gravel workings. The study showed that **for the period 2003/04 actual disposals of inert waste to licensed inert landfills in the Trent Valley (the majority of which were for quarry restoration) amounted to only 58% of the nominal capacity of these sites, representing an approximate 1 million tonne per annum deficit in inert material for quarry restoration.** Total disposals of inert waste to both licensed inert and non-hazardous landfill sites amounted to a little under 50% of the nominal capacity, representing a total 1.55 million tonne deficit in inert materials in the Trent Valley area. The study suggested that this difference between the need for inert waste and the actual availability for the restoration of mineral workings was unlikely to change within the next five years. **Up to 3.5 million tonnes per annum of sand and gravel production is now threatened by the lack of inert waste for quarry restoration in the Trent Valley study area.**

Action to address these effects is urgently required to ensure that continuing supplies of aggregate are available to meet society's needs. If the materials required for quarry restoration are not available, the future ability to extract further minerals is increasingly brought in to doubt.

There must be recognition that the use of inert waste for quarry restoration is a recovery activity, and it must be proportionately regulated as such. Such a beneficial use of waste must be seen at the same level of the waste hierarchy as recycling. This will address the barriers currently being faced by the industry and help to ensure the continued availability of inert waste for restoration. Being classed as a recovery activity will remove quarry restoration schemes from Landfill Directive and IPPC Directive requirements in the UK, creating a regulatory 'level playing field' for the beneficial use of inert waste. The effects of WAC testing, the unnecessary engineering requirements for quarry restoration, and the lower levels of controls for exempt sites will all be rebalanced. The application of the Groundwater Directive to the use of inert waste for quarry restoration must also be reviewed.

1 Introduction

The Quarry Products Association is the principal trade association for companies involved in supplying crushed rock and sand and gravel from land and marine sources, as well as asphalt, ready-mixed concrete, silica sand, agricultural lime, industrial lime, mortar, slag, recycled materials and construction and quarrying plant. In representing the interests of over 180 companies and over 90% of the UK quarrying industry's production, we are the key industrial stakeholder on every aspect of the UK quarrying industry. We also represent our members' interests on policy, planning and technical matters with government departments, local authorities, professional trade bodies and other key audiences at European, national and local levels.

Aggregates are among the very essentials of life - as important to us in their own way as energy, water and the food from our farms. Through their products, quarries give us places to live, places to work, places to play and much more. They literally underpin our society. In a typical year, the UK's quarry network supports the building of 180,000 new homes, £1.6 billion on school and university improvements, a £1.15 billion hospital building programme, maintenance of our 230,000-mile road and 10,000-mile rail networks, a £1.7 billion programme of improvements to water services, the continuing upgrading of UK airports, supplies of special sands for glass foundry and other industries, and the construction of arts and community projects. In addition to this quarrying provides some 20,000 jobs directly and supports a similar number indirectly through the industry's spending on services. Many of these jobs are in rural areas where other employment opportunities can be scarce.

Our aggregate consumption of approximately 4 tonnes of aggregate per head of the population per year is lower than that of most of our European neighbours, nonetheless quarrying is a major industry in the UK. There are around 1,300 quarries in the UK producing around 210 million tonnes, or £3 billion worth of products a year. 90 per cent of output goes to the construction industry, which contributes about one tenth of the country's gross domestic product (GDP). Members of the QPA are continuing to meet the demand for aggregates, however, there are an increasing number of barriers to progress in restoring mineral workings after extraction, which may in turn affect the ability to provide aggregates in the future.

This paper sets out the QPA's position on the use of inert waste (e.g. soils and excavation waste)[1] for the restoration of aggregate mineral workings. It highlights the difficulties created by current regulation that are threatening the supply of primary aggregates in to the UK market.

[1]The term 'inert waste' refers to the definition included in the Landfill Regulations (England and Wales) 2002 (and Directive 1999/31/EC). It is more restrictive than previous definitions and excludes, for example, topsoil. To help clarify matters a list of wastes that are assumed to meet the criteria of the definition has been approved by Council Decision 2003/33/EC.

2 An introduction to aggregates and the restoration of extraction sites


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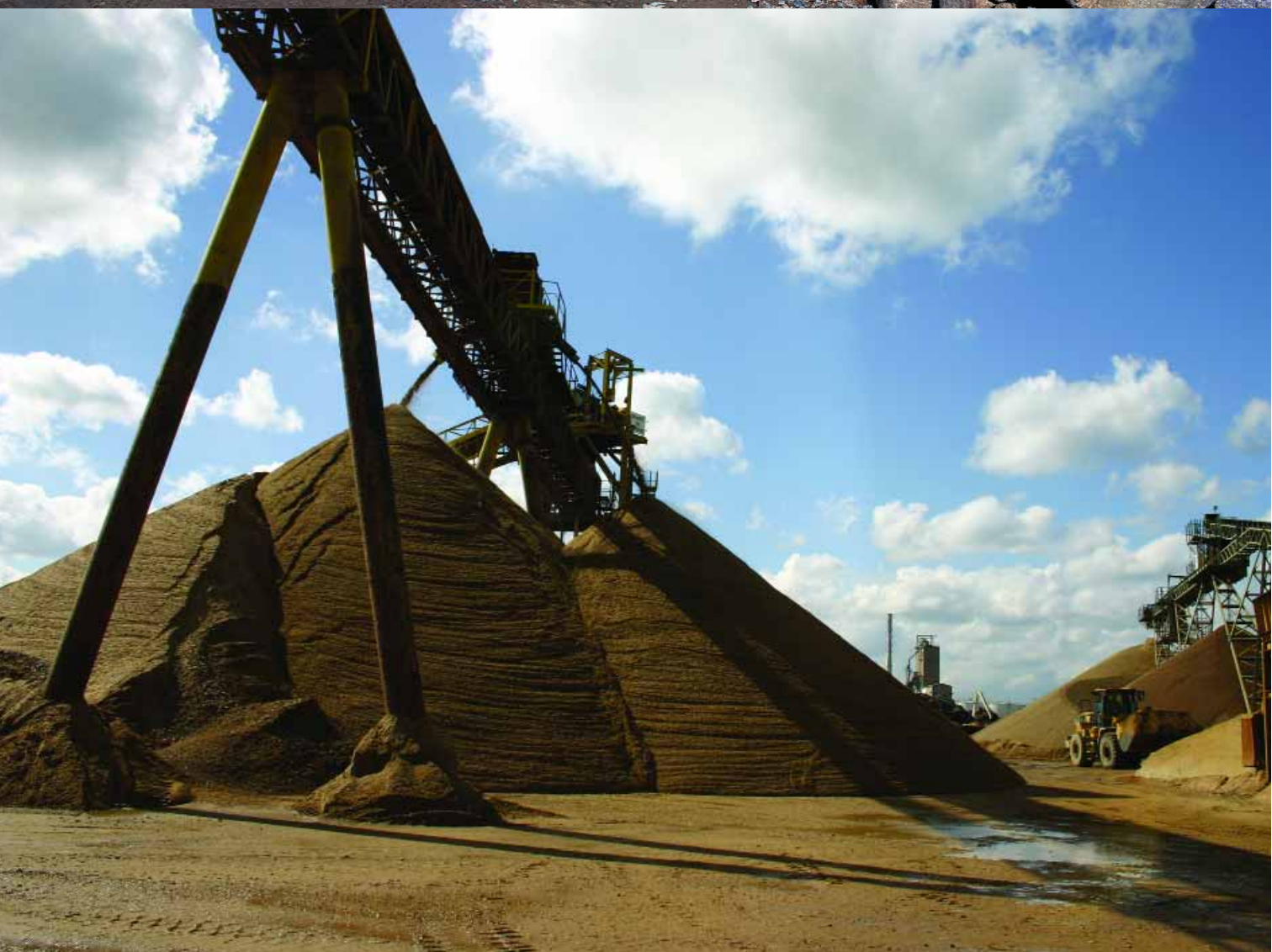


2.1 Types of aggregate

The QPA's hierarchy for the supply of aggregates places secondary and recycled materials as the first element of supply with primary materials fulfilling the remaining need; a policy based on the principles of sustainable development. QPA members are heavily involved in the supply of secondary and recycled aggregates, principally from construction and demolition waste, where recycling is widely considered to have secured about 90% of all usable materials. Recycled aggregates do however have their limitations, both in terms of quality and quantity, and thus demand for primary aggregates remains. Currently Government is forecasting that demand, in England, until 2016 will require the provision of 1068 million tonnes of land-won sand and gravel and 1618 million tonnes of land-won crushed rock. This is equivalent to some 71 million tonnes per annum (mtpa) of sand and gravel and 107 mtpa of crushed rock.[2] These figures are in addition to those materials that will need to be supplied from alternative sources such as secondary and recycled aggregates.

We are fortunate that primary aggregates are plentiful in most parts of the UK so that local resources can be used in the main to satisfy local needs. With the cost often doubling for each 30 miles travelled, aggregates are only transported long distances when it is absolutely necessary. The resources are not, however, distributed evenly and some inter-regional movement is necessary. The South East, for example, has its own supplies of sand and gravel but relies heavily on importation of crushed rock from the East Midlands and South West, largely by rail.

There are two main types of aggregate quarry – hard rock and sand and gravel. Hard rock quarries usually operate for at least 30 years and are developed in distinct 'benches' or steps. A controlled explosion is normally used to release the rock from the working face.

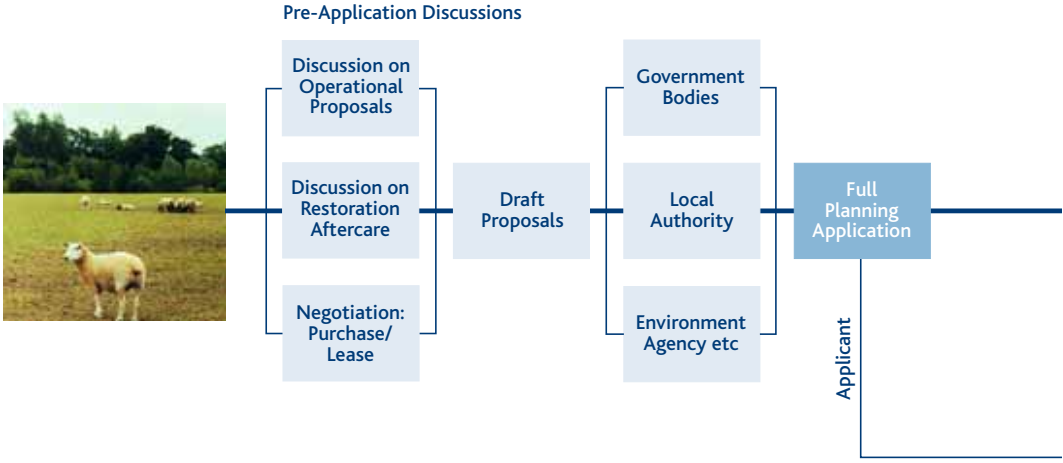
Sand and gravel derives from the erosion of rocks and other smaller particles that were transported and deposited by water or ice. Sand and gravel quarries are usually shallow, sometimes only five or six metres deep and dug using wheeled excavation machines. Operations are likely to be shorter term than for a rock quarry and, with progressive restoration normally following closely behind extraction, the working area at any time is comparatively small. Inert wastes are often used to restore sand and gravel quarries and this position statement focuses on this practice and the regulatory barriers which are hindering site restoration.

[2]Figures taken from the revised National and Regional Guidelines for Aggregates Provision in England: 2001-2016 as detailed in the ODPM letter dated 10th June 2003, replacing MPG6 (April 1994) *Guidelines for Aggregates Provision in England* as published by the then Department of the Environment. http://www.odpm.gov.uk/index.asp?id=1144269#TopOfPage.

2.2 Obtaining aggregates - the planning process

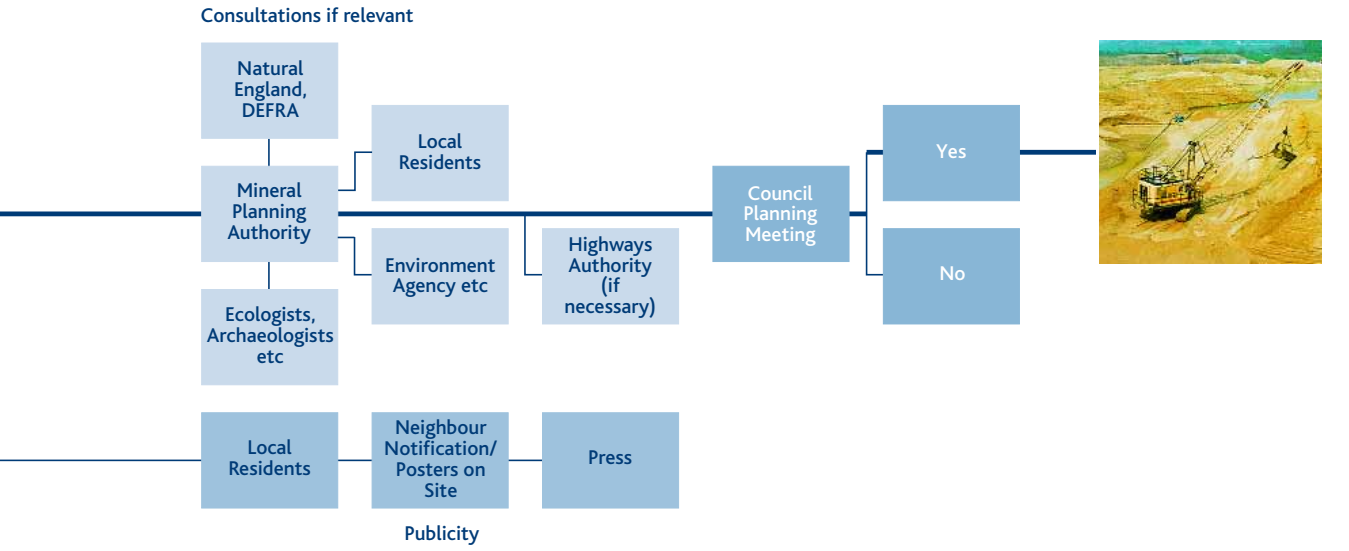
It is the role of the planning system to balance the need for aggregates within a framework that allows extraction from the most environmentally acceptable sources. In England and Wales regional aggregate working parties publish polices on mineral extraction through a series of planning guidelines and local authorities use these guidelines as the basis for their own individual mineral plans, allocating areas suitable for mineral extraction. Individual quarry operators can then develop applications for mineral extraction for the consideration by mineral planning authorities (either county councils or unitary authorities).

The planning system in the UK is a rigorous one and provides for extensive consultation with statutory consultees such as the Environment Agency and Natural England, as well as local people and other bodies that represent public interests. The views of all consultees have to be taken into account by the local planning authority when deciding whether or not to grant planning permission.



Most applications are also accompanied by a comprehensive environmental assessment that ensures that every possible impact is considered. A typical assessment provides an evaluation of noise, dust, and traffic impacts, effects on water, ecology and landscape, as well as the impacts of planned restoration activities.

The whole process of obtaining planning permission and bringing a new operation on stream can take up to 15 years. When a new operation commences the operator must pay close attention to the many conditions placed on his permission and satisfy the mineral planning authority as well as other regulators such as the Environment Agency that their requirements are being met.



2.3 Obtaining aggregates - a typical working sand and gravel quarry

Soil removal and storage

Careful stripping, storage and subsequent replacement of soil are fundamental to good agricultural restoration. Care is taken to avoid unnecessary compaction during the stripping stage and to store topsoil separately from subsoil. Such standards may well result in restored farmland ultimately achieving a higher quality.

Inert fill

This quarry is using inert material to allow the land to be returned to its former contours.

Screening banks

Soils that have been stripped are often used to create banks to screen specific parts of the site during operation.

Silt settling ponds

Washing of the gravel during processing leaves sediment that is then left to settle in a series of silt ponds. Clean water may be discharged into a local river or recycled into the production process. The fertile silt may be used in restoration.

Sand stockpiles

Sand separated from gravel during processing is then de-watered before passing to stockpiles.

Site of Special Scientific Interest

An area of ancient woodland is protected within this site. Other quarries give special protection to archaeological remains.

Restoration

The quarry shown is being progressively restored to agriculture. Other sites may offer opportunities for restoration as nature reserves or for water-based leisure, sports pitches, forestry or for some form of development.

Extraction area

The area actually being quarried at any time is minimised by ensuring that restoration runs hand-in-hand with extraction. Quarries like the one in our main photograph are pumped to allow them to be worked 'dry'. Others, like the one shown left, are operated as lakes with the aggregate extracted from below water.

Hopper and field conveyor

In the quarry shown, raw material is loaded into a hopper that feeds it onto conveyors for transport to the processing plant. Other quarries may transport the material by lorry.

Gravel stockpiles

Processing separates gravel into a range of sizes. Greatest demand is for 10mm, 20mm and 40mm gravel. Some plants include a crushing unit to break down larger stones. Lorries are loaded from the stockpiles.

Ready-mixed concrete plant

This quarry incorporates a ready-mixed concrete plant. Here, sand and gravel are mixed with cement to produce one of our most important building materials. Other quarries may have an asphalt plant making surfacing for roads.

Weighbridge

Every load leaving the site passes over a weighbridge to ensure that the customer receives the quantity he requires. Larger quarries may use computerised systems that automatically load the required grade and quantity.

Processing plant

A conveyor draws raw material from a stockpile into the plant where it is washed to remove unwanted clay and to separate sand. Gravel then passes over a series of screens that sieve the material into different sizes. The process is controlled from a central control room.

2.4 Obtaining aggregates - the need for restoration

Integral to the sustainable extraction of aggregates is the restoration of the extraction site to a beneficial after-use. This point has long been recognised by QPA members, who pride themselves in having consistently restored both rock and sand and gravel quarries to valuable after-uses. In the light of such beneficial restoration, it is wholly appropriate that mineral workings are considered a temporary land use. Government planning policy recognises this fact in Planning Policy Guidance notes (PPGs) and Minerals Planning Guidance notes and statements (MPGs and MPSs), most notably in paragraph 5(ii) of MPG1;[3] "although working often takes place over a long period of time, it should not be regarded as a permanent land use"; and paragraph 3.11 of PPG2;[4] "minerals can be worked only where they are found. Their extraction is a temporary activity."

As part of the process of granting planning permission for the primary activity of mineral extraction, the applicant must demonstrate that they will be able to restore the site after quarrying.[5] .When restoring using inert wastes the operator must show that there are enough inert waste resources to fulfil the demand when restoring the site. Working of the site will always be against the background of a restoration scheme agreed at the outset with the mineral planning authority. 55% of sand and gravel quarries are restored back to agriculture[6] and the progressive nature of this type of quarrying means that restoration can follow closely behind extraction so that the land can be returned to farming in a matter of months. Often, the industry leaves no mark at all – restored farmland is often of a higher quality than that which existed previously.

The QPA Restoration Guarantee Fund Ltd provides a £1 million overall guarantee to mineral planning authorities providing up to £500,000 per site to ensure restoration where the failure to restore is due to the insolvency of the member company. The fund covers sand and gravel, silica sand and crushed rock for aggregates and its existence provides members with a valuable tool to offer to mineral planning authorities as an alternative to the continued pressure for the industry to offer separate financial restoration guarantee bonds.

The Fund is run as a separate, arms-length limited company with its own Directors and Memorandum & Articles. It is a condition of QPA membership that all members also belong to the Fund. Further details can be found in Appendix 1.

[3]MPG1 (June 1996) *General Considerations and the Development Plan System* as published by the then Department of the Environment. This is due to be updated and replace by MPS1 in 2006.
[4]PPG2 (January 1995) *Green Belts* as published by the then Department of the Environment.
[5]See ODPM MPG7 *Reclamation of Mineral Workings* 1996.
[6]*The Survey of Land for Mineral Workings in England,* ODPM 2000.

Restoration – Use of inert waste as opposed to other methods

It is recognised that not all quarry restoration schemes require the use of inert waste for restoration. Some quarries can be restored to water-based uses such as recreation or nature conservation; others can be put to alternative uses for the disposal of non-hazardous waste. The restoration potential for any site will be dependent on a number of factors detailed below.

CAP 680 - Civil Aviation Authority (CAA) Bird Safeguarding Guidelines

The Civil Aviation Authority published CAP 680, which is a working practices document that contains policy statements relating to the control of birds at aerodromes.[7] CAP 680 highlights the danger that open water presents in attracting birds that are potentially hazardous to aircraft, as well as the threats posed by municipal and commercial waste disposal activities. In addition to this, safeguarding zones of 13km radius have been established around 27 identified airports and zones of 8 miles radius established around military airfields. These zones were established by a Direction under the Town & Country Planning Act which contains advice on the procedures to be adopted in such zones (see DfT/OPDM Circular 1/2003).[8] A report commissioned by the CBI Minerals group[9] and carried out by the British Geological Survey identified that 44% of the land area of England falls within safeguard zones around airfields, and over 50% of sand and gravel workings either occur within, or are intersected by, these zones. In the Trent Valley alone, the 13km safeguarding zones of local airfields affect 75% of potential sand and gravel resources.

The effects of bird strike on aircraft. Excerpts taken from CAP 680 Aerodrome Bird Control, CAA, 2002

"Birds are small and fragile in comparison with aircraft. However, collisions can have shattering effects because of the high impact speeds; as speed is doubled, the energy of the collision is quadrupled. Turbine engines are very vulnerable even at low aircraft speeds (e.g. on the runway). Fans and compressors suffer damage because of their high rotational speed. Damaged blades cause power loss and generate out of balance forces, which may necessitate engine shutdown. Even when damage is slight, interruption of the airflow by bird debris can cause compressor stalls, resulting in power loss from the affected engines. Aircrew have been killed or maimed by birds penetrating windshields of military jets and light aircraft, and bird remains smeared on the windscreen obscuring vision can be hazardous. Where the aircraft's skin is deformed or penetrated, underlying electrical or hydraulic systems can be disabled. Strikes cause take-offs to be abandoned or precautionary landings to be made, even though no damage may subsequently be found."[10]

"Almost without exception, water developments increase the bird hazard in ways that cannot be adequately controlled. Often, they are a consequence of minerals extraction, in which case there will probably be more similar proposals that will progressively surround the aerodrome with water."[11]

Policies in CAP 680 relating to Water and Wetlands (Chapter 30) and Waste Management (Chapter 28) are of particular relevance to the minerals industry. The restoration of mineral workings to water in a form that would create or increase the risk of bird strike would attract a strong objection from the aerodrome operator.

As the zones of protection arising from CAP 680 potentially affect over 50% of the UK sand and gravel resource, the ability to satisfactorily restore extraction sites within these zones will be key. The use of inert waste is therefore the practical option to restore sites without increasing the risk of bird strike around aerodromes.

Use of non-inert landfill for restoration

For water-filled excavations or those in which the water table will recover after restoration, the potential for water pollution is an important consideration. Sand and gravel quarries, which are more likely to be restored back to original contours, are often located in river terrace deposits and water ingress in to the site is likely both during and following restoration. Due to the occurrence of groundwater in such sites, the deposit of non-hazardous waste for restoration cannot be contemplated. This would significantly raise the risk of water pollution incidents. Therefore inert wastes are used to progressively restore the site. Also non-hazardous wastes require prolonged aftercare management (potentially decades) and this would prevent the development of after-uses within a sensible timescale or prohibit them entirely.

Not all restoration schemes using inert wastes will be for the return of ground to its original contours. Other schemes may beneficially use inert wastes as landscaping materials in the creation of recreation or nature conservation after-uses.

[7]http://www.caa.co.uk/docs/33/CAP 680.PDF.
[8]http://www.dft.gov.uk/stellent/groups/dft_aviation/documents/pdf/dft_aviation_pdf_040247.pdf.
[9]Henney, PJ, Cameron, DG, Mankelow, JM, Spencer, NA, Highley, DE and Steadman, EJ. (2003) *Implications of CAA Bird strike Safeguard Zones for River Sand and Gravel Resources in the Trent Valley.* Keyworth, Nottinghamshire, British Geological Survey.
[10]CAP 680 Part 1 Chapter 1 Page 1.
[11]CAP 680 Part 4 Chapter 30 Page 5.

2.5 The importance of inert waste for restoration of mineral workings

Inert wastes have been extensively used for the restoration of mineral workings. Such use has been more common in sand and gravel workings which are usually of shallow depth and are often located in areas with a high water table.

On average, approximately 55% of sand and gravel sites are restored to agriculture[12] i.e. non-water based schemes, often utilising inert waste to restore to original ground contours.[13] This means that every year up to approximately **30 million tonnes[14] of imported inert wastes may be needed for restoration of mineral sites.** If all sites restored to agriculture were brought back to original contours using solely imported inert waste the maximum demand could be as much as 40 million tonnes per year. Typical after-use schemes created include agriculture, amenity land, recreational facilities and improved habitats for nature conservation. Many of the restoration schemes undertaken by QPA members have won internationally recognised awards and have even been afforded international wildlife and habitat designations.

QPA members have become skilled practitioners in quarry restoration schemes that beneficially utilise inert wastes. Although harm to the environment may be caused by the inappropriate disposal of wastes which are not inert, good waste acceptance procedures put in place by quarry operators, as well as the enforcement of Duty of Care requirements[15] on waste producers by the regulatory authority should help to ensure that this does not occur on the restoration sites of QPA members.

[12] The Survey of Land for Mineral Workings in England, ODPM 2000, p.58.
[13] Based on The Survey of Land for Mineral Workings in England, ODPM 2000, and information relating to the percentage of sand and gravel sites within, or intersected by 13km bird strike safeguarding zones.
[14] Estimate based on proportion of sand and gravel sites restored using inert waste – based on production of 72 million tonnes of sand and gravel produced in GB in 2005, with approximately 55% restored back to agricultural use. Density of sand and gravel is 1.8 tonnes per m^3, which is comparable with inert waste density. Allowing for the use of mineral wastes, overburden and soils, it can be estimated that approximately 30 million tonnes of inert waste would be required each year for the restoration of mineral workings to agriculture if all were required to restore back to original ground level. In practice not all sites will require inert waste to achieve agricultural restoration, however some inert waste is also required to achieve other forms of restoration (such as recreational use) therefore 30 million tonnes is believed to represent an appropriate estimate.
[15] Section 34, Environmental Protection Act 1990.

3 The threats to the use of inert waste for restoration of mineral workings

The continuing ability of the aggregates industry to restore mineral workings to a beneficial after-use, and consequently to secure new planning permissions for the development of replacement mineral reserves, is being threatened by

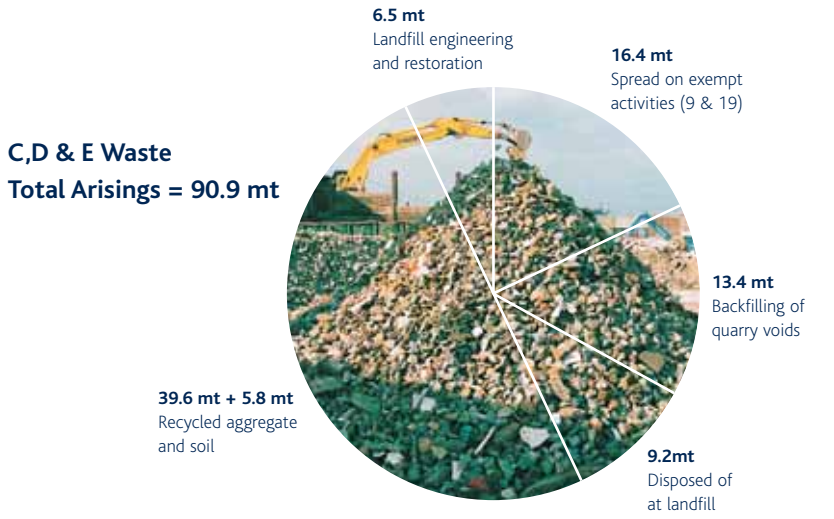
- **the use of inert waste for quarry restoration being defined as a disposal rather than a recovery operation,**
- **the decreasing availability of inert wastes to be used in PPC Permitted quarry restoration due to diversion to exempt and non-PPC Permit sites and the effects on the classification of inert waste recycling residues.**

The inappropriate manner in which European and national legislation is being interpreted and enforced is the main cause of these threats.

3.1 The inert waste stream

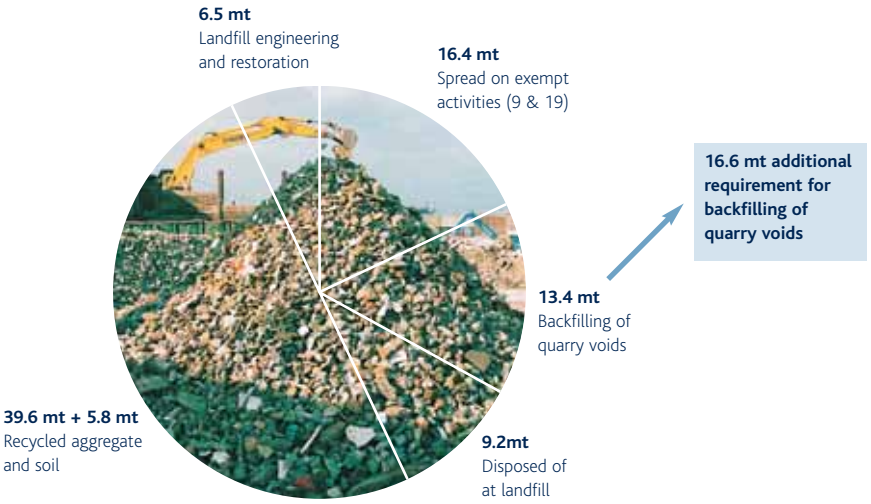
QPA believes that the importance of the inert waste stream must be recognised by Government and Regulators. Householders in England produced approximately 25 million tonnes of waste in 2003 and 4.2 million tonnes of hazardous waste were produced. This must be compared to the 91 million tonnes of inert construction, demolition and excavation (C,D&E) waste produced each year in England. The inert waste stream based on C,D&E waste is represented in the diagram below based on figures obtained from the Survey of Construction, Demolition and Excavation Waste Arisings, ODPM 2003.[16] 45.4 million tonnes (approximately 50%) are recycled as aggregate and soils,[17] 16.4 million tonnes (15%) are recovered at exempt activities, 9.2 million tonnes (8%) goes to landfill, and 6.5 million tonnes (6%) are recovered in landfill engineering and restoration. Only 13.4 million tonnes (15%) is used to backfill quarry voids.

It must be noted here that the availability of up-to-date data on all inert waste arisings in England and Wales was significantly lacking. Data from other sources is incomplete and therefore the information presented in the ODPM 2003 survey is used on the understanding that it represents a vast proportion of the inert waste stream.



[16]The study was not concerned with those functions of construction and demolition waste (such as wood, metals and plastics) which are unsuited to processing into aggregate.
[17]Representing an estimated 90% of the recyclable C,D&E inert waste stream.

As previously mentioned in Section 2, the demand for inert waste for the restoration of aggregate extraction sites is estimated to be up to approximately 30 million tonnes per annum. The following diagram shows that based on pathways for arisings of inert C,D&E waste there is a current deficit of inert waste for quarry restoration in the order of approximately 16 million tonnes per annum.



C,D & E Waste
Total Arisings = 90.9 mt
13.4 mt currently used for backfilling quarry voids
16.6 mt additional requirement for backfilling quarry voids

The inert waste stream represents a significant proportion of the UK waste stream and must be afforded a higher priority in addressing the ever-increasing regulatory burden placed on quarry operators recovering inert wastes.

Since the introduction of the Environmental Protection Act 1990 the industry has worked fully in accordance with the waste management licensing regime with many restoration schemes involving the use of inert waste being carried out under Waste Management Licences. Other than during a limited period following the introduction of the Landfill Tax, the industry has been able to progressively restore mineral workings with imported inert wastes, albeit at a reduced rate. Quarry operators were happy to carry out restoration activities under Waste Management Licences as, at

the time, they represented a balanced regulatory approach to the use of inert waste. The QPA is not aware of any instances of quarry restoration using inert waste management licences that have resulted in significant pollution of the environment after the introduction of the stricter licensing controls required by the Waste Management Licensing Regulations 1994.

The use of inert waste for infilling and restoration of quarries has therefore already been subject to adequate controls. Further changes to the regulatory regime in England & Wales are now being implemented and the operators of sites utilising inert wastes are being adversely affected by unnecessary changes in the regulatory regime. The burden on the inert waste stream is becoming disproportionate to the risk the waste stream presents to the environment.

The main issues are:

- The use of inert waste for quarry restoration is not being recognised as a waste recovery operation which enables the reuse and recycling of land. While use of inert waste in restoration remains classified as disposal, restoration cannot be undertaken through the waste management licensing regime.
- EC Directives are being implemented for inert waste regulation where there is no requirement.
- The introduction of Waste Acceptance Criteria testing is having an adverse effect on the amount of inert waste being disposed of at PPC inert landfills.
- The Groundwater Directive is being disproportionately implemented in terms of the risk inert wastes present to the water environment.

3.2 Quarry restoration - recovery or disposal activity?

Waste Framework Directive 75/442/EEC, as amended, is the overarching legislative framework for the management of waste. Of particular relevance to the restoration of minerals workings are the following sections of Annex II B. This Annex provides an indicative list of activities classed as recovery operations including:

- R10 which relates to land treatment resulting in benefit to agriculture or ecological improvement; and
- R11 which relates to the use of waste obtained from any of the operations numbered R1 – R10 of the Annex.

This list of recovery operations is not exhaustive however, **the use of inert materials for quarry restoration could clearly be classed as land treatment resulting in the benefit to agriculture or ecological improvement.** There must be recognition that the use of inert waste for quarry restoration is a recovery operation under the provisions of R10 of the Waste Framework Directive.

Such provisions are also made in the Landfill Directive 99/31/EC and these must be recognised by Government and its Regulators. The Directive, which imposes operational and technical requirements on landfill sites, applies to landfills for hazardous, non-hazardous and inert wastes. With reference to recovery operations the recitals to the Directive contains two provisions (Recitals 3 and 15) that are closely allied with the use of suitable waste for the restoration of quarry workings, and exclude these uses from the applicability of the Directive.

"Whereas the prevention, recycling and recovery of waste should be encouraged as should the use of recovered materials and energy so as to safeguard natural resources and obviate wasteful use of land"
(Recital 3 of the Landfill Directive)

"Whereas the recovery, in accordance with Directive 75/442/EEC, of inert or non-hazardous waste which is suitable, through their use in redevelopment/restoration and filling-in work, or for construction purposes may not constitute a landfilling activity"
(Recital 15 of the Landfill Directive)

These recitals must also be read in conjunction with Article 3(2) which specifically excludes the "use of inert waste which is suitable, in redevelopment/restoration and filling-in work, or for construction purposes, in landfills" from the scope of the Directive. It is evident from the recitals to the Landfill Directive that it was not intended to apply to the use of suitable inert wastes for the purpose of infilling quarry workings or for restoration works. A legal opinion obtained by a QPA member company supports this interpretation stating that 'as a quarry void is not designed

for the final disposal of waste, and is driven by the objective of winning mineral, this may be classed as a recovery operation'.

Schedule 3 of the Waste Management Licensing Regulations 1994 as amended by Waste Management Licensing (England and Wales) (Amendment) Regulations 2005 provides a series of exemptions from the need to hold a Waste Management Licence/PPC Permit for operations facilitating the reuse of waste. Exemptions of particular relevance are those under paragraphs 9, to provide benefit to agriculture or ecological improvement for less than 2 metres depth and up to 20,000m^3 per hectare, and 19, the use of waste material for construction work associated with transport and recreational infrastructure. Exemptions are said by Government and Regulators to be sufficient to implement the requirements of relevant Directives in relation to recovery operations. Despite the importance of the use of inert waste for the infilling and restoration of mineral workings, there is no specific exemption for this purpose and the ability to use exemptions for quarry restoration has varied between different EA Regions.

With the coming in to force of the Waste Management Licensing Amendment Regulations 2005 some activities that were previously covered by exemptions 9 and 19 are now required to be licensed with either a Waste Management Licence or PPC Landfill Permit. In the case of quarry restoration activities, the Environment Agency has failed to recognise that these operations are treatment and recovery operations. Operators now have to apply for full landfill permits to restore quarries with inert waste.

The view expressed by DEFRA in the Second Consultation Paper on the Implementation of Council Directive 1999/31/EC on the Landfill of Waste should now be reviewed. It was stated that due to the effects of landfill tax, the Aggregates Levy and the demand for inert materials for landfill engineering and restoration "the demand for future inert waste landfill capacity is likely to be reduced significantly, with a consequent reduction in future landfill numbers and licensing requirements."[18] In fact the requirement for facilities to handle inert waste in quarry restoration has not declined, and has probably increased. In addition, the inappropriate application of landfill regulation to recovery operations for the restoration of mineral workings has had the exact opposite effect. Quarry restoration sites are being required to operate as inert landfills, rather than be recognised as recovery activities.

Landfill licensing is currently in a transition stage whereby waste management licences are being transferred to PPC Permits. This is in response to the Government's interpretation of the Integrated Pollution Prevention and Control (IPPC) Directive 96/61/EC. Annex I to the Directive lists the categories of activities covered by the Directive. Whilst it applies IPPC to landfills for the disposal of non-hazardous and hazardous waste, it specifically excludes inert landfill.

Landfills receiving more than 10 tonnes per day or with a total capacity exceeding 25,000 tonnes, excluding landfills of inert waste.[19]

Despite this clear exclusion, the Landfill Regulations 2002 have applied IPPC to inert landfills in England and Wales even though these sites deal with materials posing no pollution risk.[20] Not only does this approach introduce a greater level of control on inert waste than is required by the IPPC Directive, it must be contrasted with the limited range of controls considered necessary for those sites that have exemptions from Waste Management Licensing. The burden of complying with IPPC requirements means that it will become unviable to operate sites taking inert waste to facilitate the reuse of mineral workings.

While quarry restoration using inert waste continues to be classified as a disposal activity, the industry is faced with the real threat that it will be unable to restore aggregate extraction sites using inert waste. The activity is currently subject to over-regulation through the application of the Landfill Directive and IPPC Directive while there are other exempt activities operating under minimal controls handling the same wastes. A creation of a quarry void is driven by the objective of winning mineral and the land must be restored following this activity. The use of inert waste for quarry restoration must therefore be recognised as a recovery activity as already provided for under R10 and R11 of Annex IIB of the Waste Framework Directive.

[18]Implementation of Council Directive 1999/31/EC on the Landfill of Waste: Second Consultation Paper. DEFRA 2003. Annex 1 Regulatory Impact Assessment.

[19]Section 5.4 Annex 1 Integrated Pollution Prevention and Control (IPPC) Directive 96/61/EC.

[20]Article 1 of the Directive specifies that the purpose of this Directive is to achieve integrated prevention and control of pollution arising from the activities listed in Annex I to the Directive. It lays down measures designed to prevent, or to reduce emissions in the air, water, and land from those activities it covers in order to achieve a high level of protection of the environment as a whole.

3.3 The availability of inert waste for quarry restoration

The cumulative effects of a number of pieces of legislation (including those detailed overleaf), and more specifically the interpretation of that legislation, are having significant effects on the inert waste stream. The volume of inert waste available for restoration of mineral workings is declining as waste producers make more use of alternative options, whether that involves recovery or disposal.

The Trent Valley study area – understanding the arisings, flows and destinations of inert materials

To provide evidence to support the concerns over the availability of inert wastes for quarry restoration, Egniol Limited were commissioned by the Quarry Products Association to undertake a study of the inert waste arisings and disposal activities within the Trent Valley area. The study was to evaluate what has previously been anecdotal evidence that insufficient inert material was available across the study area to ensure the progressive restoration of sand and gravel workings.

The study assessed the amount of material nominally available across the study area and the capacity of facilities handling that material. This was then set against possible competing demands including use of materials for land improvement activities exempted under the Waste Management Licensing Regulations, feed-stock for aggregate and soil production, and a source of fill for inert landfill sites. Eight different data sources were used as part of the study; however, the accuracy of these sources was a significant concern. ODPM surveys on arisings of construction and demolition waste contained figures with widely varying degrees of accuracy, and the information contained on the Environment Agency's electronic data management system applying to activities covered by the Waste Management Licensing Schedule 3 exemptions for land improvement and aggregates/soils manufacture was known to be incomplete. **The QPA are concerned that current and future Government policy relating to inert waste is being based on incomplete, and in some cases inaccurate data; an area which must be improved upon to obtain a full picture of the inert waste stream in the UK and to fully understand the implications of Government waste policy.**

The review of the arising and disposal patterns for inert waste materials across the study area showed that:

- **for the period 2003/04 actual disposals of inert waste to licensed inert landfills (the majority of which were for quarry restoration) amounted to only 58% of the nominal capacity of these sites, representing a 1 million tonne per annum deficit in inert material for quarry restoration.**
- **Total disposals of inert waste to both licensed inert and non-hazardous landfill sites amounted to a little under 50% of the nominal capacity, representing a total 1.55 million tonne deficit in inert materials in the study area.**

The specific data collected also suggested that this nominal difference between the capacity and the actual availability for the restoration of Trent Valley mineral workings within the core study area is unlikely to change within the next 5 years. **Up to approximately 3.5 million tonnes per annum of sand and gravel production is now threatened by the lack of inert waste for quarry restoration in the Trent Valley study area.**

The study concluded that **competition between exempt and licensed activities has the potential to have a negative impact on market stability, and is an area of competition which needs to be reviewed with some degree of urgency.** The study also concluded that negative effects will result from the incoming use of European Waste Catalogue codes and Waste Acceptance Criteria to determine what is classified 'inert' waste, and that competition between sites for inert materials could result in a price war, which will be of little long-term benefit to continued restoration. The implications of these findings can only hinder the ability of mineral site operators to deliver aggregates to meet the continued demands of the construction industry, whilst working within the constraints placed by the CAA.

A summary of the Egniol Study is available in Appendix 2.

Recycled and secondary aggregates

The use of recycled and secondary materials in aggregates markets in Britain rose to 67 million tonnes in 2004, comprising 24 per cent of the aggregates market.[21] Greater recovery of those elements of construction and demolition waste for use as aggregate has resulted, in part, due to the step change in reuse following the introduction of the Landfill Tax. High levels of recovery, estimated at 90% of the usable waste stream, are now achieved. In Britain we now supply 17 million tonnes more per year of recycled and secondary aggregates than any other EU country and could be seen as an unrecognised world leader in the fields of recycled and secondary aggregate production. The QPA fully supports this achievement while recognising that it has reduced the amount of inert waste available for restoration.

Planning controls on Landfill and Exemptions

At local/district level there is a lack of understanding on the impacts on the inert waste stream for granting planning permission for activities such as golf course construction which utilise waste management licence exemptions. These activities impact on permitted and licensed sites drawing

[21] A sustainable development report from the aggregates and quarry products industry, March 2006.

material away from quarry restoration activities. This issue was highlighted in the case of Golf Operations Limited v. First Secretary of State,[22] which clearly demonstrates the need for materials for the restoration of mineral excavation sites. The County Council had refused permission for development of a golf course. The construction would have required the importation of about 429,000 cubic metres of inert waste. In the decision it was stated that "it is clear that this proposal would compete in the market to attract inert soils and perpetuate the delay in the necessary restoration of both former mineral workings and landfill sites. The fact that the EA now states that minerals workings in the Nene Valley can only accept inert waste in future only adds to the competition that will ensue for the available inert waste in the area and the proposal would therefore conflict with the objectives of policy NMLP36 of the Minerals Plan."[23] In relation to the waste hierarchy the following comments were made: "if the use of the waste for the proposed mounding for a golf course is a re-use then so is the use of the soil to return a site to agriculture, for instance. I do not accept therefore that the proposed use would be higher up the waste hierarchy than the alternative uses available for this waste." The benefits arising from the protection and conservation of the environment and land-use as a result of using the waste stream for the restoration of exhausted mineral workings and completed landfill sites to beneficial use were seen to substantially outweigh those resulting from its use for constructing a golf course.[24]

Waste Acceptance Criteria

Any inert landfill site that is operating under a PPC permit may only accept waste with the proof that it is indeed inert. This can either be through the use of the 'approved list' of wastes whereby wastes on that list can be accepted from a single source without testing, or through the use of Waste Acceptance Criteria (WAC) testing. The waste is tested for a number of specified pollutants to determine if all are within the inert thresholds. These specific requirements are currently only applicable to PPC Permitted sites and this is causing a number of significant problems.

- There is reluctance for producers to pay for WAC testing where the same waste can go to sites that are less controlled and do not require WAC testing. Material is therefore being taken to exempt sites or WML sites to avoid the cost of WAC testing.
- Many materials arise quickly, are not planned for, and need to be removed from site before they can be tested. General excavations and utility arisings are a significant area of concern due to the relatively small amounts of waste produced at a time, and the requirements for each load to be tested.

[22]Golf Operations Limited v. First Secretary of State, 2005 WL 2673819 (QBD (Admin Ct)), [2005] EWHC 2218.
[23]Paragraph 18 Golf Operations Limited v. First Secretary of State, 2005 WL 2673819 (QBD (Admin Ct)), [2005] EWHC 2218.
[24]Paragraph 21 Golf Operations Limited v. First Secretary of State, 2005 WL 2673819 (QBD (Admin Ct)), [2005] EWHC 2218.

- Some materials classed as inert under previous regimes, such as soils and clays, are now having difficulty complying with the WAC threshold for Total Organic Carbon (TOC). These materials may however pass on Dissolved Organic Carbon (DOC).[25]
- Landfill operators and waste producers have had difficulty with testing facilities and turnaround times, despite assurances from testing houses regarding sufficient resource availability. An example of 7 weeks to test general excavation waste has been given and another operator is regularly waiting 10-15 days.
- The important implications of testing delays must be noted in relation to where this material is now going. Where does a load on the back of a lorry, which is turned away from a PPC site, go? Waste hauliers are the middle men left in a difficult position in transporting this material and greater efforts must be made in educating waste producers on their responsibilities for waste characterisation.
- **The cumulative effects of these issues have caused an estimated 30% decrease in the amount of inert material received on PPC sites.[26]**
- **PPC Permitted inert landfill activities for the restoration of quarry workings are suffering from a lack of inert waste resource to fulfil their obligations to restore.**

Inert Waste Treatment Residues

It is widely believed that the UK captures 90% of C,D&E materials suitable for recycling (45.6 million tonnes). This represents a significant waste treatment capacity which is under threat by the Landfill Directives requirement that all waste must be treated before disposal. The particular threat comes from the status of treatment residues from C&D recycling operations. Selected construction and demolition wastes appear on the 'approved' inert waste list and as such are exempt from the requirement of WAC testing. However, once these same wastes have been subjected to mechanical treatment (e.g. crushing and screening) to produce secondary aggregate, the residues from the treatment of the inert wastes are no longer covered by the approved inert list and must undergo WAC testing before disposal.

The high cost of characterisation of these residues can act as a substantial disincentive to recycling any of the 'approved' inert waste streams. QPA expects that large quantities of potentially recyclable materials may no longer be recycled because of the effects of the classification of treatment residues.

[25]One of the principle problems is carbonate which occurs frequently in inert waste (concrete etc) and can have a very significant effect on TOC in the analysis results. As an example, a sample sent for WAC testing initially came back with a TOC of 11% (well above the limit of 3%). However, after an alternative preparation to dissolve out the mineral carbonate, the TOC value, on re-analysis, dropped to 0.18% a reduction of over 60 times.

[26]Estimate based on the current experience of QPA members.

The recycling of construction and demolition waste to produce aggregates involves mechanical treatment of the waste through sorting, crushing and screening processes.[27] Materials on the approved list for disposal at inert landfills without testing (such as uncontaminated sub-soils, concrete, bricks and tiles from a single source) are subjected to mechanical treatment to produce secondary aggregates and screened soils. The treatment of these inert wastes leads to the production of inert products, however, the inert treatment residues such as dust and clays are not listed on the approved inert list. Therefore they cannot be disposed of to landfill without additional WAC testing.

The Environment Agency consider that residues from inert waste treatment require WAC testing in case they contain organic contaminants, such as humus, that have been concentrated by the treatment process.[28] The Agency's view is that the presence of such contaminants might render the soils and residues a non-hazardous waste. This creates a serious problem for the treatment plant operator introducing an enormous commercial disincentive to recycle waste to extract secondary aggregates. In some cases it has even been deemed by the Environment Agency that treatment residues have to undergo further treatment to satisfy the requirements of the landfill directive, where clearly there is no scope to further reduce the volume or the environmental risk; another disincentive to recycling.

The cumulative effects of inappropriate interpretation of current legislation are having yet another significant effect on the industry. A brief costed example of the problem is presented below, where it is assumed that a load of inert waste is delivered by tipper lorry whose carrying capacity is 20 tonnes.

[27]These comprise a Part B process under the provisions of the 2000 PPC Regulations (Schedule 1 Sections 3.5(c) and 3.5(d)).
[28]Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance Procedures - Environment Agency December 2003.

The residues from inert waste treatment can vary from between 10-50% of the input stream, meaning that for every 20 tonne load treated there could be between two and ten tonnes of residue that require WAC testing. The charge a recycling operator might expect to make for a load of incoming inert waste for treatment would be in the range of £20-70. However, the cost of a WAC analysis is £350 per sample.[29]

If residues were at 10% of the input volume the operator would lose up to £150 for every ten loads of material accepted. If residues comprised nearer 50% then the operator could lose up to £1550 per ten loads accepted. Clearly such a business venture would be very short lived. Besides cost, there is also an administrative burden. The prEN 12457-3 test is used to determine the acceptability of the treated waste, at either an inert or non-hazardous landfill site. To carry out the prEN test takes a minimum of 10 days, sometimes longer. For a small treatment plant processing 500 tonnes per day, the prEN test requires between two and ten load equivalents of residues per day to be tested and stored, awaiting disposal to the appropriate type of landfill. For a larger plant, of say 1,500 tonnes per day, six to 30 load equivalents per day would need to be tested. If the ten day turnaround time is to be met, the implications are that provision will have to be made to store 20-100 loads for a small plant or 60-300 loads for a large plant. The logistics of separately storing and correctly identifying this number of waste loads in a quarantine area on a continuous basis would be daunting, to say nothing of the area of land required to store the waste – 300 loads would require approximately 1.5 hectares. In addition, there would be a need for operators of larger recycling sites to provide a separate machine to reload the waste into a dump truck or lorry for final disposal. The testing procedure is therefore significantly flawed.

The QPA considers that the risk posed to the environment from inert waste treatment residues is small. The contaminant loading of approved inert wastes directed straight to landfill without treatment will be the same as the treatment residues generated from recycling that same material. Therefore whilst the residues of a greater volume of treated waste might be classed as 'non-hazardous' after WAC testing and be required to be disposed of to non-hazardous landfill, the QPA considers that the actual risk posed by such residues will be small as the originating material is by definition low risk.

[29] ESART Practitioner's Guide April 2004

Alternative routes for inert waste disposal

Due to the increased burden on recyclers to test residues, the only commercial alternative is to claim that it is not technically feasible to treat the incoming inert waste and consign it directly to landfill with no recovery of material. While this would help to increase the volumes of material available to restore mineral quarries it will have a catastrophic effect on the amount of construction and demolition waste being recycled.

Another alternative is the possibility of disposing of inert waste (including treatment residues) at non-hazardous landfill, without testing, since there are no waste acceptance criteria for non-hazardous landfills at present. This, however, will have severe financial implications for the construction industry. Naturally occurring soils disposed of to landfill are subject to the lower rate of Landfill Tax (£2 per tonne), unless disposed of in a quarry restoration that is exempt from tax. These naturally occurring materials are often used as cover material in non-hazardous landfills. However, residues from treatment, whilst largely fine soil particles, could also contain concrete or brick dust, and are no longer 'naturally occurring' and therefore attract Landfill Tax at the standard rate (£21 per tonne from April 2006). If the practice of disposing of inert materials at non-hazardous landfill sites were to become more widespread, non-hazardous landfill operators would quickly have more cover materials than they required and so would either reject the material or charge the full value of the landfill void of between say £15 and £25 per tonne. Consequently, inert waste that was costing £20-£70 per load for treatment could in future cost an additional £270-£360 per load when used as cover or £525-£700 per load if treated as 'waste'. Whilst it is acknowledged that one of the aims of the Landfill Directive is to increase disposal costs, a 1000% increase in disposal charges would have a ruinous effect on the construction industry.

Requirements for WAC testing of inert waste streams should be relaxed as a proportionate response to the environmental risk, compared with the potentially serious damage resulting in the rigid application of WAC to all inert materials not currently on the approved list.
Acceptance that the residues from the mechanical treatment of inert waste remain inert would avoid any reduction in the amount of materials available for recycling and would release the residues for use in the restoration of mineral workings. Such an acceptance would be consistent with the approach taken by central Government in respect of fragmentiser wastes, a shredder residue from the metal recycling process.

A new hierarchy for inert waste disposal?

The QPA are concerned that due to the current inert waste management regime there will quickly become established a new hierarchy for disposal of inert wastes. Fly tipping will become the preferred option, followed by the use of exempt sites, then those operating under Waste Management Licences, and finally those operating under PPC Permits.

The QPA fully support the renewed emphasis on tackling waste crime with more targeted prevention and enforcement, as presented in the Waste Strategy Review 2006.[30] The review states that the operating climate needs to ensure that legitimate businesses and individuals are protected against those who deliberately flout the law and cause environmental harm.[31]
Fly tipping of inert wastes is a significant issue and construction and demolition waste has been highlighted as one of the main waste types disposed of illegally through fly tipping. The QPA would not like to see the current impacts our industry are experiencing affecting these figures detrimentally; indeed a reduction in fly tipping will provide additional valuable resources for quarry restoration.

The Groundwater Directive and its effects on the restoration of quarries with inert waste
Depositing waste in land has obvious links to the protection of groundwater. The purpose of the Groundwater Directive 80/68/EEC is to prevent the pollution of groundwater by substances in List I and List II in the Directive's Annex (Article 1).[32] The Directive prohibits the direct discharge of List I substances and limits the introduction into groundwater of List II substances so as to avoid pollution.[33]

So far as landfill operations are concerned, until recently the UK has implemented the Directive's requirements for risk assessment through the provisions of Regulation 15 of the Waste Management Licensing Regulations 1994. The approach adopted in the UK has been that sites accepting hazardous or other non-inert wastes (e.g. municipal solid wastes) have needed to be contained by an impermeable barrier. Inert landfill operations have not been required to have a barrier or liner on the basis that only inert waste is authorised for disposal. The QPA is not aware that any of its members' inert landfill sites have been the source of groundwater pollution.[34]

The Agency's Technical Guidance Note (LFTGNO1) states that **"inert landfills fall outside the scope of the Groundwater Directive since, by definition, the total leachability content of the wastes, and the ecotoxicity of the leachate, must be insignificant and in particular, not endanger the quality of groundwater."[35]** In theory this means that a hydrogeological risk

[30]Review of England's Waste Strategy – A consultation document. February 2006. DEFRA. London.
[31]Review of England's Waste Strategy – A consultation document. February 2006. DEFRA. London. p.27.
[32]Protection of Groundwater Against Pollution Caused by Certain Dangerous Substances 80/68/EEC. The Groundwater Directive.
[33]The Directive provides that, where risk assessment shows that there is little risk of pollution or where the groundwater is already permanently unsuitable for other uses, Member States may authorise disposal of List I and/or List II substances.
[34]Based on information provided by the Environment Agency for the period 2001-February 2006.
[35]*Hydrological Risk Assessments for Landfills and the Derivation of Groundwater Control and Trigger Levels.* Environment Agency, Bristol. 2003. p.20.

assessment is unnecessary. The note goes on to say that "for inert landfills that are located in a sensitive situation, some further consideration of risks due to accidental acceptance of contaminated material would be required." In practice, this guidance is ignored within the EA with different EA regions having different views but most require a groundwater risk assessment. Some regions also insist that a liner is included in the permit application even when the groundwater risk assessment demonstrates it is unnecessary. Some EA officers will refuse to accept an application as duly made until the operator changes his application to include these lining provisions. Such coercive practices place the landfill operator in a difficult position since, should he refuse to make the changes, he is unable to appeal the application, as it remains undetermined. His only recourse is judicial review.

The need to install barriers in inert landfill sites significantly affects the viability of such an operation. The excessive approach to barriers taken by the Environment Agency stems from an inaccurate interpretation of the requirements of the Landfill Directive. The Landfill Directive (but not the Landfill (England & Wales) Regulations 2002 because these are different in subtle but significant ways) requires that several measures to protect soil and water around a landfill are installed. These measures are described in Section 3 of Annex 1 to the Directive and are summarised below.

- **Section 3.1** requires the provision of a geological barrier and a basal liner during the operational phase, and a geological barrier and a top liner during the post-closure phase.

- **Section 3.2** requires that the geological barrier should provide sufficient attenuation capacity to prevent risk to soil and groundwater beneath and in the vicinity of the landfill.
  For inert waste the permeability and thickness requirements are $K \leq 1.0 \times 10^{-7}$ m/s and ≥ 1m.
  There is also provision to enhance the *in situ* geological barrier artificially to provide equivalent protection, where it does not naturally meet the above conditions.

- **Section 3.3** is in two parts.
  The first part requires the provision of a basal sealing layer and drainage layer to facilitate the collection of leachate so that the accumulation of leachate at the base of the landfill is kept to a minimum. **However, such provision is specified for non-hazardous and hazardous landfills only.** It also adds that **Member States may set general or specific requirements for inert landfills** and for the characteristics of the sealing and drainage layers.
  The second part provides for the Environment Agency to consider the potential hazards to the environment and to specify what capping arrangements are necessary, if any, to prevent the formation of leachate. Recommended specifications for these arrangements are only provided for non-hazardous and hazardous landfills.

- **Section 3.4** provides that if a groundwater risk assessment is carried out, the statutory authority may take into account the results of the assessment and decide that the collection and treatment of leachate is not necessary. In addition, if the results of the risk assessment demonstrate that the landfill poses no potential hazard to soil, groundwater or surface water, the requirements of paragraphs 3.2 (provision of geological barrier) and 3.3 (provision of basal liner and, if considered necessary, a cap) may be reduced accordingly. This derogation applies more particularly, to hazardous and non-hazardous landfill because Section 3.4 also provides that **in the case of inert landfills the requirements of paragraphs 3.2 and 3.3 can be adapted by national legislation. This specific provision for inert landfills was omitted from The Landfill (England & Wales) Regulations 2002.**

The Directive clearly recognises that there is a significant difference in the risk presented by non-hazardous/hazardous landfills compared to inert landfills. It provides for Member States to specify general or specific requirements for inert landfills to protect soil and water in national legislation. It does not allow such derogation for non-hazardous and hazardous landfills.

Moreover, while the Environment Agency maintains that the presence of a geological barrier is "non negotiable" this is clearly not the intention of the Directive. The protection of soil and groundwater by the use of a geological barrier and liner is a requirement of Section 3.1. However, the specification of the barrier and liner can be 'reduced accordingly' by virtue of Section 3.4 (for any type of landfill), if the results of a groundwater risk assessment demonstrate that the landfill poses no potential hazard to soil, groundwater or surface water. Paragraph 8, Schedule 2 to the Landfill (England & Wales) Regulations 2002, provides that if a groundwater risk assessment establishes that the landfill does not pose a potential hazard to soil, groundwater or surface water, then the requirements for a barrier or liner "may be reduced to the appropriate extent". In other words, if the results of the risk assessment demonstrate there is no threat to soil, groundwater or surface water, **the requirements could be reduced or removed altogether.** Therefore the existence of the geological barrier and liner are negotiable in appropriate circumstances, it is only the Environment Agency who believe otherwise and act accordingly, thus reducing the viability of inert waste disposal and the opportunities for its use to facilitate the restoration of aggregate mineral workings.

The relationship between inert waste landfills and groundwater is also addressed in Environment Agency Regulatory Guidance Note 3 Groundwater Protection: locational aspects of landfills in planning consultation responses and permitting decisions.[36]

[36]Environment Agency (2002) Regulatory Guidance Note 3 Groundwater protection: locational aspects of landfills in planning consultation responses and permitting decisions, version 4.0. Environment Agency, Bristol.

RGN 3 states that "the Environment Agency will object to any proposed landfill site in a groundwater Source Protection Zone I. For all other landfill sites a risk assessment must be conducted based on the nature and quantity of the wastes, and the natural setting and properties of the location. Where this risk assessment demonstrates that active long-term site management is essential to prevent long-term groundwater pollution, the Agency will object to sites in major aquifers or Source Protection Zones II and III, or sites below the water table (in any strata where the groundwater provides an important contribution to river flow or other sensitive surface waters)."[37] In practice, however, this guidance is treated as a bar on any landfill sites within a major aquifer. In relation to inert waste, this represents an excessive application of the relevant policy. Aggregate mineral extraction often occurs in river valleys where extensive sand and gravel resources are found. The application of this effective ban on inert landfills in such locations has a disproportionate impact on the use of inert waste to restore mineral workings as an element of sustainable aggregates supply. Applications for the use of inert waste in these locations are not treated as "duly made", thus the intending applicant will not even achieve the stage of having a risk assessment considered.

As with the Landfill Directive and IPPC Directive, the quarrying industry is facing disproportionate regulation under the UK's interpretation of the Groundwater Directive. There are some parts of the Agency that continue to concentrate their resources on licensed sites, and have introduced the concept of 'rogue loads' as a reason to require the construction of an artificial liner for inert landfill sites. The levels of controls required for quarry restoration under the landfill regime must again be compared to the use of Waste Management Licence Exemptions, where requirements of the Groundwater Directive are not applied. Consequently, poorly controlled 'exempt' sites may present a real risk to the environment compared to the well-controlled, frequently inspected sites of the quarrying industry. The application of the Groundwater Directive to the use of inert waste for quarry restoration must be urgently reviewed.

[37]Environment Agency (2002) Regulatory Guidance Note 3 Groundwater protection: locational aspects of landfills in planning consultation responses and permitting decisions, version 4.0. Environment Agency, Bristol. p.3.

4 Inert waste and quarry restoration - the future

4.0 Inert waste and quarry restoration - the future

The Thematic Strategy on the Prevention and Recycling of Waste recently issued by the European Commission recognises the barriers that are currently effecting the reuse and recovery of waste and places greater emphasis on the need to recover and make better use of waste materials. It states that "legislation is in some cases, poorly implemented and there are significant differences between national approaches."[38] It goes on to say that the definitions of recovery contained in the present legislation, as interpreted by the European Court of Justice, do not promote best environmental practice.[39]

It must be recognised that not all deposits of waste into land are 'bad'. The use of inert waste enables the reuse of quarried land for beneficial purposes and makes a significant contribution to the aims of sustainable development by returning land to agriculture and conservation. Restored agricultural land is often of a higher grade than that which was present before mineral extraction, and restoration can also contribute to achieving biodiversity and geodiversity benefits. Some 700 SSSIs were originally quarries or part of land owned by mineral operators. Quarry restoration is a beneficial activity ensuring that extraction sites are returned to beneficial after-uses for society.

However, the barriers that are currently in place in the UK due to the inappropriate application and interpretation of the Landfill Directive, IPPC Directive and Groundwater Directive, are adversely affecting the use of inert waste for quarry restoration. One of the key aims of the Thematic Strategy is for the regulatory environment to be improved, leading to decreased costs and reduced barriers for waste recycling and recovery activities.[40] The QPA welcomes this approach and believes that a level playing field must be created for the handling of inert wastes to ensure that all recovery operations, including the use of inert waste for quarry restoration, are regulated in a proportionate regime, removing barriers and applying proportionate costs.

The QPA support the suggested move to risk-based, proportionate regulation for all waste management activities under one scheme, as presented in the Environmental Permitting Programme consultation document issued in February 2006.[41] The EPP gives DEFRA and the EA the opportunity to review previous interpretations of elements of the landfill directive relevant to inert waste, and recognise that the use of inert waste for quarry restoration is a recovery operation.

The DEFRA Waste Strategy Review consultation document states that 'the purpose of regulation is to ensure sound environmental and public health outcomes whilst providing the right climate for businesses to flourish in a competitive environment and make new investments for the future...".[42] The current regulatory regime for the use of inert waste in quarry restoration is significantly affecting the financial costs of operating restoration schemes using inert wastes, and in some cases is prolonging the timescales of completion of restoration schemes, having possible knock-on

effects on future developments and investments.

Quarry operators are required to restore extraction sites, and in many cases are required to restore using inert wastes. Action must be taken by Government departments and agencies, including DEFRA and the EA to address the current threats to the industry.

QPA considers that the use of inert for the restoration of mineral workings should be classed as a recovery of that waste, as provided for in the Waste Framework Directive under R10 - Land treatment resulting in benefit to agriculture or ecological improvement.

A level playing field must be created by bringing all inert waste recovery and disposal activities under one proportionate and risk-based regulatory regime.

[38]Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste. EC. Dec 2005. p.3.
[39]Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste. EC. Dec 2005. p.13.
[40]Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste. EC. Dec 2005. p.9.
[41]Environmental Permitting Programme: Consultation on options for creating a streamlined environmental permitting and compliance

5 Appendices

Appendix 1

QPA Restoration Guarantee Fund Leaflet

The QPA **Restoration Guarantee Fund**

a fail-safe commitment to restoration

QUARRY PRODUCTS ASSOCIATION

The QPA Restoration Guarantee Fund

Key points

- QPA members regard their restoration commitments as paramount
- Insolvency, while rare in the industry, could leave quarried land unrestored
- A fund, launched by the Sand and Gravel Association (SAGA) in 1975, guaranteed restoration of sand and gravel quarries in the event of a member becoming insolvent
- That fund continued when SAGA became part of the QPA upon its launch in 1997, covering members' sand and gravel operations
- The fund was extended to cover silica sand quarries in 2001
- The fund has never to date been called upon
- The fund has been further extended to include rock quarries
- It provides a £1 million overall guarantee against restoration default with a single claim limit of £500,000.

Cover photo: Reed beds on restored land at Middleton Hall quarry north of Birmingham

Quality restoration of land borrowed for aggregate extraction is one of the trademarks of the modern quarrying industry. Local authorities, nonetheless, sometimes feel the need for the security of knowing that funds would be available to finance restoration in the event of an individual operator becoming insolvent. The Quarry Products Association satisfies that need on behalf of its members through its £1 million Restoration Guarantee Fund.

Committed to restoration

Quarrying is in reality a temporary land use that may last no longer than a decade for sand and gravel and longer for a rock quarry.

Restoration is an integral part of the quarrying process. Detailed plans are prepared for restoring the land to productive use long before planning permission is granted and extraction begins. Restoration is usually progressive and may involve a return to a previous use such as farming. Alternatively, it may offer a unique opportunity for change to exciting new uses such as wildlife reserves or recreation facilities that benefit the community and the environment.

As responsible operators, the members of the Quarry Products Association (QPA) are committed to being good neighbours throughout the extraction process and beyond. This includes restoration.

Background

The Sand and Gravel Restoration Fund Ltd – was introduced by the Sand and Gravel Association (SAGA) in 1975. When QPA was formed through the merger of British Aggregates Construction Materials Industries (BACMI) and SAGA in 1997, the fund continued and was renamed the QPA Restoration Guarantee Fund Ltd.

With the merger of the Silica and Moulding Sands Association (SAMSA) with QPA in 2001, SAMSA members producing silica sand for industrial uses joined the fund. In 2002, the scope of the fund was further extended to include all rock quarries producing aggregates. Membership of the fund is a condition of QPA membership.

While providing a vital safety net, the fund has never yet had to be drawn upon. No instances have come to light where either operators or the planning enforcement regime have been found wanting. Yet, during that period:

- planning enforcement and minerals planning law has been decisively strengthened
- breach of condition notices are now available to secure action
- planning conditions can now be reviewed every 15 years
- dormant sites can only be reopened once modern conditions have been applied.

Despite these improvements in enforcement procedures, the QPA fund remains a powerful tool in the armoury of planning authorities.

The Fund

The QPA Restoration Guarantee Fund Ltd is designed to provide a financial indemnity to planning authorities where a rock, sand and gravel or silica sand producer member of QPA has defaulted on restoration obligations by virtue of becoming insolvent.

The fund, which is set up as an arms-length limited company, provides for a £1 million overall guarantee to planning authorities against such a restoration default, with a single claim limit of £500,000.

Its objective is to provide planning authorities with a substantial and credible alternative in circumstances where they feel a financial bond is needed to back up the terms of a planning permission. The fund has been welcomed by the government and is recognised as a valid alternative to company-specific bonds in recent guidance for England, Wales and Scotland. MPG 7 (England) and Minerals Planning Policy (Wales) provide recent and authoritative support.

The launch of the extended fund, now covering all aggregate operations, provides an opportunity to clarify one key issue. Originally, claims had to be made within 12 months of the "conclusion" of enforcement proceedings. As enforcement proceedings can become an open-ended activity, the memorandum and articles of the fund have been amended to make clear that the 12-month time limit for claims now relates to the date from which enforcement notices take effect, rather than when they are concluded.

A fine track record

Much of the land required for quarrying is in reality only borrowed. The quarrying industry works hard to ensure that the loan is repaid ... with interest.

Farmland is now routinely restored to its former quality. Nature reserves that have been created from quarries attract wildlife that would not otherwise exist in those areas. More than 180 Sites of Special Scientific Interest (SSSIs) have quarrying as their origin.

Meanwhile, people all over the UK derive enjoyment from sailing, golf and other leisure activities made possible through the sheer imagination of quarry operators.

The QPA Restoration Awards have been recognising such achievements for more than 30 years. Independently judged, they recognise projects where achievement goes well beyond the need to satisfy planning conditions.

Government surveys show that the area of land being restored by the aggregates sector in any year exceeds the area actually being worked. There is no backlog of restoration.

QPA members are fully committed to meeting the needs of government policies for sustainable development and biodiversity, and believe their track record in this respect is second-to-none.

Questions and answers

Which quarries are covered by the fund?
Those operated by QPA members and producing sand and gravel, silica sand or crushed rock for aggregates.

In what circumstances can claims be made?
When a QPA member has defaulted on the restoration obligations of a planning permission because of insolvency.

Who can make a claim?
The mineral planning authority.

Why can't the fund provide for claims by land-owners?
The fund is designed to meet the needs of mineral planning authorities. Claims and financial guarantee procedures involving landlords should be dealt with through the terms of a lease.

How will QPA handle a claim?
Both quickly and efficiently. QPA has members who can provide restoration expertise to ensure satisfactory completion.

How can a mineral planning authority make a claim?
When a QPA member has defaulted on the restoration obligations of a planning permission, the mineral planning authority must use all available enforcement powers to seek to secure restoration. A claim can be made a year from the date the enforcement notice took effect. The failure to comply must be due to insolvency.

How much can the planning authority claim?
Up to £500,000 for each working/site. This in turn is subject to a maximum pay-out of £1 million for all claims.

Why is this £1 million overall limit imposed?
The £1 million limit is a practical working limit on how many claims can be dealt with. A rigorous assessment of the likelihood of a call on the Fund indicated the guarantees to cope with two incidents should be sufficient. Clearly, if more incidents were to occur, the situation would be reassessed.

What happens if a QPA member resigns whilst defaulting on his obligations?
The fund provides for planning authorities to be given 12-months notice of such resignations so that they can consider claims on the fund if there is a restoration default due to insolvency.

Can this apply if a member becomes insolvent during the 12 months after his resignation?
Yes.

Is the fund too close to the operators to be objective when a claim is made?
The fund is an arm's-length limited company and includes an external, non-industry director.

Is it possible for a QPA member not to be covered by the fund's guarantees?
No – membership of the fund is a condition of QPA (and SAMSA) membership.

For further information please contact Duncan Pollock, QPA planning officer (pollock@qpa.org)

QUARRY PRODUCTS ASSOCIATION

Providing Essential Materials for Britain
The trade association for the aggregate, asphalt and ready-mixed concrete industries

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Appendix 2

A summary of the report:

The Trent Valley study area - understanding the arisings, flows and destinations of inert materials

As carried out by Egniol Limited on behalf of the Quarry Products Association

Egniol Limited were commissioned by the Quarry Products Association to undertake a study of the inert waste arisings and disposal activities within the Trent Valley study area (the study area). The study was to evaluate what has previously been anecdotal evidence that insufficient inert material is available across the study area to ensure the progressive restoration of sand and gravel workings. Unless these workings are progressively restored they would naturally revert to bodies of open water, an action which would result in a holding objection from the Civil Aviation Authority at the stage of granting planning permission as a result of the proximity of the East Midlands Airport and other local airfields.

Centred on the River Trent, between the towns of Burton-upon-Trent in the west, and Nottingham in the east, the study area is highly influenced by activities across the cities of Derby and Nottingham, as the main centres of population and commercial activity, and lies within the consultation zone surrounding the East Midlands airport.

The output of the study was to identify whether sufficient amounts of inert materials are currently available, and will continue to be available, for the restoration of quarries within the study area. The use of inert material for quarry restoration represents one of a number of competing uses to which such material can be put, and competition drivers and pressures within the market-place were therefore taken into account. The study also indicates where changes to waste streams, their definition and/or changes in the legislation which governs their use and disposal might distort their use for progressive restoration of quarries.

The study assessed the amount of material nominally available across the study area and the capacity of facilities handling that material. This was then set against possible competing demands such as:

- materials for use in land improvement/restoration activities exempted under the Waste Management Licensing Regulations;
- a feed-stock for aggregate/soil production, whether exempted or licensed;
- a source of daily/operational cover for non-hazardous landfill sites;
- a source of fill for inert landfill sites;
- a source of restoration soils for the progressive restoration of quarries; or
- 'leakage' into or out of the study area.

This picture of demand was by no means static, continually being influenced by internal influences, such as economic pressures in-company; external influences, such as improved acceptance of recycled products including soils and/or aggregates, legislative drivers, such as changes in waste definition, and economic drivers, such as the relative health of the housing and/or development market.

Eight different data sources were used as part of this study to set the study area in a basic material arisings/disposals/use context. These were used together with site specific data obtained from direct interrogation of the Environment Agency's electronic data management system, open to public access. The accuracy of the different data sources used was a significant concern. The ODPM surveys on arisings of construction and demolition waste contained figures with widely varying degrees of accuracy, and the information contained on the Environment Agency's electronic data management system applying to activities covered by the Waste Management Licensing Schedule 3 exemptions for land improvement and aggregates/soils manufacture was known to be incomplete.

The QPA are concerned that current and future Government policy relating to inert waste is being based on incomplete, and in some cases inaccurate data; an area which must be improved upon to obtain a full picture of the inert waste stream in the UK and to fully understand the implications of Government waste policy.

Nevertheless, the review of the arising and disposal patterns for inert waste materials across the Study Area showed the following key conclusions:-

- The management activities for inert waste materials arising across both the study area and its area of influence cover disposal to land, via licensed and exempt sites, and the production of recycled aggregates and soils, most frequently via exempt operations;
- The study area, together with its surrounding area of influence, is in essence a closed system, from which and into which inert materials do not move in quantities likely to have a meaningful impact;
- The gross market within the study area and its surrounding area of influence comprises approximately 4 million tonnes of inert waste, of which:
  - approximately 1.45 million tonnes per annum are disposed of to licensed landfills (1.3 million tonnes to inert landfills and 0.15 million tonnes to non-hazardous landfills);
  - approximately 1.6 million tonnes per annum are used for aggregates and soils production; and
  - a little under one million tonnes per annum are used for land improvement via Waste Management Licence exemptions;
- **Detailed data assessments showed that for the period 2003/04 actual disposals of inert waste to licensed inert landfills (the majority of which were for quarry restoration) amounted to only 58% of the nominal capacity of these sites, representing a 42% or one million tonne per annum deficit in inert material for quarry restoration.**
- **Total disposals of inert waste to both licensed inert and non-hazardous landfill sites**

amounted to a little under 50% of the nominal capacity, representing a total 1.55 million tonne deficit in inert materials in the study area.

- The specific data collected also suggests that this nominal difference between the capacity and the actual availability for the restoration of Trent Valley mineral workings within the core study area is unlikely to change for a period of five years;

The study went on to conclude that:

- **Competition between exempt and licensed activities has the potential to have a negative impact on market stability, and is an area of competition which needs to be reviewed with some degree of urgency.**
- Negative effects will result from the incoming use of European Waste Catalogue codes and Waste Acceptance Criteria to determine what is classified 'inert' waste;
- Competition between sites for inert materials could result in a price war, which will be of little long-term benefit to continued restoration;
- It is likely that possible future changes in the levels of both aggregates and landfill taxes could result in a negative change to the inert materials market;
- Previously 'inert' materials, such as PFA, traditionally used for large-scale restoration of mineral voids must now be disposed of to non-hazardous landfills or may be disposed of at exempt sites under paragraph 9A and 19A exemptions. The inability to accept PFA at inert landfill sites now results in a potentially significant negative threat to the restoration of mineral workings.

The only possible positive changes identified by the study will result from:

- The closure of a number of relatively short-term landfill sites over the forthcoming 5-year period, releasing up to 250,000 tones per annum of material may be released back into the study area (which would only go a short way to addressing the 1.55 million tonne deficit);
- An ever decreasing number of inert landfill sites within the market place.

In short, the 1.55 million tonne deficit in inert waste in the Trent Valley study area, including the one million tonne deficit in inert waste material for the restoration of quarry workings, is unlikely to show significant change over the next five years, and will then be significantly dependent on projected inert waste material being released as a result of the closure of existing landfill sites. This can only hinder the ability of mineral site operators to deliver aggregates to meet the continued demands of the construction industry, whilst working within the constraints placed by the CAA.

A copy of the full report is available on request. Please contact Quarry Products Association, Gillingham House, 38-44 Gillingham Street, London, SW1V 1HU.

Appendix 3

The definition of Quarry Restoration under the Finance Act 1996 (landfill tax)

Landfill Tax and Quarry Restoration

The Finance Act 1996 shall be amended by -

" Quarries. 44A -

(1) A disposal is not a taxable disposal for the purposes of this Part if it is -

(a) of material all of which is treated for the purposes of section 42 above as qualifying material,

(b) made at a qualifying landfill site, and

(c) made, or treated as made, on or after 1st October 1999.

(2) A landfill site is a qualifying landfill site for the purposes of this section if at the time of the disposal -

(a) the landfill site is or was a quarry,

(b) subject to subsection (3) below, it is a requirement of planning consent in respect of the land in which the quarry or former quarry is situated that it be wholly or partially refilled, and

(c) subject to subsection (4) below, the licence or, as the case may require, resolution authorising disposals on or in the land comprising the site permits only the disposal of material which comprises qualifying material.

(3) Where a quarry -

(a) was in existence before 1st October 1999, and

(b) quarrying operations ceased before that date,

the requirement referred to in subsection (2)(b) must have been imposed on or before that date.

(4) Where a licence authorising disposals on or in the land does not (apart from the application of this subsection) meet the requirements of subsection (2)(c) above and an application has been made to vary the licence in order to meet them, it shall be deemed to meet them for the period before -

(a) the application is disposed of, or

(b) the second anniversary of the making of the application if it occurs before the application is disposed of.

(5) For the purposes of subsection (4) an application is disposed of if -

(a) it is granted,

(b) it is withdrawn,

(c) it is refused and there is no right of appeal against the refusal,

(d) a time limit for appeal against refusal expires without an appeal having been commenced, or

(e) an appeal against refusal is dismissed or withdrawn and there is no further right of appeal.".

QUARRY PRODUCTS ASSOCIATION

The Quarry Products Association welcomes comments and requests for further information about the industry's work

Providing Essential Materials for Britain

The trade association for companies involved in supplying crushed rock and sand and gravel from land and marine sources, asphalt and flexible paving, ready-mixed concrete, silica sand, agricultural lime, industrial lime, mortar, slag, recycled materials and construction and quarrying plant

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Cover: Kohlrabi being harvested at Laleham Farm, Shepperton, Surrey, a former sand and gravel quarry restored to high-quality farmland using inert material as the infill.