wrap

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Environment Agency

WASTE IS A NEW BEGINNING!

Aggregates 'end of waste' Quality Protocols

John Barritt

john barritt
consulting ltd

ReBirth Life

- UK 'end of waste' Quality Protocols
- Development of recycled aggregates Quality Protocol
- Steel slag aggregates Quality Protocol
- Promoting resource efficiency

When has waste been fully recovered?

Three criteria to consider after waste has been through an authorised recovery process:

No greater risk to the environment and human health than the virgin alternative

Suitability for use

Certainty of use

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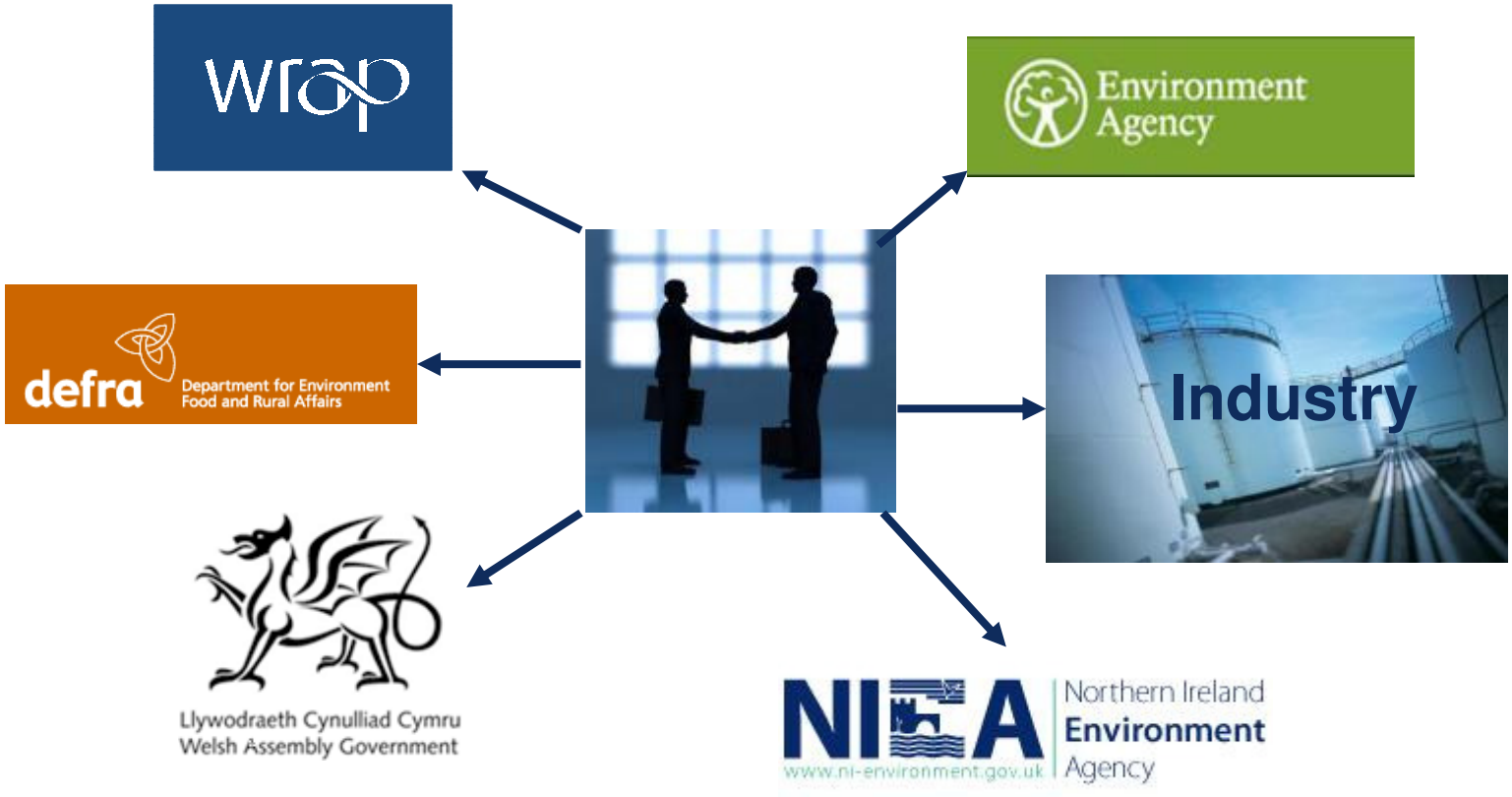
How a new Quality Protocol was created



The Waste Protocols Project Partners

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Technical Advisory Group:

Evidence Gathering

Risk Assessment
Financial Impact Assessment
Technical Report

Public consultation

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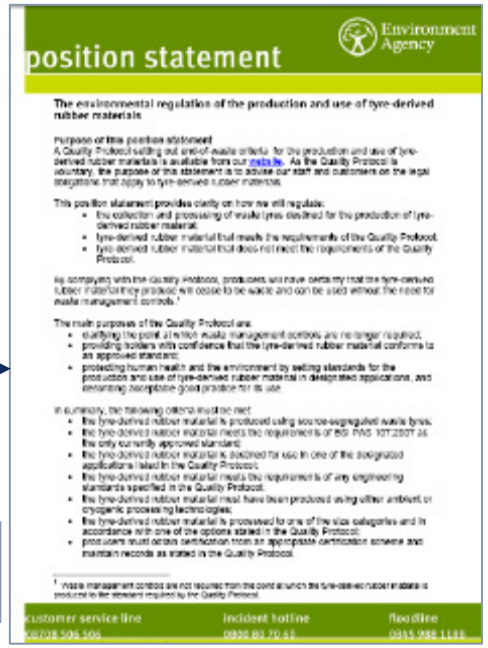
Evaluate the evidence

End of waste?

YES

NO

European Consultation



Quality Protocol for the production of aggregates from inert waste

WRAP Aggregates Programme initiative to establish a waste recovery procedure for aggregates produced from suitable uncontaminated construction and demolition wastes.

England/Wales Working Group October 2003

Scotland Working Group: February 2004

Northern Ireland Working Group: January 2005


Environment Agency
the quality protocol
for the production of aggregates from inert waste
HIGHWAYS AGENCY
QUARRY PRODUCTS ASSOCIATION
wrap
the quality protocol
for the production of aggregates from inert waste in Scotland
SCOTS
QUARRY PRODUCTS ASSOCIATION
wrap
the quality protocol
for the production of aggregates from inert waste in Northern Ireland
Environment
Finance and Personnel
Employment and Learning
QUARRY PRODUCTS ASSOCIATION
Housing Executive
Water
ROADS Service
wrap

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Material change for a better environment

Quality Protocol for production of aggregates from inert waste

Guidance Notes to the Purchasers'/ Specifiers' compliance checklist

Introduction

These Guidance Notes accompany the Purchasers'/Specifiers' Compliance Checklist. The notes provide information on the requirements of the Quality Protocol (QP) for the production of aggregates from inert waste, i.e. the processes and documents that producers must set up to provide evidence that the aggregates produced conform to the Protocol, and the relevant standards/specifications.

This will help in determining that the waste used to produce the aggregate has been fully recovered, is no longer waste and that the requirements of standards and specifications are met fully.

Further information on aggregate Quality Management Schemes is available from the 'Quality' section of AggRegain (www.aggregain.org.uk). Information on Environmental Permitting Regulations for England & Wales and for Waste Management Licences for Scotland and Northern Ireland is available from NetRegs (www.netregs.gov.uk)

1.0 Guidance notes

1.1 Waste management requirements (QP ref[*] 3.4.1, 3.4.4, 3.6.1 and 3.7.1)

- Your site/operation must be either permitted or be exempt from the need for a permit under Environmental Permitting Regulations for England & Wales (licensed under the Waste Management Licensing Regulations or have a permit under the IPPC, or the activities undertaken are exempt from licensing for Scotland and Northern Ireland). Permits (licences S & NI) or proof of exemption registration must be available for viewing.
- If the producer transports waste, including waste from their own construction, excavation and demolition operations, they must have a certificate of registration as a waste carrier. This must be available for viewing.
- If the site/operation accepts waste from others and for all residues leaving the site as waste, Waste Transfer Notes (WTNs) must be used. WTNs must be kept for at least two years.

Checklist and Summary Guidance[i]	YES	NO
Inspection and Testing (QP ref 3.6, 3.6.1 and 3.6.2)		
Has the site defined what testing to undertake, and how often, for each material produced? *NOTE: A formalised testing plan, defining sampling, test methods and testing frequencies must be provided and the test results must be available for demonstrating compliance. This is a requirement of the FPC.*	☐	☐
Does the site testing regime comply with the requirements of the Quality Protocol and conform to the standards or specifications for the product? *NOTE: Aggregates produced to agreed standards and specifications must be tested to show compliance to the required standards and specifications.*	☐	☐
Does the facility have a procedure for dealing with non-conforming products? *NOTE: The producer must demonstrate that a procedure for non-compliant products is in place in accordance with the FPC.*	☐	☐
Documentation (QP ref 3.7.2, 3.7.3, 3.8 and 3.9)		
Can the producers demonstrate that records are kept of all the appropriate documents required by the FPC? Are aggregate test records required by the standards and specifications available? *NOTE: A list of records that must be kept in accordance with the FPC is provided within the Guidance Notes. Historic records and/or summaries of past testing results must be available. Examples of records include testing frequencies, grading results, Los Angeles test results etc.*	☐	☐
Does the delivery ticket of the product contain the description of the material in accordance with the industry or client specification and does it include a statement that the aggregate was produced to a quality scheme meeting the Quality Protocol? *NOTE: Details on the delivery ticket must be provided in accordance with the FPC. The statement that the aggregate was produced to a quality management scheme conforming to the Quality Protocol can only be inserted if no "No" calls have been ticked in this assessment form.*	☐	☐

The competent authority for Environmental Permitting (England and Wales) Regulations is the Environment Agency, for Waste Licensing Regulations in Scotland is the Scottish Environment Protection Agency and in Northern Ireland is the Department of the Environment (Environment and Heritage Service). These agencies are able to confirm or provide information on permits, licences and exemptions to third parties if required. They are also able to require documentary proof of the compliance to the Quality Protocol from recycled aggregate producers who claim to be operating to the Quality Protocol.

[*] QP refs. are for numbered sections in the three versions of the WRAP Quality Protocol for the production of aggregates from inert waste covering England & Wales, Scotland, and Northern Ireland.

Copies are available from http://www.aggregain.org.uk/quality/quality_protocols/index.html

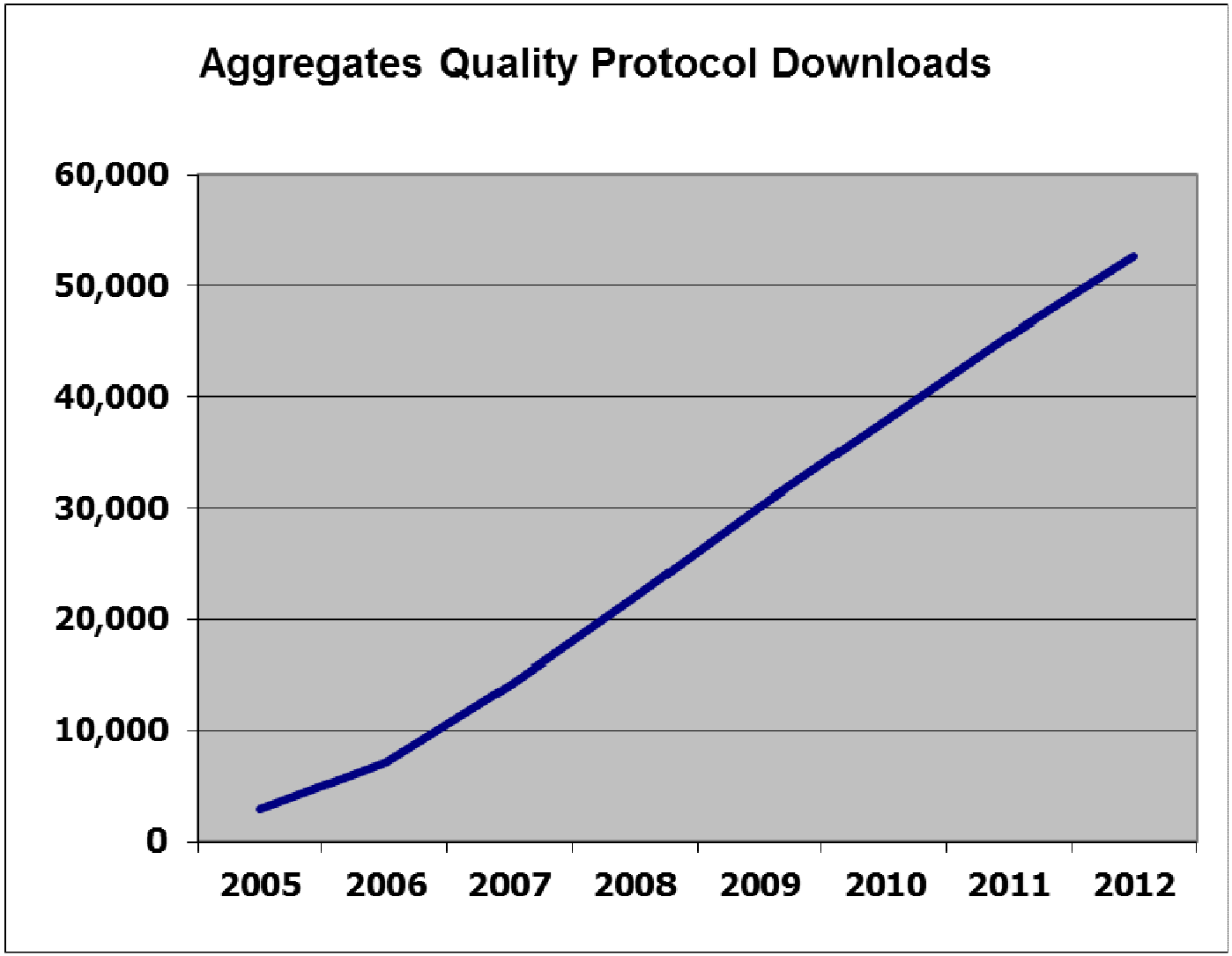
For additional information on Quality Management Systems go to: http://www.aggregain.org.uk/quality/index.html

[i] Expanded guidance notes are available in a separate document called: Guidance Notes to the Purchasers'/ Specifiers' compliance checklist for the Quality Protocol for the production of aggregates from inert waste

Waste & Resources Action Programme
The Old Academy, 21 Horse Fair, Banbury, Oxon OX16 0AH
Tel: 01295 819 900
Fax: 01295 819 911
E-mail: info@wrap.org.uk
Helpline freephone 0808 100 2040

www.wrap.org.uk/construction

recycle


Aggregates Quality Protocol Downloads
60,000
50,000
40,000
30,000
20,000
10,000
0
2005
2006
2007
2008
2009
2010
2011
2012

QP five year review process

Technical Advisory Group:

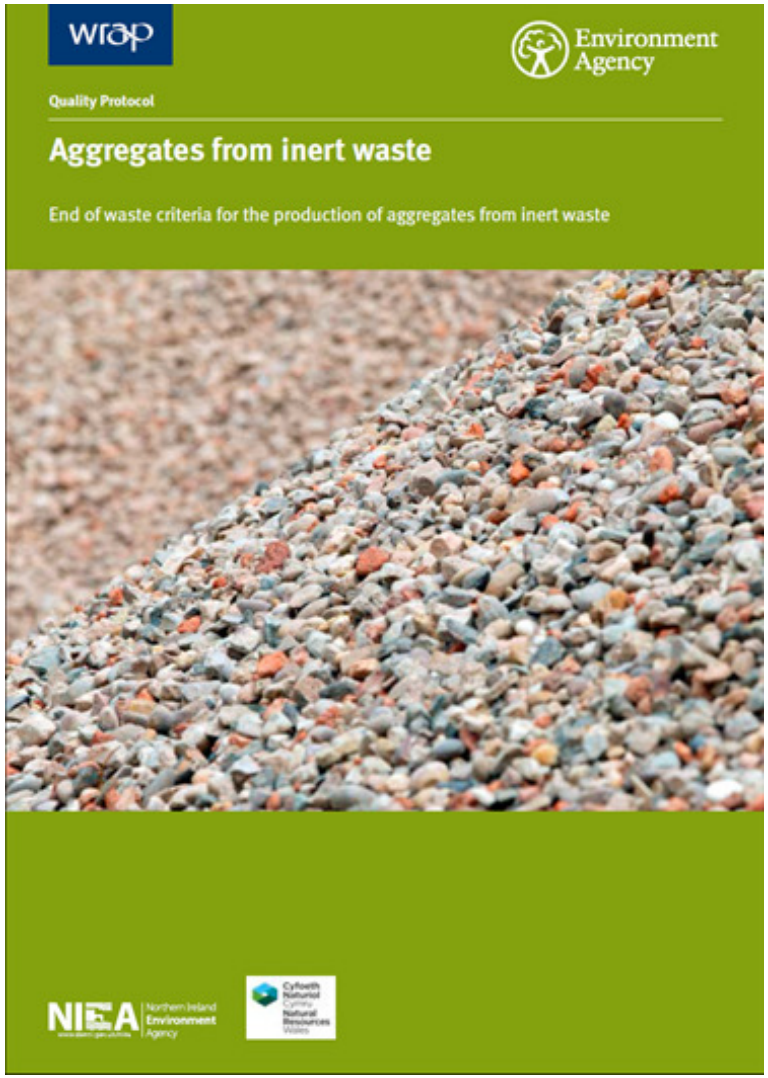
Risk Assessment
Financial Impact Assessment
Technical Report
Draft reviewed Quality Protocol

↓

UK Public consultation

↓

EU consultation



On line QP Checker tool:
www.qpchecker.info

www.gov.uk/government/publications/quality-protocol-production-of-aggregates-from-inert-waste

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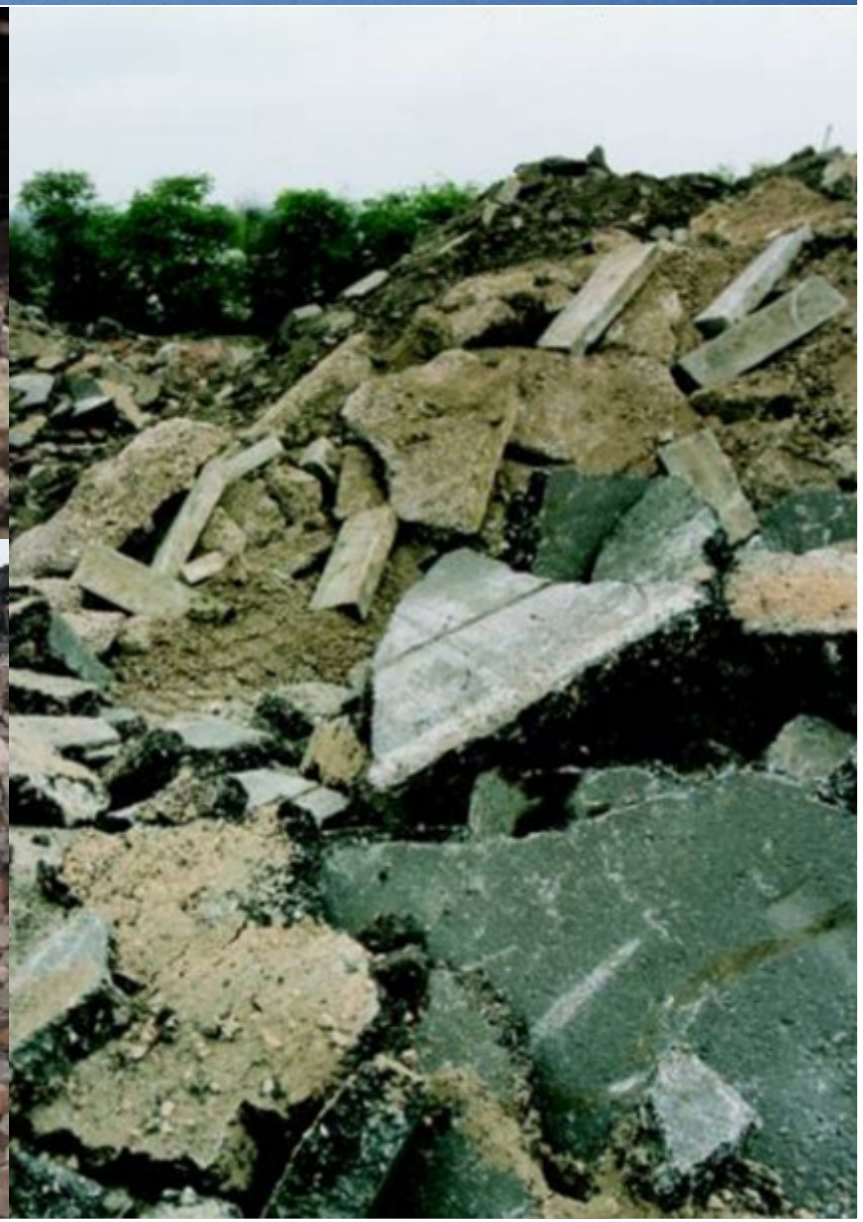

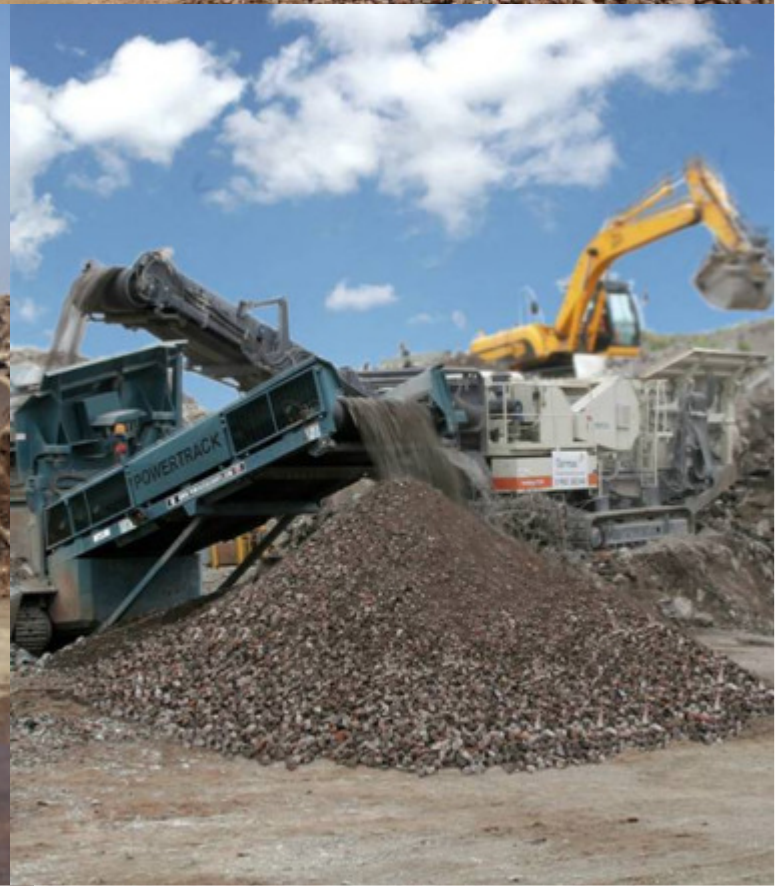
POWERTRACK

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What the QP is

A framework for a Quality Management System

Two key elements:

Waste acceptance procedures to ensure waste to be processed into aggregates is 'inert' and suitable for aggregate production

Aggregate production and testing procedures in compliance with British/European aggregates standards

How does this demonstrate 'end of waste' ?

No greater risk to the environment and human health than the virgin alternative

Suitability for use

Certainty of use

How does this demonstrate 'end of waste' ?

No greater risk to the environment and human health than the virgin alternative:

Risk Assessment

Conclusion:
The waste acceptance procedures within the QP defining suitable inert wastes and their processing and use to EU aggregates standards presents no greater risk than natural aggregates

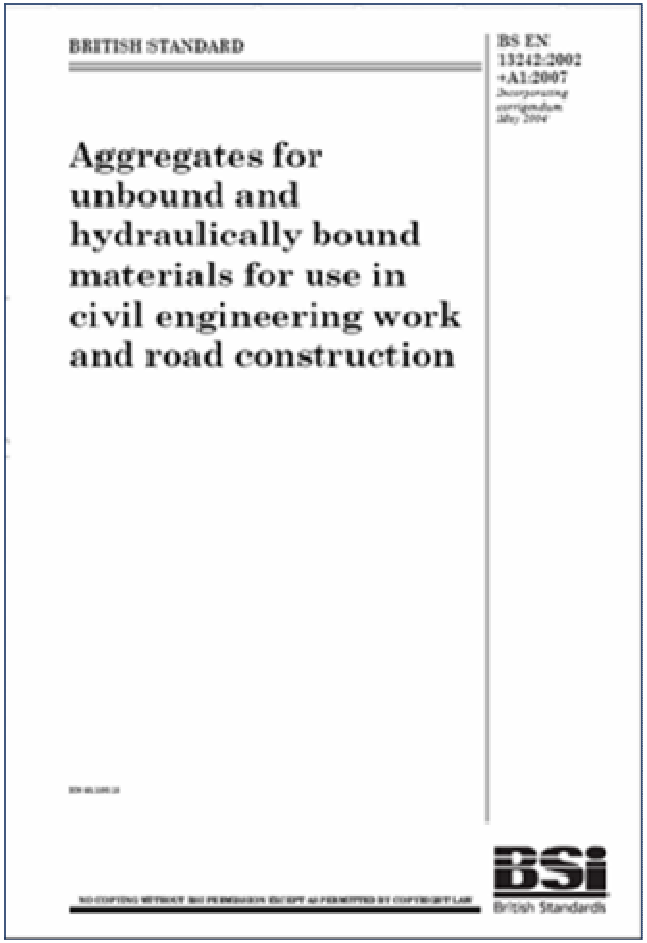
How does this demonstrate 'end of waste' ?

Suitability for use:

the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; (WFD. Article 6c)

The QP stipulates that aggregate production and testing procedures are in compliance with EU harmonised mandatory aggregates standards to Construction Products Regulations

British/European Aggregate Standards


BRITISH STANDARD

BS EN 13242:2002 +A1:2007

Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction

BSI British Standards

BS EN 13242 – Aggregates for Unbound & Hydraulically bound mixtures

BS EN 13043 – Aggregates for Bituminous Mixtures and surface treatments

BS EN 12620 – Aggregates for Concrete

Aggregates may be produced from natural, recycled or manufactured materials

Aggregate	A granular material used in construction. Aggregates can be Natural, Manufactured or Recycled.
Natural Aggregate	Aggregate from mineral sources subjected only to mechanical processing.
Manufactured Aggregate	Aggregate of mineral origin resulting from an industrial processes involving thermal or other modification.
Recycled Aggregate	Aggregate resulting from the processing of inorganic material previously used in construction.

Ag
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an

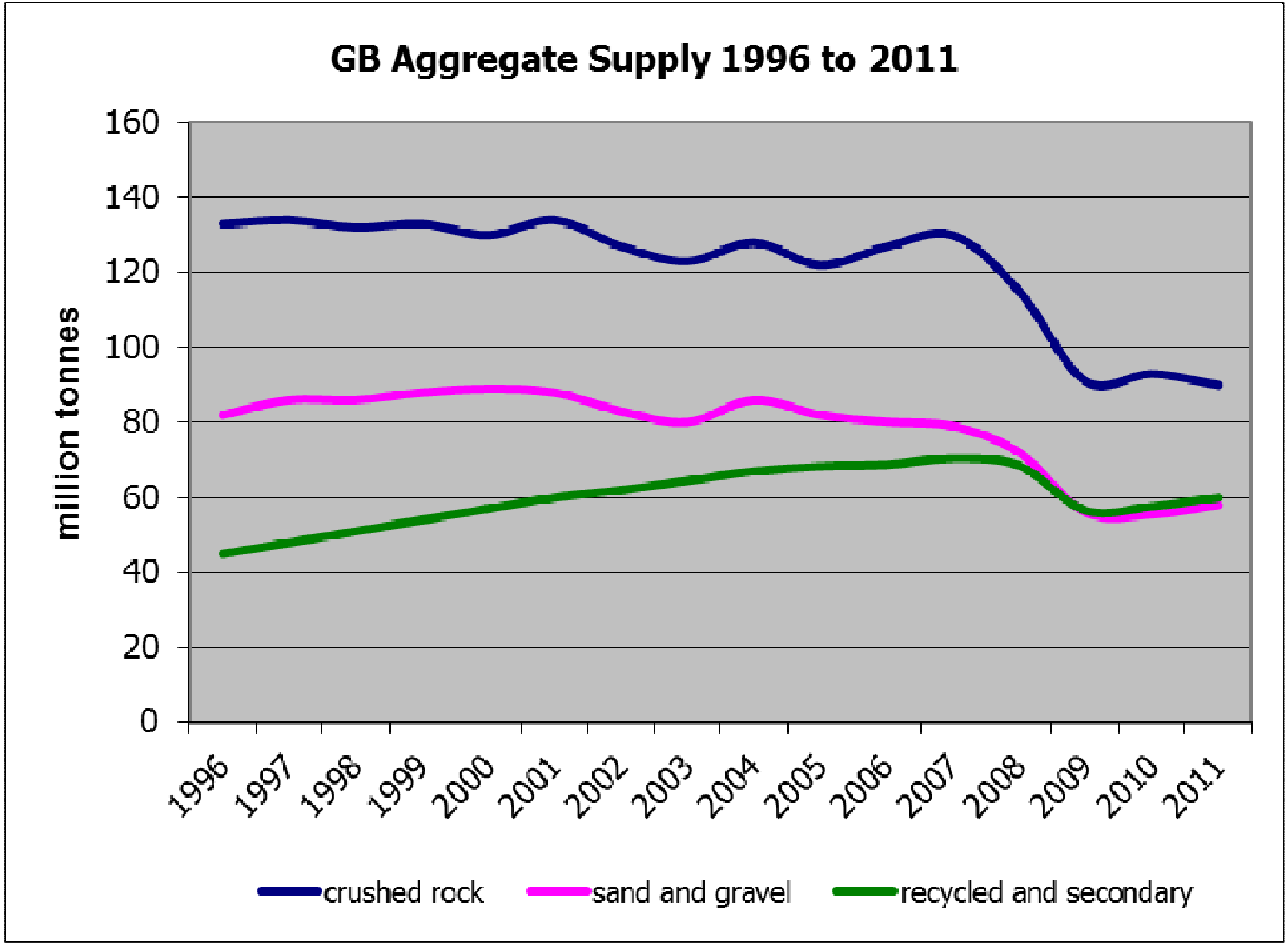
ICS 91.100.15

BSI British Standards

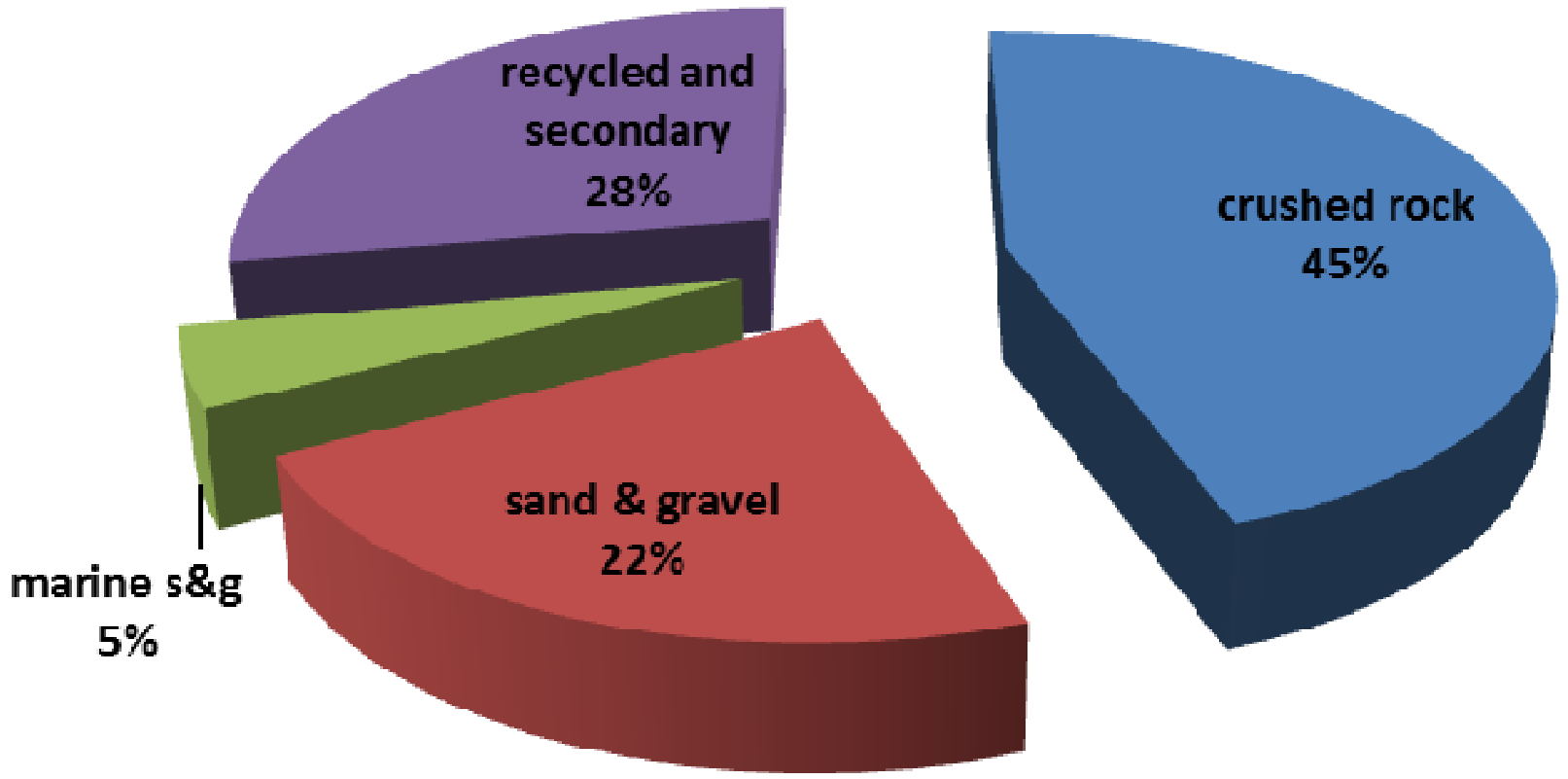
How does this demonstrate 'end of waste' ?

Certainty of use:

the substance or object is commonly used for specific purposes and
a market or demand exists for such a substance or object; (WFD article 6 a&b)


GB Aggregate Supply 1996 to 2011
million tonnes
160
140
120
100
80
60
40
20
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
crushed rock
sand and gravel
recycled and secondary

UK construction aggregates market



	Secondary	
Recycled	**Manufactured**	**Natural**
Recycled aggregate	Blastfurnace slag	Slate aggregate
Recycled concrete aggregate	Steel slag	China clay sand
Recycled asphalt	Pulverized-fuel ash	
Spent rail ballast	Incinerator bottom ash	

Department for Transport

http://www.dft.gov.uk/ha/standards/mchw/vol1/

Safe roads, Reliable journeys, Informed travellers

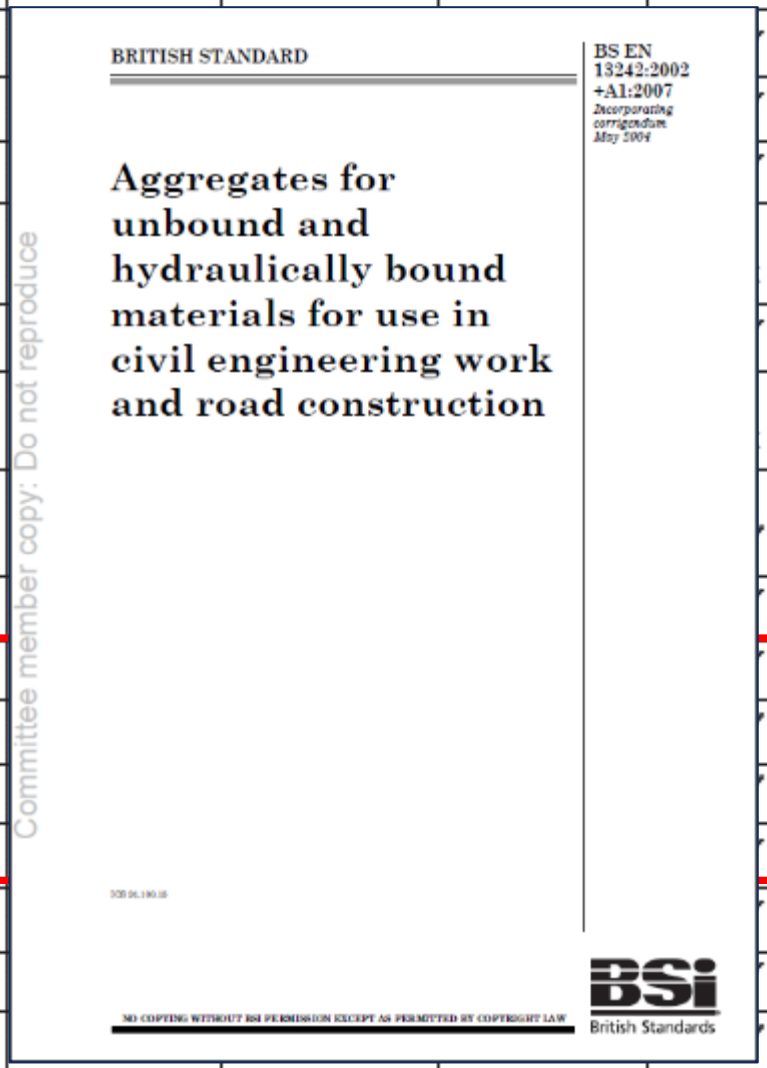
9 | May | 2011

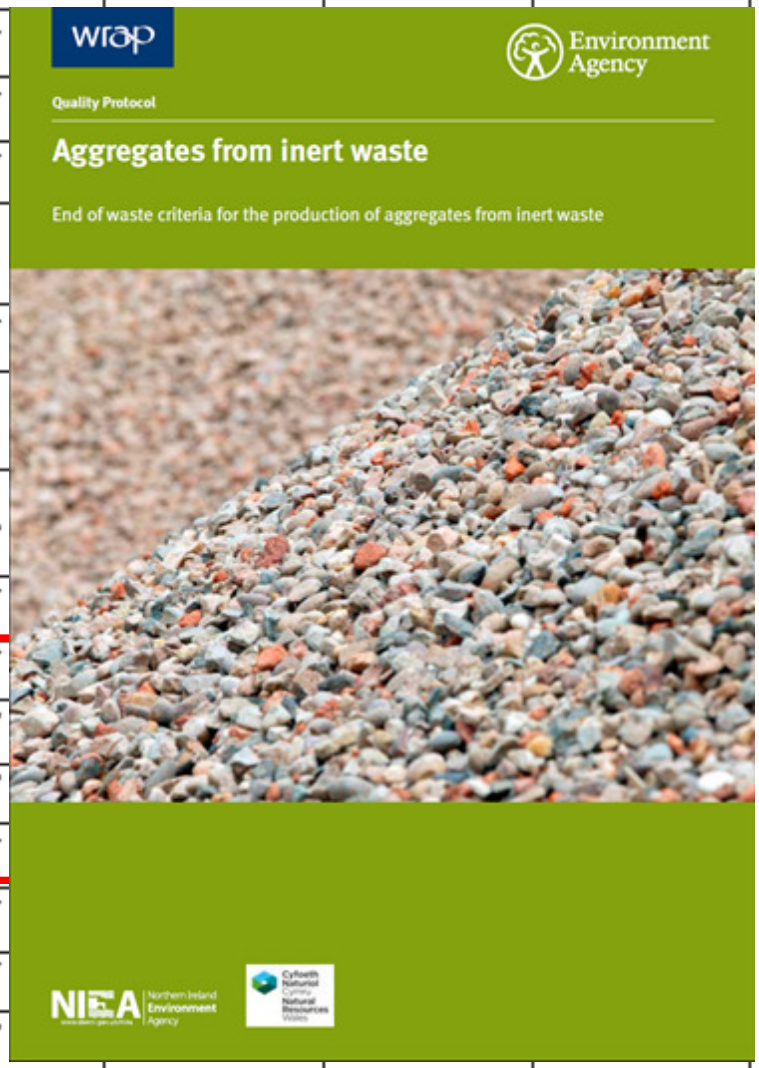
Manual of Contract Documents for Highway Works

Volume 1 - Specification for Highway Works

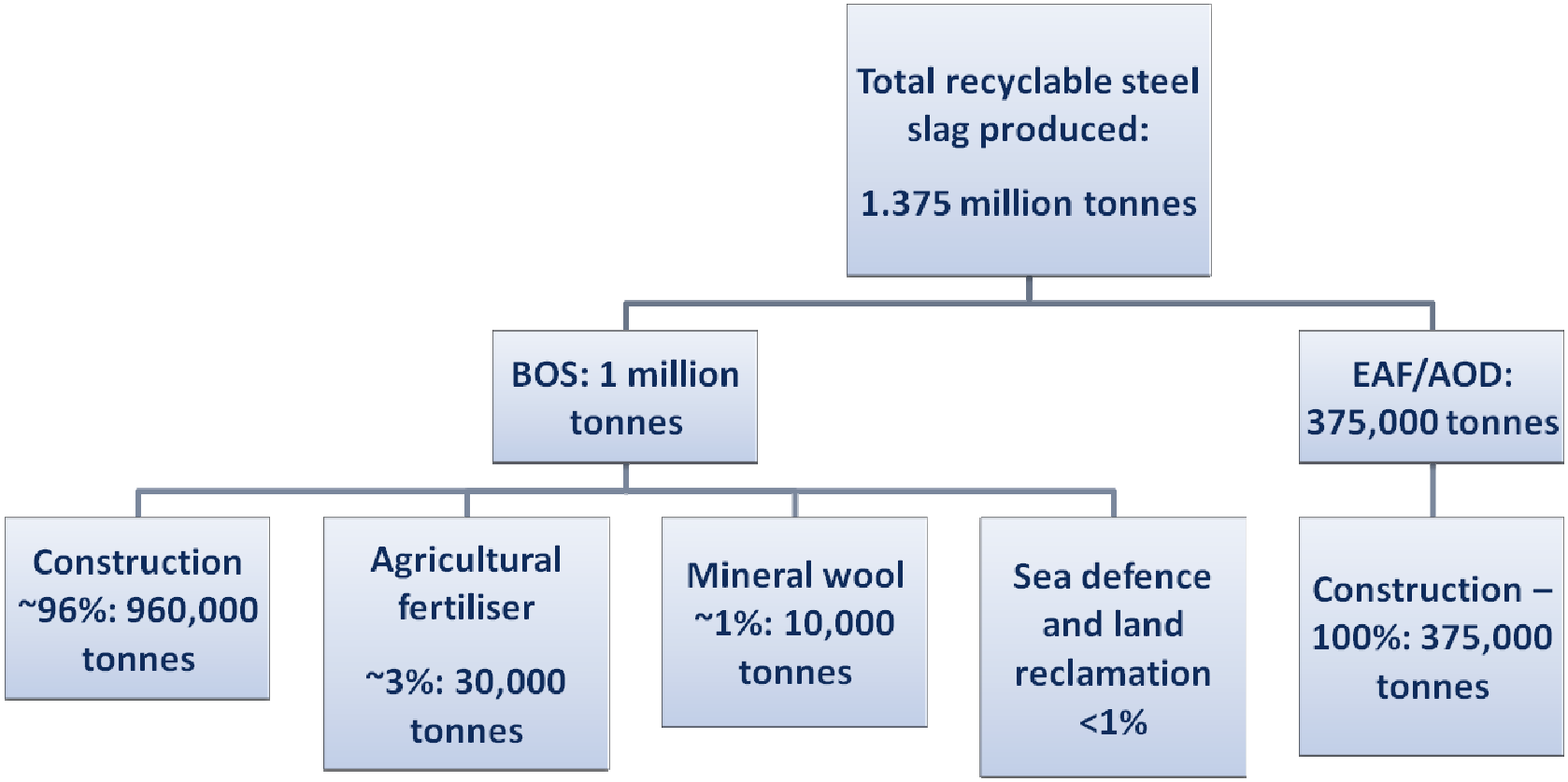
Document Number	Document Name
November 2009 amendments	
Series 0000	Introduction
Series 0100	Preliminaries
Series 0200	Site Clearance
Series 0300	Fencing
Series 0400	Road Restraint System (Vehicle and Pedestrian)
Series 0500	Drainage and Service Ducts
Series 0600	Earthworks
Series 0700	Road Pavements General
Series 0800	Road Pavements - Unbound, Cement and Other Hydraulically Bound Mixtures
Series 0900	Road Pavements - Bituminous Bound Materials
Series 1000	Road Pavements - Concrete Materials

Application and Series ▶	Pipe Bedding	Embank-ment and Fill	Capping	Unbound Mixtures for Sub-base	Hydraulically Bound Mixtures for Sub-base and Base	Bitumen Bound Layers	PQ Concrete
Material ▼	500	600	600	800	800	900	1000
Blast furnace Slag							
Burnt Colliery Spoil							
China Clay Sand/Stent							
Coal Fly Ash/Pulverised Fuel Ash (CFA/PFA)							
Foundry Sand							
Furnace Bottom Ash (FBA)							
Incinerator Bottom Ash Aggregate (IBAA)							
Phosphoric Slag							
Recycled Aggregate							
Recycled Asphalt							
Recycled Concrete							
Recycled Glass							
Slate Aggregate							
Spent Oil Shale/Blaise							
Steel Slag							
Unburnt Colliery Spoil	x	✔	x	x	✔	x	x





UK Steel Slag: Production and Applications



1902: Patent for mixture of slag and tar, branded as Tarmac

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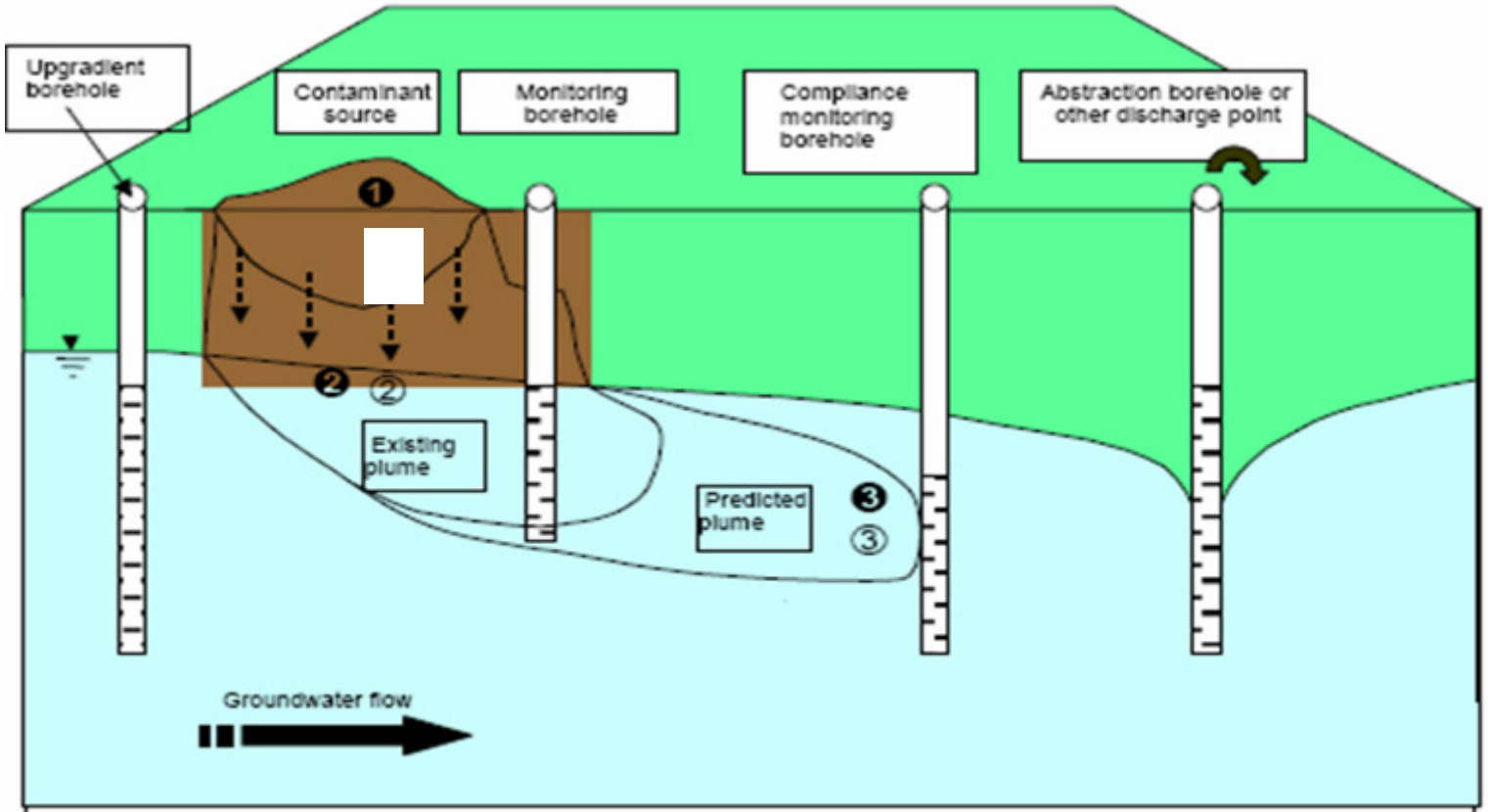
Technical Advisory Group:

Evidence Gathering

- Risk Assessment
- Financial Impact Assessment
- Technical Report

Public consultation



Key

❶ Point of compliance for soils at levels 1, 2, and 3

③ Point of compliance for contaminated groundwater at levels 2, and 3

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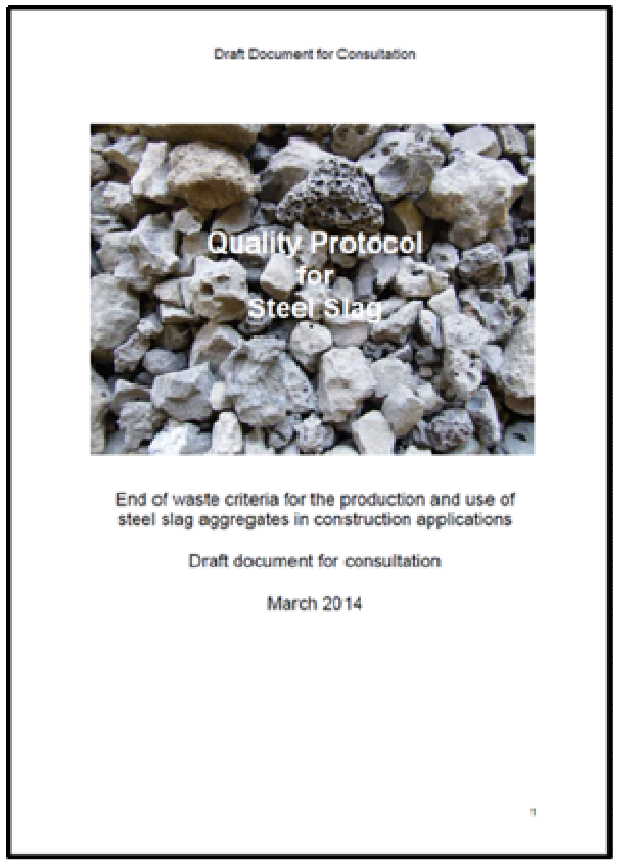

EA analysing responses to UK consultation and expect these documents to be submitted to the EC under the Technical Standards Directive in July for 3 months consultation with the EC & EU member states.

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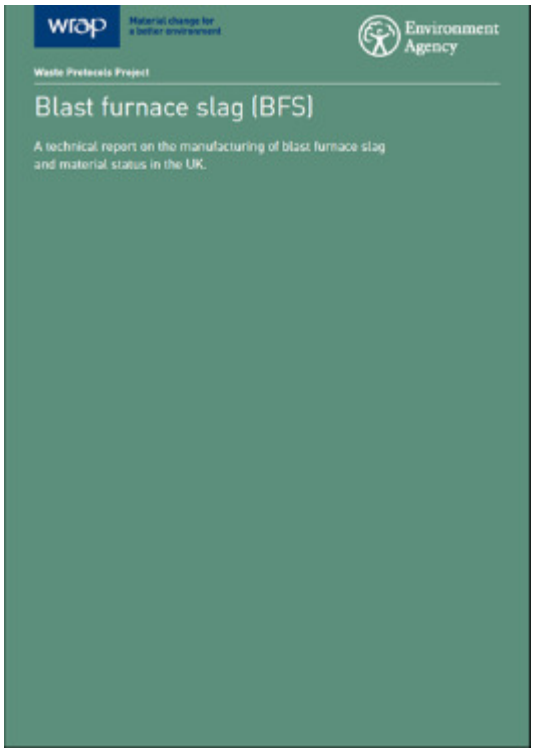
Blast furnace slag aggregates, granulated bfs and ground granulated bfs

Materials considered as part of the waste protocols project and determined to meet EC non-waste by-product criteria:

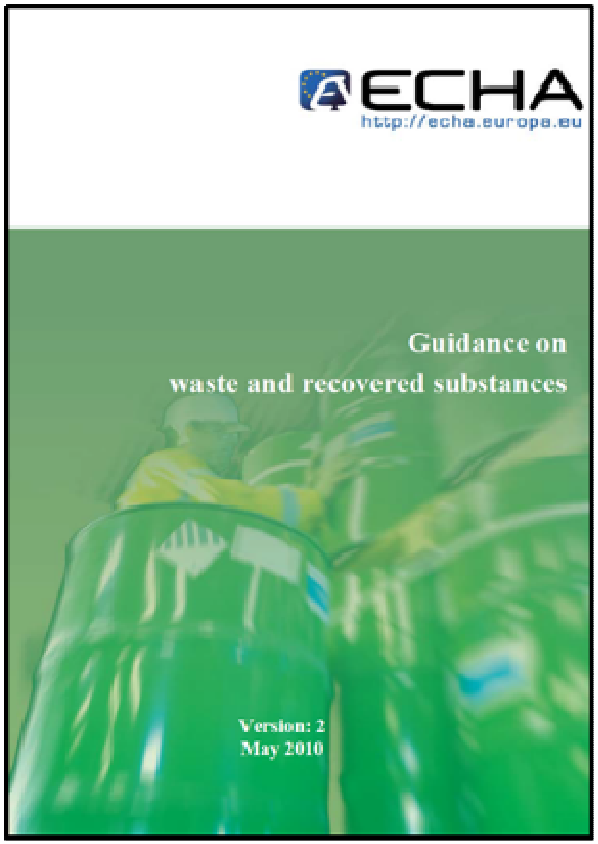
The iron making process is adapted to ensure the BFS has the requisite technical qualities.

BFS products can be used directly at the end of their production process without further processing.

BFS is all supplied to a number of clearly defined end uses in the UK and demand is high.



REACH



Appendix 1 section 1.4 Recovered aggregates

Recycled aggregates from construction and demolition wastes are 'articles' and exempt from REACH

EUROPEAN COMMISSION

Brussels, 26.1.2011
COM(2011) 21

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy

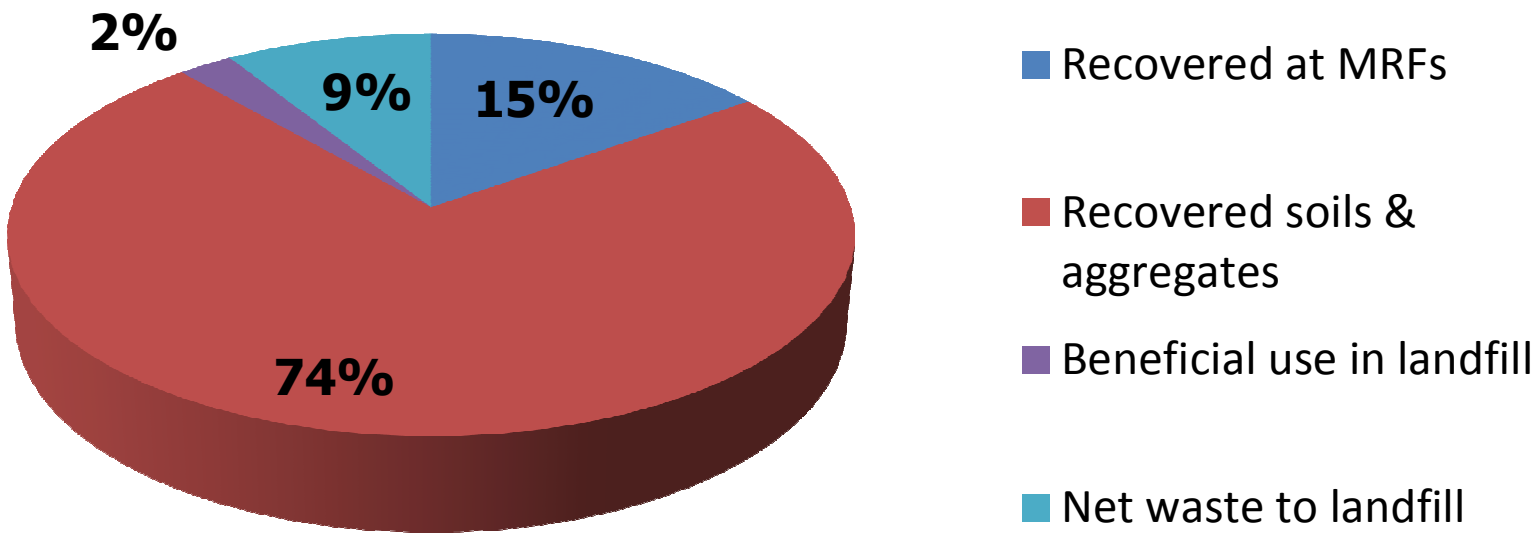
A resource-efficient Europe is one of seven flagship initiatives as part of the Europe 2020 strategy aiming to deliver smart, sustainable and inclusive growth

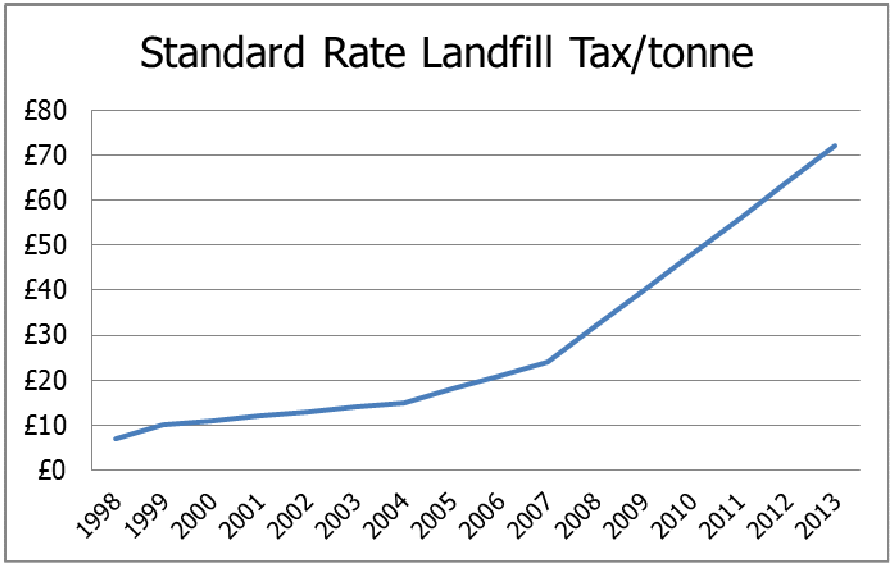
EN **EN**

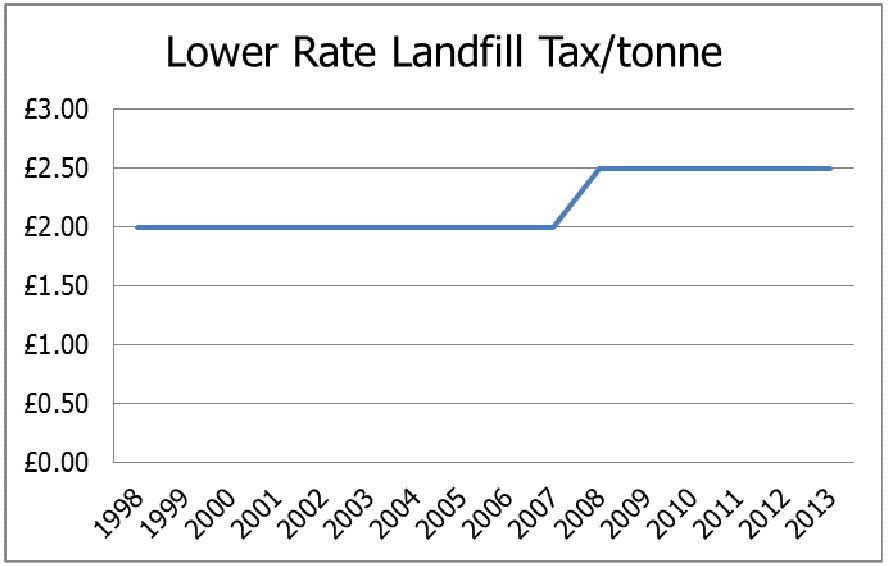
Environment Agency

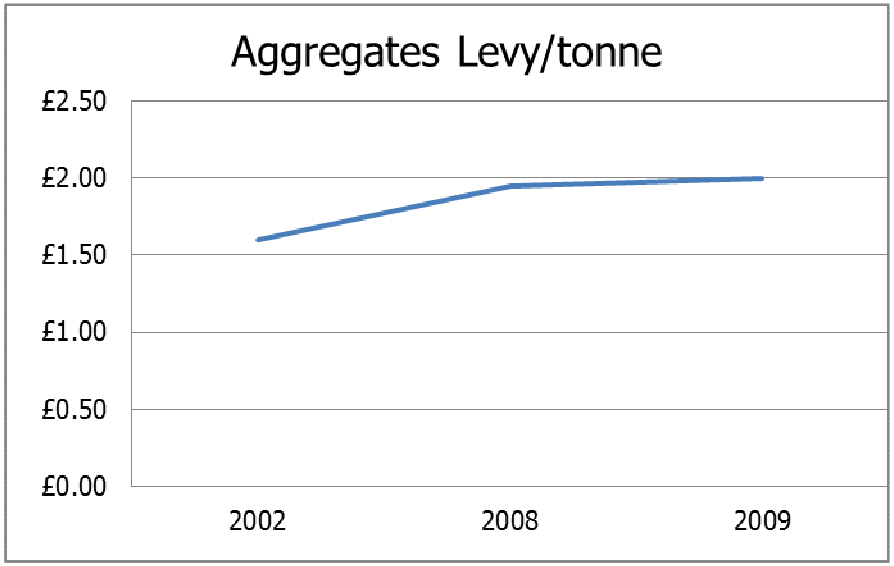
Milestone: By 2020 the renovation and construction of buildings and infrastructure will be made to high resource efficiency levels……. 70% of non-hazardous construction and demolition waste will be recycled.

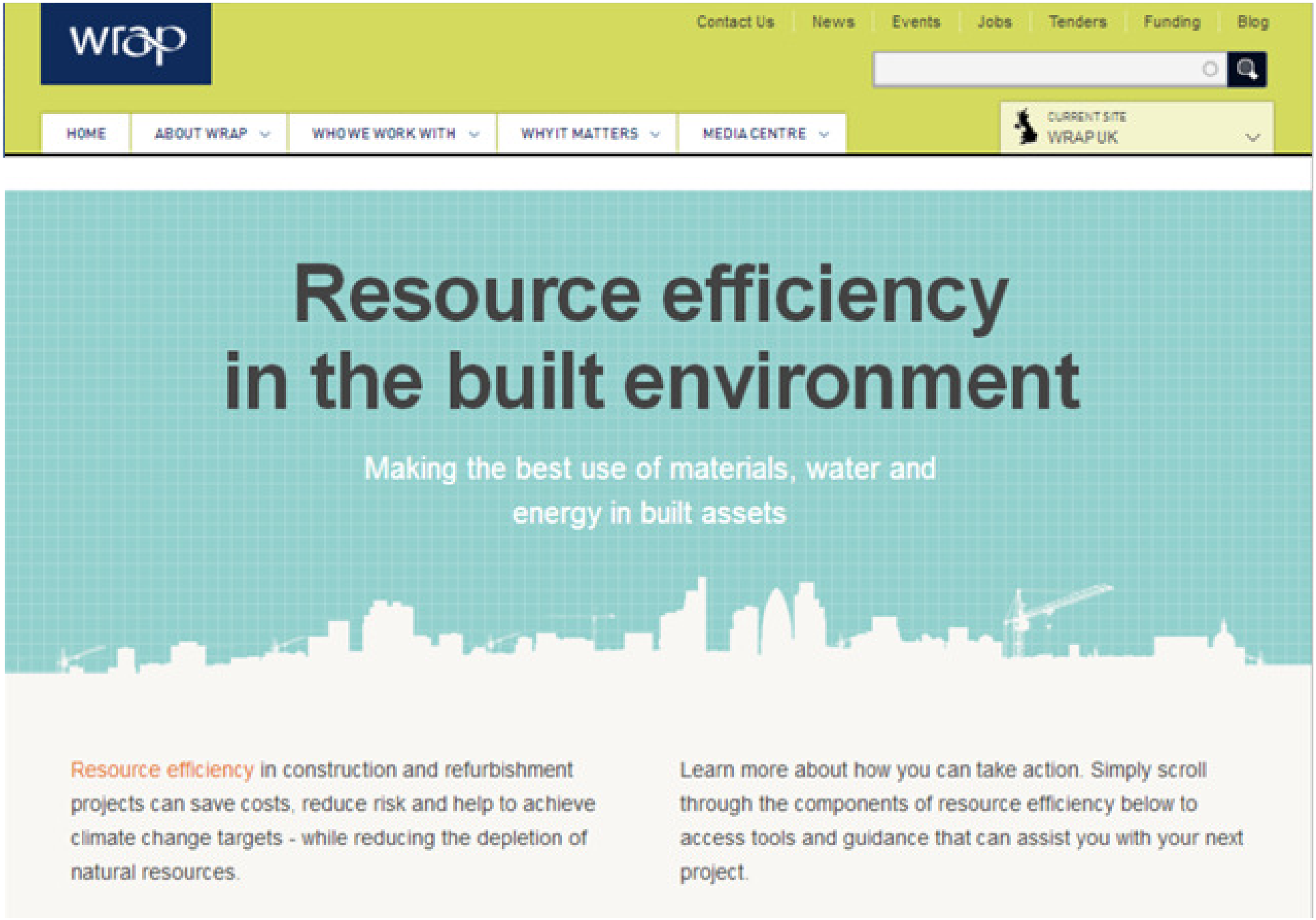
Construction & Demolition Waste 2010




Standard Rate Landfill Tax/tonne
£80
£70
£60
£50
£40
£30
£20
£10
£0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013


Lower Rate Landfill Tax/tonne
£3.00
£2.50
£2.00
£1.50
£1.00
£0.50
£0.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013


Aggregates Levy/tonne
£2.50
£2.00
£1.50
£1.00
£0.50
£0.00
2002
2008
2009



http://www.wrap.org.uk/content/resource-efficiency-built-environment

The ODA aims to achieve a level of 25 per cent recycled aggregate, by weight, for the permanent venue and associated Olympic Park wide infrastructure.

Demolition:

Target of 90% (by weight) of demolition material to be reused or recycled was exceeded at 98.5%

Over 215 buildings plus a number of walls, bridges and roads.

95% of demolition materials used on site.

Construction waste:

Target:

At least 90%, by weight, of the material arising through construction to be re-used, recycled or recovered (excludes soils)

The cumulative 90% reuse, recycling or recovery target was achieved in July 2009 and then continued to steadily increase to over 98 per cent.

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Promoting the use of waste as a resource

Currently the UK is involved in 2 projects:

EQual (LIFE +) Programme

IMPEL End of Waste Project

European Union Network for the Implementation and Enforcement of Environmental Law

Who works on EQual

£2.9 million programme co-financed by European Commission (LIFE+)

What will EQual do?

QP Checker
an online end of waste criteria compliance tool
http://www.qpchecker.info/

Is it waste
an online end-of-waste assessment tool

Improved data
a series of field trials to improve our knowledge for risk assessment

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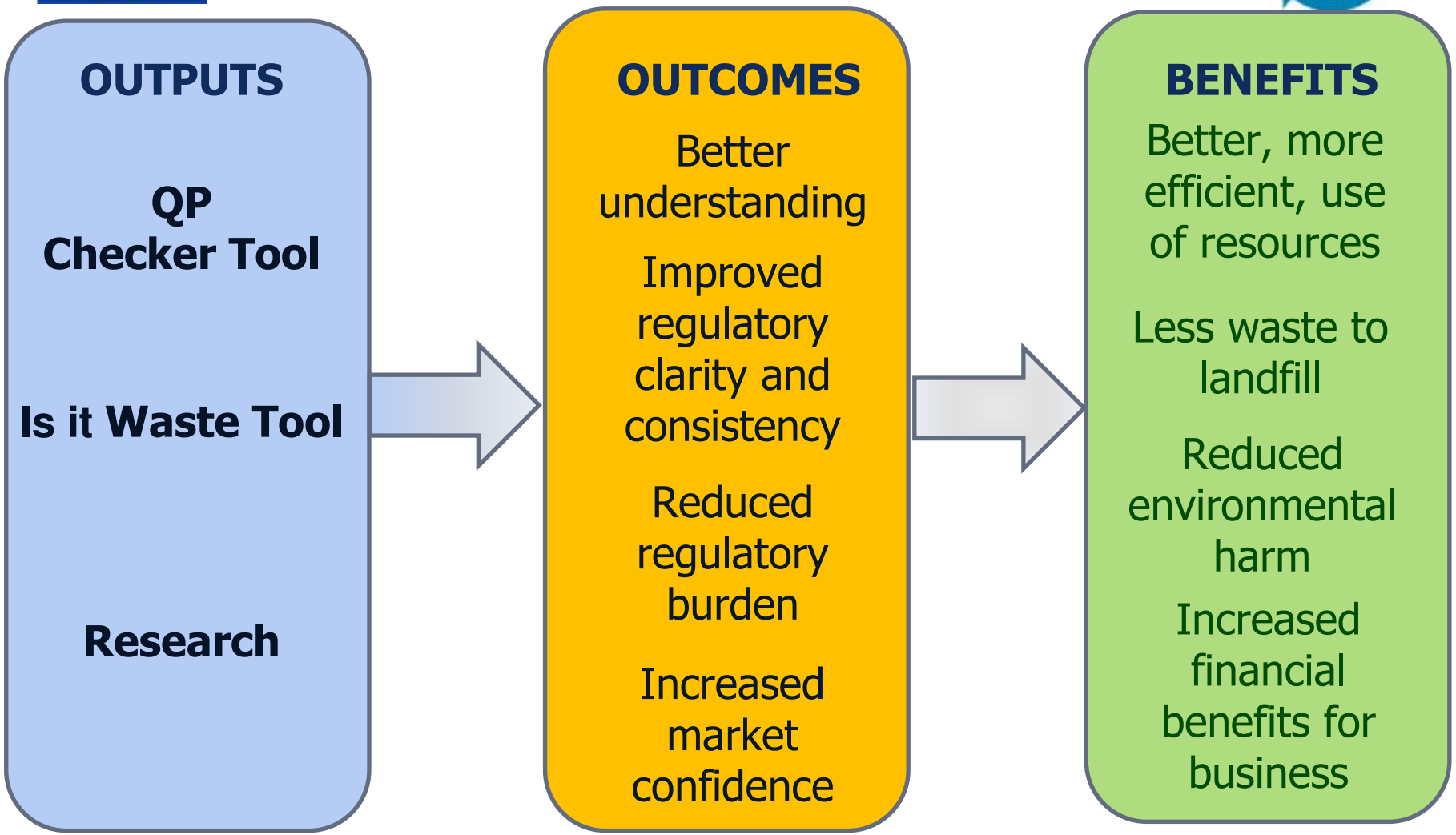
Life

What will EQual achieve?

EQual



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IMPEL End of Waste Project

Brings member states together to share best practice

IMPEL web page to summarise different approaches

https://impeleu.basecamphq.com/login

Considers ways to support the sharing of information on specific EoW decisions (TFS)

European Union Network for the Implementation and Enforcement of Environmental Law

To request a login please email Nancy Isarin: nancy.isarin@ambiendura.com.

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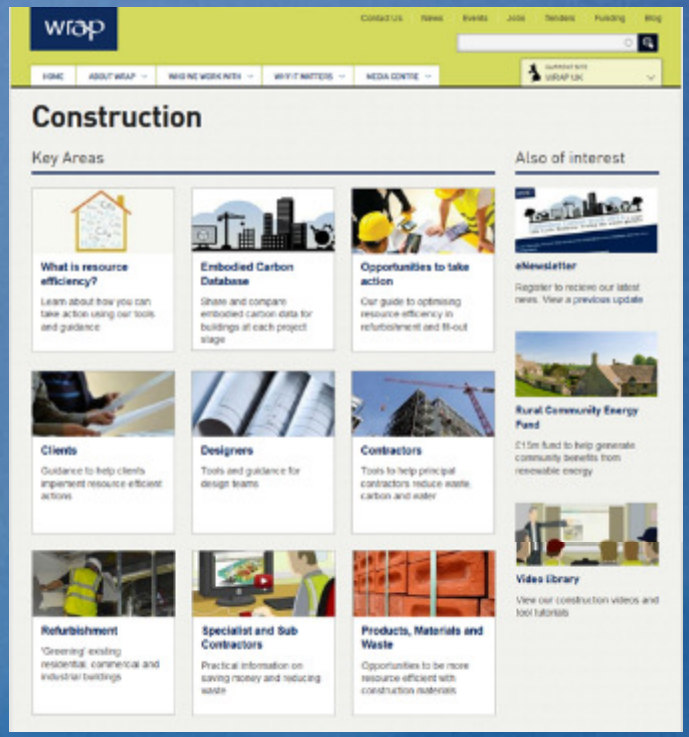
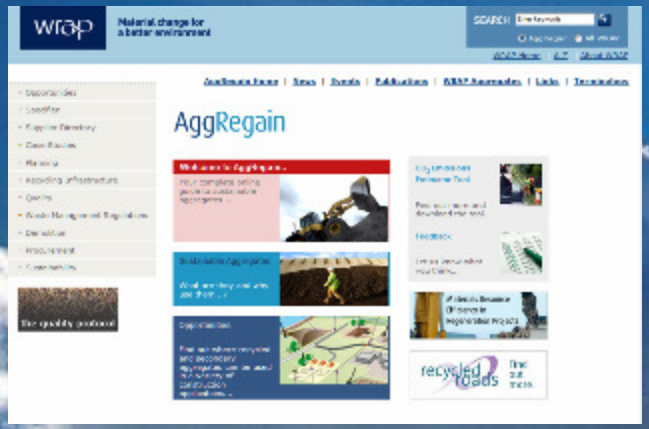


www.wrap.org.uk/category/sector/construction



http://aggregain.wrap.org.uk/

www.johnbarritt.co.uk