place services

Essex County Council

Essex Replacement Minerals Local Plan: Pre-Submission Draft

Sustainability Appraisal and Strategic Environmental Assessment

Environmental Report: Non Technical Summary

November 2012

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Glossary of Acronyms

ANGSt	Accessible Natural Greenspace Standards
AMR	Annual Monitoring Report
AQMA	Air Quality Management Area
BAP	Biodiversity Action Plan
C&D	Construction and Demolition
CDEW	Construction and Demolition and Excavation Waste
dB	Decibel
EA	Environment Agency
EC	European Community
ECC	Essex County Council
EHER	Essex Historic Environment Record
GWh	Gigawatts
HGV	Heavy Goods Vehicle
HRA	Habitat Regulations Assessment
LAA	Local Aggregate Assessment
LCA	Landscape Character Area
LDF	Local Development Framework
LNR	Local Nature Reserve
LoWS	Local Wildlife Site
LSOA	Local Super Output Area
LTP3	Local Transport Plan 3
MCA	Mineral Construction Areas
MLP	Minerals Local Plan
MPA	Minerals Planning Authority
MSA	Mineral Safeguarding Area
Mt	Million tonnes
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
ODPM	Office of Deputy Prime Minister
PAS	Planning Advisory Service
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
PROW	Public Rights of Way
PSA	Public Service Agreement
RSS	Regional Spatial Strategy
SA	Sustainability Appraisal
SA/SEA	Sustainability Appraisal incorporating Strategic Environmental Assessment

SAC	Special Area of Conservation
SARS	Strategic Aggregate Recycling Sites
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SO	Sustainability Objectives
SPA	Special Protection Area
SSSI	Site of Specific Scientific Interest
UA	Unitary Authority

1 Introduction and Methodology

1.1 Background

Essex County Council commissioned Place Services (formerly part of Essex County Council's Spatial Planning Group) to undertake a Sustainability Appraisal, incorporating Strategic Environmental Assessment (SA/SEA), on the proposed Minerals Local Plan.

Place Services are acting as consultants for this work; therefore the content of the SA/SEA should not be interpreted or otherwise represented as the formal view of Essex County Council.

This Report sets out the SA/SEA undertaken for the preparation to date on the Replacement Minerals Local Plan: Pre-Submission Draft hereafter referred to as the 'Minerals Local Plan' or 'MLP'.

1.2 The Replacement Minerals Local Plan: Pre-Submission Draft

Essex County Council is the local planning authority for minerals and waste planning for the County of Essex. The County Council has a statutory responsibility to plan for future minerals supply and waste management under the Planning and Compulsory Purchase Act 2004.

It is fulfilling this responsibility by preparing separate Minerals and Waste Local Plans to support the achievement of sustainable development within the County.

This Non-Technical Summary of the Environmental Report has been prepared to document the SA/SEA undertaken throughout the Minerals Local Plan's preparation up to the Pre-Submission Draft version.

The Replacement Minerals Local Plan: Pre-Submission Draft contains:

- The Spatial Portrait and Key Issues for the County.
- The Plan's Strategy which sets out the key policy principles.
- The Site Specific Proposals.
- Development Management Policies which set out the criteria against which planning applications for minerals development will be considered.
- Implementation, Monitoring and Review proposals.

1.3 Sustainability Appraisal and Strategic Environmental Assessment

The requirement for Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) comes from a national and international commitment to deliver sustainable development.

The aim of the SEA is to identify potentially significant environmental effects created as a result of the implementation of a plan or programme on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between all these factors.

Sustainability Appraisals examine the effects of proposed plans and programmes in a wider context, taking into account economic, social and environmental considerations in order to promote sustainable development.

Whilst the requirements to produce a Sustainability Appraisal and Strategic Environmental Assessment are distinct, Government guidance considers that it is possible to satisfy the two requirements through a single approach.

1.4 The Aim and Structure of this Report

This report sets out the SA/SEA that has been undertaken for the Minerals Local Plan. This document summarises the entire SA/SEA process to date, and is intended to be a stand alone document.

Table 1 signposts the relevant sections of this report that represent the required content of an Environmental Report as outlined within the SEA Directive.

Table 1: The Environmental Report Requirements

SEA Regulations – required content of Environmental Report	Covered in Main Report
An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	Sections 1.2, 2.2 and Annex A
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	Section 2.3 and Annex B
The environmental characteristics of areas likely to be significantly affected.	Section 2.3 and Annex B
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive.	Section 2.3 and Annex B
The environmental protection objectives, established at International, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Annex A
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material asserts, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above issues.	Sections 4 - 8
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Sections 4 - 8
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Sections 4 - 8
A description of the measures envisaged concerning monitoring.	Section 10.1 and Annex C
A non-technical summary of the information provided under the above headings.	This Report which is a separate Non Technical Summary

2 Sustainability Context, Baseline and Objectives

2.1 Introduction

The following section outlines an updated version of the key findings of the Scoping Stage and published Scoping Report which includes an outline of the plans and programmes, the baseline information profile for the plan area, together with the Sustainability Objectives formulated as a result of the Scoping Stage.

2.2 Plans & Programmes

Annex A details the full list of plans and programmes which were included within the 2008 Scoping Report. The original list has been updated in the light of changes in legislation and updates to publications, the key change relates to the implementation of the National Planning Policy Framework and subsequent replacement of PPGs and PPSs.

Table 2 outlines the key list of plans and programmes.

Table 2: Plans and Programmes

International
The Johannesburg Declaration on Sustainable Development, 2002
Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe, 2008
Directive 2006/21/EC on the Management of Waste from Extractive Industries, 2006
Directive 2000/60/EC Water Framework Directive, 2000
Directive 2006/118/EC Groundwater Directive, 2006
Directive 1992/43/EC on the Conservation of Natural Habitats and of Wild Fauna and Flora, 1992
European Convention on the Protection of the Archaeological Heritage (Revised) 16/1/1992
Kyoto Protocol and the UN Framework Convention on Climate Change 1992
National
National Planning Policy Framework, March 2012
Technical Guidance to the National Planning Policy Framework, March 2012
Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners
UK Climate Projections (UKCP09) June 2009
The Countryside and Rights of Way Act 2000
Safeguarding our Soils: A Strategy for England 2009
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007
Air Pollution: Action in a Changing Climate, 2010
Securing the Future – UK Government Sustainable Development Strategy, 2005
The Conservation of Habitats and Species Regulations, 2010
Regional
East of England Plan May 2008
Draft RSS Submission March 2010 and accompanying SA/SEA report
SEA of Revocation of East of England Regional Strategy (July 2012)

Sustainable Futures: Integrated Sustainability Framework for the East of England (January 2009)
East of England Regional Social Strategy 2007
Inventing our Future: Collective Action for a Sustainable Economy (East of England Regional Economic Strategy) 2008 - 2031
County
The Essex Local Area Agreement – 'Health and Opportunity for the People of Essex' 2008 – 2011 (2010 Refresh)
Essex Rural Strategy: 2020 Vision for Rural Essex 2010
Essex Local Transport Plan 2011 (LTP3)
Essex Minerals Local Plan 1996 (and saved policies Direction)
Essex and Southend-on-Sea Waste Local Plan (and saved policies Direction) 2001
Essex Biodiversity Action Plan 2011
The Essex Strategy 2008 – 2018
Essex Landscape Character Assessment 2005
Landscape Character Assessment of the Essex Coast
Essex Climate Change Strategy 2005
Minerals Local Plan Level 1 Strategic Flood Risk Assessment, 2012
Habitat Regulations Assessment for Minerals Local Plan –Submission Document, 2012
Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Area Assessment 2006
District / Borough
Basildon's Sustainable Community Strategy 2008 – 2033
District of Tomorrow – A Community Strategy for Braintree District 2002
Brentwood Community Strategy 2004-2009
A Sustainable Community Strategy for Castle Point 2007-2021
One Vision : Chelmsford Tomorrow 2021
Colchester 2020 – Colchester's Sustainable Community Strategy 2007
Epping Forest District Community Strategy 2004 - 2021
Harlow 2020 Vision 2011-2020
Facing the Future: the Sustainable Community Strategy for the Maldon District to 2015
Rochford Sustainable Community Strategy 2009 - 2021
A Sustainable Community Strategy for Tendring
Uttlesford Sustainable Communities Strategy – A Vision for Our Future 2018
Basildon District Local Plan Saved Policies 2007
Braintree District Core Strategy 2011
Adopted Brentwood Replacement Local Plan 2005
Adopted Castle Point District Local Plan Saved Policies 2007
Chelmsford Borough Council Core Strategy and Development Control Policies Document 2008
Colchester Borough Council Core Strategy 2008

Adopted Epping Forest District Local Plan 1998 and Local Plan Alterations 2006
Adopted Harlow Borough Council Replacement Local Plan 2006
Adopted Maldon District Local Plan 2006
Rochford District Core Strategy 2011
Adopted Tendring District Local Plan 2007-2011
Adopted Uttlesford District Local Plan 2005

2.3 Baseline Information / Key Sustainability Issues

Annex B details the complete Baseline Information profile for the plan area, and is based on the information which was highlighted as relevant through the Scoping Reports, together with relevant new data sources which have become available since the consultation on the last Scoping Report.

The following section summarises that information contained in Annex B.

2.3.1 Profile of Essex

The County of Essex covers an area of 3,694.8km^2 and comprises twelve District and Borough Councils: Harlow; Uttlesford; Braintree; Colchester; Tendring; Maldon; Chelmsford; Rochford; Castle Point; Basildon; Brentwood and Epping Forest. Essex adjoins the Unitary Authority (UA) of Southend-on-Sea, which covers an area of 67.8km^2 and Thurrock which is 165.7 km^2.

Essex is the most populated County in the East of England Region, with a population of approximately 1,398,900 (Office of National Statistics 2009 Mid-Year Estimates). Despite having a relatively high population density, approximately 30% of the population live in rural areas.

2.3.2 Minerals

- Sand and gravel is by far the most common extracted mineral in the country. Essex is a nationally significant exporter of sand and gravel and is one of the largest producers in the UK. Sand and gravel deposits are largely concentrated in the north of the county and particularly in the districts of Uttlesford, Braintree, Colchester, Tendring and Chelmsford. Sand and gravel deposits are far less abundant in the south of Essex and are less workable. Whilst there are many sand and gravel sites throughout Essex, other minerals such as silica sand, brick clay and chalk are extracted at either one or two sites in the county, namely in Colchester, Bulmer and Marks Tey, and Uttlesford.
- As of August 2012, there were 23 sand and gravel sites with a further four sand and gravel quarries which have permission to extract but are currently dormant. Permitted reserves in Greater Essex in 2011 estimated 2.80 million tonnes (mt) with total permitted reserves estimated at 37.642mt. One of these sites also produces silica sand. In addition to this in Greater Essex there are two brick clay sites and one chalk site although commercial confidentiality precludes the stating of their total permitted reserves. Regarding operational transhipment sites, there are 2 wharfs and 4 rail depots in the County.
- According to the British Geological Survey and 'Collation of the results of the 2009 aggregate minerals survey for England and Wales' over 90% of the land won sand and gravel consumed in Greater Essex was extracted within Greater Essex.
- There are 35 aggregate recycling facilities in Essex and Southend-on-Sea, approximately 60% of which provide permanent capacity with the remaining proportion being located in temporary facilities on existing minerals sites.

2.3.3 Waste Management

- In 2011 there were a total of 299 waste management facilities within Essex. These consisted of 110 waste transfer facilities; 99 Recycling Sites; 14 Composting Facilities; 32

C&D Recycling Facilities; 20 Waste Treatment Sites; 9 Energy from Waste Facilities; and 15 Landfill Sites.

- The majority of predicted waste arisings are anticipated to come from construction and demolition (C&D) at approximately 50% of the total waste produced, followed by commercial and industrial activities.
- Construction and Demolition waste arising in Essex made up 24.3% of the total amount of C&D waste created in the East of England in 2007 with the equivalent figure for Southend-on-Sea being 3%.
- Potential sources of construction waste correspond to 5 Priority Areas for Regeneration within Essex County Council's administrative area and are located at Harlow, Basildon, Colchester, Clacton-on-Sea and Harwich.
- There is currently a potential 1.36mtpa of C&D recycling capacity per annum.

2.3.4 Cultural Heritage

- The total number of listed buildings or groups of buildings in England is over 377,000 and in Essex there are around 13,000. Grade I buildings are of exceptional interest, sometimes considered to be internationally important. Only 1.9% of all listed buildings in Essex are Grade I. 5.3% have been designated as Grade II* buildings which are particularly important buildings of more than special interest and the rest are Grade II listed which means they are nationally important and of special interest.
- There is a fairly even distribution of listed buildings within Essex; however there is a greater concentration to the north particularly in the districts of Uttlesford and Braintree and also around historic towns such as Colchester.
- There are over 36,000 records of archaeological sites and finds, recorded on the Essex Historic Environment Record for the county.
- There are 279 Scheduled Monuments in Essex, ranging from prehistoric burial mounds to unusual examples of World War II defensive structures.
- Essex currently has 193 designated Conservation Areas. The objective of the Conservation Area designation is to ensure that the character of the defined area is preserved from developments which do not preserve or enhance its character.
- There are currently 38 historic parks and gardens in Essex. Of the 38, six have been graded II* and one, Audley End, has been awarded grade I status which is the highest quality.
- There is one registered battle site within Essex, located at Northey Island in the Blackwater Estuary. The battlefield site is situated within a number of designations: the Coastal Protection Belt, Special Landscape Area and a Site of Special Scientific Interest (SSSI).

2.3.5 Landscape

- Within the Essex landscape there are many areas of special interest which have been designated and protected from inappropriate development. The scale and location of mineral facilities and activities will have to adhere to such landscape interest.
- There are significant areas of Grade 1 agricultural land within Tendring and Rochford Districts, and smaller areas within Maldon District and Colchester Borough. The majority of agricultural land within Essex can be broadly classified as Grade 2 in the north and Grade 3 to the south.
- The largest green belt within the UK is the Metropolitan Green Belt around London which includes a large area of land in Essex. It is protected by planning policies within Local Plans which enforce restrictions on certain development within the designated area. There are 8

local authorities in the plan area that have land classified as being within the Metropolitan Green Belt.

2.3.6 Biodiversity

- Essex is predominantly rural in character with a diverse wildlife. Conservation of sites and designations of biodiversity value have an important role within the planning process, land management, and controlling development pressure.
- Ramsar sites are wetlands of international importance designated under the Ramsar Convention which have a high degree of protection. They often incorporate Special Protection Areas (SPAs) and Special Areas for Conservation (SACs). In Essex there are 10 Ramsar sites which cover approximately 30,524ha and include coastal areas, estuaries, rivers and lakes/reservoirs. These include Hamford Water, parts of the Colne and Blackwater estuaries, and the Dengie Marshes. Development is not suitable on such sites or in any location that may see a decline in their habitat quality.
- The majority of the Essex coastline has been designated as part of the Mid-Essex Coast Phase, which is made up of 5 separately designated SPAs. Combined these cover an area of approximately 23,000 ha. SPAs are designated to protect rare and vulnerable birds and for regularly occurring migratory species.
- There are two SACs in the county: Epping Forest and the Essex Estuary which considered to be sites of international importance.
- Sites of Special Scientific Interest (SSSIs) are designated areas of land which are considered to be of special interest due to their fauna, flora, geological and/or physiographical features. In Essex there are 81 SSSIs covering a total of 36,322 ha, the largest proportion of which are along the coastline.
- The success of SSSIs is monitored by Public Service Agreement (PSA) targets. A SSSI is deemed to be meeting the PSA target by Natural England if 95% or more of the total area is classed as “Favourable” or “Unfavourable Recovering”. Essex is currently meeting this target, with 98.15% of all SSSIs in the County being in a favourable or unfavourable but recovering condition. 1.04% of the County’s total area of SSSIs is unfavourably declining although none has been lost.
- Natural England is the body empowered to declare National Nature Reserves (NNRs) in England, the Reserves being a selection of the very best parts of England’s Sites of Special Scientific Interest. It is this underlying designation which gives NNRs their strong legal protection. The majority also have European nature conservation designations. There are six NNRs located in Essex. They are the Blackwater Estuary, Colne Estuary, Dengie, Hales Wood, Hamford Water and Hatfield Forest. It is important that new mineral development or activities do not negatively impact upon these designations through inappropriate location or through associated noise, vibration and pollution.
- Local Nature Reserves (LNRs) are designated by local authorities in conjunction with Natural England in recognition of their high interest in the local context for their wildlife or wildlife education value; or because they offer an important area for informal enjoyment of nature by the public. There are currently 39 LNRs in Essex along with the designated NNRs.
- Local Wildlife Sites (LoWS) support both locally and nationally threatened wildlife species and habitats. In Essex there are approximately 1,440 LoWS covering around 13,000ha and together with statutorily protected areas they represent the minimum habitat to maintain current levels of wildlife. New mineral facilities and sites should not be located in areas that would see any decline in these levels of wildlife.
- The amount of woodland has diminished considerably in Essex over time. Three quarters has been lost since the 11th Century. The total wooded area is now 5.7% and this is fragmented and scattered across Essex. Ancient Woodlands in Essex cover approximately

12,800ha or 3.5% of the County and include Epping Forest, clusters in the north-west (e.g. Oxlip woodlands), south-east (e.g. Hockley Woods) and heathland and woodlands on the Danbury ridge.

2.3.7 Water Quality

- As well as surface water resources, the north of Essex contains Chalk, Crag and Drift aquifers. The Chalk aquifer is the largest and most important type. It is used primarily for public water supply and spray irrigation. The Crag and Drift aquifers are overlain by sands and gravels of varying thickness which are locally important minor aquifers. These aquifers should not be subjected to leachate migration from landfill.
- The majority of Essex has a very low contamination vulnerability rating. It is only the northern part of the county, including Halstead and Saffron Walden that has a higher vulnerability because of the porosity of the underlying chalk.
- In addition to natural water bodies there are various artificial water bodies in the county, especially reservoirs created through mineral extraction. Hanningfield and Abberton are Essex's largest inland water resources. The Environment Agency (EA) is responsible for managing water resources in England and Wales.
- Water management is challenging in Essex given the combination of high development growth and it being one of the driest counties in England. Annual rainfall in Essex is only 65% of the average in England and Wales.
- The overall percentages of rivers, canals and surface water transfers in the Anglian River Basin District are expected to improve in ecological, chemical and biological status by 2015. This is also the case with regard to lakes and SSSI ditches, and combined surface waters. There is expected to be no percentage improvement or decline in estuaries, groundwater or coastal waters for ecological, chemical or biological status by 2015.
- The overall percentages of rivers, canals and surface water transfers in the Thames River Basin District are expected to improve in ecological, chemical and biological status by 2015. This is also the case with regard to combined surface waters. There is expected to be percentage improvement in the ecological and biological status of lakes and SSSI ditches, although no change is forecast in chemical status. There is predicted to be improvements in the chemical and biological status of estuaries, however no change ecologically. There is forecast to be no percentage change for ecological, chemical or biological statuses by 2015.
- In total, 12 planning applications made within Essex were objected to by the Environment Agency on water quality grounds between April 2011 and March 2012.

2.3.8 Air Quality

- Air quality in Essex is generally good. The air quality in Essex is influenced by its close proximity to mainland Europe whilst most industrial processes in Essex are concentrated along the Thames Estuary.
- There are currently 15 Air Quality Management Areas (AQMAs) within the Plan Area. All of the AQMAs have been designated due to increased levels of nitrogen dioxide nitrogen dioxide with some also reporting elevated emissions of PM_{10}.. Of the 15 AQMAs in Essex, half are within the Borough of Brentwood and 5 of these are located along the A12.

2.3.9 Noise

- Noise from extraction or recycling sites can also be created from associated machinery and impact on neighbouring developments. It is good practice for noise generating activities to be positioned away from site boundaries. Existing buildings can also be used to shield the noise source. Unfortunately monitoring these sources of noise is problematic and largely qualitative.

- All major roads in Essex experienced some noise levels of over 75dB(A) in the day (defined as 0700 – 1900), in particular the A12, A127, M11 and the M25, and where this was not the case the measurements were mainly between 65 and 70dB(A). In the night (defined as 2300 – 0700) there are lower levels of ambient noise along all the major roads than that seen in the Lden map with only the M25 and the M11 showing levels of more than 70dB(A) along the whole Essex stretch of both roads.

2.3.10 Climatic Factors

- Sea level rise and subsidence will lead to more frequent flooding of coastal areas. Increased temperatures and greater fluctuation in annual precipitation will further increase pressure on water resources. With this in mind it is possible to determine the potential flood risk that mineral sites can add to water bodies in areas of concern. Essex is already one of the driest areas in the UK.
- Changes in land use and various industrial processes are adding heat-trapping gases, particularly carbon dioxide (CO_2), to the atmosphere. There is now roughly 40% more CO_2 in the atmosphere than there was before the industrial revolution. One of the main causes of increased CO_2 in the atmosphere is through the burning of fossil fuels for: electricity and transportation.
- There was a 12% per capita reduction in CO_2 emissions across Essex between 2005 and 2010. All local authorities in the plan area experienced a reduction in CO_2 emissions per capita. The greatest CO_2 emissions reduction per capita was in Castle Point; achieving a 18.37% reduction between 2005 and 2010. The location of new extraction sites and extraction facilities should not compromise any district or borough's reductions beyond what is reasonably acceptable.
- In Essex the largest proportion of CO_2 emissions produced in 2010 was within the transport sector, accounting for 35.9% of the total CO_2 emissions, followed by the domestic sector which produced 34.5%. Recycling facilities and, where possible, primary extraction sites should be located in strategic locations in order to minimise emissions produced through transportation around the County, which equated to 3,333 kilo tonnes (kt) of CO_2 in 2010.
- The transport sector consumes the largest amount of energy within Essex compared to the domestic and industry and commercial sectors. As a whole Essex reportedly consumed 29,890 Gigawatt (GWh) of energy in 2009.

2.3.11 Flooding

- Essex lies within three catchment flood management plan areas – North Essex, South Essex and the Thames. The main sources of flood risk for people, property, infrastructure and land use in these catchment areas are river flooding, surface water flooding, sewer flooding, tidal flooding (South Essex and Thames) and groundwater flooding (South Essex and Thames).
- Surface water flood risk is relatively high in Essex with all main settlements assessed being ranked nationally in the top 1000 settlements most susceptible to surface water flooding. The Preliminary Flood Risk Assessment for Essex (January 2011) suggests that *"there are around 27,000 properties at risk of surface water flooding (from a 1 in 200 year event) in the main settlements of Essex alone"*.
- Significant levels of flood risk have also been identified along the Essex coast and inland along river stretches. Essex Trends 2011 states *"While advances in flood protection have been made since the early 1950s the danger of coastal flooding remains significant, particularly as climate change increases the chance of storms and high tides coinciding."*
- In Essex between 2011 and 2012 there were 76 planning applications that were objected to by the Environment Agency on the grounds of flood risk. Of these, 5 planning applications came from Essex County Council and related to infrastructure, educational institutions and

recycling facilities. These are shown in the following table. There were no permissions approved contrary to Environment Agency advice relating to mineral management facilities.

2.3.12 Population and Social

- Essex had an estimated population of 1,396,599 people as of 2011, having increased by 83,799 people from the 2001 Census figure. At 6.4% this rate of increase is slightly below both the equivalent regional and national figures. In 2011, Basildon had the largest estimated population within Essex at 174,971 people, followed by Colchester and Chelmsford. The smallest population estimate was in Maldon with 61,720.
- According to Essex Trends 2011 Essex has an ageing population and the concentration of over-65s will increase dramatically as the baby-boom children of post-war settlers reach retirement. Although a nation-wide problem, an ageing population will be more evident in Essex as 13% of local people are within ten years of their sixty-fifth birthday; over 26% are within twenty years.
- Migration within the county has been predominantly to the north*. "Those moving within the county, tend to move from the more urbanised south to the more rural north"*[1]. Migration across the Essex border has been recorded between Essex and all neighbouring counties and London. The greatest migration flows are to and from London with migration from London being more dominant at 21,000 people compared to over 11,000 people moving in to London from Essex.
- Essex is projected to increase its population by 10.41% to an estimated population of 1,542,010 in 2021. This percentage change is greater than both the national and region levels. It is important to locate new mineral development facilities in close proximity to the areas of greatest need.
- Essex contains 52 areas known as Lower Super Output Areas (LSOAs) in the most deprived 20% nationally and 13 LSOAs in the most deprived 10%. Of the 13, seriously deprived areas 4 are within Basildon Borough, 2 are within Colchester Borough and the remaining 7 are in the District of Tendring. Coastal Jaywick (E01021988) in Tendring District is the most deprived LSOA in the whole of England.

2.3.13 Health

- There are health inequalities within Essex by location, gender, deprivation and ethnicity. The health of people in Essex is generally better than the England average. Deprivation is lower than average, however 46,975 children live in poverty. Male and female life expectancy in all local authorities in Essex is better than, or similar to, the England average. However inequalities show that life expectancy is 6.8 years lower for men and 4.4 years lower for women in the most deprived areas of Essex than in the least deprived areas.
- Accessible local greenspace is also an important contributor to good health. It not only provides a daily experience of wildlife but contact with nature boosts people's physical and mental health. In Essex there is 15,055ha of accessible natural greenspace however only 9% of Essex households have full access to it when following criterion of Natural England's Accessible Natural Greenspace Standard (ANGSt). 16% of households within Essex do not have any access to natural greenspace. The areas that fare the worst according to the ANGSt criteria are the more rural parts of the county as there is often limited official public access beyond the footpath network.

2.3.14 Transport

- Essex has good transport connections by road, rail, air and sea. The nationally important M11, M25, A12 and A120 run through the county, and major local roads including the A13, A127, A120 and A414 provide good coverage. Three main rail lines radiate from London,

[1] Essex Trends 2011, Strategic Services at Essex County Council (September 2011)

supplemented by a number of branch lines, serving 57 railway stations, and the London Underground extends into the south of the county. As a result of its proximity to London, there is a large commuter population. The county also contains two major 'International Gateways': the UK's third busiest airport at Stansted (which handles around 20 million passengers each year); and Harwich International sea port which provides nationally important connections to Holland and Denmark.[2]

- However there are persistent network efficiency issues on both the roads and rail with a number of strategic inter-urban routes operating at or near to capacity and the two mainline railway networks being at or above their capacity during the morning and evening peaks.
- Around 6% of traffic on Essex's roads is made up of HGVs, rising to nearly a fifth on the Essex section of the M25, 16% on the M11 and around 14% on sections of the A12 and A120[3]. There are also around 50 freight trains passing through Essex each day, travelling mainly between Felixstowe and the North-West via London[4].

2.3.15 Housing

- Across the period 2011 to 2028, Essex is expecting to experience a net increase of at least 49,161 new dwellings. In the absence of some districts having published their housing trajectories up to 2028, this figure should be considered as a minimum forecast for the total number of completions expected. The need to provide housing trajectories in the preparation of Local Plans, and when reviewing those that have already been adopted, will lead to a fuller picture of future completion in Essex.
- The number of completions in 2011/12 is expected to be lower than the completions recorded in 2010/11; however an increase is forecasted from 2012/13 onwards peaking at 5,157 in 2014/15.
- Between 2001 and 2011 42,452 net additional dwellings had been built within Essex. Completions peaked in 2002/03 at 4,914 and since 2007/08 have continually declined to the lowest rate of completions across the period in 2010/11 at 3,114.

2.3.16 Economy

- Since 2008 the number of new enterprises has decreased yearly from 6,880 in 2008 to 5,875 in 2011. At the same time the number of enterprises which have ceased has increased annually from 5,690 in 2008 to 7,170 in 2011. The total number of enterprises within Essex was reported to be 57,850 in 2011.
- There has also been a 3% decline in the total number of local business units within Essex to 60,330 in 2011 compared to 2008 figures. This is a smaller proportionate decrease than those experienced at the regional and national levels over the same time period.
- 74.3% of the working age population in Essex were recorded as being in employment between June 2011 and June 2012. Seven districts within Essex had a higher proportion of their working age population in employment compared to Essex as a whole and the East of England while Braintree, Harlow, Colchester, Epping Forest and Tendring all have lower employment levels. Epping Forest and Tendring in particular, reported lower proportions of their working age population in employment than the county, regional and UK averages at 69.4% and 68.2% respectively.
- In Essex, employment in the construction sector has fluctuated over the few years with a clear period of growth between 2001 and 2003 where it peaked at 74,900 people, and an equally clear decline in employment between 2009 and 2011 from 72,200 to 57,100 people. The forecasted employment figures to 2029 report a steady recovery to the recorded 2009 figures by 2029.

[2] Essex Transport Strategy 2011
[3] Average Annual Daily Traffic Flow (AADF) data produced by the Department for Transport, 2010
[4] Strategic Freight Network (2008) Network Rail

2.3.17 Data Limitations

Not all the relevant information was available at the local level and as a result there are some gaps within the data set but it is believed that the available information shows a comprehensive view on sustainability within the plan area. In collating the baseline data, ECC noted the following problems:

- there was a lack of existing data for some areas and this could not always be disaggregated from Southend-on-Sea;
- it was difficult to obtain national or regional data that was comparable with Essex specific data; and
- for some areas it was difficult to identify trends.

At the time of writing, the finalised version of the Habitat Regulations Assessment (HRA), Strategic Flood Risk Assessment (SFRA) and Analysis Reports were available to inform the SA/SEA appraisals of non-preferred and preferred sites for the Pre-Submission stage MLP. As such, site appraisals as specified in this report may be subject to change following review ahead of adoption.

2.4 Sustainability Objectives

The Sustainability Objectives (SOs) were derived from the review of plans and programmes and analysis of the baseline information. Objectives were based on policy advice and guidance and related to the assessment of the environmental state of the plan area. The appraisal was then able to evaluate, in a clear and consistent manner, the nature and degree of impact and whether significant effects were likely to emerge from the plan's proposed policies. The table below outlines the Sustainability Objectives which together form the Sustainability Framework and were used to inform the appraisal of the Replacement Minerals Local Plan: Pre-Submission Draft.

Table 3: SA/SEA Sustainability Framework of MLP

Sustainability Objectives
1) To protect and enhance biodiversity throughout Essex
2) To maintain and enhance water resources and quality
3) To minimise risk of flooding
4) To encourage the sustainable use of land and protection of soils, including the best and most versatile agricultural land
5) To promote the minerals supply hierarchy and where minerals waste is produced, to promote the movement of minerals waste up the waste management hierarchy
6) To safeguard air quality
7) To minimise the net emissions of greenhouse gases and increase adaptability to climate change
8) To minimise the impact on the historic environment, both above and below ground
9) To protect and enhance the quality and character of the MGB and the Essex landscape
10) To enable all sections of the community to participate fully at all stages of decision making in the MLP and in determining planning applications
11) To maximise opportunities for economic development, including jobs, arising from minerals activities
12) To improve the sustainable use of minerals
13) To achieve beneficial restoration and aftercare of all mineral sites

14) To reduce transportation of minerals and road congestion, and promote more sustainable transport
15) To protect and enhance human health and well being
16) To minimise nuisance and impact on local amenity

2.5 Appraisal of Policies

For clarity, within the Environmental Report, appraisals are set out in the same format as shown in Table 4.

Table 4: Example of Appraisal Format

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term																
Medium Term																
Long Term																

In addition to this, the appraisal of each policy or element of the Plan likely to have an environmental, social or economic effect is supported with additional information as described in the following sub-sections:

2.5.1 Description of 'Significant Effects'

The strength of impacts can vary dependant on the relevance of the policy content to certain sustainability objectives or themes. Where the MLP policies have been appraised against the SA/SEA Sustainability Objectives the following key has been used to illustrate a range of possible impacts:

++	Where there will be significant positive impacts
+	Where there will be positive impacts
/	Where there will be uncertain impacts
0	Where there will be no direct impacts
-	Where there will be negative impacts
- -	Where there will be significant negative impacts

Commentary is included to describe the significant effects of the policy on the sustainability objectives under the heading 'Significant Effects'.

2.5.2 Description of 'Temporal Effects'

The appraisals of the policies contained within the Pre-Submission MLP recognise that the impacts of the options may vary over time. Three time periods have been used to reflect this and are shown in the appraisal tables as S (short term), M (medium term) and L (long term). For the purpose of the Preferred Approach appraisals S, M and L depict:

- Short term and Medium Term: Within the plan period (Adoption to 2029).
- Long term: Post plan period (Beyond 2029)

2.5.3 Description of 'Secondary, Cumulative and Synergistic Effects'

In addition to those impacts that may arise indirectly from the policy's implementation (secondary effects), relationships between different policies and their content have been assessed in order to highlight any possible strengthening or weakening of impacts from their implementation together. Cumulative effects respond to impacts occurring directly from two different policies together, and synergistic effects are those that offer a strengthening of more than one policy that is greater than any individual impacts.

2.5.4 Description of 'Alternatives Considered and the Reasons for their Rejection / Selection

The Pre-Submission MLP policies have been the result of a significant plan-making process, including prior consultation versions of the plan. In this process, numerous alternative approaches have been explored and consulted upon. Alternatives for policies are chronicled in each policy appraisal, alongside the reasons for their rejection of progression.

2.5.5 Description of 'Impacts on Indicators'

In order to quantify the potential impacts highlighted in the appraisal of policies, a range of indicators have been identified directly relevant to each policy. These will help monitor the successfulness of the policy and to what extent it has helped deliver sustainable development.

2.5.6 Description of 'Proposed Mitigation Measures / Recommendations'

In the SA/SEA of the Pre-Submission MLP negative or uncertain impacts may have been highlighted as a result of policies. As such, mitigation measures may be needed and these are highlighted in this section of each policy. In addition to this, this section also includes recommendations that are not directly linked to negative or uncertain impacts, but if incorporated may lead to sustainability improvements to the policy.

3 Appraisal of Spatial Vision, Aims and Strategic Objectives

3.1 Introduction

This section sets out the appraisal of the Spatial Vision, Aims and Strategic Objectives as set out in the Pre-Submission Draft MLP.

3.2 The Spatial Vision

3.2.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	+	0	+	+	++	+	+	+	+	++	++	++	0	++	0	0
Medium Term	+	0	+	+	++	+	+	+	+	++	++	++	0	++	0	0
Long Term	++	0	+	+	++	+	+	+	++	++	+	++	++	++	++	++

3.2.2 Significant Effects

There will be a range of positive impacts as a result of many of the Vision statements where they:

- acknowledge the pressures over-supply would have on the natural environment, and seek to improve it in the long term as well as making the County more resilient to future more extreme weather conditions;
- promote the minerals supply hierarchy and the movement of minerals waste up the waste management hierarchy through a plan-led, collaborative approach which promotes the sustainable use, re-use, recycling and extraction of minerals;
- reduce overall transport emissions where sources of aggregate will be located in proximity to the County's main growth centres;
- minimise greenhouse gases and increase adaptability to climate change where minerals development is located, operated and managed having regard to climate change mitigation and adaptation;
- protect the historic environment where minerals development will be well-designed to afford protection to local communities and to enhancement of the built, natural and historic environment;
- have a positive impact on economic development by specifying Essex's strategic economic role as a significant sand and gravel producer in the UK, the South East and East of England;
- positively contribute to improving the sustainable use of minerals in line with national, regional and local policies and to the benefit of a number of other sustainability objectives;
- positively impact on beneficial restoration through a shift from purely agricultural use to those including biodiversity, outdoor recreation and public rights of way; and
- reduce the transportation of minerals and road congestion by locating workings in proximity to the County's main growth areas, matching supply with demand to reduce transport distances, and prioritising the existing rail depot infrastructure and marine landing wharves for the importation of non-indigenous minerals.

3.2.3 Temporal Effects

There will be long term significant positive impacts on:

- biodiversity and landscapes comparatively through restoration and after-use proposals; and
- human health and well-being as well as minimising nuisance and impacts on amenity through the flexibility of restoration to amenity and public rights of way. This is supported by the approach of involving communities to deliver restoration and after-uses that benefit localities.

3.2.4 Secondary, Cumulative and Synergistic Effects

- There will be positive cumulative impacts on the Vision with policies S12 and S10.
- There will be indirect positive impacts on biodiversity and water resources and quality through protection to and enhancement of the natural environment.
- There will be a significant cumulative positive impact on the economy, through a focus on the economic role minerals development has in the County, its important role supporting growth in the County, and indirectly demonstrating possibilities to provide jobs through its location in such areas. Impacts are however limited in the long term, based on individual restoration schemes and after-use and their economic potential.
- A non-restrictive policy direction for after-use will see wide benefits in the long term, especially in accumulation with focusing operations around the County's main growth centres. This allows those areas of the largest populations to benefit from amenity from after-use in accordance with local needs.
- Indirectly there may also be positive impacts on human health, well being and amenity resulting from the protection and creation of high quality habitats and landscapes that contribute to a high quality of life for present and future generations where after-use schemes are publically accessible.

3.2.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage, the Vision looked at the direction of the plan under ten headings that reflected the requirements of a minerals plan. This was deemed reasonable in light of the direction of national policy and guidance at the time. At the Preferred Options Stage the Preferred Approach was to reiterate the Vision from the Further Issues and Options stage, with no amendments. It is stated that the Vision is affected by the options/alternatives of other policies progressed throughout the plan making process.

3.2.6 Impacts on Indicators

The implementation of The Vision is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Tonnage imported
- Number of vehicle movements generated by site operation.
- Tonnage transported by means other than road.
- Amount of recycled material utilised?
- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction
- Complaints regarding dust (Environmental Health and ECC).

- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.

3.2.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

3.3 Aims and Strategic Objectives

The MLP Strategic Objectives have been compared against the SA/SEA Sustainability Objectives for compatibility. In doing this, the following key has been used to illustrate their compatibility:

✓	Where the Sustainability and Strategic Objectives are compatible
/	Where it is uncertain whether the Sustainability and Strategic Objectives are compatible
0	Where the Sustainability and Strategic Objectives are not related
X	Where the objectives are potentially incompatible

3.3.1 Impact on SA/SEA Objectives

Aims of MLP	1				2	3		4	5	6	7			8
Strategic Objectives of MLP	1	2	3	4	5	6	7	8	9	10	11	12	13	14
SA/SEA Objective														
SA/SEA Objective 1	0	0	0	0	0	0	0	0	0	/	✓	✓	✓	0
SA/SEA Objective 2	0	0	0	0	0	0	✓	0	0	0	0	0	0	0
SA/SEA Objective 3	0	0	0	0	0	0	✓	0	0	0	0	0	0	0
SA/SEA Objective 4	0	0	✓	0	0	0	✓	0	✓	0	0	0	0	0
SA/SEA Objective 5	0	0	✓	0	0	0	0	✓	0	✓	0	0	0	0
SA/SEA Objective 6	0	0	0	0	0	0	✓	0	0	0	0	0	0	✓
SA/SEA Objective 7	0	0	0	0	✓	0	0	0	0	0	0	0	0	0
SA/SEA Objective 8	0	0	0	0	0	0	0	0	0	/	✓	0	✓	0
SA/SEA Objective 9	0	0	✓	0	/	0	0	✓	0	/	0	✓	✓	0
SA/SEA Objective	/	0	0	✓	0	✓	0	0	0	0	0	0	0	0

10														
SA/SEA Objective 11	0	0	✓	0	0	0	0	0	0	0	0	0	0	✓
SA/SEA Objective 12	✓	✓	✓	✓	0	0	0	✓	✓	✓	0	0	0	✓
SA/SEA Objective 13	0	0	0	0	✓	0	0	0	0	0	0	✓	0	0
SA/SEA Objective 14	0	✓	0	0	✓	0	✓	0	0	0	0	0	0	✓
SA/SEA Objective 15	0	0	0	0	0	0	✓	0	0	/	0	0	✓	/
SA/SEA Objective 16	/	0	0	0	0	✓	✓	0	0	/	0	0	✓	/

3.3.2 Significant Effects

- The aims and strategic objectives of the MLP have positive impacts on all of the Sustainability Objectives. Where uncertain impacts are likely to occur, the majority of these will be rectified in other elements of the Local Plan where site specific characteristics and impacts are more relevant, such as site allocation criteria and assessments and development management policies. Similarly, certain objectives and criteria of the Sustainability Framework are more relevant to these elements.

3.3.3 Temporal Effects

- There are no identified Long Term impacts resulting from the plan's aims and objectives, where much of the content is elaborated on in separate policies.

3.3.4 Secondary, Cumulative and Synergistic Effects

There will be no identified secondary, cumulative or synergistic impacts resulting from the plan's aims and objectives, where much of the content is elaborated on in separate policies.

3.3.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage there were 11 Objectives covering issues of minerals, transportation, environmental protection, restoration and communities. This approach was deemed reasonable in light of focusing on the key themes of a minerals plan as specified in line with national policy and guidance at the time. At the Preferred Options Stage a number of consultation responses sought the rationalisation of various objectives. It was thus considered appropriate therefore to combine several of them; setting out more clearly and reasonably what the MLP exists to achieve in the first instance.

3.3.6 Impacts on Indicators

The implementation of The Aims and Strategic Objectives is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Tonnage imported.
- Number of vehicle movements generated by operation.

- Tonnage transported by means other than road.
- Number of representations made to consultation of policy documents and individual planning applications.
- Capacity of secondary processing / recycling facilities
- Amount of recycled material utilised
- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Location of Strategic Lorry Routes.

3.3.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4 Appraisal of the Strategic Policies, 'The Strategy' and Strategic Priorities

4.1 Introduction

This section sets out the outcome of the Appraisal of the strategy element of the Local Plan.

This contains Strategic Policies, 'The Strategy' and Strategic Priorities, which have been appraised as part of the SA/SEA and reported within this Environmental Report.

4.2 Policy S1 Presumption in Favour of Sustainable Development

4.2.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.2.2 Significant Effects

- There will be no direct impacts on any of the sustainability objectives.

4.2.3 Temporal Effects

- No Temporal have been identified for this policy.

4.2.4 Secondary, Cumulative and Synergistic Effects

- There will be no direct impacts on any of the sustainability objectives; however there will be positive impacts in accumulation with other policies aligned more closely to specific mineral based, economic, social and environmental criteria in the MLP.

4.2.5 Alternatives Considered and the Reasons for Their Rejection / Selection

This policy has been incorporated into the Pre-Submission Draft as a result of the National Planning Policy Framework. Thus it did not appear at the Further Issues and Options Stage & Preferred Options Stage. Although no alternatives have been formally consulted upon, two options have been considered through the plan's development; that is to include the model wording policy, or to not. It has been agreed that the policy should be included in so far as it supports a non-restrictive stance on policy, promotes development in line with the NPPF and underpins the approach to many other policies. The alternative to not include this policy can be considered reasonable in that the essence of it is evident in other policies, however has not been explored further in favour of reinforcing the importance of non-restrictive policy in the plan.

4.2.6 Impacts on Indicators

The implementation of Policy S1 is unlikely to directly impact on any of the SA/SEA indicators.

4.2.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage.

4.3 The Strategy and Policy S2 Strategic Priorities for Minerals Development

4.3.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	++	++	+	++	0	0	0	+	++	0	++	+	++
Medium Term	0	0	0	++	++	+	++	0	0	0	+	++	0	++	+	++
Long Term	++	0	0	++	++	+	++	0	0	0	/	++	++	++	++	++

4.3.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land and protection of soils, where the encouragement of the re-use and recycling of construction materials, the non-sterilisation of resources and the identification of preferred site allocations for a steady and adequate supply of minerals all seek to minimise the need for marginal or inappropriate sites to be identified;
- promoting the minerals supply hierarchy through providing sufficient detail on reducing reliance on restoration by landfill required on a strategic level;
- air quality through adopting a strategic approach to site location;
- minimising greenhouse gases and increasing the adaptability to climatic change where minerals development will make a contribution towards reducing greenhouse gas emissions and can demonstrate adaptation to the impacts of climate change;
- general economic development through seeking to create a network of strategic and non-strategic recycling facilities to cover the spatial extent of Essex;
- improving the sustainable use of minerals through promoting the use of recycled aggregates and encouraging the re-use and recycling of construction materials, which increases the amount than can be substituted for primary aggregate;
- reducing the transportation of minerals through locating the majority of sites to support key areas of growth and development; and
- minimising nuisances and impacts on amenity where there will be no significant adverse impacts arising from proposed minerals development for public health and safety, amenity and quality of life of nearby communities. Although such impacts are often very localised and relevant to development management criteria and site methodologies, the significance of the potential issue is recognised as a strategic one considering all or a number of sites in accumulation.

4.3.3 Temporal Effects

- There will be significant long term positive impacts on biodiversity through high quality restoration to provide beneficial after-use and environmental benefits.

- A flexible approach allows for a local context to be applied whilst acknowledging the strategic significance of restoration and thus has positive impacts on beneficial restoration in the long term.

4.3.4 Secondary, Cumulative and Synergistic Effects

- There will be no secondary, cumulative or synergistic impacts resulting from Policy S2, where much of the content is elaborated on in separate policies.

4.3.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage four reasonable options were explored surrounding the spatial strategy and the broad direction of minerals development over the plan period. These were Option 1 - Predominantly Extensions to Existing Extraction Sites, Option 2 - Dispersed Spread of Sites Across the County, Option 3 - Concentrated Supply of Sites with Some Dispersed Sites, and Option 4 - A Hybrid of the Above Three Options. At the Preferred Options Stage, A mixture of Options 1 and 2 became the preferred approach for spatial distribution (Option 4). This was deemed reasonable where the extension of existing sites element utilises existing infrastructure and mineral supply patterns across the County. It is also more likely to provide certainty of delivery, minimise environmental disturbance and avoid loss / sterilisation.

4.3.6 Impacts on Indicators

The implementation of The Strategy and Policy S2 is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Tonnage imported
- Location of rail links.
- Number of vehicle movements generated by site operation.
- Congestion ratios of relevant routes.
- Tonnage transported by means other than road.
- Capacity of secondary processing / recycling facilities
- Amount of recycled material utilised
- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction
- Number of vehicle movements generated by site operation.
- Tonnage transported by means other than road.
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.

4.3.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.4 Policy S3 Climate Change

4.4.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	+	++	0	0	+	++	0	0	0	0	0	+	+	0	0
Medium Term	0	+	++	0	0	+	++	0	0	0	0	0	+	+	0	0
Long Term	+	+	++	0	0	+	++	0	0	0	0	0	+	+	0	0

4.4.2 Significant Effects

There will be positive impacts on:

- water resources where applications should include measures to enhance on-site water efficiency;
- minimising flood risk through requiring applications to include details on climate change adaptation, sustainable drainage systems, measures to minimise flood impact on and off (as a result of) the site, resilience to unexpected climatic events, the implications of coastal change and flood alleviation;
- air quality where applications will have to demonstrate how they have incorporated effective measures to minimise greenhouse emissions, and also in regard siting, location, design and transport arrangements. This is also the case for minimising greenhouse gases and adapting to climate change through further resilience conditions, adaptation to climatic change and the possible incorporation of on-site renewable and low carbon energy generation;
- achieving beneficial restoration where climate change adaptation schemes and their viability and incorporation will have regard to the potential benefits from site restoration and after-use schemes; and
- reducing transportation and congestion where applications will have to demonstrate how they have incorporated effective measures to minimise greenhouse emissions in regard to siting, location and transport arrangements.

4.4.3 Temporal Effects

- There will be positive impacts on biodiversity in the long term where applications will have to demonstrate how they have incorporated effective measures to minimise greenhouse gas emissions and to ensure effective adaptation and resilience to future climatic changes having regard to the potential benefits from site restoration and after-use schemes for biodiversity and habitat creation.

4.4.4 Secondary, Cumulative and Synergistic Effects

- There will be indirect positive impacts on the protection of soils and high grade agricultural land by minimising the flood impacts in relation to downstream land-uses and adjacent land.
- There will be indirect positive impacts on health and well-being through the minimisation of transport emissions and flood risk, which will have secondary impacts in cases of unexpected climatic events or where housing is a downstream land-use or on adjacent land.

- Indirect positive impacts will also be realised through the minimisation of flood risk on local amenity and biodiversity in cases of unexpected climatic events or where such amenity is a downstream land-use or on adjacent land, and where habitats are a downstream land-use or constitute adjacent land.

4.4.5 Alternatives Considered and the Reasons for Their Rejection / Selection

Climate change mitigation and adaptation was included at the Further Issues and Options Stage as a statement in the Vision of the MLP, stating that 'Minerals Transportation, sites and facilities for mineral development will be planned, located and operated having regard to the need to mitigate and adapt to the impacts of climate change.' Although no alternatives were explored at this stage the issue of climate change adaptation has evolved throughout the process. At the Preferred Options Stage climate change mitigation and adaptation also included climate change issues in a restoration and after-use statement.

4.4.6 Impacts on Indicators

The implementation of Policy S3 is most likely to impact on the following SA/SEA indicators:

- Distance to 'Areas susceptible to surface water flooding'
- Number of vehicle movements generated by site operation.
- Congestion ratios of relevant routes.
- State of the site prior and post extraction
- Number of developments where a green travel plan is submitted as a condition of development.
- Control of emissions through the use of managed equipment and vehicles

4.4.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.5 Policy S4 Reducing the Use of Mineral Resources

4.5.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	+	++	+	+	0	0	0	0	++	0	+	0	0
Medium Term	0	0	0	+	++	+	+	0	0	0	0	++	0	+	0	0
Long Term	0	0	0	0	++	0	0	0	/	0	0	++	/	0	0	0

4.5.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land where the maximum possible recovery of minerals from construction, demolition, and excavation waste produced at development or re-development sites are promoted by on-site re-use and recycling;

- the sustainable use of minerals, and promoting the minerals supply hierarchy and the movement of minerals waste up the waste management hierarchy by reducing the use of minerals resources and promoting and making conditions for re-use and recycling; and
- reducing the transportation of minerals as well as air quality and minimising the net emissions of greenhouse gases through on-site re-use and recycling where possible and a general policy direction of reducing minerals miles.

4.5.3 Temporal Effects

- There may be uncertain long term impacts on landscapes and restoration in those instances where certain levels of inert (i.e. Construction and Demolition) mineral waste may be needed to restore landscapes to desired levels post working. This may not be possible with increased re-use and recycling, however it is acknowledged that the Plan should not be considering this, and the restoration hierarchy of low-level in the first instance (Policy S12) deals with this issue in a sustainable manner.

4.5.4 Secondary, Cumulative and Synergistic Effects

- There may be indirect positive impacts on all environmental based sustainability objectives through a reduced need to allocate new sites for primary minerals. In addition to this, environmental impacts are minimised where re-use and recycling will not be allowed on site where they are likely.

4.5.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage it was explored how to minimise mineral consumption and avoid mineral waste by the efficient and sustainable use of minerals in construction, whilst maintaining and promoting high standards of development. There were no stated alternatives being deemed reasonable. Three additional options regarding aggregate recycling were explored, such as policy criteria for assessing non-strategic aggregate recycling sites, how the MPA could promote recycling at redevelopment sites, and whether the MPA should safeguard aggregate recycling sites. These issues are essential content of a minerals local plan and therefore there were no reasonable alternatives. At the Preferred Approach Stage, three alternatives were looked at in regards to reducing the use of minerals resources. The Preferred Approach looked at promoting sustainable construction practises, the efficient use of materials and the incorporation of a proportion of re-used, recycled or secondary aggregate in new projects. This approach was deemed reasonable as it was consistent with other local planning authorities in Essex promoting sustainable construction through policies in their LDFs and provides flexibility in implementation. An alternative approach to this involved a higher standard of sustainable construction to be set out in the MLP in the expectation that it would become mandatory at the national level in due course. This was considered a reasonable alternative as it explored the notion of an aspirational standard. A second alternative was a ‘do nothing’ approach. This was considered reasonable where policy might be seen as reiterating certain elements of national policy to some degree.

4.5.6 Impacts on Indicators

The implementation of Policy S4 is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Is the proposed development intended to be located within landscapes with a high sensitivity
- Capacity of secondary processing / recycling facilities
- Amount of recycled material utilised

4.5.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.6 Policy S5 Creating and Safeguarding a Network of Aggregate Recycling Facilities

4.6.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	+	++	0	0	0	0	0	+	++	0	+	0	0
Medium Term	0	0	0	+	++	0	0	0	0	0	+	++	0	+	0	0
Long Term	0	0	0	+	++	0	0	0	0	0	0	++	+	0	0	0

4.6.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land through the safeguarding of existing facilities, the expansion of them where required and the general presumption that existing SARS should remain in operation for the life of the permission;
- promoting the minerals supply hierarchy and the movement of minerals waste up the waste management hierarchy;
- economic development where proposals for new aggregate recycling facilities, located in proximity to the key centres of Basildon, Chelmsford, Colchester and Harlow respond well to planned growth and large centres of population;
- improving the sustainable use of minerals; and
- reducing the transportation of minerals and congestion where the network of aggregate recycling facilities and the proposals for new facilities are to correspond to the main highway network and key centres of growth and population in the County.

4.6.3 Temporal Effects

- There will be long term positive impacts on the sustainable use of land and restoration. It is noted that proposals for new aggregate recycling facilities will be permitted where they do not unduly prejudice the agreed restoration timescale for the site and the use ceases prior to the completion of the site.

4.6.4 Secondary, Cumulative and Synergistic Effects

- There will be indirect positive impacts on air quality, minimising the emissions of greenhouse gases and reducing minerals transportation are associated with reducing mineral miles, transport distances and thus vehicle emissions.
- Regarding restoration, proposals for new aggregate recycling facilities will be permitted where they do not unduly prejudice the agreed restoration timescale for the site and the use ceases prior to the completion of the site, thus there are synergistic impacts with Policy S12 and good consistency between the two potentially conflicting policies.

- There will be indirect positive impacts on human health and well-being where although proposals for new facilities will correspond to large centres of population in the County, the preferred location criteria responds well to distance new facilities away from expected housing areas.
- There may be indirect positive impacts on amenity in certain proposals where new aggregate recycling facilities will be permitted where they do not unduly prejudice the agreed restoration timescale for the site and the use ceases prior to the completion of the site, in those cases where the after-use is to amenity.
- Proposals for new aggregate recycling facilities will be permitted where they do not unduly prejudice the agreed restoration timescale for the site and the use ceases prior to the completion of the site, thus there are synergistic impacts with Policy S12 in regards to beneficial restoration.

4.6.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage the MLP set out 3 methods by which optimising the production and use of recycled aggregates can be achieved; increasing on-site recycling on redevelopment sites, establishing a network of strategic aggregate recycling facilities, and by promoting and maintaining a spread of smaller non-strategic aggregate recycling sites across the County. These were deemed reasonable alternatives in line with The Strategy and minimising minerals miles in various ways. At the Preferred Options Stage the preferred approach was to provide a network of permanent and long term temporary recycling facilities able to make significant and long term contributions to recycled aggregate production with the only safeguarding being the Strategic Aggregate Recycling Sites (SARS) in proximity to key urban areas, with an additional SARS in or around Harlow. This approach was deemed reasonable where it would reduce mineral miles and was considered the best way to promote raising the quality of recycled products and provide for economies of scale. An alternative approach looked at a criteria only based approach to aggregate recycling to promote strategic and non-strategic aggregate recycling sites. This was deemed a reasonable alternative as it theoretically aimed to identify the best and most suitable sites possible.

4.6.6 Impacts on Indicators

The implementation of Policy S5 is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Capacity of secondary processing / recycling facilities
- Amount of recycled material utilised

4.6.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.6.8 Information on the Appraisal of Existing Strategic Aggregate Recycling Sites (SARS)

The SARS highlighted for safeguarding in the policy are all in current operation and safeguarded from development that might result in their closure earlier than their permission. There are three existing SARS operating in the County, located at Purdey's Industrial Estate, Rochford; Bulls Lodge Quarry, Boreham; and Stanway Quarry, Colchester. SARS have a long term status or permanence during the plan-period, as either permanent permissions or long term temporary permission within mineral workings and occupy suitable sites/ buildings in both planning and transport terms. As such an appraisal of these sites has not been necessary.

4.7 Policy S6 Provision for Sand and Gravel Extraction

4.7.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	+	++	0	0	0	0	0	++	++	0	0	0	0
Medium Term	0	0	0	+	++	0	0	0	0	0	++	++	0	0	0	0
Long Term	0	0	0	+	++	0	0	0	0	0	++	++	0	0	0	0

4.7.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land where the landbank allows for mineral resources to be identified at this stage for a best case economic scenario;
- the minerals supply hierarchy and the sustainable use of minerals through maintaining land banks and the commitment to a periodical assessment of the MLP; and
- maximising opportunities for economic development in ensuring reserves for sand and gravel are based on a 7 year apportionment as specified in the LAA and consistent with previous sub-national apportionments. This approach supports economic growth by allowing for and supporting any economic upturn. Review periods in which to reassess apportionments relevant to identified needs and changing situations allows a flexible approach and can respond to any significant oversupply or undersupply in land banks / apportionments should they be apparent.

4.7.3 Temporal Effects

- No Temporal have been identified as a result of this policy.

4.7.4 Secondary, Cumulative and Synergistic Effects

- There will be positive synergistic impacts on biodiversity, restoration and after-use and amenity in conjunction with Policy S12 regarding the opportunities for after-use and restoration from sand and gravel extraction.
- Although it is possible that there will be future cumulative impacts on Policy S6 with Policy IMR1, at this stage it is impossible to determine whether these will be positive, negative or changeable from the current direction and methodology regarding the sand and gravel apportionment and landbank.

4.7.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage, options for the management and maintenance of the landbank were looked at. These were a partial review of the Plan based upon land won sand and gravel only, a whole and partial review of the plan/landbank (consisting of a 7 year landbank based on the agreed sub-regional apportionment, a combined provision of both the landbank and outstanding “planned provision” still to come forward up to 10 years), and a landbank based on a 5 year review from the plan’s adoption. The alternatives were considered reasonable in line with the different methods of calculating required apportionment figures and landbanks of sub-national figures, planned provision and reviews of the plan. At the Preferred Options Stage the preferred approach was to maintain a single County-wide land-bank of at least 7 years for sand and gravel

based on the County apportionment and site specific landbanks of 10 years for Martells silica sand and 25 years for Bulmers and Marks Tey brick clay sites, with a process of 5 year review / should the sand and gravel land-bank fall below 7 years; whichever comes sooner. This was considered reasonable and progressed where a single landbank for the whole sand and gravel resource was viewed as the most practical way forward for the MLP. An alternative approach was explored to partially review the Plan based on land won sand and gravel only. This was deemed reasonable as sand and gravel are the most prominently extracted minerals in the county.

4.7.6 Impacts on Indicators

The implementation of Policy S6 is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Facilities within 100metres of residential areas
- Residential developments within 100metres of sources of noise and vibration

4.7.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.8 Policy S7 Provision for Industrial Minerals

4.8.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	+	++	0	0	0	0	0	+	++	0	0	0	0
Medium Term	0	0	0	+	++	0	0	0	0	0	+	++	0	0	0	0
Long Term	0	0	0	+	++	0	0	0	0	0	+	++	0	0	0	0

4.8.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land where sites for industrial extraction have already been identified and/or have already received permission;

- promoting the minerals supply hierarchy and improving the sustainable use of minerals through maintaining adequate landbanks for 10 years of silica sand and 25 years of brick clay extraction; and
- economic development where the maintenance of the landbanks will ensure that there is an adequate supply of industrial materials to support economic growth in the County.

4.8.3 Temporal Effects

- No Temporal have been identified as a result of this policy.

4.8.4 Secondary, Cumulative and Synergistic Effects

- There will be cumulative positive impacts on the sustainable use of land where existing and preferred sites will be safeguarded through the MSA and 250m MCA consultation zone as specified in Policy S8.

4.8.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage it was explored whether brickearth, brickclay and silica sand sites should continue to be protected and planned for, within a Vision statement. No reasonable alternatives could be identified beyond whether or not sites for industrial minerals should be planned. At the Preferred Options Stage it was stated in a Vision statement that primary extraction sites will have regard to numerous environmental criteria and that brick clay, brickearth and silica sand sites will continue to be protected and planned for. Under the Core Objectives of the plan, it was also covered that chalk, silica sand, brickearth and brick clay will be identified and safeguarded to avoid unnecessary sterilisation as they have potential future economic and/ or conservation value. There were no other reasonable alternatives at this stage.

4.8.6 Impacts on Indicators

The implementation of Policy S7 is most likely to impact on the following SA/SEA indicators:

- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Facilities within 100metres of residential areas
- Residential developments within 100metres of sources of noise and vibration

4.8.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.9 Policy S8 Safeguarding Mineral Resources and Mineral Reserves

4.9.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	++	++	0	0	0	0	0	+	++	0	0	0	0
Medium Term	0	0	0	++	++	0	0	0	0	0	+	++	0	0	0	0
Long Term	0	0	0	++	++	0	0	0	0	0	+	++	0	0	0	0

4.9.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land where the policy ensures the non-sterilisation of minerals;
- safeguarding mineral resources; minerals saved from sterilisation will contribute to the county landbank and reduce the need for primary extraction in other more marginal localities should they be required to reflect future relevant economic changes and planned growth;
- the economy where minerals saved from sterilisation will contribute to the county landbank and can reflect future relevant economic changes and any planned growth; and
- improving the sustainable use of minerals where prior extraction would be considered should a deposit be at risk of sterilisation.

4.9.3 Temporal Effects

- No Temporal have been identified as a result of this policy.

4.9.4 Secondary, Cumulative and Synergistic Effects

- Indirect positive impacts may occur on all environmental objectives where minerals saved from sterilisation will contribute to the county landbank and reduce the need for primary extraction in other more marginal localities which may require environmental considerations.
- There may be indirect positive impacts on human health and well being through the prior safeguarding of deposits, and the element of MCAs that seeks to protect resources from inappropriate development within 250m. Whilst MCAs are predominantly concerned with the non-sterilisation of resources, it may also have the indirect benefits of mutually separating inappropriate land uses, including those associated with nuisance and transport arrangements.

4.9.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage, numerous options were looked at to safeguard minerals resources and reserves. These were an option defining MSA boundaries, an option stating scales of development within an MSA requiring consideration of prior extraction by the applicant, an option to safeguard all development unless within a residential curtilage for brickearth and brick clay, and 3ha for chalk, an option on the provision of information relating to prior extraction potential to be submitted with an application, and an option on the protection of permitted and identified mineral reserves through MCA designation. Alternatives were based on the responses to

these core issues post-consultation. At the Preferred Options Stage the preferred approach was that the MPA would consider prior extraction as a windfall before alternative development occurs on sites greater than 5ha for sand and gravel, 3ha for chalk and greater than a single residential curtilage for brickearth or brick clay. The MPA would also oppose incompatible development within 250m of a permitted and / or preferred mineral allocation site, This approach was considered reasonable as it was consistent with government policy. An alternative approach was to delineate the economic mineral resource around preferred sites only. The MPA would seek consideration of prior extraction before any incompatible development at such sites could occur and would oppose inappropriate development within 250m of a preferred mineral allocation site. This was deemed a reasonable alternative where it sought to safeguard resources of county-wide importance in terms of apportionment.

4.9.6 Impacts on Indicators

The implementation of Policy S8 is most likely to impact on the following SA/SEA indicators:

- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Facilities within 100metres of residential areas
- Residential developments be within 100metres of sources of noise and vibration

4.9.7 Proposed Mitigation Measures / Recommendations

It is recommended that an effective way of disseminating information would be required to ensure that the public is aware of any potential extraction at non-preferred sites.

4.10 Policy S9 Safeguarding Mineral Transhipment Sites and Secondary Processing Facilities

4.10.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	++	0	++	++	0	0	0	++	+	0	++	0	0
Medium Term	0	0	0	++	0	++	++	0	0	0	++	+	0	++	0	0
Long Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.10.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land where safeguarded sites are on existing sites, or in the case of Ballast Quay, Fingringhoe use shared infrastructure with and shall only be safeguarded until, the end of the mineral extraction at the nearby Fingringhoe Quarry;
- promoting sustainable transport, air quality and minimising emissions from minerals activities through the protection of transhipment sites, allowing for the continued transport of minerals by rail and sea; and
- maximising economic development; transhipment sites are imperative for facilitating wider economic goals and rail and sea transportation will have beneficiary effects of economies of scale.

4.10.3 Temporal Effects

- No Temporal have been identified for this policy where impacts exist only for the entirety of the plan period.

4.10.4 Secondary, Cumulative and Synergistic Effects

- There will be positive cumulative impacts on safeguarding air quality, minimising transport emissions and sustainable transport objectives in conjunction with Policy S11.

4.10.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage two isolated options were considered regarding the safeguarding of transhipment sites; the safeguarding of mineral transhipment facilities, and the designation of 250m Mineral Consultation Areas around mineral transhipment facilities. These were considered reasonable in line with national policy. At the Preferred Approach Stage the MPA looked to safeguard the rail heads and wharfage facilities of Chelmsford, Marks Tey, Harlow Mill, Port of Harwich and, while extraction continues, Fingringhoe. It was also proposed that proposals for other development within 250m of these rail heads and wharfage facilities should demonstrate that they would not prejudice or be prejudiced by those facilities. This was deemed a reasonable approach in line with national policy. An alternative explored was the permanent safeguarding of existing rail heads and wharfage considered to be of strategic importance for the maintenance of existing mineral infrastructure for the supply of aggregates needed in Essex; however it is not considered a reasonable alternative to permanently safeguard existing mineral transhipment infrastructure as the consequences could be significant and irreversible.

4.10.6 Impacts on Indicators

The implementation of Policy S9 is most likely to impact on the following SA/SEA indicator:

- Tonnage transported by means other than road.

4.10.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.10.8 Information on the Appraisal of Coated Stone Plants

The coated stone plants highlighted for safeguarding in the policy are all in current operation and either have permanent planning permissions, or are plants within existing quarries with temporary permissions which will cease upon completion of the mineral working. As such an appraisal of these sites has not been necessary.

4.10.9 Information on the Appraisal of Mineral Transhipment Sites

The sites at Chelmsford Rail Depot (Site F2 in Appendix 8 of the MLP), Harlow Mill Rail Station (Site F1), Marks Tey Rail Depot (Site F3), and Parkeston Quay East, Harwich (Site F4) are all existing safeguarded sites as from the previous Minerals Local Plan and thus their continued safeguarding has not been subject to Sustainability Appraisal.

Of the mineral transhipment sites listed for safeguarding in this policy, only that of Ballast Quay, Fingringhoe (Site D2) has been subject to Sustainability Appraisal as a new site to be safeguarded. In addition to this, ‘alternative’ sites for transhipment have also been appraised.

The appraisal of the preferred transhipment site can be seen in the following sub-sections. The methodology used for these appraisals can be located in Annex E: Policy Appraisals and is the same as that for the appraisals of the sand and gravel and industrial minerals sites as found in Chapter 5 of this Environmental Report.

4.10.10 Appraisal of New Transhipment Site (D2 Ballast Quay, Fingringhoe)

Site		Sustainability Objective															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
D2	SM	1	0	-1	2	0	1	1	1	1	0	/	0	/	2	-1	-1
	L	/	0	/	/	0	0	0	0	/	0	/	0	/	0	/	/

Significant Effects:

- Site D2 will have significant positive impacts with regards to transport and agricultural land. Positive impacts will be realised regarding biodiversity, air quality, greenhouse gas emissions, the historic environment and landscape. There will be negative impacts on flood risk, health and well-being and nuisance.

Temporal Effects:

- There will be no positive or negative long term impacts as a result of the site for transhipment due to the length of the permission. Post-plan period any impacts will either not be valid or uncertain.

Proposed Mitigation Measures / Recommendations

- No mitigation measures have been recommended. Please see the specialist comments that have informed the Minerals and Waste Planning team's site selection methodology for suitable recommendations.

Secondary, Cumulative and Synergistic Effects of Central Area Sites

- There will be no secondary, cumulative or synergistic impacts through the selection of this site for transhipment.

4.10.11 Alternatives Considered for Transhipment Sites and the Reasons for their Rejection / Selection

In response to a 'call-for-sites' in 2005, numerous transhipment sites came forward from site promoters. It must be considered that all sites coming forward from this process be considered reasonable alternatives, prior to assessment. These sites have been fully appraised for the Pre-Submission Draft MLP in the same manner and to the same level of detail as the preferred site. For the detailed appraisals of these sites please see Annex E: Site Appraisals accompanying this report. The alternatives are detailed in the following table, along with a summary of the reasons for their non-selection.

Table 5: Alternative 'Non-Preferred' Transhipment Sites in the County

Site	Reasons for Non-Selection
Site D3 Sadds Wharf, Maldon	The site has seen a recent outline planning permission which was allowed on appeal for a mixed use development comprising 93 residential, office and leisure accommodation. As such, use of the site for a transhipment facility is considered to be undeliverable.
Site D5 Brightlingsea Quarry, Tendring	Significant negative impacts on biodiversity and landscape where the site cuts across the edge of a SSSI and an SPA. Further, proposals for new extraction sites at Thorrington (A21 and A34) are not Preferred Sites and as such the facility is unlikely to be deliverable.

Site D6 Ardleigh Rail Sidings	It is considered that it is not possible to safeguard this site for use as a transhipment site due to potentially significant impacts on proximity to sensitive uses and access that it was assessed could not be mitigated. In addition to this, the site is located immediately to the north of a large multi-period crop mark complex, one of the largest in Essex, which is designated as a scheduled monument.

4.11 Policy S10 Protecting and Enhancing the Environment and Local Amenity

4.11.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	+	+	+	+	0	+	+	0	+	0	0	0	0	0	+	+
Medium Term	+	+	+	+	0	+	+	0	+	0	0	0	0	0	+	+
Long Term	+	+	+	+	0	0	0	0	+	0	0	0	0	0	+	+

4.11.2 Significant Effects

There will be positive impacts on:

- biodiversity, water quality, minimising the risk of flooding, agricultural land and landscapes through appropriate consideration to the environment, appropriate mitigation measures where these do occur and opportunities have been taken to improve/enhance the environment;
- air quality and minimising greenhouse gas emissions through appropriate consideration to the environment in terms of traffic impacts and associated emissions and appropriate mitigation measures where these do occur.
- protecting human health and well-being, as well as minimising nuisance and the impacts on amenity through appropriate consideration to the public health and safety, amenity and quality of life of nearby residents, appropriate mitigation measures where these do occur and opportunities have been taken to improve/enhance the environment.

4.11.3 Temporal Effects

- No Temporal have been identified for this policy other than those associated with the working and post working.

4.11.4 Secondary, Cumulative and Synergistic Effects

- There may be a cumulative and long term strengthening of this policy across a number of environmental and social based sustainability criteria in conjunction with restoration and after-use proposals in Policy S12.
- There may be an indirect positive impact on road congestion and nuisance where traffic congestion is related to many negative environmental and social impacts and may be subject to improvements or mitigation measures.

- There will be no direct impact on the transportation of minerals and congestion; however there may be an indirect positive impact on this objective where traffic congestion is related to many negative environmental and social impacts.
- There will be positive long term impacts on climate change adaptation in accumulation with policies S12 and S3.

4.11.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage, numerous issues were looked at regarding the protection of the Essex environment and communities from the adverse impacts of minerals development; an option looked at the nature of mineral extraction proposals requiring Cumulative Impact Assessment (and further options including whether they should be needed for all mineral extraction proposals, only on mineral extraction proposals above a certain size, or only on mineral extraction proposals within certain areas of the County); another option looked at the protection of ground water resources and whether there should be a presumption against the location of mineral extraction, processing or recycling sites within Source Protection Zone 1, to afford protection to groundwater resources. Alternatives were developed based on the responses to these issues that were invited through the consultation period. At the Preferred Options Stage the preferred approach was to set out those environmental and health criteria that should be assessed as part of any application without specifying any weighting between different aspects of the environment, including noise, lighting and emissions to air, landscape and countryside, the Highway Network (including PROWs), historic and archaeological resources, the water environment including flooding, agricultural land grades 1, 2 or 3a, nature conservation particularly ecological or wildlife designations, safeguarding around airports and aerodromes, and the cumulative impacts of any of the above. This was deemed reasonable and progressed where the approach provided a basis for encouraging the best mineral schemes to developers and rejecting unacceptable planning applications. An alternative approach was to not set out any relevant policy; where development management and the consideration of applications would be informed by relevant national policy and guidance. This was deemed unreasonable and rejected as it would not give decision makers any guidance on issues of general relevance to Essex.

4.11.6 Impacts on Indicators

The implementation of Policy S10 is most likely to impact on the following SA/SEA indicators:

- Where relevant, the condition of the nearest:
    - SSSIs
    - Ancient and/or Species Rich Hedgerows
    - A Green Lane
    - Ancient Woodland
    - Cereal Field margins
    - Heathland
    - Old Orchards
    - Ramsar sites
    - SPAs
    - SACs
    - cSACs
    - LNR
    - NNR
    - LoWS
- Ecological status of rivers.
- Chemical status of rivers.

- Condition of water bodies (Water Framework Directive).
- Where relevant, the condition of the nearest (including its setting):
    - World Heritage Site
    - Scheduled Monument
    - Listed Building
    - Conservation Area
    - Historic Park or Garden
    - Historic Battlefield
    - Historic Environment Record
    - Conservation Areas
- Grade 1, 2 and 3 soils
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Residential developments within 100metres of sources of noise and vibration

4.11.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.12 Policy S11 Access and Transport

4.12.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	0	0	++	+	0	0	0	0	0	0	++	+	+
Medium Term	0	0	0	0	0	++	+	0	0	0	0	0	0	++	+	+
Long Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.12.2 Significant Effects

There will be positive impacts on:

- sustainable transport, minimising congestion, air quality and minimising greenhouse gas emissions where proposals for the transportation of minerals by rail and/ or water will be encouraged, reducing comparative road vehicle emissions; and
- minimising congestion, human well-being and minimising nuisances where the policy seeks to ensure that mineral transportation only occurs on the main road network and that mineral traffic would not travel through inhabited localities.

4.12.3 Temporal Effects

- No Temporal have been identified for this policy other than those associated with the working and post working.

4.12.4 Secondary, Cumulative and Synergistic Effects

- There will be positive cumulative impacts on safeguarding air quality, minimising transport emissions and sustainable transport objectives in conjunction with Policy S9.

4.12.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage, issues surrounding the transportation of minerals were explored under the headings, Sustainable Short Haul Transportation and Sustainable Long Haul Transportation within the plan's core objectives. An additional option looked at the promotion of more sustainable transportation of mineral by road. These were considered the only reasonable approaches in order to deliver sustainable transportation. At the Preferred Options Stage, transport was deemed a development management issue, and a hierarchy of preference for aggregate transportation from a mineral site was listed. This was deemed reasonable as although the MPA would have liked to maximise the modal share for water borne and rail freight, realistically aggregates will continue to need to be carried by road to serve the County markets. No alternatives were considered reasonable or deliverable by a MPA.

4.12.6 Impacts on Indicators

The implementation of Policy S11 is most likely to impact on the following SA/SEA indicators:

- Number of developments where a green travel plan is submitted as a condition of development.
- Number of vehicle movements generated by site operation.
- Congestion ratios of relevant routes.
- Tonnage transported by means other than road.
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Location of Strategic Lorry Routes.

4.12.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

4.13 Policy S12 Mineral Site Restoration and After Use

4.13.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	+	+	0	0	0	+	0	0	0	0	0	0	0	0
Medium Term	0	0	+	+	0	0	0	+	0	0	0	0	0	0	0	0
Long Term	++	++	+	+	0	0	+	+	+	0	0	0	++	0	+	++

4.13.2 Significant Effects

There will be positive impacts on:

- minimising the risk of flooding in accordance where proposals shall demonstrate the best available techniques to ensure that flood risk is not increased;
- encouraging the sustainable use of land and protection of soils where the policy ensures that proposals shall demonstrate the best available techniques to ensure that soil resources are retained, conserved and handled appropriately for site operations and restoration; and
- the historic environment where supporting text highlights that there may be some element of heritage conservation, where relevant, involved in after-use.

4.13.3 Temporal Effects

- There will be significant long term impacts on biodiversity where the policy seeks to provide biodiversity gain and where possible restoration should contribute towards achieving a possible 200ha of new habitat creation from preferred sites. In addition to this, biodiversity enhancement will be integrated into all development sites.
- There will be significant long term positive impacts on water resources where hydrological and hydro-geological conditions are preserved, maintained, and where appropriate, managed to prevent adverse impacts on the adjacent land's groundwater conditions and elsewhere. In addition to this, proposals shall demonstrate that there will not be an unacceptable adverse impact on groundwater conditions, surface water drainage and the capacity of soils for future use and will have regard to any relevant Surface Water or Shoreline Management Plans.
- There will be positive impacts on climate change adaptation in the long term where supporting text highlights that there may be some element of adaptation to climate change impacts, where relevant, in after-use.
- Although landscape implications are not specifically mentioned within the policy, supporting text highlights that some element of landscape enhancement will be sought, where relevant, in after-use.
- There will be significant positive impacts in the long term on achieving beneficial restoration and aftercare of mineral sites through a detailed policy that seeks to establish significant environmental and social gain through minerals development restoration and after-use.
- There will be long term positive impacts on human health and well being and amenity in those instances where restoration is to amenity or recreational after-use.

4.13.4 Secondary, Cumulative and Synergistic Effects

- There will be positive cumulative impacts on a number of environmental and social objectives in conjunction with policies S10 and DM1 in the short-medium term.
- There will be positive synergistic impacts on biodiversity, restoration and after-use and amenity in conjunction with Policy S6 regarding the opportunities for after-use and restoration from sand and gravel extraction.

4.13.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage, options to achieve wider sustainability objectives through site restoration and after-use were explored. Alternative approaches were listed as applying the Living Landscape approach to identify opportunities, requiring clear evidence that restoration and after-use proposals have drawn from landscape and biodiversity survey information, requiring mineral extraction applications include a survey of PROW in the vicinity of the site, and employing additional or other measures. These were all deemed reasonable alternatives where they all seek to incorporate environmental or social benefits from restoration and after-use. At the Preferred

Options Stage the preferred approach was to provide for multi-functionality in after-use schemes while achieving a minimum 200ha of BAP priority habitat creation. This approach was deemed reasonable due to many preferred sites being located on versatile soils and this has to be taken into account alongside other sustainability considerations. Two alternatives were explored. Alternative Approach 1 looked further at a Living Landscape approach with the aim of bringing fragmented landscapes back to life. This was considered a reasonable alternative as it looked to secure significant biodiversity benefits. Alternative Approach 2 looked at prioritising habitat restoration and enhancement on a case by case basis, with no specific target or direct link with other national or local initiatives. This was considered a reasonable alternative where it addressed restoration on a site-by-site basis.

4.13.6 Impacts on Indicators

The implementation of Policy S12 is most likely to impact on the following SA/SEA indicators:

- Landscape sensitivity
- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction

4.13.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working as detailed in the above ‘Progress through the SA/SEA Process’ section for this policy.

5 Appraisal of The Minerals Provision Figure

5.1 Introduction

The 'SEA of Revocation of East of England Regional Strategy' (July, 2012), appraises the retention and revocation of RS Policy M1: Land Won Aggregates and Rock. This policy takes the National and Regional Guidelines of Aggregate Minerals in England 2001-2016 and apportions requirements for a specific amount of aggregate minerals to each MPA, taking into account the advice of the Aggregates Working Party. The alternative of 'Revocation' requires aggregate minerals to be determined by average sales as specified in paragraph 145 of the NPPF. The 'SEA of Revocation of East of England Regional Strategy' (July, 2012) states that, 'The effects of revocation of this policy are likely to be no different than that for retention as there will still be a need for each authority to plan for aggregate extraction.'

This section sets out the outcome of the Sustainability Appraisal of the plan's identified primary mineral provision over the plan period, together with the reasonable alternatives.

5.2 Sub National Aggregate 'Apportionment'

This Plan has been prepared to provide 4.31mtpa of sand and gravel during the plan-period, to be provided by existing sites with permission and Preferred Sites proposed by the Plan in site-specific terms. The 4.31mtpa provision figure for the County is consistent with the sub-national aggregate apportionment figure and with the policy approaches of the other MPAs in the East of England.

The Essex provision figure of 4.31 mtpa for sand and gravel equates to a total plan provision of 77.58 mtpa over the eighteen year plan-period of 2012-2029 inclusive (excluding existing permissions). After deductions for existing permitted reserves at the base date (37.014 million tonnes at 31 Dec. 2011) (6), and planning permissions for additional sites granted after the base date, the planning requirement for primary extraction from new site allocations on Preferred Sites in Essex is estimated at 40.67 million tonnes.

Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	/	/	/	/	++	/	/	/	/	0	+	/	0	/	/	/
Medium Term	/	/	/	/	++	/	/	/	/	0	+	/	0	/	/	/
Long Term	+	/	/	/	0	0	/	/	-	0	0	0	+	0	+	+

Significant Effects

There will be a significantly positive impact on:

- the minerals supply hierarchy where the plan provision figure seeks to enable a supply of mineral products to meet the needs of the local economy and also safeguards key mineral resources for local / national infrastructure projects.

There will be a positive impact on:

- economic development where the planned mineral provision seeks to respond to economic growth over the plan period.

There will be uncertain impacts on:

- sustainable mineral use however, where it could be perceived that mineral provision would be at a level that may not be conducive to maximising the recycling of aggregates;

- biodiversity, water quality and resources, flooding, soils, air quality, the historic environment and landscapes from the tonnage specified for primary extraction. There is the potential for negative impacts through the identification of sites to meet the identified provision; however these would be realised on a site by site basis, and cumulatively over a network of Preferred Sites;
- greenhouse gas emissions and climate change, health and well-being and nuisance and amenity dependant on individual site proposals;
- the sustainable use of land where the identification of preferred sites can be seen to equally ensure that reserves are available in a best case future economic scenario, but also potentially identify a higher allocation than may be required locally in a worst case future economic scenario;
- transport where although provision and the identification of Preferred Sites is likely to decrease mineral miles to support new development, there is still uncertainty as to how much of the tonnage specified will be required in the plan area, and whether this is conducive to sustainable transportation.

Temporal Effects

- Post minerals working, there will be a positive impact associated with restoration and after-use and in light of this, also biodiversity, amenity and health.
- A negative long term impact will be realised for landscapes where sites would require quantities of inert waste that surpass those in the plan area for restoration to anything other than low level.
- There will be uncertain long term impacts on water quality / resources, flooding, soils and the historic environment where impacts are dependant on site specifics. It is possible that these environmental factors could be negatively impacted upon by the specified mineral provision in the plan area, without effective mitigation and a robust site selection methodology.
- Uncertain impacts in the long term have been assessed regarding climate change adaptation where impacts are dependant on specific site proposals and conditions.
- There will be no impact on minerals supply, air quality, economic development, sustainable mineral use and transportation where these criteria are only relevant to the period of minerals working in this instance.

Secondary, Cumulative and Synergistic Effects

- It is possible that there will be negative impacts in the short-medium term on landscapes and biodiversity with the extraction of minerals from the number of sites required, where issues of character and networks of habitats can be seen to accumulate.

Impacts on Indicators

The implementation of Policy S6 is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Number of permissions with an associated site restoration plan.
- State of the site prior and post extraction
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.

- Facilities within 100metres of residential areas
- Residential developments within 100metres of sources of noise and vibration

Proposed Mitigation Measures / Recommendations

A robust site selection methodology and the process of validating applications will seek to minimise negative impacts. It is important however that these are suitably non-restrictive and result in the best possible sites coming forward. In addition it is important that negative impacts are mitigated on a site by site basis, and that as specified by legislation, Environmental Impact Assessments accompany applications for mineral development.

5.3 Alternative Considered

NPPF Aggregate Supply Provision – Land Won Sand and Gravel Sales (10 year rolling average)

The NPPF states that the amount of mineral to be provided annually is to be based on a rolling ten year local sales average whilst taking other local information into account. A ten year rolling average of sales is considered to be a valid approach for locally assessing an apportionment figure by the NPPF for two main reasons. Firstly, the time period is short enough so that overly historic sales are not taken into account. Historic sales are broadly more likely to be higher than more recent sales due to improvements in construction technologies and a stronger focus on re-using recycled and secondary material. The period is also considered long enough to ensure that short-term fluctuations in sales do not mask a true evaluation of what is considered to be a suitable amount of mineral to provide for.

The NPPF states that minerals planning authorities should plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregate Assessment, either individually or jointly by agreement with another or other mineral planning authorities. The planned provision of minerals should be calculated by taking a rolling average of the previous ten year sales as a starting point.

As specified in the Essex Local Aggregate Assessment (2012), Site Operator Survey Returns and Estimates (2011) identify that the average annual sales for the years 2002-2011 is 3.76 million tonnes per annum for Greater Essex (Essex, Southend-on-Sea and Thurrock).

Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	/	/	/	/	++	/	/	/	/	0	+	+	0	/	/	/
Medium Term	/	/	/	/	+	/	/	/	/	0	/	+	0	/	/	/
Long Term	+	/	/	/	0	0	/	/	-	0	0	/	+	0	+	+

Significant Effects

There will be a significantly positive impact on:

- the minerals supply hierarchy where the plan provision figure seeks to enable an adequate supply of mineral products to meet the needs of the local economy at present. Impacts are limited in the medium term however, in line with provision responding more directly to the trend of sales over the past 10 years that may not be sustained for the length of the plan.

There will be a positive impact on:

- economic development in the short term where minerals supply will reflect demand under sales based provision. In the medium term however there will be an uncertain impact on

economic development where the management and planning of mineral provision may not respond to potential increased economic growth over the plan period.

- sustainable mineral use where primary mineral provision could be at a level conducive to requiring an increase in the recycling of aggregates.

There will be uncertain impacts on:

- biodiversity, water quality and resources, flooding, soils, air quality, the historic environment and landscapes from this approach to primary extraction. There will also be uncertain impacts on green house gas emissions and climate change, health and well-being and nuisance and amenity dependant on individual site proposals;
- a sustainable use of land where reserves may not be adequately identified at the plan-making / site selection stage should demand increase over the plan period; leading to uncertainty in the industry; and
- transport where the provision set by the 10 year rolling average of sales may or may not respond well to locations of growth in the plan area at the identified level of provision.

Temporal Effects

- Post minerals working, there will be a positive impact associated with restoration and after-use and in light of this, also biodiversity, amenity and health.
- A negative long term impact will be realised for landscapes however, where sites would require quantities of inert waste that surpass those in the plan area for restoration to anything other than low level.
- There will be uncertain long term impacts on water quality / resources, flooding, soils and the historic environment where impacts are dependant on site specifics. It is possible that these environmental factors could be negatively impacted upon by the specified mineral provision in the plan area, without effective mitigation and a robust site selection methodology.
- There will be uncertain impacts on sustainable mineral use in the long term at this stage. It is possible that provision based on sales could see an increase in permanent strategic aggregate recycling facilities being required in the plan area should there be an economic upturn over the plan period.
- Uncertain impacts in the long term have also been assessed regarding climate change adaptation where impacts are dependant on specific site proposals and conditions.
- There will be no impact on minerals supply, air quality, economic development and transportation where these criteria are only relevant to the period of minerals working in this instance.

Secondary, Cumulative and Synergistic Effects

- There will be no significant secondary, cumulative or synergistic effects as a result of this option. It is possible that there will be negative impacts in the short-medium term on landscapes and biodiversity with the extraction of minerals from the number of sites required, where issues of character and networks of habitats can be seen to accumulate; however these are not as likely as through the sub-national aggregate apportionment figure.

Impacts on Indicators

The implementation of Policy S6 is most likely to impact on the following SA/SEA indicators:

- Tonnage recycled.
- Tonnage landfilled.
- Number of permissions with an associated site restoration plan.

- State of the site prior and post extraction
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Facilities within 100metres of residential areas
- Residential developments within 100metres of sources of noise and vibration

Proposed Mitigation Measures / Recommendations

A robust site selection methodology and the process of validating applications will seek to minimise impacts. It is important however that these are suitably non-restrictive and result in the best possible sites coming forward. In addition it is important that negative impacts are mitigated on a site by site basis, and that as specified by legislation, Environmental Impact Assessments accompany applications for mineral development.

Reasons for Non-Selection

Recent sales figures in the plan area are below the sub-national apportionment figure. This is in reflection of a recessionary period in the national economy and is untypical in the context of historic performance in recent decades.

The NPPF and the Guidance on MASS document allows an MPA to take other relevant local factors into account when determining their minerals provision over the lifetime of their Minerals Local Plan and as such are not bound to accept the ten year average of rolling sales if evidence should point to the contrary.

6 Preferred Minerals Sites for Primary Mineral Extraction

6.1 Introduction

The MLP sets out the plan requirements of the Provision of Primary Minerals for the County for the 18 year period covering 1st January 2012 to 31st December 2029. The provision made ensures an adequate and steady supply of minerals for land won sand and gravel and silica sand. In addition to this, landbanks are also required for industrial minerals in line with paragraph 146 of the NPPF.

The appraisal of Policies P1 and P2 in this Environmental Report correspond to the appraisals of the individual preferred sites as listed in Table 5 (sand and gravel) and Table 6 (industrial minerals) of the MLP. Appraisals of the minerals sites for primary mineral extraction have followed the methodology as detailed in Annex E: Site Appraisals, which accompanies this report.

The methodology of site appraisals in the SA/SEA is independent from that of the MLP's site assessment and selection methodology. Despite this, some of the information and evidence base gathered for the MLP site assessment and selection methodology has been used to inform that of the SA/SEA site appraisals.

In progressing from the Preferred Approach stage to the Pre-Submission Draft stage, the Minerals and Waste Planning team revised their site assessment and selection methodology in light of:

- Assessing sites for their acceptability for low-level restoration, based on evidence in the emerging Waste Local Plan's Capacity Gap Report regarding tonnages of suitable inert materials.
- Preferred Approach MLP consultation responses regarding sites having to be accepted in the south and west of the County that perform less well, on environmental grounds, than sites located elsewhere in the County that haven't been selected.
- A need to clearly establish environmental acceptability on an even footing across all sites with those assessed as being unacceptable ruled out.
- Limiting more minor cumulative adverse environmental impacts where it can be demonstrated that impacts could be satisfactorily avoided, mitigated or compensated for.

As a result of this change in methodology, all previously preferred and non-preferred sites in the Preferred Approach MLP have been re-assessed for the Pre-Submission Draft stage MLP by the Minerals and Waste Planning team. As a result of this, the SA/SEA has also undertaken a process to re-appraise all relevant sites in those instances where the MLP site assessment and selection methodology has been used to inform that of the SA/SEA site appraisals.

The rest of this chapter details the appraisal of the preferred sites for primary sand and gravel extraction and industrial minerals of the Pre-Submission Draft MLP. In addition to this, the changes made from the Preferred Approach MLP site appraisals are highlighted, as well as those from the appraisal of the non-preferred alternative sites.

6.2 Policy P1 Preferred Sites for Primary Sand and Gravel Extraction

6.2.1 North-Eastern Sites

As stated in The Strategy, the majority of the sites will be located in the central and north-eastern parts of the County to support key areas of growth and development and reduce mineral miles. The following sites are preferred sites for sand and gravel in the north-eastern area of the County.

- A3 Bradwell Quarry, Rivenhall Airfield
- A4 Bradwell Quarry, Rivenhall Airfield
- A5 Bradwell Quarry, Rivenhall Airfield
- A6 Bradwell Quarry, Rivenhall Airfield
- A7 Bradwell Quarry, Rivenhall Airfield
- A13 Colchester Quarry – Five Ways Fruit Farm, Stanway
- A20 Sunnymead, Alresford
- A31 Maldon Road, Birch
- B1 Martells Quarry Slough Farm, Ardleigh Area 1

Table 6: Short-Medium Term Impacts of the Preferred Sites for Sand and Gravel in the North-Eastern Area of the County

Preferred Sites / SA/SEA Objective	A3	A4	A5	A6	A7	A13	A20	A31	B1
1 Biodiversity	1	1	1	1	1	1	-1	1	1
2 Water quality / resources	1	1	1	1	1	1	-1	-1	1
3 Flooding	1	1	1	1	1	1	1	-1	1
4 Land / Soils	-2	-2	-2	-2	-2	-2	-1	-1	-2
5 Minerals supply hierarchy	0	0	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	/	/	/	/
7 GHG and climate change	/	/	/	/	/	/	/	/	/
8 Historic environment	-1	-1	-1	-1	-1	-1	-1	-1	-1
9 Landscapes	1	1	1	-1	-1	1	-1	-1	1
10 Community participation	0	0	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/	/	/
12 Sustainable mineral use	0	0	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1	1	1
14 Transportation	1	1	1	1	1	1	1	1	1
15 Health and well-being	/	/	/	-1	-1	-1	-1	-1	-1
16 Nuisance and amenity	/	-1	-1	-1	-1	-1	-1	-1	-1

As can be seen from the above table, there will be minimal significant impacts on the sustainability objectives from extraction at any of the sites. Although Objective 4 regarding soils has a number of

significantly negative impacts highlighted, it is acknowledged that these sites are not the most versatile 'grade 1' soils, but are 'grade 2' soils. As such, the scoring for these objectives should not mean that the site should not be extracted.

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Biodiversity
- Water resources
- Flooding
- Landscapes
- Restoration and After-use
- Transportation

Although it is acknowledged that many of these can be mitigated, negative impacts have been highlighted for the majority of sites regarding:

- The historic environment
- Health and well-being
- Nuisance and amenity

Table 7: Long Term Impacts of the Preferred Sites for Sand and Gravel in the North-Eastern Area of the County

Preferred Sites / SA/SEA Objective	A3	A4	A5	A6	A7	A13	A20	A31	B1
1 Biodiversity	1	1	1	1	1	1	1	1	/
2 Water quality / resources	0	0	0	0	0	0	1	1	0
3 Flooding	/	/	/	/	/	/	/	/	/
4 Land / Soils	-1	-1	-1	-1	-1	-2	-1	0	-1
5 Minerals supply hierarchy	0	0	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	/	/	/	/
7 GHG and climate change	/	/	/	/	/	/	/	/	/
8 Historic environment	/	/	/	-1	/	/	/	-1	/
9 Landscapes	/	/	/	/	/	/	/	/	0
10 Community participation	0	0	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/	/	/
12 Sustainable mineral use	0	0	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1	1	1
14 Transportation	0	0	0	0	0	0	0	0	0
15 Health and well-being	/	/	/	/	/	/	/	/	/
16 Nuisance and amenity	0	0	1	0	1	1	/	1	/

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Restoration and After-use

There are very few negative impacts resulting from the restoration proposals for the sites. Despite this, negative impacts have been highlighted for the majority of sites regarding:

- Soils / agricultural land

There will be 4 cases of restoration to amenity, which will have positive impacts on Objective 16.

6.2.2 Secondary, Cumulative and Synergistic Effects of North Eastern Area Sites

- The north-eastern preferred sites will have no secondary or synergistic impacts through their selection. There will be positive cumulative impacts associated with minerals supply, and a desire to minimise the transportation of minerals.

6.2.3 Alternatives Considered for North-eastern Area Sites and the Reasons for their Rejection / Selection

In response to a series of 'call-for-sites' requests for sand and gravel extraction, starting in 2005, numerous sites came forward from site promoters. It must be considered that all sites coming forward from this process be considered reasonable alternatives, prior to assessment. All of these sites for which there is a required landbank were fully appraised at the Preferred Approach stage MLP and have been fully re-appraised for the Pre-Submission Draft stage MLP in the same manner and to the same level of detail as the preferred sites. For the detailed appraisals of these sites at both the Preferred Approach and Pre-Submission Draft stages, please see Annex E: Site Appraisals accompanying this report. The alternatives are detailed in the following table, along with a summary of the reasons for their non-selection.

Table 8: Alternative 'Non-Preferred' Sites for Primary Sand and Gravel Extraction in the North-Eastern Area of the County

Site	Reasons for Non-Selection
A1 Appleford and Colemans Farm, Little Braxted Lane, Witham	Unacceptable adverse impact on international or national historic environment designation.
A2 Bradwell Quarry, Rivenhall Airfield	Planning permission (ESS/32/11/BTE) for sand and gravel extraction was granted in February 2012 for the majority of site A2.
A8 Bradwell Quarry, Rivenhall Airfield	Issues with timeframes and the site not being contiguous with current workings.
A10 Covenbrook Hall Farm, Stisted	The site's proximity to the Haven gateway, Chelmsford and West Essex is outweighed by the concentration of sites within this stretch of the A120 between Braintree and Colchester. In addition to this, the Highways Agency needs demonstration that the A120 trunk road can continue to operate safely and efficiently.
A11 Tile Kiln, Valley Farm, Sible Hedingham	Significant negative impact on landscape that is not capable of mitigation
A12 Colchester Quarry - Bellhouse Farm South, Stanway	Significant negative impact on landscape that is not capable of mitigation
A14 Fingringhoe Quarry, Ballast Quay, Fingringhoe	Significant negative impact on landscape assessed in the Pre-Submission re-appraisal that is not capable of mitigation. There is also likely to be a high adverse visual impact for a

	number of receptors.
A15 Admirals Farm, Great Bentley	There is a concentration of sites within the Haven Gateway and other sites are closer to Colchester, a centre for growth. In addition to this, 20% of the site is within 250m of the Great Bentley defined settlement boundary, including a Conservation Area, which would not be suitable for low level restoration.
A16 Church Farm, Alresford	Site would require the continued use of Keelers Lane which is approximately 5.2 metres wide. This is insufficient width to accommodate a regular two way flow of HGV traffic and there is evidence of verge/carriageway edge damage and erosion evident on site.
A17 Frating Hall Farm, Frating	There is a concentration of sites within the Haven Gateway and other sites are closer to Colchester, a centre for growth. In addition to this, infilling would be needed to protect a Listed Building, meaning the site is not suitable for low level restoration.
A18 Gurnhams, Little Bentley	There is a concentration of sites within the Haven Gateway and other sites are closer to Colchester, a centre for growth. In addition to this, infilling would be needed to protect a Listed Building, meaning the site is not suitable for low level restoration.
A19 Lodge Farm, Alresford	Significant negative impact on landscape that is not capable of mitigation. In addition to this the site would be contrary to transport policy.
A21 Thorrington Hall Farm, Thorrington	There would also be an unacceptable adverse impact on international or national historic environment designation. There is also likely to be a high adverse to major adverse visual impact for a large number of receptors.
A28 Fingringhoe Quarry – North, Colchester	Infilling would be needed to protect village setting which is not compatible with low level restoration.
A29 Fingringhoe Quarry – West, Colchester	Significant negative impact on landscape that is not capable of mitigation
A30 Fingringhoe Quarry – South, Colchester	Significant negative impact on landscape that is not capable of mitigation
A34 Thorrington Hall Farm	There is a concentration of sites within the Haven Gateway and other sites are closer to Colchester, a centre for growth. In addition to this, 10% of the site is within 250m of the Thorrington defined settlement boundary.
A42 Ardleigh Rail, Ardleigh	The site is contrary to transport policy, and concerns surrounding the access arrangements on Slough Lane. There would also be an unacceptable adverse impact on a Scheduled Monument designation. In addition to this there

	would be a highly adverse visual impact upon many receptors.
A43 Parkgate Farm, Silver End	The operators of Bradwell Quarry are not willing for the site to be an extension at this time. In addition, there is no agreement for the Promoter of the site to utilise the access of the existing Bradwell Quarry to the A12. The site would also have a highly adverse visual impact upon many receptors, and a number of properties are within 100m of the indicative extraction area.
A45 Ardleigh Rail 2	The site is contrary to transport policy, and concerns surrounding the access arrangements on Slough Lane. There would also be a highly adverse visual impact upon many receptors.

6.2.4 Central Area Sites

As stated in The Strategy, the majority of the sites will be located in the central and north-eastern parts of the County to support key areas of growth and development and reduce mineral miles. The following sites are preferred sites for sand and gravel in the central area of the County.

- A9 Broadfield Farm, Rayne
- A22 Little Bullocks Farm, Little Canfield
- A23 Little Bullocks Farm, Little Canfield
- A38 Blackleys Quarry, Great Leighs
- A39 Blackleys Quarry, Great Leighs
- A46 Land at Colemans Farm
- A40 Land at Shellows Cross Farm

Table 9: Short-Medium Term Impacts of the Preferred Sites for Sand and Gravel in the Central Area of the County

Preferred Sites / SA/SEA Objective	A9	A22	A23	A38	A39	A46	A40
1 Biodiversity	1	1	1	1	1	/	1
2 Water quality / resources	-1	-1	1	1	1	-1	-1
3 Flooding	1	-1	1	1	1	-1	1
4 Land / Soils	-2	-2	-2	-1	-1	-2	-1
5 Minerals supply hierarchy	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	/	/
7 GHG and climate change	/	/	/	/	/	/	/
8 Historic environment	-1	1	1	-1	-1	-1	-1
9 Landscapes	-1	-1	-1	1	-1	-1	-1
10 Community participation	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/

12 Sustainable mineral use	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1
14 Transportation	1	1	1	1	1	-1	1
15 Health and well-being	-1	/	-1	-1	-1	-1	-1
16 Nuisance and amenity	-1	/	-1	-1	-1	-1	-1

As can be seen from the above table, there will be minimal significant impacts on the sustainability objectives from extraction at any of the sites. Although Objective 4 regarding soils has a number of significantly negative impacts highlighted, it is acknowledged that these sites are not the most versatile 'grade 1' soils, but are 'grade 2' soils. As such, the scoring for these objectives should not mean that the site should not be extracted.

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Biodiversity
- Flooding
- Restoration and After-use
- Transportation

Although it is acknowledged that many of these can be mitigated, negative impacts have been highlighted for the majority of sites regarding:

- Water resources
- The historic environment
- Landscapes
- Health and well-being
- Nuisance and amenity

Table 10: Long Term Impacts of the Preferred Sites for Sand and Gravel in the Central Area of the County

Preferred Sites / SA/SEA Objective	A9	A22	A23	A38	A39	A46	A40
1 Biodiversity	1	1	1	/	/	1	1
2 Water quality / resources	0	0	0	0	0	1	0
3 Flooding	/	/	/	/	/	/	/
4 Land / Soils	-1	-1	-1	1	/	-2	-1
5 Minerals supply hierarchy	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	0	/
7 GHG and climate change	/	/	/	/	/	/	/
8 Historic environment	/	/	/	/	-1	/	/
9 Landscapes	/	/	/	/	/	-1	/
10 Community participation	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/

12 Sustainable mineral use	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1
14 Transportation	0	0	0	0	0	0	0
15 Health and well-being	/	/	/	/	/	1	/
16 Nuisance and amenity	1	1	1	0	0	1	0

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Biodiversity
- Restoration and After-use
- Nuisance and Amenity

There are very few negative impacts resulting from the restoration proposals for the sites. Despite this, negative impacts have been highlighted for the majority of sites regarding:

- Soils / agricultural land

6.2.5 Secondary, Cumulative and Synergistic Effects of Central Area Sites

- The central area preferred sites will have no secondary or synergistic impacts through their selection. There will be positive cumulative impacts associated with promoting the minerals supply hierarchy, creating a network of habitats in restoration schemes and also providing amenity in after-use.

6.2.6 Alternatives Considered for Central Area Sites and the Reasons for their Rejection / Selection

In response to a series of 'call-for-sites' requests for sand and gravel extraction, starting in 2005, numerous sites came forward from site promoters. It must be considered that all sites coming forward from this process be considered reasonable alternatives, prior to assessment. All of these sites for which there is a required landbank were fully appraised at the Preferred Approach stage MLP and have been fully re-appraised for the Pre-Submission Draft stage MLP in the same manner and to the same level of detail as the preferred sites. For the detailed appraisals of these sites at both the Preferred Approach and Pre-Submission Draft stages, please see Annex E: Site Appraisals accompanying this report. The alternatives are detailed in the following table, along with a summary of the reasons for their non-selection.

Table 11: Alternative 'Non-Preferred' Sites for Primary Sand and Gravel Extraction in the Central Area of the County

Site	Reasons for Non-Selection
A24 Easton Park, Great Dunmow	Site has since gained planning permission and is no longer part of the site allocation process.
A35 Tyndales Farm, Danbury	A large amount of properties lie within 250m of the site and it is not considered that this visual impact could be satisfactorily mitigated in keeping with the landscape quality.
A36 Olivers Nurseries, Witham	Significant negative impact in that the site is unable to achieve satisfactory highway access.
A37 Alsteads Farm, Little Waltham	Significant negative impact on landscape that is not capable of mitigation.

A44 Whitehouse Farm, Woodham Walter	Significant negative impact on landscape that is not capable of mitigation.

6.2.7 Additional Alternatives for Primary Sand and Gravel Extraction Sites and the Reasons for their Rejection / Selection

In response to a 'call-for-sites' for sand and gravel extraction in 2005, numerous sites came forward from site promoters in the County outside those areas that could be defined as central or north-eastern. It must be considered that all sites coming forward from this process be considered reasonable alternatives, prior to assessment. All of these sites for which there is a required landbank were fully appraised at the Preferred Approach stage MLP and have been fully re-appraised for the Pre-Submission Draft stage MLP in the same manner and to the same level of detail as the preferred sites. For the detailed appraisals of these sites at both the Preferred Approach and Pre-Submission Draft stages, please see Annex E: Site Appraisals accompanying this report. The alternatives are detailed in the following table, along with a summary of the reasons for their non-selection.

Table 12: Alternative 'Non-Preferred' Sites for Primary Sand and Gravel Extraction in the Western Area of the County

Site	Reasons for Non-Selection
A25 Elsenham Quarry, Elsenham	Significant negative impact on landscape that is not capable of mitigation.
A26 Frogs Hall Farm, Takeley	Significant negative impact in that the site is unable to achieve satisfactory highway access.
A27 Land at Ugley, Ugley	The site would potentially require significant infilling (est>500,000t) to achieve satisfactory restoration.
A33 Armigers Farm, Thaxted	Significant negative impact in that the site is unable to achieve satisfactory highway access.
A41 Patch Park Farm, Abridge	Significant negative impact on landscape that is not capable of mitigation. There would also be a highly adverse visual impact on a number of receptors located on the same level as the site and a highly adverse visual impact on a number of receptors on higher land.

6.3 Policy P2 Preferred Sites for Industrial Minerals

6.3.1 Impact on SA/SEA Objectives

		Sustainability Objective															
Site		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B1	SM	1	1	1	-2	0	/	/	-1	-1	0	/	0	1	1	-1	-1
	L	/	0	/	-1	0	/	/	/	0	0	/	0	1	0	/	/

Significant Effects

- Site B1 will have positive impacts associated with biodiversity, water resources, flood risk, restoration and transportation. There will be negative impacts associated with the historic environment, landscape, health and well-being and nuisance; although it is acknowledged that many of these impacts can be mitigated. A significant negative impact has been

awarded due to a loss of grade 2 agricultural soil; although it is acknowledged that this should not prevent the site from being extracted.

Temporal Effects

- Post-working of the site will have positive impacts associated with restoration and after-use. A less negative impact will be realised on agricultural land as per the restoration proposals.

Proposed Mitigation Measures / Recommendations

- No mitigation measures have been recommended. Please see the specialist comments that have informed the Minerals and Waste Planning team's site selection methodology for suitable recommendations.

6.3.2 Secondary, Cumulative and Synergistic Effects of Industrial Minerals Sites

- The industrial minerals site will have no secondary, cumulative or synergistic impacts through its selection.

6.3.3 Alternatives Considered for Industrial Minerals Sites and the Reasons for their Rejection / Selection

In response to a series of 'call-for-sites' requests for industrial mineral extraction, starting in 2005, numerous sites came forward from site promoters. It must be considered that all sites coming forward from this process be considered reasonable alternatives, prior to assessment. All of these sites for which there is a required landbank were fully appraised at the Preferred Approach stage MLP and have been fully re-appraised for the Pre-Submission Draft stage MLP in the same manner and to the same level of detail as the preferred sites. For the detailed appraisals of these sites at both the Preferred Approach and Pre-Submission Draft stages, please see Annex E: Site Appraisals accompanying this report. The alternatives are detailed in the following table, along with a summary of the reasons for their non-selection.

Table 13: Alternative 'Non-Preferred' Sites for Industrial Minerals in the County

Site	Reasons for Non-Selection
B2 Slough Farm, Ardleigh Area 2	Now has planning permission (ESS/18/07/TEN).
B3 Park Farm, Ardleigh Area 3	There is a current lack of control over the site and an inability to work the within the plan period.
C2 Bulmer Brickfields, Bulmer	Extraction would not commence until after extraction from the existing permitted area and all necessary restoration phases have been completed. Check C2 has planning permission with GS….

7 Development Management Policies

7.1 Introduction

Development management policies in this context are the apparatus by which planning applications are determined and planning issues enforced by the Minerals Planning Authority. They use these policies not just to control the effects of unrestricted development, but as a proactive tool for managing development opportunities.

7.2 Policy DM1 Development Management Criteria

7.2.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	+	+	+	+	0	+	+	+	+	0	0	0	0	+	+	+
Medium Term	+	+	+	+	0	+	+	+	+	0	0	0	0	+	+	+
Long Term	+	+	+	+	0	+	+	+	+	0	0	0	+	+	+	+

7.2.2 Significant Effects

There will be positive impacts on:

- biodiversity where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact upon the natural and geological environment including biodiversity and ecological conditions for habitats and species;
- water resources and quality where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on the quality and quantity of water within water courses, groundwater and surface water;
- flood risk minimisation and quality where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on surface water and drainage systems;
- the protection of soils including the best and most versatile agricultural land where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on the soil resource from the best and most versatile agricultural land;
- air quality where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on air quality and the capacity of the highway network;
- minimising greenhouse gas emissions where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on air quality and the capacity of the highway network;
- the historic environment where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on the historic environment including heritage and archaeological assets.;

- There will be positive impacts on landscapes where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on the appearance, quality and character of the landscape, countryside and visual environment and any local features that contribute to its local distinctiveness;
- minimising road congestion where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on the capacity of the highway network; and
- human health and well-being, and minimising public nuisance and effects on amenity where proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact on the health of local residents adjoining the site, the safety and capacity of the highway network, Public Open Space, the definitive public rights of way network and outdoor recreation facilities and also local amenity, including demonstrating that the impacts of noise levels, air quality and dust emissions, light pollution and vibration are acceptable.

7.2.3 Temporal Effects

- There will be positive long term impacts on restoration and aftercare where environmental conditions are not disrupted, or impacts are minimised that may jeopardise the validity or quality of restoration schemes and after-uses.

7.2.4 Secondary, Cumulative and Synergistic Effects

- There will be no secondary, cumulative or synergistic impacts on this policy from other policies in the MLP as much depends on the validation of individual proposals and their conformity with the criteria.

7.2.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage effective methods to protect public health from mineral extraction and processing were looked at, including the requirement of an HIA and whether this should be requested over specific tonnages, proposals, or on a case by case basis. These were deemed as reasonable alternatives where associated public health impacts could be seen to be more prevalent at different scales of operations. Further ‘Issues’ looked at the establishment of criteria to prevent and mitigate the effects of noise and dust on receptors (including soils and water) from minerals developments. These were deemed reasonable alternatives in line with accruing environmental and social mitigation protection and benefits. At the Preferred Options Stage the preferred approach looked at setting out those environmental and health criteria that should be assessed as part of any application without specifying any weighting between different aspects of the environment. This was deemed as a reasonable approach to prevent the likely environmental and health impacts associated from minerals development.

7.2.6 Impacts on Indicators

The implementation of Policy DM1 will impact on all the environmental and social SA/SEA indicators as specified in the Sustainability Framework (Annex C), where the policy seeks to protect environmental and social indicators and receptors from the potential impacts from minerals development.

7.2.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

7.3 Policy DM2 Planning Conditions and Legal Agreements

7.3.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long Term	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

7.3.2 Significant Effects

- There will be no additional impacts on any of the sustainability objectives, where the policy is essentially raising awareness of the use of conditions and obligations required for minimising impacts from proposals and delivering a number of the other policies.

7.3.3 Temporal Effects

- No Temporal have been identified for this policy.

7.3.4 Secondary, Cumulative and Synergistic Effects

- There will be no secondary, cumulative or synergistic impacts on this policy from other policies in the MLP, where the policy is essentially raising awareness of the use of conditions and obligations required for minimising impacts from proposals and delivering a number of the other policies.

7.3.5 Alternatives Considered and the Reasons for Their Rejection / Selection

A policy regarding planning conditions and legal conditions was not explored at either the Further Issues and Options Stage or the Preferred Options Stage of the MLP.

7.3.6 Impacts on Indicators

The implementation of Policy DM2 will not have any impacts on the SA/SEA indicators.

7.3.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

7.4 Policy DM3 Primary Processing Plant

7.4.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	+	++	0	0	0	0	0	0	++	0	0	0	0
Medium Term	0	0	0	+	++	0	0	0	0	0	0	++	0	0	0	0
Long Term	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0

7.4.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land, by stating that minerals shall only be imported to a minerals site, from non-indigenous sources, when it is demonstrated that there are exceptional circumstances or overriding benefits for doing so;
- promoting the minerals hierarchy through a non-restrictive policy on the extraction and processing of primary minerals and the extension of existing sites;
- the sustainable use of minerals through a non-restrictive policy on the extraction and processing of primary minerals and the extension of existing sites; and
- restoration and after-use where in all cases permission will only be granted for a temporary duration so as not to delay the restoration of the site.

7.4.3 Temporal Effects

- No Temporal have been identified for this policy other than those associated with the working and post working.

7.4.4 Secondary, Cumulative and Synergistic Effects

- There will be no secondary, cumulative or synergistic impacts on this policy from other policies in the MLP.

7.4.5 Alternatives Considered and the Reasons for Their Rejection / Selection

Further Issues and Options Stage:

The issue of primary processing plants and the criteria required for applications was not looked at at the Further Issues and Options Stage. At the Preferred Options Stage the preferred approach was to stipulate a presumption in the MLP at all mineral sites for primary processing and against non-indigenous aggregate importation. This approach was deemed reasonable as the primary processing of aggregates allows use on higher value applications, technological improvements in recent years allow smaller and more mobile kit to be brought even onto relatively small mineral sites, and encouraging such on site processing reduces the number of lorry movements on the highway network. An alternative approach was looked at to allow for the importation of a small proportion of non-indigenous materials. This was deemed a reasonable alternative through there being certain circumstances where importation has been allowed.

7.4.6 Impacts on Indicators

The implementation of Policy DM3 is most likely to impact on the following SA/SEA indicators:

- Capacity of secondary processing / recycling facilities
- Amount of recycled material utilised
- Number of vehicle movements generated by site operation.
- Congestion ratios of relevant routes.
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Facilities within 100metres of residential areas
- Residential developments within 100metres of sources of noise and vibration

7.4.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

7.5 Policy DM4 Secondary Processing Plant

7.5.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	0	0	0	+	++	0	0	0	0	0	0	++	0	0	0	0
Medium Term	0	0	0	+	++	0	0	0	0	0	0	++	0	0	0	0
Long Term	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0

7.5.2 Significant Effects

There will be positive impacts on:

- the sustainable use of land by stating that minerals for secondary processing and/or treatment shall be sourced from within the boundary of the mineral working within which the plant is located unless it is demonstrated that there are exceptional circumstances or overriding benefits from sourcing materials from elsewhere to supplement indigenous supply, subject to no unacceptable adverse impact on amenity and/ or the local environment;
- promoting the minerals supply hierarchy and the sustainable use of minerals where the plan makes provision for sustainable processing plants for concrete batching, coated materials, block/ tile/ brick making and other concrete products on appropriate sites and in appropriate areas; and
- restoration and after-use where in all cases permission will only be granted for a temporary duration so as not to delay the restoration of the site.

7.5.3 Temporal Effects

- No Temporal have been identified for this policy other than those associated with the working and post working.

7.5.4 Secondary, Cumulative and Synergistic Effects

- There will be no secondary, cumulative or synergistic impacts on this policy from other policies in the MLP.

7.5.5 Alternatives Considered and the Reasons for Their Rejection / Selection

Further Issues and Options Stage:

The issue of secondary processing plants and the criteria required for applications was not looked at at the Further Issues and Options Stage. At the Preferred Options Stage the preferred approach was to support an approach of safeguarding any future secondary processing facilities considered to be of strategic importance and not otherwise safeguarded at a mineral or transhipment site. This approach was deemed reasonable where there are at least six asphalt plants widely located in Essex, and only two are located outside existing mineral or transhipment sites and have permanent planning permission. An alternative approach explored was to safeguard all known secondary processing facilities on a site by site basis. This was deemed a reasonable alternative in order to ensure the protection of secondary processing facilities, recognising their value to minerals development in the County.

7.5.6 Impacts on Indicators

The implementation of Policy DM4 is most likely to impact on the following SA/SEA indicators:

- Capacity of secondary processing / recycling facilities
- Amount of recycled material utilised
- Number of vehicle movements generated by site operation.
- Congestion ratios of relevant routes.
- Complaints regarding dust (Environmental Health and ECC).
- Complaints regarding noise (Environmental Health and ECC).
- Conditions to planning applications regarding hours of operation, emission/release parameters, and transport agreements etc.
- Traffic volumes in key locations.
- Facilities within 100metres of residential areas
- Residential developments within 100metres of sources of noise and vibration

7.5.7 Proposed Mitigation Measures / Recommendations

No mitigation measures or recommendations have been identified at this stage, where issues have been resolved through iterative working.

8 Implementation, Monitoring and Review

8.1 Introduction

Monitoring is important to understand the characteristics of an area, assessing the impact of policies upon this area and consequently whether the strategy is delivering sustainable development. The data collected through monitoring therefore allows for a review, and subsequently a potential modification, of the policies contained within this Plan. Policy IMR1 sets out the specific monitoring requirements regarding the sand and gravel landbank.

8.2 Policy IMR1 Monitoring and Review

8.2.1 Impact on SA/SEA Objectives

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Term	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Medium Term	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Long Term	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

8.2.2 Significant Effects

- It is acknowledged that the processes of monitoring and review as stipulated in the policy offers a flexible approach to the landbank which can adapt to future economic/market based changes. As a result of this, all impacts on the sustainability objectives will be uncertain at this stage.

8.2.3 Temporal Effects

- No Temporal have been identified for this policy.

8.2.4 Secondary, Cumulative and Synergistic Effects

- Although it is possible that there will be future cumulative impacts on Policy S6 from Policy IMR1, at this stage it is impossible to determine whether these will be positive, negative or changeable from the current direction and methodology regarding the apportionment and landbank.

8.2.5 Alternatives Considered and the Reasons for Their Rejection / Selection

At the Further Issues and Options Stage of the MLP, this policy was explored with the view that efficient policy monitoring and review of the development document would be crucial to a successful core strategy document, as stated by PPS 1 and PPS 12. This was progressed in light of the lack of any reasonable alternatives. At the Preferred Options Stage there was no specific policy regarding monitoring, however it was acknowledged that there will be a need to monitor data and to respond in the most appropriate way.

8.2.6 Impacts on Indicators

It is uncertain what SA/SEA indicators the implementation of Policy IMR1 is most likely to impact on at this stage.

8.2.7 Proposed Mitigation Measures / Recommendations

It is recommended that an effective way of disseminating information would be required to ensure that the public is aware of any potential changes to the landbank and the possible identification of sites.

9 Conclusions

9.1 The Vision

The Vision of the MLP is summarised by its short-medium term and long term impacts in the following tables.

9.1.1 Short – Medium Term Impacts of the Vision

Table 14: Short-Medium Term Impacts of the Vision

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short to Medium Term	+	0	+	+	++	+	+	+	+	++	++	++	0	++	0	0

The appraisal of the plan's Vision highlights numerous positive short to medium term impacts. These correspond to significant positive impacts on:

- Promoting the Minerals Supply Hierarchy and moving minerals waste up the waste management hierarchy.
- Enabling communities to participate fully in the decision making process.
- Maximising opportunities for economic development.
- The sustainable use of minerals.
- Reducing the transportation of minerals and promoting sustainable transport.

In addition to this, positive impacts will be realised for:

- Biodiversity.
- Minimising flood risk.
- The sustainable use of land.
- Air quality.
- Minimising greenhouse gas emissions and adaptability to climate change.
- The historic environment.
- Landscapes.

There will be no direct short to medium term impacts, as a result of the MLP Vision, on:

- Water quality and resources.
- Restoration and after-care.
- Human health and well-being.
- Minimising nuisances and impacts on local amenity.

9.1.2 Long Term Impacts of the Vision

Table 15: Long Term Impacts of the Vision

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Long Term	++	0	+	+	++	+	+	+	++	++	+	++	++	++	++	++

The long term impacts of the plan's Vision see further positive impacts realised for certain objectives. In addition to those identified for the short to medium term, restoration and after-use as dealt with in the Vision will have significant positive impacts on the sustainability objectives related to:

- Biodiversity.
- Landscapes.
- Restoration and after-care.
- Health and well-being.
- Local amenity.

9.2 Aims and Objectives

The plan's aims and strategic objectives have been appraised to identify their compatibility with the sustainability objectives, which in turn have been derived from a combination of the key issues identified for/in Essex that could be addressed or impacted upon by minerals development, as well as the current state of the economic, social and environmental themes through baseline information and relevant plans and programmes.

9.2.1 Compatibility with Sustainability Objectives

Table 16: MLP Aims and Objectives Compatibility with Sustainability Objectives

Aims of MLP	1				2	3		4	5	6	7			8
Strategic Objectives of MLP / SA/SEA Objective	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Biodiversity	0	0	0	0	0	0	0	0	0	/	✓	✓	✓	0
2 Water quality / resources	0	0	0	0	0	0	✓	0	0	0	0	0	0	0
3 Flooding	0	0	0	0	0	0	✓	0	0	0	0	0	0	0
4 Land / Soils	0	0	✓	0	0	0	✓	0	✓	0	0	0	0	0
5 Minerals supply hierarchy	0	0	✓	0	0	0	0	✓	0	✓	0	0	0	0
6 Air quality	0	0	0	0	0	0	✓	0	0	0	0	0	0	✓
7 GHG and climate change	0	0	0	0	✓	0	0	0	0	0	0	0	0	0
8 Historic environment	0	0	0	0	0	0	0	0	0	/	✓	0	✓	0

9 Landscapes	0	0	✓	0	/	0	0	✓	0	/	0	✓	✓	0
10 Community participation	/	0	0	✓	0	✓	0	0	0	0	0	0	0	0
11 Economic development	0	0	✓	0	0	0	0	0	0	0	0	0	0	✓
12 Sustainable mineral use	✓	✓	✓	✓	0	0	0	✓	✓	✓	0	0	0	✓
13 Restoration and after-use	0	0	0	0	✓	0	0	0	0	0	0	✓	0	0
14 Transportation	0	✓	0	0	✓	0	✓	0	0	0	0	0	0	✓
15 Health and well-being	0	0	0	0	0	0	✓	0	0	/	0	0	✓	/
16 Nuisance and amenity	/	0	0	0	0	✓	✓	0	0	/	0	0	✓	/

The aims and strategic objectives of the MLP have positive impacts on all of the Sustainability Objectives. Where uncertain impacts are likely to occur, the majority of these will be rectified in other elements of the Local Plan where site specific characteristics and impacts are more relevant, such as site allocation criteria and assessments and development management policies. Similarly, certain objectives and criteria of the Sustainability Framework are more relevant to these elements.

9.3 Strategy Policies

The strategic policies of the MLP look at county-wide issues regarding minerals development. The short to medium and long term impacts of the MLP's strategic policies are summarised in the following tables.

9.3.1 Short – Medium Term Impacts of the Strategy Policies

Table 17: Short-Medium Term Impacts of the Strategy Policies

Strategic Policies of MLP / SA/SEA Objective	S2	S1	S3	S4	S5	S8	S9	S6	S7	S10	S11	S12
1 Biodiversity	0	0	0	0	0	0	0	0	0	+	0	0
2 Water quality / resources	0	0	+	0	0	0	0	0	0	+	0	0
3 Flooding	0	0	++	0	0	0	0	0	0	+	0	+
4 Land / Soils	++	0	0	+	+	++	++	+	+	+	0	+
5 Minerals supply hierarchy	++	0	0	++	++	++	0	++	++	0	0	0
6 Air quality	+	0	+	+	0	0	++	0	0	+	++	0
7 GHG and climate change	++	0	++	+	0	0	++	0	0	+	+	0
8 Historic environment	0	0	0	0	0	0	0	0	0	0	0	+
9 Landscapes	0	0	0	0	0	0	0	0	0	+	0	0

10 Community participation	0	0	0	0	0	0	0	0	0	0	0	0
11 Economic development	+	0	0	0	+	+	++	++	+	0	0	0
12 Sustainable mineral use	++	0	0	++	++	++	+	++	++	0	0	0
13 Restoration and after-use	0	0	+	0	0	0	0	0	0	0	0	0
14 Transportation	++	0	+	+	+	0	++	0	0	0	++	0
15 Health and well-being	+	0	0	0	0	0	0	0	0	+	+	0
16 Nuisance and amenity	++	0	0	0	0	0	0	0	0	+	+	0

As can be seen, positive impacts will be realised on the majority of sustainability objectives, where impacts are associated with the short to medium term working of sites. Significant positive impacts are realised for:

- Minimising flood risk.
- The sustainable use of land.
- Promoting the Minerals Supply Hierarchy and moving minerals waste up the waste management hierarchy.
- Air quality.
- Minimising greenhouse gas emissions and adapting to climate change.
- Economic development.
- The sustainable use of minerals.
- Reducing the transportation of minerals and promoting sustainable transport.
- Minimising nuisance and impacts on local amenity.

In addition to this, positive impacts will be realised:

- Biodiversity.
- Water quality.
- The historic environment.
- Landscapes.
- Restoration and after-care.
- Health and well-being.

There is only one sustainability objective that will have no impact as a result of the strategic policies; that related to community participation in the plan-making process. It is noted however, that the process of public consultation that has and will follow all iterations of the plan is mandatory and does not need stating specifically in policy.

9.3.2 Long Term Impacts of the Strategy Policies

Table 18: Long Term Impacts of the Strategy Policies

Strategic Policies of MLP / SA/SEA Objective	S2	S1	S3	S4	S5	S8	S9	S6	S7	S10	S11	S12
1 Biodiversity	++	0	+	0	0	0	0	0	0	+	0	++
2 Water quality / resources	0	0	+	0	0	0	0	0	0	+	0	++
3 Flooding	0	0	++	0	0	0	0	0	0	+	0	+
4 Land / Soils	++	0	0	0	+	++	0	+	+	+	0	+
5 Minerals supply hierarchy	++	0	0	++	++	++	0	++	++	0	0	0
6 Air quality	+	0	+	0	0	0	0	0	0	0	0	0
7 GHG and climate change	++	0	++	0	0	0	0	0	0	0	0	+
8 Historic environment	0	0	0	0	0	0	0	0	0	0	0	+
9 Landscapes	0	0	0	/	0	0	0	0	0	+	0	+
10 Community participation	0	0	0	0	0	0	0	0	0	0	0	0
11 Economic development	/	0	0	0	0	+	0	++	+	0	0	0
12 Sustainable mineral use	++	0	0	++	++	++	0	++	++	0	0	0
13 Restoration and after-use	++	0	+	/	+	0	0	0	0	0	0	++
14 Transportation	++	0	+	0	0	0	0	0	0	0	0	0
15 Health and well-being	++	0	0	0	0	0	0	0	0	+	0	+
16 Nuisance and amenity	++	0	0	0	0	0	0	0	0	+	0	++

The impacts of the strategic policies can be seen to be strengthened in the long term through the implementation of stated required and preferred restoration proposals. There will be significant positive impacts on all of the sustainability objectives bar those related to:

- The historic environment.
- Landscapes.
- Community participation.

Regarding landscapes, where it could be expected that Policy S12 Restoration and After-use should be aiming to restore minerals sites in a significantly positive manner, it is acknowledged that there is a degree of unavoidable uncertainty until sites are determined in the Waste Local Plan.

Uncertainties in the long term have been highlighted in regards to landscapes, economic development and restoration. This is due to specific proposals for after-use being realised on a site

by site basis and their potential for job creation in after-use and requirements for inert waste to restore previous conditions/levels.

9.3.3 Impacts of the Preferred Transhipment Site in the County

In the accordance with Policy S9, a single additional new transhipment site at Ballast Quay, Fingringhoe has been proposed for safeguarding in the MLP. The appraisal of this site is below.

Table 19: Impacts of the Preferred Transhipment Site

Site		Sustainability Objective															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
D2	SM	1	0	-1	2	0	1	1	1	1	0	/	0	/	2	-1	-1
	L	/	0	/	/	0	0	0	0	/	0	/	0	/	0	/	/

Site D2 will have significant positive impacts with regards:

- Transportation
- Agricultural land

Positive impacts will be realised regarding:

- Biodiversity
- Air quality
- Greenhouse gas emissions
- The historic environment
- Landscape

There will be negative impacts on

- Flood risk
- Health and well-being
- Nuisance

There will be no long term positive or negative impacts as a result of the site for transhipment due to the length of the permission. Post-plan period, any impacts will either not be valid or uncertain.

9.4 The Minerals Provision Figure

The minerals provision figure of the MLP is summarised by its short-medium term and long term impacts in the following tables.

Short – Medium Term Impacts of the Minerals Provision Figure

Table 20: Short-Medium Term Impacts of the Minerals Provision Figure

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short to Medium Term	/	/	/	/	++	/	/	/	/	0	+	/	0	/	/	/

The appraisal of the plan's minerals provision figure highlights few short to medium term impacts. There is a significant positive impact on:

- Promoting the Minerals Supply Hierarchy and moving minerals waste up the waste management hierarchy.

In addition to this, a positive impact will be realised for:

- Economic development

There will be uncertain short to medium term impacts on:

- Biodiversity
- Water quality
- Minimising flood risk
- Agricultural land
- Air quality
- Greenhouse gas emissions
- The historic environment
- Landscapes
- Sustainable mineral use
- Transportation
- Health and well-being
- Nuisance and amenity

Long Term Impacts of the Minerals Provision Figure

Table 21: Long Term Impacts of the Minerals Provision Figure

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Long Term	+	/	/	/	0	0	/	/	-	0	0	0	+	0	+	+

The long term impacts of the plan's minerals provision figure will see an increase in positive impacts realised for certain objectives. In addition to those identified for the short to medium term, restoration and after-use will have significant positive impacts on the sustainability objectives related to:

- Biodiversity
- Restoration and after-care
- Health and well-being
- Local amenity

There will be however be a negative impact on:

- Landscapes

There will be uncertain long term impacts on:

- Water quality
- Minimising flood risk

- Agricultural land
- Greenhouse gas emissions
- The historic environment

9.5 Preferred Sites for Sand & Gravel

9.5.1 North-Eastern Sites

As stated in The Strategy, the majority of the sites will be located in the central and north-eastern parts of the County to support key areas of growth and development and reduce mineral miles. The following sites are preferred sites for sand and gravel in the north-eastern area of the County.

- A3 Bradwell Quarry, Rivenhall Airfield
- A4 Bradwell Quarry, Rivenhall Airfield
- A5 Bradwell Quarry, Rivenhall Airfield
- A6 Bradwell Quarry, Rivenhall Airfield
- A7 Bradwell Quarry, Rivenhall Airfield
- A13 Colchester Quarry – Five Ways Fruit Farm, Stanway
- A20 Sunnymead, Alresford
- A31 Maldon Road, Birch
- B1 Martells Quarry Slough Farm, Ardleigh Area 1

Table 22: Short-Medium Term Impacts of the Preferred Sites for Sand and Gravel in the North-Eastern Area of the County

Preferred Sites / SA/SEA Objective	A3	A4	A5	A6	A7	A13	A20	A31	B1
1 Biodiversity	1	1	1	1	1	1	-1	1	1
2 Water quality / resources	1	1	1	1	1	1	-1	-1	1
3 Flooding	1	1	1	1	1	1	1	-1	1
4 Land / Soils	-2	-2	-2	-2	-2	-2	-1	-1	-2
5 Minerals supply hierarchy	0	0	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	/	/	/	/
7 GHG and climate change	/	/	/	/	/	/	/	/	/
8 Historic environment	-1	-1	-1	-1	-1	-1	-1	-1	-1
9 Landscapes	1	1	1	-1	-1	1	-1	-1	1
10 Community participation	0	0	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/	/	/
12 Sustainable mineral use	0	0	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1	1	1
14 Transportation	1	1	1	1	1	1	1	1	1
15 Health and well-being	/	/	/	-1	-1	-1	-1	-1	-1

16 Nuisance and amenity	/	-1	-1	-1	-1	-1	-1	-1	-1

As can be seen from the above table, there will be minimal significant impacts on the sustainability objectives from extraction at any of the sites. Although Objective 4 regarding soils has a number of significantly negative impacts highlighted, it is acknowledged that these sites are not the most versatile 'grade 1' soils, but are 'grade 2' soils. As such, the scoring for these objectives should not mean that the site should not be extracted.

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Biodiversity
- Water resources
- Flooding
- Landscapes
- Restoration and After-use
- Transportation

Although it is acknowledged that many of these can be mitigated, negative impacts have been highlighted for the majority of sites regarding:

- The historic environment
- Health and well-being
- Nuisance and amenity

Table 23: Long Term Impacts of the Preferred Sites for Sand and Gravel in the North-Eastern Area of the County

Preferred Sites / SA/SEA Objective	A3	A4	A5	A6	A7	A13	A20	A31	B1
1 Biodiversity	1	1	1	1	1	1	1	1	/
2 Water quality / resources	0	0	0	0	0	0	1	1	0
3 Flooding	/	/	/	/	/	/	/	/	/
4 Land / Soils	-1	-1	-1	-1	-1	-2	-1	0	-1
5 Minerals supply hierarchy	0	0	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	/	/	/	/
7 GHG and climate change	/	/	/	/	/	/	/	/	/
8 Historic environment	/	/	/	-1	/	/	/	-1	/
9 Landscapes	/	/	/	/	/	/	/	/	0
10 Community participation	0	0	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/	/	/
12 Sustainable mineral use	0	0	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1	1	1
14 Transportation	0	0	0	0	0	0	0	0	0
15 Health and well-being	/	/	/	/	/	/	/	/	/

16 Nuisance and amenity	0	0	1	0	1	1	/	1	/

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Restoration and After-use

There are very few negative impacts resulting from the restoration proposals for the sites. Despite this, negative impacts have been highlighted for the majority of sites regarding:

- Soils / agricultural land

There will be 4 cases of restoration to amenity, which will have positive impacts on Objective 16.

9.5.2 Central Sites

As stated in The Strategy, the majority of the sites will be located in the central and north-eastern parts of the County to support key areas of growth and development and reduce mineral miles. The following sites are preferred sites for sand and gravel in the central area of the County.

- A9 Broadfield Farm, Rayne
- A22 Little Bullocks Farm, Little Canfield
- A23 Little Bullocks Farm, Little Canfield
- A38 Blackleys Quarry, Great Leighs
- A39 Blackleys Quarry, Great Leighs
- A46 Land at Colemans Farm
- A40 Land at Shellows Cross Farm

Table 24: Short-Medium Term Impacts of the Preferred Sites for Sand and Gravel in the Central Area of the County

Preferred Sites / SA/SEA Objective	A9	A22	A23	A38	A39	A46	A40
1 Biodiversity	1	1	1	1	1	/	1
2 Water quality / resources	-1	-1	1	1	1	-1	-1
3 Flooding	1	-1	1	1	1	-1	1
4 Land / Soils	-2	-2	-2	-1	-1	-2	-1
5 Minerals supply hierarchy	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	/	/
7 GHG and climate change	/	/	/	/	/	/	/
8 Historic environment	-1	1	1	-1	-1	-1	-1
9 Landscapes	-1	-1	-1	1	-1	-1	-1
10 Community participation	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/
12 Sustainable mineral use	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1
14 Transportation	1	1	1	1	1	-1	1

15 Health and well-being	-1	/	-1	-1	-1	-1	-1
16 Nuisance and amenity	-1	/	-1	-1	-1	-1	-1

As can be seen from the above table, there will be minimal significant impacts on the sustainability objectives from extraction at any of the sites. Although Objective 4 regarding soils has a number of significantly negative impacts highlighted, it is acknowledged that these sites are not the most versatile 'grade 1' soils, but are 'grade 2' soils. As such, the scoring for these objectives should not mean that the site should not be extracted.

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Biodiversity
- Flooding
- Restoration and After-use
- Transportation

Although it is acknowledged that many of these can be mitigated, negative impacts have been highlighted for the majority of sites regarding:

- Water resources
- The historic environment
- Landscapes
- Health and well-being
- Nuisance and amenity

Table 25: Long Term Impacts of the Preferred Sites for Sand and Gravel in the Central Area of the County

Preferred Sites / SA/SEA Objective	A9	A22	A23	A38	A39	A46	A40
1 Biodiversity	1	1	1	/	/	1	1
2 Water quality / resources	0	0	0	0	0	1	0
3 Flooding	/	/	/	/	/	/	/
4 Land / Soils	-1	-1	-1	1	/	-2	-1
5 Minerals supply hierarchy	0	0	0	0	0	0	0
6 Air quality	/	/	/	/	/	0	/
7 GHG and climate change	/	/	/	/	/	/	/
8 Historic environment	/	/	/	/	-1	/	/
9 Landscapes	/	/	/	/	/	-1	/
10 Community participation	0	0	0	0	0	0	0
11 Economic development	/	/	/	/	/	/	/
12 Sustainable mineral use	0	0	0	0	0	0	0
13 Restoration and after-use	1	1	1	1	1	1	1
14 Transportation	0	0	0	0	0	0	0

15 Health and well-being	/	/	/	/	/	1	/
16 Nuisance and amenity	1	1	1	0	0	1	0

The majority of the sites will have positive impacts associated with and relevant to minerals extraction for:

- Biodiversity
- Restoration and After-use
- Nuisance and Amenity

There are very few negative impacts resulting from the restoration proposals for the sites. Despite this, negative impacts have been highlighted for the majority of sites regarding:

- Soils / agricultural land

9.6 Preferred Sites for Industrial Minerals

9.6.1 Impacts of the Preferred Sites for Industrial Minerals

Policy S7 sets out the commitment and requirement to plan for additional silica sand provision at Martells quarry. This will be met by a Preferred Site to be worked as an extension to the existing quarry.

Site		Sustainability Objective															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B1	SM	1	1	1	-2	0	/	/	-1	-1	0	/	0	1	1	-1	-1
	L	/	0	/	-1	0	/	/	/	0	0	/	0	1	0	/	/

Site B1 will have positive impacts associated with:

- Biodiversity
- Water resources
- Flood risk
- Restoration and After-use
- Transportation

Although it is acknowledged that many of the following can be mitigated, there will be negative impacts associated with:

- The historic environment
- Landscape
- Health and well-being
- Nuisance

A significant negative impact has been awarded due to a loss of grade 2 agricultural soil; although it is acknowledged that this should not prevent the site from being extracted.

Post-working of the site will have positive impacts associated with restoration and after-use. A less negative impact will be realised on agricultural land as per the restoration proposals.

9.7 Development Management Policies

Development management policies are the apparatus by which planning applications are determined and planning issues enforced by the Minerals Planning Authority. They use these policies not just to control the effects of unrestricted development, but as a proactive tool for

managing development opportunities. The short to medium and long term impacts of the MLP's development management policies are summarised in the following table.

9.7.1 Short – Long Term Impacts of the Development Management Policies

Strategic Policies of MLP	Short – Medium Term Impacts				Long Term Impacts			
SA/SEA Objective	DM1	DM2	DM3	DM4	DM1	DM2	DM3	DM4
1 Biodiversity	+	0	0	0	+	0	0	0
2 Water quality / resources	+	0	0	0	+	0	0	0
3 Flooding	+	0	0	0	+	0	0	0
4 Land / Soils	+	0	+	+	+	0	0	0
5 Minerals supply hierarchy	0	0	++	++	0	0	0	0
6 Air quality	+	0	0	0	+	0	0	0
7 GHG and climate change	+	0	0	0	+	0	0	0
8 Historic environment	+	0	0	0	+	0	0	0
9 Landscapes	+	0	0	0	+	0	0	0
10 Community participation	0	0	0	0	0	0	0	0
11 Economic development	0	0	0	0	0	0	0	0
12 Sustainable mineral use	0	0	++	++	0	0	0	0
13 Restoration and after-use	0	0	0	0	+	0	+	+
14 Transportation	+	0	0	0	+	0	0	0
15 Health and well-being	+	0	0	0	+	0	0	0
16 Nuisance and amenity	+	0	0	0	+	0	0	0

In the short to medium term there will be significant positive impacts relating to

- The promotion of the minerals supply hierarchy.
- Improving the sustainable use of minerals.

Additionally there will be positive impacts on all of the sustainability objectives bar those relating to:

- Economic development.
- Community participation.

Regarding economic development, this can be considered a strategic issue that is an underlying theme throughout the need for minerals extraction and development, and does not need to be a determining factor on an application basis. Community participation is not needed to be specifically mentioned in policy, as it is dealt with through the public consultation requirements of the plan making process.

In the long term many of the sustainability objectives will have no impacts where permissions will have ceased in a development management context. Long term positive impacts are limited to those elements of the policies that specifically relate to restoration and after-use.

9.8 Implementation, Monitoring and Review Policy

Monitoring is important to understand the characteristics of an area, assessing the impact of policies upon this area and consequently whether the strategy is delivering sustainable development. The data collected through monitoring therefore allows for a review, and subsequently a potential modification, of the policies contained within the MLP.

9.8.1 Short – Long Term Impacts of the Implementation, Monitoring and Review Policy

	Sustainability Objectives															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short to Long Term	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

It is acknowledged that the processes of monitoring and review offer a flexible approach to the sand and gravel landbank which can adapt to future economic/market based changes. As a result of this, all impacts on the sustainability objectives will be uncertain at this stage.

It is recommended however that an effective way of disseminating information would be required to ensure that the public is aware of any potential changes to the landbank and the possible identification of sites.

10 Monitoring and Next Steps

10.1 Monitoring

The significant sustainability effects of implementing a Local Plan must be monitored in order to identify unforeseen adverse effects and to be able to undertake appropriate remedial action. Annex C of this Environmental Report contains suggested indicators in order to monitor each of the Sustainability Objectives, however these may not all be collected due to limited resources and difficulty in data availability or collection.

Appendix 14 of the 'Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents' guidance (ODPM) provides further details on the implementation and monitoring of LDFs. It states that it is not necessary to monitor everything, but that monitoring should focus on significant sustainability effects, e.g. those that indicate a likely breach of international, national or local legislation, that may give rise to irreversible damage or where there is uncertainty and monitoring would enable preventative or mitigation measures to be taken.

10.2 Next Steps

10.2.1 Consultation

To enable the community and other stakeholders to continue to contribute to the Plan, there is now a period of formal consultation on the Replacement Minerals Local Plan Pre-Submission Draft. This Environmental Report will be published for consultation alongside the Plan, so that it might facilitate more informed responses. It is also important that there is an opportunity for questions to be raised regarding any of the judgements made within this SA/SEA, and further evidence put forward that may help to consider sustainability effects.

Following consultation, the MLP will be submitted to the Government for approval. The approval process involves a public examination held by a Planning Inspector. The Inspector has the power to approve the Plan, with or without alteration, or reject it. The Inspector will be able to refer to responses and the recommendations set out in this Environmental Report, which will be made following this current consultation.

10.2.2 SA/SEA Adoption Statement

Once a plan or programme has been adopted, the SEA Directive requires those responsible for preparing it, in this case Essex County Council, to provide the public and the Consultation Bodies with information on how environmental considerations and consultation responses are reflected in the plan or programme and how its implementation will be monitored in the future.

The Directive states that:

> *Plan or programme proponents should ensure that, when a plan or programme is adopted, the Environmental Consultation Bodies and the public are informed and the following items are made available to those so informed:*
>
> *(a) the plan or programme as adopted;*
>
> *(b) a statement summarising how environmental considerations have been integrated into the plan or programme…[including] the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with, and*
>
> *(c) the measures decided concerning monitoring [of the plan]*
>
> *Annex 9(1)*

In light of this requirement, Essex County Council should prepare an SA/SEA Adoption Statement setting out the above information (reporting on how sustainability considerations have been taken into account rather than environmental considerations only).

place services

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