

Essex County Council

Replacement Minerals Local Plan

A Review of the Planned Supply of Aggregate Provision in Essex 2012-2029 Topic Paper

July 2013



Essex County Council

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1. INTRODUCTION

- 1.1 This paper has been prepared by Essex County Council as Mineral Planning Authority (MPA) to review the scale of aggregate provision outlined in the [Replacement Minerals Local Plan Pre-Submission Draft](#) (RMLP) (January 2013). It should be read in conjunction with the RMLP and the *Greater Essex Local Aggregate Assessment*.¹
- 1.2 The RMLP proposes the provision of 4.31 million tonnes per annum (mtpa) of land-won sand and gravel over an 18 year period from 1st January 2012 to 31st December 2029. This figure maintains the historical apportionment approach to aggregate provision outlined in the [National and regional guidelines for aggregate provision](#), issued by the Government in June 2009 and subsequently apportioned to individual Mineral Planning Authorities in the [Draft Revisions to the East of England Plan](#) (March 2010). This is a position supported by the East of England Aggregates Working Party (AWP).
- 1.3 However, Government policy now contained in the [National Planning Policy Framework](#) (NPPF) and the [Guidance on the Managed Aggregate Supply System](#) (MASS Guidance), allows MPAs to determine their own aggregate supply and advises that aggregate provision should be based on a rolling average of 10 years sales data and other relevant local information, an assessment of all supply options (including marine dredged, secondary and recycled sources) as well as taking account of the advice of an AWP and the National Aggregate Coordinating Group as appropriate.
- 1.4 This topic paper assesses these two different approaches to aggregate provision and the implications for the scale of aggregate provision to be included in the RMLP.

2. POLICY CONTEXT

- 2.1 Section 2 provides a review of current and historical approaches to aggregate provision, outlines the role played by the East of England AWP, and highlights the Government's economic growth agenda.

National Planning Policy Framework

- 2.2 The policy requirements for mineral planning are set out in the NPPF and require MPAs to plan for a steady and adequate supply of aggregates by determining their own levels of provision through the preparation of an annual Local Aggregate Assessment (LAA). This should be prepared either individually or jointly by agreement with another or other mineral planning authorities, based on a rolling average of 10 years sales data and other relevant local information, and an

¹ The Greater Essex Local Aggregate Assessment is included as Appendix 2 of this topic paper.

assessment of all supply options (including marine dredged, secondary and recycled sources).²

- 2.3 The NPPF also states that the MPA should participate in the operation of an AWP whose advice should be taken into account when preparing their LAA. The LAA should also take account of published National and Sub National Guidelines on future provision and assess the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. The LAA should conclude if there is a shortage or surplus of supply and, if the former, how this is being addressed.
- 2.4 To support the NPPF the Government published the MASS Guidance in October 2012. This provides further guidance on the preparation of a LAA and states that MPAs should look at the average three year sales to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase mineral supply from a rolling ten year average.³
- 2.5 Essex County Council as MPA prepared and published a Draft Greater Essex LAA (Essex County Council and Southend-on-Sea) in October 2012. This was updated and finalised in June 2013 and is included as Appendix 2 of this topic paper. Relevant sections of the updated Greater Essex LAA are referenced in Section 3 of this topic paper.

East of England Regional Spatial Strategy and mineral apportionment

- 2.6 Historically, Government set the supply of aggregates required to meet projected national demand within a document titled [National and regional guidelines for aggregate provision](#), first introduced in 1989. Government took the figure for the amount of mineral that would be required to support growth on a national scale, and divided this into regional apportionment figures. Regional AWPs had the role in conjunction with MPAs of dividing this apportionment figure into an annual apportionment for each MPA.⁴ This approach to mineral supply is known as the Managed Aggregate Supply System of MASS, which seeks to address imbalance in supply and demand.⁵
- 2.7 Aided by the East of England Regional Assembly, the apportionment figure from the *National and regional guidelines for aggregate provision* published in 2003 was included in the [East of England Regional Spatial Strategy](#) (known as the *East of England Plan*, May 2008). Policy M1 set the annual apportionment for land-won aggregates and rock that each MPA within the East of England region was expected to provide. The Greater Essex land-won sand and gravel apportionment figure was 4.55 mtpa.

² Paragraph 145, NPPF. See Appendix 1 of this topic paper.

³ Paragraph 4, MASS Guidance.

⁴ The East of England AWP comprises MPAs from Norfolk, Suffolk, Cambridgeshire, Peterborough, Essex, Southend-on-Sea, Thurrock, Hertfordshire, Central Bedfordshire, Bedford and Luton.

⁵ Paragraph 3, MASS Guidance.

- 2.8 The mineral apportionment figure issued by the Government in the *National and regional guidelines for aggregate provision 2005 – 2020* (June 2009) was considered and endorsed by the East of England Regional Assembly and incorporated into the *Draft Revision to the East of England Plan* published in March 2010. The Greater Essex figure in Policy M1 was revised to 4.45 mtpa. Essex County was allocated 4.31 mtpa and Thurrock 0.14 mtpa.⁶
- 2.9 With the abolition of the Regional Assemblies in March 2010 and subsequent removal of planning responsibilities from the East of England Local Government Association, the draft revisions did not progress so the revised apportionment figure was not tested through public examination and included in an approved regional strategy. Further, the *East of England Plan* was also revoked on 3 January 2013.

Aggregate Working Party

- 2.10 The role of AWP is to collect and monitor data on aggregates provision as an aid to minerals planning. They are not policy making bodies but provide information to facilitate MPAs, national and regional government agencies and the minerals industry. Following the revocation of the *East of England Plan* and the setting of mineral policy through the NPPF, MPAs can now determine their own aggregate supply. However, the NPPF states that the MPA is to consider the advice of an AWP when planning for a steady and adequate supply of aggregates.
- 2.11 The East of England AWP confirmed its support for a continuation of the apportionment approach to mineral supply, as intended in the RMLP, in a letter to all East of England AWP members in March 2013

National and regional economic growth

- 2.12 The NPPF states that minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs.⁷ The MASS Guidance states that aggregate minerals make an essential contribution to the nations' prosperity and to the quality of life. Aggregates underpin the construction sector and provide the critical raw material for built development, other construction, manufacturing and the maintenance of infrastructure.
- 2.13 The Government is committed to restoring economic growth in order to create jobs and prosperity. This is supported by the [National Infrastructure Plan](#) and the [Growth and Infrastructure Act 2013](#) and the recently published [Investing in Britain's future](#) (June 2013). Essex County Council is also committed to supporting economic growth through its [Integrated County Strategy](#) and [Economic Growth Strategy](#); both of which seek to plan and secure the highways and infrastructure

⁶ The apportionment split between Essex County and Thurrock was an agreement between the two authorities. Southend-on-Sea is unable to make a contribution to the Greater Essex mineral supply due to its tightly defined and built up administrative area and lack of minerals resource.

⁷ Paragraph 142, NPPF

required to facilitate business growth and support the demand and requirements for additional house-building in the region. Meeting these objectives will require the use of aggregates.

3. SAND AND GRAVEL DATA 2002-2012

3.1 The major commercial mineral reserve arising in Essex is sand and gravel. The historic apportionment figures for Essex relate solely to provision of sand and gravel and do not include other minerals. Section 3 provides sand and gravel data from the Greater Essex LAA to show its source and use; and sales figures for a ten year period comparing the averages of ten and three years sales data (as stated in the NPPF and MASS Guidance) to historical apportionment figures and that contained in the RMLP.

Overview

3.2 Sand and gravel can be put to many uses, although consumption is fundamentally driven by activity in the construction sector and is primarily linked to house building. The British Geological Survey (BGS) noted that in 2003 more than 240 million tonnes of aggregates were sold in Great Britain. The largest proportion of this use, 35 per cent, was used to manufacture concrete, with a further 6 per cent used to manufacture the cement used in the concrete. Construction and fill was the second largest category (24%), while 22 per cent of aggregates were used in roads (or similar) and another 1 per cent was used for railway ballast. Industrial and other uses amounted to 4.4 per cent with the remainder split between the manufacture of mortar (5%), glass (1%) and use in agriculture (1%).⁸

Source and use of sand and gravel

3.3 Table 3.1 shows the amount of sand and gravel that is both sourced and used within Greater Essex. Over 80 per cent is land won and consumed within the boundaries of Greater Essex.

Table 3.1: Source and use of sand and gravel in Greater Essex, 2009⁹

Source of sand and gravel	Amount of sand and gravel (proportion of total)
Total consumption of sand and gravel	2.666 mt (100%)
Total Greater Essex origin land won sand and gravel use	2.150 mt (80.65%)
Total imported land won sand and gravel	0.239 mt (8.96%)
Total imported marine won sand and gravel	0.277 mt (10.39%)

3.4 Marine won (dredged) aggregates are an alternative to land won aggregates. Marine won sand and gravel is primarily sourced from the Thames Estuary Licensed Area and accounts for just over 10 per cent of total aggregate use within Greater Essex (as shown in Table 3.1) contributing to the import of

⁸ http://www.bgs.ac.uk/Planning4Minerals/Economics_15.htm

⁹ Page 64, Greater Essex LAA.

minerals.¹⁰ Marine won sand and gravel does not land directly within Essex and is sourced from London, Thurrock, Kent and Suffolk.

- 3.5 With regard to increasing the proportion of marine won sand and gravel, this is outside of the remit of Essex County Council MPA as marine extraction areas are leased by the Crown Estate with licenses to dredge issued by the Marine Management Organisation (MMO). Discussions with the MMO evidenced that whilst the marine environment has the capacity for significantly more extraction, applications are not being made. Start-up investment for marine extraction is large, due to the potential need for additional vessels and infrastructure as well as studies regarding the potential impacts on International Maritime Organisation shipping routes, erosion and Natura 2000 sites.
- 3.6 A further alternative source is secondary and recycled aggregates. In Essex these are largely derived from construction and demolition waste. Future supply is anticipated to change in line with trends in construction output as a proxy for demolition; consequently the market share from recycled sources is expected to remain broadly constant. That is, the drive for more resource efficient construction will continue to reduce the availability of suitable waste resources for recovery as aggregates. This position is confirmed through discussions with the Waste and Resources Action Programme (WRAP) and the Mineral Products Association. Further the ability of coarse recycled aggregates to substitute for land or marine won aggregate is limited. Most recycled aggregates are lower quality materials, suitable as drainage and fill materials only, and generally cannot meet the higher specification requirements of concrete or asphalt.

Sales data for a ten year period

- 3.7 Table 3.2 shows sales data for land won sand and gravel in Essex for a ten year period and a sales average for a ten and three year period.¹¹

Table 3.2: Essex sand and gravel ten year sales figures, 2002-2011

Year	Sales
2002	4.519 mt
2003	4.331 mt
2004	4.160 mt
2005	4.004 mt
2006	3.926 mt
2007	3.951 mt
2008	3.148 mt
2009	2.654 mt
2010	2.846 mt
2011	2.663 mt

10 year sales average	3.62 mt
3 year sales average, 2009-11	2.71 mt

¹⁰ See Section 8.5, [Greater Essex LAA June 2013, Appendix 2 of this topic paper.](#)

¹¹ Ten year sales data excludes Thurrock as it is not part of the RMLP area and there are no mineral workings for Southend-on-Sea. See Section 5 of the [Greater Essex LAA June 2013](#) for details on sales data, Appendix 2 of this topic paper.

Historical apportionment

3.8 Table 3.3 shows the historical apportionment figures for sand and gravel as outlined in the *National and regional guidelines for aggregate provision*, first introduced in 1989.

Table 3.3: Greater Essex historic annual apportionment figures, 1989-2020

Year set	Period	Apportionment (mtpa)
1989	1989-1994	6.90
1994	1994-2003	6.20
2003	2001-2016	4.55 (4.41 for Essex only)
2009	2005-2020	4.45 (4.31 for Essex only)

3.9 The RMLP maintains the 2009 apportionment figure of 4.31 mtpa. As mentioned in paragraphs 2.8 and 2.11, the figure had been included in draft regional planning policy and is still supported by the East of England AWP.¹²

3.10 Through a continuation of MASS, additional supply options such as the contributions made by recycled and marine-won mineral, have been implicitly included as part of calculating the apportioned land-won mineral provision figure. These various supply options factor into the MASS calculations, and it is from the MASS system that the *National and sub-national guidelines for aggregate provision 2005 – 2020* (June 2009), and therefore the Essex land-won apportionment contained in the RMLP, was derived.

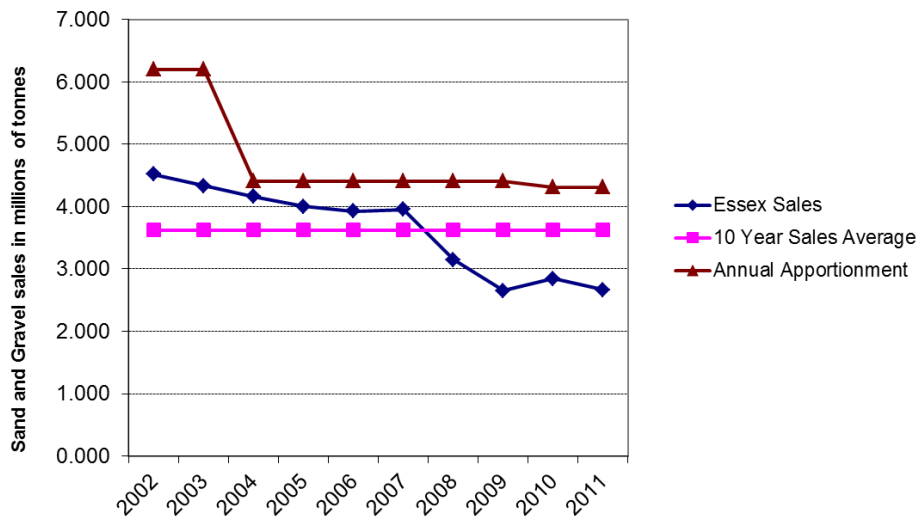
Comparison of sales data and historical apportionment figures

3.11 Figure 3.1 compares the 10 year sales data (Table 3.2) to the historical apportionment figures (Table 3.3). A comparison of sales average to actual sales shows:

- The sand and gravel provision of 4.31 mtpa contained in the RMLP represents a 19 per cent uplift on the 3.62 mtpa ten year average of sand and gravel sales in the County over the period 2002-11.
- The ten years sales data reflects the economic conditions experienced through the decade particularly the consequences of the recession in the years following 2007.
- Sales collapsed with the onset of the economic recession, falling 33 per cent in the two years 2007 to 2009.
- Annual sales were above the ten year sales average for the six years 2002 to 2007.

¹² Stated in a letter from the East of England AWP to Essex County Council, March 2013.

Figure 3.1: Comparison of Essex 10 year sales to historical apportionment



Source: Section 5.4, Greater Essex LAA

MASS Guidance and three year average sales

3.12 The MASS Guidance states that MPAs should also look at the ‘average three year sales’ to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase aggregate supply from a rolling ten year average.¹³ However, this is not considered to provide Essex with a clear direction. Three year sales for 2009-2011 are the lowest across the ten year period analysed, and those three years represent the first time that the sale of sand and gravel has been below 3 mtpa.

3.13 The three year sales data is considered atypically low. It reflects the consequence of the economic recession and the slow recovery. Consequently for Essex the three year sales data is not considered to provide a robust approach to identifying a long term provision of adequate sand and gravel reserves to meet potential future need. Therefore, the MPA considers there is a need to look to other local evidence to assess the potential long term need for sand and gravel supply sufficient to inform provision in the RMLP.

4. FACTORS IN CONSIDERATION OF APPROPRIATE SUPPLY

Overview

4.1 The NPPF and MASS Guidance states that the planned provision of minerals should be calculated by taking the average of the previous ten year sales as a starting point. However, both documents advise that a MPA should take ‘other relevant local information’ into account when determining the minerals provision over the lifetime of a Minerals Local Plan. Therefore, the MPA should consider the

¹³ Footnote 1 to paragraph 6 of the MASS Guidance.

appropriateness of relying on the ten year average of sales as the sole basis for determining future provision if local evidence points to the contrary.

4.2 Analysis of sales data for 2002-2011 (as shown in Section 3 of this topic paper) indicates that the ten year average and three year average have both been distorted by the impact of the recession since 2007. This can be expected given the uses of sand and gravel and its role as an indication of economic health. As a basic raw material the resource can be put to many uses, although consumption is fundamentally driven by activity in the construction sector and is primarily linked to house building.¹⁴ Given over 80 per cent of the sand and gravel consumed within Greater Essex originated in Essex (Table 3.1) it can therefore be reasonably expected that future demand for sand and gravel will be related to future prospects for the Essex economy and house-building rates.

4.3 To assess the future economic and house-building prospects of Essex, the following sources have been reviewed:

- [East of England Economic Forecasting Model](#) (EEFM);
- [Draft Review of the East of England Regional Spatial Strategy](#); and
- [2011 Based Interim Household Projections prepared by the Department for Communities and Local Government](#) (DCLG).

East of England Economic Forecasting Model

4.4 Data has been sourced from the EEFM.¹⁵ This is an econometric model operated on behalf of the authorities in the region by Oxford Economics (a leading independent forecasting house) to project economic, demographic and housing trends in a consistent fashion.¹⁶ The EEFM provides a set of baseline forecasts by local authority area, which are produced once a year consistent with Oxford Economics then current view of regional, national and global economies. It covers a wide range of variables, and is designed to be flexible so that alternative scenarios can be run. The EEFM has been used as it was developed with the authorities in the East of England, including Essex County Council. The model has also been used for a variety of spatial planning and economic development purposes across the region and is being used to inform the preparation of Local Plans by District Councils in Essex.

4.5 The EEFM was extended in 2011 and in addition to providing forecasts for the East of England region and sub-regions, now provides forecasts for the Local Enterprise Partnership (LEP) areas for the South East, Greater Cambridgeshire Greater Peterborough, Herefordshire, New Anglia, Northamptonshire, and South East Midlands.

¹⁴ http://www.bgs.ac.uk/Planning4Minerals/Economics_15.htm

¹⁵ The East of England region comprises the same counties, unitary and district authorities included within the East of England AWP.

¹⁶ Data can be accessed from

<http://www.cambridgeshire.gov.uk/business/research/economylab/Economic+forecasts.htm>

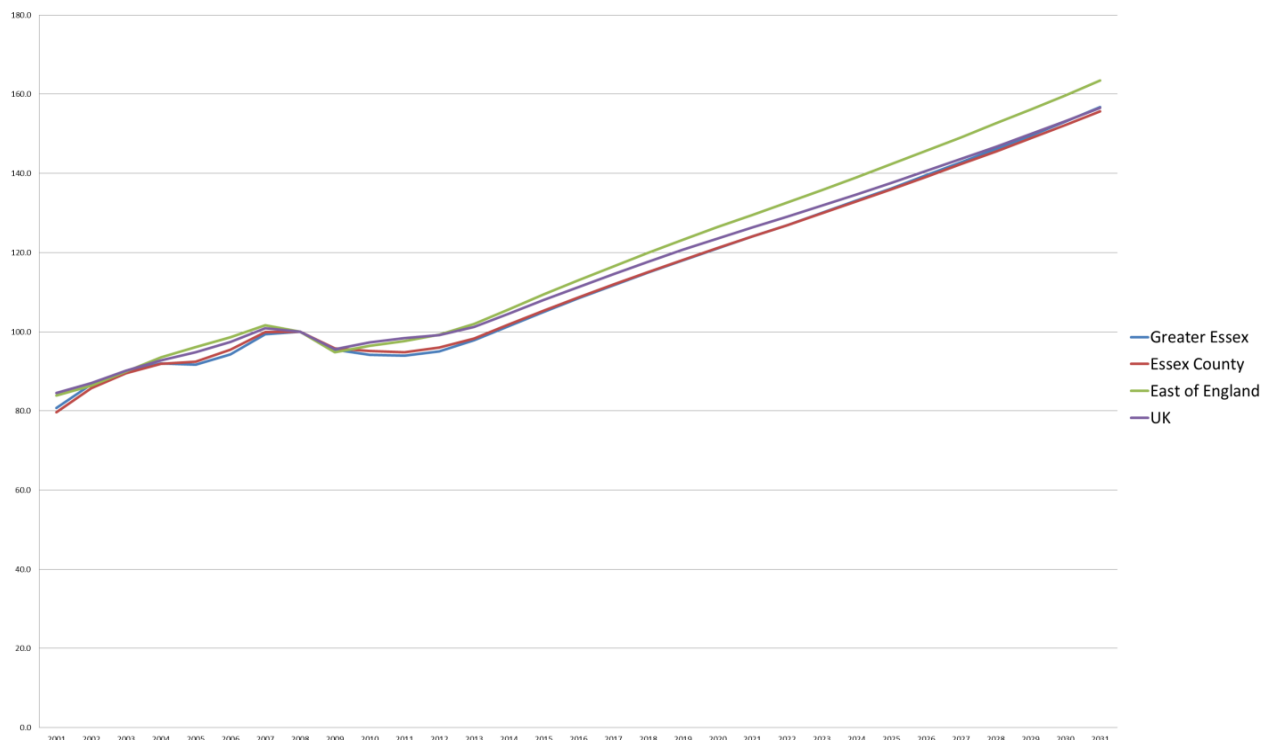
4.6 For each data source from the EEFM, Essex County is compared to Greater Essex (comprising Essex County, Southend-on-Sea and Thurrock), the East of England region and the UK. Relevant data from the EEFM for current purposes are:

- Gross Value Added (GVA) of all sectors of the economy;
- GVA of the construction sector;
- GVA of the mining and quarrying sector; and
- Demand for dwellings.

4.7 GVA measures the contribution to the economy of each individual producer, industry or sector in the UK and is a headline measure used to monitor economic performance. It provides a pound sterling (£) value for the amount of goods and services that have been produced, less the cost of all inputs and raw materials that are directly attributable to that production.

4.8 GVA of all sectors of the economy provides an indication of total economic activity, and is forecast to increase over the RMLP period. Figure 4.1 shows higher growth in Essex when compared to the UK. When comparing a ten year average for 2001/2 to 2010/11, to the forecast average for 2011/12 to 2030/31, there is an uplift of 32.4 per cent in the GVA of Greater Essex.

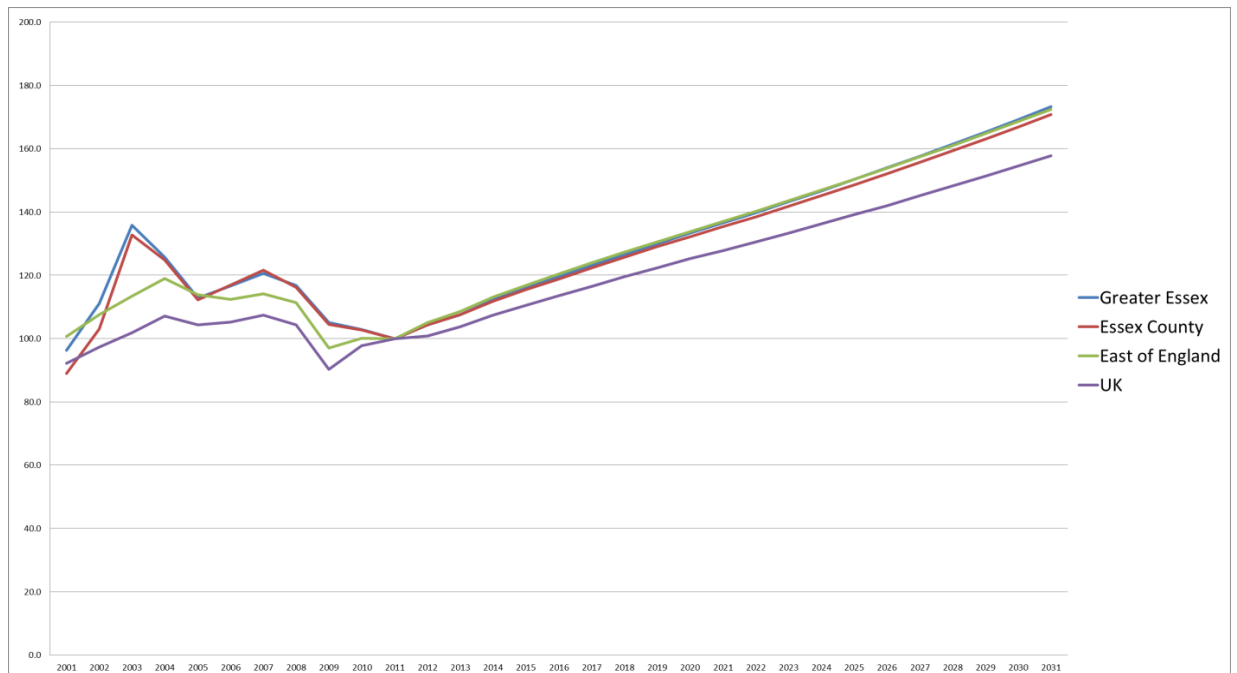
Figure 4.1: GVA all sectors (£m, 2008 prices)



4.9 GVA of the construction sector shows the contribution of that sector to the GVA for all sectors. Figure 4.2 shows higher historical and forecast growth for Essex County and Greater Essex when compared to the UK. When comparing a ten year

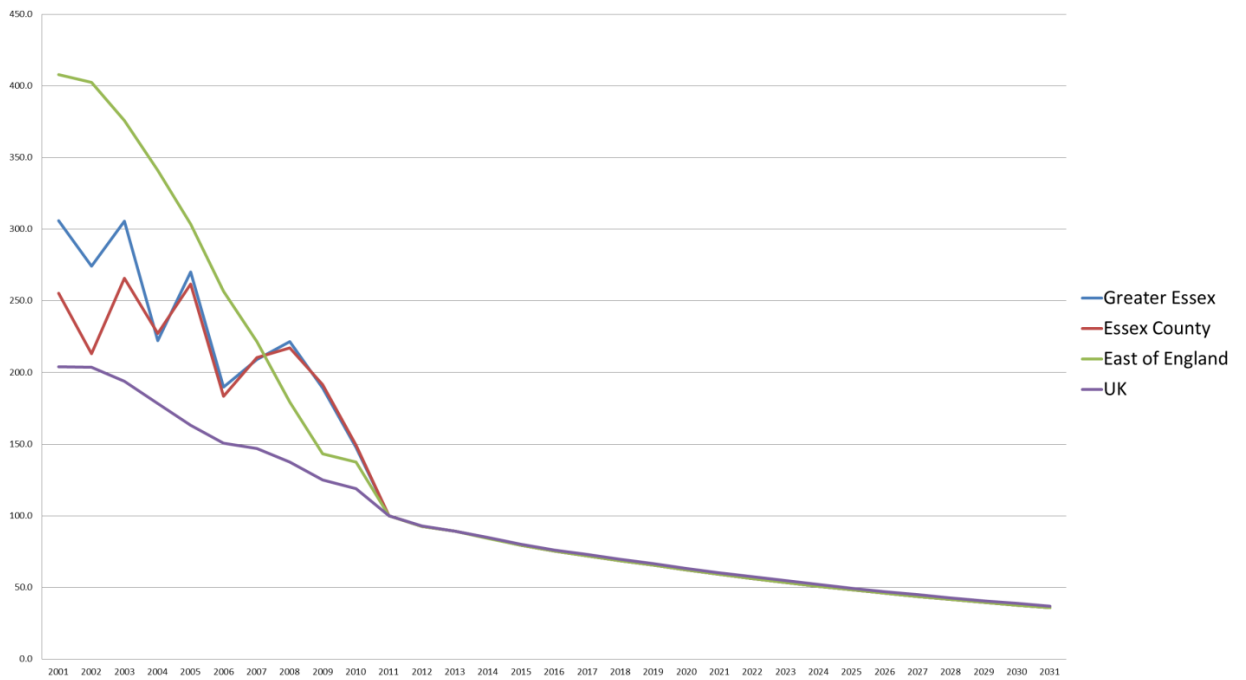
average for 2001/2 to 2010/11, to the forecast average for 2011/12 to 2030/31, there is an uplift of 17.9 per cent in the GVA of Greater Essex.

Figure 4.2: GVA construction (£m. 2008 prices)



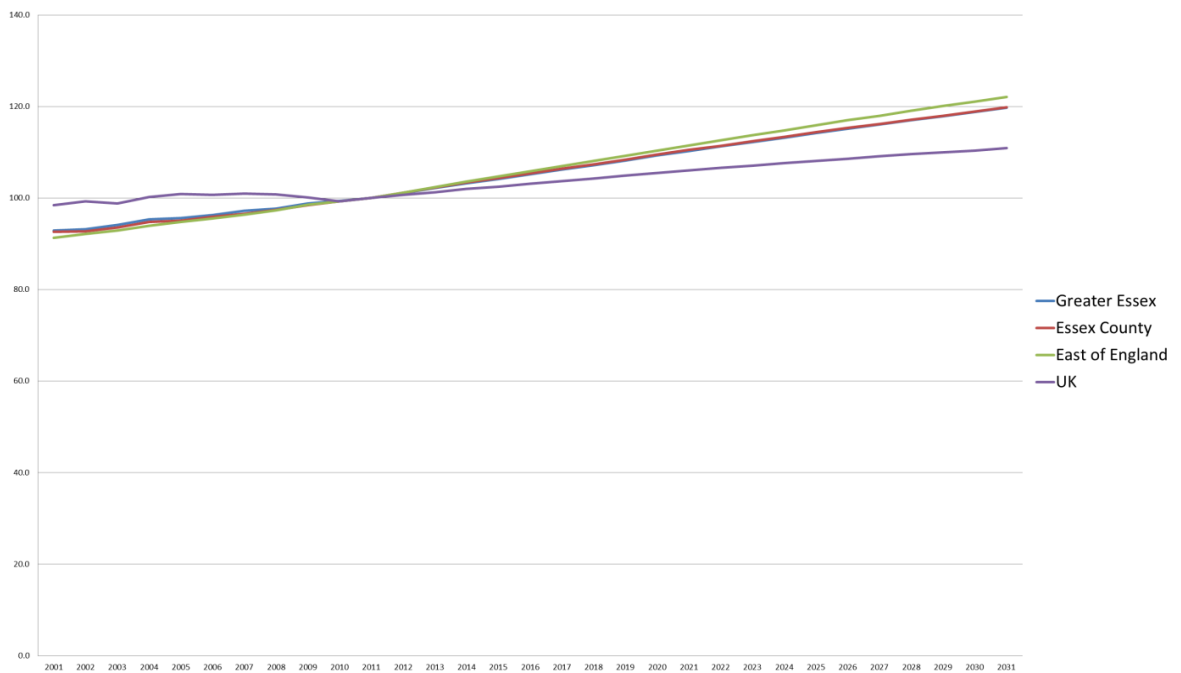
4.10 Activity in the aggregates industry falls within the mining and quarrying sector. GVA for this sector has been in decline across the UK since 2001 as shown in Figure 4.3. However, the sector is dominated by oil and gas rather than activities related to aggregates. The Annual Business Survey indicates that over the four years to 2011 the extraction of crude petroleum and natural gas accounted for 84 per cent of the total GVA of the mining and quarrying sector. Consequently, as the sector is dominated by the performance of oil and gas, its use is of limited value in providing a clear or accurate picture of the aggregates industry.

Figure 4.3: GVA mining and quarrying (£m. 2008 prices)



4.11 Within the EEFM the *forecast demand for dwellings* is directly related to the economic outputs of the model through a series of ratios that convert the forecast working age population to the demand for dwellings. Figure 4.4 shows that for Greater Essex the dwelling stock is forecast to grow by 17.9 per cent between 2011 and 2029. This represents an increased rate of growth in the dwelling stock from 5,290 between 2001 and 2011 to 7,450 between 2011 and 2029; an uplift of 40.8 per cent.

Figure 4.4: Demand for dwellings



Draft Revision to the East of England Plan (Regional Spatial Strategy)

4.12 The *Draft Revision to the East of England Plan* (the Regional Spatial Strategy) was agreed for submission to the Secretary of State at the final meeting of the former East of England Regional Assembly in March 2010. Although never subject to Examination, due to the abolition of Regional Spatial Strategies, the Draft Revision represents the most recent proposal for future dwelling provision on a consistent basis across Essex and the East of England region. For Greater Essex, the Draft Revision proposed an annual average provision of 6,230 dwellings a year between 2011 and 2031, compared with recorded dwelling completions of 5,420 between 2002 and 2012. This represents an increased rate of dwelling provision of 14.9 per cent.

2011 Based Interim Household Projections

4.13 Household projections produced by DCLG provide an important long term view of the number of households that would form, consistent at England and local authority level. The NPPF requires an assessment of future housing requirements in local spatial strategies based on household projections.¹⁷ In April 2013, DCLG released 2011-base interim household projections for the period 2011 to 2021. These projections indicate a growth of 84,000 households in Greater Essex between 2011 and 2021 compared with a growth of 46,000 between 2001 and 2011, an increase of 83 per cent.

Summary

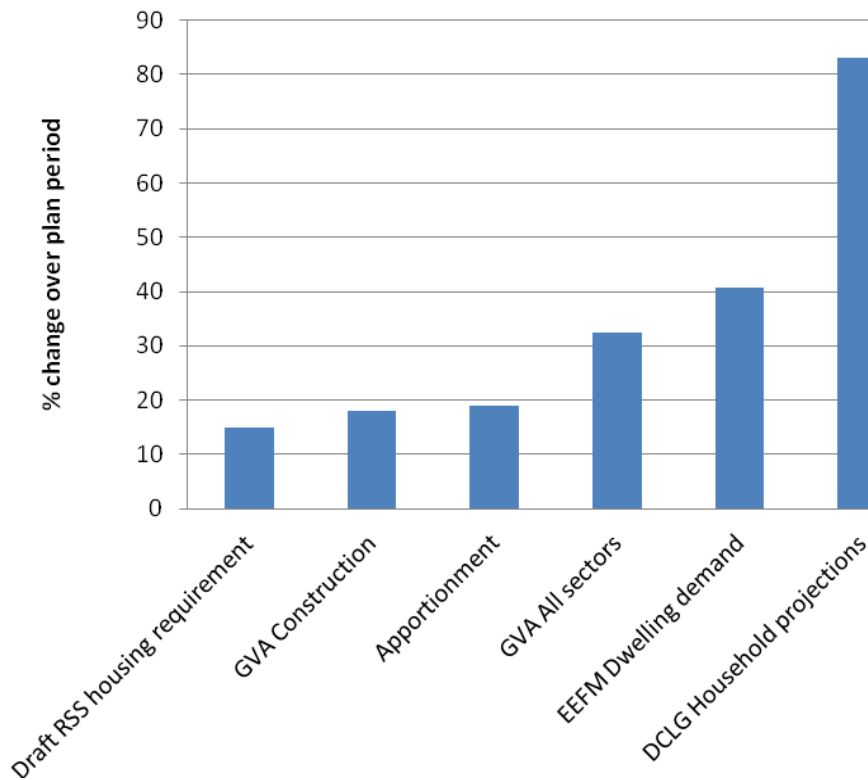
4.14 Figure 4.5 summarises the indicators discussed above and shows:

- All indicators are above the 10 years sales average.
- Two indicators are below the historical apportionment.
- Three indicators are significantly above the historical apportionment.

Figure 4.5: Summary of economic, housing and demographic indicators

¹⁷ Paragraph 159, NPPF.

Local indicators



Local indicator	Data for base decade ¹⁸	Data for future	% change	Future data dates
Aggregate provision (mtpa)	3.62	4.31 (RMLP)	19.0	2012-2029
GVA total (£m, EEFM)	26,924	35,654	32.4	2011-2031
GVA construction (£m, EEFM)	3,279	3,866	17.9	2011-2031
Demand for dwellings (EEFM)	5,290	7,450	40.8	2011-2029
Housing requirements (Draft Revision of RSS)	5,420	6,230	14.9	2011-2031
Household projections (CLG)	46,000	84,000	83.0	2011-2021

4.15 The above assessment suggests that the scale of future sand and gravel provision set out in the RMLP remains reasonable in terms of current views of prospects for future economic and house-building conditions in Essex. Although some indicators suggest expansion of sales to a level below proposed provision in the RMLP, the difference is limited and would afford flexibility of supply. The remaining indicators are significantly above the proposed provision and suggest that demand could exceed it. However, given continued current weakness of the economy and uncertainty over the timing and scale of economic recovery, the proposed provision in the RMLP would contribute sufficient reserves for the MPA to react flexibly to an upturn in demand for sand and gravel during the plan period.

5. FINDINGS AND CONCLUSIONS

5.1 The NPPF and MASS Guidance allows MPAs to determine their own aggregate supply and advises that aggregate provision should be based on a rolling average

¹⁸ Base decade is 2002 to 2011 to reflect decade used for the 10 year sales average of sand and gravel.

of 10 years sales data and other relevant local information, an assessment of all supply options (including marine dredged, secondary and recycled sources) as well as taking account of the advice of an AWP and the National Aggregate Coordinating Group as appropriate.

5.2 A review of sand and gravel sales, other relevant local information in the form of economic and industry trends, together with housing completions and future projected dwelling requirements, suggests that a higher level of future sand and gravel provision would be more appropriate for the RMLP than that indicated by the average sales data for either ten years or three years. This position is supported by the East of England AWP.

5.3 The data presented in Sections 3 and 4 of this topic paper shows the following.

- Over 80 per cent of the sand and gravel consumed within Greater Essex originated in Essex
- Average ten years sales data for sand and gravel between the years 2002-2011 is below the proposed annual provision in the RMLP. However, that sales data reflects the economic conditions experienced through the decade particularly the consequences of the recession in the years following 2007.
- Sales were above the ten years sales average for the six years 2002 to 2007.
- Sand and gravel use is closely related to economic prospects, activity in the construction sector and is primarily linked to house-building rates.
- Five indicators of local economic prospects suggest future demand will be above historic sales data for the RMLP plan period.
- Three of the indicators show growth of the economy and house-building at a rate significantly above the difference between sales data and proposed provision in the RMLP.
- GVA construction figures are forecasted to return to their peak midway through the RMLP plan period.

5.4 This review suggests that the scale of future sand and gravel provision set out in the RMLP remains reasonable in terms of current views of prospects for future economic and house-building conditions in Essex. Although some indicators suggest expansion of sales to a level below proposed provision in the RMLP, the difference is limited and would afford flexibility of supply. The remaining indicators are significantly above the proposed provision and suggest that demand could exceed it. Historic sales data in the circumstances are an inappropriate indicator of long term trends for sand and gravel use in Essex.

5.5 It is therefore prudent to secure future supply by setting a long term Minerals Local Plan target above historic three and ten year sales data. Sand and gravel provision as outlined in the submitted RMLP will support demand within Greater Essex and the sub-region and on the balance of evidence, sand and gravel provision contained in the RMLP remains reasonable. Given continued current weakness of the economy and uncertainty over the timing and scale of economic recovery, the proposed provision would contribute sufficient reserves for the MPA

to react flexibly to an upturn in demand for sand and gravel during the plan period to support national and regional economic growth objectives.

APPENDIX 1: EXTRACT FROM NATIONAL PLANNING POLICY FRAMEWORK

Paragraph 145

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, based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources);
- participating in the operation of an Aggregate Working Party and taking the advice of that Party into account when preparing their Local Aggregate Assessment;
- making provision for the land-won and other elements of their Local Aggregate Assessment in their mineral plans taking account of the advice of the Aggregate Working Parties and the National Aggregate Coordinating Group as appropriate. Such provision should take the form of specific sites, preferred areas and/or areas of search and locational criteria as appropriate;
- taking account of published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates;
- using landbanks of aggregate minerals reserves principally as an indicator of the security of aggregate minerals supply, and to indicate the additional provision that needs to be made for new aggregate extraction and alternative supplies in mineral plans;
- making provision for the maintenance of landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock, whilst ensuring that the capacity of operations to supply a wide range of materials is not compromised. Longer periods may be appropriate to take account of the need to supply a range of types of aggregates, locations of permitted reserves relative to markets, and productive capacity of permitted sites;
- ensuring that large landbanks bound up in very few sites do not stifle competition; and
- calculating and maintaining separate landbanks for any aggregate materials of a specific type or quality which have a distinct and separate market.

APPENDIX 2: GREATER ESSEX LOCAL AGGREGATE ASSESSMENT

Appendix 2 – The Local Aggregate Assessment June 2013

This Appendix updates and finalises the draft Local Aggregate Assessment October 2012. This draft document was a part of the evidence base for the Pre-Submission version of the Essex Minerals Local Plan which went out for public consultation in January 2013. With regard to the finalised version, the table below highlights those areas where additions have been made to the document.

Section	Nature of Update
2.2.1 - Sand & Gravel	Updates previous LAA position which stated that further background work into the necessity of allocating a separate soft / building sand landbank will be carried out. This work has been completed and is now referenced.
Section 4 – Land Won Minerals in Greater Essex	Ratification of figures pertaining to 2011 which were not yet signed off. This has led to a revision of Permitted Reserves as detailed in Section 4.4.5 from 36.398mt to 36.394mt
Section 4.4.5 – Permitted Reserves in Greater Essex	New section title inserted to separate permitted reserves analysis from the section on landbanks. No change to content.
Section 4.4.6 – Landbank held in Greater Essex	New section recording the variation in landbank within Greater Essex between 2002 – 2011.
Section 6 – Taking Other Relevant Factors into Account	The newly inserted second paragraph signposts the 'Review of the planned supply of Aggregate Provision in Essex 2012-2029' document. This paper offers a more detailed look at a number of local indicators which justify the maintenance of plan provision at the same rate as the latest apportionments negotiated by the East of England Aggregates Working Party.
Section 6.3 – The Impact of the Recession on the Previous Ten Years Sales	The first paragraph has been re-drafted to link more closely to the NPPF.
Section 6.9 – Dialogue with the East of England Aggregates Working Party	The second paragraph updates the position of the EEAWP in relation to their continued support of plan provision on the basis of the previously negotiated apportionment.
Section 6.10 – Conclusion	Same as above.
Section 8.7 – Increasing the	New section detailing the position of

Proportion of Marine-won Sand to Offset Land-won Production	the Minerals Planning Authority / Marine Management Organisation with regard to increasing mineral provision from the marine environment
Section 11 – Mineral Monitoring in the East of England	All sections within this Chapter have been updated to reflect the publishing of sub-national data pertaining to the year 2011.
Section 12 – Duty to Co-operate	All sections have been revised following the round of engagement which took place after the issuing of the October 2012 draft iteration.
Section 13 – Conclusion	Minor updates to reflect changes made between the draft October 2012 iteration and the finalised June 2013 iteration.

**Essex County Council, Southend-on-Sea Borough
Council and Thurrock Council**

**Local Aggregate Assessment
for
Greater Essex**

June 2013

This document is published by Essex County Council Minerals & Waste Planning and forms part of the Minerals Planning evidence base for Essex County Council and Thurrock Council.

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Glossary of Acronyms

AMR	Annual Monitoring Report
AWP	Aggregates Working Party
BGS	British Geological Survey
CBR	Essex Minerals Development Document: Contextual Baseline Report
CDE	Construction, Demolition and Excavation (waste)
ECC	Essex County Council
EEAWP	East of England Aggregates Working Party
EiP	Examination in Public
EU	European Union
Greater Essex	Essex, Southend-on-Sea and Thurrock
LAA	Local Aggregate Assessment
MPA	Minerals Planning Authority
mt	Million Tonnes
mtpa	Million Tonnes per Annum
MWDF	Minerals and Waste Development Framework
MWDPD	Thurrock Minerals and Waste Development Plan Document
MWDS	Minerals and Waste Development Scheme
MWMS	Municipal Waste Management Strategy
NPPF	National Planning Policy Framework
RAWP	Regional Aggregate Working Party
REMLP	Replacement Essex Minerals Local Plan (Pre-Submission draft)
RSS	Regional Spatial Strategy

1 INTRODUCTION

1.1 Background

Paragraph 145 of the National Planning Policy Framework (NPPF) requires Mineral Planning Authorities (MPAs), either individually or jointly by agreement, to produce a Local Aggregate Assessment (LAA). The role of the LAA is to aid in the determination of the mineral provision an MPA should set within a minerals planning area. Traditionally this figure was apportioned to an MPA through a top down approach known as the Managed Aggregate Supply System (MASS). The MASS calculated the total amount of mineral provision required to facilitate development nationally, and this was then apportioned to all the regions within the UK before being subsequently apportioned to each MPA within each individual region.

The NPPF, which came into force in April 2012 and emphasises planning at the local level, has revised the way in which annual mineral apportioning is to take place. The NPPF suggests calculating the amount of mineral provision required by taking a rolling average of ten years of sales data across the plan area as a basis for provision whilst factoring in other relevant local information. The LAA is also required to incorporate an assessment of all potential mineral supply options, including minerals won from the marine environment as well as those derived from secondary or recycled sources. Although it is the role of the MPA to devise an LAA, the LAA is also required to be informed by an Aggregates Working Party (AWP) and needs to take the National and Sub-National Guidelines for Aggregate Provision 2005 – 2020 into account.

This LAA covers the administrative areas of the County of Essex and the unitary authorities of Southend-on-Sea and Thurrock. Information relating to these three administrative areas has historically been amalgamated due to the relatively small amount of workings which take place in Thurrock, which creates issues around commercial confidentiality, and the absence of mineral working in Southend-on-Sea due to its tightly defined, urbanised administrative area. Collectively, Essex, Southend-on-Sea and Thurrock are known as Greater Essex and will be referred to as such throughout this report.

Please note that whilst all minerals data relating to Essex is amalgamated with that pertaining to Southend-on-Sea and Thurrock, the Plan Area pursuant to the current Essex Minerals Local Plan, and the replacement Plan which is currently emerging, does not cover the unitary authorities of Southend-on-Sea and Thurrock.

1.2 Contents and Necessary Assumptions

This LAA primarily qualifies the emerging Replacement Essex Minerals Local Plan – Pre-Submission draft's (REMLP) approach to aggregate supply. It will detail an assessment of current and historic aggregate supply and demand within the plan area, an assessment of the contribution that could be made to this demand by recycled materials as well as the proposed provision of aggregates within Essex up to 2029. Detailed in Section 5, the proposed future provision takes into account the rolling ten year aggregate sale average alongside other relevant factors as required by the NPPF. There will also be an overview of the current situation with regard to aggregate sales reported by the other MPA's in the East of England Aggregates

Working Party (AWP) as well as an assessment of the amount of aggregate imported to, and exported from, Greater Essex. Findings will be presented as numerical data, graphically and within a spatial context where appropriate.

Whilst most of the information presented within this report is based on combined figures for the three administrative areas as described above, where the LAA forecasts future provision, it was necessary to derive figures for Essex only in recognition that the unitary authorities of Southend-on-Sea and Thurrock are not a part of the REMLP plan area. This has been achieved by subtracting Essex and Southend-on-Sea's annual apportionment of 4.31million tonnes per annum (mtpa) from that of 4.45mtpa which was the apportionment for Greater Essex to give the annual apportionment for Thurrock (0.14mtpa). Subtracting four years worth of Thurrock's annual apportionment (as a proxy for sales) from the 2007 recorded Thurrock Permitted Reserves which, for commercial confidentiality have not been able to be reported since that date, allows an estimate of Thurrock Permitted Reserves for 31st December 2011 which is the base date from which future provision in the REMLP was calculated. This is recognised as an approximation but is considered to be the only reasonable approach in light of commercial confidentiality.

1.3 Updating the Local Aggregate Assessment

The NPPF states that the LAA is to be updated annually. It is the expectation that subsequent iterations of the joint LAA will include a more robust evidence base, in particular in relation to capacities and throughputs of secondary processing and aggregate recycling facilities. Guidance released in October 2012 also requests an assessment of secondary aggregate sources and potential uses of secondary products. The evidence base for this issue is at an early stage of development and will be included in the next revision of the LAA.

1.4 Essex Minerals Document: Contextual Baseline Report, 2009

Please note that there have been a number of minor improvements to the evidence base as originally presented in the MDD: Contextual Baseline Report (CBR) January 2009. In particular it has been possible to further refine recorded sales of sand and gravel. Where there is a conflict in reported figures between the LAA and the CBR, the figures within this LAA are to take precedence.

1.5 Southend-on-Sea Core Strategy, 2007

The Southend-on-Sea Core Strategy was adopted in December 2007 and sets out the spatial strategy and vision for development in the borough to 2021. Although Southend-on-Sea contains no deposits of aggregates (sand and gravel) Policy CP5 of the Core Strategy sets out an approach to the sustainable management of soil and mineral resources.

1.6 Thurrock Core Strategy and Policies for Management of Development, 2011

This document was adopted in December 2011 and sets out a spatial vision, objectives and development strategy and policies for Thurrock to 2026. It includes policies relating to the provision and safeguarding of minerals, and will be

supplemented in due course by the Minerals and Waste Development Plan Document (MWDPD) which will amongst other things identify a Mineral Safeguarding Area and, as necessary, areas for mineral working. Adoption of the Core Strategy preceded publication of the NPPF and the guidance contained within it as to how to plan for an adequate supply of aggregates. Published against the background of the former Minerals Planning Statement MPS1, Policy CSTP31 of the Core Strategy states that the Council will endeavour to maintain a landbank of at least 7 years and aim to meet the sub-regional apportionment of 0.14mtpa of sand and gravel. The Thurrock Core Strategy and Policies for the Management of Development 2011 will undergo an NPPF compliance consultation in November 2012.

1.7 Spatial Context

Essex is located to the north-east of London within the East of England region and borders the counties of Hertfordshire, Suffolk, Cambridgeshire and Kent. These counties are also in the East of England region with the exception of Kent which is in the South East region. The administrative area of Essex also borders the unitary authorities of Southend-on-Sea and Thurrock as well as a number of London Boroughs. The two-tier administrative system which operates within Essex encapsulates 12 district, city and borough councils.

Generally, the Essex economy has grown rapidly over the last decade whilst the total population has also increased over this time, and is expected to continue to grow. Current forecasts as reported within Essex Trends 2011 show that by 2031 the East of England will be the second fastest growing region in England, with a population increase of more than 25% from 2001. During this period, Essex is expected to see the highest numerical change in population of all counties in the East of England, absorbing some 324,000 additional residents – more than three times the population of Harlow. As shown in Section 6 however, growth within the Essex economy has stalled since around 2007/8.

Studies carried out on behalf of the East of England Regional Assembly relating to housing need suggested that a further 102,000 new homes would be required between 2001 and 2021, with a further 131,000 new jobs in Greater Essex to support them. Within Thurrock, the Core Strategy provides for over 18,500 new homes by 2021 and up to 4750 more by 2026. The Thurrock jobs target is 26,000 over the plan period. There are also a number of significant infrastructure schemes either planned or potentially programmed for Essex or adjoining authorities up to 2029 which is the end of the plan period for the REMLP. A major infrastructure project, Crossrail, linking Maidenhead (Berkshire) to Shenfield (Essex) is currently being constructed. Planning permission has been granted at Shellhaven (Thurrock) for the UK's largest container port and a major business park and logistics centre whilst at Bathside Bay (Harwich) planning approval has been granted for the construction of one of the largest container terminals in the UK.

Despite the current recession and the intended revocation of the East of England Regional Spatial Strategy (RSS), which included demanding housing completion targets, there is still a long-term ambition for growth within and around the County. The National Infrastructure Plan details Crossrail and a potential 'new Lower Thames crossing', the Essex Growth Strategy contains a number of growth projects and initiatives whilst Essex is also a part of the South East Local Economic Partnership which was formed in November 2010. Additionally, all completed and emerging Local

Development Framework documents produced by the district, borough and city councils within Essex, as well as Thurrock Council, predict and support growth. As such it is crucial that Essex County Council (ECC) and Thurrock Council, as the Minerals Planning Authority for their administrative areas, are able to secure and aid in the supply of sufficient mineral to realise these growth aims and maintain the infrastructure already developed. This is within the context of ever changing and competing interests for land threatening the sterilisation of Greater Essex's mineral resources, where the completion of developments supporting growth could potentially take place over mineral-bearing land which would subsequently be lost. As such the respective Mineral Local Plans will need to contain safeguarding policies to ensure that mineral bearing land is not lost to non-mineral development before extraction can take place.

2 THE GEOLOGY OF GREATER ESSEX

2.1 Introduction

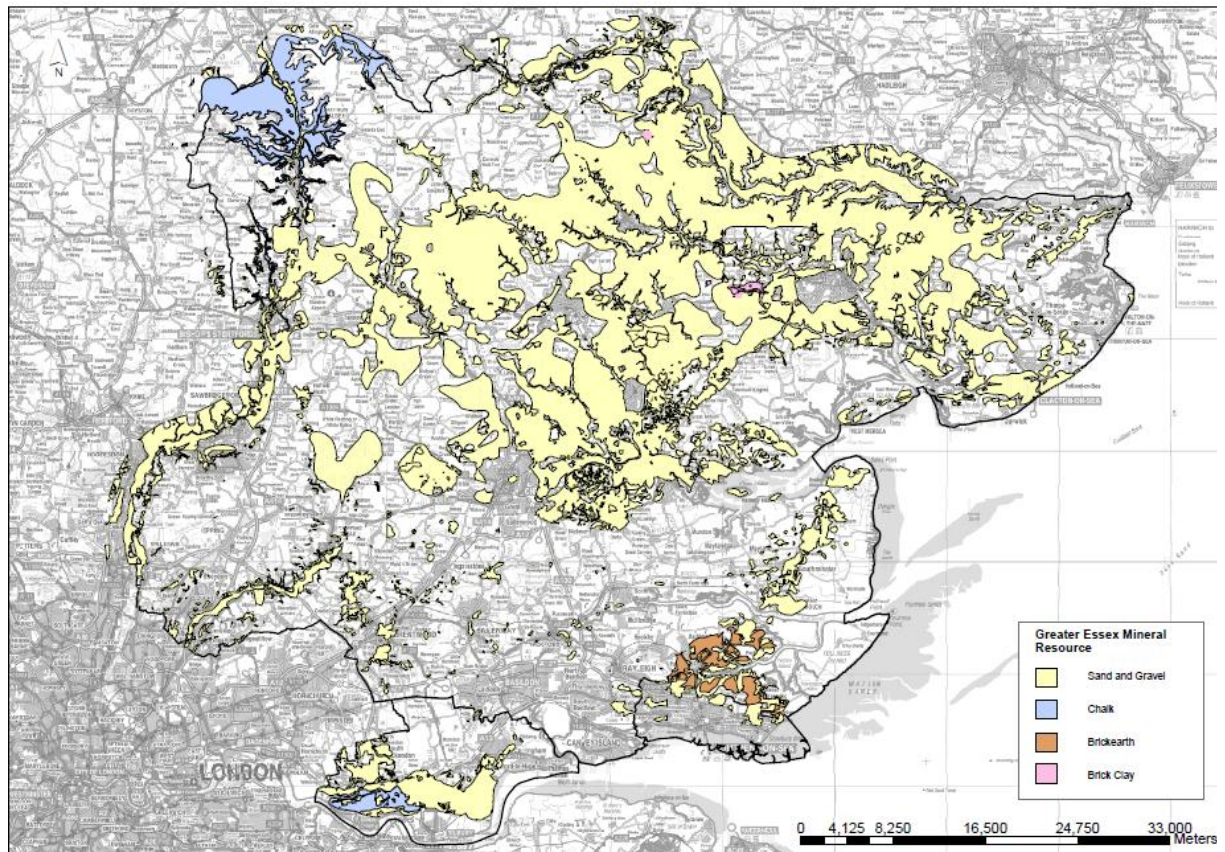
The geology of Greater Essex dictates where mineral resources will occur and consequently where their extraction can take place. The geology of Greater Essex provides for economically viable concentrations of sand & gravel, silica sand, brick clay and chalk although given that there are just two brick clay sites, a single chalk and a single silica sand site with Permitted Reserves in Greater Essex, it is not possible to include detailed information relating to these three resources for reasons of commercial confidentiality. As such figures within this report will relate to marine-won and land-won sand & gravel only, as well as crushed rock which is imported from outside the county.

There now follows a brief description of those mineral resources within Greater Essex which have the economic viability to be worked.

2.2 Economically Viable Mineral Resources within Greater Essex

The map below, based on information supplied by the British Geological Survey (BGS), depicts both known and inferred mineral resources within Greater Essex. When a new minerals application is submitted, Essex and Thurrock Councils require that a geological survey is carried out by the applicant to support their application. This allows for the geological yield and quality of the mineral from the proposed site to be accurately estimated. Subsequently, Essex and Thurrock can then gain a strategic understanding of the deposits being worked which enables calculations to be made relating to existing mineral supply and from that the rate of necessary future provision of mineral sites.

FIGURE 1: KNOWN AND INFERERRED MINERAL RESOURCES IN GREATER ESSEX



Source: Based on information supplied by the British Geological Survey, 2002

2.2.1 Sand & Gravel

Greater Essex has extensive river terrace and glacio-fluvial sand & gravel deposits. The majority of these deposits are part of the Kesgrave Formation of river terrace sands and gravels that were laid down as superficial (drift) deposits during the Quaternary period. Thanet sand is an exception having been deposited under marine conditions approximately 60 million years ago and overlies what is referred to as the 'Bullhead Bed', resting directly on Cretaceous Chalk and below London Clays. River terrace deposits are found not only along current river valleys but in historic river channels that are now dry. These are often associated with early paths of the River Thames and River Medway. Glacio-fluvial deposits were deposited as retreating glaciers dropped material they had scoured and picked up during their advance. These deposits are also known as Plateau Deposits, and are usually well sorted (meaning each part of the deposit is of a similar grain size to other proximal deposits). Heavier cobbles were dropped first followed by progressively finer material until the last material was deposited, which is boulder clay.

The resource of sand & gravel in Greater Essex is:

- Significant in the regional and national context i.e., we are one of the largest producers in the UK;
- Most extensive in the centre and north i.e. the Districts of Uttlesford, Braintree, Colchester, Tendring and Chelmsford although there are also significant deposits in Thurrock.

- Least extensive in the south east where deposits appear smallest and least workable;
- Used as a raw material to produce concrete, mortar, asphalt and construction fill which is used in the construction industry and for roads.

Historically, and this is a position maintained in the emerging REMLP, soft sand and sharp sand have been amalgamated into a single landbank within Essex. Previous rounds of consultation on earlier iterations of the REMLP produced mixed views on the subject of treating soft sand as a resource separate to sharp sands and gravel, as detailed within Table 3 of the MDD: Preferred Approach, 2010. Community representatives considered the practice unnecessary and unfeasible whilst mineral representatives suggested that the difference in mineral quality and subsequently the uses of the two resources deserves recognition.

Essex has previously amalgamated these two types of sand as it is the consideration of the MPA that soft sand can and is supplied by processing from mixed resources. As such it was not considered necessary to create and monitor a separate landbank for soft sand. It is considered that processing plants are capable of optimising the sand & gravel resource and make it more appropriate for a range of end-uses, including those requiring soft sand. Further background work on this issue states that the term 'soft sand' itself has been used erroneously in planning legislation and that the stance taken by Essex in not allocating a separate landbank is justified. This report, entitled 'A review of Building Sand supply in Essex: Consideration of a Separate Building Sand Landbank' is available as part of the evidence base to the Replacement Essex Minerals Local Plan.

For its part, Thurrock Council has included a single landbank calculation in its adopted Core Strategy. A representation was submitted in response to the Submission Draft Core Strategy arguing that there should be a separate landbank for Thanet Sand but the Inspectors did not consider the plan unsound for this reason – only indicating that the future MWDPD must take account of the need for both minerals, i.e. the allocation of sites should provide for the supply of both Thanet Sand and other sands and gravel.

2.2.2 Silica Sand

Silica sand is classed as industrial sand and its distinction from construction sand is based on application and market specification. It contains a high proportion of silica in the form of quartz and has a narrow grain size distribution compared to other sand in Greater Essex.

The resource of silica sand in Greater Essex:

- Is extracted for industrial purposes at Ardleigh, north-east of Colchester from the Kesgrave formation and has been since before the Second World War. Industrial uses include glass making, foundry casting, ceramics, chemicals and water filtration rather than any direct application in the construction industry.
- Was noted in a recent planning appeal decision to be suitable for purposes as diverse as geotechnical testing, horticultural composts, resin coating, building repair and restoration, nuclear technology, asphalt roofing, concrete floor levelling and other specialist uses;

- Has a selling price 20 times higher than that of regular construction aggregates, allowing them to serve a wider geographical market.

2.2.3 Brickearth

Brickearth was formed by aeolian (windblown) processes during peri-glacial periods (over the last 25,000 years) and is found in shallow seams in the south east, particularly in Rochford District. It varies in thickness from less than 1m to greater than 6m and is generally a structureless silty deposit formed as a fluvial overbank deposit, a loess (a windblown, fine grained deposit), or a mixture of the two. The deposit is not worked to its full depth; instead the top metre or so is skimmed off when the conditions are dry.

As its name suggests, brickearth is used in the manufacture of bricks and tiles and many of the deposits in Greater Essex were worked back in Tudor times. Brick earth is not currently being extracted in Greater Essex as there are no brick works to currently serve, but there is no compelling reason why it could not potentially be extracted in the future. This material is not an aggregate and therefore it does not come under the landbank requirement. It is however an important resource and remains safeguarded.

2.2.4 Brick Clay

Brick clay, was formed under different processes to brickearth around the same period. It is a sedimentary mudstone that results from the weathering of London Clay. It is located in isolated pockets and in particular to the south west of Sudbury and west of Colchester. Essex was at the forefront of the development of the brick industry in the medieval and early post medieval period. The remaining two sites actively extracting and processing brick clay in Essex have been doing so for centuries.

Brick clay is currently used in the manufacture of bricks, roof tiles and clay. Brick clay is extracted and processed for specialist brick and tile manufacture at Bulmer and Marks Tey. Bulmer Brickworks works an outcrop of London Clay which contains volcanic ash bands giving a particular character to the products at this site. The site at Marks Tey, which had been operated as a family concern since the 1800's, was taken over by a large brick company relatively recently. The clay worked here is unusual in that it is a lake deposit and part of the site is a geological SSSI.

2.2.5 Chalk

Chalk is one of the mainstays of 'solid geology' under Greater Essex and is the oldest rock exposed at the surface. It is a sedimentary rock that was formed in relatively deep marine conditions during the cretaceous period (between 80m and 100m years before the present). It occurs extensively under the surface but outcrops only in the north-west (particularly in Uttlesford) and the south-west within Thurrock. Chalk is one of the two principal ingredients in the manufacture of Portland Cement, the other being clay. London Clay and Chalk occur close together in Thurrock and the Portland Cement industry operated here for several decades until the 1980s when factories closed and all chalk extraction ceased. Historically, and this is a position maintained in the REMLP Pre-Submission draft, chalk is extracted as an agricultural

mineral in Essex rather than as an Industrial mineral, and as such it is not necessary to define a separate landbank for this resource.

Today chalk is extracted at one site (in the form of white chalk at Newport Quarry) and it is used mostly for agricultural use, although small quantities are used by the pharmaceutical industry.

3 ENVIRONMENTAL CONSTRAINTS

3.1 Introduction

The single most important driver for Minerals Planning is the fact that minerals can only ever be worked where they are found. Unlike other forms of spatial planning and development management, where said development can technically occur almost anywhere, minerals planning has to be focussed entirely on locations where mineral deposits can be found in economic quantities. That said, the areas of search for potential minerals development are further constrained by the various environmental designations and constraints that might be present within a minerals planning area. This section highlights awareness of those environmental constraints present in Essex and Thurrock.

3.2 Environmental Constraints in Essex, Southend-on-Sea and Thurrock

The recently released Guidance on the Managed Aggregate Supply System October 2012 states that the Local Aggregates Assessment should provide an analysis of environmental opportunities and constraints. However, it is considered that Essex, Southend-on-Sea and Thurrock have independently met this requirement in existing evidence base documents and there would be little merit in repeating that work. The environmental portrait of Essex is set out within the MDD: Contextual Baseline Report January 2009 under Section 9 – Planning and Environmental Opportunities and Constraints. Southend-on-Sea does not have a mineral related constraints report as they do not have any aggregates in the Borough although links to state of the environment reports are provided in Table 1 below. In 2010 Thurrock produced an ‘environmental capacity statement’ to inform their designation of mineral safeguarding areas. This supplements an early environmental baseline associated with their Local Development Framework. Hyperlinks for these three documents can be found below:

TABLE 1: ENVIRONMENTAL CONSTRAINTS IN ESSEX AND THURROCK

Document	Location
Essex MDD: Contextual Baseline Report January 2009	http://microsites.essexcc.gov.uk/publications/docs/MDD_Contextual_Baseline_report_Compressed.pdf
Thurrock Environmental Capacity Statement: Designation of Mineral Safeguarding Area May 2010	http://www.thurrock.gov.uk/planning/strategic/pdf/ldf_tech_env_capacity_2010.pdf
Thurrock SEA/SA of Thurrock Council local Development Framework November 2005	http://www.thurrock.gov.uk/planning/strategic/pdf/sc_report_appendixb.pdfv

4 LAND WON MINERALS IN GREATER ESSEX

4.1 Introduction

Information on aggregate sales is collected on an annual basis for all Mineral Planning Authorities (MPA) in the East of England by the East of England Aggregates Working Party (EEAWP), and this information is included in individual Annual Monitoring Reports (AMR) for each MPA. An MPA plans for the amount of land won mineral that is to be provided over the period of a plan but has no jurisdiction over aggregate won from the marine environment. Historic land won sand & gravel sales and Permitted Reserves are assessed here, future provision of sand & gravel and an analysis of the average ten years rolling sales in Section 5 whilst marine won aggregates are assessed separately in Section 8.

It is important to note that the minerals accounted for in this section do not account for the total mineral supply either required by Greater Essex or used within Greater Essex as minerals are the subject of importation and exportation. Whilst an MPA can set the quantity of mineral that can be extracted in its planning area, it has no jurisdiction over where this mineral is sold. Importation and exportation of sand & gravel is assessed in Section 9. Contributions are also made by recycled aggregate, assessed in Section 10.

4.2 Primary Sand & Gravel in Greater Essex

'Primary' aggregates are those aggregates which are sourced through direct extraction. There are two types of 'primary' aggregate, namely 'land won' and 'marine won', and this refers to whether the aggregate was extracted from the land or the sea bed. As previously stated, land won minerals are assessed in this section with an analysis of marine won mineral presented in Section 8.

4.2.1 Primary Aggregate Sites in Greater Essex

The following table captures all those primary aggregate sites operating within Greater Essex with planning permission. Mineral sites with planning permission contribute to the Permitted Reserves in Greater Essex. Permitted Reserves is the term given to minerals which the site operator has planning permission to extract at a specified rate to meet the annual apportionment figure (as defined in Section 4.4.2). As can be seen, as of August 2012 there were 23 sand and gravel quarries (19 operational) across Greater Essex, of which one also produces silica sand, as well as two brick clay sites and a single chalk site. There are also a further four sand and gravel quarries which have permission to extract but are currently dormant. These dormant quarries are omitted from the calculation of landbanks and permitted reserves.

TABLE 2: PERMITTED PRIMARY AGGREGATE SITES IN GREATER ESSEX, AUGUST 2012

Operator	Site Name	Cessation Date for Mineral Extraction
Operational Sand & Gravel Quarries with Permitted Reserves		
Aggregate Industries	Martells Quarry, Ardleigh	2026
Blackwater Aggregates	Bradwell Quarry, Rivenhall Airfield (inc Extension A2)	2016
Brett Aggregates	Alresford Creek, Alresford	2042
	Brightlingsea Quarry, Brightlingsea	2026
	Elsenham Quarry, Uttlesford	2030
Carr and Bircher	Widdington Pit, Widdington	2013
Danbury Aggregates	Royal Oak, Danbury	2014
Dewicks	Curry Farm, Bradwell-on-Sea	2014
Edviron	Crumps Farm, Great Canfield	2042
Frank Lyons Plant Services	Blackley Quarry, Great Leighs	2015
G&B Finch	Asheldham Quarry, Asheldham	2014*
Hanson Aggregates	Birch Quarry, Birch	2018
	Bulls Lodge Quarry, Boreham	2030
Lafarge Aggregates	Wivenhoe Quarry, Wivenhoe	2015
S Walsh and Sons Ltd	East Tilbury Quarry	2021**
Sewells Reservoir Construction	Crown Quarry, Ardleigh	2028
	Highwood Quarry, Little Easton	2026
Tarmac	Colchester Quarry, Stanway	2042
Thames and Colne River Aggregates	Fingringhoe Quarry, Fingringhoe	2042
Non Operational Sand & Gravel Quarries with Permitted Reserves		
Brett Aggregates	Lufkins Farm, Thorrington	Commencement within 3 years from July 2010, cessation three years after commencement.

Gent Fairhead & Co Ltd	Rivenhall Airfield (Waste Facility)	2015
Sewells Reservoir Construction	Cobbs Farm, Goldhanger	Commencement within 5 years from June 2012, cessation four years after commencement.
Tarmac Quarry Products	Orsett Quarry, Linford	2042
Dormant Sand & Gravel Quarries		
-	Alton Park	-
Devernish Ltd	Hambro Hill	-
-	Hodgnells Farm	-
S.R. Finch	Straits Mill	-
Operational Brick Clay Sites with Permitted Reserves		
Bulmer Brick & Tile Co	Bulmer Brickworks	2037***
W H Collier Ltd	Marks Tey Brickworks	2042
Operational Chalk Sites with Permitted Reserves		
Needham Chalks Ltd	Newport Chalk Pit	2042
Permitted Wharfs		
Civil and Marine / Hansen	Purfleet	-
Harwich International Port Ltd	Parkeston Quay, Harwich	-
Thames & Colne River Aggregates	Ballast Quay, Fingringhoe	2013
Permitted Rail Depots		
Aggregate Industries/Foster Yeoman	Harlow Rail Depot x2	-
Lafarge Aggregates	Chelmsford Rail Sidings	-
Tarmac Ltd	Marks Tey Rail Depot	-
Permitted Combined Rail Sidings and Wharf		
Yeoman Asphalt/Aggregate Industries	Purfleet	
Lafarge Aggregates	West Thurrock	

Source: Essex Minerals and Waste Annual Monitoring Report, 1st April 2010 – 30th March 2011 and Thurrock Council

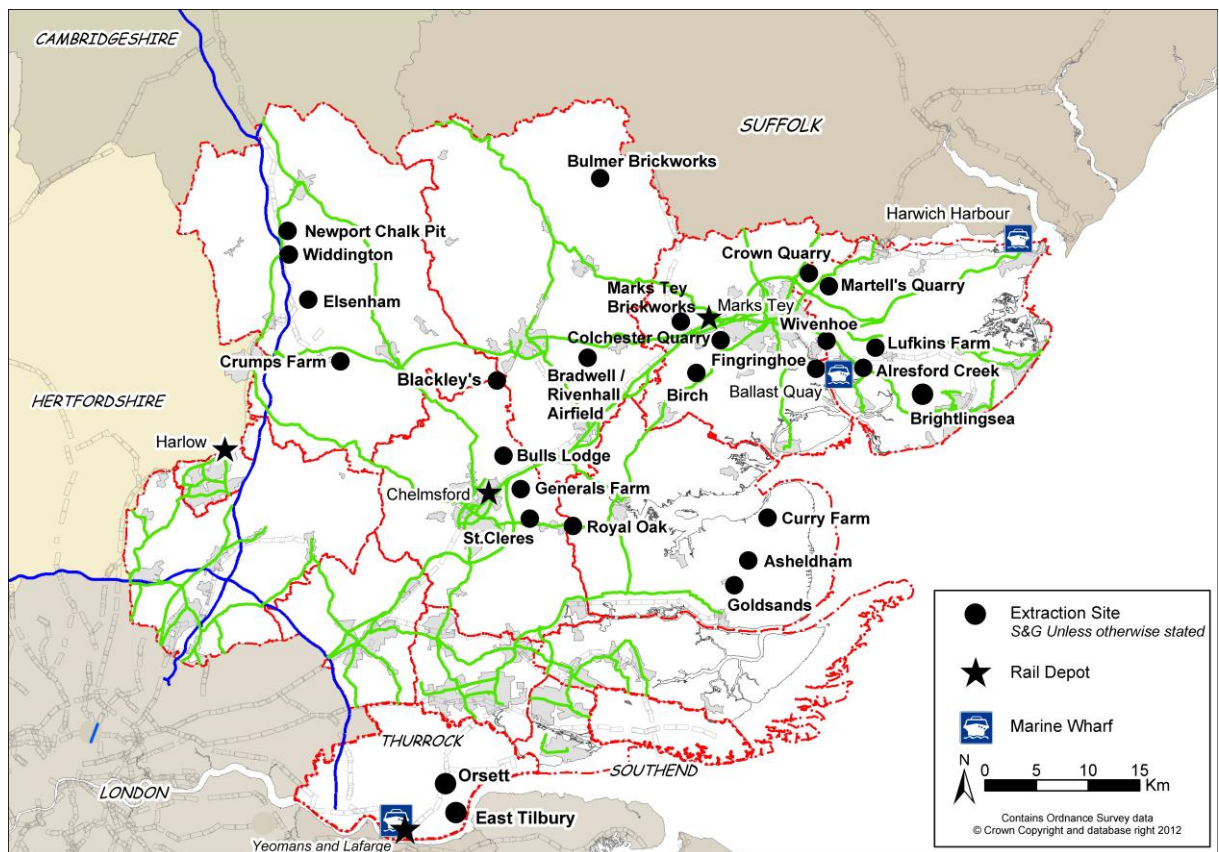
* Pre-application discussions have taken place. A fifteen year extension to 31st December 2029 is likely.

** Date the majority of the site has to be restored by

***Will need a Review of Old Mineral Permissions (ROMP) before 2027

The location of active and inactive mineral sites across Greater Essex is shown in the figure below. Please note that this figure also includes minerals transshipment sites which are described and assessed in Section 8, with site plans provided in Appendix 2. A minerals transshipment site is an intermediate minerals facility, where minerals are bought in and then transported to another destination. A minerals transshipment site will typically take the form of either a rail depot or a wharf, and allow for the sustainable long distance movement of minerals outside of the road network. The wharves located in Fingringhoe and Harwich, are, respectively, for the exportation of land-won sand & gravel from the Fingringhoe area and for the exportation of recycled aggregate at Harwich. Harwich could however act as a site for importation and as such it is intended to safeguard Parkeston Quay of the Harwich Port for this potential use. Marine won aggregates are currently imported through Thurrock at one location and crushed rock imported by rail at another.

FIGURE 2: ACTIVE AND PERMITTED INACTIVE MINERAL EXTRACTION AND TRANSHIPMENT SITES IN GREATER ESSEX, AUGUST 2012



Source: Essex Minerals and Waste Annual Monitoring Report, 1st April 2010 – 30th March 2011 and Thurrock Council

4.3 Processing Plants associated with Active Quarries across Greater Essex, August 2012

Primary processing enables a higher and more sustainable use of aggregates. Encouraging such on site processing reduces the number of lorry movements on the highway network, whilst the importation of non-indigenous material can increase vehicle movements and extend the overall life of a mineral development. The Essex MLP states that all applicants will be required to demonstrate how extracted mineral

is to be used in an efficient way by making provision for on-site primary processing plant.

Secondary processing plant, such as for concrete batching, the manufacture of coated materials (asphalt), block / tile / brick making and other concrete products appear on mineral, industrial and transshipment sites and are currently well spread across Greater Essex. They allow for a greater range of products to be produced on site and therefore make contributions to the economic viability of the mineral developments where they are found. Locating secondary processing plants on active quarries again has the benefit of reducing the amount of mineral miles on Greater Essex infrastructure.

The table below details the processing plants associated with each of the quarry sites within Greater Essex.

TABLE 3: PROCESSING PLANTS ON QUARRY SITES, AUGUST 2012

		Plants Present on Site					
		Primary Processing	Bagging	Concrete / Mortar	Asphalt Coating	Aggregate Recycling	Transshipment Facility
Aggregate Industries	Martells Quarry, Ardleigh						
Blackwater Aggregates	Bradwell Quarry, Rivenhall Airfield (inc Extension A2)						
Brett Aggregates	Alresford Creek, Tendring						
	Brightlingsea Quarry, Brightlingsea						
	Elsenham Quarry, Uttlesford						
Carr and Bircher	Widdington Pit, Widdington						
Danbury Aggregates	St Cleres, Danbury						
	Royal Oak, Danbury						
Dewicks	Curry Farm, Bradwell-on-Sea						
Edviron	Crumps Farm, Great Canfield						
Frank Lyons Plant Services	Blackley Quarry, Great Leighs						

		Plants Present on Site					
		Primary Processing	Bagging	Concrete / Mortar	Asphalt Coating	Aggregate Recycling	Transshipment Facility
G&B Finch	Asheldham Quarry, Asheldham						
Hanson Aggregates	Birch Quarry, Birch						
	Bulls Lodge Quarry, Boreham						
Lafarge Aggregates	Wivenhoe Quarry, Wivenhoe						
RIO Aggregates	Dansand Quarry						
S Walsh and Sons Ltd	East Tilbury Quarry						
Sewells Reservoir Construction	Crown Quarry, Ardleigh						
	Highwood Quarry, Little Easton						
Tarmac	Colchester Quarry, Stanway						
Thames and Colne River Aggregates	Fingringhoe Quarry, Fingringhoe						

Source: Essex County Council, 2012

4.4 Greater Essex Permitted Reserves, Apportionment and Landbank

Mineral Planning Authorities plan for the release of minerals from the land through a calculation involving their annual apportionment / annualised planned provision and their Permitted Reserves, which together provides a figure for their landbank. These four terms, and the changes in approach to minerals planning following the introduction of the NPPF is explained below:

4.4.1 The Historical Context

Historically, Central Government set the supply of aggregates required to meet projected national demand within the National and Regional (now Sub-National) Guidelines for Aggregate Provision, first introduced in 1989. This document recognised that minerals can only be extracted where they occur and that imbalances between the location of each mineral supply and the location of demand for that supply would necessitate the movement of minerals around the country. This imbalance resulted in some areas being required to extract more of a certain mineral than what would be used on a purely local basis.

Central Government took the figure for the amount of mineral that would be required to support growth on a national scale, and divided this into a regional apportionment figure to be allocated to each region, having regard to forecasted growth and supply, major national surveys which are published every four years and sales figures obtained from Annual Monitoring Reports. This exercise was completed in the context of having to recognise the geographic inequality of sand & gravel, crushed rock and other aggregates, as well as all existing environmental constraints which exist upon mineral development. Originally Regional Aggregate Working Parties, subsequently aided by Regional Assemblies who have since been dissolved as a consequence of the new planning system, had the role in conjunction with Mineral Planning Authorities of dividing these regional apportionment figures into an annual apportionment for each Mineral Planning Authority. These figures were underpinned by the 'National and Sub National Guidelines for Aggregates Provision in England (2005 – 2020) document. This practice has seen Greater Essex being attributed with a number of different annual apportionment figures over time as show in Table 4 below. Each annual apportionment has been lower than that before in recognition of the utilisation of more sustainable construction techniques and an increasing use of secondary and recycled material.

TABLE 4: GREATER ESSEX HISTORIC ANNUAL SAND & GRAVEL APPORTIONMENT FIGURES, 1994 – 2020 (IN MILLIONS OF TONNES)

Year Set	Period Covered	Apportionment
1989	1989 - 1994	6.9mt
1994	1994 - 2003	6.2mt
2003	2001 - 2016	4.55mt (4.41mt for Essex only)
2009	2005 - 2020	4.45mt (4.31mt for Essex only)

Source: East of England Aggregates Working Party, 2010 AMR

4.4.2 Locally Determining the Provision for Minerals

The intended revocation of Regional Spatial Strategies through the enacting of the NPPF removes the statutory requirement to plan for a top-down apportionment of minerals. It was through these documents that the annual apportionment for each MPA was delineated in policy. With regard to the East of England, of which Greater Essex is a part, Policy M1 in the East of England RSS set out the annual apportionment that each of the MPAs within Greater Essex was expected to provide. Following the intended removal of the RSS documents through the enacting of the NPPF, MPAs can now set their own 'annual apportionment' with the proviso that it is based on a robust and credible evidence base. 'Planned provision' is the term given in the REMLP for the amount of mineral that the Mineral Planning Authority (Essex County Council) would be required to permit for extraction within its administrative boundary over the lifetime of the plan in order to maintain a steady and adequate supply of mineral, with the annualised planned provision being the yearly planned provision calculated by dividing the total planned provision by the 15 year lifetime of the plan. As stated this annualised planned provision was traditionally sourced from guideline documents, with the latest being the National and Sub-National Guidelines for Aggregate Provision in England 2005 – 2020' of which the latest revision was in 2009, and as such the annual apportionment figure was part of a top-down approach to mineral provision. All references to 'annualised planned provision' in this LAA are broadly synonymous with references to 'annual apportionment', with the only difference being that an 'annualised planned provision' is calculated at local and sub-national level rather than being originally devised at the national level. An 'annualised planned provision' is expressed in (millions of) tonnes of aggregate per year (mtpa). An annualised planned provision of 4.31mtpa would mean that an MPA is planning to allow the extraction of 4.31 million tonnes of aggregate per year.

4.4.3 Permitted Reserves

'Permitted Reserves' are the total amount of mineral that the Mineral Planning Authority has given permission to extract. Hypothetically, if there were three extraction sites which have been awarded permission to extract material, containing 15mt, 10mt and 5mt of sand & gravel respectively, this would amount to a permitted reserve of 30mt (15mt + 10mt + 5mt).

It is important to note that all sites presently contribute to the current annual apportionment through the sales of sand & gravel extracted from each site. Each individual extraction site will have an associated figure for the tonnage expected to be extracted through its planning permission. These planning permissions are temporary in nature and often require the progressive working and restoration of the relevant site in phases, particularly when the site is large. The nature of the underlying geology will also naturally have an impact on the amount of mineral that can be extracted. Whilst the amount of mineral can be quantified through the digging of exploratory boreholes, this is still recognised and accepted as an estimate. Since the introduction of the NPPF, each Mineral Planning Authority now has the power to determine the amount of mineral that they will provide per year based on a calculation informed by locally derived sales information. This methodology, and commentary around the resulting figures, is presented in Section 5: Predicting Future Need.

4.4.4 Landbanks

The 'landbank' is calculated by taking the total amount of Permitted Reserve with valid planning permissions which are yet to be implemented, and dividing it by the annual apportionment. Essentially, the landbank is the stock of Permitted Reserves expressed in years based upon the annual provision of aggregate. Each mineral type will have its own individually calculated landbank. The resulting figure, reported in years, is the length of time that the 'Permitted Reserves' would last if material is extracted at the rate of the 'annualised planned provision'. In the hypothetical example of 30mt of permitted reserve, and given a current 'annualised planned provision' of 4.45mtpa, the landbank would be calculated as follows:

$$\text{Landbank} = 30\text{mt} / 4.45\text{mtpa} = 6.74 \text{ years}$$

As such, the Permitted Reserves would be exhausted in 6.74 years at the given annualised planned provision of 4.45mtpa if no further planning permissions were granted. Both historically and under the auspices of the new NPPF, the landbank for sand & gravel has been set at a minimum of seven years and as such new extraction permissions would be required. The seven year requirement reflects the lead in time for the planning of quarries and ensures a steady and adequate supply of aggregates. The landbank for sand & gravel is a relatively low minimum figure in comparison to other minerals and this is reflective of its relative commonality. As previously discussed, within Essex there is also the extraction of silica sand, brick clay and chalk. The NPPF requires a landbank of 10 years for silica sand and 25 years for brick clay whilst chalk does not have a landbank in Essex as it is extracted as an industrial mineral rather than as an aggregate. Within Essex the small-scale extraction of chalk will only be supported for agricultural and pharmaceutical uses at Newport Quarry as identified in the Submission Policies Map. Extraction of chalk for other uses, such as aggregate, as fill material or for engineering will not be supported.

Within Thurrock, policy CSTP31 of the adopted Thurrock Core Strategy generally states that mineral working will only be permitted where there is an identified national, regional or local need and the sites fall within the criteria policies to be outlined in the future MWDPD.

4.4.5 Permitted Reserves in Greater Essex

There now follows an assessment of the permitted reserves of sand & gravel held by Greater Essex. Please note that dormant mineral developments are not included in landbank calculations.

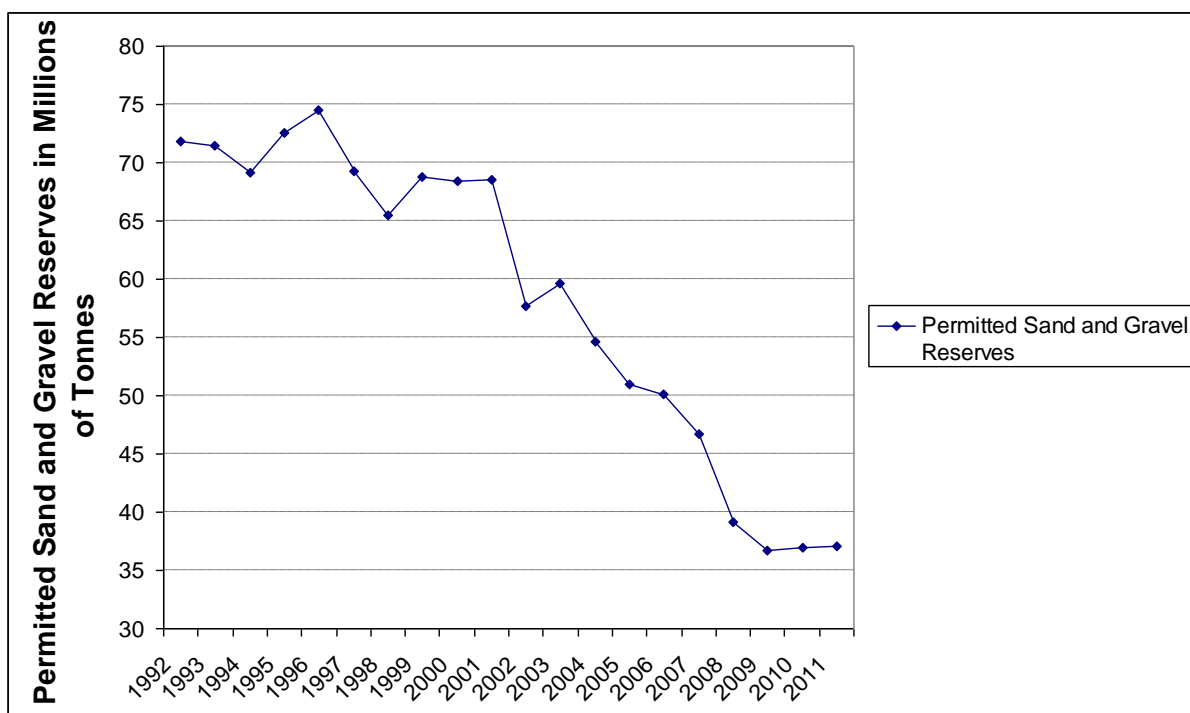
TABLE 5: PERMITTED RESERVES IN GREATER ESSEX IN MILLIONS OF TONNES, 1992 – 2011

Permitted Sand & Gravel Reserves in Essex, Thurrock & Southend	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	71.790	71.498	69.140	72.594	74.550	69.275	65.517	68.761	68.421	68.476

Permitted Sand & Gravel Reserves in Essex, Thurrock & Southend	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	57.686	59.639	54.600	51.000	50.122	46.684	39.191	36.706	36.934	37.014

Source: East of England Aggregates Working Party Annual Monitoring Report, 2011

FIGURE 3: PERMITTED RESERVES IN GREATER ESSEX IN MILLIONS OF TONNES, 1992 – 2011



Source: East of England Aggregates Working Party Annual Monitoring Report, 2011

There has been a clear reduction in the amount of mineral that Greater Essex has permitted for extraction over the last 20 years. Permitted Reserves were 71.79mt in 1992 which is the highest permitted reserve across the study. Whilst the subsequent decrease in Permitted Reserves has not been year-on-year, there has been a general pattern of reduction, a year-on-year reduction between 2003 and 2009 followed by an increase to 2011. The 2011 Permitted Reserve equates to 51.56% of that recorded in 1992. The general trend of a falling reserve is the result of sales being higher than the amount of material being added to the reserve by planning permissions. A declining Permitted Reserve within Greater Essex is however comparable to the national picture. The principle reason for this downturn nationally was identified by the British Geological Survey in a 2008 report (BGS: Reasons for the Decline in Aggregate Reserves in England, 2008) as being due to insufficient planning applications coming forward relating to extraction rather than too conservative an approach on behalf of Mineral Planning Authorities in awarding planning permissions.

The upturn shown in the recent period is partly due to a reduction in sales but also to the awarding of planning permissions to extract, including Crown Quarry in Ardleigh, Tendring (App no. ESS/57/04/TEN), Little Easton, Gt Dunmow (App no. ESS/65/06/UTT) and Lufkins Farm, Thorrington (App no. ESS/21/08/TEN).

4.4.6 Landbank held in Greater Essex

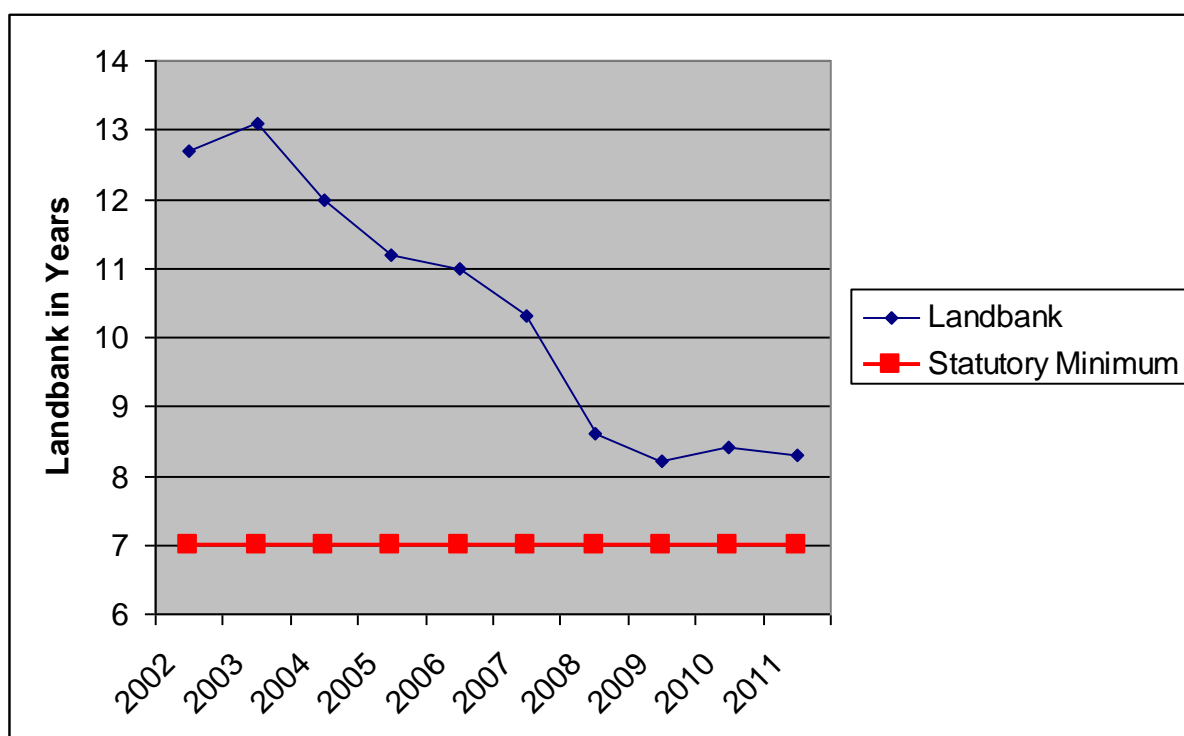
The following table and associated figure charts the landbank held within Greater Essex between 2002 and 2011.

TABLE 6: LANDBANK HELD IN GREATER ESSEX, 2002 – 2011

Year	Landbank in Years	Statutory Minimum Landbank in Years
2002	12.7	7
2003	13.1	7
2004	12	7
2005	11.2	7
2006	11.0	7
2007	10.3	7
2008	8.6	7
2009	8.2	7
2010	8.4	7
2011	8.3	7

Source: East of England Aggregates Working Party Annual Monitoring Report, 2011 (Figure for 2011 taken from site operator submissions not yet ratified by EEAWP)

FIGURE 4: LANDBANK HELD IN GREATER ESSEX, 2002 – 2011



Source: East of England Aggregates Working Party Annual Monitoring Report, 2011 (Figure for 2011 taken from site operator submissions not yet ratified by EEAWP)

The landbank held within Greater Essex can be seen to reduce over the previous ten years, from 12.7 years in 2002 to 8.3 years in 2011. The landbank peaked at 13.1 years in 2003 before falling year on year between 2003 and 2009. Please note that the landbank is a figure dependent on a calculation involving the amount of Permitted Reserve and the annual apportionment as shown in Section 4.4.4 so the landbank is not directly comparable across the period of study. For example, the annual apportionment in 2003 was 4.55mtpa whilst in 2009 it was 4.45mtpa. A lower annual apportionment equates to a longer lasting Permitted Reserve, which manifests as a larger landbank. As such, whilst the amount of Permitted Reserves has fallen,

Greater Essex has partly been able to maintain its seven year landbank due to the annual apportionment figure reducing over time as shown in Table 4 above. This is particularly true during the 1990's where the annual apportionment of 6.9mtpa and latterly 6.2mtpa would, given a landbank of approximately 70mt, equate to a landbank of approximately 10 years. A 70mt Permitted Reserve at the current annual apportionment would equate to a landbank of 15.7 years.

In the period assessed, Greater Essex has maintained its landbank above the statutory minimum period of seven years. As explained above, the recent awarding of planning permissions to extract resulted in a small upturn in the landbank in 2010.

4.4.7 Land Won Sales of Sand & Gravel

Greater Essex is the largest producer of sand & gravel in the East of England. Sales data for primary, land won aggregate has been produced for the period 1992 – 2011, representing a sales period of 20 years inclusive. This sales data is obtained through site operators within Greater Essex filling in an annual mineral survey. The amount of sand & gravel sold is taken as being broadly analogous to that which is extracted. Given the commercial sensitivity of the data, it is necessary to present the data as amalgamated annual totals rather than on a site-by-site basis to ensure that individual operators are not identifiable. This is in accordance with Aggregates Working Party requirements. The graph also incorporates a 20 year sales average, a ten year sales average in light of the NPPF stipulation of using this figure as a platform to base the future provision of land-won minerals, and the annual apportionment for Greater Essex as set out in the East of England RSS. As described more fully in Section 4.4.2, the annual apportionment was the amount of mineral that each MPA was required to provide which was attributed to each MPA through discussions between Regional Assemblies and Regional Aggregate Working Parties, which were in turn informed by Central Government figures detailing the amount of mineral required to facilitate national growth.

TABLE 7: SALES OF LAND WON SAND & GRAVEL WITHIN GREATER ESSEX, 1992 – 2011 (IN MILLIONS OF TONNES)

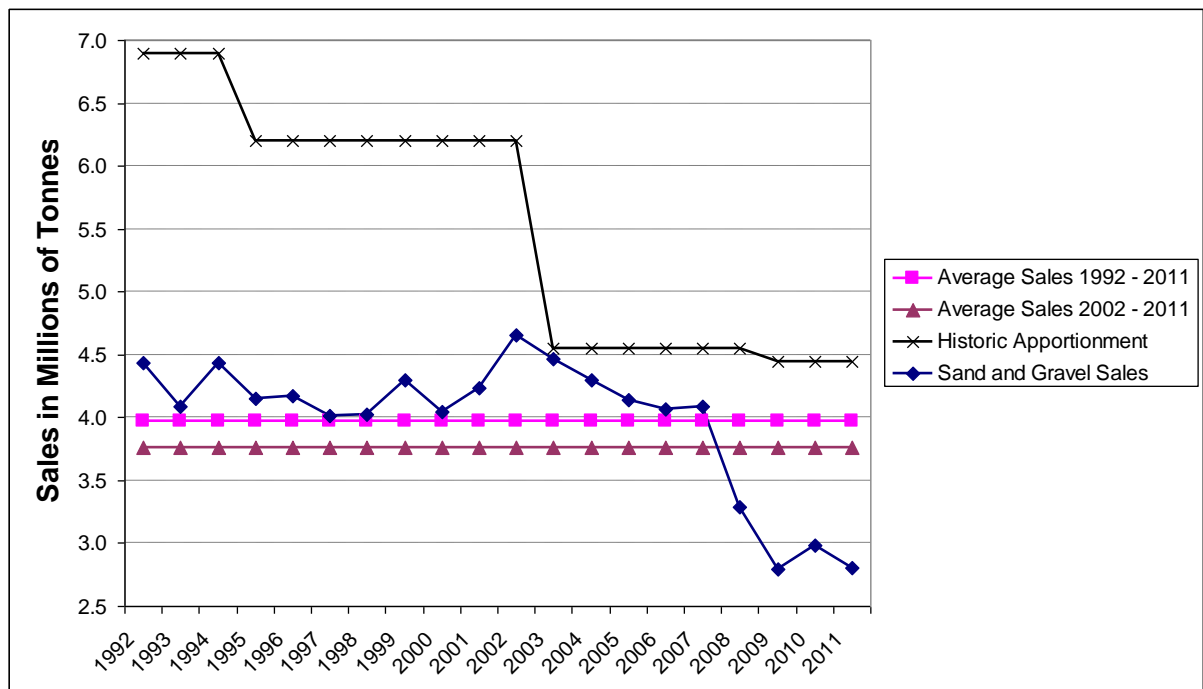
1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
4.44mt	4.09mt	4.43mt	4.15mt	4.18mt	4.02mt	4.02mt	4.30mt	4.04mt	4.23mt

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
4.66mt	4.47mt	4.30mt	4.14mt	4.07mt	4.09mt	3.29mt	2.79mt	2.99mt	2.80mt

Average Annual Sales 1992 – 2011	3.97mt
Average Annual Sales 2002 - 2011	3.76mt

Source: East of England Aggregates Working Party Annual Monitoring Report, 2011 (Figure for 2011 taken from site operator submissions not yet ratified by EEAWP)

FIGURE 5: SALES OF LAND WON SAND & GRAVEL WITHIN GREATER ESSEX, 1992 – 2011 (IN MILLIONS OF TONNES)



Source: East of England Aggregates Working Party Annual Monitoring Report, 2011 (Figure for 2011 taken from site operator submissions not yet ratified by EEAWP)

There has been a general downward trend witnessed in sand & gravel sales across the period covered in the above figure although this downward trend has been far from uniform. The highest sales were reported in 2002 at 4.66mt with the years immediately following 2002 also displaying relatively high sales. Sales in 1992, representing the start of this period of analysis, were recorded as 4.44mt which is the third highest amount of sales in any one period. There then follows a period of fluctuating sales through to 2002 where sales ranged from the aforementioned 4.66mt recorded in 2002 down to 4.02mt in 1997 and 1998. Following 2002, there was a decrease of sand & gravel sales year on year to 2009 other than for a brief upturn in 2007. The biggest drop in sales came between 2007 and 2008 with a further drop recorded in 2009. The figure of 2.79mt recorded in 2009 is the lowest across the period analysed. An up-turn was recorded in 2010 before a further decrease in 2011 down to 2.80mt. 2009 to 2011 marks the only period where sand & gravel sales have dropped below 3mtpa, whilst sales in 2011 represent 63% of those recorded in 1992.

Due to the rapid general decline in sand & gravel sales since 2007, which is strongly related to the economic recession, there were only four years where sand & gravel sales were below the average 1992 – 2011 (20 years) sales, which were the final four years in the assessed period. Since 2008, sand & gravel sales have also been below the 2002 – 2011 (ten years) average although previously they were above this average figure of 3.76mt.

The annual apportionment has historically been noticeably higher than actual sand & gravel sales but this was due to delays in plan formation at the national level. Before 1991 sales of sand & gravel in Greater Essex were around 8mtpa and as such historic apportionments were once closely analogous to actual sales. With the reduction of the Greater Essex apportionment to 4.55mtpa in 2003, sales of sand &

gravel again closely mirrored the apportionment until the aforementioned economic recession caused sales to fall.

5 PREDICTING FUTURE LAND WON AGGREGATE NEED

5.1 Introduction

This section presents a comparison of the actual land won sand & gravel sales within Greater Essex against the annual apportionment that Greater Essex was planning for. The process is then repeated for Essex and Southend-on-Sea only in recognition that Thurrock exists outside of the Plan Area of the emerging REMLP. As noted earlier, Thurrock Council's approach has already been settled in its adopted Core Strategy.

Please note that for those reasons set out in Section 2.2.1, Essex is continuing to proceed on the basis of amalgamating its soft and sharp sand landbanks. Silica sand is treated as a separate resource and has its own associated landbank, as shown in Section 7.5.

5.2 Land Won Sand & Gravel Sales vs Annual Apportionment in Greater Essex

The NPPF states that Mineral Planning Authorities should plan for a steady and adequate supply of aggregates to support sustainable growth by preparing, inter alia, a Local Aggregate Assessment, either individually or as jointly agreed by multiple Mineral Planning Authorities. The planned provision of minerals should be based on a rolling average of ten years sales data, taking other relevant local information into account. Participating in an Aggregates Working Party and taking its advice on board is also stipulated. Essex, Thurrock and Southend-on-Sea are part of the East of England Aggregates Working Party and some of their data has informed sections of this report.

5.3 An Analysis of the Previous Ten Year Sales of Land Won Sand & Gravel in Greater Essex vs Annual Apportionment

As previously described, the NPPF states that the amount of mineral to be provided annually is to be based on a rolling ten year local sales average although other local information (see Section 6) has to be taken into account. A ten year rolling average of sales is considered to be a valid basis 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.

There now follows a comparison between Greater Essex sand & gravel sales over the last ten years, the existing apportionment figure and the average of the last ten years of sales.

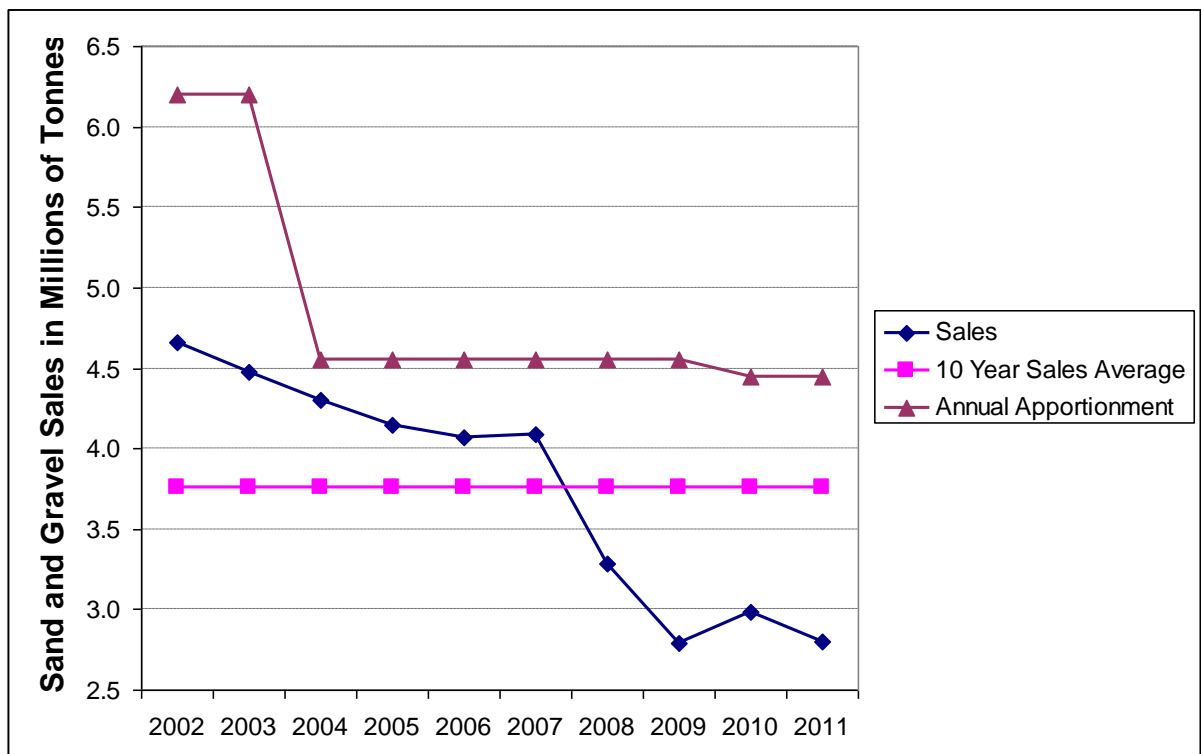
TABLE 8: COMPARISON OF GREATER ESSEX 10 YEAR SAND AND GRAVEL SALES VS 2010 APPORTIONMENT FIGURE, 2002 – 2011

Year	Sales
2002	4.659mt
2003	4.471mt
2004	4.300mt
2005	4.144mt
2006	4.066mt
2007	4.091mt
2008	3.288mt
2009	2.794mt
2010	2.986mt
2011	2.803mt

10 Year Sales Average	3.76mt
Current Apportionment	4.45mt

Source: East of England Aggregates Working Party and Site Operator Survey Returns, 2011

FIGURE 6: COMPARISON OF GREATER ESSEX 10 YEAR SAND & GRAVEL SALES VS ANNUAL APPORTIONMENT FIGURE, 2002 – 2011



Source: East of England Aggregates Working Party and Site Operator Survey Returns, 2011

Based on the above figure, it can be seen that sand & gravel sales within Greater Essex have been below the annual apportionment across the time period analysed and were only recorded above the current annual apportionment of 4.45mtpa, set in 2009, in 2002 and 2003 across this ten year period.

When a rolling ten year sales average is assessed, the average sales figure of 3.76mt is below recorded sales between 2001 and 2007, with only the sales in the last four years being low enough to be satisfied by the figure derived from the NPPF suggested provision. It is widely regarded that the current recession is the worst experienced in recent times, and indeed the 2009 reported sales figure was the lowest amount of sales recorded for over 25 years.

The 2002 – 2011 sales average (3.76mt) represents a reduction from the two previous rolling ten year averages, recorded as 3.9mtpa (2001 – 2010) and 4mtpa (2000 – 2009). A general reduction has been the historic pattern, with sand & gravel sales reported as exceeding 8mtpa in the 1970s and 1980s. The general pattern of sales reduction reported pre-recession is largely due to the utilisation of more sustainable construction techniques and an increase in the use of recycled and secondary products negating the need for as much primary extraction.

5.4 An Analysis of the Previous Ten Year Sales of Land Won Sand & Gravel in Essex vs Annual Apportionment

As previously stated, it is necessary to derive annual plan provision figures for Essex and Southend-on-Sea only in recognition that the unitary authority of Thurrock is not a part of the Essex and Southend-on-Sea plan area. This has been achieved by subtracting Essex and Southend-on-Sea's apportionment of 4.31mtpa from that of 4.45mtpa which was the apportionment for Greater Essex to give the annual apportionment for Thurrock (0.14mtpa), and then subtracting that figure from the combined sales data for Greater Essex. This is recognised as an approximation but is considered to be the only reasonable approach in light of commercial confidentiality.

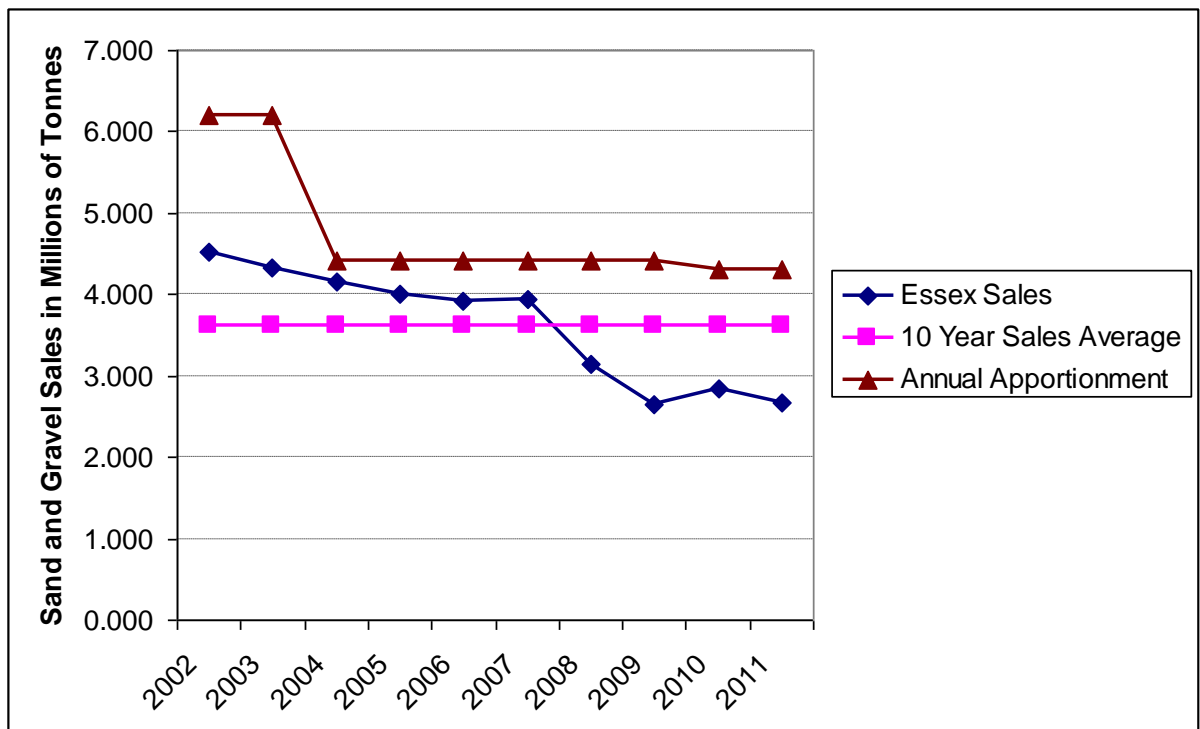
TABLE 9: COMPARISON OF ESSEX AND SOUTHEND-ON-SEA 10 YEAR SALES VS 2009 APPORTIONMENT FIGURE, 2002 – 2011

Year	Sales
2002	4.519mt
2003	4.331mt
2004	4.16mt
2005	4.004mt
2006	3.926mt
2007	3.951mt
2008	3.148mt
2009	2.654mt
2010	2.846mt
2011	2.663mt

10 Year Sales Average	3.62mt
Current Apportionment	4.31mt

Source: East of England Aggregates Working Party and Site Operator Survey Returns, 2011

FIGURE 7: COMPARISON OF ESSEX AND SOUTHEND-ON-SEA 10 YEAR SAND & GRAVEL SALES VS 2010 APPORTIONMENT FIGURE, 2002 – 2011



Source: East of England Aggregates Working Party and Site Operator Survey Returns, 2011

Note: Annual apportionments were only apportioned separately to Essex (alongside Southend) and Thurrock from 2004 onwards.

Given the relatively small differences involved, removing Thurrock sales based on the approximation outlined above results in a very similar pattern between the relationship of sales over the previous ten years, the average of those sales and the current annual apportionment. Annual sand & gravel sales within Essex have been below the respective apportionment figure since 2004 and were only recorded above the 2011 annual apportionment figure of 4.31mt in 2002 and 2003 across the 10 year period analysed. When a rolling 10 year sales average is assessed, the average sales figure of 3.62mtpa is below actual sales between 2001 and 2007, with only the sales in the last four years being low enough to be satisfied by the figure derived from the NPPF suggested base position. As such taking a ten year sale average is not considered to be a viable approach on which to base planned mineral provision if economic growth is to be supported.

6 TAKING OTHER RELEVANT FACTORS INTO ACCOUNT

As highlighted above, the NPPF, as well as the 'Guidance on the MASS' document states that the planned provision of minerals should be calculated by taking a rolling average of the previous ten year sales as a starting point. The NPPF and the Guidance on MASS document then allows an MPA to take other relevant 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 as the sole basis of provision if evidence should point to the contrary.

Please note that Essex County Council has produced a stand-alone document entitled 'Review of the planned supply of Aggregate Provision in Essex 2012-2029' which is available as part of the evidence base for the Submission draft of the Replacement Essex Local Minerals Plan. This paper provides further justification for the maintenance of the 2010 apportionment as a plan provision figure rather than a ten year rolling sales average by employing economic forecasting models across a range of indicators including household projections and future expected performance in the construction industry.

6.1 Historic, Current and Forecasted Economic Situation across Greater Essex

It has been previously stated within this LAA that the main driver for the recent drop in sand & gravel sales has been that Essex is currently in recession. The following section broadly qualifies the current state of the Greater Essex economy as well as offering economic forecasts in the areas considered.

6.1.1 Historic and Forecasted Employment Levels

A clear indicator of a recessionary economy is a reduction in employed residents. The following information details peak and current (as of 2010) employment figures across Greater Essex, and when a return to peak employment is predicted.

TABLE 10: PEAK EMPLOYMENT IN GREATER ESSEX IN 000'S POPULATION, 2001 – 2010

	Peak Employed	2010	Peak Year	Recovery Year
Basildon	84.4	79.5	2008	post 2031
Braintree	58.9	54.5	2007	2025
Brentwood	40.2	34.7	2009	post 2031
Castle Point	24.1	23.7	2009	2015
Chelmsford	89.9	89.7	2009	2011
Colchester	81	79.7	2009	2011
Epping Forest	51.2	50.6	2009	2013
Harlow	42.8	38.3	2008	post 2031
Maldon	22.5	21.8	2008	2014
Rochford	23.2	21.9	2009	2019
Tendring	47	45.9	2007	2015
Uttlesford	38.8	37.9	2008	2014
Southend-on-Sea	65.5	60.8	2008	post 2031
Thurrock	65.2	62.9	2009	post 2031
Essex	595.6	578.3	2009	2014
East of England	2589.5	2534.1	2008	2013
UK	27852.4	27166.3	2009	2015

Source: Essex County Council, 2012

Whilst the level of disparity varies between each of the district and boroughs in Essex, as well as Southend-on-Sea and Thurrock, each locality reports a lower employment figure in 2010 than their peak year employment level. Across the ten year period assessed, each peak year of employment was reported between 2007 and 2009. Whilst the conclusion that Greater Essex is in a recession could not be drawn from this information alone, the above table includes an element of economic forecasting which indicates when a return to peak employment can be predicted within each locality. Recovery dates have been estimated to be broadly 2014 across Essex, which is the intended first year of the REMLP. Whilst a return to peak employment in Southend-on-Sea and Thurrock is not predicted until after 2031, these two areas are not part of the Plan Area of the REMLP.

During 2009-10, Roger Tym and Partners undertook an exercise to evaluate the East of England Forecasting Model (EEFM) and the eight future job creation scenarios that it had produced for the East of England region. According to the four scenarios considered most likely, total jobs in Greater Essex are set to expand by between 103,000 (baseline) and 137,000 (RSS2) new jobs between 2011-2031.

The following information assesses employment levels in the construction industry, considered to be the sector of most relevance to minerals planning

TABLE 11: TOTAL EMPLOYMENT IN THE CONSTRUCTION INDUSTRY IN 000'S POPULATION, 2001 – 2029

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Essex	51.9	58.0	74.9	68.3	63.4	67.1	69.2	66.5	72.2	61.5	57.1	58.6	59.3	60.8
Southend-on-Sea	3.0	3.4	4.3	3.9	3.7	3.7	3.8	4.0	4.2	3.4	3.1	3.2	3.2	3.2
Thurrock	6.9	7.7	6.1	5.0	4.6	4.7	4.4	4.7	5.2	4.4	4.1	4.2	4.2	4.6

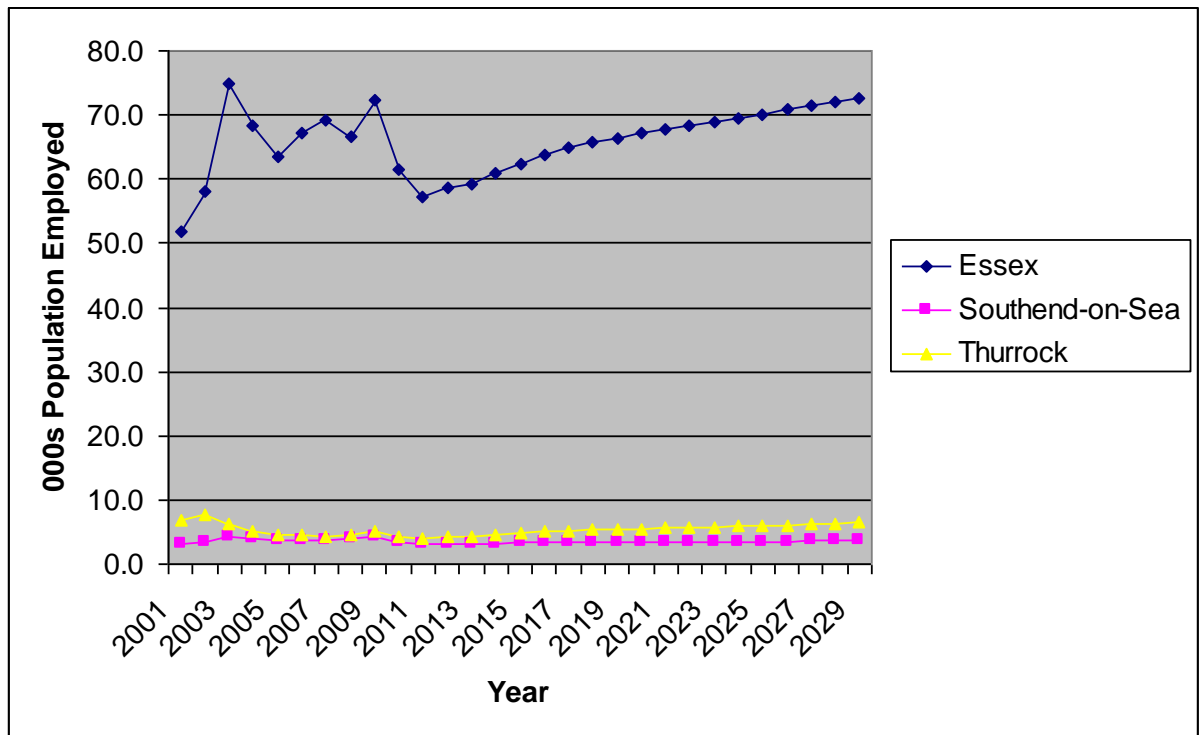
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Essex	62.3	63.7	64.9	65.7	66.4	67.1	67.7	68.3	68.9	69.5	70.1	70.8	71.4	72.0
Southend-on-Sea	3.3	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6
Thurrock	4.9	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3

	2029
Essex	72.6
Southend-on-Sea	3.6
Thurrock	6.4

Source: Essex County Council, 2012

Note: Data from 2012 onwards has been forecasted

FIGURE 8: TOTAL EMPLOYMENT IN THE CONSTRUCTION INDUSTRY IN 000'S POPULATION, 2001 - 2029



Source: Essex County Council and Individual Districts / Boroughs, 2012

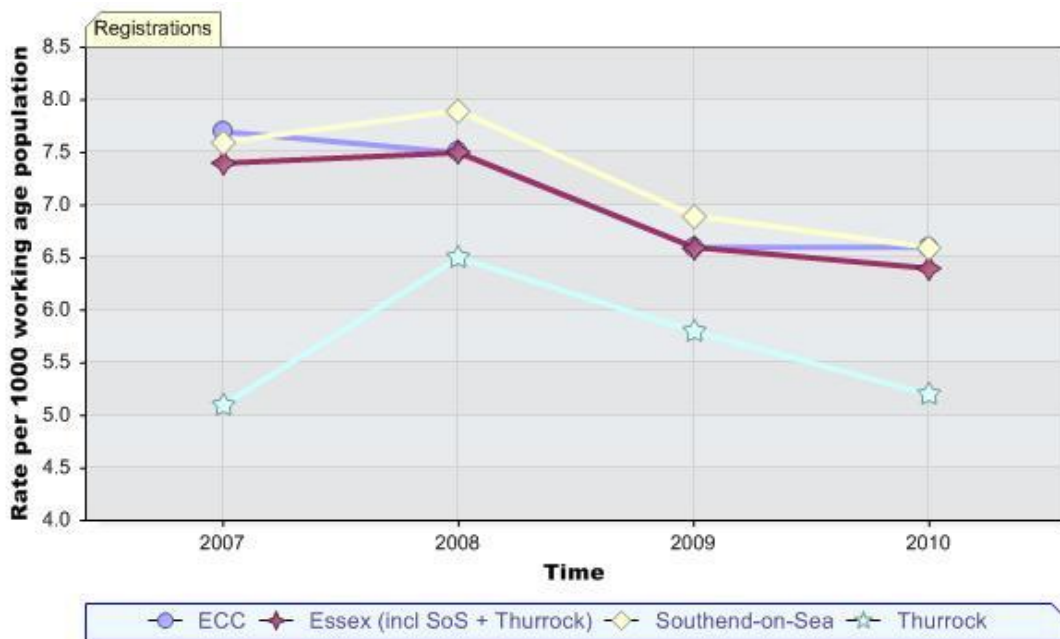
Note: Data from 2012 onwards has been forecasted

The Essex Business Survey 2010 states that 61% of construction businesses within Essex reported a reduction in turnover as a result of the current recession. Figure 8 details a clear constriction within the Construction sector between 2009 and 2011. 2009 equates to a period of a single year after the sales of sand & gravel can be seen to rapidly diminish following the relatively stable sales of 2003 – 2007, a period where the construction industry itself was also broadly stable albeit diminishing slightly. Importantly for the REMLP, the construction industry is forecasted to pick up from 2012 onwards and gradually return to pre-recession levels over the lifetime of the REMLP. The REMLP will be required to make sufficient provision for mineral to meet this forecasted growth in the industry.

6.1.2 Business Registration Rates and Closures

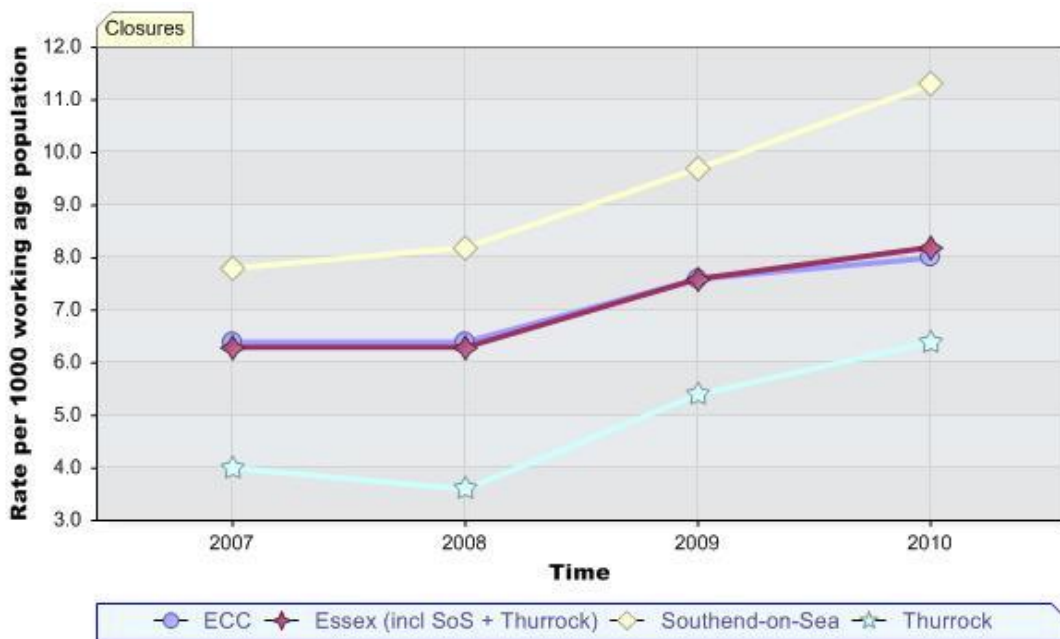
Another strong indicator that an economy is going through a recession is through a comparison of business registration rates and closures. A higher rate of closure than registration indicates that an economy is contracting and is therefore in recession. The following information details business registration and closure rates across Greater Essex. Please note that ECC refers to the Essex Plan Area whilst SELEP refers to the South East Local Economic Partnership which covers parts of Essex and also Southend-on-Sea, Thurrock and parts of East Sussex and Kent:

FIGURE 9: BUSINESS REGISTRATIONS PER 1,000 WORKING AGE POPULATION ACROSS GREATER ESSEX, 2007 – 2010



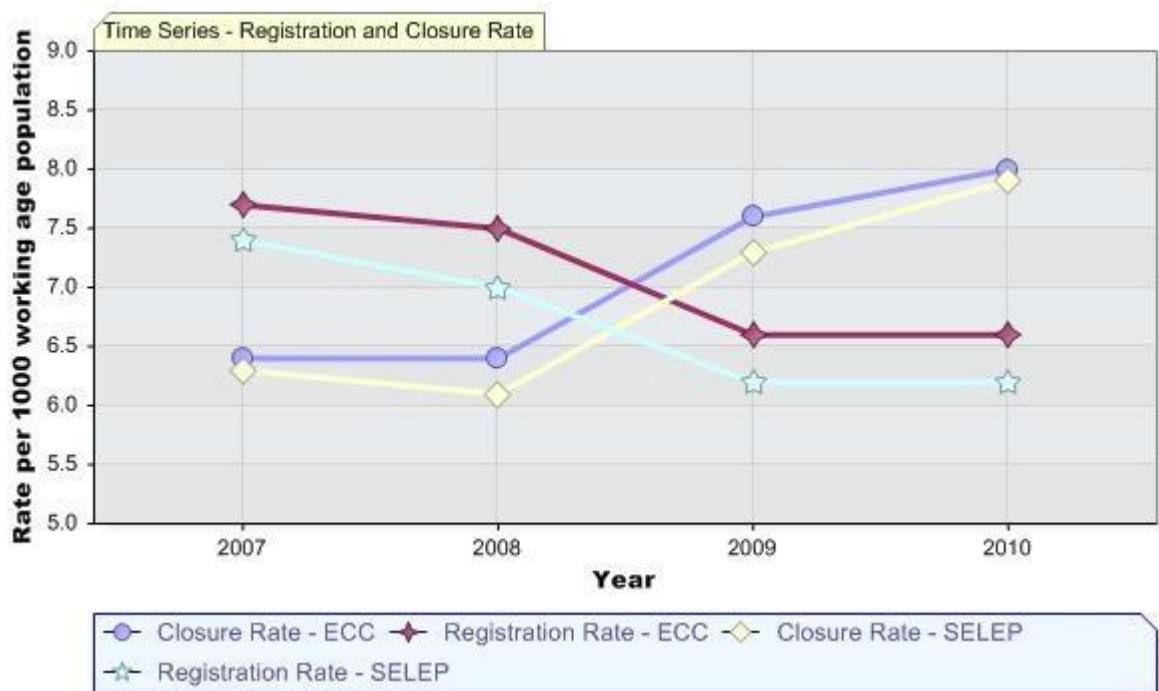
Source: Business Demography 2010, ONS, 2012

FIGURE 10: BUSINESS CLOSURES PER 1,000 WORKING AGE POPULATION ACROSS GREATER ESSEX, 2007 – 2010



Source: Business Demography 2010, ONS, 2012

FIGURE 11: BUSINESS REGISTRATIONS AND CLOSURES PER 1,000 WORKING AGE POPULATION IN ESSEX AND SELEP



Source: Business Demography 2010, ONS, 2012

It is considered that the above figures clearly indicate that the Plan Area is currently in a recessionary period. From 2008 to 2010, business registration rates have fallen (save for a small upturn across ECC in 2009 to 2010) whilst closure rates have increased. Between 2009 to 2010, business closure rates in both the ECC Plan Area and across SELEP have been higher than reported business registration rates, indicating that these areas are currently experiencing a recession. As such it is considered that basing the planned provision of minerals made within the REMLP solely on recent mineral sales data will not facilitate the growth agenda that the REMLP is designed to support.

6.1.3 Dwelling Completions and Forecasted Provision

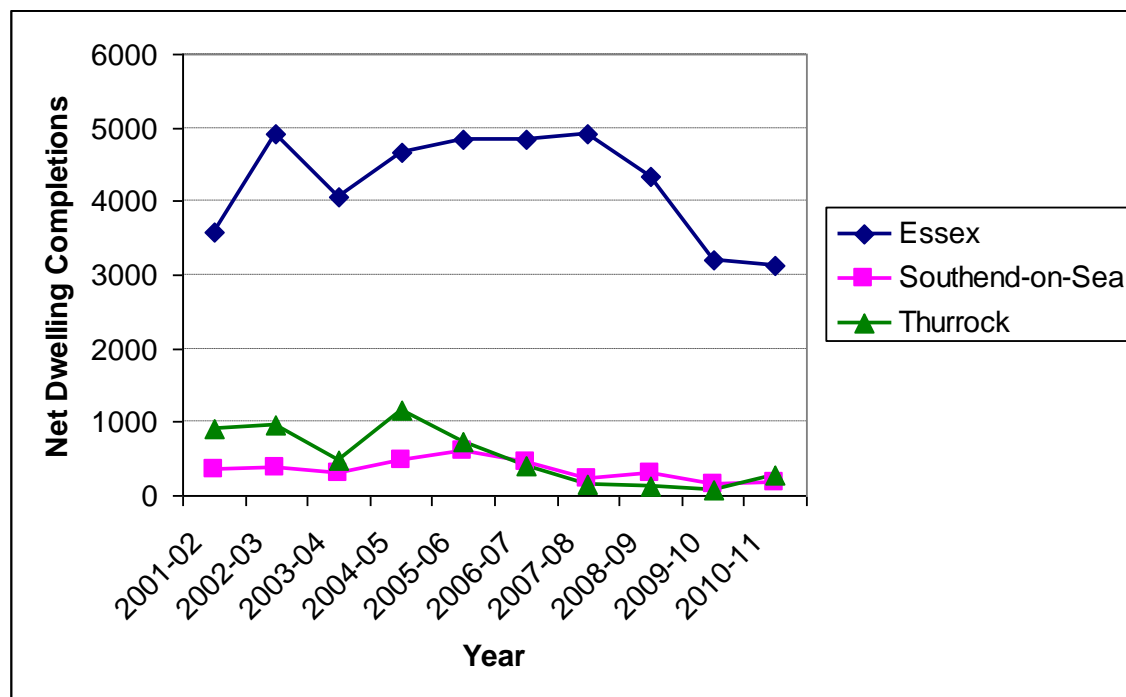
As the economy slows, the rate of built development has also declined. Essex Trends 2011 states that dwelling completion was recorded as equating to 4,950 gross units in 2001-02, dropping to less than 4,000 gross units in 2009-10. Gross dwelling completions are however predicted to peak at 6,100 between 2011-14. The following statistics detail net dwelling completions across Greater Essex:

TABLE 12: NET DWELLING COMPLETIONS ACROSS GREATER ESSEX, 2001 – 2011

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Essex	3,573	4,914	4,055	4,652	4,840	4,851	4,908	4,344	3,201	3,114
Southend-on-Sea	350	384	307	481	610	443	234	315	144	183
Thurrock	906	957	477	1167	739	413	161	130	88	288

Source: Essex County Council and Individual Districts / Boroughs, 2012

FIGURE 12: NET DWELLING COMPLETIONS ACROSS GREATER ESSEX, 2001 – 2011



Source: Essex County Council and Individual Districts / Boroughs, 2012

There has been a reduction in net dwelling completions across Essex, Southend-on-Sea and Thurrock over the period 2007-08 to 2009-10, and a year-on-year reduction over this period within Essex and Thurrock. This accords strongly with the reduction in sand & gravel sales over the same period. Net dwelling completions increased within Southend-on-Sea and Thurrock between 2009-10 and 2010-11 whilst the reduction rate in net dwelling completion slowed dramatically between these two dates compared to years immediately previous. When sand & gravel sales are assessed over this period, it can be seen that there is an arresting of the decline witnessed previously. Whilst it would be an over-simplification to draw a direct parallel between sand & gravel sales and dwelling completions, it can be said that there is a broad link between the two, and that the house building sector appears to be showing an element of recovery which will be required to be supported through the provisions made in the REMLP.

The following dataset details intended dwelling completions across Greater Essex:

TABLE 13: FORECASTED DWELLING COMPLETIONS IN GREATER ESSEX, 2010/11 – 2027/28

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Basildon	370	173	925	862	491	630	492	203	200	183
Braintree	221	233	334	307	335	414	292	230	247	215
Brentwood	119	218	168	165	99	92	84	94	106	119
Castle Point	81	81	81	82	82	197	197	197	197	198
Chelmsford	254	390	1098	1504	1383	1358	1267	1008	847	485
Colchester	837	751	853	997	944	891	870	826	879	865
Epping Forest	67	304	181	152	123	126	0	0	0	0
Harlow	282	287	190	253	480	515	459	317	258	500
Maldon	84	65	54	88	23	0	0	0	0	0
Rochford	92	191	284	165	327	361	250	286	290	190
Tendring	278	217	226	207	149	0	0	0	0	0
Uttlesford	298	453	360	375	272	287	79	65	56	57
Essex	2983	3363	4754	5157	4708	4871	3990	3226	3080	2812
Southend-on-Sea	191	298	433	696	901	517	304	342	167	92
Thurrock	513	780	509	901	1065	1884	1884	1884	1884	1884

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Basildon	183	42	42	42	42	42	0
Braintree	270	285	279	210	180	0	0
Brentwood	98	95	95	95	77	0	0
Castle Point	116	116	116	116	116	117	117
Chelmsford	0	0	0	0	0	0	0
Colchester	849	791	699	423	250	0	0
Epping Forest	0	0	0	0	0	0	0
Harlow	500	300	300	300	300	300	300
Maldon	0	0	0	0	0	0	0
Rochford	275	325	300	300	250	100	0
Tendring	0	0	0	0	0	0	0
Uttlesford	57	62	106	100	99	40	0
Essex	2348	2016	1937	1586	1314	599	417
Southend-on-Sea	92	92	64	64	64	0	0
Thurrock	950	950	950	950	0	0	0

Source: Essex County Council and Individual Districts / Boroughs, 2012

Note: A value of '0' indicates that no forecasted provision has been calculated for that year.

Castle Point recently withdrew their Core Strategy meaning that all Green Belt housing sites have been removed from the housing land supply.

As the trajectory moves further into the future, the evident reduction in completions does not necessary equate to a predicted reduction in output. Reasons for the reduction in numbers will be closely linked to the remaining life time of their respective Local Plan / Core Strategy and potentially the stage of preparation for the next Local Plan.

As noted above, it is difficult to draw any long-term conclusions from the above data as each district or borough will be at different stages regarding plan preparation and adoption although data pertaining to the near future can still be used as a proxy. Before the drop in dwelling completions in 2008-09, one year after the sales of sand & gravel fell, housing completions within Essex averaged 4,719 per annum over the preceding five year period. Within Southend-on-Sea this figure was 417 and in Thurrock, 522. Whilst housing completions were forecasted measurably below these figures between 2011-13, dwelling completions are forecasted to return to pre-recessionary levels by 2014 which is, as stated, the proposed adoption date of the REMLP.

6.1.4 Conclusion

The indicators considered, namely general employment, employment within the construction industry, business closure and registration rates, and housing trajectory information, suggest that the Essex economy is currently continuing a trend of contraction beginning from around 2008, the year in which sand & gravel sales can also be seen to begin their trend of reduction. However there are broad indications in some areas that the economy has held recently albeit at a rate below levels recorded before 2008, a pattern broadly mirrored within the recorded sales of sand and gravel which show almost no change between 2009 and 2011 compared to a steep decline between 2007 and 2009, and a decline overall between 2008 and 2011. All economic forecasting incorporated within this Section indicates that it is expected that this current recessionary period will give way to economic growth around 2014, or soon after, with 2014 also being the intended adoption date of the REMLP. Whilst it is accepted that there will always be an element of doubt attributed to economic forecasting, it is important that the REMLP does not itself become a barrier to this forecasted economic growth by under supplying mineral on the basis of sales made within the current recessionary period.

6.2 The 'Average Three Year Sales' in Greater Essex

A footnote to paragraph 6 of the 'Guidance on the Managed Aggregate Supply System (MASS) October 2012' document states that MPAs should also look at the 'average three year sales' to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase mineral supply from a rolling ten year average. It is considered that this does not however provide Greater Essex with a clear direction. The last three years of sales are the lowest across the ten year period analysed, and those three years represent the first time that the sale of sand and gravel has been below 3mtpa. The start of the previous three year period, 2009, shows the lowest sales figure recorded across the ten year period (2.654mt) which then rises in 2010 (2.846mt) and subsequently reduces in 2011 (2.663mt). Across the three year period it can therefore be said that there has been a minor increase in sand and gravel sales but this information alone is not considered to be robust enough to justify any direction that could be taken by the MPA.

6.3 The Impact of the Recession on the Previous Ten Years of Sales

Paragraph 145 of the NPPF states that a steady and adequate supply of aggregates is to be based on a rolling average of ten years sales data and other relevant local information. Figure 6 shows that sand & gravel sales can be seen to dramatically fall

from 2007 onwards in light of the current economic recession. In the immediate years before the recession, average sale levels had been relatively stable at around 4.2mtpa, a figure very similar to the current annual apportionment of 4.45mt for Greater Essex. However, this figure of 4.2mtpa would not be satisfied by the current ten year rolling sales average of 3.76mt. Paragraph 174 of the NPPF is clear that Local Plans are required to facilitate development across the whole of the economic cycle. As such it is not considered a viable approach to base planned mineral provision solely on an average of the last ten years of sales. Whilst this approach could potentially present a more accurate representation of immediate future need, based as it is on the most up-to-date sales data, there would be no allowance for future economic growth. Adequate mineral resources are essential for the achievement of 'sustainable development' and the Pre-Submission version of the REMLP will need to demonstrate it is capable of playing its part in facilitating an adequate and steady supply of minerals in order to assist in delivering the growth agenda espoused by the Government.

Further, it is not considered that basing projections solely on recent data accords strongly with the tenets of forward planning given that the latest sales data is likely to be skewed given the current economic recession. Staying with a planned provision based around a rolling ten year average of sales would also effectively be planning for a continuation of the recession. This is contrary to the national growth agenda stipulated nationally, and for the planned levels of development stated within LDFs across Essex, Southend-on-Sea and Thurrock, as detailed briefly below:

6.4 The National Infrastructure Plan November 2011

The National Infrastructure Plan, containing major commitments to improve the UK's transport and broadband networks, as well as steps to attract major new private sector investment, was published in November 2011. As well as Crossrail, a major infrastructure project currently being constructed and linking Maidenhead (Berkshire) to Shenfield (Essex), details are also provided for a 'new Lower Thames crossing' which is described in the November 2011 document as a 'priority infrastructure investment' which the Government is committed to developing. Three options are being considered to inform a public consultation in 2013. The March 2012 update to the National Infrastructure Plan reiterates that a public consultation will take place in 2013 and that consultants, informed by local knowledge, are further developing the options and evidence base for the 2013 public consultation. The purpose of the Lower Thames crossing is to increase infrastructure capacity between Essex and Kent whilst also potentially reducing congestion on the M25. Both the potential construction of the Lower Thames crossing, and the economic development this is intended to bring, would result in an increased demand for minerals should the project and future demand be realised.

6.5 Essex Economic Growth Strategy September 2012

The Economic Growth Strategy contains five objectives, which include enabling Essex businesses to grow and to secure the highways and infrastructure required to facilitate business growth. Meeting these objectives will require the extraction of mineral.

The strategy highlights a number of key locations for growth. A significant area of focus is Thames Gateway South Essex (TGSE). TGSE is a high priority for

regeneration and includes a number of Essex districts, Southend-on-Sea and Thurrock, who have committed to helping to deliver 55,000 new jobs and 43,800 new homes to the TGSE region by 2021. Southend, Thurrock, Basildon, Harlow, Chelmsford and Colchester are identified as Key Centres for Growth, with schemes including Enterprise West Essex (Harlow), Chelmsford Innovation Centre and the Nethermayne Gateway (Basildon). Schemes such as the Colchester 'Better Town Centre' programme and the 'Basildon Town Centre Package' are also promoted. Further highlighted initiatives include the commitment to fast-track planning applications for employment land designations, changes in use class that have economic benefit and applications for commercial premises expansion. A number of infrastructure schemes are also promoted. Whilst some of these latter initiatives involve the use of improved technology to better regulate traffic flow, others will involve the construction of new infrastructure which will again have an associated minerals demand.

6.6 Local Development Frameworks / Local Plans

All emerging and adopted Local Development Frameworks / Local Plans predict and plan for growth in their respective boroughs and districts throughout Essex. Chelmsford is planning for 16,000 new homes by 2025 and the creation of 20,000 new jobs. Harlow is planning for 16,000 new homes, 12,000 new jobs and have ambitious plans to redevelop their town centre. The Southend-on-Sea Core Strategy sets out targets to create 6,500 homes between 2001 and 2012, with 3,779 built as of March 2012, and to create 13,000 jobs within that same time period. Within Thurrock is the proposed Lakeside Redevelopment which involves the creation of a regional centre focused on the existing retail centre and adding homes and further diversified employment. These development are both dependent upon improvements to the linked junctions 30 and 31 on the M25. The Thurrock Core Strategy provides for over 18,500 new homes by 2021 and up to 4750 more by 2026. The Thurrock jobs target is 26,000 over that plan period.

As stated, growth, on a number of scales, is also planned in all other districts and boroughs within Essex, and these growth programmes will not be possible should minerals planning use recessionary years through which to calculate an annual rate of provision.

6.7 Recent Planning Permissions with Economic Significance to Greater Essex

A major infrastructure project, Crossrail, linking Maidenhead (Berkshire) to Shenfield (Essex) is currently being constructed. Planning permission has been granted at Shellhaven (Thurrock) for the UK's largest container port and a major business park and logistics centre whilst at Bathside Bay (Harwich) planning approval has been granted for the construction of one of the largest container terminals in the UK.

6.8 Relevant Local Factors

It is noted that the NPPF requires Local Planning Authorities to plan for an additional 20% of housing land above that required to support intended delivery numbers if it can be shown that there has been a history of persistent under-delivery of housing within any single district or borough. It is considered that basing a planned provision

of minerals on an average of the previous ten years of sales would not aid the facilitation of such an increase in housing provision that may result from this additional allocation.

Additionally, previous mineral reviews demonstrate that it is the minerals market which will dictate how quickly Preferred Sites come forward to secure planning permission and be worked. Industry will not wish to supply more mineral to the market than it realistically has the prospect of selling, and it is therefore not considered that we would experience a proliferation of quarry sites across the County, all stockpiling reserves that cannot be sold. It would, in any event, be a prerequisite for all extension sites that they only be worked once extraction from the existing site and all appropriate restoration phases have been completed. This will effectively control the timing of extension sites coming into operation.

If the economic downturn continues, existing sites will take longer to be worked, and identified Preferred Sites will be slower to come forward as a planning application or to commence working. Ultimately, the Preferred Sites would serve the County's needs for longer than the current plan period.

6.9 Dialogue with the East of England Aggregates Working Party

In April 2012, the East of England Aggregates Working Party reviewed the Sub-National apportionment within Policy M1 of the East of England Regional Spatial Strategy, the NPPF and the LAA requirements as existed at the time. Following recommendations made by the East of England Aggregates Working Party, Greater Essex have agreed to plan mineral provision in line with the most recent apportionment figure of 4.45mtpa. The other Mineral Planning Authorities within the East of England have also committed to meeting the annual apportionment as detailed in the East of England RSS although it was recognised that there might be variations dependent upon the timing of major mineral applications and the stage each Mineral Planning Authority is at with their Minerals Local Plan preparation. It is stipulated in the NPPF that the LAA and subsequently the Minerals Local Plan must take into account the views of the Aggregates Working Party.

Subsequent to the above, the East of England Aggregates Working Party released a statement on 13th March 2013 giving its support to the continuation of planning mineral provision in line with the apportionments set out in Policy M1 of the now revoked draft East of England Regional Spatial Strategy 2010. It is noted that whilst the East of England strategy has been revoked, this does not invalidate the evidence base used for its formation.

6.10 Conclusion

Through an assessment of the current and predicted state of the Greater Essex economy, planned and implemented projects featuring in the National Infrastructure Plan, Essex Economic Growth Strategy and Local Development Frameworks / Local Plans, as well as conversations with the East of England Aggregates Working Party, it is not considered prudent at this time to base the planned provision of minerals made by the REMLP on a rolling average of ten years sales of sand & gravel. This is because just under half of this time period can be attributed to sales made as part of an economy in recession. Given the evidenced, forecasted growth agenda, it is the consideration of Essex County Council as the Minerals Planning Authority that the REMLP continues to work to an annualised planned provision of 4.31mtpa as set out

within Policy M1 of the East of England RSS, as agreed by the MPA and EEAWP in 2010 and further backed in March 2013. This is considered a viable approach as sales of sand & gravel in years preceding the recession, as shown by Figure 6 and Figure 7, closely mirrored that of the annual apportionment that was adopted in 2010.

7 PROPOSED PLANNED PROVISION FOR SAND, GRAVEL AND SILICA SAND ACROSS THE PLAN PERIOD IN GREATER ESSEX, 2014 TO 2029

7.1 Introduction

The future implications regarding sand & gravel provision for Essex and Southend only (ie 4.31mtpa rather than 4.45mtpa for Greater Essex) as a result of discussions with the East of England Aggregates Working Party and an assessment of current sales and other relevant factors is shown in Table 14

TABLE 14: SAND & GRAVEL PROVISION TO BE MADE IN THE EMERGING REPLACEMENT ESSEX MINERALS LOCAL PLAN, 2014 – 2029

Future Plan Provision of Aggregates 31st December 2011 - 2029 (18yrs inclusive)		
Adoption in		2014
End date		2029
Plan Period in years inclusive		18 years
(a) Essex only apportionment 4.31 x years		77.58mt
(b) Essex, Thurrock & Southend-on-Sea Total Permitted Reserves at 31 Dec 2011 (includes sand & gravel and silica sand)		37.434mt
(c) Less silica sand proportion of permitted Martells Quarry Reserve (ESS/18/07/TEN)		0.42mt
(d) Essex, Thurrock & Southend-on-Sea Total Permitted Reserves at 31 Dec 2011 (sand & gravel only) (=b-c)		37.014mt
(e) Less Thurrock proportion of reserve. Stated in adopted Core Strategy to be 1.54mt as at 31 Dec 2007. To bring into line with 31 December 2011, need to subtract 4 years assumed apportionment sales 0.14mt x 4 = 0.56mt. Leaving an estimated total reserve for Thurrock as at 31 Dec 2011 of 0.98mt.		0.98mt
(f) Estimated Total Essex only Reserves (excluding Thurrock and silica sand) (=d-e)		36.034mt
(g) Must Plan for (ie shortfall) of (=f-a)		-41.546mt
(h) Less new permissions since 1 January 2012 (i+j)		0.88mt
(i) Bradwell A2, ESS/23/11/BTE, decision date: 09/02/2012	0.25mt	
(j) Cobbs Farm, ESS/37/11/MAL (Appeal Ref: APP/Z1585/A/12/2169596/NWF), decision date: 21/06/12	0.63mt	
(k) Total additional sand & gravel resources to be planned for (=g+h)		40.666mt
(l) Total amount identified through Preferred Sites		40.824mt
Difference (a-l)		+0.158mt

Source: Essex County Council, 2012

Should the REMLP be adopted in 2014 it would have a life of 18 years from the December 2011 base date. Over this 18 year plan period; Essex would have to find 77.58mt of sand & gravel in total to satisfy an annualised planned provision of 4.31mtpa. In order to ascertain what extra provision needs to be found, an assessment of existing Permitted Reserves is required. Essex, Thurrock &

Southend-on-Sea Total Permitted Sand and Gravel and Silica Sand Reserves at 31 Dec 2011 were recorded as being 37.434mt. From this figure one needs to subtract the silica sand contribution to the total Greater Essex Permitted Reserve (0.42mt) in order to obtain a figure for the sand & gravel Greater Essex Permitted Reserve, which equates to 37.014mt.

As previously stated, the REMLP does not cover the unitary authority of Thurrock and as such a calculation must be performed to remove their contribution to the Greater Essex Permitted Reserves. The last known Permitted Reserve for Thurrock before commercial confidentiality prohibited its reporting was 1.54mt as of 31st December 2007. Rolling this forward to the base date of 31st December 2011 requires the reduction of four years worth of sales from their total of 1.54mt. By necessity, sales have been estimated as being equal to the annual apportionment for Thurrock. As such, starting at 1.54mt and selling 0.14mt of sand & gravel a year for a period of four years leaves Thurrock with an estimated Permitted Reserve of 0.98mt. This figure is subtracted from the Greater Essex Permitted Reserve for sand & gravel leaving an Essex and Southend-on-Sea Permitted Reserve of 36.034mt. The total shortfall as of 31st December 2011 can then be calculated by subtracting the total amount of provision required across the plan period, equating to 77.58mt, from the Essex sand & gravel Permitted Reserve of 36.034mt. This leaves a shortfall of 41.546mt. However since the base date of 31st December 2011, there have been a further two permissions for extraction equating to 0.88mt which can be taken away from the deficit, leaving a new deficit of 40.666mt.

Given that the extraction of 40.824mt of sand & gravel has been planned for in the REMLP, this equates to a plan surplus of 0.158mt, or 3.58% equivalent of a single yearly production.

7.2 The Future Role of the LAA in Assessing the Provision of Sand & Gravel

As described in Section 6.9, the East of England Aggregate Working Party met in April 2012 and reviewed Policy M1 of the revised East of England RSS. This revision concluded with MPAs within the East of England agreeing to continue planning to the annual apportionment contained within the revised Policy M1 of the RSS.

Within Table 9 in Section 5, immediately before the current recession in 2007 it can be seen that the sales of sand & gravel were a little over 90% of the annual apportionment, suggesting that the annual apportionment was a valid figure to plan to. Since the recession however the sales of sand & gravel have varied between 73% and 61.5% of this annual apportionment. As previously stated, it is not considered appropriate at this stage to plan for a continuation of the recession as this does not accord with the Government's growth agenda, and it would amount to short-termism to drastically reduce planned provision based on the sales over a small number of years. However it would also not be appropriate to continue to supply sand & gravel at an annualised planned provision significantly above the amount which is being sold. If sales were to continue at the 2011 rate of 2.66mt across the Plan Period, the lifetime of Essex and Southend-on-Sea's Permitted Reserves, as calculated from the base date of 31st December 2011 to the end of the Plan Period at the annual apportionment, would instead last a little over 29 years rather than the 18 years planned.

It is therefore the intention to update this LAA annually, and the findings of this LAA will aid the informing of future reviews of the REMLP when adopted as set out in paragraph 7.16 of the emerging REMLP and Policy IMR1 in the same document. Should future sales continue to reflect those seen since the recession rather than those recorded pre-recession, it may be appropriate to review the planned provision within the REMLP.

7.3 Aggregate Provision in Southend-on-Sea

As previously highlighted in the report, Southend-on-Sea does not have any aggregate workings and this is expected to remain the case. A sufficient supply of material to support Southend-on-Sea's identified growth, as per their Core Strategy, was previously met via the annual apportionment established across Greater Essex. Given that neither Essex or Thurrock are proposing at this time to alter their component of the Greater Essex annual apportionment through their planned provision, this relationship is expected to continue.

7.4 Sand and Gravel Provision in Thurrock

Thurrock sand & gravel reserves in 2007 were estimated to be 1.54 mt and the landbank 10.9 years. If five years worth of Thurrock's annual apportionment of 0.14 mtpa is subtracted as a proxy for sales to derive a current position then the landbank reduces to 5.9 years. However two decisions since 2010 have added 0.54mt to reserves equating to an additional 3.89 years to the landbank giving a total of 9.79 years. Thus in this scenario the reserve would be exhausted by 2022 and fall below the 7 year landbank requirement by 2015 unless further permissions are sought and obtained.

7.5 Silica Sand Provision in Greater Essex

As mentioned previously, due to the small amount of production of silica sand within Greater Essex it is not possible to present consumption data to the same detail as that for sand & gravel. Nonetheless, the emerging REMLP will still need to make provision for this mineral. The following table sets out the proposed approach to silica sand provision in Greater Essex. Thurrock do not have silica sand deposits so all provision will by necessity be found in Essex.

TABLE 15: SILICA SAND PROVISION TO BE MADE IN THE EMERGING REPLACEMENT ESSEX MINERALS LOCAL PLAN

SILICA SAND PROVISION	18 yrs (2029)
Planned Provision = 45,000tpa x plan period (17 or 18 yrs)	0.81mt
Less 0.42mt Silica Sand proportion in ESS/18/07/TEN permission (commenced in 2010) (factual update - commenced in 2010 / legally December 2011)	0.42mt
Additional Planned Requirement to be met by a site allocation (ie the shortfall)	0.39mt

Note - Planned annual sales are set at 45,000tpa, representing the host permission, and basis for subsequent permission, with 54% Silica Sand, and no increase in silica sand plant capacity / investment.

The current development plan made an annualised planned provision for silica sand of 0.045mtpa, based on the output from Martells Quarry in Tendring, and it is not proposed to deviate from this figure in the emerging REMLP. Over a plan period of 17 years, an annualised planned provision of 0.045mtpa would result in the need for 0.81mt of silica sand to be provided across the plan period. From this figure the Silica Sand Permitted Reserve of 0.42mt, resulting from the granting of permission for extraction at Martells Quarry can be subtracted, leaving a necessary planned provision of 0.39mt of Silica Sand across the plan period.

7.6 Conclusion

In summation, Essex is planning on continuing with a business as usual case although will revise the REMLP should the economic downturn continue and planned provision begins to be demonstrably over provision.

Should the REMLP be adopted in 2014 it would have a life of 18 years from the December 2011 base date. Over this 18 year plan period; Essex would have to find 77.58mt of sand & gravel in total to satisfy an annualised planned provision of 4.31mtpa. Taking into account the current (as of 31st December 2011) Essex sand & gravel Permitted Reserve of 36.034mt, this leaves a shortfall of 41.546mt. Given that the extraction of 40.824mt of sand & gravel has been planned for in the REMLP, this equates to a plan surplus of 0.158mt, or 3.58% equivalent of a single yearly production.

With regard to Thurrock, reserves in 2007 were estimated to be 1.54 mt and the landbank 10.9 years. If five years worth of Thurrock's annual apportionment of 0.14 mtpa is subtracted as a proxy for sales to derive a current position then the landbank reduces to 5.9 years. However two decisions since 2010 have added 0.54mt to reserves equating to an additional 3.89 years to the landbank giving a total of 9.79 years. Thus in this scenario the reserve would be exhausted by 2022 and fall below the 7 year landbank requirement by 2015 unless further permissions are sought and obtained.

Previous mineral reviews demonstrate that it is the minerals market which will dictate how quickly Preferred Sites come forward to secure planning permission and be

worked. Industry will not wish to supply more mineral to the market than it realistically has the prospect of selling, and it is therefore not considered that we would experience a proliferation of quarry sites across the County, all stockpiling reserves that cannot be sold.

If sales pick up as the economy pulls out of its current downturn, the identified Preferred Sites would provide sufficient capacity to meet an increase in annual sales without an early review of the plan, or a further call for sites. There would be flexibility within the plan, as required by paragraph 14 of the NPPF.

If the economic downturn continues, existing sites will take longer to be worked, and identified Preferred Sites will be slower to come forward as a planning application or to commence working. Ultimately, the Preferred Sites would serve the County's needs for longer than the current plan period. Potentially communities could be required to live with existing sites, and with the prospect of future mineral working, for a longer period of time.

For Thurrock, which already has a plan in place with the intended provision based on the sub-apportionment in the RSS, the issue is whether the Core Strategy needs to be amended in order to make it NPPF compliant. Thurrock Council continues to be of the view that the agreed approach of the East of England Aggregates Working Party is sensible and that there is sufficient flexibility within the wording of the NPPF to accommodate this approach.

Southend-on-Sea does not have any aggregate workings and this is expected to remain the case. A sufficient supply of material to support Southend-on-Sea's identified growth, as per their Core Strategy, was previously met via the annual apportionment established across Greater Essex.

8 MARINE WON SAND & GRAVEL

8.1 Introduction

Marine won aggregates are an alternative to land won aggregates. The marine won sand & gravel landed in the East of England is primarily sourced from the Thames Estuary Licensed Area as shown in Figure 13 below. Like land won aggregate, marine won aggregate can be used for a variety of construction purposes including mortar and road sub-base, to reclaim land from the sea prior to engineering works being carried out and as beach nourishment.

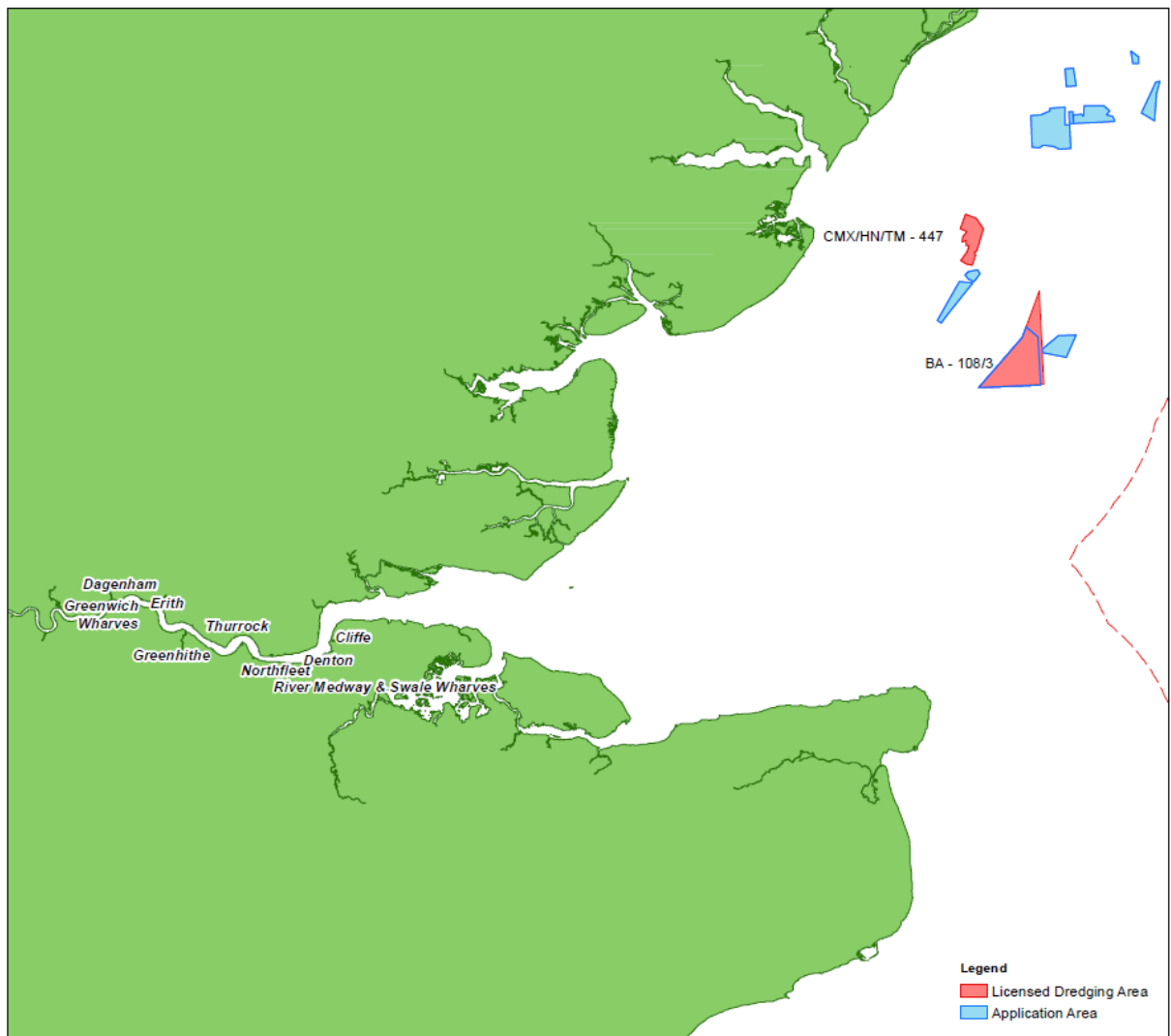
Please note that this section largely identifies the total amount of marine won sand & gravel that is landed within the Thames Estuary region. A broad analysis of the importation of marine won sand & gravel into Greater Essex itself is presented in Section 8.6.

8.2 Dredging Areas

The East of England is a major point of entry for marine dredged aggregates, with the National and Regional Guidelines for Aggregate Provision in England 2005 – 2020 making the assumption that 14mt of marine sand & gravel will arrive in the region between 2005 and 2020. This equates to 0.93mt a year although this figure is not apportioned to individual authorities.

The following figure shows the marine dredging areas in closest proximity to the coast of Essex. The area shown is the Thames Estuary Licensed Area and is the area of most relevance to the East of England.

FIGURE 13: MARINE DREDGING AREAS IN PROXIMITY TO GREATER ESSEX, 2012



Source: Minerals Planning Briefing Note: Marine Aggregates; Region: Thames Estuary, 2012

8.3 Marine Won Sand & Gravel within Greater Essex

Marine landed minerals contribute to the supply of minerals coming into Greater Essex from elsewhere. Essex itself does not have an entry point for marine landed aggregates and instead relies on marine landing points in adjoining authorities, namely Suffolk (Ipswich) and the Thames Estuary (including Thurrock). Ports can be considered to be ‘virtual quarries’ in that they are sites where saleable mineral can be distributed from whilst many ports will also have processing facilities to allow imported mineral to be graded.

Those aggregate landing ports in the Thames Estuary Region as well as those in Ipswich (within the East Coast Region) are shown below. Please note that each landing port will have a number of associated wharves. For example, the landing port of West Thurrock includes the wharves of Purfleet and West Thurrock. A full list of operating wharves can be found in Appendix 1.

TABLE 16: MARINE WON AGGREGATE LANDING PORTS WITH THE CAPACITY TO SERVE GREATER ESSEX, 2012

Thames Estuary Region			East Coast Region
London	Thurrock	Kent	Suffolk
Denton	West Thurrock	Cliffe	Ipswich
Erith		Northfleet	
Greenhithe		River Medway & Swale	
Greenwich Wharves			
Dagenham			

Source: Adapted from The Crown Estate: Summary of Statistics, 2011

8.4 Wharves within Greater Essex

As previously noted, all wharves within Greater Essex receiving water borne aggregate are located in Thurrock. As of 2012, only one wharf is being used to import marine dredged sand and gravel. This is the relatively new Lafarge Aggregates site to the immediate east of the QEII bridge, known as 'Thurrock' within the Crown Estate statistics and Oliver Road, West Thurrock in the Essex Minerals Local Plan, 1996.

The Civil and Marine / Purfleet Aggregates Ltd wharf (on the immediate western side of the QEII bridge, and called Purfleet Wharf in the Essex Minerals Local Plan, 1996) is only being used by Hansen / Civil and Marine for the importation by river of ash used in slag cement production. Purfleet Aggregates have ceased operating. The Yeoman Asphalt (part of Aggregate Industries) site at Jurgens Road, Purfleet is now only being used for coated roadstone production using aggregate delivered by road and rail. Historically, crushed rock was imported by river but Thurrock Council are not aware that it was ever used for the importation of sand & gravel. No use of the river is now made by this wharf.

The former Gibbs Wharf site at Purfleet, formerly used by Foster Yeoman / Aggregate Industries was granted permission last year by the Thurrock Thames Gateway Development Corporation for trailer parking. Proctor and Gamble were the applicants and the company has now implemented the permission having absorbed the site into their much larger adjacent site. As such, and despite this site being protected in the Essex Minerals Local Plan 1996, it is considered it may be difficult to re-establish a minerals use.

8.5 Marine Aggregate Landings

The Crown Estate collects statistics on the amount of marine won mineral that is landed at each of its landing ports although these do not define the final destination of the mineral. Marine aggregates are also an assumed supply and are not apportioned between Mineral Planning Authorities. As such the figures presented do

not relate to the amount of marine won aggregate that is used within Greater Essex, rather it is the amount of marine won aggregate that is landed within or in proximity to Greater Essex and could be used within Essex, Thurrock, Southend, Kent, Suffolk, London and potentially further afield. However it can be said that due to their mass, landed minerals do not have a large economically viable transportation distance, unless transported by rail, and as such minerals landed in the Thames Estuary region and Suffolk will be utilised in the surrounding vicinity. Studies carried out by the British Geological Survey suggests that the cost of a lorry load of primary aggregate doubles at a transportation distance of 40km, with 60km being the maximum typical trading distance by road. Latest statistics from the Crown Estate released in 2012 stated that during 2010, 87% of material extracted from the Thames Estuary region was delivered to the Thames Estuary region, with the remainder going to the Humber, East Coast, South Coast and mainland Europe. The resources in the region consist of a variety of grades ranging from fine to coarser sands through to gravels. Currently 1.75mt of material is permitted for extraction per annum from the licences within this region although over the last ten years on average 43% of the permitted tonnage has been dredged. At present there is opportunity to extract approximately 0.9mt of extra material per annum whilst existing applications may deliver permits for a further 3.35mtpa.

Regarding the East Coast Region, 56% of material extracted within the region was delivered to the Thames Estuary region and 43% to mainland Europe. The resources in the region consist of a variety of grades ranging from coarser sands to gravels. Currently 10.95mt of material is permitted for extraction per annum from the licences within this region although over the last ten years, on average 67% of the permitted tonnage has been dredged.

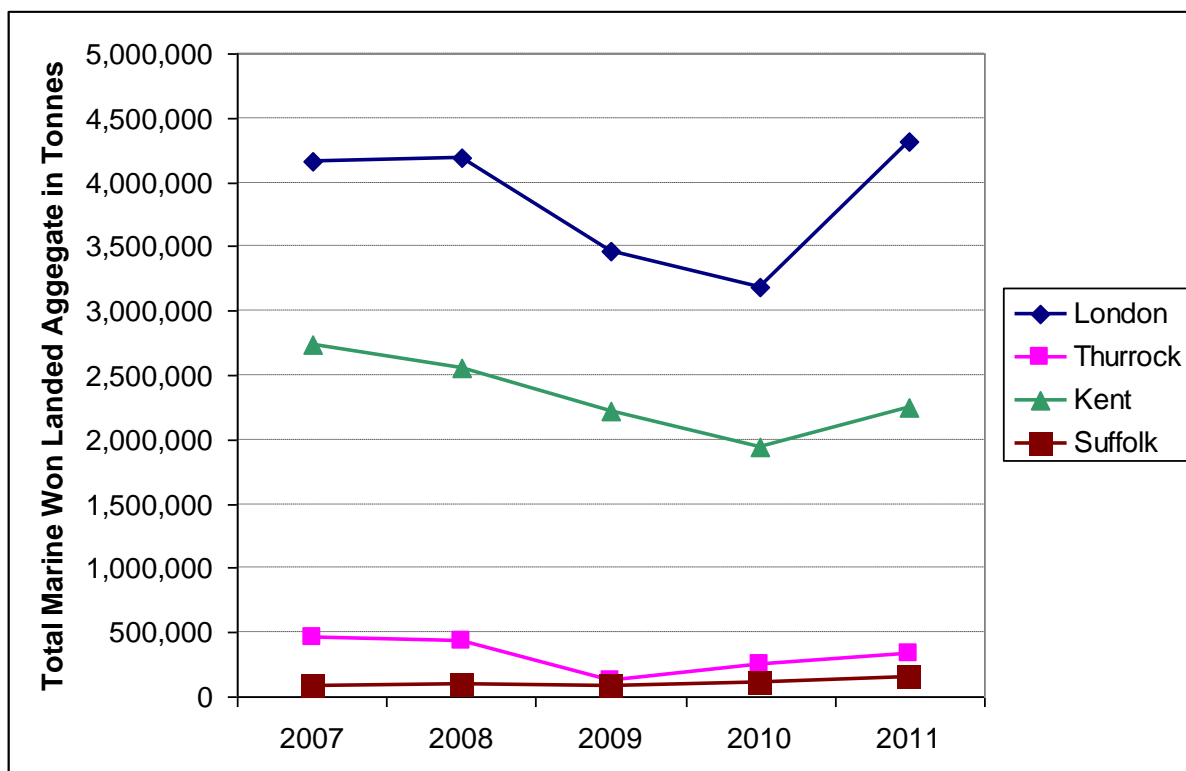
The following table details the amount of marine won mineral landed in ports within London, Thurrock, Kent and Suffolk. It is considered that marine dredged minerals landed at these ports have the capacity to enter Essex.

TABLE 17: AMOUNT OF MARINE WON MINERAL LANDED IN PORTS WITH THE CAPACITY TO SERVE GREATER ESSEX IN TONNES, 2007 – 2011

	2007	2008	2009	2010	2011
London	4,160,917	4,192,187	3,466,777	3,178,872	4,319,908
Thurrock	464,404	439,723	121,852	255,527	329,376
Kent	2,731,623	2,550,640	2,226,380	1,944,763	2,252,864
Suffolk	85,608	100,941	87,459	114,468	148,483
Total	7,442,552	7,283,491	5,902,468	5,493,630	7,050,631

Source: The Crown Estate, Summary of Statistics, 2007 – 2011

FIGURE 14: TOTAL MARINE WON MINERAL LANDED IN PORTS WITH THE CAPACITY TO SERVE GREATER ESSEX IN TONNES, 2007 – 2011



Source: The Crown Estate, Summary of Statistics, 2007 – 2011

Between 2007 and 2011 there has been a reduction in the total amount of marine won mineral landing within the regions assessed, from 7.44mt to 7.05mt, representing a reduction of 5.3%. Mirroring the trend seen in land won sand & gravel sales within Greater Essex, this reduction has not been year-on-year. Between 2007 and 2010 there was a yearly reduction although the latest period, namely 2010 – 2011, shows an increase in marine won minerals landed, from 5.49mt to 7.05mt. When ports are analysed by administrative region, it can be seen that there has been an increase in the amount of marine won aggregate coming into ports within London and Suffolk between 2007 and 2011 and a decrease at those within Thurrock and Kent. Year on year decreases were seen within London and Kent between 2007 and 2010 although ports in each administrative region reported an increase between 2010 and 2011. The amount of marine mineral landed within the Thames Estuary region ports which are also in London exceeded that of Kent, which itself exceeded Thurrock and Suffolk, whilst the proportional upturn between 2010 and 2011 was also highest for London based ports.

8.6 Marine Won Sand & Gravel Consumed within Greater Essex

The following table collates the total marine won aggregate tonnage consumed in Greater Essex as reported in the 2009 national aggregate annual monitoring report with the proportional origin data obtained from the BGS.

TABLE 18: MARINE WON SAND & GRAVEL CONSUMED WITHIN GREATER ESSEX BY LANDING PORT LOCATION, 2009

Total Marine Won Sand & Gravel Consumed	277,000t	
Landing Port Location	Proportion	Assumed Figure
Greater Essex	>95%	>263,150t
Greater London East	1 - 5%	2,770t - 13,850t

Source: British Geological Survey and 'Collation of the results of the 2009 aggregate minerals survey for England and Wales'

As can be seen from a comparison of the total amount of marine won sand & gravel landed in ports with the capacity to serve Essex (Table 17, 7.05mt in 2011) with that consumed in Greater Essex (Table 18). Greater Essex receives a far smaller proportion of marine won sand than it could potentially have access to.

The vast majority of marine won sand & gravel consumed in Greater Essex is also landed within Greater Essex. A proportion of greater than 95% of the total means that over 263,150t of the total 277,000t of marine won sand & gravel consumed in Greater Essex was landed within Greater Essex. Given the absence of landing ports in Essex and Southend, the majority of marine sand & gravel consumed in Greater Essex is likely landed in Thurrock. Within the Thurrock Council Core Strategy and Policies for Management of Development document adopted in 2011, Policy CSTP32 – Safeguarding Minerals Resources states that 'all existing aggregate wharves will be safeguarded against proposals which prejudice their use for the importation of aggregates'. As such it is considered that, following additional formal confirmation with Thurrock Council, Essex and Southend-on-Sea will continue to be able to receive the majority of its marine won sand & gravel via Thurrock.

Please note that the BGS also evidenced a very small proportion of marine won sand & gravel arriving in Greater Essex via Kent. This amount was considered to amount to 'only a few lorry loads' and as such a proportion was not supplied by the BGS and Kent have therefore been omitted from Table 18.

8.7 Increasing the Proportion of Marine-won Sand to Offset Land-won Production

With regard to increasing the proportion of marine won sand and gravel, this is outside of the remit of Essex County Council as marine extraction areas are leased by the Crown Estate with licenses to dredge issued by the Marine Management Organisation (MMO). Discussions with the MMO evidenced that whilst the marine environment has the capacity for significantly more extraction, applications are not being made. Start up investment for marine extraction is large, due to the potential need for additional vessels and infrastructure as well as studies regarding International Maritime Organisation shipping routes, potential erosion and Natura 2000 sites.

9 IMPORTS AND EXPORTS OF LAND WON AGGREGATE IN GREATER ESSEX

9.1 Introduction

As well as being the largest producer of sand & gravel in the East of England, Greater Essex both imports and exports aggregate. Historically, approximately 75% of the mineral extracted within Greater Essex has been used within the county, with the majority of that exported going to London. Greater Essex is also heavily reliant on the importation of hard rock, used, for example, as rail ballast as well as limestone which is used in cement making. Traditionally, and especially so since the 1940s, a pattern of long-distance supply to Greater Essex has emerged where mineral types absent or scarce in Greater Essex have had to be imported. Important sources of imports are the East Midlands for hard rock and limestone sourced from the South West. Additionally, Greater Essex imports a small quantity of marine sand which is dredged outside of Greater Essex as shown in Table 18

The data comprising much of this section has been supplied by the British Geological Survey (BGS). The data is presented in accordance with existing commercial confidentiality agreements which mean it is not possible for the BGS to reveal actual figures for mineral importation. Instead they are able to supply a percentage range detailing an approximation of the proportion of mineral imported from each Mineral Planning Area outside of Greater Essex. This proportion can be used to calculate an approximate actual figure through a comparison with the total import figures presented for Greater Essex within the national aggregate minerals survey for England and Wales 2011. Whilst published in 2011, this document incorporates data relating to 2009. Both the BGS obtained proportion and the resultant calculation based on the 2009 Annual Monitoring Report are presented in the data tables within this section.

9.2 Methods of Mineral Transportation within Greater Essex

There are three bulk transport modes for the movement of minerals in, out and around Greater Essex. These are by road, rail and water. Both the road and rail networks within Greater Essex reflect the significance and relationship to London, with a wheel and spoke layout being evident. Additionally there are also a number of relevant port and wharf facilities (Thurrock only) on the coast as well as navigable sections of inland waterway. For internal movements the road network is the most effective and heavily utilised form of transportation as this mode offers flexibility of route and provides the ability to deliver to any final destination, reflecting the relatively short journeys to the local Essex Market.

There are safeguarded mineral transshipment sites at the following locations within Essex:

- **Chelmsford Rail Depot** – used both for the import of limestone and the export of sand and gravel
- **Harlow Mill Rail Station** – used both for the import of limestone and the export of sand and gravel
- **Marks Tey Rail Depot** – used for the export of sand and gravel
- **Ballast Quay, Fingringhoe** – a marine wharf used for the export of sand and gravel originating from the associated quarry to the London market

Ballast Quay is however only safeguarded as a transshipment site for the lifetime of extraction at Fingringhoe Quarry. This marine wharf is poorly connected to the strategic highway network and so is not suitable for the exportation of minerals from other extraction sites or for the importation of minerals into Essex.

Within Thurrock, the following site operates as a transshipment site:

- **Jurgens Road, Purfleet** – used for coated roadstone production using aggregate delivered by road and rail. Historically, crushed rock was imported by river but Thurrock Council are not aware that it was ever used for the importation of sand & gravel. No use of the river is being made at present.

There is also some cross-boundary movement of aggregate by road into and from neighbouring areas although exportation to London is predominantly by rail (MDD: Issues and Options, 2009). Evidence does however suggest that it is more efficient to transport aggregate over short distances by road.

A demonstrable adherence to the road network hierarchy forms part of Essex County Council's Call for Site's assessment procedure, where Essex asks for land owners to submit sites to be assessed for their suitability for mineral uses in principle.

Additionally, a full detailing of mineral traffic routing would be expected alongside any formal planning application for mineral use on a site, which would be binding. It is worth noting that because Essex is not planning on increasing its annualised planned provision, there will be no additional mineral movements on the road hierarchy at the county level, rather there will be a re-allocation of current levels of mineral transport as old sites close and new sites begin to be worked.

9.3 Land Won Sand & Gravel Consumed within Greater Essex

The following table collates the total land won aggregate tonnage consumed in Greater Essex as reported in the 2009 national aggregate annual monitoring report with the proportional origin data obtained from the BGS.

TABLE 19: LAND WON SAND & GRAVEL CONSUMED WITHIN GREATER ESSEX BY ADMINISTRATIVE AREA OF ORIGIN, 2009

	Total Land Won Sand & Gravel Consumed	2,389,000t	
	Administrative Area of Origin	Proportion	Assumed Figure
	Essex, Southend & Thurrock	90%	2,150,100t
	Greater London East	5 - 10%	119,450t - 238,900t
	Surrey	1 - 5%	23,890t - 119,450t
	Hertfordshire	1 - 5%	23,890t - 119,450t
Descending order of importance	Central Bedfordshire	<1%	<23,890t
	Suffolk	<1%	<23,890t
	Kent	<1%	<23,890t
	Norfolk	<1%	<23,890t
	Cambridgeshire	<1%	<23,890t
	Oxfordshire	<1%	<23,890t
	Cheshire East	<1%	<23,890t

Source: British Geological Survey and 'Collation of the results of the 2009 aggregate minerals survey for England and Wales'

Note: Berkshire and Staffordshire also supplied less than 1% of the total sand & gravel consumed in Essex but BGS considered the figures too small to be reported.

Similar to that seen with marine won sand & gravel, the majority of the total land won sand & gravel consumed within Greater Essex was extracted from within Greater Essex. Greater London East was the second largest contributor, with between 5 – 10% of the total amount of land won aggregate originating from authorities within this sub-region. Not including Berkshire and Staffordshire as per the BGS recommendation, there are a further nine mineral planning areas through which Greater Essex receive land won sand & gravel. Whilst individually small totals per authority, information received from the BGS suggests that combined they provide a maximum of approximately 5% of the total amount of land won sand & gravel consumed in Greater Essex and are therefore important in facilitating sustainable growth. Dialogue will continue to take place with all of the Mineral Planning Authorities identified in the above table to ensure that the importation arrangements upon which Greater Essex currently depend will be maintained. Part of these discussions informs Section 12.

9.4 Land Won Crushed Rock Consumed in Greater Essex

The following table collates the total crushed rock tonnage consumed in the sub-region as reported in the 2009 national aggregate annual monitoring report with the proportional origin data obtained from the BGS.

TABLE 20: CRUSHED ROCK IMPORTATION INTO GREATER ESSEX BY ADMINISTRATIVE AREA OF ORIGIN, 2009

Total Crushed Rock Consumed	744,000t	
Administrative Area of Origin	Proportion	Assumed Figure
Somerset	>45%	>334,800t
Leicestershire	25 - 30%	186,000t - 223,200t
Outside of England and Wales	15 - 20%	111,600t - 148,800t
Conwy	5 - 10%	37,200t - 74,400t
Powys	1 - 5%	7,400t - 37,200t
Derbyshire	<1%	<7,400t
Neath Port Talbot	<1%	<7,400t
North Somerset	<1%	<7,400t
Oxfordshire	<1%	<7,400t

Source: British Geological Survey and 'Collation of the results of the 2009 aggregate minerals survey for England and Wales'

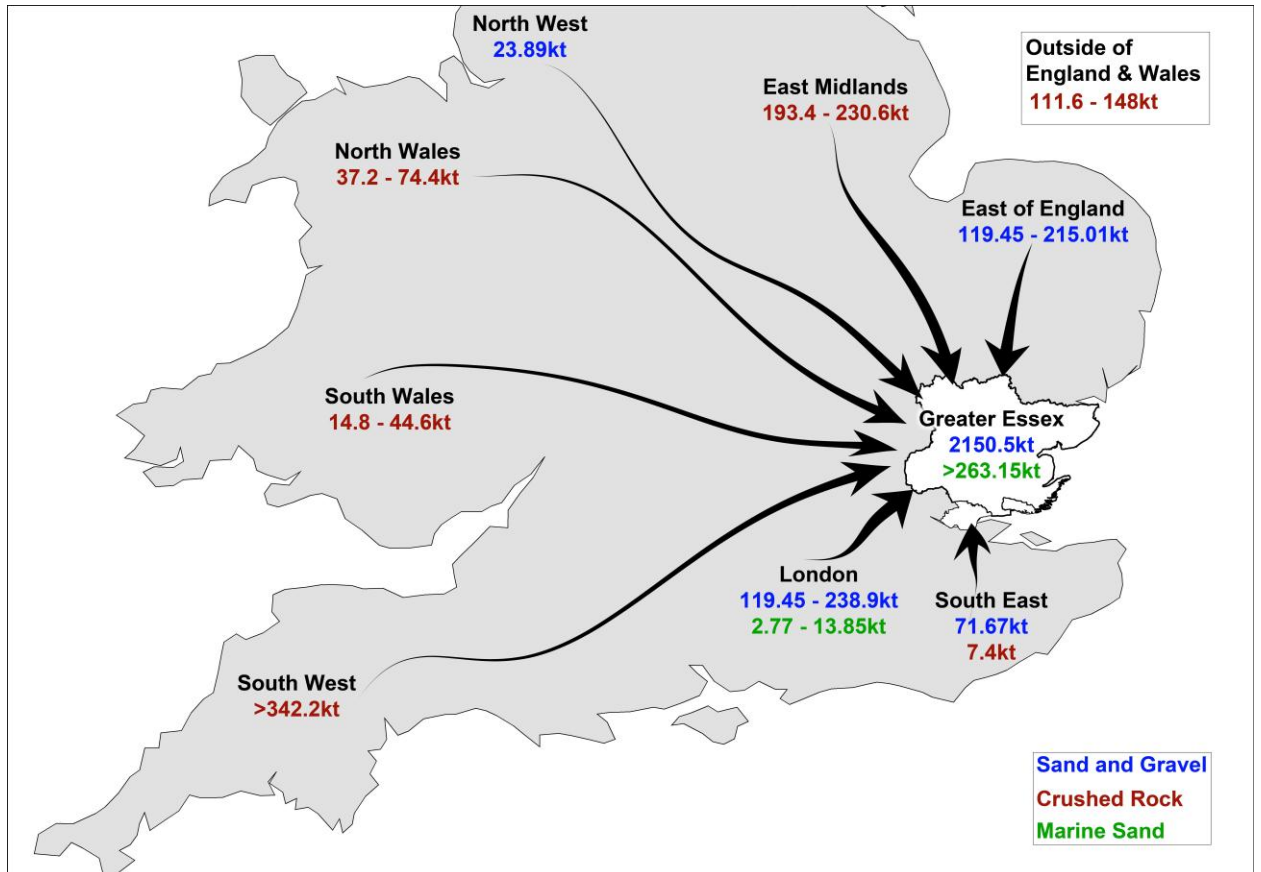
Note: Northumberland National Park, Norfolk, Caerphilly and Gloucestershire also supplied less than 1% of the total crushed rock consumed in Essex but BGS considered the figures too small to be reported.

As evidenced in Table 20, Greater Essex consumed 744,000t of crushed rock but none of this mineral originated from within the combined Minerals Planning Area of Greater Essex. As explained previously, crushed rock does not exist in Greater Essex and therefore Greater Essex is entirely reliant on the importation of this mineral. The single largest exporter to Greater Essex is Somerset who contributed over 45% of the total proportion of crushed rock consumed. In total, and not including those mineral planning areas which the BGS highlighted as providing nominal amount of crushed rock, Greater Essex is reliant on eight separate mineral planning areas for their crushed rock supply, with a further 15 – 20% coming from outside England and Wales. The majority of this 15 – 20% originates from Scotland and Guernsey. Dialogue will continue to take place with all of the Mineral Planning Authorities identified in the above table to ensure that the importation arrangements upon which Essex, Southend and Thurrock currently depend will be maintained. These discussions have informed Section 12 of this report.

9.5 Total Imports into Greater Essex

The following figure graphically depicts the information presented in Table 18, Table 19 and Table 20:

FIGURE 15: IMPORTS OF MINERAL TO GREATER ESSEX



Source: BGS and Essex County Council, 2012

9.6 Exportation of Land Won Sand & Gravel from Greater Essex

Unfortunately exportation data is not collected as part of minerals monitoring in the East of England and as such it is not currently possible to provide a detailed breakdown of the destination of land won aggregate sourced from the East of England region. The national 2009 aggregate minerals survey provides the following information:

TABLE 21: EXPORTATION DESTINATION OF LAND WON AGGREGATE ORIGINATING FROM GREATER ESSEX, 2009

Total Sales of Land Won Sand & Gravel	2,746,000t	
Destination	Proportion	Assumed Figure
Essex, Thurrock & Southend	78%	2,141,880t
East of England	8%	219,680t
Elsewhere	14%	384,440t

Source: British Geological Survey 'Collation of the results of the 2009 aggregate minerals survey for England and Wales'

Note: The national aggregate survey presents a smaller figure for land won sand & gravel sales in Greater Essex than that reported in the East of England monitoring report. This is because the national aggregate survey does not include sand & gravel used for undifferentiated non-aggregate use whereas this is included in the East of England monitoring report. In 2009 undifferentiated non-aggregate use accounted for approximately 47,000t of mineral, the difference between the two figures.

The majority of sand & gravel extracted within Greater Essex in 2009 was used within Greater Essex, with a total of 86% of land won sand & gravel being sold in the East of England. At 384,440t, Greater Essex exports a smaller tonnage of aggregate outside of the East of England region than it imports.

9.7 Comparison of Sand & Gravel Importation and Exportation in Greater Essex

The table below compares the importation and exportation of sand & gravel in and out of Greater Essex by combining the data presented in Table 18 and Table 21.

TABLE 22: COMPARISON OF IMPORT AND EXPORT QUANTITIES OF SAND & GRAVEL IN GREATER ESSEX, 2009

Sand and Gravel in Greater Essex	Amount of Sand and Gravel in Tonnes
Total Sales of Land Won Sand & Gravel (a)	2.746mt
Total Land Won Sand & Gravel Consumed (including imports) (b)	2.389mt
Total Greater Essex Origin Land Won Sand & Gravel Consumed (c)	2.150mt
Total Imported Marine Won Sand & Gravel (d)	0.277mt
Total Land Won Sand & Gravel Exported (a-c=e)	0.596mt
Net Consumption of Sand & Gravel (b+d=f)	2.666mt
Total Imported Land Won Sand & Gravel (b-c=g)	0.239mt
Total Imports of Sand and Gravel (d+g=h)	0.516mt
Difference between Land Won Exports and Imports (e-g=i) (e>g, therefore Essex is a net exporter of land won sand & gravel)	0.357mt
Net Balance of Imports / Exports from All Sources (i-d=j) (i>d so Essex is a net exporter of sand & gravel from all sources)	0.08mt

Source: Adapted from British Geological Survey

TABLE 23: CONTRIBUTION TO GREATER ESSEX SAND & GRAVEL CONSUMPTION MADE BY IMPORTS

Source of Sand & Gravel	Amount of Sand & Gravel (Proportion of Total)
Total Consumption of Sand & Gravel (f)	2.666mt (100%)
Total Greater Essex Origin Land Won Sand & Gravel Consumed (c)	2.150mt (80.65%)
Total Imported Land Won Sand & Gravel (g)	0.239mt (8.96%)
Total Imported Marine Won Sand & Gravel (d)	0.277mt (10.39%)

Source: Adapted from British Geological Survey

Greater Essex is a net exporter of sand & gravel, with 0.596mt of sand & gravel (e) leaving Greater Essex. With 2.746mt of Greater Essex origin sand & gravel being sold within Greater Essex (a), this equates to 21.7% of the total amount of sand & gravel sold in Greater Essex being exported. As shown by Table 23 however, Greater Essex is also reliant on imports, with 19.35% (h) of the net total amount of sand and gravel consumed in Greater Essex (f) being imported. Table 22 states that the net balance in imports / exports is 0.08mt (j), or 2.91% of the total sand and gravel sold in Greater Essex.

9.8 Conclusion

Greater Essex is a net exporter of sand & gravel, exporting 2.91% of the total amount of sand & gravel sold within Greater Essex. Out of necessity, Greater Essex is an importer of crushed rock, importing 0.744mt of this mineral annually.

This chapter forms the basis for Essex County Council's approach to the Duty to Co-operate, as addressed in Section 12. By assessing the mineral planning areas which Greater Essex both imports from and exports to, it was clear which Mineral Planning Authorities we would need to enter into dialogue with. Through the Duty to Co-operate, it is hoped to be ascertained that Greater Essex can continue to rely on importation sources whilst, by maintaining our current apportionments, we can offer security of supply to those Mineral Planning Authorities' who depend on sand & gravel sourced from within Greater Essex.

10 SECONDARY AND RECYCLED AGGREGATE

10.1 Introduction

Along with 'primary' aggregate, described in Section 4.2 as being minerals extracted directly from the ground, there are also 'secondary' and 'recycled' aggregates. 'Recycled' aggregates are those derived via methods analogous to the traditional idea of recycling. Examples include the re-use of brick and concrete obtained from construction and demolition work being re-processed to be used in new developments, rather than being disposed of in a landfill site. 'Secondary' aggregates are created as a by-product of a construction or industrial process. Examples include power station ash resulting from combustion (fly ash) which can be turned into bricks and cement, and slag from iron smelting which can be manufactured into mineral wool and subsequently be used as a heating pipe insulator. A large amount of recycled and secondary aggregate is processed on redevelopment and construction sites. These can be stand-alone permanent facilities on industrial estates or temporary facilities co-located with existing quarries, landfill sites and recycling sites that remain operational until such a time that quarrying or landfilling ceases.

The benefits for maximising the use of both secondary and recycled aggregate are two-fold. Firstly, the use of these aggregates reduces the need to extract primary material in the first instance, leading to a reduction in the need for quarry sites. Secondly, the re-use of aggregate reduces the amount of waste that needs to be disposed of, reducing the need for landfill sites. Such a reduction in the need for quarry and landfill sites has clear economic, environmental and social benefits. Essex County Council, Southend-on-Sea and Thurrock Council positively encourage the re-use and recycling of Construction, Demolition and Excavation (CDE) waste through development plans and operation policies. Through the Essex MLP, the emerging Southend-on-Sea Development Management DPD and Thurrock Minerals and Waste Development Plan Document (MWDPD), each authority will enable and encourage the construction industry and mineral industry to invest in creating and maintaining an effective network of aggregate recycling facilities across Greater Essex to meet demand. However this should not be taken to mean that increasing the importation of waste into Essex or Thurrock from outside these areas would be acceptable.

10.2 Recycled Aggregate Throughput and Capacity

Policies in the existing Minerals and Waste Local Plans for Essex, Southend-on-Sea and Thurrock encourage the use of alternative aggregate sources and the development of facilities for the recycling of mineral wastes, and construction and demolition waste (Essex Minerals Local Plan Policy MLP5, and Essex and Southend-on-Sea Waste Local Plan Policy W7D, and Thurrock Core Strategy Policies CSTP29 and CSTP31). Southend-on-Sea also seek to encourage the re-use and recycling of construction waste through its emerging Development Management DPD. However the supply of recycled aggregate is largely an assumed supply, due in part to the difficulty that Essex County Council, Southend-on-Sea and Thurrock Council have had in obtaining existing throughput figures. This is particularly true for secondary aggregate where no figures exist. The 'National and Sub-National Guidelines for Aggregate Provision in England 2005 – 2020' document proposes that the East of

England region should provide 117mt of alternative aggregate materials between 2005 and 2020, equating to 7.8mt a year. This is equivalent to 31% of the region's total aggregate supply, so the re-use of recycled and secondary aggregate is expected to be a major feature of mineral supply. There is however no apportionment of the 117mt figure to individual Mineral Planning Authorities in the region.

10.2.1 Total Capacity of Recycled Aggregate Facilities in Essex and Southend-on-Sea

The following three tables detail the capacity of CDE (Aggregate) Recycling sites within Essex and Southend-on-Sea which process recycled aggregate as well as screen soils associated with this type of aggregate.

TABLE 24: TOTAL AGGREGATE RECYCLING FACILITIES – ALL TYPES

Number of Facilities	Total Permitted Capacity
35	1,737,992t

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

Note: Of the 35 total facilities, ten have had their contribution to Total Permitted Capacity calculated via information contained in their EA permitted license whilst a further four have had to have been omitted entirely due to the absence of capacity information.

Of this total capacity, approximately 60% is permanent capacity with the remaining 40% being located in temporary facilities on existing mineral sites.

TABLE 25: AGGREGATE RECYCLING FACILITIES – OPERATIONAL

Number of Facilities	Total Permitted Capacity
28	1,370,492t

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

Note: Of the 28 facilities, ten have had their contribution to Total Permitted Capacity calculated via information contained in their EA permitted license whilst a further two have had to have been omitted entirely due to the absence of capacity information.

A comparison of Table 24 with Table 25 suggests that 78.85% of total permitted capacity is operational.

TABLE 26: AGGREGATE RECYCLING FACILITIES – NON OPERATIONAL RECYCLING FACILITIES WITH PLANNING PERMISSION

Number of Facilities	Total Permitted Capacity
4	102,500t

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

Note: Of the four facilities, two have no stated planning permitted or EA licensed capacity and have been omitted from the Total Permitted Capacity calculation.

TABLE 27: AGGREGATE RECYCLING FACILITIES –PERMITTED SINCE FEB 2011

Number of Facilities	Total Permitted Capacity
3	265,000t

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

As stated previously, 40% of existing recycling capacity is of a temporary nature and therefore there will be reductions in total permitted capacity in CDE recycling during the period up to 2029 as temporary permissions expire. A 'capacity gap' is estimated to arise from 2020/21 onwards between the permitted capacity of CDE recycling facilities and the volume of CDE waste which must be recycled. Consequently, additional CDE recycling facilities, amounting to a capacity of approximately 0.45mt, will be needed in the Plan Area to achieve increased recycling and re-use of material from this waste stream up to 2029.

The EU Framework Directive requires waste planning authorities, which includes Essex and Thurrock, to plan on the basis that over time there should be a significant reduction in the amount of CDE waste that is sent to landfill. This is the key policy driver behind increasing the proportion of CDE waste that must be reused or recycled. At this current time, all district, borough and city authorities within Essex have aggregate recycling facilities within their administrative area with the exception of Castle Point borough. A list of aggregate recycling facilities within Greater Essex can be found in Appendix 3

10.2.2 Throughput of Recycling Aggregate Facilities in Essex and Southend-on-Sea

The 'throughput' is a measure of the amount of recycled aggregate that passes through the recycling facilities. This differs from the capacity which is the total amount of recycled aggregate that could be processed at recycling sites given an infinite supply. For reasons explained below, the throughput at aggregate recycling sites has been estimated. This has been done through analysing surveys that a proportion of mineral site operators were able to return, and then extrapolating the findings across the total number of aggregate recycling facilities that are known to exist in Essex. Essex does not have the legal jurisdiction to stipulate that these surveys be completed. Of the 28 recycling CDE sites known to exist, nine operators returned a survey in the latest round in 2010, equating to 32.1% of the total known sites.

A further issue is that the throughput of aggregate recycling facilities does not necessarily equate to the production of recycled aggregate. The suitability of material for different uses will depend on its characteristics and as such this does not necessarily mean it can substitute for primary aggregate.

The total throughput from these nine aggregate recycling facilities totalled 0.189mt. Through planning applications and information received from the Environment Agency it was possible to ascertain the total capacity of these nine sites and it was found that the throughput of these nine sites was 46% of their total capacity. This estimate of recycled aggregate throughput being 46% of total capacity was applied to all 28 known operational recycling sites, providing an estimated total recycled aggregate production figure for Essex of 0.678mtpa out of a total capacity of 1.47mtpa.

This figure of 0.678mtpa does not take into account recycled aggregate that is processed by mobile facilities that can be temporarily located in close proximity to demolition sites. A Communities and Local Government report entitled 'Survey of Arisings and Use of Alternatives to Primary Aggregates in England: Construction, Demolition and Excavation Waste 2005' states that an additional figure equating to 19.8% of fixed site throughput can be estimated for the contribution to total throughput made by mobile sites. Given the estimate of 0.678mt for the 28 fixed aggregate recycling sites in Essex, an additional 19.8% results in a total recycled aggregate throughput of 0.812mt in 2010.

This methodology was also followed in 2009 where a total recycling aggregate throughput of 0.842mt was estimated. The 2010 and 2009 figures exceed those recorded in the preceding two years. In 2007 recycled aggregate throughput was recorded as 0.48mt whilst in 2008 it was 0.42mt. The large discrepancy can be explained by the fact that these figures represent only those sites where the operator returned their survey. No extrapolation was carried out across those sites which did not return a survey in order to estimate a total recycled aggregate throughput across Essex and Southend-on-Sea.

10.2.3 Capacity and Throughput of Recycled Aggregate Facilities in Thurrock

Within Thurrock there are five authorised sites which process recycled aggregate as well as screen soils associated with this type of aggregate. Of these five sites, three are associated with mineral and landfill sites and are thus of a temporary nature, and two are 'permanent' sites. However one of the latter is within an area proposed for comprehensive redevelopment and thus is likely to be lost at some time in the future. There are no non-operational sites. These facilities are also detailed in Appendix 3.

It should be noted that although the planning permissions for these sites do not impose capacity limitations by reference to tonnages, capacities are in some instances limited by reference to maximum vehicle movements. It is understood from those operators who have volunteered information that total throughput is likely to be substantially less than total permitted capacity. The Thurrock Waste Management Capacity Needs Assessment Update 2010 indicated that Thurrock had an oversupply of CDE recycling capacity to meet its own waste arisings. It was forecast that Thurrock would fall short of capacity before 2015/16 but that this could be addressed with one or two new or retained sites. Since then the life of two of the temporary facilities has been extended such that this capacity shortfall will probably not occur as envisaged. Furthermore any undersupply would be reduced by the extent of recycling carried out on development sites by mobile crushers and screens. This latter type of capacity will fluctuate markedly depending on the number and type of development sites within Thurrock at any one time with marked results on total capacity. In theory the provision made for primary aggregate provision could be reduced to a degree to reflect the availability of recycled materials. It is noteworthy that provision of the latter is likely to be greater than the regional apportionment for sand and gravel of 0.14mtpa. However the CDE recycling capacity from which this recycled material is derived is 'fueled' to a large degree by imports of waste, with London being in close proximity. Thus for Thurrock it would be inappropriate to reduce primary aggregate provision as perhaps suggested by the NPPF when the supply of recycled material is underpinned by imports of waste.

10.3 Essex and Southend-on-Sea Waste Capacity Gap Report, 2012

An update to the Essex and Southend-on-Sea Waste Capacity Gap Report (Revised) 2011 is currently being prepared which will improve the evidence with regard to aggregate recycling facilities. Whilst its production will come too late to inform this iteration of the LAA, the findings will be included within the next LAA, whilst the Essex Waste Capacity Gap Report 2012 will also be available on the Essex County Council website upon its completion.

10.4 Conclusion

Whilst it can be certain that recycled and secondary aggregate reduces the amount of primary aggregate required to facilitate development, the data currently available is extremely raw and is not considered to be suitably robust to enable a recycling target to be set. However, the emerging REMLP demonstrates a strong support for aggregate recycling, with Policy SS5: Creating a network of aggregate recycling facilities stating that proposals for new aggregate recycling facilities will normally be supported in a list of stated locations provided they are environmentally acceptable and in accordance with other policies in the development plan.

The Southend-on-Sea Core Strategy outlines broad locational criteria for recycling aggregates and secondary material development proposals.

Within Thurrock, Policy CSTP31 of the Adopted Core Strategy and Policies for the Management of Development DPD indicates that the Council will encourage the use of facilities for recycling aggregate or secondary materials, or processing of such materials, as alternatives to land won aggregate. Proposals on unallocated sites which come forward must meet criteria to be set out in the MWDPD. Policy CSTP32 indicates that permanent authorised aggregate recycling capacity will be safeguarded from non-mineral related development unless the proposals meet criteria to be outlined in the MWDPD and / or are identified for alternative use.

11 MINERAL MONITORING IN THE EAST OF ENGLAND

11.1 Introduction

This section places the statistics already detailed for Greater Essex in previous sections into a regional context. Data is presented regarding land won aggregate sales, permitted reserves, landbanks, and imports and exports across the East of England.

Please note that the references to 'Beds, Cent Beds and Luton' in this section applies to 'The Shared Service of Bedfordshire Borough Council, Central Bedfordshire Council and Luton Borough Council'. This abbreviation has been made for reasons of clarity in accompanying figures.

11.2 Aggregate Sales in the East of England

The following table shows sales of land won aggregate over the 10 year period, 2002 to 2011.

TABLE 28: SAND & GRAVEL SALES IN THE EAST OF ENGLAND IN MILLIONS OF TONNES, 2002 - 2011

SALES	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sand and Gravel										
Bedford, Central Bedfordshire & Luton	1.91	1.66	1.97	1.68	1.49	1.61	1.02	0.94	1.04	1.12
Cambridgeshire & Peterborough	2.73	2.63	2.75	3.22	2.76	2.82	3.05	2.32	1.80	1.70
Essex, Thurrock & Southend	4.66	4.47	4.30	4.14	4.07	4.09	3.29	2.79	2.99	2.80
Hertfordshire	1.54	1.26	1.05	0.97	1.23	1.01	0.99	1.21	1.17	1.27
Norfolk	2.59	2.49	2.56	2.38	2.45	1.98	1.59	1.38	1.19	1.29
Suffolk	1.58	1.43	1.42	1.48	1.67	1.73	1.40	1.04	1.10	1.08
East of England	15.00	13.94	14.04	13.87	13.67	13.24	11.33	9.68	9.29	9.26
Rock										
Cambridgeshire Limestone	0.289	0.312	0.279	0.306	0.316	0.223	0.297	0.271	0.17	0.2
Norfolk Carstone	0.131	0.131	0.173	0.159	0.146	0.196	0.216	0.066	0.058	0.062

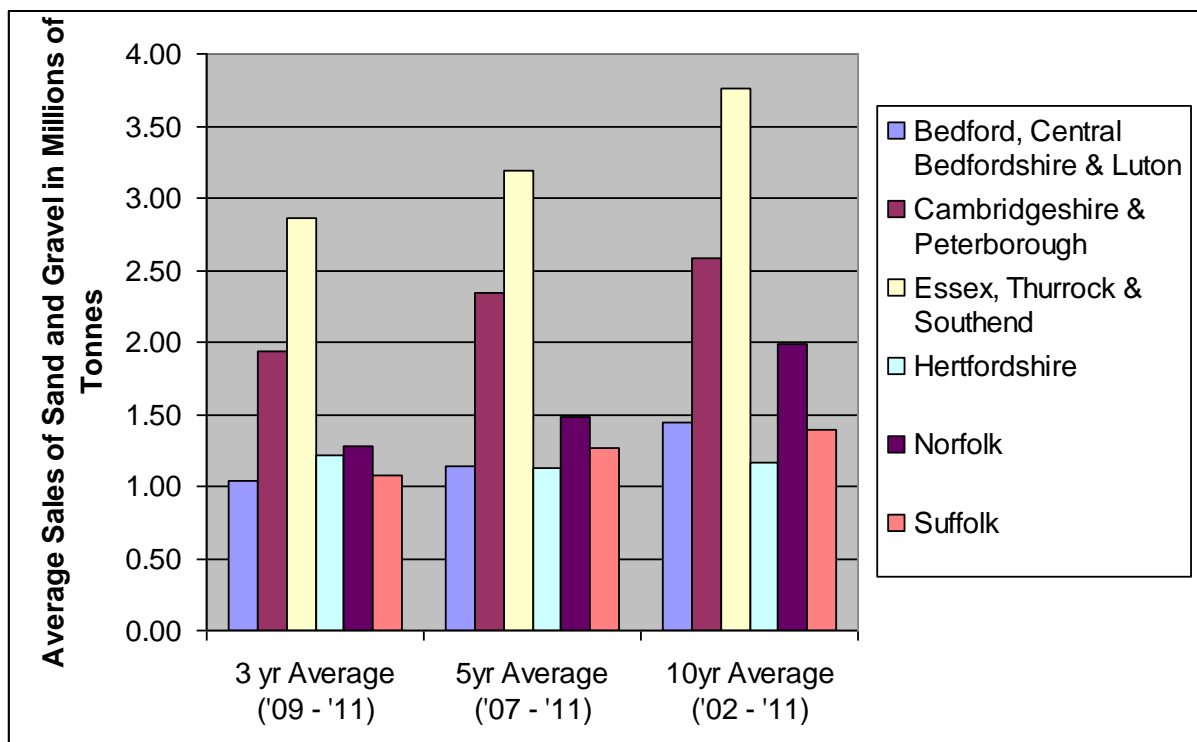
Source: East of England Aggregates Working Party Annual Monitoring Reports

TABLE 29: AVERAGE SAND & GRAVEL SALES IN THE EAST OF ENGLAND IN MILLIONS OF TONNES, 2002 – 2011

SALES	3 yr Average ('09 - '11)	5yr Average ('07 - '11)	10yr Average ('02 - '11)	2010 Apportionment
Sand and Gravel				
Bedford, Central Bedfordshire & Luton	1.03	1.15	1.44	1.84
Cambridgeshire & Peterborough	1.94	2.34	2.58	2.88
Essex, Thurrock & Southend	2.86	3.19	3.76	4.45
Hertfordshire	1.22	1.13	1.17	1.39
Norfolk	1.28	1.48	1.99	2.57
Suffolk	1.07	1.27	1.39	1.62
East of England	9.41	10.56	12.33	14.75
Rock				
Cambridgeshire Limestone	0.25	0.26	0.28	0.20
Norfolk Carstone	0.11	0.14	0.15	0.30

Source: East of England Aggregates Working Party Annual Monitoring Reports

FIGURE 16: AVERAGE SAND & GRAVEL SALES IN THE EAST OF ENGLAND IN THOUSANDS OF TONNES, 2002 – 2011



Source: East of England Aggregates Working Party Annual Monitoring Reports

As previously stated, Greater Essex is the largest producer of land won sand & gravel and reported the most sales when three, five and ten year sales are averaged. The second highest producer across all MPAs is Cambridgeshire and Peterborough, with Hertfordshire being the smallest producers in each average calculation. A clear

trend between the averages is a sequential reduction in sales as the averages are calculated from more recent data. Whilst much of this reduction can be attributed to the economic downturn, more sustainable construction techniques using less primary aggregate and more secondary and recycled aggregate would have also contributed to this reduction in sales.

A comparison of each rolling sales average with the annual apportionment ascribed to each Mineral Planning Authority in the East of England shows that in each case the annual apportionment is satisfied. As the sales averages are calculated from shorter, more recent periods, the degree of separation from the 2010 Annual Apportionment increases. However, and is stressed throughout this report, it is considered that the current economic recession is skewing recent data and it would be against Government policy to not plan for the ability to sustain economic growth, with the East of England Aggregates Working Party showing strong support for a maintenance of the current apportionment.

11.3 Permitted Reserves in the East of England

The following tables show permitted reserves across the 10 year period of 2001 – 2010 as well as averages over the previous ten, five and three year periods.

TABLE 30: PERMITTED RESERVES IN THE EAST OF ENGLAND IN MILLIONS OF TONNES, 2002 - 2011

RESERVES	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bedford, Central Bedfordshire & Luton	26.227	30.004	29.45	17.787	21.492	25.341	19.334	20.364	22.898	21.573
Cambridgeshire & Peterborough	56.637	53.111	49.8	48.504	48.504	45.684	45.49	49.918	46.2	45.246
Essex, Thurrock & Southend	57.686	59.639	54.6	51	50.122	46.684	39.191	36.706	37.061	37.014
Hertfordshire	12.582	11.551	9.721	12.585	11.466	10.841	10.869	10.619	10.786	16.700
Norfolk	23.211	23.283	20.977	17.027	17.509	17.393	16.069	18.021	17.017	16.079
Suffolk	14.3	15.9	16.01	14.47	15.27	15.64	15.505	14.88	13.615	14.110
East of England	192.645	195.491	182.562	163.378	166.369	163.59	148.466	150.723	149.587	150.722

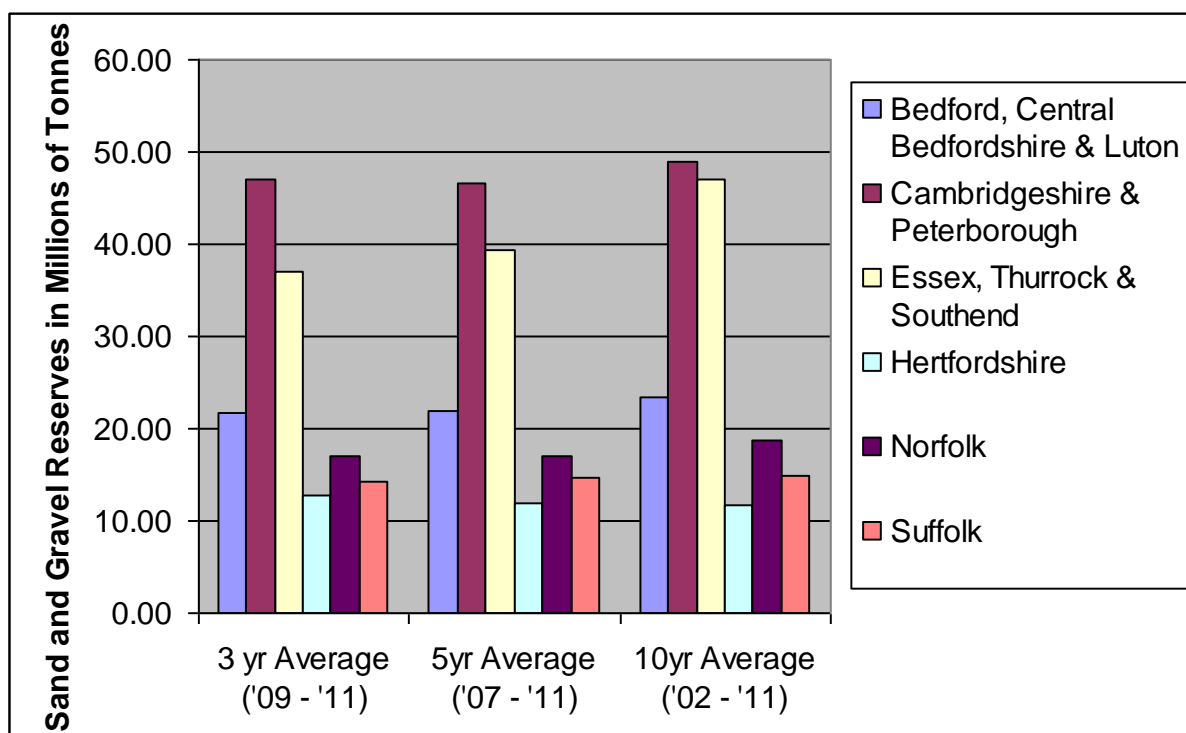
Source: East of England Aggregates Working Party Annual Monitoring Reports

TABLE 31: AVERAGE PERMITTED RESERVES IN THE EAST OF ENGLAND IN MILLIONS OF TONNES, 2002 – 2011

RESERVES	3 yr Average ('09 - '11)	5yr Average ('07 - '11)	10yr Average ('02 - '11)
Sand and Gravel			
Bedford, Central Bedfordshire & Luton	21.61	21.90	23.45
Cambridgeshire & Peterborough	47.12	46.51	48.91
Essex, Thurrock & Southend	36.93	39.33	46.97
Hertfordshire	12.70	11.96	11.77
Norfolk	17.04	16.92	18.66
Suffolk	14.20	14.75	14.97
East of England	150.34	152.62	166.35
Rock			
Cambridgeshire Limestone	2.43	2.62	3.38
Norfolk Carstone	1.81	2.01	2.73

Source: East of England Aggregates Working Party Annual Monitoring Reports

FIGURE 17: AVERAGE PERMITTED SAND & GRAVEL RESERVES IN THE EAST OF ENGLAND IN THOUSANDS OF TONNES, 2002 - 2011



Source: East of England Aggregates Working Party Annual Monitoring Reports

Whilst a ten year average of permitted reserves shows Greater Essex as having the highest permitted reserves in the East of England, Cambridgeshire and Peterborough have the highest when an average is taken of the last five and three year Permitted Reserve levels. Across the East of England, as the average is taken using more historic data, the average amount of permitted reserve held by each Mineral Planning Authority can be seen to increase. This is in line with previous findings within this

report which showed that sales historically have been higher than in recent years so it stands to reason that the amount of reserve that required permitting for extraction was also higher.

It is also a reflection, in Essex at least, of a decline in mineral applications and new permissions. The last Preferred Site in the adopted Essex Minerals Local Plan, Little Easton, gained planning permission in March 2011 and as such there are now no Preferred Sites remaining. The emerging REMLP will therefore be making new Preferred Site Allocations which is likely to see the Permitted Reserves within Essex rise following the granting of planning permission on forthcoming applications related to these new Preferred Sites.

An assessment of the average three, five and ten year landbank levels against the minimum statutory requirement is presented in Table 33 and Figure 20 below.

11.4 Land Won Sand & Gravel Landbanks in the East of England

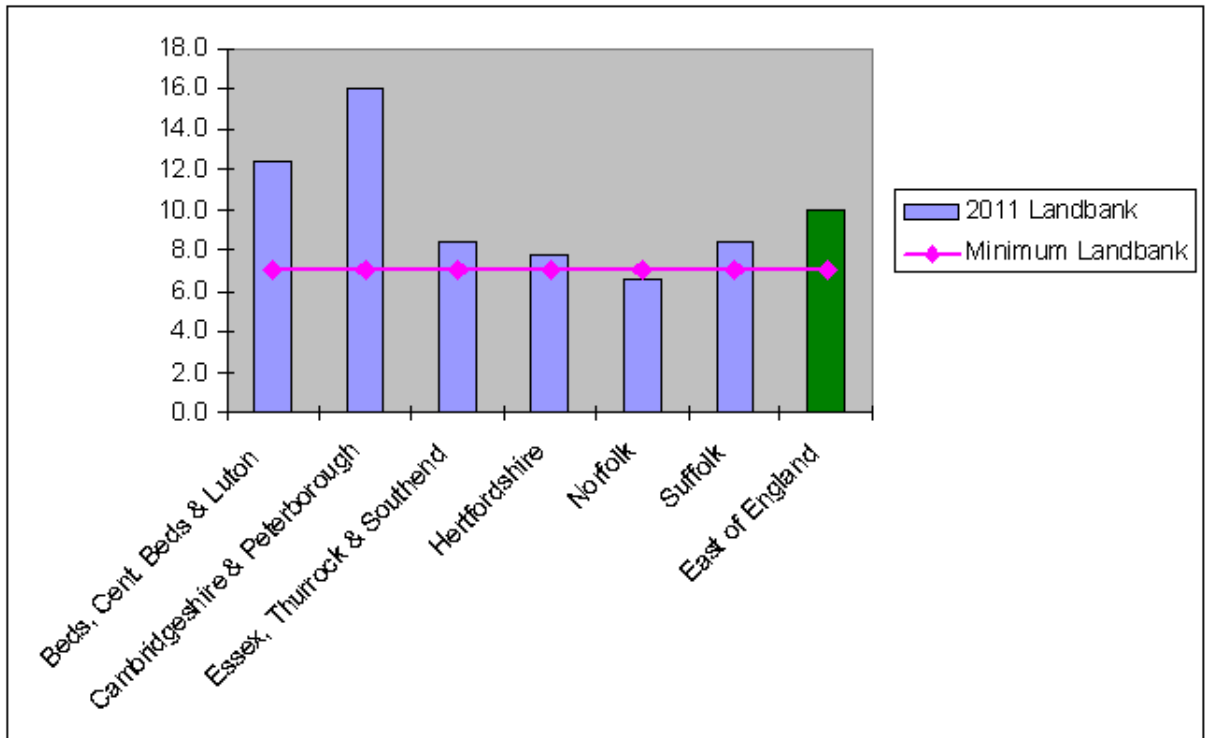
The following table and figures show the individual landbank of sand & gravel held by each Mineral Planning Authority in the East of England over the previous ten years.

TABLE 32: SAND & GRAVEL LANDBANK HELD BY MINERAL PLANNING AUTHORITIES IN THE EAST OF ENGLAND, 2002 - 2011

Mineral Planning Authority	Landbank in Years									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bedford, Central Bedfordshire & Luton	13.6	15.5	15.3	9.2	11.1	13.1	10.0	11.1	12.4	11.7
Cambridgeshire & Peterborough	20.1	18.8	17.7	17.2	17.2	16.2	16.1	17.3	16.0	15.7
Essex, Thurrock & Southend	12.7	13.1	12	11.2	11.0	10.3	8.6	8.2	8.4	8.3
Hertfordshire	6.3	5.8	4.9	6.3	5.8	5.4	5.5	7.6	7.8	12.0
Norfolk	7.8	7.8	7	5.7	5.9	5.8	5.4	7.0	6.6	6.3
Suffolk	8.3	9.2	9.3	8.4	8.8	9.0	9.0	8.1	8.4	8.7
East of England	11.9	12.1	11.3	10.1	10.3	10.2	8.7	10.1	10.0	10.2

Source: East of England Aggregates Working Party Annual Monitoring Reports

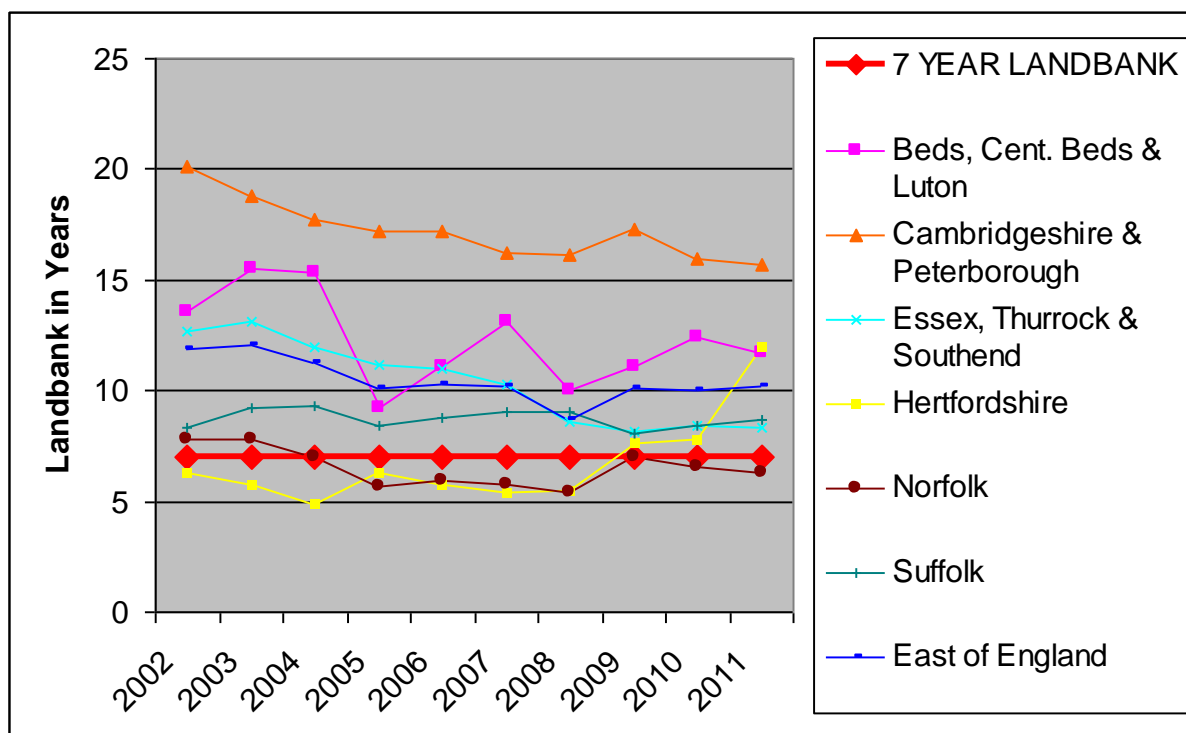
FIGURE 18: SAND & GRAVEL LANDBANK HELD BY MINERAL PLANNING AUTHORITIES IN THE EAST OF ENGLAND IN 2011



Source: East of England Aggregates Working Party Annual Monitoring Reports

In 2011, all East of England Mineral Planning Authorities held a sand & gravel landbank above the minimum specified total of seven years other than Norfolk who recorded a landbank of 6.3 years. Combined, the East of England holds a sand & gravel landbank of 10.2 years, thus satisfying the minimum requirement.

FIGURE 19: SAND & GRAVEL LANDBANK HELD BY MINERAL PLANNING AUTHORITIES IN THE EAST OF ENGLAND, 2002 - 2011



Source: East of England Aggregates Working Party Annual Monitoring Reports

Between 2002 and 2011 there has not been a single pattern across the East of England with regard to landbanks. Of the six Mineral Planning Areas identified, two have increased their landbank over the assessed period. Of these, Hertfordshire were below the minimum seven year landbank of sand & gravel in 2002. The increase in landbank seen by 2011 was sufficient for Hertfordshire to record a landbank excess of the minimum seven years required. The largest landbank is held by Cambridgeshire and Peterborough at 15.7 years which equates to over double the minimum required. They have however reported a decrease in landbank over the assessed period, from 20.1 years to the aforementioned 15.7 years in 2011. Essex was one of those authorities to reduce their landbank across the study, from 12.7 years to 8.3 years, bringing the authority closer to the minimum required landbank. Proportionately, this is the biggest reduction across the East of England.

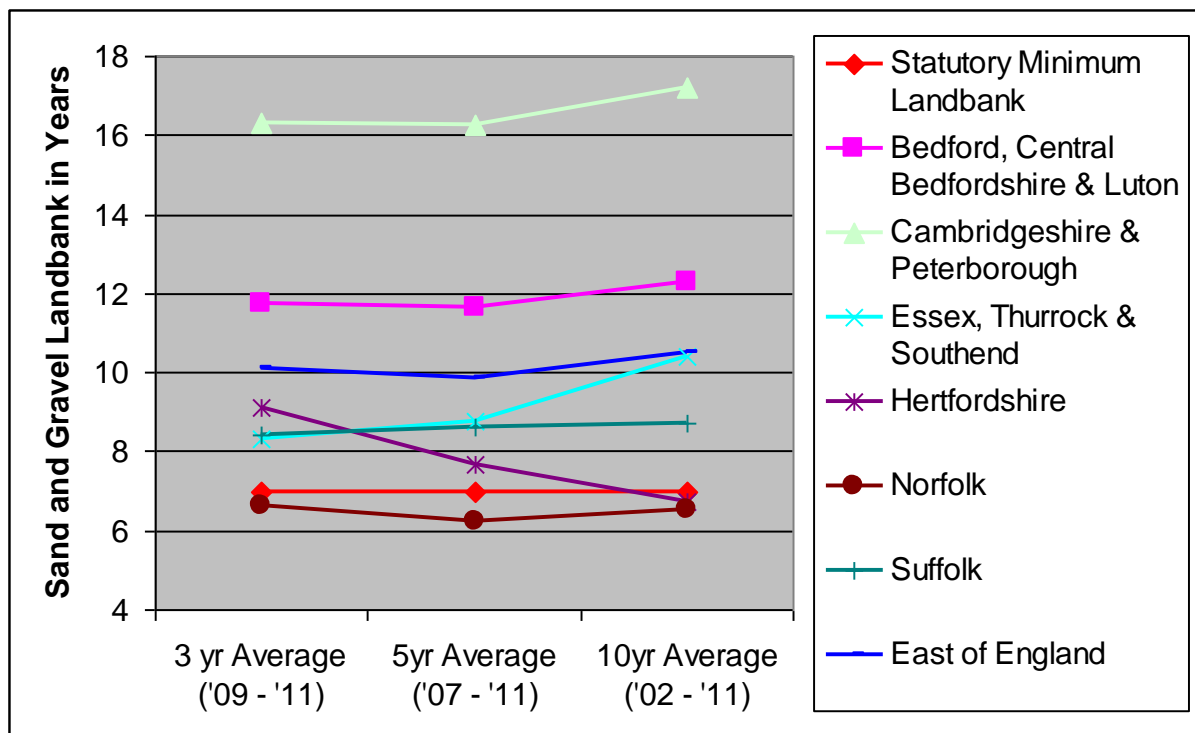
As a whole, the East of England currently maintains a sand & gravel landbank of 10.2 years. There has been variation in the East of England sand & gravel landbank across the period analysed above, with the landbank peaking in 2003 at 12.1 years whilst the lowest figure, 8.7 years, was reported in 2008.

TABLE 33: SAND & GRAVEL LANDBANK IN YEARS BY THREE, FIVE AND TEN YEAR AVERAGES OF PERMITTED RESERVES IN THE EAST OF ENGLAND, 2001 – 2010

LANDBANK AT 2010 APPORTIONMENT	3 yr Average ('09 - '11)	5yr Average ('07 - '11)	10yr Average ('02 - '11)
Bedford, Central Bedfordshire & Luton	11.73	11.66	12.30
Cambridgeshire & Peterborough	16.33	16.26	17.23
Essex, Thurrock & Southend	8.30	8.76	10.38
Hertfordshire	9.13	7.66	6.74
Norfolk	6.63	6.22	6.53
Suffolk	8.40	8.64	8.72
East of England	10.10	9.84	10.49

Source: East of England Aggregates Working Party Annual Monitoring Reports

FIGURE 20: SAND & GRAVEL LANDBANK IN YEARS BY THREE, FIVE AND TEN YEAR AVERAGES OF PERMITTED RESERVES AND 2010 APPORTIONMENT IN THE EAST OF ENGLAND, 2001 – 2010



Source: East of England Aggregates Working Party Annual Monitoring Reports

All Mineral Planning Authorities in the East of England with the exception of Norfolk and Hertfordshire were found to be above the minimum seven year statutory landbank when a comparison is made between the average Permitted Reserves over the previous ten years and the respective 2011 Annual Apportionments. All authorities reported an average sand and gravel landbank over the seven year minimum when averaged permitted reserves are assessed over a three and five year period with the exception of Norfolk.

12 DUTY TO CO-OPERATE

12.1 Introduction

This section details the approach that is intended to be taken by those Mineral Planning Authorities who have either been identified as being an authority from which we have previously relied on for a certain proportion of mineral import, are part of the East of England Aggregate Working Party alongside the Essex Mineral Planning Authority or whom share an administrative border with Essex. Information informing this chapter has been taken from either emerging Local Aggregate Assessments or Core Strategies and through direct communication with the Mineral Planning Authority's in question. The authorities detailed within this section were invited to a workshop based around the issues of the Duty to Co-operate, this LAA and the REMLP in August 2012. The figures in brackets indicate the proportion of Greater Essex's mineral imports that was sourced from each area in 2009 (the latest data available).

12.2 MPAs in the East of England

Cambridgeshire County Council (<1% sand & gravel) (and Peterborough)

The Cambridgeshire and Peterborough Minerals and Waste Core Strategy was adopted in July 2011. Planned provision is for 3.0 mtpa of sand and gravel, and 0.3 mtpa for limestone. This is slightly above the apportionment required by the East of England RSS of 2.82 mtpa for sand & gravel, but consistent with the apportionment for limestone. Provision is also made for over 25 years of brick clay. Cambridgeshire and Peterborough are not considering any changes following the NPPF.

Central Bedfordshire, Bedford Borough and Luton Borough Council (<1% sand & gravel)

This combined Mineral Planning Authority has Shared Service functions across the administrative areas of Bedford Borough, Central Bedfordshire and Luton Borough Council. The minerals planning area administered by the Shared Service is to the east of Essex and separated from Essex by the county of Hertfordshire. The Shared Service is responsible for the production and monitoring of its own Minerals Local Plan. This is currently undergoing consultation on main and additional modifications which is scheduled to close on 15th May 2013.

The Shared Service on meeting with ECC stated that their continued use of the mineral apportionment published in the draft EERSS2010 has not received opposition in their consultations to date.

A number of scenarios were explored within 'Minerals Technical Evidence Paper 3: Aggregates Landbank Assessment 2011'. The first of these scenarios was an acceptance of the annual apportionment. The second scenario was to calculate apportionment based on an analysis of recent sales. It was noted that sales have decreased from 2004, with sales being below their nationally derived apportionment figure. Whilst it was noted this might reflect current economic reality, it was considered that sales will increase from the comparatively low level seen recently as the economy recovers, and it was important to have sufficient mineral to support an upturn in growth. Scenario Three involved adopting the annual apportionment in the

adopted East of England Plan (1.93mtpa) up to what would have been the end of the East of England Plan period (2021) and then adopting the revised figure. The Bedfordshire area plan has chosen an apportionment of 1.84tpa for the Bedfordshire Plan area.

Hertfordshire County Council (1-5% sand & gravel)

Hertfordshire's adopted minerals plan is the 'Hertfordshire Minerals Local Plan Review 2002 – 2016' which was adopted in 2007. Within this document it states that Hertfordshire's sub-regional apportionment was 1.99mtpa of sand & gravel. This document was adopted before the review of the East of England RSS which subsequently revised the apportionment figure down to 1.39mtpa. Work is due to commence on a review of the adopted Minerals Local Plan at the end of 2013. One of the initial tasks is for the council to produce its Local Aggregate Assessment. It is anticipated that the county will adopt the aggregates apportionment figure of 1.39mtpa for Hertfordshire, as set out in national and local guidelines published in 2011.

Norfolk County Council (<1% sand & gravel)

Norfolk's 'Core Strategy and Minerals and Waste Development Management Policies DPD' was adopted in September 2011. The annual apportionment for land-won sand & gravel contained within this document is 2.57mtpa whilst the annual apportionment for crushed rock is 0.2mtpa. Norfolk is not considering making any revisions to these figures at the current time. The sand & gravel apportionment is in line with the figures discussed at the East of England AWP (and detailed in the 2010 Annual Monitoring Report for EoEAWP), in accordance with the CLG guidelines for aggregates provision in England 2005-2020. The crushed rock apportionment is slightly below the figures detailed in the draft Revision to the East of England Plan (0.2mtpa instead of 0.3mtpa). However, it was recognised in the Revision that the crushed rock apportioned to the region is higher than will be worked in the region during the plan period due to the quality of the crushed rock making it uneconomic for it to be transported any significant distance.

Suffolk County Council (<1% sand & gravel)

The Suffolk Core Strategy is based on the former East of England RSS apportionment figure, providing an annual apportionment of 1.73mtpa. The current national guidelines are lower than those used at the time of the adoption of the RSS and our Core Strategy and a reduced figure of 1.62mtpa was approved by the Aggregates Working Party. Both of these apportionments are above the current annual output of approximately 1.1mt. Averages of the previous ten and three year sales figures are below both the adopted annual apportionment and the revised RSS figure. Suffolk is likely to commence a review of its Core Strategy during 2013/14 and will, in the short-term, concentrate on improving its evidence base. The appropriate level of planned provision for aggregates will be a key issue for consideration during the review. In the interim, the County Council intends to work to the draft revised RSS apportionment of 1.62mtpa for the purposes of calculating its landbank.

12.3MPAs from Outside of the East of England

Cheshire East Unitary Authority (<1% sand & gravel)

Cheshire East's current recommended sand and gravel aggregate apportionment figure is detailed in the 'North West Aggregate Working Party - Interim AM2011 Report'. Under which, provision for an annual average of 0.71mt over the period 2005 – 2020 should be made. Preparation has since commenced on a draft Local Aggregate Assessment (LAA). This is being prepared following the published guidelines set out in the 'Guidance on the Managed Aggregate Supply System' (DCLG, 2012). Under which, a rolling average of 10-years sales data and other relevant local information will be used to base a forecast of the demand for aggregates. The draft LAA will then be submitted to members of the North West Aggregate Working Party by the end of May 2013 (under the current timetable) for their consideration and scrutiny. The finalised LAA will then be taken forward to inform the preparation of policy in the Cheshire East Local Plan concerning future aggregate provision.

Derbyshire County Council (<1% crushed rock)

Derby City Council and Derbyshire County Council are currently working together to prepare a new Joint Minerals Plan. The Minerals and Waste Development Scheme is currently under review. They have prepared a draft LAA (Derbyshire CC, Derby City and the Peak District National Park) which was out for consultation between 21st March 2013 till 27th May 2013. To determine future provision of sand and gravel, the NPPF states that the previous 10 years sales need to be taken into account, together with published National and Sub National Guidelines, as well as any other relevant information. To set apportionment figure for sand and gravel the correct and pragmatic approach will be to use the 10 year average figure with an additional 10%. This works out at 1.35 million tonnes per annum. Based on this proposed annual apportionment of 1.35 million tonnes, the proposed total apportionment for the period 2012-2030 that Derbyshire will provide is 25.65 million tonnes of sand and gravel (1.35x19). To determine the future provision of aggregate crushed rock in Derbyshire and the PDNP, the previous 10 years sales need to be taken into account, as well as any other relevant information.

From 2012 to 2030, Derbyshire and the PDNP will make provision for 224 million tonnes of aggregate grade crushed rock (11.79mt x 19 years). Assuming 11.79mt per annum is worked over 19 years (224mt), and that no further reserves are permitted in this time, there will still be a landbank of aggregate grade crushed rock of 565mt by 2030, sufficient to last around 50 years.

Flintshire / Conwy via North Wales Aggregate Working Party (5-10% crushed rock)

The North Wales RTS is in the process of being reviewed, and to date the modelling for apportionments is looking like being based on a mix of 10 year rolling sales and consumption based on a simple per capita basis with some local factors included to account for exports out of the region. A steering group of the RTS has met and looked at recommending apportionments on a county or subregional/grouping basis depending upon issues of confidentiality and the occurrence of particular mineral resource types, and also to maintain continuity for reporting. The requirement to

maintain a recommended 10 (crushed rock) and 7 (sand & gravel) is being explored for the duration of any given local development plan, but agreement is needed on whether this means maintaining the provision from the outset ie, 10+15 and 7+15 years respectively this at the outset of the LDPs favoured by industry to provided certainty, or to maintain at least the minimum provision at any given point in time, and if allocations or preferred areas are required these can be put into the plan during one the 4 year review cycles for the LDPs , ie, to ensure/facilitate/make provision that at the end of the plan period there is still 7 & 10 years landbank, assuming applications come forward. The current consensus is that there is no harm in overprovision to accommodate a minimum 25(Crushed Rock) and 22 years(Sand & Gravel) potential supply provision (allocations or preferred areas) from the outset, because if a recovery in demand occurs, then the LPD can facilitate applications coming forward, and if there is no such demand, applications will not be made, and the situation can be reviewed in the future. However MTAN 1 Aggregates recommends that where landbanks exceed 20 years for hard rock noNone of the above is formally endorsed by the constituent Councils of North Wales, and may change, as the RTS review has only just commenced.

There is an imbalance in the occurrence of permitted sand & gravel sites across N Wales, with N W Wales at a critical position, whereas N E Wales has an "adequate" landbank on paper. There are marine licences to operators within the Irish sea/Mersey basin capable of providing marine sand and gravel, either for export or landed at a jetty located in Bangor. It is probable that Gwynedd and Anglesey will have to identify areas suitable for sand and gravel extraction within their joint LDP and make necessary allocations or preferred areas, especially given the potential for high profile aggregate consuming developments, such as a new nuclear power station and renewable energy projects. There are considerable resources of demonstrated or indicative sand and gravel in Gwynedd in particular, so identifying suitable locations for inclusion within the LDP is realistic. N Wales will be in a position to continue to meet export demand for crushed rock and sand and gravel to geographic locations such as S E England for the foreseeable future, either via ship or rail, or road based haulage where that is economically viable to do so. The notional crushed rock landbank for North Wales is significant at 36 years for Limestone, 56 years for igneous and metamorphic rock, 25 years for shales and gritstone and 10 years for Slate secondary materials. The notional landbank for sand & gravel is 23 years.

Greater London East - Havering and Redbridge (5 – 10% sand & gravel)

Within the London Plan 2011, Havering were allocated a total provision of at least 0.25mtpa of land won aggregate throughout the plan period to 2031, with Redbridge allocated 0.1mtpa over the same period. There are currently no plans to revise mineral apportionments within Havering in light of the NPPF. Regarding Redbridge, it was stated that their apportionment is unlikely to change as they have only recently had their Minerals Plan found sound by the Inspectorate and was adopted in September 2012.

Kent County Council (<1% sand & gravel)

The rolling 10 year average for combined land-won sand and gravel sales is now 1.603mtpa, which is marginally below the revised South East Plan policy M3

apportionment of 1.63mtpa. Basing site allocations for an 18 year plan on ratios derived from past sales does not reflect the availability of land-won resources. Past sales data combined with information on existing reserves indicates that future sand and gravel allocations should be predominantly for sharp sand and gravel, whereas the majority of sites put forward for consideration are soft sand sites proposed to make provision for sufficient land-won sand and gravel. There are insufficient deliverable sharp sand and gravel sites available for inclusion in the Mineral Sites Plan to make provision for a separate landbank for sharp sand and gravel on the basis of the rolling 10 year average sales figure. Instead, a mix of sharp sand and gravel and soft sand sites will be identified to make provision for one landbank for all land-won sand and gravel materials.

The existing landbank of crushed rock reserves is more than sufficient for the plan period. Current crushed rock provision is 0.78mtpa.

Leicestershire County Council (25-30% crushed rock)

The current sand & gravel and crushed rock apportionments for Leicestershire are specified in the Leicestershire Minerals Core Strategy and Development Control Policies DPD which was adopted in October 2009. The apportionments are 1.25mtpa for sand & gravel and 16.1mtpa for crushed rock. These figures correspond with the sub-regional aggregate apportionment figures in the East Midlands Regional Spatial Strategy March 2009. No revisions have yet been made to the above apportionments and it is not anticipated that work to review the Leicestershire Core Strategy will commence until next year.

Medway Unitary Authority (no imports but proximal MPA)

Within the Medway Core Strategy 2012, provision is made to supply 0.18mtpa of sand & gravel. These figures accord with the South East RSS although are presented in this document as an amalgamation of the annualised planned provision with Kent, equating to 2.53mtpa. The Core Strategy was adopted before the NPPF became the national planning document and Medway have stated that as such they now intend to produce their own Local Aggregates Assessment.

Neath Port Talbot (<1% crushed rock), Powys (1-5% crushed rock)

(Response received from South Wales Aggregate Working Party)

The South Wales Aggregate Working Party Regional Technical Statement 2008 sets out the mineral apportionments for those Mineral Planning Authorities in South Wales. This document is in the process of being reviewed and the apportionment methodology will be assessed as part of this process. The review is currently at an early stage, with both Welsh Regional Aggregate Working Parties drafting their outline strategy. There is no up-to-date apportionment figure for S Wales yet as the RTS review is still underway. Hence, the 2008 RTS figures are still in force. Neath Port Talbot CBC contributes approximately 7% of the total sales and Powys approximately 30%.

North Somerset (<1% crushed rock)

The Council's Core Strategy was adopted in April 2012. Policy CS8 of the Core Strategy indicates that subject to local testing, provision will be made for North Somerset to contribute towards approximately 40% of the West of England's crushed rock aggregate sub regional apportionment for 2005–2020 rolled forward to 2026 on a pro rata basis, with a deduction to take account of extraction since the start of that period. Based on the sub regional apportionment for the West of England that was submitted by the then South West Regional Aggregates Working Party to the Department of Communities and Local Government in September 2010, the Council have calculated that apportionment for North Somerset to be approximately 36.9 million tonnes for 2009-2026 inclusive. This works out as 2.05mt per annum.

North Somerset and the other unitary local authorities in the West of England area (Bristol City, Bath and North East Somerset and South Gloucestershire) have recently produced a consultation draft joint LAA for the West of England (ex Avon) area. The document has been sent to the SWAWP (South West Aggregates Working Party) for discussion at their meeting on 10 May, 2013, so may be subject to change. However it currently states (in paragraph 4.3) that "the 10 year average of crushed rock sales in the West of England between 2001 and 2010 is 4.2 million tonnes". It states (in paragraph 4.4) that both South Gloucestershire and North Somerset Councils in their Core Strategies have identified crushed rock requirements, using the sub- regional apportionment figure of 79.10 million tonnes for the period 2005 – 2020, and extrapolating this figure to 2026. This apportionment is 0.74 million tonnes per annum higher than the 10 year sales average, so the Core Strategies more than meet the provision requirements of this LAA".

Oxfordshire (<1% sand & gravel, <1% crushed rock)

The current position in Oxfordshire is that the aggregates provision figures of 1.26mtpa for sand & gravel and 0.63mtpa for crushed rock were included in the Submitted Minerals and Waste Core Strategy, October 2012. Hearings have not yet been held and the examination is currently suspended until 31 May 2013, in part to enable the Council to update the evidence base to take the NPPF into account. We are preparing a new LAA in accordance with the NPPF and the October 2012 DCLG Guidance on MASS. However, this will not be completed by the end of May.

The current Oxfordshire ten years sales averages, for the period 2002 – 2011, are 1.11mt for sand & gravel and 0.54mt for crushed rock.

Somerset (>45% crushed rock)

Based on information provided in Somerset's Minerals Preferred Options, January 2013, the South West regional apportionment for 2005 to 2020 is 412.73 million tonnes (Mt) for crushed rock and 85Mt for sand and gravel. The South West Regional Aggregates Working Party (SWRAWP) now the South West Aggregates Working Party (SWAWP) recommended to government an apportionment of the regional figure based on averaged historic proportional contributions over the period 2004 to 2008. Somerset's recommended crushed rock apportionment for 2005 to 2020 was 214.65Mt which equates to a provision of 13.41Mt each year. Somerset's sand and gravel apportionment was included with Devon. Together the counties have

an apportionment of 14.91 Mt which equates to an annual apportionment of 0.92 million tonnes.. Somerset will seek, throughout the plan period of the Somerset Minerals Plan, to provide for crushed rock based on the rolling average of 10 years sales data included in its annual LAA. Currently this 10 year average equates to 10.82Mt. This provision will be reviewed annually in line with Somerset's landbank to ensure that a steady and adequate supply of aggregates is planned for.

Surrey (1-5% sand & gravel)

Policy MA1 in the Surrey Minerals Plan 2011 states that "Preferred areas will be identified, which together with permitted reserves will enable production of concreting aggregate at an average rate of 0.90mtpa, and production of soft sand at an average rate of 0.50mtpa in the period 2009-2026". In total, this is below the original South East Plan 2009 annual apportionment of 2.62mtpa, which the Plan states is unattainable over the Plan period, but above the 1.27mtpa figure confirmed by the Secretary of State in the Proposed Changes to the South East Plan in March 2010. Surrey County Council took the view that the apportionment within the Proposed Changes document should be the basis on which to plan for with a 10% allowance for flexibility. The Inspector's report states that "unlike some other counties with substantial unconstrained mineral resources, Surrey is not in the position where there are sites being held in reserve." At this time Surrey is not intending to revise its provision figures. Surrey has started work on preparing a Local Aggregates Assessment. They are not intending to change their recently adopted apportionment which only has scope to be reduced and not increased. The consequence is that Surrey is likely to become increasingly reliant on imports of concreting aggregates and the use of recycled aggregates by the end of the plan period (2026), whilst soft sand extraction is anticipated to continue for some time beyond the end of the plan period.

TABLE 34: SUMMARY OF SECTION 12: DUTY TO CO-OPERATE

Planned Provision based on the sub-national apportionment of the National and National and Regional Guidelines for Aggregate Provision in England 2005-2020	Planning Provision Based on Rolling 10 Year Average	Planned Provision Based on Reduction of Annual Apportionment	Discussions at too Early a Stage to Comment on Future Direction
Greater Essex	Somerset***	Oxfordshire*****	Derbyshire
Cambridgeshire	Cheshire East****		Leicestershire
Central Beds	North Wales*****		South Wales
Hertfordshire	Kent		
Norfolk			
Greater London East			
Surrey*			
Suffolk**			
North Somerset			

Source: Discussions with respective MPAs and Essex County Council, 2012

* Adopted provision below original RSS but above and pre-dating RSS revised apportionment.

** Current Plan is based on the former RSS figure

*** Based on Preferred Options of Somerset Minerals Plan, January 2013

**** A rolling average of 10-years sales data and other relevant local information will be used to base a forecast of the demand for aggregates

***** RTS is in the process of being reviewed, and to date the modelling for apportionments is looking like being based on a mix of 10 year rolling sales and consumption based on a simple per capita basis with some local factors included to account for exports out of the region.

***** Consultants produced report Jan 2011 justifying lower provision than apportionment. Equates to a little over 10 yr. sales. Is featured in Proposed Submission of Core Strategy 2012.

It is the intention of Essex County Council to update this table when new information is released by the respective MPAs in order for ECC to remain aware of the supply intentions of those MPAs upon which ECC relies upon. Please note that this is a summary table only and additional work will be carried out to ascertain the security of supply when necessary.

13 CONCLUSION

13.1 Sand & gravel

Following an assessment of the historic sales of sand & gravel within Greater Essex, it can be seen that there has been a general reduction in sales over time. Whilst the general trend can be attributed to the proliferation of more sustainable construction techniques and an increased use of secondary and recycled aggregate, the significant fall seen since 2007 is believed to be indicative of the current economic recession.

The NPPF states that the planned provision of a mineral should begin with an analysis of the previous ten years of sales to form a basis for that provision. However, when a rolling Essex ten year sales average is assessed, due to the significant decrease in sales seen since 2007, the resultant average sales figure of 3.62mt is below recorded sales between 2001 and 2007, with only the sales in the last four years being low enough to be satisfied by this suggested provision. As such it was considered that a planned provision based solely on the last ten years of sales would fail to provide enough mineral to satisfy the Government's growth agenda, and would in effect be planning for a continued recession.

The NPPF provides the option to factor in 'other relevant local information' when calculating the planned provision of a mineral. Every district, borough and city council in the county of Essex is planning for growth in their Local Development Framework / Local Plan, as are the unitaries of Southend-on-Sea and Thurrock. There are also significant infrastructure and commercial projects either having been granted planning permission or planned for the area.

Following discussions with the East of England Aggregates Working Party, each Mineral Planning Authority within this working group committed to maintaining mineral provision at the rate prescribed by the latest mineral apportionment derived through MASS. This will not affect traditional working arrangements and in any event Essex retains the right through the NPPF to revise this planned provision through a review of the REMLP should monitoring highlight such a requirement. Therefore, with an annualised planned provision of 4.31mtpa, and taking into account existing Permitted Reserves, Essex and Southend-on-Sea will be required to make new allocations of sand & gravel amounting to 40.666mt over the 18 year plan period between now and the proposed plan end date of 2029.

With regard to Thurrock, reserves in 2007 were estimated to be 1.54 mt and the landbank 10.9 years. If five years worth of Thurrock's annual apportionment of 0.14 mtpa is subtracted as a proxy for sales to derive a current position then the landbank reduces to 5.9 years. However two decisions since 2010 have added 0.54mt to reserves equating to an additional 3.89 years to the landbank giving a total of 9.79 years. Thus in this scenario the reserve would be exhausted by 2022 and fall below the 7 year landbank requirement by 2015 unless further permissions are sought and obtained.

13.2 Silica Sand

The current development plan made an annualised planned provision for silica sand of 0.045mtpa based on the output from Martells Quarry in Tendring, and it is not proposed to deviate from this figure in the emerging REMLP. When taking Permitted Reserves into account, Essex and Southend-on-Sea will be required to make a new allocation amounting to 0.435mt of Silica Sand across the plan period.

13.3 The Importing and Exporting of Minerals

There are currently no transshipment sites within Essex or Southend-on-Sea that receive marine won imports. All such facilities located in Greater Essex are found within the Unitary Authority of Thurrock. The Thurrock Council Core Strategy and Policies for Management of Development 2011 document contains Policy CSTP32 – Safeguarding Minerals Resources which states that ‘all existing aggregate wharves will be safeguarded against proposals which prejudice their use for the importation of aggregates’. As such it is considered that, following additional formal confirmation with Thurrock Council, Essex and Southend-on-Sea will continue to be able to receive the majority of its marine won sand & gravel via Thurrock.

Greater Essex is a net exporter of sand & gravel, with 0.596mt of sand & gravel leaving Greater Essex. With 2.746mt of Greater Essex origin sand & gravel being sold within Greater Essex, this equates to 21.7% of the total amount of sand & gravel sold in Greater Essex being exported. However, Greater Essex is also reliant on imports, with 19.35% of the total amount of sand and gravel consumed in Greater Essex being imported. The net balance in imports / exports is 0.08mt, or 2.91% of the total sand and gravel sold in Greater Essex.

Out of geological necessity, Greater Essex is required to import all of its crushed rock, importing 0.744t of this mineral annually.

13.4 Recycling and Secondary Aggregate

Whilst there is a very strong likelihood that recycled and secondary aggregate reduces the amount of primary aggregate required to facilitate development, the data currently available is extremely raw and is not considered to be suitably robust to enable a recycling target to be set.

Of the 28 recycling CD&E sites known to exist in Essex, nine operators returned a survey in the latest round in 2010, equating to 32.1% of the total known sites. The total throughput from these nine aggregate recycling facilities totalled 0.189mt. Through planning applications and information received from the Environment Agency it was possible to ascertain the total capacity of these nine sites and it was found that the throughput of these nine sites was 46% of their total capacity. This estimate of recycled aggregate throughput being 46% of total capacity was applied to all 28 known operational recycling sites, providing an estimated total recycled aggregate production figure for Essex of 0.678mtpa out of a total capacity of 1.47mtpa.

This figure of 0.678mtpa does not take into account recycled aggregate that is processed by mobile facilities that can be temporarily located in close proximity to demolition sites. A Communities and Local Government report entitled ‘Survey of Arisings and Use of Alternatives to Primary Aggregates in England: Construction,

Demolition and Excavation Waste 2005' states that an additional figure equating to 19.8% of fixed site throughput can be estimated for the contribution to total throughput made by mobile sites. Given the estimate of 0.678mt for the 28 fixed aggregate recycling sites in Essex, an additional 19.8% results in a total recycled aggregate throughput of 0.812mt in 2010.

Within Thurrock there are five authorised sites which process recycled aggregate as well as screen soils associated with this type of aggregate. Of these five sites three are associated with mineral and landfill sites and are thus of a temporary nature, and two are 'permanent' sites. It is understood from those operators who have volunteered information that total throughput is likely to be substantially less than total permitted capacity.

13.5 Duty to Co-operate

18 Mineral Planning Authorities were identified as exporting either sand & gravel or crushed rock to Greater Essex. Whilst those in the East of England AWP have stated that at this current time they will continue to work to the annual apportionments set out in the East of England RSS, the picture further afield is more mixed. Oxfordshire County Council, who supply <1% sand & gravel and <1% rock to Greater Essex are the only Mineral Planning Authority to have already adopted a planned provision lower than that set out in the Secretary of States Proposed Changes to their RSS. The Oxfordshire annualised planned provision was stated as being marginally above a rolling ten years sales average. Hard rock producers have indicated that they are moving towards a provision based on 10 year rolling sales. However, given the size of their existing landbanks, such a change in approach is not currently considered to represent a potential supply issue with regard to Essex.

It will be necessary to continue monitoring the situation with regard to the respective planned provision from every Mineral Planning Authority from which Greater Essex imports mineral to ensure that historic working relationships can be expected to be maintained. Should a number of MPA's seek to revise figures downwards in light of averaged recent sales, there may be supply issues in the future should demand be seen to increase when the economy recovers.

13.6 The Future of the Local Aggregate Assessment

The NPPF intends for the LAA to be an annual document and the authorities comprising Greater Essex are committed to updating this LAA on an annual basis. It is recognised that this LAA does not currently incorporate an analysis of all of the facets of mineral development as suggested by recent Guidance released in October 2012 although it is considered that all requirements originally relating to the LAA made by the NPPF in April 2012 have been met. It is anticipated that those facets currently absent from this document will be incorporated in subsequent revisions to the LAA but due to time constraints resulting from the publishing of the REMLP this has not been possible for the first iteration. Further, due to the Essex REMLP being at an advanced stage of preparation before the introduction of the NPPF, and the requirement to produce an LAA was introduced, this LAA has not fully informed the production of the plan. Both Southend-on-Sea Borough Council and Thurrock Council had adopted their respective Core Strategies prior to the introduction of the NPPF and LAA and as such this document was also unable to inform the production of those two documents. However as stated, all three authorities are committed to

updating the LAA to accord with the recent guidance and all authorities remain open to the fact that this may precipitate changes in their respective local plans and core strategies.

No decision has yet been formally taken regarding the format of updates to this LAA. However given that this LAA has been a joint project between Essex County Council, Thurrock Council and Southend-on-Sea Borough Council, and all three authorities have or are preparing separate mineral planning documents, either standalone in the case of Essex or as part of wider Core Strategies in the Unitary Authorities, it is envisaged that the LAA will remain as a separate document. Current Guidance suggests that the LAA and the traditional minerals Annual Monitoring Report be amalgamated but at this time this is not considered to be an effective way forward due to the differing monitoring requirements required by the three administrative areas.

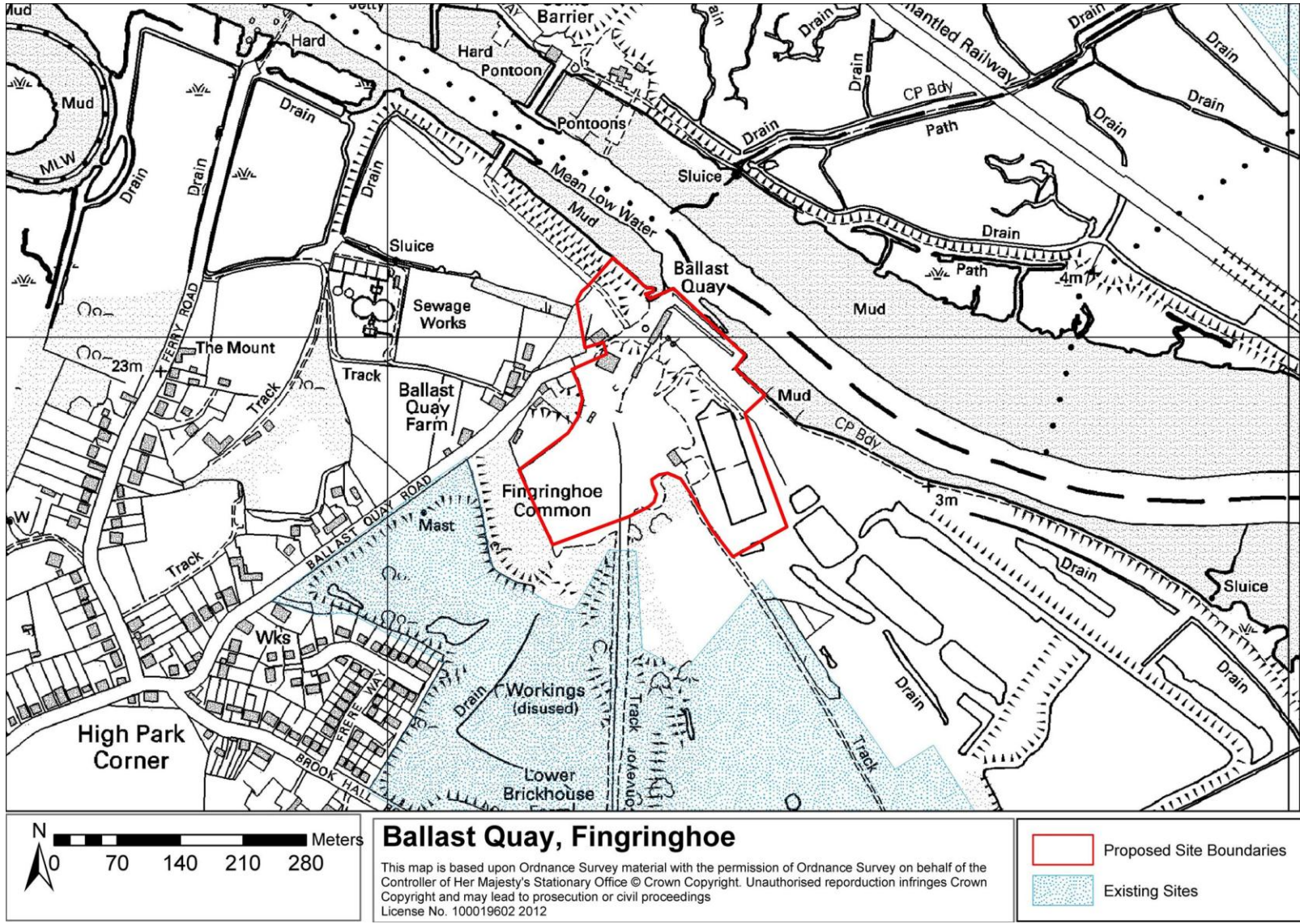
Appendix 1 – Operating Wharves with the Capacity to Serve Greater Essex

Thames Region	
Barking	Barking, Docklands Wharf
Cliffe	Alpha Wharf, Cliffe, North Sea Terminal
Dagenham	Hanson/ARC Dagenham, Dagenham
Denton	Denton, Denton B.A.D, Denton Sand
Erith	Erith, Pioneer Wharf
Greenhithe	Greenhithe
Greenwich Wharves	Angerstein, Blackwall Wharf, Charlton, Delta Wharf, Greenwich, Murphy's Wharf, Phoenix Wharf, Victoria Deep Wharf
London Docklands Wharves (mostly disused)	Canning Town, Cargo Fleet Wharf, Clarence Wharf, East India Dock, Heron Quay, Millwall, Orchard Wharf, Peruvian Wharf, Rotherhithe, Silvertown, Thames Wharf, Thamesmead, Union Wharf, Victoria Wharf
Northfleet	Northfleet, Northfleet Brett, Robin's Wharf
River Medway & Swale Wharves	Queenborough, Ridham, Rochester, Rochester Hanson, Sheerness
Thurrock	West Thurrock, Purfleet, Purfleet PAL
East Coast Region	
Ipswich	Hanson/ARC Ipswich, Ipswich

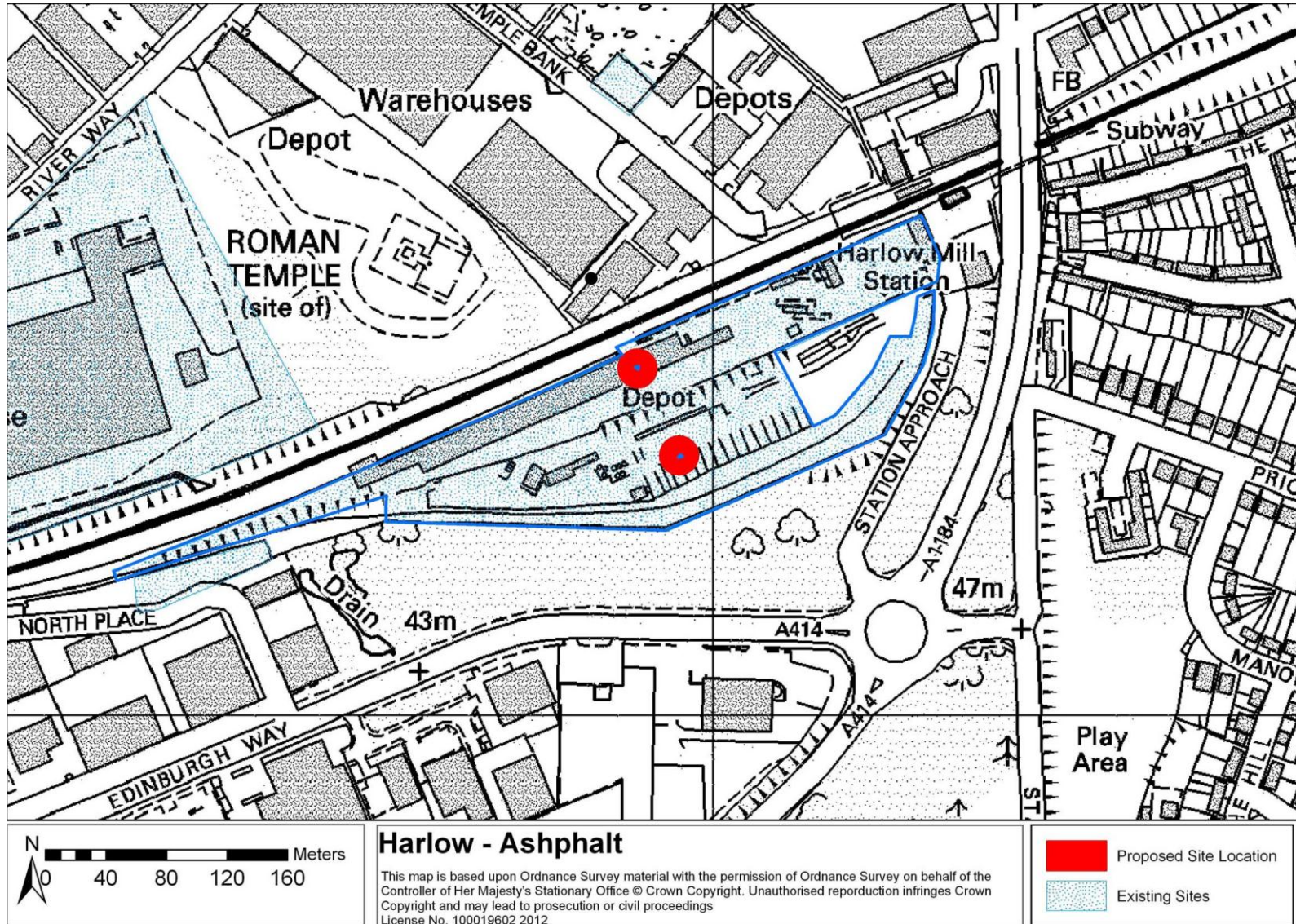
Appendix 2 – Active Transshipment Sites within Greater Essex

A. Active Transshipment Sites within Essex

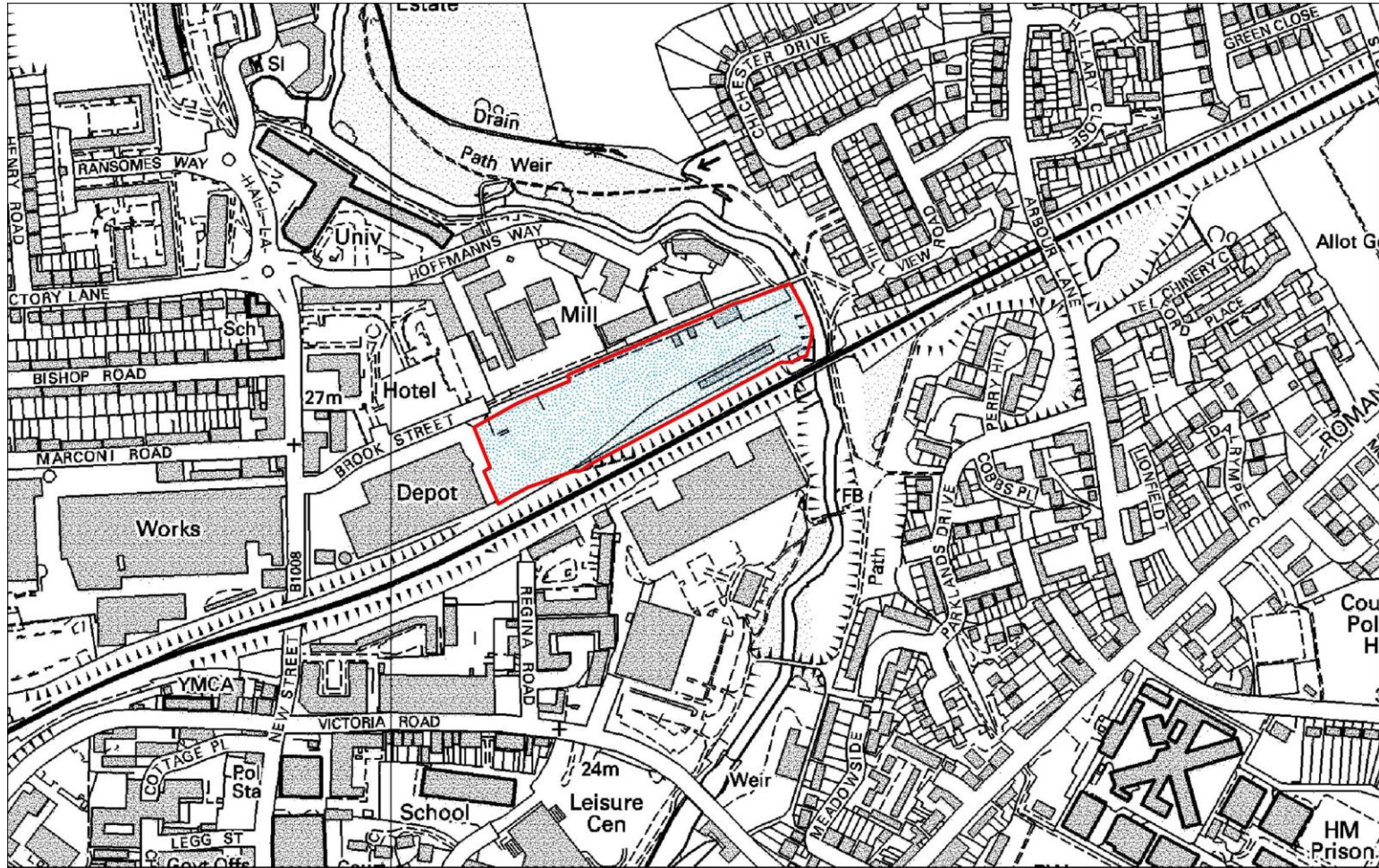
1. Ballast Quay, Fingringhoe



2. Harlow Rail Coated Plant





3. Chelmsford Rail Sidings

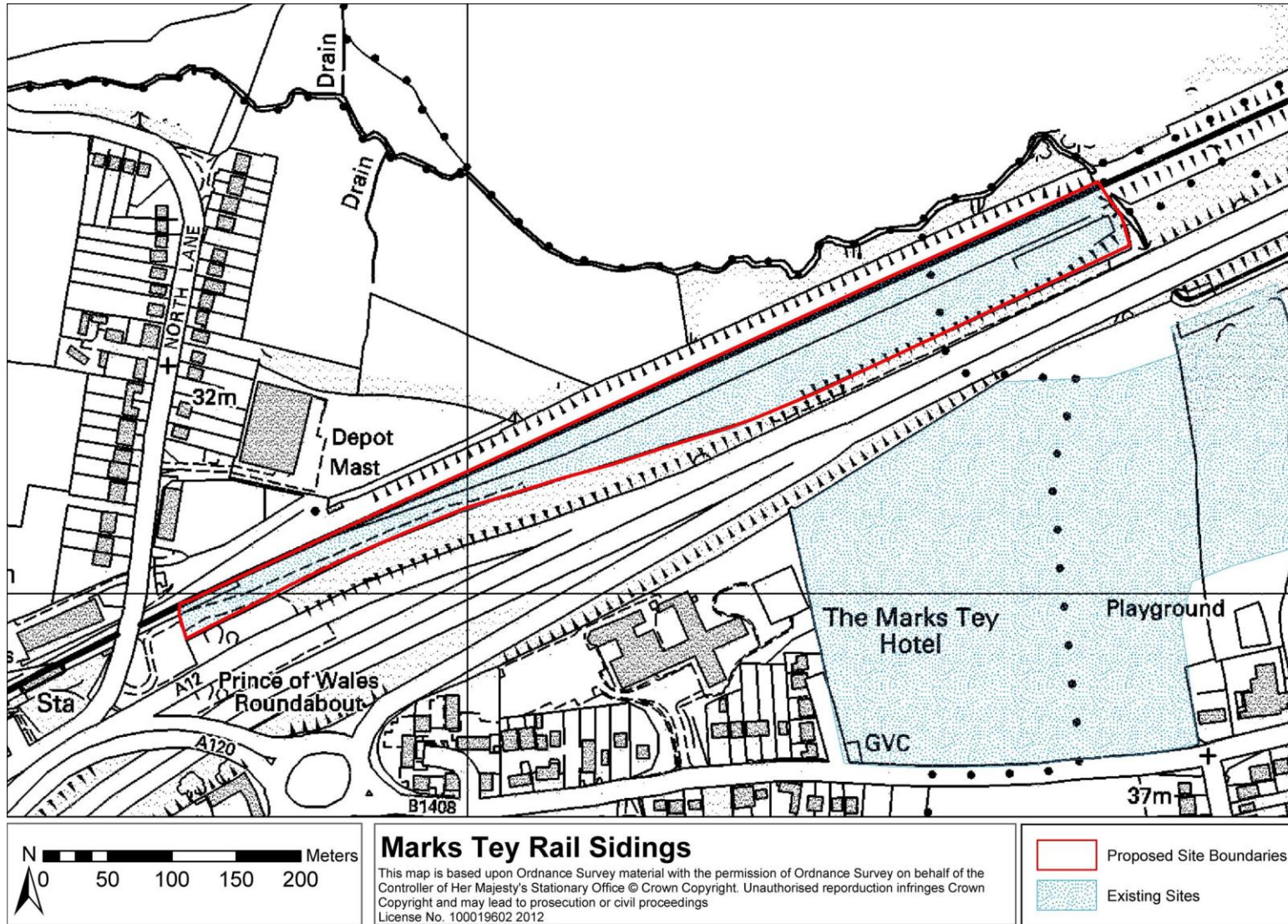


Chelmsford Rail Sidings

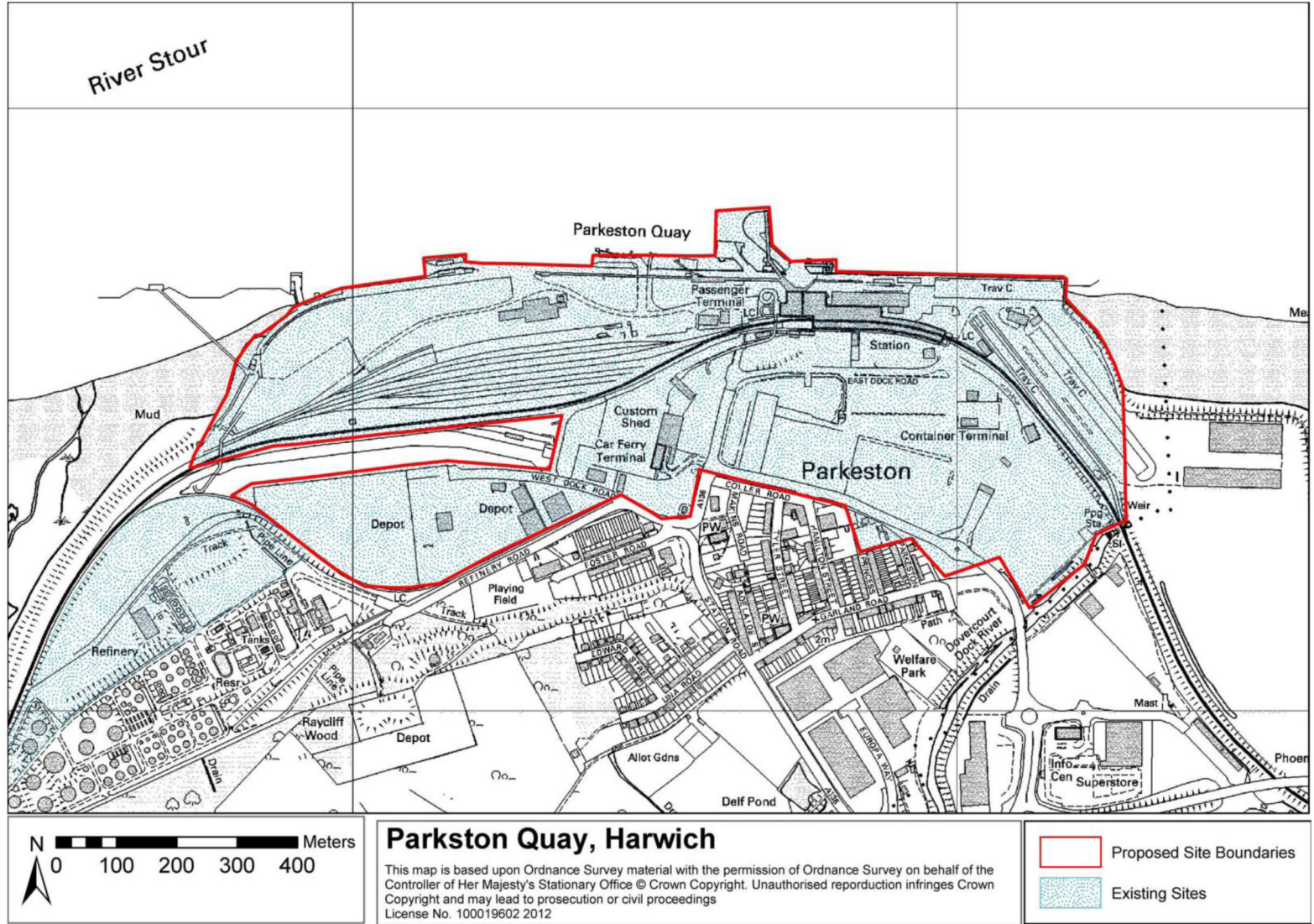
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-  Proposed Site Boundaries
-  Existing Sites

4. Marks Tey Rail Sidings

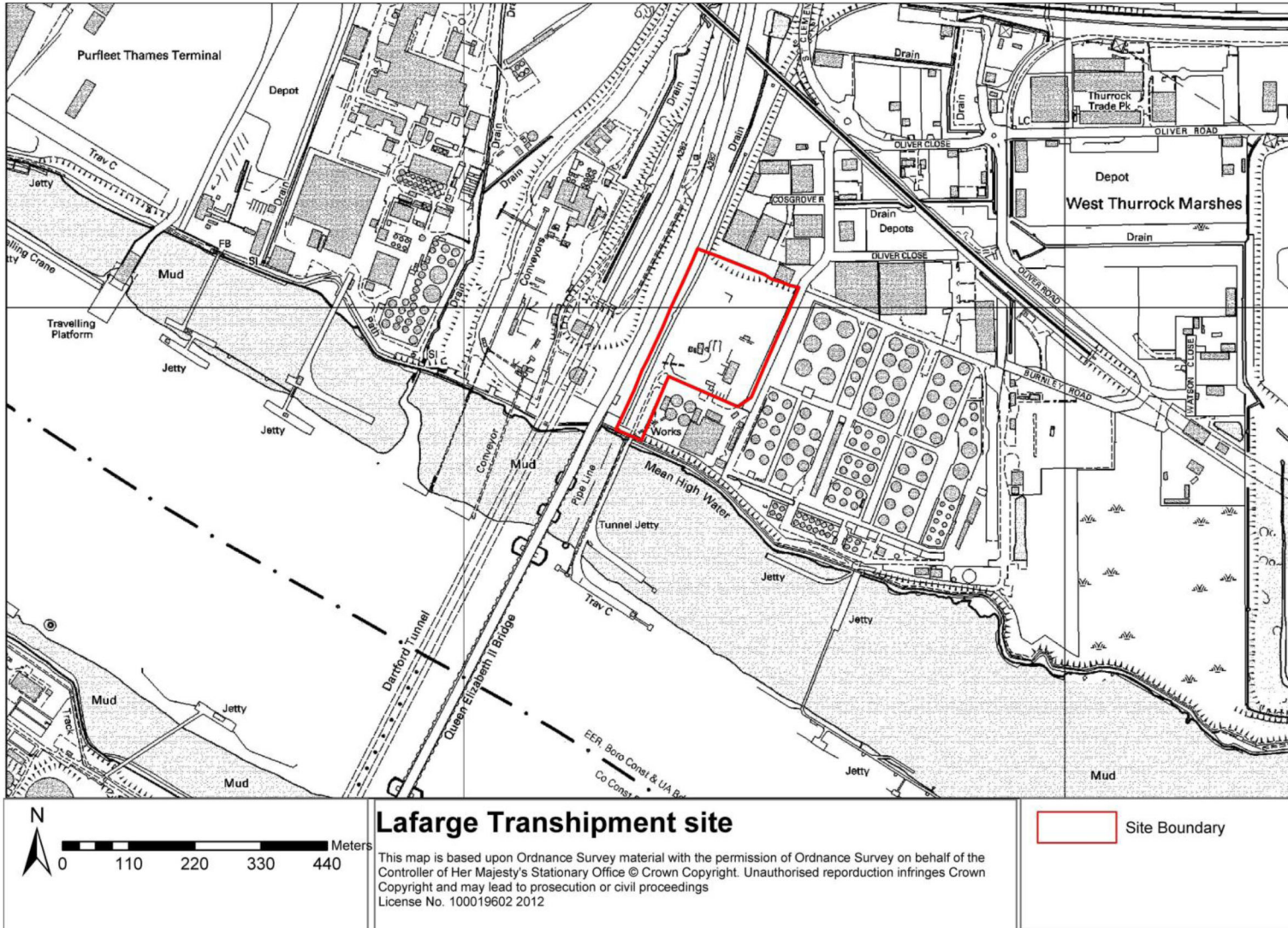


5. Parkeston Quay, Harwich

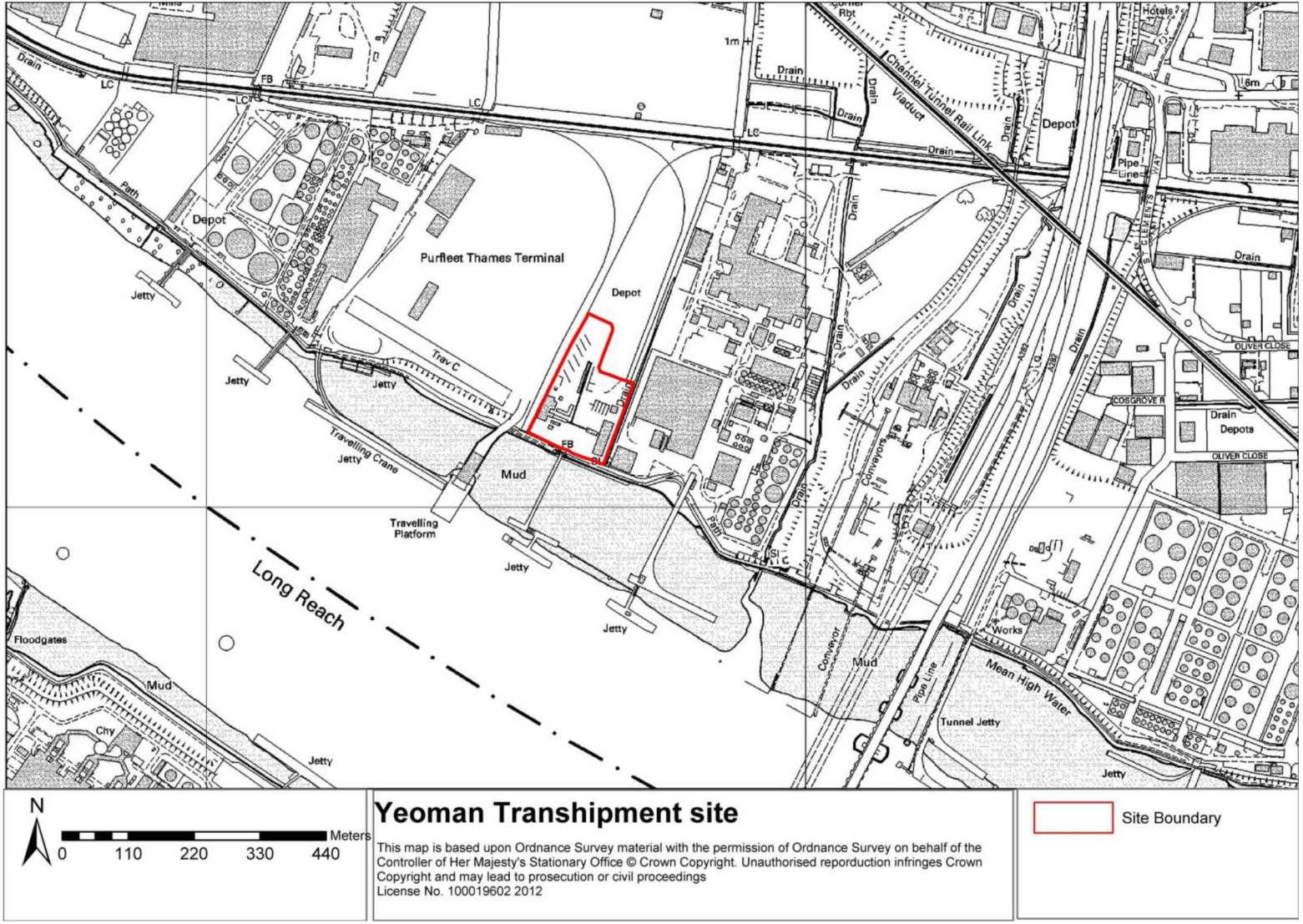


B. Active Transhipment Sites within Thurrock

1. Lafarge Transhipment Site



2. Yeoman Transhipment Site



Appendix 3 – Aggregate Recycling Facilities within Greater Essex

CDE Recycling Facilities – operational in Essex

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
Armigers Farm	Armigers Farm, Thaxted, Essex, CM6 2NN	CD&E Inert & Non Inert	100,000	
Elsenham Quarry	Henham Road Elsenham Bishop's Stortford Herts. CM22 6DJ	CD&E Inert & Non Inert	30,000	
Widdington Pit,	Hollow Road Widdington Saffron Walden Essex CB11 3SL	C&D Inert & Non Inert	65,000	75,000
Dusty Lane	The Scrap Yard Dusty Lane Tye Green Braintree CM77 8HB	C&D Inert & Non Inert		
Colchester Quarry	Warren Lane, Stanway, Colchester, CO3 0NN	CD&E Inert & Non Inert	190,000	75,000
Haven Road Inert Waste TS	Haven Quay Haven Road Colchester Essex	CD&E Inert & Non Inert	75,000	24,999
Martell's Quarry	Slough Lane, Ardleigh, Colchester, Essex	CD&E Inert & Non Inert	10,000	74,999
Wivenhoe Quarry,	Alresford Road Wivenhoe Colchester Essex CO7 9JY	CD&E Inert & Non Inert	50,000	0
EWD Carters Haulage Yard	Morses Lane Ind Estate Brightlingsea Colchester Essex CO7 0SD	CD&E Inert & Non Inert		25,000

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
Essex Recycling Wix	Lane Farm, Harwich Road, Wix CO11 2SA	CD&E Inert & Non Inert	50,000	24,999
Bulls Lodge	Bulls Lodge Quarry, Generals Lane, Boreham, Chelmsford, CM3 3HR	CD&E Inert & Non Inert	100,000	
Green Recycling	Quayside Industrial Park, Bates Road, Off the Causeway Maldon, CM9 5FA	CD&E Inert & Non Inert		24,999
Archers Fields, GBN	Archers Fields, Burnt Mills, Basildon, SS15 6DX	CD&E Inert & Non Inert		25,000
Severnside Recycling	The Lilac Site, Hovefield Av, Nevendon Industrial Estate, Basildon, SS13 1EB,	CD&E Inert & Non Inert		24,999
Franklin Hire	Unit 1, Rawreth Ind Est., Rawreth Lane, Rayleigh Essex, SS6 9RL	CD&E Inert & Non Inert		24,999
CLC Construction	25/26 Childerditch Ind Park, Brentwood, Essex, CM13 3HD	CD&E Inert & Non Inert	75,000	75,000
Hill Demolition & Skip Hire	1-3 Edinburgh Place Edinburgh Way Harlow Essex CM20 2DJ	CD&E Inert & Non Inert		74,999

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
Carlson Vehicle Transfer Ltd	Pond Hall Farm TS Bradfield Road Wix Essex CO11 2SP	CD&E Inert & Non Inert	56,000	75,999
JKS	Roach Valley Works, 53 Purdey's Way, Purdey's Ind Est., Rochford, Essex, SS4 1LZ	CD&E Inert & Non Inert	160,000	74,999
Evans Thornwood	Marlow, High Road, Thornwood Common, Epping, Essex, CM16 6LU	CD&E Inert & Non Inert	5,000	74,999
Silverton Aggregates	Devereaux Farm, Walton Road, Kirby Le Soken, CO13 0DA	CD&E Inert & Non Inert		24,999
Bateman's Farm,	Great Leighs, Chelmsford, Essex, CM1 2QF	Soil Screening	25,000	24,999
Harvey Automobile Engineering	Payne's Lane, Nazing, Essex, EN9 2EX	Soil Screening		24,999
Curry Farm	New House Mill End Bradwell-Juxta-Mare, Maldon, CM0 7HL	Soil Screening	15,000	24,999
Woolmongers Lane BRW	The Elms Woolmongers Lane Blackmore, Epping Forest Essex CM4 0JX	Soil Screening		24,999
Scripps Farm	Scripps Farm Coggeshall	Unspecified	14,500	

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
C A Blackwell (Contracts) Ltd,	The Works, Stock Road, West Hanningfield, Chelmsford, Essex, CM2 8LA	Unspecified		74,999
The Yard	New Parsonage Lane, Gt Saling, Braintree CM7 5ER	Unspecified		

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

CDE Recycling Facilities – non operational with planning permission in Essex

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
Loppingdales	Gaunts End, Elsenham Bishops Stortford CM22 6DR	CD&E Inert & Non Inert	90,000	N/A
Land Adjacent to Taylor's Farm	Takeley Essex CM22 6LY	CD&E Inert & Non Inert		N/A
Plot 3,	Bellcroft, Eastways Ind Est, Witham, Essex, CM8 3YU	CD&E Inert & Non Inert		N/A
Harlow Mill	Aggregate Depot, Station Approach, Old Harlow	CD&E Inert & Non Inert	12,500	N/A

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

CD&E Recycling Facilities – Permissions since February 2011 or resolution to approve subject to legal agreements in Essex

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
Scripps Farm,	Coggeshall	CD&E Inert & Non Inert	120,000	N/A
Belsteads Farm	Essex Regiment Way, Broomfield, Chelmsford, Essex CM3 3PR	CD&E Inert & Non Inert	5,000	N/A
Little Easton - Highwood Quarry	Little Easton Airfield Little Easton Gt Dunmow CM6 2BB	CD&E Inert & Non Inert	140,000	N/A

Source: Essex County Council and Southend-on-Sea Borough Council Capacity Gap Report Update – Revised 2011

Aggregate Recycling Facilities in Thurrock

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
RIO Aggregates Dansand Quarry	Stanford Road, Orsett Essex RM16 3BB	CD&E Inert & Non Inert		149,998
Clearserve Rainbow Shaw	Holford Road Linford Essex SS17 0PJ	CD&E Inert & Non Inert		74,999
S Walsh and Sons East Tilbury Quarry	Princess Margaret Road East Tilbury Essex RM18 8PA	CD&E Inert & Non Inert		759,000
Killoughery	Beacon Hill Industrial Estate Botany Way Purfleet Essex RM19 1SR	CD&E Inert & Non Inert	No capacity limit	75,000
Sims Milling Burrows	Brentwood Road, Bulphan	CD&E Inert & Non Inert	No capacity limit	24,999

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
Farm	Essex RM14 3TL			

Source: Thurrock Council, 2012

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PERMITTED CAPACITY (Tonnes)	
			Planning Permission	EA Licence
	RM14 3TL			

Source: Thurrock Council, 2012