



Report to Determine Whether Marine-Won Aggregate Supply Can Offset the Demand for Land-Won Aggregates in Essex 2020



Essex County Council

EXECUTIVE SUMMARY

Aim of this Report

In the report¹ of the Examination in Public on what became the Essex Minerals Local Plan 2014 (MLP), the Planning Inspector holding the examination stated that Essex County Council (ECC) should initiate further consideration of whether an increase in the proportion of marine-won aggregate use in Essex could be reliably quantified in order to off-set land-won provision. To that end, the MLP sets out a commitment to monitor the potential for an increased contribution of sand and gravel from marine sources. A monitoring indicator was created which sought to assess whether the potential for marine aggregate to be supplied to the Plan area was being constrained. The monitoring indicator states that if marine imports are within 90% of wharf capacity in Greater Essex, then a review is to be undertaken to determine whether capacity is constraining the landing of marine dredged aggregate. This will assess whether there is the potential for increasing capacity at either existing or new transshipment sites such that the overall contribution of marine aggregate to total aggregate need could be increased. If this 90% threshold is met, it would necessitate the need to engage with the minerals industry, port authorities and district authorities where landings occur to establish whether marine aggregate supply is being constrained. Understanding whether marine imports are at 90% capacity would necessitate a quantification of both the throughput of material and the total capacity available.

Summary

Ports Serving the Essex Market

From a variety of sources, wharves and ports most likely to be able to serve the Essex aggregate market have been identified. These are predominantly within London, Thurrock and Suffolk. The landings at these wharves have been used to identify the maximum amount of marine won aggregate that could be used in the Essex market area. However, in reality it is likely that not all of that would travel by road to Essex, with some being used locally (for example aggregate landed in London would likely also serve London redevelopment opportunities). As such, whilst data is available to establish the total quantity landed at wharves and ports, it is not possible to estimate where, or what quantity of this material serves the Essex market.

Direct Discussions with Proximate Ports and Wharf Facilities to Essex

To gain a more complete understanding of potential capacity at ports and wharf facilities with the potential to serve Essex, operators were approached directly. Operators were selected based on a consideration of the likely maximum economic distance (60km) of road haulage of aggregate and the proximity of the facility to Essex. This, however, did not yield significant additional robust data to assess whether annual throughput is at 90% total capacity or less, due to the limited amount of information/data received by the MPA from operators. As such, the responses

¹ Report on the Examination of the Essex County Council Replacement Minerals Local Plan (January 2013)

received, and data accrued do not amount to a robust evidence base through which it is possible to assess existing facility capacity.

Conclusions & Recommendations

It is concluded that it was not possible to accrue sufficient reliable evidence directly from operators of the wharves in proximity to serve the Essex market to allow conclusions to be made with regard to whether ports in proximity to Essex are within 90% of their full capacity, as set out below.

It is considered unlikely that further evidence would be able to be acquired from operators to allow for any future additional scrutiny due to operator concerns over commercial confidentiality. This would be required in order to be able to use the Mineral Monitoring Indicator to arrive at a robust conclusion. It is therefore recommended that Mineral Monitoring Indicator 3 be removed from the Mineral Local Plan (2014).

Furthermore, it is noted that MPAs have no jurisdiction in the marine environment and so have little ability to influence the amount of marine-won mineral that could be dredged. The small number and constrained location of landing facilities in proximity to the Essex market exacerbates this. It is understood that additional marine aggregate wharves may come onstream in the future (the Peruvian Wharf in London is an example of this occurring) and this combined with the potential for existing wharves to increase capacity should mean that marine aggregate supply within Essex is not being constrained by the approach taken to mineral policy in the terrestrial environment.

There is also currently no evidence to suggest that marine aggregate is directly substituting for land-won aggregates in Essex. That there is a recent year on year increase in marine aggregate tonnages landed also suggests that mineral aggregate supply is not in any event currently being constrained.

Irrespective of the inability to quantify marine aggregate supply into Essex, the MPA is not able to directly facilitate an increase in marine aggregate provision. The Plan area has no landing facilities. Should a facility be developed it would not be possible to state that a quantifiable proportion of marine aggregate landed in Essex would serve Essex markets as this would be a commercial decision.

Further, whilst ECC as MPA could look to reduce land-won provision as a means to encourage the diversion of marine aggregate into Essex, minerals planning policy is clear that any deficiency in land-won allocations versus the established need can be met through sites coming forward off-plan, such that the impact of this would be to encourage more non-allocated terrestrial sites rather than marine aggregate filling the gap. This would result in a weakening of the Plan-led system.

As such it is considered that it is not appropriate to seek to directly offset land-won primary aggregate through reducing land-won allocations to attempt to facilitate an increased uptake of marine-won aggregate.

The MPA will continue to ensure that existing transshipment facilities within its authority are safeguarded from incompatible development to ensure their continued operation, justified through the 'Agent of Change' principle set out in NPPF Paragraph 182.

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Essex: 2020

1 INTRODUCTION

1.1.1 The [Essex Minerals Local Plan](#) (the Plan) was adopted in July 2014. Chapter 6 sets out how the Plan is to be implemented and its performance monitored and reviewed. Monitoring is important to understand the impacts of the policies on the Plan area, as well as consider whether the Plan's strategy is delivering sustainable development.

1.1.2 The Plan framework was based upon the evidence available at the time the Plan was prepared and since 2014 the Mineral Planning Authority (MPA) has, every year, prepared an Authority Monitoring Report (AMR) to assess the performance of the Plan.

1.2 Aim of this Report

1.2.1 This report provides information to assess the likely contribution marine aggregates make in the Essex market and in so doing, address the issues raised during the examination held into the Essex Minerals Local Plan (Nov 2013). Several concerns were raised claiming that marine aggregate imports to Essex have the potential to increase/make a greater contribution to overall aggregate provision and therefore the Mineral Planning Authority (MPA) should not be planning for as much land-won aggregate. The Planning Inspector conducting the Hearings into the Essex Minerals Local Plan requested that the Mineral Planning Authority consider the future potential for increasing the proportion of marine-won sand and gravel contributing to the future overall County requirement as a means to reduce the future demand for land-won sand and gravel. This resulted in the inclusion of Minerals Monitoring Indicator 3, as specified in the Minerals Local Plan (Table 8).

1.2.2 This report informs the monitoring indicator. It gathers evidence to assist in assessing whether the amount of marine aggregate landed in Greater Essex is within 90% of existing capacity. Should this be the case, it would necessitate the need to engage with the minerals industry, port authorities and district authorities where landings occur to establish whether marine aggregate supply is being constrained. However, if the findings show that the landings are less than 90% of the total wharf capacity no further action is required. Understanding whether marine imports are at 90% capacity would necessitate a quantification of both the throughput of material and the total capacity available.

1.3 The Issue: Marine-Won Sand & Gravel

1.3.1 Marine-won aggregates are an alternative source to those extracted from the land. They can be used for some of the same purposes including a variety of construction purposes including mortar, land reclamation and beach nourishment.

1.3.2 Furthermore, ports and/or wharves can be considered as 'virtual quarries' as mineral can be sold/distributed from them, whilst many also have processing facilities.

Requirements for Marine-Won Sand & Gravel

1.3.3 The National and Regional Guidelines for Aggregate Provision in England 2005 – 2020 assumed 14 million tonnes of marine sand and gravel would be landed during that time within the East of England. This equates to 0.93 million tonnes per year, although this was not apportioned to individual MPAs given that the marine aggregates are derived offshore, and landing wharves are located only in some coastal areas.

1.3.4 The table below shows the amount of (land-won) sand and gravel, and crushed rock, that was directly apportioned to each region in England. These figures form the minimum amount each region is expected to make provision for in mineral plan allocations or areas of search. Figures are also provided for marine sourced and alternative contributions, as well as imports.

Table 1: National & Regional Guidelines for Aggregate Provision in England, 2005-2020 (Million Tonnes)

New Regions	Guidelines for land-won production		Assumptions		
	Land-won Sand & Gravel	Land-won Crushed Rock	Marine Sand & Gravel	Alternative Materials	Net Imports to England
South East England	195	25	121	130	31
London	18	0	72	95	12
East of England	236	8	14	117	7
East Midlands	174	500	0	110	0
West Midlands	165	82	0	100	23
South West	85	412	12	142	5
North West	52	154	15	117	55
Yorkshire & the Humber	78	212	5	133	3
North East	24	99	20	50	0
England	1028	1492	259	993	136

Source: The National and Regional Guidelines for Aggregate Provision in England 2005 – 2020.

1.3.5 It is noted that marine and alternative sources, along with net imports, are assumed contributions. The only reference to marine aggregate in the National Planning Policy Framework (NPPF) is within Paragraph 207 Clause a) which states, inter-alia, that forecasted demand include 'an assessment of all supply options (including marine dredged, secondary and recycled sources)'.

1.3.6 National Planning Policy Guidance (NPPG) (Paragraph: 062 Reference ID: 27-062-20140306) expands on this position, stating that forecasts should include an assessment of marine plan allocations and capacity data including licences for marine aggregate extraction and potential throughputs of wharves. There is therefore no requirement to directly allocate a proportion of marine aggregate as part of the total mineral supply; the requirement is rather to recognise the potential for marine

aggregate to contribute to supply through existing licences, capacities and throughputs.

1.3.7 Prior to the above figures being published the previous national guidelines (published in 2003) sought to plan nationally for less marine aggregate. Changes between the guidelines for England published in 2003 and the 2005 - 2020 (published 2008 - above) guidelines assumed a 14% increase in marine sand and gravel.

1.3.8 There was a historical (2008) expectation that demand for land-won aggregates would decrease over time, but demand for marine aggregate would increase².

1.4 MLP (2014) Background

1.4.1 At the Examination in Public (EiP) held into the Essex MLP (in Nov 2013) several concerns were raised claiming that marine aggregate imports to Essex have the potential to increase/make a greater contribution to overall aggregate provision and therefore ECC, as MPA, should not be planning for as much land-won aggregate. The Inspector in his report stated that:

The NPPF at paras 142 and 145, read with PPG paras 060-0641, requires the Plan to support economic growth by providing for a steady and adequate supply of aggregates based on local determination by the MPA of the appropriate level of extraction. This is to be informed by an annual Local Aggregate Assessment (LAA) of demand and supply of aggregates, including from secondary, recycled and marine sources.

There is also substantial concern among Representors that, irrespective of the overall requirement figure, there should be increasing contributions from secondary, recycled and marine-won sand and gravel.

ECC should initiate further consideration of whether an increase in the proportion of marine-won aggregate use in Essex could be reliably quantified. This commitment is suitably introduced by MM1 to para 2.31 with minor adjustment to the wording to make it clear and unconditional that any potential marine contribution will be monitored.

It is therefore concluded that MM1 is necessary to commit ECC to reviewing the potential marine contribution but that it would be impractical to quantify a potential increase in the proportion of marine aggregate use in Essex within the timescale of first review of the Plan pursuant to Policy IMR1. It follows that there is no ground currently for assuming an increase in the contribution to overall aggregate supply from marine sources above that detailed in the current annual LAA. (Report on the Examination of the Essex County Council Replacement Minerals Local Plan – January 2014).

² DCLG (2009) [National & regional guidelines for aggregates provision in England 2005-2020](#)

1.4.2 The Inspector concluded that the MPA needed to monitor the contribution marine won aggregate makes in Essex and the resultant modification was incorporated within the Minerals Local Plan Monitoring Framework as ‘Minerals Monitoring Indicator 3’.

Table 2: Minerals Monitoring Indicator 3

Indicator	Related Policy	Target	Implementation	Data Source	Frequency of Monitoring	Responsibility	
3	Contribution of marine dredged sources towards overall aggregate provision	Policy S6: Provision for Sand and Gravel Extraction.	That if marine imports come within 90% of wharf capacity in Greater Essex then a review is undertaken to determine whether capacity is constraining the landing of marine dredged aggregate and the potential for increasing capacity at either existing or new transhipment sites.	Engaging with the minerals industry, adjoining port and district authorities where landings occur to retain or increase existing processing capacity.	Bespoke investigation of wharf capacity	Annually through AMR.	ECC, minerals industry, adjoining authorities and port companies.

Source: Extract from Essex County Council (2014) The Minerals Local Plan

1.4.3 Monitoring indicators are associated with a threshold or target which, when met, initiates an explicit requirement to review that aspect of the Plan to which the monitoring indicator relates. As such, this report seeks to meet the requirement of MMI 3 by way of assessing whether there is the potential to increase marine won aggregate landed in Greater Essex, using existing information and direct operator engagement to identify total potential wharf capacity and throughput. From this it can be implied as to what impact, if any, wharf capacity is having on ensuring a steady and adequate supply of land-won aggregates in Essex, i.e. should the marine won annual throughputs be at 90% or above the total capacity of the wharves within proximity to the Essex Market, then marine-aggregate supply may be constrained.

1.5 Issues Relating to the Reporting Tier of Greater Essex

1.5.1 The county of Essex forms only part of the Greater Essex Area, which also contains Thurrock Council and Southend-on-Sea Borough Council. The Minerals Local Plan (2014) is specific to only the County of Essex, with each of the other Authorities containing mineral planning policies within their own respective adopted local plans.

1.5.2 An annual minerals survey is overseen by the East of England Aggregates Working Party (EoEAWP), which then informs a statistical report. Each Authority is required to survey and collate information from the individual mineral-related sites within their plan area. In the case of the three authorities making up Greater Essex, this must be carried out at this larger scale. Both Thurrock and Southend-on-Sea contain too few active facilities to allow for individual reporting due to the requirement to respect commercial confidentiality as the data includes sensitive sales data. Information from these facilities is therefore combined with those in Essex to ensure confidentiality is maintained.

1.5.3 This 'larger than plan' reporting does however pose difficulties when analysing the annually collated data produced, especially in this case, where the only port facilities in Greater Essex are located beyond Essex's plan boundary in Thurrock, which itself also contains too few active mineral sites to allow separate reporting. It will therefore be clearly stated in this report when a proxy is used to provide an assumed figure for Essex only, or where collated Greater Essex data is being referred to.

1.6 Sources of Data

1.6.1 There are number of sources of data that can be reviewed to assist the aim of this report, as reviewed below:

Minerals Survey Data

1.6.2 An annual mineral survey is undertaken in Greater Essex during the first quarter of the calendar year which includes the need for operators of wharves within the area to report on the material that is landed. This information is two-fold and includes material that was 'land-won', such as hard rock extracted from other terrestrial locations outside of Essex, including beyond the UK, and secondly marine-won aggregates.

1.6.3 However, through the requirement for commercial confidentiality and due to the small number of wharves within the Greater Essex reporting area, it is often the case that all transshipment (wharf and rail) movements must be amalgamated. Furthermore, there are years when some operators do not report figures at all, which creates gaps in the data and reduces its robustness. This issue can also manifest when too few wharf operators provide data on marine won material to report on it at all.

1.6.4 Therefore, it is considered that this source of information cannot be used in the context of this report as it is not sufficiently robust to use to base policy decisions.

Crown Estate Data Statistics

1.6.5 The annually produced Greater Essex LAA³ uses two separate sources of information published by the Crown Estate. The [Crown Estate](#) provide licences for the extraction of marine sand and gravel resources from the seabed, and annually produce two reports which provide national statistics broken down in to Crown Estate 'Regions' or 'licence areas'.

1.6.6 Greater Essex is located adjacent to the 'Thames Estuary' Crown Estate region, which extends eastwards from Aldebrough in Suffolk to a line extending east from Margate in Kent. To the north of Aldeburgh is the East Coast Licensing region and to the south of Margate is the English Channel region.

1.6.7 In combination, these report on the wharves/ports that accepted marine won mineral, the amount of mineral dredged from the seabed during the calendar year, as well as the type of material raised, the amount that had permission to be extracted and the amount that ports accepted.

³ Most recent published Greater Essex LAA refers to the calendar year 2017 and was published in November 2018.

1.6.8 Discussions with a representative of the Crown Estate were held to ensure soundness of this report.

1.6.9 This data source via the interpretation contained within the successive Greater Essex LAAs is useful regarding the assessment in terms of the type and amount of material that was raised from the seabed, and the corresponding amount that was landed within Greater Essex as well as that in close proximity, which could use the strategic road network for onward distribution to Essex.

1.6.10 In relation to this report, it is important to note that it is the Crown Estate that regulate the amount of mineral that can be extracted from the marine environment by designating licencing areas. It records the amount that was lifted from the seabed and that which was landed within the different landing ports/wharves. It, however, cannot provide information about the onward distribution of marine aggregate, or require additional wharves/ports/dredgers to facilitate increases in mineral won aggregate dredging. It can also not dictate what port/wharf facilities accept in terms of landing other resources, for example to reduced non-marine aggregate landings to increase capacity for additional marine aggregate. Therefore, information sourced from the Crown Estate is useful for understanding the amount that is being dredged and landed, but it is unable to assist with regard to the final destination of marine aggregate, whether there is additional capacity potential at wharfs and require the amount of marine-won aggregate landed to be increased to substitute land-won material, and therefore proactively reduce the potential reliance on terrestrial sites within the MLP.

Marine Management Organisation (MMO)

1.6.11 In England, the MMO brings together planning, licensing and enforcement. The Marine Plan area closest to Greater Essex is the 'South East Marine Plan'. This covers an area of approximately 1,400 kilometres of coastline stretching from Felixstowe to near Dover, a total of over 3,900km² of sea. It is, however, highly likely that the areas 'East Inshore' and East 'Offshore', could assist with meeting our sand and gravel needs.

1.6.12 Both the East Inshore and Offshore plans were adopted in June 2014, but the South East plan (the more influential plan regarding the Essex coastline) is currently in development. A final period of public consultation closed in April 2020. Amendments will then be made as necessary before the plan is adopted.

1.6.13 In relation to this report, it is important to note that the MMO are the key stakeholder with relation to planning in the marine environment, having a similar role to terrestrial planning authorities, which aims to balance the competing uses of this environment, for example, protection of important marine ecosystems, dredging activities, fishing activities, tourism and shipping (among others). They do not look specifically into interactions between dredgers and port facilities, or whether these facilities are constrained and have the potential to be unlocked to increase their contribution of marine won aggregate and as such hold little data which will be of assistance to this report.

Direct Discussions with Operators

1.6.14 Attempts have been made to have direct discussions with wharf operators to collect primary data with regard to marine aggregate landings. However, commercial confidentiality is a significant issue. This is particularly relevant to wharves that are

beyond the Essex Mineral Planning Authority's jurisdiction, (e.g. the wharves at Ipswich and London), and all operators have no obligation to respond to these requests.

1.6.15 Therefore, the information gathered was incomplete and cannot be relied upon as equating to a sufficiently robust evidence base. However, where any operators have responded to the Essex MPAs queries, this information has been used anecdotally.

Summary of Data Sources

1.6.16 It has been concluded that no single source of data (primary or secondary) can be relied upon to answer the question as to whether marine aggregate supply can increasingly offset the demand for land-won aggregates in Essex. This is because each method/ source of data collection does not look into the issue holistically and it is therefore not robust enough to base policy decisions.

1.6.17 It will therefore be investigated whether cumulatively the various data sources can be used to determine whether marine imports come within 90% of the wharf capacity in Greater Essex. If this is the case, further investigation can be carried out to determine whether capacity is constraining the landing of marine dredged aggregate and considered if further actions can be taken by the MPA.

2 PORTS SERVING THE ESSEX MARKET

2.1.1 Using the information contained within successive Crown Estate data sets a review of the specific ports most likely to serve Essex has been made.

2.2 Ports in Proximity to Serve the Essex Market

2.2.1 It has already been noted that there are no active ports/wharves within the county of Essex that accept landing of marine-won aggregate. For this report, it is therefore necessary to identify all ports/wharves that are within proximate distance that could serve the Essex market. To establish which ports/wharves could potentially do this, it is necessary to identify a viable distance that aggregate can travel by road. It is important to note that this potential to service Essex does not mean that marine aggregate would travel to Essex. For example, the Crown Estate noted that any material being deposited at Thames Estuary Ports could be destined for London or outside the M25, with the distance being dictated by economics.

2.2.2 There is no single source of information/research regarding the viable average and or maximum distances that aggregate travels by road, with minimal references to such information. The MPA has therefore investigated a range of different pieces of evidence which suggest the average road delivery distance is 38km (24 miles)⁴, while 60km (37.3 miles) has been cited by BGS⁵ as the maximum typical distance bulk aggregates travel by road. Other evidence states that the cost often doubles for each 30 miles (48.3km) travelled. Therefore, aggregates are only transported long distances when it is absolutely necessary⁶.

2.2.3 For the purposes of this report, having considered published evidence, it has been decided that the BGS distance of a maximum 60km (37.3 miles) travel distance (by road) is most appropriate. This will therefore be used to establish which wharves have the ability to access Essex markets.

2.2.4 It has been concluded, using this data, that it is likely that marine aggregates travelling into Essex would only arise from the ports within 60km of the Essex county boundary, namely Dagenham (London), Thurrock, Tilbury (both in Thurrock) and Ipswich (Suffolk). It should be remembered that each of these ports has several wharves associated with it. Table 3 is derived from Crown Estate statistics (and is included in the 2019 Greater Essex LAA), providing information on all of the ports and wharf facilities that are capable of serving the Essex market, based on a transport distance of 60km.

⁴ [SustainableConcrete.org](https://www.sustainableconcrete.org) referenced the source as the Concrete Centre 2010

⁵ British Geological Survey Planning Matters Factsheet “Construction Aggregates”, BGS, 2007

⁶ [Mineral Products Association](https://www.mineralproductsassociation.org) - Aggregates

Table 3: Wharves Within Proximity (60km) to Serve Essex (2020)

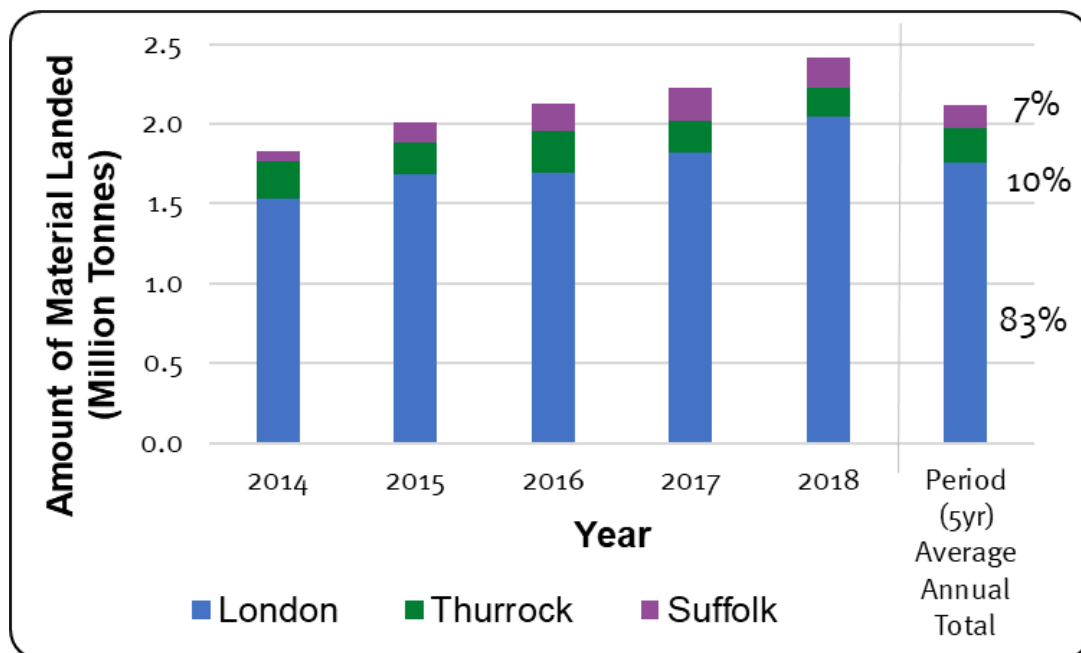
Landing Port (Standard Name)	Area	Thames Region
		Wharves / Alternative names
Dagenham	London	Hanson/ARC Dagenham, Dagenham, Cemex Barking, Cemex Docklands Wharf
Tilbury	Thurrock	Cemex Cement Import Terminal Tilbury Stema
Thurrock		Purfleet, Purfleet PAL, Thurrock, West Thurrock
Landing Port (Standard Name)	Area	East Coast Region
Ipswich	Suffolk	Brett Aggregates Ipswich

Source: The Crown Estate: Marine Aggregates Summary of Statistics (2019)

Note: See Appendix A for additional information.

2.2.5 Data from the 2014 to 2019 Local Aggregate Assessments has been collated to identify the total landings of marine-won aggregate to ports/wharves within proximity to the Essex market during the previous five years. This is shown in the graph below.

Figure 1: Total Marine-Won Aggregate Landings within Proximity to the Essex Market



Source: Essex County Council (2020)

2.2.6 It can be seen from the above graph that the landings in the three ports (four wharves that are within 60km of the county of Essex) have seen a steady increase in the amount of material landed during the monitoring period, peaking at 2.42 million tonnes in 2018, with London landing the most significant proportion of this total. This represents a 32% increase on the total in 2014 (1.83mt). On average during the past

five years, 2.12mt was landed annually with 83% of that landed in London, 10% in Thurrock and the remaining 7% landed in Suffolk.

2.2.7 However, it is not possible to state what percentage of that aggregate was used to serve markets in the county of Essex based on an assessment of data relating to where it was landed.

2.2.8 Therefore, as required by the MLP monitoring indicator, operators of wharves noted in Table 3 were contacted for further information. Insufficient responses were received between February and July 2019 in relation to the total capacity of the wharves in question. The majority of respondents re-iterated the amount of aggregate landed, as already reported within the Crown Estate data. As previously highlighted, this cannot be presented in the report on an individual basis and aligned with individual capacities due to the need to protect commercial confidentiality. As such, it is not considered that the data we have received is sufficiently robust enough to allow for a quantification of whether wharves are operating above or below 90% capacity.

2.2.9 Furthermore, due to reasons of commercial confidentiality, it is considered unlikely that further endeavours in this area will yield any more meaningful results.

2.3 Infrastructure Constraints

2.3.1 An understanding of the processes surrounding the dredging and landing of marine-won material has been developed to further assist in the consideration of whether marine-won material could offset land-won aggregate. The economics of marine aggregate are not just related to handling at the wharf and then onward transportation distance, they are also dictated by the cycle time⁷ for ships, which is largely dependent on the distance of the deposit from the landing wharf. As the distance of the deposit from the landing wharf increases, this reduces the cost effectiveness of each load. This is further complicated by the fact that journeys also need to coincide with the tides.

2.3.2 The Crown Estate noted that it is not generally considered to be the case that there is a specific constraint with regard to fleet capacity. Despite a generally aging fleet, a number of mineral operators have either recently invested in new fleet or are considering it. Although much of this will be substitute capacity⁸, the newer ships will represent at least an incremental increase in total capacity. Investment is also being seen from European dredging companies, which will also be available for the UK market. This is not an issue within the control of the MPA.

2.3.3 Further to the issue of increasing fleet capacity, receiving wharves need to be able to accommodate any increases in vessel capacity.

2.3.4 When considering wharf capacity, there are two elements to consider:

- Number of berths available:
How many ships can be accommodated at any one point in time, which is linked to physical space and tidal variation,
- Processing plant capacity at the wharf:
Unless planning constraints are placed around operating hours, it was considered that most wharves could process more than they are at the moment. Should the

⁷ time taken to leave wharf, travel to marine aggregate source and return

⁸ The older vessels will be directly replaced by the newer ones

necessary investment justify it, there may also be the ability to replace existing plant with that capable of a higher throughput;

2.3.5 In relation to berths, in general, there is a lack of deep-water berths on the north side of the Thames which could then more practically serve the Essex market. However, industry is assessing the potential to create deep water berths in the north to offset pressure on wharf facilities deeper into London from residential growth. This is outside of the remit of the Essex MPA.

2.3.6 It is not only the wharf infrastructure that must be considered; enabling/forwarding infrastructure (whether by road or rail) is also a key issue. It is noted that wharves at Thurrock are rail connected, but the constraints on the rail network - capacity on the track (in terms of number of trains and loading capacity of bridges) have been highlighted. Related to this point, the MPA safeguard rail transshipment facilities at Marks Tey (Colchester) Brook Street (Chelmsford) and Harlow Mill (Harlow).

2.3.7 Mineral Planning Authorities have no authority in the marine environment and so no ability to influence the amount of marine-won mineral that could be dredged, where it is dredged, and where it is landed.

2.3.8 The small number and constrained location of landing facilities in proximity to the Essex market exacerbates this supply issue. There is the potential for additional marine aggregate wharves to come onstream in the future and there is also the potential for existing wharves to increase capacity. This should mean that marine aggregate supply within Essex is not under any short-term threat, and it appears that landing opportunities are not being specifically constrained by virtue of land-won mineral provision. However, the controlling factors in terms of physically expanding the capacity of fleets or wharfs/ports are not within the range of responsibilities conferred to the MPA.

2.4 Anecdotal Evidence in Relation to Increasing Marine-won Aggregate Landing Potential

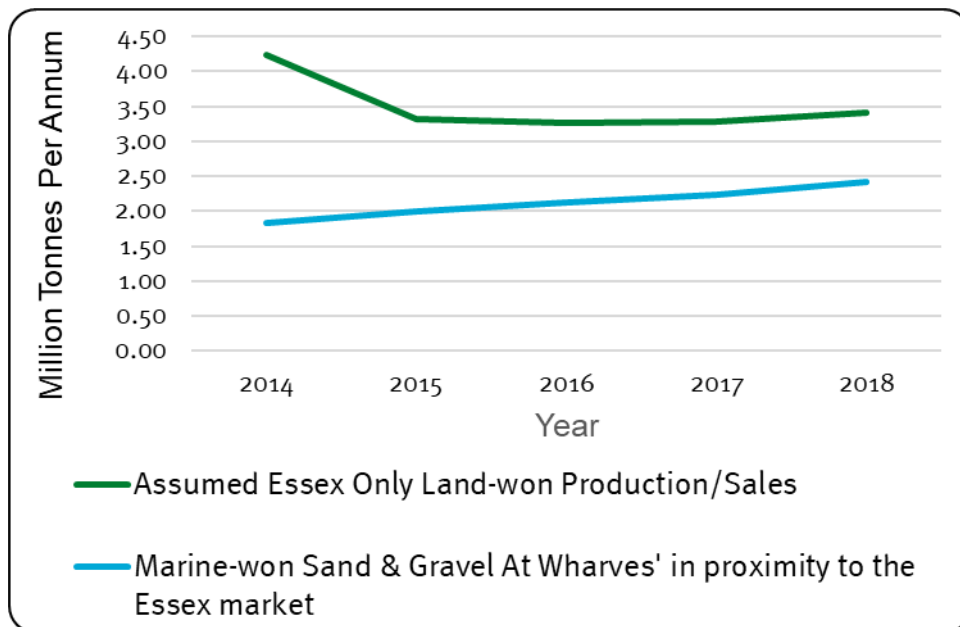
2.4.1 Through the aforementioned discussion with operators and the Crown Estate, it is noted that Brett has opened a facility (Peruvian Wharf, (London, which is in proximity to the Essex Market) in May 2019. Further the new Tilbury 2 development includes potential for the handling of construction materials and is considered a significant new development. Additionally, London Gateway has additional berthing capacity that could be utilised for the landing of marine aggregate. This would be a commercial agreement made between the port operator, landowner and/or building material supplier. There are also further potential opportunities at Harwich and Ipswich and elsewhere. There is no indication that these sites are current being assessed but resources/means to increase landing opportunities are there and could act to increase the amount of material that is available to the Essex Market in the future.

3 LAND-WON AGGREGATE PRODUCTION CAPABILITIES

3.1.1 As confirmed in the latest available [Local Aggregate Assessment](#), (2019), Greater Essex currently has sufficient permitted reserve (when including all pending reserve awaiting determination and/or signing of legal agreements) and allocations to satisfy the assessed land-won sand and gravel mineral requirement over the current review period of the current Minerals Local Plan.

3.1.2 A comparison between the assumed 'Essex Only' land-won sales and the marine-won material landed at wharves within proximity to the Essex market since 2014, has been produced in the graph below. An 'Essex-only' sales figure is assumed by taking the Thurrock apportionment of 0.14mtpa from each Greater Essex annual sales figure.

Figure 2: Land-won and Marine won Comparison (2014 to 2018)



Source: Essex County Council (2019)

Note: See Appendix A for additional information.

3.1.3 It can be seen that cumulatively there has been a steady increase in the amount of material that is potentially available for the Essex market from marine-won sources between 2014 and 2018. However, in the same timeframe, although there has been a decrease in the amount of land-won sales in the assumed Essex Only figures, this is due to a drop between from a high in 2014. Since 2015, there has however been year on year increases in land-won sales.

3.1.4 There is a no strong correlation between Essex land-won sales and marine-won aggregate landed in proximity to Essex markets, other than to say that both have increased annually since 2015. However, any comparison is recognised as being broadly superfluous as it is not possible to differentiate between marine-won aggregate being sold in Essex markets (which would provide a more useful comparison with land-won sales in Essex) from that which is landed at wharves which could serve Essex markets.

3.2 The Concept of Offsetting Land-won Aggregate Supply with Marine-won Supply

3.2.1 The purpose of this baseline was to establish whether there was enough capacity at wharves/ports within proximity to Essex (i.e. at less than 90% capacity), to enable marine-won aggregate to offset the amount of mineral assessed as being required in the Minerals Local Plan (2014) from land-won sources. If this were the case, and a greater proportion of Essex's mineral need could be sourced offshore, this would reduce the need for sites within Essex.

Policy Considerations

3.2.2 In terms of quantifying the need for aggregate itself, there is an established methodology articulated through the NPPF and PPG to calculate mineral provision and this does not explicitly take into account marine aggregate at the point of calculation, other than the need to consider it as a potential alternative supply option. There is no planning policy basis upon which to suggest that quantifying a specific proportion of marine aggregate, as part of overall aggregate need calculated through terrestrial sales, would be found sound. The NPPF requires (Para 207 Clause a) that future demand should be 'based on a rolling average of 10 years' sales data and other relevant information, and an assessment of all supply options (including marine dredged)'

3.2.3 Whilst ECC as MPA could look to reduce land-won provision as a means to encourage the diversion of marine aggregate into Essex, minerals planning policy is clear that any deficiency in land-won allocations versus your established need can be met through sites coming forward off-plan, such that the impact of this would be to encourage more non-allocated terrestrial sites rather than marine aggregate filling the gap. This would result in a weakening of the Plan-led system. As discussed further below, it is also the case that a reliance on marine importation would mean that the MPA would not be fulfilling its statutory duty of ensuring that a 'steady and adequate supply of aggregates' is made available in the County.

4 SUITABILITY OF MINERAL

4.1.1 It has been stated regularly in the annual Greater Essex Local Aggregate Assessments that:

Increasing the proportion of marine-won sand and gravel to offset the provision required from land-won sources, is outside of the remit of Mineral Planning Authorities, as marine extraction areas are leased by the Crown Estate, with licenses to dredge issued by the Marine Management Organisation (MMO).

4.1.2 Furthermore, information released by the British Marine Aggregate Producers Association⁹ notes that land-won and marine-won aggregate are not always directly substitutable. For instance, “*marine gravels are typically smooth and rounded due to the distance they have been transported in the geological past and to the constant pounding of the sea. Research has demonstrated that shell fragments in aggregates do not affect concrete strength. Nevertheless, European Standards are in place to limit shell content, which is generally low. The chloride (salt) content from seawater is controlled by rapid draining after dredging and can be further reduced by washing during processing. The chloride content of both the wash water and the product is carefully monitored to ensure that strict European Standards are met. A system of product certification is in place to confirm quality for customers*¹⁰.

4.1.3 In discussions with the representatives of the Crown Estate, it has been stated that the ability for marine to substitute for terrestrial is driven by economics. Where terrestrial resources can be worked near urban areas, this will be likely be competitively priced than when compared to marine aggregate.

⁹ [Aggregates from the sea](#) (2006) British Marine Aggregate Producers Association

¹⁰ [Aggregates from the sea](#) (2006) British Marine Aggregate Producers Association

5 CONCLUSION

5.1.1 The findings of this report have been such that it cannot be assessed whether the port capacity is above or below the 90% of throughput threshold set by Mineral Monitoring Indicator 3. Future engagement is considered unlikely to derive any more robust information.

5.1.2 The county of Essex does not have any landing wharves for marine aggregates. It is also not possible to confirm specifically where marine aggregates, once processed at the wharves, are exported to.

5.1.3 The MLP at paragraph 2.32 briefly states that marine dredging of aggregates is administered under separate legislation and notes that approximately 10% of the sand and gravel consumed in Essex is sourced from the marine environment. The Essex Local Aggregate Assessment assumes that the same level of contribution will continue, based on historic performance.

5.1.4 No single source of publicly available data provides both the annual amount of marine won material landed at wharf facilities as well as the total available capacity at wharves to allow an assessment of whether wharves are operating at 90% capacity or below as required by the monitoring indicator.

5.1.5 All of the information that can be sourced on the wharves that are either within the average estimated haulage distance and/or maximum haulage distance of aggregate has been reviewed.

5.1.6 Furthermore, all operators that have wharves that are within range to support the Essex aggregate market have been contacted to establish their total operational capacity and identify whether the annual throughput is constrained. However, the responses received, and data accrued do not amount to a robust evidence base through which it is possible to answer with confidence whether throughput is at 90% or more of capacity. Due to commercial confidentiality, it is considered unlikely that this position could be substantially improved. As such the indicator is considered to be unfit for purpose and should be removed.

5.1.7 Therefore, in the absence of any new updated/robust evidence, but with the use of anecdotal evidence) it is continued to be believed that marine sources are not constrained by resource availability or by a limit on permitted reserves. Indeed, anecdotal evidence suggests that any identified ship capacity constraint is now no longer the case, as older ships are decommissioned with replacements potentially representing an incremental increase in total capacity. It has been highlighted that there is a lack of deep-water berths on the north side of the Thames and this is being investigated by the industry. Additionally, it was noted that most wharves could process more than they are at the moment, should the necessary investment justify it, there may also be the ability to replace existing plant with that capable of a higher throughput.

5.1.8 As such, the key limiting features to using more marine-won aggregate is the enabling/forwarding infrastructure (whether by road or rail) and the transport distance at which it remains economic to move marine aggregate. Despite the wharves in Thurrock having rail heads for onward distribution, and there being safeguarded rail facilities in Essex, there are constraints on the rail network in terms of track capacity and the loading capacity of bridges. It has already been noted that the mass of the aggregate severely curtails long distances of road transportation. Where terrestrial

resources can be worked near urban areas, this will likely be competitively priced than when compared to marine aggregate.

5.1.9 It is noted that MPAs have no jurisdiction in the marine environment and so have little ability to influence the amount of marine-won mineral that could be dredged. The small number and constrained location of landing facilities in proximity to the Essex market exacerbates this. It is understood that additional marine aggregate wharves may come onstream in the future (the Peruvian Wharf in London is an example of this occurring) and this combined with the potential for existing waves to increase capacity, should mean that marine aggregate supply within Essex is not under any short-term threat, nor constrained by virtue of excessive land-won mineral provision.

5.1.10 In any event, whilst ECC as MPA could look to reduce land-won provision as a means to encourage the diversion of marine aggregate into Essex, minerals planning policy is clear that any deficiency in land-won allocations versus your established need can be met through sites coming forward off-plan, such that the impact of this would be to encourage more non-allocated terrestrial sites rather than marine aggregate filling the gap. This would result in a weakening of the Plan-led system. There is no planning policy basis which suggests that explicitly quantifying a proportion of aggregate to be derived from marine sources, and this would not be enforceable and monitorable in any event.

5.1.11 MPAs can however ensure that marine-won sand is able to make an important contribution to land-won mineral by ensuring that wharves and ports are safeguarded from the encroachment of incompatible development that may compromise the ability of these marine facilities to carry out their function. On this point, Paragraph 182 of the NPPF introduces the 'Agent of Change' Principle (para 182). This principle states that where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed. MPAs can also set a policy framework within which the development of further facilities could be appropriately facilitated.

5.1.12 There is also currently no evidence to suggest that marine aggregate is directly substituting land-won aggregates in Essex. That there is a recent year on year increase in tonnages landed also suggests that marine aggregate supply is not currently constrained.

5.1.13 Irrespective of the inability to quantify marine aggregate supply, the MPA is not able to directly facilitate an increase in marine aggregate provision. This is primarily because the distribution of marine aggregate is a market-led decision. The Plan area has no landing facilities and, in any event, an increase in aggregate landing capacity in Essex through the development of a new facility would also be a market decision. Should a facility be developed it would not be possible to state that a quantifiable proportion of marine aggregate landed in Essex would serve Essex markets as again this would be a commercial consideration for the market to determine.

5.1.14 Nonetheless the MPA can continue to be generally supportive of the development of transshipment sites within the Plan Area, in accordance with Development Plan policies. This would be in addition to advocating the safeguarding of existing proximal facilities through appropriate national (NPPF) and local safeguarding/protection planning policy.

5.2 Next Steps

5.2.1 In summation, it is not considered appropriate to reduce land-won reserves such that they are replaced by marine-won reserves for the reasons articulated above.

5.2.2 The MPA will continue to ensure that existing wharf and rail transshipment facilities within its jurisdiction are safeguarded from incompatible development to ensure their continued operation in compliance of the 'Agent of Change' principle as set out in NPPF Paragraph 182.

5.2.3 Furthermore, it is not considered that additional work surrounding this indicator will yield any additional results as there is no statutory requirement to provide the information to the MPA necessary to inform Mineral Monitoring Indicator 3. It is therefore proposed that this indicator be removed from the Mineral Local Plan (2014).



Appendices



Appendix A. Proximate Wharves & Ports to Essex

Table A4: Wharves Within Proximity to Serve Essex (2020)

Area	Landing Port (Standard Name)	Wharves/ Alternative names & Operator	MPA Estimated Address	Estimated distance of Wharf from Essex Administrative boundary (Miles)
Thames Region				
London	Unknown	Brett: Peruvian Wharf	Thameside Industrial Estate, Factory Rd, Royal Docks, London E16 2HB (Point of reference as exact location unknown)	26.6 Less than estimated maximum travel distance
	Dagenham	Hanson: ARC Dagenham	Dagenham Wharf Dagenham Dock Road, Chequers Ln, Barking, Dagenham RM9 6QD	21.1 Less than estimated average travel distance
		Cemex: Barking	CEMEX Dagenham Cement and Ash Terminal, Dagenham Docks, Choats Rd, Dagenham RM9 6LB	21.2 Less than estimated average travel distance
	Tilbury	Stema Shipping: Tilbury	Alexandra House, Lakeside Retail park, Grays RM20 1WL	16.3 Less than estimated average travel distance
Thurrock	Thurrock	Thurrock, West Thurrock Jurgens Wharf	Jurgens Road Off London Road, Purfleet RM19 1UA	15.4 Less than estimated average travel distance
East Coast Region				
Suffolk	Ipswich	Brett Aggregates Ipswich	Cliff Road Cliff Quay, The Docks, Ipswich IP3 0BS	15.5 Less than estimated average travel distance

Source: The Crown Estate: Marine Aggregates Summary of Statistics (2020)

The wharves contained in the above table are identified in relation to the Essex administrative boundary (approximate), with their distances listed in the figures below:

Figure A3: Estimated Road Distance of Stema Shipping to Essex Administrative Boundary

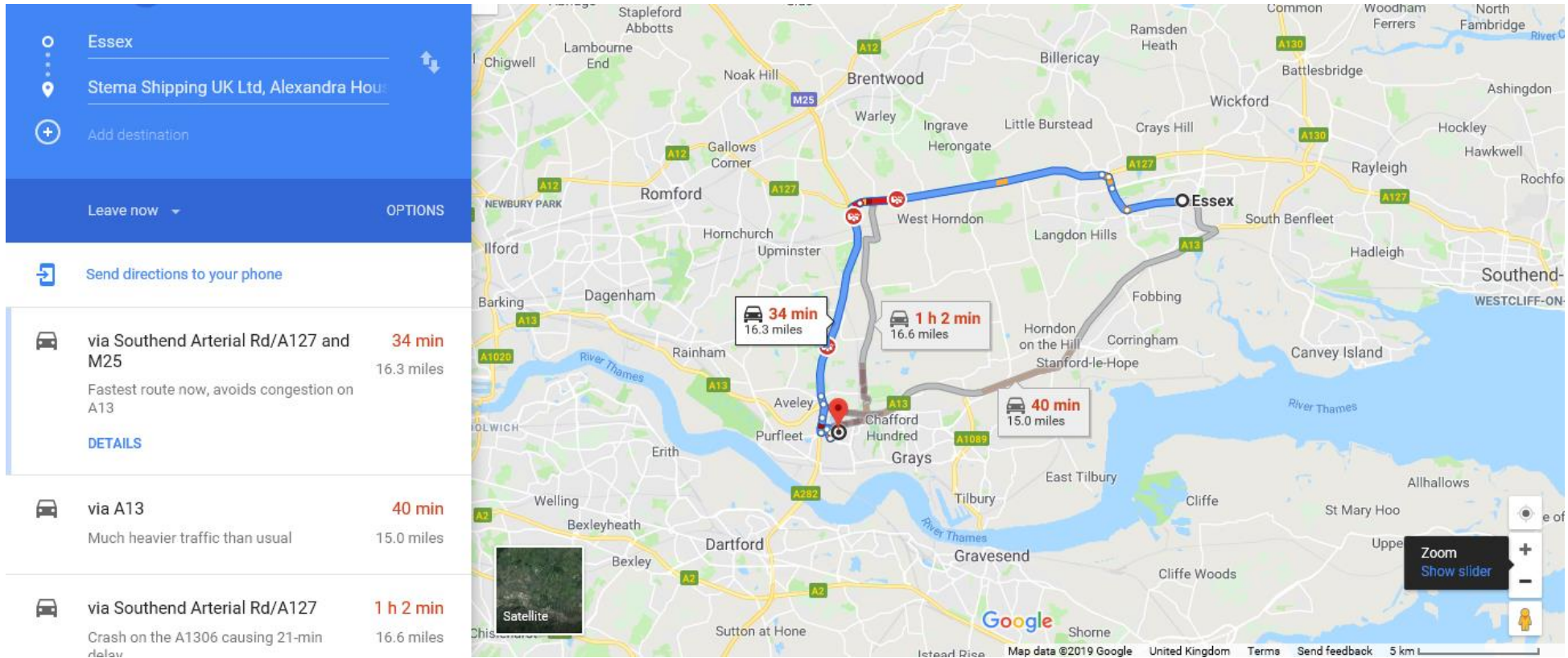


Figure A4: Estimated Road Distance of Hanson ARC to Essex Administrative Boundary

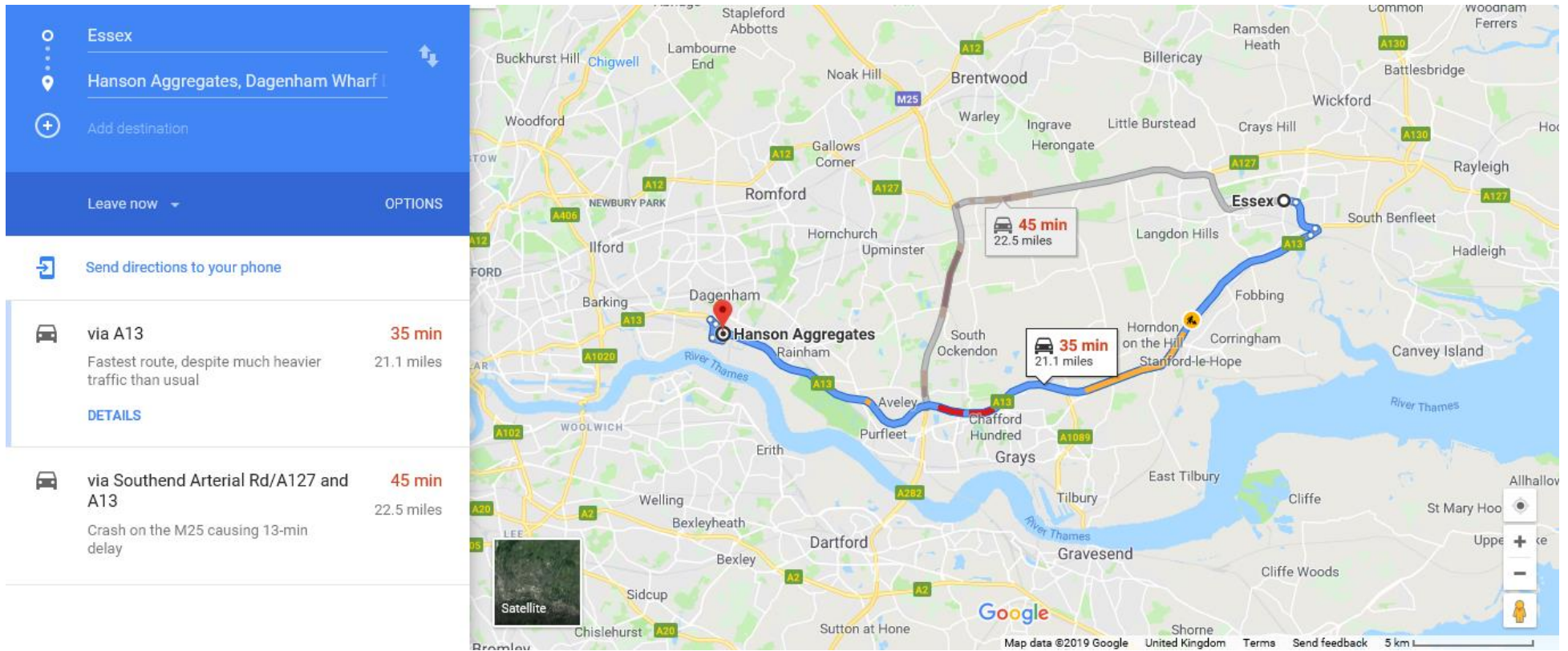


Figure A5: Estimated Road Distance of Jurgens Wharf/West Thurrock to Essex Administrative Boundary

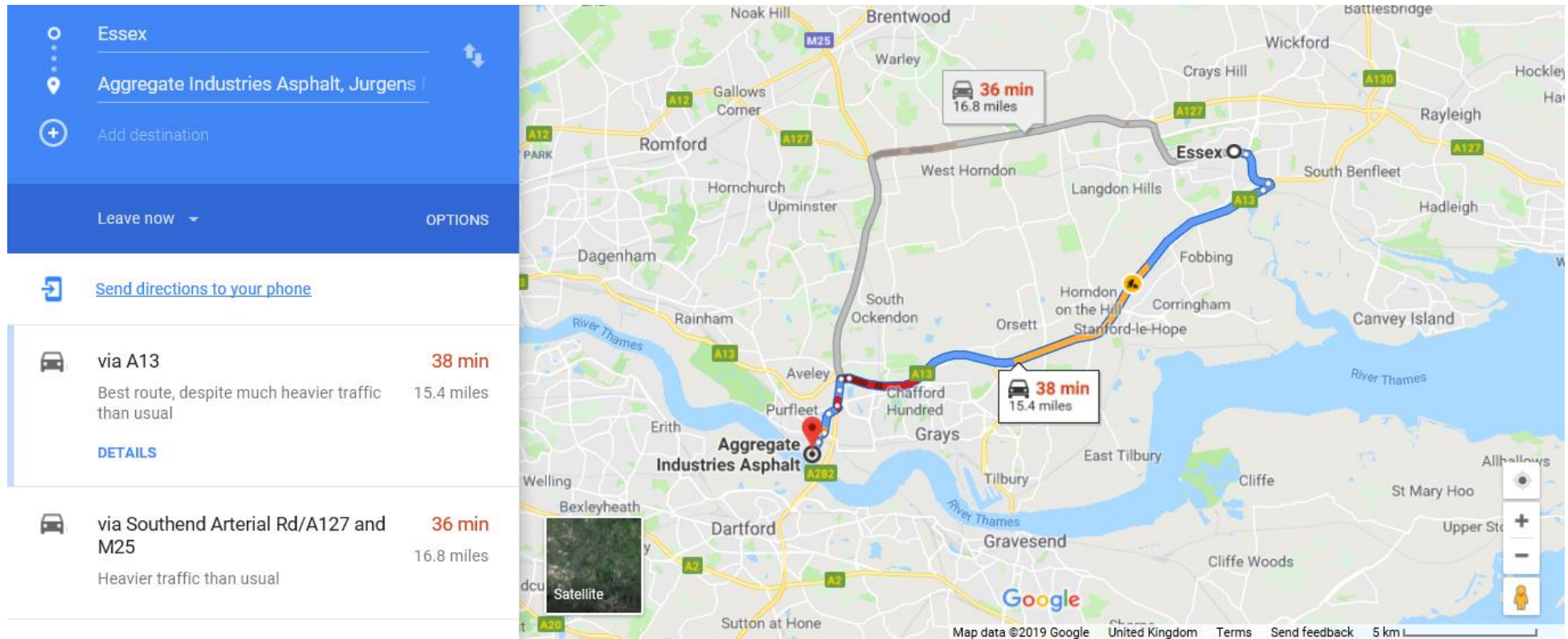


Figure A6: Estimated Road Distance of Ipswich Port, Suffolk to Essex Administrative Boundary

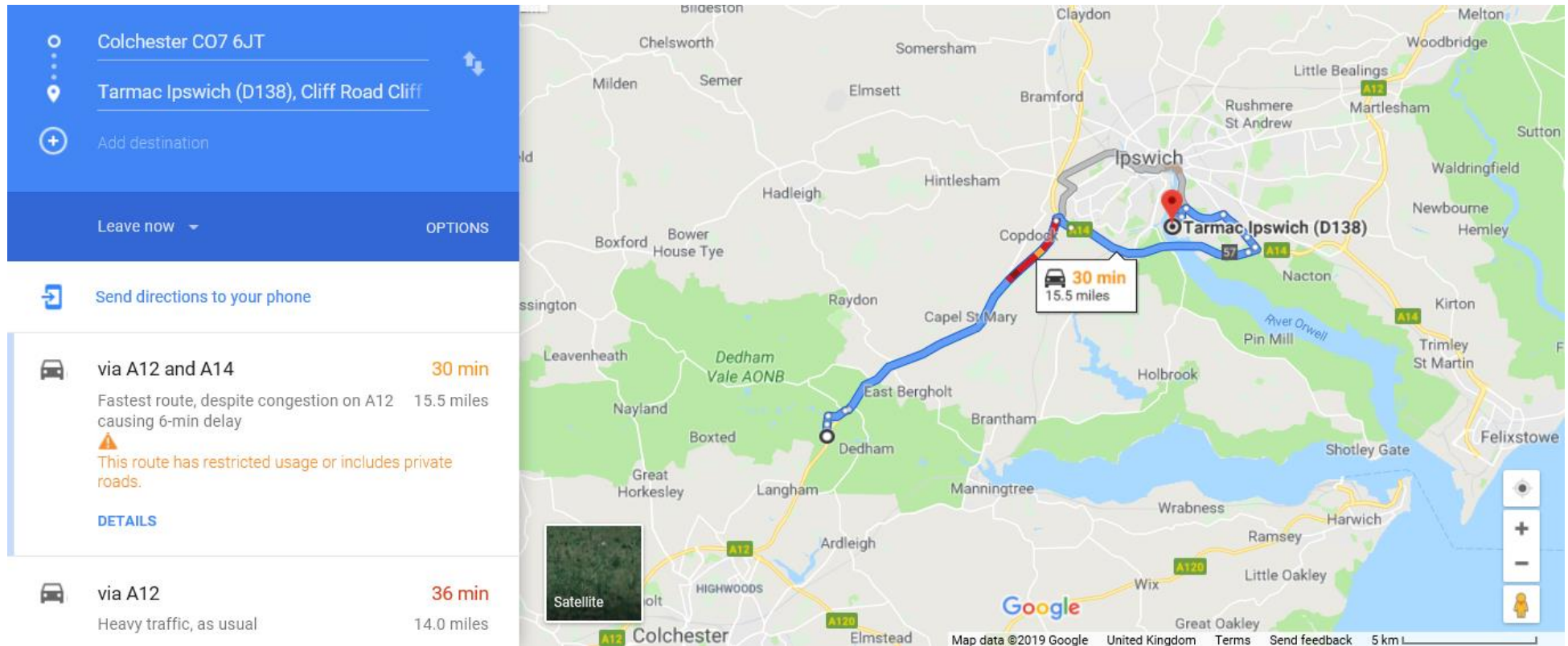


Figure A7: Estimated Road Distance of Peruvian Wharf London to Essex Administrative Boundary

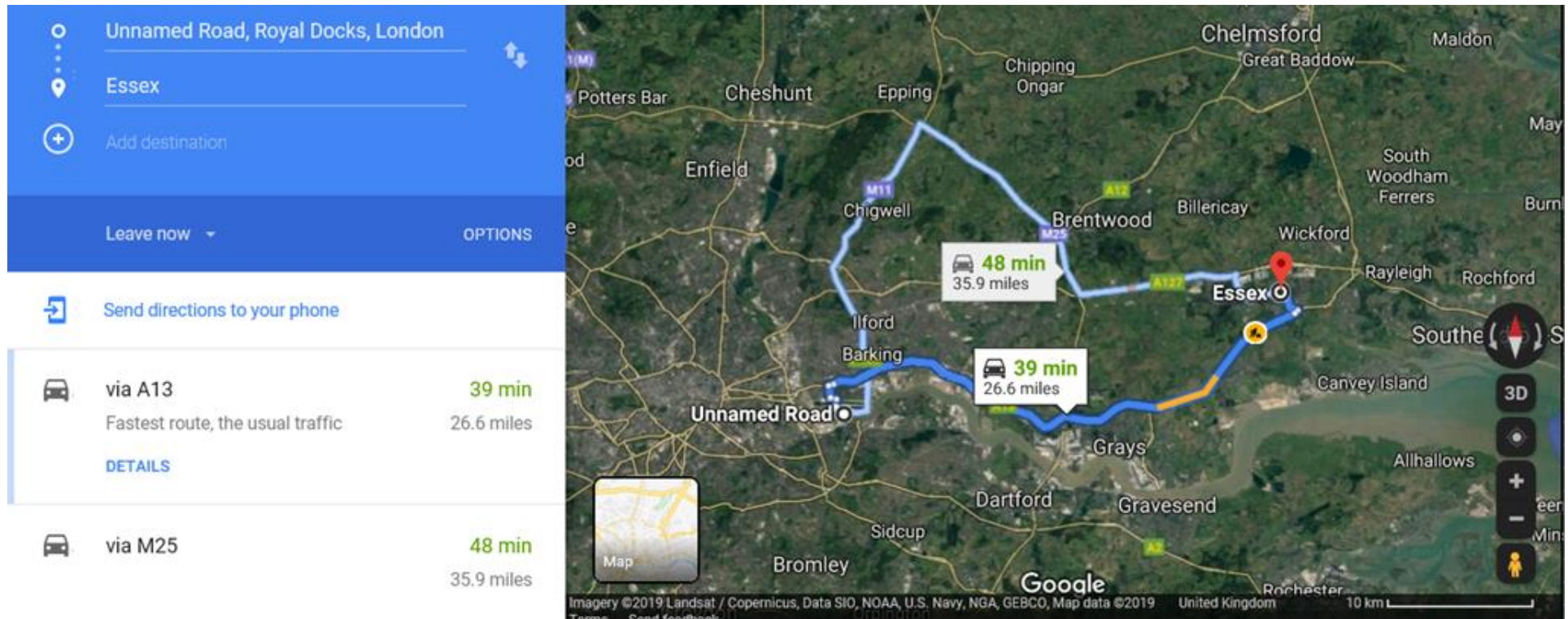


Figure A8: Estimated Road Distance of Barking Wharf, Dagenham to Essex Administrative Boundary

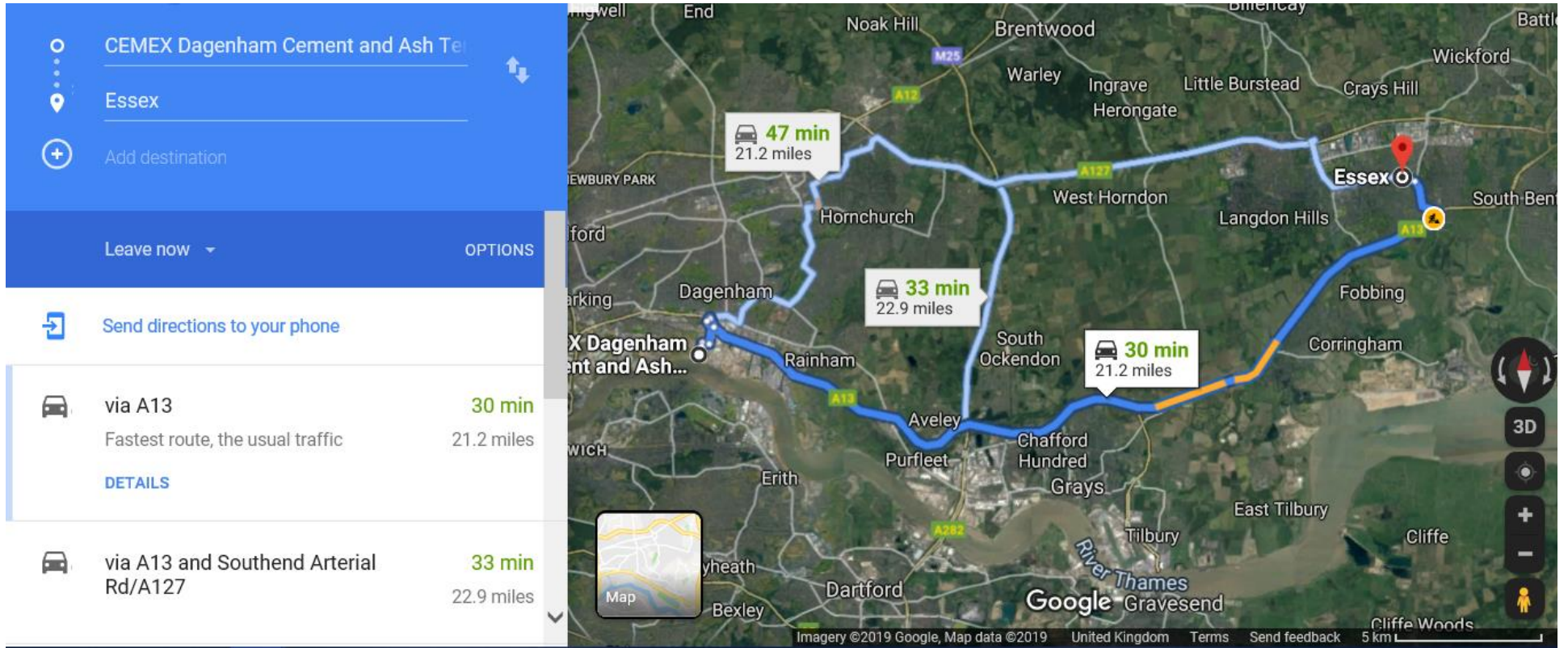


Table A5: Comparison of Essex Only Land-won Minerals to that landed within Proximate Ports to the Essex Market

Year	Assumed Essex Only Land-won Production/Sales	Marine-won Sand & Gravel at Wharves' in proximity to the Essex market
2014	4.23	1.83
2015	3.31	2.01
2016	3.26	2.12
2017	3.27	2.23
2018	3.42	2.42

Supporting Figure 2, page 17

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