

Construction & Demolition Waste

Soil and Stone Recovery / Disposal Capacity

Eastern Midlands Region / Connacht Ulster Region / Southern Region
Waste Management Plans 2015 - 2021



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TABLE OF CONTENTS

1	INTRODUCTION	1
2	BACKGROUND	2
3	SOIL RECOVERY FACILITIES MARKET ANALYSIS.....	4
3.1	FACILITIES OPERATING UNDER WASTE LICENCE.....	4
3.1.1	Eastern Midlands Region.....	5
3.1.2	Southern Region.....	12
3.1.3	Connacht Ulster Region.....	14
3.2	FACILITIES OPERATING UNDER WASTE FACILITY PERMIT	17
3.2.1	Eastern Midlands Region.....	17
3.2.2	Southern Region.....	19
3.2.3	Connacht Ulster Region.....	21
3.3	FACILITIES OPERATING UNDER CERTIFICATES OF REGISTRATION.....	23
3.3.1	Eastern Midlands Region.....	23
3.3.2	Southern Region.....	25
3.3.3	Connacht Ulster Region.....	27
3.4	MARKET ANALYSIS FINDINGS.....	29
3.4.1	Eastern Midlands Region.....	29
3.4.2	Southern Region.....	30
3.4.3	Connacht Ulster Region.....	31
4	FORECASTS	32
4.1	GROWTH FACTORS AND DRIVERS	32
4.2	FORECASTS - CAPACITY	33
4.3	CAPACITY GAP PROJECTION	35
5	ALTERNATIVES.....	37
5.1	EXTENDING CAPACITIES AT EXISTING SITES.....	37
5.2	ARTICLE 27 BY-PRODUCT NOTIFICATIONS.....	37
5.3	ARTICLE 28 END-OF-WASTE.....	38
6	CONCLUSIONS AND RECOMMENDATIONS	39
6.1	CONCLUSIONS.....	39
6.2	RECOMMENDATIONS.....	40

LIST OF FIGURES

Figure 3-1 Geographical Spread of Active Licensed Capacities	7
Figure 3-2 Geographical Spread of Active Licensed Capacities	13
Figure 3-3 Geographical Spread of Active Licensed Capacities	16
Figure 4-1 Recorded and Projected National Soil and Stone Waste Quantities.....	33
Figure 4-2 Waste Licensed Capacity Forecast.....	34
Figure 4-3 Soil Recovery Capacity National Shortfall.....	36
Figure 4-4 Capacity Shortfall Profile	36

LIST OF TABLES

Table 2-1 CDW and Soil Waste Collected 2013 - 2015	3
Table 3-1 Soil Recovery Facilities operating under Waste Licence in the Study Area	5
Table 3-2 Geographical Spread of Backfilling Capacity	6
Table 3-3 Soil Waste Intake Data for 2014 and 2015 at Soil Recovery Waste Licence Facilities.....	9
Table 3-4 Wider Analysis of the Soil Waste Supply and Demand Market	10
Table 3-5 Waste Licence Soil Recovery Facilities in the Study Area	11
Table 3-6 Soil Waste Intake Data at Active Landfills in the EMR	12
Table 3-7 Soil Recovery Facilities operating under Waste Licence in the Southern Region.....	12
Table 3-8 Waste Licence Soil Recovery Facilities in the Southern Region.....	14
Table 3-9 Soil Waste Intake Data at Active Landfills in the Southern Region.....	14
Table 3-10 Soil Waste Intake Data at Licensed Facilities in the CUR	15
Table 3-11 Soil Recovery Capacity Remaining in the CUR	15
Table 3-12 Waste Intake Data at Active Landfills in the CUR	15
Table 3-13 Capacity and Intake Data at Permitted Soil Recovery Sites	18
Table 3-14 Data Completion Rates for WFPs.....	18
Table 3-15 Number of permits due to lapse between 2015 and 2021.....	20
Table 3-16 Capacity and Intake Data at Permitted Soil Recovery Sites	20
Table 3-17 Data Completion Rates for WFPs.....	21
Table 3-18 Capacity and Intake Data at Permitted Soil Recovery Sites in CUR	22
Table 3-19 Data Completion Rates for WFPs in CUR	22
Table 3-20 Authorised CoR Classes of Activities in EMR.....	23
Table 3-21 Facilities Authorised by Certificates of Registration per Local Authority Area	23
Table 3-22 Data Completion Rates for CoRs in EMR.....	24
Table 3-23 Authorised CoR Activity Classes in SR	25
Table 3-24 Facilities Authorised by Certificates of Registration per Local Authority Area	26
Table 3-25 Data Completion Rates for CoRs.....	26
Table 3-26 Facilities Authorised by CoR per Local Authority Area for CUR	28
Table 3-27 Data Completion Rates for CoRs in CUR	28
Table 4-1 Soil and Stone Wastes Collected 2012-2015	32
Table 4-2 Total Construction Output to 2015 and projections to 2018 (% change in real terms)	32
Table 4-3 Anticipated shortfall in capacity for soil and stones in GDA.....	35

1 INTRODUCTION

RPS was appointed by Dublin City Council, on behalf of the regional waste management offices, to analyse the national waste capacity market for the safe treatment of soil wastes.

The RPS project team were requested to review existing soil recovery facilities and quantify the capacity available to meet current and future market demand. Data for 2015 was sourced where available and supported by the latest commentary from the market. From the findings, conclusions and recommendation have been prepared.

For the purpose of the report soil wastes are defined as clean inert soil and stone waste arising from construction activities. Typically this material is coded under the List of Waste classification system as 17 05 04¹. There are other codes² which may be applied to represent the same or similar materials.

¹ 170504 (code) soil and stones other than those mentioned in 17 05 03 (description)

² Such as 17 05 06 and 20 02 02

2 BACKGROUND

It is planned to spend €42 billion of capital expenditure over the next 5 years on public infrastructure and a further €5.35 billion on social housing. This is a massive injection into the Irish economy. It is estimated that some €15 billion alone will be spent in 2016. According to the Budget 2017, the Irish economy is growing strongly with GDP growth forecasted at 4.2% in 2016 and 3.5% next year. The realisation of these infrastructural and housing projects will generate significant volumes of soil waste and a health supply of recovery capacity is required.

Apart from the availability of finance, there are resource capacity issues that if not addressed now, will limit the provision of infrastructure and housing in Ireland. Both infrastructure and housing are complementary as without adequate infrastructure provision, the provision of housing will not generate communities properly served by transport, water, schools and amenities.

The recent growth in construction activity has brought to a head an unexpected supply chain issue. There is a significant shortfall in the provision of recovery sites for excavated soil and stone to enable the planned infrastructure and housing strategy to be realised.

Over the past two years construction activity has ramped up significantly especially in the Greater Dublin Region where market operators are now faced with a severe deficit of available sites. This situation was exacerbated this year by the closure of Dublin's two largest sites mid-year having exhausted their licensed annual tonnage quota.

The reclamation of soil wastes (called soil recovery) is a defined waste activity with active sites required to have a waste authorisation in place. The authorisation type depends on the scale of capacity at the site, the larger sites having the greater regulatory burden. In the recent waste management plan for the three regions the analysis of soil recovery facilities showed plenty of available capacity. The analysis in the plans was based on available data which was from 2012 data. The plans noted that the relative low level of utilisation was a reflection on the depressed activity in the construction sector in Ireland.

In terms of the providing future capacities the regional waste plans provide guidance on the type of soil recovery sites required and other considerations. In summary these are:

- The authorisation of future backfilling or soil recovery capacity in the regions should be co-ordinated by regulatory bodies so the right scale and balanced capacity is developed. Imbalances in a region are to be avoided where possible as well as inadequate supply;
- The plans favours the development of large longer life restoration sites, such as old quarries, ahead of shorter span sites (e.g. permitted or registered sites) for soil recovery activities; and
- The environmental protection criteria as set out in the plan which guide the siting of new facilities must be complied. The regulatory threshold for environmental protection has been increased and applicants must demonstrate the protection of environmental receptors from future site activities.

The development of future soil recovery facilities is identified in the regional waste plans as a role for operators in the sector. The waste plans do not identify sites suitable for the development of soil recovery activities which is the responsibility for site developers. However the plans support the

development of new capacity with a preference for larger restoration sites which would typically require a waste licence.

The turnaround in market activity in the construction sector has led to a direct increase in the quantities of construction and demolition wastes (CDW) collected and in particular soil wastes. **Table 2-1** shows the scale of growth which has been experienced nationally and in the Greater Dublin Area from 2013 to 2015.

Table 2-1 CDW and Soil Waste Collected 2013 - 2015³

Unit = Million Tonnes	2013	Difference	2014	Difference %	2015	Difference %
Total CDW	2.926	-7%	3.787	29%	5.1	35%
Soil Stone	2.02	-10%	2.86	42%	3.5	22%

Table 2-1 shows that from 2013 to 2015 the quantity of soil waste collected has increased by 1.5 million tonnes nationally. This represents a 75% increase in tonnage over this period. This rapid increase in tonnage reflects the strong construction growth in the residential and commercial sectors particularly in the Greater Dublin Area.

It is important to note that the collected data for 2015 has not yet been validated and may contain a margin of error which will become apparent when the final datasets are made available. This is not expected to detract from the fundamental findings derived from the data. The recent rise and continued growth in construction activities has led to significant increases in the generation and collection of soil wastes albeit from a very low baseline. Future growth is expected to continue and the possible scenarios are outlined in **Section 4**.

³ Data for 2014 and 2015 was provided by the National Waste Collection Permit Office and the 2015 numbers remain to be validated at this stage (June 2016)

3 SOIL RECOVERY FACILITIES MARKET ANALYSIS

All waste disposal or recovery activities are required to hold a waste authorisation. The type of authorisation is generally depended on the scale of the activity and other considerations such as the nature of the waste. Where an activity does not require a Waste Licence, or an Industrial Emissions Licence, it would require either a Waste Facility Permit (WFP) or Certificate of Registration (CoR).

In this section an in-depth look at the soil recovery facilities operating nationally has been undertaken. Licensed, permitted and certificate of registration sites have been examined using the best available capacity and intake data.

One of the challenges faced in the completion of the study was sourcing recent data. The most recent construction and demolition waste data published by the EPA, who are responsible for publishing the national waste statistics, was for the 2011 reporting period. The regional waste management plans which were published in May 2015 included collection data for CDW including soil waste although the data relates to the 2012 reporting period. However the sourcing of up to date (i.e. 2015) capacity and intake data for permitted and registered sites is not readily available to the public. The lack of consistent and regular data reporting on the activities of the sector is of concern considering the issues which the industry is currently facing.

The aim for this report was to use 2015 data which waste facility operators and collectors are required to have reported on by the end of the first quarter in 2016. RPS compiled up to date data from the following sources:

- The EPA online waste licensing system which hosts annual environmental reports, waste licenses and other reports for all waste licensed facilities;
- The National Waste Collection Permit office online system which hosts information on the waste permitted and registered facilities; and
- Direct correspondence with facility operators where necessary;

The waste reporting system for permitted and registered facilities has recently transitioned to a fully online system. Issues relating to the disclosure of potential commercially sensitive information remain to be resolved. Until such time these datasets cannot be made publicly available. Information for these facilities provided in this report has been compiled and aggregated to protect the identity of operators. This data remains to be fully validated and signed off by the local authorities.

The thorough approach taken to sourcing and checking 2015 data has helped ensure the analysis of active soil recovery capacity provides valuable findings. The efforts made by the project team have ensured the findings are as up to date as possible.

3.1 FACILITIES OPERATING UNDER WASTE LICENCE

The waste activities authorised by the EPA include waste disposal and recovery activities such as landfills, transfer stations, materials recovery facilities, mechanical treatment facilities, thermal recovery facilities, soil recovery sites and hazardous waste disposal facilities. Sites and facilities which are authorised under the waste licensing regime tend to handle a significant tonnage of waste material on an annual basis in comparison to sites authorised through a waste facility permit or

certificate of registration. Soil recovery sites authorised by a waste license are larger operations with a significantly greater annual intake and lifetime capacity.

3.1.1 Eastern Midlands Region

In the study area there are 12 dedicated soil recovery facilities which are in the waste licensing system. These facilities are at different stages of obtaining regulatory approval with final determinations (authorisations) still to be granted by the Agency for 4 of the sites. The remaining eight facilities have all been authorised by the EPA and hold a valid Waste Licence. Two of these facilities have yet to commence operations. The details of the facilities in the study area are presented in **Table 3-1**.

Table 3-1 Soil Recovery Facilities operating under Waste Licence in the Study Area

Facility Name / Licensee	Licence No	Status	Local Authority	Annual Soil Waste Authorised Capacity
Blackhall Soil Recovery (Behans Land Restoration Limited)	W0247-01	Active	Kildare County Council	344,000
Clashford Recovery (Clashford Recovery Limited)	W0265-01	Application	Meath County Council	180,000
Fassaroe Waste Recovery (Roadstone)	W0269-01	Active unavailable	Wicklow County Council	550,000
Huntstown Inert Waste Recovery (Roadstone)	W0277-01	Active	Fingal County Council	750,000
Kiernan Sand & Gravel (Kiernan Sand & Gravel Limited)	W0262-01	Active	Meath County Council	167,400
Milverton Waste Recovery (Roadstone)	W0272-01	Authorised Uncommenced	Fingal County Council	400,000
Murphy Concrete Manufacturing (Murphy Concrete Manufacturing Ltd)	W0151-01	Active	Meath County Council	738,000
Murphy Environmental Hollywood (Murphy Concrete Manufacturing Ltd)	W0129-02	Active	Fingal County Council	500,000
Mullaghcrone Quarry (Roadstone)	W0278-01	Application	Meath County Council	150,000
Walshestown Restoration (Walshestown Restoration Limited)	W0254-01	Authorised Uncommenced	Kildare County Council	330,000
Calary Quarry (Roadstone Limited)	W0293-01	Application	Wicklow County Council	300,000
N&C Enterprises Limited (N&C Enterprises Limited)	W0292-01	Application	Kildare County Council	345,000
Total (Authorised On Paper)				4,754,400
Total (Active)				2,499,400

Table 3-1 provides details of the soil recovery sites and their authorised intake capacity tonnages. The facilities with an application status have yet to receive EPA approval for the proposed activities. Sites which are authorised and actively receiving waste from the market are classified as active with

all sites operational and offering capacity to the market. There are exceptions with authorised facilities currently not offering capacity to the market. These are:

- The Fassaroe facility is almost at capacity and any remaining void will not be available to the market
- The Milverton and Walshestown Facilities are due to come on stream but not until sometime in 2017

Currently the largest single authorised annual intake capacity for a facility is 750,000 tonnes and this is held by two facilities, these being the:

- Huntstown Facility in Dublin which is operated by Roadstone; and
- Murphy's Quarry Facility located in the Gormanstown, Co. Meath operated by Murphy's Concrete.

Together these two facilities hold 60% of the available market capacity on offer in the Eastern Midlands Region. There are four registered companies acting as licensees who operate the facilities currently serving the market (licensees⁴ of facilities at application stage have not been considered). These are:

- Roadstone Limited – licensee of four sites with a total authorised capacity of 1.15 million tonnes although 400,000 tonnes is not available (Milverton);
- Murphys Concrete Manufacturing Limited – licensee of two sites with a total active capacity of 1.25 million tonnes. The site located in North Dublin is lined and only accepts contaminated soil from brownfield sites;
- Behans Quarry – licensee of one site with a total active capacity of 400,000 tonnes; and
- Kiernan Sand and Gravel Limited – licensee of one site with a total active capacity of 167,400 tonnes;

A review of the capacities by licensee shows that two operators currently provide 1.988 million tonnes to the market in the study area for the purpose of soil recovery. This represents 80% of the active licensed capacity available. The facilities are spread across the study area with a concentration to the north of the Greater Dublin Area (refer to **Figure 3-1** for location details of all soil recovery facilities).

Table 3-2 Geographical Spread of Backfilling Capacity

County	No of Facilities	Capacity (Authorised and at Application Stage)	Capacity Active and Available
Dublin (Fingal)	3	1,650,000	1,250,000
Meath	4	1,235,400	905,400
Kildare	3	989,000	344,000
Wicklow	2	850,000	-

Table 3-2 shows the geographical spread of facilities and associated capacities by local authority area. With seven facilities located in North Dublin and Meath areas these counties are well served holding 91% of the capacity on offer to the market (over 2.15 million tonnes). In Kildare just 344,000 tonnes of annual capacity is active. All other local authority areas in the region have no authorised and active licensed capacity.

⁴ Licensees of facilities at application stage include Roadstone Limited, Clashford Recovery Facility Limited and N&C Enterprises Limited

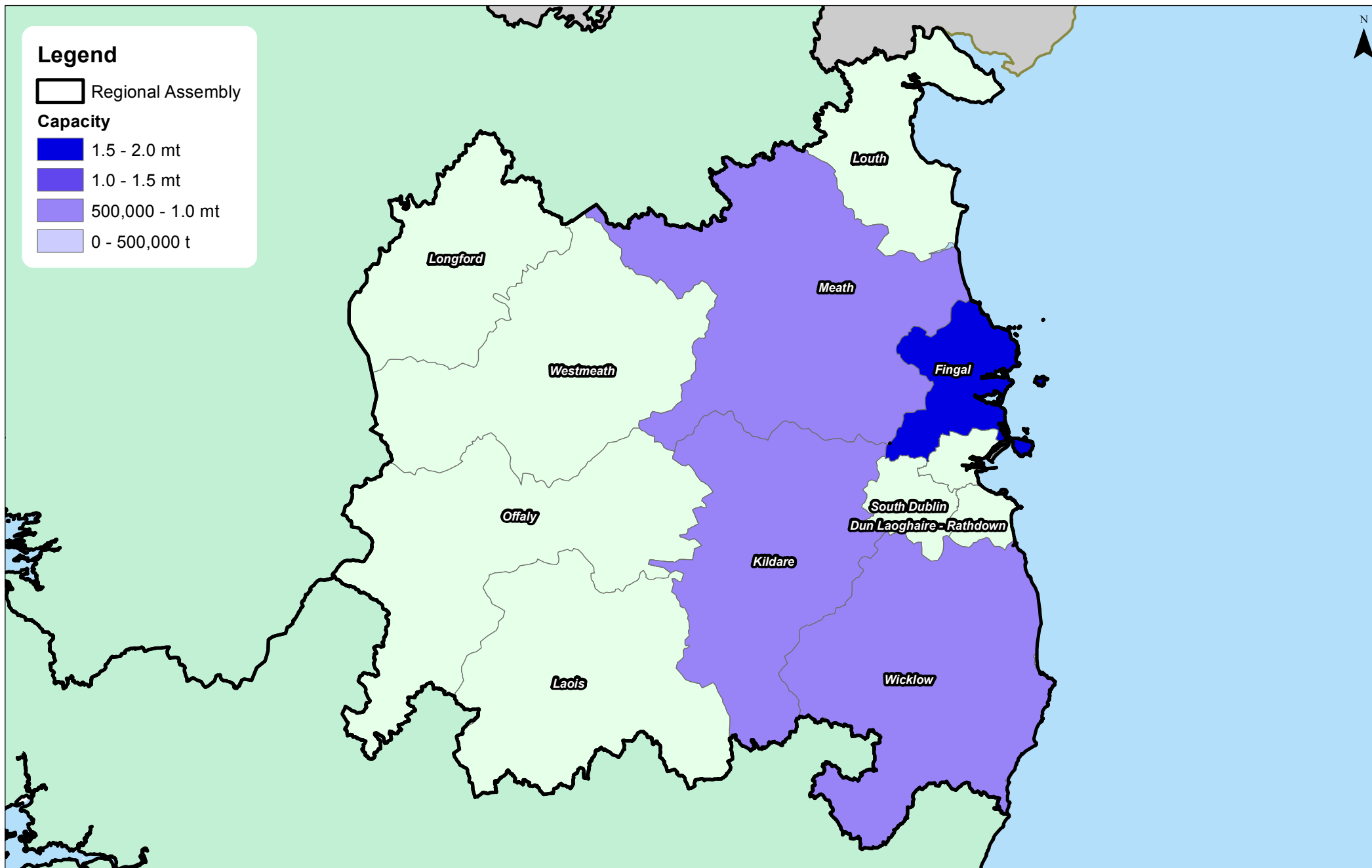


Figure 3-1 Capacity by Local Authority - Eastern & Midlands Region

Examining the intake data at these facilities provides an indication of the demand for soil recovery void capacity. **Table 3-3** provides a summary of the intake of facilities which were actively accepting soil waste in 2015. Analysing the data the following observations can be made relating to the most significant active sites:

- Murphy's Facility in Meath was the most active facility receiving the largest quantity of soil waste in 2015. The facility accepted over 630,879 tonnes of soil waste representing 85% of its authorised capacity. This facility's intake in 2015 increased by 15% compared to 2014.
- The Huntstown Facility in North Dublin began operations in 2015 which limited its intake capacity to 175,000 tonnes during the year. In 2016 the facility accepted its maximum allowable intake.
- The Blackall Soil Recovery Facility which is authorised to accept 344,000 tonnes of soil wastes took in over 378,000 tonnes of this type of material exceeding its capacity in 2014. In 2015 over 399,000 tonnes of material was accepted.
- Murphy's Facility in North Dublin increased its total intake from over 30,000 tonnes to over 66,000 in 2015. Expressed as a percentage the increase recorded is significant, however the total tonnage accepted in 2015 represents only 13% of the authorised annual intake. The primary focus of this facility is the acceptance of contaminated soil and stone material so its capacity is not directly comparable to the other facilities.

It's difficult to draw conclusions from the intake data and capacity data available to the market for soil and stone waste materials. Based on the data presented in **Table 3-3** there appears to be sufficient capacity to meet market demand. However the data only tells part of the story and careful interpretation is needed otherwise incorrect conclusions can be drawn. As described at the outset the latest intake data is always behind present day activities in the market and as such it provides a snap shot of the market for a particular period. Changes in the market which have materialised since, such as a significant increase in waste tonnages or supply capacities coming on or off stream, are not necessarily evident in the best available data.

In **Table 3-3** the active capacity data for the treatment of soil wastes for 2014, 2015 and 2016 is provided. The calculation of these amounts has taken account of recent authorisations by the EPA with new capacities coming on-stream increasing the overall offering to the market. The capacity amounts have also been adjusted to reflect reductions or cessation of market activities at sites which are not reflected in the authorisations. For example capacity for soil wastes are no longer available to the market at the Fassaroe Facility, however the license remains active as it covers other activities at this location.

The total authorised licensed capacity of over 4.7 million tonnes represents the current on-paper capacity as opposed to the available and active capacity which is presently estimated to be over 2.5 million tonnes. This capacity is offered by five facilities with three of these authorised to accept between 500,000 and 750,000 tonnes annually (or a cumulative total of 2 million tonnes). One of these facilities, Murphys of North Dublin, has on paper a significant capacity which is not being utilised. This is not the case as the facility is primarily designed to take contaminated soil and stone waste materials as opposed to having a primary focus on clean soils i.e. 17 05 04.

If we take a more critical wider view of the data for 2015 a different picture to the one presented by the data begins to emerge. It is logical to remove the capacity at the Murphys Facility in North Dublin from the direct analysis of intake versus capacity as it is skewing the available capacity data for non-contaminated (clean) soil wastes.

Table 3-3 Soil Waste⁵ Intake Data for 2014 and 2015 at Soil Recovery Waste Licence Facilities

Facility Name	Status	Local Authority	Annual Authorised Intake Capacity	Annual Soil Authorisation	Soil Intake 2014	Non-Soil Intake 2014	Total	Soil Intake 2015	Non-Soil Intake 2015	Total	Difference (% or tonnes)
Blackhall Soil Recovery	Active	Kildare County Council	400,000	344,000	378,756	18,000	396,756	389,919	10,041	399,960	+3,204
Clashford Recovery	Application	Meath County Council	180,000	180,000	-	-	-	-	-	-	-
Fassaroe Waste Recovery	Active - soil capacity not available	Wicklow County Council	570,000	550,000	221,968	19,257	241,225	0	18,895	18,895	-222,330
Huntstown Inert Waste Recovery	Active	Fingal County Council	750,000	750,000	-	-	-	175,886	0	175,886	n/a
Kiernan Sand & Gravel	Active	Meath County Council	187,400	167,400	-	-	-	-	-	-	-
Milverton Waste Recovery	Authorised – Not commenced	Fingal County Council	400,000	400,000	-	-	-	0	-	-	-
Murphy Concrete Manufacturing	Active	Meath County Council	750,000	738,000	511,677	37,713	649,390	630,879	118,284	749,163	+15%
Murphy Concrete Manufacturing	Active	Fingal County Council	500,000	500,000	27,552	2,792	30,344	64,177	2255	66,433	+119%
Mullaghcrone Quarry	Application	Meath County Council	150,000	150,000	-	-	-	-	-	-	-
Walshestown Restoration Ltd	Authorised – Not commenced	Kildare County Council	330,000	330,000	-	-	-	-	-	-	-
Calary Quarry	Application	Wicklow County Council	300,000	300,000	-	-	-	-	-	-	-
N&C Enterprises Limited	Application	Kildare County Council	345,000	345,000	-	-	-	-	-	-	-
Total (Active) Capacity 2014				2,208,000	1,239,953	77,762	1,317,715				
Total (Active) Capacity 2015				2,388,000	-	-	-	1,260,861	149,476	1,410,337	+7%
Total (Active) Capacity 2016⁶				2,499,400							

⁵ LoW 17 05 04⁶ June 2016

Finally the Huntstown Facility only became operational in 2015 and was actively taking soil wastes for part of the year. Obtaining intake volumes equivalent to the authorised annual intake was unlikely to be reached in the first year of operation. Taking these considerations on board the available capacity decreases to approximately 1.5 million tonnes, refer to **Table 3-4** for details. This closing of the gap between available capacity supply and demand (represented by the intake data) is considered to be a more accurate reflection of activity and trends in the market.

Table 3-4 Wider Analysis of the Soil Waste Supply and Demand Market

Total Active Capacity 2015	Total Adjusted Capacity 2015	Total Reported Intake 2015	Total Adjusted Intake 2015
2,388,000		1,260,861	
Less		Less	
500,000 (Murphy's)		64,000 (Murphys)	
300,000 (Huntstown)	~ 1,525,000		~1,200,000

Table 3-4 shows for 2015 based on the adjusted capacity and intake figures that the licensed facilities for soil recovery were well utilised and almost completely full. This finding is verified by the Murphys Facility in Meath which has been active for almost 10 years and acts as a control for our analysis. The data for this facility shows that intake has steadily increased at the site reflecting the turnaround in activity and the return of the construction sector to strong growth. In 2015 the annual limit at this facility was almost reached.

The trend from the 2015 data is further supported by the latest developments in the soil waste capacity market in 2016. The Murphy's Facility in Meath confirmed in early June that the site will reach its annual tonnage limit in early July effectively closing the site until January 2017. A similar situation occurred at the Huntstown Facility. This facility reached its maximum limit in September 2017 and the acceptance of waste for this year has ceased. These closures are further evidence of the pressure on soil waste capacities and for additional supply to come on stream.

The recent growth of the construction sector has led to a surge in soil wastes generated, particularly in the Greater Dublin Area, which need to find a safe and secure destination. The scale of the growth in waste and the resulting need for recovery capacity is evidenced by two of the region's most significant facilities reaching capacity ahead of year end.

Another factor which must be considered when analysing market capacities is the lifespan of the soil recovery facilities and the years of operation remaining at the sites. An apparently well supplied market can look radically different with the closure or cessation of activities at a number of significant sites.

Table 3-5 provides a summary of the remaining capacity and the expected year of closure at the facilities in the region assuming intake limits are close to the allowable levels. This information was obtained following an examination of facility annual environmental reports, waste licences, application forms, environmental impact statements and if necessary direct communication with operators and is considered to be accurate.

The available data shows that one of the largest capacities available to the market is expected to close by the end of 2017. This event will remove 750,000 tonnes of capacity from the market and

will increase the pressure further on existing soil recovery sites and on construction activities who have an on-going need for available capacity. With soil waste tonnages generated expected to increase in the next 3 – 5 years there is an immediate need to bring additional capacity on-stream. Beyond the closure of this facility, the next closure is not expected until 2022/2023 based on current fill rates and remaining capacity data sourced for the study.

Table 3-5 Waste Licence Soil Recovery Facilities in the Study Area

Facility Name	Licence No	Status	Annual Authorised Intake (Tonnes)	Remaining Capacity ⁷ (tonnes)	Expected Closure (Years)
Blackhall Soil Recovery	W0247-01	Active	344,000	2,677,500 ⁸	2022/2023
Clashford Recovery	W0265-01	Application	180,000	805,200	unknown
Fassaroe Waste Recovery	W0269-01	Active unavailable	550,000	0	unknown
Huntstown Inert Waste Recovery	W0277-01	Active	750,000	~7,000,000	2033
Kiernan Sand & Gravel	W0262-01	Active	167,400	1,110,550	2024
Milverton Waste Recovery	W0272-01	Authorised - not commenced	400,000	1,900,000	2024
Murphy Concrete Manufacturing	W0151-01	Active	738,000	1,500,000	2017/2018
Murphy Environmental Hollywood	W0129-02	Active	500,000	~8,000,000	2028
Mullaghcrone Quarry	W0278-01	Application	150,000	1,800,000	unknown
Walshestown Restoration	W0254-01	Authorised - not commenced	330,000	~3,600,000	2026/2027
Calary Quarry	W0293-01	Application	300,000	3,280,000	unknown
N&C Enterprises Limited	W0292-01	Application	345,000	2,127,472	unknown

Finally there are three non-hazardous municipal landfill facilities in the study area which have an on-going requirement for soil and stone material for daily cover, capping and other remediation activities at the sites. **Table 3-6** provides a summarises f the intake of this type of material at these sites in 2015. The data shows that the Drehid Landfill took in a substantial volume of soil and construction fines materials compared to the other two facilities. This landfill is currently the largest active landfill in the State with an annual limit of 385,000 tonnes. However from 2018 intake limits are due to drop, to 120,000 tonnes in line with planning and licensing conditions. In the coming years the need for soil wastes at this site is expected to decrease in keeping with the scaled back disposal activities. The current⁹ Annual Environmental Report confirms that approximately 50,000 of soil wastes are stockpiled in reserve at the site which is likely to reduce the future requirement of soil wastes.

⁷ Start of 2016

⁸ 2014 Data

⁹ AER 2015

The other sites, Ballynagran and Knockharley, have similar annual disposal tonnage limits and the intake of soil waste materials is relatively low at both sites. Although these sites have a need for soil waste materials their primary activity is the disposal of non-hazardous waste. These facilities provide an outlet for soil wastes materials but the scale of demand is not significant relative to the volumes arising from construction sites in the region.

Table 3-6 Soil Waste Intake Data¹⁰ at Active Landfills in the EMR

Landfill	Local Authority	Authorised Annual Tonnage	Tonnage Accepted	Description
Ballynagran	Wicklow	175,000	26,940	Soil and Stones
Drehid	Kildare	385,000 ¹¹	307,785 ¹²	Soil and Fines Materials
Knockharley	Meath	200,000	21,046	Soil and Stones

3.1.2 Southern Region

In the Southern Region there are three dedicated soil recovery facilities which are in the waste licensing system. **Table 3-7** details soil recovery sites and their total annual authorised capacity for accepting wastes including soil and stone wastes. The table shows that the Crystalhill Inns facility is the only active site. The status of the other facilities is as follows:

- The Mallow Contracts facility is recently authorised but not yet active; and
- The Roadstone Facility is authorised but has yet to commence operations and future activity at the site is uncertain.

Table 3-7 Soil Recovery Facilities operating under Waste Licence in the Southern Region

Facility Name / Licensee	Licence No	Status	Local Authority	Total Annual Authorised Capacity	Annual Soil Waste Authorised Capacity
Crystalhill Inns Ltd ¹³	W0260-01	Active	Kilkenny County Council	170,000	125,000
Roadstone Ltd	W0280-01	Authorised Not Commenced	Wexford County Council	401,000	400,000
Mallow Contracts Ltd.	W0266-01	Authorised Not Commenced	Cork County Council	50,000	45,000
Total (Authorised On Paper)					570,000
Total (Active)					125,000

In the Southern Region the total active annual licensed capacity presently is 125,000 tonnes. **Figure 3-2** shows the geographical spread of licensed capacity in the region. The map shows the region is poorly served by active licensed capacity at present.

¹⁰ From 2015 AERs

¹¹ This is due to drop to an annual disposal limit of 120,000 tonnes from 2018 onwards

¹² Its not clear from the AER what proportion of this tonnage is soil waste.

¹³ Licenced on 23rd June 2016

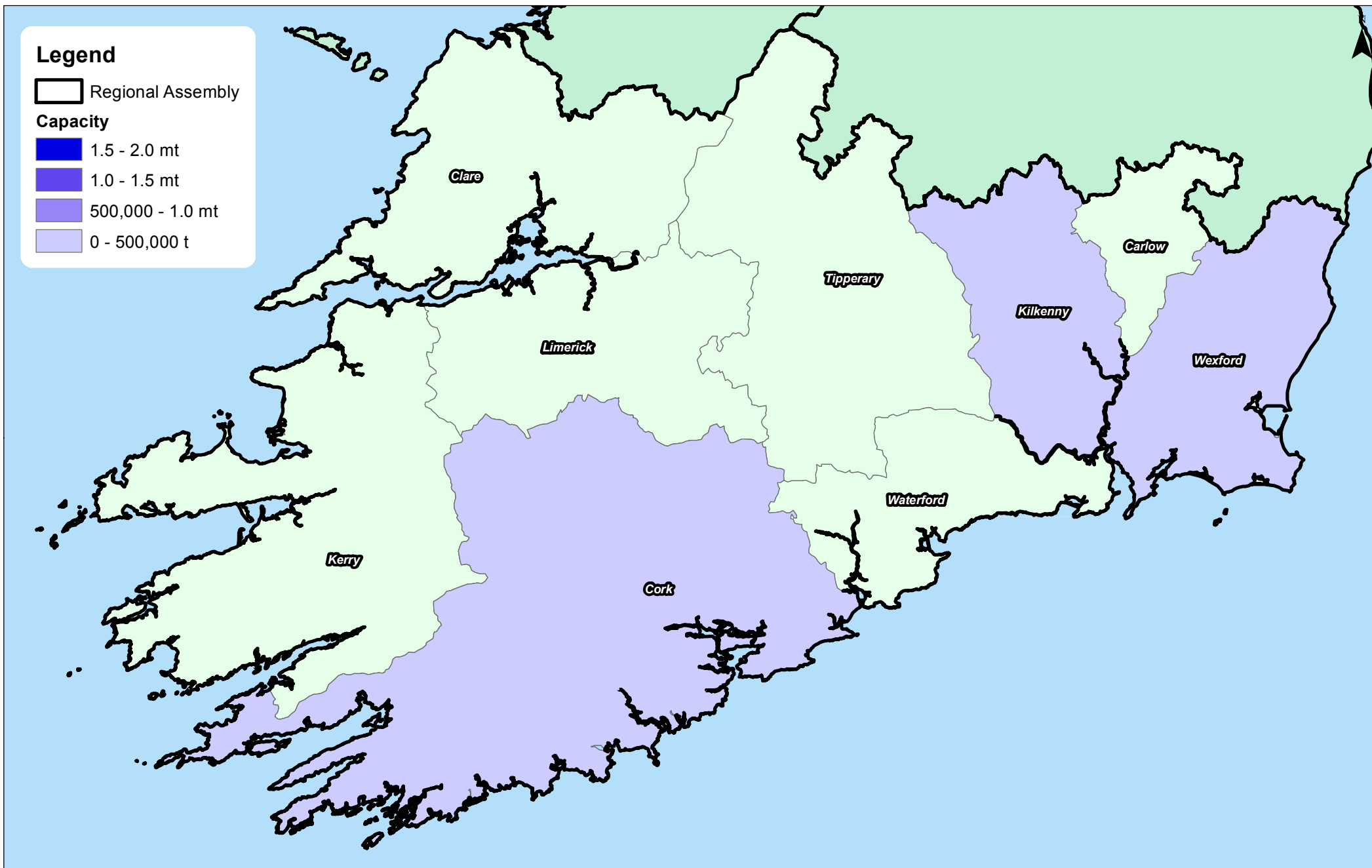


Figure 3-2 Capacity by Local Authority- Southern Region

Table 3-8 provides a summary of the remaining capacity and the expected year of closure at the facilities assuming intake limits correspond to allowable levels. The available data shows the three authorised waste licenced facilities have a remaining capacity totalling 2,040,000 tonnes. This is on-paper capacity with the actual remaining capacity at the only active site in the region being 550,000 tonnes.

Table 3-8 Waste Licence Soil Recovery Facilities in the Southern Region

Facility Name	Licence No	Status	Annual Soil Waste Authorised Capacity (Tonnes)	Remaining Capacity ¹⁴ (tonnes)	Expected Closure (Years)
Crystalhill Inns Ltd t/a as CHI Environmental Ltd.	W0260-01	Active	125,000	550,000	2020
Roadstone Ltd	W0280-01	Authorised Not Commenced	400,000	1,290,000	2019
Mallow Contracts Ltd.	W0266-01	Authorised Not Commenced	45,000	200,000	2020

There is currently only one active landfill in the Southern Region as detailed in **Table 3-9** with little or no remaining capacity at this site. At the time of compiling this report there was no publicly available data for 2015. It is documented that a small quantity of soil and stone was stockpiled in 2014 for future use at the landfill.

Table 3-9 Soil Waste Intake Data¹⁵ at Active Landfills in the Southern Region

Landfill	Local Authority	Authorised Annual Tonnage	Tonnage Accepted in 2015	Description
Powerstown Landfill	Carlow	40,000	-	No AER available for 2015 but 7,495 tonnes of 170504 was stockpiled in 2014 for future use at the landfill

3.1.3 Connacht Ulster Region

Currently there is one dedicated soil recovery facility which operates under a waste licence in the Connacht Ulster Region (CUR). This facility, Lennon Quarries in Belmullet, has an authorised annual intake of 90,000 tonnes. **Table 3-10** shows that this facility accepted 30,222 and 74,007 tonnes of soil and stones in 2014 and 2015 respectively.

¹⁴ Start of 2016

¹⁵ From 2015 AERs

Table 3-10 Soil Waste¹⁶ Intake Data at Licensed Facilities in the CUR

Facility Name	Local Authority	Annual Authorised Intake Capacity	Annual Soil Authorisation	Soil Intake 2014	Non-Soil Intake 2014	Total	Difference (% or tonnes)
Lennon Quarries Ltd (Active)	Mayo County Council	90,000	90,000	30,222	-	30,222	-
				Soil Intake 2015	Non-Soil Intake 2015	Total	Difference (% or tonnes)
				74,007	-	74,007	+43,785

This facility is due to close in 2017 (assuming maximum annual intake is achieved) with 160,771 tonnes of capacity remaining at the start of 2016 (**Table 3-11**).

Table 3-11 Soil Recovery Capacity Remaining in the CUR

Facility Name	Licence No	Status	Annual Soil Waste Authorised Capacity (Tonnes)	Remaining Capacity ¹⁷ (tonnes)	Expected Closure (Years)
Lennon Quarries Ltd	W0256-02	Active	90,000	160,771	2017

Currently there are three non-hazardous municipal landfill facilities in the Connacht Ulster Region which have an on-going requirement for soil and stone material for daily cover, capping and other remediation activities at the sites. **Table 3-12** provides a summary of the waste intake at these sites in 2015 (including soil wastes where available).

Table 3-12 Waste Intake Data¹⁸ at Active Landfills in the CUR

Landfill	Local Authority	Authorised Annual Tonnage	Tonnage Accepted in 2015	Description
Rathreen Landfill	Mayo	45,000	52,332	No details in AER to the soil waste portion of this tonnage
Corranure Landfill	Cavan	45,000	41,030	No details in AER to the soil waste portion of this tonnage
East Galway Residual Landfill	Galway	100,000	No waste accepted in 2014 and 2015	27,320 tonnes of inert waste for recovery for restoration and aftercare allowed under waste licence

¹⁶ LoW 17 05 04

¹⁷ Start of 2016

¹⁸ From 2015 AERs

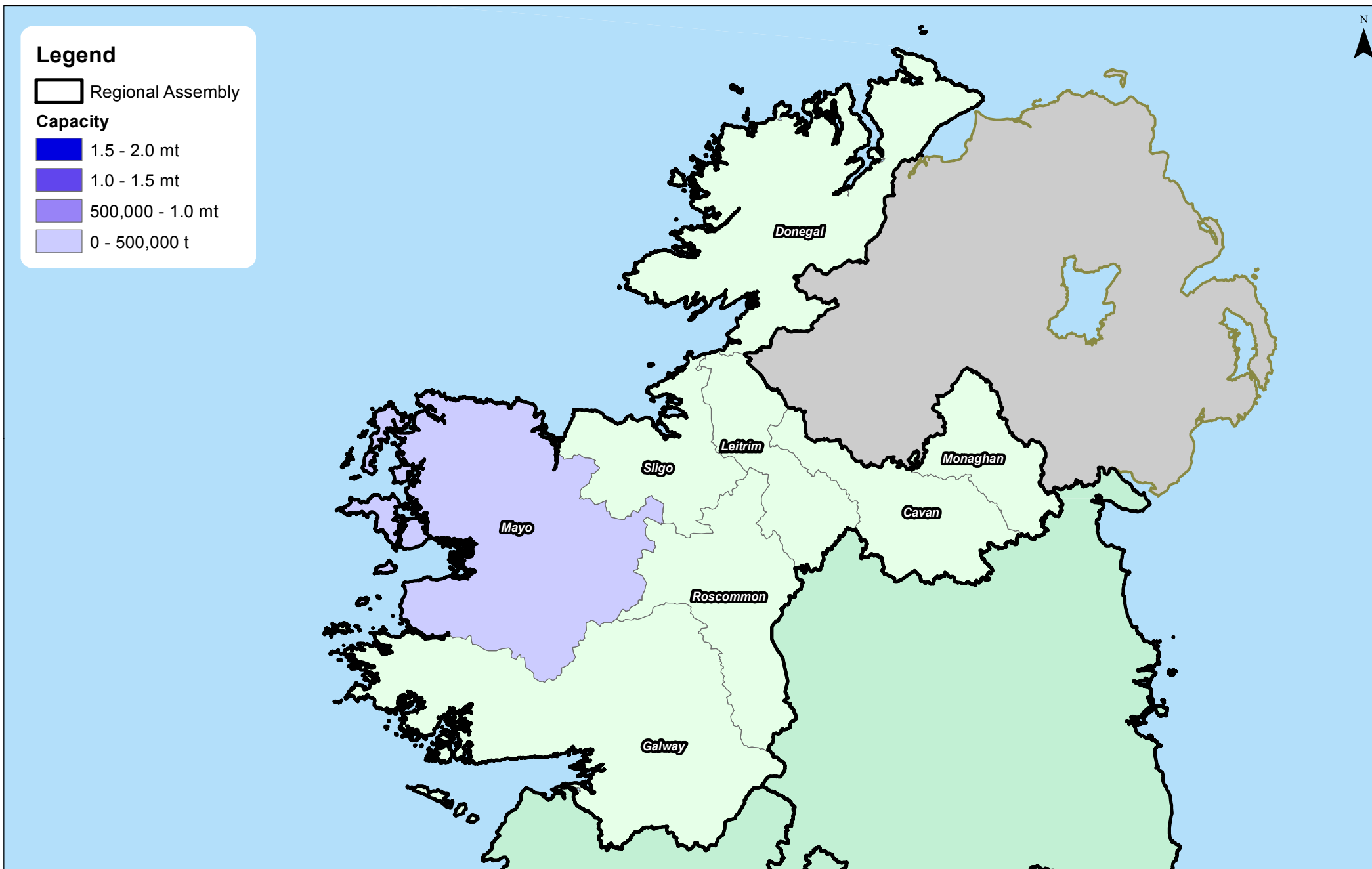


Figure 3-3 Capacity by Local Authority - Connacht & Ulster Region

Corranure Landfill in Cavan is licenced currently to accept soil and stone for remediation purposes. In 2015 the landfill accepted 41,030 tonnes of material for remediation which included aluminium sludge (190202). No details are provided on the breakdown of this material and to what portion is soil waste (170504).

Rathroeen Landfill has no remaining capacity closed recently. The requirement for soil wastes is limited.

The East Galway Landfill recently re-opened and will be active for 2 years. The site will have a need for soil waste during operations for daily cover and final capping. The site will provide an outlet for some soil waste materials during this period but the volumes accepted are not expected to be significant.

3.2 FACILITIES OPERATING UNDER WASTE FACILITY PERMIT

The Waste Management (Facility Permit and Registration) Regulations 2007/08 sets out the classes of activity requiring WFPs or CoRs. In the context of soil recovery facilities, WFPs are principally issued for one class of activity. Class 5 (Third Schedule, Part 1 of the Regulations¹⁹) is for the recovery of excavation or dredge spoil, through deposition, for the improvement or development of land, and allows for a maximum of 100,000 tonnes over the lifetime of the permit. For WFPs, as well as CoRs the capacity is typically a lifetime capacity, and when reached, the facility typically closes.

3.2.1 Eastern Midlands Region

A total of twenty six active permitted facilities have been identified, within the study area, mainly for class 5 activity, and a small percentage for class 6. Class 6 activities include the recovery of inert waste, other than excavation or dredge spoil (e.g. concrete, rubble, ceramics) for the improvement or development of land, and allows for a maximum of 50,000 tonnes over the lifetime of the permit.

The lifetime of a permit is typically five years and renewal dates are set five years from the date of issue. The renewal dates for the twenty six facilities range from 2015 to 2021, meaning that this existing group of facilities offer varying and diminishing capacities between now and 2021.

In terms of location, the facilities offer a reasonably good geographic spread across the study area although there is concentration of facilities in the areas surrounding Dublin. Unsurprisingly there are no facilities in the densely populated areas of Dublin City and Dun Laoghaire Rathdown County Councils. These facilities are collectively providing a total authorised capacity of over 1.8 million tonnes for the final recovery of soil and stone type wastes, refer to **Table 3-13**. This authorised on-paper capacity of the facilities in the study area and not the capacity available to the market. This is an important distinction which can lead to a misrepresentation of actual market capacity.

¹⁹ Waste Management (Facility Permit and Registration) Regulations 2007, S.I. No 821 of 2007 (as Amended)

Table 3-13 Capacity and Intake Data at Permitted Soil Recovery Sites

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Fingal County Council	1	24,000	No data	No data
South Dublin County Council	2	195,000	No data	41,000
Kildare County Council	3	209,000	30,759	No data
Laois County Council	1	30,000	1,780	No data
Longford County Council	1	70,000	No data	70,000
Louth County Council	2	200,000	29,179	33,234
Meath County Council	6	446,672	65,996	62,266
Offaly County Council	2	145,000	2,736	No data
Westmeath County Council	3	172,560	9,318	No data
Wicklow County Council	5	318,000	10,357	85,210
Total	26	1,810,232	150,125	291,710

The remaining capacity data reported by operators to the NWCPO is 291,710 tonnes. As **Table 3-14** shows 8 of the 26 operators in the study area responded to the query on remaining capacity as part of their annual return. The remaining 18 operators have not reported this information which is a requirement of their annual reporting obligations. For this reporting indicator the data available provides a 31% completion rate. Due to the incompleteness of the data the remaining capacity figure is assumed to represent an under-reporting of the true situation.

Table 3-14 Data Completion Rates for WFPs

Local Authority	No. of Facilities	Remaining Capacity Reported (No of Facilities)	Completion Rates %	Intake Data Reported (No of Facilities)	Completion Rates %
Fingal County Council	1	0	0	0	0
South Dublin County Council	2	2	100	0	0
Kildare County Council	3	0	0	2	66
Laois County Council	1	0	0	1	100
Longford County Council	1	1	100	0	0
Louth County Council	2	1	50	2	100
Meath County Council	6	2	33	4	66
Offaly County Council	2	0	0	1	50
Westmeath County Council	3	0	0	2	66
Wicklow County Council	5	2	40	2	40
Total	26	8	31	12	46

The reported waste intake tonnage at these facilities is approximately 150,000 tonnes which is the total for 12 of the 26 facilities, representing a 46% completion rate, see **Table 3-14**. No intake data for 2015 was reported or is available for the remaining 14 facilities.

A full set of data for 2015 intake, ideally validated, would inform this study of the capacity used in 2015 and the capacity which remains available. This would add valuable information into a complete market assessment and support accurate forecasting of the capacity requirements over the short to medium term.

From the facility data compiled and analysed the following findings of relevance have been observed:

- The authorised capacity is primarily for Class 5 activities with some facilities also having a class 6 activity (non-soil and stone) on their authorisation. From the available data it can be confirmed that only 4 of the 26 permit holders are also authorised for class 6 activity. The combined total authorised capacity for these two sites is 260,000 tonnes and it is not known to what extent this capacity is used for soil recovery activities. It is expected that the majority of that would still be given over to class 5 activity.
- Class 5 activity relates to excavation or dredge spoil and would be expected to include LoW codes 17 05 04 (C&D soil & stone), 20 02 02 (municipal soil & stone) and 17 05 06 (dredging spoil). 20 02 02 is listed for 2 of the 26 facilities, and 17 05 06 is listed under 2 of the 26 (different facilities in both cases). Class 5 activities are authorised at 24 out of 26 sites indicating that the primary source of materials accepted at these sites is from the construction sector.
- For 5 of the 26 facilities, the renewal date has passed and no date was reported for 2 of these sites. This is consistent with the expiration dates. However, 3 of the 5 sites, have reported a remaining capacity, totalling 90,116 tonnes. This reporting could be explained by continued activity of these facilities into early 2016. At the time of preparing the report these facilities may have ceased activity meaning that this remaining capacity would no longer be available to the market. Alternatively they may have been reviewed and further capacity is available to the market.
- One of the facilities in Kildare is a hurling club and is authorised for 9,000 tonnes, under class 5. It is not unusual for sporting clubs to obtain a waste authorisation to carry out improvement works on local lands and pitches. However an activity of this scale is better suited to a CoR authorisation. In the case of activities like this the site capacity is generally not open to the wider market.

3.2.2 Southern Region

A total of 72 active permitted facilities have been identified, within the study area, mainly for class 5 activity, and a small percentage for class 6. Almost 100% of the active facilities have been granted a permit with a lifetime of five years with renewal dates set five years from the date of issue. One permit within the region has been issued for a 2 year lifetime.

The renewal dates for the 72 facilities range from 2015 to 2021. The permits for approximately 33% of the 72 facilities will lapse or have already lapsed by the end of 2016 with 14% lapsing during 2015. **Table 3-15** provides a breakdown of when the waste facility permits for soil recovery facilities will lapse during the period 2015 – 2021.

Table 3-15: Number of permits due to lapse between 2015 and 2021

Year Permit is due to Lapse	No. of Facilities
2015	10
2016	14
2017	8
2018	4
2019	8
2020	20
2021	8
Total	72

To improve on the data analysis permits need to be standardised across LAs and the total authorised capacity for the life of the permit and annual authorised capacity should be identified in the permit. In addition the correct classes as per Regulations should be used and the principal class noted.

These facilities are collectively providing a total authorised capacity of 4,061,480 tonnes for the final recovery of C&D wastes in the Region, predominately soil and stone type waste (Error! Reference source not found.5). In terms of location, the facilities are concentrated in County Cork with 43% being located in this County. It is also important to note that only 6% of the facilities in region are serving the large urban centres of Limerick and Waterford (3% located in Limerick functional area and 3% in the Waterford functional area). No facilities are located within the Cork City Council functional area.

Table 3-16 Capacity and Intake Data at Permitted Soil Recovery Sites

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Carlow County Council	3	300,000	15,640	90,000
Clare County Council	5	228,500	56,306	23,500
Cork County Council	31	1,636,505	225,038	559,199
Kerry County Council	12	531,275	10,251	173,199
Kilkenny County Council	3	300,000	33,126	74,990
Limerick City & County	2	200,000	37,394	0
Tipperary County Council	5	344,200	16,863	68,150
Waterford City & County	3	65,500	0	0
Wexford County Council	8	455,500	87,025	35,155
Total	72	4,061,480	481,643	1,024,193

Of the total authorised capacity figure, it is estimated that the total remaining capacity is approximately 1,024,193 tonnes from the data available. County Cork has 55% of the remaining capacity for the Region. This is based on the remaining capacity data reported by operators to NWCPO up to the end of 2015.

A summary of the facilities active in the region by local authority area and the rate of reporting is provided in **Table 3-16**. This table shows that 29 of the 72 operators in the study area responded to the query on remaining capacity as part of their annual return, a 40% completion rate. The

remaining operators have not reported this information which is a requirement of their annual reporting obligations. Therefore the total remaining capacity reported for the Region is underestimated.

The data received shows that for 10 of the 72 facilities the renewal date of their permits passed in 2015 with an additional 14 renewal dates scheduled to pass by the end of 2016. Six of these facilities have reported a remaining capacity of 71,280 tonnes. This could be explained by the continued activity of these facilities into early 2016. These facilities may now be closed or their permits could be currently under review. Each LA should update the register on a regular basis in relation to permits that have expired or under review and inform the NWCPO. The reported waste intake tonnage at these facilities is approximately 104,377 tonnes. A full set of data for 2015 intake, ideally validated, would inform this study of the capacity utilised in 2015 and the capacity remaining.

Table 3-17 Data Completion Rates for WFPs

Local Authority	No. of Facilities	Remaining Capacity Reported (No of Facilities)	Completion Rates %	Intake Data Reported (No of Facilities)	Completion Rates %
Carlow County Council	3	1	33%	2	67%
Clare County Council	5	2	40%	3	60%
Cork County Council	31	14	45%	13	42%
Kerry County Council	12	5	42%	4	33%
Kilkenny County Council	3	1	33%	3	100%
Limerick City & County	2	0	0%	2	100%
Tipperary County Council	5	2	40%	3	60%
Waterford City & County	3	0	0%	0	0%
Wexford County Council	8	4	50%	3	38%

3.2.3 Connacht Ulster Region

A total of sixteen active permitted facilities have been identified, within the study area, mainly for class 5 activity, and a small percentage for class 6. The lifetime of a permit is typically five years and renewal dates are set five years from the date of issue. The renewal dates for the sixteen facilities range from 2016 to 2020, meaning that this existing group of facilities will offer diminishing capacities between now and 2020.

These facilities are collectively providing a total authorised capacity of 1,159,950 tonnes for the final recovery of C&D wastes in the Region, predominately soil and stone type waste (Error! Reference source not found.). In terms of location, the facilities are concentrated in County Mayo with 50% being located in this County. It is also important to identify that Counties Leitrim, Roscommon and Monaghan have no active permitted facilities for soil recovery activities.

Table 3-18 Capacity and Intake Data at Permitted Soil Recovery Sites in CUR

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Galway County Council	1	44,000	20,160	35,000
Galway City Council	1	44,250	No Data	0
Mayo County Council	8	676,700	4,151	258,871
Cavan County Council	2	75,000	247	43,000
Sligo County Council	2	130,000	6,642	11,815
Donegal County Council	2	190,000	No Data	190,000
Total	16	1,159,950	31,200	538,686

Of the total authorised capacity figure, it is estimated that the total remaining capacity is approximately 538,686 tonnes from the data available. County Mayo has 48% of the remaining capacity for the Region. This is based on the remaining capacity data reported by operators to NWCPO.

A summary of the facilities active in the region by local authority area and the rate of reporting is presented in **Table 3-18**. 11 of the 16 operators in the study area responded to the query on remaining capacity as part of their annual return, a 69% completion rate. The remaining five operators have not reported this information which is a requirement of their annual reporting obligations. The total remaining capacity reported for the Region is underestimated. It is also important to note that the remaining capacity data was valid at the end of the 2015. The capacity available in the market has reduced further with 10 months of filling completed in 2016.

Table 3-19 Data Completion Rates for WFPs in CUR

Local Authority	No. of Facilities	Remaining Capacity Reported (No of Facilities)	Completion Rates %	Intake Data Reported (No of Facilities)	Completion Rates %
Galway County Council	1	1	100%	1	100%
Galway City Council	1	0	0%	0	0%
Mayo County Council	8	4	50%	4	50%
Cavan County Council	2	2	100%	1	50%
Sligo County Council	2	2	100%	1	50%
Donegal County Council	2	2	100%	0	0%
Total	16	11	69%	7	44%

The data received shows that for four of the sixteen facilities the renewal date of their permits has passed. Three of the four, have reported a remaining capacity of 125,000 tonnes. This could be explained by the continued activity of these facilities into early 2016. These facilities may now be closed or their permits could be currently under review. Each LA should update the data register on a regular basis relating to expired permits or under review and inform the NWCPO.

The reported waste intake tonnage is approximately 31,200 tonnes which is the aggregated total for 7 of the 16 facilities. This represents a 44% completion rate. A full set of data for 2015 intake, ideally validated, would inform this study of the capacity utilised in 2015 and the capacity remaining.

3.3 FACILITIES OPERATING UNDER CERTIFICATES OF REGISTRATION

Facilities operating under Certificate of Registration authorisations cover smaller scale soil recovery activity, up to a maximum of 25,000 tonnes (Class 5, Third Schedule, Part II of the Regulations) and up to a maximum of 10,000 tonnes (Class 6). Similar to waste facility permits the capacity approved is a lifetime capacity, and when reached, the facility must close.

3.3.1 Eastern Midlands Region

The National Waste Collection Permit Office operated website²⁰ lists 31 facilities as operating under certificates of registration within the EMR, and as being authorised to accept LoW code 170504. The authorised classes of activity at these sites are described in **Table 3-19**.

Table 3-20 Authorised CoR Classes of Activities in EMR

Authorised Activity Classes	No of Facilities
Class 5 only	21
Class 5 and 6	4
Class 5 and 7	2
Class 6 only	2
Class 7 only	1
Unknown	1
Total	31

In terms of location, 55% of the sites are located in three local authorities, Longford County Council, Louth County Council and Wicklow County Council. Laois and Offaly each have 4 sites. The lowest numbers are in Meath (3), Kildare (2) and Westmeath (1).

The reported data for the 31 facilities collectively provides a total authorised capacity of 548,500 tonnes for the final recovery of soil and stone wastes. A total of 84,914 tonnes of remaining capacity was reported at these facilities, see **Table 3-20**.

Table 3-21 Facilities Authorised by Certificates of Registration per Local Authority Area

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Kildare County Council	2	50,000	4,888	1,500
Laois County Council	4	58,000	12,997	20,184
Longford County Council	6	52,000	1,276	700
Louth County Council	5	125,000	No data	No data

²⁰ <http://facilityregister.nwcpc.ie/details.aspx>

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Meath County Council	3	41,000	5,670	25,500
Offaly County Council	4	95,000	1,470	23,530
Westmeath County Council	1	25,000	No data	No data
Wicklow County Council	6	102,500	10,459	13,500

However it is important to note that only 10 facilities provided information on remaining capacity and of those 10 respondents 6 of the CoRs are now out of date. Therefore the total remaining capacity for the Region is underestimated. The reported waste intake tonnage at these facilities is approximately 36,760 tonnes which is the total for 10 of the 31 facilities.

Table 3-22 Data Completion Rates for CoRs in EMR

Local Authority	No. of Facilities	Remaining Capacity Reported (No of Facilities)	Completion Rates %	Intake Data Reported (No of Facilities)	Completion Rates %
Kildare County Council	2	1	50	2	100
Laois County Council	4	2	50	2	50
Longford County Council	6	2	33	1	17
Louth County Council	6	0	0	0	0
Meath County Council	3	2	66	1	33
Offaly County Council	4	1	25	1	25
Westmeath County Council	1	0	0	0	0
Wicklow County Council	6	2	33	2	33

From the analysis the following observations are made:

- The total authorised capacity figure must be measured against the capacity that is already used, in order to understand the current available capacity within the market. Only 10 of the 31 CoR facilities reported remaining capacity data. Combined this data totalled 84,914 tonnes.
- For 12 of the 31 facilities the renewal date has passed and 6 of those 12 reported a remaining capacity which amounts to 48,684 tonnes. This could be explained by the continued activity of these facilities into early 2016. These facilities may now be closed or their permits could be currently under review.
- Not all facilities listed are open to the market as merchant facilities. Some of the facilities may have been opened to support a particular operator e.g. the Ready Mixed Concrete (Ireland) Ltd CoR facility in Louth or to suit a particular local project, e.g. GAA and horse racing clubs who have obtained an authorisation simply require an area of land filled and improved. These facilities are unlikely to provide any meaningful capacity to the construction industry.
- The CoR capacity is shared to a small degree with facilities also authorised for class 6 activity (non-soil and stone). Four of the certificates of registration holders are also authorised for class 6 activity although the extent of which this impacts on the capacity to accept 17 05 04

material is not clear. The combined total authorised capacity for these four sites is 57,000 tonnes, and it is expected that the majority of that would still be given over to class 5 activity.

- Of the CoR facilities listed, 1 will expire in 2021, 4 in 2020, 3 will expire in 2019 and 2018 respectively, 6 in 2017 and 2 will expire in the remainder of 2016. Twelve facilities have passed their anticipated 'renewal date', and it is assumed that these facilities have ceased operations. This illustrates the temporary nature of these facilities. Sites fill up and authorisations cease at the end of their lifespan or before with facilities closing. There is a corresponding requirement for new facilities to come online.
- The quality of the CoR data is mixed, as evidenced for example by rounding of numbers for input data, incomplete and non-validated data, and the listing of facilities that are past their renewal dates. There are inconsistencies with the way in which the CoR activities are authorised by the various Local Authorities.
- Similar to waste facility permit data, the CoR remaining capacity and intake data is not readily available.
- There are no facilities authorised in the four Dublin Local Authorities Functional areas.

3.3.2 Southern Region

The National Waste Collection Permit Office operated website²¹ lists 76 facilities as operating under certificates of registration in the SR, and as being authorised to accept LoW code 170504. The authorised classes of activity at these sites are described in **Table 3-22**.

Table 3-23 Authorised CoR Activity Classes in SR

Authorised Activity Classes	No of Facilities
Class 5 only	41
Class 5 and 6	17
Class 5 and 7	3
Class 6 only	2
Class 7 only	1
Unknown	12
Total	76

In terms of location, 52% of the sites are located in three local authorities, Clare County Council, Cork County Council and Waterford City and County. Limerick, Kerry and Wexford each have between 8 and 9 sites. The lowest numbers are in Tipperary (6), Kilkenny (3), Carlow (1) and Cork City(0).

The reported data for the 76 facilities is collectively providing a total authorised capacity of 1,426,048 tonnes for the final recovery of predominantly soil and stone wastes. A total of 230,643 tonnes of remaining capacity was reported at these facilities, see **Table 3-23**.

²¹ <http://facilityregister.nwcpo.ie/details.aspx>

Table 3-24 Facilities Authorised by Certificates of Registration per Local Authority Area

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Carlow County Council	1	24,000	No data	No data
Clare County Council	14	350,000	12,650	35,500
Cork County Council	15	194,860	23,230	50,633
Kerry County Council	9	178,800	9,704	68,800
Kilkenny County Council	3	55,000	3,000	26,400
Limerick City & County	9	187,412	24,663	11,222
Tipperary County Council	6	72,971	No data	15,120
Waterford City & County	11	228,700	25,704	18,000
Wexford County Council	8	134,305	31,147	4,968

However it is important to note that only 21 facilities provided information on remaining capacity and of those 21 respondents 3 of the CoR's are now out of date. Therefore the total remaining capacity for the Region is underestimated. The reported waste intake tonnage at these facilities is approximately 130,098 tonnes which is the total for 25 of the 76 facilities that provided information on input tonnage.

Table 3-25 Data Completion Rates for CoRs

Local Authority	No. of Facilities	Remaining Capacity Reported (No of Facilities)	Completion Rates %	Intake Data Reported (No of Facilities)	Completion Rates %
Carlow County Council	1	0	0	0	0
Clare County Council	14	2	14	2	14
Cork County Council	15	4	27	9	60
Cork City Council	0	0	0	0	0
Kerry County Council	9	5	56	3	33
Kilkenny County Council	3	2	66	1	33
Limerick City & County	9	2	22	2	22
Tipperary County Council	6	1	17	0	0
Waterford City & County	11	2	18	3	27
Wexford County Council	8	3	37.5	5	62.5

From the analysis the following observations are made:

- The total authorised capacity figure must be measured against the capacity that is already used, in order to understand the current available capacity within the market. Only 21 of the 76 CoR facilities reported remaining capacity data. Combined this data totalled 230,643 tonnes.
- For 13 of the 76 facilities the renewal date has passed and 3 of those 13 reported a remaining capacity which amounts to 19,800 tonnes. This could be explained by the

continued activity of these facilities into early 2016. These facilities may now be closed or their permits could be currently under review.

- Not all facilities listed are open to the market as merchant facilities. Some of the facilities may have been opened to support a particular operator or to suit a particular local project, and an authorisation has been obtained to allow relatively small area of land to be improved. These facilities are unlikely to provide any meaningful capacity to the construction industry.
- The CoR capacity is shared to a small degree with facilities also authorised for class 6 activity (non-soil and stone). Seventeen of the CoR holders are also authorised for class 6 activity although the extent of which this impacts on the capacity to accept 17 05 04 material is not clear. The combined total authorised capacity for these seventeen sites is 314,516 tonnes, and it is expected that the majority of that would still be given over to class 5 activity.
- Of the CoR facilities listed, 9 will expire in 2021, 16 in 2020, 14 in 2019, 5 in 2018, 9 in 2017 and 5 will expire in the remainder of 2016. The expiry dates of 5 facilities were not available and are therefore unknown for the purposes of this report. Thirteen facilities have passed their anticipated 'renewal date', and it is assumed that these facilities have ceased operations. This illustrates the temporary nature of these facilities and the on-going requirement for new facilities to come online.
- The quality of the CoR data is mixed, as evidenced for example by rounding of numbers for input data, incomplete and non-validated data, and the listing of facilities that are past their renewal dates and there are inconsistencies with the way in which the CoR activities are authorised by the various Local Authorities.
- Similar to waste facility permit data, the CoR remaining capacity and intake data is not readily available.
- There are no facilities authorised in the Cork City functional area.

3.3.3 Connacht Ulster Region

The National Waste Collection Permit Office operated website lists seventy six facilities operating under certificates of registration within the CUR, and as being authorised to accept LoW code 170504.

In terms of location, 59% of the sites are located in Counties Mayo and Galway. It should be noted that Counties Roscommon, Sligo and Leitrim have a very small number of CoRs by comparison.

Seventy two of these facilities are authorised for class 5 activity, and thirty four of this seventy one are also authorised for class 6 (Third Schedule Part 2 of the Regulations). Three facilities did not have copies of their certificates of registration available on the website, so their classes of activity could not be determined. One facility is authorised for Class 6 only (LoW code 170504 only).

The reported data for seventy five facilities are collectively providing a total authorised capacity of 1,713,601 tonnes for the final treatment / recovery of C&D wastes, predominantly soil and stone type waste (**Table 3-26**). However this capacity is not all available to the market. Analysing reported data, an estimated 242,000 tonnes of capacity remained at these facilities at the end of 2015 with 76% of the remaining capacity residing in Counties Mayo and Galway.

Table 3-26 Facilities Authorised by CoR per Local Authority Area for CUR

Local Authority	No. of Facilities	Total Authorised Capacity (tonnes)	Total Intake 2015 (tonnes)	Total Remaining Capacity (tonnes)
Galway County Council	19	454,326	5,213	77,014
Galway City Council	1	25,000	No Data	No Data
Mayo County Council	25	553,000	9,967	107,261
Cavan County Council	10	192,000	25,300	27,360
Sligo County Council	2	62,000	2,141	5,500
Donegal County Council	8	175,375	No Data	6,000
Leitrim County Council	1	18,000	No Data	No Data
Monaghan County Council	7	175,000	960	1,200
Roscommon County Council	3	58,900	7,351	17,649
Total	76	1,713,601	50,932	241,984

Table 3-27 shows 18 of the 76 operators in the study area responded to the query on remaining capacity as part of their annual return. The remaining operators have not reported this information which is a requirement of their annual reporting obligations. For this indicator the reported data represents a 24% completion rate. The total remaining capacity reported for the Region is underestimated and the actual available capacity unknown. The reported waste intake tonnage at these facilities is approximately 50,932 tonnes which is the total for 11 of the 76 facilities or in other words at 14% completion rate.

Table 3-27 Data Completion Rates for CoRs in CUR

Local Authority	No. of Facilities	Remaining Capacity Reported (No of Facilities)	Completion Rates %	Intake Data Reported (No of Facilities)	Completion Rates %
Galway County Council	19	4	21%	1	5%
Galway City Council	1	0	0%	0	0%
Mayo County Council	25	8	32%	3	12%
Cavan County Council	10	2	20%	3	30%
Sligo County Council	2	1	50%	1	50%
Donegal County Council	8	1	13%	0	0%
Leitrim County Council	1	0	0%	0	0%
Monaghan County Council	7	1	17%	2	33%
Roscommon County Council	3	1	33%	1	33%
Total	76	18	24%	11	14%

From the analysis the following observations are made:

- The total authorised capacity figure must be measured against the capacity that is already used, in order to understand the current available capacity within the market. Only 24% of remaining capacity has been reported.
- For twenty four of the seventy six facilities the renewal date has passed and seven have reported a remaining capacity which amounts to 98,414 tonnes. This could be explained by the continued activity of these facilities into early 2016. These facilities may now be closed or their permits could be currently under review. Each LA should update the register on a regular basis in relation to CoRs that have expired or are under review and inform the NWCPO.
- Not all facilities listed are open to the market as some of sites have been authorised to support a particular operator or to suit a particular local project e.g. M17/M18 Gort to Tuam Motorway, GAA clubs, soccer clubs, golf clubs, schools, community developments and harbour operations.
- The renewal dates for these facilities range from 2014 to 2021, meaning that this existing group of facilities will offer diminishing capacities between now and 2021

3.4 MARKET ANALYSIS FINDINGS

This section summarises the detailed analysis of the soil recovery facilities as outlined in **Sections 3.1 to 3.3**. The overall findings feed into the final report conclusions in **Section 6**.

The quality of the data available for waste licensed facilities in the study area is robust and reliable and facilitated a detailed analysis of the soil waste capacities, intake and lifespan of these sites.

The quality of the data for permitted facilities is of mixed quality and there are significant gaps with respect to the remaining capacity and the waste intake reported. Reporting data in the first instance operators of these facilities is inconsistent and cannot be relied upon fully as part of the market analysis. There is currently limited availability of data publicly, particularly and fundamentally AER data, which is crucial to conducting an exercise such as this. This makes obtaining data and market reviews difficult, slow and cumbersome. Furthermore, the data has not been validated resulting in a lower level of confidence and margins of error.

The capacity on offer to the market from the CoR sites has a number of constraints associated with it. The gross annual capacity offered is relatively limited as each facility is limited to an annual intake of 25,000 tonnes per annum (Class 5) and several of the facilities reviewed are not even authorised to this level. CoR facilities tend to have a relatively limited lifetime and are authorised for a maximum of 5 years. Similar to the waste facility permit data, the quality of the data is mixed with significant gaps with respect to the remaining capacity and the waste intake reported. The comments already made in the waste facility permit section in this regard apply equally to CoR data.

3.4.1 Eastern Midlands Region

There are a total of 64 active authorisations in region for soil and stone recovery as follows:

- Five active soil recovery licenced facilities with two additional facilities due to come on stream shortly; three landfills are actively accepting soil and stone in the Region;
- Twenty six registered permitted facilities; and

- Thirty one registered authorisations with CoRs;

The region appears to have a reasonable balance in the make-up of facilities. In terms of location the highest capacities are concentrated in local authority areas adjacent to Dublin City and environs. There are 5 local authority areas outside of the GDA which has no licensed capacity.

The data shows that licensed capacities are the most significant in terms of available capacity serving the region. The current market capacity is nearly 2.5 million tonnes per annum. However the capacity status is fluid. The current pressures in the waste capacity market are likely to lead to new facility applications and potentially changes to existing licences. There are also four licences at the application stage being processed under the waste licencing system. There is a need to update waste licence data annually to ensure the latest information is available.

The analysis of the data shows that waste licence sites are of the scale of capacity required by the market. Nine out of twelve sites have annual authorised capacity of 300,000 tonnes or more with two facilities authorised to accept over 700,000 tonnes of soil wastes each year. These large scale facilities offer certainty to market operators in terms of price and outlet security. A healthy supply of licence capacity for soil wastes is required to support the expected growth in construction activities in the region long-term.

The availability of permitted and registered capacities in the region is small by comparison. The rate of return of data by operators has resulted in an under-reporting of these available capacities. The geographical spread of these sites in the region is more consistent. However a number of local authorities have very low levels of permitted capacity and are reliant on registered facilities. These include Longford, Louth, Laois and Offaly.

In summary the available capacity in the region is almost 2.9million tonnes. However over 90% of this is concentrated in the Greater Dublin Area. This outcome is unsurprising as it is the centre of construction activity in the region. In other local authorities capacity supply is at low levels and needs monitoring. Improved co-ordination between local authorities on the supply of facilities locally and regionally is needed.

3.4.2 Southern Region

There are a total of 149 active authorisations in region for soil and stone recovery as follows:

- One active soil recovery licenced facility, two authorised facilities which are not active (future activity at one of these sites is not certain);
- Seventy two permitted facilities; and
- Seventy six registered facilities;

The active licensed facility is located in Kilkenny close to the border with Waterford. A site in Cork has recently been authorised by the EPA and activities are expected to commence in 2017. With the exception of these operations there are no other active licensed site which is a concern considering construction activity is increasing, particularly in the urban centres of Cork of Limerick. The permitted facilities are concentrated in County Cork with 43% of the total in the region located in this county. The other large urban centres of Limerick and Waterford are not as well served with only 7% of the permitted facilities in these areas. Of the remaining counties, Kerry is particularly

well served with 17% of the total number of facilities. All other counties have active sites. There is a reasonably spread of CoR sites in the region.

The total available capacity in the region at the start of 2016 was an estimated 1.37 million tonnes. Of this only 120,000 tonnes (9%) was licensed capacity. The supply of capacity is primarily driven by the permitted sites (75% of the total). The bulk of the permitted capacity (55%) is in Cork although there is no active licensed capacity. The low levels of capacity serving Limerick are notable. If construction activity begins to grow, as anticipated, a shortage in capacity will be experienced in these areas.

3.4.3 Connacht Ulster Region

There are a total of ninety five active authorisations in CUR for soil and stone recovery as follows:

- One dedicated soil recovery licenced facility and two landfills accepting soil and stone in the Region;
- Sixteen permitted facilities, and
- Seventy six registered authorisations with CoRs.

The region appears to be over-reliant on CoR facilities for the recovery of soil. In terms of location, the facilities are concentrated in County Mayo with 36% being located in this County. Other counties such as Leitrim, Roscommon have no authorised WFP facilities and only 4 authorised CoRs.

In a region with such a large land mass it would be preferable to have a balance of facilities in the region. Construction activity is low in parts of the region, reflected by the low level of capacity supply.

The available data shows a total remaining capacity of over 940,000 tonnes from the start of 2016 for all the facilities in the Region. However almost 527,000 (56%) of the total remaining capacity is located in Mayo. There is an imbalance of capacity supply in the region at present. This figure is underestimated as a 32% of operators completed the data requested.

The available data suggests that there is sufficient capacity across the Region as a whole however it is concentrated in particular areas i.e. Mayo. Greater co-ordination is required between the local authorities in the Region to ensure balanced development of future authorisations that serves local and regional needs. There is a large quantity of CoR sites within the Region and even though these serve a purpose they have a limited scope. These sites are best suited for small scale local remediation/restoration projects.

4 FORECASTS

Predicting waste growth is a challenging exercise. There are many factors which influence the generation of waste. In this section soil waste projections have been estimated to allow analysis of future capacity needs over the short to medium term.

4.1 Growth Factors and Drivers

The National Waste Collection Permit Office provided data on soil and stone materials and on construction and demolition waste collected nationally. This data is presented in **Table 4-1**.

Table 4-1 Soil and Stone Wastes Collected 2012-2015

	2012	2013	2014	2015
National Soil Stone	2,254,000	2,020,000	2,860,000	3,500,000

As demonstrated in **Table 4-1**, the scale of growth (55%) in collected soil waste over the period 2012 to 2015 has been significant. Increased construction activity has led to a rise in construction waste with economic growth, government policy, and the type of construction activity all influencing the scale of waste generated.

In the absence of an accepted primary driver it has been assumed the increases in construction related wastes, including soils, are linearly correlated with the Total Construction Output factors. This annual indicator records the economic value of construction related output in the economy. The data shown in Table 4.2 was reported in the 81st Euroconstruct report²². This annual report records previous output as well as projecting the predicted rate of change to 2018.

Table 4-2 Total Construction Output to 2015 and projections to 2018 (% change in real terms)

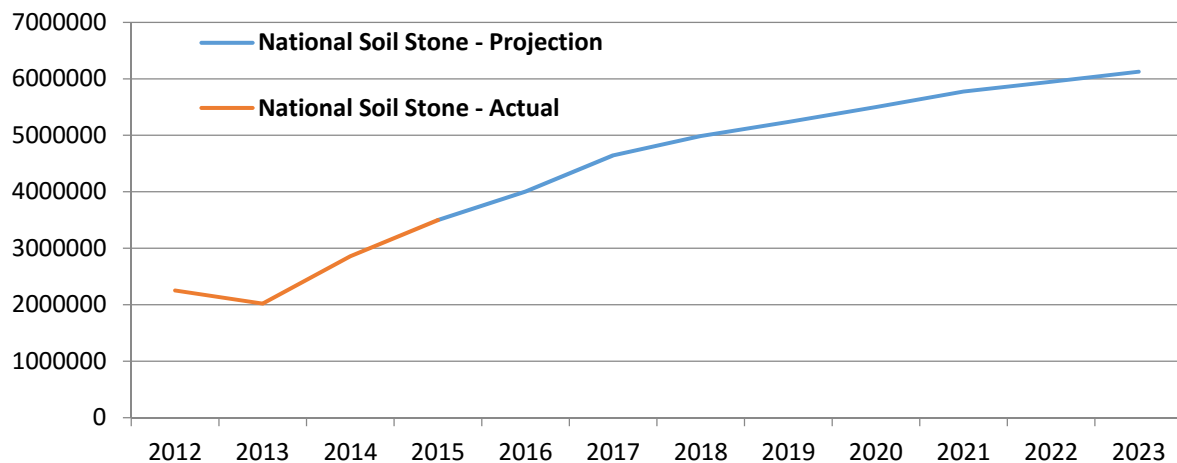
	2012	2013	2014	2015	2016 Forecast	2017 Forecast	2018 outlook
Ireland	-14.1%	2.5%	9.2%	4.8%	14.4%	16.0%	7.4%

In order to project beyond 2018, the following growth factors were applied:

- 5% per annum from 2019 – 2021
- 3% per annum from 2022 – 2023

Combining the known collected waste values and growth projections allows a forecast of collected waste as presented in **Figure 4-1**. The absence of regional growth factors for construction activity doesn't allow for regional forecasts.

²² Table 2 of 81st Euroconstruct Summary Tables (2016)

Figure 4-1 Recorded and Projected National Soil and Stone Waste Quantities

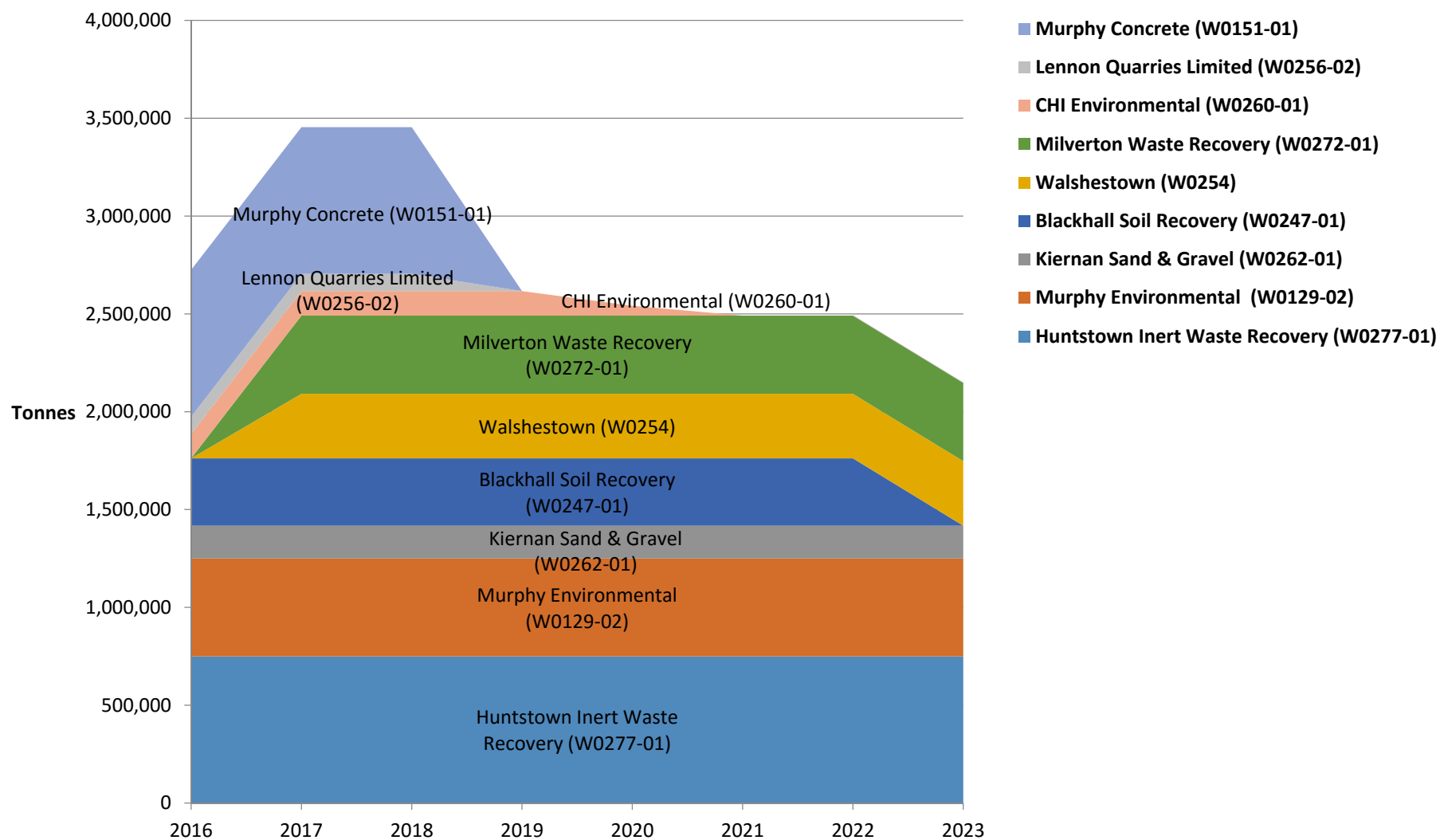
4.2 FORECASTS - CAPACITY

Data published for soil and stone waste facilities operating under waste licence issued is made available by the EPA. Using this data, a forecast of the annual available capacities to 2023 has been prepared using the following assumptions;

- The forecasts assume the annual authorised capacity is available to the market. The rate of intake will vary from year to year which can extend the lifetime of the site. The expected closure dates applied were verified from site reports and applied.
- All active soil and stone waste management facilities with a waste licence authorisation, have been included in the forecasts;
- Two authorised facilities, Milverton (W0272-01) and Walshestown (W0254-01), are forecast to become available in 2017.
- Facilities at waste licence application stage have been excluded as their future operation is not yet certain. This category includes:
 - Clashford Recovery Facility LTD (W0265-01);
 - Mallow Contracts Limited (W0266-01);
 - Mullaghcrone Quarry (W0278-01);
 - Calary Quarry (W0293-01); and
 - N&C Enterprises Limited (W0292-01);
- The licensed Roadstone facility in Wexford (W0280-01) future is uncertain and no opening date is planned has been excluded.
- The Fassaroe Soil facility (W0269-01) has been excluded as it is no longer actively available to the market.
- Landfills have been excluded as they contribute only small capacity annually.
- Facilities operating under certificates of registration and waste facility permits have not been included as the remaining capacity and lifetime data is presently unreliable. The available capacity to the market from these facilities is currently small.

Figure 4-2 presents the capacity forecasts. The figure illustrates the scale of capacity at each facility and the capacities offered at individual sites to the market. This situation needs to be kept under review as the granting of authorisations for new facilities will change the profile of the capacity forecast.

Figure 4-2 Waste Licensed Capacity Forecast



The data shows that licensed capacity will peak in 2017 - 2018. A drop in capacity is expected from 2019 with the expected closure of the Murphy Concrete facility (W0151-01) in North Dublin (750ktpa). From 2019 to 2022 the available capacity remains stable with a further drop anticipated in 2023 with the expected closure of the Blackhall and Fassaroe facilities.

4.3 CAPACITY GAP PROJECTION

Combining the soil waste and capacity projections generated in **Sections 4.1** and **4.2** provides an illustrated projection of the likely capacity shortfall. This data is provided in **Table 4-3**
Reference source not found..

Table 4-3 Anticipated shortfall in capacity for soil and stones in GDA

	2016	2017	2018	2019	2020	2021	2022	2023
Shortfall	1,279,600	1,200,000	1,533,000	2,621,000	2,958,000	3,283,000	3,456,000	3,979,000

In **Figure 4-3** the soil waste and capacity projections are presented together showing a large capacity shortfall from 2019 onwards.

The capacity gap shown is incomplete as it does not take into account permitted and registered capacities; landfills; waste licence facilities at application stage.

However if the projected volumes of waste materialise as predicted, new facilities or increases in the annual authorised limited at existing large sites will be required to ensure that capacity supply meets demand over the medium term.

Planning applications for soil recovery capacities at locations in the SR and EMR have been lodged and if authorised may increase the available annual capacity by 2 million tonnes.

The uncertainty lies in when these capacities will become available as the preparation of a high quality application is lengthy and processing timelines with the Agency can be uncertain.

Figure 4-4 shows the scale of the predicted shortfall in capacity which shows a significant increase from 2019.

In 2017 and 2018 there is a capacity gap of 1.2 and 1.5 million tonnes respectively. From 2019 onwards this gap widens with the closure of the Murphy's facility in North Dublin which removes over 700,000 of capacity per annum from the market.

By 2023 the capacity gap is estimated to be 3.98 million tonnes, noting all of the assumptions and conditions applied to the modelling as previously identified.

This predicted shortfall will reduce as new facilities and capacities come on stream.

The predicted capacity shortfall clearly has the potential to be a significant constraint for market operators and construction activities in the regions in future years.

An annual updates of the forecasting model is recommended so as to track the impact of capacity developments in the market, see recommendation number 7.

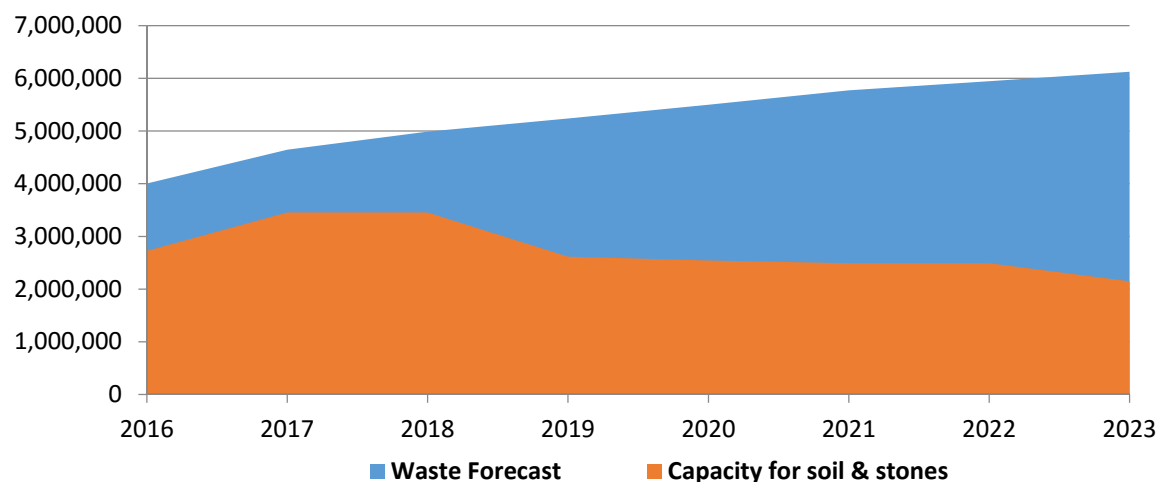


Figure 4-3 Soil Recovery Capacity National Shortfall

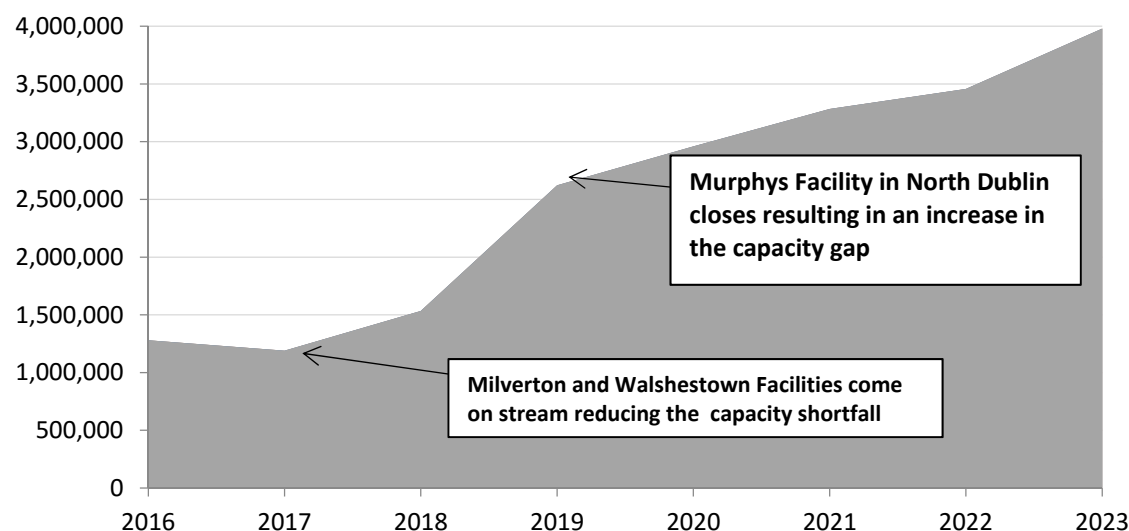


Figure 4-4 Capacity Shortfall Profile

5 ALTERNATIVES

Apart from the provision of new facilities there may be other options for the management of soil and stone wastes. These options are discussed in the following sections of this report.

5.1 EXTENDING CAPACITIES AT EXISTING SITES

As previously identified increasing existing capacity limits at existing soil or C&D waste recovery facilities could provide a solution to the current shortfall in the market. An existing waste licenced facilities with capacity to expand, or with a readiness to increase their annual limit, could choose to apply for an extension to their existing licenced capacity. This would require some capital expenditure on their part to extend the infrastructure as well as an appetite to partake in the regulatory process.

In a 2014 publication, Guidance for Licensees on Requests for Alterations to the installation/facility, the EPA set out the options available to licensees who wish to alter existing licence conditions. This includes increasing the annual tonnage intake at the facility. The document sets out whether a proposed change to a licence requires either a technical amendment, or a review of a waste licence. The guidance indicates that a change to the annual intake tonnage would trigger the latter.

A licence review is a more rigorous process and takes considerably longer as it involves a similar level of scrutiny to that of a full licence application. The EPA confirmed that there is no means to shortcut this process; a proposal to alter the annual tonnage limit at a facility would require a licence review.

A potential restriction to this process could be the planning condition with respect to the consented capacity of a site. For example if the original capacity set under planning has been reached, planning permission would need to be sought to increase the annual intake tonnage further, involving a new planning application.

Similarly permitted facilities could choose to apply for a licence, if the site was suitable and had the capacity to expand. Facilities which were previously permitted, such as Behans Quarry (Kildare) Cystalhill Inn (Kilkenny) have obtained or have applied for a waste licence authorisation.

5.2 ARTICLE 27 BY-PRODUCT NOTIFICATIONS

By-product notifications (under Article 27 of the EC Waste Directive Regulations 2011) provide an opportunity for reuse of surplus clean soil & stone material arising from construction activity. This applies to locations other than authorised recovery facilities e.g. quarries operating under planning permission, GAA clubs or other developments requiring earthworks and importation of clean soil & stone. This is an attractive option which can bring significant economic benefits since the transaction may be mutually beneficial. At the same time, the process facilitates beneficial re-use of existing secondary resources, which plays a role in Ireland's implementation of the Circular Economy.

There are a number of examples of surplus clean soil & stone from construction projects which have been successfully notified as by-product. Each individual case was carefully examined by the EPA, with a significant emphasis placed on the intended destination of the material, to ensure that the environment is adequately safeguarded long term.

However, it should be noted that achieving by-product status remains a complex process and it is only achievable in certain limited circumstances. By-product status means that the material is approved for use at a location that falls outside of the reach of waste legislation, and the question then remains, around the environmental conditions of the planning permission in question being robust enough to protect the environment. The implications of this were perhaps under estimated when Article 5 of the Waste Framework Directive 2008 was introduced.

Nevertheless, by-product status remains an option for discrete applications at local level. It should be noted that achieving by-product status is likely to be challenging, and this regulatory mechanism does not currently offer a meaningful contribution to the capacity issue.

5.3 ARTICLE 28 END-OF-WASTE

End-of-Waste is a status conferred on a waste that has undergone a recovery process, including recycling, where the waste has been deemed to comply with specific criteria in accordance with a specific set of conditions. Once end of waste status has been achieved, the material is no longer considered a waste, and waste legislation no longer applies. This should have the effect of adding value to the material which is now a product. Furthermore it should open up a wider market for reuse, thereby encouraging and improving recycling rates.

Currently there is no end of waste criteria under preparation by the European Commission for C&D type wastes. In the absence of end of waste criteria at community level Member States may decide on end of waste on a case by case basis. The EPA is the decision making authority for end of waste in Ireland. To date there have been no end of waste decisions under Article 28 in relation to C&D waste. There are a number of applications under consideration at present, and the EPA expects to make a decision on these in 2017.

It should be noted that end of waste status is quite different to by-product and can only be conferred on a waste that has exited a recycling or recovery process. The processing of the waste is a waste activity and requires waste authorisation. For example, a demolition contractor may generate waste concrete which is directed to an authorised waste facility where it is crushed and processed under specific conditions and ultimately meets specific end-of-waste criteria. Once the material successfully exists that process, it is then a product and no longer a waste and can be sold on as such.

End-of-waste will be expected to improve the recycling and beneficial reuse of C&D wastes other than soil & stones, but is not expected to offer a solution for surplus soil & stone arisings, which typically do not require processing.

6 CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study was to analyse the national market capacity available for soil and stone wastes. This involved reviewing collected data and intake and capacity data at facilities authorised to accept this waste stream.

6.1 CONCLUSIONS

The first and possibly most important conclusion is to confirm that the capacity available to recover soil and stone wastes is an issue in each region. The types of issues reflect the characteristics of the region, the growth of construction activities and the scale of soil waste being generated. The turnaround in the construction sector is concentrated in the urban centres and environs. This is most notable in the Greater Dublin Area which is experiencing strong construction activity compared to the rest of the country.

The latest collected soil waste data was reviewed for the study with figures sourced from the National Waste Collection Permit Office. The data shows strong growth in soil and stone wastes reflecting the rise in construction activities. The growth experienced in waste tonnage has been significant over the period 2013 to 2015 and illustrates how the growth of this stream is related to sector activities.

The type of soil recovery facilities serving the needs of each region vary. There is currently an over dependence on permitted and registered sites particularly in the Southern and Connacht Ulster Regions. Authorised licensed capacity is at very low levels in these regions. Recovery capacity shortfalls are being experienced particularly adjacent to the large urban centres where construction activity is growing. The capacity shortfall is particularly acute in the market serving the Dublin area.

It can be concluded that the change in waste arisings from construction activities has been abrupt and the excess capacity reported at the time of the regional waste plans has been eroded. The market analysis completed for the regional waste plans is time stamped by the data and the findings reflect the situation at the time. The turnaround since has gone largely unreported. The absence of data reporting on this waste stream since 2012 has resulted in minimal monitoring of capacities and potential shortfalls. Without consistent information policy makers and regulators are reliant on anecdotal evidence from the market and historical data which does not accurately reflect the existing situation. This lack of regular reporting needs addressing so future market changes can be tracked and similar capacity situations avoided.

From the analysis of the different types of authorisations it can be concluded that waste facility permits and CoRs capacities are available at low volumes to the market but are not considered long-term solutions. This is particularly the case for high volume and large-scale construction activity areas which generate considerable quantities of wastes. These areas require secure and long-term capacity outlets. Sites authorised under the waste facility permit and certificate of registration systems are limited by regulation to a relatively small tonnage (100,000 and 25,000 tonnes respectively) over the lifetime of the facility (maximum 5 years). These facilities remain part of the capacity landscape but their ability to address capacity issues is limited. It is concluded that these types of site are more suited to serving the needs of construction activities at a local level, in areas or counties where construction activities are moderate compared to large urban centres. These

facilities are not suited to serving the long-term needs of construction activities in high density urban and suburban areas with growing populations and commercial activities.

It is concluded from the analysis that the preferred solution for providing secure and longer term outlets for soil waste recovery. Under the current system this can only be achieved through the waste licensing system. The lack of a consistent supply of licensed capacity across the regions is an issue. Alternative solutions are needed for areas which cannot support the investments required to develop these sites.

Secure and long term sites for soil recovery facilities are preferred. Locations which offer these benefits include exhausted quarries or pits. Many existing licensed sites are sited at such locations. This approach is favoured by the regional waste management plan with policy preference for large central sites which require restoration through the placement of clean soil returning the site back to its original profile.

It is noticeable that there appears to be a lack of new licensed capacities coming on-stream in the regions despite market need. Consultation with soil and stone operators indicates that barriers to the development of new licensed facilities include higher operational costs and regulatory obligations associated with these sites. In addition establishing a permitted site is viewed as being a more viable opportunity. Such sites are less onerous both financially and operationally and are often not subject to the same level of enforcement or quality controls of intake materials. The inconsistent approach governing the control and acceptance of intake materials at permitted sites needs attention to ensure enforcement of all soil and stone operators in the market is fair and consistent.

A modelling exercise completed as part of the study assessed authorised and active licensed capacity with predicted waste growth. The forecast showed that by 2023 a national shortfall of up to 4 million tonnes exists assuming new facilities are not developed. The capacity situation is fluid with additional licensed capacity expected to be available in the market over the next 5 years. However planning and licensing consents are required for all new facilities making the outcome and completion of these processes uncertain.

Based on the extensive review of waste and capacity data available it can be concluded that there is a lack of licensed capacity nationally and in particular the Greater Dublin Area to meet current and forecasted growth. There is a clear need to bring additional capacity on stream to alleviate the current shortfall as well as providing security over the medium to long-term. The failure to do so will likely lead to increased costs along the waste supply chain and may also lead to an increase in unauthorised activities such as illegal dumping.

6.2 RECOMMENDATIONS

Based on the analysis and conclusions of this study the following recommendations are proposed to address the soil waste capacity issues in the market.

1. It is recommended that an understanding and awareness of the issues in the market relating to the management of soil and stone wastes is communicated to all local authorities. It is recommended that the Regional Waste Management Offices co-ordinate a meeting of all local authorities in their region to ensure the findings of the market update are disseminated. Critical items for communication include the capacity issue and the potential

impacts from the continued shortfall from an environmental perspective. The local authorities are responsible for reviewing and issuing soil recovery waste permit and COR authorisations and it is essential that all local authorities are fully aware of the waste issue.

2. It is recommended that regional waste management offices engage with the planning and licensing authorities and with the stakeholders from the waste and construction industry to discuss capacity, enforcement and regulatory issues.
3. It is recommended that the regional waste management offices ensure the relevant policies of the regional waste plans are implemented. Co-ordination of future authorisations for soil recovery facilities in the regions is required to facilitate balanced development while serving local and regional needs;
4. It is recommended that the authorisations issued by local authorities for soil recovery facilities are standardised nationally to ensure there are consistent conditions relating to the operation of sites and the acceptance of wastes. Permits and CoRs need to be standardised across LAs and the total authorised lifetime capacity identified. In addition the correct classes as per Regulations should be used and the principal class noted on the authorisation. It is also important for the regional waste management office to discuss with the EPA conditions related to the acceptance of materials at such sites so as to ensure there are consistencies with licensed facilities.
5. Its recommended enforcement carried out by local authorities at soil recovery permitted and registered sites is undertaken in line with the National Priorities in 2017 to determine the level of monitoring at these facilities. There needs to be greater consistency in the level of enforcement data reporting at these facilities.
6. It is recommended that there is full engagement with the National Waste Collection Permit Office on the issue of waste reporting. The completion of accurate market analysis is dependent on robust datasets and the new online system should be supported by updating waste facility permit conditions to include a statutory requirement to use the new system. It is imperative that local authorities engage with facility operators to ensure accurate annual returns.
7. It is recommended that an annual update of available market capacity data for soil wastes is completed to enable the Waste Regions to understand the current capacity status and allow engagement with central and local government, EPA and other key stakeholders.
8. It is recommended that the application of Article 27 By-Product Notifications for the reuse of low volume clean soil materials from construction activity at a local level is explored further.
9. It is recommended that consideration be given to an increase in the maximum tonnage threshold for waste facility permits. An increase to the waste facility permit threshold (currently 100,000 tonnes) in the case of soil and stones could be a potential solution to alleviate some of the capacity issues in the regions. Potential benefits include better site selection, secure destinations for market operators, reducing impacts on land and environmental receptors, better management of soil materials, and more effective enforcement activities.

