

Regional Biosolids Storage Facility for Greater Dublin

Stage 2 Report – Identification of Potential Sites

May 2017



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Executive Summary

The National Wastewater Sludge Management Plan (NWSMP), published in 2016, set out Irish Water's strategy for managing wastewater sludge over the next 25 years. It recommended the development of regional facilities for the storage of treated wastewater sludge (biosolids) from wastewater treatment plants.

Irish Water is currently preparing planning applications for two significant wastewater treatment projects in Dublin, the upgrade of Ringsend Wastewater Treatment Plant (WwTP) and the proposed new Greater Dublin Drainage (GDD) project. These projects are essential to support the continued social and economic growth of greater Dublin and will result in a significant increase from current biosolids volumes with a consequent increase in storage requirements

Biosolids is the treated sludge product arising from wastewater treatment processes. The sludge is fully treated so that it is both biologically stable and free of harmful pathogens (bacteria and viruses etc.). This treatment of wastewater sludge to produce biosolids happens before the biosolids is transported to a storage facility. Most of the biosolids produced in Ireland (about 98%) is currently reused on agricultural lands as a soil conditioner and as a fertiliser. The current spread lands for biosolids arising in the Dublin region are located in south Leinster and it is proposed that these spread lands will continue to be used. The use of biosolids on agriculture lands is strictly regulated by European and National law. One of the conditions of use is a strict prohibition on spreading biosolids on lands over the winter period (October to January each year). This restriction means that biosolids reused in agriculture needs to be stored for certain periods over each calendar year.

Irish Water is currently undertaking a site selection process, in order to identify a suitable site for the Regional Biosolids Storage Facility (RBSF). This facility will be included in the planning applications for the upgrade of the Ringsend WwTP and the Greater Dublin Drainage Project. The selected site will comprise an area of approximately eight hectares and it is proposed that the principal development on the site would comprise warehouse buildings capable of storing approximately 48,000m³ of biosolids. This publication is the second of three reports on the site selection process and details the process that was followed in order to identify the potential sites.

A total of 65 submissions were received from public bodies and the public generally. Observations were made on the appropriate zoning for sites, biosolids re-use including environmental concerns regarding land spreading, risk of odours and alternative approaches to biosolids re-use in agriculture. These observations and suggested sites were considered as part of this Report. Existing licensed waste facilities were also considered as were all sites proposed in submissions to the Stage 1 consultation.

The site identification and shortlisting process consisted of eight steps which progressively reduced the number of potential sites from over 150 down to 5. The 5 potential sites identified are as follows:

1. Bracetown/Gunnocks, Co Meath: This is a 12.5Ha site located close to Dunboyne and easily accessible to the M3 Motorway.
2. Gunnocks, Co Meath: This is a 14.5Ha site located directly south of the Bracetown/Gunnocks site. It is also easily accessible to the M3 Motorway.
3. Greenogue, County Dublin: This is a 12.5Ha site located off the M7 Motorway, west of Rathcoole in South Dublin.
4. Newtown/Kilshane: This is an 11.4Ha site located off the M2 Motorway near Kilshane Cross in Fingal. This site has been previously partially developed as a waste management/recycling facility but is no longer required for its intended purpose.
5. Woodland/Kilshane: This is an 11.3Ha site located just north of the Newtown/Kilshane site. It is also easily accessible from the N2 Motorway.

These potential sites will now proceed to a detailed assessment phase in accordance with Environmental, Economic/Engineering, Planning and Social/Community criteria with a view to identifying a preferred site. In order to assist with this process, Irish Water is undertaking a 5 week period of non-statutory consultation and seeks the views of stakeholders on the contents of this Report. A further consultation on the preferred site will follow.

1.0 Introduction

Irish Water has commenced a site selection process to find a location for a Regional Biosolids Storage Facility (RBSF) to serve greater Dublin. The proposed methodology by which a suitable site will be selected for the RBSF was set out in the *Stage 1 Report – Site Selection Methodology* which was published by Irish Water on 2nd February 2017. The Project Roadmap shown in Figure 1 sets out the planned steps to facilitate engagement by the public and all relevant stakeholders as the project progresses. While feedback on the project is welcome at all times, there are three stages of non-statutory public consultation to facilitate engagement specifically on:

1. Methodology for Site Selection
2. Identification of Potentially Suitable Sites
3. Preferred Site

The first round of public consultation ended on 2nd March 2017 and the feedback received has been considered in the approach described in this Report.

The purpose of this Report is to identify a shortlist of potentially suitable sites for the proposed RBSF and to outline the methodology adopted to identify them. Irish Water is now consulting on the shortlist of potential sites. Following feedback from stakeholders and the general public, alongside further technical studies, a preferred site will be identified. The proposed selection methodology for the next stage of selection of the preferred site is outlined in this Report.

Following the completion of consultation, the choice of preferred site will be finalised and submitted as part of the planning application for the upgrade of the Ringsend WwTP. It will separately be included as part of the planning application for the proposed new Greater Dublin Drainage project (GDD). An Bord Pleanála will undertake statutory consultation on both applications for planning as part of their overall assessment of these projects.

This Report is structured as follows.

Section 1	Introduction
Section 2	Project Background
Section 3	Stage 1 Consultation Submissions
Section 4	Process for Identification of Potential Sites
Section 5	Description of Potential Sites
Section 6	Next Steps

The Project Roadmap in Figure 1 gives a graphical representation of the site selection process. In particular, it outlines the non-statutory public consultation process and identifies where we currently are within that process.

Regional Biosolids Storage Facility Project Development Roadmap

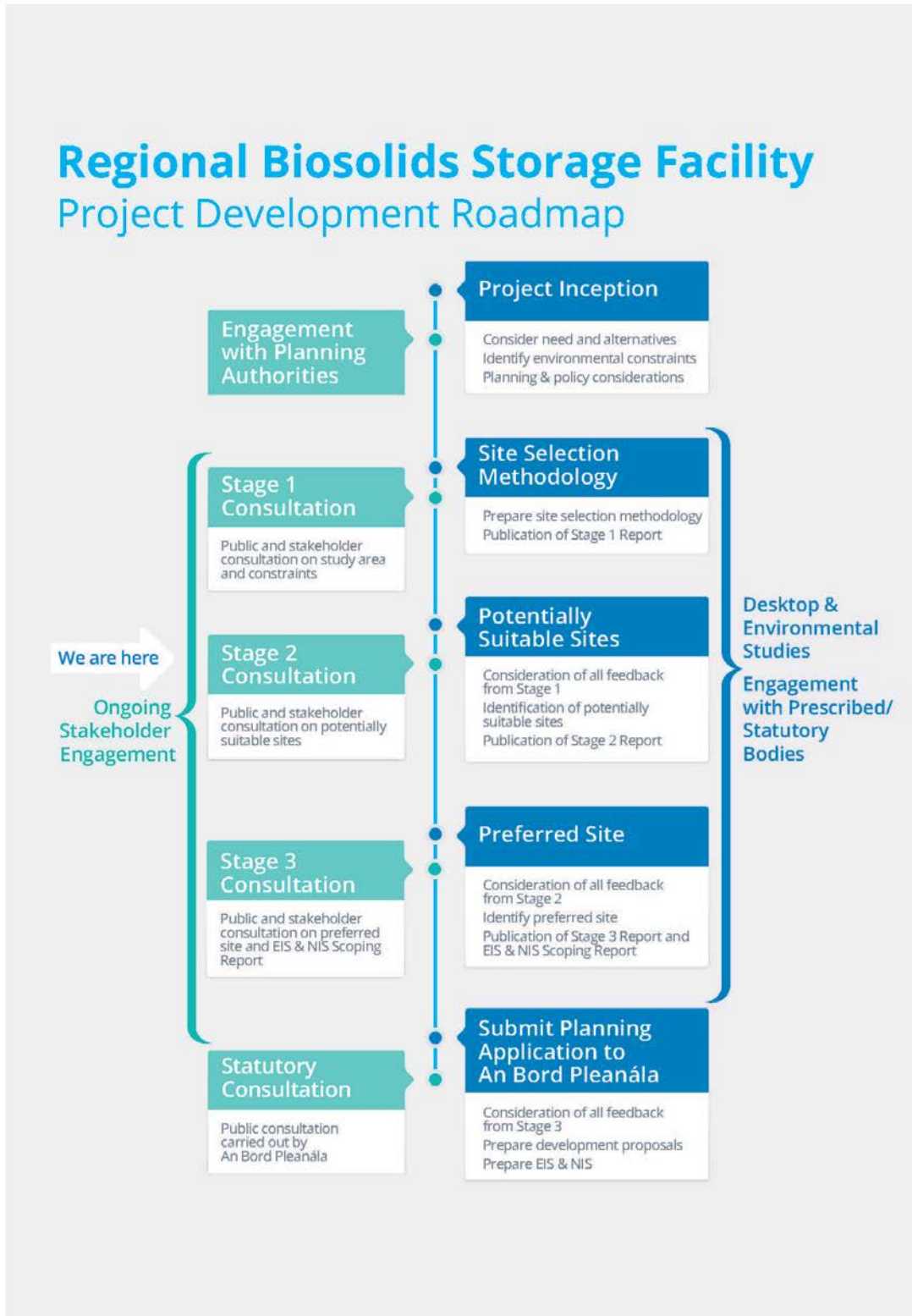


Figure 1 Project Roadmap

2.0 Project Background

2.1 Introduction

The treatment of the wastewater generated in greater Dublin by homes, schools, businesses and industry produces sludge. Wastewater sludge is made up mainly of organic matter that has been removed from the treated water during the treatment process. Further treatment of this sludge is required to enable its safe and efficient re-use or disposal. The further processing of the sludge results in 'biosolids', a biologically stable product free of harmful pathogens (viruses, bacteria) and containing high levels of plant nutrients, e.g. nitrogen and phosphorus. This treatment of sludge all happens before the sludge is transported to a biosolids storage facility. Most of the biosolids produced in Ireland (98%) is currently reused on agricultural lands as a soil conditioner and as a replacement for chemical fertilisers. The use of biosolids on agriculture lands is strictly regulated under European and National law. One of the conditions of use is a strict prohibition on spreading biosolids on land over the winter period (October to January). This restriction means that biosolids reused in agriculture need to be stored for certain periods over each calendar year. The need for a regional storage facility serving Greater Dublin has been identified by Irish Water in the National Wastewater Sludge Management Plan published in October 2016.

The spread lands currently used for application of biosolids produced at the existing Ringsend WwTP are located in South Leinster. These lands will continue to be used for spreading of the biosolids to be stored at the proposed RBSF. There is no proposal to change the location of the spread lands.

2.2 Biosolids Description

The aim of the treatment processes used at municipal wastewater treatment plants is to remove both solid and dissolved waste from wastewater and to discharge only clear unpolluted water. Organic and inorganic solids in the wastewater (both solid and dissolved) end up in a sludge which is subject to further separate treatment on the WwTP site. The sludge is treated to recover gas (whose energy is used to run the plant), to reduce its volume, and to eliminate pathogens (bacteria and viruses). The level of pathogen reduction from the treatment process (99.9999%) is such that the treated sludge material can be transported and stored without any further health protection measures being necessary, subject however to compliance with applicable waste regulation. At the Ringsend WwTP the treated sludge is also dewatered or dried to give two final products for transport to storage: a wet 'cake' (26% dry solids) or a dry granular material (92% dry solids). Both of these materials are high in nutrients and are used as soil conditioners and organic fertilisers in agriculture. Both are generically termed 'biosolids', i.e. a fully treated sludge product which is biologically stable, has low odour and is free of harmful pathogens (viruses and bacteria).

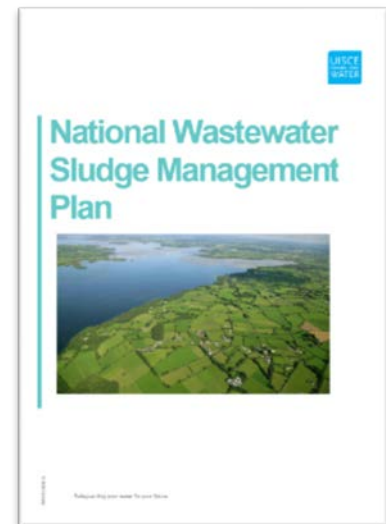
2.3 Policy Background

Biosolids, and activities associated with their treatment, storage or disposal, generally fall under the provisions of Waste Management legislation, most of which stems from EU Directives, the primary one being Directive 2008/98/EC known as the Waste Framework Directive.

Under Article 28 of the Waste Framework Directive, EU Member States are required to draw up waste management plans for their entire geographical area. Waste management planning is the cornerstone of national, regional and local policy on waste management. For the purposes of waste management planning, Ireland is divided into three regions: Southern, Eastern-Midlands and Connacht-Ulster. The Eastern-Midlands Waste Management Plan (EMWMP) was published in May 2015 and is the relevant plan for the purposes of this Report.

The Waste Management Plan (WMP) is a statutory planning document setting out the policies for the development of waste treatment infrastructure and sits on the same planning tier as the city and county development plans. The EMWMP interacts with other statutory and non-statutory waste planning documents including the National Wastewater Sludge Management Plan (NWSMP) adopted in October 2016 by Irish Water.

The quantity of wastewater sludge generated nationally is expected to increase significantly by 2040 as new and upgraded plants are completed to treat our wastewater. The management of this wastewater sludge poses economic, planning and environmental challenges. In order to address these challenges and in line with the strategic objectives of the Water Services Strategic Plan (WSSP), Irish Water developed the first National Wastewater Sludge Management Plan (NWSMP). This plan was formally adopted by Irish Water in October 2016. The NWSMP is recognised as a key component of the EMWMP.



The NWSMP outlines Irish Water's strategy to ensure a nationwide standardised approach for managing wastewater sludge over the next 25 years. This national and sustainable approach to wastewater sludge management will ensure efficiency and ongoing improvements to the benefit of the public and the environment we all live in.

The NWSMP explains that sludge storage facilities will no longer be considered solely on a per-plant or per-county basis. Where appropriate, sludge storage facilities will be developed to serve a number of local plants and/or a wider regional need. It is stated in the NWSMP that the upgrade to the Ringsend WwTP and the proposed GDD WwTP will result in a significant increase from current sludge volumes with a consequent increase in storage requirements. Therefore, a dedicated sludge storage facility should be developed in conjunction with the expansion of Ringsend to meet its requirements and take account of other future needs in the region.

2.4 Existing Scenario

There are currently 8 large municipal wastewater treatment plants within the Greater Dublin Strategic Drainage Study (GSDSDS) area located at: Ringsend, Leixlip, Shanganagh, Osberstown, Malahide, Swords, Portrane and Barnageeragh. Irish Water is also at an advanced stage of planning for a new wastewater treatment plant at Clonshagh (Clonshaugh), known as the Greater Dublin Drainage project (GDD). Irish Water has considered the treated sludge storage requirements for the GSDSDS area as a whole.

Biosolids from Ringsend WwTP is currently stored at a facility in Thornhill Co. Carlow. Truck movements from the Ringsend plant are via the Dublin Port Tunnel, south along the M50 and south along the M7. The biosolids are then applied to agricultural lands located in south Leinster. These are the "spread lands". Land spreading occurs mainly during the spring and autumn periods. There is no proposal to move away from these spread lands and it is proposed that the biosolids stored at the proposed RBSF would continue to be applied to those lands during the appropriate times of the year.

Sludge from WwTPs at Swords, Barnageeragh, Portrane and Malahide is removed from those plants and is transported to a facility in the midlands from where it is distributed onto agricultural land after treatment. Sludge from Shanganagh, Lexilip and Osberstown WwTPs all undergo treatment before being applied to agricultural land.

2.5 Proposed Future Scenario

Irish Water has concluded that the preferred strategic approach to providing sludge storage for greater Dublin is to select a site capable of being developed to meet the entire 3.6 million PE demand in the GSDSDS region (to 2050). Irish Water proposes applying to An Bord Pleanála for planning approval for development of the facility based on a 20 year design horizon (up to 2040), which requires that the facility can store already treated wastewater sludge from Ringsend and the proposed GDD WwTPs, and wastewater sludge from the other Fingal WwTPs (Swords, Malahide, Barnageeragh and Portrane) giving a

total requirement of approximately 3.0 million PE. It is proposed that the wastewater sludge from the Fingal WwTPs would be treated at the proposed GDD WwTP, before being stored at the proposed RBSF. Irish Water will review the storage requirements within Greater Dublin in the medium to long term, and develop the proposed RBSF further within the space provided on the selected site if and as required. This further development would require planning consent before it could proceed.

In summary, it is proposed to select a site for the proposed RBSF that is capable of storing the biosolids arising from 3.6 million PE, but to seek planning permission only for buildings to cater for a capacity of 3.0 million PE for the 2040 design horizon. An indicative layout of a typical RBSF is provided in Appendix B.

3.0 Stage 1 Consultation Submissions

3.1 Summary

Non-statutory public consultation for the proposed RBSF ran for four weeks from the 2nd February 2017 until 2nd March 2017. The concerns and issues raised by all stakeholders were reviewed and collated by the project team and documented in the Stage 1 Consultation Report which is enclosed in Appendix A for further information. The 65 submissions received during the Consultation process comprised feedback from local authorities, state agencies, commercial organisations and individuals.

The following section addresses and considers the queries raised during the consultation process under the headings below:

- Project Need
- Site Selection Methodology
- Alternatives
- Biosolids & Storage
- Agronomy
- Environment
- Communications & Consultation

3.2 Response to Consultation Submissions

Submissions from respondents covered a variety of issues. A response to the queries, addressed under the key topics, is provided below.

Project Need

The regional biosolids storage facility and its significance to both the Ringsend WwTP Upgrade and Greater Dublin Drainage projects (GDD) were referenced as being critical developments for the future wastewater infrastructure in the Dublin region. A selection of submissions was positively in favour of the proposed development. Some feedback suggested that land spreading was not the best solution for biosolids and that alternative technologies should be explored. It was also suggested that the proposed facility should make provision for arisings from private septic tanks.

Irish Water is currently preparing planning applications for the upgrade of Ringsend WwTP and the proposed new GDD project. These projects are essential to support the continued social and economic growth of greater Dublin and will result in a significant increase from current biosolids volumes with a consequent increase in storage requirements. As part of these processes Irish Water has engaged in a three-stage public consultation, which demonstrates robust and transparent site selection process.

The National Wastewater Sludge Management Plan (NWSMP), published in 2016, sets out Irish Water's strategy for managing wastewater sludge and biosolids over the next 25 years. In accordance with the objectives of the NWSMP, a RBSF is to be developed for storage of biosolids serving the WwTPs for the Greater Dublin area.

Site Selection Methodology

Feedback varied on the site selection process. Some submissions favoured siting the project in industrial/warehousing areas or in a rural zoned area. Feedback was also received suggesting that the scale and nature of the facility would be unsuitable in rural areas. Concern was also raised in relation to locating infrastructure near any Special Protection Area, Special Area of Conservation and National Heritage Area as well as any areas of archaeological, historical, tourism or recreational value. Kildare, Fingal and Meath County Council submissions outlined their approach to planning issues associated with such a development. The submissions are largely supportive of the site selection methodology.

Kildare County Council suggested that the location of the proposed RBSF near main load sources as the most sustainable approach to siting the new facility. Feedback was received on the negative cumulative impact of siting the facility on the Poolbeg Peninsula and outlining that additional industry at this location

would encroach on the local amenities of Irishtown Nature Park, the Shelly Banks and the communities of Irishtown Ringsend and Sandymount. It was also noted that the development of the Irish Glass Bottle site makes this location unsuitable for the development of the RBSF in this area.

The project team has considered the feedback from all local authorities in relation to the appropriate zoning for a RBSF in accordance with the relevant Development Plans.

Sensitive environmental designations have been excluded as part of the Stage 2 site selection methodology. Further investigations will be conducted during the next stage of assessment which considers the local environment.

A variety of sites were offered for consultation in the submissions received. Sites in Wicklow, Roscommon, Dublin, Meath and Kildare were proposed for consideration. The sites were proposed by private enterprises, local authorities and individuals. Land parcels which were suggested by interested parties during the consultation phase were considered as part of the Stage 2 selection methodology by the project team. The methodology provides for an iterative process to ensure a robust site selection process for determining potential sites. Details on the site selection methodology are outlined within section 4.0 of this Report and future steps detailed in section 6.0.

Irish Water has considered Transport Infrastructure Ireland's (TII) submission as part of the site selection process and will adhere to all policies and guidelines in the next stage of assessment.

Alternatives

The use of a variety of alternative technologies as an alternative to land spreading was suggested in the feedback received. The recommended alternative technologies included the generation of bio-energy, the use of pelletised sludge as an alternative fuel in thermal treatment, the incineration of treated sludge, the conversion of biosolids into an oil (Diagen Process) that can be blended into the feedstock. The decision to develop a larger regional facility instead of several smaller storage facilities was queried and the option of acquiring existing storage facilities instead of developing a new site for the project was also raised.

The strategy for management of wastewater sludge and biosolids generated at Irish Water wastewater treatment plants over the next 25 years is set out in the National Wastewater Sludge Management Plan (NWSMP). The site selection methodology for the RBSF is aligned with the policy and objectives of the NWSMP.

Biosolids & Storage

A number of submissions referenced possible contaminants that could be found in biosolids and the resulting environmental effects. It was queried whether sludge from County Kildare will be routed through the planned anaerobic digester at Osberstown prior to transfer to the regional storage facility. The quality and consistency of the biosolids being stored at the facility was raised given that the stored biosolids would have a number of supply sources. It was queried how the incoming materials would be assessed in order to assure the quality of the end product. Information on the planned fire safety measures at the facility was also sought.

The RBSF will temporarily store biosolids from Irish Water's wastewater treatment plants where the treatment procedure provides for fully treated biosolids prior to transport to the RBSF. No treatment will take place at the RBSF. The quality of the biosolids being produced from each source is verified through testing to ensure the end product meets the required standard.

Fire safety of the facility will be incorporated into the design in accordance with national Building Regulations, other relevant legislation and guidelines which is standard practice with such structures.

Agronomy

Feedback was received in relation to land spreading and in particular on the restrictions that Bord Bia might impose on land that has been used for spreading. The Bord Bia submission noted that their views on the matter had been reflected by Irish Water in the NWSMP in 2016. Concern was also expressed on the level of research carried out into the impact of spreading biosolids on lands and that further research should be conducted.

The development of the RBSF will be in accordance with the objectives of Irish Water's NWSMP.

Environment

The Food Safety Authority of Ireland welcomed the positive effect the project would have on water quality where shellfish are grown. However, concern was also expressed regarding the impact of land spreading on wildlife, and the risks to human and animal health.

The need for odour control at the storage facility was raised in feedback. Land spreading was again noted as a potential source of nuisance for those living close to spread lands. Odour from laden trucks transferring biosolids was also raised as a concern.

Risk to public health from land spreading was a stated concern with potential impacts listed such as burning in the eyes, lungs, and skin rashes. A report from a University of Georgia study was referenced in respect of land where 'class B biosolids' have been spread and the subsequent monitoring of restrictions on animal grazing, use of food crops and public access. The potential impact on human health as a result of biosolids entering the food chain, following land spreading, was also raised as a concern.

Concerns were expressed over the danger of ground contamination from land spreading of biosolids. Separately, surface water runoff and potential watercourse contamination from lands with poor permeability was highlighted. Specific details of negative experience by residents were submitted from the Wicklow/North Wexford region.

Appropriate levels of environmental studies shall be carried out on the remaining sites with a full Environmental Impact Statement (EIS), Appropriate Assessment (AA) and Natura Impact Statement (NIS) to be undertaken on the chosen site.

The NWSMP outlined that the preferred option for re-use of biosolids is application to land. The scope of this Report is to find a suitable location for a RBSF. The above concerns were previously addressed within the NWSMP where it is noted that the re-use of biosolids in agriculture falls under the provisions of Waste Management legislation. Accordingly, there is a body of national and EU legislation which must be complied with. The Waste Management (Use of Sewage Sludge in Agriculture) Regulations 1998 and European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 are the guiding regulations in this regard. Furthermore, these regulations provide that biosolids can be recovered in agriculture in accordance with a nutrient management plan. It is Irish Water policy that agricultural reuse is undertaken in accordance with the Code of Good Practice for Use of Biosolids in Agriculture which provides for a higher level of treatment and monitoring than that required by the regulations.

Communications & Consultation

The importance of consultation was stressed in submissions together with queries on the consultation process. A FAQ was requested on the consultation process and a request was also received for information to be provided through the medium of the Irish language.

Irish Water is committed to carrying out an open and transparent consultation process as part of the development of the RBSF, that is in line with national and international requirements and best practice. The project roadmap (Figure 1 above) sets out the steps planned to facilitate engagement with the public and all relevant stakeholders over the course of the project. It includes three rounds of non-statutory public consultation to be held at key stages in the development process and the project will also be subject to statutory consultation by An Bord Pleanála.

Non statutory consultation periods will feature information events as appropriate for members of the public and communities that may be affected by the project. Irish Water encourages participation during the focussed periods of consultation and at any time during the project development process. A number of channels are available for stakeholders to engage with the project team and these are detailed in the report in Appendix A. Following each consultation period, a report will be published detailing the consultation process and the feedback received, which will be reviewed by the project team.

3.3 Local Authority Planning Consultations

The planning department of the local authorities within the GDSDS area were consulted during the Stage 1 consultation period. Written submissions which were received are summarised in the Stage 1 Consultation Report. Feedback from the planning authorities was considered in detail during the Stage 2 selection process and is included herein section 4.3.2.

4.0 Process for Identification of Potential Sites

4.1 Introduction

The objective of the site selection process outlined in this Report is to identify a shortlist of potentially suitable sites, utilising the methodology outlined in the Stage 1 Report and input provided by members of the public through a period of focussed consultation. The methodology at Stage 2 involved a desktop assessment of potentially suitable areas in relation to the constraints and criteria defined in the following sections to arrive at the shortlist. The criteria adopted at Stage 2 are generally high level. Criteria addressing similar themes may be adopted at Stage 3. At that stage, the assessments under those criteria will be more detailed.

The process for selecting a shortlist of potentially suitable sites at Stage 2 comprised of two phases. Potential locations were identified in the Scoping Phase. In the subsequent Shortlisting Phase, sites were identified and assessed to determine the most suitable sites for a final shortlist.

4.2 Scoping Phase

In the Stage 1 Report it was stated that locating the facility close to the source of the biosolids would be the preferred option to allow for future flexibility to any potential changes in the disposal route. Therefore, the starting point for Stage 2 selection process was to determine suitable areas within the Greater Dublin Strategic Drainage Study (GDSDS) area for the proposed RBSF.

The following potential locations, and the main constraints in relation to those areas, are discussed in the Scoping Phase.

- Areas of appropriately zoned land within the GDSDS
- Primary biosolids source sites (Ringsend WwTP and proposed GDD WwTP)
- Existing licensed waste facilities
- Locations suggested during Stage 1 Consultation

Before being considered for the Shortlisting Phase described later in section 4.3, all potential locations mentioned above were checked, as described in section 4.2.1 to determine whether they were located within designated environmental areas.

The potential locations and environmental constraints are shown in Figure 2.

4.2.1 Environmental Designated Areas

The NPWS are responsible for designating areas for conserving habitats and species of flora and fauna. The areas designated under European and Irish legislation include Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA), Special Protection Areas (SPA), Special Areas of Conservation (SAC), and candidate SAC (cSAC).

These environmental designated areas and the potential locations proposed in the Scoping Phase were mapped to determine whether any were located in the environmental designated areas. Locations within designated areas would be ruled out of the selection process. The outcome of the mapping is shown in Figure 2. None of the potential locations that were deemed suitable were found within the designated areas and therefore, were selected for the Shortlisting Phase.

4.2.2 Land Use Zoning

The development plans of all seven authorities were examined to determine where the proposed facility would be acceptable from a zoning perspective. It was proposed in the Stage 1 Report (section 4.3) that the following land use zoning in the four Dublin Authorities may be acceptable for the proposed RBSF.

Table 1 Appropriate land use zoning within GSDSDS

Local Authority	Land Use Zoning
Dublin City Council	Z7: Employment (Heavy)
Dun Laoghaire Rathdown County Council	E: To provide for Economic Development and Employment
South Dublin County Council	EE: Enterprise and Employment
Fingal County Council	GE: General Employment, Waste Disposal and Recovery Facility (Excluding High Impact)
	HI Heavy Industry, Waste Disposal and Recovery Facility (High Impact)

The development plans for Meath, Kildare and Wicklow are less specific than those of the Dublin Authorities so it was proposed in the Stage 1 Report to identify areas where the zoning would allow for industry, warehousing, employment, utilities and public services. All rural/agricultural zones, high amenity zones, landscape and environmental designations, town /village centre zones and residential areas were excluded.

Through an initial review of Development Plans, more than 150 separate zones were identified within the GSDSDS area. The planning departments of each local authority were consulted during the Stage 1 consultation period and the specific planning objectives were discussed and clarified. The outcome of those consultations is discussed in section 4.3.2.

4.2.3 Primary Biosolids Source Sites

The primary sources for the biosolids generated within the region are Ringsend WwTP and the proposed GDD WwTP at Clonshagh (Clonshaugh) . Both locations were assessed for their potential to accommodate the proposed storage facility.

Ringsend WwTP is located on the Poolbeg peninsula at the estuary of the River Liffey. It is in a built up industrial area. Dublin Waste to Energy site is to the west of the plant. ESB power station and other industrial lands are located to the east. Irishtown Nature Reserve is located to the south. The treatment plant site itself is very congested with plans for further expansion. It is deemed unsuitable for development of the scale of RBSF.

As explained in Appendix B of this Report, the site for the RBSF requires a minimum usable area of 8 hectares. To locate the facility adjacent to the GDD WwTP at Clonshagh (Clonshaugh) would significantly intrude upon, and reduce the size of the proposed buffer zone surrounding the WwTP. This is not considered acceptable from an amenity and planning perspective. In addition, there are traffic issues relating to junction capacity in the vicinity and also potential land use zoning issues. For these reasons Clonshagh (Clonshaugh) is not considered a suitable location for the RBSF.

4.2.4 Potential Waste Facilities for Co-location

The siting of the RBSF with licensed waste facilities as outlined in the Eastern Midlands Waste Management Plan (WMWMP) was considered. Policy E11 of the EMWMP supports the consideration of appropriate alternative future land uses at authorised inactive landfills (uncommenced; permanently closed; or temporarily closed) subject to amendments of existing approvals being put in place. Potential activities include on-site temporary storage of waste, which would include the siting of an RBSF.

The waste facilities licensed by the EPA within the GSDSDS area were reviewed. A database of facilities was obtained from the EPA Geoportal Data website with the latest dataset mapped and reviewed. A total of 58 facilities were assessed. The facilities are grouped by activity type (e.g. Waste Transfer Station, Landfill etc) defined by the EPA. The assessment included a desk-top review of each facility using aerial photography of each location. This was complemented by a review of the waste activity at each facility by sourcing environmental and authorisation documentation available through the EPA website. While these facilities tend to cover large landbanks, it is considered that it is not economically or technically feasible to site buildings on landfill refuse cells. Accordingly, the required RBSF site area would generally need to be located on the fringes of the landfill proper in relatively undeveloped buffer zones.

The assessment showed that seven facilities, as listed Table 2 below and shown in Figure 2 below, emerged for further consideration in the shortlisting phase.

Table 2 Potential licensed waste facilities for co-locating with RBSF

Facility	Facility Description	Approximate Site Area	Local Authority
Arthurstown Landfill	Closed Landfill in aftercare stage	65 ha	Kildare County Council
Ballyogan Landfill Facility & Recycling Park	Site of a closed landfill, an inactive waste processing facility and an active public civic amenity site accepting mainly household wastes	59 ha	Dun Laoghaire Rathdown County Council
Dunsink Landfill and Civic Amenity Facility	Closed Landfill	83 ha	Fingal County Council
Fingal Landfill, Nevitt	Closed landfill and proposed site for new landfill (not developed.)	150 ha	Fingal County Council
Balleally Landfill	Closed landfill undergoing restoration programme	50 ha	Fingal County Council
Kilshane Cross Recycling Park	Site partially developed but is not active and never used for the intended activity as Integrated Waste Management Facility.	11 ha	Fingal County Council
Silliot Hill Landfill	Closed landfill, currently active as a public recycling centre	16 ha	Kildare County Council

4.2.5 Locations suggested during Stage 1 Consultation

During the Stage 1 consultation period locations were suggested to Irish Water by land owners or other stakeholders as being suitable for the proposed RBSF. Locations in Ballaghderreen, County Roscommon; Arklow County Wicklow; and Avoca, County Wicklow were proposed but not considered due their location outside the study area.

The four sites within the study area that were offered for consideration during the consultation period were at Newcastle, County Dublin; Blanchardstown, Dublin; Naul, County Dublin; and Clonee, County Meath.

The locations at Newcastle, Naul and Blanchardstown were not selected for further assessment because they are not appropriately zoned. The proposed location at Clonee was included in the Shortlisting Phase described in section 4.3.

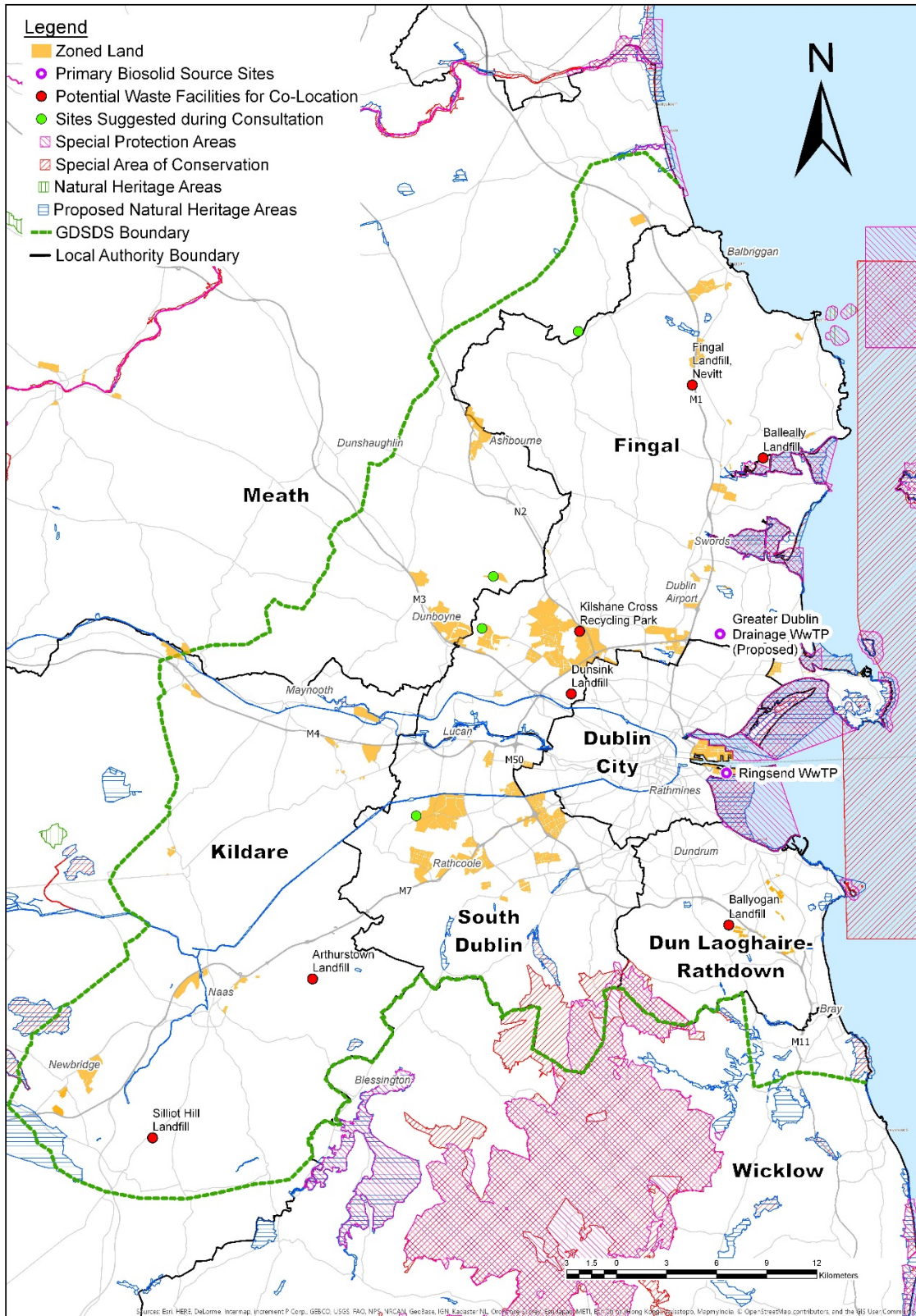


Figure 2 Potential locations identified in Scoping Phase

4.3 Shortlisting Phase

4.3.1 Introduction

Following the identification of potential locations at the Scoping Phase, potential options were subjected to assessment at the Shortlisting Phase with the objective of arriving at a shortlist of the most suitable potential sites. The Shortlisting Phase was structured into a sequential process involving 8 steps. At each step, sites were assessed in terms of defined criteria and ranked in order of suitability. The less suitable sites were eliminated from the process. At the end of the Shortlisting Phase a shortlist of potential sites emerged. The process was an iterative one. Less suitable sites eliminated at earlier steps could be returned to the process for assessment if a sufficient number of potential sites was not initially identified. In the case where a candidate site was deemed unsuitable in terms of the criterion at each step, that sites was not considered again in the process.

The specific steps and criteria in the Stage 2 site shortlisting process are represented graphically in Figure 3 and are described in the following paragraphs.

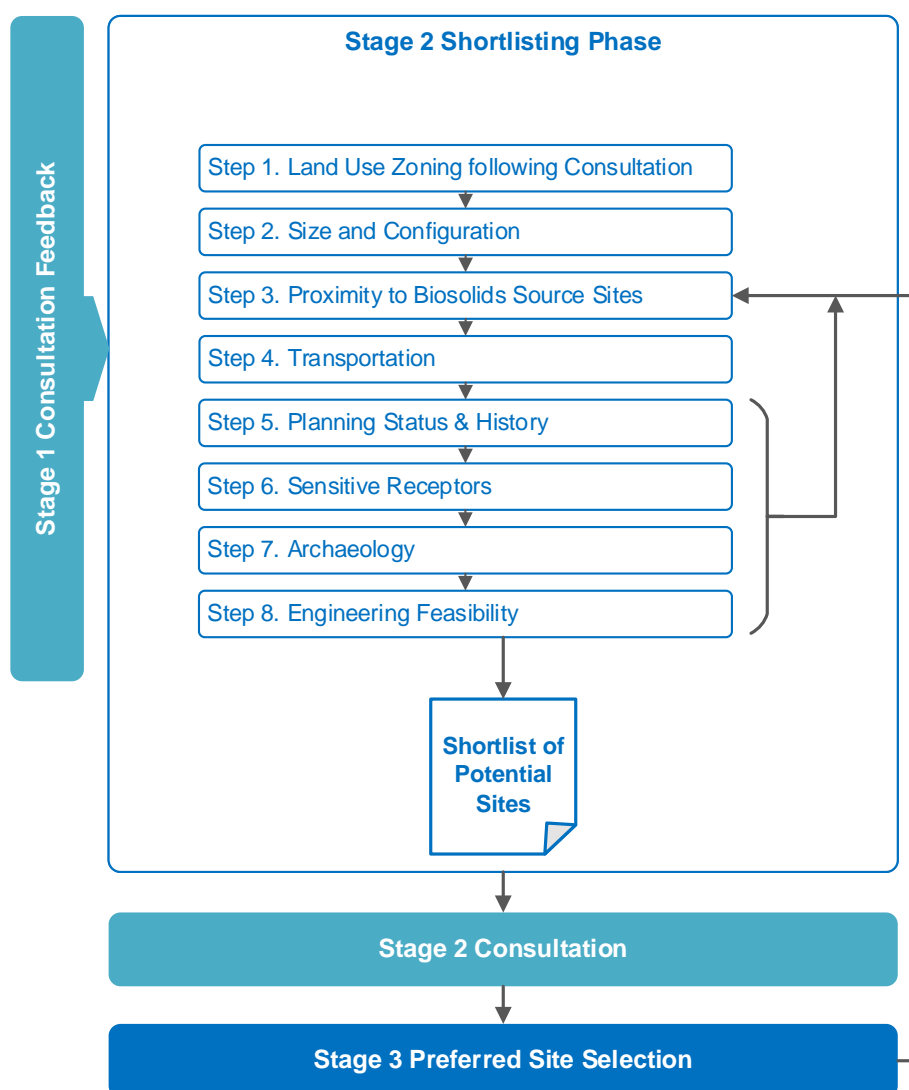


Figure 3 Process for identification of potential sites

4.3.2 Step 1. Land Use Zoning Following Consultation

All planning authorities in the study area were consulted during the Stage 1 consultation period and their comments, where received, were considered. In summary, the zoned areas examined for the following steps of the process are listed in Table 3 and their locations are identified on Figure 4. Over 100 zoned areas were identified at this step of the process.

Table 3 Land Use Classification for shortlisting phase

Local Authority	Land Use Zoning
Dublin City Council	Z7: Employment (Heavy)
Dun Laoghaire Rathdown County Council	E: To provide for Economic Development and Employment
South Dublin County Council	EE: Enterprise and Employment
Fingal County Council	HI: Heavy Industry (High Impact)
Kildare County Council	Industry, Warehousing, Utilities and Public Services
Meath County Council	Industry, Warehousing, Employment, Utilities and Public Services
Wicklow County Council	Industry, Warehousing, Employment, Utilities and Public Services

Three of the potential sites for co-location with existing waste facilities identified in section 4.2.4 were deemed unsuitable following consultation with the planning authorities and were excluded from further assessment. The sites excluded at this step were Dunsink Landfill and Civic Amenity Facility; Fingal Landfill, Nevitt; and Balleally Landfill.

4.3.3 Step 2. Site Size and Configuration

Section 3 of *Stage 1 Report – Site Selection Methodology* outlines the generic design and land requirement of the proposed RBSF. To provide layout flexibility and buffering to minimise potential environmental impacts (particularly on sensitive receptors) site locations were sought where a minimum usable area of 8 hectares is available. An indicative site design and layout is provided in Appendix B.

The suitably zoned areas identified in Step 1 vary in size and many are large enough to be further subdivided into sites of suitable size for the proposed RBSF. Sites of suitable size and configuration were identified by a desktop review of Ordnance Survey maps and aerial photography. Guided by existing boundaries at the potential locations, site boundaries were formed that incorporated a minimum area of 8 hectares. Access to the identified potential site was also considered. The sites identified at this step are shown in Figure 4.

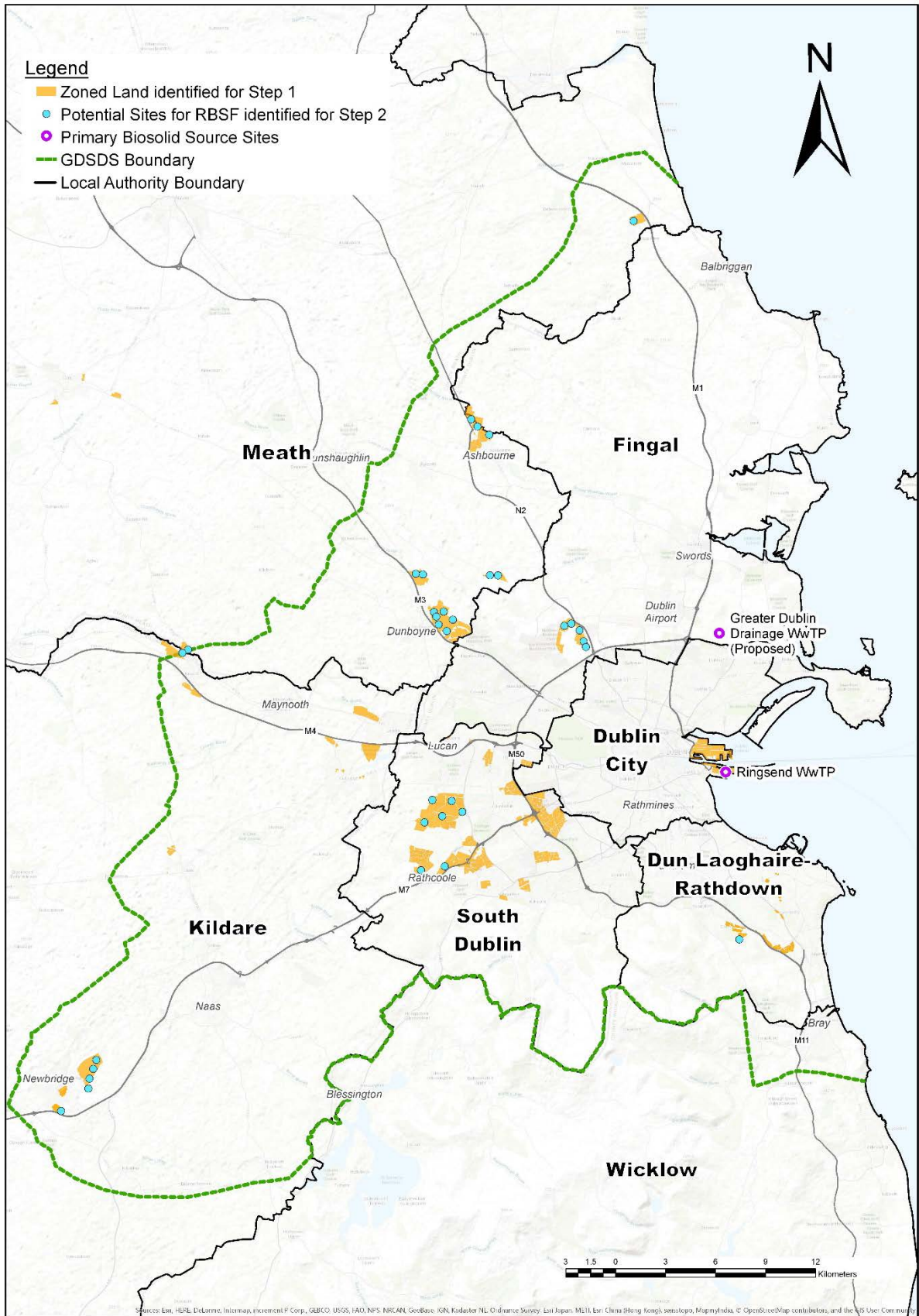


Figure 4 Potential sites identified at Step 2

4.3.4 Step 3. Proximity to Biosolids Source Sites

The proximity of the sites identified at Step 2 to the source of the biosolids was considered at Step 3. The proximity to the biosolids source is a fundamental consideration for identifying a potential site as locating the proposed RBSF near the main load sources is more sustainable and would provide the greatest flexibility in respect of future outlets for biosolids.

The majority of biosolids material stored at the RBSF will originate from Ringsend WwTP and the proposed GDD WwTP at Clonshagh (Clonshaugh) . A centre point representing the load source was selected on the road network between the Ringsend and GDD WwTP, positioned closer to Ringsend to reflect the estimated larger proportion of biosolids material that will originate there. Distances were measured along the transport routes from the load source centre to each of the candidate sites. The sites were ranked and those closest to the load source were selected to proceed to Step 4.

Three of the potential sites for co-location with existing waste facilities identified in section 4.2.4 were deemed less suitable following this assessment. Arthurstown Landfill, Ballyogan Landfill Facility and Recycling Park, and Silliot Hill Landfill were not selected to proceed to the next step.

4.3.5 Step 4. Transportation

Locating the RBSF near national primary roads, enabling ready access to/from the motorway network and all WwTPs in the region, would help minimise the traffic impacts in the vicinity of the site as well as along the haul routes. Location of the facility near regional and national primary roads would contribute to the site's operational flexibility and transport of the biosolids to any future disposal route.

At Step 4, the travel distance from each site emerging after Step 3 was measured to the nearest national road and the sites were ranked in favour of those closest to a national road. Through this approach, sites located on local roads and further out on regional roads, where adverse impacts due to HGV traffic would be more likely, were identified. The sites closest to a national road were selected to proceed to Step 5. A location suggested by a stakeholder during the Stage 1 consultation at Clonee was ruled out at this step.

A traffic impact assessment will be carried out at Stage 3 for the shortlist of potential sites.

4.3.6 Step 5. Planning Status & History

The planning history for each of the remaining sites that emerged after Step 4 was reviewed at the offices of the relevant planning authority and on the online An Bord Pleanála database, where required. This process involved reviewing record maps, archived permissions, SID registers and recent (within 5 years) valid planning permissions to determine any applicable permissions for each of the remaining sites. Where no record of a planning permission was discovered (from 1964 onwards), the Ordnance Survey historic 6 inch and 25 inch maps were reviewed to establish if there was a previous use.

The candidate sites where no previous planning permission existed or where permitted development was substantially complete and would not impact on the development of proposed storage facility were selected to proceed to the next step.

Where planning permissions have been granted for part of a candidate site, the residual portion of the site was assessed to confirm that a site of suitable configuration and an area of at least 8 hectares was still available. Where the residual portion remained suitable, the site boundaries were redefined and the revised site was selected to go to the next step in the process. Where the residual portion was determined to be unsuitable the candidate site was not selected to proceed to the next step.

The candidate sites where existing planning permissions are pending or have been granted for a development, and which would potentially prevent the development of the proposed storage facility, were not selected to proceed to the next step.

Sites not selected to proceed at this step were excluded from assessment in any further iterations of the selection process.

4.3.7 Step 6. Sensitive Receptors

A preliminary screening was carried out for sensitive receptors near each of the sites emerging from Step 5. Data from Geodirectory, a geographical residential and business directory, was assessed using GIS

software to identify sensitive receptors in the vicinity of each candidate site and along the traffic route from the nearest national road to each site. The parameters selected take account of the potential visual impact, odour impact and traffic impact of the proposed storage facility.

The receptors considered at this stage of the selection process were residential properties, schools, hospitals, nursing homes and amenity areas such as parks.

Generally, the sites assessed were located in industrial zones and few residential properties were identified in the vicinity of the candidate sites or on the traffic route from the nearest national road. A further, more detailed assessment of the impact of receptors will form part of the assessment of sites selected for Stage 3.

4.3.8 Step 7. Archaeology

The archaeological assessment for the sites emerging after Step 6 was carried out by a qualified archaeologist. The desktop assessment included a collation of existing written and graphic information to identify the likely archaeological potential at each of the candidate sites and in their vicinity. The overall study areas extend approximately 200m from each candidate site. These areas were examined using the following sources of information:

- Record of Monuments and Places (RMP) for Counties Dublin and Meath;
- The Archaeological Survey Database (SMRR);
- Aerial photographs;
- Database of Irish Excavation Reports; and
- Cartography (Ordnance Survey Ireland).

This analysis did not identify additional unrecorded archaeological sites or monuments at any of the candidate sites.

The candidate sites where previous discoveries, within the site boundary or within 200m of the site boundary, had been recorded on the *Record of Monuments and Places* or *Archaeological Survey Database* were assessed by the archaeologist. The outcome of the assessment determined which sites were selected to proceed to the next step.

The candidate sites where previous discoveries, within the site boundary or within 200m of the site boundary, had been recorded through archaeological excavations were not selected to proceed to the next step.

The candidate sites where discoveries had not been recorded through archaeological excavations were selected to proceed to the next step.

4.3.9 Step 8. Engineering Feasibility

The feasibility of development of the proposed storage facility was assessed for the sites emerging after Step 7 under a series of technical constraints. These were Accessibility, Services, Flood Risk and Geology as detailed below. The constraints were assessed together at each site in relation to the design, construction and operation of the proposed facility. The sites deemed most suitable were selected for the shortlist of potential sites. Where candidate sites were deemed to be clearly unsuitable, they were eliminated from further consideration.

Accessibility: The predicted impact of vehicles entering and exiting each of the candidate sites was assessed based on local authority and Transport Infrastructure Ireland (TII) guidelines. Biosolids will be transported to and from the proposed RBSF in heavy goods vehicles (HGVs). HGV traffic along potential routes and vehicle turning manoeuvres for normal day to day import operations and for exports during the land spreading periods of the year, when frequency of movements will be greatest, were considered. Traffic arising from personal car and van use for the staff, although low, was also considered.

TII guidelines state that “*the creation of new accesses to and intensification of existing accesses to national roads gives rise to the generation of additional turning movements that introduce additional safety risks to road users.*” A potential site which requires the creation of a new access or intensification of an existing access onto a national road is considered less suitable to those sites which are accessible from a regional or local road.

Services: Records from the ESB and Irish Water in the vicinity of each of the candidate sites were reviewed to determine the proximity of candidate sites to electricity, water and drainage utility services. The sites were assessed relative to one another to identify feasibility of providing services. Sites where services are not available and would require additional development costs were considered less suitable than sites where services are more readily available.

Potential conflicts with transmission routes for ESB lines and gas pipelines were also investigated at each site. Electricity is transmitted by high voltage overhead lines or underground cables and gas is transmitted in high pressure pipelines. Diversions of these services can impose significant additional costs on any proposed development. Where these lines crossed a candidate site, the remaining portion of the site unaffected by the transmission routes was assessed to determine whether the necessary 8 hectares of suitable configuration and feasible access were available. If these requirements could not be achieved the candidate sites were deemed clearly unsuitable and eliminated from the further consideration.

Flood Risk: *The Planning System and Flood Risk Management Guidelines for Planning Authorities* and the most readily available information published by OPW were referenced in determining potential flood risk at the candidate sites.

The OPW flood management guidance provides a classification of vulnerability of different types of development. In terms of this classification, the proposed RBSF can be considered as a *Highly Vulnerable Development*. This is the same class given to water and wastewater treatment facilities. Based on this interpretation, Flood Zone C is considered the appropriate zone for locating the facility. Flood Zone C is where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Essentially, it covers all areas which are not in Flood Zone A and Flood Zone B.

Flood study maps showing the extents of fluvial flooding for low probabilities (less than 0.1% AEP) were cross-referenced with the boundary of each site. Where any portion of a candidate site was located within Flood Zone B, the remaining portion of the site was assessed to determine whether the necessary 8 hectares and feasible access were available.

Suitable sites located entirely in Flood Zone C were deemed more suitable than those sites where any portion of the site was located in Flood Zone A and Flood Zone B.

The shortlist of potential sites will be subject to thorough flood risk assessment, involving consultation with the OPW and a review of Catchment Flood Risk Assessment and Management (CFRAM) mapping, at Stage 3 of the site selection process.

Geology: Information obtained from spatial mapping, made available by the Geological Survey of Ireland (GSI), for each of the candidate sites was reviewed to carry out a preliminary assessment of the underlying geological (rock type soil type, soft ground quantities, geological heritage sites, etc.) and hydrogeological setting (aquifer classification, vulnerability) together with the proximity to groundwater receptors (turlough, karst features and major groundwater users). Sites located in areas of soft ground, karst features, geological heritage sites or where development would pose a risk to groundwater are considered less suitable for development.

4.3.10 Shortlist of Potential Sites

Five sites were identified following the outcome of the process described above. They are listed in Table 4 and located as shown on Figure 5. The sites are provided for public consultation and it is proposed that they will be assessed at the next stage to identify a preferred location.

Table 4 Shortlist of Potential Sites

Site Name	Address
Bracetown/Gunnocks	Bracetown, Dunboyne, Co. Meath
Gunnocks	Gunnocks, Dunboyne, Co. Meath
Greenogue	Collegeland, Newcastle, Co. Dublin
Newtown/Kilshane	Newtown, Kilshane, Dublin 11
Woodlands/Kilshane	Woodlands, Kilshane, Dublin 11

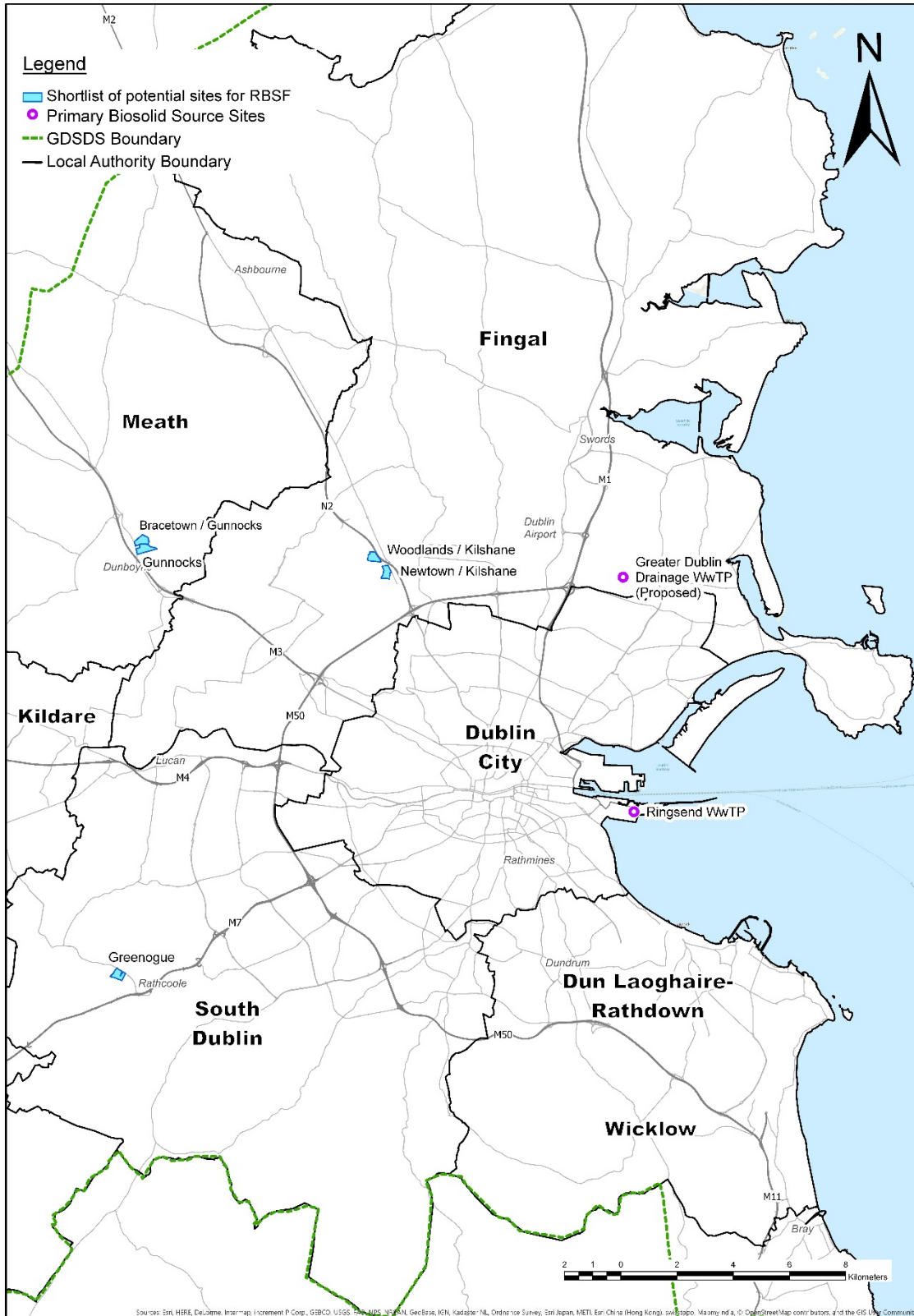


Figure 5 Location of shortlisted potential sites for RBSF

5.0 Description of Potential Sites

5.1 Bracetown/Gunnocks, Co. Meath

The site is located close to Dunboyne town within the townlands Bracetown and the Gunnocks. It is 12.5 hectares in area and situated to the south of Bracetown Business Park and the Hub Logistic Park as shown in Figure 6. The site is bounded to the east by agricultural lands and to the west by the R147 regional road and M3 motorway. The site is accessible via the R147 from junction 5 Dunboyne on the M3 motorway, which is approximately 1.5km to the north.



Figure 6 Location of potential site at Bracetown & Gunnocks, Co. Meath

The site is currently zoned for category E2/E3 Enterprise and Employment under the Meath County Council 2013-2019 Development Plan for Dunboyne. The site has no previous planning history and no past developments were noted.

There are no known monuments within the candidate site or vicinity but given that it is greenfield site, archaeological investigation would be required at planning stage.

The creation of suitable access to the site from the R147 is deemed feasible at this stage of assessment. Essential utilities such as power and water are available in close proximity to the site. There are areas of pluvial flooding indicated in isolated locations within the site boundaries which are not significant and would be addressed a design stage through suitable drainage measures.

5.2 Gunnocks, Co. Meath

The site is located close to Dunboyne town within the townlands of the Gunnocks. It is 14.5 hectares in area and is situated to the south of Bracetown Business Park and the Hub Logistic Park as shown in Figure 7. The site is bounded to the east by agricultural land and to the west by the R147 regional road and M3 motorway. The site is accessible via the R147 from junction 5 Dunboyne on the M3 motorway, which is approximately 1.7km to the north.



Figure 7 Location of potential site at Gunnocks, Co. Meath

The site is currently zoned for category E2/E3 Enterprise and Employment under the Meath County Council 2013–2019 Development Plan for Dunboyne. The site has no previous planning history and no past developments are noted.

There are no known monuments within the candidate site. A burnt mound was identified near the site. However, the potential for discovery of significant archaeology is considered low as burnt mounds were normally sited away from contemporary settlements.

The creation of a suitable access to the site from the R147 is deemed feasible at this stage of assessment. Essential utilities such as power and water are available in close proximity to the site. There are areas of pluvial flooding indicated in isolated locations within the site boundaries which are not significant and would be addressed a design stage through suitable drainage measures.

5.3 Greenogue, Co. Dublin

The site is located adjacent to the N7 national road in the townlands of Collegeland and Commons in South Dublin. The site is 12.5 hectares in area. It is bounded to the east by the Newcastle Road and to the west by the R120 regional road as shown in Figure 8. The Greenogue Business Park is located to the north and Casement Aerodrome, a military airfield, is to the north-east of the candidate site. The site is accessible via the R120 from junction 4 Rathcoole on the N7, which is approximately 1.6km to the south.

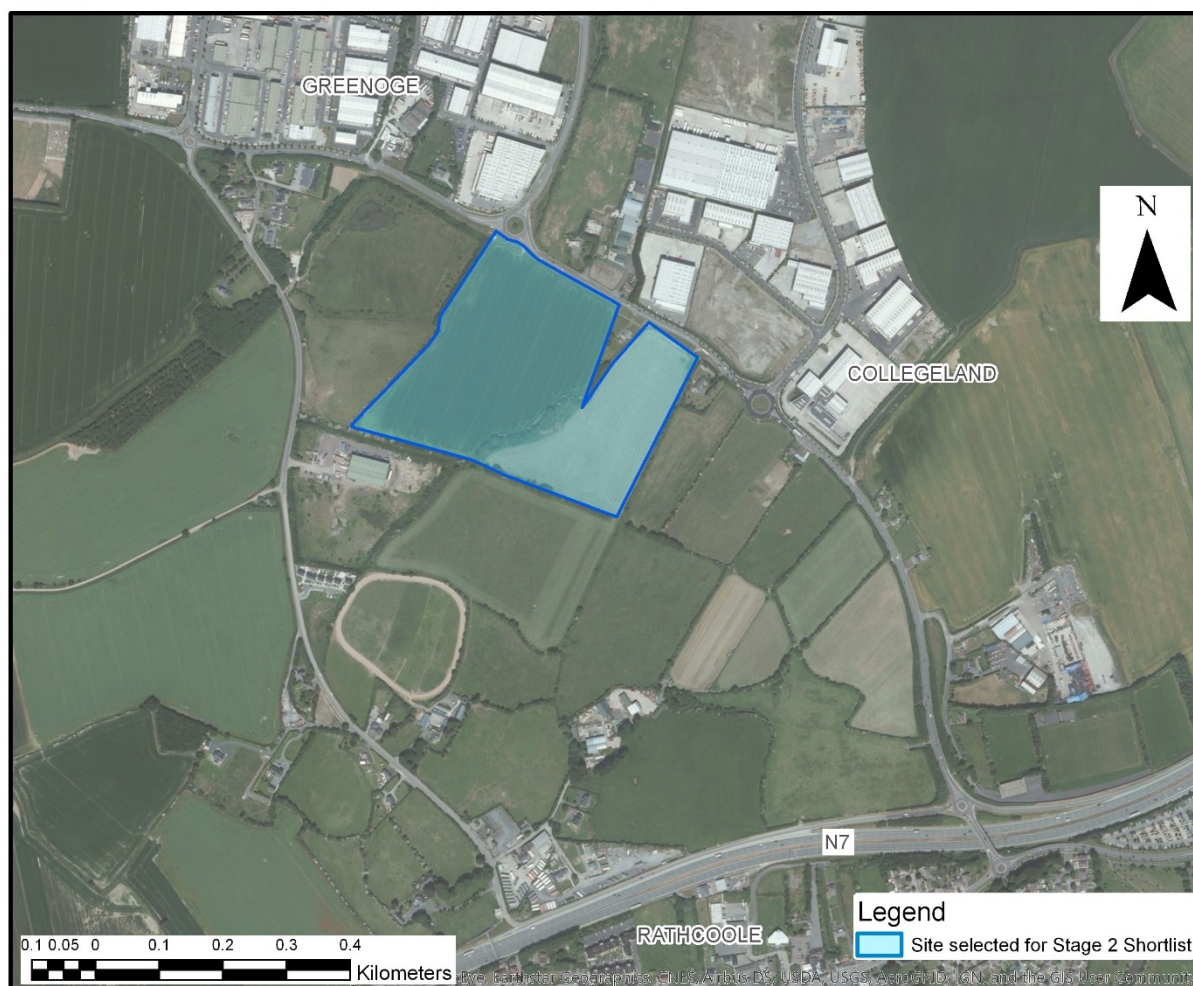


Figure 8 Location of potential site at Greenogue, Co. Dublin

The site is currently zoned for Enterprise and Employment related uses under the South Dublin County Council 2016 – 2022 Development Plan. There is no previous planning history and no past developments were noted.

There are no known monuments within the candidate site or vicinity but given that it is a greenfield site, archaeological investigation would be required at planning stage.

The creation of a suitable access to the site from the R120 is deemed feasible at this stage of assessment. All utility services are readily available from the existing business park. There are areas of pluvial flooding indicated in isolated locations within the site boundaries which are not significant and would be addressed at design stage through suitable drainage measures. A stream traverses the site in a northeast-southwest direction. The CFRAM maps indicate a flood risk zone confined to a narrow corridor through the site. A more detailed assessment is required for the next stage of assessment.

It is envisaged that mitigation measures in terms of lighting for any proposed facility would be required due to the proximity of Baldonnell military airport.

5.4 Newtown/Kilshane, Dublin 11

The candidate site is located adjacent to the N2 national road and within the townland of the Newtown. It is 11.4 hectares in area is situated to the east of Roadstone property and to the northeast of Huntstown power station as shown in Figure 9. It is accessible via the R135 regional road from an exit on the N2, which is 0.7km to the south. Vehicles returning towards the M50 motorway, access the N2 from junction 2 St Margarets, some 0.7km from the site.



Figure 9 Location of potential site at Newtown & Kilshane, Dublin 11

In mid-2016 Irish Water became aware of this site and the planning permission granted in 2006 for a wastewater sludge hub, a construction and demolition waste facility, waste transfer facility and a composting facility. These facilities were not developed on the site, although Fingal County Council as owner of the site, has constructed internal roads and services on the site. It has been partially developed for a waste recycling centre in accordance with planning permission PLO6F.EL.2045. A waste licence (W0223) was also granted for the site although it ceased to have effect in late 2015 as operation for its intended purpose had not been substantially commenced by Fingal County Council. Discussions took place in mid-2016 with Fingal County Council regarding the site's current status and availability. As the need for a regional biosolids storage facility was developed further, Irish Water determined that in order to identify the best possible site for such a facility a fully structured site selection and public consultation process was required.

The site is currently zoned for category HI Heavy Industry under the Fingal County Council 2011–2017 Development Plan for Blanchardstown North. The archaeological study highlighted that the site demonstrates minimum risk for potential discovery of archaeological remains or artefacts. At present the road infrastructure, drainage, power, boundary treatments, access/egress gates to the R135 and some administration buildings have been constructed within the site. Existing ESB high voltage overhead lines traverse the site to the southwest section. However, these will not have a negative impact on possible development. There are areas of pluvial flooding indicated in isolated locations within the site boundaries which are not significant and would be addressed a design stage through suitable drainage measures.

5.5 Woodlands/Kilshane, Dublin 11

The candidate site is located adjacent to the N2 national road and within the townland of the Kilshane. It is 11.3 hectares in area and is shown in Figure 10. The site is situated to the north of Roadstone property and Huntstown power station. It is accessible via the R135 regional road from an exit on the N2, which is 1.7km to the south. Vehicles returning towards the M50 motorway, access the N2 from junction 2 St Margarets, some 1.2km from the site.



Figure 10 Location of potential site at Woodlands & Kilshane, Dublin 11

The site is currently zoned for category HI Heavy Industry under the Fingal County Council 2011–2017 Development Plan for Blanchardstown North. No previously granted planning permissions or pending applications which would limit site availability for potential development were noted.

There are no known monuments within the candidate site or its vicinity but given that it is a greenfield site, archaeological investigation would be required at planning stage.

The creation of a suitable access to the adjacent local road, linking to the R135, is deemed feasible at this stage of assessment. Essential utilities such as power and water are available in close proximity to the site. There are areas of pluvial flooding indicated in isolated locations within the site boundaries which are not significant and would be addressed a design stage through suitable drainage measures.

6.0 Next Steps

6.1 Stage 3 - Selection of a Preferred Site

Following a five week period of non-statutory public consultation, the project team will review and consider all feedback from members of the public and stakeholders. This feedback along with further technical studies and assessment will be used to determine which of the potential sites best meets the criteria. In addition at the next stage of the project, a detailed assessment including walkover surveys at each site will be carried out to enable detailed site investigations.

The preferred site will be subject to a further period of non-statutory consultation. A number of technical criteria set out below, will be considered:

- Environmental
- Economic & Engineering
- Planning
- Social and Community

6.1.1 Environmental

Generally, treated biosolids have low odour and experience has shown that these odours largely disappear following placing in storage. A slight odour tends to arise once the stored biosolids is disturbed. Therefore, all loading and unloading activities will take place in the biosolids storage buildings. These buildings will be subject to odour control. They will be maintained under negative pressure with extracted air being treated in biofilter odour control units. Nonetheless, each site option will be considered in the context of potentially fugitive emissions and the impact on sensitive receptors. Assessment of air quality for each of the candidate site options will also be conducted.

The traffic movements of loaded HGV's will generate noise and some low-level vibrations at the facility. Traffic speeds around the site will be controlled to 10 kph to minimise local impacts. All loading and unloading activities will be conducted in closed buildings thus limiting noise to the surrounding area. To compare the potential sites and to determine any preferences in terms of noise, the assessment of potential impact will be based primarily upon property counts near each site, likely changes in noise environment, and a review of potential mitigation measures.

The methodology for the preparation of Landscape and Visual Impact assessment will include a desktop review of each candidate site to identify landscape planning designations and a roadside survey to identify key receptors.

For each candidate site, it will be necessary to assess the impact of the proposed development on properties and material assets. The assessment will be based on a desk study, and on information gathered during a roadside survey to identify property constraints. This study will include an inspection of the land registry records, consultation with service providers, examination of aerial photographs and inspection of planning records to assess the degree of impact on properties or other material assets.

Each potential site assessment will be based on a study of flora and fauna utilising a variety of existing data sources including recent aerial imagery, National Parks and Wildlife Service on-line mapping services showing the designated area boundaries and other online data sources including the National Biodiversity Data Centre, Bat Conservation Ireland, Botanical Society of Britain and Ireland and BirdWatch Ireland websites.

A site selection constraints study will be undertaken in accordance with *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes*. In accordance with the *Environmental Impact Assessment of National Road Schemes – A Practical Guide (NRA 2008)* an assessment for each of the options on features of archaeological significance has been given; they are categorised as being either a positive or negative, direct or indirect impact, or as having no predicted impact.

6.1.2 Economic & Engineering

The traffic volumes of the section of roadway on which each of the potential sites are located or accessed will be considered. It is deemed preferable to locate a RBSF close to a motorway junction/interchange and to minimise travel along regional road networks. A Road Safety Impact Assessment as per NRA TD 18 will be undertaken for each potential site. This considers the safety implications of the development at each of the potential site locations. It also identifies a site preference in terms of road safety of the potential sites that are being considered.

An examination of the physical features and constraints at or in the vicinity of each site option will be carried out. The factors to be considered include land availability & setting; topography & terrain; conflicts with existing utilities and services; surface water features; and flooding and flood risk.

The potential for the RBSF to be served by surrounding infrastructure will be considered. Key requirements for the RBSF include adequate water supply, waste water discharge, telecommunications, electrical supply and an outfall for surface water runoff.

The existing ground/geotechnical conditions can become a significant engineering challenge and cost in the development of a RBSF. Accordingly, an initial desktop appraisal will be made of ground suitability for the proposed development for each potential site based on available geotechnical data.

Based on outline RBSF designs for each site, capital costs will be calculated using standard cost databases. Similarly, annual operating costs will be calculated based on estimates of biosolids haulage costs together with the facility operating cost. These will be combined using Discounted Cash Flow techniques to give a relative whole life cost for each candidate site.

6.1.3 Planning

Following examination of the various Development Plans and consultations with the relevant planning authorities, areas which generally allow for industry, warehousing, utilities and public services were identified as appropriate zoning for this development. Accordingly, Special Areas of Conservation (SAC's including candidate SAC's), Special Protection Areas (SPA's including proposed SPA's) and Natural Heritage Areas (NHA's including proposed NHA's) are all excluded. However, within these zonings, detailed planning policies will be considered for the selected sites in terms of appropriate use for each site option.

The methodology for the assessment of the potential impacts on planning will be based on a desktop review of each study area to identify constraints like land use zoning, restrictive planning policies and objectives, live planning applications/permissions and will identify anomalous land uses and rank sites accordingly.

It is generally desirable to site waste management facilities as far as possible from sensitive receptors such as schools, hospitals or private dwellings. Each of the shortlisted sites will be examined using geographical information systems and geodirectories to establish a matrix of sensitive receptors within 50m, 100m, 200m and 500m from the proposed storage buildings.

The methodology for the assessment of human beings/socio economics will be based on a desktop review of the study area, planning history records and full review of development plans and, where they exist, local area plans. The assessment will address impacts at a strategic level rather than for individuals or identifiable properties that have been considered for site selection purposes within criteria concerned with agriculture, agronomy and property. Socio economic impact on human beings will be considered from the perspective of possible severance of identifiable settlements and business units.

6.1.4 Social and Community

Cumulative impacts on communities of the siting of existing and proposed infrastructure need to be considered for each of the shortlisted sites.

The impact of the facility on local road networks in terms of road access, network safety and traffic patterns will be considered for each site. These will be considered and compared against road design guidelines and other relevant documents referenced in statutory planning documents. The sites will be compared under this criterion from a social and community perspective.

Often defined as the 'look and feel of an area', in particular a residential area, neighbourhood character also includes the activities that occur there. In everyday usage, it represents place identity. For each site under consideration, the likely impact on the quality of the area from a community perspective will be considered.

6.1.5 Assessment

The selected sites have already been subject to a high-level assessment as indicated in this Report and these will now be refined at the next stage. These further investigations will entail visual inspections of each of the remaining candidate sites with non-invasive assessments of all criteria. Quantitative assessments will be undertaken where appropriate to provide measurable data for a comparable study of each of the remaining sites.

A qualitative ranking system, similar in nature to that outlined in the NRA's 'Environmental Impact Assessment of National Road Schemes – A Practical Guide', will be developed to compare specific site characteristics. This site-specific ranking system will compare advantages and disadvantages of each of the remaining sites in relation to the each other in accordance with the criteria. For each of the criteria, a qualitative approach will be adopted to assign the relative rankings of each candidate site. Therefore, judgement will be applied in arriving at the rankings assigned.

6.2 Stage 2 Non-Statutory Consultation

A five week non statutory public consultation will be carried out as part of this stage of the project. Irish Water will seek feedback on the following:

- What do you think of the five potential sites?
- Is there any additional information on the potential sites identified that we should be aware of?
- In addition to the Environmental, Economic & Engineering, Planning, and Social & Community criteria set out to select a preferred site, are there any other factors you think should be considered in choosing the preferred site?
- How would you like Irish Water to communicate with you as the project progresses?

The *Stage 2 Report – Identification of Potential Sites* will be available online at water.ie and at planning counters and public libraries in greater Dublin.

You can have your say by providing feedback:

- By phone: 1890 44 55 67
- By email: biosolids@water.ie
- By post: Biosolids Consultation, Irish Water, Colvill House, 24-26 Talbot Street, Dublin 1, Ireland.

Appendices

Appendix A Stage 1 Consultation Submissions Report



Regional Biosolids Storage Facility

Stage 1 Consultation Report

Document Control Sheet

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1 BACKGROUND

1.1 INTRODUCTION

Irish Water is carrying out a site selection process to find a location for a Regional Biosolids Storage Facility (RBSF) to serve greater Dublin. The selected site and proposed facility will be included in the planning application for the upgrade to the Ringsend Wastewater Treatment Plant (WwTP). The RBSF will also be included in the planning application for the proposed Greater Dublin Drainage (GDD) project comprising the development of a regional WwTP in Clonsaugh in north Dublin. Both of these planning applications will be submitted to An Bord Pleanála for approval.

The treatment of the wastewater generated in greater Dublin by homes, schools, businesses and industry produces sludge. Wastewater sludge is made up mainly of organic matter that has been removed from the treated water during the treatment process. Further treatment of this sludge is required to enable its safe and efficient re-use or disposal. The further processing of the sludge results in 'biosolids', a biologically stable product free of harmful pathogens (viruses, bacteria etc.) and containing high levels of plant nutrients, e.g. nitrogen and phosphorus. This treatment of sludge happens before the sludge is transported to a biosolids storage facility. Most of the biosolids produced in Ireland (98%) is currently reused on agricultural lands as a soil conditioner and as a replacement for chemical fertilisers. The use of biosolids on agriculture lands is strictly regulated under European and National law. One of the conditions of use is a strict prohibition on spreading biosolids on land over the winter period (October to January). This restriction means that biosolids reused in agriculture need to be stored for certain periods over each calendar year. The need for a regional storage facility serving greater Dublin has been identified by Irish Water in the National Wastewater Sludge Management Plan published in October 2016. Further information on this plan and the public consultation undertaken can be found at <https://www.water.ie/projects-plans/wastewater-sludge-management/>.

The spread-lands currently used for application of biosolids produced at the existing Ringsend WwTP are located in south Leinster and these lands will continue to be used for the biosolids that would be stored at the proposed RBSF. There is no proposal to re-locate the spread-lands to the same location as the proposed RBSF.

The proposed RBSF would have the capacity to store biosolids arising from the existing Ringsend WwTP, from the new GDD facility as and when required, and from other smaller WwTPs in the Dublin region. The new storage facility will serve greater Dublin and its population for the next 25 years and will safeguard public health, protect the environment and facilitate development in this growing region. The new regional facility will lead to greater efficiencies and more effective management of the wastewater treatment network.

1.1.1 Project Roadmap

This Project Roadmap in **Figure 1.1** below, sets out the steps planned to facilitate engagement by the public and all relevant stakeholders as we progress the project. This incorporates three rounds of non-statutory public consultation:

- Stage 1 Consultation on the study area and constraints;
- Stage 2 Consultation on a number of potentially suitable sites; and

- Stage 3 Consultation on the preferred location for a site and views on what should be considered as part of the EIS and NIS Scoping Report.

Following the completion of consultation on a preferred site, that site will be environmentally assessed and submitted as part of the planning applications for the upgrade of the Ringsend WwTP and for the GDD project. This is to facilitate comprehensive solutions for both projects being presented to An Bord Pleanála for adjudication. An Bord Pleanála will undertake statutory consultation on both applications for planning approval as part of their overall assessment of these projects.

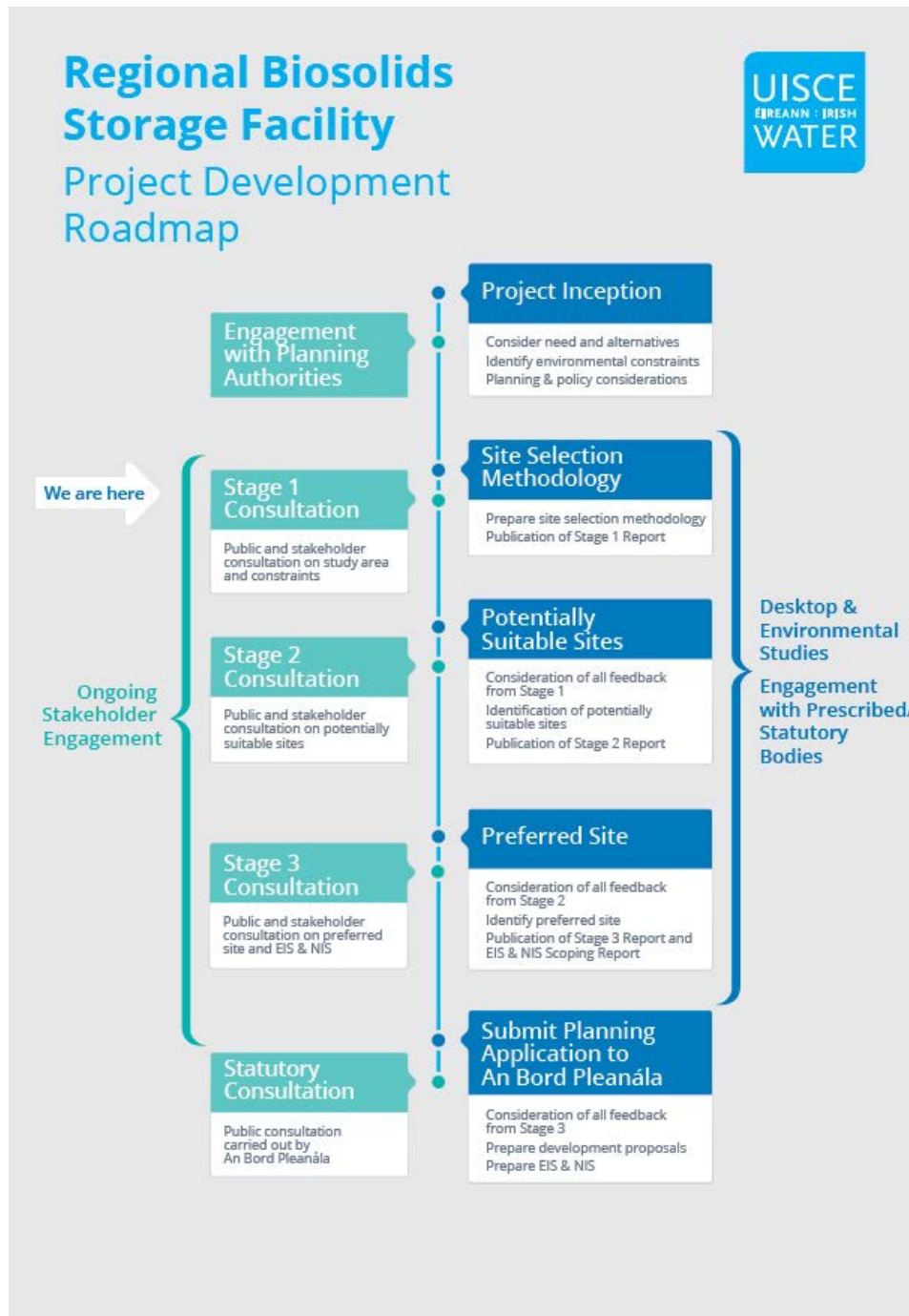


Figure 1-1: Regional Biosolids Storage Facility Roadmap: Stage 1 Consultation

1.1.2 Stage 1 Report – Site Selection Methodology

On 2nd February 2017, Irish Water published the Stage 1 Report – Site Selection Methodology for consultation. The purpose of the Stage 1 Report for the RBSF project was to:

- explain the need for the proposed RBSF;
- outline the study area for the proposed project;
- outline what such a facility would look like and how it would operate;
- outline the planning and other legislation that applies to the proposed development; and
- outline the project development roadmap and the process by which Irish Water is proposing to identify and develop a site for the facility.

The project development process has been informed by a focused period of public consultation on the Stage 1 Report on the site selection process.

1.1.3 Public Consultation on the Stage 1 Report

Following publication of the Stage 1 Report on 2nd February 2017 Irish Water commenced a focussed period of non-statutory public consultation that ran for four weeks until 2nd March 2017. Throughout the consultation, Irish Water sought feedback from the public, local authorities, elected representatives and all interested individuals and organisations on the contents of the Stage 1 Report. All consultation activities undertaken are detailed below in Section 1.2 while feedback received is summarised in **Section 2** of this report.

This focused period of public consultation is part of a broader process of engagement in the development of the Regional Biosolids Storage Facility. Irish Water seeks to engage stakeholders on each of its projects in a transparent and proactive manner to ensure better outcomes for the parties involved. All stakeholder engagement activity carried out by Irish Water is in line with national and European legislation and international best practice.

1.1.4 Consultation Terms of Reference

The terms of reference of the consultation sought to gather feedback on the aspects of the Stage 1 Report that were of most significance to this phase of the project.

The terms of reference of the consultation asked stakeholders the following:

- Tell us your views on the approach to site selection, as described in the Stage 1 Report – Site Selection Methodology.
- The general siting considerations and criteria set out the Environmental, Economic, Planning and Social & Community factors that will be considered. Are there other criteria that should be included at this stage?
- Are there any additional factors that should be taken into consideration in the selection methodology proposed by the project team?
- How would you like Irish Water to communicate with you as the project progresses?

1.2 STAGE 1 CONSULTATION

A range of communications tools were employed to publicise the focused period of public consultation on the Stage 1 Report, in order to generate awareness of the project and to facilitate participation in the project development process.

Key components of the focussed consultation process included:

- Publication of the Stage 1 Report;
- Advertising in national and local press;
- Engagement through media and social media;
- A dedicated project webpage hosted on the Irish Water website;
- Direct engagement with interested stakeholders and groups; public representatives; relevant bodies; and local authorities relevant to the study area;
- A dedicated project information service.

This section of the report provides further detail on each of the above consultation activities.

1.2.1 Publication of the Stage 1 Report

The Stage 1 Report was published on 2nd February 2017 at the start of the focussed consultation period. The report was published on the project webpage within the Irish Water website and made available to download. Correspondence with all stakeholders during the consultation advised of the availability of the report online and in hard copy at the below locations.

Hard copies of the Report were available for the public to review at Irish Water's Colvill House offices on Talbot Street, Dublin 1.

Copies of the Stage 1 Report were also distributed to the seven local authorities within the project study area with each Council Planning Department contacted and requested to display same.

County libraries were also contacted in each local authority and a copy of the Stage 1 Report was provided to the seven county libraries in each local authority to be displayed to the public.

Table 1.1 below lists the libraries and planning counters issued with copies of the Stage 1 Report for display.

Local Authorities	Library	Planning Desk
Dublin City Council	Central Library, Dublin 1	Civic Offices, Dublin 8
Dun Laoghaire Rathdown County Council	DLR Lexicon, Dun Laoghaire	County Hall, Dun Laoghaire
Fingal County Council	Swords Library, Co. Dublin	County Hall, Swords
Kildare County Council	Kildare Library & Arts Service Headquarters, Riverbank Arts Centre, Newbridge	Devoy Park, Naas
Meath County Council	Meath County Library, Navan	Beuvinda House, Navan

Local Authorities	Library	Planning Desk
South Dublin County Council	County Library, Tallaght	County Hall, Tallaght
Wicklow County Council	Wicklow County Library Headquarters, Bray	County Buildings, Wicklow Town

Table 1-1: Libraries & Planning Counters Issued the Stage 1 Report for Display

The availability of these documents at Irish Water offices and at each local authority's main planning counter and library was promoted through the project web page, in direct correspondence with stakeholders and in advertisements in national and local newspapers.

1.2.2 Advertising

A public consultation advertisement was placed in national publications – the Irish Independent and the Irish Farmers Journal – at the launch of the Stage 1 Consultation. A copy of the advertisement is included in **Appendix A1**.

The advertisement was also placed in a number of local newspapers across the project study area which are listed in **Table 1.2** below:

RBSF Advertisement - Media Organisations
Irish Farmers Journal
Irish Independent
Dublin People (Northside and Southside)
Echo Newspapers
Fingal Independent
Kildare Nationalist
Leinster Leader
Liffey Champion
Meath Chronicle
North County Leader
The Gazette
Wicklow / Bray People
Wicklow Times

Table 1-2: RBSF Advertisement - List of Media Organisations

The advertisement announced the Regional Biosolids Storage Facility project and explained why Irish Water was undertaking a public consultation on the project. Stakeholders were advised where the Stage 1 Report could be viewed, and how feedback on the project could be provided within the associated consultation time period. Contact details for the dedicated project phone line, the project email address, postal address and project website were provided.

1.2.3 Media & Social Media

News releases were issued to national media organisations and local media organisations throughout the project study area in counties Dublin, Kildare, Meath and Wicklow. Information was provided on the Regional Biosolids Storage Facility and the Stage 1 consultation. A copy of the news release issued to media organisations at the launch of the consultation is included in **Appendix A2**.

The media organisations that were issued with news releases are listed in **Table 1.3** below.

Media Organisations Contacted
Irish Farmers Journal
Irish Independent
The Irish Times
East Coast FM
KFM
LMFM
Dublin People (Northside and Southside)
Echo Newspapers
Fingal Independent
Kildare Nationalist
Leinster Leader
Liffey Champion
Meath Chronicle
North County Leader
The Gazette
Wicklow / Bray People
Wicklow Times

Table 1-3: Media Organisations Contacted

Briefings on the project and the public consultation were offered to representatives of the media and a project spokesperson was available to speak with members of the media to discuss the project and to answer any questions.

The launch of the project and the Stage 1 consultation was promoted on social media through the [@irishwater](https://twitter.com/irishwater) twitter handle.

1.2.4 Project Website

A dedicated webpage for the project was established on the Irish Water website at the following address: <https://www.water.ie/projects-plans/biosolids/>

The information went live on the morning of 2nd February 2017 and was maintained throughout the consultation period. The website provided information on the background to the Regional Biosolids Storage Facility, the need for the project, the benefits of the project, the Stage 1 Report, the consultation terms of reference, the dates of the public consultation period and answers to Frequent Asked Questions.

Additional information on the RBSF project was made available on the Ringsend Wastewater Treatment Plant Upgrade (<https://www.water.ie/projects-plans/ringsend/>) and the Greater Dublin Drainage (<http://www.greaterdublindrainage.com/>) projects websites. **Figure 1.2** below shows a screenshot of the project website.

The screenshot displays the website for the Regional Biosolids Storage Facility (RBSF) project. The header includes the 'IRISH WATER' logo, navigation links for 'Projects & Plans', 'Water Supply', 'Community', 'For Home', 'For Business', 'Connections', 'Support', and 'About Us', and utility buttons for 'Contact Us', 'Search', 'Pay Now', and 'My Water'. The breadcrumb trail reads 'Home / Projects & Plans / Biosolids'. The main heading is 'Regional Biosolids Storage Facility'. Under 'Project Overview', it states that Irish Water is studying suitable locations for a facility in greater Dublin and parts of Kildare, Meath, and Wicklow. It notes that the facility will be part of an upgraded wastewater treatment network. The text explains that biosolids are a by-product of wastewater treatment containing nutrients like nitrogen and phosphorus, used in agriculture but needing storage in interim periods. It forecasts a significant increase in biosolids production by 2040 due to new and upgraded plants. The 'Project Need and Benefits' section, titled 'Greater Dublin is growing', notes that the population of greater Dublin is forecasted to exceed 2 million by 2031, leading to increased demand for wastewater treatment and biosolids. An aerial photograph of a large industrial or storage facility is shown on the right side of the page.

Figure 1-2: Screenshot from the RBSF Project Website

1.2.5 Direct Engagement

A number of stakeholders and organisations were contacted by the project team at the launch of the project. These included interested stakeholders and groups; public representatives; relevant bodies; and local authorities relevant to the study area. All recipients were provided with information on the background to the Regional Biosolids Storage Project, the need and benefits of the project, the details of the public consultation period, a link to the project website, and the details of the project's information service for further information or queries.

A sample copy of correspondence issued to interested stakeholders at the launch of the consultation period is included in **Appendix A3**.

Public representatives relevant to the project's study area were contacted at the launch of the consultation period. Public representatives were encouraged to engage in the consultation process and to encourage their constituents to participate. **Table 1.4** below lists the representatives who were contacted.

Public Representatives in the RBSF Project Study Area
Minister for Agriculture, Food and the Marine
Minister for Communications, Climate Action and Environment
Minister for Housing, Planning, Community and Local Government
Minister of State for Housing and Urban Renewal at the Department of Housing, Planning, Community and Local Government
MEPs in Dublin and the project study area
TDs/Senators in the Dublin, Meath, Kildare and Wicklow Constituencies and Spokespersons on the Environment
Councillors in Dublin City, Fingal, Dun Laoghaire Rathdown, South Dublin, Meath, Kildare and Wicklow County Councils
Eastern and Midland Regional Assembly

Table 1-4: Public Representatives in the RBSF Project Study Area

A number of relevant bodies and organisations were contacted at the start of this period of focused consultation and were invited to make submissions as part of the consultation process. **Appendix A4** lists the organisations contacted.

In addition, stakeholders who had previously registered interest in the National Wastewater Sludge Management Plan, the Ringsend Wastewater Treatment Plant Upgrade or the Greater Dublin Drainage projects were contacted with information on the Regional Biosolids Storage Facility inviting and encouraging them to participate in the process.

1.2.6 Information Service & Making a Submission

A dedicated information service was established at the launch of the focussed consultation period to facilitate stakeholders obtaining information on the project and making a submission to the consultation. The information service was promoted on the project website, in advertisements, news releases and in all correspondence issued.

Stakeholders were invited to contact members of the project team through the lo-call phone line on 1890 44 55 67. The phone line remained available during normal business hours. Outside of these times, a messaging service was available and calls were returned at the earliest opportunity.

A postal address was established and stakeholders who wished to submit submissions in hard copy could do so to the following address:

Biosolids Consultation,
Irish Water,
Colvill House,
24-26 Talbot Street,
Dublin 1, Ireland.

A dedicated email address biosolids@water.ie was established and stakeholders were invited to submit their feedback on the consultation or seek further information from the project team to this address.

2 FEEDBACK FROM CONSULTATION

All feedback provided to the project team is presented below under a number of headings. There were 65 individual submissions as part of this period of public consultation. These are broken down by contact method in **Table 2.1** below.

Methods of Stakeholder Feedback	Individual Submissions Received
Email	43
Phone	13
Post	9
Total	65

Table 2-1: RBSF Stage 1 Consultation: Participation Levels

A number of organisations issued responses or acknowledgements as part of the Stage 1 consultation and these have been listed in **Table 2.2** below. A small number of responding organisations have not been published as either the submissions received were from stakeholders responding in a personal capacity or were from private companies suggesting sites for consideration.

Organisations Responding to the Stage 1 Consultation
Ballyellen Residents' Association
Bord Bia
Castletown Community Alert
Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
Department of Jobs, Enterprise, and Innovation
Fingal County Council
Food Safety Authority of Ireland
Gormanston Community Association
Ibec
Indaver Ireland
Irish Environmental Network
Kildare County Council
Meath County Council
Ringsend Environment Group
Sandymount and Merrion Residents Association
Transport Infrastructure Ireland
Wicklow County Council

Table 2-2: Organisations Responding to the Stage 1 Consultation

The following section reports issues raised and feedback provided. The below feedback is taken from stakeholders' submissions with repeated themes summarised and singular items of feedback taken directly from the stakeholders' submissions. Feedback provided by individuals is unattributed and feedback given by organisations has generally been ascribed. Feedback received was reviewed by the project team throughout the consultation period.

This feedback has been reviewed by the project team and where relevant, will be taken into account in the development of the Stage 2 Report. Actions or responses to queries raised in submissions are not provided for in this report as relevant feedback will be considered by the project team and addressed as part of the Stage 2 Report for the project.

The views contained in this section do not reflect the views of Irish Water but represent the views of the stakeholders who made submissions as part of the public consultation. Accordingly, Irish Water does not attest to the accuracy of the information provided below.

2.1 PROJECT NEED

The importance of investment in water and wastewater infrastructure was highlighted in the feedback received. The regional biosolids storage facility and its significance to both the Ringsend Wastewater Treatment Plant Upgrade and Greater Dublin Drainage projects were referenced as being critical developments for the future wastewater infrastructure in the Dublin region. Their development, in an effective and efficient manner, is required to support continued enterprise growth in the region.

Feedback received highlighted the importance of the planning process and the need for Irish Water to obtain permission for all aspects of the project. Any permission sought by Irish Water should be clear, transparent and unambiguous and should set out the intent, purpose and scope of operations planned. Existing sites that do not have full planning permission for their current operations must not be considered for future development. A full assessment of the environmental impact should also be carried out. Any licencing requirements should be met in advance of the project proceeding. One submission called for a review by a relevant state agency or government department, with consideration of international best practice, of how biosolids are to be used or disposed of.

One stakeholder expressed a desire to discuss the broader wastewater sludge treatment strategy with a view to exploring possible future investment opportunities.

In its submission, the Food Safety Authority of Ireland welcomed the diversion of solids from one of the largest waste streams in the country.

The approach taken by Irish Water in pursuing a solution for biosolids based on spreading on agricultural lands was criticized in some of the feedback received. This was cited on grounds of human health, negative international experiences and impact on the environment. One stakeholder felt that if it was in contravention of EU regulations to discharge this material at sea, then it should not be spread on farm lands. Concern over the make-up of the biosolids and the level of treatment it has gone through were raised. The impact this material could have on land where it is spread and in turn our crops, water table, environment and ultimately our water supply were expressed. Greater research and investment into the area was requested of Irish Water and the local authorities to identify a better solution.

It was felt by some respondents that the practice of land spreading should be reviewed for Dublin and the rest of the country. A view was raised that land spreading has a negative impact on the environment and that, as Ireland is heavily reliant on agriculture, the possible impacts could have an effect on the Irish economy and Irish exports.

There was confusion regarding the sludge treatment facilities planned as part of the Greater Dublin Drainage project and the Regional Biosolids Storage Facility with one stakeholder unsure if there was overlap between the two.

In its submission, Ibec noted that feedback received from its Environment Policy Committee was supportive of the project noting that the regional storage facility will enable seasonal use of a valuable agricultural product and allow the regions sewage treatment capacity to grow.

Indaver Ireland's submission referenced the national context of biosolids and the strategy for managing the expected levels of biosolids over the next 25 years. Indaver advised that they currently have capacity to recover biosolids at its Duleek facility and is exploring additional biosolids recovery options within the Greater Dublin Area and in County Cork. The pressure on land spreading as a solution was noted and the need for Irish Water to examine additional options was highlighted.

One submission referenced section 5 of the National Wastewater Sludge Management Plan citing the importance placed by Irish Water in exploring improved methods of treatment. It was felt that land spreading was not the best solution for biosolids and that alternative technologies should be explored. Irish Water's decisions to date have been led by legislative policy but technology often changes faster than policy. It was suggested that Irish Water examine these new technologies and their application across the regions in Ireland.

It was noted by one stakeholder that the proposed facility should make appropriate provision for arisings from private septic tanks as well as wastewater treatment plants.

It was noted that an environmental impact assessment cannot be carried out retrospectively and that project splitting is not permitted under the EIA Directive.

2.2 SITE SELECTION METHODOLOGY

A number of queries were raised regarding the site selection process for the project. Questions in respect of zoning and land use planning and how these would impact the selection process were raised by a number of stakeholders.

Information was requested on any sites being examined as part of the site selection process. Further clarity on the mapping of the proposed study area for the project was also requested.

Feedback was provided advising that consideration should be given to the location of the spread lands that will be used as part of this process. It was noted that transport costs from the storage facility to the spread lands do not appear to be considered as part of the process outlined in the Stage 1 Report.

Feedback provided stated that while the facility may be acceptable in principle within the Z7 zoning of the Dublin City Development Plan, there are a number of planning policies and objectives under which the project must be assessed. Under the Z7 zoning requirements, the biosolids storage facility would need to generate a certain level of employment.

It was indicated in feedback provided that the project would be acceptable in principle in industrial/warehousing areas and may also be suitable in a rural zone. It was felt by another

respondent that the proposal might be challenged in rural areas due to its scale and in other areas due to the nature of the facility and relatively low levels of employment to be generated.

Fingal County Council noted that the suggested site selection method appears thorough and robust. They made a number of comments on considerations they felt should be observed as part of the selection process:

1. Under the documentation submitted, the Biosolids Storage Facility is defined as a 'Transfer Station' or 'Refuse Transfer Station'. Fingal does not use this term in its zoning/land use classifications. Fingal instead refers to a 'Waste Disposal and Recovery Facility (High Impact)' and a 'Waste Disposal and Recovery Facility (Excluding High Impact)'. Under our technical Guidance Documents a Waste Disposal/Recovery Facilities (High Impact) is defined as:

"The use of land or buildings for facilities with high potential for odour, noise, dust and other nuisances including putrescible waste. Examples of high impact facilities are transfer stations and treatment plants for organic waste and residual waste which have a potential for odour, crushing and processing of construction and demolition waste, and facilities where waste is stored outside of buildings and which is visually intrusive or otherwise likely to be a nuisance, including scrapyards. Excludes landfills."

If a site is to be identified in Fingal, unless it can be proven otherwise, a land area zoned 'Heavy Industry' is the more preferable location for such a facility.

2. Were a site for the Regional Biosolids Storage Facility for greater Dublin to be located within the boundaries of Fingal County Council, it should be noted that our new Fingal Development Plan 2017-2023 contains objectives relating to energy saving designs and green energy designs for new buildings. Due cognisance needs to be taken of these objectives in any application submitted. Examples of some of these objectives are listed below:

Objective EN05: Encourage proposals that are low carbon, well adapted to the impacts of Climate Change and which include energy saving measures and which maximise energy efficiency through siting, layout and design.

Objective EN08: Consider the adaptability of buildings over time and seek to improve the efficiency of existing building stock and promote energy efficiency and conservation in the design and development of all new buildings in the County.

Objective EN09: Require details of the requirements for alternative renewable energy systems, for buildings greater than 1000sq m or residential schemes above 30 units, under SI 243 of 2012 European Communities (Energy Performance of Buildings) to be submitted at pre planning stage for consideration. These should take the form of an Energy Statement or Feasibility Study carried out by qualified and accredited experts.

Objective DMS16: Promote and encourage the use of green walls and roofs for new developments that demonstrate benefits in terms of SuDS as part of an integrated approach to green infrastructure provision.

3. While it is noted that the submitted documentation gives indicative drawings only, Irish Water is proposing an attenuation tanks solution for surface water storage. If any site is chosen close to Dublin Airport, the Irish Aviation Authority and Dublin Airport Authority

should be informed and their comments acted upon if required. These should be ascertained prior to any application for planning submission.

Ibec noted the comprehensive selection criteria proposed in the Stage 1 Report. However, the need for a transparent scoring system was highlighted in order to rank the candidate sites.

One submission stated that any area of archaeological, historical, tourism or recreational value be excluded from consideration from the siting process and that no plans should impact adversely on current or future county development plans.

It was suggested that rural areas or a site that could adversely impact on farmland, crops, livestock, game or wildlife be excluded from consideration and that regard be given to any possible impact on the food chain.

A minimum of three alternative sites should be examined in order to comply with European regulations.

Concern was raised that criteria similar to what is outlined in the Stage 1 Report was applied on previous projects that resulted in locating infrastructure in close proximity to the Sandymount Strand Special Protection Area, Special Area of Conservation and National Heritage Area. The concern centred on points in sections 5.1.2 and 5.1.3 of the Stage 1 Report that promotes consideration of the clustering, colocation and integration of similar facilities, while avoiding regional imbalances.

Transport Infrastructure Ireland made a submission outlining their policies and procedures in respect of infrastructure site selection. Their position is to seek to safeguard the safe and efficient operation of the Light Rail Network and uphold the general policies and guidelines as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities concerning the operation of national roads. Transport Infrastructure Ireland outlined a number of recommendations as general guidance for the site selection process, which ensures consideration of any effects on the national roads network and light rail network.

Meath County Council in their submission, highlighted that the Meath County Development Plan 2013-2019 is the document that guides development in the County and a review of this plan is currently underway. Information on the development of the new plan – Meath County Development Plan 2019-2025 – is available online.

Comments received from Meath County Council on site selection criteria focused on Sections 4 and 5 of the Site Selection Methodology Report.

Section 4.3 of the report specifically states the following in terms of preferred locations "areas will be identified where the zoning would allow for industry, warehousing, employment, utilities and public services". Meath County Council's E2 land use zoning objective included within the current County Development Plan is "To provide for the creation of enterprise and facilitate opportunities for employment through industrial, manufacturing distribution, warehousing and other general employment/enterprise uses in a good quality physical environment". The guidance provided within the development Plan for E2 zoned lands is as follows: "E2 lands constitute an important land bank for

employment use which must be protected. The development of E2 lands seek to provide for the creation and production of enterprise and facilitate opportunities for industrial, manufacturing, distribution, warehousing and other general employment / enterprise uses in a good quality physical environment". A wide variety of uses are identified within the plan as being 'permitted' and 'open for consideration' and these were outlined in Meath County Council's submission.

Within the Meath County Development Plan, there are phase 1 and phase 2 employment lands identified. Phase 1 lands are ready for the submission of enterprise and employment proposals with immediate effect. Phase 2 lands are identified as being ready for development post 2019. However, the phase 2 lands can be made available for development within the lifetime of the plan "where a significant development is proposed which could not be accommodated within the lands identified as Phase I, for reasons of scale, lack of availability or unsuitability of the relevant Phase I lands, lands within Phase II may be considered in this regard".

There is no specific agricultural land use zoning objective contained within the Meath County Development Plan, unlike other countries located within the Mid-eastern region.

The Planning Authority is aware that under other County Development Plans that land outside zoned categories in settlements is deemed to be zoned agricultural, whereas the Meath County Development Plan facilitates employment of up to 10 people in rural areas without recourse to material contravention procedures in appropriate circumstances.

Section 4.3 of the Meath County Development Plan outlines the following in relation to economic development proposals "in order to provide for a proactive flexible approach to economic development within the County all applications for economic development will be positively considered by the Planning Authority on their merits" which would include proposals for development on Phase 2 employment lands".

Kildare County Council in their submission noted that the new County Kildare Development Plan 2017-2023 came into operation on 1st March 2017. The County Plan together with a suite of local area plans, are the relevant statutory land use plans for Co. Kildare. The Council noted that the Stage 1 Report outlines a number of factors which should inform the site selection process which appears comprehensive and around which a site selection process could be undertaken. A number of other points were made as follows:

Given that the Report states that approximately 85% of the treated wastewater sludge from the GDSDS area would be generated by the Ringsend and GDD wastewater treatment plants, Kildare County Council consider that locating the proposed Regional Biosolids Storage Facility (RBSF) near these main load sources would be the most sustainable approach to siting the new facility. Hauling material at some remove from the sources of such material has led to issues for example, in relation to traffic travelling to/from a major landfill in north-west Kildare, the road infrastructure along the haul routes and the amenity of those living along the routes.

The approach to site selection outlined in the consultation document of examining lands zoned for industry / warehousing / employment / utilities and public services in the first instance is considered the most appropriate. However these zones are relatively limited in

extent in Co. Kildare with some employment zones identified for higher order enterprise uses e.g. office based industry and where locating the Regional Biosolids Storage Facility would be problematic and most likely unacceptable.

In Co. Kildare locating the development in other zones, e.g. residential, town / village centre, etc, would likely be contrary to the County Plan or local area plans. In rural areas the principal uses envisaged are activities that can be carried on in a rural area e.g. agriculture, forestry, quarrying, equine etc. One-off housing is also open for consideration in such areas. The County Plan states that "...where an area is not within an identifiable settlement, and is not otherwise zoned as part of this Plan, or of any of the town development plans, the use of such land shall be deemed to be primarily agricultural" (para. 10.5.6 – Policy RLE 8). Large scale uses such as the substantial Regional Biosolids Storage Facility envisaged in the consultation document would probably require a material contravention of the County Plan or the relevant local area plan.

2.2.1 Suggested Sites

A potential site for the biosolids storage facility in Arklow, County Wicklow was suggested by a number of stakeholders, including Wicklow County Council as part of their submission. The suggested site has a long history of development with various permissions for industrial development being granted previously on the lands. These include a power generation plant and recycling/recovery facilities on parts of the overall available site. It was noted in one submission that the particular site was considered as part of a more recent selection process for wastewater treatment infrastructure and it was stated that while it was not the chosen site in that process, the site scored highly. It was noted that this history of development alone would indicate the site's suitability. It was also highlighted that while there is good access to the motorway and national road network, it is not directly adjacent to an interchange. The site was also noted as having gas, electricity and water / wastewater services connections.

Meath County Council identified a possible site for the biosolids storage facility at Kilbride, Clonee, in south-east County Meath. Having regard to the site selection criteria outlined by Irish Water in the Stage 1 Report and given its proximity to the motorway network, Meath County Council recommend that the zoned lands at Kilbride, Clonee provide a suitable location for the storage facility. A number of benefits to this site were outlined in the submission including: the site's flexibility in terms of layout configurations and expansions into the future if necessary; the site is not in a flood zone and is set back from the nearby watercourse; the site is not in an elevated position; the area has ease of access to the Ringsend Wastewater Treatment Plant and the planned Greater Dublin Drainage project at Clonsaugh. The lands are removed from significant residential development and are not bound by sensitive designations within the Meath County Development Plan 2013-2019 as varied.

A 60 acre site in an industrial estate in west County Dublin was suggested as a suitable location for the biosolids storage facility.

An existing industrial storage facility in County Roscommon was suggested as a suitable site for this project. It was suggested that its suitability is due to its central location in Ireland, proximity to the national road network, its industrial zoning and the existing storage and ancillary facilities already in place.

A site on agricultural lands near Kilcock, County Kildare was suggested to the project team as potentially being suitable for the biosolids project.

Disused quarries were suggested as potentially suitable for housing a biosolids storage facility. A number of disused quarries were suggested including sites in County Wicklow close to either the M9 or M11 motorways. It was suggested that surveying these quarries using drones would be beneficial to assess any potential archaeological significance that may be relevant to the use of the sites. Quarries containing sulphur or wood were felt unsuitable for use.

A 25 acre site at Newcastle, County Dublin was suggested as being suitable for a biosolids storage facility. Its proximity to existing water infrastructure and proposed wastewater infrastructure was referenced in the feedback provided. While part of the site is zoned for industrial use, nearby lands have been purchased for planned future industrial use and it is expected that they will be zoned industrial in the future. A planned upgrade to the local road network was referenced making the site more accessible to the national road and motorway network. It was noted that the site currently has a number of buildings in place.

A 40 hectare site zoned for agricultural use in north County Dublin was suggested as a potentially suitable site for the project.

Agricultural lands, located in the south east, were suggested as a possible site for the biosolids storage facility due to the existing agricultural storage at the site and previous use of biosolids in land spreading activities.

2.2.2 Cumulative Impact

It was noted in feedback that County Meath currently receives 54,000 tonnes of sludge per year and that the new biosolids storage facility will accommodate 48,000m³/year. Should the new facility be located close to the Ringsend Wastewater Treatment Plant or the proposed Greater Dublin Drainage project in Clonsaugh, it was felt that the proximity to County Meath might encourage further land spreading in the county, as opposed to going to other counties who may accommodate less land spreading already.

The cumulative impact of siting the facility on the Poolbeg Peninsula was referenced in feedback and that additional industry at this location would encroach on the local amenities of Irishtown Nature Park, the Shelly Banks and the communities of Irishtown Ringsend and Sandymount. In addition, the development of the Irish Glass Bottle site makes this location unsuitable for the development of the regional storage facility.

It was felt that while Sandymount Strand would be ruled out on environmental and ecological grounds and a lack of sufficient available space, the desirability of colocation under certain circumstances may lead the project to consider locating the storage facility in this area. However, if this position were adopted the cumulative impact of any further waste related facility within this community would be significant. The development of the orbital sewer and wastewater treatment facility in north Dublin is welcome in this regard as it will help to alleviate the Ringsend treatment plant and allow for an additional upgrade option beyond the Ringsend plant.

2.3 ALTERNATIVES

It was suggested that the generation of bio-energy be incorporated into the storage facility plans and if this is not possible, that provision be made to allow for its inclusion at a later date. It was further suggested that this may require third party involvement from the private sector. Examination of successful bio-energy projects from overseas should form part of the design process of the storage facility and that options for generating biogas at the storage facility could be used as part of separate district heating systems.

The decision to develop a larger regional facility instead of a number of smaller storage facilities was queried in feedback received. It was felt by one stakeholder that small plants present less of a negative impact on their receiving communities which can be worth the additional investment required.

The option of acquiring existing storage facilities instead of developing a new site for the project was raised.

Feedback was provided outlining that converting biosolids into an oil that can be blended into the ingoing feedstock of a refinery would be preferable to the land spreading option. The DIAGEN process is established in New Zealand and Australia and the scale, flexibility and time frame required for the process was referenced in the submission. The process results in: less odour and water usage than other technologies; less waste arising from the process; and a more valuable end product. The stakeholder noted their own existing facility in the midlands that they felt could accommodate this process and that the development could be largely carried out by Irish suppliers. Further information was provided on the technical aspects of the process and the economics of operating such a facility.

It was suggested that more options be considered beyond land spreading of biosolids. The use of pelletised sludge as an alternative fuel in thermal treatment was referenced in light of this point.

It was noted that incineration of biosolids should be considered and that the storage facility should be located close to the incinerator at Poolbeg to facilitate the incineration of treated sludges and owing to its proximity to the Ringsend Wastewater Treatment Plant. This was felt to be especially necessary in light of the prohibition on exporting such sludges and the lack of a market for the use of biosolids in agriculture due to the prohibition on their use in Bord Bia Quality Assurance Schemes.

Incineration of biosolids for the generation of either power or heat should be considered by Irish Water. The ash generated from incineration would be more preferable for communities for use in land spreading than biosolids, as it would have less volume and less impact from an odour or contamination perspective.

Incineration of biosolids instead of land spreading was referenced as being a better solution as this allowed a solution to a Dublin problem to be solved within the County. However, another submission noted that without pre-treatment, biosolids treated in an incinerator will not provide their full energy potential.

In its submission, Indaver Ireland stated a need for alternatives to land spreading and noted that its waste to energy facility in Duleek, Co. Meath could provide such an alternative and address the

matter within the Greater Dublin Area. The curtailment of land spreading at certain times of the year could be addressed by use of the Indaver facility during these periods with immediate effect, pending commercial arrangements. As the biosolids generated in Dublin are not of heavy industrial origin, the ash residues from the thermal process are suitable for phosphate recovery, the process for which was detailed in Indaver's submission. Any bottom ash produced would be sent to landfill as an engineering material. Indaver's Duleek facility produces the heat and power on site needed to pre-treat biosolids prior to recovery. Indaver are currently exploring options for the development of the infrastructure required to develop this process in Ireland.

2.4 BIOSOLIDS & STORAGE

Kildare County Council queried the process associated with the storage of biosolids and the quality of biosolids to be stored. As the facility will store biosolids from a number of different sources and as a result will have different nutrient and metal content, it was questioned whether the material will be stored and graded separately or whether the end product will be homogenised. It was noted that this is relevant for nutrient management planning purposes and the calculation of spreading rates, limits etc.

The quality of the biosolids being stored at the facility was raised and it was queried how the incoming materials would be assessed in order to assure the quality of the end product.

A number of submissions referenced the possible contaminants that could be found in biosolids and the effect that can have on the environment. These included metals, toxins, viruses and bacteria with one submission referencing the presence of hepatitis and salmonella in biosolids.

In respect of County Kildare, it was queried whether sludge will be routed through the planned anaerobic digester at Osberstown prior to transfer to the regional storage facility or whether the sludge will be transported directly from the County for alternative treatment.

The long term storage of what is a potentially combustible material and the safety surrounding this was queried in the feedback received. Information on the planned safety measures at the facility was requested.

An updated sludge management plan should be prepared for the new biosolids regional storage facility.

Feedback stated that it should be clarified whether or not treatment will also be taking place at the Biosolids Storage Facility.

2.5 AGRONOMY

Queries and concerns over the land spreading of biosolids were raised in the feedback provided by stakeholders. Questions were asked as to how biosolids will be used in agriculture and the

limitations of biosolids in respect of crops grown for animal fodder and energy production crops. Queries on the legislative and regulatory provisions governing the use of biosolids in agriculture were raised. References to concerns expressed by Bord Bia and members of the media in respect of the use of biosolids in agriculture were made. The presence of heavy metals in biosolids and the process to remove them prior to land spreading were also raised in the feedback provided.

Bord Bia's Beef & Lamb Quality Assurance Scheme was raised and it was stated that due to the restriction on the use of biosolids on certified farms, the market for biosolids in agriculture was minimal.

Feedback provided expressed a concern that while biosolids will only be spread on energy crops and crops for animal fodder, a distinction cannot be made between beef pasture and other crops that are grown for animal feed as silage and cereals are grown for animal fodder. It was noted that Bord Bia prohibits the use of biosolids on farms that wish to partake in its quality assurance schemes. It was stated that it should be the responsibility of Irish Water to ensure that this is made clear, from the outset, to farmers that are considering using biosolids as a soil conditioner.

Bord Bia confirmed as part of the consultation that all farmers registered with the local authorities for biosolids usage, were written to by Bord Bia who set out their policy on the use of biosolids and their requirements under their quality assurance schemes. Bord Bia noted that their views on the matter had been reflected by Irish Water in the National Wastewater Sludge Management Plan in 2016.

A view was expressed that food crops could not be grown on lands following land spreading of biosolids for a period of 1 to 3 years because of the toxins, chemicals and heavy metals that could contaminate the land.

Indaver Ireland's submission referenced the Confederation of European Waste to Energy Plants' (CEWEP) previous submission to Irish Water that raised concerns about the practice of land spreading biosolids. The risk of contamination of lands as a result of the presence of heavy metals, Persistent Organic Pollutants, Environmental Persistent Pharmaceutical Pollutants and personal care products were highlighted. The knock-on effects of this contamination to the food industry and quality assurance schemes were noted.

Concern was expressed on the level of research carried out into the impact of land spreading biosolids and that further research should be conducted. A number of reports and sources were referenced that highlight previous negative experiences of land spreading biosolids in other countries which have caused concern as to the impact on the environment and human health.

2.6 ENVIRONMENT

Feedback provided referenced concerns in respect of the impact of land spreading on wildlife, and the risks to human and animal health.

The Food Safety Authority of Ireland welcomed the positive effect the project would have on water quality where shellfish are grown. Referencing the potential positive impact on the Malahide,

Skerries and Gormanston fishing grounds, especially in respect of wild razor clams fished there, which are sent live to market. The Authority requested that the existence of these grounds be considered when making a decision in respect of the siting of the biosolids storage facility.

2.6.1 Air Quality

Potential odour from the storage facility and from land spreading of biosolids was referenced as a concern. One community in north Wexford/south Wicklow referenced their previous experience of land spreading of certain biosolids approximately ten years ago. Many residents closed windows/vents in their homes and spent less time outdoors to avoid the odour with some leaving the area for periods of time to avoid the smell. The odour remained long after the land spreading had taken place and was considered to be an unacceptable impact for the community to face.

One stakeholder referenced a period of one month from when the land spreading took place to when the odour had dissipated.

Odour from trucks transporting biosolids was referenced as a concern by a stakeholder who experienced living near to lands where biosolids were spread. The odour from passing trucks had a significant impact on their home. This impact was made worse when a passing lorry shed some of its load outside their house and concern was raised over its impact on local wildlife.

The need for odour control at the storage facility was highlighted in submissions received.

Concerns over airborne particles arising from land spreading of biosolids were raised in the feedback. The potential risk this could cause to asthma sufferers was noted.

2.6.2 Health

A study by the University of Georgia, USA was referenced in a submission outlining concerns about the risk to public health from land spreading biosolids. A number of potential impacts were listed such as burning in the eyes and lungs, and skin rashes. A number of restrictions are quoted from the University of Georgia report in respect of land where 'class B biosolids' have been spread. These relate to restrictions placed on the land following the application of biosolids including restrictions on animal grazing, use of food crops and public access. Concerns were raised how these restrictions will be monitored and with whom responsibility lies for monitoring and enforcing of the restrictions.

The potential impact on human health as a result of biosolids entering the food chain following land spreading was raised in the feedback provided.

2.6.3 Soils, Geology & Hydrogeology

Concerns were expressed over the danger of ground contamination from land spreading. Quoting an unnamed source, the submission expressed concern that the 'macamore soil' in the Wexford region has a pH as low as 5, where a minimum pH of 6 is necessary to prevent metals from contaminating soils and groundwater.

Feedback received referenced the 'marl soil' in the south Wicklow/north Wexford region which has poor drainage. Concerns were raised that following land spreading, the soil conditions could lead to run off waters causing pollution in rivers and the water table. As many in the area are on private water supplies, the impact of this risk is heightened.

The land spreading of biosolids was referenced as a health hazard due to the possible risk of ground water contamination and the build-up of pollutants in the soil over time.

2.7 COMMUNICATION & CONSULTATION

One stakeholder queried how the consultation process works and sought clarity about what was expected from members of the public as part of this first consultation period.

Feedback stressed the importance of consultation with communities that will be impacted by this project and the need for full disclosure of the possible implications of living close to a biosolids storage facility. It was noted in feedback that communities affected by this project should be informed well in advance of any activity taking place and that any loss of amenity arising from the storage or land spreading of biosolids as part of this project should be compensated.

The need for information on the project to be available in the Irish language was raised by one stakeholder.

A number of stakeholders referenced their desire to participate throughout the process as the project develops.

European requirements in respect of public engagement and Irish Water's obligation to comply with same at each stage of the process were referenced in feedback received. Public meetings and 'question and answer sessions' should be held at each stage of the project. Feedback was provided by one stakeholder that public meetings were required as part of this consultation period under the 'public participation principle'.

Queries were received regarding the level of participation in the consultation and the level of publicity surrounding the announcement of the consultation.

3 NEXT STAGES OF THE PROJECT

Irish Water would like to thank all those who submitted feedback as part of the focussed period of public consultation on the Stage 1 Report. Queries raised will be addressed by the project team through the Stage 2 Report and in subsequent project reports, in lieu of individual responses being issued. The feedback received as part of this period of public consultation has been reviewed by the project team and the feedback and issues raised will inform the development of the Stage 2 Report. Engagement with the project team is encouraged at any stage of the project and the information service will remain in place until a planning application is submitted.

The Stage 2 Report will identify a number of potentially suitable sites for the Regional Biosolids Storage Facility and the report will be subject to a further focussed period of public consultation when it is published. All stakeholders will have the opportunity to provide feedback on the potentially suitable sites as part of this consultation and in advance of the project team selecting a preferred site.

As per the project roadmap (**Figure 1.1**), upon identification of a preferred site, a further round of public consultation will be carried out in advance of a planning application being submitted.

Once a planning application has been submitted to An Bord Pleanála, a statutory consultation will be conducted in line with the requirements of the relevant planning legislation.

APPENDIX A1
RBSF Advertisement

Regional Biosolids Storage Facility for Greater Dublin

Public consultation

Irish Water has announced a new project to develop a Regional Biosolids Storage Facility for greater Dublin (including Dublin city and county and parts of Kildare, Meath and Wicklow).

The new storage facility for biosolids will form part of the upgraded wastewater treatment network and will facilitate the continued growth of greater Dublin.

Biosolids are a by-product of the wastewater treatment process and are primarily used as fertiliser in agriculture. Biosolids are treated as part of the wastewater process at the wastewater treatment plants and then stored before being used on agricultural land. Biosolids must be stored as they can only be landspread at certain times of the year from February to September.

Irish Water is now consulting on its proposed approach to identify and assess potential sites for the new storage facility. We would like to hear your views and a four week period of non-statutory public consultation process will run until 2 March 2017.

Submissions can be sent by 2 March:

By email: biosolids@water.ie

By post: Biosolids Consultation, Irish Water, Colvill House,
24-26 Talbot Street, Dublin 1.

By telephone: 1890 44 55 67

Safeguarding our water for our future

To view the stage 1 report or for further information,
visit www.water.ie



APPENDIX A2

News Release



PRESS RELEASE

Irish Water begins site selection process for new Regional Biosolids Storage Facility for greater Dublin

-New storage capacity needed to facilitate future economic and social growth

Thursday, 2nd February 2017: Irish Water has announced an important new project to develop a Regional Biosolids Storage Facility for greater Dublin including parts of Kildare, Meath and Wicklow.

The new storage facility will be part of the upgraded wastewater treatment infrastructure that will facilitate the continued growth of this region. The consultation beginning today invites the public to comment on Irish Water's proposed approach to identifying and assessing potential suitable sites for the new storage facility. No sites or locations have been identified at this stage.

The quantity of biosolids generated nationally is expected to increase significantly by 2040 as new and upgraded plants are completed to treat our wastewater. Biosolids are a by-product of the wastewater treatment process and contain high levels of nutrients including nitrogen and phosphorus. They are used in agriculture to fertilise the land during the planting seasons each Spring and Autumn. For the rest of the year, biosolids need to be stored.

In the coming years, the quantity of biosolids being produced at the greater Dublin's wastewater treatment facilities is expected to be greater than we can store at the moment. Developing regional biosolids storage facilities is one of the key objectives of Irish Water's National Wastewater Sludge Management Plan published in 2016. This plan sets out a long-term approach to managing sludge produced in the wastewater treatment process. The plan recommends that, biosolids storage facilities be developed where appropriate to serve a number of local plants or a wider regional need.

Speaking at the launch of the first round of public consultation, Donal O'Connor, Project Manager, Irish Water said, "Irish Water is progressing a strategic solution to manage wastewater treatment for greater Dublin in the future. This includes upgrading all existing treatment facilities and adding the new wastewater plants and networks recommended by the Greater Dublin Strategic Drainage Study.

"The new Regional Biosolids Storage Facility is an important part of our future wastewater infrastructure for greater Dublin and will support continued growth in the region. When a site is identified it will be included in the planning applications for both the upgrade of the Ringsend wastewater treatment plant and the proposed new Greater Dublin Drainage project between which we will provide wastewater treatment for greater Dublin for the next 25 years. Irish Water intends to lodge planning applications for both projects within the next 12 months."

This first round of public consultation on Irish Water's proposed approach to identifying and assessing potential suitable sites for the new regional biosolids storage facility takes place over the next four weeks until Thursday, 2 March 2017. Further information is available on: www.water.ie/projects-plans/national-projects/biosolids or by emailing biosolids@water.ie.

Following this round of consultation the project team will review all submissions received and feedback will be considered before identifying a number of suitable sites. Once identified the potential sites will then be subject to a second phase of public consultation.

A third non-statutory phase of public consultation will take place on the emerging preferred site once it has been identified.

When the above three phases of public consultation have been concluded on the regional biosolids storage facility and the Ringsend and Greater Dublin Drainage planning applications have been submitted to An Bord Pleanála, a full statutory planning consultation processes will begin on both projects before final decisions are made by An Bord Pleanála.

ENDS

For further information please contact the Ervia Press Office at:
Email: Press@water.ie or on 087 145 8896

Notes to Editor

Biosolids

Biosolids are a by-product of the wastewater treatment process and are essentially organic fertilisers. They are subject to full treatment as part of the wastewater treatment process prior to their transport to a storage facility and are a biologically stable product, free from viruses or bacteria. Biosolids contain high levels of nutrients, such as nitrogen and phosphorus and so are used in agricultural spreading to fertilise the land.

Currently 98% of treated wastewater sludge in Ireland is further treated to produce biosolids. They are reused as organic fertilisers in agriculture in line with the Department of Housing, Planning, Community and Local Government (DHPCLG) *Code of Good Practice for Use of Biosolids in Agriculture* and their use is regulated under European and National legislation.

All of the biosolids material delivered and stored at the facility will have received full treatment at the wastewater treatment plant prior to arrival at the facility. No further treatment of the material is required and no treatment will take place at the storage facility.

While they are produced all year round, biosolids cannot be applied to land from October to January and generally are applied to land only during the sowing and planting seasons, in spring and autumn, so they need to be stored during the months when they cannot be spread.

In 2016, Irish Water adopted its National Wastewater Sludge Management Plan (NWSMP) to address the growing need for wastewater sludge management and this included consideration of the production, use and storage of biosolids. One of the objectives of the NWSMP is to store biosolids close to where they are produced.

History of Dublin's Wastewater Treatment

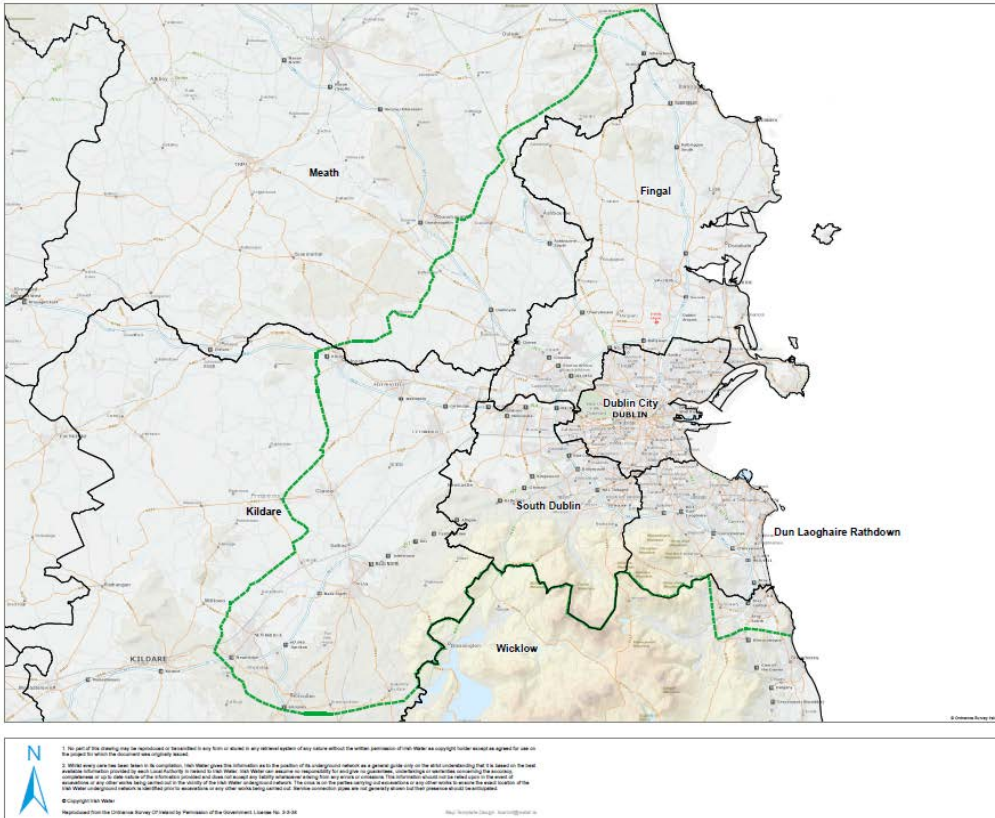
The Dublin Main Drainage Scheme, completed in 1906, was originally designed for a population of 325,000 and comprised a network of underground sewers still in use today, and a wastewater treatment plant and outfall to Dublin Bay at Ringsend. The sludge was disposed of at sea and that continued until the start of this century. Over the years additional drainage schemes and wastewater treatment plants were developed to cater for greater Dublin's growing housing and industries.

The regional wastewater treatment plant at Ringsend has been developed and expanded many times and in 2003 was upgraded to serve the equivalent of 1.64 million people when housing, workplace and storm water is taken into account. Greater Dublin's residential population has grown steadily since then and it is projected that there could be over two million people by 2031.¹

The Greater Dublin Strategic Drainage Study (GSDSDS, 2005) and its associated strategic Environmental Assessment (2008) examined how future demand for wastewater treatment can be met. It recommended that, to facilitate and enable growth, all of the main regional WWTs be upgraded to their ultimate capacities and that a new regional wastewater treatment facility - including a new orbital sewer to intercept flows from the Ringsend catchment - was required to be located in north Dublin, with an outfall to the Irish Sea.

Implementation of the GSDSDS has been underway by the local authorities since 2008. Now Irish Water is progressing that work through the Ringsend WwTP upgrade, the Greater Dublin Drainage project and associated facilities like the RBSF. Both projects are also necessary to meet the Water Framework Directive (WFD) requirements and other relevant EU Directives and National Regulations related to water quality.

¹ <http://www.cso.ie/en/releasesandpublications/er/rpp/regionalpopulationprojections2016-2031/>



Proposed RBSF Study Area based on the GSDS Study Area

APPENDIX A3

Copy of Launch Correspondence



Good morning,

Irish Water has announced an important new project to develop a Regional Biosolids Storage Facility for greater Dublin including parts of Kildare, Meath and Wicklow. The new storage facility will be part of the upgraded wastewater treatment infrastructure that will facilitate the continued growth of this region.

A four week non-statutory public consultation begins today, and will run until 2 March 2017, and we are inviting all interested parties to make submissions on the proposed approach by which potential suitable sites for the new storage facility will be identified and assessed.

Biosolids are a by-product of the wastewater treatment process and contain high levels of nutrients including nitrogen and phosphorus. They are used in agriculture to fertilise the land during the planting seasons each spring and autumn. For the rest of the year, biosolids need to be stored.

The quantity of biosolids generated nationally is expected to increase significantly by 2040 as new and upgraded plants are completed to treat our wastewater. In the coming years, the quantity of biosolids being produced at greater Dublin's wastewater treatment facilities is expected to exceed the available storage capacity.

Developing regional biosolids storage facilities is one of the key objectives of Irish Water's National Wastewater Sludge Management Plan published in 2016. The new Regional Biosolids Storage Facility will be an important part of our future wastewater infrastructure for greater Dublin and will support continued growth in the region.

When a suitable site is identified it will be included in the planning applications for both the upgrade of the Ringsend wastewater treatment plant and the proposed new Greater Dublin Drainage project. Both these projects will provide wastewater treatment for greater Dublin for the next 25 years and Irish Water intends to lodge planning applications for both projects in late 2017 or in early 2018.

Irish Water is seeking your views on the Stage 1 Report – Site Selection Methodology which can be viewed on our website at www.water.ie/project-plans/biosolids and will be made available at Irish Water headquarters in Colvill House during office hours and at public libraries and planning counters in greater Dublin.

Submission may be made by email to biosolids@water.ie, or by post to Biosolids Consultation, Irish Water, Colvill House, 24-26 Talbot Street, Dublin 1. If you require any further information, please contact us using the project email address or call us on low-call 1890 44 55 67.

Yours sincerely,

A handwritten signature in blue ink that reads "Donal O'Connor".

Donal O'Connor

Project Manager

APPENDIX A4

Groups and Organisations Contacted Directly

Directly Contacted

Interested Groups & Organisations

Age Action Ireland

An Taisce

BirdWatch Ireland

Bord Bia

Bord na Mona

CCMA

Chambers Ireland

Coastwatch

Commission for Energy Regulation

Confederation of European Waste to Energy Plants

Construction Industry Federation

Consumer Association of Ireland

Cré (Composting Association of Ireland)

Department of Arts, Heritage and the Gaeltacht

Department of Housing, Planning, Community and Local Government

Department of Jobs, Enterprise and Innovation

Dublin Airport Authority

Dublin Port Company

Eastern & Midlands Regional Assembly

Eastern-Midlands Waste Region

Engineers Ireland

Enterprise Ireland

Enva

Environmental Law Implementation Group

Environmental Licensing Programme

Environmental Protection Agency

Environmental Science Association of Ireland

Fáilte Ireland

Federation of Irish Sport

Food Safety Authority of Ireland

Friends of the Earth

Friends of the Irish Environment

Gas Networks Ireland

Green Foundation Ireland

Health & Safety Authority

Higher Education Authority

HSE

Ibec

ICMSA

IDA

Indaver Ireland

Inland Fisheries Ireland

Irish Co-Operative Organisation Society

Directly Contacted

Irish Dairy Industry Association

Irish Environmental Association

Irish Farmers Association

Irish Grain & Feed Association

Irish Grain Growers Association

Irish Seed Trade

Irish Waste Management Association

Irish Wildlife Trust

ISME

MABS

National Transport Authority

National Disability Authority

National Federation of Group Water Schemes

National Parks & Wildlife

National Youth Council of Ireland

Public Water Forum

Restaurant Association of Ireland

Small Firms Association

St. Vincent de Paul

Sustainable Ireland

SWAN

The Arts Council

The Competition & Consumer Protection Commission

The Environmental Pillar

The Heritage Council

The Wheel

Transport Infrastructure Ireland

Voice of Irish Concern for the Environment

Waterways Ireland

Zero Waste Alliance

Local Authorities

Carlow County Council

Dublin City Council

Dun Laoghaire Rathdown County Council

Fingal County Council

Kildare County Council

Meath County Council

South Dublin County Council

Wicklow County Council

Appendix B RBSF Design & Land Requirements

Size of Facility Required

The RBSF is ultimately planned to serve the needs of greater Dublin to the year 2050, which is anticipated to be based upon approximately 3.6 million PE. However, Irish Water intends to apply to An Bord Pleanála for planning approval for the development of the facility based on a design horizon of 2040, which is 3.0 million PE.

Deliveries of biosolids from the WwTPs within the region would occur throughout the year, however removal of biosolids from the RBSF would happen particularly during spring and autumn periods. Assuming that biosolids would need to be stored for a maximum of 4 to 5 months per year (to allow for periods of wet weather either side of the statutory prohibition on land spreading from October to January), the likely maximum storage requirement would be in the region of 48,000 m³ per annum. Assuming an average storage depth of 5m, the storage area required for the maximum expected biosolids quantity would be 9,600 m². Allowing for HGV internal circulation (as all loading and unloading would take place internally) this gives a floor area required of 10,500 m². Additional floorspace of some 200 m² would also be required for administration, laboratories, stores, and staff welfare facilities. This could be provided in a separate building. Space for odour control units would be necessary, and would be sited adjacent to and external to the buildings.

Site Layout & Operational Requirements

Based on the need outlined above, and for the purposes of presenting a generic layout of the Biosolids Storage Facility for consultation purposes, the total floor space required to accommodate a capacity of 3.0 million PE has been broken down as follows:

- Proposed development – 2 no. buildings (dimensions 50m X 105m) and 1 Administration Building (dimensions 16m X 12m)
- Provision of space on the selected site for future expansion

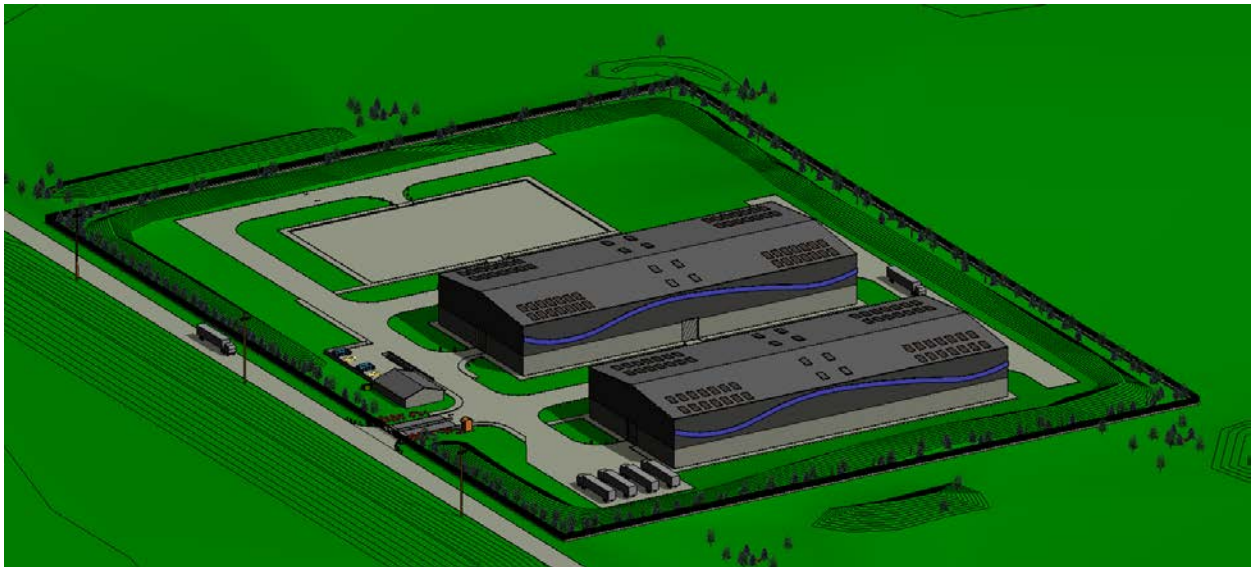
As explained above, the site should be of sufficient size to accommodate possible future expansion to meet the entire 3.6 million PE demand to 2050. Irish Water recognises that any future expansion of the facility to accommodate this additional storage capacity would require planning permission, but considers it prudent to select a site that is capable of accommodating that extra capacity.

When a final site is selected the detailed design of the facility must take into account the particular circumstances and issues relevant to that site and consequently the final proposed design will vary (perhaps quite significantly) from the 'generic' layout presented in this report.

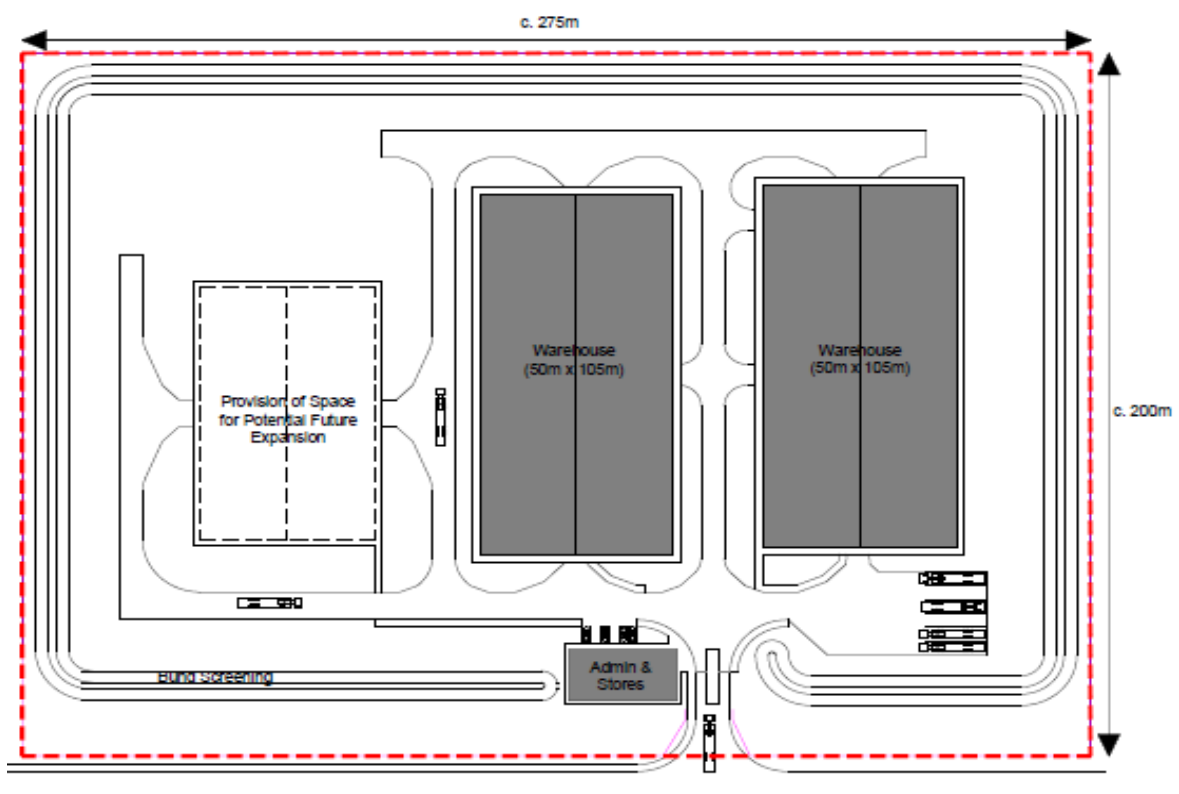
While odours associated with biosolids are low, it is expected that in order to prevent the risk of odours arising at the facility, the proposed buildings would be required to be fitted with odour control units and all unloading and loading of biosolids would be required to take place internally within the storage buildings. All truck (HGV) loads arriving and leaving the facility would be required to be covered. The buildings would operate under negative air pressure (due to air being continuously extracted to odour control units - OCUs) in order to minimise the potential for odour emissions. The odour control units would discharge treated air to the atmosphere via one or more stacks. The number, location and height of the stacks would be selected at detailed design stage to minimise possible impacts on sensitive receptors. These matters have been anticipated in the generic site layout.

For maximum efficiency and to reduce total HGV journeys, articulated HGV tipper units are proposed. These result in a maximum building height to eaves being necessary of 12.5m, which results in a building ridge height of c.15m to cater for load tipping. (Note – only the OCU emission stacks would be higher than the building ridge line).

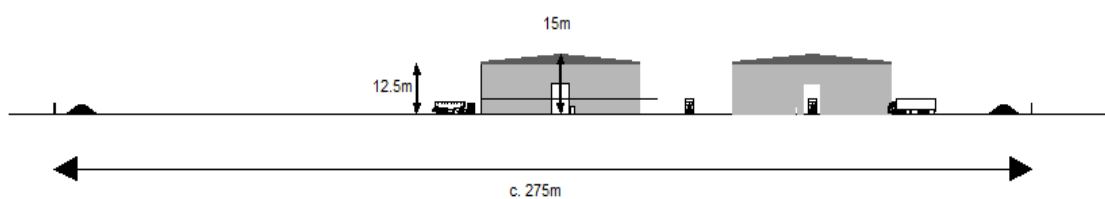
For safety and efficiency reasons one-way HGV circulation within the site is proposed. A landscaped berm is proposed around the site perimeter for screening purposes. Finally, a surface water attenuation tank would be required to limit storm run-off from the site in accordance with regional drainage/flooding policy. This gives the indicative site layout shown below.



Indicative layout of proposed Regional Biosolids Storage Facility



Indicative Plan of Proposed Regional Biosolids Storage Facility



Indicative Elevation of Proposed RBSF

Area Required for Site Selection Purposes

The generic design of the proposed RBSF presented above requires a site area of approximately 5.5 hectares. As it is quite unlikely that such an 'ideally' sized perfectly rectangular site will be located, and to provide layout flexibility and buffering to minimise potential environmental impacts (particularly on sensitive receptors) it is proposed for site selection purposes to seek site locations where a minimum usable area of 8 hectares is available.