Belfast Harbour, Belfast

Desktop Study & Preliminary Risk Assessment

Project No: A112794-67

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DAERA

Prepared by WYG Environment Planning Transport Ltd

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Executive Summary

Instruction	WYG Environmental Planning Transport (N.I) Ltd (WYG) was instructed by Construction & Procurement Delivery (CPD) on behalf of Department of Agriculture, Environment and Rural Affairs (DAERA) to undertake a land contamination Preliminary Risk Assessment for the site situated at Dargan Drive, Belfast. The objective of the scope of works agreed was to identify any potentially unacceptable environmental risks that may be associated with the site and its future development.
Site Description	The survey area or 'site' is currently occupied by Belfast Containers, a storage facility and measures approximately 2.4 hectares. Site activities include the storage of shipping containers, container repair and maintenance and refuelling of onsite vehicles.
Site History	A review of readily available historical mapping shows that the area of the site and surrounding area was within extents of Belfast Lough historically. Surrounding land was reclaimed and developed on from the early 1900's, however the site was still detailed as mudflats in 1983 mapping. Belfast Containers have occupied the site from c. 2000.
Environmental Setting	Consultation with the Geological Survey of Northern Ireland (GSNI) suggests the site is likely to be underlain by raised tidal flat deposits. These superficial deposits are anticipated to be underlain by solid bedrock comprising of the Sherwood Sandstone. The overall topography of the site is relatively flat; however, the topography of the surrounding area falls under a slight gradient in a broadly southerly direction.
Preliminary Risk Assessment	Following completion of the Desk Top Study and Preliminary Risk Assessment several potential pollutant linkages have been identified at the site, which are detailed at Section 3.4 of the report and are summarised as follows; • Potentially reduced quality made ground and shallow soil and groundwater associated with the current site development and on stie storage of fuels, presenting a potential risk to both future development and local environmental receptors. • Potential ground gas generation from made ground and infilled material associated with the reclamation of the land potentially presenting a risk to future development. • Several potential offsite sources of contamination were identified which could present a low risk to the site via onsite shallow groundwater migration.
Conclusion	Consequently, an intrusive investigation and supporting Generic Quantitative Risk Assessment in line with applicable guidance e.g. CLR11 Model Procedures for the Management of Land Contamination is recommended to further investigate the identified potential pollutant linkages. A recommended scope for the intrusive investigation is provided at Section 4.0 of this report.
This sheet is intended to provide a summary only of the initial assessment study of the site in relation to contamination. It does not provide a definitive engineering analysis	

1.0 Introduction

1.1 Instruction

WYG Environmental Planning Transport Ltd (WYG) was instructed by Construction & Procurement Delivery (CPD) on behalf of Department of Agriculture, Environment and Rural Affairs (DAERA) to undertake a land contamination Preliminary Risk Assessment at the site located on Dargan Drive. A site location plan is included at Figure 1.

1.2 Brief

The work brief was to complete a desk top study and preliminary contaminated risk assessment with a walkover survey of the above referenced property.

General information on the topography, geology, hydrology and hydrogeology and a review of current and historic usage was to be completed to enable potential human and environmental receptors, potential pathways and potential sources to be identified. This would enable a qualitative Preliminary Risk Assessment to be undertaken.

The objective of the scope of works agreed was to identify any potentially unacceptable environmental risks that may be associated with the site and its future development. The development comprises of DAERA Inspection Facilities plus associated access roads and parking for HGV and standard vehicles. It is proposed to adjust the extent of an existing access road into the development site to provide a dedicated entrance for HGV vehicles and general traffic.

1.3 Legal Context

Part III of the Waste and Contaminated Land (Northern Ireland) Order 1997, the enactment of which is pending, outlines the regulatory regime under which land and water contamination issues in Northern Ireland are assessed and managed. The Order defines contaminated land as:

"any land which appears to a district council in whose district it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- Significant harm is being caused, or there is a significant possibility of such harm being caused; or
- Pollution of waterways or underground strata is being, or is likely to be, caused."

Inherent in this definition is the requirement for contamination risk assessment to be undertaken on a site-specific basis, as the potential for harm is determined by the site's end use and its specific environmental setting.

1.3.1 Pollutant Linkage Concept

In the context of land contamination, there are three essential elements to any risk:

- A **contaminant source** – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.
- A **receptor** – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body.
- A **pathway** – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of contaminant–pathway–receptor is described as a **pollutant linkage**.

1.3.2 Conceptual Model

An important thread throughout the overall process of risk assessment is the need to formulate and develop a **conceptual model** for the site, which supports the identification and assessment of pollutant linkages. A conceptual model represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors (pollutant linkages).

1.4 Terms and Conditions

Attention is drawn to the report conditions, included in Appendix A, and the terms and conditions of the engagement as detailed in our accepted proposal.

2.0 Preliminary Risk Assessment (PRA)

An environmental desk study and PRA comprises the gathering of all available relevant documentation relating to the site. The review of identified literature ensures that an initial site-specific conceptual model can be developed which allows for the identification of potential pollutant linkages relevant to the site and the proposed end use.

In order to develop an outline conceptual model and identify plausible pollutant linkages at the site, the following was undertaken:

- A review of current and historical Ordnance Survey maps;
- A review of geological and hydrogeological maps;
- Undertake and record a site visit and walkover (where access is available) including making reference to readily available local information;
- A search of the WYG well / borehole inventory to determine any groundwater abstractions;
- Identification and description of the nearest surface water bodies;
- Collation of any additional data held by the Local Authorities or the Northern Ireland Environment Agency (NIEA) including available contaminated land information;
- Present a preliminary conceptual site model and qualitative risk assessment to determine potential environmental liabilities associated with the site.

2.1 Site Details

2.1.1 Site Description

Grid Reference: J 35281 77289

The site, measuring approximately 2.4 hectares, is located 3.5km north east of Belfast City Centre. A site location plan is included at Figure 1.

It is currently occupied by Belfast Containers, a storage facility of empty shipping containers. Site activities include container storage, maintenance and repair of containers and refuelling of onsite machinery (forklifts). A shipping container in use as an office and is located in the north east corner at the entrance to the site. An electric substation is located adjacent to the site office.

The surrounding land-uses are outlined in Table 1.

Table 1 - Surrounding Land Use

Boundary	Description
North	The site is bound to the north by warehouses and office facilities. A lorry wash is located adjacent to the northern boundary. Belfast Lough is located c. 420m beyond the northern boundary.
South	The site is bound to the south by a tidal pond. Further south, c.110m beyond the southern boundary is Belfast Waste Water Treatment Works (WwTw).
East	The site is bound to the east by a tidal pond. Further east, c. 90m, an aggregate crushing and screening plant is located and a terminal for loading and discharging aggregate to vessels.
West	The site is bound to the west by an area of overgrown vacant land. Beyond this a number of commercial premises along Dargan Crescent are located.

2.1.2 Site Walkover

A site walkover was undertaken by a suitably qualified environmental consultant on 17th August 2020. The aim of the survey was to determine the potential contamination sources and inspect ground conditions on site. This was undertaken by:

- Assessing the current site layout;
- Identifying any potential contamination sources on and off site; and,
- Identifying any potential receptors off-site.

The key findings of the walkover are presented in Table 2 while an annotated site plan is available at Figure 2.

Table 2 - Walkover Findings

Aspect	Description
Current Use of Site	. Site activities include container repair and maintenance and refuelling of machinery. The site representative present reported the site has been used to store shipping containers for approximately 20 years.
Ground Cover	The site is surfaced with hardstanding comprising of bitmac. Around the boundaries of the site, there are areas of soft landscaping which is mostly overgrown.
Drainage	Drainage gullies were noted in the access road along the eastern boundary of the site.
Topography & Surrounding Lands	The site itself is generally level however, the topography of the surrounding area falls under a slight gradient in a broadly southerly direction. The adjacent sites to the north and west were noted to be at a slightly increased elevation.
Nearest surface water bodies	Belfast Lough is located c. 420m north of the site. Tidal ponds are located along the eastern and southern boundary of the site.
Signs of previous investigations	None noted during site walkover survey.
Site boundary	The northern boundary consists of palisade type fencing. The western, southern and eastern boundary consist of overgrown vegetated borders.
Signs of vegetative stress	No evidence of vegetation stress was noted during the walkover survey.
Evidence of contamination	Hydrocarbon staining was observed on the side and around the base of 2no. storage containers located along the western side of the site. A tank and drums are stored within these containers (further details given below). There was some area of dumping identified along the northern boundary of the site. An electric substation is located in the north eastern corner of the site.
Evidence of geological features	None encountered during site walkover.

Aspect	Description
Evidence of tanks currently on-site	It was reported that a plastic above ground storage tank (AST) containing red diesel is located in an elevated shipping container along the western side of the site. The container was not assessible during the site walkover. It was reported that pipe work is attached to the tank and the onsite fork lifts are refuelled via gravity feed. 2no. oil drums containing lubricant oil are stored within the lower shipping container. A disused plastic AST was noted along the western boundary. It was reported that it has previously been used to store diesel.
Evidence of chemical Storage	Small amounts of paints, white spirits and other cleaning agents were noted along the eastern side of the site in the area where repairs and maintenance of the containers are undertaken. Welding material are also stored here used to repair containers.
Surrounding present day contaminative land uses	A lorry wash was observed directly north of the site. A WwTW and aggregate processing plant were noted south and east of the site.
Evidence of groundwater	None noted during site walkover.

Site walkover photographs are presented at Appendix B while an annotated site plan is available at Figure 2.

2.2 Site History

Information on the site's history of use was obtained through an inspection of available historical Ordnance Survey maps dating from 1832 to the present day. These historical maps were viewed on the PRONI (Public Records Office of Northern Ireland) Historical Maps web site [1] and other online sources. Consequently, they are not available for reproduction. Table 3 provides a summary of this information from the historical maps.

Table 3 - Site History

OS Map	Description
1832-1846	During this epoch, the site and surrounding lands were located within the extent of Belfast Lough. The Lough extended to the present day Shore Road which was c. 1km west of the site.
1858 PRONI 10000/10560	The site and surrounding lands were still located within the extent of Belfast Lough. Twin Island West was located c. 650m south west of the site. Belfast and Ballymena Railway had been constructed c. 890m west of the site.
1902 PRONI 10000/10560	The site was still located within the extent of Belfast Lough. Five small buildings were noted on West Twin Island and were detailed as being Intercepting Hospital (Contagious Diseases). Anecdotal evidence suggests a single hut was erected on the island in 1873 with additional huts added in 1884, 1892 and 1900. Approximately 110m south of the site, Belfast Main Drainage Pumping Station No.2 and Outfall works were located. Further south, the land had become more developed with a Dock Building works, Coolmore Works (Asphalte) and Ulster Timer Depot located c. 1.1km from the site. Approximately 850m south west of the site, Belfast Mineral Water Works were located. Land to the south east of the site, at least 1km from the site had been developed and a number of engineering works and ship building works were located here.
1931 PRONI 10000/10560	The site remained on the mud flats of Belfast Lough. The pumping station remained to the south of the site with filter beds now detailed and the land south west of the site had been further reclaimed.

[1] *https://apps2.spatialni.gov.uk/EduSocial/PRONIApplication/index.html*

OS Map	Description
1938 PRONI 10000/10560	The site and surrounding area were generally unchanged from previous mapping.
1952-1965 Centremaps 10000/10560	The site remained vacant and located on the mud flats of Belfast Lough. A refuse tip was detailed 530m west of the site. The sewage works remained to the south of the site. Further south, c. 750m south west of the site, several works and a bus depot were detailed. Approximately 300m east of the site a works was detailed.
1983 Centremaps 10000/10560	The site remained vacant and located on the mud flats of Belfast Lough, but the surrounding land has been further developed with number of works being detailed. A pipe line was located immediately east of the site, in the present day tidal ponds. The refuse tip was no longer detailed, and a building now located on the site. Duncrue Crescent and several buildings were now noted 600m north west of the site. Dargan Road was detailed 340m north of the site. Beyond Dargan Road, c. 550m north west of the site, a large refuge tip was detailed (Dargan Road Landfill). Anecdotal evidence has indicated that waste was deposited here between 1958 and early 2000s. The works to the east of the site had expanded and was now detailed as a chemical works. Associated infrastructure including tanks, electrical substation and cooling tower were detailed.
December 2001 Google Earth Pro Aerial Imagery	The site appears to be consistent with what was observed on-site during the walkover survey. The site immediately north of the site appears disused. A building is present in the centre of the site.
December 2005 Google Earth Pro Aerial Imagery	The site appears to be consistent with what was observed on-site during the walkover survey. The area to the north of the site has been developed and a large building is located within. A large steel tank is also located here, adjacent to the northern boundary of the site.
December 2016 Google Earth Pro Aerial Imagery	The site appears to be consistent with what was observed on-site during the walkover survey. The area being used by Conexpo (sand and gravel supplier) to the east of the site, on the opposite side of the tidal ponds has been extended north. The remainder of the surrounding lands remained mostly unchanged.

2.3 Statutory Body Consultees

Information, held by a number of statutory bodies, was requested to help establish:

- Any known pollution incidents at the site
- Previous site usage
- Nearby watercourses and groundwater quality indicators
- Discharge or abstraction consents

Any other information or data, held by statutory bodies, which will aid in the production of a thorough environmental risk assessment (e.g. Information held on the NIEA Land Quality Database, or Northern Ireland Water's (NIW) Geographical Information System (GIS)). The following information was taken from direct consultation with a number of statutory bodies.

2.3.1 Northern Ireland Environment Agency (NIEA), Land Quality Database

The Northern Ireland Environment Agency Waste Management and Contaminated Land section hold a land quality database which contains information on known potential sources of contamination across Northern Ireland. Although by no means complete, the database can provide information on former and current land uses which may result in land contamination. The database search indicated the following:

Four potentially contaminative land uses were identified from the online search within a 500m radius of the site boundary, which are outlined in Table 4.

Table 4 - NIEA Land Use Database

Site ID	Co Ordinates(X,Y)	Distance	Description
BT130/215	335149, 377588	225m NW	Road vehicle fuelling, service and repair: garages and filling stations. 1834: Shore 1856: Shore 1904: Shore 1930: Shore 1995: Depot
BH13/214	335474, 377556	200m N	Road vehicle fuelling, service and repair: garages and filling stations. 1834: Shore 1856: Shore 1904: Shore 1930: Shore 1995: Coal Yard
BT130/127	335710, 377316	310m E	Chemical works: fertiliser manufacturing works.

Site ID	Co Ordinates(X,Y)	Distance	Description
			1834: Shore 1856: Shore 1904: Shore 1930: Shore 1983: Richardsons Fertilisers Ltd,
BT130/107	335122, 376970	240m	Sewage works and sewage farms. 1856: Shore 1904: Sewage works 1930: Sewage Works 1983: Sewage Works

The potentially contaminative land uses identified above are discussed further at Section 3.1.3 below.

2.3.2 Northern Ireland Environment Agency (NIEA), Water Management Unit

NIEA Water Management unit were contacted with regard to site-specific details on pollution incidents, contaminated land, Industry Pollution (IPC) consents, pollution related complaints and noise and air quality within 1km of the site. Their response confirmed there are no groundwater monitoring points within a 500m radius if the site. The following information is available on consultation with the NIEA online Water Information Viewer[2]:

Surface Freshwater Quality

There are two surface monitoring stations recorded within a 1km m radius of the site.

Abstractions

A review of the NIEA WMU abstraction locations confirmed there are no recorded abstraction licences within a 1Kmm radius of the site.

Pollution Incidents

Consultation with the NIEA online WMN Water Information Request Viewer confirms that there are thirteen recorded pollution incidents within a 1Km vicinity dated 2013 to 2017. Of these incidents four were associated with industrial activities, seven were associated with NIW and two were of unspecified origin. All these, one was high severity, four were of medium severity and the remainder were low severity.

[2] *https://appsd.daera-ni.gov.uk/WaterInformationRequest/*

Consented Industrial Discharges

A review of the NIEA WMU revealed twenty two industrial consents within the 1Km search radius of the site with the closes one located c. 150m north west of the site and is associated with unspecified site drainage.

2.3.3 Industrial Pollution and Radiochemical Inspectorate/ Waste Licences and Waste Licence Exemptions

The Northern Ireland Environment Agency holds a database which contains information on known Pollution Prevention and Control Installations[3] and Waste Licence/ Waste licence exemptions[4].

Consultation with this information revealed there is 1 current waste licence and 4 current waste licence exemptions within a 500m radius of the site. Details are included in Table 5 below.

Table 5 – Waste Management, Waste Management Exemptions and PPC Waste Permits

IPC Number/Waste Licence No./Waste Licence Exemption No.	Location:	Operator	Specified Operations	Postcode
WMEX 31/41	250m N	Northern Ireland Electricity Networks Ltd	Mixed municipal waste	BT3 9EU
WMEX 31/36	150n MW	Europarts Ltd	Glass	BT3 9JP
WMEX31/53	190m SW	Belron UK Limited	Glass	BT3 9JB
WMEX 31/21	210m SW	Refrigeration Products (1999) Ltd	chlorofluorocarbons, HCFC, HFC	BT3 9JP

[3] *https://webservices.spatialni.gov.uk/arcgis/rest/services/NIEA/IndustrialPollutionAndRadiochemicalInspectorate/MapServer*
[4] *https://webservices.spatialni.gov.uk/arcgis/rest/services/NIEA/WasteSiteLicenseExemptionsAndSites/MapServer*

IPC Number/Waste Licence No./Waste Licence Exemption No.	Location:	Operator	Specified Operations	Postcode
WML 07/53, LN/11/54	280m SW	Northern Ireland Water	Storage of waste prior to treatment in Waste Water Treatment Works	BT3 9AR
P0456/14B	315m E	Euro Aggregates Ltd.	Other Mineral Activities	BT3 9LL
P0081/05A	300m S	Veolia Water Outsourcing Limited	Incineration and co-incineration of waste	BT3 9JS

2.3.4 Belfast City Council

Belfast City Council Environmental Health Department was contacted with regard to site-specific details on pollution incidents, contaminated land, Industry Pollution (IPC) consents, pollution related complaints and noise and air quality.

At the time of writing, a response had not been received.

2.4 Utility Responses

2.4.1 British Telcom

British Telecom (BT) was contacted in an effort to determine infrastructure on site and in the immediate site vicinity. Their response confirmed there is BT infrastructure along the eastern boundary of the site, at the entrance to the site.

2.4.2 NIE

NIE was contacted in an effort to determine infrastructure on site and in the immediate site vicinity. NIE records indicate an electric substation located and LC cables in the north eastern corner of the site. A 6.6kV cable enters the site in the north east corner of the site and extends into the substation.

No other infrastructure is identified within the site.

2.4.3 Firmus Natural Gas

Firmus Natural Gas was contacted in an effort to determine existing infrastructure on site and in the immediate vicinity. Their response confirmed they do not have any recorded infrastructure in the vicinity of the site.

Utility responses are available at Appendix D.

2.5 Geology

Details of the geology underlying the site have been obtained from the following sources:

- Geology maps of Northern Ireland, produced by the Geological Survey of Northern Ireland (GSNI);
- Mitchell, W.I. (2004). The Geology of Northern Ireland. HMSO, Belfast;
- The GSNI Website "http://mapapps2.bgs.ac.uk/GSNI_Geoindex/home.html".
- The Hydrogeological Map of Northern Ireland, produced by the DoE Environment and Heritage Service and the British Geological Society;
- A database of known groundwater abstractions held by WYG; and,
- Current and Historical O.S. maps.

2.5.1 Made Ground

Made ground is anticipated to be present across the area of the site due to the historic reclamation of the site.

2.5.2 Superficial Geology

Available geological mapping and the GSNI online Geoindex shows the superficial geology underlying the site is likely to be raised tidal flat deposits comprising of unlithified clay, sand and gravel.

2.5.3 Solid Geology

Consultation with the GSNI online Geoindex revealed that the superficial deposits are likely to be underlain by Sherwood Sandstone.

2.6 Hydrogeology

2.6.1 Groundwater Classification

The GSNI Geoindex web site does not provide details of the bedrock aquifer classification at the site.

2.6.2 Groundwater Vulnerability

The GSNI Geoindex web site indicates the vulnerability of groundwater within the uppermost aquifer and is the standard classification currently used for assessing activities which may impact on groundwater resources. Vulnerability has been primarily determined based upon the assumed permeability and thickness of geological deposits overlying the strata containing the upper, significant water table. Where these deposits are absent, the depth to water table can influence the vulnerability class. Five classes of vulnerability have been mapped as shown in the following table.

Table 6 - Groundwater Vulnerability

Highest				Lowest
Five	Four	Three	Two	One

Class 4 can be further subdivided according to the nature of the pathway:

- 4a — sand and gravel cover (non-aquifer)
- 4b — moderate permeability cover
- 4c — low permeability cover
- 4d — thin soil over bedrock
- 4e — where superficial aquifers are present

The GSNI website does not provide details on the groundwater vulnerability at the site.

The GSNI considers the site and its vicinity as not being underlain by superficial aquifers.

2.6.3 Groundwater Flow

Groundwater flow within the site area can only be calculated on a site-specific basis, however based upon the site, it is anticipated that groundwater flow may be in a broadly northerly direction towards Belfast Lough.

2.7 Hydrology

2.7.1 Watercourses

The nearest observable surface water course/surface waterbody is located c. 30m east of the site, within the tidal pond located adjacent to the access road. Belfast Lough is located c. 420m north of the site.

2.7.2 Surface Water Flooding

Consultation Flood Maps NI's: Flood Hazard and Risk Map NI, predicted river water (fluvial) flood extent mapping revealed the tidal pond site located along the eastern and southern boundary of the site are at risk of fluvial flooding at a 10% AEP (1 in 10 or greater chance in any given year).

2.7.3 Surface Water Drainage

Drainage gullies were noted along the road to the east of the site and it is therefore assumed that water/rainwater is managed by the municipal storm/foul sewer network.

3.0 Preliminary Conceptual Model

For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- A source, i.e. a substance that is capable of causing pollution or harm;
- A receptor (or target), i.e. something which could be adversely affected by the contaminant; and
- A pathway, i.e. a route by which the contaminant can reach the receptor.

If one of these elements is missing, there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

A detailed conceptual model of the site is developed in this section to identify sources, pathways and receptors and thus identify plausible pollutant linkages.

3.1 Potential Contamination Sources

3.1.1 Current Land Use

It is anticipated that there is the potential for spills and leaks to have resulted from the storage of fuels, oils and paints, associated with current site use potentially impacting shallow soils and groundwater.

An electric substation was noted in the north eastern corner of the site. The age of the substation is unknown and as such there is the potential for PCB (Polychlorinated Biphenyls) contamination to have occurred historically, however it appeared to be in good condition. PCBs are generally low mobility, low volatility contaminants and as such are persistent in the environment.

3.1.2 Historic Land Use

A review of historical mapping and historical aerial imagery indicates the site was undeveloped and within the extent of Belfast Lough and its mudflats until at least 1983. Since then, the land has been reclaimed and developed on. It is therefore considered likely that made ground and reworked materials of unknown origin will be present at the site. Made ground has the potential to be of reduced quality and could act as a source for ground gas dependant on the extent and nature of the materials.

3.1.3 **Adjacent Land Use**

A review of historic mapping and the NIEA Industrial Historic Landuse Database had identified a number of potential contaminative sources in the surrounding area.

Historically the surrounding land was within the extents of Belfast Lough and associated mudflats has been reclaimed and developed. It is therefore considered likely that made ground and reworked material will be present in the surrounding areas.

A sewage works has been located south of the site since the early 1900s and is still operational there, although has been extended and upgraded through the years. The WwTW is considered to be up hydraulic gradient from the site and therefore it is anticipated the WwTW and associated activities could present a potential risk to the site. However this is considered unlikely given the persistence of the contaminant types typical of such works.

The area north of the site was reported to have been a coal yard in 1995, but has been in its current layout since at least 2005. A vehicle repair depot was located in the Dargan Cresent area (c. 225m north west) in 1995. There is the potential for fuels to have been stored on these sites, however due to the distance from the site and that they are considered to be down hydraulic gradient from the site are unlikely to pose a significant risk.

Currently, there is a lorry wash located adjacent to the northern boundary of the site. The area to the north is c. 1m higher than the site and while there is the potential for washings to run off into the site, it is considered likely that infrastructure will be present on the neighbouring site to collect all washings and prevent run off.

Historically, two refuse tips have been located with the vicinity of the site. A smaller site was located c. 550m west of the site and was detailed on historical mapping between 1952 and 1983. A large site, Dargan Road Landfill was located c. 550m north west of the site and anecdotal evidence has suggested was operational between 1958 to early 2000. A review of online planning documents suggests the ground gas generation from the Dargan Road Landfill is being managed via a ground gas generation system. East of the site, c.300m, a chemical works is located and has been present since c. 1952. It has been a fertiliser manufacturing works since at least 1983. Given the distance from the site (at least 300m), these contaminative sources are considered unlikely to pose a significant risk. It is however recommended that the site's ground gas regime be assessed further given the extent of recent landfilling and the potential for significant made ground to be present associated with reclamation activities. The anticipated underlying estuarine alluvial deposits can also act as a source for ground gas generation.

3.2 Risk Pathways

Pathways are the means by which a contaminant can reach a receptor. Active pathways are primarily dependent on the physical characteristics of the site and the surrounding area between source and receptor.

The nature of the site surface affects the potential for surface waters to infiltrate and penetrate the subsurface. The potential for infiltration will in turn affect the potential for leachate generation from potentially impacted vadose (unsaturated) zone soils.

WYG have been provided with proposed development plans for the site which include inspection facilities, office and access roads within the existing site boundary. Potential ground cover is unknown but is assumed to be predominantly hardstanding in relation to the assessment of risk via potential exposure pathways. It is considered unlikely that office accommodation and industrial facilities within the site will include areas of gardens/open landscaping, with subsequent limited potential for direct exposure to potentially contaminated shallow soils/made ground and groundwater (if present). Direct and indirect contact exposure pathways such as ingestion, dermal contact, and inhalation of fugitive dusts are potentially applicable with respect to construction personnel tasked with site redevelopment.

However future site users may be exposed to the more volatile contaminants in soils and/or groundwater via indirect contact pathways (e.g. inhalation of vapours) as would be typical constituents of fuels.

There is a possibility of reduced quality made ground, which may pose a risk primarily to construction workers and future site users via direct (dermal contact, ingestion and inhalation of fugitive dusts). Indirect exposure pathways (vapour ingress) may also be applicable for those contaminant types which present a potential risk via this pathway e.g. lighter end hydrocarbons associated with fuel and/or chemical storage.

Due to the reclamation of the land, infilled material of unknown origin will be present. Infilled materials and natural sub-soils also have the potential to act as a source for ground gas dependant on nature and extent of materials. Exposure to ground gas can be via service entries to buildings and confined spaces or voids beneath.

In regard to water receptors, geological mapping did not provide any information on the underlying groundwater vulnerability at the site or the bedrock aquifer. However, based on the anticipated superficial deposits which are considered to be composed of raised tidal flat deposits comprising of unlithified clay, sand and gravel, these may provide some protection to the anticipated underlying Sherwood Sandstone and therefore the risk to the underlying bedrock aquifer is considered low.

Tidal ponds are located along the southern and eastern boundary and are directly linked to Belfast Lough which is located c. 420m north of the site. These tidal ponds and Belfast Lough are considered to be potentially sensitive receptors via offsite shallow groundwater/groundwater migration.

The key environmental pathways and exposure routes by which potentially contaminative substances can reach receptors are considered to be:

Direct

- Dermal contact
- Ingestion
- Inhalation of fugitive dusts
- Inhalation of vapours

Indirect

- Leaching of potential contaminants from soil to groundwater;
- Offsite migration, local surface waters;
- Vapour migration associated with the potential presence of volatile contaminants in soils and/or groundwater; and
- Ground gas generation potentially impacting future development and site users

3.3 Receptors

Receptors are defined by their potential for being adversely affected by a contaminant and can be grouped into those that impact human health, and those that affect environmental targets, including controlled waters and sensitive ecological sites.

Following completion of the Desk Top Study and Preliminary Risk Assessment the human health receptors identified are:

- Future site users
- Construction workers.

Environmental receptors identified include:

- Shallow groundwater
- Bedrock Aquifer (Sherwood Sandstone)
- Local surface waters – Tidal Ponds and Belfast Lough

3.4 Conceptual Site Model

Following completion of the Desk Top Study and Preliminary Risk Assessment several potential pollutant linkages have been identified at the site, which are summarised in Table 7 below.

Table 7 - Conceptual Site Model

On-site Contaminant	Pathway	Receptor
Potentially reduced quality made ground and shallow groundwaters (potentially containing a range of organic/inorganic contaminants including heavy metals, hydrocarbons, PCBs and asbestos containing materials and/or fibres) associated with current development and onsite storage of diesel, oils and paints	➢ Dermal contact ➢ Ingestion ➢ Inhalation of fugitive dusts	➢ Current site users ➢ Construction workers
	➢ Migration and accumulation of ground gas ➢ Migration and inhalation of vapours	➢ Existing and future site users ➢ Construction workers
	➢ Migration through soils and leaching to shallow/deeper ground water and off-site migration.	➢ On-site and off-site shallow/deep groundwater ➢ Local surface waters – Belfast Lough
Potential ground gas generated from the reclamation and infilling of the site historically.	➢ Ingress into buildings ➢ Inhalation of gases	➢ Future site users & construction workers
Off-site Sources	**Pathway**	**Receptor**
Adjacent, historical and current contaminative land uses. Including the adjacent WwTW.	➢ Migration of impacted shallow/deeper ground water - on-site ➢ Migration and inhalation of vapours	➢ Future site users ➢ On-site and off-site shallow/ deeper groundwater ➢ Local surface waters – Lower Lough Erne

4.0 Conclusions and Recommendations

Following completion of the Desktop Study and Preliminary Risk Assessment the risk associated with a future proposed commercial development is considered low to **moderate**.

This is due to the presence of current onsite storage of fuels and oils and the hydrocarbon staining identified in the vicinity of these. Due to the reclamation of the land, there is also the potential of the infill material to contain a range of organic/inorganic contaminants and the potential to provide a source of ground gas.

In order to further assess the identified potential pollutant linkage detailed within the developed Conceptual Site Model (CSM), it was recommended that a site investigation be undertaken to investigate the potential pollutant linkage (PPLs) identified, details of which are supplied below.

A number of recommendations have been presented below to inform the investigation and future development.

4.1 Recommended Scope of Investigation

The site investigation would be undertaken according to British Standard BS 10175:2011 and should comprise targeted boreholes advanced to a depth of between 4-5mbgl (or to deeper depth to fully characterise made ground extent if required) and the collection of representative soil and groundwater samples for laboratory analysis.

Considering the potential sources of contamination, the laboratory analysis of the soil and groundwater samples is likely to include:

- Asbestos screen in soils
- Heavy metals;
- Hydrocarbons (TPHCWG incl. BTEX & MTBE) and polycyclic aromatic hydrocarbons (PAHs);
- PCBs (polychlorinated biphenyls);
- VOC`s;
- Inorganic compounds, including cyanide and sulphates; and
- WAC (waste acceptance criteria) testing.

To support groundwater and ground gas monitoring, boreholes should be installed as

permanent monitoring wells using HDPE slotted pipes and flush covers. Initially, two rounds of groundwater monitoring are recommended to be undertaken adopting low flow purging and sampling techniques. Four rounds of ground gas monitoring should be undertaken to inform a ground gas risk assessment according to relevant best practice and guidance, including CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings' and BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'. Where significant ground gas is observed this monitoring programme should be extended as set out in the referred to guidance.

A proposed combined geotechnical and geo-environmental borehole location plan will be developed prior to commencement reflective of specific development considerations. The following combined geotechnical and geo-environmental borehole rationale has been developed following completion of this PRA and the PSSR Geotechnical Preliminary Sources Study Report (PSSR) (Desk top Study), Belfast Harbour (August 2020, WYG).

Table 8 - Combined Geo-technical and Geo-environmental Investigation Rationale

Borehole ID	Rationale
BH01-BH05	Five cable percussive boreholes in conjunction with the contaminated land assessment, should be advanced to give coverage of the proposed development to inform the strength profile of the superficial deposits. The boreholes should be advanced to 30.0m below ground level by rotary follow on (if required) to prove competent founding bedrock. Rotary follow on is proposed at BH01, BH03 and BH05.
WS01-05	Progression of 5 no. window samples boreholes to characterise soils and groundwater conditions and to facilitate ground gas monitoring. Environmental testing of soils and groundwater to be undertaken.
TP01-TP18	At regular intervals along any proposed access routes with DCP's in each trail pit at 0.5m and 1.0m bgl.
PLT01-PLT07	Plate load tests (7 No.) at 0.5m and 1.0m bgl within the footprints of propose buildings.

4.1.1 Waste Classification of arisings proposed for offsite disposal

Should there be a requirement for the removal of the soil/wastes from site during redevelopment it is recommended that representative soils samples are collected and be and analysed for WAC (waste acceptance criteria) testing (total WAC). The analysis should be

considered in conjunction with the above suite of contaminants to determine soil waste classification and inform landfill acceptance.

Where applicable a waste classification should be carried out in line with applicable Guidance (WM3 Technical Note, 2018[5]) order to classify any soils to be removed from site in order to determine appropriate disposal options (including transportation) in accordance with the relevant EU and National Waste legislation including the following;

- The Hazardous Waste Regulations (Northern Ireland) 2005, which apply to the classification and transportation of waste;
- The Landfill Regulations (Northern Ireland) 2003, which apply to the landfilling of wastes; and
- The Landfill (Amendment) Regulations (Northern Ireland) 2006.

4.2 Removal of AST`s (above ground storage tanks)

Where AST's are considered for offsite removal the following provides an outline of works recommended to be undertaken in line with PPG2 guidance document Above Ground Storage Tanks PPG2.

This should include the following:

- Tanks should be drained fully, and the decommissioning materials recycled or disposed of to an appropriate facility under relevant Duty of Care;
- Pipe work and infrastructure associated with the tank should be traced, removed and disposed of accordingly and surrounding area inspected for visual evidence of contamination; and,
- Following removal of the tank, a visual inspection of area for evidence of contamination should be undertaken.

4.3 Healthy and Safety of Construction Workers

The risks posed to construction workers through short term exposure to potentially reduced quality or soil can be minimised through adherence to the following relevant health and safety

[5] *Technical Guidance WM3: Waste Classification - Guidance on the classification and assessment of waste*

regulations / guidance:

- Management of Health and Safety at Work Regulations (NI) 1999;
- Construction (Health, Safety and Welfare) Regulations (NI) 1999;
- 'Protection of workers and the General Public during the Development of Contaminated Land' published by HSE (1991); and,
- 'A Guide to Safe Working on Contaminated Sites, R132' published by CIRIA (1996).

The health and safety implications of working with potentially contaminated groundwater and soils should be fully considered prior to the commencement of any works through the development of an appropriate health and safety plan. It is considered that the measures adopted to minimise the exposure of construction workers to contaminants should include the following as a minimum:

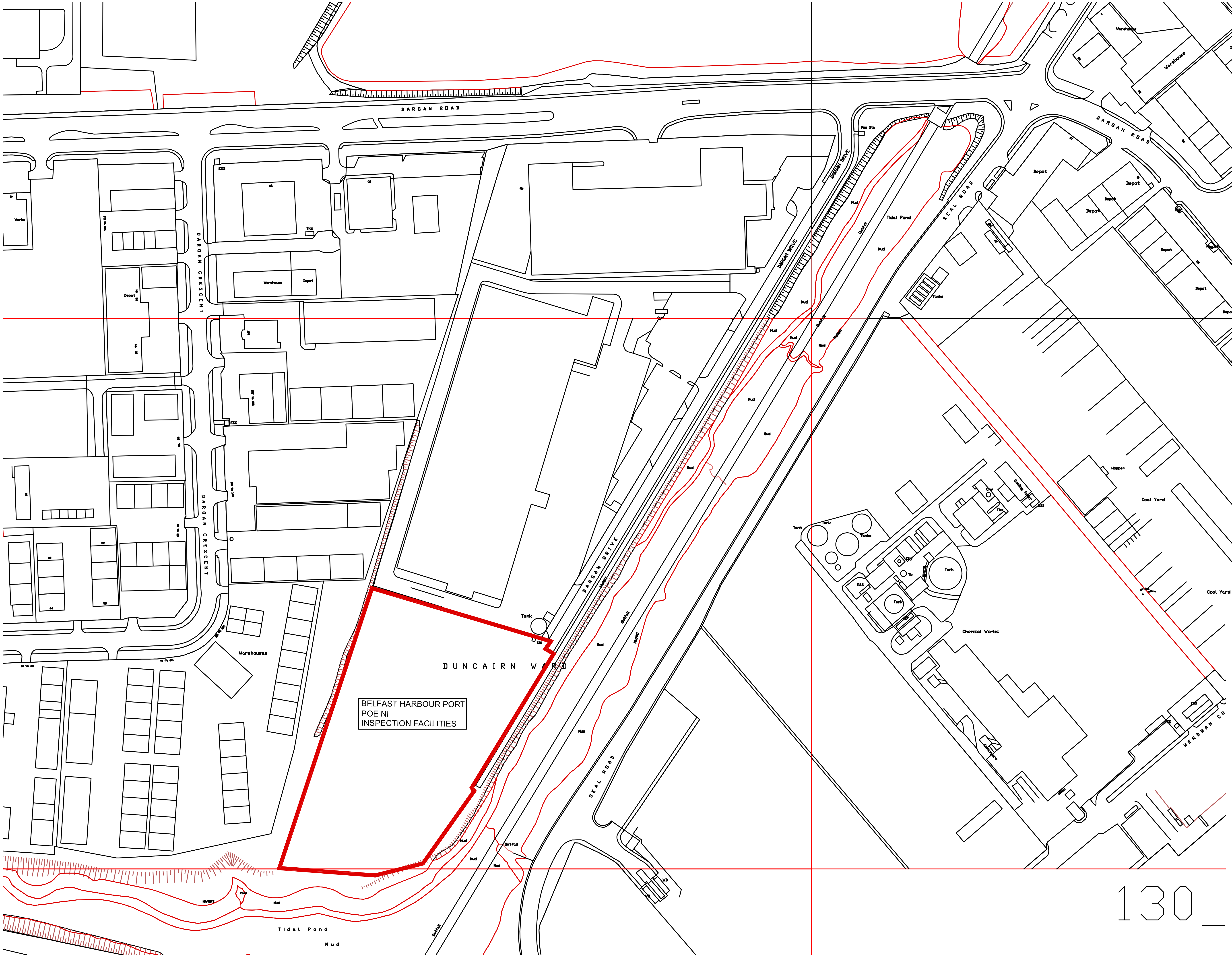
1. Provision should be made for washing and toilet facilities; clean and dirty collection, laundering and storage facilities for protective clothing; and wash facility for footwear.
2. Provision of Personal protective equipment (PPE) as a minimum PPE should include the following:
    - Headwear
    - Footwear
    - Disposable overalls/impermeable outer garments
    - Gloves

4.4 Unexpected Contamination

Should any unexpected materials be encountered during earth works, site operations should stop until the materials have been identified. Examples of such materials include buried barrels or containers, soil or water with an unusual colour or odour, and other evidence of contamination, for example iridescent sheens (like oil or diesel) on soil or water. There are no active sources of contamination anticipated but potential for impact from sources associated with adjacent residential properties oil tanks should be acknowledged.

Figures

Figure 1 - Site Location Plan



Client:
EU designation of NI Portal Facilities

Job:
Belfast; Point of Entry NI

Drawing:
Location Map

Scale:

Branch:

Branch Manager:

Drawn by: Date:

Verified by: Date:

Drawing No:
691999AQD / BH/ 028

Amendment:

Figure 2 - Annotated Site Plan

Belfast Brexit Port: Annotated Plan

Dargan Crescent, Belfast

DAERA c/o CPD

Site Boundary

0 40 80 120 160 Meters

Scale: 1:2,000 @A1

20 August 2020

NGR: 335,436 E / 377,413 N

Notes:

Drawn by: SS

Checked by: PH

Office: 4616

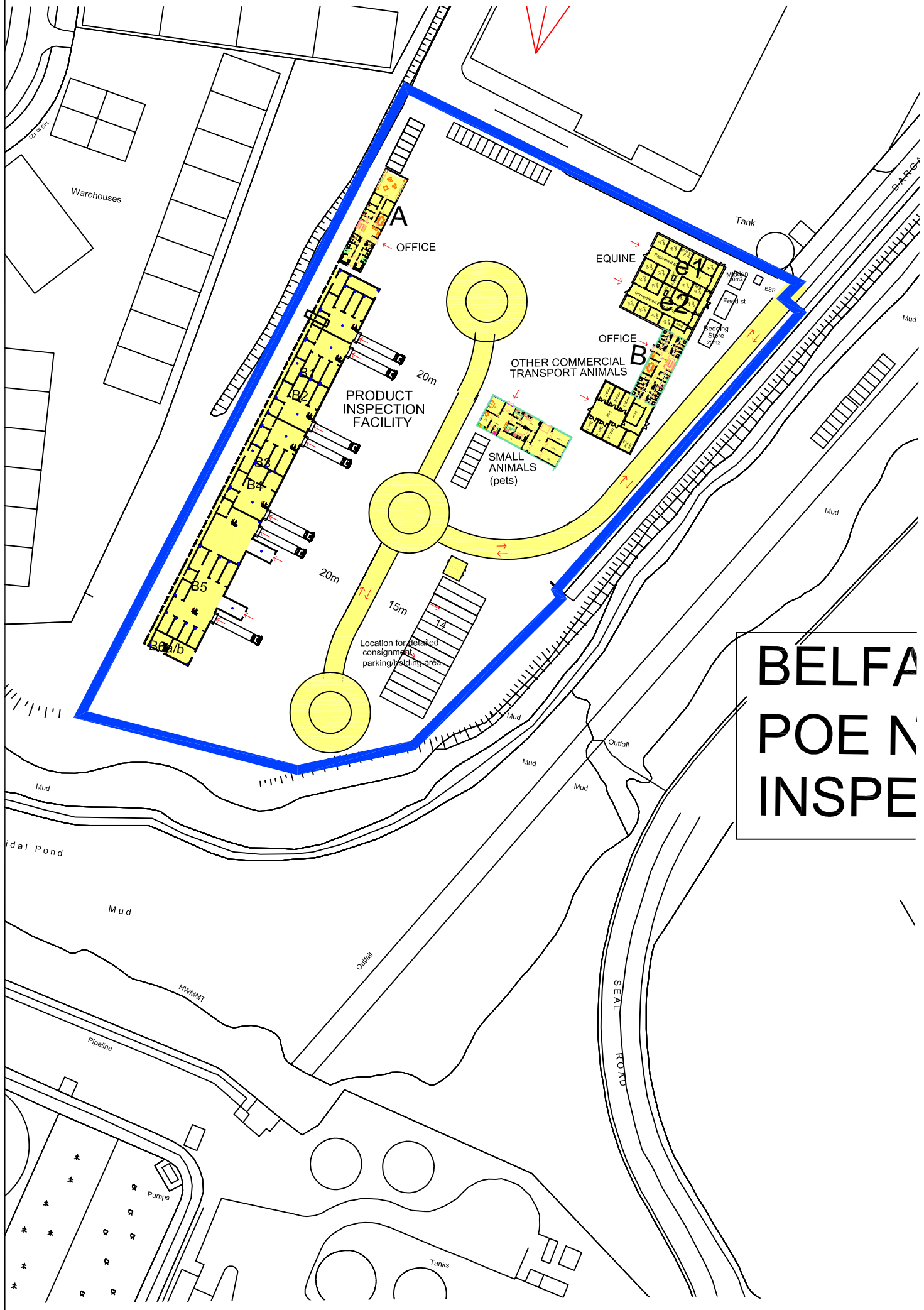
Job No. A112794-67

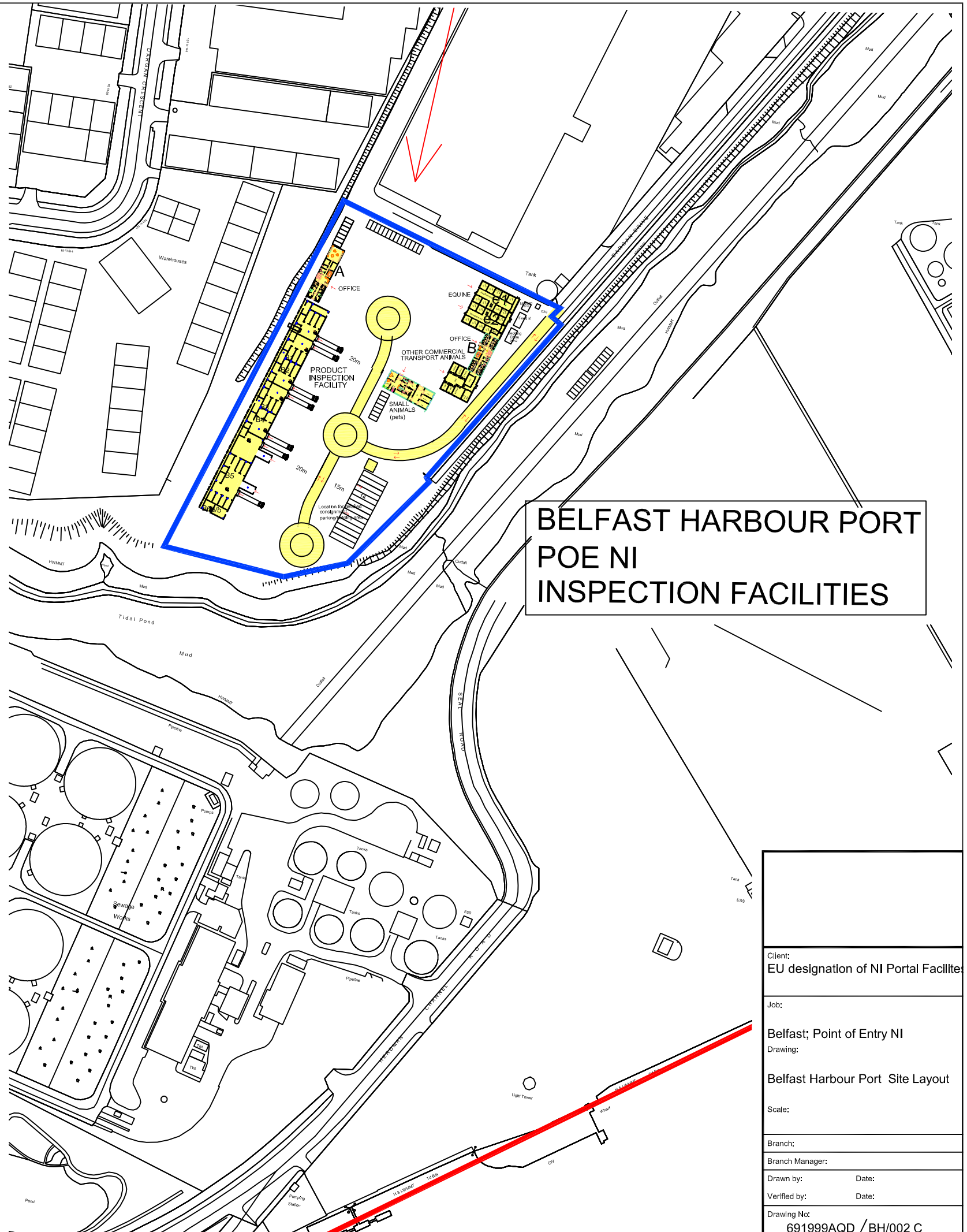
Drawing No. 002

Revision No. 001

Figure 3 – Proposed Site Development

BELFAST HARBOUR PORT
POE NI
INSPECTION FACILITIES





Client:
EU designation of NI Portal Facilites

Job:

Belfast; Point of Entry NI

Drawing:

Belfast Harbour Port Site Layout

Scale:

Branch:

Branch Manager:

Drawn by: Date:

Verified by: Date:

Drawing No:
691999AQD / BH/002 C

Amendment:

Appendix A - WYG Terms & Conditions

WYG ENVIRONMENTAL PLANNING TRANSPORT (NI) LTD

REPORT CONDITIONS

Preliminary Risk Assessment

Belfast Harbour, Belfast

*This report is produced solely for the benefit of **CPD** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.*

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted, and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted, or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

Appendix B – Photographs

View of the entrance to the site.

View of the electric substation located in the northern eastern corner of the site, adjacent to the northern boundary.

View of the shipping containers currently stored at the site.

View of the lorry was located on the adjacent site, close to the northern boundary. Dumping of plastics, aerosols and wood were noted along the northern boundary.

View of two containers located along the western boundary

View of the electric substation located in the northern eastern corner of the site, adjacent to the northern boundary.

View of paints and white spirits stored along the western boundary of the site.

Appendix C - Statutory Consultees

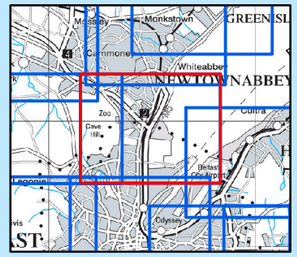
EU Floods Directive: 2nd Cycle

Flood Risk Damages

High Probability

10% chance that a flood of this magnitude or greater will occur in any given year.

Map Type:	**FLOOD RISK**
Source:	**RIVER**
Epoch:	**PRESENT DAY**



Scale 1:20,000 when plotted at A3

River Model Status

Modelled in Detail

Risk Data

10% AEP Flood Extent (1 in 10 or greater chance in any given year)

- 0 - 10K (£)
- 10K - 50K (£)
- 50K - 200K (£)
- 200K - 1M (£)
- > 1M (£)

5 Estimated number of Inhabitants affected

Environmentally Sensitive Sites

- IPPC *Integrated Pollution Prevention & Control Installations (with permit number)*
- SAC *Special Areas of Conservation*
- SPA *Special Protection Areas*
- ASSI *Areas of Special Scientific Interest*
- NIEA/DWI registered private water supplies
- Bathing Waters

Coordinate System: Irish Grid.
Coordinates in metres.
Heights in metres above MSL Belfast.
Users of this map should refer to the guidance and conditions of use available at the DfI Rivers website.

Department for Infrastructure
An Roinn Bonneagair
www.infrastructure-ni.gov.uk

Study Area : Whitehouse

Drawing Number : FRH_Whitehouse
Publication Date: 13th December 2019

ORDNANCE SURVEY OF NORTHERN IRELAND

N W E S

0 200 400 800 1,200 1,600 2,000 Metres

1:20,000

Compiled & published by the Department for Infrastructure, DfI Rivers, 49 Tullywiggan Road, Loughry, Cookstown, County Tyrone, BT80 8SG.

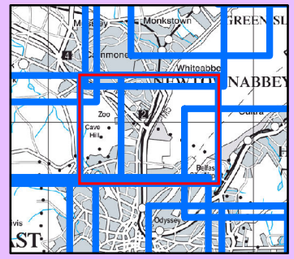
EU Floods Directive: 2nd Cycle

Flood Risk Damages

High Probability

3.33% chance that a flood of this magnitude or greater will occur in any given year.

Map Type: FLOOD RISK
Source: SURFACE WATER
Epoch: PRESENT DAY



Scale 1:20,000 when plotted at A3

Risk Data

- 3.33% AEP Flood Extent (1 in 30 or greater chance in any given year)
- 0 - 10K (£)
- 10K - 50K (£)
- 50K - 200K (£)
- 200K - 1M (£)
- > 1M (£)
- 5 — Estimated number of Inhabitants affected

Environmentally Sensitive Sites

- IPPC — *Integrated Pollution Prevention & Control Installations (with permit number)*
- SAC — *Special Areas of Conservation*
- SPA — *Special Protection Areas*
- ASSI — *Areas of Special Scientific Interest*
- NIEA/DWI registered private water supplies
- Bathing Waters

Coordinate System: Irish Grid.
Coordinates in metres.
Heights in metres above MSL Belfast.

Users of this map should refer to the guidance and conditions of use available at the DfI Rivers website.

Department for Infrastructure
An Roinn Bonneagair
www.infrastructure-ni.gov.uk

Study Area : Whitehouse

Drawing Number : PRH_Whitehouse
Publication Date: 22nd March 2020

ORDNANCE SURVEY OF NORTHERN IRELAND

N W E S

0 200 400 800 1,200 1,600 2,000 Metres

1:20,000

Compiled & published by the Department for Infrastructure, DfI Rivers, 49 Tullywiggan Road, Loughry, Cookstown, County Tyrone, BT80 8SG.

334000 336000 338000

378000

376000

GREEN CASTLE
M5
Belfast Lough
Belfast Lough Open Water
Outer Belfast Lough
LOW-WOOD INTAKE
LOW-WOOD
SHORE ROAD
HIGH STREET
HOLYWOOD BY-PASS
HOLYWOOD
P0434/13A
P0307/09A
Inner Belfast Lough
M2
BELFAST ROAD
ANTRIM ROAD
PPC0002/08B
P0465/14B
PPC0157/08B
P0081/05A
SYDENHAM INTAKE
SKEGONEILL
P0186/07A
P0161/07A
P0001/03A
P0446/13A
PPC0058/08B
KNOCKNAGONEY
CAVEHILL ROAD
TOWN PARKS
P0102/05A
PPC0012/08B
PPC0019/08B
YORK ROAD
P0100/05A
P0139/06A
P0405/12B
P0135/06A
LIMESTONE ROAD
QUEEN'S ISLAND
PPC0006/08B
P0140/06A
BALLYMAGHAN
DUNCRUE STREET
NORTH QUEEN STREET
P0483/15A
SYDENHAM BY-PASS
PARKWAY
THE WALLED GARDEN
DOCK STREET
GARMOYLE STREET
VICTORIA PARK
CRUMLIN ROAD
YORK STREET
NELSON STREET
STRANDTOWN
CLIFTON STREET
CORPORATION STREET
HOLYWOOD ROAD
KILLEEN (HOLYWOOD)
WESTLINK
DONEGALL STREET
CARRICK HILL
BALLYMACARRET INTAKE
BALLYMISERT
PETERS HILL
MILLFIELD
NORTH STREET
DUNBAR LINK
DONEGALL QUAY
M3
ROYAL AVENUE
VICTORIA STREET
MIDDLEPATH STREET
BRIDGE END FLYOVER
BRIDGE END
BALLYMACARRET
BELMONT ROAD
HAWTHORNDEN
BALLYCLOGHAN
DIVIS STREET
CASTLE STREET
NEWTOWNARDS ROAD
BALLYHACKAMORE

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334000 336000 338000

ORDNANCE SURVEY OF NORTHERN IRELAND

N W E S

0 200 400 800 1,200 1,600 2,000 Metres

1:20,000

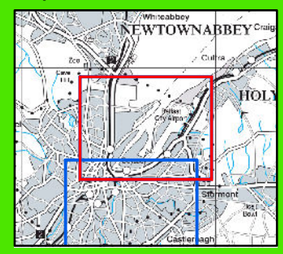
EU Floods Directive: 2nd Cycle

Tidal Risk Damages

High Probability

10% chance that a flood of this magnitude or greater will occur in any given year.

Map Type: FLOOD RISK
Source: TIDAL
Epoch: PRESENT DAY



Scale 1:20,000 when plotted at A3

River Model Status

Modelled in Detail

Risk Data

10% AEP Flood Extent (1 in 10 or greater chance in any given year)

- 0 - 10K (£)
- 10K - 50K (£)
- 50K - 200K (£)
- 200K - 1M (£)
- > 1M (£)

5 Estimated number of Inhabitants affected

Environmentally Sensitive Sites

- IPPC *Integrated Pollution Prevention & Control Installations (with permit number)*
- SAC *Special Areas of Conservation*
- SPA *Special Protection Areas*
- ASSI *Areas of Special Scientific Interest*
- NIEA/DWI registered private water supplies
- Bathing Waters

Coordinate System: Irish Grid.
Coordinates in metres.
Heights in metres above MSL Belfast.
Users of this map should refer to the guidance and conditions of use available at the DfI Rivers website.

Department for Infrastructure
An Roinn Bonneagair
www.infrastructure-ni.gov.uk

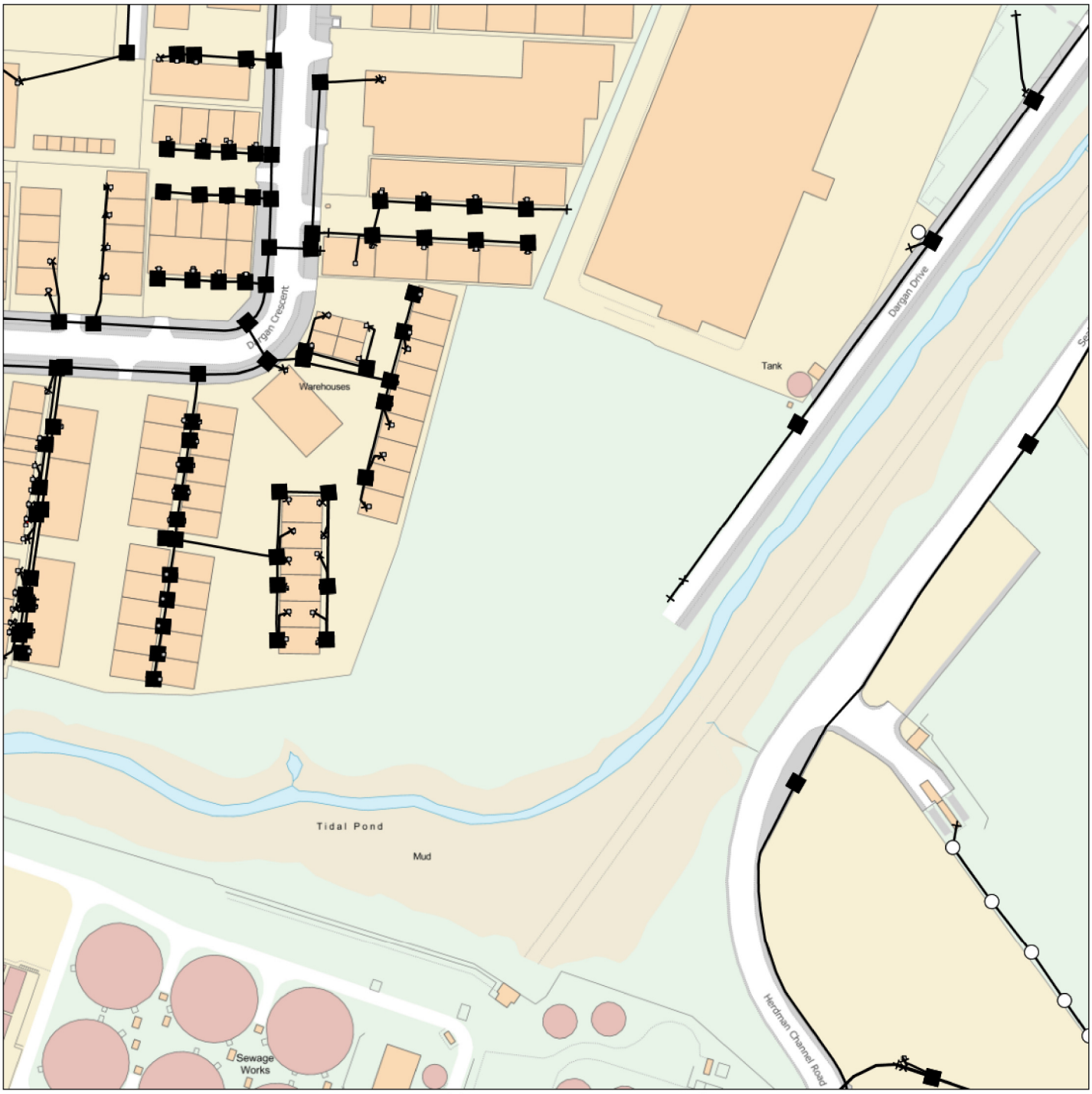
Study Area : Belfast 1

Drawing Number : TRH_Belfast 1
Publication Date: 17th December 2019

Compiled & published by the Department for Infrastructure, DfI Rivers, 49 Tullywiggan Road, Loughry, Cookstown, County Tyrone, BT80 8SG.

Appendix D - Utility Responses

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email nicbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

KEY TO BT SYMBOLS

	Planned	Live
PCP		
Pole		
Box		
Manhole		
Cabinet		

Change Of State	+	Hatchings	
Split Coupling		Built	
Duct Tee		Planned	
Building		Inferred	
Kiosk	K	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	In Place	Pending Remove	Not In Use
Power Cable				
Power Duct				N/A

BT Ref : FDY04543R
Map Reference : (centre) J3529177291
Easting/Northing : (centre) 335291,377291
Issued : 18/08/2020 16:54:45

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nicbyd@openreach.co.uk

Our Ref: 2008/50080 Your Ref: None

Ms. Gemma Press
WYG
belfast.env@wyg.com

14th August 2020 Website: http://www.nienetworks.co.uk/

Dear Ms. Press

Re: Dargan Drive, Belfast

We refer to your request for a marked up cable drawing showing NIE Networks equipment. We enclose for your attention but ask you to note that **all cable positions are approximate only** as indicated clearly on the drawing. Therefore, the onus is on you and your subcontractor to locate and avoid all underground and overhead electrical equipment owned by NIE Networks and to prevent any damage whatsoever to **any** electrical equipment.

Please note specifically that smaller service cables may not show on the marked up drawing and therefore all reasonable steps should be taken by you to locate any cable whether, underground or overhead.

As you know, work in the vicinity of any electrical equipment involves a high risk of danger or injury and therefore all care must be taken.

Any damage must be reported immediately as no matter how minor the damage may appear, live electricity cables are extremely dangerous and can kill.

All site safety **MUST** be maintained in accordance with Health and Safety legislation and we refer you to the following guidance notes, for information, but these do not form an exhaustive list:

1. HSE guidance notes GS6 (avoidance of danger from overhead electric lines) and
2. HSE booklet HS (G) 47 avoiding danger from underground services

These guidance notes are available from the Health & Safety Executive for N.I. (HSENI).

NIE Networks also have a website section on 'Contractor Safety' to which we refer you.

If any damage whatsover occurs to NIE Networks equipment all work in the vicinity **must stop immediately** and the damage **must be reported at once** to NIE Networks on the following number: **03457 643 643**

As you will appreciate, fault location and repairs are less expensive to carry out should a matter be reported immediately at the time of damage. We would ask you to note that even what may appear insignificant damage can involve a cable faulting at some time later and the location and repair costs in such an instance are considerably higher. NIE Networks will pursue the responsible party for all costs incurred by it in the locating and repairing of any of its electrical equipment and this letter will be used in

support of that claim.

You should ensure that the attached mark up and a copy of this letter are given to any contractor or subcontractor who may have personnel or machines working on this site and we have enclosed two copies for your convenience. Also note, that NIE Networks original drawings must be used at all times and this present drawing is only valid for 3 months from the date of this letter.

Should you require any further information you can contact us by phoning 03457 643 643.

Yours sincerely

NIE Networks

Network Performance and Safety

Northern Ireland Electricity Networks

April 2018

Safety priorities

Advice to contractors on avoiding danger from underground electricity cables

From time to time your development and maintenance work can come close to or cross, NIE Networks infrastructure. It is essential you assess and control the risks associated with this work.

Damage to underground cables during excavation works will result in severe burn injuries or fatalities as well as disrupting essential electricity supplies. It is your responsibility to take all steps to ensure your activities are planned and completed safely.

Please ensure that you read and understand the content of the NIE Networks Access Statement

Prior to excavation

Nearly every road, footpath and public area will contain one or more electricity cable. In order to minimise injury risk when excavating near electricity cables, you must consider the following:

- Ensure the most up to date cable drawings are with you on site and that you fully understand them before you start the excavation. Note: some electricity cables may not be shown on our drawings such as older electricity cables or those that don't belong to us.
- Have a Cable Avoidance Tool (CAT) on site and ensure the operator is competent to use it. Survey the site before starting the excavation.
- Mark out the location of electricity cables in accordance with the CAT survey.
- Look around you and assess if there is anything adjacent to your work area that would contain an electricity cable - street lighting columns, phone boxes, bus shelters, traffic light control pillars. Some of these contain electricity cables that are not our equipment.

During excavation

Continue to use the Cable Avoidance Tool (CAT) during the entire excavation - **YOU MAY BE ONLY MILLIMETRES AWAY FROM A LIVE CABLE!**

- Electricity cables can be identified by marker tape, concrete or plastic tiles, bricks or timber. However, these may have moved and are no longer under their protective covers. Sometimes the marker tape or tiles may be missing altogether, never assume that protective covers will be in place.
- Do not use a mechanical excavator within 0.5m of electricity cables and keep everyone clear of the bucket while it is digging.
- Use spades and shovels with non-metallic handles in preference to other tools and do not throw or spike them into the ground.
- Use only picks with short chisel ended tines with non-metallic handles, to break up surface materials and when the ground is very hard.

If electricity cables are suspected of being embedded in the concrete that you need to excavate, do not start work until:

1. The electricity cables have been de-energised or proven to be dead; Or
2. NIE Networks has established an alternative safe system of work.

- Never assume that electricity cables follow a straight line or that they run at the same depth.
- Never disturb electricity cables and joints or their protective covers.
- Always ensure that all exposed electricity cables are adequately supported and never use them as a convenient step or hand-hold.

If you suspect that an electricity cable has been damaged, however slightly:

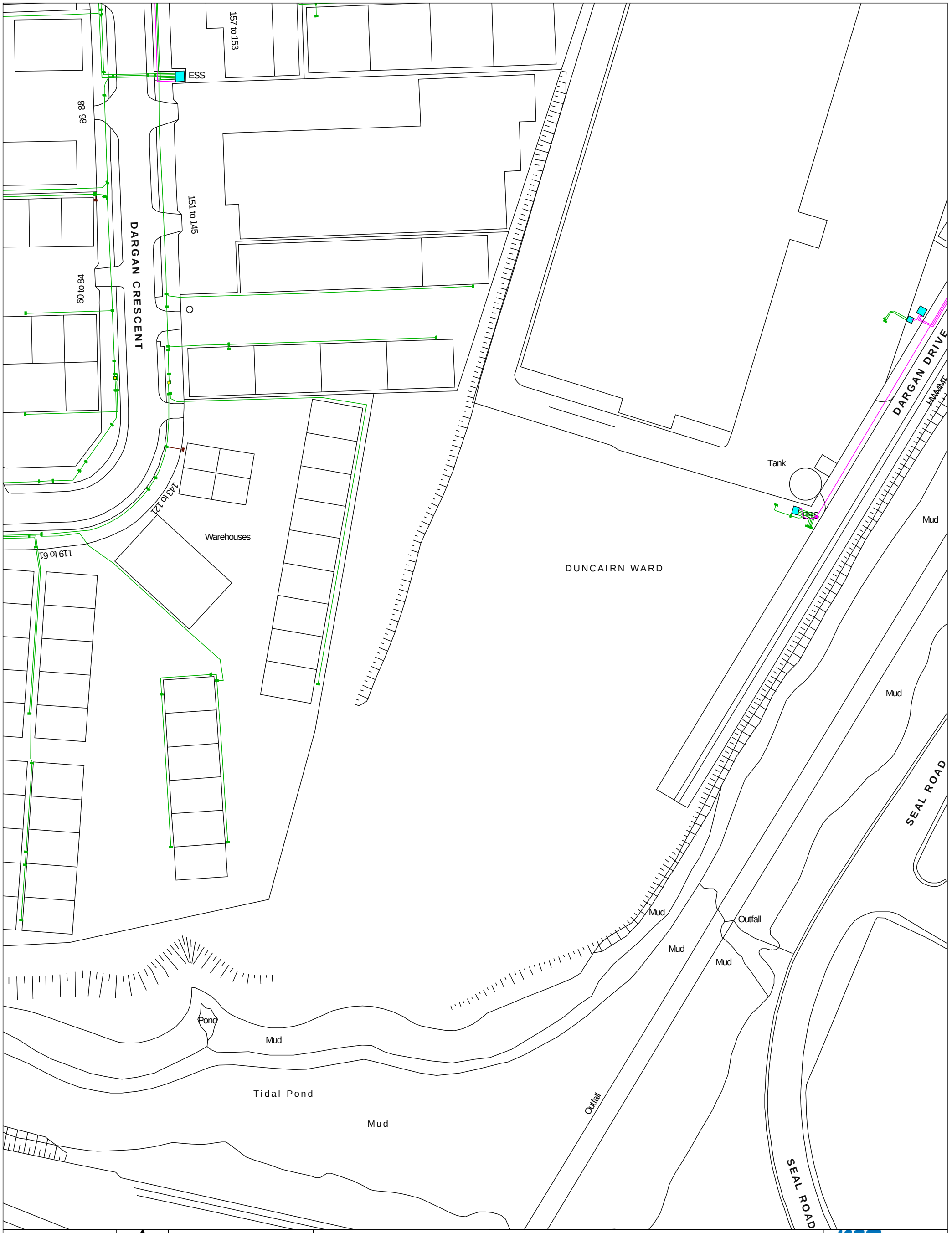
- Keep people at a safe distance and secure the site;
- Telephone NIE Networks IMMEDIATELY on: 03457 643 643;
- Remain onsite until NIE Networks arrive.

When calling, you will need to describe the incident and its exact location, giving the name, address and telephone number of your company. No charge will be made for electricity cable damage site visits where repairs are not required.

Detail of the basic safety precautions recommended on this sheet are in the HSE booklet HS(G)47 – Avoiding Danger from Underground Services.

More information: nienetworks.co.uk/safety

Map No : 13006sw2



Based upon the ordnance Survey map with the permission of the director and the chief executive, Crown copyright. É

N

Date: 14/08/2020 09:46:42

Scale: 1:1250

Map Centre : 335282,377328

400 kV
275 kV
110 kV
33 kV
11 kV
6.6 kV
L V
Service

CAUTION! CABLE POSITIONS ARE APPROXIMATE ONLY.

Please note that smaller service cables may not be shown. Always remember that it is the responsibility of the excavator to locate and avoid damage to N.I.E. equipment. Failure to do so may result in those responsible being held liable.

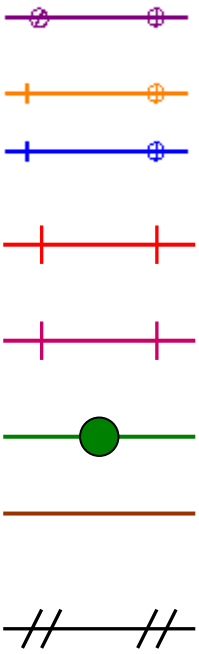
Northern Ireland Electricity

1

Drawing No:

Project No:

GNIS SYMBOLOGY



275 KV Overhead

110 KV Overhead

33 KV Overhead

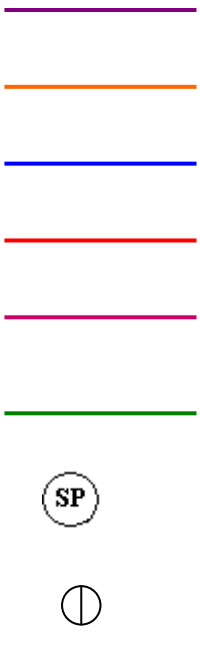
11 KV Overhead

6.6 KV Overhead

MV Overhead

Services

De-energised or Decommissioned (Voltage as per colour code below)



275 KV Cable

110 KV cable

33 KV Cable

11 KV Cable

6.6 KV cable

MV Cable

Steel Pole

Tower

HV Pole

Pole Mounted Sub

Ground Mounted Sub

Stay. Can be 2 Stay (2S) or 3 Stay (3S)

3 Pole. Can be 4 Pole (4P)

H Pole

Jockey Pole

V Stay

Switching Site

Leader Line

Flying Stay

MV Pole

MV Stay

MV 2 Stay

MV Strut

Mini Pillar

UDB

SP — Steel Pole

JP — Jockey Pole

GW — Guard Wire

FS — Flying Stay

OR — Outrigger Stay

Northern Ireland Electricity Limited

Advice to Contractors on Avoiding Danger from Buried Electricity Cable

Many accidents occur when underground cables are damaged during excavation.
Damage to live electricity cables can cause an explosion which can result in serious injury or even death.

Nearly every footpath has one or more electricity cables beneath it. So that you avoid injury when excavating near our cables, you **must** pay special attention to the following points:

- Have cable drawings with you on site and check them before you start the excavation. **Remember:** some cables may not belong to Northern Ireland Electricity and, therefore, will not be shown on our drawings.

- Have a cable locator tool on site and use it to help you survey the site before you start the excavation. If you don't know how to use the cable locator, ask your supervisor to help you.

- Mark out the location of electricity cables in accordance with the cable locator signals.

Remember that:

1. the cable locator, in the 'power' mode, will not always detect the presence of cables – especially if they are not carrying any current at the time.
2. when the cable locator is used along with the signal generator, or in the 'radio' mode, it is more likely that cables that are not carrying current can be detected.

- Look around you to see if there is anything nearby that would have an electricity service, such as lamp columns, phone boxes, bus shelters, traffic light control pillar and so on. These would have small service cables which are easily damaged.

- Continue to use the cable locator during the entire excavation process-
  YOU MAY BE ONLY INCHES AWAY FROM A LIVE CABLE!

- Cables are usually protected by marking tape, tiles, bricks or timber. But they may have moved and are no longer under their protective covers. Sometimes the marking tape or tiles may be missing altogether.

- **Do not** use a mechanical excavator within 0.5m of electricity cables and keep everyone clear of the bucket while it is digging.

- Use spades and shovels in preference to other tools and **do not** throw or spike them into the ground.

- Use only picks with short chisel ended tines, to break up surface materials and when the ground is very hard.

- If cables are suspected of being embedded in the concrete that you need to excavate, **do not** start work until:

  1. the cables have been made dead;
     or
  2. a Northern Ireland Electricity supervisor has established an alternative safe system of work.

- **Never** assume that service cables follow a straight line or that they run at the same depth.

- **Never** disturb electricity cables and joints or their protective covers.

- **Always** ensure that all exposed cables are adequately supported and **never** use them as a convenient step or hand-hold.

Reporting Damaged Cables

If you suspect that a cable has been damaged, however slightly:

- mark the location

- keep people at a safe distance; and

- telephone Northern Ireland Electricity **IMMEDIATELY**, using the following number:

08457 643643

When calling, you will need to describe the incident and its exact location, giving the name, address and telephone number of your company. No charge will be made for cable damage site visits where cable repairs are not required.

The basic safety precautions recommended on this sheet are explained in detail in the HSE booklet HS(G)47 – Avoiding Danger from Underground Services, a copy of which may be obtained from your supervisor or The Stationary Office.

From: dialb4udig <dialb4udig@firmusenergy.co.uk>
Sent: 14 August 2020 10:47
To: belfast.env
Subject: RE: Information Request - Dargan Drive, Belfast
Attachments: Licence Area Map.jpg

Good Morning Gemma,

Firmus energy have no plant in your requested location, Belfast, as it is outside of our licence area. I have attached a licenced area map for your information.

Kind regards

Rochelle
Technical Administrator

firmus energy
Kilbegs Business Park
A4/A5 Fergusons Way
Antrim, N.Ireland
BT41 4LZ.

T: +44 (0) 8456 0800 66
dialb4udig@firmusenergy.co.uk | https://www.firmusenergy.co.uk

From: belfast.env [mailto:belfast.env@wyg.com]
Sent: 14 August 2020 10:39
To: dialb4udig <dialb4udig@firmusenergy.co.uk>
Subject: Information Request - Dargan Drive, Belfast

Good afternoon,

Would you be able to provide me a mark-up of any Firmus infrastructure on this site unit Grid Reference J 35281 77289 (site map attached). I have attached a site map for your reference.

Thanks

Gemma Press
Geo-Environmental Consultant

WYG
1 Locksley Business Park, Montgomery Road, Belfast, BT6 9UP
Tel: +44 289 070 7008

www.wyg.com

Following Government guidance aimed at preventing the spread of COVID-19 the majority of our office based teams are working from home. We are fully enabled to work remotely so this will not impact on our service to our clients or our colleagues. However, we do require that all communications are sent to us electronically by email so that we will be in a position to receive and respond. Thank you for your co-operation.

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