12.0 MATERIAL ASSETS – BUILT SERVICES

12.1 Introduction

This section examines the material assets serving the subject lands relating to surface water drainage, water supply, foul sewerage, electricity, gas and telecommunications.

12.2 Assessment Methodology

The methodology followed for this section is in accordance with the EPA *"Environmental Impact Assessment Reports, Draft Guidelines 2017"*. Information on built assets in the vicinity of the development lands was assembled from the following sources:

- A desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps;
- Consultation with Irish Water and Louth County Council;
- Submission of a Pre-Connection Enquiry Application to Irish Water;
- Review of ESB Network Utility Plans & Site meetings with ESB Network
- Review of Gas Networks Ireland exiting network maps;
- Review of EIR Telecommunications exiting network maps;
- Review of Virgin Media Telecommunications exiting network maps;
- Site Inspection / Walkover;

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines:

- Greater Dublin Strategic Drainage Study (GDSDS);
- Irish Building Regulations – Part H 2010 – Drainage and Waste Water Disposal
- Irish Water's Code of Practice (water demand and foul water loading);

12.3 Surface Water Drainage

12.3.1 The Receiving Environment

The development lands are located within the catchments of the River Boyne.

Surface water from the proposed development area currently drains via a network of ditches and culverts and outfalls to the River Boyne to the north of the site.

This project has been subject to Stage 2 Appropriate Assessment Screening and a Natura Impact Statement accompanies this application under separate cover. Mitigation measures relating to the avoidance of potential impact on the Natura 2000 Network are contained in the NIS.

12.3.2 Characteristics of the Proposal

It is proposed that the surface water from the proposed development shall drain via gravity and discharge at a restricted rate into the proposed 225 mm diameter surface water sewer to be constructed below the LIHAF access road granted planning under reg. ref. 17/387. Ultimately, surface water will outfall to the existing surface water sewer on Marsh Road adjacent the wastewater treatment plant before discharging to the River Boyne.

All surface runoff will be restricted to the equivalent of the existing Green field runoff, i.e. the runoff that would occur if the proposed development scheme was not constructed.

Surface water from the LIHAF road will drain via gravity and be attenuated in an underground storage tank (V=80 m3) as approved under Reg. Ref. 17/387.

The surface water network for the development site area has been divided into three separate catchments, referred to in the report and associated drawings as Catchment A, Catchment B and Catchment C. Each catchment will outfall to the proposed sewer under the LIHAF access road as outlined above.

Details of the surface water catchments are shown in Table 1.

Table 1 Surface Water Catchment Details

	Total Area (ha)	Impermeable Area (ha)	% Hardstanding
Catchment A	4.74	2.43	51.3
Catchment B	1.82	0.94	51.7
Catchment C	0.91	0.37	40.7
Total	7.47	3.74	50.0

The permissible outflow from each catchment is calculated in accordance with the Greater Dublin Strategic Study. The QBAR equation which gives a figure for existing Greenfield surface water runoff was used in this calculation and the following parameters were used in estimating the Greenfield runoff:

- QBAR * = $0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$
- Where:
- **Area:** Site area in km^2 (Or 50 hectares if site is less than 50 Hectares)
- **SAAR:** Taken from "Extreme Rainfall in Ireland" maps (782mm)
- **SOIL**: Runoff constant (Varies between 0.1 and 0.53: Given as 0.3 for a Type 2 soil)
- $Qbar_{rural} = 0.00108(0.5)^{0.89} \times (782)^{1.17} \times (0.3)^{2.17}$
- $Qbar_{rural} = 103.7$ l/s (For a 50 hectare site)
- $Qbar_{rural} = 2.07$ l/s/Ha

The formula should not be applied to areas less than 50 hectares. For developments with areas smaller than this size QBAR is calculated by the interpolation from QBAR 50 hectares. The Qbar for each surface water catchment is shown in Table 2.

Table 2: Surface Water Outflow

	Catchment A	Catchment B	Catchment C
Catchment Area - Ha	4.74	1.82	0.91
$Qbar_{rural}$ – l/s	9.81	3.77	1.88*

*Catchment C will be restricted to **2.0 l/s** which is the minimum practical flow achievable in accordance with hydro-brake manufacturer's specifications.

The storage systems to allow attenuation of the rainfall and subsequent runoff are designed for a return rainfall period of 100 years. This calculation includes an additional 20% for anticipated climate change.

Each surface water network shall discharge via a hydrobrake installed at the outfall manhole of each catchment with excess storm water attenuated in separate underground systems.

The required storage volume for each catchment area is shown in Table 3.

Table 3: Surface Water Attenuation

	Attenuation Storage (m^3)
Catchment A	1,310
Catchment B	496
Catchment C	169
Total	**1,975**

There is a potential to reduce the attenuation requirements by implementation of SUD's with methods such as permeable pavements and filter drainage systems.

While storage for attenuation can take a number of forms, to suit different situations and locations, storage of surface water runoff from the proposed development and site roads will generally be provided by means of a number of online underground attenuation systems located below the open space areas of the site. Flow control devices will be provided in accordance with the requirements of Louth County Council.

If the runoff exceeds the allowable discharge rate, the surface water runoff shall back up into the underground attenuation system provided. Once the storm flow has passed the attenuation system shall drain via gravity through the proposed flow control device. The attenuation system also allows the excess runoff to permeate into the ground.

As part of the proposed development construction, surface water drainage pipes, manholes and chambers will be placed along the internal access roads where appropriate.

12.3.3 Potential Impact of the Proposal - Construction Phase

The following potential impacts from the construction of the proposed development may occur:

- There is a risk that once topsoil has been stripped from the site there will be higher runoff rates from the lands with increased amount of silt to existing watercourses in the runoff.
- There is a risk of pollution of groundwater / watercourses / soils by accidental spillage of oils / diesel from temporary storage areas or where maintaining construction equipment.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties
- There is a possibility of a short-term Increase in traffic due to deliveries of materials and other construction related traffic.
- There will be some minor disruption to traffic when constructing the outfall pipe along Marsh Road.
- Cross connection between surface water and foul pipes.

The potential impact of surface water drainage during the construction phase on the receiving environment is significant.

12.3.4 Potential Impact of the Proposal - Operational Phase

The following potential impacts from the construction of the proposed development may occur:

- There is a potential impact from increased surface water flows that could lead to downstream flooding.
- There is a potential impact for the discharge of contaminants from the proposed development and road surfaces to the surrounding drainage ditches, which ultimately drain to the River Boyne. These would include particulates, oil, soluble extracts from the bitumen binder etc. The quality of runoff from the site would be dependent on the time of year, weather, particulate deposition from the atmosphere and any gritting or salting carried out by the Local Authority. The time of year has a major bearing on the quality of storm water run-off - in particular the first rains after a prolonged dry period where accumulated deposits of rubber, particulates, oils, etc. are, washed away.
- Stagnation of the water and siltation within the attenuation areas may occur.

The potential impact of surface water drainage from the proposed development on the receiving environment is significant.

12.3.5 Potential Impact of the Proposal - 'Do Nothing' Scenario

Surface water runoff would continue to be discharged to the receiving ditches / culvert at existing discharge rates.

12.3.6 Mitigating Measures - Construction Phase

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- Cut off trenches along the northern boundary of the development boundary will be constructed prior to stripping topsoil. These cut off trenches will have a settlement pond / silt trap at the end of each trench with an overflow. Straw bales will be placed within the cut off trenches at strategic locations and at the outfall of the settlement ponds to the overflow. These measures will be implemented and maintained during the construction phase to prevent surface water runoff from discharging directly into the local water course.
- Settlement ponds / silt traps as outlined above will be provided to prevent silt runoff into the existing ditches / watercourses during the drainage works
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location will be agreed between the project ecologist and the site foreman at the commencement of works. Trigger levels for halting works and re-examining protection measures will be pH >9.0 or pH <6.0; and/or suspended solids >25 mg/l. These trigger levels are based on those outlined within 'Guidelines on Protection of Fisheries During Works in and Adjacent to Waters (IFI, 2016)'.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree alternative pollution control measures, such as deepening or redirecting trenches as appropriate, before works may recommence.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water conducting features, including the cut off trenches.
- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Temporary traffic management will be implemented as appropriate during the construction of the outfalls on Marsh Road.

12.3.7 Ameliorative, Remedial or Reductive Measures - Operational Phase

- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the ditch / culvert.
- Attenuation systems will be constructed on-line to intercept the first flush during rainfall events after periods of dry weather. Furthermore, the proposed Stormtech attenuation system (Catchment A) contains

an 'Isolator Row' which provides treatment even in low flow conditions. This row is surrounded with filter fabric that provides for settling and filtration of sediments as the water passes through. This ensures that the majority of the solids are removed within the isolator row which prevents silt build-up in the remainder of the chambers, therefore minimising maintenance requirements and associated costs. The Stormtech systems have a stone base and permeable chambers which encourages water to permeate into the ground.

- Sustainable urban drainage measures such as filter drains, permeable paving, rainwater harvesting, swales etc. will be provided.
- A petrol interceptor will be installed to prevent hydrocarbons entering the surface water outfall.
- The attenuation storage systems will be constructed at a fall to maintain movement of water and thus prevent stagnation. Silt would be collected at a sump and removed periodically.
- Regular maintenance of the drainage network, including petrol interceptor.

12.3.8 Predicted Impact of the Proposal - Construction Phase

Due to the proposed ameliorative remedial and reductive measures outlined above many of the potential impacts will not arise during the construction phase of the proposed development on surface water quality.

There will be increases in traffic flows at the local road network due to deliveries of materials and some minor disruption to traffic during the construction of the outfalls on Marsh Road.

The impact following the construction stage mitigation measures outlined above is not significant.

12.3.9 Predicted Impact of the Proposal - Operational Phase

Due to the proposed ameliorative remedial and reductive measures outlined above at construction stage many of the potential impacts will not arise during the operation phase of the proposed development on surface water quality.

Surface water discharge from the site will be restricted by means of attenuation, therefore, no adverse impact in respect of flooding downstream will arise from the proposed development.

The Stormtech attenuation system (Catchment A) will be position on-line to provide treatment to the 'first flush' and will be constructed with permeable chambers to encourage infiltration. The installation of a petrol interceptor upstream of the outfall will ensure that any remaining hydro-carbons or pollutants within the runoff from trafficked areas are treated.

The installation of trapped gullies in accordance with BS 5911 will minimise the risk of contamination of the surface water system by floating debris.

The installation of a Sustainable Urban Drainage System will improve water quality to the surface water discharged to the local sewers and ultimately to the River Boyne.

The impact following the operation phase mitigation measures outlined above is slight.

12.3.10 Predicted Impact of the Proposal - 'Worst Case' Scenario

A worst-case scenario is that for a very intense storm, minor ponding may occur within the site.

12.4 Water Supply

12.4.1 The Receiving Environment.

There is an existing water main located in Marsh Road to the north of the proposed development.

12.4.2 Characteristics of the Proposal

It is proposed to provide potable water for the development via a connection to the watermain to the north of the site on Marsh Road. Further to the upgrade works required by Irish Water, outlined in Section 12.4.6 below, a 150 mm connection from the proposed development site to Marsh Road will be laid along the LIHAF access road (reg. ref. 17/387) to the site to facilitate the connection.

An estimate of water demand from the public water supply system for the proposed site has been based on the development of a total of 450 No. residential units, neighbourhood uses, an office block, a crèche using Irish Waters expected demand for the respective residential and commercial uses. Details are shown in Table 4.

Table 4: Total Water Demand

Description	**No. of Units**	**Population Per unit**	**PE**	**Water Consumption (l/h/d)**	**Total Demand (l/d)**
Residential	450 Units	2.7	1215	150	182,250
Neighbourhood Uses (Retail)	1,278 m^2	1 person per 30 m^2	42.6	30	1,278
Crèche	1 Unit / 920 m^2	1 person per 10 m^2	92	50	4,600
Office Block	1903 m^2	1 person per 10 m^2	190.3	50	9,515
				Total	**197,643**

The total water requirement from the public supply for the development is therefore estimated at c. 197.6 m^3/day.

12.4.3 Potential Impact of the Proposal - Construction Phase

- There is a risk of contamination of the existing water supply during construction of the development when connection of the trunk watermain to the public water supply is being made.
- There is a risk of damage to watermain fittings due to high pressure in the existing watermain.
- There will be a minor water demand for site offices.
- There will be increases in traffic flows at the local road network due to deliveries of materials.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties
- The proposed development will not give rise to any significant long term adverse impact. Negative impacts during the construction phase will be short term only.

The potential impact of the proposed construction stage on water supply infrastructure is significant.

12.4.4 Potential Impact of the Proposal - Operational Phase

During the operational phase, the total water requirement, from the public supply, for the development is estimated at 197.6 m3/day.

12.4.5 Potential Impact of the Proposal - 'Do Nothing' Scenario

In this scenario, the existing water demand would continue on the Irish Water network in Drogheda. There would be no additional demand.

12.4.6 Ameliorative, Remedial or Reductive Measures - Construction Phase

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- A c. 1 km of existing 3", 6" and 150 mm mains along Marsh Road is to be replaced with a 200 mm NB mains.
- The break in the existing 8" main on Marsh Road is to be repaired.
- The setting of the existing pressure relief valve at the inlet to Marsh Road DMA will be increased by c. 17 m.
- All water mains will be cleaned, sterilised and tested to the satisfaction of the Irish Water/Local Authority prior to connection to the public water main.
- All connections to the public water main will be carried out under the supervision of the Irish Water/Local Authority

12.4.7 Mitigation Measures - Operational Phase

It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

12.4.8 Predicted Impact of the Proposal - Construction Phase

Due to the proposed ameliorative remedial and reductive measures outlined above, the impact on the water supply infrastructure during the construction phase of the proposed development is slight.

There will be an increase in traffic flows at the local road network due to deliveries of materials.

There will be disruption to local traffic during the connection of the watermains from the proposed development to the existing watermains on Marsh Road and whilst watermain upgrade works are being carried out on the Marsh Road.

12.4.9 Predicted Impact of the Proposal - Operational Phase

There will be an increased demand for water supply due to the development resulting in a moderate impact in terms of demand on the water supply infrastructure. This impact will be managed through consultation with Irish Water to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

12.4.10 Potential Impact of the Proposal - 'Worst Case' Scenario

A worst case scenario would be that water mains would be contaminated during the construction phase. This would be mitigated against by scouring out the mains, swabbing and chlorinating the mains prior to occupation of any of the units.

12.5 Foul Water

12.5.1 The Receiving Environment.

There is an existing foul sewer located in Marsh Road to the north of the proposed development. The foul sewer drains to the Marsh Road pumping station where it is pumped via a rising main to the Drogheda Wastewater Treatment Plant.

12.5.2 Characteristics of the Proposal

It is proposed that the foul sewerage from the site will drain via gravity and outfall to the existing 225 mm diameter foul sewer on Marsh Road to the north of the subject site. The connection to this sewer will be via c. 430 m of new 225 mm diameter sewer to be constructed as part of the LIHAF access road (reg. ref. 17/387). Ultimately, the foul water will drain to the existing Irish Water Pump Station on Marsh Road where it is pumped via a rising main to the nearby Drogheda Wastewater Treatment Plant.

The design of the foul water drainage has been based on the "Code of Practice for Wastewater Supply", (December 2016) published by Irish Water. Pipe capacities and velocities have been calculated using Colebrook-White formula with a (Ks) of 1.5mm.

The estimated foul flows generated from the proposed development are shown in Table 5.

Table 5: Calculation of Proposed Foul Water Flow

Description	**No. of Units / Floor Area**	**Population Per unit**	**PE**	**Flow l/h/d**	**Infiltration Rate**	**Total Discharge (l/d)**
Residential	450 Units	2.7	1,215	150	1.1	200,475
Neighbourhood Uses (Retail)	1,278 m^2	1 person per 30 m^2	42.6	30	1.1	1,406
Crèche	1 Unit / 920 m^2	1 person per 10 m^2	92	50	1.1	5,060
Office Block	1903 m^2	1 person per 10 m^2	190.3	50	1.1	10,467
				Total		**217,408**

Total Daily Discharge *(from Table 2.1.)*	219,966	l/d
Dry Weather Flow (DWF)	2.55	l/s
Peak Foul Flow (= 4.5 x DWF)	***11.5***	***l/s***

12.5.3 Potential Impact of the Proposal - Construction Phase

The following potential impacts from the construction of the proposed development may occur:

- There is a risk of the ingress of ground/surface water to the foul water network.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties.
- There is a possibility of a short-term Increase in traffic due to deliveries of materials and other construction related traffic.
- There will be some disruption to traffic during construction works on the public road.
- Cross connection between foul and surface water pipes.

The potential impact of the foul drainage construction phase on the receiving environment is significant.

12.5.4 Potential Impact of the Proposal - Operational Phase

- Blockages may occur within the pipe network and the waste water could become septic.
- Foul water could be connected to the surface water drainage network.

The potential impact of foul drainage from the proposed development on the receiving environment is significant.

12.5.5 Potential Impact of the Proposal - 'Do Nothing' Scenario

In this scenario, the existing foul water demand would continue on the Irish Water network in Drogheda. There would be no additional demand.

12.5.6 Ameliorative, Remedial or Reductive Measures - Construction Phase

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Foul water pipes to be laid with sufficient falls to ensure self-cleansing velocity
- Foul and surface water pipes will be carefully laid so as to minimise the potential for cross connections.

12.5.7 Mitigating Measures - Operational Phase

The drainage network will be inspected annually and maintained.

12.5.8 Predicted Impact of the Proposal - Construction Phase

Due to the proposed ameliorative remedial and reductive measures outlined above, the impact of the foul network construction will be not significant.

There will be increases in traffic flows at the local road network due to deliveries of materials.

There may be short term disruption to local traffic on connection of the foul sewers from the proposed development to the existing foul sewers.

12.5.9 Predicted Impact of the Proposal - Operational Phase

There will be increased flows in the existing foul water drainage network, resulting in a moderate impact in terms of demand on the receiving foul water network. This impact will be managed through consultation with Irish Water to ensure any necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

12.5.10 'Worst Case' Scenario

A worst case scenario would be that foul water would be discharged to the surface water network. This would be mitigated against by ensuring no crossing connections during the construction stage. Poor workmanship could result in large quantities of surface water entering the existing foul drainage network and overloading the network.

12.6 ESB Supply

12.6.1 The Receiving Environment.

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained, refer to Appendix 12.1.

There are various ESB Networks infrastructure in the vicinity of the site including existing overhead cables. The overhead cables include two High Voltage Lines (38 KV) which traverse the entire development site in a east-west direction. There is a single overhead Medium Voltage Line (10 KV/20KV) which also traverses the site in an east-west direction. There is also a Low Voltage (400V) line near the southern boundary. These lines will need to be undergrounded and/or diverted to facilitate the development of the site.

There is also an extensive ESB infrastructure within the roads and neighbouring developments to the west and south of the subject site including a network of Medium & Low voltage underground lines in the Mornington and Railway Terrace Estates.

12.6.2 Characteristics of the Proposal

The proposed strategy for undergrounding and diverting the overhead lines is set out on Waterman Moylan drawing No. 16-137-P132. The proposed diversions will be discussed and agreed with ESB networks at the design stage of the project.

A new Medium Voltage below ground network will be provided in the proposed development which will connect to the existing ESB Networks infrastructure. Up to 5 new "unit sub-stations" will be provided throughout the site to meet the electrical demands associated with the new houses, apartments, offices and creche.

The exact extent and location of the connections will be agreed with ESB Networks during the design stage of the project.

All works on the power supply infrastructure will be carried out in accordance with ESB Networks Ireland relevant guidelines. All power infrastructure will be below ground.

12.6.3 Potential Impact of the Proposal - Construction Phase

The installation of the utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

The relocation or diversions of the existing overhead ESB lines may lead to loss of connectivity to and / or interruption of the supply from the electrical grid to the surrounding areas. Any loss of supply will be managed by ESB Networks to minimise impact on neighbouring properties.

The site compound will require a power connection. This likely adverse impact will be short-term and imperceptible.

12.6.4 Potential Impact of the Proposal - Operational Phase

The impact of the operational phase of the proposed development on the power supply network would be the requirement for an Electrical Diversified Load of c. 2.5MW which will be split over various substations located throughout the development as required by ESB.

12.6.5 Potential Impact of the Proposal - 'Do Nothing' Scenario

There are no predicted impacts on these material assets should the proposed development not proceed.

12.6.6 Mitigating Measures - Construction Phase

Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.

12.6.7 Ameliorative, Remedial or Reductive Measures - Operational Phase

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical infrastructure.

12.6.8 Predicted Impact of the Proposal - Construction Phase

Implementation of the measures outlined in Section 12.6.6 will ensure that the potential impacts of the proposed development on the sites material assets do not occur during the construction phase and that any residual impacts will be short term.

12.6.9 Predicted Impact of the Proposal - Operational Phase

The demand on power supply will increase due to the development of the lands. The development of the lands will be constructed in phases, with the final phase being completed circa 2028.

12.6.10 Cumulative Impacts

There are no predicted cumulative impacts arising from the construction or operation phase related to the provision of power services.

12.7 Gas

12.7.1 The Receiving Environment.

Gas Networks Ireland have been contacted and an existing gas network map for the area surrounding the proposed development has been obtained, refer to Appendix 12.2.

There is an existing 180mm medium-pressure gas main (4 bar) in the Marsh Road to the north of the development area.

12.7.2 Characteristics of the Proposal

If gas is adopted as the fuel source of choice for the heating systems in the scheme, a new gas connections be made at the northern boundary of the site at the Marsh Road. The exact extent and location of these connections will be agreed with Gas Networks Ireland during the design stage of the project.

All works on the gas supply infrastructure will be carried out in accordance with Gas Networks Ireland relevant guidelines. All gas infrastructure will be below ground with the possible exception of a gas pressure reduction station if required by Gas Networks Ireland.

12.7.3 Potential Impact of the Proposal - Construction Phase

The installation of the utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

Potential loss of connection to the Gas Networks Ireland infrastructure while carrying out works to provide service connections. This likely adverse impact may be characterised as a temporary, regionally short term, moderate impact.

12.7.4 Potential Impact of the Proposal - Operational Phase

The impact of the operational phase of the proposed development on the gas supply would be the requirement for a Gas diversified load of circa. 6MW to accommodate the development of the lands.

12.7.5 Potential Impact of the Proposal - 'Do Nothing' Scenario

There are no predicted impacts on these material assets should the proposed development not proceed.

12.7.6 Mitigating Measures - Construction Phase

Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.

Connections to the existing gas networks will be coordinated with the relevant utility provider and carried out by approved contractors.

12.7.7 Mitigating Reductive Measures - Operational Phase

On completion of the construction phase no further mitigation measures are proposed in relation to the gas infrastructure.

12.7.8 Predicted Impact of the Proposal - Construction Phase

Implementation of the measures outlined in Section 12.7.6 will ensure that the potential impacts of the proposed development on the sites material assets do not occur during the construction phase and that any residual impacts will be short term.

12.7.9 Predicted Impact of the Proposal - Operational Phase

The demand on gas supply will increase due to the development of the lands. The development of the lands will be constructed in phases, with the final phase being completed circa 2028.

12.7.10 Cumulative Impacts

There are no predicted cumulative impacts arising from the construction or operation phase related to the provision of gas services.

12.8 Telecommunications

12.8.1 The Receiving Environment.

Eir

Eir have been contacted and an existing Eir network map for the area surrounding the proposed development has been obtained, refer to Appendix 12.3.

There are existing Eir services on the Marsh Road.

Virgin Media

Virgin Media have been contacted and an existing Virgin Media network map for the area surrounding the proposed development has been obtained, refer to Appendix 12.4.

There are existing Virgin Media services on the Marsh Road as far as the Weirhope housing estate.

12.8.2 Characteristics of the Proposal

Eir

A new connection will be made to the existing Eir network at the northern boundary of the site at the junction of the Marsh Road and the LIHAF Road. The exact extent and location of these connections will be agreed with Eir during the design stage of the project.

All works on the Eir supply infrastructure will be carried out in accordance with Eir's relevant guidelines. All Eir infrastructure will be below ground with the possible exception of a Fibre Cabinet if required by Eir.

Virgin Media

A new connection will be made to the existing Virgin Media network on Marsh Road adjacent the Wierhope housing estate. The exact extent and location of these connections will be agreed with Virgin Media during the design stage of the project.

All works on the Virgin Media supply infrastructure will be carried out in accordance with Virgin Media's relevant guidelines. All Virgin Media infrastructure will be below ground with the possible exception of a Fibre Cabinet if required by Virgin Media.

12.8.3 Potential Impact of the Proposal - Construction Phase

The installation of the utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

Potential loss of connection to the Telecommunications infrastructure while carrying out works to provide service connections. This likely adverse impact may be characterised as a temporary, regionally short term, moderate impact.

The site compound will require a telecommunications connection. This likely adverse impact will be short-term and imperceptible.

12.8.4 Potential Impact of the Proposal - Operational Phase

The impact of the operational phase of the proposed development on the telecommunications network would be to increase the demand on the existing network.

12.8.5 Potential Impact of the Proposal - 'Do Nothing' Scenario

There are no predicted impacts on these material assets should the proposed development not proceed.

12.8.6 Mitigating Reductive Measures - Construction Phase

Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.

Connections to the existing telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

12.8.7 Mitigating Measures - Operational Phase

On completion of the construction phase no further mitigation measures are proposed in relation to the telecommunications infrastructure.

12.8.8 Predicted Impact of the Proposal - Construction Phase

Implementation of the measures outlined in Section 12.8.6 will ensure that the potential impacts of the proposed development on the sites material assets do not occur during the construction phase and that any residual impacts will be short term.

12.8.9 Predicted Impact of the Proposal - Operational Phase

The demand on telecommunications supply will increase due to the development of the lands. The development of the lands will be constructed in phases, with the final phase being completed circa 2028.

12.8.10 Cumulative Impacts

There are no predicted cumulative impacts arising from the construction or operation phase related to the provision of telecommunication services.

12.9 Monitoring and Reinstatement

The proposed monitoring of the various built services during the operation stage will include:

- Surface water drainage and SUDS features will be monitored and maintained by Louth County Council.
- The water usage within the proposed development will be monitored via the bulk water meters. Records will be maintained by Irish Water to ensure any excess usage is identified and investigated as necessary.
- Irish Water will monitor the operation of the foul drainage network including the receiving environment.
- Monitoring of the quality and quantity of the soil being removed from site is necessary to ensure the efficient re-use of suitable excavated soils on the site.
- The construction and waste management plans will be adhered to.
- The provision of utility services including electricity, gas and broadband will be monitored by the relevant utility provider.

12.10 Interactions

The main interactions relating to this EIAR Chapter are Water (Hydrology and Hydrogeology), Population and Human Health and Traffic and Transport.

During construction stage, the connection of wastewater services has the potential to impact the local surface water from a hydrology and hydrogeology perspective. There are potential implications for the local populations if there are disruption to utility services during the connection of the new services to the proposed development. disrupt the existing services. The construction of the various services will also interact with construction traffic as outlined in the Traffic and Transport Chapter.

During the operation stage, the water supply and foul drainage services have a potential interaction with the available water supply and with potential pollution to natural water bodies.

12.11 Difficulties in Compiling Information

There were no particular difficulties encountered compiling the Material Assets – Built Services chapter of the EIAR.

12.12 References

Code of Practice for Water Infrastructure – Connections and Developer Services, (2017), Irish Water

Code of Practice for Wastewater Infrastructure – Connections and Developer Services, (2017), Irish Water

Eircom Emaps

Environmental Impact Assessment Reports – Draft Guidelines, (2017), Environmental Protection Agency

ESB Networks

Gas Networks Ireland – Cork Design Department

Greater Dublin Strategic Drainage Study (GDSDS), (2015), Dublin Drainage

Irish Building Regulations – Part H 2010 – Drainage and Waste Water Disposal

Virgin Media – IP One Utility Resource, Kilkenny Ireland

Appendix 12.1

Appendix 12.2

Appendix 12.3

Appendix 12.4