Introduction

Northumbrian Water Limited (NWL) proposes to provide facilities for a new sludge digestion process via advanced digestion at their Howdon Sewage Treatment Works (STW), Tyneside site.

Howdon STW is located in an industrialised area which runs along the north bank of the River Tyne. It is located to the east of the A19 Tyne Tunnel, and east and south of the A187. The proposed location of the advanced digestion plant is located within the existing Howdon STW.

This document comprises the Non Technical Summary (NTS) of the Environmental Statement (ES) and provides a brief description of the proposed development and the findings and conclusion of the Environmental Impact Assessment (EIA) carried out for proposals by NWL.

Further copies of the NTS are available free of charge from the following address:

Janet Langsford  
MWH UK Ltd  
Melbourne House  
Melbourne Street  
Newcastle upon Tyne  
NE1 2JQ

Hardcopies and CD-Rom copies of the full ES are available for purchase from the above address, on written request. The cost for a hardcopy of the ES is £50.00. CD-Rom copies are available free of charge.

Need for the Development

The Howdon STW is an important strategic facility for the treatment of industrial waste and municipal effluent on Tyneside and also receives sewage sludge arising from many of NWL’s sewage treatment works throughout the North East. The site processes sludge into a re-
usable form, which contributes towards recycling targets, as set at national level by the Waste Strategy for England 2007 (Defra), and supported by targets and polices in regional and local plans and strategies.

NWL’s sludge strategy aims to bring about significant benefits in terms of sustainability and efficiency in the treatment of sludge. This strategy has led to a number of key drivers for the Howdon STW scheme, one of which is to maximise the use of resources on site and thus reduce NWL’s whole life costs, with the balance between the existing treatment costs and the proposed treatment costs demonstrating significant operational savings.

Other key drivers include:

- Improved sustainability of the sludge management process and other current practices within NWL;
- To have been technically appraised using information from reliable and auditable sources;
- Greater independence from fluctuating energy prices;
- Provision of a strategic sludge management solution to NWL;
- To have a reduced odour impact on and off site
- To have a negligible noise impact on site;
- To be supported by Reporter and OFWAT; and
- To have a negligible effect on any other part of the STW.

Secondary drivers include:

- Utilisation of existing sludge assets where cost effective;
- Reduce NWL’s carbon footprint (e.g. energy/CO2 neutral strategy);
- Be designed to conform to NWL’s standards, specifications, procedures and guidelines (where applicable), reducing capital investment where possible without compromising operability and plant survey;
- To have operational support from supplier in early years; and
- To minimise disruption to existing operational whilst the installation takes place.

The proposed development will provide an advanced anaerobic digestion plant within the existing site to provide a more sustainable treatment process which reduces volumes of the sludge, produces biogas and generates electricity for use on site. In addition, the advanced digestion technology will provide an improved environmental performance over the existing process.

**NWL’s Approach to Environmental Management**

**Approach and Environmental Policy**

NWL’s corporate environmental policy recognises environmental issues as of concern to its customers, employees and the community as a whole and states that NWL will work in partnership with all stakeholders to reduce harmful environmental effects and achieve continuous environmental improvement. The environmental policy states that NWL will take account of environmental issues at an early stage in the planning of all new projects and require an environmental review to be prepared in support of all its major development projects. Environmental effects of the construction of new projects will be considered and carefully managed, with clear responsibilities assigned. The Company is committed to communicate the policy to all members of staff through briefing and training programmes.

**Operational Controls**
NWL was the first water company, and one of the first companies in the country, to obtain certification to the original BS 7750 Environmental Management Systems (EMS) standard for the activities of the Company within its Northumberland operational area. The EMS has subsequently been updated and expanded and since 1997 the Company has been certified to ISO 14001 for all the wastewater operations. NWL has also achieved certification to the international quality management standard, ISO 9000 series.

Monitoring and Checking

The implementation of environmental and quality management systems means that there are defined operating and inspection procedures and regimes, linked to specific targets tied to performance indicators. These audits and checks monitor the overall environmental performance and progress with environmental improvements.

The Proposed Development

Description

The main elements to be constructed are likely to comprise the following:

- three digesters;
- two cake import facilities;
- a thermal hydrolysis plant;
- two spherical gas holders;
- a gas engine house enclosure (single storey);
- two gas steam boilers (single storey);
- a standby flare stack;
- two emission stacks; and
- two motor control centre buildings (single storey).

These structures will be connected by a variety of tanks, pipelines, cables and other related structures. New Access roads and footpaths will also be provided around the proposed structures to ensure safe access.

Process

The proposed process of anaerobic digestion is a well established process used for sludge treatment. It produces biogas which can be used to generate electricity and heat to run the process and a dewatered sludge cake which is a Class A Biosolid (a material which has undergone enhanced treatment to comply with the Sludge (Use in Agriculture) Regulations 1989 and the Code of Practice for Agricultural Use of Sewage Sludge (DoE, 1996)).

In conventional digestion, the whole process happens in a single stage. However, this is not at optimum conditions. This proposal for advanced digestion splits the digestion process into two stages; enabling thermal hydrolysis to take place in the first phase of the process and creating the optimum conditions for anaerobic digestion in the second stage. The first stage involves heating the sludge to 165° to 180° and to a pressure of 6 bar.

Following the thermal hydrolysis reactors, the sludge is transferred to tanks where the excess steam is recycled and the hydrolysed sludge fed to digesters where it is maintained at around 40°C for approximately 18 days. After this time the digested sludge will be dewatered using the existing facilities.

Biogas produced in the digesters will be stored in spherical gasholders for use in the combined heat and power (CHP) plant. The CHP plant will comprise four gas engines (incorporating steam generators to maximise reuse of waste heat) and two boilers. The gas engines will produce an annual average of 4.5MW of electricity which will be used in the
operation of the whole site. They will also produce approximately 50% of the steam which is needed for the thermal hydrolysis process. Any excess biogas will be combusted in the boilers.

**Construction**

The anticipated construction programme is as follows:

- Contract award by November 2010;
- Enabling works commencing December 2010;
- Main civil engineering works January 2011 to December 2011;
- Installation of plant by June 2012; and
- Process commissioning June 2012 to October 2012.

Construction working will take place between the hours of 0700 – 1900, seven days a week. During the main civil engineering works, there will be the need for some 24-hour working associated with the construction of the digesters.

**Planning & Policy Context**

The planning application for this scheme will be determined under the Town and Country Planning Act 1990 and the Planning Compensation Act 2004. These require planning decisions to be made in accordance with the Development Plan unless material considerations indicate otherwise.

The Development Plan of this proposal consists of the Regional Spatial strategy for the North East and the North Tyneside Council Unitary Development Plan. Other material considerations will include national planning policy found in Planning Policy Statements, Planning Policy Guidance Notes and Government Circulars, along with the North Tyneside Development Framework, which is currently under development.

The planning application will be assessed against the main policy themes running through the Development Plan and relevant material considerations:

- Sustainable Development and Climate Change;
- Water Management;
- Renewable Energy;
- Location;
- Landscape and Visual Effects;
- Hydrology, Hydrogeology and Flood Risk;
- Biodiversity;
- Transport;
- Public Amenity; and
- Environmental Impact Assessment

In terms of the EIA, NWL held an initial meeting with North Tyneside Council in August 2009 where it was determined that ES chapters would likely be required on the subjects of Landscape and Visual Effects, Odour, Air Quality, Noise and Cumulative Impacts. Following this meeting, an official joint screening and scoping request was submitted to North Tyneside Council in September 2009, and a Screening Opinion received in October 2009. It was agreed that the issues described below should be assessed and included within the ES.

**Landscape and Visual Effects**

The proposed location for the advanced digestion plant is centrally within the existing operational Howdon STW site, on an open area of raised amenity grassland. The Howdon
STW site itself is located within the industrial landscape in the lower reaches of the River Tyne. There are no nationally or locally designated landscapes within the immediate or wider areas.

In terms of the landscape and visual impact on the neighbouring environment, there are a limited number of sensitive nearby receptors in the wider surrounding area, however, existing visual screening in the form of the topography of the landscape and density of vegetation on the perimeter of the Howdon STW site means that these receptors will generally not be affected by the proposed development of the advanced digestion plant. Where effects are likely, these can be mitigated by strengthening the perimeter vegetation, with the planting of additional trees such that the significance of the impact is reduced in the medium to long-term.

**Odour**

Operational areas within the Howdon STW identified as odour sources, and for which the odours are treated using dedicated odour control plants before discharge to the environment, are: preliminary treatment (inlet works, screening and grit removal); primary treatment (primary settlement tanks); secondary aeration (activated sludge aeration lanes); sludge thickening (buffer tanks and drum thickener system); and sludge dewatering (centrifuge dewatering and sludge liming). The sludge dewatering area is of particular relevance to this application.

Odour control within Howdon STW has recently been upgraded to improve performance. The preliminary treatment odour control system receives odorous air from general building ventilation, with the remaining odorous air, extracted from the inlet channels, newly constructed screening building and newly refurbished grit removal system, routed to a new acid venturi scrubber, before being transferred to the primary treatment odour treatment system. The primary treatment odour control system, recently modified to accept increased flows, now receives flows from the grit removal system whilst also treating odorous air from the primary settlement tanks. The refurbished and modified sludge thickening area odour treatment system is now capable of operating as a two stream duty / in regeneration system. The sludge dewatering odour treatment system, which currently receives the odorous air from the raw sludge centrifuge and liming operation, has also been recently modified to include two stage acid scrubbing and two stage hypo-caustic scrubbing. The refurbishment and modifications to the chemical storage and preparation system made allowances for odorous air discharges from the proposed new dewatering system. In addition to treatment capacity improvements, the discharge stack height for the preliminary treatment and sludge dewatering treatment systems has been increased to improve dispersal characteristics.

Areas of the proposed new advanced digestion process identified as having the potential to give rise to odorous air include: pre-dewatering and screening; the cake reception and blending pumps; the thermal hydrolysis plant buffer tanks; the anaerobic digesters and the digested sludge storage tanks. For all these areas, the mitigation measures incorporated into the design will reduce the risk of odour escape to ‘low’ or ‘very low’ in all instances.

The existing sludge dewatering operation, which has the potential to give rise to intensely odorous air, will be modified once the advanced digestion scheme is in operation to remove the requirement to add lime to the sludge. This will significantly reduce odour potential.

The closest identified sensitive receptors are some distance away from the proposed location of the advanced digestion plant, and are not in the path of the prevailing wind direction. Recent odour dispersion modelling undertaken for Howdon STW site indicates that all predicted concentrations will be less than 4 OU/m³, with the highest concentration centred over a small area just to the north of the site. It is, therefore, unlikely that the identified receptors will experience odour impacts associated with the proposed development.

As a result of NWL’s experience in managing odours at the Howdon STW site, the proximity of the sensitive receptors, the prevailing wind direction and the mitigation measures incorporated into the scheme design, it is considered unlikely that there will be significant
effects associated with the new development. Moreover, it can be argued that the installation of the advanced digestion process will result in significant beneficial impacts, with respect to improving odour.

**Air Quality**

The proposed advanced digestion plant will be located within a part of the Tyne and Wear region which comprises a mix of large urban and rural areas. The region is covered by a substantial rail and road network, including the A1(M), A19, A69 and A690, and includes Newcastle Airport and passenger ferries and freight shipping services. There are also approximately 400 industrial processes in Tyne and Wear registered for control of emissions under current legislation. Prevailing winds are generally from the west.

In North Tyneside, air quality is monitored for nitrogen dioxide, particulates, sulphur dioxide and carbon monoxide continuously in real time, with the nearest monitoring stations being Norham Road, Percy Main and Wallsend. Monitoring is also undertaken at Howdon Road, Percy Main, at East Howdon Bypass and between Howdon Road and Brinkburn Street, Howdon. No exceedences of the air quality objectives were recorded at any monitoring location for any pollutant during 2007 and there are no Air Quality Management Areas declared in North Tyneside.

The nearest ecological receptor is the Howdon Wetland, a non-statutory Site of local Nature Conservation Importance (SNCI), located immediately to the east of the proposed advanced digestion plant at Northumberland Dock. Nitrogen deposition for this saltmarsh habitat is currently well within the Critical Load Range for this type of habitat.

The principal sources of emissions to atmosphere associated with the proposed advanced digestion plant include combustion of both natural gas and biogas from the four biogas fuelled CHP engines and the two natural gas boilers. These give rise to emissions of nitrogen dioxide, sulphur dioxide, and carbon monoxide.

The CHP engines are fitted with engine management systems which maintain optimum combustion conditions and the boilers will be of modern design and will be fired by natural gas which is considered to be the cleanest fossil fuel. It is not currently the intention to fit either with any additional abatement other than that achieved by good design, operation, maintenance and control.

Air quality modelling has been undertaken for the site, for nitrogen dioxide, sulphur dioxide and carbon monoxide. The modelling took into account the background concentrations for these pollutants, and was used to predict the ground level concentrations arising from the operation of the future base case and the future development case scenarios.

With regard to nitrogen dioxide, the increase in concentrations across all of the human receptors is assessed to be small, with the resulting concentrations remaining well within the Air Quality Standards and Objectives (AQS/AQO). On this basis, the effects of nitrogen dioxide emissions from the proposed scheme upon ambient air quality at sensitive human receptors are considered to be insignificant.

For sulphur dioxide, the increase in concentrations is assessed to be very small to medium. All concentrations with the scheme remain below the relevant AQSs/AQOs, with most well below. This equates to an impact of negligible to slight adverse significance, but it considered that the proposed scheme would give rise to insignificant effects upon human health.

For carbon monoxide, the predicted change in annual mean concentrations against existing background levels is extremely small and it is considered that carbon monoxide emissions from the proposed scheme would give rise to insignificant effects upon human health.

With regard to sensitive ecological receptors annual average concentrations of oxides of nitrogen and sulphur dioxide have been considered.

For the Howdon Wetlands SNCI, the oxides of nitrogen annual mean concentration predicted to occur as a result of the proposed development scheme would result in an exceedence of
the relevant AQO at this location and, as such, the proposed scheme could give rise to effects upon this ecological receptor. However, in terms of nitrogen deposition, concentrations will remain well below the Critical Load level for this type of habitat and it is concluded that no significant harmful effects will result to the sensitive elements of the ecosystem.

Similarly for sulphur dioxide, the predicted change due to the scheme is classed as small, with levels remaining well below the relevant AQO, and it considered that sulphur dioxide emissions from the proposed scheme would give rise to insignificant effects upon this ecological receptor.

For the remaining ecological receptors located at the mouth of the River Tyne and along the Northumbrian coast, the magnitude of effect for oxides of nitrogen and sulphur dioxide is very small to extremely small, with concentrations remaining below or well below the relevant AQOs. It is concluded that oxides of nitrogen and sulphur dioxide emissions from the proposed scheme would give rise to insignificant effects upon these ecological receptors.

The Environmental Permitting Regime (EPR) will also assess the potential for air quality impacts from the proposed process, and discussions are already underway with the Environment Agency. The proposed plant will only be operated once the fully approved EPR permit has been obtained.

Other potential air quality impacts may arise from operational traffic. However, the installation of the advanced digestion plant will allow for the modification of the existing process, which is predicted to achieve an overall reduction in operational traffic. This will contribute to an improvement in air quality.

During construction there is the potential for dust and particulate matter to be generated and emitted to the atmosphere from construction activities, particularly during periods of dry/windy weather. Sensitive receptors, such as residential properties, watercourses and habitats, within 200m of the source have a greater probability of being affected as the severity of the impact is dependent on distance from the source, prevailing wind directions and weather conditions.

In order to minimise construction impacts, the contractor will make every effort to keep the generation of dust and particulates to a minimum, with the implementation of best practice techniques and good on-site housekeeping practices. Although not always absolutely effective, it is considered that the implementation such measures will maintain air quality impacts to within acceptable limits throughout the construction phase.

**Noise**

Current existing key noise sources at the proposed development site within the Howdon STW include road traffic, low level STW noise and the Tyne Tunnel construction works. The principal sensitive noise receptors surrounding the site include residential properties and the East Howdon Community Centre on Chatton Street, the footpath/cycle track to the north of Howdon STW and the Howdon Wetland SNCI to the east of proposed location for the advanced digestion and CHP plant and the nearest ecologically sensitive receptor. Noise levels at these locations vary between 47.6 and 56.7 dB LA90 during the day, and 43.3 and 54.5 dB LA90 at night.

Construction related noise has the potential to result in complaints from local receptors. However, with the implementation of good site practices, in accordance with BS5228-1:2009, and including noise monitoring throughout the construction phase, the likelihood of disturbances and complaints relating to noise from construction activities will be significantly reduced such that impact of construction noise will be negligible.

With regard to the operation of the advanced digestion and CHP plant, acoustic enclosures will be installed as part design and noise attenuation practices and management techniques adhered to during operation. As a result, the advanced digestion and CHP assets will not be inherently noisy.
Operational noise will also be controlled to appropriate levels by imposing operational noise limits at the site boundary. These operational limits reflect the predicted maximum allowable noise levels from the proposed new plant that will result in an increase in background noise levels of no more than 5dB at the nearest receptor. In addition, the Contractor will ensure that the plant does not increase the existing background noise level at the nearest receptor by more than 3dBA. This will ensure that operational noise does not have a detrimental effect on the ambient noise environment surrounding the site. A post-construction noise survey will be undertaken to monitor compliance with the boundary levels.

In terms of operational traffic noise, the installation of the advanced digester and the modification of the existing process, will result in an overall reduction in total vehicle movements. Whilst this reduction will result in slightly reduced daytime noise levels generated by the operational traffic, it is likely that this reduction will be barely perceivable to receptors within the surrounding local road network due to existing levels of general traffic.

**Flood Risk, Drainage and Water Quality**

The Tyne and Wear Strategic Flood Risk Plan classifies the site as falling within Flood Zone 1 and is therefore available for development. The Environment Agency Flood Risk Map also identifies the site as lying just outside an area designated as liable to flooding from rivers.

The total area of the proposed plant is approximately 1.23ha, however, the overall area of impermeable surface is approximately 0.97ha. As this is less than 1ha threshold set by the Environment Agency, a full Flood Risk Assessment was not required. Despite this an assessment of the existing drainage network was undertaken to assess its current capacity, determine the future required capacities and identify any improvements to the existing drainage network necessary to remove any likelihood of flooding.

This assessment concluded that upsizing of the existing liquor drain, which will take all contaminated and potentially contaminated run-off and effluent and return it to the STW for treatment, was required and these requirements will be incorporated into the final design. The existing surface water drains, which will take uncontaminated run-off from hardstanding and road surfaces, were found to be of sufficient capacity to take predicted volumes and do not require upgrading. With the incorporation of upgraded drains, as well as balancing tank/sump, within the design, the proposed advanced digestion scheme will not result in an increased risk of localised flooding at the site.

During construction, the potential exists for silts and sediment, as well as spills of fuels and other chemicals/hazardous substances, to be washed into the existing surface water drains, and ultimately into the River Tyne, resulting in impacts to water quality and the associated ecology. However, the implementation of best practice measures in accordance with Environment Agency Pollution Prevention guidelines will significantly reduce the likelihood of potential contamination to surface waters resulting from construction activities, such that potential impacts, should they occur, will be of negligible significance.

As there will be no operational discharges to surface waters associated with the proposed construction of the advanced digestion plant, other than non-contaminated run-off from hardstanding and access roads, the proposed development will result in a negligible impact on water quality.

**Ground Conditions**

The development area principally encompasses an open section of disused land within the Howdon STW facility, and is centred on an artificially constructed plateau that was formed during extensive re-landscaping and ‘cut and fill’ earthworks.

The prevailing ground conditions comprise made ground of variable consistency, most likely predominantly reworked glacial material. This material overlies an extensive accumulation of natural superficial deposits comprising fine grained glacial soils. Medium to coarse-grained
fluvio-glacial deposits occur at intermediate levels to the main clay sequences, as well as immediately overlying the Coal Measures bedrock.

Groundwater is present, generally corresponding to confined water associated with granular deposits. Groundwater water levels are relatively static, inferring that it is hydraulically linked to the River Tyne and implicitly linked to rainfall patterns.

Overall, the site has been classified to have a ‘low’ hazard potential in terms of ground gases, and with the incorporation of general good practice measures within the design, such as ventilation of confined spaces, it is considered that the impact from ground gases will be negligible.

Site investigation data indicates negligible levels of contamination, with the exception of some copper and zinc, with boron, lead and PAH’s present in isolated locations and generally associated with the deeper layers of made ground. This depth will indirectly eliminate active pathways and surface exposure to receptor groups, although a direct exposure link does exist in association with construction phase piling operations when spoil arisings maybe recovered to surface level. However, the general absence of an ‘available’ source of contamination and the implementation of good hygiene practices effectively reduces the hazard to risk relationship for receptors, and it is considered that the impact from contamination will be negligible.

It is the intention that no surplus spoil is removed from site as a result of the proposed development but re-used on site for other purposes. However, should surplus material require disposal offsite to landfill, quantities are expected to small with the waste falling within the least harmful categories. In this instance, the impact significance is considered to be negligible.

**Traffic**

Currently a total of approximately 240 vehicles per day access Howdon STW during weekdays, comprising sludge tankers, sludge disposal contractor traffic, chemical deliveries, client vehicles (staff and visitors) and contractors vehicles. All traffic enters and leaves via the A187 and Northumberland Dock Road.

Although construction traffic movements will contribute to the daily traffic numbers, movements will be for a temporary period only, with a peak of approximately 155 vehicles per day. In terms of daily vehicle movements on the local road network this is insignificant. All construction traffic will access the site via the A187 and Northumberland Dock Road, accessing the site via the existing but currently un-used entrance adjacent to Chemson & Co paint works at the eastern end of Northumberland Dock Road.

The installation of the advanced digestion plant will result in a total reduction in vehicles, when compared to the existing process, resulting in an overall reduction in vehicles entering and exiting the Howdon STW from and to the local road network, of approximately 5 vehicle per day; a beneficial impact of imperceptible significance.

The sludge transportation strategy for the Howdon STW is integral to the overall NWL sludge strategy that will deliver significant benefits in both sustainability and efficiency; the fundamental objective being the transportation of cake instead of liquid sludge.

Other benefits are as follows:

- Overall reduction in the road miles/journeys travelled in sludge transportation; and
- Reduction in carbon dioxide emissions as a result of fewer vehicles per year; and

**Ecology**

There are no habitats of ecological importance at the proposed development site. Amenity grassland will be lost as a result of the development, with a recently planted hedgerow and trees also likely to be affected, all of which are easily replaceable.
The Howdon Wetland SNCI is the nearest site of ecological importance, located adjacent to the south-east of the site. It is a non-designated site of local importance and comprises two small lakes and small ponds, grassland, scrub, with an area of saltmarsh to the west.

Designated sites of national and international ecological importance in the surrounding area include the Northumberland Shore SSSI, Tynemouth to Seaton Sluice SSSI and the Northumbria Coast SPA. All provide importance habitats for wintering birds.

The main environmental impacts which could be experienced at the Howdon Wetlands SNCI during the construction phase include dust emissions, water pollution from silt run-off and noise disturbance. However, to prevent any ecological impacts occurring as a result of the proposed development, a number of mitigation measures will be put into place to minimise the risk of air, water and noise pollution. It is considered that the SNCI will experience no ecological impacts throughout the operational phase of the proposed plant.

It is concluded that the Northumbria Coast SPA and the coastal SSSI's will experience no negative effects from the construction and operation phases of the proposed development, in terms of air/odour, noise or water pollution, due to the distances between the proposed development location within the Howdon STW and the coast.

**Cumulative Impacts**

There are several major planning applications and major projects in the immediate vicinity of the proposed development which may result in cumulative impacts with the proposed advanced digestion scheme at Howdon STW should these developments go ahead. These are:

- The New Tyne Crossing\(^1\), a second vehicle tunnel under the River Tyne. Construction of the new tunnel began in October 2008. Work on the second vehicle tunnel is due for completion in February 2011, at which point the existing tunnel will close for refurbishment. The construction phase of the project is expected to be completed in December 2011 when both vehicle tunnels are open to traffic. The new vehicle tunnel will carry traffic heading south from the A19. The northern construction area is located to the west of the Howdon STW, and access to the STW from this direction is currently affected by these major road works. Closure of the link road between the Northumberland Dock Road roundabout, known as 'Gregson's roundabout' at the southern end of the A187, and the Tyne Tunnel roundabout on the A19 will be permanent.

- The Tyne Renewable Energy Plant (MGT Power)\(^2\), to be located on land between the existing Simon Storage (Velva) tank farm and the VW car importation parking area, approximately 1km to the east of Howdon STW. The proposal is for the construction and operation of a biomass power station to provide a nominal 296MWe of power generation capacity, using clean wood chip or pellets. An EIA is currently being undertaken, for this proposed development. Key environmental considerations are: air quality, hydrology and hydrogeology, landscape and visual impacts, solid waste, noise, traffic and infrastructure, ecology, cultural heritage, socio-economics, geology and soils and cumulative impacts. Submission of this application will be to the Department of Energy and Climate Change under Section 36 of the Electricity Act 1989.

- The Holystone Heat & Power Ltd application for the installation of a small scale biomass plant within an existing building on Davy Bank, Wallsend, located approximately 2.8km to the west of Howdon STW, to generate electricity from wood waste. However, this application was refused in October 2009 but may be re-submitted.

**Landscape and Visual Effects**

The main landscape and visual cumulative impacts will be with the Tyne Renewable Energy Plant and likely to comprise:

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\(^1\) [http://www.newtynecrossing.info/wps/wcm/connect/NTC](http://www.newtynecrossing.info/wps/wcm/connect/NTC)

\(^2\) [http://www.mgttyne.com](http://www.mgttyne.com)
• Impacts to the industrial landscape context, which will see an intensification of large industrial structures and activity;

• Impacts to views from the River Tyne and its southern banks, which will also see an intensification of large industrial structures;

• Impacts to views from nearby residential properties, particularly to views looking eastwards from properties on Chatton Street, in East Howdon. Although views are largely screened by the peripheral tree planting around Howdon STW, the tree screening is weak in places. In particular, to properties at the lower end of Chatton Street may have views of the advanced digestion plant with the proposed Tyne Renewable Energy Plant behind. However, with the planting of additional trees to strengthen the peripheral planting within the Howdon STW site, the impacts of both developments will be lessened over time; and

• Impacts to views from Howdon Wetlands SNCI. The SNCI is located between the two proposed developments, and the proposed developments are likely to comprise the two most prominent structures visible from it, albeit in opposite directions. The proposed mitigation measures, involving tree planting, are unlikely to contribute significantly (if at all) to the reduction of the impact, due to scale and proximity.

**Odour**

Cumulative odour impacts have the potential to arise in conjunction with the proposed Tyne Renewable Energy Plant, however, the Environmental Statement Scoping Study for the proposed Tyne Renewable Energy Plant does not identify odour as a potentially significant impact and no odour assessment is proposed.

The current odour dispersion modelling for the Howdon STW site shows that the 1 ouE/m3 odour contour does not extend to the proposed location for the Tyne Renewable Energy Plant, and is unlikely to result in an odour nuisance to the plant once operational.

Cumulative odour impacts, should they occur, are likely to be centred on the area of land between Howdon STW and the Tyne Renewable Energy Plant, currently occupied by the Howdon Wetland SNCI. As this area is rarely visited by the general public, issues of odour nuisance are unlikely to arise. As such, it is considered that cumulative odour impacts will be of negligible significance.

**Air Quality**

Cumulative air quality impacts may arise in conjunction with the proposed development of the Tyne Renewable Energy Plant and the New Tyne Crossing.

Although a full EIA of the Tyne Renewable Energy Plant has yet to be completed, it is recognised that dust may be generated by several activities associated with the construction works, such as excavations and earth moving operations. As mitigation, a commitment is made to the adoption of appropriate control measures, and it is considered very unlikely, under most weather conditions, that dust generated by the construction activities will cause nuisance at residences in the area.

Assuming that this development receives approval, it is likely that construction periods will overlap. However, both developments will implement dust control measures and dust generation during construction is, therefore, anticipated to be minimal.

The Tyne Renewable Energy Plant is proposed to utilise woodchip which is naturally low in pollutants. The emissions of most interest from the new plant are those of oxides of nitrogen and sulphur dioxide, and it proposed to undertake a stack height study for both gases to determine an effective stack height for the satisfactory dispersion of all pollutant gases in order to result in ground level concentrations which are below recommended levels of significance.
As no information regarding the likely air quality outputs from the proposed Tyne Renewable Energy Plant is currently available, it has not been possible to factor the information or modelling results into the assessment for the proposed advanced digestion scheme at Howdon STW but it is recognised that there is the potential for cumulative air quality impacts to arise during the operation of both plants, particularly downwind of the prevailing wind direction. However, both developments will be required to implement air pollution control measures and Best Available Techniques as part of the Environmental Permitting Regime to minimise pollutant concentration levels, and it is anticipated that cumulative impacts to air quality will be minimal.

Construction works for New Tyne Crossing are also likely to overlap with that for the advanced digestion plant. However, given the distance between the two construction areas and prevailing wind direction, plus the implementation of dust control measures, it is considered that cumulative impacts to the nearby sensitive (residential) receptors at East Howdon will be negligible.

**Noise**

At present, construction of the Tyne Renewable Energy Plant is development is expected to overlap with construction at Howdon STW in 2011 and 2012. Due to the proximity of the two developments, it is anticipated that there may be cumulative effects with regard to construction noise. However, the implementation of best practice noise control measures and working restrictions at both sites, should ensure that construction noise impacts are kept to a minimum.

Cumulative operational noise impacts are also likely due to the proximity of both developments. Information regarding the likely operational noise outputs from the proposed Tyne Renewable Energy Plant is currently not available and it has not been possible to factor the information into the assessment for the proposed advanced digestion scheme at Howdon STW. However, both developments will be required to implement control measures and Best Available Techniques to minimise noise levels, and it is anticipated that cumulative impacts with regard to noise will be minimal.

Due to the proximity of the New Tyne Crossing development, it is anticipated that there could be some cumulative effects with regard to construction noise. However, noise control measures, to be included within Construction Environmental Management Plan, will effectively reduce cumulative noise impacts to insignificant levels.

**Traffic**

The New Tyne Crossing is currently under construction to the west of the Howdon STW, and access to the proposed development at Howdon STW from this direction is currently affected by these major road works. As the construction works for both developments are likely that to overlap, the potential exists for cumulative traffic impacts to arise in terms of increased congestion and delay to existing road users and increased road safety issues to road users and pedestrians. However, by December 2010 it is likely that the main construction activities relating to the New Tyne Tunnel will largely be complete and that associated construction traffic levels will be greatly reduced. It is, therefore, anticipated that cumulative construction traffic impacts will occur for only a short period of time, during 2011 and early 2012.

No cumulative operational traffic impacts are anticipated with the MGT Tyne Renewable Energy Plant, as the proposed installation of the advanced digestion plant at Howdon will result in reduced operational traffic from the site and on the local road network.

**Summary of Key Issues**

This assessment considers the potential effects of the development on the environment, both locally and in relation to the wider environment. This assessment shows that there are environmental benefits to the proposal in terms of providing a renewable energy source for the Howdon site and reducing NWL’s reliance on external supplies of energy; and reducing the quantity of final product for disposal.
Most importantly, this proposal will be a step within an overall step change in the consideration of environmental benefits in industrial development, contributing towards the aims and objectives of environmental strategies and plans from the local to national level.