Covenham WTW to Boston Transfer
Non Technical Summary

July 2011
Anglian Water Services
Covenham WTW to Boston Transfer

Non Technical Summary

July 2011

Anglian Water Services

Thorpe Wood House, Thorpe Wood, Peterborough, Cambridgeshire, PE3 6WT
## Issue and revision record

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Originator</th>
<th>Checker</th>
<th>Approver</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>19 July 2011</td>
<td>Sanmita Palit</td>
<td>Emma Lunt</td>
<td>Frances Storey</td>
<td>First Issue</td>
</tr>
</tbody>
</table>

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.
# Content

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1</td>
<td>The proposed development</td>
<td>2</td>
</tr>
<tr>
<td>1.2</td>
<td>Construction</td>
<td>4</td>
</tr>
<tr>
<td>1.3</td>
<td>The need for the development</td>
<td>4</td>
</tr>
<tr>
<td>1.4</td>
<td>The consideration of alternatives</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Environmental effects</td>
<td>6</td>
</tr>
<tr>
<td>2.1</td>
<td>The site and surroundings</td>
<td>6</td>
</tr>
<tr>
<td>2.2</td>
<td>Ecology and nature conservation</td>
<td>6</td>
</tr>
<tr>
<td>2.3</td>
<td>Landscape and visual impact assessment</td>
<td>7</td>
</tr>
<tr>
<td>2.4</td>
<td>Archaeology</td>
<td>7</td>
</tr>
<tr>
<td>2.5</td>
<td>Water resources and land drainage</td>
<td>7</td>
</tr>
<tr>
<td>2.6</td>
<td>Geology and soils</td>
<td>8</td>
</tr>
<tr>
<td>2.7</td>
<td>Air quality</td>
<td>8</td>
</tr>
<tr>
<td>2.8</td>
<td>Noise and vibration</td>
<td>8</td>
</tr>
<tr>
<td>2.9</td>
<td>Community, traffic and access</td>
<td>9</td>
</tr>
<tr>
<td>2.10</td>
<td>Construction environmental management plan</td>
<td>9</td>
</tr>
<tr>
<td>2.11</td>
<td>Conclusions</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Further information</td>
<td>11</td>
</tr>
</tbody>
</table>

## Appendices

| Appendix A | The proposed development | 13 |

285616/EVT/EMS/005/A 19 July 2011
http://pims01/pims/llisapi.dll/properties/1477833865
Covenham WTW to Boston Transfer

This page left intentionally blank for pagination.
1. Introduction

Anglian Water Services (AWS) are seeking planning permission for a drinking water pipeline, including the associated ancillary infrastructure which will connect Covenham Water treatment Works to the town of Boston (referred to as the Covenham Water Treatment Works (WTW) to Boston Transfer). AWS have a statutory duty to supply adequate quantities of good quality drinking water within their area of operations. Due to projected population growth in south Lincolnshire AWS will be unable to deliver adequate water to meet future demand in certain areas. This project is part of a range of measures to provide an improved security of water supply to customers in the Boston and West Pinchbeck areas that meets the projected future demands for water.

The project requires an Environmental Impact Assessment (EIA) to be completed. The EIA identifies and assesses environmental effects that are likely to arise from the construction and operation of the proposed development and determines whether their significance. The EIA for the Covenham WTW to Boston Transfer was undertaken by a team of specialists, independent of AWS and the findings of the assessment are reported in an Environmental Statement (ES). The EIA has followed the relevant EIA Regulations and other relevant mandatory policies which set out the requirements for EIA.

This non-technical summary describes the main findings of the ES.

1.1 The proposed development

The proposed development will transfer drinking water from Covenham WTW via the Miningsby Reservoir to the Boston water ring main (see Figure 1.1).

The proposed development consists of:
- A new pumping station and associated components within the existing Covenham WTW site (adjacent to the Covenham Reservoir);
- A new 500mm diameter pipeline (40km in length) from the new pumping station at Covenham WTW to Miningsby Reservoir (an existing service reservoir);
- A new 450mm diameter pipeline (21km in length) to connect Miningsby Reservoir to the Boston water ring main; and
- Ancillary pipeline infrastructure including isolation/control valves, air valves, automated control valve kiosk, flow meters and washout chambers along the entire pipeline route.

Temporary works will be required during construction to allow the work to progress in sections (commencing at Covenham) and working southwards. These temporary works will include:
- Sixteen construction compounds (one main compound). Compounds will be used for material delivery and storage, staff welfare facilities and offices. All compounds other than the main compound will be located immediately adjacent the pipeline corridor.
- Testing and cleaning of the pipeline prior to putting drinking water into supply. Six temporary commissioning water lagoons will be required. These lagoons will hold the water used for testing the pipeline to ensure the water meets Environment Agency requirements before it is discharge to nearby watercourses, or reused by landowners.
Figure 1.1: Pipeline route
1.2 Construction

The pipeline will be constructed in two main phases. Work from Covenham WTW to Miningsby Reservoir is planned in 2012 and work from Miningsby Reservoir to Boston is planned in 2013. However, the pumping station and all major crossings of existing watercourses, roads and the railway line will be undertaken during 2012. Land restoration will take place after testing and commissioning of the pipeline is completed.

The first work undertaken in any section will include establishment of site facilities, temporary fencing, land drainage works and topsoil stripping.

Along the pipeline a working width of 30m is required for construction to provide space for topsoil stockpiling, access for construction vehicles and excavation of the pipe trench. At road, watercourse and hedgerow crossings, the working width will be narrowed to ten metres to minimise disturbance to the natural environment and reduce reinstatement requirements.

Construction would generally take place between 07:00 and 19:00 Monday through to Sunday. Twenty four hour working may be necessary where the construction may conflict with other infrastructure such as where the pipeline route crosses the railway near Sibsey, or when sections of pipeline are being tested.

Suitable routes for construction traffic have been identified in consultation with the Lincolnshire Highways Authority (including specific access points off the highway to the pipeline corridor). Materials and equipment will be delivered to temporary compounds along the pipeline route.

A Construction Environmental Management Plan (CEMP) will set out the controls and standards required during the construction process. This document will provide strict guidelines for the management of construction activities on site and for ensuring the mitigation of significant environmental effects during construction.

1.3 The need for the development

AWS has a legal duty to ensure a continuous supply of good quality drinking water to homes and businesses in the area that they serve. The main drivers for this development are:

- Growth: Forecasted population growth in the Boston and Bourne areas that will result in a predicted shortage of supply of drinking water; and
- Resilience: Boston presently receives drinking water from the West Pinchbeck WTW. A failure occurring at the West Pinchbeck WTW site would result in a loss of water supply to the entire Boston area and parts of the Bourne area.

Demand for drinking water in the Lincolnshire Fens is forecasted to grow due to growth in economic activity. The increased demand means there is a forecast shortage of available drinking water likely to arise in the medium term. However, the Lincolnshire Coastal region is forecast to have a surplus of water during this time which can be used to provide up to 15.6 million litres of water per day to the Lincolnshire Fens from Covenham Reservoir. This project will help in developing a strategic water resources and supply network between the two Lincolnshire water resources zones improving the security of supplies and resilience.

1.4 The consideration of alternatives

Alternatives to the pipeline were considered at an early stage as summarised below:
Covenham WTW to Boston Transfer

- Do nothing – Does not meet demand forecasts or provide ‘resilience’;
- Construction of a new reservoir in southern Lincolnshire - Not economically feasible to meet relatively small deficits for the Lincolnshire Fens and greater long term impact on the environment;
- New local water reservoir, transfer pipeline and pumping station near Boston – Not economically feasible and greater long term impact on the environment;
- New desalination plant near Boston - Not economically feasible;
- Transfer of water from Wing Water Treatment Works (Rutland) through new infrastructure - Dismissed as the available surpluses at Wing WTW will be needed to supply water to the Ruthamford region; and
- Reuse of waste water effluent Boston and Spalding - Unlikely to be acceptable to AWS customers.

The construction of a new water pipeline connecting Covenham WTW to Boston would result in the optimal use of existing water treatment infrastructure and was identified as the most cost effective and environmentally sensitive solution.

Five pipeline routes were identified as “optimum” routes - determined to avoid sensitive features. The selected route was subsequently adjusted following site visits and key inputs from environmental, archaeological and ecological specialists.
2. Environmental effects

2.1 The site and surroundings

Covenham WTW lies to the north-east of the village of Covenham St Bartholomew in rural Lincolnshire. The proposed water pipeline will link to the Boston water ring main located around the urban fringe of Boston. The connection to the ring main would be north east of the city, adjacent to the A52.

Between Covenham and the existing Miningsby Reservoir the area contains rolling ‘upland’ arable land. Much of this area is designated as part of the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB). The landscape is mostly arable with large fields with trimmed hedgerows and tree lined watercourses. Settlement is sparse with small villages.

From Miningsby Reservoir to the Boston the pipeline crosses a large-scale flat and open fen landscape. ‘The Fens’ are characterised by drains and ditches. Land within The Fens is largely arable with some tree cover and hedgerows. Woodland cover is sparse. The agricultural land is of high quality (Grades 1 and 2) and supports a range of agriculture, including arable, root crops, bulbs, vegetables and livestock. The settlements are sparse and nucleated.

2.2 Ecology and nature conservation

There are 125 designated sites within two kilometres of the pipeline route, including eight statutory designated sites, 107 non-statutory designated sites and ten sites of ancient woodland. Detailed site selection and routing of the pipeline has minimised the potential impacts on designated sites and only three non-statutory sites (Sites of Nature Conservation Importance) are likely to be temporarily affected by the works. Mitigation measures have been defined and will be implemented through the CEMP and include reducing the working corridor to ten metres in sensitive locations to minimise both the loss of vegetation and impacts on protected species. No statutory designations or ancient woodland sites are likely to be affected.

Detailed ecological surveys have been conducted along a 150m wide corridor along the proposed pipeline route. The majority of the landuse is under arable cultivation with limited ecological value. Other habitats include species-rich and species-poor hedgerows, woodlands (including wet, and broadleaved and mixed semi-natural), scattered trees (including mature trees), scrub, semi-improved, improved and marshy grassland, watercourses (including streams, ditches and rivers), ponds and reservoirs. The following protected and notable species were recorded within the vicinity of the scheme:

- Several bird species likely to be breeding along the route are protected under Schedule 1 of the Wildlife and Countryside Act 1981, listed as UK BAP (Biodiversity Action Plan) priority species, listed under local BAPs, and/or red/amber listed as Birds of Conservation Concern;
- Four sites for badgers within 50m of the pipeline and a further one within 75m of the pipeline towards the north of the scheme at Covenham;
- Seven watercourses indicated the presence of water voles;
- Fifteen ponds were found to support great crested newts; and
- Reptiles were recorded at two grassland sites due to be crossed by the pipeline.

Mitigation measures outlined in the CEMP, such as timing vegetation clearance, phased vegetation clearance to displace reptiles and placing temporary artificial hedgerows to connect suitable bat habitat will be supervised by an Environmental Clerk of Works (ECoW) throughout construction phase. No significant adverse effects on any ecological features during construction, testing/commissioning or operation are
envisaged following implementation of the mitigation measures. The ecological effects are likely to be beneficial in long term as a number of biodiversity enhancement measures are proposed, including replanting of hedgerows and grassland areas with native, species rich seed mixes.

2.3 Landscape and visual impact assessment

The pipeline route will cross areas of flat, open and featureless farmland of relatively low landscape quality to the north and south, but traverse the undulating, wooded landscape of the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) through its central section, which is of high landscape quality and value.

The impact on existing landscape character would largely be during construction. Mitigation measures will be put in place to protect and minimise damage to hedgerows, individual trees and tree groups, woodlands and watercourses and to reduce the visual impact from villages and farmsteads. Any gaps in hedgerows created by the pipeline route would be replanted. Mitigation measures will consist of minimising the width of the construction corridor where necessary, keeping construction traffic to a minimum especially near residential areas and the careful location of construction compounds especially within the AONB. To avoid a significant visual impact in the long term proper reinstatement of soils will be carried out.

The design of the proposed pumping station is considered appropriate to its setting. Its design is bound by its function but will be sympathetic to the existing buildings within the WTW site and have no adverse impact on the surrounding landscape. It is considered that the proposed development will have no significant effects upon landscape character and visual amenity.

2.4 Archaeology

An archaeological assessment has taken place as part of the overall EIA for the proposed development. The assessment was based on a desk study with additional field walking and geophysical surveying.

The assessment found that there is potential for the construction of the proposed pipeline to encounter archaeological remains of importance from different periods in history. However, the construction and operation of the proposed development would not have any direct impacts on any designated monuments or sites along the route. A series of mitigation measures will be implemented, through the CEMP, which results in no significant residual effects on items found to be of archaeological value. The mitigation measures include; further surveying; targeted trial trenches; preservation in-situ; and preservation by record, following excavation.

2.5 Water resources and land drainage

The existing water regime, relating to surface water and groundwater, was established in an assessment of baseline conditions.

Sensitive receptors include surface water, groundwater bodies and land drains. The pipeline route will cross 83 watercourses including rivers, streams and field drains. Underground drilling techniques will be used to cross the largest watercourses and areas defined as environmentally sensitive. Smaller watercourses will be crossed using open cut excavations.
Impacts on water quality of ground water, surface water and land drainage during construction and testing and commissioning are not considered to be significant. Similarly pollution impacts on groundwater from spillages or from existing contaminated land are assessed as being of low significance.

Mitigation measures will be implemented through the CEMP employing current best practice techniques to prevent sediment runoff to water courses. All residual effects, following mitigation, are assessed to be insignificant.

2.6 Geology and soils

The impacts of the proposed development on geology and soils were assessed, including contaminated land, both from construction phase, testing and commissioning, and subsequent operation of the proposed development.

No direct impacts on geological sites are expected.

During construction impacts on soils and soil structure, would be expected to be major, mainly due to the requirement to strip the topsoil prior to laying the pipe. However, this would be temporary and relatively short term as the soils would be fully reinstated. The proposed pumping station will be located within the current area of the Covenham WTW. The impacts to soils and potential contamination during construction from accidental spills and leaks are predicted to be minor during construction.

No significant effects on soils and geology would be expected during the operation of the proposed development.

2.7 Air quality

The assessment found that there is the potential for dust generation during construction that could affect certain receptors, but that these effects could be managed through the implementation of mitigation measures, through the CEMP, employing current best practice techniques to minimise dust generation. No significant residual impacts are expected relating to construction dust.

Construction traffic flows associated with proposed development at any given location will be very low, and the contribution to pollutant emissions will be small. Traffic movements associated with the development are well below the criteria used to determine if impacts could be significant. Therefore, no significant impacts relating to air pollutants from construction traffic are expected during the construction phase.

The proposed development will not lead to any significant emissions during its operational phase.

On the basis of the above, the proposed development is not predicted to conflict with any national, regional or local planning policy in relation to air quality.

2.8 Noise and vibration

The construction and operation of the proposed development is expected to generate a certain level of noise and associated disturbance.

The majority of effects are expected to be associated with the machinery and equipment used during the construction of the proposed development for activities such as site set-up and pipe laying, the delivery,
laying and joining of pipe sections and the subsequent reinstatement of the land. The permanent equipment to be installed at Covenham WTW could also generate noise impacts during the operational phase.

Ten receptors are located with 50m of the construction works. The assessment has shown that noise from construction activities are unlikely to exceed the daytime criterion of 65 dB (A) at receptors more than 25m from any works. Effects on receptors up to 25m from the works are expected to be of temporary and of short duration. Occupiers will be consulted prior to the work and information on the reason, nature and timing of any noisy works provided. The number of vehicle movements associated with road traffic accessing the site (delivery of equipment and materials etc) is expected to be relatively low even during the busiest period. However, noise from individual HGV movements in close proximity to residential receptors at sensitive times of the day may cause disturbance.

Noise from the operation of equipment within the proposed pump house building at Covenham WTW is expected to be well below baseline noise levels at the residential and amenity receptors in close proximity to the site.

Vibration due to the construction and operation of the development is not expected to be perceptible at the residential properties.

Overall, the noise and vibration effects associated with the proposed development are not considered to be significant.

### 2.9 Community, traffic and access

The vast majority of the land crossed by the proposed route is used for agricultural purposes, comprising a mixture of arable and pasture land. The construction impacts on land use would be temporary and in the context of the proposed development relatively small scale. Thus the overall impact would be minor adverse on land use.

Temporary impacts of road closures would be mitigated by the implementation of local diversions. No long term operational impacts are predicted.

The pipeline will intersect with an active railway line east of Sibsey. It is anticipated that underground, directional drilling will be used and therefore no impacts on the rail timetable are anticipated.

Thirty three public rights of way (PROWs) have been identified along the 61km length of the pipeline, all of which will be crossed by the pipeline. The preferred approach for all the PROWs, is to continue to maintain, as normal as possible, public access throughout the construction period. The impacts on public rights of way are considered to minor adverse for a short period of time at each location, reverting to neutral once construction was complete.

The assessment concluded that whilst there would be some negative effects (related mostly to localised disturbance during construction), there would be no significant effects on the community in the long term.

### 2.10 Construction environmental management plan

A Construction Environmental Management Plan will be produced jointly by Mott MacDonald, AWS and the appointed contractor JN Bentley to define how environmental issues will be managed during the
construction and commissioning phases. In preparing the CEMP detailed method statements would be produced which set out how any legislation, planning conditions, or license requirements should be complied with.

The CEMP would set out the following:

- Roles and responsibilities for environmental management;
- The regime for regular site and off site inspections;
- Requirements for record keeping;
- The approach to construction waste management;
- Arrangements for auditing environmental compliance;
- How communication will the relevant authorities and the public would be conducted; and
- The procedure for response to environmental incidents.

The CEMP also describes the control measures that will be implemented to eliminate or reduce the potential environmental impacts.

### 2.11 Conclusions

AWS has a statutory duty is to supply adequate quantities of good quality drinking water. To help fulfil this responsibility AWS are proposing to building a new pumping station and lay a new pipeline and associated supporting infrastructure between Covenham Water Treatment Works (WTW) and Boston, Lincolnshire. The purpose of this proposed development is to transfer drinking water to the town of Boston and surrounding areas to met future water demand.

The proposed development consists of a new 61km pipeline with a diameter of between 450 - 500mm, a new pumping station at Covenham WTW and temporary construction works including commissioning lagoons and site compounds.

The proposed development has been subject to an EIA which has concluded that with the incorporation of appropriate mitigation measures there will be no significant environmental effects from the construction and operation of the scheme. Indeed without the project there would be a significant adverse effect on the drinking water supplies to southern Lincolnshire, with knock on effects for human health and economic activities.

In the long term, once operational, the proposed development will provide the benefit of increased security in supply of drinking water to residents and businesses in Boston and the surrounding areas.
3. Further information

Comments, queries or requests for further information regarding the Covenham WTW to Boston Transfer project can be made to:

Mr Steve Swan
Anglian Water Services
Thorpe Wood House
Thorpe Wood
Peterborough
Cambridgeshire
PE3 6WT

Tel: 01733 414 289