

LONDON BOROUGH OF ENFIELD

PLANNING COMMITTEE

Date : 18th November 2014

Report of

Assistant Director, Planning,
Highways & Transportation

Contact Officer:

Andy Higham 020 8379 3848
Sharon Davidson 020 8379 3841
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Ward:

Lower Edmonton

Ref: 14/02612/FUL

Category: Full Application

LOCATION: Deephams Sewage Works, Picketts Lock Lane, London, N9 0BA

PROPOSAL: Upgrade of sewage treatment infrastructure including the phased development of primary settlement tanks, aeration lanes with integrated fixed film activated sludge (IFAS) media, final settlement tanks, pumping stations, blower house and control room buildings, odour control covers to primary settlement tanks, inlet works, anoxic zones and secondary digesters, 3 odour control units, combined heat and power units, additional storm storage, ancillary plant, kiosks, buildings, car parking, hard and soft landscaping and above and below ground works including temporary 2-storey site offices and site compounds during construction and the demolition of redundant plant and buildings. (An Environmental Statement, including non- technical Summary also accompanies the planning application in accordance with the Town and Country Planning (Environmental Impact Assessment) (England &Wales) Regulations 2011)..

Applicant Name & Address:

THAMES WATER UTILITIES LIMITED
Deephams Sewage Works
Picketts Lock Lane
London
N9 0BA

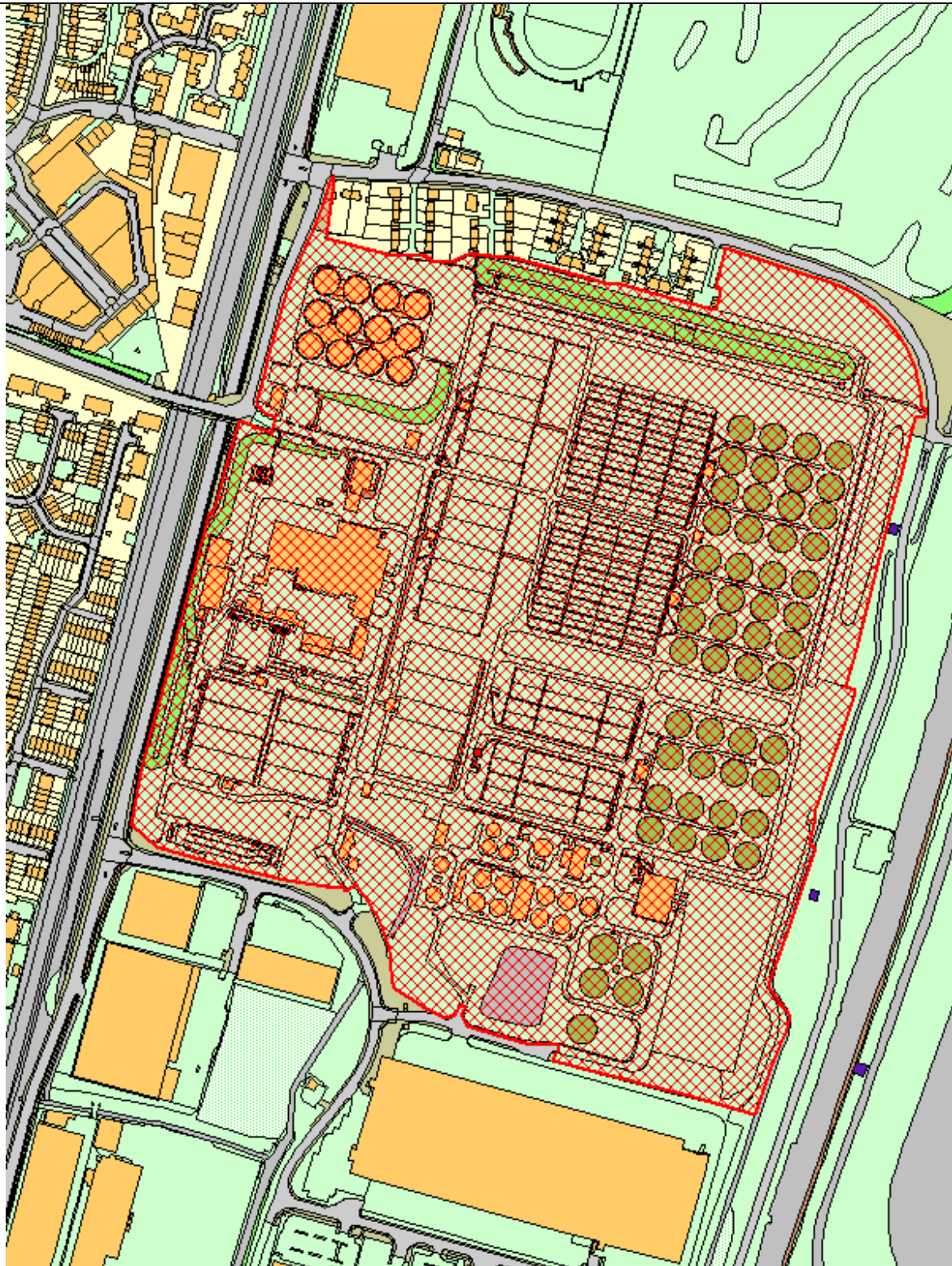
Agent Name & Address:

ADAMS HENDRY CONSULTING LIMITED
Deephams Sewage Works
Picketts Lock Lane
London
N9 0BA

RECOMMENDATION:

Having taken into account the Environmental Information contained in the Environmental Statement accompanying this application, and following referral to the Greater London Authority (GLA) and no objections being raised together with the signing of the Section 106 agreement regarding the issues set out in section 6.11 of the report, the Head of Development Management planning decisions manager be authorised to **GRANT** planning permission subject conditions.

Ref: 14/02612/FUL LOCATION: Deephams Sewage Works, Picketts Lock Lane, London, N9 0



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Scale 1:500

North



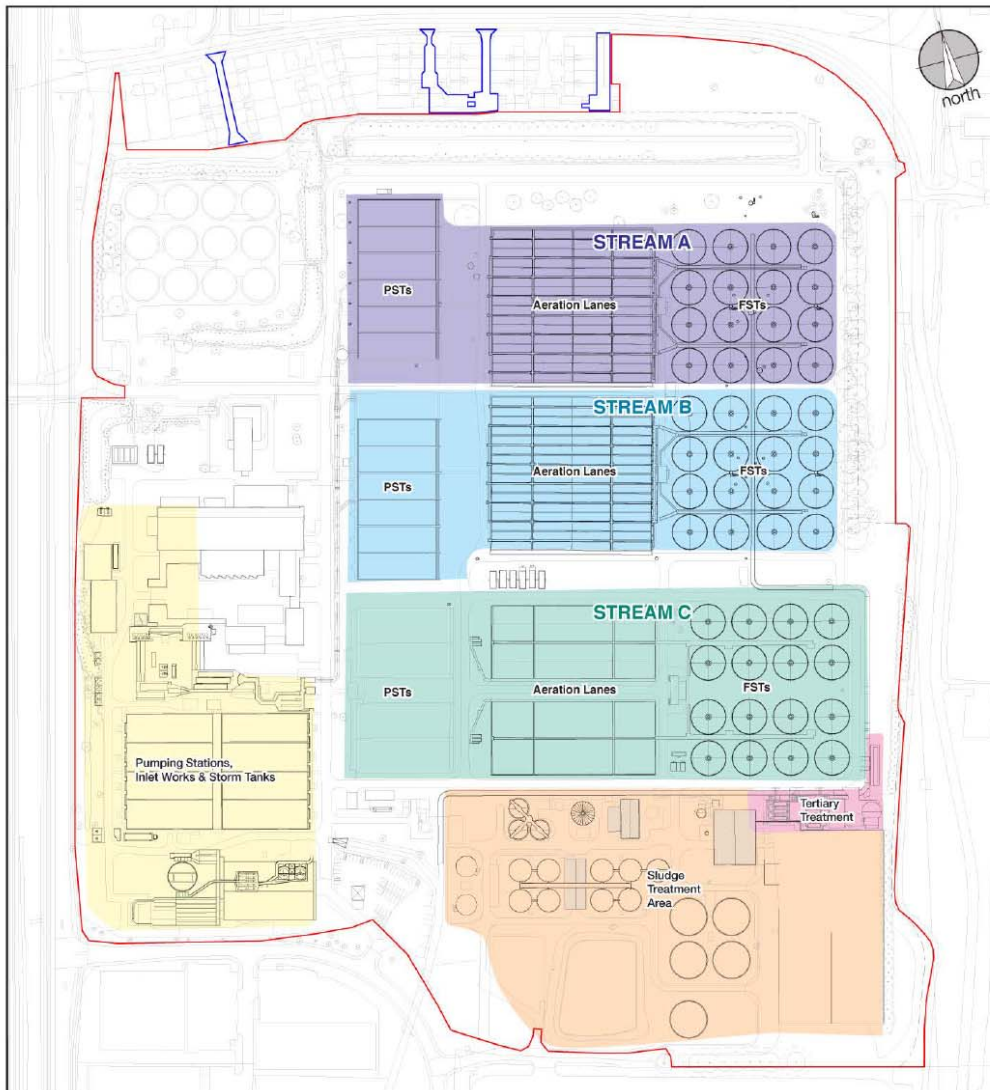
Site and Surroundings

- 1.1 Deephams Sewage Works (Deephams STW) is Thames Water's fourth largest sewage works and comprises a 34 hectare site within the Upper Lee Valley Opportunity Area, approximately 0.7 miles east of Edmonton Town Centre. The catchment area which Deephams STW serves extends over large parts on North East London and northwards beyond the M25 and serves a population equivalent of 891,000 people (as of 2011). Whilst the inlet works and storm tanks to the west of the site have recently been upgraded, the majority of the treatment works infrastructure dates from around 1950s and 1960s. The sewage works collects and treats sewage from a large surrounding sewer network before passing through a series of treatment stages and releasing treated sewage (effluent) to Salmons Brook via an outfall channel.
- 1.2 The site is bounded by residential development at Pickett's Lock Lane, and the Lee Valley Regional Park to the north, the Lee Navigational Canal and William Girling Reservoir to the east; Ardra Road Industrial estate at Central Leaside to the south, and suburban residential hinterland to the west beyond the railway line.
- 1.3 Along the northern boundary lie a number of residential properties arranged in cul de sacs comprising approximately 50 properties. Also located to the north of Pickett's Lock Lane is a warehouse. Further north beyond Pickett's Lock is the boundary of the Lee Valley Regional Park, located immediately inside this part of the LRVP boundary lies the Lee Valley Leisure Complex.
- 1.4 Immediately along the north eastern and central eastern boundary of the site is the designated Lee Valley Site of Metropolitan Importance for Nature Conservation. This sits adjacent to and in places, over, the Enfield Ditch as it makes its way south to join the lower reaches of Salmons Brook. Beyond this is Lee Park Way which runs southwards from Pickett's Lock Lane. Between the Lee Park Way and the River Lee Navigation are a number of depots in commercial use, although currently lying vacant. There is also a residential dwelling, Picketts Lock Cottage.
- 1.5 Chingford Reservoirs are situated to the east of the site. They are designated as a site of Special Scientific Interest (SSSI). Chingford is located beyond the reservoir, some 700m in distance from Deephams Sewage Works eastern boundary.
- 1.6 To the south of the site lies the Ardra Road Industrial Estate, which comprises a number of distribution, warehousing and waste processing units and itself lies immediately north of the Edmonton Eco- Park Facility. To the west of the site separated from the site by Meridian Way and main railway line is a substantial area of housing which at its closest lies less than 100m from the western edge of the sewage works site.
- 1.7 The site has two accesses, one from Pickett's Lock Lane (the main access) and one from Ardra Road both of which are unclassified

highways. The site has a public transport accessibility rating (PTAL) of 1b which is low. There are existing bus stops within walking distance of the development on Pickett's Lock Lane to the south of Meridian Way and Bounces Road.

Proposal

- 2.1 The Upgrade of the sewage treatment infrastructure at Deephams comprises the following elements:
- Demolition of redundant plant and buildings
 - The phased development of primary settlement tanks, aeration lanes with integrated fixed film activated sludge (IFAS) media. and final settlement tanks,
 - Development of pumping stations, blower house and control room buildings, odour control covers to primary settlement tanks, inlet works, anoxic zones and secondary digesters, 3 odour control units.
 - Combined heat and power units. As part of the Upgrade, Thames Water will replace the existing CHP engines on site with two new CHP engines. These will produce more renewable energy from the Upgrade than the current sewage works.
 - Additional storm storage
 - Education centre (for schools or other visitors) will be provided through converting an existing building at the entrance to the site, and a safe visitor route around the Upgraded works will be provided for guided tours.
 - Ancillary plant, kiosks, buildings, car parking, hard and soft landscaping
 - Temporary 2 storey site offices and site compounds during construction.
- 2.2 The Upgrade will replace the three existing wastewater treatment “streams” on the site known as Stream A, Stream B and Stream C (each stream is made up of primary settlement tanks, aeration lanes and final settlement tanks) with two new treatment streams. Although a reduction in streams, the aeration lanes in the two new streams will be fitted with a series of cages to provide a large surface area for the bacteria that treat the sewage to grow on, in films suspended in the cages (known as IFAS cages). This means that a higher level of treatment can be provided in smaller tanks. The new streams will be built on the site of the existing streams (A & B), reusing some of the existing structures. There are also 10 new final settlement tanks. Existing stream C will be partially demolished and the primary settlement tanks converted for use as new storm tanks. The space created by the demolition of the remainder of existing Stream C will be retained so that it can be used by Thames Water for any future Upgrades or improvements to the sewage works. A new pumping station and blower house will be built to pump sewage from the inlet works to the primary settlement tanks, and blow air in to the aeration lanes to speed up the biological process. In addition to odour controls on the inlet works, the new primary settlement tanks part of the aeration lanes called the (anoxic zones) and the secondary sludge



KEY

- Planning application area
- Other land in the ownership of the applicant

Plan based upon AMK Drawing: A630-AMK-103 REV C

Figure 2.3 :

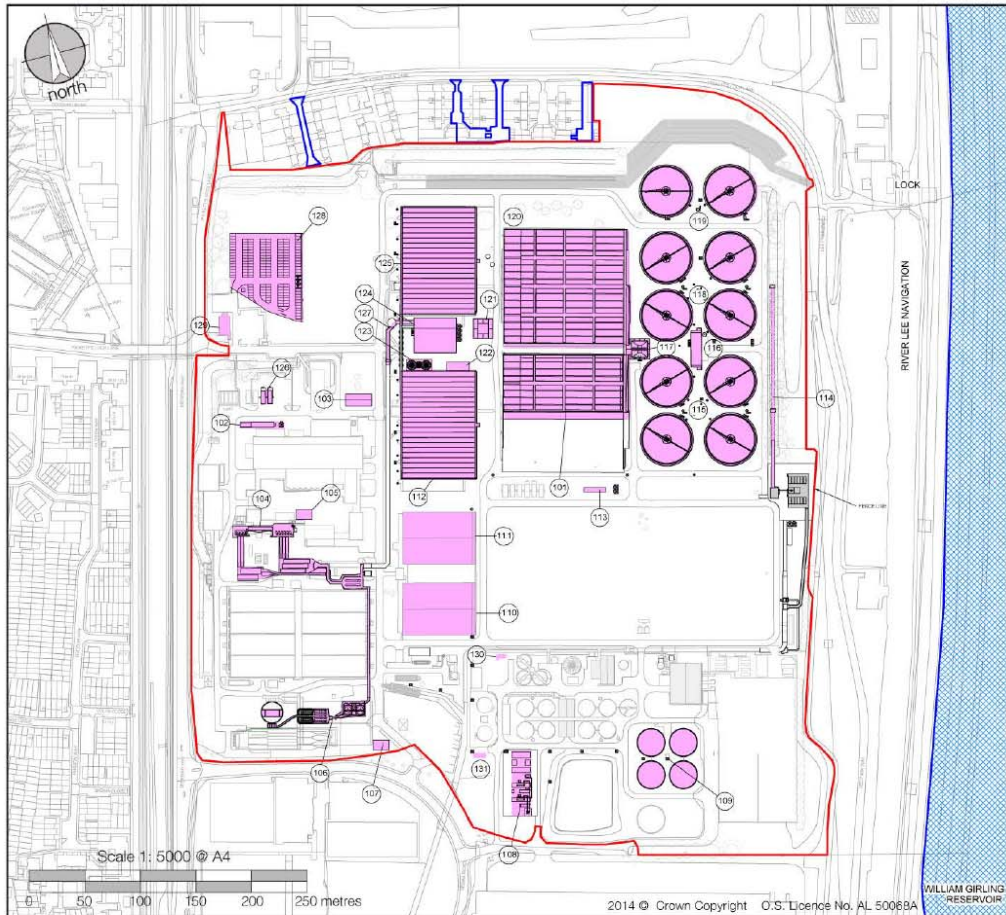
EXISTING WORKS

Drawing No. : TW/1023/200614/PS3 Revision: **A**

Drawn by: MS Date: 200614



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KEY TO PROPOSED STRUCTURES:

- 101 AERATION LANES WITH IFAS SYSTEM
- 102 HIGH VOLTAGE SWITCH ROOM
- 103 CONTROL ROOM
- 104 ODOUR CONTROL COVERS TO INLET WORKS
- 105 ODOUR CONTROL UNIT
- 106 ODOUR CONTROL COVERS TO TOTTENHAM LOW LEVEL INLET WORKS
- 107 ODOUR CONTROL UNIT
- 108 CHP
- 109 NEW ODOUR CONTROL COVERS TO 4No EXISTING SECONDARY DIGESTORS
- 110 EXISTING PRIMARY SETTLEMENT TANKS CONVERTED TO STORM TANKS
- 111 EXISTING PRIMARY SETTLEMENT TANKS CONVERTED TO STORM TANKS
- 12 PRIMARY SETTLEMENT TANKS WITH ODOUR CONTROL COVERS
- 113 FINAL SETTLEMENT TANKS MCC KIOSK
- 114 FINAL EFFLUENT CHANNEL
- 115 FINAL SETTLEMENT TANKS 7 TO 10
- 116 RAS SAS PUMPING STATION
- 117 FLOW SPLITTER CHAMBER FS2
- 118 FINAL SETTLEMENT TANKS 5 & 6
- 119 FINAL SETTLEMENT TANKS 1 TO 4
- 120 AERATION LANES WITH IFAS SYSTEM
- 121 FLOW SPLITTER CHAMBER FS1
- 122 ODOUR CONTROL UNIT
- 123 SLUDGE STORAGE TANKS
- 124 FTFT PUMPING STATION, MCC ROOM & BLOWER HOUSE
- 125 PRIMARY SETTLEMENT TANKS WITH ODOUR CONTROL COVERS
- 126 POWER GENERATORS WITH SET UP TRANSFORMERS
- 127 FTFT INLET CHANNEL

- 128 CONSTRUCTION COMPOUND TO BE RETAINED AS PARKING/STORAGE AREA
- 129 EDUCATION CENTRE (REFURBISHED EXISTING BUILDING)
- 130 SLUDGE SCREENS
- 131 WASTE GAS BURNER

- PLANNING APPLICATION AREA
- OTHER LAND IN OWNERSHIP OF APPLICANT
- WORKS FOR WHICH PLANNING PERMISSION IS BEING SOUGHT

Figure 3.2 :

PROPOSED SITE LAYOUT

Drawing No. : TW/1023/240614/PS3.2	Revision: A
Drawn by: NM	Date: 240614

digester tanks will all be covered and odour controlled as part of the Upgrade. Figure 1 shows the existing Sewage works layout and Figure 2 the proposed Upgrade works.

- 2.5 The construction of the Upgrade is due to commence in July 2015. The construction programme has been designed to allow the sewage works to continue to operate while the new treatment streams are being built. Construction of the Upgrade will happen in 5 phases outlined below:

Summary of construction phases

Phase	Activities	Duration
1 – Advance Works	Establishment of site enabling, welfare and site compounds	3 months
2 – Stream A	Switch off stream, clean and demolish tanks and plant Build new stream, pumping stations and final effluent culvert Install combined heat and power engines Install odour covers on inlet works	14 months
3 – Stream B	Switch off stream, clean and demolish tanks and plant Build new stream and pumping stations	12 months
4 – Stream C	Switch off steam, clean and demolish tanks and plant Convert primary settlement tanks to storm tanks	6 months
5 - Completion	Commissioning, demobilisation, reinstatement of roads, landscaping Provision of Education Centre and education trail	4 months

- 2.6 The phased design will maintain compliance with the existing environmental permit conditions throughout the proposed Upgrade. The Upgrade will enable the new effluent quality permit conditions to be met by March 2017, with the completion of construction works in 2018. The existing entrance to the sewage works, off Picketts Lock Lane, will continue to be the main entrance for the Upgraded works.
- 2.6 When complete the upgraded sewage works will operate, like the existing sewage works operate 24 hours a day, 7 days a week. The sewage treatment works has an operational staff of 24 working in shifts and staff numbers will return to the status quo when the upgrade is complete. During the construction phase the staff numbers will vary during the phases, with a minimum of 54 and a maximum of 252.
- 2.7 The Upgrade will also provide a permanent, beneficial effect of major significance on odour emissions from the site. This will help to provide

a more attractive environment and substantially improve local amenity for residents and businesses located around the sewage works.

- 2.8 The Upgrade is considered to constitute an Environmental Impact Assessment (EIA) development, within the terms of paragraph 13 (a) Schedule 2 of The Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 2011. The planning application is therefore accompanied by an Environmental Statement (ES) as well as a non-technical summary. The non-technical summary of the Environmental Statement summarises the process through which the potentially significant environmental effects of the Upgrade have been identified, assessed and mitigated. The various chapters of the Environmental Statement cover, introduction, approach to assessment, need and alternatives, description of development, legislation and planning policy, air quality, contaminated land, ecology, flood risk, health and well-being, historic environment, landscape and visual implications, noise and vibration, odour, transport, waste, water resources and summary of residual Impacts.

3.0 Relevant Planning Decisions

- 3.1 P14-00525SOR -Request for a Scoping Opinion in respect of proposals for Deephams Sewage Works Upgrade. Scoping Opinion request given by the LPA on the 25/4/14.
- 3.2 P14-00100SOR- Request for a Screening Opinion- Regulation 5 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 for the demolition of redundant Digesters & Associated Plant and partial culverting, re-profiling and diversion of Enfield Ditch Tributary- Screening Opinion issued confirming not EIA development 10/ 2/14.
- 3.3 P14-00097 PRI- Demolition of redundant pumping station building and redundant single storey switch gear building- Prior Approval not required 10/2/14.
- 3.4. Various notification works regarding the intention to undertake works under permitted development on the site.

4.0 Consultations

4.1 Statutory and non-statutory consultees

4.1 Tree Officer

- 4.1.1 Whilst several large poplar trees on the eastern boundary are to be removed to allow construction they are generally in a poor condition with a limited useful lifespan and would probably need to be replaced in the foreseeable future. There are substantial landscape enhancements occurring as part of the development including replacement screening on the eastern boundary. This landscaping is more than adequate and

mitigates any green infrastructure losses to facilitate it. No objections are raised.

4.2 Environmental Health

4.2.1 No objection raised. The upgrade of the sewage treatment works will have substantial noise implications during the redevelopment. It is envisaged that delivery of materials, operations and general building will impact on the residents of Picketts Lock Lane. In order to control the noise generated during the redevelopment the following conditions are requested:

- (i) Prior to any development taking place the applicant shall enter into a Section 61 agreement under the Control of Pollution Act 1974 with the London Borough of Enfield.
- (ii) No deliveries of construction & demolition materials shall be taken at or despatched from the site outside of the following times 08:00 to 18:00 Monday to Friday, 08:00-13:00 Saturdays and at no other time except with the written approval of the Local Planning Authority.
- (iii) At least 28 days prior to the commencement of any site works; all occupiers surrounding the site shall be notified in writing of the nature and duration of works to be undertaken at each phase of works. The name and contact details of a person responsible for the site works should be made available for enquiries and complaints for the entire duration of the works & updates or work should be provided regularly. Any complaints should be addressed as quickly as possible.

4.2.2 In respect of the information provided regarding noise, air quality & contaminated land this is acceptable. In regard to odour it is expected that the site will achieve the level of odour reduction set out in the Environmental Impact Assessment.

4.3 Traffic and Transportation

4.3.1 The provision of 163 spaces for the construction phase of the development is acceptable and is appropriate in terms of meeting the demand for expected staff involved throughout the construction phases. In terms of access and servicing no changes are proposed during the construction period. However the construction Traffic Management Plan will need to be adhered to and secured by condition.

4.3.2 Traffic will be generated throughout the construction period which is expected to be completed at the end of 2018. Given that the site will still be operating there will be a net increase in traffic on the network. The Transport Assessment contains figures on the expected trip profile for the worst case scenario which suggests there would be 616 trips to and from the site over a 24 hour period. During the local highway AM network peak (08.00- 09.00) there would be 64 trips and PM network peak (17.00-18.00) there would be 74. These would be in addition to existing operation trips. These figures have been compared to traffic flows from 2012 taken from the DfT which generally show that traffic

has been falling since 2007. On this basis the Transport Assessment makes the assumption that it will keep falling and therefore zero growth factors has been applied to the background traffic levels as agreed with Transport for London. Due to the location of the site the construction traffic will mainly be kept to classified highways, with access from the M25 and the North Circular both being from Meridian Way which is part of the Transport for London Strategic Road Network. Given the volume of traffic using these roads the construction traffic will represent a small increase of approximately 1.70% max based on DfT figures and is unlikely to have an unacceptable impact on any junctions. The proposed development subject to a traffic management plan is unlikely to increase traffic levels that would be prejudicial to the free flow of safety and traffic on the surrounding highway, both through the construction period of the development, and operation of the site post construction.

4.4 Biodiversity Officer

- 4.4.1 The Environmental Statement submitted has covered all the potential ecological implications which may arise as a result of the proposed development. As long as the various mitigation and enhancement measures detailed in the report are followed there will be no net loss of biodiversity on site and the development will be in accordance with wildlife legislation and planning policy. To ensure that the biodiversity value of the site is protected, maintained and enhanced appropriately worded conditions regarding the following are required: Protection of Ecologically Important features, Nesting Birds, Invasive Species, Landscape & Biodiversity Enhancements, Brown Roof, Lighting(Bats), Further Tree Inspections.

4.5 Business & Economic Development

- 4.5.1 It is considered that the Local Employment Strategy is a robust and compliant document that fully meets the needs of Enfield's residents in terms of training and employment opportunities.

4.6 Canal & River Trust

- 4.6.1 The Trust has some concerns regarding silt, soil and site waste entering the waterway during the construction period. In order to alleviate these concerns, it requests the installation of a floating silt curtain and/ or silt boom to prevent the transfer of silt into nearby waterways. The booms and curtains during the construction period should be regularly maintained and any built up soil or waste disposed of appropriately. With regard to pollution of waterways from the sewage treatment plant suggest absorbent curtains and booms should be installed to ensure a staged control of any pollution coming from the Sewage Treatment Plant. The following condition is requested.

“All the mitigation measures and pollution prevention controls contained within the Water Management Plan (WMP) Appendix 18.3 (AMK Water Management Plan) Environmental Statement Volume 3 shall be implemented and adhered to during the construction phase of the Deephams Sewage Treatment Works Upgrade, unless agreed

otherwise in writing by the LPA. This shall include silt booms/ and or silt curtains to prevent the transfer of silt and other material during demolition and construction period. The silt booms and/ or silt curtains shall be regularly maintained and any built up soil or waste deposited appropriately. In addition the measures contained in the WMP to ensure that surface water run- off and ground water is captured and controlled within the site during the construction period, to avoid it polluting the watercourse shall also be implemented.”

Reason: In order to prevent pollution during the construction of the Upgrade as well as the transfer of waste, silt, soil and other material into the nearby waterways and to ensure that water quality is not adversely affected.

- 4.6.2 In addition 3 informatives are requested regarding (i) Current code for working practices affecting the Canal & River Trust, (ii) Written consent is required regarding any oversail, encroachment or access and (iii) Any surface water discharge in to the water space belonging to the CRT requires written consent.

4.7 Natural England

- 4.7.1 The application is in close proximity to Chingford Reservoirs Site of Special Scientific Interest (SSSI). They are satisfied that the proposed development carried out in strict accordance with the details submitted will not damage the interest features for which the site has been notified. They advise that the SSSI does not represent a constraint in determining the application. No objection is raised.

- 4.7.2 They would also expect the LPA to consider & assess other possible impacts resulting from the proposal when determining the application on the following:

- Local sites (biodiversity & geodiversity)
- Local landscape Character
- Local or National biodiversity priority habitats & species

With regards any potential impact on protected species Natural England's Standing Advice on protected species should be applied. With regards biodiversity enhancements the application has identified opportunities to incorporate features into the design which are beneficial to wildlife, such as the incorporation of roosting opportunities for bats or the installation of bird nest boxes and brown roofs. This is in accordance with Paragraph 118 of the NPPF.

4.8 Environment Agency

- 4.8.1 They have reviewed the submitted Environmental Statement and additional information submitted in support of the application from the following perspectives: Flood Risk, Ground Contamination, Ecology and Biodiversity, Waste Management. Overall they support the

proposed Upgrade work subject to the imposition of various conditions regarding Flood Risk and Contamination.

4.9 English Heritage (Archaeological)

4.9.1 The application envisages significant groundwork's within the existing sewage works which is known to lie upon a deep sequence of deposits of archaeological interest. However, much of the site has been heavily disturbed in modern times and the surviving deposits of archaeological interest are buried beneath several meters of 19th/ 20th Century made ground. Consequently surface and shallow groundwork's are unlikely to cause significant harm. In contrast deep excavation for new tanks in previously undisturbed areas (Final Settlement Tanks 1 & 2) could cause moderate-major harm depending on what is actually revealed whilst deep piling could cause some minor loss of significance.

4.9.2 A review of the application using the Greater London Historic Environment Record & information indicates that the development would not cause sufficient harm to justify refusal of planning permission provided that a condition is applied to require an investigation to be undertaken to advance understanding. "No development shall take place until the applicant has secured the implementation of a programme of archaeological investigation in accordance with a Written Scheme of Investigation which has been submitted to & approved in writing by the LPA. No development shall take place other than that in accordance with the Written Scheme of investigation". An informative note will also be required advising that the written scheme of investigation will need to be prepared & implemented by a suitably qualified archaeological practice in accordance with English Heritage Greater London Guidelines.

4.10 Lee Valley Regional Park Authority

4.10.1 The Authority supports the application given the improvements made to water quality and the reductions in odours.

4.11 National Grid

4.11.2 No objections raised to the development which is in close proximity to a High Voltage Transmission Overhead Line.

4.12 London Borough of Waltham Forest

4.12.1 In relation to the air quality assessment, the application reviews the impacts of both the construction works and CHP emissions. They conclude that the impact of the construction works will be negligible. The new CHP will replace the current unit on site and will have a reduction in emissions as compared to the previous plant. Therefore they have no significant issue with this assessment but would recommend that a condition is attached to ensure that vehicles used for the upgrade works are limited to main roads.

4.12.2 With respect to odour assessment, Thames Water intends to mitigate odour by covering the primary settlement tanks, inlet works, anoxic zones of the aeration tanks and the secondary sludge digesters. The upgraded facility along with the suggested mitigation measures is predicted to decrease odour emissions from the work. Waltham Forest residents are predicted to benefit from these improvements and are not expected to detect odours from the site. Based on the information reviewed, there are no objections on air quality/ environmental health grounds. No comments were made regarding highway implications. Overall no objections to the proposal.

4.13 Transport for London (TfL)

4.13.1 With regard the road network the development will not adversely affect the capacity and safety of the local and strategic highway network. A Travel Plan should be provided for the construction phase of development and also the ongoing operation of the sewage treatment plant. The Travel Plan should be secured, enforced, monitored and reviewed as part of the section 106 agreement.

4.13.2 It is noted in the Transport Statement that staff will be encouraged to access the site through alternative means of transport other than the car. This will be addressed in the Travel Plan. There is also potential to increase cycle parking which is welcomed by TfL and will be addressed in the Travel Plan. More cycle parking may need to be provided if demand necessitates. Electric charging points are proposed for a minimum of 20% of the car parking proposed which is welcomed. It is noted that only 3 disabled parking bays are proposed. TfL requires that disabled parking is provided in accordance with the London Plan (2011) for staff and visitors alike. The level of parking proposed is considered appropriate given the scale of development.

4.14 Greater London Authority (GLA)

4.14.1 Consultation with the Mayor's Office is a two stage process. The following comments have been received in response to the stage one consultation.

4.14.2 London Plan Policies on waste water infrastructure, energy, air quality, blue ribbon network and transport are relevant to this application. The proposals are supported by the London Plan Policy water quality and waste water infrastructure and are considered an important improvement in London's Strategic Infrastructure. The application complies with some of these policies but not with others for the following reasons.

Principle of development:

- The proposals are supported by London Plan Policy 5.14, and are considered an important improvement in London's Strategic Infrastructure. The proposals have been well thought out and maintain a reserve of land giving capacity for longer term enhancement of sewage treatment capacity & quality.

Temporary uses of the currently spare land are likely to be acceptable but no permanent development other than in connection with the sewage treatment should be permitted.

The applicant should clarify what increase in additional storm capacity is, and if any further capacity were to be required, especially given the predictions that our climate is likely to have more intense storms, that such capacity could be located within the unused portion of the site.

Sustainable energy

- The proposals are broadly acceptable but further information is required before the carbon savings can be verified. The applicant has stated the intention to build redundancy in the plant room safeguarding space for an extra CHP engine and the THP plant, the applicant should provide a plan of the plant room to illustrate the space allocation for the proposed units, communications with Lee Valley district heating network should continue as the design progresses to ensure design compatibility. Further information should also be provided on the potential for integration of photovoltaic on the site including the quantification of the potential carbon savings.

Transport

- A travel plan is required for the construction phase and ongoing operation and secured in the section 106 agreement. Cycle parking should be monitored for potential increase in cycle parking and options should be identified for further provision. A Construction Logistics Plan (CLP) is required. This should be secured by condition and address the potential of utilising the River Lee Navigation during phased development of the site, disabled parking should be provided in accordance with London Plan (2011) for staff and visitors.

The Applicant has responded to the GLA's Stage One comments, providing information and clarification as appropriate.

4.2 Public

4.2.1 In total 3,798 surrounding properties were consulted on the application. In addition 18 site notices were also displayed in and around the surrounding vicinity and site. The application was also advertised in the Local Press. Besides the statutory consultation process, Thames Water has also carried out their own very extensive separate Community Engagement with residents and stakeholders on the scheme. In respect of the Local Authorities consultation 4 letters of objection/ concern were submitted raised raising the following points:

- Affect Local ecology
- Close to adjoining properties
- Increase of pollution
- Noise nuisance
- General dislike of proposal

- Development will increase odour & pollution affect lifestyle of residents
- Effect property prices in Edmonton
- Plant should be closed and located outside London
- Possibility of contamination from building works
- Works should include the upgrade of the perimeter fence in need of repair
- Pungent smell of the raw sewage/ odour

4.2.2 1 letter of support raising the following points:

- Support the upgrade because of Thames Water's promise to reduce smell, live next door to the boundary of the site on Picketts Lock Lane. Thames Water making the effort to reduce smell since they completed Phase 1 of the upgrade noticed significant reduction in smell.
- Make sense to keep upgrade of Deephams on one site.

5.0 Relevant Policy

5.1 The National Planning Policy Framework (NPPF) published in March 2012 allowed local planning authorities a 12 month transition period to prepare for the full implementation of the NPPF. Within this 12 month period local planning authorities could give full weight to the saved UDP policies and the Core Strategy, which was adopted prior to the NPPF. The 12 month period has now elapsed and as from 28th March 2013 the Council's saved UDP and Core Strategy policies will be given due weight in accordance to their degree of consistency with the NPPF.

5.2 The Development Management Document (DMD) policies have been prepared under the NPPF compliant. The Submission version DMD document was approved by the Council on 27th March 2013 and has now successfully been through examination. It is expected that the document will be adopted at full Council in November 2014. The DMD provides detailed criteria and standard based policies by which planning applications will be determined and is considered to carry significant weight.

5.3 The policies listed below are considered to be consistent with the NPPF and therefore it is considered that due weight should be given to them in assessing the development the subject of this application.

5.4 The London Plan (including revised early Minor Alterations Oct 2013)

Policy 1.1	Delivering the Strategic Vision & Objectives of London
Policy 2.2	London & the wider Metropolitan area
Policy 2.6	Outer London: Vision & Strategy
Policy 2.13	Outer London: economy
Policy 2.18	Green Infrastructure
Policy 3.2	Improving Health & Addressing Equality
Policy 5.1	Climate change mitigation
Policy 5.2	Minimising carbon dioxide emissions

Policy 5.3	Sustainable design and construction
Policy 5.5	Decentralised energy Networks
Policy 5.6	Decentralised energy in development proposals
Policy 5.7	Renewable energy
Policy 5.9	Overheating and cooling
Policy 5.10	Urban greening
Policy 5.11	Green roofs and development site environs
Policy 5.12	Flood Risk Management
Policy 5.13	Sustainable drainage
Policy 5.14	Water quality and wastewater infrastructure
Policy 5.16	Waste Self sufficiency
Policy 5.17	Waste Capacity
Policy 5.18	Construction, excavation & demolition waste
Policy 5.20	Aggregates
Policy 5.21	Contaminated Land
Policy 6.1	Transport- Strategic Approach
Policy 6.3	Assessing the effects of development on transport capacity
Policy 6.9	Cycling
Policy 6.12	Road network capacity
Policy 6.13	Parking
Policy 6.14	Freight
Policy 7.1	Building London's neighbourhoods and communities
Policy 7.2	An inclusive environment
Policy 7.3	Designing out crime
Policy 7.4	Local character
Policy 7.5	Public Realm
Policy 7.6	Architecture
Policy 7.8	Heritage Assests and Archaeology
Policy 7.13	Safety, Security & Resilience to Emergency
Policy 7.14	Improving air quality
Policy 7.15	Reducing noise and enhancing soundscapes
Policy 7.16	Green Belt
Policy 7.19	Biodiversity and access to nature
Policy 7.21	Trees & woodlands
Policy 7.24	Blue Ribbon Network
Policy 7.26	Increasing the use of the Blue Ribbon Network for Freight Transport
Policy7.27	Blue Ribbon Network Infrastructure & recreational use
Policy 7.28	Restoration of the Blue Ribbon Network
Policy 7.30	London's canals and other rivers and water spaces
Policy 8.2	Planning Obligations
Policy 8.3	London's canals and other rivers and water spaces

5.5 Local Plan – Core Strategy

CP 1	Strategic Growth Areas
CP20	Sustainable energy use and energy infrastructure
CP21	Delivering sustainable water supply, drainage and sewerage infrastructure
CP22	Delivering sustainable waste management
CP24	The Road Network
CP25	Pedestrians and cyclists
CP28	Managing Flood Risk through development

- CP29 Flood Management Infrastructure
- CP30: Maintaining and improving the quality of the built and open environment
- CP31 Built and Landscape Heritage
- CP32: Pollution
- CP33 Green Belt and Country Side
- CP36: Biodiversity
- CP37 Central Leaside
- CP38 Meridian water
- CP39 Edmonton
- CP40 North East Enfield
- CP46 Infrastructure contributions

5.5 Saved UDP Policies

- (II)G20 New development in Proximity to Green Belt
- (II)G21 Reduce visual Intrusion of built up area
- (II)GD3 Aesthetics and functional design
- (II)GD6 Traffic
- (II)GD8 Site access and servicing
- (II) C36 Replacement Planting
- (II) C38 Resist Developments loss of trees of amenity value
- (II)E14 Environmental Standards
- (II) E15 Environmental Standards
- (II)T13 Road, Highway Improvements
- (II)T32 Car parking Provision for Disabled people

Submission Version Development Management Document

- DMD37 Achieving High Quality and Design-Led Development
- DMD38 Design Process
- DMD44 Preserving and Enhancing Heritage assets
- DMD45 Parking Standards and Layout
- DMD47 New Road, Access and Servicing
- DMD48 Transport Assessments
- DMD49 Sustainable Design and Construction Statements
- DMD50 Environmental Assessments Method
- DMD51 Energy Efficiency Standards
- DMD52 Decentralised Energy Networks
- DMD53 Low and Zero Carbon Technology
- DMD54 Allowable solutions
- DMD55 Use of Roof space/ Vertical Surfaces
- DMD56 Heating & Cooling
- DMD57 Responsible Sourcing of Materials, Waste Minimisation
- DMD58 Water Efficiency
- DMD59 Avoiding and Reducing Flood Risk
- DMD60 Assessing Flood Risk
- DMD61 Managing surface water
- DMD62 Flood Control Mitigation
- DMD63 Protection & Improvements of Watercourses & Flood defences
- DMD64 Pollution Control and Assessment
- DMD65 Air Quality
- DMD66 Land Contamination & Instability

DMD68	Noise
DMD69	Light Pollution
DMD 70	Water quality
DMD 75	Waterways
DMD 76	Wildlife Corridors
DMD 77	Green Chains
DMD 78	Nature Conservation
DMD79	Ecological Enhancements
DMD80	Trees on development sites
DMD81	Landscaping
DMD 83	Developments Adjacent Green Belt

5.8 Other Relevant Considerations

National Planning Policy Framework (NPPF) March 2012
National Policy Statement for Waste Water March 2012
Future Water- The Government Strategy for England
National Planning Policy for Waste (October 2014)
Water for Life- Government's White Paper on Water
Water Act (May 2014)
Defra's Strategic Policy Statement to Ofwat- Incorporating Social & Environmental Guidance (May 2013)
The Town & Country Planning (Environmental Impact Assessment) Regulations 2011
The Mayor's Water Strategy: Securing London's Water Future (2011)
Circular 17/91- Water Industry Investment: Planning Considerations
Circular06/05- Biodiversity & Geological Conservation
Upper Lee Valley Opportunity Area Planning Framework (July 2013)
Central Leaside Area Action Plan (Proposed Submission)
Meridian Water Master Plan, Planning & Urban Design Guidance
Section 106 Supplementary Planning Document (November 2011)

European Policy & Guidance

Urban Waste Water Treatment Directive (1991/271/EEC)
Freshwater Fish Directive (2006/44/EC)
Water Framework Directive (2006/60/EC)
Waste Framework Directive (2008/98/EC)
Habitats Directive (92/43/ECC)
Environmental Impact Assessment (EIA) Directive (2011/92/EC)

6.0 **Analysis**

6.1 Principle of development

6.1.1 The need for the Upgrade of Deephams Sewage Treatment Works is driven by the requirements of European Directives (Water Framework, Urban Wastewater Treatment & Fresh Water Fish Directives'), subsequently reflected in the details of a new environmental permit set for Deephams Sewage Works by the Environment Agency through the National Environment Programme (NEP). The new permit regulations for Deephams come in to force in 2017. The strategic need for the project was confirmed by the inclusion of the Deephams Sewage

Works Upgrade as a named project within the National Policy Statement for Waste Water (2012). Together, the National Environment Programme (NEP) and National Policy Statement for Waste Water provide requirements to:

- Improve water quality within Salmons Brook and River Lee
- Enable compliance with Directives, regulation and policy governing the discharge of treated waste water effluent, and
- Provide sufficient storm capacity to meet growth within the Deephams catchment

6.1.2 The Governments National Policy Statement for Waste Water is a material consideration to the Upgrade and confirms in paragraph 2.6.3 that “The need for the improvement of waste water treatment at Deephams STW is driven by European and national statutory water quality requirements. The improvements are essential to ensure that Salmon’s Brook and the River Lee (to which it flows) meet environmental quality standards to comply with the Freshwater Fish Directive, and Water Framework Directive and to ensure that there is no deterioration in the current classification as a result of increased volumes of discharge”.

In meeting the European Directive requirements, The Upgrade also provides the opportunity to provide a Sewage Treatment works that:

- Provides a sewage treatment works “fit for purpose” as much of the existing infrastructure is over 50 years old
- Meets the Policy need to improve water quality
- Meets the growth requirements within the Deephams Catchment area: the Upgrade will increase the treatment capacity of the sewage works from a population equivalent (PE) of 891,000 (2011 base year to a population equivalent of 989,000
- Delivering significant reductions in odour emissions. A key benefit of the Upgrade is that a combination of new plant and equipment together with odour control will significantly reduce Odour emissions from Deephams Sewage works.

6.1.3 London Plan Policy 5.14 (Water Quality & Waste Water Infrastructure) also strongly supports the Upgrade of the sewage treatment capacity to improve water quality and to ensure that adequate wastewater infrastructure capacity is available to support new development. The Upper Lee Valley Opportunity Area Planning Framework also supports the strategic aspiration to deliver 15,000 new jobs and 5,000 new homes within the Upper Lee Valley, and reflects the desire to upgrade existing infrastructure within the Opportunity Area in accordance with the principles of London Plan Policy 5.14. Adequate sewage treatment provision is a key component to achieving sustainable communities with London Plan Policy 5.14 supporting the provision of necessary infrastructure whether to accommodate growth or to improve quality. This policy also states that development proposals to upgrade London’s sewage (including Sludge) treatment capacity should be supported provided they utilise best available techniques and energy capture.

- 6.1.4 Core Strategy Policy 21 also supports the principle which states “the council will work with water supply and sewerage companies to ensure that Enfield’s future water resource need, waste water treatment and drainage infrastructure are managed effectively in a coordinated manner ensuring that water supply, sewerage and drainage infrastructure is in place in tandem with development, to accommodate the levels of growth anticipated within the Borough”. This policy also goes on to specifically recognise that “in order to improve water quality in the Borough during the life time of this plan, Thames Water plan to improve/ redevelop Deephams Sewage Treatment Water works. Core Policy 32 is also relevant which in part seeks to ensure that water quality will not be compromised and to secure where appropriate, improvements to water quality. Water quality can be improved through a number of measures including the effective design, construction and operation of sewerage systems and sewage treatment plants.
- 6.1.5 Both the London Plan and Enfield’s Core Strategy identify the essential need for the water quality within the Blue Ribbon Network, including the River Lee and River Lee Navigation, to be improved consistent with European and national objectives. The provision of a modern effective wastewater treatment capacity at Deephams Sewage works would help achieve this need.

6.2 Odour

- 6.2.1 The existing operation at Deephams Sewage Works generates odour emissions and this has been identified by the Local Planning Authority and Local Community through the extensive pre-application consultation process as one of the key issues to be addressed in the Upgrade application. The existing improvements that have been undertaken already have reduced emissions by approximately 15% since 2010. The National Policy Statement (NPS) for Waste Water 2012 recognises that odours from wastewater infrastructure can have a significant adverse impact on the quality of life. The National Policy Statement for Waste Water explains that “The potential for adverse odour impact from wastewater infrastructure will be dependent on a number of factors including the layout and distance of the most odorous sources to receptors, the selection of process technologies with high or low “odour potential” the selection and ongoing maintenance and control of appropriate and effective odour abatement equipment and, above all, continuing effective management.
- 6.2.2 London Plan Policy 7.14 (Improving Air Quality) also requires development proposals to “minimise increased exposure to existing poor air quality and make provisions to address the local problems of air quality such as by design solutions”. This policy requires development proposals to be at least air quality neutral. Core Strategy Policy CP 32 (Pollution) is also relevant which explains that the Council will work with partners to minimise air pollution. DMD Policies 64 (Pollution Control and Assessment) states that “Developments will only be permitted if pollution and the risk of pollution is prevented, or reduced and mitigated during all phases of development. DMD Policy 65 (Air Quality) states that planning permission will be refused for developments which would have an adverse impact on air quality

unless it is able to demonstrate that measures can be implemented that will mitigate these effects.

6.2.3 The nearest sensitive residential receptors to the site are the houses on Picketts Lock Lane adjacent the northern boundary, Picketts Lock Cottage near the eastern boundary, and those off Hudson Way which run parallel to the western boundary. The odour mitigation proposals submitted include measures to cover the four smelliest parts of the sewage works, and to install new odour control units to extract, clean, and vent air through 5m and 10m high stacks. Odour control covers will be installed on :

- The existing inlet works
- The new Stream A and Stream B primary settlement tanks
- The new anoxic zones of the Stream A and Stream B aeration lanes
- The existing secondary digesters

An Odour Management Plan (OMP) for the site (Appendix 15.2 in the Environmental Statement) has also been prepared. An Odour Management Plan is a documented, operational plan detailing the measures to be employed by a site operator to anticipate the formation of odours and to control their release from site. The Odour Management Plan meets the Department for Environment Food & Rural Affairs (Defra) guidelines for Odour Management Plans.

6.2.4 During the construction of the Upgrade, the main sources of odour will be from draining and cleaning of the primary settlement tanks and aeration lanes before they are partly demolished. Once the new effluent treatment streams are built, they will be covered and connected to odour control units which will reduce the smell from the tanks when they are operated. An Odour Management Plan will be in place to ensure that odour is kept to a minimum during the Upgrade. The Odour Management Plan includes measures such as:

- Each individual effluent stream will be taken out of service and cleaned before the new replacement stream is constructed and brought into use. As each replacement stream incorporates tank covers and odour control measures, and new aeration lanes are smaller than existing ones, odour emission will progressively decrease as each stream is replaced.
- As much sludge within existing primary settlement tanks will be removed as possible prior to emptying the tanks, to minimise exposure of odorous sludge at the bottom of the tank.
- Removal and cleaning out of any residual material left in the tanks and associated channels will be conducted immediately after the tank is emptied, and covers applied to any skips used if any residual material is to be dug out from the tanks or associated channels.
- New plant associated with the Upgrade will be tested with covers in place and associated odour control units working.
- The adequacy of the covers and air extraction systems to effectively contain and control odours will be confirmed prior to the commissioning of new plant.

- The cleaning system on the new storm tanks will be tested and made operational before receipt of storm water

6.2.5 Covering of the inlet works where sewage first enters the sewage works is scheduled within the first two phases of construction to provide an early reduction of Odour. With the mitigation set out above, there would be a negligible odour effect during construction.

6.2.6 Odour emissions from the Upgraded sewage works, with the most odorous parts of the works covered and controlled will reduce. The decrease in odour emissions will be due to the following main elements:

A. The application of covers and gas extraction to the secondary digesters.

B. The application of covers and odour control to the existing inlet works.

C. Decommissioning of the existing open primary settlement tanks and replacement with new tanks that will be fully covered and odour controlled.

D. Decommissioning of the existing open secondary treatment plant and replacement with a smaller footprint and fully covered odour controlled anoxic zones.

As a result, the proposed upgrade would leave 1,011 properties within the 1.5 ouE/m³ contour (a 96% reduction), 70 properties within the 3 ouE/m³ contour (a 99% reduction) and 33 properties within the 5 ouE/m³ contour (a 99% reduction). This means that 99% of properties will be removed from the areas most affected by odour from the sewage works, and all properties will experience reduced odour exposure levels. Having regard to the costs and viability of delivering such a scheme, this represents a substantial improvement in the amenity of residents within the vicinity.

6.3 Impact on Residential Amenity

6.3.1 The main impacts on residential amenity will be during the construction period, however various mitigation strategies are proposed to mitigate against any significant adverse impacts. The contractor will implement mitigation measures to control dust; through a Construction Environmental Management Plan which will be in place throughout the construction of the Upgrade. These will include some of the following:

- Locating activities that cause dust and stockpiles of material as away from sensitive receptors.
- Checking wind speed and direction before starting any activities that will cause dust.
- Regularly inspecting local roads and the site perimeter for dust and taking appropriate steps to resolve any problems.
- Erecting solid barriers around the site.
- Stockpiles kept for the shortest time period and use of sprinklers to dampen down exposed soil.
- Use of sprinklers and hoses for dust suppression.

Dust monitoring will be carried out during the construction phase to ensure mitigation is effective. The Construction Environment Management Plan will be conditioned.

6.3.2. The Upgrade will also generate temporary noise as a result of associated demolition and construction activities. A series of mitigation measures are included within the Construction Environment Management Plan to minimise noise during construction, including some of the following:

- Agreement of noise limits with the Council under The Control of Pollution Act 1974.
- Adopting restricted working hours for noisy plant and activities.
- Site supervision arrangements to reduce noise levels and vibration levels to a minimum in accordance with best practicable means.
- Plant will be procured with specified noise limits and be properly maintained and operated.
- Where feasible, all stationary plant will be located so that the noise effect is minimised and, if practicable, static plant will be sound attenuated.
- Residents living in close locations will be kept informed of progress of construction works and will be contacted by letter prior to any activities likely to cause noise disturbance.

6.3.3 It is considered that the measures to minimise and mitigate the noise from the construction and demolition in the Construction Environment Management Plan would effectively manage the noise issue so that it would not adversely impact on the residential amenities of residents.

6.3.4 In addition there will also be a comprehensive Construction Traffic Management Plan regarding all traffic management activities during the Upgrade construction. This will ensure that the impact and risk to surrounding residents, local community, businesses and road users is kept to a minimum. This will include construction vehicle routing via Meridian Way and Picketts Lock Lane, with traffic routed away from residential areas.

6.4 Traffic Generation /Parking and Highway Safety

6.4.1 Policy 6.3 of the London Plan is relevant in “assessing the effects of development on transport capacity“. This policy seeks to ensure that the impacts of transport capacity and the transport network are fully assessed and that the development proposals would not adversely affect safety on the transport network. In addition saved UDP policies (II) GD6, (II) GD8 and (II) T13, Core Policies CP24 and 25 and DMD policies 45, 46 and 47 are also relevant. Paragraph 32 of the National Planning Policy Framework is also applicable and advises that all developments that generate significant amounts of movement should be supported by a Transport Statement/ Assessment.

6.4.2 The application for the Upgrade is supported by a detailed assessment of transport issues including a Transport Statement, a Construction Travel Plan and a Construction Traffic Management Plan. Access to the site during construction and operation will be from Picketts Lock

Lane and Ardra Road, with Picketts Lock Lane being the main access. The site has a PTAL rating of between 1a and 1b.

- 6.5.3 Traffic will be generated throughout the construction period which is expected to be completed by the end of 2018. Given the site will still be operating then there will be a net increase in traffic on the network. The Transport Statement contains figures on the expected trip profile for the worst case scenario for Construction Traffic Volumes which suggests that there would be 616 trips over a 24 hour period. During the local highway AM network peak (08.00- 09.00) there would be 64 trips and PM network (17.00-18.00) there would be 74. This worst case would in reality be for only two or three days within a peak month of the construction period, with all other days' through the construction period having significantly lower daily peak profiles.
- 6.4.4 Due to the location of the site the construction traffic will mainly be kept to classified highways, with access from the M25 and the North Circular both being from Meridian Way which is part of TfL Strategic Road Network. Given the volume of traffic using these roads then the construction traffic will only represent a small increase of approximately 1.7% maximum based on DfT figures and is unlikely to have an unacceptable impact on any junctions. Transport for London is satisfied that the development will not adversely affect the capacity and safety of the local and strategic highway network.

Parking

- 6.4.6 During the construction phase of the Upgrade there would be 163 car parking spaces, including 3 disabled spaces and 20 cycle spaces located in the construction compound in the north west part of the site. The upgrade will take place over a 3 year period July 2015 to August 2018. The provision of 163 spaces for the construction phase of the development is acceptable and is appropriate in terms of meeting the demand for expected number of staff involved throughout the phases having regard to London Plan Policy 6.13, and DMD 45. Based on the expected number of staff during construction 20% of the spaces will be provided for electric vehicles, in accordance with London Plan Policy 6.13.
- 6.4.7 Following completion of the Upgrade there would be a total of 245 spaces an increase of 80 spaces. This compares to 165 spaces prior to the Upgrade. Existing areas of car parking are lost through the Upgrade proposals, and Thames Water proposes to retain the construction compound parking area following the completion of the Upgrade for parking and storage use. A total of 41 cycle spaces would be available following completion of the Upgrade, with use of existing shower facilities. Staff numbers will not be increased after the Upgrade and, it is anticipated that not all the 80 additional spaces would in fact be retained and used for car parking as parts of the retained parking area will need to be segregated off and dedicated for use associated with the new educational facility. This will require mini bus, coach and car parking for staff and visitors, together with safe circulation space for visitors to the educational facility. The detailed layout and management of the educational facility parking and circulation space, together with the future management of the retained car parking can be secured by

condition. A Travel Plan for the construction phase of the development and also on going operation of the treatment plant will be secured, enforced, monitored and reviewed as part of the Section 106 agreement.

Access & Servicing

- 6.4.8 All construction vehicles will access the site via the main sewage works entrance gates off Picketts Lock Lane. This is the existing main site access, and provides access to the main areas of construction activity. A further access point would be available from Adra Road which may be occasionally used for deliveries from large vehicles. Once operational, the main access to the Upgrade works will continue via the existing Pickett's Lock Lane access. The access and servicing arrangement during the Upgrade works is considered acceptable in principle, however the Construction Traffic Management Plan will need to be adhered to and secured through an appropriate condition.

6.5 Design

- 6.5.1 Core Policy CP 30 requires all new developments to be high quality and design led having regard to their context. The scheme will be seen in the context of the existing sewage treatment infrastructure and operations at the site. The design of the built structures has sought to limit landscape and visual impacts by minimising the land take and height using neutral colours where possible. The existing sewage works is an enclosed site, with only limited views into it from near or long distance locations. The existing landscaped bund to the north is retained as part of the Upgrade and will be extended further to the east as part of previous permitted development works. Whilst the heights of the primary settlement tanks, aeration lanes and final settlement tanks will be greater than those they replace they are considered to be appropriate and in keeping with the existing setting of the sewage works site.

- 6.5.2 With regard to the proposed FTFT Pumping station and Blower house as well as other buildings proposed these will be viewed in the context of the existing buildings and infrastructure on site and are considered acceptable in terms of their location and appearance. In addition new landscaping is also proposed on the eastern, northern and western boundaries of the site. Overall the scale of the proposed buildings and structures are considered to be a similar scale and character to the existing built infrastructure already in place at the site and surrounding area.

6.6 Sustainable Design & Construction

- 6.6.1 The London Plan Climate change policies require developments to make the fullest contributions to tackling climate change by minimising carbon dioxide emissions, adopting sustainable design and construction, prioritising decentralised energy and incorporating renewable energy. The following policies of the London Plan are of particular relevance 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14 and 5.15. In addition Core Polices 20 (Sustainable Energy & Energy Infrastructure), CP21 (Delivering Sustainable Water

Supply, Drainage and Sewage Infrastructure are also applicable). In addition Sustainability and Energy Development Management Document Policies DMD 49, 51, 52, 53, 55, 56, 57 & 58 are also relevant. The applicants have submitted both a Sustainability Statement and Energy Statement with the application.

- 6.6.2 As part of the effluent upgrade works a number of efficiency improvements are proposed. These include low head flow to full treatment pump station, improved gravity flow, high efficiency motors and various improvements to the process which are expected to reduce electricity consumption. A reduction of 7% of electricity consumption and 11% in heat demand has been estimated, equivalent to approximately 2,200 tonnes carbon dioxide (CO₂)/ year. The applicant is predicting a 49% reduction in carbon emissions from efficiency and CHP system upgrade, equivalent to a 54% reduction in carbon emissions per population equivalent.
- 6.6.3 In relation to the Lee Valley Heat Network the applicant has committed to delivering a system compatible with the heat network for either heat import or export. In terms of import, it is envisaged that the heat network would top-up heat during the winter peak heat demand, replacing more carbon intensive solid fuel boilers. Potential export would be derived at a point where biogas and heat generation exceeds demand on the site. While this situation does not yet occur on site, with the integration of potential future Thermal Hydrolysis Plant (THP), biogas generation may increase to a level to warrant export to the Lee Valley Heat network. Given the strategic importance of the network and the identified synergy of the sewage works to the wider network this will be secured in the section 106 agreement to ensure design compatibility and liaison with the Lee Valley District Heat Network developer.
- 6.6.4 The renewable energy technology being proposed for the Upgrade is the replacement of the Combined Heat and Power (CHP) engines with new, more efficient equipment with increased capacity. Two new CHP engines will be installed on site allowing additional biogas generated from the anaerobic digestion plant to be used more effectively. This would meet London Plan Policy 5.6, which requires the feasibility of CHP to be considered and Policy 5.7 which seeks the increased proportion of energy generated from renewable resources. In respect of the GLA's comments regarding the applicant providing a plan of the plant room to illustrate space allocation for the units. Thames Water advise there is no plant room as such, as the CHP engines and potential future Thermal Hydrolysis Plant would be predominantly located outside of any building, so it is not possible to provide a plan of the plant room as requested. They however confirm that the Motor Control Centre (MCC) kiosks associated with the CHP engines will have sufficient space within them to accommodate the necessary control equipment for a third CHP engine should that be subsequently approved and installed.
- 6.6.5 With regards the GLA's request for further information on the potential for integration of photovoltaics' on site including a quantification of the potential carbon savings, the applicant advises that the installation of PV was considered in the Energy Statement paragraphs 5.3.14 to

5.3.16. At this stage Thames Water wish to retain flexibility in the ongoing design work to ensure that it can meet necessary operational and health and safety constraints relating to future operation and maintenance of the site. However, they are happy to accept a condition to provide a written assessment of the potential for integrating PV at the site once the construction is complete. An appropriate condition will secure this.

6.6.6 Approximately 1,150m² of Brown Roofs are also proposed to be installed on the return activated sludge and surplus activated sludge pumping station and blower house, meeting the requirement of Policy 5.11 of the London Plan and DMD 55. Thames Water has also committed to submit the Deephams Upgrade for a Civil Engineering Environmental Quality Assessment and award scheme (CEEQUAL). CEEQUAL was originally developed to be a civil engineering equivalent of BREEAM. Where BREEAM sets the standards for the assessment of buildings, CEEQUAL is a wider assessment that covers all aspects of a civil engineering project. In the context of Deephams, any BREEAM assessment could only capture certain proposed buildings which themselves represent a small part of the overall project. In contrast the CEEQUAL assessment captures the whole project, including what was designed, what was built and how it was built. Thames Water have already successfully delivered CEEQUAL awards and have committed to achieve “Excellent” rating overall the highest tier achievable. This has been appropriately conditioned.

6.7 Biodiversity/ Visual Landscape /Trees

6.7.1 The majority of the site is previously developed land, containing sewage treatment infrastructure at the site and therefore has limited ecology and nature conservation. The main features of ecological interest are found along the periphery of the site. Part of the Lea Valley Site of Metropolitan Importance Nature Conservation (SMINC) is designated within the north eastern boundary of the site. With the exception of the enhanced planting and habitat creation, no works are proposed within the boundary of the SMINC. The Biodiversity Officer advises that the Environmental Statement (ES) covers all the ecological implications that may arise. As long as the various mitigation and enhancement measures are provided as set out in the ES there will be no net loss of biodiversity and the development will accord with Wildlife Legislation and Planning Policy.

6.7.2 Construction of the scheme will also involve the removal of approximately 0.35 hectares of plantation wood and scrub on the eastern boundary and approximately 40 additional scattered trees in the centre of the site. The landscaping proposals for the site include the provision of new trees, protection of trees to be retained on site, replanting of newly formed bunds and landscape areas with native species and replanting restored areas of the site on completion. The proposed habitat enhancements will provide replacement habitat that includes the provision of native scrub, and wet scrub, coppice trees, small tree plantation, mature hedgerows and a wildflower meadow, reducing any impacts to negligible significance. Habitat enhancements will also be delivered through the Landscape Strategy, including the provision of brown roofs and bird/bat boxes. The mitigation measures

set out in the Environmental Statement will be secured through the Construction Environment Management Plan including an Invasive Species Management Plan. The improvements in discharge from the site as a result of the Upgrade is also likely to have a positive effects on biodiversity, and the proposal would have appropriate regarding in respect of London Plan Policies 5.14 and 7.28.

- 6.7.3 The Tree Officer advises that there are substantial landscapes enhancements occurring as part of the development including replacement screening on the eastern boundary and that the landscaping will be more than adequate to mitigate any Green Infrastructure losses.
- 6.7.4 The Upgrade is considered to accord with London Plan Policy 7.19 and 7.28, Core Strategy Policy 36 and Development Management Document Policies DMD 76, DMD 78 and DMD 79 through the provision of mitigation for potential impacts to biodiversity through habitat enhancement. Overall the Upgrade is considered to make a positive contribution to improving green Infrastructure and integrating and Blue Ribbon network. The Upgrade is also considered to accord with Saved UDP Policy (II) G20 and DMD Policy 83 regarding development located adjacent to green belt only being permitted where there is no increase in visual dominance and intrusiveness of the built form and there is a clear distinction between Green Belt and the urban area. The Upgrade is considered to be similar in layout and scale, type and height and massing to the existing sewage works. Once landscape planting has matured it is not considered that the development would have any significant impact on the adjacent Green Belt or visual landscape of the surrounding area.

6.8 Noise/ Air Quality/ Flood Risk/ Surface Water/ Waste

Noise

- 6.8.1 With regards noise the Upgrade will generate temporary noise as a result of associated demolition and construction activities. A series of mitigation measures are included in the Construction and Environmental Management Plan (Environmental Statement Appendix 5.3) which will be conditioned. The Environmental Statement concludes that with mitigation measures the residual impact from construction noise will range from negligible to minor adverse significance. Once in operation the noise associated with the Upgrade is not considered to require mitigation .It is considered that with the measures to minimise and mitigate the noise from the construction and demolition set out in the Construction Environment Management Plan would satisfactorily safeguard surrounding amenity whilst the Upgrade works are undertaken as well as having appropriate regard to London Plan Policy 7.15, Core Strategy Policy 32 and DMD Policy 64.

Air Quality

- 6.8.2. In terms of Air Quality, the site is within a Borough Wide Air Quality Management Area (AQMA). The Environmental Statement concludes that the overall significance of the residual air quality impacts

associated with the proposed upgrade is negligible following appropriate mitigation measures secured through the Construction Management Plan which is to be a condition. Measures will also be employed during construction of the Upgrade to reduce dust emissions and minimise vehicle emissions to mitigate the risk of adverse impact on air quality and sensitive receptors. Once the Upgrade is in operation it will lead to an improvement in air quality with reduced pollutant concentrations from the new CHP Plant and reduced CO2 emissions. It is considered that the proposal would have appropriate regard to London Plan Policy 7.14 and DMD 65.

Flood Risk

- 6.8.3 As far as Flood Risk is concerned the Flood Risk assessment confirms that some small areas of the site are at a low risk of fluvial and surface water flooding. The site is predominantly in Flood Zone 1 with small sections located in Flood Zones 2 and 3. However as sewage treatment works are considered a water compatible use in the NPPF the level of flood risk is acceptable. The site is potentially at risk of flooding as a result of failure of the William Girling Reservoir. However, the risk is managed by regular inspections and associated maintenance of the reservoir. The risk of flooding is therefore very low. Various conditions regarding flood risk and contamination are requested by the Environment Agency which will be imposed.
- 6.8.4 With regards the proposed new storm tanks to be provided as part of the Upgrade these are additional to the existing storm tanks on the site, and not intended to replace them. The Upgrade will increase the storm tank capacity in accordance with the requirements of the Environment Agency. The existing storm tanks located in the south west part of the site are all to be retained. The proposed new additional storm tanks will be created through converting what will become redundant primary sedimentation tanks in Phase 4 of the development. In this way the existing storm capacity will increase from 49,518 cubic meters to 63,733 cubic meters following the Upgrade.

Surface Water

- 6.8.5 In terms of surface water run off the Flood Risk Assessment states the development will include brown roofs on various buildings, rainwater harvesting, and permeable paving on the car parking and attenuation tanks. This is stated as approximately enough storage capacity to capture rainfall from the impermeable portion (11.23 Ha) of the site for 1 in 100 year storm. The various surface water drainage measures will be conditioned and would have appropriate regard to London Plan Policies 5.12 & 5.13 and DMD Policies 61 and 63 to manage surface water and protect surrounding water courses.

Waste

- 6.8.6 The main waste generated from the Upgrade construction will be from demolition, excavation and construction materials. The contractor has produced a Construction Waste Management Plan to minimise waste which will be appropriately conditioned.

6.9 Employment / Training

6.9.1 Paragraphs 18 & 19 of the NPPF emphasise the importance of economic growth to create jobs as part of building a strong and competitive economy. London Plan Policy 4.12 also seeks to improve opportunities for all, noting that strategic development proposals should “support local employment, skills development and training opportunities”. Core Strategy Policy 16 also states the Council’s commitment to tackling worklessness, creating new jobs in the Borough and working to ensure that local residents are able to access new jobs.

6.9.2 Thames Water has prepared a Local Employment Strategy in conjunction with the appointed contractor AMK and has also co-operated closely with the Council and its partner organisation Jobcentre Plus regarding the Strategy. During the 3 year construction period for the Upgrade it is estimated that AMK will employ 70 management, design and ancillary staff, and up to approximately 180 skilled, semi-skilled and unskilled employees. The precise level of employment will fluctuate throughout the phased construction.

6.9.3 Thames Water and its contractor have also committed to:

- Employ at least 20% Local Labour during the Upgrade construction.
- Offer 6 Local apprenticeships during the Upgrade construction Programme, together with 200 weeks of training for other local employees.
- Employ at least 2 full time local workers through the offender rehabilitation package.
- Publicise access to their respective apprenticeship schemes through Enfield JOB net, Jobcentre plus and through LBEs Project monitoring Team.
- Publicise access to their respective entry schemes through Enfield JOB net, Jobcentre Plus and through local councils.
- Make best endeavours to redeploy construction workers to other projects to maximise opportunities to sustain employment.

6.9.4 Thames Water/ AMK also will seek to exceed the 20% local labour figure during the construction programme. They will also work closely with the Council and local schools and colleges to promote educational opportunities that arise during the construction process. Overall the Employment Strategy proposed is very comprehensive and the Council’s Business and Economic Development Officer advises that the Strategy is robust and would fully meets the needs of Enfield’s residents in terms of training and employment opportunities and will be secured within the Section 106 agreement.

6.10 Provision of Educational Facility

6.10.1 The Upgrade also includes the provision of a new education facility through the conversion of an existing building at the entrance to the site. The building will be refurbished to provide education room with space for 30 students, together with toilets and ancillary facilities. A safe guided walking route around the site for educational tours will also

be provided to learn about the sewage treatment process. This will be secured within the Section 106 agreement regarding the commitment to provide the educational facility as well as via an appropriate condition. The proposed education facility will make an important contribution to supporting community cohesion and providing skill development and training opportunities in accordance with London Plan Policies 4.12, 7.1 and Core Policy 9 and is strongly supported.

6.11 Section 106 Agreement Heads of terms

6.11.1 The following Section 106 heads of terms are proposed:

- Travel Plan (Construction Phase and Operational Phase) to also include cycle parking, disabled parking & electric parking provision to be secured in accordance with London Plan Standards, enforced, monitored and reviewed. With regards the Construction Travel Plan element this should also contain targets relating to increasing cycling, walking, public transport and staff car sharing.
- The provision of a connection pipe to proposed Lee Valley Heat Network & liaison with Lee Valley Heat Network to ensure design compatibility
- The provision and securement of a Local Employment Strategy
- The payment of a Business & Employment Initiative contribution, if the agreed training specified in the Local strategy is not provided
- The provision of an Education Facility
- Section 106 Monitoring Fee

6.12 Community Infrastructure Levy

6.12.1 As of April 2010, legislation in the form of CIL Regulation 2010 (as amended) came into force which would allow “charging authorities” in England and Wales to apportion a levy on the net additional floor space for certain types of qualifying development to enable the funding of a wide range of infrastructure that is need as a result of development. Since April 2012 the Mayor of London has been charging CIL in Enfield at a rate of £20 per sqm. The Council is progressing its own CIL but this is not expected to be introduced until spring/ summer 2015.

6.12.2 It is considered that a CIL payment will be liable for the additional floor space created through the construction of the proposed Control Room building (270m²) as part of the Upgrade. The other new buildings that will be constructed are exempt from CIL payment as they are classed as buildings into which people” do not normally go” e.g. buildings containing plant etc.

$$(\text{£}20/\text{m}^2) \times (270.25\text{m}^2) \times 223/240 = \text{£}5,022.14$$

6.12.3 Should permission be granted, a separate CIL liability notice would be issued.

7. Conclusion

- 7.1 The strategic need for the project was confirmed by the inclusion of the Deephams Sewage Works Upgrade as a named project within the National Policy Statement (NPS) for Waste Water 2012 which outlines a clear statutory driver for the scheme in meeting European and National water quality targets. The Upgrade will meet the new environmental permit requirements which come into force in 2017 for the quality of treated waste water discharged from Deephams Sewage Works into Salmons Brook, as well as increasing the treatment capacity and Storm capacity of the Deephams Sewage Works.
- 7.2 With an existing sewage treatment works much of which is 50 years old, the Upgrade will also deliver a Sewage Treatment works that is “fit for purpose”, support population growth and re-generation proposals in the Upper Lee Valley and the wider catchment area. The Upgrade will also deliver a significant reduction in odour emissions from the sewage works the benefits of which have been maximised during discussions with the Council on this scheme. All properties in the vicinity of Deephams Sewage Works will experience a significant reduction in Odour as a result of the Upgrade. The Upgrade layout has also been designed so that the sewage works could be extended/ upgraded in the future to respond to any future requirements.
- 7.3 Through comprehensive mitigation set out in the Environmental Statement to be employed during the scheme, residual effects are limited. Any localised adverse effects, almost all of which will arise during the construction stage only, must be weighed against the need to meet the new environmental permit and wider benefits of the Upgrade will bring in terms of water quality within the Blue Ribbon Network, facilitating growth and regeneration.
- 7.4 The proposed Upgrade will meet a clear statutory need within an existing operational sewage work and accords with National Policy, London Plan Policies, Core Strategy, Unitary Development Plan Policies (saved) and Development Management Document Policies. In reaching a decision regard has also been had to all the information in the Environmental Statement submitted with the application.

8.0 Recommendation:

Having taken into account the Environmental Information contained in the Environmental Statement accompanying this application, and following referral to the Greater London Authority (GLA) and no objections being raised together with the signing of the Section 106 agreement regarding the issues set out in section 6.11 of the report, the Head of Development Management planning decisions manager be authorised to **GRANT** planning permission subject to the following conditions:

1. C60-Approved Drawings and conformity with Environmental Statement and Appendices.

Materials

2. The proposed colours and materials for the various buildings, structures or process items identified on Site Layout Plan drawing A630-AMK-105 Rev C shall accord with the schedule of colours and materials set out on pages 27 to 31 of the Planning Statement submitted with the application and prepared by Adams Hendry Consulting Ltd 2014 unless agreed otherwise in writing by the Local Planning Authority.

Reason: In the interest of visual amenity and to ensure a satisfactory appearance.

Details of Levels

3. Prior to the commencement of each of the 5 phases of construction details of the existing and proposed ground levels including levels of any proposed buildings, roads and / or hard surfacing areas shall be submitted to and approved in writing by the Local Planning Authority unless agreed otherwise. The development shall be constructed in accordance with the approved details.

Reason: To ensure that the levels have regard to the levels of surrounding development, gradients and surface water drainage.

Nesting Birds

4. All areas of hedges, scrub or similar vegetation where birds may nest which are to be removed as part of the development, are to be cleared outside the bird nesting season (March-August) or if clearance during the bird nesting season cannot be reasonably be avoided, a suitably qualified ecologist will check the area to be removed immediately prior to clearance and advise whether nesting birds are present. If active nests are recorded, no vegetation clearance or other works that may disturb active nests shall proceed until all young have fledged the nest.

Reason: To ensure that wildlife is not adversely impacted by the proposed development in accordance with National Wildlife Legislation & in line with CP36 of the Core Strategy. Nesting birds are protected under the Wildlife & Countryside Act 1981 (as amended).

Protection of Ecologically Important Features

5. The development hereby permitted shall be implemented in accordance with the best practice ecological protection measures contained in Section 3.8 of the Construction Environmental Management Plan provided in Appendix 5.3 of the Environmental Statement submitted by Adams Hendry Consulting Ltd, unless otherwise approved in writing by the Local Planning Authority.

Reason: To ensure that the development does not lead to deterioration in the ecological value of the site and the "Site of Metropolitan Importance for Nature" which abuts the site on eastern boundary, and that the development leads to an enhancement of the site's ecological value both in the short & long term in line with NPPF and CP36 of the Core Strategy.

Lighting

6. No new permanent external lighting shall be erected on site until details of an external lighting scheme, showing how it has been designed to minimise light spillage, in particular along the northern and eastern boundaries of the site, has been submitted to and approved in writing by the Local Planning Authority. The details submitted are to include the following:

- A brief report detailing the measures that have been taken to minimise the impact on wildlife and to avoid light spillage on the boundary vegetation and the adjacent Site of Metropolitan Importance for Nature (SMINC) and River Lee Navigation demonstrating how the lighting scheme proposed is the minimum required to be undertake the required task.
- A Layout Plan showing the location of lighting columns, and the type and details of lighting equipment used.
- Details of measures to avoid glare.
- An isolux contour map showing the light spillage to 1 lux both vertically and horizontally to include the adjacent New River Lee.

The approved lighting plan shall thereafter be implemented as agreed.

Reason: To ensure that the wildlife, particularly along the River Lee Navigation, is not adversely affected by the development in line with Core Policy 36 and the Conservation of Habitats and Species Regulations 2010.

Bats- Further Tree Inspection

7. Immediately prior to the carrying out of works to, or the removal of , trees on site previously identified as having bat roosting potential, a re-inspection of those trees for the presence of bats by a suitably qualified and licenced bat worker must be completed. If evidence of a bat roost is found, no works shall commence until a licence from the Statutory Nature Conservation Organisation for development works affecting bats has been obtained and a copy submitted to and approved in writing by the Local Planning Authority.

Reason: There is the potential for some trees proposed for removal to support roosting bats. This condition will ensure that protected species are not adversely affected by the removal of these trees in line with wildlife legislation and in line with Core Policy 36 and The Conservation and Species Regulations 2010.

Invasive Species

8. The development hereby permitted shall be implemented in accordance with the method statement for the management of invasive species identified on site (Japanese Knotweed, Giant Hogweed and Himalayan Balsam and Wall Contoneaster) as set out in Section 3.8.2 of the Construction Environmental Management Plan provided in Appendix 5.3 of the Environmental Statement submitted by Adams Hendry Consulting Ltd, unless otherwise approved in writing by the Local Planning Authority.

Reason: To ensure the biodiversity is not adversely affected by the proposed development in line with CP36 of the Core Strategy. It is an offence to allow Schedule 9 species which includes these species identified on site to spread as they have significant adverse effects the on biodiversity.

Brown Roof

9. No development shall commence on any of the proposed buildings identified to have brown roofs until details of the proposed brown roofs, including location, design, dimensions, materials (designed following the principles as detailed in Paragraph 9.6.22 of the submitted Environmental Statement) and a maintenance scheme for each relevant building or buildings, have been submitted to and approved in writing by the LPA. Unless otherwise agreed in writing, the brown roofs shall be provided in accordance with the approved details prior to the occupation of the building to which they relate and shall be maintained as such and shall not be used for any other purpose.

Reason: To ensure that the ecological value of the site is enhanced post development in line with the Biodiversity Action Plan, Core Policy 36, and Policy 7.19 of the London Plan.

Landscaping & Biodiversity Enhancements

10. Prior to the commencement of Phase 4 of the development, full details of hard and soft landscape proposals shall be submitted to and approved by the Local Planning Authority. Soft landscape details shall include mitigation and enhancement measures detailed in Chapter 9 (section 6) of the Environmental Statement submitted by Adams Hendry Consulting Ltd:
- Planting Plans
 - Written specifications (Including cultivation and other operations associated with plant and grass establishment)
 - Schedules of plants and trees, to include native, wildlife- friendly (Nectar-rich and berry bearing) species
 - Retention of peripheral habitats of notable biodiversity value
 - Replacement planting of lost eastern boundary trees and hedgerow to include a native mixed species hedgerow (including at least 3 species) along the eastern boundary, and large canopy trees elsewhere on site
 - Implementation timetables

- Specifications for fencing demonstrating how hedgehogs and other wildlife will be able to continue to travel across the site (10cm gaps in appropriate places at the bottom of the fences)
- Biodiversity enhancements to include:
- 25 bird and 10 bat boxes are to be strategically installed on to trees in appropriate locations around the periphery of the site (with particular focus on providing roosting opportunities on trees which about the site of Metropolitan Importance for Nature Conservation (SMINC).
- Retention of dead wood habitats

Reason: To ensure that the ecological value of the site is enhanced post development in line with Biodiversity Action Plan, CP36 of the Core Strategy.

Archaeological condition

11. No development shall take place until the applicant has secured the implementation of a programme of archaeological investigation in accordance with the Written Scheme of Investigation for Archaeological Mitigation Works (Oxford Archaeology, September 2014). No development shall take place other than in accordance with the Written Scheme of Investigation, unless otherwise agreed in writing by the Local Planning Authority.

Reason: Heritage assets of archaeological interest are expected to survive on the site. The LPA wishes to secure the provision of appropriate archaeological investigation, including the publication of results, in accordance with Section 12 of the NPPF.

Section 61 Agreement

12. Prior to any development taking place the applicant shall enter into a Section 61 agreement under the Control of Pollution Act 1974 with the London Borough of Enfield.

Reason: To protect the local amenity from noise and disturbance.

Deliveries during construction

13. No deliveries of construction and demolition of materials shall be taken at or despatched from the site outside the following times 08:00 to 18:00 Monday to Friday, 08:00- 13:00 Saturdays and at no other time except with the prior written approval of the LPA.

Reason: To protect the local amenity of surrounding residents from noise and disturbance.

Notification of surrounding occupiers of work during Various Construction Phases

14. At least 28 days prior to the commencement of any works of each phase on site occupiers in Picketts Lock Lane and Ardra Road shall be notified in writing of the nature and duration of the works to be undertaken. The notification shall include the name and contact details of the persons responsible for the site works for enquiries and complaints for the entire duration of the works, set out regular frequency for updates on progress of the work, and a process through which any complaints will be properly addressed as quickly as possible.

Reason: To protect the local amenity from noise and disturbance.

Implementation of Water Management Plan

15. All the mitigation measures and pollution prevention controls contained within the Water Management Plan (WMP) Appendix 18.3 (AMK Water Management Plan) Environmental Statement Volume 3 shall be implemented and adhered to during the construction Phase of the Deephams Sewage Treatment Works Upgrade, unless agreed otherwise in writing by the Local Planning Authority. This shall include silt booms/ and or silt curtains to prevent the transfer of silt and other materials into the nearby waterway during demolition & construction period. The silt booms / and or silt curtains shall be regularly maintained and any built up soil or waste deposited appropriately. In addition the measures contained in the WMP to ensure that surface water run- off and ground water is captured and controlled within the site during the construction period, to avoid it polluting the watercourse shall also be implemented.

Reason: In order to prevent pollution during the construction of the Upgrade as well as the transfer of waste, silt, soil and other material into nearby waterways and to ensure that water quality is not adversely affected.

Surface Water Drainage

16. Prior to the commencement of Construction Phase 2 works a detailed surface water drainage scheme for the site, based on the agreed flood risk assessment (FRA) (AECOM Job No 60311579, Ref 3523, Rev 5), shall be submitted to and approved in writing by the LPA. The drainage strategy shall include a restriction in run off and surface water storage on site as outlined in the FRA. The scheme shall subsequently be implemented in accordance with the approved details before the development is completed. In order to discharge the surface water condition, the following information must be provided based on the agreed strategy.
 - (a.)A clearly labelled drainage layout plan showing networks and any attenuation areas or storage locations. This plan should show any pipe "Node Numbers" that have been referred to in network calculations and it should also show invert and cover levels of manholes.
 - (b)Confirmation of the critical storm duration.
 - (c) Where infiltration forms part of the proposed storm water system such as infiltration trenches and soak ways, soakage test results and test locations are to be submitted in accordance with BRE digest 365.

(d) Where on site attenuation is achieved through ponds, swales, geocellular storage or other similar methods, calculations showing the volume.

(e). Where an outfall discharge control device is to be used such as hydro brake or twin orifice, this should be shown on the plan with the rate of discharge stated.

(f) Calculations should demonstrate how the system operates during a 1 in 100 chance in any year critical duration storm event, including an allowance for climate change in line with the "Planning Practice Guidance: Flood Risk and Coastal Change": If overland flooding occurs in this event, a plan should also be submitted detailing the location of overland flow paths and the extent and depth of ponding.

Reason: To prevent the increased risk of flooding, to improve and protect water quality and improve habitat and amenity.

Scheme To Deal with Risks of Contamination

17. Prior to the commencement of Construction Phase 2 a scheme that includes the following components to deal with the risks associated with contamination of the site shall each be submitted to and approved, in writing by the Local Planning Authority:

(1) A preliminary risk assessment which has identified:

(2) A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site

- All previous uses,
- Potential contaminants associated with those uses
- A conceptual model site indicating sources, pathways and receptors
- Potentially unacceptable risks arising from contamination at the site.

(3) The results of the site investigation and detailed risk assessment referred to in (2) and based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.

(4) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Reason: To protect groundwater and prevent contamination.

Verification Report of Remediation Strategy

18. Prior to the commencement of Phase 2 of the construction works a verification report demonstrating completion of works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved, in writing, by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that site remediation criteria have been met. It shall also

include a plan (“a long term monitoring and maintenance plan”) for longer term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan. The long term monitoring and maintenance plan shall be implemented as approved.

Reason: To protect ground water from further deterioration.

Long Term Monitoring & Maintenance Plan Contamination

19. Prior to the commencement of the construction Phase 2 a long term monitoring and maintenance plan in respect of contamination including a timetable of monitoring and submission of reports to the LPA, shall be submitted to and approved in writing by the LPA. Reports as specified in the approved plan, including details of any necessary contingency action arising from monitoring, shall be submitted to and approved in writing by the LPA. Any necessary contingency measures shall be carried out in accordance with the details in the approved reports. On completion of the monitoring specified in the plan a final report demonstrating that all long term remediation works have been carried out and conforming that remedial targets have been achieved shall be submitted to and approved in writing by the LPA.

Reason: To protect ground water.

20. If during development, contamination not previously identified is found to be present at the site then unless otherwise agreed in writing by the LPA no further development shall be carried out in the vicinity of the contamination, or in areas that could be affected by it, until the developer has submitted a remediation strategy to the LPA detailing how this unsuspected contamination shall be dealt with and obtained written approval from the LPA. The Remediation Strategy shall be implemented as approved.

Reason: To protect ground water.

21. No infiltration of surface water drainage into the ground at the site shall be permitted other than with the express written consent of the LPA, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to controlled waters. The development shall be carried out in accordance with the approved details.

Reason: To protect ground water.

22. Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the LPA, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to ground water. The development shall be carried out in accordance with the approved details.

Reason: In order to protect ground water.

Construction & Logistics Plan

23. Prior to the commencement of development details of a Construction and Logistics Plan (CLP) shall be submitted to and approved in writing by the LPA and thereafter adhered to during the Deephams Sewage Treatment Works Upgrade.

Reason: In order to minimise the impact of the development on the surrounding highway network, in addition to setting out how the construction site and its operation will be managed.

Parking Provision for Educational Facility & Management of Car parking

24. Prior to the commissioning of the completed development, a detailed layout and management plan of the educational facility parking and circulation space, together with the layout and future management of the retained construction compound car parking area shall be submitted to and approved in writing by the Local Planning Authority. The approved management strategy shall thereafter be implemented, unless otherwise agreed in writing by the LPA.

Reason: To ensure satisfactory parking and management strategy for the education facility and retained car parking is provided and implemented.

Construction Waste Management Plan & Site Waste Management Plan

25. All aspects of the Construction Waste Management Plan (Appendix A17.1) and the SMART Waste Site Management Plan (Appendix 17.2) set out in the Environmental Statement Volume 3 shall be adhered to, implemented as well as regularly monitored and reviewed during the course of the Upgrade works.

Reason: To maximise the amount of waste diverted from landfill consistent with the waste hierarchy and strategic targets set by Policies 5.17, 5.18, 5.19, 5.20 of the London Plan, CP 22 of the Core Strategy as well as DMD 57 of the Development Management Document.

26. **Construction Environmental Management Plan (CEMP)**

The Construction Management Plan (CEMP) set out in Appendix 5.3 Volume 3 of the Environmental Statement shall be adhered to and the mitigation measures outlined in the CEMP put in place during the Upgrade. The CEMP shall also be regularly monitored and reviewed, during the course of the Upgrade and amended if required.

Reason: To ensure the implementation of the Upgrade does not lead to damage to the existing highway and to minimise disruption to surrounding and neighbouring properties.

Future Feasibility of Photovoltaics

27. Once the Upgrade has been completed a written assessment regarding the potential and future feasibility for integrating photovoltaics' on the Deephams Sewage Works site shall be submitted to and approved in writing by the Local Planning Authority. If the assessment indicates that solar PV's are viable then appropriate provision shall be provided in accordance with further details to be submitted to and approved by the LPA.

Reason: In order to have appropriate regard to London Plan Policy 5.7 (Renewable energy), Policy CP20 of the Core Strategy and DMD 53 and DMD55.

Details of Education Facility

28. Prior to the completion of the Upgrade details regarding the new Educational Facility to be provided on site, as well as a Management Plan for its operation and use including a safe guided walk route around the upgraded sewage works, shall be submitted to and approved in writing by the Local Planning Authority. The Educational facility shall thereafter be provided and retained as an education facility.

Reason: To ensure that satisfactory details are submitted to ensure provision and implementation of the Educational Facility.

Arboricultural Impact Assessment

29. The Arboricultural Impact Assessment set out in Appendix 5.2 Volume 3 of the Environmental Statement shall be adhered to and implemented during the Sewage Works Upgrade including (Tree Constraints Plan, Arboricultural Implications Plans, Tree Retention and Removal Plan)

Reason: To ensure that the Upgrade has appropriate regard to existing trees on site.

Energy Efficiency

30. The development shall be implemented in accordance with the 'Energy Statement' and shall be designed so as to provide for not less than 54% reduction in carbon emissions per population equivalent when operating at full design capacity, unless otherwise agreed in writing by the LPA. Following practical completion of works an Energy Implementation Report shall be submitted to and approved in writing by the LPA to confirm the carbon reduction potential of the as built scheme when operating at full design capacity.

Reason: In the interest of sustainable development and to ensure that the Local Planning Authority may be satisfied that CO2 emission reduction targets are met in accordance with Policy CP20 of the Core Strategy, DMD51 of the Development Management Document, Policies 5.2, 5.3, 5.7 and 5.9 of the London Plan 2011 and the NPPF.

EAM Rating

31. Evidence and relevant certification confirming that the development hereby approved achieves the Civil Engineering Environmental Quality Assessment and Awards Scheme (CEEQUAL) (or relevant equivalent if this is replaced or superseded) rating of no less than “Excellent” (or relevant equivalent if this is replaced or superseded) shall be submitted to and approved in writing by the LPA no later than 3 months following completion of the development, unless otherwise agreed in writing by the LPA.

Reason: In the interests of addressing climate change and to secure sustainable development in accordance with the Strategic objectives of the Council and Policies 3.5, 5.2, 5.3, 5.7, 5.9, 5.12, 5.13, 5.15, 5.16, 5.18, 5.20 and 6.9 of the London Plan 2011 as well as the NPPF

Construction Traffic Management Plan & Construction Travel Traffic Plan

32. All aspects of the Construction Traffic Management Plan Appendix 16.2 and Construction Travel Plan Appendix 16.1 set out in the Environmental Statement shall be adhered to and implemented during the course of the Upgrade as well as regularly monitored and reviewed and amended if necessary.

Reason: In order to mitigate against any adverse impacts of the Upgrade on the surrounding highway network.

Rain Water Harvesting/ Permeable parking/ Attenuation tanks

33. Details regarding rainwater harvesting, permeable car parking and attenuation tanks as set out in the Flood Risk Assessment shall be submitted to and approved in writing by the Local Planning Authority and thereafter implemented and retained.

Reason: To ensure compliance with London Plan Policy 5.13, Core Policy CP28 and DMD 61.

34. **Odour Management Plan**

The Odour Management Plan (Version 7, June 2014) submitted as Appendix 15.2 of the Environmental Statement shall be implemented in full during the construction of the development hereby approved, unless otherwise agreed in writing by the LPA. Prior to the commencement of construction of Phase 5 of the development the Updated Odour Management Plan shall be submitted to and approved in writing by the LPA, and thereafter implemented on completion of the development, unless otherwise agreed in writing by the LPA. The Updated Odour Management Plan shall include measures to ensure the regular monitoring and review of odour emissions from the Odour Control Units, in consultation with LB Enfield Environmental Health Officers, to secure the predicted reduction in odour emissions from the completed development.

Reason: To ensure that the proposed Upgrade minimises and reduces odour having regard to Policy 7.14 of the London Plan ,Core Strategy Policy CP32 and Development Management Document Policies DMD64 and 65.

35. **Timing of Odour Mitigation Works**

The odour mitigation measures for (a) the existing inlet works (b) the new Stream A and B Primary Settlement tanks (c) the anoxic zones of the new Stream A and Stream B aeration lanes and (d) the existing secondary digesters shall be implemented in accordance with the phasing set out in Table 3.2 of the submitted Planning Statement (June 2014) unless agreed otherwise agreed in writing by the LPA. Written notification of the completion of each of the odour mitigation measures (a) to (d) shall be provided to the LPA within 7 days of its completion.

Reason: To ensure that the odour mitigation works proposed are carried out in a timely manner so as to reduce odour having regard to Policy 7.14 of the London Plan, Core Strategy Policy CP32 and Development Management Document DMD 64 and 65.

36. C51- Time Limit

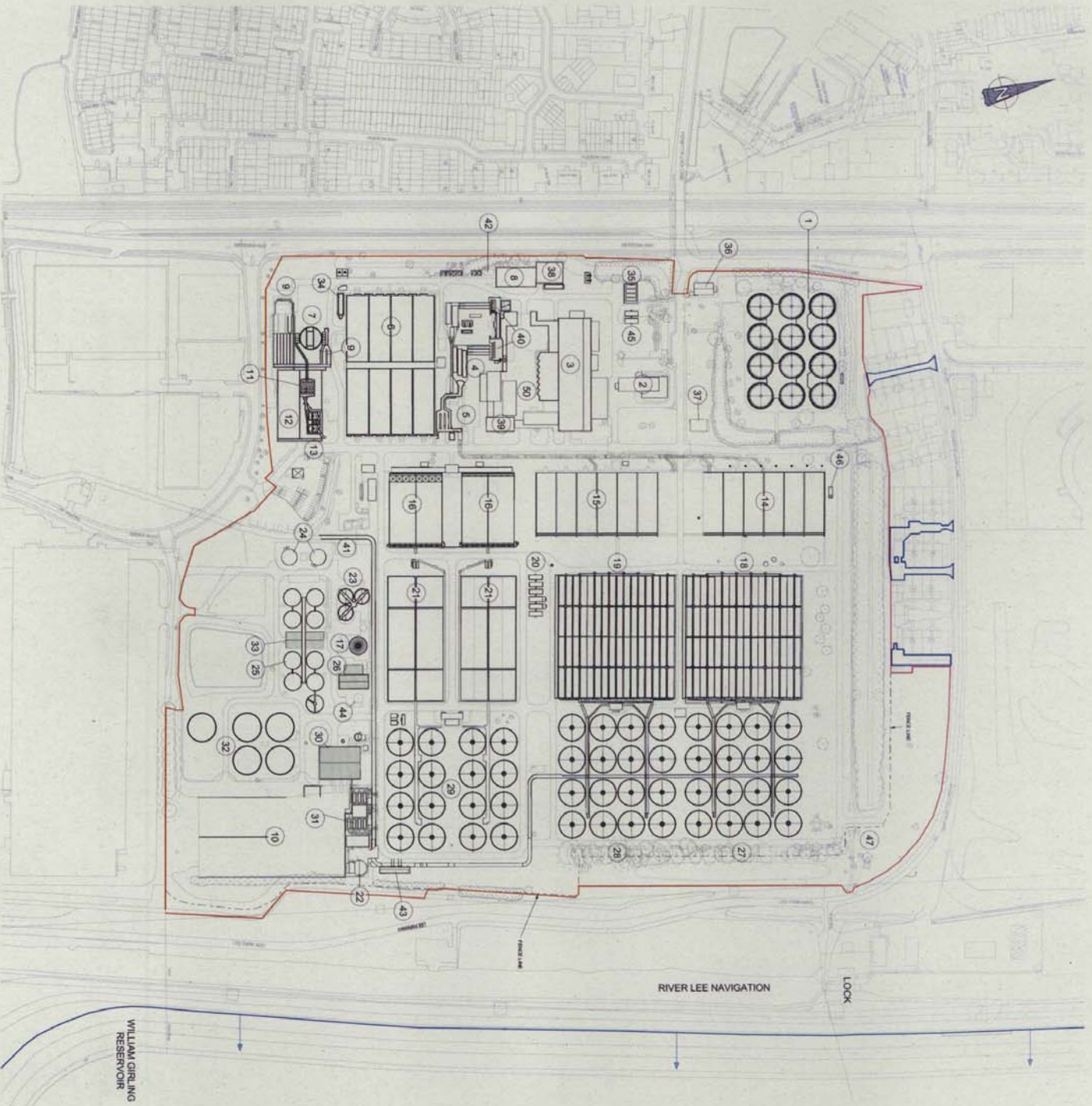
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GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST BUILDING REGULATIONS AND ALL APPLICABLE LAWS AND BY-LAWS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE RELEVANT AUTHORITIES.
3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND SERVICES AT ALL TIMES.
4. ALL UTILITIES SHALL BE IDENTIFIED AND PROTECTED PRIOR TO COMMENCEMENT OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ALL EXISTING UTILITIES AND SERVICES.
6. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RELEVANT AUTHORITIES.
7. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL WORK DONE AND MATERIALS USED.
8. ALL WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ALL EXISTING LANDSCAPE AND PLANTING.
10. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE ARCHITECT AND THE RELEVANT AUTHORITIES.

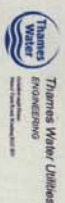
LEGEND:

- PLANNING APPLICATION AREA
- DEVELOPMENT IN DEVELOPMENT OF THE APPLICATION



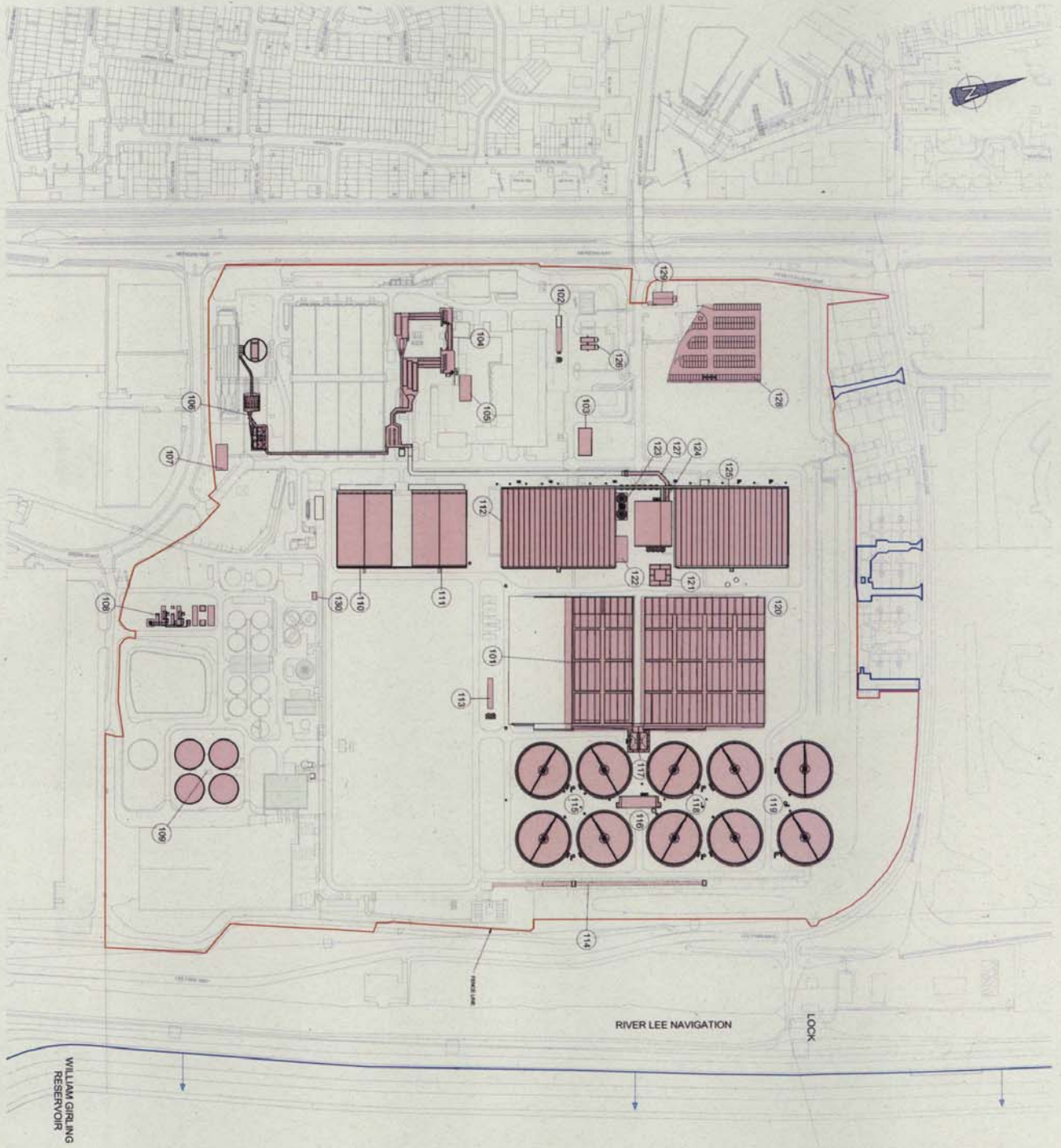
PLANNING APPLICATION DRAWING
NUMBER A650-AMK-03

NO.	REVISION	DATE	BY	CHKD BY
1	ISSUE FOR PLANNING	14/01/2023	AMK	AMK
2	REVISION	15/01/2023	AMK	AMK
3	REVISION	16/01/2023	AMK	AMK
4	REVISION	17/01/2023	AMK	AMK
5	REVISION	18/01/2023	AMK	AMK
6	REVISION	19/01/2023	AMK	AMK
7	REVISION	20/01/2023	AMK	AMK
8	REVISION	21/01/2023	AMK	AMK
9	REVISION	22/01/2023	AMK	AMK
10	REVISION	23/01/2023	AMK	AMK
11	REVISION	24/01/2023	AMK	AMK
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13	REVISION	26/01/2023	AMK	AMK
14	REVISION	27/01/2023	AMK	AMK
15	REVISION	28/01/2023	AMK	AMK
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49	REVISION	01/03/2023	AMK	AMK



Thomas Water Engineering
ENGINEERING

PLANNING APPLICATION DRAWING
NUMBER A650-AMK-03
EXISTING SITE LAYOUT
DATE: 14/01/2023



1 PROPOSED SITE LAYOUT PLANNING



1. This drawing is to be read in conjunction with all other drawings in the application and the Planning Application Form.
2. The drawings are to be read in conjunction with the Planning Application Form and the Planning Application Form.
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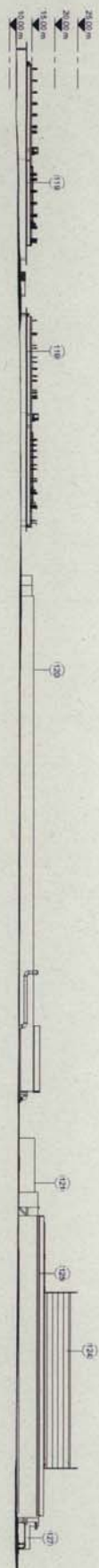
PLANNING APPLICATION DRAWING
NUMBER: AMK-AMK-105

NO.	REVISION	DATE	BY	CHECKED BY
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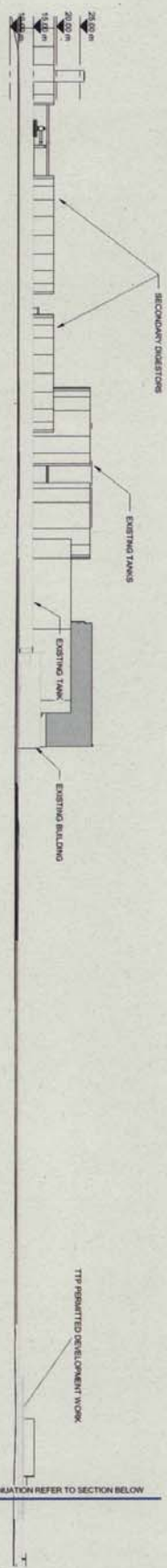


Thomas Water Utilities
ENGINEERING

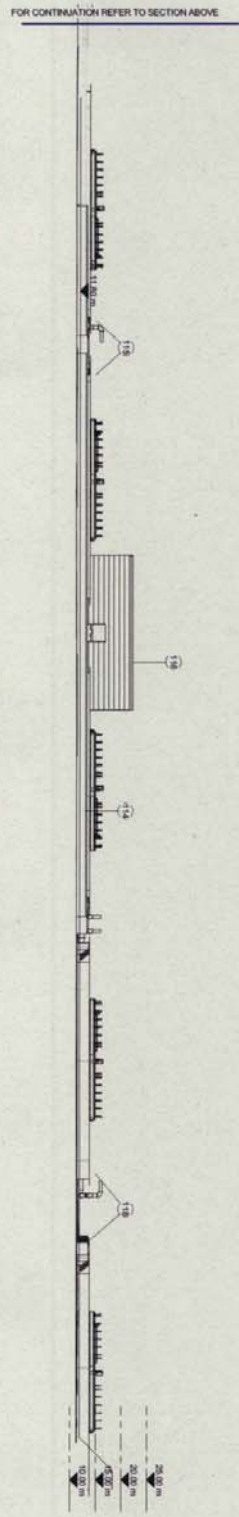
PROPOSED SITE LAYOUT
WILLIAM GIRLING RESERVOIR



1 SOUTH WEST ELEVATION
0001 | SCALE: 1:50



3 SOUTH EAST ELEVATION
0001 | SCALE: 1:50



3 CONT. SOUTH EAST ELEVATION
0001 | SCALE: 1:50

- 1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT RECORD DRAWINGS ISSUED FOR THE PROJECT AND ALL LEVELS ARE IN METRES ABOVE WORKING DATUM.
- 2 DIMENSIONS ARE GIVEN IN METRES UNLESS OTHERWISE STATED.
- 3 BASED ON THE 'ORDNANCE SURVEY MAP' WITH THE BOUNDARY OF THE STATIONARY OFFICE (LICENCE NO. 10007394).

- NOT TO SCALE FOR UNCLARIFIED DIMENSIONS OF ITEMS INDICATED
- 101 APPOINTMENT LAMP WITH 4x50WATT
 - 102 HIGH VOLTAGE SWITCH ROOM
 - 103 OCCUPANT CONTROL UNIT
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PLANNING APPLICATION DRAWING
NUMBER A630-AMK-107

DRAWING CAN BE SCALED FOR PLANNING PURPOSES

Scale: 1:50

Code	Description	Quantity	Unit	Value
A	INSULATED ROOF PLANNING	100	Sq. M	100.00
B	PLANNING APPLICATION	1	NO.	1.00
C	INSULATED ROOF PLANNING	100	Sq. M	100.00

Thames Water ENGINEERING
 Challenge Your Team
 Master Your Field. Making It Right.

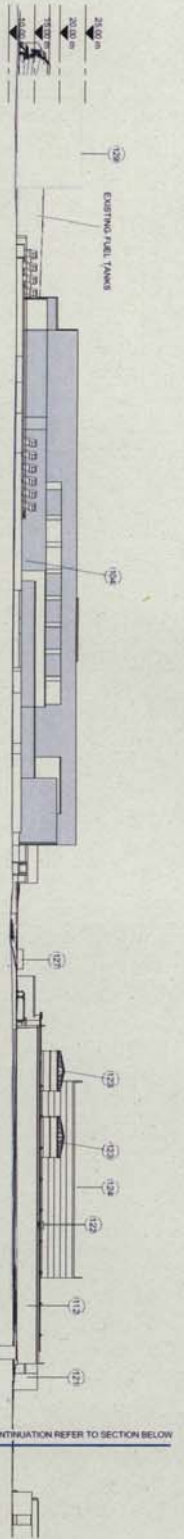
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B	PLANNING APPLICATION	1	NO.	1.00
C	INSULATED ROOF PLANNING	100	Sq. M	100.00

Deposits: STW Upgrade

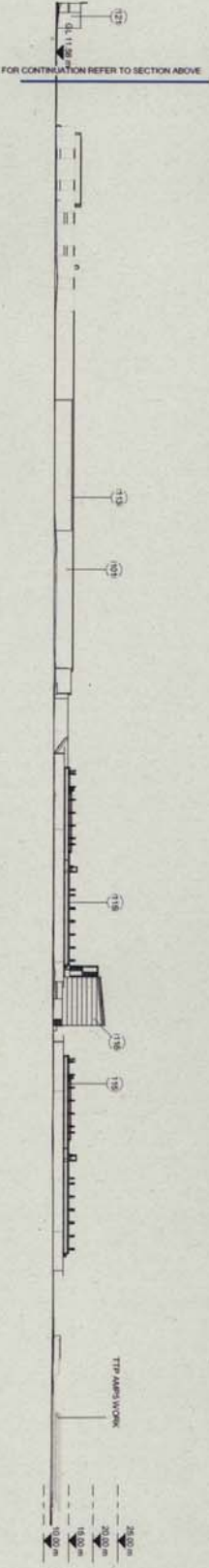
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Project No: A630-AMK-000-00-SHT-2-00651

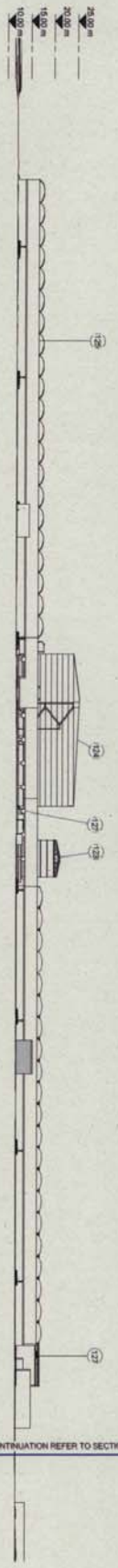




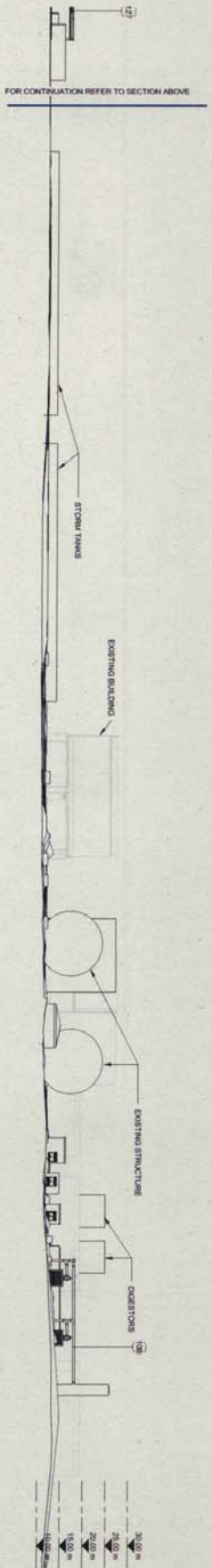
1 NORTH EAST ELEVATION
SCALE: 1:100



1 CONT. NORTH EAST ELEVATION
SCALE: 1:100



2 NORTH WEST ELEVATION
SCALE: 1:100



2 CONT. NORTH WEST ELEVATION
SCALE: 1:100

AMK
Architectural Model Kit
113

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT AMK DRAWINGS.

- UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METRES.
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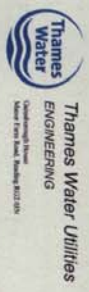
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PLANNING APPLICATION DRAWING
NUMBER A630-AMK-108

DRAWING CAN BE RECALLED FOR PLANNING PURPOSES

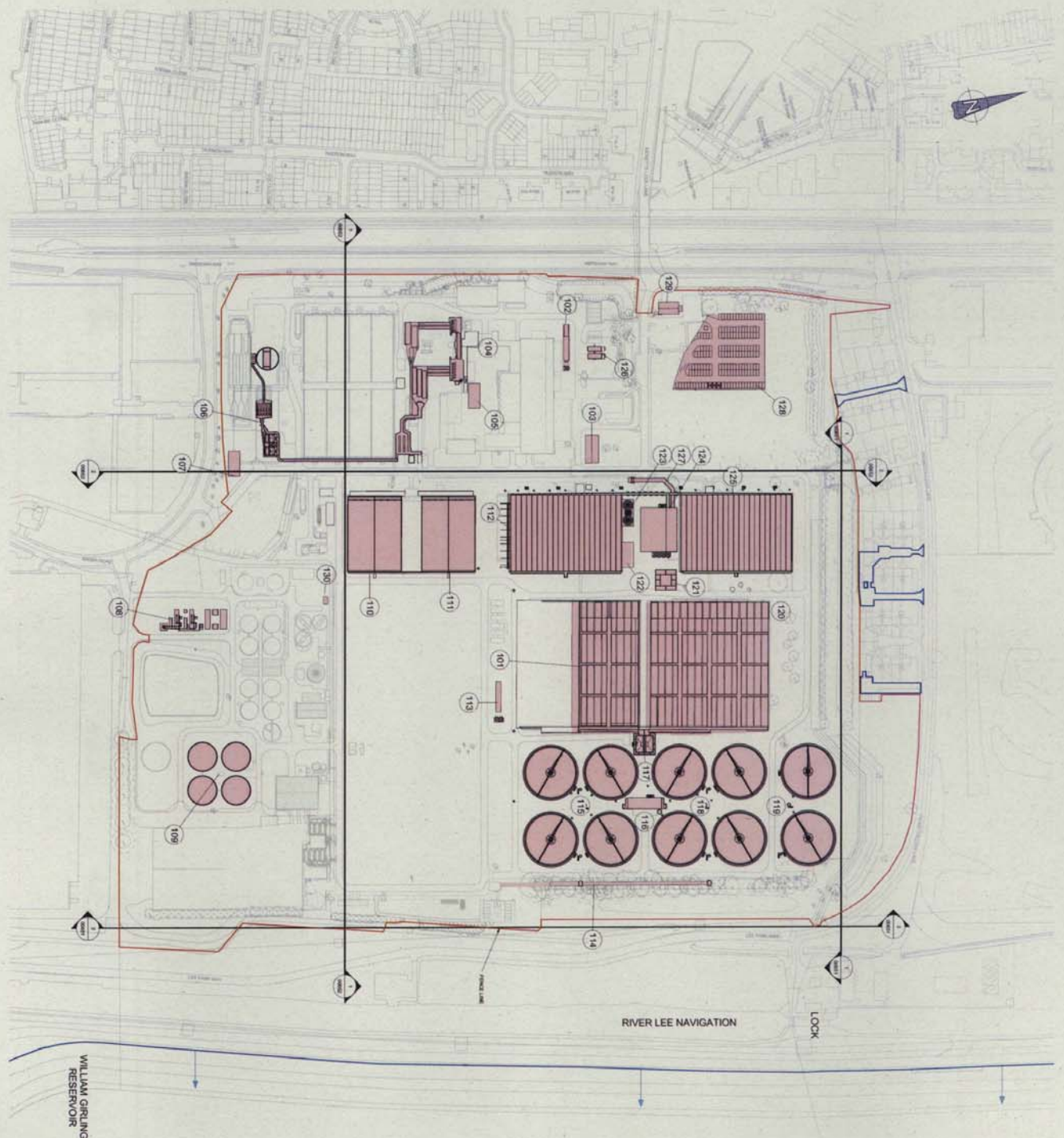
NO.	REVISION	DATE	BY
1	ISSUED FOR PLANNING	14/06/2014	AMK
2	PLANNING APPLICATION	15/04/2014	AMK
3	ENGINEERING SUBMITTAL	12/03/2014	AMK



Thames Water Engineering
Engineering Team
Water Works Road, Reading, RG2 9AT

Thames Water Utilities

Deputies STW Upgrade
SITE ELEVATIONS - PLANNING
SHEET 2 OF 2
A630-AMK-000-00-SHT-2-00652



THIS DRAWING IS TO BE MADE IN CONJUNCTION WITH ALL THE OTHER DRAWINGS OF THIS PROJECT AND IS NOT TO BE USED IN ISOLATION. THE CLIENT'S RESPONSIBILITY IS TO ENSURE THAT ALL NECESSARY PERMITS AND APPROVALS ARE OBTAINED BEFORE COMMENCING ANY WORK. THE CLIENT'S RESPONSIBILITY IS TO ENSURE THAT ALL NECESSARY PERMITS AND APPROVALS ARE OBTAINED BEFORE COMMENCING ANY WORK.

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PLANNING APPLICATION DATA
CHECKED BY: [Name]
DATE: [Date]

PLANNING APPLICATION DRAWING
NUMBER: AMK-AMK-109

Thomas Water Utilities
ENGINEERING

PROJECT: [Name]
 DRAWING: [Name]

NO.	REVISION	DATE	BY	CHKD BY
1	ISSUED FOR PERMIT	15/03/2024	[Name]	[Name]
2	REVISED PER COMMENTS	20/03/2024	[Name]	[Name]
3	REVISED PER COMMENTS	25/03/2024	[Name]	[Name]
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WILLIAM GIRLING RESERVOIR
RIVER LEE NAVIGATION
LOCK

Table 3.2: Buildings plant and other development proposed in the Upgrade

Proposed Building, structure or process item (number refers to item on Site Layout Plan A630-AMK-105 Rev C)	Construction Phase	Dimensions (metres) All dimensions listed are external			Colours and Materials	See Planning Application Drawing Numbers for details
		Length	Width	Height		
101	Aeration Lanes with IFAS System (STREAM B)	3				
		106.7m	51.4m	3.2m to top of wall 4.3m incl handrail 4.6m incl odour control covers	Fair Finish Concrete Structure Handrail: Galvanised steel	A630-AMK-157 A630-AMK-158 A630-AMK-159 A630-AMK-160 A630-AMK-161
102	High Voltage Switch Room	2	4.4m	Approx. 3.85m	Walls: Brick Built Doors: Level 3 security external double doors (outwards opening), colour signal blue. Access: One end accessible via stairs and opposite end via access slope.	A630-AMK-130
103	Control Room	2	11.6m	4.35m	Walls: GRP clad wall panels. Roof: GRP with roof lights Handrail: Galvanised steel Doors: UPVC Windows: UPVC	A630-AMK-131
104 & 106	Odour Control Covers	2	Various to fit existing channels	0.3m above existing walls	Steel – Grey Moonstone	A630-AMK-112
	Inlet Works Tottenham Low Level Inlet Works					
105	Inlet Works Odour Control Unit (OCU)	2	21.5m 10m	12.75m maximum height 10m stack height	External Tank Surfaces and Pipework: Colour – Grey (Moonstone) RAL 7035	A630-AMK-116

Proposed Building, structure or process item (number refers to item on Site Layout Plan A630-AMK-105 Rev C)	Construction Phase	Dimensions (metres) All dimensions listed are external			Colours and Materials	See Planning Application Drawing Numbers for details
		Length	Width	Height		
107	Tottenham Low Level Odour Control Unit (OCU)	21.5m	10m	12.75m maximum height 5m stack height	External Tank Surfaces and Pipework: Colour – Grey (Moonstone) RAL 7035	A630-AMK-116
108	CHP	17m	5.5m	4.5m	HV & LV Kiosk: External Building Materials, Walls & Roof: Coated steel sheet. Colour – Grey (Moonstone) RAL 7035 Exterior Doors: Painted Steel Colour – Grey (Moonstone) RAL 7035. Facia, Gutters and Louvres to match walls and roof.	A630-AMK-175
	LV Kiosk	17m	4.3m	3.5m		
109	CHP Units (x2)	17m	3.5m	4.1m	2 x CHP Units attached to exhaust stack by pipes from heat exchangers and through coolers.	A630-AMK-175
	Exhaust Stack	N/A	6.2m Ø	14.9m	Colour – Grey (Moonstone) RAL 7035	A630-AMK-175
109	New Odour Control Covers to 4 No Existing Secondary Digesters	N/A	6.3m Ø	1.10m	Steel – Grey Moonstone	A630-AMK-178
110 & 111	PSTs converted to storm tanks (STREAM C)	64.8m	47.1m	0.7m to top of wall 1.8m incl handrail [GL varies]	Fair Finish Concrete Structure Handrail: Galvanised steel	A630-AMK-170 A630-AMK-171

Proposed Building, structure or process item (number refers to item on Site Layout Plan A630-AMK-105 Rev C)	Construction Phase	Dimensions (metres) All dimensions listed are external			Colours and Materials	See Planning Application Drawing Numbers for details
		Length	Width	Height		
112	Primary Settlement Tanks (PSTs) with Odour Control Covers (STREAM B)	96.4m	68.0m	4.55m to top of wall 5.65m incl handrail 5.65m inc odour control covers	Fair Finish Concrete Structure Handrail: Galvanised steel Grey Glass reinforced Plastic (GRP) covers to contain odour.	A630-AMK-153 A630-AMK-154 A630-AMK-155 A630-AMK-156
113	FST MCC Kiosk	26.0m	4.3m	3.4m	External Building Materials Walls and Roof: Coated steel sheet. Colour – Grey (Moonstone) RAL 7035. Exterior Doors: Painted Steel Colour – Grey (Moonstone) RAL 7035. Facia, gutters & Louvres to match walls and roof.	A630-AMK-150
114	Final Effluent Channel	183.5m	2.1m	2.0m – 2.8m (variable height)	Fair Finish Concrete Structure Concrete Segments Handrail: Galvanised steel (AMK)	A630-AMK-148
	Connection Chambers (x2)	4.7m	3.3m	2.7m incl handrail	Fair finish concrete to vertical surfaces. Trowelled finish concrete to horizontal surfaces. Handrails & Staircases: Galvanised Steel	A630-AMK-148
115	Final Settlement Tanks (FSTs) 7 – 10 (STREAM B)	N/A	47.8m Ø	2m to top of wall 3.1m incl handrail 4.56m max height	Fair Finish Concrete Structure Handrail: Galvanised steel	A630-AMK-162 A630-AMK-163

Proposed Building, structure or process item (number refers to item on Site Layout Plan A630-AMK-105 Rev C)	Construction Phase	Dimensions (metres) All dimensions listed are external			Colours and Materials	See Planning Application Drawing Numbers for details
		Length	Width	Height		
116	RAS / SAS Pumping Station 2 and 3	38.1m	12.12m	10.1m roof height 11.2m incl handrail [GL varies]	Walls: coated steel profiled sheet, grey (moonstone) Roof: Brown/Green system including a grass and plants surfacing. Doors & Roller Shutters: signal blue painted steel. Fascia Gutters & Louvres: to match walls and roof	A630-AMK-144 A630-AMK-145 A630-AMK-165 A630-AMK-166
117	Flow Splitter Chamber FS2 2	18.4m	18.8m	2.8m top of wall 3.9m incl handrail	Fair Finish Concrete Structure Handrail and stairs: Galvanised steel	A630-AMK-141 A630-AMK-142 A630-AMK-143
118	Final Settlement Tanks (FSTs) 5 & 6 (STREAM A) 2	N/A	47.8m Ø	2m to top of wall 3.1m incl handrail 4.56m max height	Fair Finish Concrete Structure Handrail and stairs: Galvanised steel	A630-AMK-126 A630-AMK-129
119	Final Settlement Tanks (FSTs) 1 – 4 (STREAM A) 2	N/A	47.8m Ø	2m to top of wall 3.1m incl handrail 4.56m max height	Fair Finish Concrete Structure Handrail and stairs: Galvanised steel	A630-AMK-125 A630-AMK-128
120	Aeration Lanes with IFAS System (STREAM A) 2	106.7m	102.65m	3.2m to top of wall 4.3m incl handrail 4.6m incl odour control covers	Fair Finish Concrete Structure Handrail: Galvanised steel	A630-AMK-121 A630-AMK-122 A630-AMK-123 A630-AMK-124
121	Flow Splitter Chamber FS1 2	18m	18m	4m to top of wall 5.1m incl handrail	Fair Finish Concrete Structure Handrail: Galvanised steel Floor: Steel Flooring Mesh	A630-AMK-140

Proposed Building, structure or process item (number refers to item on Site Layout Plan A630-AMK-105 Rev C)	Construction Phase	Dimensions (metres) All dimensions listed are external			Colours and Materials	See Planning Application Drawing Numbers for details
		Length	Width	Height		
122	2	21.5m	10m	12.75m maximum height 10m stack height	External Tank Surfaces and Pipework: Colour – Grey (Moonstone) RAL 7035	A630-AMK-116
123	3	22.8m slab	10.0m slab 7.9m Ø tanks	8.8m max tank height	Storage Tanks: Glass Coated Steel External Pump Surfaces and Pipework: Colour – Grey (Moonstone) RAL 7035	A630-AMK-167
124	2	37.9m	31.8m	11.3m maximum height 12.4m incl handrail	Walls: Coated steel profiled sheet, grey (moonstone) Roof: Brown/Green system including a grass and plants surfacing. Doors & Roller Shutters: signal blue painted steel. Fascia Gutters & Louvres: to match walls and roof	A630-AMK-133 A630-AMK-134 A630-AMK-135 A630-AMK-136 A630-AMK-137 A630-AMK-138 A630-AMK-139
125	2	97.0m	67.7m	4.55m to top of wall 5.65m incl handrail 5.65m (with odour control covers)	Fair Finish Concrete Structure Handrail: Galvanised steel Grey Glass reinforced Plastic (GRP) covers to contain odour.	A630-AMK-117 A630-AMK-118 A630-AMK-119 A630-AMK-120
126	2	11m	15m	3m	External Surfaces: Colour – Grey (Moonstone) RAL 7035	A630-AMK-105
127	2	60m	2.8m	4.55m to top of wall 5.6m incl handrail	Fair Finish Concrete Structure	A630-AMK-132

Proposed Building, structure or process item (number refers to item on Site Layout Plan A630-AMK-105 Rev C)	Construction Phase	Dimensions (metres) All dimensions listed are external			Colours and Materials	See Planning Application Drawing Numbers for details
		Length	Width	Height		
Flash mixing channel	2	12.7m	2.9m	6.2m max height, incl handrail	Handrail: Galvanised steel Grey Glass reinforced Plastic (GRP) covers to contain odour.	
129 Education Centre (Refurbished existing Building)	5	24.2m	10.6m	4.8m	Roofing: Existing Concrete Tiles Exterior Walls: Existing brick	A630-AMK-177
130 Strain presses	5	6.2m	2.5m	5.5m	External Surfaces: Colour – Grey (Moonstone) RAL 7035	A630-AMK-176