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1. SUMMARY

This report presents the findings of an extensive survey of the sites and monuments associated with the Public Water Supply Industry in Essex, details of the precise Scope of the Survey are outlined in section 6. The scope, however, reflects the principles laid out in the English Heritage Step 1 Report for the Monuments Protection Programme on the Water and Sewage Industry (1995), which represents the starting point for this survey. The survey's purpose is two fold. Firstly it is to establish the priorities within the industry, thereby enabling an appropriate response should significant archaeological, technological and architectural remains become threatened and, secondly, to establish a baseline benchmark against which to assess the significance of sites and monuments identified and surveyed in the future (as there inevitably will be).

2. METHODOLOGY

Approximately three dozen sites were initially identified by Essex County Council staff mainly from the register of Listed Buildings. This list of sites rapidly increased to well beyond 100 from various sources:

- potential sites were identified from J. Booker's *Essex and the Industrial Revolution (1974,164-186)* and Alderton & Booker's *Batsford Guide to the Industrial Archaeology of East Anglia (1980)*

- some of the Water Companies were very helpful in identifying sites under their control and of particular note are Anglian Water who have an Historical Buildings Register (1993), Essex & Suffolk Water Co. and Tendring Hundred Water Co.

- booklets on their history or particular schemes produced by the Water Companies

- Dr. J.C. Thresh's reports on the Essex Water Supply of 1901 and 1905

- The Institution of Civil Engineers, Panel for Historical Engineering Works, Water Towers Sub Group (c80 sites).

The sites thus identified were visited throughout 1998 and in early 1999, unless they were discounted during a desk top assessment on the basis of recent age, demolition or lack of significance, assessed and a low level record made of the of surviving remains noting significance, condition, current use and group value. At least one black and white photograph was taken of the structure(s)/site. As many of the sites are in use by the water industry and therefore have security restrictions, it was neither possible to enter the bounds of the sites nor undertake internal inspection of specific structures. This will need to be rectified should sites become subject to a planning application. An extensive inventory is provided at the back of this report containing information on all the sites which come within the scope of the survey. A pro-forma record sheet has been compiled for each site including a site description, its archaeological potential, significance, current legislative status, recommended action and future management; each is also graded according to local, regional and national importance. The text is supplemented by at least one photograph and a copy of the relevant historical and contemporary map coverage. As well as the inventory there are also appendices of other sites visited but not included in the inventory and a list of all the water tower sites in the county.

This report is divided into several sections. A brief national history is laid out in order to give a context to the description of the development of the industry in Essex that follows. An architectural context is also outlined. There then follows a section outlining the scope of this survey in the context of the historical development, the architecture used and the sheer number of sites that exist within the county. A brief description of the process of treating and supplying water and the attendant components is then followed by the assessment of the surviving sites and the priorities for the future. Finally there are comments upon the future recording of the sites and structures with some views on possibilities for adaptive re-use.

3. NATIONAL HISTORICAL CONTEXT

The history of the water supply and sewage industries is dealt with in detail in a number of works including ones mentioned in the bibliography. Hence it is not necessary to detail this history in depth here, rather a brief outline is given against which the more detailed local historical development can be compared.

As water is one of the essentials of all life, there is a very long historical context to how individuals have obtained it and how it has been provided for the general public. Systems of public supply in England can be traced back to the Roman occupation ~ wells, spring water directed via aqueducts to the centres of population and the use of animal, human and water power to pump it. The first piped supplies since the Romans left England were developed during the medieval period when the monasteries developed systems to supply both these institutions and also the general public. These systems involved directing spring water via leats, pipes and conduits to a conduit head. Some town corporations and private benefactors built similar systems of conduit pipes and conduit heads or fountains from which people

collected water or water carriers collected it for distribution and sale. The 16th and 17th centuries are viewed as being the age of the conduit systems and the most ambitious such scheme ~ the New River from Hertfordshire to Northeast London ~ was completed in 1613. After the dissolution of the monasteries, many of these systems were taken over by the then local corporations.

Up until the late 17th century the water flowed by gravity to where it was needed, but then in response to increasing demand, power to pump the water was required and waterpower was initially used. The 18th century saw the gradual introduction of steam power as more efficient steam engines were developed. The pipes which had been of wood, earthenware or lead were replaced by cast iron from the mid 18th century. Although there were these developments in the 1700s, the modern water supply industry was born in the early 19th century in response to the demands of and squalor in the developing industrial towns and utilising the new technologies of the industrial age.

Obviously the concentrations of large populations in the growing industrial towns led to increasing demand for water, but also resulted in the pollution of the local water supplies. Whereas those towns and cities near upland areas could use dams to create reservoirs to supply fresh water to these large settlements (the first such scheme was completed in 1827 to supply Bolton), low land areas had to rely on local wells, springs and water courses which were becoming increasingly polluted. As the disposal of human waste developed from the earth closet in the garden or yard, to the water closet and cesspool and then to the water borne discharge of sewage into rivers in the mid 1800s (which required further supplies of water), so there were disastrous effects upon the water supply which was obtained from these same rivers. The mid 1800s saw many outbreaks of cholera and typhoid, and eventually the link was made between disease and polluted water. So this was a time of much legislation in Parliament regarding water supply and public health, but also a time when, despite this legislation and many Royal Commissions into the state of water supplies, not a great deal of advancement was made in the treatment of sewage and the provision of good quality water. However, the industrialisation of the water supply industry was triggered during the middle of the 19th century by the squalor in the new industrial towns and the legislation which attempted to regularise practice in the industry.

From the 1830s onwards water towers became an increasingly used means of storing water and providing a head of water to force it through the pipes to its users. The 1850s saw the beginnings of the treatment and disinfection of water before it was supplied and the first sewage treatment works was established in 1853 (Leicester). However in the last quarter of the 19th century the majority of sewage works were still used for the irrigation of fields with manure, or sewage was disposed of in tidal stretches of rivers. Treatment processes were still being tried and perfected and hence sewage treatment works as we know them today were only becoming developed in the period 1895 – 1905. From the mid 1800s steam power came into widespread use for the pumping of both water and sewage. Towards the

end of the 19th century the internal combustion engine also came into use in smaller waterworks and for sewage with diesel or gas as the fuel (Crossley engines).

By the beginning of the 20th century, therefore, the larger settlements were supplied with water by the many local companies in existence piping water to houses and industry. Rural areas, though, were still mainly reliant on wells, springs, streams and even the collection of rainwater. In 1914 there were 2,160 water undertakings; 80% of Boroughs and Urban Districts had piped supplies provided by municipal authorities, whereas in rural areas 62% of Rural Districts had no proper water supply. The companies were reluctant to supply the rural areas due to the high capital outlay required compared to the little revenue they could expect in return. The Government had to step in therefore and following inter-war legislation including the Rural Water Supplies Act 1934, £1m worth of schemes were carried out before the outbreak of war. The 1944 Rural Water Supplies and Sewage Act resulted in a further £15m for rural schemes. The first half of the 20th century saw steam turbines, oil engines and electrical power all being used in addition to steam engines. Since the Second World War further legislation, replacing that of a century earlier, has influenced the industry and changes to the industry have been primarily organisational resulting in rationalisation and modernisation of plant and buildings. As electric power has increased the size of pumping stations has decreased – some even being underground leaving little scope for architectural expression.

This history has been characterised by variations in the ownership of the undertakings. The early developments saw a mix of private companies, municipal ownership and private individuals as benefactors. Public ownership grew through the 19th century as the industry became highly municipalised and this remained the case until privatisation in 1989.

As the industry has continued to develop right up to the present, sites and structures from earlier periods have either been retained and redeveloped or have been replaced, wiping away the physical evidence used in studying these early developments and structures of historical, technical and architectural significance. Although there remain a proliferation of sites and structures, an increasing number are of little significance, at present at least – future generations will judge their significance retrospectively.

4. HISTORICAL DEVELOPMENT IN ESSEX

A very detailed history is not given here, but rather an overview which particularly highlights the place of the various sites and structures in the inventory within that historical development.

As the existence of natural supplies of water is dependent upon geology, it is appropriate to give a brief description of the geology of Essex. There is a thick stratum of chalk under the whole county, which comes to the surface in the

Northeast and South and which yields water freely. London clay covers the chalk in other areas and this in turn is covered with sand, gravel and boulder clay. Most of the settlements are on the sand and gravel as they are water bearing; few are on the clay as it would be necessary to bore deep to the underlying chalk to reach water and hence such areas eventually received their water from water companies based in more favourable areas.

The postcard or local artist's view of an Essex village with thatched cottages, village green, church and public house, may be a windmill or village pond would not be complete without a village pump. As will become apparent, many parish pumps remained in use into the 20th century and a large number are carefully preserved in various states of completeness, not always on their original site and some even remain incongruously within suburban areas of the larger towns into which the original village has been subsumed. Early examples were of wood, leather, brass and lead, but most were of cast-iron, almost indestructible and easily decorated and inscribed to give testimony to benefactors who provided and maintained them.

Consistent with national practice already outlined, there are remains of three conduit systems to bear witness to their use in the county. The earliest of these is in Maldon where in 1587 a lead cistern was provided to receive water via lead pipes from a well some distance away. A pump now marks the point where the cistern originally stood (TL 849072). The second is in Leigh-on-Sea and dates originally from 1712, but has been subject to renewal and recent re-positioning. The water came from a cliff top spring and was piped to a cistern/well in the High Street (TQ 83778573) to which site in 1981 the original conduit head stone was moved. The third system was that in Chelmsford which may have originated as early as 1683 but was certainly repaired in 1771 around which date the wooden pipes were replaced by lead ones. It was rebuilt again 1791 when the figure of a woman was added to the conduit head. Water was taken from Burgess Well (TL 703072) to the conduit head half a mile away at the north end of the High Street in what is now Tindal Square. In 1814 a new conduit head was erected consisting of a domed canopy carried on a circular entablature of classic design supported by six columns of Tuscan order. In 1852 this was rebuilt on a site at the lower end of the High Street. Since 1940 it has stood in Tower Gardens (TL 695074). The other remains of this conduit are two stones inscribed *CONDUIT PIPES* in the south and east walls of the former Quaker Meeting House (TL705070).

There is evidence of the use of animal/human power to raise water, but only on private systems at Berden Priory (TL 463302) and Gosfield Hall (TL 775298). However Thresh in his report of 1901 refers to the use of windmills to raise water at Copfold, into a tank on the Rectory, and Tiptree. The Terling water works of 1868 constructed following the outbreak of typhoid fever in 1867/8, was a hydro-mechanical system. Here a water wheel was used to power triple pumps which supplied 16 stand pipes in the village until 1916 when the Army installed an internal combustion engine and water pump (TL 771147). Hydraulic rams are numerous throughout the county according to the number of references on maps as well as a number of references in Thresh's report, for example a ram was in use in 1901 to pump water into tanks on a house at Chappel.

The first water company to be incorporated by Act of Parliament was that in Colchester in 1808. It used springs, that had been used previously to supply the town via pipes, and constructed at Balkerne Hill its main works, reservoir and superintendent's house (TL 99202543, ESMR No 15571). Two other reservoirs were constructed, one being on the site of the 1882 water tower. After a change of ownership in 1850 a 24-hp steam engine was introduced at the works. The Corporation took over the company in 1880 and built the Water Tower on Balkerne Hill known as "Jumbo" in 1882 (TL 99352530, ESMR No 15600) and improved the pumping station in 1893/4.

Following the Public Health Act of 1848, Local Authorities could set up Local Boards of Health and hence from 1850 onwards this began to happen in Essex towns. Chelmsford's Board was set up in 1850 and a water supply was proposed in 1852 using water from Burgess Well and an artesian well in Mildmay Road. Like with so many schemes in the early days of water works engineering, this scheme had an indifferent start. However by the 1860s water from these two sources was supplying a 120,000 gallon reservoir of brick and cement with a galvanised iron roof at Mildmay Yard (TL 709064, ESMR No 15572), and a high-level reservoir at the junction of Longstomps and Wood Street which had a capacity of 103,125 gallons and was of brick in cement underground (TL 70300460, ESMR No 15618). At the site at Mildmay Yard the pumping station had Galloway horizontal boilers providing 50 hp and two 25 hp beam engines with high and low pressure cylinders. The site is now in Hall Street alongside the current Headquarters of Essex & Suffolk Water Company. In 1888 it was proposed to erect a water tower in Admirals Park to utilise the spring water there (TL 696 075). This tower was of brick with an 86 gallon tank on top and a 12-hp pump, in the base of it was home for the engineman and his family. There was also a brick, cement and galvanised iron reservoir on the site.

1852 also saw the establishment of the Halstead Local Board and the start of work on their scheme. Problems again effected the work and it was not until 1863/4 that a steam powered supply was provided. The original water tower held 42,000 gallons, but this was replaced in 1889 by one of double its capacity (TL 81753091, ESMR No 15592). The pumping station of 1889 and adjacent house of 1892 are on a site in the River Colne valley (TL 81613027, ESMR No 15577).

Braintree's Local Board had a water works operational in 1864 supplied by an artesian well with two reservoirs one of which was in a brick tower holding 45,000 gallons (TL 75772317, ESMR No 15591).

At Maldon when the Water Company was formed in 1863 the main water supply was still that referred to above, but a reservoir was constructed at Spital Road to supply the town, which in 1898 held 67,000 gallons (TL 58542067, ESMR No 15371). In 1890 the company adapted a steam mill in Wantz Road as a second water works and used a 5 hp vertical steam engine for pumping. In 1899 when the Corporation took over the company Wantz Road had a horizontal engine, which was replaced in 1915 by a 28-hp gas engine.

Saffron Walden had had a water supply since 1836 when a well was sunk by a local brewer on the north side of Hill Street (TL 538 384). A private company took over in 1862 and built a water works on the site, the engine house containing two 5-hp engines. After the Corporation took over in 1878 the works were expanded, a water tower was built in 1913 (TL 538376, ESMR No 15596). In 1905 water was laid on to the suburb of Seward's End where another water tower was erected (TL 57043813, ESMR No 15594).

Work was in progress in 1864 for supplying water to Harwich under Peter Bruff (who had worked on the Colchester works from 1851) from a source on Brookman's Farm in Dovercourt (TL 22403014). In 1880 a new well, pumping station and reservoir were proposed – the site, now in the midst of a caravan park, remains in use with a modern pumping station.

Other towns developed water works throughout the latter half of the 19th century. Brightlingsea's began in the late 1860s with a private water company taking over in 1890s, having a gas engine powering its pumps. In 1899 the Urban District Council (UDC) took over and developed the Church Road site further (TM 08371757 ESMR No 15579). Again the Clacton Gas and Water Company founded in 1876 was taken over by the Clacton UDC in 1899. The site of the works was in Old Road (TM 173148) which included at one time a water tower. Now the site just retains gasholders and a large service reservoir. The Clacton company had to develop a new source of supply at Great Bentley in 1903 (TM 115225, ESMR No 15580) and another at St Osyth (site not identified) in 1912 in order to meet the demand of the rapidly growing seaside resort. After 1945 the Old Road site was replaced by that at Bockings Elm (TM 158163). Even at the start of 20th century there were towns without a public water supply, Great Dunmow did not achieve this until 1909 when the Mill Lane works was opened using gas power for the pumps (TL 629220, ESMR No 15582). There are many other examples of villages and towns with their own supply including Stansted Mountfitchet, Ongar which had a private company, Danbury which in 1891 used a ram to pump spring water into a tank, in 1896 had replaced this with an oil engine which by 1905 was itself replaced with a gas one, Witham and Wivenhoe.

As well a the large number of water supply companies based on the various towns mentioned so far and the various Rural District Council supplies, in Essex there also developed four companies that supplied a large area, beyond the town in which they were based. These were Herts & Essex Water Co., South Essex Water Co., Tendring Hundred Water Co. and Southend Water Co.

The Herts. & Essex Company (1870) had its wells and pumping station in Hertfordshire between Sawbridgeworth and Harlow (TL 465132), but by 1901 was supplying 10 Essex parishes. It acquired the 1872 Epping water tower in 1879 (TL 45670183, ESMR No 15008).

The South Essex Waterworks Company was established by an Act of 1861 to make use of the pure water that was running to waste from a chalk quarry in Grays

Thurrock. In 1863 the pumping station was opened in the quarry (TQ 611785) and the company began supplying a large area of south Essex. As the area of supply increased, as well as demand generally, further works were opened at Warley lifting station in 1882 (TQ 59368954, ESMR No 15573), Linford well and pumping station in 1904 (TQ 67177928, ESMR No 15581) and finally Davey Down, Stifford, pumping station in 1920s (TQ 59258006, ESMR No 15575). It will be noted that all three sites contain structures designed to a house style.

Southend Waterworks Company began as a private company owned by Thomas Brassey who sank a well and built a pumping station in Milton Road and a reservoir in Cambridge Road, established in 1865. Offices (3) and house for the General Manager were established on Cambridge Road – now flats for the elderly. In 1871 the Company was formed and pumping stations were also developed at a number of locations including Prittlewell (1881) and Oakwood (1894). Reservoirs were also constructed at various locations including Southend itself, Thundersley and Oakwood. In 1898 a reservoir and pumping station were built at Vange (TQ 71008610, ESMR No 15619). A water tower was built in Shoeburyness in 1897, with pumps powered by two 16 hp gas engines and a 43,000 gallon tank (TQ 934857, ESMR No 15593). In the early 1900s the company bought Rochford RDC water works and the Benfleet water works. Vange and Oakwood reservoirs were developed between 1865 and 1921, these are service reservoirs of brick pillars and vaults.

Tendring Hundred Waterworks Company was established by Peter Bruff in 1884 to supply Harwich, Walton and various smaller settlements in Tendring Hundred. The original works were at Mistley (TM 121317), now demolished, with bores, a pumping station and a 82 foot chimney and it began supplying water to Harwich in 1887, followed by Frinton and Walton. Following an Act of 1901 new developments were permitted, including a pumping station at Wix (TM 175284), now replaced by a modern structure, a water tower at Frinton (TM 233204), now demolished, a service reservoir occupying the site, a service reservoir at Lawford and a water tower at Dovercourt (TM 24383093, ESMR No 15598). In 1905 new works were opened on the Lawford site (TM 105316, ESMR No 15574) in order to provide sufficient water and this site was expanded through the 1920s and 1930s. Dedham pumping station (TM 053332, ESMR No 15585) was built between the wars. After 1945 Tendring took over the Clacton, Wivenhoe and Brightlingsea undertakings.

Inter-war development was in response to not only the general increase in demand but also the need to provide for the rural areas still dependent on wells, springs, streams, ponds and even rainwater. Thresh in 1901 had identified how much the rural areas were dependent on these sorts of supplies, villages being dependent upon the village pump, reflecting the national context.

Langford waterworks was opened by the Southend company in 1927 taking water from the rivers Chelmer and Blackwater at Langford Mill (TL 836090, ESMR No 8014, SAM No 220). At Langford is a large triple expansion steam engine of 1931 by Lilleshall Co. of Oakengates, Shropshire, one of 3 originals, which remained in use

until the 1960s and is now preserved. The South Essex company developed the Langham sites in 1932, taking water from the River Stour (TM 016340 & TM 027344, ESMR No 15588) and also built the pumping station at Tiptree (TL 88451675, ESMR No 15587) to raise the water to higher level reservoirs. Layer de la Haye treatment works (TL 96581946, ESMR No 15589) and Abberton reservoir (TL 98161855, ESMR No 15590) began development before 1939 and but were not completed until during the Second World War. The 1930s were also witness to a major development of rural water towers, approximately 18 in all and most of which were constructed of reinforced concrete.

Since 1945 the development of the industry has continued apace. In the early 1950s the Southend and South Essex companies jointly formed the Hanningfield Water Joint Managing Committee in order to develop the Hanningfield Scheme treatment works which was opened in 1957 (TQ 745990). The same two companies merged in 1970 to form Essex Water Company, now part of Essex & Suffolk Water Co. The Ardleigh reservoir (TM 035280) was opened in 1971 by the Tendring company and the Chigwell treatment works by Essex Water in 1965 (TQ 457937). Mergers and take overs were a feature of the post war industry. In 1971 Essex Water took over the works of Chelmsford RDC (which by the turn of the century had had works at Springfield and Great Baddow) and Maldon RDC (which had works at Burnham, Purleigh and Southminster), Burnham (1889) and Witham UDCs, Maldon waterworks and Chelmsford Corporation waterworks. The latter company had its origins in 1853, bought the site at Sandford Mill in 1923 (TL 73860615, ESMR No 15576) which was extended and modernised in 1955.

As regards the sewage treatment industry in Essex, in the mid 19th century it was no further advanced than elsewhere in England. Some waste was just put out onto the turnpike and in open ditches by the roadside. Cesspools and privies were situated alongside and even over watercourses. In Chelmsford for instance, waste was discharged untreated into the rivers Can and Chelmer which were also a source of water supply. In 1850s the Local Board had sewers laid discharging into the Chelmer which was a navigation, power supply for mills and a water supply. There was an acceptance that some waste had to be carried away but not that it had to be treated. Since the end of the 18th century sewage had been removed and sold for the enrichment of fields, a lucrative trade which was difficult to stop and replace with other methods of disposal, even if they were healthier! Halstead also in the early 1860s developed sewers which discharged into the River Colne. Eventually following the Rivers Pollution Prevention Act 1876 a sewage treatment works was started in Halstead. In Billericay in 1884 the treatment of sewage with a precipitate system known as the milk of lime process was begun. Brentwood at a similar time treated sewage with lime and then filtration. Colchester had a new sewage pumping station built in 1884 and there was a sewage works at Swan Meadows, Saffron Walden after 1909. There are no obvious remains of these early works as will be discussed below.

5. ARCHITECTURE

Three principal components of the water supply industry have become utilised for architectural expression by the individuals or companies responsible for the supply. In the early period architecture found expression in the design of well heads and conduit heads. In the period of development of the industry during the century from the mid 1800s, which are viewed as the golden years of water works architecture, it was expressed in the design of pumping stations and water towers, often also in the use of house styles. The pumping stations were a symbol and public expression of improvement, confidence, safety and reliability and also a symbol of the company itself, hence the use of house styles. The pumping stations which housed large steam engines, initially beam engines, required light and ventilation which dictated the fenestration of the building. Water towers being on high land and tall within themselves were very conspicuous and hence were another vehicle for the use of architectural styles. In actuality architects were rarely used, rather the civil engineers responsible for the whole scheme were also responsible for the layout and style of the individual components. Such was the case with Thomas Hawksley, an engineer responsible for a number of water supply schemes and thus also the style of the buildings. His family firm kept up that tradition following his death in 1893. Architectural styles obviously reflected the changes in fashion and hence the architectural style of the day. Therefore the inter-war developments used modern style architecture which again afforded the required light and ventilation.

As the power used for the pumps changed from beam engines to horizontal and vertical steam engines and then to gas, diesel and electric, the pumping station itself did not need to be so large and robust and hence gradually, particularly recently, became smaller, less decorative and more functional. Traditionally though fenestration was a distinguishing feature of pumping stations, with the use of tall semi-circular arched windows split into a large rectangular one with a smaller, arched one above. Use was also often made of dormers, clerestories, roof lanterns and lights and even oculi and Venetian windows in the gable ends. Pilasters and buttresses were used to separate the windows into bays.

Landscaping also became a feature of many of the larger waterworks. Component buildings would be grouped together, the pumping station or engine house, associated buildings, chimney, workers housing and the reservoirs and filter beds within landscaped grounds, adding a group value to those that remain more or less intact. Again, this landscape was an expression of the corporate image and also of a clean, safe and wholesome product.

6. SCOPE OF THE SURVEY

There are literally hundreds of sites and structures of varying sizes in Essex associated with public water supply. Many of these are the pre-industrial period

village pumps and wells, conduits and conduit heads, and drinking fountains for both humans and animals. These have not been included in the inventory, although the remains of the three conduit systems have been referred to in some detail in the local historical background. Many structures appear small and insignificant historically, technically and architecturally, such as the many utility buildings on the Anglian Water Historic Buildings Register which have not been included in the inventory. Service reservoirs are numerous within the county, have probably been enlarged and refurbished over time and are not visually particularly significant, so only a few of the earlier ones have been highlighted in the inventory. Again there are numerous sewage treatment works across the county, but only a few have been included. This is because as has been noted, the sewage treatment industry is relatively recent, many sites are modern and even the earlier sites have been modernised leaving little evidence of their early development. It has proved difficult to identify sites and their history and this is probably in part due to the constant up-grading of the early works and the development of a number of recent sites. The whole industry is one that is continually developing as new residential and industrial areas are developed increasing the demand for water, as water becomes scarcer and as quality standards increase. There has been, as mentioned, much development even in the second half of the 20th century. All the major reservoirs are post-war and as recently as 1995 the water tower at Church Langley was erected (TL 486098). Modern structures, especially the pumping stations, have been built as secure, vandal proof and functional and hence are of little technical or architectural significance – although future generations will no doubt have a view.

This survey, therefore, concentrates upon the public water supply industry as it developed from the mid 1800s. The cut off point has been put at around 1939 as little was developed over the following ten years. The sites and structures in the inventory consist mainly of water towers, pumping stations for both water supply and sewage, treatment works, service reservoirs and Head Quarters buildings. All will have some historical, technological and/or architectural significance when assessed against the national and local historical context and also taking into account the comments made on architecture and landscape.

7. PROCESS AND COMPONENTS

The process of obtaining the water, treating and distributing it and the process of treating sewage are both dealt with in detail in a number of works including ones in the bibliography, hence just a brief outline is given here as context to the components described in the inventory. Some components are not of relevance to either the period or area which are the subject of this survey, e.g. masonry dams, collection reservoirs.

Abstraction of water be it from a well, borehole or water course requires the use of pumps and hence pumping stations at this point of the process as well as later ones, are a common feature of the public water supply industry. Their size and features,

especially their fenestration, are governed by the prime mover used, initially beam engines which required high buildings with a strong supporting wall. Engines developed through horizontal and vertical compound steam engines to gas, diesel and finally electricity. Some of the later replaced earlier forms in the original building, but the new pumping stations built for gas and diesel could be smaller and less architecturally significant – modern electric pumping stations tend to be characterless, secure, vandal proof boxes – security being more important than architectural expression. The engine houses had to be strongly built with means of lifting heavy components for repair and maintenance, hence the presence of gantry cranes. If the pumping station was built over the well or borehole, the building was often built up over a basement which contained the pumps. Low lift pumps were used to move the water from the source to storage reservoirs, while high lift pumps were used to then move the water onto customers.

Water has to be stored prior to treatment and/or distribution to the customer and the two main storage components are the water tower and service reservoir. Water towers were placed at a high point within the area of supply in order to provide the necessary pressure to move the water by gravity to the customer. Water towers consist of a sub-structure which would have been made of various materials which changed over time – brick, iron frames, and since the 1930s, reinforced concrete. As well as providing support for the tank the sub-structure would also contain a work area, pumps, access to the tank and even accommodation for the engineman. Service reservoirs are covered giving the appearance of a raised grassed field, under which is a vaulted structure of brick and/or concrete. Pressure pump systems have resulted in there being less need for water towers. However in Essex water towers have not only been in use since the mid 1800s but have continued in use throughout the 20th century with nearly two dozen being built since 1945, the most recent in 1995 at Church Langley. Distribution in Essex from storage to customer is principally by underground pipeline.

Water works are intermediate between the source and the consumer. The amount and type of treatment required by the water depends upon its source: in Essex most supplies are from underground sources which require the least treatment. Water abstracted from rivers still needs the most extensive treatment, despite the water being less polluted than in the days of raw sewage being flushed into the rivers. Treatment works will consist of various structures in which the water is screened, filtered and solids are allowed to settle out. As well as mechanical treatment, the water will also be subject to biological and chemical treatment. Modern treatment plants also contain laboratories in which the water can be tested.

The final component to be mentioned is the head quarters building of the water company itself.

The sewage treatment industry also involves the need to pump sewage away from the urban areas to and around the treatment works, hence pumping stations with the same range of power sources are also a feature of this branch of the industry. Nationally some of these sewage pumping stations were very large, such as the

Abbey Mills and Crossness steam pumping stations on the outfall sewers developed by Bazalgette in London. The treatment works themselves have a more complex set of components which have developed over the period from the late 1800s, in part dependent upon the type of treatment used. Basic treatment processes were developed from the late 19th century to 1914 and have always been subject to rapid development resulting in a high degree of obsolescence of plant and low survival rates. Initially sewage was merely treated for the purpose of it then being used as manure on the fields, it may have been screened, filtered or subject to chemical (lime) precipitation. In the 1880s and 1890s biological processes began to be used to purify the sewage by bacterial action. Aeration processes were in use by the turn of the century utilising contact beds. By 1920s the activated sludge process was favoured. The need to distribute the sewage across the various types of contact beds and filters resulted in the development of rotary and rectangular distributors.

8. SURVIVAL

Many early sites especially and the structures on them are still in use by the industry and hence are not at risk as sites and structures. The risk that does exist comes from the demolition of certain structures on a site as they become redundant or the alterations to structures necessary when new technology is introduced or the function of the structure changes. Early technology in the form of plant is, therefore, at risk as the new technology takes over. Thus although there is some security as far as many sites and structures are concerned, proposed alterations need to be carefully monitored. Even when structures have become redundant they can be adapted to other uses and water towers as potential domestic residences and as communications towers are a common example of this adaptive re-use. Pumping stations seem to be more at risk than water towers.

In respect of the sewage industry, survival rates of early plant are low as the first generations of plant have been extensively replaced as the industry has developed and modernised during the 20th century. Of the sites visited there are very few examples of early plant existing and only a few more of other structures as so much modernisation is evident.

9. PRIORITIES

9.1 Pumping Station Sites ~ 1800 – 1930

The 19th century saw the development of the industrial scale water works supplying better quality water for the increasing demand in the growing urban areas. Extensive sites consisting of a number of different components and the use of steam as the prime mover became the characteristics of these sites. As technology developed throughout the century, the water works went through phases of modernisation and re-development and hence, although sites originally developed in the first half of the

1800s are still in use by the industry, early structures and technology have probably been lost forever. Later sites remain more intact, although still partially re-developed, including some from the late 19th and early 20th centuries. Statutory designation of structures has been inconsistent with one Scheduled Ancient Monument, one building Listed Grade II and two sites lying within Conservation Areas.

Table 1. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Colchester, Balkerne Hill Waterworks, Pumphouse ESMR No 15571	Water Company Offices and Stores	None
Hall Street, Chelmsford, former Waterworks ESMR No 15572	Water Company Headquarters Building	Former warehouse, silk mill, radio factory Listed Grade II
Great Warley Pumping Station ESMR No 15573	Waterworks	None
Lawford Waterworks, Manningtree ESMR No 15574	Water Company Headquarters & Waterworks	Part of Manningtree/Mistley Conservation Area
Davy Down Pumping Station, Stifford ESMR No 15575	Waterworks	Part of Thames Chase Community Forest
Langford Pumping Station ESMR No 8014 & SAM No 220	Pumping Station is a Museum, rest of site is a water treatment works	Pumping Station is a Scheduled Ancient Monument
Sandford Mill Waterworks, Chelmsford ESMR No 15576	Current use not known	None
Halstead Pumping Station ESMR No 15577	Pumping Station	None
High Street Pumping Station, South Benfleet ESMR No 15578	Christian Fellowship Hall	Listed Grade II
Spital Road Pumping Station, Maldon ESMR No 15371	Due to be converted to residential use	None
Church Road Pumping Station, Brightlingsea ESMR No 15579	Not known, on site of 1953 water tower	None

Great Bentley Pumping Station ESMR No 15580	Pumping Station	None
Linford Pumping Station ESMR No 15581	Pumping Station	None
Mill Lane Pumping Station, Great Dunmow ESMR No 15582	Pumping Station	None
Inworth Pumping Station ESMR No 15583	Pumping Station	None
Kings Bridge Pumping Station, Bocking ESMR No 15584	Pumping Station	Within Bocking Conservation Area
Dedham Pumping Station ESMR No 15585	Pumping Station	None
Bures Pumping Station ESMR No 15586	Pumping Station	None

A majority of the sites in the inventory require further intensive surveying, which has not been possible as part of this survey due to access issues, in order to further assess whether there is any evidence of original and earlier phase technology and, therefore, their significance. Hence, not only has the relative importance of structures been identified and recommendations made in respect of further listing, but it has also been identified where further below ground survey work on the sites would be worthwhile in case there is buried evidence of earlier structures.

- Colchester Balkerne Hill Waterworks (ESMR No 15571) and Chelmsford Hall Street Waterworks (ESMR No 15572) sites, the former dating from the early 19th century and the latter from the middle of that century, should have any future ground work monitored for evidence of original structures and extant buildings of a later date are recommended for Listing Grade II.

- The sites at Great Warley (ESMR No 15573), Lawford (ESMR No 15574) and Stifford (ESMR No 15575) which date from between 1882 and the 1920s all have structures which are recommended for Listing Grade II in recognition of their time of development, group value and existing technology.

- The status of Langford Pumping Station (ESMR No 8014, SAM No 220) should be maintained and other structures on the site considered for Listing dependent upon the outcome of further survey work.

- Chelmsford's Sandford Mill Waterworks (ESMR No 15576) requires further intensive survey work before a decision can be made regarding its future management.

Of the smaller pumping station sites:

- Halstead Pumping Station (ESMR No 15577) dates from 1889 and hence is the oldest extant urban small pumping station. It is recommended that, although it has been extended, it should be Listed Grade II.

- South Benfleet Pumping Station (ESMR No 15578) has already Grade II Listed status despite there no longer being any evidence of its water industry history for its late 19th century date and its architectural interest. This status should be maintain as much as to ensure consistency.

- Maldon Spital Road Pumping Station (ESMR No 15371) is due to be converted to residential use, has been surveyed and is of little significance.

- Brightlingsea's Church Road Pumping Station (ESMR No 15579) requires further intensive investigation before a decision is made regarding future management, but could be worthy of some statutory recognition due to its date, 1899, and the fact that there may still be technology present.

- Great Bentley Pumping Station (ESMR No 15580) dates from 1903 and there is still a diesel engine remaining, hence it is recommended that it be Listed Grade II.

- All other small pumping stations should have there current status ("none" expect for Bocking (ESMR No 15584) which lies within a conservation area) maintained unless further survey work indicates otherwise. These are Linford (ESMR No 15581), Great Dunmow (ESMR No 15582), Inworth (ESMR No 15583), Bocking, Dedham (ESMR No 15585) and Bures (ESMR No 15586).

9.2 Pumping Station Sites ~ 1930s

During the inter-war period the industry continued to expand in order to meet both the increasing demands of the expanding urban areas and also in response to legislation which sought to ensure that the rural areas had an adequate supply of good quality water. This period was one which saw the increasing use of a particular style of architecture, the International Modern style. This plus the development of new waterworks came together on a number of sites in Essex. None of these have yet gained any statutory recognition for the architecture or significance of the site in the water industry, considering the group value of the number of components on some sites including housing. Again further intensive survey work is necessary in order to assess the significance of the sites technologically, but purely from the architectural view point Listing Grade II is recommended for some of the structures. Further comparison nationally is needed to assess the significance of these sites in more than the local context.

Table 2. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Tiptree Pumping Station ESMR No 15587	Pumping Station	None
Langham Water Treatment Works ESMR No 15588	Water Treatment Works	None
Layer de la Haye Water Treatment Works ESMR No 15589	Water Treatment Works	None
Abberton Reservoir Pumping Station ESMR No 15590	Pumping Station	None

- It is recommended that the Tiptree Pumping Station (ESMR No 15587) be Listed Grade II in recognition of the architecture. This may be up-graded following a national comparison.

- The Langham Water Treatment Works (ESMR No 15588) consists of a very extensive site with a wide range of components of such a facility. It is recommended that at least the Low Lift Station be Listed Grade II, with consideration also being given to structures on the main, High Lift, site in acknowledgement of their group value. National comparison would also be worthwhile.

- Layer de la Haye Water Treatment Works (ESMR No 15589) and the Pumping Station on Abberton reservoir (ESMR No 15590), while of a similar age to the two sites above and in the same architectural style, are not recommended for any statutory recognition, as the action recommended in respect of the above sites should be sufficient to protect a sample of this period's structures.

9.3 Masonry Water Towers ~ 1800s – 1930s

Nationally water towers began to be used from the 1830s onwards. In Essex there is no evidence of any as early as this, but they were developed in the last 30 years of the 19th century and there remain some of these as evidence of their construction. Again no internal access was achieved as part of this survey, so a more intensive survey of many of the towers, especially the earliest ones, is necessary to fully assess their significance and the presence of evidence of original technology. Three of the towers from this period are Listed Grade II and two sites lie within

Conservation Areas, but as with the pumping stations there is no consistency as to which have and have not been listed. Recommendations, therefore, try to address this inconsistency and ensure that early and architecturally significant structures are protected.

Table 3. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Epping High Street Water Tower ESMR No 15008	Disused as water tower, but used as communications tower	Listed Grade II
Braintree Water Towers ESMR No 15591	Old one (1880) disused, newer one (1928) in use	Within Braintree Conservation Area
Colne Rd/Head St Water Towers, Halstead ESMR No 15592	Old one (pre 1889) in ruins, newer one (1889) due to be residential use	Within Halstead Conservation Area
Shoeburyness Water Tower ESMR No 15593	Converted to residential flats	None
Sewards End Water Tower ESMR No 15594	In use as water tower	None
Benfleet Road Water Tower, South Benfleet ESMR No 15595	Converted to residential flats	Listed Grade II
Debden Road Water Tower, Saffron Walden ESMR No 15596	Not known	Listed Grade II
Tiptree Water Tower ESMR No 15597	Not known	None

- Three water towers are already Listed Grade II, Epping High Road (ESMR No 15008) built 1872, South Benfleet (ESMR No 15595) built 1910 and Debden Road Saffron Walden (ESMR No 15596) built 1913. It is recommended that this status be maintained. South Benfleet has been converted to residential use and therefore has probably lost any evidence of technology. The other two, however, may still contain evidence of original technology and should be further assessed, especially if they are to be converted in any way.

- Two sites comprise two water towers or their remains, Braintree (ESMR No 15591) and Halstead (ESMR No 15592) and both are within Conservation Areas which should help to protect them. The Halstead site comprises the remains of a

pre 1889 tower and its 1889 replacement which is due to be converted to residential use and should be surveyed before any work is undertaken. The older of the Braintree towers should be further surveyed to assess the presence of original technology.

- The Shoeburyness Water Tower (ESMR No 15593) has been very unsympathetically converted to residential use and thus lost any technology and its architectural integrity.

- The Sewards End Water Tower (ESMR No 15594) was built in 1905 and has a distinctive design unlike the others in this group. It is recommended that it is Listed Grade II in recognition of its date and design.

- Tiptree Water Tower (ESMR No 15597) was built in 1933, one of the last of the masonry towers to be built in the era when reinforced concrete had become the dominant construction material. No action is recommended in this instance considering its minor significance.

9.4 Steel Framed Water Towers ~ 1900s

The other material used for the construction of water towers was an iron/steel tank on an iron/steel framework, of which about five were built in Essex. Three of these are now demolished, those that were at Frinton (TM 232204 of 1902), Dovercourt (TM 243309 of 1900, replaced by the extant example) and Earls Colne (TL 850277, of 1942). The existing Dovercourt tower was built in 1902 to replace the earlier one and is now Listed Grade II. That at Helions Bumpstead, which originally had steel Braithwaite tanks, was built in 1932 and has had the tanks replaced recently with ones of fibreglass. It is recommended that the status of the Dovercourt tower be maintained in recognition of its rarity, date and that the original construction is intact.

Table 4. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Fronks Road Water Tower, Dovercourt ESMR No 15598	Water Tower	Listed Grade II
Helions Bumpstead Water Tower, ESMR No 15599	Water Tower	None

9.5 Campanile Style Water Towers ~ 1880 – 1930

A variation on the red brick tower with the tank enclosed in brick work is what is known as the Campanile style of which there are five examples in Essex. In this case the iron tank sits upon the masonry sub-structure, is not enclosed and is painted in red oxide colour paint as protection against the elements. They are generally topped with a copper pavilion style roof surmounted with a wooden turret. The first in this style to be constructed was the Balkerne Water Tower in Colchester in 1882. This very substantial tower, known as “Jumbo” in recognition of its size differs from the others in that the sub-structure comprises four square piers and a central core. This tower is Listed Grade II. The other four, varying in date from 1901 to 1928, are very similar in style, none have any statutory protection and at least one is at risk as it is disused. It is recommended that the two earliest examples of this four are Listed Grade II in recognition of their rarity, architecture and date. All five should be internally surveyed in order to assess the presence and significance of any original technology.

Table 5. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Colchester Balkerne Water Tower ESMR No 15600	Disused	Listed Grade II
Tower Road Water Tower, Wivenhoe ESMR No 15601	Water Tower	None
Parkfield Street Water Tower, Rowhedge ESMR No 15602	Disused, due to be converted to residential use	None
Upland Road Water Tower, West Mersea ESMR No 15603	Water Tower	None
Lyons Hall Water Tower, Bocking ESMR No 15604	Water Tower	None

- The Balkerne Water Tower in Colchester (ESMR No 15600) built in 1882 is Listed Grade II and this status should be maintained. Internal inspection and survey is recommended in order to assess evidence of original technology.

- The towers at Wivenhoe (ESMR No 15601) built in 1901 and at Rowhedge (ESMR No 15602) built in 1902 are the two earliest examples after Colchester. The latter is disused at present and due to be converted to residential use. It is

recommended that both these be Listed Grade II and both should be subject to further internal inspection.

- The towers at West Mersea (ESMR No 15603) built in 1924 and at Bocking (ESMR No 15604) built in 1928 are fine examples of the style and are still in use. However, if the above towers are Listed as examples of the style then there is little further justification for similar action in these cases. If either becomes threatened at all then this recommendation may need to be reconsidered – at least further internal recording should be undertaken.

9.6 Concrete Water Towers ~ 1930s

The 1930s witnessed extensive development in the public water supply industry in response to both the increasing demand from the urban areas and the need to improve supplies to the rural areas. One consequence of this development was the construction of about 18 water towers, many of which were constructed of reinforced concrete. Twelve examples of these towers are included in the inventory ranging in date of construction throughout the 1930s. All are very similar in style having circular tanks supported on a number of columns, the number varying from six to sixteen, with a central core. One example is square in plan with a square tank, that at Fairfield Road, Epping (ESMR No 15606). As these water towers are common, their construction continued for some years after the second world war, it is recommended that action is only taken in respect of one example unless and until others become under threat in which case this recommendation should be reviewed. It is recommended, therefore, that the Cherry Garden Road, Maldon (ESMR No 15607) tower be Listed Grade II as a fine and early example of the type. This, and any other tower in the sample, should be internally inspected when the opportunity arises in order to record the technology and construction of the towers.

Table 6. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Mill Green Water Tower ESMR No 15605	Water Tower	None
Fairfield Road Water Tower, Epping ESMR No 15606	Water Tower	None
Cherry Garden Road Water Tower, Maldon ESMR No 15607	Water Tower	None
Abberton Water Tower ESMR No 15608	Water Tower	None

Bures Water Tower ESMR No 15609	Water Tower	None
Cressing Water Tower ESMR No 15610	Water Tower	None
Warley Water Tower ESMR No 15611	Water Tower	None
Takeley Water Tower ESMR No 15612	Water Tower	None
Cutlers Green Water Tower ESMR No 15613	Water Tower	None
Gussets Water Tower, Great Dunmow ESMR No 15614	Water Tower	None
Billericay Water Tower ESMR No 15615	Water Tower	None
Sibleys Water Tower ESMR No 15616	Water Tower	None

9.7 Service Reservoirs ~ Late 19th century

Covered service reservoirs were constructed to store treated water ready for pumping onward to the consumer. Generally constructed of brick and/or concrete, they have vaulted roofs and are covered over with grass and hence just have the appearance of a raised, grassed field. Their construction dates from the second half of the 19th century and three sites dating from that period are included in the inventory. While it is not recommended that any statutory protection be assigned to these sites it is strongly recommended that opportunity be taken to internally inspect and record them as early examples which may provide evidence of original construction techniques and technology.

Table 7. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Oakwood Service Reservoirs ESMR No 15617	Reservoirs	None
Longstomps Service Reservoir, Chelmsford ESMR No 15618	Reservoir	None
Vange Service Reservoirs ESMR No 15619	Reservoirs	None

9.8 Sewage Treatment Works ~ 1900s

Sewage treatment works were only developed as we know them today around the late 19th and early 20th centuries. Even then as sewage treatment methods and technology have continued to develop, original plant and structures have been replaced or redesigned resulting in little survival of early components of a sewage treatment works. Included in the inventory are five sites which date mostly from the first quarter of the 20th century and have at least some extant structures from the earliest periods of their development. None of the structures appears significant enough to warrant statutory protection. However, it is recommended that, as these are early sites in the context of the industry's development, a full survey of some of the sites be undertaken to assess those components that remain of the early period, internally inspect those structures already identified and record these and any other structures of historical, technological or architectural significance.

Table 8. Current use and status of sites

NAME OF SITE	PRESENT USE	CURRENT STATUS
Southend-on-Sea, Sewage Works ESMR No 15113/15147	Sewage Treatment Works	None
Brookend Road Sewage Works, Chelmsford ESMR No 15620	Sewage Treatment Works	None
Rochford Sewage Pumping Station ESMR No 15621	Sewage Pumping Station	None
Great Dunmow Sewage Works ESMR No 15622	Sewage Treatment Works	None
Haven Road Sewage Works, Colchester ESMR No 15623	Sewage Treatment Works	None

- The Southend-on-Sea sewage treatment works (ESMR Nos 15113/15147) has already been extensively surveyed by Essex County Council.

- Brookend Road works, Chelmsford (ESMR No 15620) and Great Dunmow works (ESMR No 15622) both have structures already identified as being from an early period of development. These sites particularly should have a full survey to assess what components remain of the early period and internally inspect all structures of historical, technical and architectural significance.

- In respect of the Rochford site (ESMR No 15621) it is recommended that internal inspection and further appropriate recording be undertaken.

- Although the latest of the sites identified, the Haven Road works in Colchester (ESMR No 15623) is extensive and hence a full survey is recommended to assess what components remain of the original period and further recording as appropriate.

10. ADAPTIVE RE-USE AND RECORDING

The vast majority of the sites included in the inventory are currently in use by the public water supply industry and as such have, on the one hand, a reasonably secure future, while on the other could come under threat from re-development as changing methods, technology and demand in the industry have an impact. The main, extensive waterworks sites are those most likely to continue in use but, should any become subject of a planning application, recording of the threatened structures should be undertaken. If any of these sites became threatened in total, it is difficult to foresee any possible adaptive re-use that could take place so preservation through recording may be the only option. These comments refer to both those sites dating from the late 19th and early 20th centuries and those built in the 1930s.

Of the sites of single pumping stations, already two are no longer in use in the water industry; that at South Benfleet (ESMR No 15578) has been converted to a place of worship while that at Maldon (ESMR No 15371) is due to be converted to residential use. Thus there are possible re-uses for these smaller structures, which could also include commercial and light industrial uses. As it would probably be necessary to internally clear the buildings on conversion to another use, should any of the sites become subject of a planning application for such a conversion a full internal record should be made of any technology with the removal to an appropriate museum of any technology of historic significance.

With respect to the water towers, already a number have fallen into disuse in relation to water supply, but have found other uses. Those at Epping (ESMR No 15008), Halstead (ESMR No 15592), Shoeburyness (ESMR No 15593), South Benfleet (ESMR No 15595) and Rowhedge (ESMR No 15602) have or are about to be converted to residential use. For the substantial masonry towers this is a highly feasible re-use although, as with many adaptations, it results in the loss of some internal features – it certainly does not need to destroy the external integrity of the building as at Shoeburyness! Colchester's Balkerne tower is at risk and due to its particular design is less easily adapted to alternative uses. One modern alternative use for these towers, considering their height and frequently prominent position is as support for modern communications aerials, and even some towers still in use for water supply also have this use. Any of the masonry towers that are threatened with conversion or demolition should be recorded internally and any significant technology removed to a museum.

Although it is difficult to see more modern structures such as the concrete water towers of the last 70 years falling into dis-use, some have already been demolished. The scope for re-use of such structures appears very limited indeed, which at present may not be of significance considering the number of examples there are throughout the county. Recording of early and other significant examples should be undertaken should any become under threat.

With regard to the service reservoirs, again the scope for re-use is extremely limited and hence preservation through recording is the only feasible option for these structures.

Finally, the sewage treatment works are constantly changing with modernisation in response to advances in treatment methods and technology. The sites themselves are again probably very secure although individual structures may not be so. Re-use of some structures may be possible within the industry itself, with buildings becoming stores and utility buildings. It may be possible to persuade the operating company to preserve small structures of significance. Otherwise recording of structures and technology and the removal of significant technology to a museum may be the only feasible action.

11. CONCLUSIONS

The public water supply industry has a long history and is continuing to develop new technologies, sites and structures. On the one hand it is an industry with a secure future and hence many sites and structures are also secure. However it is also a constantly modernising industry and this process puts many individual structures and some of the smaller sites at risk. There will, therefore, need to be constant vigilance if certain structures of historical, technical and architectural significance are not to be lost. This is the first extensive survey of the industry in Essex and as such will provide a baseline benchmark against which to assess the significance of any site or monument already identified or still to be identified. It will therefore inform the decision making about the appropriate action necessary, be this statutory protection, recording and/or removal of technology. It also seeks to indicate those sites where ground work should be monitored in case there is below ground evidence of former structures demolished during previous phases of re-development of the site.

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