East Dunbartonshire Council

Conservation Area Appraisals

Milngavie Reservoirs

Final report
Prepared by LUC
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Milngavie Reservoirs

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Contents

Table of Figures

Chapter 1
Executive Summary

Introduction

1.1 The special interest of Milngavie Reservoirs and the desire to celebrate and preserve their historical importance was recognised by designation as a conservation area in June 2006. The area is included in the national Inventory of Gardens and Designed Landscapes. Most of the buildings and structures making up the site are listed: the reservoirs and their associated engineering structures are listed at category A; the residential and ancillary buildings are listed at category C.

1.2 This conservation area appraisal was produced in January 2021 to document the reasons for the area's designation, considering the character and appearance of the area as it stands today.

1.3 This appraisal is one of a suite of appraisals and documents that consider the importance of conservation areas in East Dunbartonshire and how their special interest should be managed.

- Each conservation area has its own appraisal that considers the historical development of that specific area, along with an analysis of its character based on an assessment of its function and form, spatial qualities, architectural detailing, trees and landscaping and views.
- Further information on why and how an area is designated as a conservation can be found in the accompanying document 'An Introduction to Conservation Areas'.
- For advice on how to retain, restore and reinforce the character of conservation areas, along with specific management issues, opportunities and recommendations identified for the Milngavie Reservoirs Conservation Area, please refer to the separate 'Conservation Areas: Managing Change' document.

Location and context

1.4 Milngavie Reservoirs is located in the open landscape to the immediate north of Tannoch, a suburb of Milngavie, just over 1km north of the town centre. Milngavie itself is located approximately 10km northwest of Glasgow city centre. The site consists of two reservoirs, Mugdock and Craigmaddie, separated by a central berm or dam which is part of a wider system designed to transport water from Loch Katrine in the Trossachs in the north to Glasgow in the south.

Historical development

1.5 The growth of Glasgow through the unprecedented pace of industrialisation and urbanisation in early and mid-Victorian times had negative consequences on the health of the city's population. Glasgow's Lord Provost was the driving force behind proposals for a municipally-owned water supply scheme. In December 1852, Glasgow Corporation Water Works appointed the well-established specialist reservoir and water supply engineer John Frederic La Trobe Bateman (1810-1889) to investigate the ways and means to supply clean water to the city. The result was the ambitious Loch Katrine water supply scheme. The area north of Milngavie was chosen for its strategic importance at the northern edge of the Glasgow conurbation, in the transition zone between upland and valley floor. The reservoirs were to act as storage between Loch Katrine and the aqueducts for onward distribution to the city.

1.6 Bateman designed and supervised the construction of the gravitational scheme, commencing in 1856. This transported water nearly 26 miles from Loch Katrine via a series of pipes, sluices, tunnels and aqueducts to the Mugdock reservoir, capable of holding 550 million gallons of water. The project was one of the most ambitious civil engineering schemes of its time. The works were formally opened by Queen Victoria in October 1859, becoming fully operational by 1860.

1.7 The success of the Mugdock reservoir and continued growth and demand from the city led to the creation of a duplicate scheme. Work commenced on Craigmaddie reservoir, adjacent to the existing Mugdock reservoir, in 1885, to a scheme designed by James Morrison Gale. Leading approximately 23 miles from Loch Katrine to the new reservoir capable of holding 700 million gallons of water, the Craigmaddie scheme was eventually completed in 1896.

1.8 Aside from its vital civic and health functions, the reservoirs were designed from the outset to provide a scenic, picturesque amenity with public access by footpaths around the reservoirs and through the associated landscape. The high level of design quality applied to the features of the site highlights the historical importance of the water supply scheme and its unique dual role as an impressive civil engineering achievement and municipal park.

Summary of defining characteristics of Milngavie Reservoir Conservation Area

- The reservoirs' dual use as an operational water treatment facility and a public park.
- The tranquillity and reflection of the two open bodies of water, with views out to the wilder landscapes of the north and over the urbanised valley floor to the south.
- The architectural quality and grandeur, emphasising the scale and engineering achievement of the 19th century Loch Katrine water supply scheme.
- Open footpaths around the reservoir edges and over dams, contrasting with areas of enclosed, quiet landscape within woodland areas, enfolding the more intimate scale and character of individual houses and ancillary buildings.
- The woodland structure and variety of species, including policy woodland and veteran trees pre-dating the reservoirs, and carefully planned clumps, belts and avenues framing views of the reservoirs.

Chapter 2
Location and Context

The character of an area starts to form long before the human interventions of buildings, streets, fields and towns are established: it starts with the geology and topography of a place. This section considers what it is about the location and context of Milngavie Reservoirs that make it a successful and attractive place.

Location

2.1 The area of East Dunbartonshire lies to the north of the city of Glasgow in central Scotland. Bordered by Stirling to the north, West Dunbartonshire to the west and North Lanarkshire to the east, it covers an area of approximately 175 square kilometres and incorporates parts of the historic counties of Dunbartonshire, Stirlingshire and Lanarkshire[1].

2.2 Milngavie is a town located in the valley of the River Allander, approximately 10km northwest of Glasgow city centre. It was in the former parish of New Kilpatrick (created by the division of the old parish of Kilpatrick in 1649) where it was part of the county of Stirlingshire. In 1891, Milngavie was transferred to Dunbartonshire county given that most of the former parish was in this county. It had a population of approximately 13,000 people at the last census and acts as one of Glasgow's many commuter towns for much of Milngavie's working population.

2.3 Milngavie Reservoirs is located in the open landscape to the immediate north of Tannoch, a suburb of Milngavie, just over 1km north of the town centre. It consists of two reservoirs

[1] https://www.geni.com/projects/Dunbartonshire-Main-Page/16029 [accessed 7th July 2020]

(Mugdock and Craigmaddie) separated by a central berm or dam which is part of a wider system designed to transport water from Loch Katrine in the Trossachs in the north to Glasgow in the south. The reservoirs and their infrastructure cross boundaries of various parishes: the north end of the Mugdock measuring ponds and gauge basins lie within Strathblane parish; the west side of Craigmaddie reservoir including its gauge basin and measuring pond lie within Baldernock parish; and the remainder lies within New Kilpatrick parish.

Geology & Topography

2.4 The landscape of the region varies in character, descending from the sparsely populated, rugged uplands of the Campsie Fells in the north-west, through smooth, undulating foothills into the broad, deep lowlands of the Kelvin Valley and on to the rolling, pastoral farmland of the south-east of the region. Punctuating this landscape are small towns and villages, with the largest settlements congregating along the corridor created by the valley lowlands that extend on a gentle incline from south west to west, allowing easy passage across the region. The further south and south-west you travel the more densely populated the region gets as it transitions from its rural hinterlands to become the urban fringes and overspill of the City of Glasgow.

2.5 The change in landscape character can largely be attributed to the geology that underlies this area. For the most part, this comprises sedimentary bedrock formed between 350 and 300 million years ago in the Carboniferous Period. Known as the Clackmannan Group, this layer of rock is made up of a sequence of sandstones, siltstone, mudstones, ironstones and coals overlaid by seams of clays, silts, sand and gravel that were deposited on top of them during the last Ice Age. Over millions of years this rock has eroded, and it is this action that has formed the gentle hills and lowland of the majority of the region.

2.6 This wide band of sedimentary rock that underlies most of the region sits alongside harder volcanic rocks in the north, and it is the nature of these different types of rock formation that directly accounts for the area's topography. Volcanic rock is more resistant to erosion and wears away at a much slower rate than sandstone. The transition between the two – along a line known as the Campsie Fault – has endowed East Dunbartonshire with a beautiful, contrasting and at times dramatic landscape, a defining feature that makes for a strong identity and sense of place.

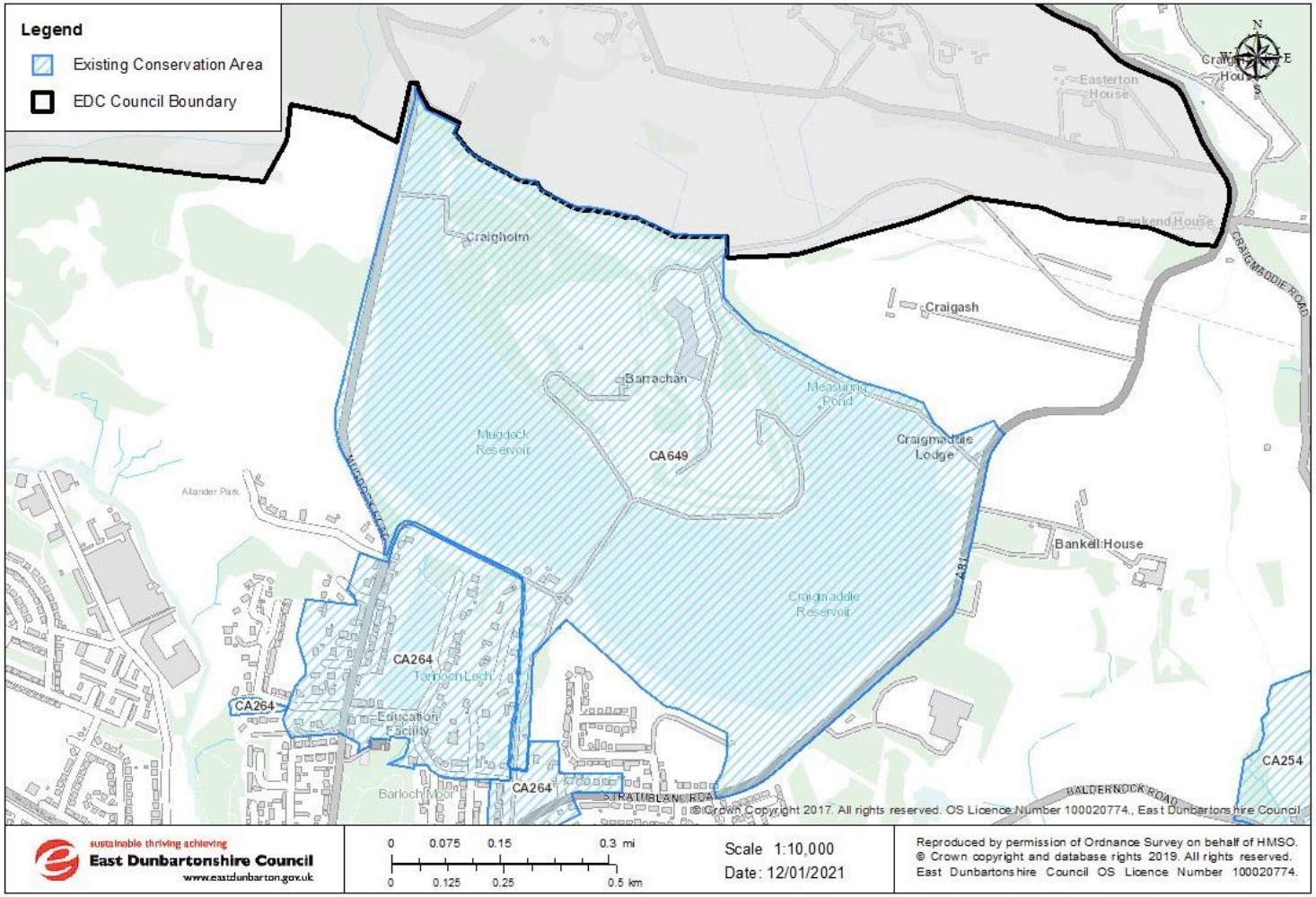
2.7 This fortune extends much further than just visual appeal, however, and has also gifted the region with a plentiful supply of tough and durable sandstones that make excellent building stone, as well as rich deposits of coal that brought landowners in the region much wealth. It is this comparatively easy access to quality stone that makes East Dunbartonshire a region of predominantly sandstone and slate buildings. By no means has this resulted in homogeneity, however: stones ranging in colour from brown, red and pink through to grey, cream and buffs recall the locality from which they were quarried, tying the buildings back to the landscape that they stand on and, indeed, are hewn from.

2.8 Unique features in their own right are the reservoirs, parklands and water treatment facilities of the Milngavie Reservoirs that lie within a wider area of undulating drumlin landforms. This is on the transitional land between the beginnings of the highlands of north Scotland and the north-western limits of the lowlands of the Clydeside conurbation. Southwards there are the built-up areas of Bearsden and the city of Glasgow in the lowlands of the Kelvin Valley. Encircling the town to the north is the rising ground of Craigton, Mugdock and Baldernock containing attractive farm and moorland, woodlands, tree belts and golf courses.

The Conservation Area Boundary

2.9 The conservation area boundary (Figure 2.1) encompasses two reservoirs, parkland and water treatment facilities whilst largely following the boundary of the national Garden and Designed Landscapes designation of the reservoirs (GDL00408). It is bounded to its north by historic field boundaries separating woodland from fields, east by Strathblane Road (A81), south by a public track and approach called Commissioner's Walk, and to the west, Mugdock Road. The reservoirs contribute to a large percentage of the conservation area, but the boundary also incorporates structures associated with the former Glasgow Corporation Water Works, and the small estate designed landscape of Barrachan.

Figure 2.1: Map of CA boundary



Chapter 3
The Historical Development of Milngavie Reservoirs

Conservation areas did not develop in isolation, and in order to understand what is included within the boundary and why we must look beyond to give the area context. This section considers how Milngavie Reservoirs developed from its earliest origins into the place we see today.

Before the reservoirs

3.1 Barrachan is marked as an area of rectilinear, enclosed fields around a central house east of the Tannoch Burn and Mugdock Woods in Roy's Lowlands Survey of 1752-55. Milngavie, a mile to the south, is shown as a small settlement around two main streets. The development of the reservoirs is well documented in Ordnance Survey mapping published in 1863, 1898 and 1918. Prior to the construction of the reservoirs, the landscape consists of rural open farmland with associated farmsteads before the physical transformation of the landscape.

3.2 The first edition Ordnance Survey[2] shows the arrival of Mugdock reservoir, detailing its form and associated infrastructure including valves, pump houses and pipework alongside the designed landscape of specific entrances, circuits of path and planted woodland. The older house and steading of Barrachan are shown, along with a drive and parkland area which still survive. The western path network and Commissioner's Walk are in place. Fields and a boggy

[2] Lanarkshire, Sheet I, Surveyed: 1858, Published: 1864

area at Bentfoot on the former alignment of Strathblane Road.are shown to the east in the area where Craigmaddie reservoir would later be constructed.

3.3 The 2nd edition mapping[3] shows the duplication of the scheme with Craigmaddie reservoir and infrastructure, alongside new buildings at Craigholm, Mugdock Cottage and Barrachan. The completed landscape is in place and, to a very substantial extent, remains in this form to the present day. The only later, major changes have been the insertion of lodges at the east entrance beside Craigmaddie reservoir, modern water treatment equipment next to Commissioner's Cottage, and the large replacement works building at Barrachan.

The arrival of the reservoirs

Health impacts

3.4 The growth of Glasgow through the unprecedented pace of industrialisation and urbanisation in early and mid-Victorian times had negative consequences on the health of the city's population. It was accompanied by concentrations of poverty and declining standards of health in the overcrowded city with fatal outbreaks of water borne diseases from contaminated drinking water. For instance, there were cholera outbreaks in 1832, 1848 and 1853 as a result of contaminated drinking water from the River Clyde.

3.5 At the start of the 19th century, water-filtration and supply schemes were developed as the city had outgrown the old pump wells and city streams. However, these solutions were not fully successful and alternative solutions had to be sought to provide a solution to the longstanding problem with water supply within the city. The need for unpolluted water for industries coupled with the realisation of the vital importance of sanitation and a pure water supply for human health saw the promotion of many municipal water supply and sewage disposal schemes.

3.6 Robert Stewart, Glasgow's Lord Provost, was the driving force behind proposals for a municipally-owned water supply scheme. In December 1852, Glasgow Corporation Water Works appointed the well-established specialist reservoir and water supply engineer John Frederic La Trobe Bateman (1810-1889) to investigate the ways and means to supply clean water to the city. Various options were investigated, and the conclusion reached was to transport water from Loch Katrine to a storage reservoir and aqueduct at Barrachan, north of Milngavie, for onward distribution to the city. After some objections, a Bill for the scheme was promoted in Parliament, with final authorisation for its construction given in April 1855.

Construction of the Milngavie Reservoirs

3.7 Bateman's services were further employed to design and supervise the construction of the gravitational scheme, with work commencing in 1856. This transported water nearly 26 miles from Loch Katrine via a series of pipes, sluices, tunnels and aqueducts to the Mugdock reservoir, north of Milngavie, capable of holding 550 million gallons of water. This used a range of advanced surveying and construction techniques, including the use of machine moulding and vertical casting technologies, making the project one of the most ambitious civil engineering schemes of its time. The works were completed 30 months later and the scheme was formally opened by Queen Victoria in October 1859, becoming fully operational by 1860.

3.8 Owing to the success of the Mugdock scheme, both for public sanitation and engineering, alongside the relentless expansion of the city's population and industry, it was decided that a duplicate scheme would be constructed. To provide additional capacity, Parliament authorisation of the Craigmaddie Reservoir was obtained in 1882 with work commencing in 1885 to a scheme designed by James Morrison Gale. Leading approximately 23 miles from Loch Katrine, the new reservoir located adjacent to the existing Mugdock reservoir was capable of holding 700 million gallons of water. The Craigmaddie scheme was eventually completed in 1896 with the building of a second aqueduct, new tunnels and the second reservoir after years of encountering geological difficulties at the new reservoir location. Badly fissured rock required deep excavation works, a clay-puddle lining, and an embankment measuring over 1450 metres by 28 metres to ensure the reservoir was watertight and functional. The two reservoirs were separated by a rubble-fronted dam, forming a raised road leading from the Old Water Treatment Works to Barrachan, on the spur of higher ground between the two reservoirs.

3.9 Both reservoirs were accompanied by a range of infrastructure to facilitate the daily operation of the water schemes. To the south of the reservoir, the Old Treatment Works contained straining wells with an associated water drawing tower projecting into the water (as seen on the front cover image of this report), designed to control water flow and to screen debris from the water. Further structures include valve houses, pump house, scour valves, wells, gauge basins and footbridges. At the northern tips of both reservoirs there are conduits,

[3] Lanarkshire I.NW, Surveyed: 1896, Published: 1899

or outlets, which allow water to discharge into crescent-plan gauge basins and then via weirs into larger measuring ponds, before flowing under causeways into the main reservoirs.

Figure 3.1: Reservoir infrastructure

Outlet and gauge basin of Mugdock reservoir

Outlet from Mugdock south dam, rill connecting with Tannoch Loch to the south

Associated buildings

3.10 In 1870, Mugdock Cottage, or Commissioner's Cottage (LB51275) was constructed for use by the reservoir superintendent, at the northern end of Commissioner's Walk. The Walk was a tree lined avenue approaching to the reservoir from the south, leading from Strathblane Road and marked by gates and gate piers. Deliberately created as part of the scheme, it provided access to the reservoir for engineering works alongside wider public access to a path network around the reservoirs.

3.11 By the late 19th century, a number of residential properties were created to accommodate employees who were responsible for the smooth running of the system and maintenance of the grounds. In the land to the immediate north of the reservoir, Glasgow Corporation Water Works created an area for housing, workshops and offices for employees of the scheme in the 1880s. Craigholm (LB51274), a house to the immediate north of Mugdock Reservoir, was constructed in 1880 as a private dwelling for water works staff. An early farm complex located on a level terrace overlooking the reservoir, known as Barrachan, was modified and developed for use as offices and for grounds maintenance staff. This contained several buildings including Barrachan Cottage, Barrachan Barn (developed into semi-detached houses) and Barrachan Hall, all surrounded by field walls. Other domestic buildings associated with the reservoirs includes the c.1900 North Lodge (now Craigmaddie Lodge) on Strathblane Road (LB51264). As two separate cottages, they were also used by the Glasgow Corporation, probably as staff houses.

Legacy of the Reservoirs

Engineering excellence

3.12 After its construction, the Mugdock Reservoir Scheme was acknowledged as an engineering marvel. It created the way for improved living standards and public hygiene by providing citizens of Glasgow with fresh drinking water. In addition, it facilitated industrial growth by providing a cheap and clean means of lifting and moving heavy plant in docks, shipyards and warehouses which strengthened success of the growing industry in Glasgow. Bateman himself described the supply scheme as "indestructible as the hills through which it has been carried" and surpassing the "nine famous aqueducts which fed the City of Rome". Already an eminent engineer, his work on designing water schemes continued internationally across the UK, Europe and Asia, as well as schemes for Edinburgh, Perth and Forfar in Scotland.

3.13 The engineering marvel of the scheme allowed it to become a powerful emblem of moral governance and commitment to civic progress. It was a symbol that the urban crowding and related disease which was occurring in towns and cities across the UK could be overcome and that public money was well spent on such large infrastructure schemes.

3.14 As a result, a number of public works emerged that celebrated and promoted the scheme. This included photographic commissions from Thomas Annan, included in his 1859 'The View of the Line of Loch Katrine Water Works' book, which demonstrated how the modern engineering fitted within the romantic upland landscape. There was also a range of written accounts and architectural plans produced of the schemes designs and construction, which is now curated by the Glasgow City Archives.

3.15 The contributions made by prominent figures associated with the creation of the schemes was celebrated through public memorials. In 1872, the Stewart Memorial Fountain (LB32213) was unveiled in Kelvingrove Park to celebrate the individual responsible for initiating the creation of the scheme. Located within the Old Treatment Works complex to the south of the reservoirs, the role played by the Craigmaddie scheme designer was commemorated in 1904 by the erection of the James M. Gale memorial and drinking fountain. A memorial to John

Bateman, the designer of the original scheme, was erected on the north end of the road separating the two reservoirs. This was unveiled in 2005 by the Institute of Civil Engineers to celebrate 150 years since the passing of the Glasgow Corporation Water Act which allowed the Loch Katrine schemes to be constructed.

Figure 3.2: James Morrison Gale memorial and drinking fountain

1904 drinking fountain with stone cairn base and a large granite slab bearing a cast-bronze basin, inscription and rondel relief bust of James M. Gale

Recreational

3.16 Alongside the engineered aspect of the scheme, as a publicly owned company the Glasgow Corporation Water Board wished to make the most of the international prominence and success of the scheme. By the 1870s, the area around the reservoir was landscaped for use as a public park, including the creation of footbridges, public pathways and planting of woodland to the north of the reservoir. This correlated with the ethos of the Victorian public park movement which advocated for free access to green spaces for the physical and psychological benefits of being in the natural environment. In 1885, public conveniences were created at the top of Commissioner's Walk for use by the visiting public.

3.17 What added to the attraction of the Milngavie Reservoirs was their relatively easy access compared to other reservoirs in Scotland. Located immediately north of Milngavie on the doorstep of Glasgow, the reservoirs were in quick reach by both rail and road for those wishing to escape the dense urban environment of the city.

3.18 By the early 20th century, the reservoirs had become increasingly popular for visitors to experience the natural beauty and sylvan qualities of the designed landscape. With images of the reservoirs published on postcards, it gave both the working and business class of the city a retreat for leisure and recreation in an open landscape which was compared to coastal scenery.

Improvements to the reservoir

3.19 Today, the reservoirs continue to be an important operational water treatment facility. The re-organisation of local government in the 1970s and 1990s meant the works became the responsibility of West of Scotland Water, before the merging of all the water authorities to form Scottish Water. Significant changes during the second half of the 20th century saw the construction of additional buildings at the Old Treatment Works for water treatment purposes alongside the abandonment of some garden areas.

3.20 Around the start of the new millennium, the Katrine Water Project was undertaken to upgrade the water treatment to meet UK and European standards for drinking water quality. At the time, the Milngavie Reservoirs were the largest water treatment programme in Scotland and the project involved vast changes to the infrastructure associated with the reservoirs. This involved the decommissioning of the former treatment works to the south of the reservoirs and the construction of a large, low-level building to the east of Barrachan from around 2004. The development was the subject of extensive assessment and public consultation on the site

selection process and the more detailed aspects of integration with the wider landscape, the quality of architectural design and materials, and the ground engineering, landscaping and tree planting of the overall development site. Ultimately, a scheme was found that balanced the operational need for these structures and the special historic interest of the site, ensuring that the reservoirs remain a relevant and beautiful part of the East Dunbartonshire landscape.

Figure 3.3: The historical development of Milngavie Reservoirs

A word cloud created using the above text to illustrate the key factors and defining influences on the development of Milngavie Reservoirs.

Chapter 4
Conservation Area Character Analysis

This section considers how the historical development of the area, as outlined above, is evidenced in the historic environment that is included within the boundary of the conservation area.

Function and Form

Activity and movement

4.1 The experience of Milngavie Reservoirs is shaped by its dual use as a working reservoir and water treatment works and as a public park. High levels of visitor use mean that its paths and public spaces are constantly in use in daylight hours throughout the year for pleasure and exercise, both by local residents and visitors from further afield. The main water treatment complex is largely screened from public view within the Barrachan woodland but the activities relating to the monitoring and management of the facility are evident from the comings and goings of company vehicles around the site and staff in hard hats and high-visibility jackets engaged in testing and inspection.

4.2 While the path network and access roads can become busy, the appeal of the site for visitors lies in the expanse of the water bodies, their tranquil, reflective character and the changing nature of the views available within and out from the site through the seasons.

Figure 4.1: Tranquility and reflection, Mugdock Reservoir

Uses

4.3 The reservoirs and associated infrastructure continue to be an important operational water treatment facility for the provision of water to Glasgow. The presence of both modern and historic water treatment facilities and infrastructure highlight the continuous evolution of engineering both at the site and as part of wider improvements in technology. For instance, there is a grouping of modern treatment work buildings close to the Commissioners Cottage, and six pump houses and stone-build scour valves, in deteriorating condition, at various points on the perimeter of the reservoirs. Channels and rills to the west and southwest of Mugdock Reservoir relate to a system to separate surface water run-off from the Loch Katrine clean water supply. The system includes an open stone channel between the two walls on the west side of Mugdock Road, a culvert under Mugdock Road, and a 200m long masonry-lined rill leading towards Tannoch Loch, just south of the conservation area boundary.

4.4 The recreational use of the Milngavie Reservoirs has continued into the 21st century, with the woodland, ornamental planting, paths and entrance drives from the Victorian designed landscape still in use today. A popular and publicly accessible landscape, the Victorian commitment to civic progress can still be inferred with public access breaking down barriers, where elsewhere engineering sites would be seen as a secluded and specialist environment for select individuals. The merging of both civic and engineering functions is unique among Scottish reservoirs and adds a defining element to the conservation area.

4.5 Alongside both the industrial and public use of the conservation area, there are also private dwellings located within the boundary bringing an additional residential use to the landscape. The range of buildings used for housing, workshops and offices by the Glasgow Corporation Waterworks and subsequent owners responsible for the operation of the reservoirs are now private residential dwellings This includes Craigholm Cottage in the north-west of the conservation area, Craigmaddie Lodge/North Lodge (a pair of semi-detached houses) in the east, and Mugdock Cottage/Commissioners Cottage in the south.

Scale and hierarchy

4.6 The site is dominated by the two water bodies of Milngavie and Craigmaddie reservoirs. Their scale and position at a point of contrast between the developed, urban plain to the south and the wilder, upland landscapes to the north gives them a sense of the sublime – awe-inspiring because of the scale of their engineering achievement and the palpable sense of taming the wild landscape for civic improvements on a monumental scale.

4.7 The smaller structures around the site emphasise this sense of scale by contrasting with it and forming part of a group of clearly related, supporting functions, expressed through a common architectural language. These divide into two groups: the engineered, water-management structures of gauge basins, measuring ponds, draw-off towers and so on, and the residential and office buildings historically associated with the staffing and maintenance of the site. The residential and office buildings are of a modest, residential scale – one or two storeys – and mostly nestle unobtrusively into the trees and landscaping of the site. Cast iron bridges,

railings and steps are used consistently throughout the site and again emphasise the contrast between the reservoirs and dams and the human scale and fragility needing protection at key points and edges.

Spatial Qualities

Development pattern, layout and density

4.8 There are a range of historic entrances into the reservoirs and an accessible path network, providing public access into an industrial area normally restricted to the public. Part of the 1850s Mugdock scheme, Commissioners' Walk is the main tree lined approach leading from Moor Road/Strathblane Road towards the Old Treatment Works. Originally a straight approach, as part of the Craigmaddie works, a curving dimension was added that connects to the wider path networks around the reservoirs. Other entrances include from Mugdock Road in the west and from the private Craigmaddie Lodge/North Lodge in the east which both connect to the path network around the reservoirs.

Public and private space

4.9 The purposeful laying out of the reservoir complex as a formal public park, with its intricate path network, tree planting and formal planting beds, reflected Victorian zeal for healthful outdoor recreation and highlights that recreational value was an important consideration in the schemes from the outset. There are many main perimeter paths including: 'Lover's Walk' around the north of Mugdock Reservoir; the North Walk/Woodland Walk in the north of the conservation area linking the gauge basins of the two reservoirs; and the road on the central berm dividing the two reservoirs.

4.10 Secondary earth paths lead through the woodland around Barrachan, and formal walkways with cast-iron railings cross the weirs and causeways at the measuring ponds and gauge basins. Together, these paths provide walkers with numerous views and experiences of the water, architecture, tree-cover, and wider landscape setting. Repeating lines of trees and shrubs, and matching gates, gate piers and railings, added to a sense of visual unity and sense of order. The various carefully positioned cottages and lodges, stone walls, ornate entrance gates and the grand avenue of the Commissioners' Walk create the aura of a secluded landed estate which juxtaposes with its public role.

4.11 The private spaces within the conservation area – the gardens and access routes to the private dwellings – play a relatively small role but remain an interesting reminder of the extent of the Glasgow Corporation Water Works' breadth of provision for the staff and operation of the facility.

Figure 4.2: Southern end of Commissioners' Walk, Tannoch Drive

Figure 4.3: Private and public routes, Barrachan

Figure 4.4: Southern setting of the conservation area

Setting

4.12 The two reservoirs are the central features of the conservation area, acting historically and today as the central focus for associate landscaping, planting and pathways. As large bodies of water, they determine the character of the site alongside contributing to the scenic character and quality of views. The reflective qualities of the water is important in these views, with longer distance views, mainly from the south, framed by enclosing woodland plantations and tree-lines, and punctuated by the highly engineered and detailed built structures, such as the gauge basins and outlets.

4.13 The appreciation of the site from the more urbanised south includes the upland backdrop of the Campsie, Strathblane and Kilpatrick hill ranges and the woodlands of Mugdock Country Park. Although the infrastructure is not visible, this setting helps to illuminate the relationship of the site with the Loch Katrine catchment and the vast scale over which the water supply scheme operates. The ultimate destination of the water supply is also evident in the southern setting of the conservation area, where the scale and relationship of the site with the urbanised area of greater Glasgow can be appreciated. The site also has a close relationship with, and forms part of the setting of, Tannoch Conservation Area, immediately to the south.

Architectural Form and Detailing

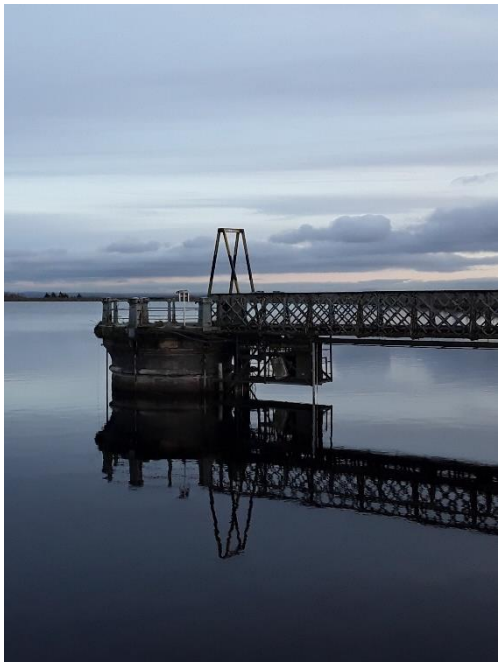
Structures and building types

4.14 The reservoir structures divide into the large-scale dams and embankments containing the water bodies and the smaller structures enabling the management of the water supply. Each reservoir has a set of gauge basins and measuring ponds from where water exits across a weir into the main reservoir; scour valves, straining wells and draw-off towers control debris and water level. A series of sluices, overflow channels, rills and bridges manage the excess water flow away from the reservoir. The reservoirs themselves and many of their associated structures are recognised for their architectural and historic interest and are listed at category A in view of their national importance (LB18227).

4.15 The other distinctive group on the site are the domestic and office buildings. At the centre of the Old Treatment Works, Mugdock Cottage, or Commissioners' Cottage, is an altered and extended 1870 gabled cottage, built for the reservoir superintendent (LB51275). To the southeast, the James Gale Memorial is a 1904 drinking fountain with stone cairn base and a large granite slab bearing a cast-bronze basin, inscription and rondel relief bust of James M. Gale. Public conveniences, located at the top of Commissioners' Walk, comprise an altered group of single-storey ashlar masonry buildings, built in 1885.

4.16 Other domestic buildings associated with the reservoirs include the circa 1900 North Lodge (now Craigmaddie Lodge) on Strathblane Road with gates, gatepiers and railings (LB51264), and Craigholm, a detached 2-storey house built circa 1870 to the northeast of Mugdock Reservoir (LB51274). Barrachan, on the higher ground between the two reservoirs is an earlier farm complex that was modified and developed in the 1880s by Glasgow Corporation Water Works for housing, workshops and offices for reservoir groundsmen (LB51266). Set on a level terrace, they comprise the simple two-storey Barrachan Cottage, facing south over the reservoirs, Barrachan Barn, developed by Glasgow Corporation as semi-detached houses, and the L-plan, single storey, Barrachan Hall, together with field walls and walled former orchard/vegetable area. The domestic and office buildings are listed at category C.

Figure 4.5: Variety of structures



Draw-off tower and trussed access bridge, Craigmaddie Reservoir

James M. Gale Memorial Fountain

Figure 4.6: Commissioner's Cottage

Distinctive architectural style and detailing

4.17 In addition to their practical function, most of the structures were also designed for aesthetic effect, using symmetry, classical design details, and quality materials. This is perhaps most evident at the gauge basins, but can also be seen in elements such as the matching gatepiers on Strathblane Road and North Lodge (Craigmaddie Lodge). Matching architectural flourishes add to the visual unity of the landscape as a whole, enhancing the impression of a singly conceived, orderly landscape, similar to urban public parks of the Victorian era.

4.18 The engineering structures use sandstone ashlar in large blocks with a rustic facing finish to express the strength and durability of the scheme. A classical language of round-arched openings, deep voussoirs (tapered blocks forming an arch), pedimented architraves and unifying coping or parapet lines provide a sober, monumental and civic quality. These details are intended to echo the achievements and sophistication of Classical antiquity, with which the Loch Katrine supply scheme was compared.

Figure 4.7: Conduit screen wall, Craigmaddie Reservoir

Stephen Sweeney / Structure on Craigmaddie Reservoir / CC BY-SA 2.0

4.19 The domestic buildings adopt an architectural expression appropriate to their more modest scale and residential function, similar to contemporary rural or suburban buildings in the area. Common features include barge-boarded, multi-gabled pitched roofs, prominent chimney stacks, plate glass or multi-paned timber sash and case windows and relatively plain, although good-quality, stonework finishes.

4.20 The reservoir complex as a whole is surrounded by round-coped, rubble stone boundary walls and cast-iron perimeter railings. The scale, extent and uniform detail of the boundary walls is a particularly strong unifying feature around the whole site, which also penetrates southwards into Milngavie where they enclose Commissioners' Walk. There are sub-Mackintosh style iron gates at three entrances from Mugdock Road. Entrances from Strathblane Road, Mugdock Road, and at the North Lodge have chamfered gatepiers with deep cushion caps. There are a number of partially surviving pump houses and stone-built scour valves located around the reservoirs.

Use of materials

4.21 A grey-blonde sandstone is the predominant structural material both for the reservoir structures and the domestic buildings, expressed and finished in different ways according to its role and location. Cast iron also plays a prominent role in the detailing of the reservoirs, through distinctive square-section balusters and bollards lining edges and walkways, and trussed bridges connecting the walkways and draw-off towers.

Figure 4.8: Varying applications of sandstone and cast iron

Bridge over overflow channel, Mugdock Reservoir

Gauge basin walkways, Mugdock reservoir

Trees and Landscaping

4.22 Acting in its role as a public park, the presence of trees and landscaping is an important aspect of the conservation area with a wide variety of natural and designed elements. Of particular note are the mature woodland elements which form tree groups, belts and avenues surviving from the reservoirs' construction, as indicated on historic mapping. These line the boundary and frame the reservoirs, enclosing them within the landscape from various viewpoints and forming impressive, scenic elements. Ornamental shrubs along some of the roads, paths and around the gauge basins were designed to complement associated tree-planting and architectural features.

4.23 The variety of plant species within the woodland areas is large and adds a diverse nature to the site. They include beech, Scots pine, horse chestnut, sycamore, Austrian lime, common lime, sessile oak and noble fir. Areas of historic ornamental planting partly survive as linear patterns or beds of evergreen flowering shrubs. The range of shrubs present is now limited to prunus varieties and rhododendron, most specimens having reverted to *rhododendron ponticum*.

4.24 The historic garden areas at the Old Treatment Works no longer exist. Historic photographs show a rose garden and a heather rockery south of Mugdock Cottage, and planting beds with heathers surrounding the Mugdock straining well, beyond which was further shrub planting and lawn. The Craigmaddie straining well was similarly surrounded by flower beds. The garden areas were still maintained in the early 20th century but were probably stopped during changes to management structures in the 1970s and areas of high maintenance garden abandoned.

Plantations

4.25 The largest area of tree-cover is Barrachan woodland, which is composed of long-established policy woodland, shelter beds and planted field boundaries with veteran trees. The woods are composed mainly of beech with Scots pine and larch, and some oriental species and noble fir. The former Barrachan House and farm was located within these woodlands with evidence of the associated small estate within the structure of the woodland.

Figure 4.9: Tree belts, west side of Mugdock Reservoir

Lines and layers of trees framing and directing views of the reservoir's features

Figure 4.10: Shrubbery and tree belt backdrop to the Mugdock gauge basins

4.26 Plantations associated with the construction of Mugdock reservoir include: a line of Austrian pines along Mugdock Road; a line of horse chestnut at the head of Commissioners' Walk; the tree group on the rising ground immediately north of the Mugdock gauge basin; woodland tree-belt defining the northern boundary and lining the gauge basins along the North Walk/Woodland Walk; and a perimeter belt at the Mugdock Road entrance.

4.27 Plantations created with the construction of Craigmaddie reservoir include: the tree group south of the Old Treatment Works; a tree belt and lime avenue along the east edge of Commissioners' Walk; an avenue to the south east of Craigmaddie reservoir along Strathblane Road; and plantation on the embankment north of Craigmaddie reservoir.

Views

Types of views / seeing character in the view

4.28 Whilst all senses are engaged in our experience of place, human reliance on the visual does mean that views play a major role in our understanding and perception of character, and the Milngavie Reservoirs are no exception – in fact, its character depends on it. Views tend to come in different shapes and forms depending on whether they are designed or fortuitous; framed, contained or open; fleeting or enduring. Broadly, however, they tend to belong to one of three categories:

- **Static views** – these types of views tend to be – although not always – designed or intentional, or at least self-aware. They are a specific, fixed point from which a particular aspect of the area's character can be best appreciated.
- **Glimpsed views** – these types of views are often enclosed and fleeting, and principally incite intrigue or surprise in those that notice them that add to the experience of an area.
- **Dynamic views** – these are views that steadily reveal different aspects of a place's character and continually evolve as we experience them. These may be panoramic views from a fixed point or kinetic views that are revealed as the observer moves through the area. These views are influenced by both constant features (not necessarily dominant features but those that remain present throughout) and transient features (accents in the view that come in and pass out of views at different points

Examples of views in Milngavie Reservoirs conservation area

4.29 There are a number of striking and beautiful views around the reservoirs, but the seemingly mundane have their role to play too in conveying the character of the place. Below are some examples of the more obvious and noteworthy views in the area – in that they are the ones that clearly embody important characteristics of the conservation area – but it is important to remember that experience is entirely personal and the value placed on views subjective; as such, there will be many more that are not noted here that portray the sense of place equally well.

Static

4.30 The symmetry, proportions and detailing of the conduit screen wall are deliberately presented in a formal, head-on view from the metal walkway across the gauge basin at the north end of Mugdock Reservoir. This marks the place where the clean waters of Loch Katrine arrive at the holding reservoir ready for treatment and onward movement to Glasgow. There are also views from the d basins or measuring pond to the Craigmaddie Reservoir conduit exit.

Figure 4.11: Static view of conduit exit, Mugdock Reservoir

The strong, highly formal architecture of the conduit exit presented in a designed, directed view.

Glimpsed

4.31 The individual houses associated with the reservoirs are relatively small-scale, isolated and tucked into clearings in the woodland. From the public footpath on the north-west side of Mugdock reservoir, Craigholm can be glimpsed across the water and between the trees, giving an intriguing glimpse into this private enclave.

Figure 4.12: Glimpsed view of Craigholm

Craigholm glimpsed from the opposite side of Mugdock Reservoir. Red-painted timberwork draws the eye.

Dynamic

4.32 The unfolding panoramic view south from the southern dam embankment, in which foreground and background features gradually rise and fall in prominence as one walks along the footpath. These features include Tannoch Loch and the picturesque houses of its late 19th/early 20th century suburb, and the scale, expanse and built landmarks of the Glasgow conurbation on the horizon beyond. Weather, season and time of day combine to create dramatic effects and a constantly shifting character to this view. Similarly, as you walk along the path north of the reservoirs one will find the woodland landscape revealing dams, open sections of reservoirs and focal points of conduit exits.

Figure 4.13: Dynamic view south over Tannoch

Low sun and autumn foliage highlight the reflective loch and horizon beyond.

4.33 Static, glimpsed and dynamic cover the types of views you might find, but their relevance to the significance of the conservation area lies firmly in what those views contain; that is, what they can tell us about the history of the area, or how they influence our experience of its character. And, of course, all of these views have their own, varying degrees of aesthetic appeal, degrees that are dependent on the time of day, the time of year and, above all, the viewer and what they find pleasing as much as established criteria of visual aesthetic or artistic appeal.

4.34 Furthermore, these views are not mutually exclusive: one asset or feature may contribute to the character and appearance of the area in different ways in different views, and views may transition, interrupt and develop concurrently with one another.

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