Question

Case Study 2 (a separate response for each Lot is required).

Please provide case study no 1 comprising no more than 4 x A4 sides - including any diagrams or pictures and in Arial 11 point font), detailing your experience of a similar scope and scale to the Lot you are responding to and include:

• How the scope is of relevance to the Client;

• The scale (value and volume), complexity and scope of the work delivered;

• How the Client's requirements, benefits and any value adds were achieved;

• The approach taken to achieve successful delivery;

• How you ensured your Client's customers' needs where met through your delivery approach;

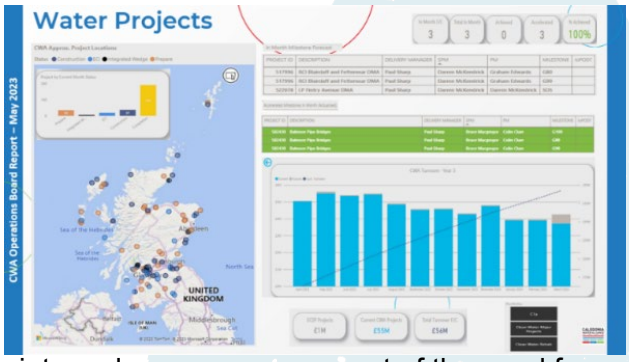
• Client contact details (name, organisation, telephone and email address) to verify case study.

4 page Arial font 11

2.3.2 Case study 2 – Scottish Water Capital Delivery framework

Introduction

Caledonia Water Alliance (CWA), an alliance between Morrison Water Services (MWS) and AECOM, is working on behalf of Scottish Water to deliver their water and wastewater infrastructure programme, responsible for delivering over £500 million of investment over six years. This 12-year framework agreement started in April 2015 and was extended in 2021 based on outturn and excellent performance in the initial period, through to 2027.



The alliance includes asset health assessment, detailed investigations, value engineering, programme management, detailed design and construction activities, such as network renovation using trenchless solutions including digital surveys, proactive cleaning, lining techniques and renewal by directional drilling and micro-tunnelling. It covers the whole of Scotland, both urban and rural geography with engineering scope aligned to the new Southern Water framework. It focuses on value-engineered solutions that must be in line with budget constraints and covers every aspect of the need for infrastructure assets; from renewals and new assets to modifications, maintenance and refurbishment, including associated assets such as pipelines, pumping stations and CSOs. It includes an extensive water mains rehabilitation programme of over £35m per annum with individual projects up to £4m with a primary focus on no-dig interventions. We are responsible for delivering the no-build, low or no-dig solutions through the design stages, which include the use of hydraulic models prior to construction and early contractor engagement. One of the principal areas of focus being a 30-year programme of asbestos cement water mains replacement.

The capital delivery framework demonstrates collaborative working with our design partner AECOM, and addresses a variety of issues similar to those we expect to encounter as part of SDP Framework including:

- Project fast-start: ECI, feasibility and investigative activities, deploying prepared teams as early as possible and yielding cost and programme benefits for CWA and the client.
- Collaborative team working driving technical excellence: an established, successful collaboration between client, contractor and designer through a Centre of Excellence and integrated wedge approach, which governs project activities from Level 0 to handover.
- Improving the reliability of water and wastewater systems through the provision of major resilience programmes of work.
- Identifying and utilising low-build or no-build solutions together with sustainable, low carbon, catchment, and nature-based solutions.
- Similar geographical footprint of complex urban and rural environments with complex stakeholder requirements e.g., Areas of Outstanding Natural Beauty, National Parks, SSSIs and coast lines.

Scale, value complexity and scope of work delivered

Project	Description
Ayrshire Resilience Phase 3 C1a £90.3 million	The project involves installation of 12 km of 900-mm diameter ductile iron pipeline through a mix of carriageway, public parks and unmade ground. Works included a 78ML/day pumping station including MEICA installation, four tunnelled crossings involving deep shafts and pipe-jacking, three rail crossings, two watercourse crossings and a motorway crossing by use of no-dig directional drilling.
Bertha Park – upgrade of water and wastewater networks in Perth Wastewater: £47 million Water: £15 million	Wastewater programme includes: • 6-km gravity collector trunk sewer: Perth West connect to the existing sewerage network at Bertha Park development site. • Wastewater pumping station and rising main to replace Almondbank WwTW and connect to the gravity collector trunk sewer. • 540-metre, 1800-mm diameter reinforcement sewer to provide additional capacity and reduce localised flooding on A989. • Upgrades to Perth WwTW (Sleepless Inch). Water programme includes: • 5 km of 400-mm trunk main: Existing Perth WTW to the new proposed Bertha Park service reservoir. • 4ML Bertha Park service reservoir (allowing for upgrade to 12ML for future growth).

	• 2.4 km of 400-mm trunk main: Bertha Park SR to Luncarty Distribution Meter Area and connection to existing 300-mm ductile trunk main.
Saltcoats and Stevenston – sewage pipeline upgrade £4.3 million	Installation of new temporary overland pipeline as part of a multi-million-pound project to upgrade an important sewage pipeline and pumping station serving an Ayrshire beauty spot. The temporary over pumping pipeline is protecting the environment around Saltcoats and Stevenston from future bursts, allowing works to begin on re-lining the 700mm diameter sewer by CIPP no-dig lining between a pumping station and local treatment works. The temporary pipe of 12-metre-long sections can carry up to 700 litres of wastewater every second. Works will be complete by end of October 2023.
Coulter, South Lanarkshire £1.8 million	Works include improvements to the embankment of an existing watercourse to help prevent erosion and provide flood protection; and replacing an 18-inch cast iron pipe running below a watercourse, with a new pipe buried at a greater depth. Works will be complete in January 2024.
Burncrooks Scheme, West Dunbartonshire £39 million	Scheme comprising installation of 6 km of 560-mm diameter twin mains polyethylene pipe and 1.5 km of 900-mm metallic pipe with 250-mm polyethylene in a common trench. Works will be complete end of June 2023.
Cowsrieve, Aberdeenshire £5 million	Phase 1 – installation of 3 km of 415-mm and 450-mm PE pipeline between Cowsrieve and Newfield SRs, three pumps at Newfield PS and a temporary tie in (outlet to inlet) with commissioning and associated works. Phase 2 – decommissioning / commissioning temporary to permanent break-pressure tank at Cowsrieve SR, a booster PS at Hatton, and telemetry upgrades at Forehill High PS.
South Edinburgh Service Resilience £21.6 million	Water treatment and supply improvement works including water testing and sampling for Benzyl alcohol, extensive swabbing and flushing on 500-mm and 700-mm legs of main, investigation of pipe liner, defective at numerous locations, and civils and MEICA works for Torduff pump installation and trials.

How the client's requirements, benefits and any value adds were achieved

Key to ensuring Scottish Water's requirements being fully met is our adherence to the CWA balanced scorecard, which specifies CWA's strategic aims, objectives, performance measures and targets. One CWA objective is to ensure the best whole life cost is achieved on projects, with careful consideration of the needs of key stakeholders, including local communities, and reducing carbon emissions in Scotland.

We have challenged traditional ways of working to deliver a faster paced, end-to-end approach to water and wastewater network solutions using technology and innovation to drive efficiency and savings. For example, our specialist partner AECOM has driven the integration and implementation of CWA's BIM processes, ArcGIS Online, ArcGIS Field Maps, ArcGIS Pro and Autodesk technology. GIS and BIM data is combined in a single 3D web viewer and can be interrogated and accessed on-site or from home offices via laptops, tablets, or mobile phone for discussions with the client and stakeholders. This improves transparency of the design and delivery process and collaboration across CWA and ensures data is always current. The solution also reduces the need to generate multiple offline hard copies and the need to travel or even be in the office – saving carbon and helping the project achieve its ESG goals.

We are also promoting 'Build Less'; on our C1a project pipeline, we have used restraint joints to allow us to remove concrete thrust blocks, therefore further reducing embodied carbon associated with the capital aspects of the project. This totals an estimated 5,500 m^3 of concrete, which has reduced carbon by approximately 16,000 tonnes; 15,000 from concrete and 1,000 from concrete transportation. Also, on C1a, the contract carbon capture accounting tool is used to track carbon reduction end-to-end for whole life of asset and measure embodied and operational carbon. This has led to many benefits including the reduction of pumps required following a network hydraulics review, and sea transportation of seventeen hundred 7-metre pipes to minimise road transport impact and reduce carbon.

On each project delivered as part of CWA, we have collaborated closely with all relevant stakeholders to meet project requirements, leave a positive legacy in the communities we impact, and help Scottish Water achieve its social and environmental commitments e.g., Amlaird Community Garden, Stand Play Park, Milngavie in Bloom, Achmelvich Community Centre refurb, and Winter Wonder Garden.

CWA staff volunteered time to help transform an area of scrub land at Darnley's Corselet Road within the Dams to Darnley Country Park, into a safe, recreational/educational space. The area includes a specially created low-maintenance wildlife garden. Three local primary schools were actively involved with this initiative, each adopted a raised flowerbed to maintain as part of the school's outdoor learning.

We work hard with Scottish Water to drive change through ongoing commitment to inclusive attraction, recruitment and development of the CWA workforce and boost the circular economy. Our initiatives include:

- STEM Careers in Water - Our STEM Ambassadors engaging with secondary schools.
- Apprenticeships / Graduates: We aim to recruit 100+ apprentices and graduates per annum.
- Careers Transition Partnership (CTP) – we are a Gold Award holder for the Defence Employer Recognition Scheme and exhibit at 10 CTP events per annum.

Working with Environmental Techniques, Good Friday Robotics and Scottish Water, we are proud to have won the Pipeline Industries Guild Utility Pipeline Technology Award 2022 for adapting drones for advanced, safer sewer surveys.

Our approach taken to achieve successful delivery

Drawing on our skilled and experienced delivery team

Working with our design partner AECOM, we utilise our large, highly skilled workforce in Scotland, drawing on experts and additional resources available from our combined resource pool. To ensure a competent workforce, we define team structures and specific roles to deliver the varying types of work required for each project. Each role is then fed into a Competence Matrix to identify competence and training requirements. Senior managers then identify key staff from within the wider business who best met the competences and then interview them for the Team Leader positions. Team leaders then build up their respective delivery teams based on discussions with the client and detailed identification of requirements. Whilst many of the required skills are already available within our workforce, a key task is to identify any gaps in knowledge or competence and implement appropriate training. An example of this is requiring all staff acting as project managers to complete Association of Project Management training before taking charge of any project.

We continuously appraise and manage our supply chain throughout the framework, ensuring they continue to meet our strict health and safety, quality, financial and corporate social responsibility requirements.

Our project governance for delivering to plan

Key to our success in delivering projects to plan is being an integral part of Scottish Water's integrated wedge approach, governing project activities through each gate of each project from Level 0 to handover.

Our process for ensuring we do not deviate from plan begins with the Lead Design Engineer (LDE) ensuring that all disciplines feed into the project design and agree estimated times for them to complete their work. We then roll this up into the overall project time and cost calculations and feed it back via the project manager (PM) to CWA's project management office – who in turn, report back to the client.

We establish a project risk register at the start of each project to highlight known areas of concern and appropriate risk allocations of time or cost made against these items. The risks are then managed throughout the project delivery and, wherever possible, designed out before the construction stage.

During the delivery of the project, each discipline is responsible for monitoring their own costs and time input against the overall programme, assisted by regular 'programme meetings' at which senior project managers request updates from the respective PMs and justification for any deviance.

The discipline leads feedback any anticipated delays or cost over-runs via the LDE to the PMs, who are responsible for preparing early warning and compensation event notifications for any changes to the agreed scope / programme / cost. We utilise the following programme management tools to ensure that programmes remain on time, on budget and are delivered to a high standard:

- Primavera P6 for all projects, where all costs and programme data are held – one version of the truth.
- Earned value analysis on a weekly basis to track progress / value for money.
- Cost loaded programme for agreement of budgets / target costs.
- Standardised cost reporting format, driven by the monthly reporting calendar.

We work closely with Scottish Water to resolve issues such as land access and have provided solutions to mitigate critical delays, e.g., diversion around a golf course, where we proposed a route that was more cost-effective and time efficient. Our senior project managers attend regular Programme Meetings with Scottish Water and Alliance members to discuss and plan for upcoming projects, discuss general progress and KPIs, and any emerging high-level risks to programme – cost or schedule.

At project level, our project managers attend scheduled and, where necessary, ad hoc Project Review Meetings with the client to discuss any new risks identified concerning schedule, progress, H&S, risk mitigation measures, actual versus planned progress, and any general issues that need to be addressed. Any corrective actions necessary are then agreed and implemented to ensure each project progresses as planned until complete.

Ensuring delivery and quality assurance via robust commissioning of assets

Our process for ensuring successful commissioning starts at the project outset, where we develop a clear understanding at the design stage on how the asset is to be brought into commission, engaging with the key stakeholders and operators to understand the impact and target dates. This forms a large part of our internal stakeholder management process with operations and forms the basis for each project Commissioning Plan, which details each step of the commissioning process to ensure each project meets expectations and is commissioned to the milestone date set.

Our robust 'design to commission' methodology complies with work type arrangements such as Scottish Water's DOMS, Scottish Water specification requirements and Water Industry Mechanical and Electrical Specifications (WIMES). It also complies with installation completion requirements such as NECEIC testing, pressure testing, Site Acceptance Testing and permit-to-work procedures and fully considers stakeholder interfaces, health and safety measures and quality criteria.

Early collection of data is key to a smooth handover process. We begin compiling handover packs as the project progresses, recording factory testing, as built details, electronic testing, and commissioning details. These are witnessed as progressed on site and collated into an overall handover pack as the job progresses. Client Asset Integrators work alongside our teams, carrying out inspections and auditing documentation to ensure smooth handover and that correct procedures are followed.

We apply this approach to all projects, from water usage, blending, discoloration, bringing new pumping stations online, rising mains recharging and CSOs to SCADA integration; to deliver easier asset start-up procedures and quicker project acceptance – delivering 'right first time' with zero defects.

An example of our expertise and experience in commissioning complex projects is our Amlaird project for Scottish Water, where we commissioned over 25 km of twin 500-mm mains and pumping stations. Hydrostatic pressure testing of PE mains and pipework is tested using a TYPE 2 test in strict accordance with IGN-4-01-03 – Pressure Testing of Pressure Pipes and Fittings for Use by Public Water Suppliers.

Using lessons learnt to continually improve performance across the framework

LDEs and construction managers attend a fortnightly meeting where they discuss any issues encountered and exchange ideas to resolve problems and prevent recurrence. This includes feedback to Scottish Water on issues such as incompatible specifications or new technologies that may alleviate existing problems, but which have not yet been considered or approved. This meeting is also attended by a senior management representative who can both assist with technical experience and take actions for feedback to Scottish Water or the Joint Venture Management Board if the problems identified are internal to CWA.

How we ensured our client's customers' needs were met

Before starting any project, we develop a Customer & Community Engagement Plan (CEP) to consider the specific requirements for each customer segment and for key stakeholders impacted by the work, including 'priority services' customers, third parties, local stakeholders, businesses, and schools.

We update the CEP throughout the project lifecycle to define and refine our engagement approach including:

- Community engagement to capture local issues: this considers local community events, the impact of road closures, historic flooding etc.
- Segmentation of customers to identify 'Priority Services' customers and businesses.
- Surveys and investigations and liaison with third parties to agree access arrangements and land entry.
- Face-to-face visits before works start with directly affected customers: door knocking, visits to businesses/local traders plus, if appropriate, media publicity.
- Proactive communication with key stakeholders such as highways authorities, councils, locally elected representatives, environment agency and trade bodies.
- Multi-channel communications during works, e.g., early written notices, personal visits, letters, cards, proactive outbound SMS text messaging, virtual customer forum and detailed courtesy board signage.
- Use of social media listening platform to flag feeds relating to works and feedback for proactive use.
- Virtual Drop-in web-based customer information tool to update customers throughout the project duration. Customers can login at any time and see updates.

Where water supplies are disrupted by damage or temporary stoppages, our operatives deliver bottled water to customers to meet their immediate needs.

Client contact details for CWA

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