



Project Controls

Enabling Successful Delivery

1 Abstract

The North London Heat and Power Project (NLHPP) is a £1.2bn capital programme established to replace the existing Energy from Waste (EfW) facility at the Edmonton EcoPark, which is reaching the end of its operational life. The project vision is to create a waste management facility in which local communities can take pride, that demonstrates value and is a model for public sector project delivery. The programme is being delivered successfully with the help of a best practice project controls environment.

This paper summarises how the NLHPP has established a digital Project Management Office from a “blank page” enabling delivery and reporting for the project during COVID19. This includes the digital delivery solutions deployed such as Programme Insight Manager, Asite, Microsoft teams and CEMAR to facilitate delivery, commercial integration, data management and reporting. The approach has allowed project teams to resolve complex cross project delivery issues and de-risk critical construction and contract interfaces. It has been vital in providing confidence that the necessary tools, systems, and skills are in place to successfully complete the programme.

2 Introduction

[The North London Heat and Power Project \(NLHPP\)](#) is a £1.2bn capital programme being delivered successfully with the help of a best practice project controls environment. The works, which take place on a major waste management site, will transform the current site and enhance the surrounding area. The NLHPP will provide proven, reliable, and safe infrastructure for north London's two million residents. It is a vital part of the sustainable waste strategy for the future at the site with the provisions for local jobs and training opportunities. The new Energy Recovery Facility (ERF) will increase the benefits from treating waste through supply of heat to 10,000 homes in Edmonton, via a new district heat network, and in providing enough electricity to power up to 127,000 homes.

In delivering the NLHPP works, the North London Waste Authority (NLWA), a small public-sector organisation, had to establish a delivery structure from the ground up. They began by establishing a Monitoring and Control Strategy which set out the key challenges and requirements including:

- the long-term nature of the works – a 10-year programme of construction.
- the diversity of capital projects – construction of a £600m Energy Recovery Facility and £100m Resource Recovery Facility, substantial demolition activities, major sewer diversion and multiple enabling and utility projects.
- the need to establish Project governance – project procedures, systems needed developing
- working within extensive governance – as a public body, the Authority has existing and specific governance requirements.
- maintain existing operations - with 24 hours operations needing to be maintained onsite, a complex phasing of the construction works, and traffic management was developed to support the constraints of this interface.

The client-side team, who consisted of NLWA staff, Arup, and Rider Levett Bucknall and with support from technical advisors Wood, Ramboll and Grimshaw focused delivery of the strategy on key Project Control principles:

- development of a centre of excellence in the form of a programme management office (PMO) to establish and maintain the necessary skills, processes, and systems.
- establishment of the key control mechanisms – baseline and benchmark confirmation, standardised work and cost breakdown structures and implementation of change management.
- implementation of consistent and robust reporting solution, building on cyclical “period-end” data capture and assurance processes.

Key Project themes that underpin the design and development of the Project Controls environment include:

- sustainability – practices that would retain their purpose and support the changing phases of the project.
- inclusion and accessibility – ensuring that data was understandable and available to all who needed it fairly and transparently.
- digital exploration – taking opportunities to use tools and systems to automate, simplify and improve working practices.

3 Initiate

At project initiation, a small focused Programme Office team worked with the Project's key stakeholders to understand delivery needs, project outcomes, and establish measurable objectives.

In parallel, project governance and assurance structures (e.g. lifecycle, gateway, controls process, work, and cost breakdown structures) were developed to set the Programme and Project context and provide key decision makers with intervention and decision points. Microsoft office suite applications were selected to create reports, dashboards and cashflow analysis.

Design and procurement of key systems in support of Governance were a key consideration when developing the tools roadmap and deploying solutions in the delivery environment.

4 Plan

To support project definition, planning workshops were organised with the Project and functional teams, early successes included:

- development of the delivery strategy and Project execution plans to develop delivery scope, budgets, and milestones into focused Project outcomes.
- collaborative planning sessions that engaged key stakeholders and teams in the development of integrated project schedules aligned to programme milestone targets
- interface identification and definition (Project, Technical, Schedule & Commercial), with a supporting management plan to engage, resolve and monitor interfaces identified
- development of risk, issues, and opportunities in support of risk management and mitigation plans
- development of a Programme Management Baseline that integrated scope, time, cost and risk across projects and the programme level.

Collaborative planning sessions were especially helpful at engaging stakeholders by capturing and incorporating hindsight, insights, and foresight (developing innovative solutions). Project and Programme schedules were developed in Primavera P6, workshop outputs allowed the risk team to run Monte Carlo simulations to validate programme time risk allowances.

4.1 Project Launch and Execution

To support Project Managers and the Integrated Project Team to deliver in the execution phase, the monitoring and control cycle focused teams on delivery of the critical path and development of horizon scanning techniques including lookahead, mitigation and recovery

plans. Weekly meetings were implemented to review progress, health & safety, schedule, early warnings (risks), commercials supported proactive management schedule and scope.

As contracts progressed through Pre-Construction to the Construction Phase, early contractor engagement and team launch were initiated to onboard teams and ensure client and contract teams understood the imperative of Health and Safety and the importance of the Programme schedule in an Engineering and Construction Contract (NEC4) context. Integrated planning sessions to refine delivery schedules and enable acceptance were key to integrating contract schedule and cost estimates and validating interfaces. To support delivery and performance reporting tools and process including Asite and [CEMAR](#) were deployed to facilitate and expedite project and contract communications.

Early engagement with the contractor at team launch allowed delivery teams to collaborate and identify hazards, threats, and exploit project opportunities. During this phase risks, issues, and opportunities registers were compiled, regularly reviewed, and updated by Project teams to support commercial management. Schedule analytics and Quantitative Schedule Risk Analysis also supported horizon scanning and risk mitigation. The early identification of hazards and risks resulted in a collaborative review of the delivery sequence. This in turn allowed the programme to expedite the wider programme sequence and mitigate forecast delays.

4.2 Performance and Control

As NLHPP has progressed and with the onset of COVID19, the digital integration plan was developed to support collaboration, communication, and delivery in a socially distanced environment. Digital delivery solutions deployed include Programme Insight Manager (PIM), Asite, Microsoft teams and CEMAR to facilitate delivery, commercial integration, data management and reporting.

PIM integrates data from across the enterprise to provide a single source of project information that improves real time collaboration and reporting through improved data accessibility. The platform integrates project systems including Primavera P6, Asite and CEMAR and provides cost, finance, risk and health and safety modules allowing the production of period and ad-hoc reports. Programme and Project interfaces allow delivery teams to access data from a variety of sources providing the Project Manager and user with a consolidated view of delivery scope, time, cost, and risk data. PIMs planning scheduling and interface module is helping project teams manage and deliver key contract interfaces on site.

As part of a collaborative culture and continuous improvement design, construction and operational teams meet regularly to collaborate and exploit opportunities, plan in Health & Safety mitigations and plan out risks before they become issues. Examples of this are the construction and site traffic working groups which review weekly schedule outputs and lookaheads to agree a co-ordinated traffic sequencing and construction approach.

Programme schedule integration supports progress reporting vertically and horizon scanning techniques to proactively manage and mitigate delivery and interface risks. This approach allows project teams to identify and resolve a complex cross project delivery issues; resequencing of the sewer diversion works to expedite construction and de-risk a critical construction and contract interface is just one example of how supports Project delivery.

4.3 Benefits and Road Ahead

To date the Programme has delivered key outcomes during COVID19 to time and budget and will have achieved completion of enabling works packages by Q3 2021. The establishment of the digital PMO (planning, finance, monitoring and controls) has provided Project Managers with data and insights that allow them to focus on the delivery of key project outcomes, whilst incorporating Project values; social factors, apprenticeships, local engagement, and environmental impacts that deliver the clients required outcomes in support of benefit realisation.

The current challenge for the Project and Project Controls team is how to incorporate carbon reduction objectives and sustainable development goals into all aspects of the programme to ensure we achieve NLWAs wider aim: “preserve the resources and the environment today and for future generations.”

4.4 Lessons Learned

What lessons have we learned on the way:

- people and teams deliver projects; develop solutions that deliver the clients requirements ensuring stakeholders are engaged. Adapt process and tools to enhance and expedite delivery and allow budget and time for training
- projects succeed or fail one day one activity at a time; so, ensure delivery scope, targets, budgets, and outcomes are agreed with the team and documented in a plan and schedule. Regularly review the plan with the team to deliver the outcome.
- collaboration is crucial; seek regular feedback to ensure process and tools deployed are being used and are enhancing delivery.

5 Conclusion

Establishing the project controls environment as a fundamental part of the NLHPP structure has played a key role in delivering progress to date and in setting up future projects for success. Robust and consistent working practices, coupled with integration of specialist resources into project teams has enabled a strong understanding across stakeholders, who have confidence in their data and can make informed decisions.

The use of digital tools has enabled and enhanced sustainability of the processes while improving inclusion amongst the breadth of the team. Opportunities to innovate through automation and system improvements, continues to be an ongoing focus.

The project controls approach has been vital in designing the path to success for the NLHPP works, maintaining its performance to date, and in providing confidence that the necessary tools, systems, and skills are in place to successfully complete the programme.

6 Acronyms

APM – Association for Project Management

EfW – Energy from Waste

ERF - Energy Recovery Facility

NLHPP – North London Heat & Power Project

NLWA – North London Waste Authority

PMO - Programme Management Office

7 Bibliography

APM-body-of-knowledge-7th-edition

APM Planning Scheduling Monitoring and Control

APM Risk Management – PRAM

APM Guide to Life Cycles and Life Cycle Models

5. Author profiles

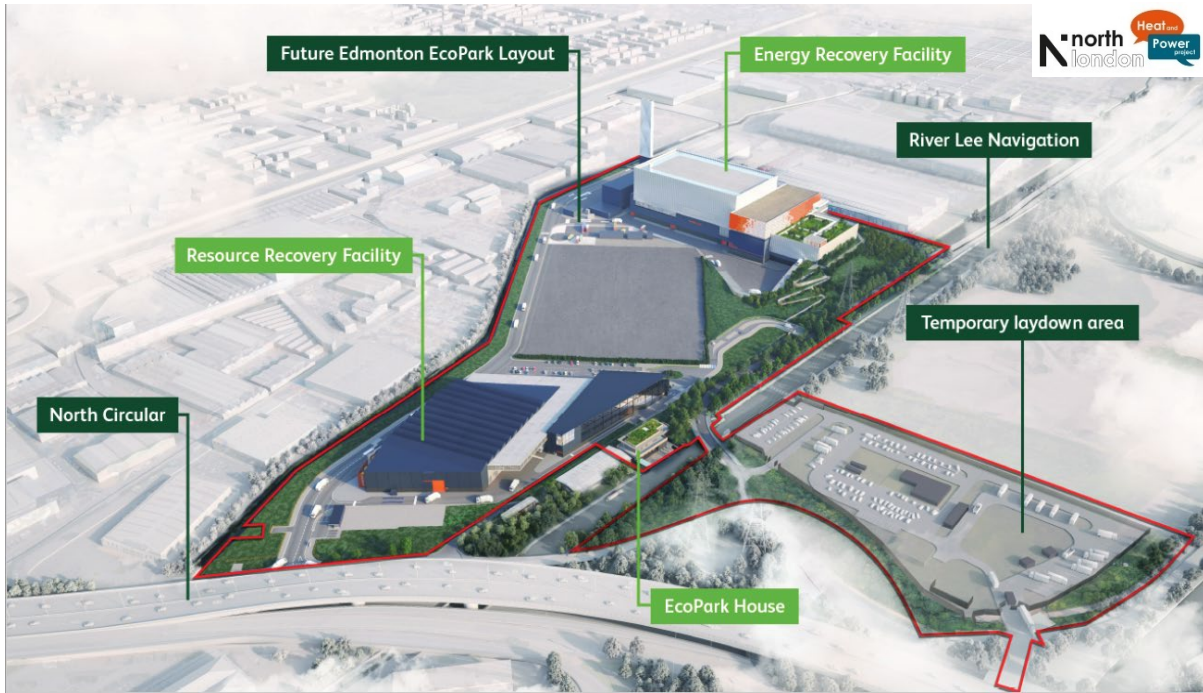
[Dr Scott Borthwick](#) is a Senior Project Manager with Arup who leads the Project Management Office at the North London Heat and Power Project. He has led PMO's in multiple large infrastructure programmes and is an enthusiastic proponent of establishing highly skilled Project Management and Project Controls teams that bring a best practice approach to his clients.

[Julian Hardy](#) leads the Programme Planning Lead team on the NLHPP and is a Senior Consultant at Arup. Julian has previously worked on London 2012, Tideway Tunnels and Birmingham Resilience projects. Having attended Project Controls Expo in 2019 Julian has had the opportunity to recommend the Programme Insight Management toolset to the innovation and continuous improvement team at NLHPP. Implementation of a digital PMO has enabled delivery teams to integrate Project Management, Project Controls, Change, Risk and Finance team data allowing a more efficient and streamlined reporting cycle. This in turn has enabled delivery teams to focus teams on horizon scanning and risk mitigation.

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North London Heat & Power Project (NLHPP)



Integrated Project Controls



Digital PMO aligning delivery scope to time and budget, providing strategic insights to deliver on time

