NORTH LONDON WASTE AUTHORITY

REPORT TITLE: TECHNICAL ASSURANCE STRATEGY

REPORT OF: PROGRAMME DIRECTOR

FOR SUBMISSION TO: PROGRAMME COMMITTEE

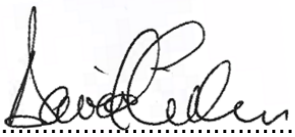
DATE: 2 MARCH 2020

SUMMARY OF REPORT:

This report covers the strategy for technical assurance on the North London Heat and Power Project.

RECOMMENDATIONS:

The Committee is recommended to note the approach set out in the Technical Assurance Strategy in Appendix A.

SIGNED:  **Programme Director**

DATE: 19 February 2020

1. INTRODUCTION

1.1. The North London Heat and Power Project (NLHPP) team are currently developing and implementing a programme manual - a suite of documents designed to guide successful delivery of the programme. Within this, a series of strategy documents will form the top level of the manual defining the challenges to be addressed, and the strategic approaches to meeting these. The initial set of strategies identified for development and their outline purpose is included in Table 1.

Strategy	**Outline Description**
Resourcing	Addresses the need for people, assets and funds.
Health, Safety & Wellbeing	Considers all aspects of keeping all parties associated with the NLHPP safe and well
Technical Assurance	Addresses how the Authority will oversee the development of the technical solution and design development
Commercial	Considers the procurement and subsequent delivery of contracts
Risk Management	Looks at the approach to risk on the programme
Monitoring & Control	Considers aspects associated with scheduling, controlling costs and reporting on the programme.
Information Management	Looks at the control of our information, data and knowledge.
Stakeholder Engagement	Addresses the challenges associated with the range of stakeholders in the programme.
Financing	Considers the challenges associated with planning, obtaining and managing the necessary financing for the programme

Strategy	Outline Description
Social Value	Looks at the aspects of social and community benefits that the works will bring.
Construction Management	Deals with the core construction activities and the challenges linked to interfaces, operational site working and logistics.

Table 1 - List of NLHPP Strategy Documents

1.2. These strategies are being provided to Members at suitable opportunities to enable an understanding of these challenges of those elements of the project, and how the project team will address them.

2. TECHNICAL ASSURANCE STRATEGY

2.1. This report provides a summary of the Technical Assurance Strategy. The strategy's purpose is to ensure that there is a formal, well defined, and systematic approach to technically assure that engineering design and performance criteria are met throughout the NLHPP. This will include assurance that the new assets are fit for purposes, to the required quality standards, are compliant with the requirements of the development consent order and other statutory requirements, and ultimately enable ease of transfer of the new assets to the operator.

2.2. This strategy has been developed to align to the Health, Safety and Wellbeing, Commercial, Risk Management, Information Management and Construction Management strategies.

2.3. This strategy highlights the challenges faced by NLHPP in this context. These include ensuring technical compliance, technical change management, value engineering, avoiding / minimising disruptions to the schedule as a consequence of a technical solution, design coordination and interfaces and commissioning, acceptance and operational reliability.

2.4. The strategic approach to management of these challenges is to:

2.4.1 Have a singular cohesive design management and technical assurance plan, which can be adapted and applied to all stages of the project from concept to handover and operations;

2.4.2 Define a structured process to document and monitor progress of the project design development;

2.4.3 Promote methods of collaborative working across all design and technical stakeholders (client and end users; technical advisors; supply chain partners);

2.4.4 State the expected roles and responsibilities during the design management and technical assurance process, and ensure professional and competent personnel are appointed into these roles; and

2.4.5 Use of BIM (building information modelling) across the programme of projects, use of visual tools during the design phase to incorporate operational needs, and early adoption of digital tools to capture and maximise use of asset information.

2.5. Further detail is contained in Appendix A.

2.6. The key risks to achieving successful implementation of this strategy are:

2.6.1 Misalignment with other functional strategies and supporting management plans;

2.6.2 Limited visible leadership support and user acceptance of the strategy and management plans;

2.6.3 Limited financial and leadership investment in early adoption and implementing appropriately sized and capable digital tools and information systems;

2.6.4 Overly complicated processes and systems, which do not promote collaborative and best practice solutions; and

2.6.5 Overly burdensome processes that are too reliant upon a singular organisation or individual to be able to achieve the required efficiencies to support timely achievement of the delivery outputs.

2.7. These risks will be monitored and mitigated through regular compliance reviews, stakeholder management and frequent monitoring of the suitability of the management plans.

3. NEXT STEPS

3.1. As with all the NLHPP strategies they are supported by a suite of management plans and processes that detail the specific methods, systems and roles required to deliver our strategies.

3.2. This strategy will be reviewed on a regular basis and updated to reflect the changing environment of the programme and its external environment. Updates will be provided to Members as they are brought into use.

3.3. In support of this strategy the following activities are under development:

3.3.1 North London Waste Authority (NLWA) long-term asset management strategy to include operational and maintenance performance criteria;

3.3.2 System testing, commissioning, asset integration and operational handover procedures; and

3.3.3 Embedding Building Information Management (BIM) across the engineering design and construction phases as a digital enabler to promote the equal value of asset data to the physical asset.

4. EQUALITIES IMPLICATIONS

4.1. The strategy considers the need for all information to be accessible to stakeholders with disabilities and the use of appropriate tools for this purpose.

5. COMMENTS OF THE LEGAL ADVISER

5.1. The Legal Adviser has been consulted in the preparation of this report and has no comments to add.

6. COMMENTS OF THE FINANCIAL ADVISER

6.1. The Financial adviser has been involved in the preparation of this report and all comments have been incorporated.

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APPENDIX A: TECHNICAL ASSURANCE STRATEGY

Technical Assurance Strategy

Document Details	
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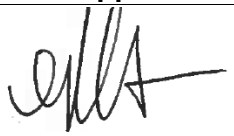
Assurance Record			
	Author	**Check & Review**	**Approval for Use**
Name	**Ian Cox**	**Euston Ling**	**David Cullen**
Role	**Technical Assurance Support**	**Technical Assurance Lead**	**Programme Director**
Signature			
Date	19/11/2019	19/11/2019	19/11/2019

Revision Record		
Rev. No.	**Date**	**Description of Revision**
P01.1	15/08/2019	Issued to NLWA technical assurance team for comment
P01.2	20/09/2019	Comments incorporated from technical assurance
P01.3	17/10/2019	Additional content added to align with NLHPP programme strategies template
P01.4	07/11/2019	Incorporates comments from S. Borthwick
P02	19/11/2019	Version for approval by Programme Director

Engagement Confirmation		
Function	**Role Support**	**Notes**
Programme Director	**C**	Consulted
SRO	**C**	Consulted
SHE&W	**C**	Consulted
LEL	**N/A**	
Technical Advisor	**N/A**	
Technical Authority	**C**	Consulted
Programme Office	**C**	Consulted
Project Delivery	**C**	Consulted
Legal & Governance	**C**	Consulted

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1 Context and Vision

The North London Heat and Power Project (NLHPP) (the Programme) was been granted a Development Consent Order (DCO) in 2017 and has now moved into its delivery phase. This brings new challenges and shifts the focus to the discharging of consents, procurement of works, completion of design, management of construction and demolition/decommissioning, and commissioning the new facilities. In addition, the Environmental Permit for the site was granted by the Environment Agency in June 2017 and updated in 2019.

The Programme is the replacement of the existing energy from waste (EfW) plant at the Edmonton Eco Park with a new Energy Recovery Facility (ERF). The Programme includes provision of a Resource Recovery Facility (RRF) for reception and transfer of waste incorporating a public Reuse and Recycling Centre, and EcoPark House (EPH), a visitor centre which will be used to provide community / education space and back up office space. In preparing for and carrying out the works in the NLHPP programme, the management team is working closely with LondonEnergy Ltd (LEL) the operators of the EcoPark and the current EfW plant.

Create a waste management facility in which local communities take pride, which demonstrates value and is a model for public sector project delivery"

The NLHPP leadership team have developed a vision for the Programme, highlighted above. Each function of the programme organisation will play a role in delivering the vision and this document, the "functional strategy", sets out the challenges to achieving the vision and the approach to overcoming them.

Each function of the programme organisation contributes towards the achievement of the vision and delivery of the facilities covered by the DCO by leading one or more strategies within its remit.

The overall purpose and remit of the Technical Authority is to ensure new infrastructure meets the long-term waste management needs of NLWA.

2 Purpose

This document is the function strategy for Technical Assurance incorporating Requirements Management, Design Management and Technical Assurance. Its purpose is to ensure that the facilities are fit for purpose and of the required quality, maximising environmental benefit, facilitating effective transition of current operations to new facilities, and enabling the future development of the EcoPark led by the Technical Authority function.

The primary focus is to:

- Define the processes and controls in development of design solutions;
- Promote and facilitate collaborative working and informed decision making;
- Identify specific roles and duties and their accountabilities, in the development of design solutions; which will provide clarity and an auditable content that the design solutions integrity and contribution to the project outcome can be technically assured.

3 Starting Point

Typically, the transactional process for documenting design needs, producing a design output and completing a technical assurance review has been a mixture of formal and informal processes.

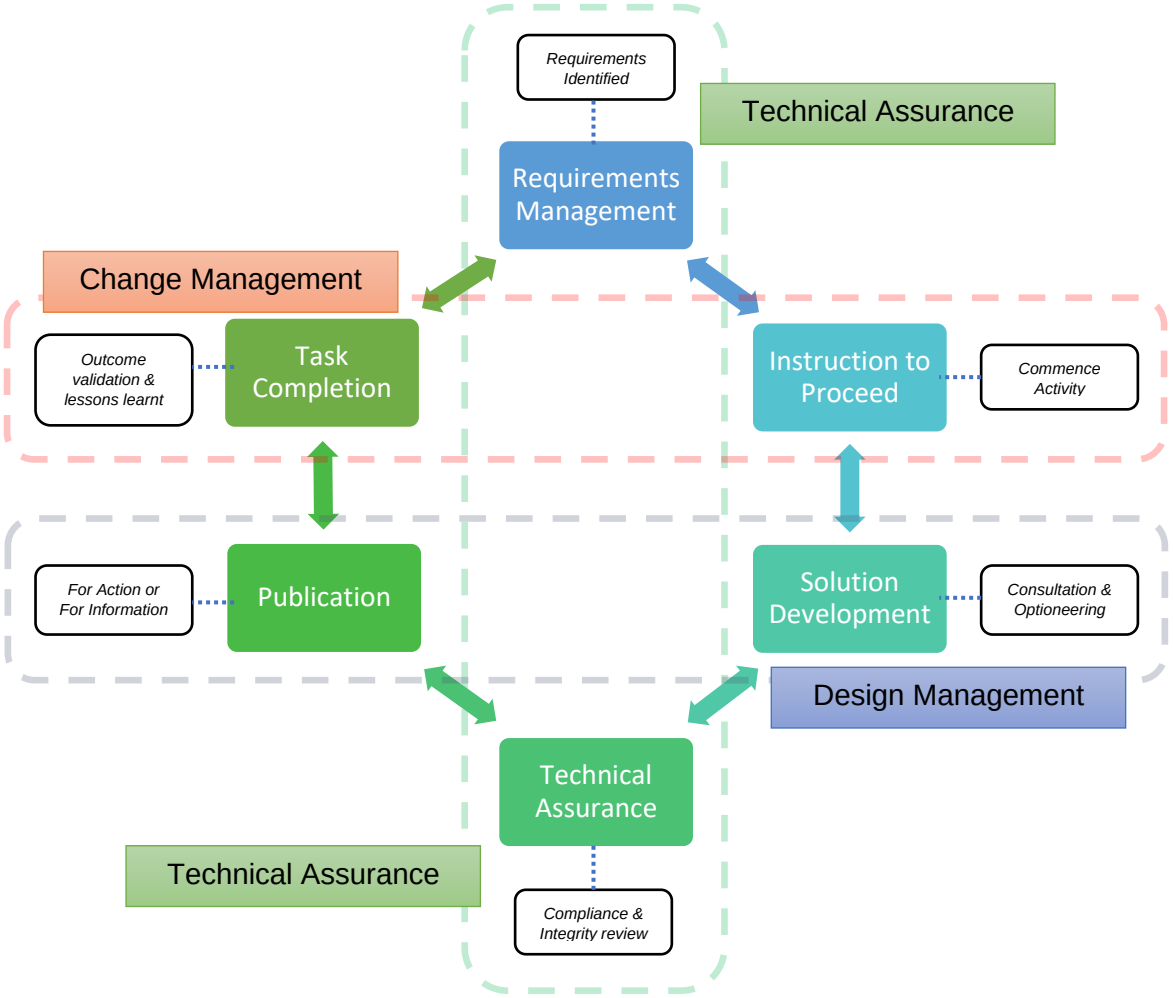
Task	Current Method	Future Method
Requirements Management	Task by task description communicated by email	Project form statement of requirements (in Asite) identifying requirements for multiple activities by vendor
Work Package planning sheet	Project form (Word template in individual formats per consultant) stating offer of services to deliver the scope	Project form Design Work Package and associated documents (in Asite) in a common format that relates to the statement of requirements and contains a specified minimum list of contents
Work Instruction	Project form (Word template) Task Order issued an instruction to proceed	Project form (in Asite) referencing the agreed Design Work Package as formal instruction to proceed
Design Management	Task specific co-ordination meetings and project specific design review meetings Email comment and approval process	Defined roles, responsibilities and levels of authority during the design management process Demonstrable design quality assurance process Follows (agreed) defined workflows in Asite for review, commenting and acceptance to be applied through the lifecycle of the project
Technical Assurance	Task specific meetings and project specific design review meetings Email comment and approval process	Defined roles, responsibilities and levels of authority during the technical assurance process Expected levels of consultation, interface management and value creation Follows (agreed) defined workflows in Asite for review, commenting and acceptance to be applied through the lifecycle of the project

The current method has to date continued to deliver in line with the master programme. However, there is a need and want to create a formal and consistent approach across all design disciplines for the lifecycle of the programme of works. This will be referred to as the project design lifecycle.

The project design lifecycle is represented below in diagram 1.0. The design and technical assurance plan consist of three parts:

- Requirements Management
- Design Management
- Technical Assurance

Diagram 1.0 – Project Design Lifecycle



For details on change management refer to the Change Management and Task Order Plan.

4 Challenges

The challenges that the programme faces that this strategy will address are:

Challenge	Description
Ensuring compliance	Compliance with DCO requirements, the Environmental Permit, and associated agreements with key stakeholders
Technical change management and control	Concept guardian and technical arbiter for North London Waste Authority to ensure engineering design solutions satisfy the requirements of the basis of design

Challenge	Description
Value engineering	Optimising the conceptual, technical and operational aspects of each project deliverables
Avoiding / minimising disruptions	Technical and design solutions that minimise impact on the ongoing services on the EcoPark while ensuring constructability of the various work packages
Achieving planned construction, commissioning and acceptance *(schedule management)*	Technical and design solutions that facilitate and promote realistic timeframes in the face of a challenging programme and ongoing financial pressures
Operational reliability	Delivering long term operational reliability and operator satisfaction
Design co-ordination and interfaces	Development of technical solutions that promote common design components, minimise design clashes and repeat work and maximise the opportunity for collaborative led engineering design solutions

5 Strategic Approach

The strategic actions that will be taken are:

Area	Explanation	Addresses
Development of design management and technical assurance processes	Have a singular cohesive design management and technical assurance plan, which can be adapted and applied to all stages of the project from initiation to handover and operations	Compliance Change Management Value Engineering Schedule Management
Development of design gateway processes for verification that technical requirements have been met	Define a structured process to document and monitor progress of the project design requirements	Compliance Change Management Value Engineering Schedule Management
Early development of transition plans for new facilities as they are constructed, commissioned, and brought into service	Promote methods of working for collaborative working across all design and technical stakeholders (client and end users; technical advisors; supply chain partners)	Compliance Value Engineering Schedule Management Avoiding / minimising disruptions Operational reliability
Setting of operational and maintenance requirements	State the expected roles and duties during the design management and technical assurance process	Avoiding / minimising disruptions Change Management Operational reliability
Digital design management and best in class asset information management	Use of BIM across the programme of projects; use of visual tools during the design phase to incorporate	Compliance Value Engineering Schedule Management

Area	Explanation	Addresses
	operational needs; early adoption of digital tools to capture and maximise use of asset information	Avoiding / minimising disruptions Operational reliability
Change in technical and design resource personnel (individuals not organisations)	Over the tenure of the programme likely that individual resource will change (career progression, etc). Embedded processes facilitate consistency of application and controls	Compliance Value Engineering Schedule Management Avoiding / minimising disruptions Operational reliability

6 Supporting Plans

Plan	Purpose	Description
Access & Security Protocol	To control access to NLHPP information	Sets out the methods by which parties will be provided access to relevant information and audit process to maintain it.
BIM Strategy & Employer's Information Requirements	To define the approach to Building Information Management	Sets out the BIM targets for the programme and the requirements leading from this to be delivered by the designers and contractors.
Design Management and Technical Assurance Plan	Assurance of design process	a. Technical concept guardianship; b. Defining design specifications ensuring NLWA's requirements are properly reflected in project documentation; c. Design, constructability, quality and value reviews for assurance of designs developed by technical advisers; d. Design, constructability, quality and value reviews for assurance of designs received from contractors; e. Setting of acceptance testing regime and reliability periods for to ensure long term operability.
Asset Management Plan	To establish aims and objectives regarding the asset information requirement	Define the asset information requirements to be used during design and construction for eventual use by the asset operator
Digital Strategy/Plan	To establish aims and objectives regarding the use of digital technologies.	Set out the approach to identifying and developing opportunities for digital enhancements and tools for managing and using programme data.
Document & Deliverable Assurance Protocol	To define quality protocols over Deliverables and document publication.	Sets out the approvals and controls that ensure the correct versions and publications are used and for their appropriate purpose.

Plan	Purpose	Description
Information Management Plan	Method of management for Programme Information	Sets out in detail the systems and processes to be used for implementing the Programme's Information Management Strategy (e.g. approvals, transmission protocols, document naming)
Materials, Plant, and Equipment Quality Assurance Plan	Assurance of materials, plant, and equipment	a. Material, performance guarantees, quality specifications at design stage; b. Factory and materials inspections during fabrication; c. Construction inspections and records; d. Witnessing of commissioning and acceptance tests; e. Snagging and defects management.
Operational Transition Plan	Manage transition from existing to new facilities	a. Timetabling of transitional activities; b. Setting out of staffing and training requirements; c. Fulfilling pre-operational permitting requirements; d. Safety and personnel requirement checks; e. Snagging and operational defects management.

7 Risks

Summarised below are the key risks, which if they occur are likely to impact the successful implementation of the technical assurance strategy.

Key Risks	Mitigation
Other supporting plans (as referenced above) and the technical assurance plan are not complimentary of each other.	Consultation with other function strategy plans; alignment of objectives to an agreed programme strategic vision.
Users of the Technical Assurance Plan continue to operate under existing informal processes, and do not adopt the new formal processes.	Consultation with users during the development of the technical assurance plan. User implementation and training sessions; self-audit and compliance audit; regular review of the plan for relevance to the current phase of the programme.
Limited financial and leadership investment in early adoption and implementing appropriately sized and capable digital tools and information systems.	Early identification and endorsement of preferred systems and implementation, with clear set of benefits. Benefits tracking and escalating for prompt resolution of matters that will prevent a co-ordinated and timely system(s) implementation.
Limited visible leadership support, at all levels within each organisation and	Strategy, management plan, processes and procedures clearly understood and supported

Key Risks	Mitigation
within the programme team, to ensure adoption and compliance with the plan.	by all levels of leadership within each organisation. Visible promotion and communication on the importance of compliance.
Restricted evolution of the Technical Assurance Plan, which is unable or unwilling to adapt to the requirements of its users.	Regular reviews of the function plan, processes and procedures to adapt to the various phase of the programme, from concept through to handover and project closure.
Overly complicated processes and systems, which do not promote collaborative and best practice solutions.	Use of existing best practice and adoption of lessons learnt from past experiences. Consultation at appropriate levels of each organisation to create a system that supports their ways of working.
Overly burden processes that are too reliant upon a singular organisation or individual to be able to achieve the required efficiencies to support timely achievement of the delivery outputs.	Establish roles, responsibilities and level of authority to accept, comment and non-acceptance of technical and design solutions. Set achievable timeframes to action assigned tasks using digital system workflows.

For reference, the key technical risks that have been identified for consideration during development of the technical solution are as follows:

Key Risks	Mitigation
Late delivery of key utilities by Distribution Network Operator	Ongoing liaison with DNO key contacts
Delayed feedback from Environment Agency, delaying discharge applications to London Borough of Enfield	Frequent chasing of Environment Agency
Onerous discharge requirements demanded by London Borough of Enfield	Ongoing regime of technical discussions with London Borough of Enfield
Poor ground conditions across the site	Extensive geotechnical monitoring programme in place
Work packages interfaces	Operational and constructability reviews
LondonEnergy Ltd operational interface	Regular liaison meetings taking place with a view to ramping up liaison frequency
Poor communication between Delivery Managers & Technical Advisers	Promotion of more effective communication channels and collaborative working

8 Development

This strategy is valid for the project life of the NLHPP programme of works.

This strategy document and associated plans are to be reviewed every six months. This is to allow a check that new or emerging challenges and strategic opportunities continue to be

addressed suitably and that systems, processes and people engagement remains fit for purpose and is compliance with its requirements.

To monitor the development and compliance with this plan, periodically internal audits will be undertaken. The purpose of the audits will be to identify and where required implement improvement actions. Typically, these audits will consider:

- Decisions and actions following the agreed matrix and workflows
- Time periods for response and number of revisions
- Relevance of the outcome to the initial requirement
- Assessment of roles and responsibilities to ensure best fit for tasks completion
- Process applied for resolution of emerging issues and opportunities

9 Resources

The resources required to support this strategy are:

Resource	Function and Task
Funding	Provision of a realistic and affordable budget to secure expertise and information management systems for the life cycle of the project
Expertise	Appointment of suitably qualified and competent subject matter experts to enhance the programme intellectual capability and design a best in class asset base
Systems	Early implementation of digital tools with a primary function to facilitate efficient and robust information exchange, collaborative designs and design compliance auditing
Processes	Consistency of approach to the instruction of design requirements, design management, technical assurance, common design elements and components and asset interface and integration
Leadership	Shared vision and clear lines of accountability with other programme departmental functions working towards objective and outcome.

The personnel resources required to lead and support with the implementation and achievement of the strategy will come from within the NLHHP team as follows:

Role	Primary Responsibility	Task
Technical Assurance Manager	Challenge, review and authorising with a primary focus on achieving the best overall project outcome within the governance parameters. Providing leadership and guidance on the requirements management to ensure with the design vision and ambition.	Authorising
Technical Assurance Officer	Challenge, review and authorising with a primary focus on achieving the best overall design solution within the governance parameters. Providing leadership and guidance on the requirements management to ensure compliance with the design vision and ambition.	Authorising
Asset Operator	Providing support and advice on the operational activities, management, maintenance and interfaces requirements between each asset	Consult and Support

Role	Primary Responsibility	Task
Technical Advisor (Thermal)	Leading on thermal process engineering technical solution and design development, standards and specifications	Responsible
Technical Advisor (Civil Works & Buildings)	Leading on civil works and buildings engineering design development and solutions, standards and specifications	Responsible
Architect	Leading on all architectural aspects including spatial management, internal and external finishes and general layouts. Promoting and endorsing the project design vision and ambition.	Responsible
Planning & Consents Manager	Challenge and review the design to ensure compliance with planning and consent approvals.	Consulted

10 Functional Stakeholders

A high-level summary of stakeholder interfaces is summarised below.

For further details on stakeholders refer to the Stakeholder Management Plan.

Stakeholder	Relationship
Commercial	Input into procurement and other commercial documentation as required
Finance	Informing budget setting and control
Governance and Legal	Input into contractual and other documentation as required
Health, Safety and CDM	Advice and guidance on compliance with relevant legislation and procedures; hazard identification
Members	Provision of technical input into Authority Papers and promote benefits of NLHPP
Officers	Provision of technical information and promotion of benefits of NLHPP
Operator/LEL	Ongoing liaison to minimise construction impacts on ongoing operations, develop transitional arrangements, and ensure future operability of new facilities.
Planning Advisors	Ensure the discharge of DCO requirements with Discharging Authority (LB Enfield)
Programme Office	Informing programme setting and delivery
Project Delivery	Ensure delivery of works comply with DCO, Environmental Permit, Operational, and Authority's technical requirements
Supply Chain/Contractors	Technical concept guardianship through the review of design proposal and assurance of outputs
Technical Advisors	Managing technical output to ensure compliance with the Authority's design intent