Transport for London

SCHEDULE 1 - SCOPE

COMMERCIAL, SURFACE TRANSPORT

SCOPE

FOR

BLACKWALL TUNNEL SOUTHBOUND, PHASE 1 CONCEPT DESIGN

Call-Off Contract under the tfl_scp_001746d Surface Transport Infrastructure Construction Framework

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Project Reference Number: tfl_scp_002140

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1 Definitions and acronyms

1.1 Definitions

Term	Definition
Designer	An organisation or individual, who prepares or modifies design for a construction project (including the design of temporary works); or arranges for or instructs someone else to do so.
Horus	Horus ("all seeing eye") comprise a modular, scalable and extensible system that enables the safe and reliable operation of TfL's road tunnels. Its core processing apparatus is housed in two data centres. It also includes two fully integrated multiple users' interfaces in separate TfL buildings for resilience purposes. It enables maintenance terminals to be provided where needed as contracts change
Project Manager	Manages the project on behalf of the *Client*. Acts as the point of contact between the *Consultant* and *Client*.
Project Engineer	Manages the design interface between TfL and the *Consultant* on behalf of the Project Manager.
Project Team	Comprises of the *Client* and the *Consultant*. The *Consultant* appoints subcontractors and subconsultants to work alongside the *Consultant* and *Client*.
Design Management Plan	A pathway product template that aligns with the *Client's* organisation.

1.2 Acronyms

Acronym	Meaning
3D	Three Dimensional
AIP	Approval in Principle
ARM	Active Risk Manager
BEP	BIM Execution Plan
BIM	Building Information Modelling
BoQ	Bill of Quantities
CDE	Common Data Environment
CDM	Construction (Design and Management)
EDMS	Electronic Data Management System
EFC	Estimated Final Cost
EIR	Employer's Information Requirements
ITT	Invitation to Tender
NDT	Non-destructive Testing
NRSWA	New Roads and Streets Works Act

PCI	Pre-construction Information
PPMP	Pathway Product Management Plan
PRS	Project Requirements Specification
QRA	Quantitative Risk Analysis
SCADA	Supervisory Control and Data Acquisition
SDR	Scope / Design Review
STIC	Surface Transport Infrastructure Construction
TA	Technical Assurance
TAA	Technical Assurance Authority
TfL	Transport for London
TMA	Traffic Management Act
TLRN	Transport for London Road Network
TRS	Technical Requirements Specification
VfM	Value for Money
WLC	Whole Life Cost

2 Organisational Overview

2.1 Transport for London

2.1.1 TfL is an executive body of the Greater London Authority, created in 2000 as the integrated body responsible for the Capital's transport system. Its primary role is to implement the Mayor of London's Transport Strategy and manage transport services across the Capital. TfL is made up of many predecessor organisations covering almost all transport modes in London, and therefore has the ingredients and accumulated experience to provide one of the largest integrated transport systems in the world.

2.1.2 TfL comprises of different modes. The modes are Surface Transport, Corporate, London Underground and Rail. TfL is a partner in Crossrail.

2.1.3 TfL manages London's transport network and is responsible for London's buses, the Underground, the Docklands Light Railway (DLR), London Overground, London River Services, London Cycle Hire, electric vehicles and policing. TfL also runs Victoria Coach Station and the London Transport Museum.

2.1.4 TfL is responsible for managing 360 miles (580km) of the TfL Road Network (TLRN) – all the red routes in London; including junctions, tunnels, bridges, flyovers, and all of London's 4,600 traffic lights, keeping them safe and the traffic flowing every minute of every day. In addition, it manages the London Congestion Charging and Lane Rental schemes and regulates the city's taxi and private hire trade. TfL also promotes a range of walking and cycling initiatives across the Capital.

2.2 Business units

2.2.1 The *Client*'s Investment Delivery Planning (IDP) Directorate leads on sponsorship of asset renewals of tunnels and structures on London's road network through the use of 21st century techniques and technology, ensuring road space works efficiently for all users.

2.2.2 This project is sponsored by the *Client*'s Surface Major Project & Renewals team within the IDP Directorate. It is responsible for ensuring all Surface Transport assets: roads; pavements; bridges; lighting; traffic signals; bus stations; bus stops and shelters; and trees, within the boundaries of the TRLN, are provided and managed in a way that is fit for now and for the future, by minimising costs, and creating safe, reliable and cared for infrastructure for our customers.

2.2.3 TfL Engineering are the Technical Approval Authority.

2.2.4 This project is to be managed and delivered by the *Client*'s Project and Programmes Directorate (PPD).

2.3 Project management methodology

2.3.1 TfL follows an integrated project management delivery methodology known as Pathway. Pathway comprises six stages:

0	Initial Proposition	The problem to be addressed is understood and the proposition has been included in the Business Plan
1	Outcome Definition	Establishes the business outcomes and benefits that the project must deliver
2	Option Selection	Determines whether the proposed outcomes and benefits are achievable and deliver best value – that all the options have been assessed and a single feasible option has been selected
3	Concept Design	Defines the design principles and freezes the scope of the project
4	Detailed Design	Produces a detailed design that delivers the required outcomes and is used as the basis of a contract for delivery of the physical outputs
5	Delivery	Builds the physical outputs of the project, confirms acceptance by end users and hands the outputs over into operational/business use and maintenance, including necessary supporting documentation
6	Project Close	Ensures that the project is closed in a controlled manner

2.3.2 The scope of work for this commission is related to Pathway Stage 3 (Concept Design) only.

3 Purpose of the *Services*

3.1 Structure description

3.1.1 The 2-lane carriageway Blackwall Tunnel Southbound road tunnel on the A102 was opened in 1967 [redacted] The structure connects the Blackwall district of Poplar in the Borough of Tower Hamlets north of the river to the Peninsular

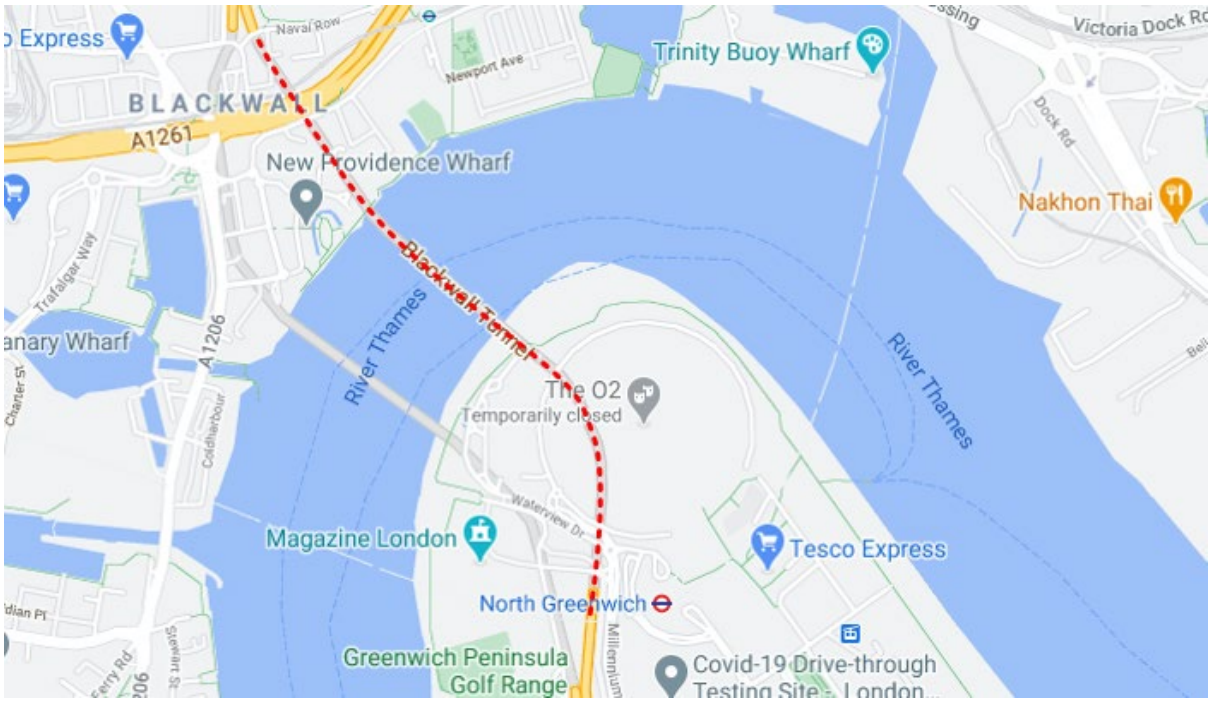
district in the Borough of Greenwich south of the river. The speed limit in the tunnel and approaches is 30mph.

3.1.2 [redacted]

3.1.3 [redacted]

3.2 Structure location

Figure 1: Structure location



3.3 Project background

3.3.1 Blackwall Tunnel Southbound has been identified as a critical project. A 2018 feasibility study confirmed critical tunnel systems are in urgent need of renewal as they are in poor condition, have declining performance and have high fault frequencies.

3.3.2 Many elements of these systems have obsolete components which are no longer being manufactured and are becoming increasingly difficult and costly to source.

3.3.3 Additional maintenance requirements and increasing failures/outages are causing disruption to road users and increasing operational costs.

3.3.4 The strategic context for the project was set out as part of the Major Assets and Renewals Programme (MARP) which requires Blackwall Tunnel to be safe and operable. Strategic service descriptions are defined in Table 1.

Table 1: Strategic service descriptions

Service	Description	What does this look like?
Safe	The assets are safe to use and do not pose an undue level of risk to customers, staff or supply chain	• Low level of incidents and claims linked to assets • We are able to robustly demonstrate we are maintaining a safe asset/network
Operable	The assets are able to perform their required function (although not necessarily to required levels of reliability)	• Assets may be out of service for short periods of time to restore operability (hence impact on reliability) • A network is considered operable if no more than one major asset/link is out of service at a time and for no more than 3 to 6 months • Adopting this approach is not considered to be appropriate for the Rail/LU networks
Reliable	The assets support a reliable service	• The assets deliver the defined level of service reliability; there may be different levels of reliability defined, e.g. Gold, Silver, Bronze • Close link between safety and reliability on Rail/LU networks

3.4 Project objectives

3.4.1 The key project objectives are to:

i. Reduce unacceptable safety and functional risks;

a. Assess and upgrade the tunnel systems using As Low as Reasonably Practicable

(ALARP) principles.

ii. Minimise reactive maintenance requirements and ongoing costs;

a. Upgrade of equipment will reduce maintenance costs.

iii. Reduce operating costs by installing energy efficient LED lighting.

3.4.2 Due to financial constraints and the operational need for the tunnel to be open for the duration of TfL's Silvertown Tunnel project build, this project is being undertaken in two phases:

i. Phase 1's primary aim is to stabilise the tunnel for the next 5 years, to ensure the tunnel is safe and operable for the duration of the Silvertown Tunnel delivery; replacing critical assets at the end of their serviceable life or obsolete assets where spares are no longer available.

ii. Phase 2 scope will be the main refurbishment including the ventilation improvements. This requires extensive closures to complete therefore has been planned to be carried out after Silvertown Tunnel is operational.

3.4.3 This scope is for Phase 1 - critical issues that need to be addressed in order to operate the tunnel safely in the next five years.

4 Summary of Requirements

4.1 Project scope packages

4.1.1 The high-level project scope items are as follows; more detail is found in Appendix E:

i. Replace lighting with LED based system

ii. Replace lighting support structure

iii. Replace CCTV system with modern system (in-bore and on approaches)

iv. Replace VMS signs with modern slimmer types (in-bore and on approaches)

v. Replace Lane Control Signs (in-bore)

vi. Undertake carriageway works. This consists of concrete repairs, crack sealing and waterproofing of the road deck

vii. Replace tunnel cladding where panels are currently missing

4.1.2 It is suggested that the *Consultant* splits the scope into five work packages, which are then combined into one single design.

4.1.3 Further details can be found in the Atkins Feasibility Report; Existing Information 5.12 (references given in the table below, in red).

Table 2: Work packages

	Works Package	Associated Civils	Key Interface
1	Replacement of lighting system with LED based system (OP1 BWT-B p183)	Replace lighting support structure	Integration with local SCADA and HORUS systems
2	Replace CCTV system with modern system (OP3 BWT-C p208)	Camera mountings	Integration with local SCADA and HORUS systems, Costain
3	Replace Signage (VMS and Lane Control Signs) (OP1 BWT-E p237)	Sign mountings	Integration with local SCADA and HORUS systems
4	Carriageway works	Concrete repairs, crack sealing and waterproofing of the road deck	N/A
5	Replace tunnel cladding	Replace tunnel cladding where panels are currently missing (c. 800)	N/A

4.2 High level requirements

4.2.1 This project is to undertake the concept design work required by Pathway Stage 3, for the renewal of safety critical assets in Blackwall Tunnel Southbound, Phase 1.

4.2.2 The *Consultant*:

i. Mobilises a design delivery team and completes mobilisation deliverables, within 2 weeks of the *starting date* as described in 5.1;

ii. Produces a stakeholder management plan and engages stakeholders appropriately as described in 5.2;

iii. Undertakes a comprehensive review of existing information, including the Pathway Stage 2 feasibility study and work completed to date as described in 5.3;

iv. Agrees a programme of site visits, surveys and site investigations with the *Client*, and undertakes the programme to complete any knowledge gaps as described in 5.4;

v. Produces a design management plan and manages the project design interfaces as described in 5.5;

vi. Develops a set of concept designs and TRSs for the work packages as described in 5.6;

vii. Ensures the design incorporates appropriate buildability and maintainability considerations as described in 5.7;

viii. Undertakes the Principal Designer duties under CDM Regulations as described in 5.8;

ix. Ensures the design incorporates appropriate Health & Safety considerations as described in 5.9;

x. Ensures the design incorporates appropriate Environmental considerations as described in 5.10;

xi. Undertakes value engineering in conjunction with the *Client* as described in 5.11;

xii. Ensures all design work undergoes technical assurance as described in 5.12;"

xiii. Develops the BIM documentation for each scope package and ensures the *Client's* systems are up to date as described in 5.13;

xiv. Develops the Pathway Stages 4 and 5 cost estimate and programme as described in 5.14; and

xv. Hands over the final designs (including assumption logs and version control registers), AiP documents and completion certificates as described in 5.15.

4.2.3 Regarding constraints, the *Consultant*:

i. Acknowledges the *Client's* target date for completion, as described in 7.1.

ii. Manages the project utilising project management techniques to manage performance and control costs and programme as described in 7.2;

iii. Conforms to a schedule of progress and performance meetings as described in 7.3;

iv. Prepares reports in line with the *Client*'s stated requirements as described in 7.4;

v. Considers build delivery constraints where other TfL projects of a similar nature or close distance, are being delivered as described in 7.5; and

vi. Operates a Quality Management System conforming to BS EN ISO 9001 as described in 7.6.

5 Specification and Description of the *Services*

5.1 Mobilisation

5.1.1 The *Consultant* mobilises its delivery team within 2 weeks of the *starting date*.

5.1.2 A Mobilisation Workshop is arranged by the *Client* within 2 weeks of the contract start date. The aim of the workshop is to:

i. Confirm the project team; key people from the *Client* and *Consultancy* – roles and positions

ii. Confirm the *Consultant's* supply chain

iii. Agree stakeholder map

iv. Discuss the remit of the surveys, investigations and testing, including any necessary consents and approvals required

v. Discuss *Consultant's* quality statement; agree and identify any gaps

vi. Agree the Early Warning Register

vii. Discuss any key risks and opportunities

viii. Discuss any significant health, safety and environmental issues

ix. Agree progress meetings schedule

x. Discuss and agree the baseline programme

5.1.3 The *Consultant* provides a programme for acceptance by the *Client* within 2 weeks of contract start; the programme should:

i. Be produced in Microsoft Project clearly stating name of each activity and its reference number as shown in the table of deliverables in Section 10 (MSP Unique ID column), duration and sequence with key deliverables shown;

ii. Be submitted in PDF format;

iii. Highlight dates where information is required from TfL and other parties;

iv. Identify *Clients* TA review periods in compliance with section 5.6;

v. Is produced in accordance with the constraints as outlined in 7.1

5.2 Stakeholder Management

5.2.1 The *Consultant* develops a Stakeholder Management Plan, containing an engagement tracker of all identified stakeholders. The *Consultant* records all contact made with stakeholders, including contact details, a summary of what was discussed and any actions. The *Consultant*:

i. Updates and maintains a tracker, identifying additional stakeholders and detailing interfaces, desired levels of engagement, power and interest information and risks concerning new and existing stakeholders

ii. Identifies opportunities and synergies in undertaking the site works to minimise disruption, and

iii. Makes this information available to the *Client*

5.2.2 Stakeholders include, but are not limited to:

i. Kier – Tunnel Maintenance Contractor

ii. PPD – Project Manager

iii. IDP – Senior Sponsor

iv. TfL Engineering – Project Engineer

v. TfL Discipline TAA's (various)

vi. TfL Tunnel Manager

vii. TfL Tunnel Safety Officer

viii. TfL Asset Operations

ix. TfL SHE Representative(s)

x. TfL BIM Representative

xi. TfL Systems stakeholders – i.e. Core Controls and Indra

xii. Representatives from neighbouring London Boroughs

5.3 Review of Existing Information

5.3.1 The *Client* makes available the existing information listed in section 6 from the beginning of the contract start.

5.3.2 The *Consultant* reviews the existing information, with careful consideration of the previous feasibility report and associated inspection reports.

5.3.3 The *Consultant* identifies knowledge gaps in the existing information and specifies the surveys /inspections required to eliminate these gaps.

5.3.4 The *Consultant* identifies knowledge gaps in the existing information and is required to prepare a report detailing the investigations/surveys required to eliminate these gaps.

i. On completion of the site investigations, a detailed factual and interpretive report shall be provided. The report shall include any recommendations for any additional investigations and/or testing likely required at detailed design stage
ii. Surveys, studies and assessments shall be carried out in accordance with the relevant standards in section 5.6.7, and access protocols as described in section 5.5.2

5.3.5 Upon review of the existing information provided, the *Consultant* produces a desk study report in compliance with SQA 2022.

5.4 Investigations

5.4.1 The *Consultant* engages with the *Client's* Lane Rental team during development of site investigation proposals, and the phasing and programming of these works. Where lane rental charges are considered unavoidable, the *Consultant* submits details of the costs to the *Client* (who is responsible for Lane Rental charges).

5.4.2 The *Consultant* undertakes the agreed surveys and site investigations, appointing appropriate subcontractors as required.

5.4.3 The *Consultant's* lighting designers visit site, familiarising themselves with the tunnel environment, and supporting the development of the design. The designer also uses the visit to inform the *Client* of any further investigations or surveys required to further support the design.

5.4.4 The *Consultant's* CCTV designers visit site, familiarising themselves with the tunnel environment, and supporting the development of the design. The designer also uses the visit to inform the *Client* of any further investigations or surveys required to further support the design.

5.4.5 The *Consultant's* signage designers visit site, familiarising themselves with the tunnel environment, and supporting the development of the design. The designer also uses the visit

to inform the *Client* of any further investigations or surveys required to further support the design.

5.4.6 The *Consultant*'s civil/highway designers visit site to undertake a survey of the following:

i. The road carriageway surface, designing the waterproofing layer for the road carriageway slab.
ii. The sub tunnel, designing and quantifying the work required to seal cracks and repair any concrete spalling to the underside of the road carriageway slab.

5.4.7 The *Consultant* informs the *Client* of any issue not identified in the existing tunnel reports listed in section 6. Particularly anything requiring immediate attention.

5.4.8 The *Consultant's* cladding designer visits site, familiarising themselves with the tunnel environment, and supporting the development of the design. The designer also uses the visit to inform the *Client* of any further investigations or surveys required to further support the design.

5.4.9 After completing the investigations, the *Consultant* produces a detailed factual and interpretive report. The report includes recommendations for any additional investigations and/or testing required.

5.5 Third Party Interfaces

5.5.1 The *Consultant* considers the need for the design to be delivered by third parties on behalf of the *Client.* Attendance of these third parties at the design meetings may be required to ensure all aspects are considered. Third parties include:

i. Indra - TfL contractor responsible for Horus works

ii. Costain - TfL contractor responsible for CCTV data networks

Tunnel Maintenance Contractor

5.5.2 All tunnel access is controlled by Kier; the tunnel maintenance contractor – who will provide guidance/procedures to be followed where entry to the tunnel is required.

5.5.3 Kier will conduct an induction with the *Consultant* before access is granted to the tunnel.

5.5.4 Kier currently have planned (maintenance) closures the last two weekends of every month. It is advised the *Consultant* tries as far as is practicable to utilise such closures for any required investigations.

5.5.5 Any investigations undertaken outside of such planned closures will require a permit. The *Consultant* is responsible for acquiring such approvals.