SCHEDULE 7A

Form of Agreement - Long Form Call-Off Contract

Call-Off Contract Number: PSFW2 ENG 94203 / Task 254 – Bakerloo Line Upgrade Stage 1: Feasibility Study on Delivery Strategies Options

Lot: A2 Multi Disciplinary Rail Services

Outline Agreement: [redacted]

THIS AGREEMENT is made the day of 2023

BETWEEN:

(1) **Transport for London,** ("the *Employer"* which expression shall include its successors in title and assigns); and

(2) **WSP UK LIMITED**, a company registered in England and Wales (Company Registration Number 01383511) whose registered office is at WSP House, 70 Chancery Lane, London, WC2A 1AF (the "Consultant").

WHEREAS:

(A) This Agreement is made pursuant to a Framework Agreement between the Parties relating to the provision of **TfL PSF2 94203 – Engineering Consultancy Services** dated 4th January 2021 ("the Framework Agreement").

(B) The *Employer* wishes to have provided **ENG 94203 / Task 254 - Bakerloo Line Upgrade Stage 1: Feasibility Study on Delivery Strategies Options** ("the Services")

(C) The *Employer* has accepted a tender by the *Consultant* for the design of the *services* and correction of Defects therein in accordance with the *Conditions of Contract* (in the form of the Long Form as set out in Schedule 2A of the Framework).

NOW IT IS AGREED THAT:

1. Terms and expressions defined in (or definitions referred to in) the *Conditions of Contract* have the same meanings herein.

2. The *Consultant* Provides the Services in accordance with the *Conditions of Contract.*

3. The *Employer* pays the *Consultant* the amount due in accordance with the *Conditions of Contract.*

4. The documents forming the contract are:

   4.1 this Form of Agreement duly executed by the Parties as a deed;

   4.2 the Conditions of Contract;

4.3 the attached Call-Off Contract Data Part 1;

4.4 the attached Call-Off Contract Data Part 2; and

4.5 the following documents:

- Employer's Specification – Attachment 1;
- Schedules 1, 2A, 6A, 7A and 7C inclusive of the Framework Agreement;
- Tender clarifications - Attachment 2;
- Consultant's Technical Proposal – Attachment 3;
- Post-tender clarifications – Attachment 4;
- Consultant's Commercial Proposal – Attachment 5

5. Where there is any discrepancy or conflict within or between the documents forming the contract the order of priority shall be as follows:

5.1 First : This Form of Agreement;

5.2 Second : The Conditions of Contract;

5.3 Third : The Specification and any other documents included in this contract.

6. Notwithstanding the manner of execution of this Agreement it is agreed that:

6.1 the limitation period within which any claim may be brought by the *Employer* for breach of this Agreement by the *Consultant* is 12 years from the date of breach; and

6.2 the *Consultant* agrees not to raise in defence of any such claim a shorter limitation period whether pursuant to the Limitation Act 1980 (as the same may be amended or re-enacted from time to time) or otherwise.

IN WITNESS whereof this Agreement has been signed for and on behalf of the *Employer* and the *Consultant* the day and year written above.

Signed by for and on behalf of the *Consultant*	))) Signature Print name and position: Date:
Signed by for and on behalf of the *Employer*	))) Signature: Print name and position: Date:

CALL OFF CONTRACT DATA - PART ONE

Data provided by the *Employer*
Completion of the data in full, according to the chosen options, is essential to create a complete contract.

Statements given in all contracts

1 General

- The *conditions of contract* are the core clauses as may be amended or supplemented by the clauses [redacted]
- The *Employer* is
  Name: Transport for London
  Address: 5 Endeavour Square, London E20 1JN
- The *Employer's Agent* is
  Name: [redacted]
  Address: [redacted]
- The authority of the *Employer's Agent* is as set out in Option X10.
- The *services* are for the provision of Consultancy Services in the form of **ENG 94203 / Task 254 - Bakerloo Line Upgrade Stage 1: Feasibility Study on Delivery Strategies Options**
- The Scope is in Attachment 1
- The *language of this contract* is **English**
- The *law of the contract* is **the law of England and Wales**
- The *period for reply* is 2 **weeks.**
- The *period for retention* is **12 years following Completion or earlier termination**.
- The *tribunal* is **the courts of England and Wales**
- The following matters will be included in the Risk Register
  . . . . . .

2 The Parties' main responsibilities

- The *Employer* provides access to the following persons, places and things

access to	*access date*
TfL Offices at 5 Endeavour Sq	.Contract period . . . . .

. . . . . .
. . . . . .
. . . . . .
. . . . . .

3 Time

- The *starting date* of the services is 24th July 2023
- The *Consultant* submits revised programmes at intervals no longer than those instructed by the *Employer's Agent*.

4 Quality

- The quality policy statement and quality plan are provided within 2 weeks of the Contract Date.
- The *defects date* is 52 weeks after Completion of the whole of the *services*.

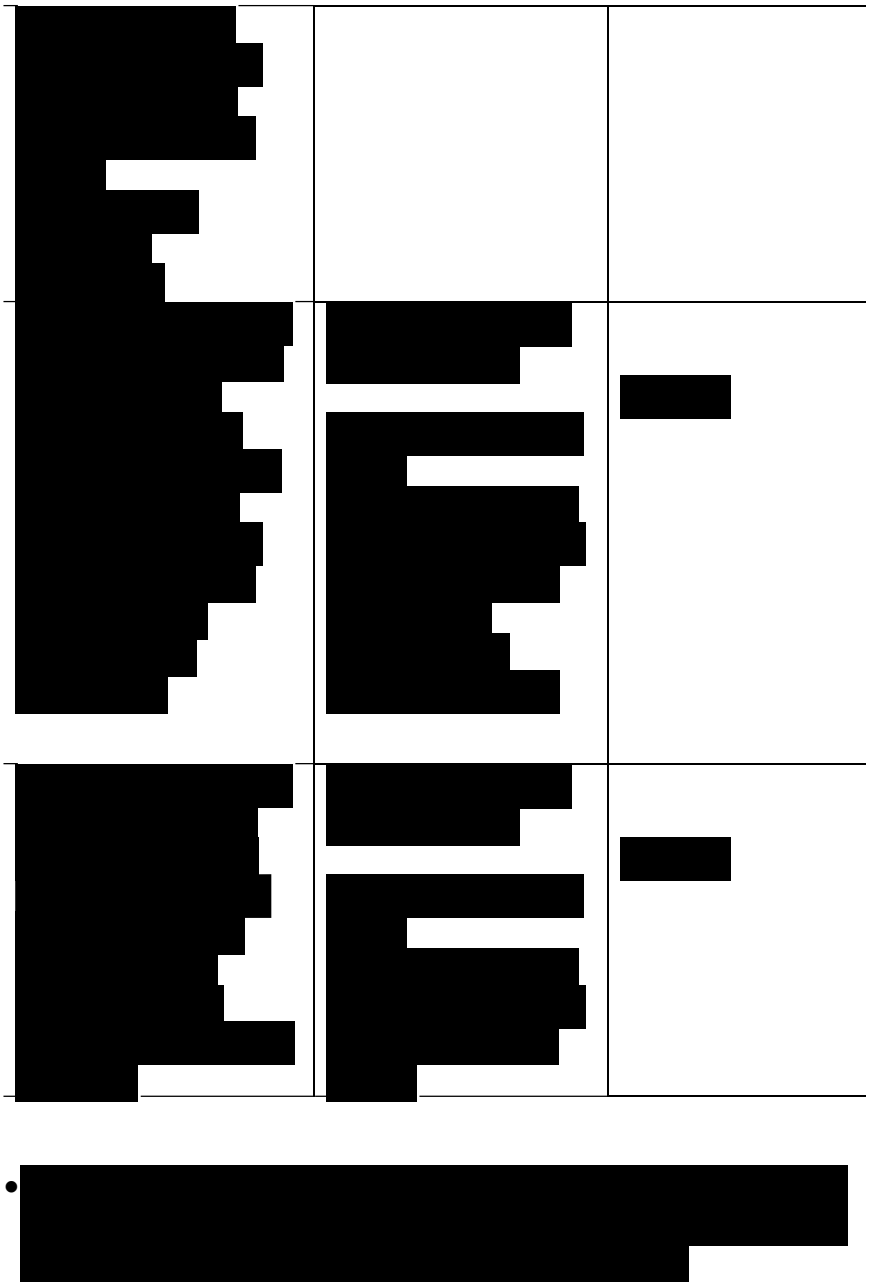
5 Payment

[redacted]

8 Indemnity, insurance and liability

- The amounts of insurance and the periods for which the *Consultant* maintains insurance are:

Event	**cover**	**Period following Completion of the whole of the *services* or earlier termination**
[redacted]	[redacted]	[redacted]



9 Optional statements

- **If the *Employer* has decided the *completion date* for the whole of the *services:***

The *completion date* for the whole of the *services* is 23rd July 2024.

The Call-off Contract may be extended for a further 11 months for Phase 2 and for a further 24.5 months for Phase 3; however, any extensions will be at the *Employer's* own discretion and subject to appointed *Consultants'* satisfactory performance, ongoing requirement and funding availability. This will be confirmed and mutually agreed in writing.

- **The *key dates* and *conditions* to be met are:**

As per the Programme submitted during tender stage.

- The *exchange rates* are not used, but all payments will be made in the *currency of this contract.*

[redacted]

[redacted]

CALL OFF CONTRACT DATA - PART TWO

Data provided by the *Consultant*
Completion of the data in full, according to the Options chosen, is essential to create a complete contract.

Statements given in all contracts

1 General

- The *Consultant* is

Name: WSP UK Ltd

[redacted]

- The *key persons* are

[redacted]

2 Optional statements

If the *Consultant* is to decide the *completion date* for the whole of the *services*

- The *completion date* for the whole of the *services* is N/A

If a programme is to be identified in the Contract Data

- The programme identified in the Contract Data is:

As per the Programme submitted during tender stage.

If the *Consultant* requires additional access

- The *Employer* provides access to the following persons, places and things

access to	*access date*
[redacted]	Contract period. . . . .

If Option A is used

- The tendered fixed total cost for the services for Phase 1 is £217,307.68 and shall not exceed this amount.

The discounted day rates shall remain fixed during the life of this contract.

TfL will not reimburse any additional costs for time, input, resource or other without prior written consent from TfL's employing manager.

- Optional phases, to be undertaken by way of variation if required:

- [redacted]

Phase 2 and 3 total prices will be finalised and agreed between the parties as the phase(s) progress and output

decisions that may impact the estimate are known. The day rates submitted used for the estimate of these phases will also be used for any applicable readjustments.

- [redacted]

TfL will not reimburse any additional costs for time, input, resource or other without prior written consent from TfL's employing manager.

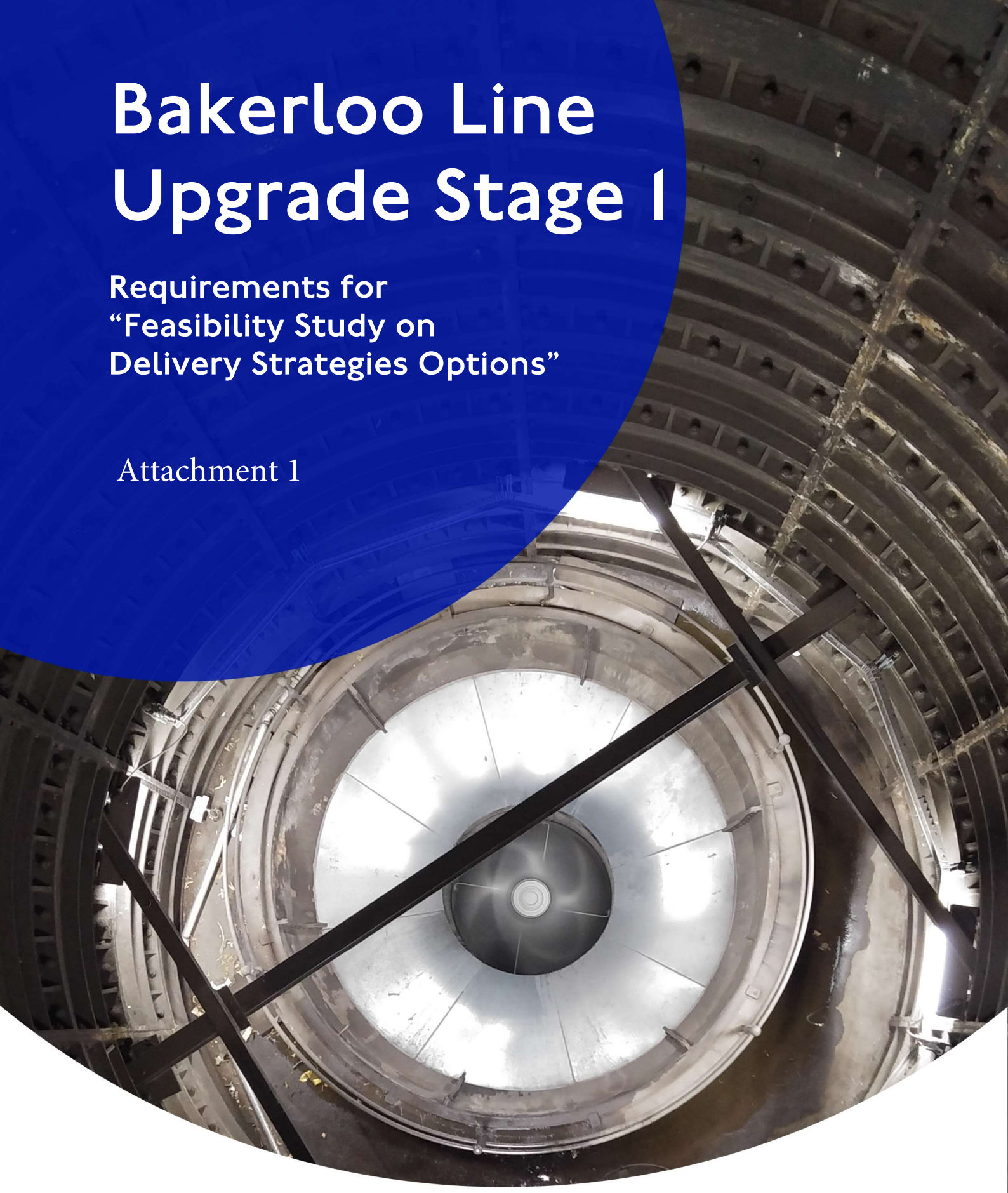
Issue of invoices:

[redacted]

Bakerloo Line Upgrade Stage 1

Requirements for "Feasibility Study on Delivery Strategies Options"

Attachment 1



Doc reference

UNDERGROUND

EVERY JOURNEY MATTERS

Bakerloo Line Upgrade Stage 1: Requirements for "Feasibility Study on Delivery Strategies Options"

Doc reference

Document History

Revision	Date	Purpose
0.1	02/11/2022	Draft
1.0		Revised after comments from project

Table of Contents

Abbreviations

Abbreviations	
BLU	Bakerloo Line Upgrade
BLE	Bakerloo Line Extension
LU	London Underground Limited
DTUP	Deep Tube Upgrade Programme
BLUE	Bakerloo Line Upgrade and Extension
RVAR	Rail Vehicle Accessibility Regulations
RAIDDO	Risks, Assumptions, Issues, Dependencies, Decisions, Opportunities
TPH	Trains per Hour
RAMs	Reliability, Availability, Maintainability

1 Executive Summary

This document details the high-level requirements required by TfL to assist with the feasibility options study for the delivery strategy of the BLU. This will lead onto the development of drafting the specification documents to define the technical delivery scopes and specifications of the BLU programme, in association with the BLU programme team.

2 Introduction

The Bakerloo line upgrade historically sat within the scope for the New Tube for London programme and later the Deep Tube Upgrade Programme (DTUP).

The planned work involved replacement of the ageing fleet along with the purchase of additional trains to facilitate an uplift in service pattern. As part of the DTUP, this was intended as part of a wider combined procurement to replace the trains, upgrade the signalling and the control centre to a combined signalling control centre (with the Piccadilly, Central and Waterloo & City lines). As part of DTUP, the Bakerloo Line Upgrade (BLU) had passed Pathway Gate A as part of a combined package of works with the Piccadilly, Central and Waterloo & City Lines.

The Bakerloo Line Extension (BLE) is a proposed extension to the Bakerloo line from its existing southern terminus at Elephant & Castle to Lewisham, with the ability to extend further to Hayes and Beckenham Junction in the future. At transfer of the BLU scope into the BLE it was intended that the completion of the extension and delivery of the new trains would occur at roughly the same time. This was seen as an opportunity by the business considered there were potential synergies to look at by combining the line wide upgrade and extension of on the Bakerloo line and look for synergies between the two programmes. Combining the schemes also had the added benefit of reducing the risk around incomplete or reduced scope left over between the completion of the train replacement and the addition of the extension. Finally, it was considered that the business did not want to have two programmes working on the same line at the same time with the added resources and interface management that this would require.

The BLE programme was completing feasibility studies on the line extension, working towards statutory safeguarding, and putting together a shortlist of options for the overall scheme single preferred options, this work remains with the City Planning team.

Shortly after the transfer of the scope and the creation of the combined programme for the Bakerloo Line Upgrade and Extension (BLUE), the Coronavirus pandemic hit. This led to TfL focussing resources on projects already committed and closing out those already underway. This led to a significant reduction in budget and staffing on the BLUE programme and greatly increased timescales when attempting to undertake work (due to increased requirements around furlough, requesting staff and lack of resources).

The pandemic also had a major impact on the proposed delivery timescales of the planned extension, which remains unfunded and is now planned to occur much later than either the planned introduction of the new trains or even the anticipated lifespan of the existing trains as negotiated by DTUP.

During this period the BLUE team has achieved statutory safeguarding from the Secretary of State for Transport and have continued work towards defining the Single Preferred Option for the scheme However, due to aforementioned budget constraints have resulted in the start of work towards Gate B being currently planned for the end of the financial year 23/24-24/25.

[redacted]

It was therefore agreed to hand back fleet replacement to Capital Directorate to deliver the Bakerloo Line Upgrade works in stages to allow the contract option to be exercised.

The Bakerloo Line Upgrade has been split into three stages:

1) Rolling Stock replacement and associated infrastructure works
2) Signalling and Capacity increase
   a) Signalling Asset replacement
   b) Capacity Improvements for 27/28 TPH uplift
3) [redacted]

The focus of the delivery team is purely on Stage 1 at this time and initial funding has been released to allow urgent feasibility work to establish options for delivery and identification of critical interdependencies that will limit the optimum delivery of the stage. [redacted]

2.1 Aim

The following aims are considered for this study:

- Capitalise on all the previous feasibility work completed, as this is quite extensive but clearly focused on different outcomes and priorities.
- Establish the primary constraints and identify mitigations that may remove or control activities that are driving delays into the delivery schedule, e.g. depot facilities timescales, NR land acquisition options, and operational access.
- [redacted]
- Consider future stages such that decisions do not significantly increase the cost of future staged works, e.g. depot end state layout considerations.
- [redacted]
- Deliver the most efficient delivery strategy with minimum associated infrastructure scope required to allow the new Bakerloo fleet to operate.

3 Requirements

3.1 Background

The study is an early feasibility review building on the work completed under previous project activities associated with the Bakerloo Line Upgrade or extension activities. The previous works have looked at various discipline activities to deliver the existing line upgraded with an increased capacity and two extension options with a larger fleet size, increased stabling, and an additional depot. The BLU Stage 1 review is to achieve no less than the 22/24TPH requirement achieved from a 36-train fleet. However, any assessment needs to ensure that the minimum scope is delivered in such a manner that it does not hinder future stages or extension options.

The Bakerloo line north of Queens Park interfaces and runs on Network Rail infrastructure, therefore Network Rail, their operators and maintainers are key stakeholders. This creates several unique constraints and interfaces that need to be considered, mitigation identified to reduce delivery risk. There are two specific land discussions that TfL need to progress with Network Rail to deliver BLU Stage 1 works unless the work completed in this study can de-link it from the delivery. The Network Rail land discussions are:

- [redacted]
- [redacted]
- There are potentially other land options that can also be considered.

In addition, to enable new rolling stock on the Network Rail infrastructure modifications to station platform and wayside assets will be needed, creating potential interoperable issues that need to be addressed, as well as establishing the quantity of work required. The delivery scenarios assessment needs to consider various NR options to identify the optimum strategy.

The complexity of construction and delivery timescales is leading us to a scenario where closures/blockades will likely be necessary to complete the works cost efficiently and on time. Consideration of the impact / benefits closure and/or blockade from a delivery perspective need to be put into context of how it effects LU and Network Rail operators. It is key to understanding the limits of possessions with resulting service pattern changes well in advance of implementation.

The Siemens contract for rolling stock replacement was based on a Technical Specification with base order for the Piccadilly Line and future line options for Bakerloo and other DTUP lines. This means that the train design and associated facilities to maintain the fleet are understood from work completed to date on the Piccadilly Line. The feasibility study should leverage the lessons learnt on the PLU to establish the optimum depot facilities required to operate and maintain the Bakerloo fleet.

The analysis completed to date on the Bakerloo line has shown that geographical constraints at the depots, (London Rd, Stonebridge Park & Queens Park), provide limited confidence that a refurbishment of the Stonebridge Park depot for maintenance facilities for the new stock will not be complex, costly, and slow. The delivery strategy for the maintenance facilities is critical to ensure the Bakerloo Upgrade is successful, therefore, it is important to understand the options for delivery as well as different mitigation methods and the risk associated with them. Historically, depot facilities have always been problematic to deliver and cost more than forecast, so experience from previous upgrades needs to address this while acknowledging that maintenance activities are primarily located at this location, and this is unlikely to change. Historically, all depot facilities for maintenance have been at Stonebridge Park depot and this is where the maintenance team is based, this is not expected to change in the long-term, however, temporary relocation of some duties should be considered. The specific maintenance facilities required to support the Bakerloo Fleet have not yet been established and the consultant is expected to support the finalising of these requirements as part of this study.

The transition between the two stocks requires a detailed migration minimise impact to operational services. The stabling requirements are dictated by this plan as the timing of the removal of the old stock and the rate of introduction of the new stock will increase the fleet size. Therefore, consideration of the optimum stabling needs to be determined under different implementation scenarios. There are other important operational and maintenance concepts that need to be assessed and incorporated into the delivery strategy to ensure the technical solutions and schedule are robust. The 36-train base order will support the Stage 1 with legacy signalling, enabling up to a 24tph peak service (which is reduced to 20tph today due to 72TS availability). [redacted] However, the potential fleet numbers to support the extension will exceed this provision and may require stabling north of Elephant and Castle.

Although, the line links key points within the central area and Northwest London there are alternative routes the traveling public can utilise to get to their destination without significant delay if planned in advance. The study needs to consider various implementation scenarios where, extended engineering hours, weekend closures, and extended blockades could be utilised to implement aspects of the upgrade works more efficiently. The cost benefit analysis will need to be understood for each scenario to allow stakeholders to support any proposed implementation scheme.

TfL has extensive experience of introducing new rolling stock on to the network and there is a wealth of lessons learnt and experience that can be utilised to support this study. The recent work on PLU has been utilised to establish the assets likely to be impacted on the Bakerloo Line, although further consideration is needed on the Network Rail section. The high-level summary of assets impacted is detailed below:

- DC Power
    - 750v Enabling
    - DC Continuity Cables
    - Earthing & Bonding
    - Section Switches

- HV Power
    - Power HV Systems
- LV power supply
- Stations & Property
    - Addressing PTI issues (eg. installing platform humps)
- Platform Train Interface
    - Correct Side Door Enabling Equipment
    - One Person Operation CCTV System
    - Changes to Stopping Positions
    - RVAR compliance works
    - Edge fillers
- Civils & Structures
    - Clearance Infringements
- Track
    - Conductor Rail
    - End State Track Layout
    - Train arrestors
- Signalling & communications
    - Legacy Signalling
    - Extended Line Management System
    - Track to train communications
- Depots & Stabling
    - Depot works
    - Additional Stabling at Queens Park
- Rolling Stock
    - New Rolling Stock
    - Rail Milling Machine
    - Train communications/CCTV to the control room
    - Adhesion Management
    - Disposal of existing 1972 stock

Note: this list is intended to be high level and not an all-encompassing summary of the scope of works. Additional details can be found in the list of assets impacted in stage 1.

The study needs to cover asset and process changes that are needed to migrate to the new or altered assets, including system integration to facilitate the testing and commissioning of the change to enable operational and maintenance activities delivered at a minimum of existing RAMs targets.

The work effort in each discipline and the quantities of assets for each type affected needs to be established. The accuracy of the quantities will develop through the early stages of the project, but the feasibility should commence this process to enable early planning and assist the specification of the work activities needed in each discipline. Specifications for the design and delivery of these altered assets will be needed. The consultant will need to produce integrated P6 schedules with detailed evaluation to enable the effective development and prioritising of work within the discipline areas and other process or activities that need planning.

During the development of DTUP the Sponsors requirements and high-level requirements were developed and recorded in DOORS. These requirements are tagged for the PLU Stage 1 and the

Bakerloo Line; however, they have not been reviewed or updated to align with the BLU requirement or checked for accuracy against the Network Rail provision necessary to enable operation.

The sequence of designs and their relative interdependency needs to be better understood prior to the detailed design stage. Therefore, as the knowledge matures on the requirements and assets impacted a model or graphical representation of the complexity of the interdependencies of the designs is needed to ensure delays, iterations, and re-work of different inter laced designs is minimised. Consideration of current and planned works on the Bakerloo Line also needs to be considered such as the control system upgrade currently underway.

The PTI, stopping positions and platform infrastructure will need various alterations along the line. These requirements will differ slightly from the PLU scenario as the overall train length on the Bakerloo will be the same as the existing BL. Siemens have not yet confirmed the sighting cones on the Bakerloo rolling stock will be the same as PLU but sighting from the cab for all percentiles has proved problematic resulting in more legacy signalling changes than necessary. The requirement for RVAR ramps and gap fillers will be more problematic on the Bakerloo line due to the higher curvatures and the NR rolling stock interface.

Network Rail are aware of the Bakerloo Line Upgrade and TfL's intentions to replace the rolling stock but to date discussions have been a high-level principles stage and this needs to be developed as more mature understanding on constraints and opportunities arise. TfL will lead this interface but assistance from the consultant may be required to discuss findings and opportunities, while establishing stakeholder requirements. It is unlikely these discussions will be limited to Network Rail as TOCs, and maintainers will need to be engaged to ensure requirements and concerns can be alleviated.

All studies and design assessment need to be completed to both LU standards and Network Rail standards where applicable. Therefore, it is important to understand the location of different assets and scope of work required alter them to meet the rolling stock needs and the infrastructure owners' standards. This may even result in different asset installations on LU when compared to Network rail

3.2 Methodology

The commission will be procure all three phases but contracted into phases to align with the release of funding from TfL infrastructure board. The first phase will be initially instructed under the contract, with the other phases being optional extensions under the contract schedule dates. However, there is opportunity to revisit the mix of tasks if it suits both parties.

Current TfL thinking is to engage a small TfL team to facilitate this study utilising the work completed to date and workshops with stakeholders and subject matter experts to provide the consultant with the detail to evaluate the key scopes defined. The conclusion of each stage results in a well-defined output leading towards procurement of the detailed design or design and build contracts that will ultimately deliver the upgrade. There needs to be some capacity to undertake ad-hoc task identified during the phased delivery.

Delivery Phase	Description	[redacted]	[redacted]
Phase 1	Feasibility to establish delivery strategy options	[redacted]	[redacted]

Phase 2	Stakeholder / Governance approval for proposed strategy	[redacted]	[redacted]
Phase 3	Scope definition stage and specification drafting	[redacted]	[redacted]
	System and pre-construction documentation production	[redacted]	[redacted]

The consultancy is expected to provide a multi-disciplinary team with the ability to support the client in developing the scope of these different studies prior to assignment within the contracting arrangements, allowing fixed price for phase 1, with initial estimates for phases 2 & 3, with future phases work packages being finalised between the parties as the phases progress and output decisions that may impact the estimate are known. This will allow for the introduction of ad-hoc packages and the re-planning of activities if it is deemed a different priority is required. The consultancy is also expected to provide a resource forecast for the engagement of all of TfL's internal and external stakeholders.

The governance of the development of the scopes and assignments will be controlled by a series of meetings and approval reviews. The primary meeting to provide regular direction to the consultant and where escalations should initially be progressed will be the "Strategy Project Board" meeting where representatives from the consultants, the BLU leadership team and TfL subject matter experts will attend. Any significant change in scope derived from the output of phase 1 will also need endorsing at the BLU Programme change board. Collaboration between both parties will be required to collate, define and agree any scope conflicts to ensure activities are completed as fast as reasonably practicable. Any conflicts at this level will get escalated to director level within each party for resolution.

TfL are interested in how the consultant will deliver its collaborative and client interface arrangement to ensure an effective working relationship is maintained throughout the project delivering the optimum outcomes in the least time and money possible while complying with all applicable railway industry practices.

For tendering purposes, the initial and strategy (post Phase 1) discussions workshops should be assumed as the following.

Initial Workshops	10 number at 1hour duration or 5 number at 2-hour duration	Minimum consultant attendance should be Project Manager, Engineering Manager, and Subject Matter Experts deemed necessary by the consultant.
Strategy Workshops (study findings)	10 number at 1hour duration or 5 number at 2-hour duration	Minimum consultant attendance should be Project Manager, Engineering Manager, and Subject Matter Experts deemed necessary by the consultant.

The consultant's interface proposed arrangements may differ, but TfL envisage a meeting cycle for the works is as follows, but is not exhaustive:

Meeting Title	Purpose	frequency

Project Managers weekly mtg	To be proposed by the consultant, but to confirm activities completed in the previous week and confirm immediate tasks	Weekly
BLU Strategy Project Board mtg	This is to allow discussions on direction and strategy to be agreed with BLU leadership team	Periodic
BLU Commercial mtg	Run though account submissions and agree tasks to be priced for approval	Periodic
Engineering Interface mtg	This to review scope of tasks being developed and update on those being completed	Bi-weekly
Technical Queries mtg	Review and agree resolution of technical queries	Weekly
Property / NR interface mtgs	Meetings to discuss land and access arrangements with NR	Ad-hoc
Discipline & task Engineer mtgs	There will be a need to have specific technical meetings on a range of logistic and technical subjects	Ad-hoc
BLU / PLU – Siemens interface mtg	There will be a need to support interface mtgs with PLU & Siemens to align tasks, pass information etc.	Periodic

3.3 TfL Delivered packages

There are several work packages that TfL are better placed to produce than the consultant some of which may need input from the consultant or will be needed to aid the consultant's tasks. A list of known activities is detailed below, beyond those completed previous studies, but their specific impact or interdependence has not yet been assessed.

Ref No.	Description	Phase of works
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	

3.4 Phase One Requirements

This first phase needs to considerable amount of work of a broad nature to be completed in a relatively short period of time. The consultant will need to bring themselves up to speed rapidly complete some tasks in parallel to achieve the required outcomes.

Task Number	Description: Bibliography of existing material
P1-1	The introduction has demonstrated that several knowledge sources exist with documentation focused on different outcomes. It would be beneficial to collate these documents and provide a single library with appropriate bibliography. The bibliography table does not need to summarise the content of the reports but provide details on the subject matter, usefulness, when / is superseded, etc., and how the consultant intends to use the existing data, and at what point in the programme each historic item will be superseded by documentation produced in this study .

Task Number	[redacted]
P1-2	[redacted]

Task Number	[redacted]
P1-3	[redacted]

Task Number	Description: BLU stabling requirements
P1-4	Determine the temporary and long-term stabling requirements to allow the optimum work to be scoped for the different delivery scenarios being considered.

Task Number	[redacted]
P1-5	[redacted]

	[redacted]

Task Number	Description: Evaluate the minimum LU infrastructure works required to introduce the new rolling stock operating at 24TPH service pattern
P1-6	Produce a scope document detailing infrastructure works required to facilitate the introduction of the Siemens rolling stock on the LU section of the line and the three depots. Determine the survey, design and implementation effort required delivery the change required.

Task Number	Description: Evaluate the minimum NR infrastructure works required to introduce the new rolling stock operating at 24TPH service pattern
P1-7	Produce a scope document detailing infrastructure works required to facilitate the introduction of the Siemens rolling stock on the NR section of the line. Determine the survey, design and implementation effort required delivery the change required. Note the service pattern North of Queens Park will be confirmed with timetables team.

Task Number	Description: Identify various delivery strategies
P1-8	[redacted]

Task Number	Description: determine design effort and sequencing for all infrastructure works
P1-9	The sequence of designs and their relative interdependency needs to be analysed and documented. Therefore, a model or graphical representation of the complexity of the interdependencies of the designs is needed to ensure delays, iterations, and re-work of different inter laced designs is minimised.

Task Number	Description: Produce high level schedules and cost estimates for the 3 primary delivery strategies
P1-10	Develop P6 schedules for the chosen implementation scenarios to confirm the full duration of the Bakerloo Upgrade [redacted]. Ensure all assets, governance and interfacing process are covered in the schedule. Primary aims in section 1.1 must be satisfied here. Also, produce associated high level cost estimates aligned with the schedule and phased accordingly.

Task Number	Description: Produce summary findings report and associated presentation
P1-11	Produce summary findings report on the phase one activities and an aligned presentation for stakeholders and senior TfL leaders to review and endorse a preferred option. The preferred option should be agreed with the programme board prior to completing.

Task Number	Description: Lessons learnt from previous upgrades, e.g., PLU, 4LM, trams, DLR, etc.
P1-12	Undertake a series of lessons learnt workshops in association with the TfL PMO lead for lessons learnt and utilise the TfL database on lessons to capture a spreadsheet of relevant lessons for incorporation into future workstreams

3.5 Phase Two Requirements

Upon completion of phase one internally there will be a need to conduct a series of stakeholder engagement session to gain full support to the chosen delivery strategy. This will be required prior to going to the infrastructure Group for approval to progress the strategy for the next stage and gain the relevant financial approval. It is assumed this will take 2 periods due to governance approval gates and meeting submissions. In this period, it is proposed some of the more system-based tasks are completed.

Task Number	Description: Development of requirements in DOORs
P2-1	DTUP developed the 4 lines upgrade with Piccadilly line as the primary base scope but with the other lines in parallel with a reduced focus. Therefore, the high-level requirements in DOORs are tagged for the Bakerloo line and stage one PLU works. There is a task to review all the requirements for the applicability with the BLU Stage 1 scope expectation. Stakeholder workshops will be needed to review requirements, identify gaps and interface requirements.

Task Number	Description: Siemens Interface Control Documents support
P2-2	[redacted]

Task Number	Description: Draft system information documentation
P2-3	[redacted]

Task Number	Description: Pathway documentation
P2-4	Develop initial key Pathway documentation to enable Governance Gate B to be undertaken and achieved.

3.6 Phase Three Requirements

This phase needs the development of the scopes for each of the disciplines and drafting the specifications needed to procure the design, or design and build suppliers. This will lead to the procurement of internal and external suppliers. There may be the need to complete some concept design to enable these specifications. These could be completed by the consultant at this time. The knowledge and experience gained from the PLU on requirements to implement associated infrastructure to support the introduction of the Siemens rolling stock will reduce the amount of work needed but may not preclude further work particularly in the Network Rail infrastructure sections.

Task Number	Description: Draft discipline specifications for concept designs required
P3-1	[redacted]

Task Number	Description: Draft discipline specifications for design, or design and builds where possible
P3-2	[redacted]

Task Number	Description: produce pre-construction documentation
P3-3	[redacted]

Task Number	Description: Draft additional system information documentation
P3-4	[redacted]

3.7 Potential Ad Hoc Requirements

There are several other scope items which may be appropriate for the consultant to undertake. It is anticipated that there may be additional scope items, those identified are detailed below.

Ref No.	Description	Potential Phase
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

3.8 Considerations for pricing

This document details the high-level requirements of the feasibility study leading into the specification drafting through the three phases. The urgency of the study and TfL's resource availability has meant the work activities have not been broken down to a level where activities are clearly defined by the client. The consultant is being asked to use their experience of line upgrade development and scope definition for rolling stock introduction to write their technical proposal. [redacted]

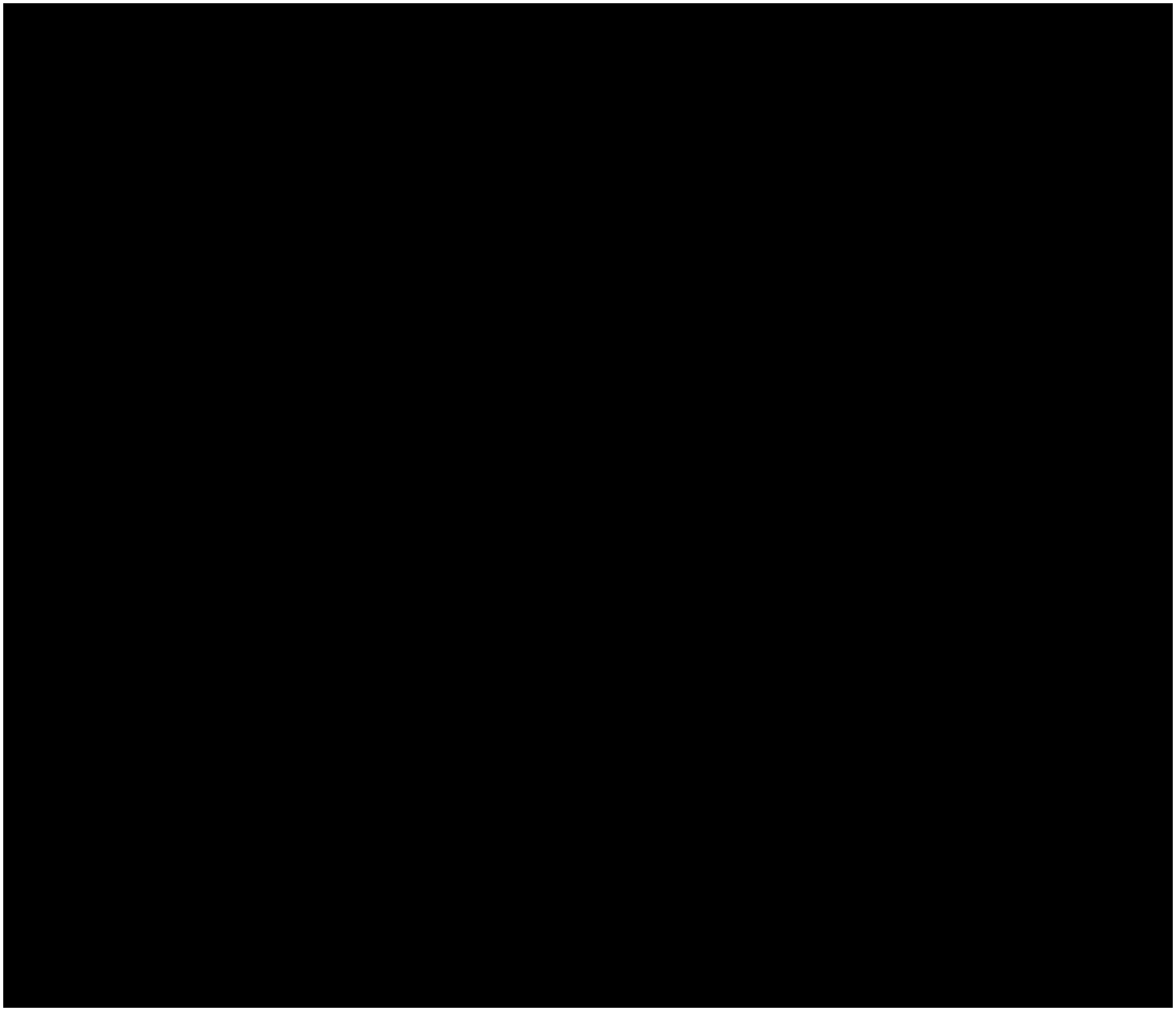
[redacted]

The output from the studies is expected to be in the form of reports, presentations, and drawings, etc. The consultancy is expected to work within the TfL BLU ProjectWise environment. The development of the BIM model can also be an output, but the synergies and compatibility of the system needs to be agreed in the early stages.

4 Conclusions

4.1 Summary

This document has summarised the high-level requirements and expectation of the TfL BLU team to deliver the feasibility options study to help define the delivery strategy. It is expected that a collaborative arrangement will take place to align the scope of each package as further information and decision guide the development of the options and strategy for delivery.



EVERY JOURNEY MATTERS

Attachment 2

[redacted]

[redacted]