

SILVERTOWN TUNNEL

Volume 3: Project Agreement – Schedules 2 to 31

Schedule 9 – Certification and Review Procedure

TfL Reference Number: tfl_scp_001527

Document Reference: ST150030-COM-ZZZ-ZZ-TED-ZZ-0016

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SCHEDULE 9

CERTIFICATION AND REVIEW PROCEDURE

Part 1 - Certification Procedure

1. Interpretation and purpose

- 1.1 This Part 1 (*Certification Procedure*) sets out the submission and timing requirements for Review Submissions that relate to design certification and construction certification for the Works and the Services.
- 1.2 The Parties acknowledge that the design certification procedure set out in paragraph 2 (*Design Certification Procedure*) (the "**Design Certification Procedure**") and the construction certification procedure set out in paragraph 3 (*Construction Certification Procedure*) (the "**Construction Certification Procedure**") shall apply throughout the term of this Agreement.
- 1.3 Project Co shall ensure that all Design Data proposed by Project Co in connection with any of the following:
- 1.3.1 any Detailed Design, including any design work undertaken by Project Co following the completion of a TAF or MEAF submitted to the Review Procedure;
 - 1.3.2 any proposed Project Co Change or TfL Change;
 - 1.3.3 any Assessment of a Structure; and
 - 1.3.4 any other works Project Co intends to carry out (other than in the case of emergency measures) which may affect the integrity of assets forming part of the Works or the Project Facilities,
- (and any other document required by this Part 1 (*Certification Procedure*) to be submitted to TfL) shall be submitted to TfL for review under the Review Procedure at such times and containing such information as is required in accordance with this Part 1 (*Certification Procedure*) together with the relevant Certificates specified in this Part 1 (*Certification Procedure*) (a "**Proposal**").
- 1.4 Subject to paragraph 1.5 and paragraph 1.6 of Part 2 (*Review Procedure*), Project Co shall not commence or permit the commencement of any part of the Works until:
- 1.4.1 the Detailed Design and all Design Data relating to that part of the Works;
 - 1.4.2 all relevant Certificates required in accordance with the Certification Procedure; and
 - 1.4.3 all the documents and information which Project Co is required to provide in respect of the relevant Proposal or Proposals,
- have been submitted to TfL under the Review Procedure and each such Review Submission has been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure.

2. Design Certification Procedure**2.1 General**

- 2.1.1 In this Part 1 (*Certification Procedure*) a reference to a "Design Certificate" means:
- a. in the case of Design Data and reports relating to geotechnics, a "Design Certificate (Geotechnical)";
 - b. in the case of Design Data relating to a Structure or M&E Installation, a "Design Certificate (Structures/M&E Installations)"; and
 - c. in all other cases, a "Design Certificate (General)".
- 2.1.2 Where the Review Procedure or the Certification Procedure specifies a time within which a review is to be carried out by TfL, that time period shall not commence until TfL has received all relevant information and Design Data required for the review and all of the Certificates required in respect of such information and Design Data have been properly issued in accordance with the Certification Procedure.
- 2.1.3 Project Co acknowledges its obligations under clause 13.3 (*Certification Procedure and Review Procedure*), which apply to this Part 1 (*Certification Procedure*).
- 2.1.4 Project Co shall comply with the procedures in Annex 4 (*Relaxations and Departures from Standard Procedure*) in relation to any Relaxations or Departures from Standard in connection with the Works.

2.2 Design Data and Certificates

- 2.2.1 Project Co shall ensure that where Design Data is submitted to TfL, the following Certificates must be submitted with the Design Data:
- a. where the Design Data relates to Temporary Works over, or supporting any Structure over, under, supporting, alongside or otherwise affecting or potentially affecting, any highway or other way or area used by or accessible to the public, including, for the avoidance of doubt, the River Thames:
 - i. Design Certificate (General); and
 - ii. Temporary Works Check Certificate,
 - b. where the Design Data relates to Temporary Works which are a Structure or are over or supporting a Structure, or involve the complete or partial demolition of a Structure:
 - i. Design Certificate (General);
 - ii. Temporary Works Check Certificate;
 - iii. the relevant TAF and/or MEAF in accordance with paragraph 2.4 (*Technical Appraisal of Structures and M&E Installations Submissions*);

- iv. Design Certificate (Structures/M&E Installations); and
 - v. Check Certificate (Structures/M&E Installations),
 - c. where the Design Data relates to existing Structures:
 - i. the relevant TAF and/or MEAF in accordance with paragraph 2.4 (*Technical Appraisal of Structures and M&E Installations Submissions*) and paragraph 2.5 (*Existing Structures*);
 - ii. Assessment Certificate (Structures);
 - iii. in the case of a Category II Structure or Category III Structure, an Assessment Check Certificate (Structures) issued by the leader of the Checking Team in relation to a Category II Structure or Checker in relation to a Category III Structure;
 - iv. Design Certificate (Structures/M&E Installations); and
 - v. Check Certificate (Structures/M&E Installations);
 - d. where the Design Data relates to any other Structures not referred to in paragraph 2.2.1a, paragraph 2.2.1b or paragraph 2.2.1c:
 - i. the relevant TAF and/or MEAF in accordance with paragraph 2.4 (*Technical Appraisal of Structures and M&E Installations Submissions*);
 - ii. Design Certificate (Structures/M&E Installations); and
 - iii. Check Certificate (Structures/M&E Installations),
 - e. where the Design Data relates to any geotechnical element of the Works, including Geotechnical Reports, such Design Data shall be submitted with a Design Certificate (Geotechnical);
 - f. where the Design Data is Landscape Design Data or Ecological Design Data, the Certificates specified in paragraph 2.10 (*Landscape and Ecology*);
 - g. where the Design Data relates to a part of the Works for which a Road Safety Audit is required in accordance with paragraph 2.12 (*Road Safety Audits - Design*), the relevant Road Safety Audit Certificate; and
 - h. in respect of all other Design Data, a Design Certificate (General).
- 2.2.2 The Parties acknowledge that the following are not required to be submitted as part of the Design Data to be reviewed by TfL under the Review Procedure unless expressly requested by TfL:
- a. calculations;
 - b. steel reinforcing bar schedules;
 - c. Design Data in respect of Temporary Works, except as provided in paragraph 2.6 (*Temporary Works*);

- d. Design Data prepared by or on behalf of TfL; and
 - e. Design Data prepared in respect of any Diversionary Works required to apparatus owned by Statutory Undertakers (other than TfL).
- 2.2.3 Without limitation to paragraph 1.4 of Part 2 (*Review Procedure*), if any Design Data submitted to TfL does not comply with the D&C Requirements or the other requirements of this Agreement (including any relevant TAF or, where applicable, MEAF), TfL may so notify Project Co and Project Co shall either:
- a. cause to be made such alterations and additions as may be necessary so that the relevant Design Data complies with the D&C Requirements and the other requirements of this Agreement (including any relevant TAF or MEAF), as the case may be, and submit such amended Design Data to TfL under the Review Procedure; or
 - b. propose a Project Co Change to deal with such non-compliance.
- 2.2.4 Project Co acknowledges that, save as otherwise specified in paragraph 2.3 (*Temporary Works and Design Certificates*) and paragraph 2.10 (*Landscape and Ecology*), all Design Data related to or connected with a Proposal shall be prepared or otherwise adopted by the Designer.
- 2.2.5 Project Co shall ensure that prior to the submission of any Design Data to TfL in accordance with this paragraph 2.2 (*Design Data and Certificates*):
- a. the Designer (or other party preparing the Design Data) shall satisfy itself that the Design Data meets the D&C Requirements and otherwise complies with the requirements of this Agreement and, when it is so satisfied, shall issue the appropriate Design Certificate in respect of the same; and
 - b. in the case of a Structure (including the Assessment of a Structure), Project Co shall have obtained the appropriate Check Certificates in accordance with paragraph 2.2.1, paragraph 2.7 (*Checking Requirements for Structures*) and paragraph 2.8 (*Design Checking Procedure*).
- 2.3 Temporary Works Design Data and Certificates**
- 2.3.1 Without prejudice to paragraph 2.2.4, Project Co shall ensure that the Design Data for Temporary Works shall be prepared by the D&C Contractor or the Designer.
- 2.3.2 In relation to Design Data for Temporary Works, Project Co shall ensure:
- a. that either the D&C Contractor or the Designer (as appropriate, based on who prepared the Design Data) shall satisfy itself that the Design Data for Temporary Works meets the D&C Requirements and otherwise complies with the requirements of this Agreement and, where required by paragraph 2.2.1 and paragraph 2.2.2, either the D&C Contractor or the Designer (as appropriate) shall issue a Design Certificate in respect of the same;
 - b. that the Designer, leader of the Checking Team or the Checker shall, when required by paragraph 2.6.1, paragraph 2.6.3 and paragraph 2.6.4, check such Design Data and issue a Temporary Works Check Certificate in accordance with such requirements; and

- c. compliance with BS 5975 + A1 (Code of practice for temporary works procedures and the permissible stress design of falsework) and PAS 8811 (Temporary works - Major infrastructure client procedures - Code of practice) published by the British Standards Institution.

2.4 **Technical Appraisal of Structures and M&E Installations Submissions**

- 2.4.1 Without limitation to paragraph 1.3, Project Co shall ensure that no Design Data relating to any Structure (other than a Category 0 Structure) shall be submitted to TfL unless a TAF for such Structure completed in accordance with the requirements of paragraph 2.4.3 and paragraph 2.4.4 has been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure.
- 2.4.2 If Project Co makes a submission of Design Data relating to a Structure, at a time when there is no completed TAF in respect of such Structure then the time period for review under the Review Procedure of such submission of Design Data shall not begin until the date on which a completed TAF has been submitted in respect of such Structure and it has been endorsed as "received" or "received with comments" by TfL under the Review Procedure.
- 2.4.3 Any submission of a TAF shall be made to TfL in accordance with the Review Procedure and shall include the information required by the form of the relevant Technical Appraisal Form set out in Annex 2 (*Technical Appraisal Forms*) on the basis set out in this paragraph 2.4 (*Technical Appraisal of Structures and M&E Installations Submissions*).
- 2.4.4 Project Co shall ensure that prior to the submission of a TAF in respect of a Structure under the Review Procedure:
 - a. all parties (other than the TfL Representative) indicated on such TAF in Annex 2 (*Technical Appraisal Forms*) shall sign it and the name and position held in the relevant organisation of each such signatory shall be clearly indicated; and
 - b. each such signatory shall be a Principal of the organisation concerned.
- 2.4.5 Project Co acknowledges and agrees that the Technical Appraisal Authority shall be involved in the review of the TAF under the Review Procedure.
- 2.4.6 The Parties acknowledge that any TAF which has been endorsed by TfL as "received" or "received with comments" under the Review Procedure shall be countersigned by the TfL Representative and will remain valid for three (3) years from the date of such endorsement.
- 2.4.7 Project Co acknowledges that if the construction of the Structure to which a TAF referred to in paragraph 2.4.6 relates has not commenced within the three (3) year period referred to in paragraph 2.4.6 then the TAF shall be re-submitted by Project Co to TfL under the Review Procedure.
- 2.4.8 Project Co shall ensure that in the event the Designer wishes to make any variation to a TAF which has been subject to the Review Procedure during design, Assessment or construction, such variation shall be submitted in accordance with the Review Procedure as an addendum to the TAF, together with any relevant amended Design Data and reissued Certificates.

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- 2.4.9 Project Co shall not implement the relevant Works to which the revised TAF referred to in paragraph 2.4.8 relates until that revised TAF has been endorsed by TfL as "received" or "received with comments" under the Review Procedure.
- 2.4.10 Project Co shall ensure that any addendum to a TAF submitted in accordance with paragraph 2.4.8 shall be consolidated with the original TAF into a revised TAF and submitted to TfL as soon as practical and in any case such consolidation shall be a condition to the issue of the Permit to Use.
- 2.4.11 Project Co acknowledges and agrees that in any case where a Structure (including without limitation a road tunnel or service building) involves M&E Installations, Project Co shall submit to TfL a MEAF in addition to the TAF in respect of such Structure.
- 2.4.12 In relation to any Structure that involves M&E Installations, the provisions of paragraph 2.4.1 to paragraph 2.4.10 shall apply mutatis mutandis to a MEAF required under paragraph 2.4.11, as though references therein to a TAF were references to a MEAF and references to Design Data relating to a Structure were references to Design Data relating to the M&E Installations in respect of such Structure except that the model MEAF set out in Annex 2 (*Technical Appraisal Forms*) shall be used as appropriate.
- 2.4.13 Project Co shall ensure that the check of the Design Data in respect of M&E Installations shall be carried out in accordance with paragraph 2.8.1c.

2.5 Existing Structures

- 2.5.1 Project Co shall undertake a Structural Review of any existing Structure that it proposes to incorporate, retain, modify, upgrade, renew, remedy or strengthen as part of the Works, in accordance with this paragraph 2.5 (*Existing Structures*).
- 2.5.2 The Structural Review must identify, as a minimum:
- a. the validity of existing Assessment records in relation to the relevant existing Structure;
 - b. changes in condition of the Structure since the previous inspection carried out by TfL or the Relevant Authority in respect of such Structure and as set out in any inspection report provided by TfL or the Relevant Authority; and
 - c. changes associated with the existing Structure to the required operational capacity of the TLRN and/or Local Borough roads, including in relation to any "Special Type General Order" vehicles ("**STGO**") or "Special Order" vehicles ("**SO**") under to the Road Vehicles (Authorisation of Special Types) (General) Order 2003.
- 2.5.3 Project Co shall obtain from TfL confirmation of STGO and SO load capacity requirements for each existing Structure.
- 2.5.4 Project Co shall:
- a. complete a Record of Structural Review Form for each Structural Review carried out pursuant to paragraph 2.5.1;

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- b. include in each Record of Structural Review Form a recommendation as to whether or not an Assessment is required in relation to the relevant existing Structure; and
 - c. shall submit each Record of Structural Review Form to TfL for review under the Review Procedure.
- 2.5.5 Project Co acknowledges and agrees that the Technical Appraisal Authority shall be involved in the review of the Record of Structural Review Form under the Review Procedure.
- 2.5.6 If a Record of Structural Review Form is endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure and such Record of Structural Review Form recommends an Assessment is required, Project Co shall:
 - a. ensure that a TAF (Assessment) is submitted to TfL under the Review Procedure in accordance with paragraph 2.4 (*Technical Appraisal of Structures and M&E Installations Submissions*); and
 - b. carry out the Assessment in accordance with:
 - i. the TAF (Assessment) submitted to TfL in accordance with paragraph 2.5.6 and endorsed by TfL as "received" or "received with comments" pursuant to the Review Procedure; and
 - ii. DMRB standards BD 21 (DMRB 3.4.3), BA 16 (DMRB 3.4.4), BD 86 (DMRB 3.4.19) and any other DMRB standards relevant to such Assessment, as appropriate.
- 2.5.7 If TfL endorses a Record of Structural Review Form as "received" or "received with comments" in accordance with the Review Procedure, and such Record of Structural Review Form recommends an Assessment is not required, the Parties acknowledge that Project Co shall not be required to:
 - a. submit a TAF (Assessment) to TfL under the Review Procedure; or
 - b. carry out an Assessment,

in relation to the relevant existing Structure.
- 2.5.8 Project Co shall prepare a report in relation to each Assessment carried out pursuant to paragraph 2.5.6 complying with the requirements of Part 2 (*Typical Assessment Report Format*) of Annex 5 (*Structural Review and Assessment of Highways Structures*) (the "**Assessment Report**").
- 2.5.9 Project Co shall ensure that any Assessment Report is:
 - a. submitted to TfL under the Review Procedure; and
 - b. attached to the relevant Assessment Certificate (Structures) which is to be submitted to TfL under the Review Procedure in relation to the relevant Structure.

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- 2.5.10 If an Assessment of an existing Structure results in the requirement for design and construction of alteration and strengthening works in respect of such existing Structure:
- a. the Parties acknowledge and agree that the technical appraisal, checking and certification procedures in the Certification Procedure shall apply to such alteration and strengthening works; and
 - b. without limitation to the generality of paragraph 2.5.10a, Project Co shall ensure that a TAF (Design) shall be submitted in accordance with paragraph 2.4 (*Technical Appraisal of Structures and M&E Installations Submissions*) in respect of such alteration and strengthening works and that the Design Data in respect of each such alteration and strengthening works shall be checked in accordance with the Certification Procedure.
- 2.5.11 The Parties acknowledge and agree that any Structures deemed by TfL to be unable to carry the required operational load must be managed by Project Co in accordance with DMRB standard BD 79 and Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*).

2.6 Temporary Works

- 2.6.1 Project Co acknowledges and agrees that the provisions of paragraph 2.3 (*Temporary Works Design Data and Certificates*) shall apply to all Design Data prepared or adopted in connection with any Temporary Works over or supporting any Structure over, under, supporting, alongside or otherwise affecting or potentially affecting any highway or other way or area used by or accessible to the public, including, for the avoidance of doubt, the River Thames.
- 2.6.2 Project Co shall ensure that in respect of any Temporary Works referred to in paragraph 2.6.1 where such Temporary Works are themselves a Structure (or involve the complete or partial demolition of an existing Structure), a TAF shall be submitted in accordance with paragraph 2.4.3 and paragraph 2.4.4 and the provisions of paragraph 2.4.1, paragraph 2.4.2 and paragraph 2.4.5 to paragraph 2.4.10 shall apply *mutatis mutandis* to any such TAF.
- 2.6.3 Project Co shall ensure that Design Data relating to any Temporary Works referred to in paragraph 2.6.2 shall be checked as follows:
- a. if the Temporary Works are for or relate to a Category III Structure or the Temporary Works are themselves a Category III Structure, such Design Data shall require a check to be carried out by the Checker; and
 - b. where paragraph 2.6.3a does not apply:
 - i. any relevant Design Data prepared by or on behalf of the D&C Contractor shall require an independent check by the Designer; and
 - ii. any relevant Design Data prepared by the Designer shall require an independent check by a Checking Team which may be from the Designer but shall be independent of the Design Team,

and the provisions of paragraph 2.7 (*Checking Requirements for Structures*) shall not apply to any such Design Data.

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- 2.6.4 In relation to all Design Data relating to Temporary Works, Project Co shall ensure that the Designer, the leader of the Checking Team or the Checker (as applicable) has satisfied itself that:
- a. the Design Data meets the D&C Requirements and otherwise complies with the requirements of this Agreement;
 - b. the Temporary Works (as a whole and the constituent parts) are satisfactory for the safe and proper discharge of Project Co's relevant obligations;
 - c. the Design Data reflect the requirements of the Relevant Authorities (where applicable) for all affected highways or other ways or areas used by or accessible to the public, including, for the avoidance of doubt, the River Thames; and
 - d. the Temporary Works have no detrimental effects on the Works,
- and Project Co shall ensure that the Designer, the leader of the Checking Team or the Checker (as applicable) issues a Temporary Works Check Certificate.
- 2.6.5 Where any Temporary Works may endanger public safety on any highway or other way or area used by or accessible to the public other than the Project Roads, including, for the avoidance of doubt, the River Thames, Project Co shall consult the Relevant Authority and shall ensure that the Design Data reflects such Relevant Authority's reasonable requirements and the relevant proposal includes evidence of such consultation.

2.7 Checking Requirements for Structures

- 2.7.1 Project Co acknowledges and agrees that:
- a. the category of a Structure shall determine the degree of independence of checking of Design Data required for that Structure; and
 - b. every Structure shall be placed in one of the categories referred to in paragraph 2.7.2, or otherwise determined by Project Co in accordance with paragraph 2.7.3.
- 2.7.2 The Parties acknowledge that the categories of Structure are as follows:
- a. Category 0 Structure;
 - b. Category I Structure;
 - c. Category II Structures; and
 - d. Category III Structures.
- 2.7.3 Project Co shall ensure that (subject to paragraph 2.7.5) as soon as sufficient Design Data for a Structure has been prepared to allow the determination of a category for such Structure, Project Co shall submit the proposed category (together with such Design Data as necessary to support that proposal) to TfL in accordance with the Review Procedure.

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2.7.4 TfL shall be entitled to raise objections to a proposed category for a Structure submitted pursuant to paragraph 2.7.3 only on the grounds that the proposal is not consistent with the definitions of the categories of Structures in paragraph 2.7.2, and not, for the avoidance of doubt, on any of the General Grounds for Objection set out in paragraph 6.2 of Part 2 (*Review Procedure*).

2.7.5 The Parties acknowledge and agree that the Assessment of existing Structures and the renewal or strengthening work affecting structural integrity of existing Structures for the purposes of the Certification Procedure shall be categorised on the basis of the characteristics of the original Structure as at the Effective Date unless otherwise agreed by TfL.

2.8 Design Checking Procedure

2.8.1 For the purposes of the issue of a Check Certificate in relation to Design Data, Project Co shall ensure that the Design Data relating to each Structure, M&E Installations in respect of such Structure or M&E Installation (including Assessments, drawings and bar schedules) is checked such that Project Co can satisfy itself that the design has been carried out with reasonable professional skill and care and in accordance with the Technical Requirements and all Applicable Requirements as follows:

- a. Category 0 Structures and Category I Structures require an independent check by an engineer other than the engineer who designed the Structure and the checking engineer may be from the original Design Team and the Designer shall issue a Check Certificate;
- b. Category II Structures require a check by a Checking Team, which is from the Designer but is independent of the Design Team, and the leader of the Checking Team shall issue a Check Certificate; and
- c. M&E Installations and Category III Structures require a check by an independent checking team which is formed from a different corporate entity to the Designer (including any subsidiaries or holding companies of the Designer), and the leader of the independent checking team shall issue a Check Certificate. Project Co shall obtain TfL's prior consent to any independent checking team which is proposed to be formed from an entity (including any subsidiaries or holding companies of such entity) with share capital in Project Co, and in such event the Designer shall provide TfL with evidence of the proposed independent checking team's independence.

2.8.2 Project Co shall ensure that in respect of M&E Installations, a copy of the Safety Consultation Document completed in respect of such M&E Installation and signed by Project Co, shall be attached to the Check Certificates issued pursuant to paragraph 2.8.1.

2.8.3 For the purposes of paragraph 2.8.1c, Project Co shall ensure that the Checker will carry out a comprehensive examination of all aspects of the design or Assessment and will check that it complies with this Agreement.

2.8.4 Project Co shall decide or shall ensure that the Checking Team decides the form and detail of the design check referred to in this paragraph 2.8 (*Design Checking Procedure*) based on Good Industry Practice.

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- 2.8.5 Notwithstanding paragraph 2.8.4, Project Co shall ensure that the analytical work carried out by the Checking Team for the purposes of any design check required by this paragraph 2.8 (*Design Checking Procedure*) be independent of that of the Design Team or the Designer and carried out without reference to the calculations of the Design Team or the Designer.
- 2.8.6 Project Co shall ensure that the Design Team, the Designer, the Checking Team and the Checker shall each be satisfied as to the applicability and accuracy of all computer programs used for the purposes of any design check required by this paragraph 2.8 (*Design Checking Procedure*) and shall ensure the validity of the program for each application.
- 2.8.7 Project Co shall ensure that the independence of the Design Team and Checking Team and of the Designer and the Checker shall be maintained.
- 2.8.8 For the avoidance of doubt, the Parties acknowledge and agree that the method of analysis employed by Design Team and Checking Team and of the Designer and the Checker need not be the same and that such parties may consult each other to ensure that the results they are obtaining are directly comparable.

2.9 Geotechnical Works

- 2.9.1 In respect of geotechnical elements of the Works, Project Co shall ensure that the Designer issues, and Project Co shall submit to TfL in accordance with the Review Procedure, a Design Certificate (Geotechnical) together with the submission of Design Data in accordance with paragraph 2.2 (*Design Data and Certificates*).
- 2.9.2 For the purposes of the Certification Procedure, the Parties agree that Geotechnical Reports shall be treated as Design Data and Project Co shall ensure that Geotechnical Reports are:
- a. prepared by the Designer; and
 - b. submitted with a Design Certificate (Geotechnical).
- 2.9.3 Where a Geotechnical Report relates to a Structure, Project Co shall submit the Design Certificate (Geotechnical) endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure in advance of any other Design Data relating to that Structure.
- 2.9.4 The Parties acknowledge and agree that, subject to agreement with TfL, a Geotechnical Report may be submitted in whole or in parts.
- 2.9.5 If a Geotechnical Report is submitted in parts:
- a. Project Co shall ensure that the sections containing the information required of a ground investigation report by DMRB Standard HD 22/08 shall be submitted to TfL before subsequent sections of the Geotechnical Report are submitted; and
 - b. Project Co acknowledges and agrees that the period of time for which TfL has to respond to such Review Submission pursuant to Part 2 (*Review Procedure*) shall not commence until the entire Geotechnical Report has been received by TfL.

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- 2.9.6 Project Co shall include a GRR, as described in DMRB Standard HD 22/08 (as amended by Annex 2 (*Amendments to Standards and Specifications*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) within the ground investigation report referred to in paragraph 2.9.5a, and Project Co shall ensure that the GRR shall identify the geotechnical risks and their consequences, and proposals to mitigate such risks.
- 2.9.7 Project Co shall ensure that the GRR is prepared by the Designer and reviewed and updated by the Designer as necessary during the design of the Project.
- 2.9.8 Project Co shall ensure that a "Geotechnical Feedback Report" (as described in DMRB Standard HD 22/08) shall be prepared and submitted by the Designer to TfL as soon as possible and in any event within six (6) months prior to the Permit to Use Date.

2.10 Landscape and Ecology

- 2.10.1 Project Co shall ensure that Landscape Design Data and Ecological Design Data forming part of a Proposal shall be prepared in accordance with this paragraph 2.10 (*Landscape and Ecology*) and all relevant Certificates required in accordance with this paragraph 2.10 (*Landscape and Ecology*) shall be submitted to TfL with the relevant Design Data.
- 2.10.2 Project Co acknowledges that the provisions of Schedule 12 (*Environmental Requirements*) also apply to the submission of Landscape Design and Ecological Design.
- 2.10.3 In relation to Landscape Design Data, Project Co shall:
 - a. ensure that the Landscape Design Data is prepared by the Landscape Manager;
 - b. ensure that all Landscape Design Data forming all or part of a Proposal is accompanied by a Landscape Certificate (Design) issued by the Landscape Manager; and
 - c. on completion of the relevant landscape works, submit a Landscape Certificate issued by the Landscape Manager to TfL.
- 2.10.4 In relation to Ecological Design Data, Project Co shall:
 - a. ensure that the Ecological Design Data is prepared by the Ecologist;
 - b. ensure that all Ecological Design Data forming all or part of a Proposal shall be accompanied by an Ecological Certificate (Design) issued by the Ecologist; and
 - c. at the times required pursuant to Project Co's Ecological Management Plans, submit an Ecological Certificate issued by the Ecologist to TfL.
- 2.10.5 Project Co shall ensure that the Landscape Manager and the Ecologist satisfy themselves that the relevant Landscape Design Data and Ecological Design Data (as applicable) meets the requirements of this Agreement prior to issuing the Certificates referred to in this paragraph 2.10 (*Landscape and Ecology*).

2.11 M&E Installation Certificates/Traffic Safety and Control Certificates

2.11.1 The Parties acknowledge and agree that the design and certification of the ME&P Systems (as set out in Annex 2 (*Requirements for Tunnel ME&P Systems*) of Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*)) and traffic safety and control requirements (as set out in Annex 6 (*Traffic Safety and Control (outside the tunnel)*) of Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*) and Schedule 11 (*TfL Technology Requirements*) shall be carried out in accordance with the requirements of the Certification Procedure, but subject to the requirements of Annex 2 (*Requirements for Tunnel ME&P Systems*) and Annex 6 (*Traffic Safety and Control (outside the tunnel)*) of Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*) and Schedule 11 (*TfL Technology Requirements*).

2.12 Road Safety Audits - Design

2.12.1 Project Co shall ensure that Road Safety Audits are carried out at the stages described in paragraph 2.12.4 in accordance with TfL Procedure No.: SQA-0170 (and as amended by Annex 2 (*Amendments to Standards and Advice Notes*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*), save that the procedure shall be further amended as provided in paragraph 2.12.4 to paragraph 2.12.13 inclusive.

2.12.2 Project Co shall submit to TfL under the Review Procedure Project Co's proposal as to the identity of the Audit Team for the Works and Services.

2.12.3 Project Co shall ensure that any Road Safety Audit may only be commenced once Project Co's proposal as to the identity of the Audit Team has been "received" or "received with comments" under the Review Procedure.

2.12.4 The Parties acknowledge and agree that there shall be two stages of Road Safety Audit completed as part of the Design Certification Procedure, plus an Interim Road Safety Audit, as follows:

- a. Stage 1 Audit: on completion of preliminary design, unless otherwise agreed by TfL;
- b. Stage 2 Audit: on completion of Detailed Design and prior to commencement of construction of the relevant part of the Works; and
- c. Interim Road Safety Audit: to be arranged by Project Co at any time during the preliminary design and Detailed Design stages, as it considers appropriate.

2.12.5 The Parties acknowledge that:

- a. communication between the Audit Team and the Designer shall only be through Project Co;
- b. any meeting between the Designer and the Audit Team will be facilitated and chaired by Project Co; and

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- c. the TfL Representative or any other representative of TfL shall be invited to attend.
- 2.12.6 At each of the relevant Road Safety Audit stages referred to in paragraph 2.12.4, Project Co shall submit an Audit Brief to TfL for review in accordance with the Review Procedure and shall issue such Audit Brief endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure to the Audit Team.
- 2.12.7 In the event the Audit Team considers the Audit Brief to be insufficient for its purpose, further information may be requested from the Designer regarding the brief for the relevant Road Safety Audit, with correspondence copied to Project Co.
- 2.12.8 Project Co shall ensure that the Audit Team shall undertake the Road Safety Audit in accordance with the Audit Brief and prepare reports in relation to the relevant Road Safety Audit for Project Co including any recommendations.
- 2.12.9 Project Co shall promptly provide copies of all such audit reports to the Designer and TfL.
- 2.12.10 Following the receipt of the Audit Team's report and recommendations in relation to a Road Safety Audit, Project Co shall be responsible for the preparation of the Exception Report in relation to the recommendations giving reasons and proposing alternatives in relation to any recommendations Project Co proposes not to comply with for submission to TfL under the Review Procedure.
- 2.12.11 Project Co shall provide copies of each Exception Report which has been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure to the Design Team and Audit Team Leader for action and information respectively.
- 2.12.12 Except where otherwise confirmed by an Exception Report, all recommendations made by the Audit Team at each stage of Road Safety Audit shall be implemented by Project Co.
- 2.12.13 Project Co shall ensure that the Designer, after implementation of all recommendations (other than those expressly excepted by the Exception Report endorsed by TfL), provides to TfL the completed Road Safety Audit Certificate relevant to the particular stage as contained in Annex 1 (*Certificates prepared by Project Co*), in relation to that stage, signed by the Designer, the D&C Contractor and Project Co.

3. Construction Certification Procedure**3.1 Road Safety Audits - Construction**

- 3.1.1 The Parties acknowledge that paragraph 2.12.1 and paragraph 2.12.2 and paragraph 2.12.5 to paragraph 2.12.13 apply to this paragraph 3.1 (*Road Safety Audits - Construction*) for Road Safety Audits for construction of the Works pursuant to the Construction Certification Procedure.
- 3.1.2 Project Co shall ensure that there are two stages of Road Safety Audit completed as part of the Construction Certification Procedure as follows:

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- a. Stage 3 Audit: to be completed immediately prior to Project Co issuing the notice indicating the date that:
 - i. the Permit to Use Requirements will be met in accordance with clause 18.2(a); or
 - ii. the Handover Requirements for an Additional Asset Area or a Section of the Site will be met in accordance with clause 17.1 (*Handover Certificate*); and
 - b. Stage 4 Audit: to be completed on completion of twelve (12) months and thirty six (36) months of monitoring personal injury accident data for the relevant road.
- 3.1.3 Project Co shall ensure that the Designer, after implementing all the recommendations of the Audit Team (other than those expressly excepted by the Exception Report approved by TfL), provides to TfL a completed Road Safety Audit Certificate as contained in Annex 1 (*Certificates prepared by Project Co*) in relation to that stage of Road Safety Audit, signed by the Designer, the D&C Contractor and Project Co.
- 3.1.4 Project Co acknowledges that the Permit to Use and any Handover Certificate shall not be issued unless and until a Road Safety Audit Certificate (Stage 3) in relation to the relevant road has been submitted.

3.2 Testing and Examination

- 3.2.1 Project Co shall update the Draft Specification Appendix 1/5 (including in relation to the details of type of test, frequency and certification requirements) and ensure that the updated Draft Specification Appendix 1/5 is endorsed by TfL as "received" or "received with comments" under the Review Procedure prior to the time of the first testing contemplated by this Agreement.
- 3.2.2 Project Co shall ensure that testing is carried out to ensure the Works and the goods and materials incorporated in the Works provide the levels of safety, performance and fitness for purpose required by Specification Appendix 1/5.
- 3.2.3 Where required in Specification Appendix 1/5, Project Co shall supply test certificates and/or product certification that the goods or materials meet the specified requirements referred to in paragraph 3.2.1 to TfL prior to the incorporation of the goods or materials in the Works.
- 3.2.4 Project Co shall ensure that all testing of Works and any goods and materials incorporated therein required pursuant to this Agreement shall be carried out under the direction of the Designer and TfL shall be given timely notice of the date of such tests by Project Co in order that the TfL Representative or any other representative of TfL may attend.
- 3.2.5 The Parties acknowledge and Project Co shall ensure that the Designer shall be required to reject any part of the Works or any goods or materials incorporated therein which fail such tests referred to in paragraph 3.2.4.
- 3.2.6 Project Co shall develop a test recording system which will permit ready retrieval of all test results and shall provide all test results to TfL within ten (10) Working Days of a request.

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- 3.2.7 Project Co shall provide to TfL a Test Confirmation Certificate, as set out in Annex 1 (*Certificates prepared by Project Co*) signed by the Designer at weekly intervals during the period commencing on the date that the first test is carried out in accordance with this Agreement and expiring on the Permit to Use Date (or such other time interval as may otherwise be agreed with TfL or as expressly stated elsewhere in this Agreement).
- 3.2.8 Project Co shall ensure that:
- a. the tests undertaken during the weekly intervals referred to in paragraph 3.2.7 shall be summarised and listed on a test summary sheet (together with statistical analyses as appropriate) and shall accompany the Test Confirmation Certificate when issued to TfL; and
 - b. that the test summary sheets provide sufficient information to identify each individual test carried out, the type of test, the date the test was carried out, the location of the test site and a reference to the original test readings stored in the test recording system.
- 3.2.9 Project Co shall:
- a. ensure that the Designer and the TfL Representative or any other representative of TfL are afforded full opportunity to examine any part of the Works the subject of a Proposal which is about to be covered up or put out of view and to examine foundations or any other aspect of such Works before any other part of the Works is placed thereon;
 - b. at any time prior to the Permit to Use Date (or the date of the Handover Certificate for any Works the subject of a Handover Certificate):
 - i. uncover or procure the uncovering of any part of the Works or open up or procure the opening up of any part of the Works as TfL may from time to time reasonably instruct;
 - ii. allow the Designer and TfL to inspect such part of the uncovered or opened up Works; and
 - iii. reinstate and make good such part of the Works following the inspection,
 - c. if, following the inspection pursuant to paragraph 3.2.9b, the inspection shows that the relevant part or parts of the Works:
 - i. are not defective, the exercise of such rights shall constitute a Compensation Event subject to and in accordance with clause 26.1 (*Compensation Events*); or
 - ii. are defective, Project Co shall rectify and make good such defect(s) and any consequence of such rectification and/or making good defect(s) shall be carried out by Project Co at no cost to TfL and Project Co shall not be entitled to any relief or to receive any additional costs in relation to the exercise of such rights by TfL or in relation to such rectification and making good of the Works;
 - d. allow the TfL Representative or any other representative of TfL to retrieve samples or carry out on-site testing anywhere on the Site or at the place of

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manufacture of any plant or material which fails any test or is suspected of not complying with the requirements of this Agreement, provided that if the test shows that the workmanship or materials are not in accordance with the requirements of this Agreement, the costs of retrieval and testing incurred by or on behalf of TfL shall be borne by Project Co, but otherwise such costs will be borne by TfL;

- e. ensure that TfL may, at all reasonable times and on reasonable notice and subject to obtaining the consent of the relevant manufacturer or supplier (which Project Co shall use all reasonable endeavours to obtain), enter upon any property used by Project Co as training or workshop facilities and places where work is being prepared or materials are being obtained for the Project for the purposes of general inspection and of attending any test or investigation being carried out in respect of the Works; and
 - f. ensure that the frequency of testing set out in Specification Appendix 1/5 is adhered to and shall provide evidence to TfL of the same within a reasonable period after a request.
- 3.2.10 Project Co acknowledges and agrees that the procedures for such examinations and uncovering shall be set out in the Quality Management System for Construction in accordance with the requirements of Schedule 8 (*Management Systems*).
- 3.2.11 The Parties acknowledge and Project Co shall ensure that the Designer is required to reject any part of the Works that does not satisfy the D&C Requirements in which case a Construction Certificate in respect of that part of the Works may not be issued.
- 3.2.12 Without prejudice to the rights of TfL pursuant to paragraph 3.2.9, the Parties acknowledge that the exercise of such rights shall not in any way affect the obligations of Project Co under this Agreement save as expressly set out in paragraph 3.2.9.

3.3 Construction

- 3.3.1 Project Co shall ensure that during the construction of any part of the Works the subject of a Proposal, the Designer shall examine the same and satisfies itself that such Works and every part thereof have been designed, assessed, approved, constructed, completed, commissioned, tested and maintained in all respects so as to accord with:
- a. the Design Data in respect of which Design Certificates and where required by this Part 1 (*Certification Procedure*), the Check Certificates, have been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure;
 - b. the D&C Requirements; and
 - c. the other requirements of this Agreement.
- 3.3.2 Project Co shall ensure that when Project Co, the D&C Contractor and the Designer together are satisfied that a part of the Works have been completed in accordance with the requirements of this Agreement, the Designer shall issue a Construction Certificate in respect of that part of the Works.

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- 3.3.3 Project Co shall ensure that the Designer does not issue a Construction Certificate in accordance with paragraph 3.3.2:
- a. in respect of any part of the Works, until TfL has issued any relevant Signalling Commission Certificate in accordance with clause 13.8 (*Signalling Commissioning Period*); or
 - b. in respect of any part of the Works required by Schedule 11 (*TfL Technology Requirements*), until a completed technology commissioning certificate (the form of which will be provided to Project Co by TfL) for the relevant part of the Works has been issued by TfL.
- 3.3.4 Project Co shall ensure that all Construction Certificates provided to TfL are signed by Project Co.

4. Certification Requirements

- 4.1 Project Co shall ensure that all parties signing Certificates clearly indicate their name and position held in their organisation on each Certificate.
- 4.2 Project Co shall ensure that all Certificates are signed by a Principal of the organisation concerned, who (save for the parties signing Certificates in accordance with paragraph 2.10 (*Landscape and Ecology*)) shall be a chartered member of an organised engineering institution of an appropriate discipline.
- 4.3 Project Co shall ensure that a single signed original and as many copies as TfL may reasonably require of each relevant Certificate shall be submitted to TfL together with the supporting documentation containing such information and in such form as required by Schedule 8 (*Management Systems*).
- 4.4 Where required by the provisions of this Schedule 9 (*Certification and Review Procedure*), TfL shall acknowledge receipt of the Certificate and return the original to Project Co for storage pursuant to paragraph 4.5.
- 4.5 Project Co shall be responsible for ensuring the secure storage and archiving of all original signed Certificates in accordance with Schedule 16 (*Records and Reporting*).

Annex 1 of Part 1 - Certificates prepared by Project Co

1. Certificates prepared by Project Co

- 1.1 This Annex 1 (*Certificates prepared by Project Co*) includes the templates for the certificates to be prepared by Project Co.
- 1.2 The following is a list of the template certificates appearing in this Annex 1 (*Certificates prepared by Project Co*):
- 1.2.1 Design Certificate (General);
 - 1.2.2 Design Certificate (Geotechnical);
 - 1.2.3 Design Certificate (Structures / M&E Installations);
 - 1.2.4 Check Certificate (Structures / M&E Installations);
 - 1.2.5 Temporary Works Check Certificate;
 - 1.2.6 Test Confirmation Certificate;
 - 1.2.7 Stage 1 Road Safety Audit Certificate;
 - 1.2.8 Stage 2 Road Safety Audit Certificate;
 - 1.2.9 Stage 3 Road Safety Audit Certificate;
 - 1.2.10 Stage 4 Road Safety Audit Certificate;
 - 1.2.11 Construction Certificate;
 - 1.2.12 Assessment Certificate (Structures);
 - 1.2.13 Assessment Check Certificate (Structures);
 - 1.2.14 Landscape Certificate (Design);
 - 1.2.15 Landscape Certificate;
 - 1.2.16 Ecological Certificate (Design); and
 - 1.2.17 Ecological Certificate.
- 1.3 Any references in this Schedule 9 (*Certification and Review Procedure*) to any of the above named Certificates shall be reference to such Certificate prepared using the template form in this Annex 1 (*Certificates prepared by Project Co*).

CERTIFICATE 1

Certificate Ref No. []

DESIGN CERTIFICATE (GENERAL)

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer (or the D&C Contractor in relation to Temporary Works only) for certifying the design of the Works the subject of a Proposal in accordance with clause 13.3 (*Certification Procedure and Review Procedure*) and Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in preparing the Design Data for [**insert package reference and title**] listed in the schedule hereto and annexed which in our opinion, comply with the Technical Requirements, as amended by the following:

[*List, if any, Project Co Changes and TfL Changes*]

SCHEDULE

[*Include here document numbers and titles forming the Design Data*]

Signed:	Signed:
Designer/D&C Contractor (Principal)+	Project Co Representative
Name:	Name:
Title:	Date:
Date:	

This Certificate is:

- | | |
|--|-------------------------------------|
| i. received* | Signed: |
| ii. received with comments as follows:* | TfL Representative on behalf of TfL |
| iii. returned marked "comments" as follows:* | Name: |
| * delete as appropriate | Date: |

Notes: For Earthworks use Certificate 2 and for Structures use Certificate 3.

+ The D&C Contractor may sign only in respect of Temporary Works. Delete as appropriate.

CERTIFICATE 2

Certificate Ref. No []

DESIGN CERTIFICATE (GEOTECHNICAL)

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer (or the D&C Contractor in relation to Temporary Works only) for certifying the design of Geotechnical Works in accordance with clause 13.3 (*Certification Procedure and Review Procedure*) and Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that the Design Data for Geotechnical Works listed in the schedule hereto and annexed incorporates the results of the ground investigations and their interpretation, that it has been prepared by us with reasonable professional skill and care, and that in our opinion:

- (i) it constitutes an adequate design for the Project and complies with the Technical Requirements, as amended by the following:

[List, if any, Project Co Changes and TfL Changes];
- (ii) solutions to all the reasonably foreseeable geotechnical problems have been incorporated; and
- (iii) the said Design Data accurately represents the work intended.

SCHEDULE

[Include here document numbers and titles and Geotechnical Report forming the Design Data]

Signed:

Signed:

Designer/D&C Contractor (Principal)+

Project Co Representative

Name:

Name:

Title:

Date:

Date:

This Certificate is:

- i. received* Signed:
- ii. received with comments as follows:* TfL Representative on behalf of TfL
- iii. returned marked "comments" as follows:* Name:
- * delete as appropriate Date:

Notes: Geotechnical aspects of Structures are covered by the Technical Appraisal Form and Design Certificate (Structures/M&E Installations) and not by this Certificate.

+ The D&C Contractor may sign only in respect of Temporary Works. Delete as appropriate.



CERTIFICATE 3

Certificate Ref No. []

DESIGN CERTIFICATE (STRUCTURES / M&E INSTALLATIONS)

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer (or the D&C Contractor in relation to Temporary Works only) for certifying the design of Structures and/or M&E Installations incorporated in the Works, in accordance with clause 13.3 (*Certification Procedure and Review Procedure*) and Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in the preparation [and checking+] of the Design Data for [**insert package reference and Name and Category of the Structure / M&E Installation and list of all elements of the Structure / M&E Installation included in the Design Data**] listed in the schedule hereto and annexed and that in our opinion:

- (i) the said Design Data comply with the Technical Requirements, including Technical Appraisal Form No. [.....] dated [.....], as amended by the following:
[List, if any, Project Co Changes and TfL Changes];
- (ii) due account has been taken of the Geotechnical Report for the [Structure]/[M&E Installation] [**reference number**] [and agreed amendments] [**reference numbers**]

SCHEDULE

[Include here document numbers and titles and bar bending schedule numbers]

Signed:

Signed:

Designer/D&C Contractor (Principal)++

Project Co Representative

Name:

Name:

Title:

Date:

Date:

This Certificate is:

- i. received* Signed:
- ii. received with comments as follows:* TfL Representative on behalf of TfL
- iii. returned marked "comments" as follows:* Name:

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* delete as appropriate

Date:

Notes: + The words "and checking" are to be omitted for Temporary Works and Structures of Category II and III and a Check Certificate is to be issued.

++ The D&C Contractor may sign only in respect of Temporary Works. Delete as appropriate.



CERTIFICATE 4

Certificate Ref No. []

**CHECK CERTIFICATE
(STRUCTURES / M&E INSTALLATIONS)**

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Checker (or, in the case of Category 0 or Category I Structures, the Designer or in the case of Category II Structures, the leader of the Checking Team) as required by paragraph 2.8 (*Design Checking Procedure*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in checking the Design Data for [**Package Reference with name and Category of the Structure**] listed in the schedule hereto and annexed and that in our opinion:

- (i) the said Design Data comply with the Technical Requirements, as amended by:
[List, if any, Project Co Changes and TfL Changes;]
and comply in all other respects with the Agreement; and
- (ii) due account has been taken of the Geotechnical Report for the Structure [**reference**] [and agreed amendments] [**reference numbers**].

SCHEDULE

[Include here document numbers and titles and bar bending schedule numbers, and in the case of M&E Installations, the relevant Safety Consultation Document]

Signed:	Signed:
Leader of the Checking Team/Checker/Designer (Principal)+	Project Co Representative
Name:	Name:
Title:	Date:
Date:	

This Certificate is:

- i. received* Signed:
- ii. received with comments as follows:* TfL Representative on behalf of TfL
- iii. returned marked "comments" as follows:* Name:

TfL Reference: tfl_scp_001527

* delete as appropriate

Date:

Note: + *Certificates for Structures of Category 0 and Category I are to be signed by the Designer. Certificates for Structures of Category II are to be signed by the leader of the Checking Team. Certificates for Structures of Category III are to be signed by the Checker. Delete as appropriate.*



CERTIFICATE 5

Certificate Ref. No. []

TEMPORARY WORKS CHECK CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer, the leader of the Checking Team or the Checker for the checking of the Design Data for Temporary Works as required by paragraphs 2.3 (*Temporary Works and Design Data Certificates*) and 2.6 (*Temporary Works*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in checking the Design Data for the Temporary Works comprising [**description of Temporary Works**] listed in the schedule hereto and annexed, and that in our opinion:

- i. the said Design Data meets the D&C Requirements and otherwise complies with the requirements of the Agreement, as amended by:
[List, if any, Project Co Changes and TfL Changes;]
- ii. the Temporary Works (as a whole and the constituent parts) are satisfactory for the safe and proper discharge of Project Co relevant obligations;
- iii. the said Design Data reflects the requirements of the Relevant Authorities (where applicable) for all affected highways or other ways or areas used by or accessible to the public, including, for the avoidance of debt, the River Thames; and
- iv. the Temporary Works have no detrimental effects on the Works.

SCHEDULE

[Include here document numbers and titles]

Signed:

Signed:

Designer/leader of the Checking Team/Checker (Principal)+

Project Co Representative

Name:

Name:

Title:

Date:

Date:

This Certificate is:

- i. received*

Signed:

TfL Reference: tfl_scp_001527

Part 1, Annex 1 – Certificates prepared by Project Co

- ii. received with comments as follows:* TfL Representative on behalf of TfL
- iii. returned marked "comments" as follows:* Name:
- * delete as appropriate Date:

Notes: *The description of the Temporary Works must define unambiguously the extent of the temporary work to which the check has been applied.*

+ Certificates for Temporary Works for Structures of Category III or for Temporary Works which are themselves a Structure of Category III are to be signed by the Checker. Certificates for Temporary Works for which the Design Data were prepared by the D&C Contractor are to be signed by the Designer. Certificates for Temporary Works for which the Design Data were prepared by the Designer are to be signed by the leader of the Checking Team. Delete as appropriate.

CERTIFICATE 6

Certificate Ref. No. []

TEST CONFIRMATION CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by Project Co in accordance with paragraph 3.2 (*Testing and Examination*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement for the results of tests carried out on works, goods and materials.

We certify that the test(s) described in [**insert reference**]* has/have been performed successfully in all respects in accordance with the Agreement.

Signed:

Signed:

Designer

Project Co Representative

Name:

Name:

Title:

Date:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:

* *Note:* State the document which identifies either the single test or series of tests covered by this Certificate.



CERTIFICATE 7

Certificate Ref. No. []

STAGE 1 ROAD SAFETY AUDIT CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer for certifying that a Stage 1 Road Safety Audit has been carried out in accordance with paragraph 2.12 (*Road Safety Audits – Design*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that the preliminary design of the scheme for [**insert package reference and title**] has been the subject of a Stage 1 Road Safety Audit in accordance with TfL Procedure: SQA-0170 (as amended by Annex 2 (*Amendments to Standards and Advice Notes*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) and paragraph 2.12 (*Road Safety Audits – Design*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*)) and that, except where there has been no objection under the Review Procedure to an alternative solution to a recommendation, all recommendations have been incorporated.

The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed: Signed:

Designer (Principal) D&C Contractor (Principal)

Name: Name:

Title: Title:

Date: Date:

Signed:

Project Co Representative

Name:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:

TfL Reference: tfl_scp_001527



CERTIFICATE 8

Certificate Ref. No. []

STAGE 2 ROAD SAFETY AUDIT CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer for certifying that a Stage 2 Road Safety Audit has been carried out in accordance with paragraph 2.12 (*Road Safety Audits – Design*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that the Detailed Design of the scheme for [**insert package reference and title**] has been the subject of a Stage 2 Road Safety Audit in accordance with TfL Procedure No.: SQA-0170 (as by amended Annex 2 (*Amendments to Standards and Advice Notes*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) and paragraph 2.12 (*Road Safety Audits – Design*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*)) and that, except where there has been no objection under the Review Procedure to an alternative solution to a recommendation, all recommendations have been incorporated.

The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed: Signed:

Designer (Principal) D&C Contractor (Principal)

Name: Name:

Title: Title:

Date: Date:

Signed:

Project Co Representative

Name:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:

TfL Reference: tfl_scp_001527

CERTIFICATE 9

Certificate Ref. No. []

STAGE 3 ROAD SAFETY AUDIT CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer for certifying that a Stage 3 Road Safety Audit has been carried out in accordance with paragraph 3.1 (*Road Safety Audits – Construction*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that the [*insert description of road*] has been the subject of a Stage 3 Road Safety Audit in accordance with TfL Procedure No.: SQA-0170 (as amended by Annex 2 (*Amendments to Standards and Advice Notes*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) and paragraph 3.1 (*Road Safety Audits – Construction*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*)) and that, except where there has been no objection under the Review Procedure to an alternative solution to a recommendation, all recommendations have been incorporated.

The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed:	Signed:
Designer (Principal)	D&C Contractor (Principal)
Name:	Name:
Title:	Title:
Date:	Date:

Signed:

Project Co Representative

Name:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:



CERTIFICATE 10

Certificate Ref. No. []

STAGE 4 ROAD SAFETY AUDIT CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer for certifying that a Stage 4 Road Safety Audit has been carried out in accordance with paragraph 3.1 (*Road Safety Audits – Construction*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that the [*insert description of road*] has been the subject of a Stage 4 Road Safety Audit [.....] months after opening to traffic in accordance with TfL Procedure No.: SQA-0170 (as amended by Annex 2 (*Amendments to Standards and Advice Notes*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) and paragraph 3.1 (*Road Safety Audits – Construction*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*)) and that, except where there has been no objection under the Review Procedure to an alternative solution to a recommendation, all recommendations have been incorporated.

The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed: Signed:

Designer (Principal) D&C Contractor (Principal)

Name: Name:

Title: Title:

Date: Date:

Signed:

Project Co Representative

Name:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:

TfL Reference: tfl_scp_001527

CERTIFICATE 11

Certificate Ref. No. []

CONSTRUCTION CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer, D&C Contractor and Project Co for certifying the construction of the Works in accordance with paragraph 3.3 (*Construction*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

D&C Contractor and Project Co Statement

We certify that [**Name and element of construction**] has been designed, constructed, [completed except for any Snagging Items] [completed], commissioned and tested in all respects in accordance with the Agreement so as to accord with the relevant Design Data, Design Certificates and (where required by Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*), Check Certificates, in each case which have been endorsed by TfL as "received" or "received with comments" under the Review Procedure and so as to satisfy the Technical Requirements, [as amended by the following Project Co Changes and TfL Changes: [.....]].

Signed:	Signed:
D&C Contractor (Principal)	Project Co Representative
Name:	Name:
Title:	Date:
Date:	

Designer's Statement

We certify that we have used reasonable professional skill and care in examining the [**Name and element of construction**] in accordance with our [**insert reference to Management System Documentation**] for examination of the Works and that in our opinion the said element of the Works has been designed, constructed, [completed except for any Snagging Items] [completed], commissioned and tested so as to accord with the relevant Design Data, Design Certificates and (where required by Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*)), Check Certificates in each case which have been endorsed by TfL as "received" or "received with comments" under the Review Procedure and so as to satisfy the Technical Requirements [as amended by the Project Co Changes and TfL Changes listed in the D&C Contractor and Project Co Statement above].

Signed:
Designer (Principal)

TfL Reference: tfl_scp_001527

Name:

Title:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:



CERTIFICATE 12

Certificate Ref. No. []

ASSESSMENT CERTIFICATE (STRUCTURES)

We refer to the agreement between TfL and Project Co dated [.....] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Designer for certifying the Assessment of Structures, in accordance with paragraph 2.7.3 of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in the Assessment [and checking] of [**Name and Category of the Structure and list of all elements of the Structure included in the Assessment**] listed in the schedule hereto and annexed and that in our opinion:

- (i) the said Assessment complies with the Technical Requirements, including Technical Appraisal Form No [.....] dated [.....], as amended by the following:

[List, if any, Project Co Changes and TfL Changes and addenda to the foregoing Technical Appraisal Form];

and the said Assessment complies in all other respects with the Agreement; and

- (ii) the assessed capacity of each element of the Structure is as follows:

[insert assessed capacities of each element of the Structure]

SCHEDULE

[Include here document numbers, title used for the Assessment and Assessment Report]

Signed:	Signed:
Designer (Principal)	Project Co Representative
Name:	Name:
Title:	Date:
Date:	

This Certificate is:

- i. received* Signed:
 - ii. received with comments as follows:* TfL Representative on behalf of TfL
 - iii. returned marked "comments" as follows:* Name:
- * delete as appropriate Date:

Note: The words "and checking" are to be omitted for Structures of Category II and III and an Assessment Check Certificate (Structures) is to be issued.

TfL Reference: tfl_scp_001527

CERTIFICATE 13

Certificate Ref. No. []

ASSESSMENT CHECK CERTIFICATE (STRUCTURES)

We refer to the agreement between TfL and Project Co dated [.....] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Checker (or, in the case of Category II Structures, the leader of the Checking Team) for checking the Assessment of Structures, in accordance with paragraph 2.2.1c.iii of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in checking the Assessment of **[Name and Category of the Structure and list of all elements of the Structure included in the Assessment]** listed in the schedule hereto and annexed and that in our opinion:

- (i) the said Assessment complies with the Technical Requirements, including Technical Appraisal Form No [.....] dated [.....], as amended by the following:

[List, if any, Project Co Changes and TfL Changes and addenda to the foregoing Technical Appraisal Form];

and the said Assessment complies in all other respects with the Agreement; and

- (ii) the assessed capacity of each element of the Structure is as follows:

[insert assessed capacities of each element of the Structure]

SCHEDULE

[Include here document numbers and title used for the Assessment and Assessment Report.]

Signed: Signed:

Leader of the Checking Team/Checker (Principal)+ Project Co Representative

Name: Name:

Title: Date:

Date:

This Certificate is:

i. received* Signed:

ii. received with comments as follows:* TfL Representative on behalf of TfL

iii. returned marked "comments" as follows:* Name:

* delete as appropriate Date:

TfL Reference: tfl_scp_001527

Note: + Certificates for Structures of Category II are to be signed by the leader of the Checking Team and for Structures of Category III are to be signed by the Checker. Delete as appropriate.

CERTIFICATE 14

Certificate Ref. No. []

LANDSCAPE CERTIFICATE (DESIGN)

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Landscape Manager for certifying the Landscape Design in accordance with paragraph 2.10 (*Landscape and Ecology*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that in our opinion the [Landscape Design*] set out in the schedule hereto and annexed in respect of the [**description of relevant area by reference to an appropriate drawing**] complies with the Technical Requirements [as amended by the following Project Co Changes and TfL Changes: [.....]].

SCHEDULE

[Include here details of the Existing Vegetation Design or Landscape Design]

Signed:

Signed:

Landscape Manager (Principal)

Project Co Representative

Name:

Name:

Title:

Date:

Date:

This Certificate is:

- i. received*
- ii. received with comments as follows:*
- iii. returned marked "comments" as follows:*

Signed:

TfL Representative on behalf of TfL

Name:

* delete as appropriate

Date:



CERTIFICATE 15

Certificate Ref. No. []

LANDSCAPE CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Landscape Manager for certifying that the relevant works pursuant to Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*) of the Agreement or Landscape Works required to be carried out pursuant to Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*) of the Agreement have been completed.

We certify that we have used reasonable professional skill and care in examining the [works carried out pursuant to Annex 1 (*Highway and General Requirements*) of Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*)] [Landscape Design pursuant to Part 1 (*Design and Construction Requirements*) of Schedule 10 (*Design and Construction Requirements*)], carried out pursuant to the Landscape Design within [description of relevant area by reference to an appropriate drawing] and that in our opinion such [Landscape Works*] have been completed in all respects in accordance with the Agreement, so as to accord with [description of relevant Landscape Design] to which there has been no objection under the Review Procedure and so as to satisfy the Technical Requirements [as amended by the following Project Co Changes and TfL Changes: [.....]].

* delete as appropriate

SCHEDULE

[Include here details of the relevant works in the field or Landscape Works]

Signed:

Signed:

Landscape Manager (Principal)

Project Co Representative

Name:

Name:

Title:

Date:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:

TfL Reference: tfl_scp_001527

CERTIFICATE 16

Certificate Ref. No. []

ECOLOGICAL CERTIFICATE (DESIGN)

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Ecologist for certifying an Ecological Design in accordance with paragraph 2.10 (*Landscape and Ecology*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that in our opinion the Ecological Design set out in the schedule hereto and annexed constitutes an adequate design for the [**description of relevant area by reference to an appropriate drawing**] and complies with the Technical Requirements [as amended by the following Project Co Changes and TfL Changes: [.....]].

SCHEDULE

[Include here details of the relevant Ecological Design]

Signed:

Signed:

Ecologist (Principal)

Project Co Representative

Name:

Name:

Title:

Date:

Date:

This Certificate is:

i. received*

Signed:

ii. received with comments as follows:*

TfL Representative on behalf of TfL

iii. returned marked "comments" as follows:*

Name:

* delete as appropriate

Date:

CERTIFICATE 17

Certificate Ref. No. []

ECOLOGICAL CERTIFICATE

We refer to the agreement between TfL and Project Co dated [] ("**the Agreement**") relating to the Silvertown Tunnel Project. Words and expressions defined in the Agreement shall have the same meanings in this Certificate.

We acknowledge that this form of Certificate is to be used by the Ecologist for certifying that no species or habitats protected by Law have been found within a particular part of the Site or Temporary Areas in accordance with paragraph 2.10 (*Landscape and Ecology*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) of the Agreement.

We certify that we have used reasonable professional skill and care in surveying and inspecting the [**description of relevant area by reference to an appropriate drawing**] on [date] and that there were no species or habitats protected by Law within such area on that date.

Signed:

Signed:

Ecologist (Principal)

Project Co Representative

Name:

Name:

Title:

Date:

Date:

Receipt of this Certificate is acknowledged.

Signed:

TfL Representative on behalf of TfL

Name:

Date:

Annex 2 of Part 1 – Technical Appraisal Forms

- 1.1 Annex 2 (*Technical Appraisal Forms*) of Part 1 (*Certification Procedure*) includes the following templates for the Technical Appraisal Forms:
- 1.1.1 Model Technical Appraisal Form (TAF (Design));
 - 1.1.2 Model Technical Appraisal Form (TAF (Assessment));
 - 1.1.3 Model Technical Appraisal Form (TAF (Design or Assessment of Road Tunnel Structures));
 - 1.1.4 Model Mechanical and Electrical Technical Appraisal Form (MEAF (Installations in Road Tunnels and Service Buildings)); and
 - 1.1.5 Model Safety Consultation Document.

1. MODEL TECHNICAL APPRAISAL FORM ("TAF (DESIGN)")

For the design of bridges and other highway structures where UK National Standards (Eurocodes) are used (excluding Road Tunnel and Service Tunnels)

TAF Ref. No:.....

Name of Project:
Name of Structure:
Structure Reference Number:

1.1 HIGHWAY DETAILS

- 1.1.1 Type of highway
- 1.1.2 Permitted traffic speed ¹
- 1.1.3 Existing restrictions ²

1.2 SITE DETAILS

- 1.2.1 Location (Include Ordnance Survey grid ref)
- 1.2.2 Obstacles crossed
- 1.2.3 Permitted traffic speed (where applicable)
- 1.2.4 Brief description of existing conditions
- 1.2.5 What additional survey/investigations are proposed?

1.3 PROPOSED STRUCTURE

- 1.3.1 Description of Structure and design working life ³
- 1.3.2 Structural type
- 1.3.3 Foundation and substructure type
- 1.3.4 Span arrangements
- 1.3.5 Articulation arrangements
- 1.3.6 Classes and levels ⁴
 - a. Consequence class
 - b. Reliability class
 - c. Inspection level
- 1.3.7 Road restraint systems requirements
- 1.3.8 Proposed arrangements for future maintenance and inspection
 - a. Traffic management

- b. Arrangements for future maintenance and inspection of Structure
 - c. Access arrangements to Structure
 - 1.3.9 Environment and sustainability
 - 1.3.10 Durability - Materials including strengths and finishes ⁵
 - 1.3.11 Risks and hazards affecting the Structure and posed by the Structure considered for design, execution, maintenance and demolition.
 - a. Consultation with and agreement from the Principal Designer ⁶
 - b. Where available, references, special investigations and studies that have been carried out must be included
 - 1.3.12 Proposed arrangements for construction
 - a. Construction of Structure
 - b. Traffic management
 - c. Service diversions
 - d. Interface with existing Structures
- 1.4 DESIGN CRITERIA
 - 1.4.1 Actions
 - a. Permanent actions
 - b. Snow, wind and thermal actions
 - c. Actions relating to normal traffic under the Road Vehicles (Authorised Weight) Regulations 1998 and the Road Vehicles (Construction and Use) Regulations 1986 ⁷
 - d. Actions relating to Special Type General Order vehicles under the Road Vehicles (Authorisation of Special Types) (General) Order 2003 ⁸
 - e. Footway or footbridge variable actions
 - f. Actions relating to Special Order vehicles under the Road Vehicles (Authorisation of Special Types) (General) Order 2003, provision for exceptional abnormal indivisible loads including location of vehicle track on deck cross-section ^{9,10}
 - g. Accidental actions
 - h. Actions during construction
 - i. Any special action not covered above ¹¹

Part 1, Annex 2 – Technical Appraisal Forms

- 1.4.2 Heavy or high load route requirements and arrangements being made to preserve the route, including any provision for future heavier loads or future widening
- 1.4.3 Minimum headroom provided
- 1.4.4 Authorities consulted and any special conditions required
- 1.4.5 Standards and documents listed in the Technical Appraisal Schedule ("TAS") (Annex 3 (Notes for Compiling Technical Appraisal Schedules)) attached to this TAF
 - a. Additional relevant standards not included in the TAS
- 1.4.6 Proposed Departures from Standards given in the TAS
- 1.4.7 Proposed Departures from Standards relating to methods for dealing with aspects not covered by standards given in the TAS
- 1.5 STRUCTURAL ANALYSIS
 - 1.5.1 Methods of analysis proposed for superstructure, substructure and foundations
 - 1.5.2 Description and diagram of idealised Structure to be used for analysis
 - 1.5.3 Assumptions intended for calculation of structural element stiffness
 - 1.5.4 Proposed range of soil parameters including pressure coefficients to be used in the design of earth retaining elements
- 1.6 GEOTECHNICAL CONDITIONS
 - 1.6.1 Acceptance of recommendations of the Geotechnical Design Report (as defined in DMRB HD22/08) to be used in the design and reasons for any proposed changes
 - 1.6.2 Summary of design for highway Structure in Geotechnical Design Report
 - 1.6.3 Describe foundations fully including the reasons for adoption of allowable and proposed bearing pressures/pile loads, strata in which foundations are located, provision for skin friction effects on piles and for lateral pressures due to compression of underlying strata, etc.
 - 1.6.4 Differential settlement to be allowed for in the design of the Structure
 - 1.6.5 Results of tests of ground water (e.g. pH value, chloride or sulphate content) and any counteracting measures proposed
- 1.7 CHECK
 - 1.7.1 Proposed Structure category and Design Supervision Level ¹²
 - 1.7.2 If a Category III Structure, name of proposed Checker
 - 1.7.3 Erection proposals or temporary works which require an independent Checker, listing structural parts of the permanent Structure affected with reasons

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1.8 DRAWINGS AND DOCUMENTS

1.8.1 List of drawings (including numbers) and documents accompanying the submission ¹³

1.9 THE ABOVE PROPOSALS ARE SUBMITTED FOR APPRAISAL

We confirm that details of the temporary works design will be/have been ¹³ passed to the permanent works Designer for review. ¹⁵

Signed _____

Name _____

Designer/D&C Contractor (Principal)+

Engineering Qualifications _____ ¹⁶

Name of Organisation _____

Date _____

Signed _____

Name _____

Project Co Representative

Engineering Qualifications _____ ¹⁶

Name of Organisation _____

Date _____

Note: + The D&C Contractor may sign only in respect of Temporary Works

1.10 THE ABOVE TAF IS:

1.10.1 Received ¹⁴

1.10.2 received with comments as follows: ¹⁴

1.10.3 returned marked "comments" as follows: ¹⁴

Signed _____

Name _____

TfL Representative on behalf of TfL

Engineering Qualifications _____ ¹⁶

Date _____

Notes

1. *For a bridge, give over and/or under.*
2. *Include weight, height, width and any environmental restrictions at or adjacent to the bridge.*
3. *The design working life of the Structure, including temporary Structure, and replaceable structural parts should be given. They should be expressed as a number of years rather than a range of years.*
4. *State the classes and levels for the whole Structure, as well as those for the individual structural elements if higher or lower.*
5. *For concrete Structures, give applicable exposure classes for particular structural elements. For all material strengths given, list the relevant codes/standards.*
6. *The Principal Designer (as defined under the CDM Regulations) must review the risks and hazards identified in the TAF and be satisfied.*
7. *For example, Load Models 1 and 2, BS EN 1991-2.*
8. *For example, SV model vehicle in Load Model 3, BS EN 1991-2.*
9. *For example, SOV model vehicle in Load Model 3, BS EN 1991-2 and/or individual vehicle which includes the following information as applicable:*
 - a) *gross weight of the vehicle in tonnes and vehicle type and number;*
 - b) *axle load and spacing (longitudinally and transversely);*
 - c) *air cushion in tonnes over area applied (in metres, longitudinally and transversely); and*
 - d) *single or twin tyres and wheel contact areas.*
10. *If in doubt, the heavy or high load route requirements should be confirmed with TfL.*
11. *For example, seismic action, atmospheric icing, floating debris etc.*
12. *In accordance with Eurocodes.*
13. *Include as a minimum but without limitation:*
 - Appendix A: Technical Appraisal Schedule (TAS).*
 - Appendix B: Structure location plan and general arrangement drawing.*
 - Appendix C: Geotechnical Design Report summary information.*
 - Appendix D: Relaxation and Departure from Standard Submission Form.*
 - Appendix E: Design risk assessments, hazard identification and initial hazard inventory. Potential risks and hazards during the whole life of the Structure such as execution, operation, maintenance and demolition, must be identified, assessed and considered, with a view to eliminating or minimising them as far as reasonably practicable.*
 - Appendix F: Idealised Structure diagram.*
 - Appendix G: Relevant correspondence and documents from consultations. This must include any comments from the Principal Designer (as defined under the CDM Regulations).*
14. *Delete as appropriate.*
15. *This statement is applicable to temporary works design TAF only.*
16. *CEng from an appropriate Chartered Engineering Institute.*

2. **MODEL TECHNICAL APPRAISAL FORM ("TAF (ASSESSMENT)")**

For the Assessment of bridges and other highway structures where UK National Standards (Non-Eurocodes) are used (excluding Road Tunnel and Service Tunnels)

TAF Ref. No:.....

Name of Project:
Name of Structure:
Structure Reference Number:

1.1 HIGHWAY DETAILS

- 1.1.1 Type of highway
- 1.1.2 Permitted traffic speed ²
- 1.1.3 Existing restrictions ³

1.2 SITE DETAILS

- 1.2.1 Location (Include Ordnance Survey grid ref)
- 1.2.2 Obstacles crossed
- 1.2.3 Permitted traffic speed (where applicable)
- 1.2.4 Brief description of existing conditions
- 1.2.5 What additional survey/investigations are proposed?

1.3 PROPOSED STRUCTURE

- 1.3.1 Description of Structure and design working life
- 1.3.2 Structural type
- 1.3.3 Foundation and substructure type
- 1.3.4 Span arrangements
- 1.3.5 Articulation arrangements
- 1.3.6 Road restraint systems requirements
- 1.3.7 Proposed arrangements for future maintenance and inspection/Inspection for Assessment
 - a. Traffic management
 - b. Arrangements for future maintenance and inspection of Structure
 - c. Access arrangements to Structure
 - d. Intrusive or further investigations proposed

- 1.3.8 Environment and sustainability
- 1.3.9 Durability. Materials and finishes/Materials strengths assumed and basis of assumptions ^{1, 4}
- 1.3.10 Risks and hazards affecting the Structure and posed by the Structure considered for design, execution, maintenance and demolition
 - a. Consultation with and agreement from the Principal Designer ⁵
 - b. Where available, references, special investigations and studies that have been carried out must be included
- 1.3.11 Give details of assumptions made in developing the proposals regarding associated existing Structures (or parts of Structures) to remain and on which Detailed Design will be based
 - a. Year of construction
 - b. Reason for Assessment
 - c. Part of Structure to be assessed
- 1.4 ASSESSMENT CRITERIA
 - 1.4.1 Actions
 - a. Permanent actions
 - b. Snow, wind and thermal actions
 - c. Actions relating to normal traffic under the Road Vehicles (Authorised Weight) Regulations 1998 and the Road Vehicles (Construction and Use) Regulations 1986⁶
 - d. Actions relating to General Order traffic under the Road Vehicles (Authorisation of Special Types) (General) Order 2003⁷
 - e. Footway or footbridge variable actions
 - f. Actions relating to Special Order traffic under the Road Vehicles (Authorisation of Special Types) (General) Order 2003, provision for exceptional abnormal indivisible loads including location of vehicle track on deck cross-section ⁸
 - g. Accidental actions
 - h. Actions during construction
 - i. Any special action not covered above ⁹
 - 1.4.2 Heavy or high load route requirements and arrangements being made to preserve the route, including any provision for future heavier loads or future widening ¹⁰
 - 1.4.3 Minimum headroom provided

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- 1.4.4 Authorities consulted and any special conditions required
- 1.4.5 Standards and documents listed in the TAS (Annex 3 (Notes for Compiling Technical Appraisal Schedules)) attached to this TAF
 - a. Additional relevant standards not included in the TAS
- 1.4.6 Proposed Departures from Standards relating to Departures from Standards given in the TAS
- 1.4.7 Proposed Departures from Standards relating to methods for dealing with aspects not covered by standards given in the TAS.
- 1.5 STRUCTURAL ANALYSIS
 - 1.5.1 Methods of analysis proposed for superstructure, substructure and foundations¹¹
 - 1.5.2 Description and diagram of idealised Structure to be used for analysis
 - 1.5.3 Assumptions intended for calculation of structural element stiffness
 - 1.5.4 Proposed range of soil parameters including pressure coefficients to be used in the assessment of earth retaining elements¹²
- 1.6 GEOTECHNICAL CONDITIONS
 - 1.6.1 Acceptance of recommendations of the Geotechnical Design Report (as defined in DMRB HD 22/08) to be used in the Assessment and reasons for any proposed changes
 - 1.6.2 Summary of design for highway Structure in Geotechnical Design Report
 - 1.6.3 Differential settlement to be allowed for in the Assessment of the Structure
- 1.7 CHECK
 - 1.7.1 Proposed Structure category
 - 1.7.2 If Category III Structure, name of proposed Checker
- 1.8 DRAWINGS AND DOCUMENTS
 - 1.8.1 List of drawings (including numbers) and documents accompanying the submission¹³
 - 1.8.2 List of construction and record drawings (including numbers) to be used in the Assessment
 - 1.8.3 List of pile driving or other construction records¹⁵
 - 1.8.4 List of previous inspection and Assessment Reports
- 1.9 THE ABOVE PROPOSALS ARE SUBMITTED FOR APPRAISAL
Signed _____

TfL Reference: tfl_scp_001527

Part 1, Annex 2 – Technical Appraisal Forms

Name _____

Designer (Principal)

Engineering Qualifications _____ 14

Name of Organisation _____

Date _____

Signed _____

Name _____

Project Co Representative

Engineering Qualifications _____ 14

Name of Organisation _____

Date _____

1.10 THE ABOVE TAF IS:

1.10.1 Received ¹

1.10.2 received with comments as follows: ¹

1.10.3 returned marked "comments" as follows: ¹

Signed _____

Name _____

TfL Representative on behalf of TfL

Engineering Qualifications _____ 14

Date _____

Notes

1. *Delete as appropriate.*
2. *For a bridge, give over and/or under.*
3. *Include weight, height, width and any environmental restrictions at or adjacent to the bridge.*
4. *In cases of Assessment, give material strengths from record drawings or intrusive investigation. For all material strengths given, list the relevant codes/standards.*
5. *The Principal Designer (as defined under the CDM Regulations) must review the risks and hazards identified in the TAF and be satisfied.*
6. *For example, HA Loading.*
7. *For example, HB or SV Loading.*
8. *For example, Individual vehicle which includes the following information as applicable:*
 - a) *gross weight of the vehicle in tonnes and vehicle type and number;*
 - b) *axle load and spacing (longitudinally and transversely);*
 - c) *air cushion in tonnes over area applied (in metres, longitudinally and transversely); and*
 - d) *Single or twin tyres and wheel contact areas.*
9. *For example, seismic loading, atmospheric icing, floating debris etc.*
10. *If in doubt, the heavy or high load route requirements should be confirmed with TfL.*
11. *Factors of Safety are required where limit state design codes for bridges are not used.*
12. *Where no such geotechnical information is available, suggested earth pressure coefficient values given in relevant DMRB parts should be used instead.*
13. *Include as a minimum but without limitation:*
 - Appendix A: Technical Appraisal Schedule (TAS).*
 - Appendix B: Structure location plan and general arrangement drawing.*
 - Appendix C: Relevant extracts from the Geotechnical Design Report, inspection report, intrusive investigation report, previous Assessment Report (or reference for Report).*
 - Appendix D: Relaxation and Departure from Standard Submission Form.*
 - Appendix E: Risk assessments, hazard identification and initial hazard inventory. Potential risks and hazards during the whole life of the Structure such as execution, operation, maintenance and demolition, must be identified, assessed and considered, with a view to eliminating or minimising them as far as reasonably practicable.*
 - Appendix F: Relevant correspondence and documents from consultations. This must include any comments from the Principal Designer (as defined under the CDM Regulations).*
14. *CEng from an appropriate Chartered Engineering Institute.*
15. *Include details of previous structural maintenance and/or strengthening works.*

3. **MODEL TECHNICAL APPRAISAL FORM ("TAF (DESIGN OR ASSESSMENT OF ROAD TUNNEL STRUCTURES"))**

For the design/Assessment ¹ of road tunnel Structures and Service Tunnels.

TAF Ref. No:.....

Name of Project:
Name of Structure:
Structure Reference Number:

1.1 HIGHWAY DETAILS

- 1.1.1 Type of highway
- 1.1.2 Permitted traffic speed
- 1.1.3 Existing restrictions

1.2 SITE DETAILS

- 1.2.1 Location (Include Ordnance Survey grid ref)
- 1.2.2 Basic layout ²
- 1.2.3 Restrictions to traffic
- 1.2.4 Obstacles crossed
- 1.2.5 Permitted traffic speed (where applicable)
- 1.2.6 Brief description of existing conditions
- 1.2.7 What additional survey/investigations are proposed?

1.3 BRIEF DESCRIPTION OF TUNNEL, TRAFFIC AND TUNNEL GEOMETRY

- 1.3.1 Structural form of tunnel and design working life
- 1.3.2 Structural form of portal Structures
- 1.3.3 Traffic and geometry
 - a. Horizontal and vertical alignment of tunnel and tunnel approaches
 - b. Cross-section ³
 - c. Highway standards ⁴
 - d. Accommodation of M&E services in tunnel ⁵
 - e. Minimum headroom (traffic gauge), horizontal clearances
 - f. Structure gauge
- 1.3.4 Classes and levels ⁶

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- a. Consequence class
- b. Reliability class
- c. Inspection level
- 1.3.5 Proposed arrangements for future inspection and maintenance
 - a. Traffic management
 - b. Access
 - c. Intrusive or further investigations proposed (Assessment only)
- 1.3.6 Provision to be made in the tunnel layout for emergency communication and escape facilities, fire points, cross passages etc.
- 1.3.7 Landscaping above tunnel and protection of tunnel roof
- 1.3.8 Sustainability issues considered. Materials and finishes for structural walls, ceiling and secondary cladding including fire protection
- 1.3.9 Compliance with RTS Regulations with accompanying risk analysis
- 1.3.10 Risks and hazards affecting the Structure and posed by the Structure considered for design, execution, maintenance and demolition
 - a. Consultation with and/or agreement from the Principal Designer ⁷
 - b. Where available, references, special investigations and studies that have been carried out must be included
- 1.4 DESIGN/ASSESSMENT1 CRITERIA
 - 1.4.1 Actions
 - a. Permanent actions
 - b. Actions relating to normal traffic under the Road Vehicles (Authorised Weight) Regulations 1998 and the Road Vehicles (Construction and Use) Regulations 1986⁸
 - c. Actions relating to General Order traffic under the Road Vehicles (Authorisation of Special Types) (General) Order 2003⁹
 - d. Actions relating to Special Order traffic under the Road Vehicles (Authorisation of Special Types) (General) Order 2003, provision for exceptional abnormal indivisible loads including location of vehicle track on deck cross-section ¹⁰
 - e. Side verge actions
 - f. Accidental actions
 - g. Any special action not covered above ⁹

- 1.4.2 Authorities consulted and any special conditions required
- 1.4.3 Is the tunnel on a heavy and/or high load route and any provision for future heavier loads or future widening
- 1.4.4 Any loading from planned development over or adjacent to tunnel.
- 1.4.5 Technical Appraisal Schedule ("TAS") (Annex 3 (Notes for Compiling Technical Appraisal Schedules))
- 1.4.6 Proposed Departures from Standards relating to Departures from Standards given in the TAS
- 1.4.7 Proposed Departures from Standards relating to methods for dealing with aspects not covered by Departures from Standards given in the TAS
- 1.5 DESCRIPTION AND DIAGRAM OF IDEALISED STRUCTURE TO BE USED FOR ANALYSIS. METHODS OF ANALYSIS AND DESIGN PROPOSED FOR TUNNEL SUPPORT SYSTEM(S) AND PORTAL STRUCTURES
 - 1.5.1 Methods of analysis proposed
 - 1.5.2 Assumptions intended for calculation of structural element stiffness
 - 1.5.3 Proposed range of angle of shearing resistance (Φ) representative of the soil type(s) concerned
 - 1.5.4 Proposed fire design including protection of Structure and cables
- 1.6 GEOTECHNICAL CONDITIONS
 - 1.6.1 Acceptance of recommendations of the Geotechnical Design Report (as defined in DMRB HD 22/08) to be used in the design/Assessment 1 and reasons for any proposed changes. (A copy of the Geotechnical Design Report should be supplied to the Technical Appraisal Authority in advance of the TAF submission whenever possible).
 - 1.6.2 Summary of design for highway structure in Geotechnical Design Report highway Structure summary information. Give details of any further geotechnical investigation required to validate basis of design/Assessment.
 - 1.6.3 Describe foundations fully including the reasons for adoption of allowable and proposed bearing pressures/pile loads, strata in which foundations are located, provision for skin friction effects on piles and for lateral pressures due to compression of underlying strata, etc.
 - 1.6.4 Is there any evidence of past mining or is any current or future mineral extraction likely to affect the tunnel?
 - 1.6.5 Results of tests of ground water (e.g. pH value, chloride or sulphate content) and any counteracting measures proposed
- 1.7 DRAINAGE AND WATERPROOFING
 - 1.7.1 Details of proposed drainage

- a. Ground water seepage, run off through the portals
 - b. Accidental spillage, water carried in by vehicles
 - c. Fire main burst
 - d. Tunnel washing
- 1.7.2 Details of proposed waterproofing
- 1.7.3 Articulation arrangement (immersed tube)
- 1.7.4 List special requirements of load drainage authority
- 1.8 TUNNEL SUPPORT SYSTEM AND METHOD OF CONSTRUCTION
- 1.8.1 Give the basis of the design of the tunnel support system for temporary and permanent conditions and any proposals for ground treatment.
- 1.8.2 Show how the proposed method of construction, i.e. excavation and application of ground support, will ensure the continued safe use of the highway and prevent structural failure of the carriageway.
- 1.8.3 Give details of predicted tunnelling effects on adjoining Structures and the carriageway; including maximum vertical settlement and trough width.
- 1.8.4 Indicate any proposals to use explosives. State any vibration limits adopted or imposed. Have specific site rules relating to charge weight, distance, peak particle velocity and frequency been determined?
- 1.8.5 State method(s) to be adopted to monitor and control the effects of tunnel construction to ensure compliance with any criteria imposed to limit surface movements or vibrations.
- 1.9 CHECK
- 1.9.1 Structure to be Category III Structure and Design Supervision Level ^{3 11, 12}
- 1.9.2 Name of proposed Checker
- 1.10 DRAWINGS AND DOCUMENTS
- 1.10.1 List of drawings (including numbers) and documents accompanying the submission ¹³
- 1.11 THE ABOVE PROPOSALS ARE SUBMITTED FOR APPRAISAL
- Signed _____
- Name _____
- Designer/D&C Contractor¹ (Principal)
- Engineering Qualifications _____¹⁴
- Name of Organisation _____

Date _____

Signed _____

Name _____

Project Co Representative

Engineering Qualifications _____¹⁴

Date _____

1.12 THE ABOVE TAF IS:

1.12.1 received¹

1.12.2 received with comments as follows:¹

1.12.3 returned marked "comments" as follows:¹

Signed _____

Name _____

TfL Representative on behalf of TfL

Engineering Qualifications _____¹⁴

TAA _____

Date _____

Notes

1. Delete as appropriate.
2. Number of tubes, lanes, length between portals.
3. Include widths of lanes, verges, emergency stopping lanes, space outside traffic gauge provided for M&E Installations.
4. Include design flows and speeds and any proposed Departures.
5. A separate MEAF submission is required for M&E Installations.
6. State the classes and levels for the whole Structure, as well as those for the individual structural elements if higher or lower.
7. The Principal Designer (as defined under the CDM Regulations) must review the risks and hazards identified in the TAF and be satisfied.
8. For example, Load Models 1 and 2 of BS EN 1991-2.
9. For example, SV model vehicle in Load Model 3 in BS EN 1991-2.
10. For example, SOV model vehicle in Load Model 3 in BS EN 1991-2 and/or Individual vehicle which includes the following information as applicable:
 - a) gross weight of the vehicle in tonnes and vehicle type and number;
 - b) axle load and spacing (longitudinally and transversely);
 - c) air cushion in tonnes over area applied (in metres, longitudinally and transversely); and
 - d) single or twin tyres and wheel contact areas.
11. Category III Structure for road tunnel and Service Tunnel Structures.
12. In accordance with Eurocodes.

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13. *Include as a minimum but without limitation:
Appendix A: Technical Appraisal Schedule (TAS).
Appendix B: Structure location plan and general arrangement drawing.
Appendix C: Geotechnical Design Report summary information.
Appendix D: Relaxation and Departure from Standard Submission Form.
Appendix E: Design risk assessments, hazard identification and initial hazard inventory. Potential risks and hazards during the whole life of the Structure such as execution, operation, maintenance and demolition, must be identified, assessed and considered, with a view to eliminating or minimising them as far as reasonably practicable.
Appendix F: Idealised Structure diagram.
Appendix G: Relevant correspondence and documents from consultations.
Appendix H: Relevant correspondence and documents from consultations with Interested Parties. This must include any comments from the Principal Designer (as defined under the CDM Regulations).
Appendix I: Footprints of exceptional abnormal loads provided for
Appendix J: List of construction and record drawings (including titles, numbers and revisions) to be used in the Assessment.
Appendix K: List of pile driving or other construction records.
Appendix L: List of previous inspection and Assessment Reports.*
14. *CEng from an appropriate Chartered Engineering Institute.*

4. **MODEL MECHANICAL AND ELECTRICAL TECHNICAL APPRAISAL FORM ("MEAF (INSTALLATIONS IN ROAD TUNNELS AND SERVICE BUILDINGS))"**

For M&E Installations in road tunnels and service buildings.

MEAF Ref. No:.....

Name of Project:
Name of Structure:
Structure Reference Number:

1.1 HIGHWAY DETAILS

- 1.1.1 Type of highway
- 1.1.2 Permitted traffic speed ¹
- 1.1.3 General description ²
- 1.1.4 Any restriction to traffic including maintenance

1.2 BRIEF DESCRIPTION OF STRUCTURE OPERATION AND MAINTENANCE FRAME WORK

- 1.2.1 Type of Structure
- 1.2.2 Accommodation of M&E services in the tunnel
- 1.2.3 Location of tunnel monitoring centre and maintenance building(s)
- 1.2.4 Proposed arrangements for inspection and maintenance
- 1.2.5 Location of tunnel services building
- 1.2.6 Design working life and estimated costs of M&E services including all running, maintenance and replacement costs and sustainability considerations

1.3 AUTHORITIES CONSULTED

- 1.3.1 List authorities consulted and any special requirements ³

1.4 LAYOUT AND BASIC DESIGN CRITERIA

- 1.4.1 Basic tunnel geometry ⁴
- 1.4.2 Environmental conditions within the tunnel plant rooms and buildings ⁵
- 1.4.3 Technical Appraisal Schedule (Annex 3 (*Notes for Compiling Technical Appraisal Schedules*))
- 1.4.4 Additional relevant Standards
- 1.4.5 Proposed Departures from Standards relating to Departures from Standards given in the TAS

- 1.4.6 Proposed Departures from Standards relating to methods for dealing with aspects not covered by standards given in TAS
- 1.5 VENTILATION
 - 1.5.1 General description including justification
 - 1.5.2 Design criteria ⁶
 - 1.5.3 Pollution and vehicle emissions ⁷
 - 1.5.4 Fresh air requirements ⁸
 - 1.5.5 Proposed ventilation system
 - 1.5.6 Ventilation fans
 - 1.5.7 Monitoring and control ⁹
- 1.6 LIGHTING
 - 1.6.1 General description
 - 1.6.2 Design criteria
 - 1.6.3 Surface reflectivity ¹⁰
 - 1.6.4 Special operating conditions
 - 1.6.5 Monitoring and control
- 1.7 DRAINAGE
 - 1.7.1 General description, design criteria
 - 1.7.2 Effluent standards ¹¹
 - 1.7.3 Amounts to be handled
 - 1.7.4 Pumping equipment ¹²
 - 1.7.5 Safety precautions ¹³
 - 1.7.6 Siting of sumps
 - 1.7.7 Sizing of sumps
- 1.8 FIRE SAFETY
 - 1.8.1 Design criteria ¹⁴
 - 1.8.2 Active protection ¹⁵
 - 1.8.3 Passive protection ¹⁶
 - 1.8.4 Services building and plant rooms ¹⁷

- 1.8.5 Incident detection
- 1.9 COMMUNICATIONS AND TRAFFIC CONTROL
 - 1.9.1 General description, design criteria, traffic management authority
 - 1.9.2 Telephone system ¹⁸
 - 1.9.3 Emergency liaison ¹⁹
 - 1.9.4 Traffic signs ²⁰
 - 1.9.5 Traffic monitoring ²¹
- 1.10 TUNNEL OPERATION AND PLANT CONTROL
 - 1.10.1 Basis of tunnel operation. Compliance with TfL's systems ²²
 - 1.10.2 Plant monitoring and control
 - 1.10.3 Data logging and transfer
 - 1.10.4 Plant inspection and maintenance
- 1.11 ELECTRICAL POWER SUPPLY AND DISTRIBUTION
 - 1.11.1 General description and design criteria including an analysis of power requirements and tunnel operating conditions in relation to security of supply
 - 1.11.2 Supply distribution ²³
 - 1.11.3 Emergency arrangements ²⁴
 - 1.11.4 Cabling ²⁵
- 1.12 TUNNEL SERVICES BUILDINGS AND PLANT ROOMS
 - 1.12.1 General description ²⁶
 - 1.12.2 Design criteria and layout ²⁷
 - 1.12.3 Building security and protection ²⁸
- 1.13 CHECK
 - 1.13.1 Give proposals for checking M&E Installations including the design of tunnel services buildings
 - 1.13.2 Name of proposed Checker
- 1.14 DRAWINGS AND DOCUMENTS
 - 1.14.1 List of drawings (including numbers) and documents accompanying the submission ²⁹

1.15 THE ABOVE PROPOSALS ARE SUBMITTED FOR APPRAISAL

Signed _____

Name _____

Designer (Principal)

Engineering Qualifications _____ 30

Date _____

Signed _____

Name _____

Project Co Representative

Engineering Qualifications _____ 30

Date _____

1.16 THE ABOVE MEAF IS:

1.16.1 received ³¹

1.16.2 received with comments as follows: ³¹

1.16.3 returned marked "comments" as follows: ³¹

Signed _____

Name _____

TfL Representative on behalf of TfL

Engineering Qualifications _____ 30

TAA _____

Date _____

Notes

1. Design speed and during maintenance.
2. Number of tubes, lanes, length between portals.
3. For example; traffic, police, highway, maintenance, local, harbour, river, emergency services.
4. Widths, heights, horizontal and vertical alignments.
5. Ambient temperature variations, relative humidity, effects of tunnel washing, road salts etc.

6. *Traffic composition and system, tunnel site aspects, environmental effects, air velocities, response to fire.*
7. *Pollution thresholds and emission criteria.*
8. *Basis of determination of fresh air requirements, provision for smoke control details of computer modelling.*
9. *Management of carbon monoxide, visibility, wind speed and direction, tunnel air velocity.*
10. *Road and wall surface maintenance factor.*
11. *Including any limitations imposed by TfL.*
12. *Ground water, precipitation, wall washing, fire fighting supplies.*
13. *Ventilation, gas detectors, fire prevention and control including automatic systems.*
14. *Fire scenarios and fire modelling, fire loading.*
15. *Fire points and equipment communications, escape means, smoke control, operating procedures, water based Fixed Fire Fighting System.*
16. *Protection of Structure, cabling, role of secondary cladding, cross connection doors.*
17. *Fire detection and control including automatic systems.*
18. *Emergency public, service, fire phones.*
19. *Communication between police, fire brigade, ambulance, maintaining authority including system of underground communication.*
20. *Including advance warning and diversions, vehicle over height detection.*
21. *Automatic traffic surveillance, closed circuit television.*
22. *Provision for various operating conditions and resources entailed.*
23. *Details of high voltage distribution on the road tunnel side of Electricity Supply Authority boundary.*
24. *Uninterrupted power supply, justification for standby generator.*
25. *Type, location and protection.*
26. *Including a drawing of all plant floors showing equipment layout.*
27. *Plant room and access way loading indicating any loading restrictions in the provision made for transfer and temporary positioning of heavy plant during installation maintenance or replacement.*
28. *Including fire alarm systems.*
29. *Include as a minimum but without limitation:
Appendix A: Technical Appraisal Schedule (TAS).
Appendix B: Location Plan and General Arrangement Drawing.
Appendix C: Proposed Departures from Standard.
Appendix D: Design Risk Assessments, Hazard Identification and Initial Hazard Inventory. Potential risks and hazards during the whole life of the Structure such as execution, operation, maintenance and demolition, must be identified, assessed and considered, with a view to eliminating or minimising them as far as reasonably practicable.
Appendix E: Methods of dealing with aspects not covered by Standards
Appendix F: Relevant correspondence and documents from consultations including Safety Consultation Document. This must include any comments from the Principal Designer (as defined under the CDM Regulations).
Appendix G: List of documents relating to inspection, maintenance and safe operation.*
30. *CEng from an appropriate Chartered Engineering Institution.*
31. *Delete as appropriate.*

5. MODEL SAFETY CONSULTATION DOCUMENT

(Tunnel Operation, Control and Maintenance)

SCD Ref. No:.....

Name of Project:
Name of Structure:
Structure Reference Number:

1.1 INTRODUCTION

- 1.1.1 Purpose of Tunnel Design and Safety Consultation Group
- 1.1.2 Terms of reference
- 1.1.3 Organisational responsibilities ¹
- 1.1.4 Overview (see Appendices)
- 1.1.5 Safety considerations for road tunnels
- 1.1.6 Traffic management & signing
- 1.1.7 Tunnel plant
 - a. Incident detection
 - b. Air quality detection
 - c. Ventilation
 - d. Fire suppression
 - e. Lighting
 - f. Drainage
 - g. Role in emergencies
- 1.1.8 Communications
 - a. Tunnel
 - b. Regional
 - c. Emergency
- 1.1.9 Power supply
 - a. Normal distribution
 - b. Emergency arrangements

- 1.1.10 Emergency equipment
 - a. Fire points
 - b. Emergency road side telephones
 - c. Mobile phone enabled
 - d. Maintenance telephones
 - e. CCTV
 - f. Cross connections between tunnel bores
- 1.1.11 Tunnel services building and plant room
 - a. Functions
 - b. Maintenance access
 - c. Security protection
 - d. Fire protection
 - e. Emergency services provisions
- 1.2 TfL ROAD AND TRANSPORT ENFORCEMENT OFFICERS
 - 1.2.1 Functions
 - 1.2.2 LSTOC facilities
 - 1.2.3 Traffic control
 - 1.2.4 Emergency closures
 - 1.2.5 Public address system
 - 1.2.6 Radio communication
 - 1.2.7 LSTOC operator interface operations manual
 - 1.2.8 Special requirements
- 1.3 POLICE
 - 1.3.1 General
 - 1.3.2 Police access facilities
 - 1.3.3 Radio communication
- 1.4 FIRE BRIGADE
 - 1.4.1 Firefighting facilities and access – tunnel
 - 1.4.2 Firefighting facilities –services building

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- 1.4.3 Accidental spillages
- 1.4.4 Radio communications
- 1.5 AMBULANCE SERVICE
 - 1.5.1 General
 - 1.5.2 Ambulance access facilities - tunnel
 - 1.5.3 Radio communications
- 1.6 ENVIRONMENT AGENCY
 - 1.6.1 General
 - 1.6.2 Specific requirements
- 1.7 MAINTAINING AUTHORITY
 - 1.7.1 General
 - 1.7.2 Lines of communication and emergency cover
 - 1.7.3 Documentation
 - a. BIM
 - b. Asset management
 - c. Maintenance and Inspection manuals
 - d. Permit to work
 - e. Condition monitoring
 - 1.7.4 Use of tunnel data
 - 1.7.5 Day-to-day operations
 - 1.7.6 Planned maintenance activities
 - 1.7.7 Emergencies
 - 1.7.8 Plant failure recording
 - 1.7.9 Tunnel maintenance equipment
 - a. Wall washing requirements
 - b. Maintenance access
- 1.8 TRAINING
 - 1.8.1 Operator training
 - 1.8.2 Maintenance training

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- 1.8.3 Emergency services training and familiarisation
- 1.9 MAINTENANCE CONTRACTS
 - 1.9.1 General
- 1.10 TUNNEL EMERGENCIES
 - 1.10.1 General
 - 1.10.2 Fire plan
 - 1.10.3 Major incident response
 - a. Use of emergency cross passages (doors)
 - b. Emergency drill exercise
- 1.11 THE ABOVE SAFETY CONSULTATION DOCUMENT IS:
 - 1.11.1 received*
 - 1.11.2 received with comments as follows:*
 - 1.11.3 returned marked "comments" as follows:*

*delete as appropriate.

Signed _____

Name _____

TfL Representative on behalf of TfL

Engineering Qualifications _____²

Date _____

APPENDICES

- A. Plan of route
- B. Cross section of tunnel
- C. Plan of tunnel identifying:
 - (i) Emergency Points by number
 - (ii) Bores
 - (iii) Cross passages
 - (iv) Fan positions, overrides and controls
 - (v) Fire Fighting water supplies and facilities
 - (vi) Fixed Fire Fighting System positions and controls
- D. Communications
 - (i) General layout
 - (ii) Location of CCTV
- E. Tunnel drainage
- F. Traffic management plan

Notes

1. *Police, Fire Brigade, Ambulance Service, Environment Agency, Maintaining Authority.*
2. *CEng from an appropriate Chartered Engineering Institution.*

Annex 3 of Part 1 – Notes for Compiling Technical Appraisal Schedules

1. Technical Appraisal Schedule

- 1.1 The TAS is a list of documents relating to the design or Assessment of relevant highway bridges and Structures.
- 1.2 Project Co shall submit the TAS as an appendix to each applicable TAF/MEAF.
- 1.3 The TAS shall list all standards and documents relating to the design or Assessment of highway bridges and Structures.
- 1.4 Project Co shall ensure that all standards and documents:
 - 1.4.1 not used shall be struck through;
 - 1.4.2 used shall be highlighted; and
 - 1.4.3 shall include the title relating to the part or volume from the suite of standards or guidance.
- 1.5 Project Co is responsible for ensuring that the standards and references given in the schedule are correct and up to date.

Annex 4 of Part 1 – Relaxations and Departures from Standard Procedure

1. General

1.1 The Parties acknowledge that:

1.1.1 a number of TfL standards listed in Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) and, as detailed in DMRB GD 01/15, a number of DMRB documents contain within them provision for relaxations where experience has shown that certain requirements may be varied within defined limits in particular situations (any such variations being "**Relaxations**"); and

1.1.2 any variation to the requirements of the TfL standards listed in Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*) or the DMRB documents beyond the limits of a Relaxation requires a "**Departure from Standard**".

2. Relaxations and Departure from Standard Submissions

2.1 Project Co shall submit to TfL under the Review Procedure a Relaxation and Departure from Standard Submission Form with any relevant Design Data in accordance with paragraph 2 (*Design Certification Procedure*) for any Relaxation or Departure from Standard it proposes in relation to the Works.

2.2 When preparing a Relaxation and Departure from Standard Submission Form pursuant to paragraph 2.1, Project Co acknowledges and agrees that the Technical Appraisal Authority will be involved in the review of any Departure from Standard submitted under the Review Procedure.

2.3 Without limitation to the provisions of Part 2 (*Review Procedure*) of this Schedule 9 (*Certification and Review Procedure*), the Relaxation and Departure from Standard Submission Form shall be in writing and contain all the relevant data and information, and in the form set out in paragraph 3 (*Relaxation and Departure from Standard Submission Form*).

2.4 Project Co acknowledges and agrees that the time periods which apply in relation to any submission under the Review Procedure shall apply equally to any such Relaxations or Departure from Standard.

2.5 If Project Co intends to propose a Departure from Standard in relation to:

2.5.1 a Structure, or in relation to any Temporary Works which are themselves a Structure, Project Co shall ensure that the Designer proposes such Departure from Standard in the relevant TAF, which shall be accompanied by a Departure from Standard Submission Form; and

2.5.2 an M&E Installation, Project Co shall ensure that the Designer shall propose such Departure from Standard in the relevant MEAF, which shall be accompanied by a Departure from Standard Submission Form.

2.6 Project Co acknowledges and agrees that no Relaxation or Departure from Standard shall be incorporated into the Works until it has been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure.

Schedule 9 – Certification and Review Procedure

Part 1, Annex 4 – Relaxations and Departures from Standard Procedure

2.7 In the event TfL endorses a Relaxation or Departure from Standard as "comments" in accordance with the Review Procedure, TfL shall be entitled to propose that no further amendments be made to such Relaxation or Departure from Standard in accordance with the provisions of paragraph 2.1.3 of Part 2 (*Review Procedure*) of this Schedule 9 (*Certification and Review Procedure*), in which case TfL shall not be required to consider any such amendments Project Co may propose.

2.8 Each Relaxation or Departure from Standard which has been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure shall be considered to be unique to the particular site and circumstances to which it relates and shall not entitle Project Co to adopt the Relaxation or Departure from Standard in other sites or circumstances.

3. Relaxation and Departure from Standard Submission Form

Relaxation / Departure from Standard.*

Part 1 – To be completed by Project Co for the application of a Relaxation / Departure from Standard*

Project Name:	
Drawing Series Number:	

Associated documents:	
------------------------------	--

Unique Relaxation / Departure from Standard* Number¹:	
---	--

Submitted by:	
Date:	

Brief description of works:	
Structure Name/Number (if applicable):	

Standard (Ref and Clause):	
Description of Relaxation / Departure from Standard*:	
Reason for Relaxation / Departure from Standard*:	
Location and duration (Incl: description, layouts and extent using a separate plan is required):	
Relevant technical standards (Incl: standard numbers, relevant paragraph(s) or clause number(s)):	
Other relevant Departures from Standard or Relaxations:	

Impact of Relaxation / Departure from Standard* (Incl: safety, cost, programme, DCO/consents, environment, operations, customers, maintenance):	
Has a Road Safety Audit been undertaken for this element of work (yes / no / N/A, if yes provide a copy of the report):	

Additional information:	
--------------------------------	--

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List of supporting information:	
The above is submitted for approval by:	
Signed:	
Name and Position:	
Contact Details:	

Notes:

* Delete as appropriate

1. Unique Relaxation / Departure No: Project Co shall request this from the TfL Representative.

Part 2 – For TfL use only

Operations and Maintenance Representatives:			
The above submission <u>is / is not</u> * supported for agreement <u>for the following reasons / subject to the following comments</u>*: (*delete as appropriate)			
Name:		Signed:	
Position:		Date:	

Technical Specialist:			
The above submission <u>is / is not</u> * supported for agreement <u>for the following reasons / subject to the following comments</u>*: (*delete as appropriate)			
Name:		Signed:	
Position:		Date:	

Technical Appraisal Authority:			
The [Relaxation(s)] [Departure(s)] from Standard is agreed subject to the following conditions / rejected for the following reasons:			
Name:		Signed:	
Position:		Date:	

Annex 5 of Part 1 – Structural Review and Assessment of Highway Structures

Part 1 – Record of Structural Review Form

1	Structure details			
	Structure name	<Structure name>		
	Structure number	<Structure number>		
	Structure key	<Structure key number>		
	Date commissioned	<Date that the Structure came into service>		
	Obstacles crossed	<Name of road, railway, river etc.>		
	Bridge carries	<Name of road, etc.>		
	Brief description of Structure			
	<Give a brief description of the Structure including structural type (deck, substructure and foundations) and span. Identify any unusual features or modifications since first constructed, and any interim measures in place.>			
	Elements to be Reviewed (where not the whole Structure)			
	<List elements to be Reviewed>			
	Reason for Structural Review	<May be routine or special circumstances>		
2	Existing Assessment details or design records			
	Inspection for Assessment date	<Date>	Recorded condition	<Condition factor>
	TAF for Assessment	<Date>	Status	<e.g. agreed>
	Assessment date	<Date>	Report number	<Report number>
	Current Assessed/Design Capacity (include Reserve Factors)			
	Assessment Live Loading	<e.g. 40te ALL/30 HB>	SV/STGO/SO	<e.g. SV150>
	Critical elements	<List the elements whose failure would result in significant local collapse or global collapse of the Structure>		
	Parapet	<State parapet type and Assessment result>		
	Pier impact	<State Assessment result and/or risk of impact>		
	Certification	<Record if certificates exist and storage location>		
	Calculations	<Record if calculations exist and storage location>		
	As built drawings	<Record if as built drawings exist and storage location>		
	Comments on Assessment or design			
	<A brief summary of the Assessment/design method and findings. Describe any strengthening works done as a result of existing Assessment, stating revised capacity.>			
3	Evaluation			
	Inspection date	<Date of principal (or other) inspection being used to assess current condition.>		
	Change in condition	<Identify any significant deterioration, damage or changes in condition since last Assessment/construction.>		
	Change in standards	<Identify any significant changes to standards since last Assessment/design>		
	Change In loading	<Identify any changes in loading since last Assessment/design, and any need to assess for abnormal loads.>		
	Conclusion	<Having considered the records available and any changes in condition, standards or loading, give your conclusion on the validity of the existing Assessment or design.>		
4	Recommendation (delete and complete as applicable)			
	<Insert a recommendation as to the validity of the existing Assessment/design and whether			

	a new Assessment is needed. The validity might be considered conditional on further inspection or investigation, which should be identified. The existing Assessment/design might be considered valid but unduly conservative, in which case a new Assessment might be appropriate. Where a new Assessment is recommended, an outline of the scope of the Assessment should be given.>
--	--

THE ABOVE IS SUBMITTED FOR APPRAISAL:

Signed _____

Name _____

Designer/D&C Contractor¹ (Principal)

Engineering Qualifications _____²

Name of Organisation _____

Date _____

Signed _____

Name _____

Project Co Representative

Engineering Qualifications _____²

Date _____

THE ABOVE IS³:

- i. received¹
- ii. received with comments as follows:¹
- iii. returned marked "comments" as follows:¹

Signed _____

Name _____

TfL Representative

Engineering Qualifications _____²

Date _____

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Notes:

1. Delete as appropriate
2. CEng from an appropriate Chartered Engineering Institution.
3. Agreement is valid for three years after the date of agreement by the TfL Representative. If the recommendation has not been implemented within this period, the Record of Structural Review Form must be re-submitted to the TfL Representative for review.
4. The following abbreviations are used:
 - ALL Assessment Live Loading
 - AW Authorised Weight
 - BS British Standard
 - BSALL Bridge Specific Assessment Live Loading
 - SO Special Order under the Road Vehicles (Authorisation of Special Types) (General) Order 2003
 - STGO Special Type General Order under the Road Vehicles (Authorisation of Special Types) (General) Order 2003
 - SV Special Vehicle
 - VR Vehicle Rating

Part 2 – Typical Assessment Report Format

1. All Assessment Reports shall include the following as a minimum:
 - 1.1 Contents:
 - 1.1.1 Introduction
 - 1.1.2 Structure description
 - 1.1.3 Previous Assessment summary with dates (include details of any strengthening works undertaken as a result of the previous Assessment and the revised capacity)
 - 1.1.4 Interim measures summary with dates
 - 1.1.5 Monitoring summary with dates (in accordance with BD 79)
 - 1.1.6 Assessment inspection summary (include text to identify and justify the condition factor used in the Assessment calculations)
 - 1.1.7 Assessment method
 - 1.1.8 Assessment commentary
 - 1.1.9 Assessment result (note, in addition to giving the overall assessed capacity of the Structure, data should be presented about those elements that were critical to the Assessment failure) including:
 - a. Critical element identity
 - b. Value of appropriate Assessment load effects; SA^* , SD^* , SHA^* and S^*
 - c. Value of Assessment Resistance RA^*
 - d. Mode of failure
 - e. Structural Adequacy Factor RA^*/SA^* , or Reserve Factors Ψ_{SV} and Ψ^*_{SV}
 - f. Vehicle Rating VR
 - 1.1.10 Recommendations
 - 1.1.11 Assessment synopsis
 - 1.2 Appendices:
 - 1.2.1 Assessment calculations
 - 1.2.2 Reduced copy of general arrangement drawing
 - 1.2.3 Copy of data report form as required by the TfL
 - 1.2.4 Graphs of the critical loading combinations/capacities
 - 1.3 Any other item which TfL may reasonably require.

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SCHEDULE 9

CERTIFICATION AND REVIEW PROCEDURE

Part 2 - Review Procedure

1. Review Submissions

- 1.1 The provisions of this Part 2 (*Review Procedure*) shall apply whenever any item, document or course of action is required to be submitted, reviewed, approved or otherwise processed in accordance with the Review Procedure pursuant to this Agreement.
- 1.2 Project Co shall ensure that each submission to TfL under the Review Procedure is accompanied by a copy of the item or document to be submitted, reviewed, approved or processed, including, where applicable, any Design Data, any Certificate required by Part 1 (*Certification Procedure*), any statement of the proposed course of action and/or anything else required in accordance with this Agreement, (the entire contents of a submission being referred to in this Schedule 9 (*Certification and Review Procedure*) as a "**Review Submission**").
- 1.3 In the case of each Review Submission, the provisions of this Part 2 (*Review Procedure*) shall apply.
- 1.4 Project Co shall not commence or proceed with any part of:
- 1.4.1 the construction of the permanent aspects of the Works; or
- 1.4.2 the Services,
- in each case which relies on or implements any part of a Review Submission, unless and until the Review Submission has been endorsed as "received" or "received with comments" in accordance with paragraph 2 (*TfL response*).
- 1.5 In the event that Project Co commences or proceeds with any part of the Works other than the construction of the permanent aspects of the Works, which relies on or implements any part of a Review Submission which has not been endorsed as "received" or "received with comments" in accordance with paragraph 2 (*TfL response*), Project Co acknowledges that it commences or proceeds at its own risk that TfL may raise comments in accordance with paragraph 2 (*TfL response*).
- 1.6 Project Co acknowledges that where it has commenced or proceeded at its own risk in accordance with paragraph 1.5, Project Co will be responsible for any action or work (including rectification or remedial work) which is required to undo, remove, redo and/or replace (in a manner complying with this Agreement) any parts of the Works which Project Co has carried out which are required to be undone, removed, redone and/or replaced as a result of any comments made by TfL pursuant to paragraph 2.1.2 or paragraph 2.1.3.

2. TfL response

- 2.1 As soon as reasonably practicable and (subject to paragraph 2.1.2 of Part 1 (*Certification Procedure*), paragraph 4.1 and paragraph 4.5) and in any event within the timescales noted in Table 1 (*TfL Review Periods*) (or such other period as may be specified in this Agreement for any particular case or as may be agreed by TfL in its absolute discretion),

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Part 2 – Review Procedure

of receipt of any Review Submission, TfL shall notify Project Co of any comments on the Review Submission and endorse the Review Submission as either:

- 2.1.1 "received", in which case Project Co shall proceed to carry out the Works or Services (as applicable) in accordance with the Review Submission; or
- 2.1.2 subject to paragraph 3 (*Project Co response*) and paragraph 6 (*TfL Grounds for Objection*), "received with comments", in which case:
 - a. Project Co shall amend the Review Submission to incorporate the comments notified and any amendments required by TfL;
 - b. Project Co need not re-submit the amended Review Submission but shall notify TfL of how it will address each of TfL's comments no later than twenty (20) Working Days after receipt of TfL's endorsement in accordance with this paragraph 2.1, or (if earlier) five (5) Working Days prior to the implementation of any part of the relevant Review Submission; and
 - c. Project Co shall proceed to carry out the Works or Services (as applicable) in accordance with the amended Review Submission; or
- 2.1.3 subject to paragraph 3 (*Project Co Response*) and paragraph 6 (*TfL Grounds for Objection*), "comments", in which case:
 - a. Project Co shall amend the Review Submission to incorporate such comments notified and amendments required by TfL and re-submit the amended Review Submission to TfL under the Review Procedure and this paragraph shall apply in relation to such amended Review Submission; and
 - b. Project Co shall explain in such amended Review Submission how it will address each of TfL's comments.
- 2.2 Where paragraph 2.1.3 applies, Project Co shall not commence or proceed with any part of the Works or Services which rely on or implement any part of the relevant Review Submission unless and until the re-submitted Review Submission has been endorsed "received" or "received with comments" in accordance with paragraph 2.1.
- 2.3 Where Project Co has re-submitted an amended Review Submission to TfL pursuant to paragraph 2.1.3, TfL shall not be entitled to comment on any part of such amended Review Submission where TfL did not comment on the relevant part of the Review Submission pursuant to paragraph 2.1.3 when it was previously submitted by Project Co, unless and to the extent that:
 - 2.3.1 Project Co has made amendments to, or altered the meaning of, the relevant part of such Review Submission; or
 - 2.3.2 such comments are part of TfL's assessment of whether TfL's comments have been addressed in accordance with paragraph 2.1.3.

Table 1 TfL Review Periods

No.	Review Submission category	TfL review period
1	Design documentation: Design Data submitted in respect of Detailed Design in relation to the Project Facilities and	20 Working Days

	Additional Assets	
2	Construction planning: information submitted in respect of timing and methodology of construction of the Project Facilities and Additional Assets, including information required in accordance with Part 3 (<i>Health and Safety Management System</i>) and Part 4 (<i>Environmental Management System</i>) of Schedule 8 (<i>Management Systems</i>)	10 Working Days
3	Management system documentation: information submitted in accordance with the requirements of Part 1 (<i>Project Co Management System</i>), Part 2 (<i>Quality Management Systems</i>) and Part 5 (<i>Information Management</i>) of Schedule 8 (<i>Management Systems</i>)	10 Working Days
4	Deliverables affecting third parties: information in respect of Supplementary Works or other work primarily for third parties	10 Working Days
5	Project Co Detailed Works Programme provided in accordance with the requirements of clause 15.2 (<i>Project Co Detailed Works Programme</i>)	20 Working Days
6	Project Reporting: information submitted in accordance with the requirements of Part 2 (<i>Performance Planning and Reporting</i>) of Schedule 15 (<i>Design & Construction Performance Monitoring</i>)	10 Working Days
7	Review Submission Schedule submitted in accordance with paragraph 4 (<i>Review Submission Schedule</i>)	20 Working Days
8	Any other category not defined above	20 Working Days

3. Project Co response

3.1 If TfL raises comments on any Review Submission and Project Co reasonably believes that such comments have been raised other than on the basis set out in this Schedule 9 (*Certification and Review Procedure*), the following procedure shall apply:

3.1.1 Project Co shall notify TfL of such belief as soon as practically possible and in any event within ten (10) Working Days of receipt of the comment by Project Co; and

3.1.2 within ten (10) Working Days of receipt of a notice under paragraph 3.1.1, TfL shall by notice to Project Co either:

- a. withdraw or modify the relevant comment; or
- b. confirm that the comment stands,

provided that if TfL fails to respond the comment shall be deemed to be withdrawn.

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Part 2 – Review Procedure

- 3.2 Following receipt of TfL's notice pursuant to paragraph 3.1.2:
- 3.2.1 if TfL withdraws a comment (or it is deemed to be withdrawn), the relevant TfL response under paragraph 2 (*TfL response*) will be deemed to be amended to remove the relevant comment;
 - 3.2.2 if TfL modifies a comment, the relevant TfL response under paragraph 2 (*TfL response*) will be deemed to be amended to reflect this modified comment; or
 - 3.2.3 if TfL confirms the comment stands or modifies a comment pursuant to paragraph 3.1.2 and Project Co maintains that any comment or modified comment as the case may be is not on grounds permitted by this Agreement, Project Co shall notify TfL of such position and the Parties shall use their best endeavours to reach agreement as to how such comment should be treated.
- 3.3 Where paragraph 3.2.3 applies:
- 3.3.1 if no agreement is reached after ten (10) Working Days of Project Co's notice in paragraph 3.2.3 of this Review Procedure, either Party may refer the issue for determination under the Dispute Resolution Procedure;
 - 3.3.2 if neither Party has given notice of referral of an issue for determination under the Dispute Resolution Procedure pursuant to paragraph 3.3.1 within twenty (20) Working Days of Project Co's notice under paragraph 3.2.3 or other such period agreed by the Parties in each case, Project Co's objection to any comment or modified comment as the case may be shall be deemed to be withdrawn; and
 - 3.3.3 for the avoidance of doubt, any comment which has not been objected to by Project Co pursuant to paragraph 3.1 within the time period specified shall be deemed to be on grounds permitted by this Agreement and Project Co shall comply with the requirements of paragraph 2.1.
- 3.4 If TfL fails to notify Project Co that any Review Submission (including where re submitted) has been endorsed within the periods specified in paragraph 2.1 or allowed by paragraph 4.5 where applicable (or such other period as may be specified in this Agreement for any particular case), then such Review Submission shall be treated as if endorsed as "received".

4. Review Submission Schedule

- 4.1 Within forty (40) Working Days of the Effective Date, Project Co shall submit to TfL for review under the Review Procedure, a schedule of the Review Submissions that it intends to make ("**Review Submission Schedule**") before the end of the first Agreement Year.
- 4.2 Project Co shall ensure that the Review Submission Schedule shall include brief details of each proposed Review Submission and the month in which it is expected to be made.
- 4.3 No later than three (3) months prior to the commencement of each subsequent Agreement Year, Project Co shall deliver to TfL under the Review Procedure a Review Submission Schedule showing the Review Submissions it intends to make for each month during such subsequent Agreement Year.
- 4.4 Project Co shall periodically review the Review Submission Schedule throughout the Agreement Year, and submit to TfL for review under the Review Procedure any proposed

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amendments to the Review Submission Schedule for the current Agreement Year arising out of such reviews.

4.5 If Project Co fails:

4.5.1 to deliver a Review Submission Schedule to TfL as required by this paragraph 4 (*Review Submission Schedule*); or

4.5.2 to submit a Review Submission in accordance with the timetable set out in the relevant Review Submission Schedule,

then in relation to any Review Submission that was not submitted in accordance with the relevant Review Submission Schedule or any Review Submission submitted during the period a Review Submission Schedule not submitted to TfL should have covered, the provisions of paragraph 2.1 shall be varied so that any comments and endorsements required in accordance with paragraph 2.1 shall be notified by TfL within such time as is reasonable in all of the circumstances, (and in any event, which shall not be greater than forty (40) Working Days) and any period otherwise fixed by paragraph 2.1 for such notification shall not apply.

4.6 For the avoidance of doubt, TfL may, in reviewing any matter in relation to a Review Submission, refer such matter to any TfL Related Party.

5. Further Information

5.1 Subject to paragraph 5.2, Project Co shall:

5.1.1 promptly submit to TfL any additional information, data or documents (including details of calculations and comments of the Designer and/or Checker) which TfL in its absolute discretion may request in order to obtain a full understanding and appreciation of a Review Submission and its implications; and

5.1.2 shall take all such steps as may be required to satisfy TfL that the Review Submission complies with this Agreement.

5.2 Project Co shall not be required to submit any additional information, data or documents (including details of calculations and comments of the Designer and/or Checker) pursuant to paragraph 5.1 in the event TfL has requested the same more than fifteen (15) Working Days after receipt of the Review Submission.

6. TfL Grounds for Objection

6.1 The expression "**raise comments**" in this paragraph shall be construed to mean "raise comments or make objections" unless the contrary appears from the context.

6.2 For the purposes of paragraph 2.1.2 and paragraph 2.1.3, and subject to paragraph 2.7.4 of Part 1 (*Certification Procedure*) of this Schedule 9 (*Certification and Review Procedure*), TfL may raise comments in relation to any Review Submission on the following grounds:

6.2.1 the Review Submission or any part of the Review Submission, if implemented, would be inconsistent with:

a. TfL's statutory duties;

b. the D&C Requirements or Project Co's Works Proposals;

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- c. the O&M Requirements; or
 - d. any other provisions of this Agreement,
 - 6.2.2 the Review Submission or any part of the Review Submission, if implemented, would be in breach of, not be in accordance or otherwise not comply with any Applicable Requirements;
 - 6.2.3 Project Co has not provided all information required by this Agreement in respect of such Review Submission including without limitation as set out in paragraph 5 (*Further Information*);
 - 6.2.4 Project Co's ability to perform its obligations under this Agreement would (on the balance of probabilities) be adversely affected by the implementation of the Review Submission;
 - 6.2.5 the implementation of the Review Submission would (on the balance of probabilities) adversely affect any right of TfL under this Agreement or its ability to enforce any such right;
 - 6.2.6 in relation to the submission required pursuant to clause 21.1(b), on the grounds that the proposed capacity does not correlate to the expected maximum electricity requirement to maintain and operate the Project Facilities during the Availability Period;
 - 6.2.7 the Review Submission is not in accordance with Good Industry Practice; or
 - 6.2.8 the Review Submission is not in accordance with paragraph 12 (*Principles of Document Development*),
- such grounds being the "**General Grounds for Objection**".
- 6.3 Without limitation to the General Grounds for Objection, TfL may also raise comments in relation to certain Review Submissions on the following grounds:
 - 6.3.1 in relation to the submission of any Liaison Procedure or Community Engagement Plan pursuant to Part 1 (*Interested Parties*) of Schedule 6 (*Interested Parties, Third Parties and Liaison Procedures*), on the grounds that the proposed Liaison Procedure or Community Engagement Plan or amendment to such Liaison Procedure or Community Engagement Plan:
 - a. is not agreed by the Relevant Authorities; or
 - b. is likely to compromise TfL's relationship with any third party (not being a Relevant Authority) or adversely affect TfL's public image;
 - 6.3.2 in relation to Project Co's proposal as to the identity of the Audit Team for the Works and Services, on the grounds that:
 - a. the proposed Audit Team is not independent of the Designer (although it may be an independent team from the same organisation as the Designer);
 - b. the proposed Audit Team is not appointed directly by Project Co; and/or

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- c. the proposed Audit Team does not have levels of road safety engineering work and accident investigation and prevention experience appropriate to the Road Safety Audit to be carried out;
- 6.3.3 in relation to any Relaxation or Departure from Standard, on any grounds in TfL's absolute discretion;
- 6.3.4 in relation to the submission of any designs or proposals required to be submitted pursuant to the D&C Requirements, on the grounds that such design or proposal or parts of or amendments to such designs or proposals:
 - a. would be inconsistent or incompatible with any other plans or proposals required to be submitted to TfL under the Review Procedure pursuant to the D&C Requirements or any other plan, manual or procedure required to be produced by Project Co in accordance with this Agreement; or
 - b. would not be practically capable of being implemented;
- 6.3.5 in relation to submission of the strategies, programmes and plans listed in Appendix 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*), on the grounds that:
 - a. carrying out the programmed maintenance in the period or at the times suggested would (on the balance of probabilities) unreasonably interfere with the operations of TfL or the Users and such interference could be avoided or mitigated by Project Co rescheduling the programmed maintenance;
 - b. the safety of the Users would (on the balance of probabilities) be adversely affected; or
 - c. the period for carrying out the programmed maintenance would (on the balance of probabilities) exceed the period reasonably required for such activities;
- 6.3.6 in relation to submission of the Handback Plan pursuant to Schedule 19 (*Handback Requirements*), on the grounds that Project Co's proposed methodology for the inspection and assessment of the Residual Life of the Elements and the condition of the Project Facilities is in TfL's opinion inadequate;
- 6.3.7 in relation to the submission of the Initial Handback Report, the Interim Handback Report or the Final Inspection Report pursuant to Schedule 19 (*Handback Requirements*), on the grounds that:
 - a. Project Co's determination of the Residual Life of an Element or the condition of the Project Facilities is not in accordance with the methodology as set out in the Handback Plan; or
 - b. Project Co's assessment of any required Rectification Works (including, but not limited to, the estimated cost of such Rectification Works) is in TfL's opinion inadequate; and
- 6.3.8 in relation to the submission of strategies, plans or management systems which are required to be based on or developed from a draft of such strategy, plan or

management system included or referred to in this Agreement, on the grounds that:

- a. such strategy, plan or management system is less onerous for Project Co than the relevant draft;
- b. such strategy, plan or management system omits any features of the relevant draft; or
- c. such strategy, plan or management system alters the relevant draft in a way that adversely affects the Project or the rights and obligations of TfL,

such grounds being the "**Specific Grounds for Objection**".

7. Independent Certifier

7.1 Project Co shall provide to the Independent Certifier a copy of:

7.1.1 all Construction Certificates; and

7.1.2 any other Review Submission required by the Permit to Use Requirements to have been submitted to the Review Procedure,

in each case, which has been endorsed by TfL as "received" or "received with comments" in accordance with the Review Procedure, promptly upon TfL's endorsement of the same.

8. Observations

8.1 TfL may make observations in relation to any Review Submission regardless of whether the submission is endorsed as "received", "received with comments" or "comments".

8.2 Any observation on a Review Submission shall be clearly labelled as such by TfL so as to avoid confusion with any comments on the Review Submission.

8.3 Project Co shall consider any observations on a Review Submission received from TfL and take them into account where it considers it appropriate (acting reasonably).

8.4 If Project Co decides to alter any document following receipt of observations from TfL, such alterations shall be deemed to be a Review Submission for the purpose of this Part 2 (*Review Procedure*) and shall be submitted to TfL in accordance with the Review Procedure, except where such alteration constitutes a Project Co Change in which case the provisions of Part 2 (*Project Co Changes*) of Schedule 22 (*Change Procedure*) shall apply.

8.5 No action by Project Co in relation to any observation made by TfL, and no review, comment or approval by TfL, shall operate to exclude or limit Project Co's obligations or liabilities under this Agreement (or TfL's rights under this Agreement).

9. Document Management

9.1 Project Co shall issue in the form required by Schedule 8 (*Management Systems*) copies of all Review Submissions to TfL and compile and maintain a register of the date and contents of the submission of all Review Submissions.

9.2 Project Co shall compile and maintain a register of the date of receipt and content of all Review Submissions that are returned or deemed to be returned by TfL.

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10. Choice of Standards

- 10.1 In respect of TfL standards or other standards or specifications which are incorporated into the D&C Requirements and which contain options from which a choice can be made, any choice by Project Co of any one option set out in such standards or specifications shall satisfy the Technical Requirements (as the case may be) in that regard (unless any such option is excluded or limited by the terms of this Agreement) and TfL shall not object to such choice (of such option) on that basis.
- 10.2 If Project Co has notified TfL of a choice referred to in paragraph 10.1 and subsequently proposes to substitute another such option, Project Co shall request a Project Co Change to implement such option.
- 10.3 If TfL requires an option set out in the above standards or specifications to be adopted which Project Co has not chosen, it shall request a TfL Change to implement such option.

11. Adherence

- 11.1 Project Co acknowledges and agrees that documents, items or courses of action the subject of a Review Submission pursuant to paragraph 1 (*Review Submissions*) and returned (or deemed to have been returned) endorsed as:

- 11.1.1 "received" shall be adhered to by Project Co; or

- 11.1.2 "received with comments" shall, once amended in accordance with the comments, be adhered to by Project Co,

except to the extent that there has been an objection to any change or amendment thereto in accordance with the Review Procedure.

12. Principles of Document Development

- 12.1 In relation to each submission made to the Review Procedure which is required to be based on, developed from or consistent with:
 - 12.1.1 the Template Liaison Procedures set out in Annex 1 (*Template Liaison Procedures*) of Part 3 (*Liaison Procedures*) of Schedule 6 (*Interested Parties, Third Parties and Liaison Procedures*);
 - 12.1.2 the draft Strategic Equality and Diversity Plan set out in Annex 9 (*Draft Strategic Equality and Diversity Plan*) of Schedule 7 (*Responsible Procurement*);
 - 12.1.3 the draft Equality and Diversity Training Plan set out in Annex 10 (*Draft Equality and Diversity Training Plan*) of Schedule 7 (*Responsible Procurement*);
 - 12.1.4 the draft Supplier Diversity Plan set out in Annex 11 (*Draft Supplier Diversity Plan*) of Schedule 7 (*Responsible Procurement*);
 - 12.1.5 the draft SLNT Delivery and Implementation Plan set out in Annex 12 (*Draft SLNT Delivery and Implementation Plan*) of Schedule 7 (*Responsible Procurement*);
 - 12.1.6 the draft Project Co Management System set out in Annex 1 (*Project Co's Draft Management System*) of Part 1 (*Project Co's Management System*) of Schedule 8 (*Management Systems*);

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- 12.1.7 the draft Quality Management System for Design set out in Annex 1 (*Draft Quality Management System for the Design*) of Part 2 (*Quality Management Systems*) of Schedule 8 (*Management Systems*);
- 12.1.8 the draft Quality Management System for Construction set out in Annex 2 (*Draft Quality Management System for the Construction*) of Part 2 (*Quality Management Systems*) of Schedule 8 (*Management Systems*);
- 12.1.9 the draft Quality Management System for Operation and Maintenance as set out in Annex 3 (*Draft Quality Management System for Operation & Maintenance*) of Part 2 (*Quality Management Systems*) of Schedule 8 (*Management Systems*);
- 12.1.10 the draft Health and Safety Management System as set out in Annex 1 (*Draft Health and Safety Management Plan*) of Part 3 (*Health and Safety Management System*) of Schedule 8 (*Management Systems*);
- 12.1.11 the draft Construction Phase Plan and draft Construction Phase Plan checklist set out in Annex 2 (*Draft Construction Phase Plan*) of Part 3 (*Health and Safety Management System*) of Schedule 8 (*Management Systems*);
- 12.1.12 the draft Designer and Principal Designer processes and arrangements set out in Annex 3 (*Draft Designer and Principal Designer processes and arrangements*) of Part 3 (*Health and Safety Management System*) of Schedule 8 (*Management Systems*);
- 12.1.13 the draft Principal Contractor processes and arrangements set out in Annex 4 (*Principal Contractor processes and arrangements*) of Part 3 (*Health and Safety Management System*) of Schedule 8 (*Management Systems*);
- 12.1.14 the draft Environmental Management System set out in Annex 1 (*Draft Environmental Management System*) of Part 4 (*Environmental Management System*) of Schedule 8 (*Management Systems*);
- 12.1.15 the draft Construction Environmental Management Plan set out in Annex 2 (*Draft Construction Environmental Management Plan*) of Part 4 (*Environmental Management System*) of Schedule 8 (*Management Systems*);
- 12.1.16 the draft Operation and Maintenance Environmental Management Plan set out in Annex 3 (*Draft Operation and Maintenance Environmental Management Plan*) of Part 4 (*Environmental Management Requirements*) of Schedule 8 (*Management Systems*);
- 12.1.17 the draft Information Management System set out in Annex 3 (*Project Co Information Management Proposals*) of Part 5 (*Information Management*) of Schedule 8 (*Management Systems*);
- 12.1.18 the draft Information Governance Strategy set out in Annex 3 (*Project Co Information Management Proposals*) of Part 5 (*Information Management*) of Schedule 8 (*Management Systems*);
- 12.1.19 the draft Information Security Strategy set out in Annex 3 (*Project Co Information Management Proposals*) of Part 5 (*Information Management*) of Schedule 8 (*Management Systems*);

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- 12.1.20 the draft BIM Execution Plan set out in Annex 3 (*Project Co Information Management Proposals*) of Part 5 (*Information Management*) of Schedule 8 (*Management Systems*);
- 12.1.21 the draft Model Production and Delivery Table set out in Annex 3 (*Project Co Information Management Proposals*) of Part 5 (*Information Management*) of Schedule 8 (*Management Systems*);
- 12.1.22 the draft Asset Information Management Process set out in Annex 3 (*Project Co Information Management Proposals*) of Part 5 (*Information Management*) of Schedule 8 (*Management Systems*);
- 12.1.23 Project Co's Works Proposals;
- 12.1.24 the draft Operation and Maintenance Strategy set out in Annex 1 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.25 the draft Governance and Management Plan set out in Annex 2 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.26 the draft Operation Strategy set out in Annex 3 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.27 the draft Incident Response Strategy and the draft Incident Response Plans set out in Annex 4 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.28 the draft Asset Management Strategy set out in Annex 5 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.29 draft Inspections Strategy set out in Annex 6 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.30 the draft Lifecycle Renewals Plan set out in Annex 7 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.31 the template Annual Programme set out in Annex 8 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.32 the draft Landscape Management Plan set out in Annex 9 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.33 the draft Cleaning, Sweeping and Washing Plan set out in Annex 10 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*);
- 12.1.34 the draft Pest and Vermin Control Plan set out in Annex 11 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*); or
- 12.1.35 the draft Winter Service Plan set out in Annex 12 of Part 5 (*Project Co O&M Proposals*) of Schedule 18 (*Operation and Maintenance Requirements*),

Project Co shall ensure that such submission:

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- a. uses and is consistent with the defined terms set out in Schedule 1 (*Definitions*) of this Agreement;
- b. includes clear, objective and measurable obligations on Project Co where appropriate;
- c. does not include 'background' or 'descriptive' language which is not relevant to the contents of the relevant document (unless specifically required to comply with the provisions of this Agreement);
- d. does not include any obligations on TfL or otherwise purport to impose any liability or potential liability on TfL other than the obligations and liabilities already assumed by TfL under this Agreement;
- e. does not include references to the Instructions and Guidance to Tenderers or the contents of the Instructions and Guidance to Tenderers; and
- f. does not paraphrase or repeat existing obligations set out in the Project Agreement.

SCHEDULE 9**CERTIFICATION AND REVIEW PROCEDURE****Part 3 - Definitions**

For the purposes of this Schedule 9 (Certification and Review Procedure) the following words and expressions shall have the following meanings:

"Assessment Report" has the meaning given in paragraph 2.5.7 of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Audit Brief" has the meaning given in DMRB Standard HD19 Road Safety Audit;

"Audit Team Leader" has the meaning given in DMRB Standard HD19 Road Safety Audit;

"Diversionsary Works" means works involving the diversion, change in level, protection or removal of apparatus or other works in relation to apparatus which are necessary to facilitate the execution of the Services;

"Draft Specification Appendix 1/5" has the meaning given to it in Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*);

"Ecological Design" means design of measures to protect, enhance, and create habitats to minimise the effect of the Works on the local ecology;

"Ecological Design Data" means Design Data prepared for Ecological Designs;

"Ecologist" means the ecologist appointed by Project Co in accordance with paragraph 6.7.1 of Part 4 (*Environmental Management Requirements*) of Schedule 8 (*Management Systems*);

"Eurocodes" means the pan-European structural design codes for the design of new structures;

"Exception Report" has the meaning given in DMRB Standard HD19 Road Safety Audit;

"General Grounds for Objection" has the meaning given to it in paragraph 6.2 of Part 2 (*Review Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Geotechnical Report" means a report prepared in accordance with the requirements of DMRB Standard HD 22/02 (Volume 4, Section 2, Part 1) as amended by Annex 2 (*Amendments to Standards and Advice Notes*) of Part 2 (*Design Standards and Specifications*) of Schedule 10 (*Design and Construction Requirements*);

"GRR" means a geotechnical risk register as described in paragraph 2.9.6 of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Landscape Design" means design of hard and soft landscaping including but not limited to features, materials and appearance, prepared in accordance with the requirements of the Design Principles and TfL's Streetscape Guidance;

"Landscape Design Data" means Design Data prepared for Landscape Designs;

"Landscape Manager" means a landscape manager who is a full corporate member of the Landscape Institute (*Design Division*) or its equivalent with a minimum of three (3) years' relevant post qualification experience as may be appointed by Project Co for the purposes of the Project;

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Schedule 9 – Certification and Review Procedure

Part 3 – Definitions

"M&E Installation" means a mechanical and electrical installation associated with a Structure, including, inter alia, Road Tunnels, Service Buildings and pumped drainage systems;

"Principal" means in relation to an organisation, a partner or director of the organisation (including in relation to Project Co, Designer, Checker, D&C Contractor, Landscape Manager or Ecologist) who has authority to sign Certificates on behalf of their organisation;

"Proposals" has the meaning given in paragraph 1.3 of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Record of Structural Review Form" means a record of a Structural Review based on the form set out in Part 1 (*Record of Structural Review Form*) of Annex 5 (*Structural Review and Assessment of Highways Structures*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Relaxations" has the meaning given to it in Annex 4 (*Relaxations and Departures from Standard Procedure*) of Part 1 (*Certification Procedure*);

"Relaxation and Departure from Standard Submission Form" means a document based on the form set out in paragraph 3 (*Relaxation and Departure from Standard Submission Form*) of Part 2 (*Review Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Safety Consultation Document" means a report on the operation, control and maintenance procedures based on the Model Safety Consultation Document set out in Annex 2 (*Technical Appraisal Forms*) of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"SO" has the meaning given to it in paragraph 2.5.2c of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Specific Grounds for Objections" has the meaning given to it in paragraph 6.3 of Part 2 (*Review Procedure*) of Schedule 9 (*Certification and Review Procedure*).

"Specification Appendix 1/5" means the Draft Specification Appendix 1/5 updated by Project Co pursuant to paragraph 3.2.1 of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*) and endorsed by TfL as "received" or "received with comments" under the Review Procedure;

"STGO" has the meaning given to it in paragraph 2.5.2c of Part 1 (*Certification Procedure*) of Schedule 9 (*Certification and Review Procedure*);

"Structural Review" means a review of an individual Structure or group of Structures, within the highway structures stock, to establish or confirm the validity of the latest Assessment (or original design, if there has been no subsequent Assessment) and identify any need for further Assessment;

"TAA" means the Technical Appraisal Authority;

"TAS" means a Technical Appraisal Schedule;

"Technical Appraisal Authority" means the person or group within TfL with responsibility for design quality and having delegated authority to review and sign off the submissions requiring Technical Appraisal Authority review in accordance with Schedule 9 (*Certification and Review Procedure*) on behalf of TfL;

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"Technical Appraisal Schedule" means a schedule prepared in accordance with Annex 3 (*Notes for Compiling Technical Appraisal Schedules*) of Part 1 (*Certification Procedure*); and

"Temporary Works" means structures, means and measures selected and used by a contractor undertaking construction works, which form no part of the permanent building or Structure which is being constructed.