As detailed within the WLO Strategic Narrative (2021) the Harlesden New WLO station is proposed to be positioned with access to Acton Lane with an on-street interchange to Bakerloo Line and London Overground services at the existing Harlesden station.

Figure 3: Proposed location for Harlesden new WLO station, looking north

For this commission:

WLO-WI-020.	The Consultant shall develop a minimum of four options for a new WLO station at Harlesden that can accommodate trains of up to 5-car length.
WLO-WI-021.	The Consultant shall undertake initial pedestrian flow calculations based on forecasted station demand to be provided by the Employer.
WLO-WI-022.	The pedestrian flow calculations shall be used to develop a minimum of four initial layout options for the station to enable determination of initial space requirements with relevant space provision for the station.
WLO-WI-023.	The initial focus of the assessment shall be on entrance, concourse (paid and unpaid), platforms and gateline areas only.

The Employer currently assumes that other station elements can be contained within the existing railway corridor and therefore will not be critical to the future Transport & Works Act Order application.

WLO-WI-024.	The Consultant shall advise if any further station elements will require assessment to meet the required outcome.

The interface of the new station with its immediate external environment shall also be considered as part of this commission.

WLO-WI-025.	The initial layout options shall: • Provide direct access to Acton Lane, avoiding third party land take where possible. • Provide options that provide a new more direct pedestrian link between the new WLO station and the existing station on Acton Lane.

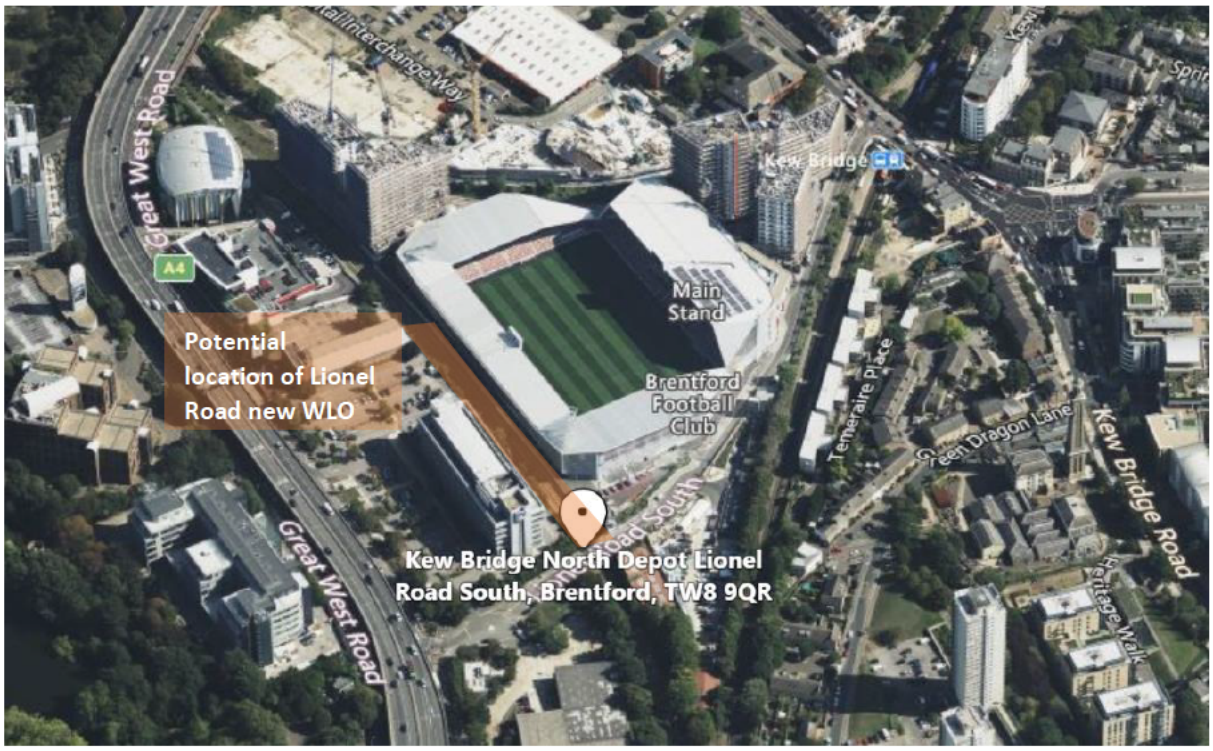
4.3.3. Lionel Road New WLO Station

A new station Lionel Road in Hounslow is part of the WLO MTS proposal and would be located in the London Borough of Hounslow, between Brentford and South Acton stations. The new station would be in the Great West Corridor Opportunity Area, serving large scale local development and the new Brentford Community Stadium.

A recent WSP report (2020) for the London Borough of Hounslow identified several potential options for the station design. The options report is provided in Appendix U for reference.

The new station would be accessed from Lionel Road South, and through the development site to the north of the existing railway line via a proposed station square on the east side of Lionel Road South. However, as outlined in the TfL Key Locations study (2021) alternative positions for the new station to the east have been considered on the land near Kew East Junction (interfacing between the Kew Spur lines and the Up/Down Kew Branch lines). Due to these options providing poorer access to the surrounding areas, they should only be considered if options directly serving Lionel Road South are found to be very challenging and unaffordable.

Figure 9: Proposed location for Lionel Road new WLO station, looking east



For this commission:

WLO-WI-026.	The Consultant shall develop a minimum of four options for a new WLO station at Lionel Road that can accommodate trains of up to 5-car length.
WLO-WI-027.	The Consultant shall undertake initial pedestrian flow calculations based on forecasted station demand to be provided by the Employer.
WLO-WI-028.	The pedestrian flow calculations shall be used to develop a minimum of four initial layout options for the station to enable determination of initial space requirements with relevant space provision for the station.
WLO-WI-029.	The initial focus of the assessment shall be on entrance, concourse (paid and unpaid), platforms and gateline areas only.
WLO-WI-030.	The Consultant shall develop options that enable access to the station from Lionel Road South.

The Employer currently assumes that other station elements can be contained within the existing railway corridor and therefore will not be critical to the future Transport & Works Act Order application.

WLO-WI-031.	The Consultant shall advise if any further station elements will require assessment to meet the required outcome.

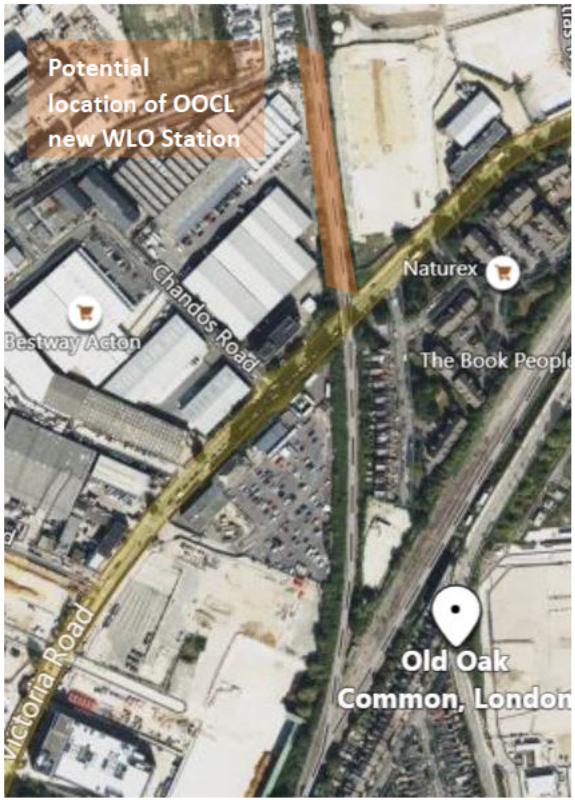
The interface of the new station with its immediate external environment shall also be considered as part of this commission.

WLO-WI-032.	The initial layout options shall be developed that either: • Integrate with the current development plan proposals (minimum of two options); • Provide direct access to Lionel Road South, therefore ensuring that the WLO station is not dependent on any development coming forward (minimum of two options); All options should not preclude any future expansion of Brentford Football stadium over the railway line / new station.

4.3.4. New WLO Platforms at Old Oak Common Lane

In addition to the GRIP 2 work undertaken by Atkins to identify a shortlist of options for the new WLO platforms on the Dudding Hill line at Old Oak Common Lane (OOCL), TfL requires further options to be considered that position the new WLO platforms to the North of Victoria Road, away from the residents on Midland Terrace.

Figure 10: Proposed Potential Alternative Location of OOCL station



For this commission:

WLO-WI-033.	The Consultant shall develop a minimum of three options for a new WLO station at OOCL that can accommodate trains of up to 5-car length.
WLO-WI-034.	The platform options presented by the Consultant shall assess WLO platform options which can accommodate trains of up to 5-car length and: • Enable 4tph WLO through services only; • Enable an additional 2tph turning back to/from the north at OOCL.
WLO-WI-035.	The platform options presented by the Consultant shall consider all relevant railway system infrastructure required to enable the train service proposition scenarios.
WLO-WI-036.	The Consultant shall advise on the viability and rationale of any option from both a train service and infrastructure perspective. This is to allow for any relevant early discounting of non-viable options during or at the end of this commission.
WLO-WI-037.	Proposed platform design options shall consider: • How the new WLO platform(s) are accessed from the NLL station pedestrian and cyclist footbridge which is proposed to link Old Oak Common Lane to Victoria Road including how this access can be fully accessible; • How a fully accessible interchange between all WLO platform(s) and the HS2 and Elizabeth line platforms at Old Oak Common will be provided (via the NLL station pedestrian and cyclist footbridge and/or by other means).

4.4. Capacity Upgrade at Old Kew Junction

Old Kew Junction was identified in the WSP report (2017) as a location that would be constrained and would require the tracks to be doubled to enable the WLO service to run. The Network Rail timetabling analysis supported this assumption.

There would be some significant enabling works to be carried out such as the relocation of location cases, troughing routes and power supplies. It is anticipated that no additional land would be required as the limit of development would be within the Network Rail land boundary.

Figure 10: Location of Old Kew Junction, looking east

For the commission:

WLO-WI-038.	The Consultant shall develop a minimum of two infrastructure options that can facilitate WLO timetables that include an additional 4tph in each direction through Old Kew Junction, which shall include double tracking of Old Kew Junction

4.5. Line of Route Signalling

In addition to the requirements outlined in Section 11.6 the Consultant shall consider wider route signalling work outside of the WLO stations and Acton Wells Junction area that would be required to enable the WLO service proposition to operate. This shall include proposals to improve the signalling between Acton Wells Junction and South Acton Junction to reduce the headway to 3 minute intervals, which is considered necessary to facilitate the through train service of 4 tph through this section.

For this commission:

WLO-WI-039.	The Consultant shall produce signalling scheme sketches to cover any signalling works required to enable the WLO service proposition to operate. Signalling scheme sketches shall assume track circuit block working with colour light LED signalling.
WLO-WI-040.	The Consultant shall assume that the NR NLL Re-control project is proceeding and detail any additional signalling design work needed to enable the WLO service to operate.
WLO-WI-041.	The Consultant shall identify where any interlocking upgrades are required due to limitations of existing interlocking constraints such as capacity.

4.6. Level Crossings

The WLO service will increase pressure on the existing level crossings on the route resulting in longer barrier down times. It is anticipated that the level crossings will either need to be upgraded or closed to road traffic to enable the WLO train service to operate. The following level crossings are affected:

- Bollo Lane level crossings (ELR: SAR1 2m 63ch and BOK5 2m 64ch) - Public Highway Manually Controlled Barriers
- Churchfield Road (Acton Central) level crossing (ELR: BOK5 1m 70ch) - Public Highway Manually Controlled Barriers
- Wood Lane level crossing (ELR: HOU0 11m 70ch) - Public Highway Manually Controlled Barriers

The Consultant shall utilise the level crossing risk assessments produced by Network Rail and consider options for upgrade (if appropriate) and closure of each level crossing.

In the case of Bollo Lane level crossings, the crossings on both the North London line and Kew line will be affected due to their proximity. Options for closure will need to ensure that access to properties located between the two level crossings, including the access to Chiswick Business Park via Stanhope Way, is maintained. This may involve fully closing one level crossing but providing local access over the other, or alternative options to ensure access is maintained.

For this commission:

WLO-WI-042.	The Consultant shall develop a minimum of six options for each level crossing that range from upgrades through to full closures to enable the WLO train service.
WLO-WI-043.	The level crossing upgrades and closure options proposed by the Consultant shall consider all relevant railway and highway system infrastructure required to enable the train service proposition.
WLO-WI-044.	The Consultant shall advise on the viability and rationale of any option from both a train service and infrastructure perspective. This is to allow for any relevant early discounting of non-viable options during or at the end of this commission.
WLO-WI-045.	The Consultant shall consider options to close the level crossings through utilising existing diversions through to new diversion routes being proposed.
WLO-WI-046.	Any proposed diversions shall consider the potential impact on users and local residents affected by any new infrastructure being provided.

The Employer currently assumes that the previous road bridge diversion feasibility work undertaken by WSP to enable the closure of Bollo Lane level crossing is sufficiently documented to meet the requirements for this GRIP 2 commission and demonstrate that a new road bridge wouldn't be feasible.

WLO-WI-047.	The Consultant shall advise if any further road bridge proposals need to be developed and considered for the Bollo Lane level crossings, to meet the required outcome.

4.7. Electrification, Rolling Stock, Depots and Sidings

The current WLO route has a combination of overhead line, third rail and non-electrified track. Any rolling stock proposed to run the WLO service will need to operate over this varied infrastructure through the use of battery or hybrid powered trains, otherwise electrification over the route will need to be extended to enable standard London Overground trains to be compatible. Diesel trains are not being considered as an option for WLO as this would be inconsistent with the Mayor's Transport Strategy policies on air quality and rail emissions (specifically Proposal 37) and the national government's Decarbonising Transport strategy.

It is not anticipated that any new depots will be required to run the WLO 6tph service, but enhanced maintenance facilities and new sidings will be required for stabling of approximately 11 no. 5-car units.

TfL will be separately commissioning Network Rail to undertake the traction power modelling for the WLO service pattern to accommodate the two rolling stock options. The outputs of this commission will be shared with the Consultant to enable optioneering and cost estimates to be drawn up.

For the commission:

WLO-WI-048.	The Consultant shall develop options for the following power and rolling stock scenarios to be compared and assessed for a 6tph service of 2tph Hounslow to Hendon, 2tph Hounslow to West Hampstead Thameslink and 2tph Old Oak Common Lane (OOCL) to Hendon: • Fully electrify the WLO route with third rail provided on the Kew lines and overhead line provided on the Dudding Hill / Midland Mainline freight lines to enable standard electric multiple units to operate; and • No extension of electrification and provision of all battery electric powered units which charge up on electrified sections and at termini stations. Some limited new electrification may be required for this option.
WLO-WI-049.	The Consultant shall develop options for the following power and rolling stock scenarios to be compared and assessed for a 6tph service of 4tph Hounslow to Hendon and 2tph Old Oak Common Lane (OOCL) to Hendon: • Fully electrify the WLO route with third rail provided on the Kew lines and overhead line provided on the Dudding Hill / Midland Mainline freight lines to enable standard electric multiple units to operate; and • No extension of electrification and provision of all battery electric powered units which charge up on electrified sections and at termini stations. Some limited new electrification may be required for this option

WLO-WI-050.	The Consultant shall utilise the output from the Network Rail power modelling work to identify the extent of additional traction power infrastructure required for the power and rolling stock options to be compared.
WLO-WI-051.	The power and rolling stock options presented by the Consultant shall consider all relevant railway system infrastructure required to enable the train service proposition, including HV power supply assessment for Network Rail assets.
WLO-WI-052.	In developing rolling stock options, the Consultant shall take into account that it will be beneficial if the rolling stock for WLO services can be used on other LO routes if required, minimising the types of fleet used on the LO network. However, new types of rolling stock not currently in use on the LO network should not be precluded from consideration.
WLO-WI-053.	The Consultant shall advise on the viability and rationale of any power and rolling stock options from a train service operation, infrastructure and whole life cost perspective. This is to allow for any relevant early discounting of non-viable options during or at the end of this commission.
WLO-WI-054.	The Consultant shall consider options for stabling at Old Oak Common Siding, Willesden South West Sidings and other potential locations to accommodate the WLO rolling stock.
WLO-WI-055.	The stabling options presented by the Consultant shall consider all relevant railway system infrastructure required to enable the train service proposition.
WLO-WI-056.	The Consultant shall advise on the viability and rationale of any stabling options from a train service operation, infrastructure and whole life cost perspective. This is to allow for any relevant early discounting of non-viable options during or at the end of this commission.

4.8. Line of Route Gauging Assessment

The current WLO orbital route consists of a number of lines over which passenger services have not operated for some considerable time. In order for any potential areas where gauging may be an issue on the route over which it is intended to introduce passenger services where none currently operate, a gauging assessment is required.

This will allow for any infrastructure interventions to be identified for either structures or for the provision of 25kV electrification as covered by section 4.7.

For the commission:

WLO-WI-057.	The Consultant shall produce a line of route gauging assessment for the following route sections using either Clearoute or D-Gauge clearance analysis.
WLO-WI-058.	The gauging assessment shall consider all vehicles currently cleared to operate in the relevant Sectional Appendix with the following vehicles run as 'aspirational' stock. Class 710 EMU Class 799 Hybrid (or Class 319 if Kinematic Envelope (KE) not available) Class 350/2 Class 600 (or Class 321 if KE not available) Class 755
WLO-WI-059.	3rd Generation Envelopes shall be used for W Freight gauges detailed in the Sectional Appendix. Locomotives shall be cleared using the Loco 3rd Generation gauge, there is no need to run individual locomotives.
WLO-WI-060.	The following Engineers Line references shall be assessed.

	SPC1 – Up Hendon, Down Hendon and Run-Round. Hendon to West Hampstead Thameslink BDH – Up and Down Brent Curve CAW – Up and Down Cricklewood Curve, Up and Down Dudding Hill Junction to Acton Wells Junction BOK 5 – Up and Down. South Acton Station to Old Kew Junction

A stepping assessment at the stations is not required for this commission.

5. Feasibility assessments

The Consultant is required to deliver several Feasibility assessments for this commission as per the MDL (Appendix B) which cover the elements set out in Section 4 that adhere to the requirements of this Works Information and the CRD.

WLO-WI-061.	The Consultant shall ensure the feasibility assessments include but are not limited to: • Technical feasibility; • Operational and maintenance feasibility; • Accessibility; • Fire safety/evacuation implications; • Constructability; • Cost implications; • Consents implications including land acquisition; • Implications on external interfaces; • Operational resilience; • Environmental / Sustainability impacts; • Overall recommendations.

6. CAPEX Estimating Requirements

The Consultant will be required to provide capital cost estimates for each of the feasible options identified at the end of the optioneering stage of work, the summaries of which shall be incorporated into the Feasibility Report for each WP. There shall be an estimate for each design option proposed for each principal area of intervention, as further detailed within the Scope; Works Information Section 4 and based upon the best information available to the consultant at the time of preparation of the estimates including the output of the feasibility report. Key quantities, rates and benchmark data shall be provided with each estimate.

WLO-WI-062.	The Consultant shall provide relevant design information to the Employer as requested where available to support the Employer's own production of the emerging Estimated Final Cost (EFC).
WLO-WI-063.	The Consultant shall ensure that all Project Risks are consistent and costed or, where these cannot be identified due to the stage of development of the project, the Consultant shall ensure that an appropriate allowance for risk is included within the Estimate and that this is based upon appropriate guidance/ industry norms/ benchmarks/ rationale and that this reflects any particular risks associated with the proposals.
WLO-WI-064.	The Consultant shall ensure that all estimating and design assumptions are consistent and costed.
WLO-WI-065.	The Consultant shall clearly document how outstanding design assumptions are being treated in the estimate.

WLO-WI-066.	All estimates provided by the Consultant shall be in TfL's standard estimate template (Appendix W) and in accordance with TfL's Cost Feedback Structure.
WLO-WI-067.	The Consultant shall support an estimate assurance process which will be conducted on behalf of the Employer through TfL Estimating.
WLO-WI-068.	The Consultant shall undertake regular cost reviews with their estimator and the Employer to review any emerging cost implications/challenges associated with the developing design and discuss possible mitigations.
WLO-WI-069.	The Consultant is to produce estimates for the works including all temporary and permanent works costs, Employer costs, land and legal fees, license fees, charges, statutory costs, compensations, planning permission and the like. Land costs will be provided by TfL Operational Property.
WLO-WI-070.	The design team and TfL shall be consulted during the preparation of the estimate to ensure that the full extent of works is understood. The Consultant should work with other members of its design team and other members of the wider project team to obtain all the relevant information. In the event that the Consultant uses its best efforts to obtain the correct information but those elements of the information remain unavailable, due account of the level of information available should be taken in the preparation of the estimate and, in particular, in the assessment of risk and estimating uncertainty.
WLO-WI-071.	Where necessary, the Consultant shall engage with appropriate specialists, including contractors and suppliers, to properly interpret all the data available and ensure that quantities accurately reflect the works required.
WLO-WI-072.	The Consultant shall provide a supporting breakdown to the estimate. The breakdown should be measured and presented in a manner consistent with the Cost Feedback Structure and the Estimate template and include the following: • All items forming each high level cost feedback structure item should be clearly identifiable; • The estimate and its breakdown should incorporate costs for all elements required for the works whether shown within the design information or not. The design team shall be consulted during the preparation of the estimate to ensure that the full extent of works is understood; • A clear audit trail should be provided of the production of all measurement including the transfer from the measurement to the summary of the quantities in the breakdown. A quality assurance check should be carried out to demonstrate that the measurement has been cross checked by an independent checker.
WLO-WI-073.	The estimate shall reflect accurate current prices, based upon: • Quotations and other advice from contractors, subcontractors and other industry specialists; • Known, accurate, industry data; • Outturn costs of comparable projects; Any other information which may more accurately inform current pricing. Where designs have not been developed to a level of detail which allows detailed costing, appropriate guide prices, benchmarks, etc. should be used, based upon historical outturn costs, contractors' advice and the like.
WLO-WI-074.	Before the estimate is issued to the Employer, a full internal review (QA) should be carried out by the Consultant. The QA process should be made visible, once completed and it should include the estimate being signed by the reviewers. The estimate is to be checked to ensure

	it is free from arithmetic errors (including formula errors in spreadsheets) and that quantity measures are correct. The estimate shall be reviewed by a senior member of the Consultant Staff (experienced in the type of work to be reviewed) who needs to be satisfied the estimate has been prepared and checked by suitably skilled staff. The reviewers' signatures shall be taken to indicate that they believe the estimate to be accurately measured and appropriately priced and therefore that it represents a realistic assessment of the most likely project cost and that the product is thoroughly auditable.
WLO-WI-075.	Personnel involved in the preparation of the estimate will be appropriately experienced and qualified for the work being undertaken
WLO-WI-076.	Following completion of the Consultant's own Quality Assurance processes, the estimate should be signed-off by appropriate members of the TfL project team, including the project manager, the commercial manager, the senior commercial manager, the estimator, the estimating manager and the sponsor, in accordance with TfL's "Pathway" procedures and Estimating guidance and as noted at requirement WLO-WI-057, above.
WLO-WI-077.	The following information shall be provided with the estimate, as a minimum:- • Details of the scheme being delivered • A summary of the estimate (in the form set out in the estimate template) • Details of all drawings, specifications, reports and other documents used in the preparation of the estimate • Details of all estimator's allowances made in the estimate, the reason for which each allowance has been made and the rationale for the quantum of each allowance • A full list of all assumptions made in the preparation of the estimate, qualifications to the estimate and exclusions from the estimate • Details of the source of cost data for the items (e.g. Previous projects, known rates, quotations, etc.) • Benchmarking of the estimate against previous similar projects and against known rates for various work types and repeatable work items.
WLO-WI-078.	A robust allowance for risk and uncertainty shall be included within the estimates and shall be appropriate to the level of information available to inform the estimate, as well as to specific project risks. The risk and uncertainty allowance is to be prepared in consultation with TfL's risk managers and shall follow appropriate guidance from them.

7. Land and Property Requirements

TfL will assess the cost of any third party land required, but for this commission:

WLO-WI-079.	The Consultant shall consider the impact on third party land (both temporarily and permanently) of all design options they present as part of this commission.
WLO-WI-080.	The Consultant shall seek to minimise the impact on third party land to reduce cost and consent liability for the Employer.

8. Buried Services/Utilities Requirements

No engagement with utilities providers in relation to WLO proposals has been undertaken. The Employer has sought to provide any available buried services/utilities information

available and the completeness and accuracy of this information is not guaranteed. This will be provided at contract award if available.

WLO-WI-081.	The Consultant shall undertake a desktop exercise to identify and inform assumptions about any potential buried services/utilities interface with all design options they present as part of this commission.
WLO-WI-082.	The Consultant shall include any assumptions regarding buried services/utilities within their assumption registers submitted for Employer acceptance.

9. Environmental and Sustainability Requirements

An initial version of the TfL Environmental Evaluation Report (EER) has been completed (Appendix F) to identify the WLO's overarching environmental constraints, risks and opportunities. The EER also identifies actions that are required to be taken forward as the Project develops to ensure the identified issues are addressed.

WLO-WI-083.	The Consultant shall employ an appropriately qualified and experienced environmental and sustainability professional to lead on all environmental and sustainability matters to ensure the full implementation of all the environmental and sustainability requirements. If this person is not a full-time member of the team, the Consultant shall ensure that they have regular involvement with the project and that they take proactive and effective actions to set-up and ensure the full implementation of the environmental and/or sustainability requirements.
WLO-WI-084.	The Consultant shall detail, within their Project Specific Sustainability Strategy, the iterative process they will use for identifying measures to improve the sustainability of the works and improve the Project's social, economic and environmental performance, this should be submitted within one month of contract award.
WLO-WI-085.	The Consultant shall develop design options and produce a Sustainability Design Considerations Log that takes account of environmental, social and economic risks and opportunities, presented in the EER and any others that are identified by the Consultant as part of this commission. The Sustainability Design Considerations log should be scheme wide and include design from the first GRIP 2 feasibility work Appendix C).
WLO-WI-086.	The Consultant shall review the EER to ensure they have a thorough understanding of the environmental issues and shall use these EER outputs in a proactive and iterative manner that demonstrably assist where relevant with this commission.
WLO-WI-087.	The EER shall be a live document, and the Consultant shall refer to, and as necessary update, the EER to capture any critical environmental matters identified as part of this commission.
WLO-WI-088.	The Consultant shall take into account current and emerging policy and the type of benefits that the scheme may deliver. The consultant shall make sure to consider key objectives and targets from TfL's Corporate Environment Plan and Sustainability Report when looking at the engineering and environmental requirements. The consultant should consider how the whole scheme would comply with policy and shall produce a comprehensive policy tracker. This deliverable should be scheme wide.
WLO-WI-089.	The Consultant shall consider all relevant environmental information, desktop research, reports, surveys, and site visits when undertaking the tasks, including any Green Infrastructure or environmental data that TfL receives from Network Rail.

WLO-WI-090.	The Consultant shall produce a project-wide Environmental Baseline Report and Plan to highlight any pertinent environmental factors as outlined in the EER and through additional desk top checks. The Consultant shall undertake a desktop check of online databases to identify any new environmental constraints / issues / opportunities for the whole scheme.
WLO-WI-091.	The Consultant shall ensure that due consideration is given to ecology and biodiversity in line with current and emerging legislation and applicable strategies and plans. This should include delivering mandatory +10% Biodiversity Net Gain within the development as well as any tree canopy replacement that may affect land take. The consultant shall include a high-level assessment of the likely Biodiversity Net Gain unit requirements for the whole scheme. (requirement to be discussed further with TfL).
WLO-WI-092.	The Consultant shall ensure that due consideration is given to carbon and the drive to net zero. The consultant shall undertake a high-level carbon assessment for the whole scheme. The consultant shall produce a proxy assessment, using a sensible option at each location, to calculate the embedded and operational carbon. TfL is developing a bespoke carbon tool for early-stage scheme development. The consultant will be expected to use this tool and to work alongside TfL's engineering team throughout the assessment. The consultant may wish to incorporate their own carbon emission data. The consultant should also identify opportunities to reduce carbon utilisation across the whole scheme.
WLO-WI-093.	The Project is participating in the CEEQUAL assessment scheme and is targeting an 'Excellent' rating in the Whole Team Award. The consultant shall start to consider and gather the necessary evidence for the award.

10. Management Requirements

10.1. Key Dates and Milestones

Key dates and milestones are contained within the contract data.

10.2. Programme Requirements

In order to track, monitor and review the progress of the design, the Consultant shall produce and submit to the Employer a programme for delivery of the design.

WLO-WI-094.	The Consultant shall submit a programme for acceptance within the period stated in the Contract Data. The first accepted programme shall form the basis of future reporting. For the purposes of reporting, programmes shall not be baselined or re-baselined without the agreement of the Employer.
WLO-WI-095.	The Consultant shall provide, revise and resubmit periodically, the programme for Acceptance by the Project Manager. Once agreed by the Project Manager this programme shall become the Accepted Programme. This shall be issued within the timescales set in the contract data.
WLO-WI-096.	The Consultant shall submit a draft programme with 3 weeks actual and 1 week estimate on Friday week 3 of each period.

WLO-WI-097.	The programme shall be submitted to the Project Manager electronically in P6 (XER) and PDF, using a layout format to be agreed before submission.
WLO-WI-098.	The programme percent complete type shall be set to physical. The method of measurement of physical percent complete shall be proposed to the Project Manager at the start-meeting for acceptance.
WLO-WI-099.	The programme shall clearly identify any obligations of the Employer.
WLO-WI-100.	The programme WBS should be agreed with the PM and its settings and population of codes shall be subjected to the Project Manager's validation process before acceptance into the Project Manager's database.
WLO-WI-101.	The programme shall include all key milestones and Contract dates for the design, including all dates scheduled in Contract Data Pt 1.
WLO-WI-102.	The programme shall include all deliverables as per the MDL, including any management plans, works package or others required to complete the works.
WLO-WI-103.	The Consultant shall comply with all additional programme requirements as outlined in WI505 (Appendix T).

10.3. Records, Asset Information/Data and Non-Asset Information/Data

WLO-WI-104.	The Consultant shall inform the Employer of any records or other asset information/data required to undertake these works within 2 weeks of contract award.

The Employer cannot guarantee the availability or accuracy of any records, asset information/data and non-asset information/data.

WLO-WI-105.	The Consultant shall engage with the Employer to discuss and agree appropriate mitigation for the non-availability or inaccuracy of any records, asset information/data or other information/data.

10.4. Appointments

It is required that (Design and Construction) appointments will have the required competences to fulfil the roles of:

- Contractor's Engineering Manager;
- Contractor Responsible Engineer for all disciplines required;
- Principal Engineer for Rolling Stock;
- Principal Designer (CDM);
- Principal Contractor (CDM).

All appointments shall have the appropriate level of certification and will normally be Chartered Engineers (or working towards) with demonstrable competency and relevant experience.

WLO-WI-106.	The Consultant shall submit for acceptance a suitable project team structure. This should clearly demonstrate the roles and responsibilities of the individuals.
WLO-WI-107.	The Consultant shall submit for acceptance all key personnel in accordance with NR/L2/INI/02009 within the first week of contract award.

10.5. Document Review

Where the Consultant's documents require Employer acceptance, the number of iterations required to achieve acceptance shall be at the risk of the Consultant and the Consultant shall be deemed to have made due allowance in its price and programme for complying with this. The periods of reply required by this contract are set out in the contract data. The periods of

reply stated do not guarantee that the deliverable will be accepted within that timescale should the deliverable not be at an acceptable standard, once the timescale has elapsed.

WLO-WI-108.	The Consultant shall align with LO "Design Development, Design Assurance, Document Review Notices and Technical Approvals" as per Appendix G.

WLO-WI-109.	The Consultant shall allow for approval durations within their programme as stated below and in the contract data:
	• **Site Walkout Briefings (including Risk Assessment) provided by the Consultant:**
	  ○ Employer's initial review – **10 working days**
	  ○ Employer's re-work review – **5 working days**
	• **Commission Deliverables (period of review referenced in MDL - Appendix B):**
	  ○ Employer's Initial review – **15 working days**
	  ○ Employer's re-work review (following close out of DRN comments) – **5 working days**

10.6. Document Control & Contract Management

WLO-WI-110.	The Consultant shall adopt the information management and document control procedures set out in Appendix H.

The following document categories shall be submitted through document control.

- Engineering deliverables e.g. Design documentation;
- Nominations for CRE/CEM;

Asite will be the system utilised for contract management. This includes the submissions of Request For Information (Technical Queries), Consultants Programme, Early Warnings and Compensation Events. The Consultant will be provided with access to Asite.

10.7. Project Interfaces

Stakeholder Engagement will be managed by the Employer. Should there be a need to engage with a stakeholder, the Consultant shall notify the Employer who shall facilitate this. Key stakeholders who it is anticipated engagement may be required with (but not limited to) is as follows:

- London Overground Infrastructure Management
- London Overground Operations
- Arriva Rail London (London Overground Concession Operator)
- West London Alliance
- Network Rail
- London Borough of Barnet
- London Borough of Brent
- London Borough of Camden
- London Borough of Ealing

- London Borough of Hammersmith & Fulham
- London Borough of Hounslow
- Old Oak and Park Royal Development Corporation (OPDC)
- Developers of interfacing sites at selected locations

WLO-WI-111.	The Consultant shall support the Employer in engagement with any stakeholder where deemed required by the Employer. This includes but is not limited to: • Participation/Facilitation of meetings (face to face/virtual); • Production of and delivery of presentation material design/information; • Response to questions/queries raised by stakeholders; • Execution of relevant actions following stakeholder engagement (to be agreed with the Employer following the engagement).
WLO-WI-112.	The Consultant shall ensure that key personnel are available to support engagement with any stakeholder where deemed required by the Employer.
WLO-WI-113.	The Consultant shall participate in any pre-meetings/discussions the Employer deems is required prior to engagement with any stakeholder.

10.8. Meetings and Reporting

The Consultant shall be required to attend meetings with the Employer throughout the duration of the contract. As soon as possible after the Contract Start Date, the Employer will convene a start-up meeting with the Consultant. The meeting will be used to confirm systems for the control, administration, reporting and management of the Project, and to confirm lines of communication, information flows, change control and procedures. Meetings will normally be held at the offices of the Employer or virtually using Microsoft Teams.

WLO-WI-114.	The Consultant shall attend and prepare all necessary material for the following: • Start-up meeting; • Fortnightly project management and engineering progress meetings; • Periodic designer's risk, assumptions and design change review meetings; • Commercial review meeting – can be included as part of the fortnightly project management progress meeting; • Stakeholder engagement meetings and pre-meetings as required by the Employer and detailed in section 10.7 (Project Interfaces); Meetings can be combined where appropriate if approved with the Employer in advance.
WLO-WI-115.	Where meetings are held to discuss technical issues the CEM shall be present along with the appropriate discipline CRE(s).
WLO-WI-116.	The Consultant shall engage with the Employer to agree agenda and supply the required material a minimum of 48 hours in advance of any proposed meeting.

10.9. Health & Safety

For the duration of this contract the Consultant is required to comply with all current safety, health, welfare and environmental legislation and with all current approved Codes of Practice. Health and Safety requirements and policies are contained in Appendix I.

WLO-WI-117.	The Consultant shall comply with the requirements of Appendix I – London Rail H&S Contract Requirements.

11. Design Development Requirements

11.1. Surveys

Due to the early nature of the design development associated with this commission the Consultant is required to undertake non-intrusive surveys and review available desktop information only to support the delivery of the requirements within this GRIP 2 Scope. The Employer has gained significant drawings and information from Network Rail that should be utilised for this commission, which is available via ProjectWise.

WLO-WI-118.	The Consultant shall allow for site surveys from publicly accessible areas to familiarise themselves with the locations and take any visual measurements / checks.
WLO-WI-119.	The Consultant shall use Network Rail HQ aerial images and point cloud data to support the delivery of the requirements within this Works Information.
WLO-WI-120.	The Consultant shall review all available Network Rail as built drawings, and health and safety files to inform the options developed for this GRIP 2 commission.
WLO-WI-121.	The Consultant shall obtain C2 utility searches and Unexploded ordnance searches required to complete the GRIP 2 commission.
WLO-WI-122.	The Consultant shall request within 2 weeks of contract award through the Employer either: • Their own access to the Routeview tool which will be provided through Network Rail (via the Employer); or • Confirmation of which geographical areas they require Network Rail HQ aerial images of
WLO-WI-123.	The Consultant shall advise within 2 weeks of contract award if they believe there is any other critical survey data required for the delivery of the requirements within this Works Information and the rationale why.

11.2. Design Standards

In order to develop the design to the required level the Consultant will be required to comply with design standards:

WLO-WI-124.	Standard Designs, as published in Network Rail's Standard Design Catalogue shall be used as the preferred solution, where appropriate, unless otherwise stated.
WLO-WI-125.	The Consultant shall adhere to applicable standards and notify the Employer at the earliest opportunity of any derogation from standards that may be required.
WLO-WI-126.	The Consultant shall follow the Network Rail derogation process and discuss reasons for any proposed derogations.

11.3. Design Management

In order to develop the design to the required level the Consultant must ensure they are implementing a sufficiently detailed and robust methodology to deliver the project requirements.

WLO-WI-127.	The Consultant shall ensure design management methodology being implemented for this commission is in accordance with: • LO SEMP; • LO E&CMP; • Network Rail's Safety by Design principles; • CDM.

WLO-WI-128.	The Consultant shall ensure they are able to discuss immediate queries or reservations the Employer raises with regards to their design management methodology throughout this commission.

11.4. Design Risk and Assumptions Management

For the Employer the Consultant's approach to design risk and assumptions management throughout the delivery of the scope of this Works Information is critical for the successful development of the project.

WLO-WI-129.	The Consultant shall detail designer's risks, possible mitigation and the timescale and mechanism for closure (if applicable) within their designer's risk assessment.
WLO-WI-130.	The Consultant shall detail assumptions and the timescale and mechanism for closure (if applicable) within their assumptions register.
WLO-WI-131.	The Consultant shall detail how designer's risks and assumptions are being treated within the estimating deliverables.
WLO-WI-132.	The Consultant shall advise the Employer of any identified opportunities through managing design risk and assumptions as part of this commission.

11.5. Track Requirements

In order to develop the design to the required level:

WLO-WI-133.	Track design shall be compliant with the requirements of NR/L2/TRK/2102 and NR/L2/TRK/2049.
WLO-WI-134.	The Consultant shall ensure that NR56V Standardised S&C is used.

11.6. Signalling Requirements

In order to develop the design to the required level:

WLO-WI-135.	The Consultant shall request any signalling records deemed required from the Employer within 2 weeks of contract award.
WLO-WI-136.	The Consultant shall develop an understanding of the works interface with existing signals assets for review with the Employer's Signalling Representative.
WLO-WI-137.	The Consultant shall produce scheme sketches for design options proposed for the following station elements of this commission: • New WLO platforms at the existing station of Brent Cross West; • New turnback in the Lionel Road / Kew Bridge area and at Hounslow; • New WLO platforms at potential new stations at Colindale, Harlesden, Lionel Road and OOCL.
WLO-WI-138.	The Consultant shall provide the Employer with regular updates on early signalling design development through working closely with the Employer's Signalling Representative to ensure the initial design is not too contentious and minimises major alterations during the formal review process.
WLO-WI-139.	The Consultant shall follow best and current practice within their initial design to minimise any major alterations during the formal review process.

11.7. Lineside Equipment Requirements

In order to develop the design to the required level:

WLO-WI-140.	The Consultant shall provide high-level lineside equipment (signalling, telecommunications, Mechanical and Electricals) input to feed into the design options presented. This includes but is not limited to: • Indication of lineside equipment requirements; • Indication of how lineside requirements impacts space provision; • Confirmation that lineside equipment is 'safe by design' and sited outside of any designated red zones; • Measures that will be required to be undertaken to deliver the works.

11.8. Civils Requirements

In order to develop the design to the required level:

WLO-WI-141.	The Consultant shall provide high-level civils input to feed into the design options presented. This includes but is not limited to: • Outline of main civils and structural elements and principal dimensions; • General arrangement drawings showing existing infrastructure and features that can affect or be affected by the proposed works; • Indication of how civils asset requirements impact space provision; • Measures that will be required to be undertaken to deliver the works.

11.9. Station Information & Security Systems (SISS) / Telecoms Requirements

In order to develop the design to the required level:

WLO-WI-142.	The Consultant shall provide high-level SISS/Telecoms input to feed into the design options presented. This includes but is not limited to: • Indication of SISS/Telecoms asset requirements; • Indication of how SISS/Telecoms asset requirements impact space provision; • Measures that will be required to be undertaken to deliver the works.

11.10. London Overground Design Specification

A LO Design Specification is provided to the Consultant by the Employer within Appendix J. The design specification includes the key components for use in the delivery of upgrades to existing LO stations and new LO station projects as approved with key stakeholders including the Operator and London Overground Infrastructure Maintenance. It is required that during the completion of this GRIP 2 Scope, the specification is to be treated as guidance to ensure station works associated with tis commission align with the overall London Overground design intent.

In order to develop the design to the required level:

WLO-WI-143.	The Consultant shall incorporate the LO Design Specification (found in Appendix J) into their design proposals.

11.11. Architectural Inputs

In order to develop the design to the required level:

WLO-WI-144.	The Consultant shall seek architectural inputs where necessary to inform design options/space provision required to meet the intended outputs at the following stations:

	• New WLO platforms at the existing station of Brent Cross West • Potential new WLO stations at Colindale, Harlesden, Lionel Road and OOCL.

11.12. Urban Realm Interface

In order to develop the design to the required level:

WLO-WI-145.	The Consultant shall consider the integration of each station layout option at Colindale, Harlesden, Lionel Road and OOCL on existing and proposed urban contexts where necessary.

11.13. Fire Safety

In order to develop the design to the required level:

WLO-WI-146.	The Consultant shall comply with Managing Changes to Fire Precautions (LO-MS-102-02-00005) found in Appendix K.
WLO-WI-147.	The Consultant shall undertake fire evacuation assessment and relevant calculations on any identified feasible options to: • Confirm station layout (concourse/street and platform level); • Confirm requirement for the provision of a Secondary Means of Escape (SME); • Confirm any requirement for safe refuge areas; • Determine any requirement for evacuation lifts. The assessment for this and relative compliance of any of the options shall be documented in a Stations Fire and Evacuations Strategy document.
WLO-WI-148.	The Consultant shall ensure that station designs are developed in compliance with LU Standard S1080 and BS9992 for the forecast passenger demand.

11.14. Engineering System Safety Management

The Supplier shall undertake all necessary Systems Safety Management (SSM) activities to ensure robust safety assurance, proportionate to the proposed engineering change and appropriate to the applicable GRIP stage(s). This Works Information describes the minimum expectation for SSM processes and activities, but is not exhaustive, and the Supplier shall include any other works necessary to comply with good practice, and the principles of EU Regulation No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment (CSM-RA). For detailed guidance, the Supplier may follow RSSB Guidance Note GEGN8646, or ORR Guidance on the application of CSM RA.

The SSM process is primarily intended to satisfy the expectations of the CSM-RA, but shall also comply with SSM duties under all applicable legislation, such as ROGS , MHSWR , and facilitate ORR , AsBo , ISA or ICP approvals, if required. Similarly, the Master Deliverables List (MDL) is not exhaustive. The Supplier shall determine the documentation required to fulfil the Programme's SSM obligations, and describe this in the System Safety Plan.

In order to develop the design to the required level:

WLO-WI-149.	The Consultant shall develop a hazard log and participate in hazard management during this commission.
WLO-WI-150.	The Consultant shall identify relevant standards and safety requirements to close identified hazards through hazard management (if applicable to close at this early stage of design development).

WLO-WI-151.	The Supplier shall undertake all necessary Systems Safety Management (SSM) activities to ensure robust safety assurance, proportionate to the proposed engineering change and appropriate to the GRIP stage 2.
WLO-WI-152.	The Supplier shall undertake a Significance Assessment (SA) for GRIP stage 2, following the CSM-RA risk management process.
WLO-WI-153.	The Supplier shall produce a Systems Safety Plan (SSP) for the application of a robust SSM process, proportionate to the proposed engineering change and appropriate to the applicable GRIP stages, following the risk management principles in the CSM-RA.
WLO-WI-154.	The SSP shall describe the: • process for planned SSM activities, including (but not limited to) hazard identification, safety requirements management, management of assumptions and actions, transfer of hazards, design change management and quality management; • the roles, responsibilities and requisite competencies of persons undertaking SSM activities; and • the applicable safety legislation, regulations and standards followed
WLO-WI-155.	The Supplier shall undertake a new System Definition (SD), or review and validate a previous SD for the relevant GRIP stage, following the CSM-RA risk management process.
WLO-WI-156.	The SD should be maintained as a live, evolving document, to include: • the Programme's objective or intended purpose, and what is being changed by the Programme; • a description of the systems which are being risk assessed, before, during and after the changes effected by the Programme, including all human, technical and procedural components; • the functions and behaviour of those systems, in normal, degraded and emergency modes of operation; • the boundaries of all systems under assessment; • the physical and operational interfaces with the Programme; • the system environment, including weather / climate, lighting levels, energy and thermal flow, shocks, vibrations, electromagnetic interference and operational use; • any SSM control measures and definitions of the SSM requirements identified by the risk assessment process; and • any assumptions to clarify the basis of SSM activities.
WLO-WI-157.	The Supplier shall undertake all necessary Hazard Identification (HazID) activities, proportionate to the magnitude and complexity of the system. A systematic and structured approach shall be used to identify all reasonably foreseeable functional, operational and interface hazards and their control measures, in line with the CSM-RA and other legislation and industry standards.
WLO-WI-158.	The Supplier shall use one or more of the HazID techniques listed below to achieve this; • HAZOP / PHA technique for the identification of operational hazards (e.g. signaller diverting the train to wrong section of the track), taking input from Operational Manuals or a 'DITLOT' approach. • FMEA / FMECA for functional and interface hazards (e.g. spurious yellow given by AWS/TPWS) taking input from context diagrams created/adapted for this purpose.
WLO-WI-159.	During the design stages, the Supplier shall demonstrate a significant effort to prioritise preventive over mitigative control measures, such that, wherever possible, hazards are 'designed out' rather than being controlled via a procedure. The number of preventive barriers required shall be proportionate to the hazard's potential

	consequence. Where procedural control measures are identified, automated rather than manual processes shall be preferred.
WLO-WI-160.	The Supplier shall undertake sufficient HazID activities to develop their design. This shall be prior to any Interdisciplinary Check or Review (IDC/IDR) meetings, to review any design changes which may have a System Safety aspect.
WLO-WI-161.	In advance of any HazID workshops, the PD/PC shall prepare a briefing note for submission to all attendees. Attendees shall include but are not limited to the relevant: • Designated Project Engineer; • System Safety engineers, from both TfL and the Supplier; • technical experts for the subject under analysis (e.g. discipline engineers); and • future Operator/Maintainers of the system under analysis.
WLO-WI-162.	The Supplier shall produce the appropriate HazID reports to summarise their findings and shall be distributed to all attendees.
WLO-WI-163.	Outputs from each HazID analysis shall be used to update the Hazard Record.
WLO-WI-164.	The Supplier shall develop and maintain a Hazard Record (HR) for each project, which contains all hazards which have been identified in the current or previous GRIP stages, and the associated evidence of their management to a level that is ALARP, appropriate to the design stage.
WLO-WI-165.	The Hazard Record shall be created in MS Excel, using any sensible format, but containing at least the following information for each entry: • The assumptions defining the hazard, or required in future GRIP stages, and their validation; • SSM control measures, and a responsible owner of each control measure, with any necessary justification that risk has been controlled to a level that is ALARP (e.g. through detailed safety activities such as cost-benefit analysis, or other quantitative/qualitative risk assessment); • Derived SSM Requirements and a responsible owner of each Requirement; • Evidence of compliance with SSM Requirements (e.g. through design documents, or testing and commissioning activities); • Evidence of acceptance of responsibility for each control measure / SSM requirement from its owner, which shall be obtained by the Supplier. The process for transfer and acceptance of ownership shall be described in the SSP; and • The CSM-RA Risk Acceptance Principle used.
WLO-WI-166.	The Supplier shall produce an Engineering Safety Case (ESC) for GRIP stage 2, demonstrating that risks arising from all foreseeable hazards have been identified, and eliminated or mitigated to a level that is As Low As Reasonably Practicable (ALARP).
WLO-WI-167.	Any outstanding issues or actions that were identified within any of the SSM activities, conducted during the current or previous GRIP stages, or included in previous revisions of the ESC, shall be listed, reviewed, and closed or justified in the ESC.
WLO-WI-168.	The Consultant shall elicit Safety Requirements, which shall be fed into the project V&V design matrices.
WLO-WI-169.	Quantitative risk assessments (QRAs) shall be undertaken, of a number to be determined necessary by the Supplier to support any safety arguments.

11.15. Engineering and Operational Assurance

In order to develop the design to the required level:

WLO-WI-170	The Consultant shall comply to their responsibilities set out in the LO E&CMP (Appendix M) in relation to Engineering Assurance during the completion of this Works Information.
WLO-WI-171	In relation to Operational Assurance during the completion of this Works Information, the Consultant shall ensure that all options developed take full consideration of the impacts of the design on operational resilience of the WLO train service and other passenger and freight services.

11.16.CAD

In order to develop the design to the required level:

WLO-WI-172.	The Consultant shall comply to the CAD standards found in Appendix N and the Standard Method Procedure (SMP) found in Appendix O.
WLO-WI-173.	The Consultant shall develop its designs, to the BIM level guidance set out in the Employer's Information Requirements (EIR) in Appendix P.
WLO-WI-174.	The Consultant shall provide the Employer with PDF and native CAD files for all designs produced.

11.17.CDM

In order to develop the design to the required level:

WLO-WI-175.	The Consultant shall undertake the duties of Principal Designer under CDM 2015.

11.18.Static Modelling Requirements

The objective of the static modelling carried out during the completion of this GRIP 2 Scope will be to ensure that it can be demonstrated that design options presented by the Consultant can cater for WLO forecasted demand and pedestrian flows.

WLO-WI-176.	The Consultant shall undertake static modelling to inform the required sizing of new WLO platform(s) and interchange facilities at the following existing station: • Brent Cross West;
WLO-WI-177.	The Consultant shall undertake static modelling to inform the required sizing of new WLO platform(s) and interchange facilities at the following potential new stations: • Colindale; • Harlesden; • Lionel Road; and • OOCL.

All demand matrices for the AM peaks associated with the required static modelling requirements can be found in Appendix Q. These demand matrices will be based on a worst case 6tph end to end train service. In the event that any relevant demand forecasts are unavailable or incomplete, this will be discussed with the Consultant to agree how this impacts the Static Modelling Requirements within this GRIP 2 Scope.

WLO-WI-178.	The Consultant shall undertake static modelling to demonstrate that design options can cater for WLO forecasted demand and pedestrian flows whilst highlighting where design options are insufficient.

WLO-WI-179.	Network Rail's Station Capacity Guidance shall be used to inform any static analysis completed.
WLO-WI-180.	Static modelling shall be completed for the AM peaks for a demand year of 2041 for each station a demand matrix is provided
WLO-WI-181.	Static modelling shall be completed to include a demand uplift sensitivity of +35% for each station a demand matrix is provided.
WLO-WI-182.	All assumptions made by the Consultant for the purposes of Static modelling shall be recorded as part of the final deliverable.
WLO-WI-183.	Static modelling deliverables produced by the Consultant shall be subject to an audit by TfL's Pedestrian Modelling Team prior to acceptance.

11.19. Accessibility Requirements

In order to develop the design to the required level:

WLO-WI-184.	The Consultant shall identify an Access Consultant registered with the National Register of Access Consultants (NRAC) or with appropriate equivalent qualifications as part of their team who shall provide advice on accessibility requirements and inclusive design to inform the development of design options at each station location.
WLO-WI-185.	The advice provided by the Access Consultant to the design team shall also be provided to TfL, making use of the Inclusive Design form attached as Appendix R.

11.20. Verification and Validation Requirements

In order to develop the design to the required level:

WLO-WI-186.	The Consultant shall produce a V&V Matrix / table detailing how each requirement in this GRIP 2 Scope has been met.
WLO-WI-187.	The V&V Matrix shall contain the following information: • Requirements; • Consultant Owner; • Verification Argument; • Verification Method; • Verification Evidence; • Verification Status (Compliant, Non-compliant, In Progress or Not Started)
WLO-WI-188.	Any non-compliances against the requirements shall be documented and submitted for acceptance by the Employer.
WLO-WI-189.	The V&V Matrix shall be provided within 8 weeks of commencement of contract for acceptance by the Employer. It shall be updated periodically.

11.21. Operation and Maintenance Requirements

In order to develop the design to the required level:

WLO-WI-190.	The Consultant shall undertake a workshop to assess the operability and maintenance implications of the WLO service with the relevant Employer's Operational and Maintenance Representative(s).
WLO-WI-191.	The WLO project shall be designed and implemented to minimise the need for future maintenance and allow for safe maintenance access when required.

12. Systems Engineering

Systems engineering activities are described in the London Overground (LO) Systems Engineering Management Plan (SEMP).

WLO-WI-192.	The Consultant shall produce a SEMP to demonstrate how they comply with the LO SEMP across the works they are looking at.

13. Reliability, Availability, Maintainability and Safety (RAMS)

In order to develop the design to the required level:

WLO-WI-193.	The Consultant shall produce a RAMS Management Plan.
WLO-WI-194.	The Consultant shall establish an apportionment of RAMS requirements and targets.

14. Constructability

For the commission:

WLO-WI-195.	The Consultant shall undertake constructability workshop(s) to assess the constructability of the elements within each Work Package. This shall include but is not limited to • Phasing; • Construction sites required for the works; • Compound/satellite compounds required for the works; • Crane locations; • Any Network Rail possessions; • Demolition; • Road Closures / realignment; and • Adjoining construction sites/interfacing works.

Appendices

- Appendix A – West London Orbital Client Requirements Document (CRD)
- Appendix B – Master Deliverables List (MDL)
- Appendix C – Initial GRIP 2 Feasibility Study and Appendices
- Appendix D – NR Timetabling study
- Appendix E – NR information – via ProjectWise
- Appendix F – WLO Environmental Evaluation Report (EER)
- Appendix G – Design Development, Design Assurance, Document Review Notices and Technical Approvals
- Appendix H – LO Information Management and Document Control Procedures
- Appendix I – London Rail H&S Contract Requirements
- Appendix J – LO Design Specification
- Appendix K – Managing Changes to Fire Precautions (LO-MS-102-02-00005)
- Appendix M – LO Engineering and Construction Management Plan (E&CMP)
- Appendix N – CAD Standards
- Appendix O – Standard Method Procedure (SMP)
- Appendix P – LO Employer's Information Requirements (EIR)
- Appendix Q – Demand Matrices for WLO (AM Peaks) – to be provided post tender
- Appendix R – Inclusive Design Form
- Appendix S – LO System Engineering Management Plan (SEMP)
- Appendix T - WI505 Programme Requirements
- Appendix U – Lionel Road Feasibility Study
- Appendix V – Key Locations Study

- Appendix W - TfL's standard estimate template

Attachment 2

Consultant's Proposal

Attachment 3
Consultant's Pricing Schedule

Attachment 4

Consultant's Baseline Programme

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