

4

Feasibility Programme



4.1 Feasibility Programme

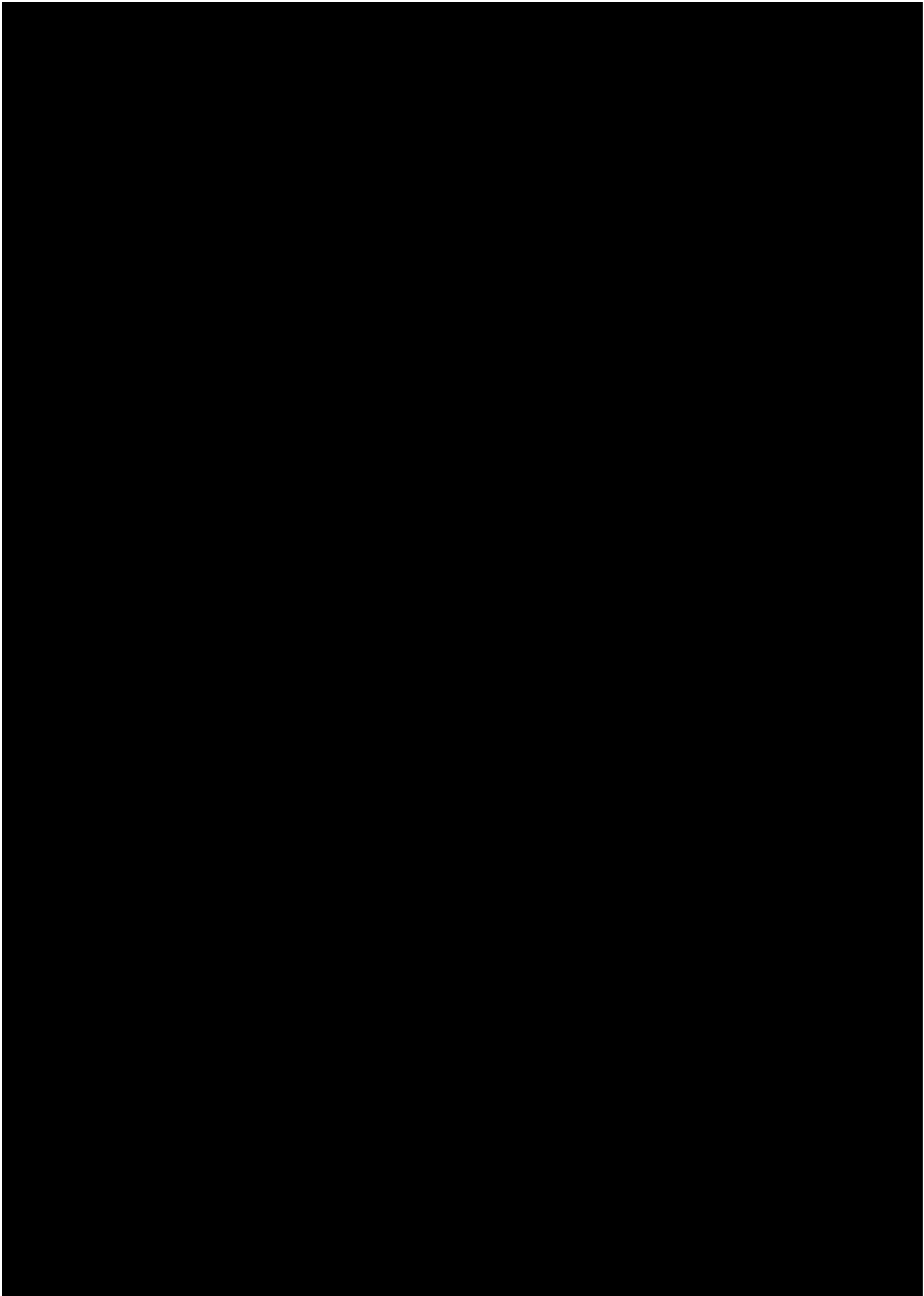
A realistic and achievable feasibility programme will be central to our delivery to meet your time critical funding application. In the development of our Day 1 programme we held collaborative planning workshops involving our integrated team of Arcadis, FM Conway and Henderson Thomas Associates (HTA), developing a coordinated programme which optimises investigation efficiencies, minimises traffic management (TM) and maximises resource utilisation. This approach enables us to have a clear understanding of the resource requirements, critical paths and potential blockers and implement mitigating actions to minimise programme risks early. Our feasibility programme was developed using the following principles:

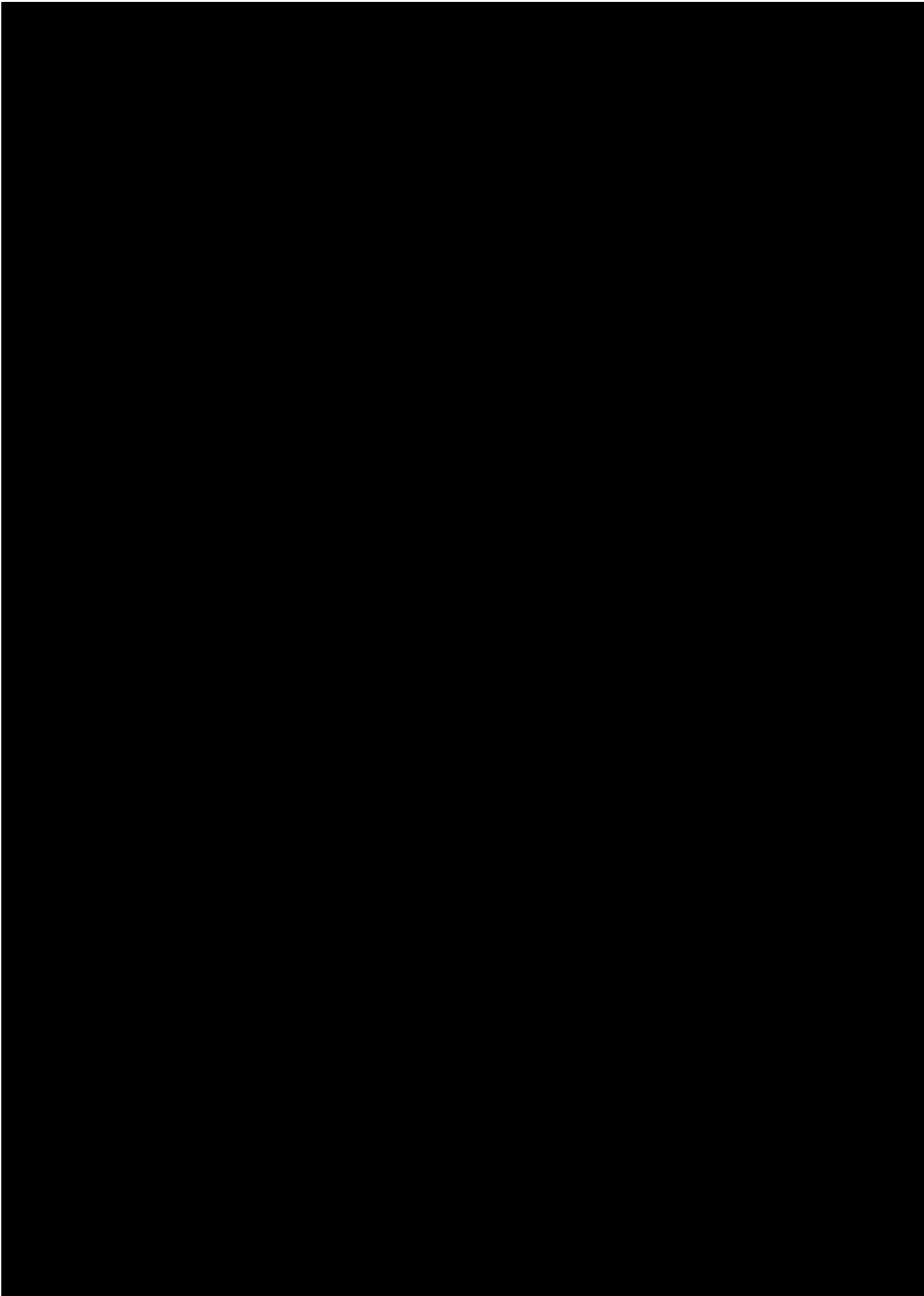
- Realistic investigation needs:** we bring unparalleled knowledge of the Brent Cross structures from the Arcadis team and FM Conway's 8-year London Highways Alliance (LoHAC) experience and HTA's experience inspecting the structures dating back to the 90s. Using our in-depth knowledge of the structures' history, condition and constraints, we developed a realistic view of investigation needs to inform the feasibility study.
- Maximise off network access:** with FM Conway's detailed understanding of the local network and stakeholders, we planned investigations based on access restrictions and TM which are likely to be accepted by TfL and Highways England. We maximised off network access and developed a detailed access plan with 64% of our shifts to be completed off network, minimising potential programme delays due to road space availability.
- Achievable assessment and optioneering programme:** with a good knowledge of the Brent Cross structures condition and the level of information contained in BridgeStation, we developed our programme based on a realistic view of assessment needs. The optioneering will adopt a staged approach with early identification and discounting of non-starter ideas that allows focus on the realistic options, all through close collaboration with TfL.

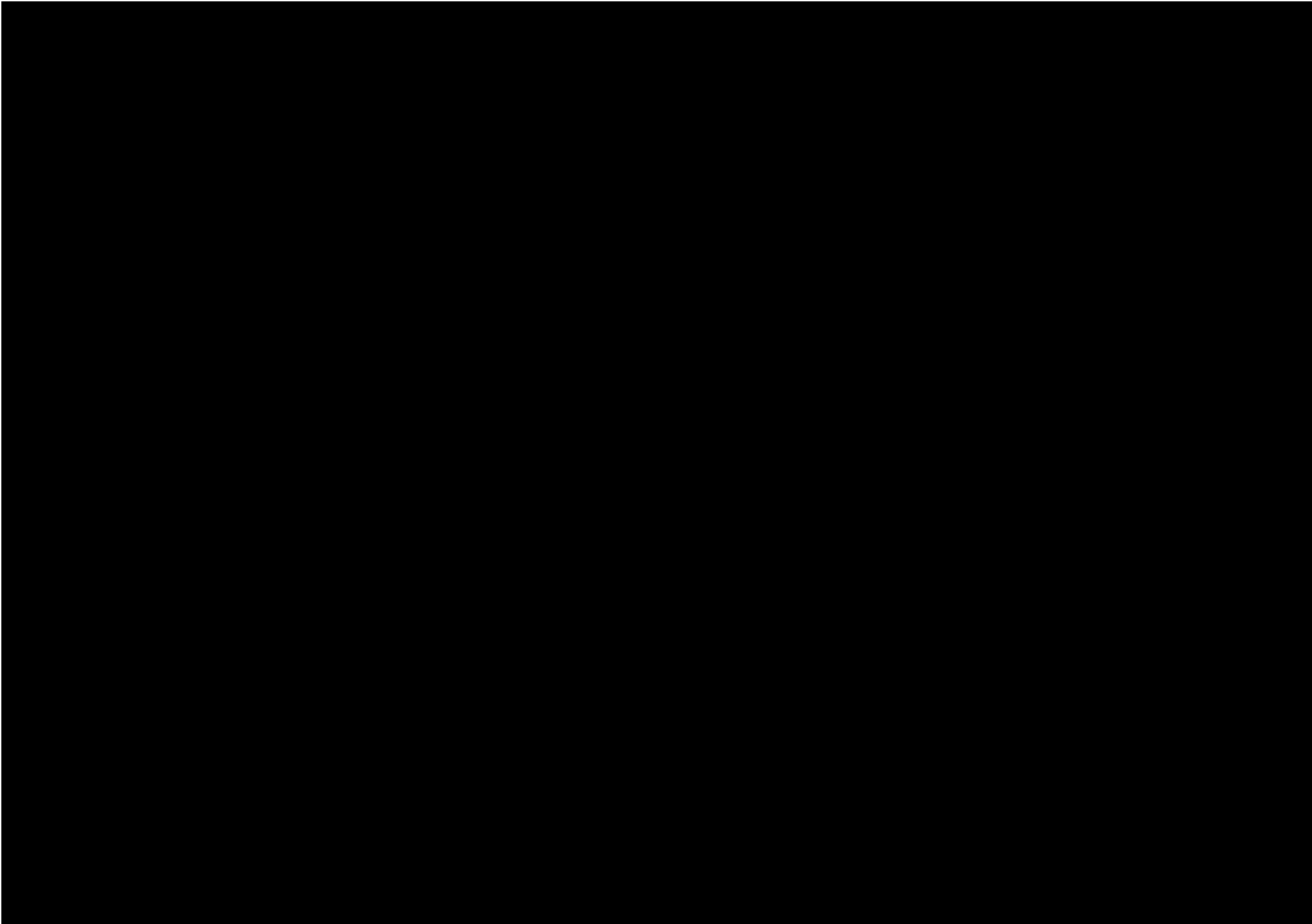
- Resource loaded programme:** we resource loaded the programme and ring fenced our core delivery team, identifying workload peaks and providing resource resilience.
- Our Project Manager, [REDACTED] will work closely with your Project Manager and Project Sponsor to validate our programme and assumptions. [REDACTED] will own the programme and will be supported by the Project Management Office (PMO) and our Lead Programmer, [REDACTED] to refine our tender stage programme, ensuring it is deliverable with realistic and achievable timescales and milestones. Francis will lead a series of collaborative planning workshops with TfL, key stakeholders and our integrated delivery team to finalise our delivery programme, including:
- Capture network intelligence and lessons learned from previous projects.
 - Highlight programme related risks and opportunities.
 - Define all permits, consents, approvals and third-party input required to facilitate works.
 - Challenge constraints to maximise productivity and optimise the utilisation of road space.
 - Understand interdependencies and sequencing to coordinate effectively and safely.
 - Map all major milestones through to project completion.
 - Engender collective accountability and ownership from all involved in project delivery.

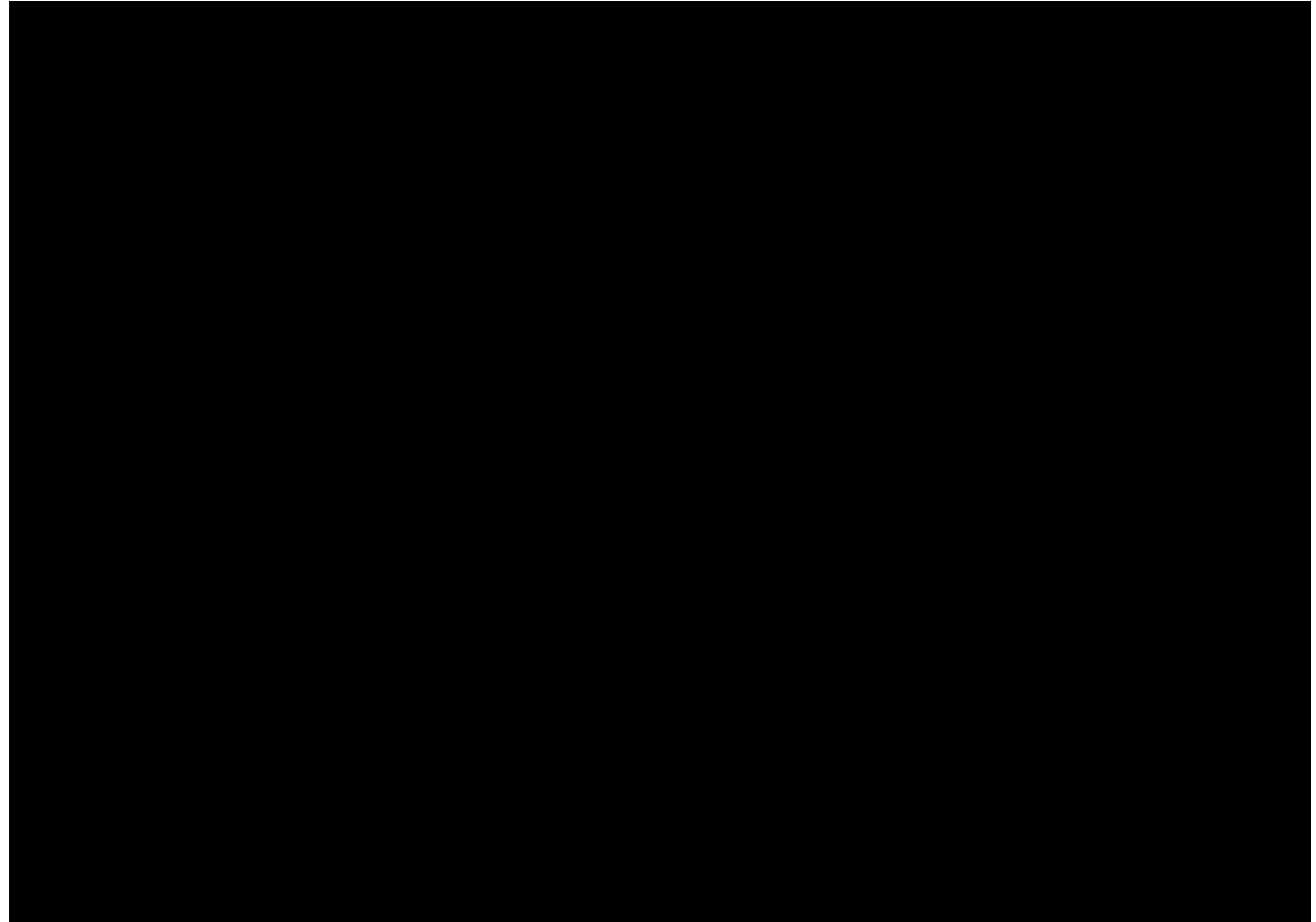
The feasibility programme has been developed in Primavera 6 and aligned to WI 500 Appendix 05 - Narrative and standard WBS. Throughout project delivery, we will manage the critical path, float, time risk allowances and Earned Value. Currently with over 500 activity lines, our programme provides added value as it is significantly developed, providing assurance that any modifications at the early stages of delivery will be minimal based on stakeholder engagement. Additionally, we have ran the submission through FUSE (a schedule integrity software) which is giving Brent Cross a total score of 87%. It also states that the programme has a 91% probability of success. This demonstrates a high performing programme at tender stage and is considered day one ready. See below for programme analyser.

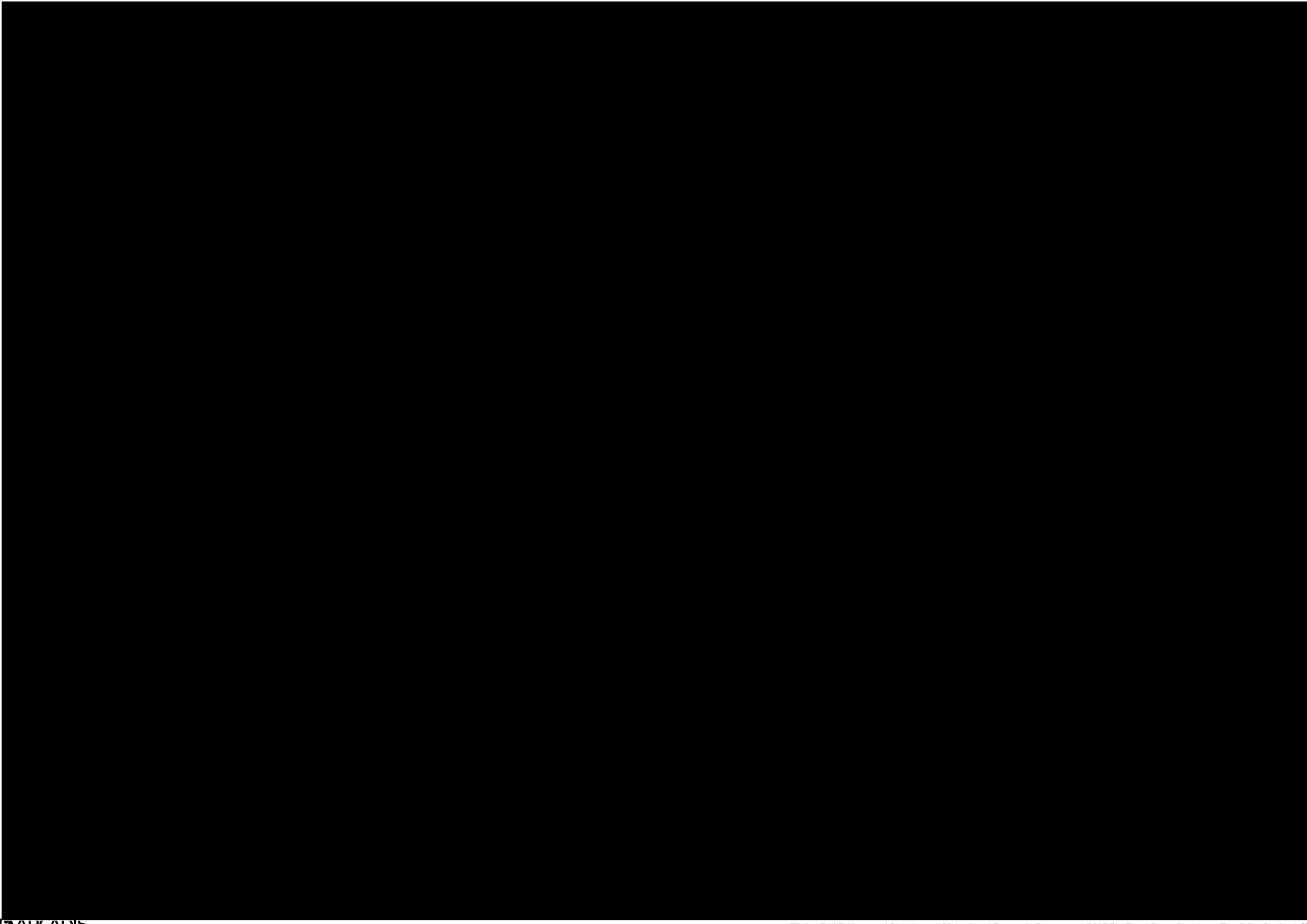
Ribbon Analyzer									
Missing Logic	Logic Density™	Critical	Hard Constraints	Negative Float	Insufficient Detail™	Number of Lags	Number of Leads	Merge Hotspot	Score
2 (0%)	3.03	23 (4%)	0 (0%)	0 (0%)	1 (0%)	32 (6%)	0 (0%)	40 (7%)	87%











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Risk



5.1 Risk

Arcadis has over 30 risk practitioners in the UK with our processes aligned to guidance set out by the Association for Project Management, Institute of Risk Management, Axelos M_o_R and ISO31000.

Our approach to risk mitigation and management

Arcadis will draw upon our mature and structured risk management process to contextualise, identify and assess risk in order to plan and implement robust mitigation strategies. Our Project Manager, [redacted] will work with you during the mobilisation and report development workshops to identify the risks and opportunities and agree mitigation measures. [redacted] will collaboratively work with our Project Management Office (PMO) to ensure that all risks are captured and discussed in the monthly progress report, using our award-winning risk app and that they are communicated during the fortnightly project meetings and escalated with risk workshops when required. Our app will capture risks ‘in real time’ and will be updated as the project progresses and TfL will have easy access to review live risk information and mitigation.

We appreciate that the programme for delivering the structures feasibility study is a vital part for the submission of the outline business case. During tender stage we have undertaken a risk review workshop, using our historical knowledge of the structures to identify risks to the project and develop a project-specific risk register as detailed in Table 5.1.1 We assessed risk impact and probability, and identified the top five key risks detailed below. These will be reviewed with TfL during mobilisation to refine the risk register, agree mitigation actions and owners, manage risks effectively and minimise impacts.

1. Local events and third-party developments restrict traffic management provisions

5	4	20	Post Mitigation →	5	1	5
Impact	Probability	Risk				

Mitigation and management:

- Collaborative planning process to highlight all local events.
- Identify all scheduled local events.
- Our key considerations include scale, duration (some events are unpredictable or have a contingency date such as FA Cup replays).

- Communication with London Highway Alliance Contract (LoHAC) / Highway Maintenance and Projects Framework (HMF) contractors to capture local intelligence.
- Review historic traffic data linked to local events (e.g., Ramadan, Diwali and Hanukkah).
- Direct engagement with key stakeholders to understand event related constraints.
- Traffic demand will be overlaid on our GIS platform to inform potential Traffic Management (TM) modifications.
- Enhanced site security and travel ambassadors to guide pedestrians during major events.
- Contingency plan agreed with TfL and stakeholders to manage unscheduled events.

2. Scope increase based on actual structure condition or asbestos

5	4	20	Post Mitigation →	5	1	5
Impact	Probability	Risk				

Mitigation and management:

- Comprehensive Inspection and Testing Plan as part of the desktop study.
- Explore ‘minimal intervention’ design principles to return the structures to a State of Good Repair.
- Additional investigations that could be added to the scope without impacting the critical path.
- Detailed investigations, testing and analysis to understand the real behaviour of articulations and asset performance.
- Identify condition down to component level, prioritising the most critical elements of work.
- Convene technical panel to review investigation options and establish decision making criteria.
- Gap analysis to review completeness of existing data in BridgeStation.
- Pool of resources/experts can be mobilised by the project to meet Outline Business Case submission date.

3. Overrunning investigations works

5	4	20	Post Mitigation →	5	1	5
Impact	Probability	Risk				

Mitigation and management:

- Early collaborative planning to maximise productivity on site.

- Review historic data to highlight key factors contributing to overruns such as plant breakdowns, weather, productivity, site conditions and third-party incidents.
- Application of time risk allowance to mitigate risks linked to critical path activities.
- Managing expectations - setting a challenging yet achievable programme.
- Monitoring techniques to enable early identification of programme risk.
- Integration of subcontractors and third party works into planning process & programme.
- Realistic programme reflecting constraints, risks and data from comparable works.
- Back-up resources on standby at FM Conway's North Acton depot (within 4 miles of the site).
- Systematic quality assurance to minimise quality defects and avoid re-work.
- Live project dashboard to highlight variance between planned and completed activity.
- Disruption and buffer analysis to understand the impact of change on the programme.
- Regular communications with TfL and key stakeholders to action contingency plans.

4. Delay on access to site due to stakeholder's access restrictions/permits

5 Impact	4 Probability	20 Risk	Post Mitigation →	5	1	5
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Mitigation and management:

- Using existing relationships to obtain buy-in.
- Prioritise offline access and short duration TM (minor works permits).
- Minimise interfaces with the M1 to remove programme risk associated with Highways England's approvals and road space booking.
- Refine our tender stage traffic management proposals in collaboration with TfL's CaP.
- Engage with key stakeholders including London Buses, emergency services, Barnet and Brent Councils, Highways England, local businesses (Brent Cross Shopping Centre, Post Office, Ikea, and Tesco).
- Review our existing stakeholder directories for works previously completed on this section on the network, including Staples Flyover.

- Mobilise additional staff to recover the programme if required.

5. Stakeholder's objections to options presented in the Feasibility Study

5 Impact	4 Probability	20 Risk	Post Mitigation →	5	1	5
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Mitigation and management:

- Identify stakeholders who can affect delivery of project or are directly impacted by Brent Cross structures and recommend at what stage to involve them in sifting/selection of options.
- Identify concerns, issues, or requirements of key local stakeholders for the structures in the study area, to establish constraints.
- Use Value Management (VM) workshops to gain stakeholder contribution to options sifting to speed up selection process and minimise abortive work and possible objections.
- Enhance reputation as "good neighbour" in line with TfL policy by listening and seeking solutions that demonstrate consideration of stakeholder's constraints/requirements.
- Use our Engagement Tracker to advise TfL of stakeholder views and latest contact.
- Possibility of conducting several VM workshops at the same time, dealing with different groups of structures by geographical area/stakeholder participation to speed up options sifting process.

EVIDENCE:

Greenford Flyover Bearing Replacement Scheme, 2018

Due to the network's sensitivity at this location, the potential for stakeholder objections to access, road space and construction methodology posed a risk to the programme. Through early supply chain engagement and collaborative planning, FM Conway developed an innovative access solution via the pedestrian subway rather than the carriageway as originally intended. This approach reduced traffic management interventions from 140 potential lane closures to just 12, representing a 91% reduction in road space requirements, which ensured stakeholder buy-in prior to commencing work.

Table 5.1.1 - Risk Register

ID	Risk Description	Effect of Risk	Prob.	Impact	Risk	Proposed action to deal with Risk	Post.
01	Consultant's capability gaps to produce the Feasibility Study	Not meeting programme and/or quality requirements	1	5	5	Team with FMC and HTA during tender stage and assign clearly defined roles and responsibilities according to each supplier's expertise.	1
02	Incomplete gap analysis	Additional unplanned investigations are needed	3	5	15	All the information available on Bridgestation relating to these structures will be documented. Use local knowledge of FMC and HTA from LoHAC and Brent Cross to review information to fill in the gaps.	1
03	Not all stakeholders are identified	Late access to site	3	5	15	Dedicated Stakeholder Lead with local experience to undertake stakeholder mapping. Use FMC experience on Brent Cross. ECI to identify stakeholders	1
04	Multiple iterations for reports and AiPs to get approved	Programme delay	3	5	15	Engage with TfL early to confirm our assumptions/methodology and ensure "no surprise" approvals. Allow for approval time in the programme	1
05	Structural assessments delayed informing the Options Report	Programme delay	3	5	15	Assign dedicated teams working in parallel. Set up structural models early and amend according to investigations reports and approved AiP. Resource resilience to mitigate any programme delays	1
06	Investigations do not provide a comprehensive and thorough assessment of the condition of the structures	Proposed options rejected by TfL	3	5	15	Appoint experienced investigation specialist, HTA with local knowledge of Brent Cross to confirm investigation requirement and plan investigation. Regular dialogue between Investigation Lead and Engineering Leads to review investigation outputs. Independent challenge team for all deliverables.	1
07	Late road space access, permits and consents	Delays to starting work on site	3	5	15	Robust process built on a detailed understanding of the network, local procedures and stakeholder relationships. Assign dedicated in-house permit team who manage 100,000 LoPS permits each year combined with a dedicated single point of contact with TfL.	1
08	Scope creep following gap analysis and structural reviews	Additional structural assessments needed delaying the OBC submission date	3	5	15	Robust process for desktop study and gap analysis. Comprehensive investigations scope.	1
09	Unknown buried utilities	Utilities strike during investigations and testing	2	5	10	Include utilities surveys in the scope. Carry out utilities surveys prior to commencing investigations and testing. Apply Non-destructive Testing technique where possible	1
ID	Opportunity Description	Effect of Opportunity	Prob.	Impact	Opp	Proposed action to deal with Opportunity	Post.
01	Better inform future phase of maintenance/improvement works	Reduce scope of future surveys and testing. Minimise future disruption on the network.	2	5	10	Undertake structure monitoring. Embed sensors into structures to monitor health in 'real time' and aid future maintenance.	20
02	Raise stakeholder awareness of the project for future phases	Easy stakeholder buy-in for future works	2	5	10	Develop Communications Plan designed for external stakeholders who are directly affected by the works. Hold public consultations with key stakeholders.	20
03	Phase Traffic Management	Minimise disruption	2	5	10	Review opportunities to combine investigations on multi-level structures, maximise utilisation of each phased TM. 64% of shifts to be completed off network with no road space requirements, and no impact on traffic or local stakeholders	20