**Appendix 'B'**

**Risk management summary**

"A risk log has been established (see Appendix B 'Risk Assessment Log', is being maintained and which has informed the current scheme estimate. Each risk has been evaluated, is being monitored and mitigation measures are being put in place as appropriate.

 The risk monitoring and mitigating will remain with the project for its whole duration. The following are a number of key risks."

There would be project risk if the business cases for funds (as highlighted) are not successful. If this is the case, the project will not proceed as planned until other funding sources are secured.

Risk of clawback of the LEP contribution as a result of delay in housing delivery. If this risk is not managed by others, there is a risk that the county council as scheme promoter will be required to return the LEP contribution and make an additional financial contribution accordingly.

The land to deliver the road is to be provided by Kensington Developments Limited who is also financial contributor to deliver the scheme. This is a low risk as the delivery of the road is a requirement for Kensington Developments Limited with regard to their Queensway residential site.

Other risk elements relate to Environment Agency consents. Consent applications have been submitted by the developer's appointed consultants following direct discussions between representatives of Kensington Developments Limited and the Environment Agency.

Agreement and commencement of diversions and protection works to all utilities within or above the existing highway or on the route of the new link road could influence the start of the project incurring delays with consequences on project costs. The statutory process on utility requirements has been commenced by both the county council and Kensington Developments Limited.

Agreement with Highways England on the signing requirements on the motorway gantries. There is a risk that motorway gantries require replacing to accommodate the new signing requirements. Options are being explored with Highways England to mitigate this risk.

 **From a construction perspective:**

Poor ground conditions (as the road is built on moss) requires ground surcharge and ground excavation. This could impact on the project programme or additional materials/plant being required. This risk has been quantified in the cost estimate, the value of which will be kept under review.

The influence of adverse weather could impact on the construction duration, extending ground water pumping or additional diversions of existing water courses required. Both have secondary consequences on cost whether additional materials are required for road construction or temporary purposes or requirements for additional plant and equipment. This risk has been quantified in the cost estimate, the value of which will be kept under review.

There are land related 'pinch points' where Kensington Developments Limited do not control land much beyond that required for the link road which affects the space required for the construction process. This could result in addition materials and plant being required to ensure that the neighbouring land is not impacted on. Consideration has been given to the construction process as part of the scheme design and this risk has been quantified in the cost estimate, the value of which will be kept under review. Discussions are progressing with affected utility companies in these areas to further mitigate this risk.

**Appendix 'B' Risk Assessment Log**

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|   |   | **M55 Heyhouses Link Road, Draft Risk Assessment Guideline (RAG) (25 July 2017)**  |  |
|   |   |  |   |   |   |   |   |  | **KEY:** |   |   |
| **Likelihood** | **Risk Score** |  |  |  |  |   |   |   | **High Threat** |   |
| **Very High** | **5** | **5** | **10** | **15** | **20** | **25** |   |   |   | **Medium Threat** |   |
| **High** | **4** | **4** | **8** | **12** | **16** | **20** |   |   |   | **Low Threat** |  |
| **Medium** | **3** | **3** | **6** | **9** | **12** | **15** |   |   |   |   |   |
| **Low** | **2** | **2** | **4** | **6** | **8** | **10** |   |   |   |   |   |
| **Very Low** | **1** | **1** | **2** | **3** | **4** | **5** |   |   |   |   |   |
|   |   | **1** | **2** | **3** | **4** | **5** |   |   |   |   |   |
|   |   | **Very Low** | **Low** | **Medium** | **High** | **Very High** |   |   |   |   |   |
|   |   | **Impact** |   |   |   |   |   |
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| **Risk Totals (from table below)** |
| Risk Low |   | £1,977,500 |
| Risk medium |   | £1,170,000 |
| Risk High |   | £815,000 |
| **Total Risk** |  | **£3,962,500** |

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| **Risk** | **Initial Risk Impact** | **Mitigation** | **Mitigated Risk** |
| **Risk ID** | **Date** | **Description** | **Prob./ Impact** | **Cost Impact** | **Programme Impact** | **Owner Action** | **Action/****Mitigation/****Progress** | **Prob.** | **Cost** | **Time** |
| 1 |  | Delays in agreeing solution with HE on gantries and its cost | **10** |  | Delays start |  | Update programme. The cost estimate retains existing gantrys and includes an additional 44% |  |  |  |
| 2 |  | Delays in receiving the consents for structures  | **2** |  | Delays start |  | Update programme  |  |  |  |
| 3 |  | Delays in receiving consents from EA | **2** |  | Delays start  |  | Update programme and limit project delays |  |  |  |
| 4 |  | Delays in varying planning conditions as a result of reaching agreement with EA current working restrictions | **9** |  | Delays start, changes project duration, influences construction approach |  | Update programme and limit project delays |  |  |  |
| 5 |  | Delays in availability of specialist items (pre-cast structures) | **6** | £ 50,000 | None if ordered in advance, potential delays during construction |  | Use another supplier (premium attached) |  |  |  |
| 6 |  | Delays in awarding tender result in estimated unit costs being out of date  | **6** | £ 250,000 | Delays start |  | Update programme and limit project delays |  |  |  |
| 7 |  | not used |  |  |   |  |   |   |   |   |

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| 8 |  | Electric costs (diversions/protection) exceed paid informal Kensington discussions (C3 Budget Cost C4 Detail Cost) | **20** | £ 65,000 | Possible start/during construction delays |  | Further mitigation required, possible update of programme |   |   |   |
| 9 |  | BT costs exceed the paid (informal) Kensington discussions (C3 Budget Cost C4 Detail Cost) | **25** | £ 200,000 | Possible start/during construction delays |   | Further mitigation required, possible update of programme |   |   |   |
| 10 |  | Agreements with utilities delays programme | **10** |  | Delays could impact on start |   | Update programme and limit project delays |   |   |   |
| 11 |  | Delivery of utility diversions/protection results in programme delays  | **10** | £ 60,000 | Possible start/during construction delays |   | Update programme and limit project delays |   |   |   |
| 12 |  | Delivery of new road section within the constrained existing highway boundary (width, utilities, poor ground conditions, excavating below water table), results in additional time/materials/plant/change in construction approach | **25** | £ 100,000 | Delays could impact on programme |   | Increased cost of delivering new section of road, update programme |   |   |   |
| 13 |   | Working constraints on Whitehills roundabout  | **12** |  | Influences management on the local network and possible delays to deliveries during peaks |   |   |   |   |   |

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| 14 |   | Moss sluice and branch drain, significant working constraints (width, utilities, poor ground conditions, excavation below water table) | **16** | £ 60,000 | Some construction delays due to abortive works |   | 20% increase in cost to mitigate (exclude structure costs) |   |   |   |
| 15 | 13th July  | Influence of drainage on ground water protection zones  | **3** | £ 40,000 | None |   | Additional materials required and the use of a lining |   |   |   |
| 16 |   | Ground settlement takes longer than anticipated | **3** |  | Delays programme and road construction  |   | Programme to be adjusted  |   |   |   |
| 17 |   | Surcharge requires additional materials  | **9** | £ 200,000 | Delays as a result of the need for additional materials |   | 5% increase in materials and compaction |   |   |   |
| 18 |   | Agreements required with adjacent land owners to satisfy access requirements, over sailing | **12** | £ 500,000 | if known in advance, no programme delay |   | Alternative construction method required |   |   |   |
| 19 |   | Poor weather conditions results in project delays | **12** |  | Influences construction assume 3 month overall project delay |   | Assumed 3 month delay |   |   |   |
| 20 |   | Poor weather conditions results in greater materials on haul road | **20** | £ 40,000 | Limited programme delay until haul road is usable |   | 20% increase in materials |   |   |   |
| 21 |   | Poor weather conditions requires additional water pumping or increases duration of water pumping or modifications to watercourse diversions | **15** | £ 100,000 | Poor weather could slow down construction and incur programme delays |   | Use of additional pumping equipment or for extended period of time |   |   |   |

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| 22 |   | Poor ground conditions requires additional temporary haul roads to deliver structures, additional equipment, plant or materials, as well as hire additional plant | **16** | £ 250,000 | Poor weather could slow down construction and incur programme delays |   | Construct additional, haul road, use additional materials and plant  |   |   |   |
| 23 |   | Imported materials cannot be provided by nearest quarry | **9** | £ 180,000 | No programme impact if known in advance |   | 5% premium of imported materials |   |   |   |
| 24 |   | Imported material cannot be provided at rate required resulting in delay | **9** | £ 60,000 | Construction delays |   | Assumed a 3month project delay |   |   |   |
| 25 |   | Excavated earth (with additives) is not suitable for reuse | **6** | £ 1,000,000 | Some programme delay as additional handling is required and requires Kensington support |   | Addition 25% of materials need to be imported and compacted. Unsuitable earth to be removed and usable on the Kensington site |   |   |   |
| 26 |   | Safety audits require additional work | **4** |  £ 100,000  | Post construction |   | Additional road markings, signing and other minor changes |   |   |   |
| 27 |   | Low performance of (sub-contractors) | **4** |  £ 100,000  | Some programme delay |   | Responsibility of main contractor, additional contractors or replace. |   |   |   |
| 28 |   | Further accommodation works required | **4** |  £ 250,000  | Could delay start of construction |   | Fencing, car parking, drainage, temporary ponds  |   |   |   |
| 29 |   | Further design required during contract | **4** |  £ 25,000  | None, if known in advance |   | have design consultants available when required |   |   |   |

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| 30 |   | Part 1 claims exceeding budget | **2** |  £ 162,500  | Post construction |   | ensure full consideration is given to dwellings impacted on |   |   |   |
| 31 | 13th July  | Delay in EA approval | **5** |   | Could delay in securing funds and subsequently project start |   |   |   |   |   |
| 32 | 18th July | Local highway changes as a result of road reclassification  | **8** |  £ 170,000  | None, for link road construction |   | Deliver necessary changes to corridor, prior to road reclassification |   |   |   |
| 33 | 25th July |  Business cases for funds are not successful. Risk of clawback of the LEP contribution as a result of delay in housing delivery.  | **10** |  not apportioned at this stage  |   |   | The project does not proceed as planned until other funding sources are secured |   |   |   |

**To be reviewed and updated as part of the Risk Assessment Workshop**